

# Switches

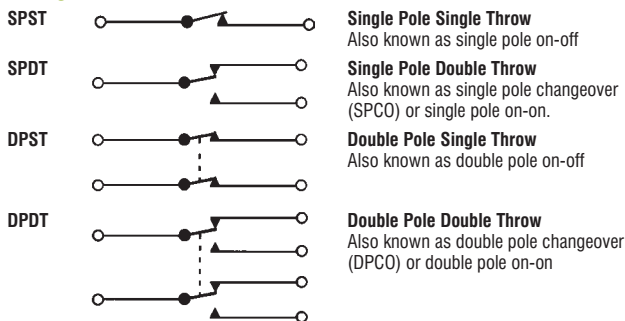
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## Switch Selection

### Ratings

All voltage, current and power ratings quoted are for switching resistive loads unless otherwise stated or bracketed.  
ie. 16(4)A @ 250V ac = 16A resistive, 4A inductive at 250V ac.

### Configurations



3P, 4P  
NO, NC

Multi-pole switches, 3 pole, 4 pole etc.  
'Normally Open' contacts are operated to 'make' (turn on).  
'Normally Closed' contacts are operated to 'break' (turn off).

### Characteristics

- Momentary Action** The state of the switch will change only whilst the operating force is applied. When released the switch will return to its original state.
- Latching Action** The state of the switch changes when an operating force is applied. It will change back to its original state when an additional force is applied. Also known as maintained action.

### Examples of Alternative Descriptions

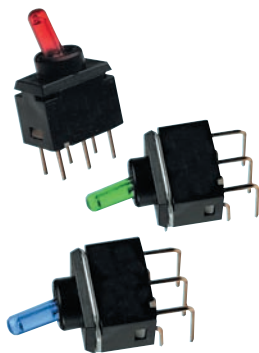
SPDT	Single pole on-on	(2 position)
SPDT - centre off	Single pole on-off-on	(3 position)
SPDT - biased	Single pole on-mom	(2 position)
SPDT - centre off, two ways bias	Single pole mom-off-mom	(3 position)
SPDT - centre off, one way bias	Single pole on-off-mom	(3 position)

213136

## Illuminated Toggle Switches

### Ultraminiature Illuminated Toggle Switches

Process sealed - 0.4VA, 28V(AC/DC) max



- Visible status indication - toggle illuminated by bright LED
- Red and green toggle single colour switches
- Red/green bi-colour versions
- Straight and right angle PCB terminals
- Wide angle of throw at 28°

**Switch Specifications**  
Electrical capacity 0.4VA max. 28V(AC/DC) max  
Electrical life 100000 Cycles  
Contact resistance 80mohm  
Insulation resistance  
Dielectric strength 500 V rms @ sea level  
Operating temperature -25°C to 55°C

Body H=7, W=7, D=4.5, Lever L=3.8  
Pin spacing=2.54, bush dia=4

### LED Specifications

LED type	Single Colour		Bicolour	
	Red	Green	Red	Green
Peak forward current (mA)	25	25	25	25
Forward current (mA)	20	20	20	20
Forward voltage (V)	2.0	2.1	2.0	2.1
Reverse peak voltage (V)	4	4	4	4

Mfrs. List No.	G12JPC=118-7628	G12JHC=118-7750
	G12JPF=118-7748	G12JHF=118-7751
	G12JPCF=118-7749	G13JHCF=118-7755
	G13JPCF=118-7754	

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Straight Terminals	Order Code	Price Each				
		1+	25+	100+	250+	500+
On-On red	118-7628					
On-On green	118-7748					
On-On red/green	118-7749					
On-Off-On red/green	118-7754					

Right Angle Terminals		Price Each				
Order Code	1+	25+	100+	250+	500+	
On-On red	118-7750					
On-On green	118-7751					
On-Off-On red/green	118-7755					

### Illuminated Toggle Switches



- Visible status indicator - toggle illuminated by LED
- Two toggle lengths - 11mm and 17.5mm
- Available in bright red and green and super bright blue and green
- Sealing to IP65 with panel seal
- DPDT on-on configuration

Body H=25.6, W=18, D=18  
Cut-out dia=12.5, Panel thickness=4 max.

### Switch Specifications

Electrical capacity	3A@250V ac	17.5 mm toggle	11.0 mm toggle
Electrical life	50000 Cycles		0.1A@250V ac
Contact resistance	10mohm		50000 Cycles
Insulation resistance			20mohm
Operating temperature	-10°C to 55°C		-10°C to 55°C

### LED Specifications

LED type	Super Bright LED		Bright LED	
	Green	Blue	Red	Green
LED colour				
Peak forward current (mA)	30	30	30	50
Forward current (mA)	20	20	20	20
Forward voltage (V)	3.3	3.4	2.0	2.27
Reverse peak voltage (V)	5	5	4	4

Mfrs. List No.		Mfrs. List No.	
TL22DCAW015C =	118-7756	= TL22SCAG015C	118-7761
TL22DNAW016F =	118-7759		
TL22DNAW016G =	118-7760	TL22SNAG016G =	118-7765
		AT401P =	118-7766

# Illuminated Toggle Switches - continued

## Illuminated Toggle Switches - continued

Order Code	Price Each				
	1+	25+	100+	250+	500+
<b>17.5mm Toggle</b>					
Red	118-7756				
Red	118-7756				
Hi-Blue	118-7760				
<b>11.0mm Toggle</b>					
Red	118-7761				
Hi-Blue	118-7765				
<b>Panel seal</b>					
AT401PAT401P	118-7766				

## LED-tipped Toggle Switches

6A@125V ac, 3A@250V ac, 3A@30V dc



- Industry's first LED-tipped toggle switch
- Single or bicolour LEDs to meet varied design requirements
- Stainless steel frame
- Solder lug terminals moulded in and epoxy sealed

### LED Specifications

LED type	Single Colour	Bicolour
LED colour	Red Green	Red/Green
Peak forward current (mA)	25 30	25
Forward current (mA)	20 20	20
Forward voltage (V)	2.1 2.1	2.1
Reverse peak voltage (V)	4 4	

Gehäuse H=20.3, B=12.7(SP), 17.5(DP), T=13  
Hebel L=14.7, Plattenausbruch=6.5, Dicke=2.6 max.

### Switch Specifications

Electrical capacity	6A@125V ac, 3A@250V ac, 3A@30V dc
Electrical life	25000 Cycles
Contact resistance	10mohm
Insulation resistance	
Dielectric strength	1000 V rms between contacts
Operating temperature	-10°C to 55°C

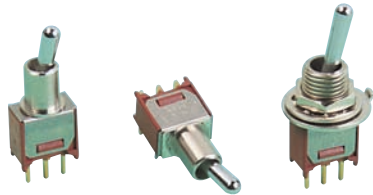
Mfrs. List No.	M2112TCFW01 = 118-7769	M2122TCFW01 = 118-7772
M2112TCW01 = 118-7767	M2122TCW01 = 118-7770	M2113TCFW01 = 118-7775
M2112TFW01 = 118-7768	M2122TFW01 = 118-7771	M2123TCFW01 = 118-7779

Switch Function	Colour	Order Code	Price Each				
			1+	25+	100+	250+	500+
On-On	Red	118-7767					
On-On	Green	118-7768					
On-On	Red / Green	118-7769					
On-On	Red	118-7770					
On-On	Green	118-7771					
On-On	Red / Green	118-7772					
On-Off-On	Red / Green	118-7775					
On-Off-On	Red / Green	118-7779					

## Toggle Switches

### PCB Mounting

0.4VA @ 20V ac/dc



Vertical Body H=8.64 W=5 (SPDT), 9.1 (DPDT) D=8.13  
Horizontal Body H=5 (SPDT), 9.1 (DPDT) W=8.1, D=9.1 (SPDT), 11.6 (DPDT)  
Vertical Threaded Bush Body H=8.64 W=5 (SPDT), 9.1 (DPDT) D=8.13

- Gold plated contacts allow low level switching
- Epoxy sealed terminations
- Threaded bush types for panel mounting

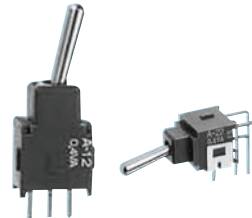
Electrical life	60000 2 position, 30000 3 position
Operating temperature	-30°C to +85°C
Contact resistance	20mohm @ 4V dc

213278

Configuration	Mfrs. List No.	Order Code	Price Each			
			1+	25+	100+	250+
<b>Vertical Mounting</b>						
On-On	T101MH9CBE	957-5634				
On-Off-On	T103MH9CBE	957-5642				
On-(On)	T108MH9CBE	957-5650				
On-On	T201MH9CBE	957-5669				
<b>Horizontal Mounting</b>						
On-On	T101MH9ABE	957-5685				
On-Off-On	T103MH9ABE	957-5693				
On-On	T201MH9ABE	957-5707				
<b>Vertical Mounting - Threaded Bush</b>						
On-On	T101STDCBE	957-5715				
On-Off-On	T103STDCBE	957-5723				
On-(On)	T108STDCBE	957-5731				
(On)-Off-(On)	T105STDCBE	143-7733				
On-On	T201STDCBE	957-5740				

## Subminiature - Process Sealed

0.4VA @ 28V ac/dc



- Subminiature size saves space on PCB's
- PCB Mounting terminals
- 2.54 x 2.54mm terminal spacing
- Specifically developed for logic-level applications
- Totally sealed body construction
- Award winning Sliding Twin Contact mechanism
- 10mm long nickel plated brass toggle

Contact Resistance	50mohm (Max.) @ 500VDC	Contact Timing	Nonshorting (break before make)
Insulation Resistance	500VAC	Angle of Throw	26°
Dielectric Strength	50000 ops	Operating temperature	-30 to 85°C
Electrical Life			

473566

Switch Function	Order Code	Price Each				
		1+	25+	50+	100+	500+
<b>Vertical Mounting - Straight Terminals</b>						
SPDT On-On	135-7620					
SPDT On-Off-On	135-7623					
DPDT On-On	135-7626					
<b>Horizontal Mounting - Right angle Terminals - Horizontal Actuation</b>						
SPDT On-On	135-7632					
<b>Horizontal Mounting - Right angled Terminals - Vertical Actuation</b>						
SPDT On-On	135-7646					
SPDT (On)-On	135-7647					

## Antistatic Toggle Switches

### Process Sealed - 0.4VA @ 28V(AC/DC) maximum



- Subminiature size
- Specifically designed for logic level switching
- Antistatic superstructure - Static from operator travels from actuator to the PCB
- Totally sealed construction to prevent contamination
- STC contact mechanism for positive detent action and reliability
- 2.54mm x 2.54mm terminal spacing

### Switch Specifications

Electrical capacity (Resistive load)	0.4VA @ 28V ac/dc (Max.)
Electrical life	50000 Cycles
Contact resistance	50mohm
Insulation resistance	
Dielectric strength	500V ac for 1 minute minimum
Operating temperature	-30°C to 85°C

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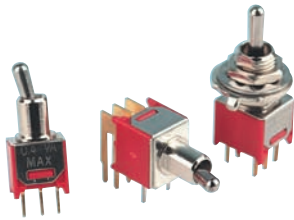
Switch Type	Mfrs. List No.	Order Code	Price Each				
			1+	25+	50+	100+	500+
<b>Straight PCB Terminals - Bracket</b>							
SPDT - On-On	B12AB	152-4182					
SPDT - On-Off-On	B13AB	152-4183					
SPDT - (On)-Off-(On)	B18AB	152-4186					
DPDT - On-On	B22AB	152-4188					
<b>Right Angle PCB Terminals</b>							
SPDT - On-On	B12AH	152-4193					
SPDT - On-(On)	B15AH	152-4195					
<b>Vertical PCB Terminals</b>							
SPDT - On-On	B12AV	152-4205					

## Subminiature, PCB Mounting

0.4VA @ 20V ac/dc



Vertical  
Body H=8.3  
W=5.08 (SPDT),  
9.14 (DPDT),  
D=8.13



Vertical Threaded  
Bush  
Body H=8.64  
W=5.08 (SPDT),  
9.14 (DPDT),  
D=8.13

Horizontal  
Body H=5.8 (SPDT), 9.14 (DPDT)  
W=8.13, D=9.09

- Gold plated contacts allow low level switching
- Epoxy sealed terminations
- Threaded bush types for panel mounting
- UL Recognised

Electrical life 30000 2 position, 30000 3 position  
Operating temperature -30°C to +85°C  
Contact resistance 20mohm @ 4V dc

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Switch Function	Mfrs. List No.	Order Code	1+	25+	100+	250+
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Vertical Mounting						
On-On	2MS1T2B2M2RE	947-2967				
On-Off-On	2MS3T2B2M2RE	947-2975				
On-(On)	2MS2T2B2M2RE	947-2983				
On-On	2MD1T2B2M2RE	947-2991				
On-Off-On	2MD3T2B2M2RE	947-3009				

Horizontal Mounting - R/A						
On-On	2MS1T2B2M6RE	947-3017				
On-Off-On	2MS3T2B2M6RE	947-3025				
On-On	2MD1T2B2M6RE	947-3033				

Vertical Mounting - Threaded Bush						
On-On	2MS1T1B5M2RE	947-3041				
On-Off-On	2MS3T1B5M2RE	947-3050				
On-Off-On	2MD3T1B5M2RE	947-3076				
On-On	2MD1T1B5M2RE	947-3068				
On-On-On	2MD6T1B5M2RE	155-0108				

- Process sealed - withstands machine soldering and pressure wash processes
- Epoxy sealed terminations
- UL Recognised

Operating temperature -30°C to +85°C  
Contact resistance ≤20mohm  
Electrical life 50000 ops

311894

Switch Function	Mfrs. List No.	Order Code	1+	25+	100+	250+
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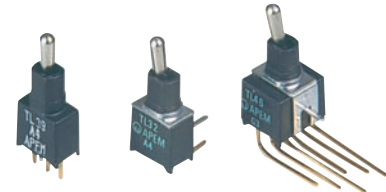
Vertical Mounting						
On-On	2AS1T2A1M2RE	947-3084				
On-Off-On	2AS3T2A1M2RE	947-3092				
(On)-Off-(On)	2AS4T2A1M2RE	947-3106				
On-Off-(On)	2AS5T2A1M2RE	947-3114				
On-(On)	2AS2T2A1M2RE	947-3122				
On-On	2AD1T2A2M2RE	155-0110				

Horizontal Mounting - Type 1						
On-On	2AS1T2A1M6RE	947-3130				
On-Off-On	2AD3T2A2M6RE	947-3157				

Horizontal Mounting - Type 2						
On-On	2AS1T2A1M7RE	947-3165				
On-Off-On	2AS3T2A1M7RE	947-3173				
(On)-Off-(On)	2AS4T2A1M7RE	155-0119				

## Washable PCB Mounting

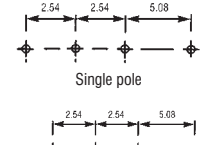
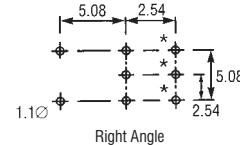
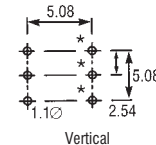
0.4VA @ 20V ac/dc



Vertical  
H=19.6, W=8.1 (SPDT)  
9.1 (DPDT), D=5 (SPDT)  
9.1 (DPDT)

Right Angle -  
horizontal toggle  
H=6 (SPDT), 9.1, (DPDT)  
W=8.1 (SPDT), 9.1, (DPDT),  
D=19.9

Right Angle -  
vertical toggle  
H=8.1, W=5, (SPDT),  
9.1 (DPDT), D=24.9

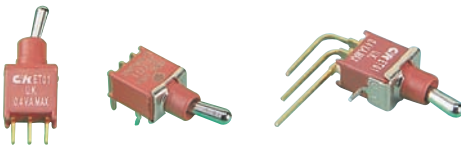


PCB drilling plans

\*This row needed only for double pole switches

## Washable PCB Mounting

0.4VA @ 20V ac/dc



Vertical Mounting      Type 1 Horizontal Mounting      Type 2 Horizontal Mounting

- Process sealed - withstands machine soldering and pressure wash processes
- Epoxy sealed terminations

Operating temperature -30°C to +85°C  
Contact resistance ≤10mohm  
Electrical life 40000 ops

213227

	Herst.-Nr.	Order Code	1+	25+	50+
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Vertical Mounting					
On-On	ET01MD1CBE	957-4530			
On-Off-On	ET03MD1CBE	957-4557			
(On)-Off-(On)	ET05MD1CBE	957-4565			
On-Off-(On)	ET07MD1CBE	957-4573			

Type 1 - Horizontal Mounting					
On-On	ET01MD1ABE	957-4590			
On-Off-On	ET03MD1ABE	957-4603			
On-(On)	ET08MD1ABE	957-4611			

Type 2 - Horizontal Mounting					
On-On	ET01MD1AVBE	957-4638			
On-Off-On	ET03MD1AVBE	957-4646			

- Case material UL recognised
- Gold plated contacts allow low current switching
- Fully sealed by 'O' ring within bush
- Suitable for wave soldering at 260°C for 5 seconds

Initial contact resistance <10mohm/0.4VA  
Insulation resistance 10mA, 50mV/10µA, 5V  
Dielectric strength 1000V rms @ 50Hz  
Electrical life 60000/2 position ops  
3 position 50000 Ops  
Operating force 2.16N  
Operating temperature -20°C to +85°C

Mfrs. List No	TL36P0050 = 108-2496	TL49P0050 = 108-2506	TL36WW050 = 108-2499	TL39P0050 = 108-2500	TL36W0050 = 108-2497	TL46WW050 = 108-2505	TL39W0050 = 108-2501	TL46W0050 = 108-2503	TL49WW050 = 108-2507
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	Order Code	1+	25+	100+	250+	500+
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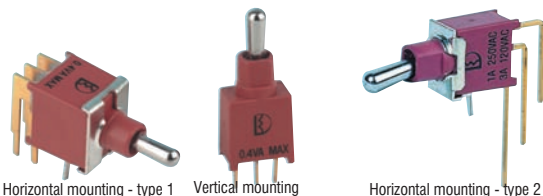
Vertical Mounting						
On-On	108-2496					
On-Off-On	108-2500					
On-Off-On	108-2501					
On-On	108-2502					
	108-2506					

Right Angle - Horizontal Toggle						
On-On	108-2497					
On-On	108-2503					

Right Angle - Vertical Toggle						
On-On	108-2499					
On-On	108-2505					
	108-2507					

## Subminiature, PCB Mounting - Washable

0.4VA @ 20V ac/dc



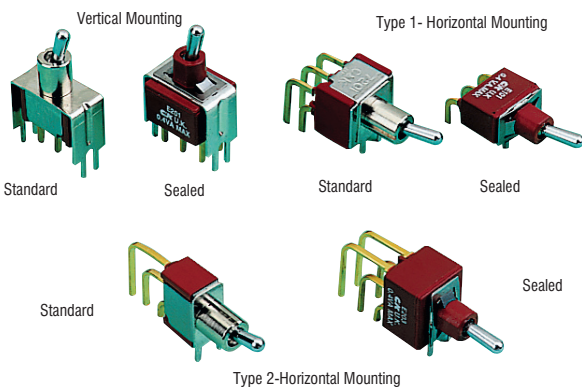
Horizontal mounting - type 1      Vertical mounting      Horizontal mounting - type 2

# Toggle Switches - continued

Order Code 1+ 50+ 100+ 250+ Price Each

## PCB Mounting - Standard and Sealed

0.4VA @ 20V ac/dc



- Gold plated contacts for low level switching
- Mounting bracket solders directly to PCB
- Plain bush for easy front panel removal
- Standard series have epoxy terminal seal, compatible with bottom-wash cleaning
- Sealed series are process sealed to withstand machine soldering and pressure wash cleaning

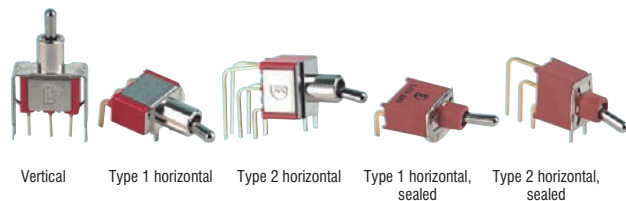
Mechanical life 40000 ops      Lever length 7.0mm  
 Contact resistance <10mohm @ 4V dc      Operating temperature -20°C to +65°C°C

213102

		Price Each			
		Order Code	1+	50+	100+
<b>Vertical Mounting - Standard</b>					
On-On	7101MD9V3BE	957-4743			
On-Off-On	7103MD9V3BE	957-4751			
On-On	7201MD9V3BE	957-4778			
<b>Type 1 - Horizontal Mounting - Standard</b>					
On-On	7101MD9ABE	957-4786			
(On)-Off-(On)	7105MD9ABE	957-5480			
On-On	7201MD9ABE	957-4808			
On-Off-On	7203MD9ABE	957-5499			
<b>Type 2 - Horizontal Mounting - Standard</b>					
On-On	7101MD9AV2BE	957-5502			
On-Off-On	7103MD9AV2BE	957-5510			
On-On	7201MD9AV2BE	957-5529			
<b>Vertical Mounting - Sealed - Short Bushing (6.35mm)</b>					
On-On	E101MD1V3BE	957-5375			
<b>Type 1 - Horizontal Mounting - Sealed - Short Bushing (6.35mm)</b>					
On-On	E101MD1ABE	957-5391			
<b>Type 2 - Horizontal Mounting - Sealed - Short Bushing (6.35mm)</b>					
On-On	E101MD1AV2BE	957-5537			

## Miniature, PCB Mounting - Standard and Sealed

0.4VA @ 20V ac/dc



- Gold plated contacts for low level switching
- Mounting bracket solders directly to PCB
- Plain bush for easy front panel removal
- Standard series have epoxy terminal seal, compatible with bottom-wash cleaning
- Sealed series are process sealed to withstand machine soldering and pressure wash cleaning
- UL Recognised

Mechanical life 30000 ops      Lever length 6.46  
 Contact resistance <10mohm @ 4V dc      Operating temperature -30°C to +85°C

311895

		Price Each				
		Order Code	1+	50+	100+	250+
<b>Vertical Mounting - Standard</b>						
SPDT On-On	1MS1T2B4V2RE	947-3181				
SPDT On-Off-On	1MS3T2B4V2RE	947-3190				
SPDT On-(On)	1MS2T2B4V2RE	947-3203				
SPDT On-Off-(On)	1MS5T2B4V2RE	947-3220				
DPDT On-On	1MD1T2B4V3RE	947-3238				
DPDT On-Off-(On)	1MD5T2B4V3RE	155-0129				

## Type 1 - Horizontal Mounting - Standard

SPDT On-On	1MS1T2B4M6RE	947-3246			
SPDT On-Off-On	1MS3T2B4M6RE	947-3254			
DPDT On-On	1MD1T2B4M6RE	947-3270			
DPDT On-Off-On	1MD3T2B4M6RE	947-3289			
DPDT (On)-Off-(On)	1MD4T2B4M6RE	155-0134			
DPDT On-Off-(On)	1MD5T2B4M6RE	155-0136			

## Type 2 - Horizontal Mounting - Standard

SPDT On-On	1MS1T2B4M7RE	947-3297			
DPDT On-On	1MD1T2B4M7RE	947-3319			
DPDT On-Off-(On)	1MD5T2B4M7RE	155-0144			
DPDT On-On-On	1MD6T2B4M7RE	155-0145			

## Vertical Mounting - Sealed

SPDT On-Off-On	1AS3T2B4M2RE	155-0149			
DPDT On-On	1AD1T2B4M2RE	155-0152			
DPDT On-On-On	1AD6T2B4M2RE	155-0156			

## Type 1 - Horizontal Mounting - Sealed

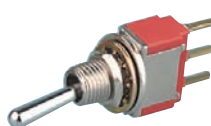
SPDT On-On	1AS1T2B4M6RE	947-3335			
SPDT (On)-Off-(On)	1AS4T2B4M6RE	155-0157			
DPDT (On)-Off-(On)	1AD4T2B4M6RE	155-0163			

## Type 2 - Horizontal Mounting - Sealed

SPDT On-On	1AS1T2B4M7RE	947-3360			
SPST On-Off-On	1AS3T2B4M7RE	155-0169			
DPDT On-On	1AD1T2B4M7RE	155-0173			
DPDT On-Off-On	1AD3T2B4M7RE	155-0175			

## Gemini A Series

0.4VA @ 20V ac/dc



Supplied with 2 x hex nuts, 1 x internal tooth locking washer and 1 x locking ring

- Epoxy sealed terminals
- Break before make contacts
- 10.4mm long toggle
- UL recognised

Contact rating - Gold contacts 0.4VA @ 20V ac/dc      Insulation resistance  
 Contact rating - Silver contacts 2A @ 250VAC/30VDC      Dielectric strength 1000 V rms @ sea level  
 Electrical life 30000      Operating temperature -20°C to 85°C  
 Contact resistance 30mohm

248723

Switch function	Contact material	Mftrs. List No.	Order Code	1+	25+	100+	250+	Price Each
<b>Vertical mount - PCB Pin terminals - Threaded</b>								
SPDT On-On	Gold	A101SYCB	119-7675					
SPDT On-Off-On	Gold	A103SYCB	119-7676					
SPDT (On)-Off-(On)	Gold	A105SYCB04	143-6226					
SPDT On-Off-(On)	Gold	A107SYCB04	143-6227					
DPDT On-On	Gold	A201SYCB	119-7677					

## Miniature, Panel Mounting

5A@120V ac/28V dc, 2A@250V ac



- Silver plated copper contacts
- Solder tag connections
- UL Recognised

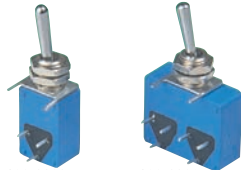
Electrical life 40000 ops.  
 Contact resistance <10mohm @ 4V, 100mA  
 Operating temperature -30°C to +85°C  
 Bush thread 14/4-40 UNS-2A  
 Lever length 10.25  
 Panel cut out=6.35  
 H=12.7, W=6.9

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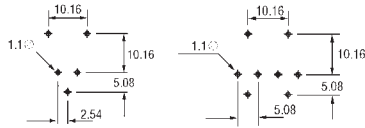
		Price Each				
		Mftrs. List No.	Order Code	1+	100+	250+
SPDT On-On	1MS1T1B5M1QE	947-3378				
SPDT On-Off-On	1MS3T1B5M1QE	947-3386				
SPDT On-(On)	1MS2T1B5M1QE	155-0178				
SPDT (On)-Off-(On)	1MS4T1B5M1QE	155-0179				
SPDT On-Off-(On)	1MS5T1B5M1QE	155-0180				
DPDT On-On	1MD1T1B5M1QE	947-3394				
DPDT On-Off-On	1MD3T1B5M1QE	947-3408				
DPDT On-On-On	1MD6T1B5M1QE	155-0185				
3PDT On-On	1M3T1B5M1QE	155-0187				
4PDT On-On	1M4T1B5M1QE	155-0192				
4PDT On-Off-On	1M43T1B5M1QE	155-0194				
4PDT On-On-On	1M46T1B5M1QE	155-0197				



**PCB/Panel Mounting**  
4A @ 30V dc 2A @ 250V ac



108-2282 (Toggle action from side to side)  
H=8, D=17, W=11 (SPDT),  
W=21 (DPDT) Panel cut-out=6.4 dia,  
Pin length=5, Bush thread=5" x 40 NS



Pins on 2.54mm (0.1") grid  
Initial contact resistance <math>\le 20\text{mohm}</math>  
Lever length 11  
Mfrs. List No 21136NA = 108-2282 21146NA = 108-2283

213114

Order Code	Price Each			
	1+	25+	100+	250+
On-On21136NA	108-2282			
On-On21146NA	108-2283			

**Panel Mounting**

0.4VA @ 20V ac/dc (Push Button)

5A @ 28V dc or 115V ac, 2A @ 250V ac (Rocker and Lever)



Switch fitted with lever actuator and plain bezel  
Switch fitted with rocker actuator and plain bezel  
Switch fitted with button actuator and bezel with LED

Body dimensions  
Single pole: H=12.7, W=6.86, D=8.89  
Double pole: H=12.7, W=11.43, D=8.89

Bezel: without LED=15.62 x 19.43 x 2.29  
with LED=15.62 x 27.94 x 2.29  
Panel cut-out: 15.24 x 12.7  
(LED hole 8.71  $\varnothing$ , 13.21 centres)

- Switch bodies, bezels and actuators available separately to allow flexibility of design
- Switch body may be fitted with either rocker, lever or push button actuator
- Bezels and actuators available in range of 6 colours, with textured finish
- Bezels available either plain or to accept T1¼/5mm LED (not supplied)
- Switch bodies for rocker and lever are epoxy sealed

Mechanical life 40000 ops  
Contact resistance 10mR @ 4V dc  
Operating temperature -20°C to +65°C

Switch Bodies for Rocker or Lever	Mfrs. List No.	Order Code
SPDT On-On	7101J50 ZQE++	957-4930
SPDT On-Off-On	7103J50ZQE++	957-4948
SPDT (On)-Off-(On)	7105J50 ZQE++	957-4956
SPDT On-Off-(On)	7107J50 ZQE++	957-4964
DPDT On-On	7201J50 ZQE++	957-4980
DPDT On-Off-On	7203J50 ZQE++	957-4999
DPDT (On)-Off-(On)	7205J50 ZQE++	957-5006
DPDT On-Off-(On)	7207J50 ZQE++	957-5014

Switch Bodies for Push Button	Mfrs. List No.	Order Code
SPDT Mom	8125J80ZBE++	957-4727
DPDT Momentary	8255J80ZBE++	957-4735

**Actuators**

Colour	Rocker		Lever		Push Button	
	Mfrs. List No.	Order No	Mfrs. List No.	Order No	Mfrs. List No.	Order No
Black	775A02263	120-1344	613802263	120-1351	7982.02.263	120-1358
Red	775A03000	120-1345	598103000	120-1352	7982.03.000	120-1361
Orange	775A04000	120-1346			7982.04.000	120-1362
Yellow			598105000	120-1354	7982.05.000	120-1363
Green					7982.06.000	120-1364
Blue	7751907000	120-1350	598107000	120-1356		

**Bezels**

Colour	Plain		With LED Position (T1¼)	
	Mfrs. List No.	Order No	Mfrs. List No.	Order No
Black	615602263	120-1357	613302263	120-1366

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Order Multiple=1

Price Each

Order Code	1+	50+	100+	250+	1K+
<b>Switch Bodies for Rocker or Lever</b>					
SPDT On-On	957-4930				
SPDT On-Off-On	957-4948				
SPDT (On)-Off-(On)	957-4956				
SPDT On-Off-(On)	957-4964				
DPDT On-Off-On	957-4999				
DPDT (On)-Off-(On)	957-5006				
DPDT On-Off-(On)	957-5014				

Order Multiple=1

Price Each

Order Code	1+	50+	100+	250+	1K+
<b>Switch Bodies for Push Button</b>					
SPDT Mom	957-4727				
DPDT Momentary	957-4735				
<b>Order Multiple=5</b>					
<b>Actuators</b>		5+	50+	100+	250+
Rocker	All Colours				
Lever	All Colours				
Push button	All Colours				
<b>Bezels</b>					
Plain	All Colours				
With LED position	All Colours				

**Subminiature, Snap-In Switch Components Panel Mounting**



Push Button, Rocker and Lever



Body dimensions, SPDT H=12.7, W=6.86, D=9.56  
Body dimensions, DPDT H=12.7, W=11.43, D=9.56

Bezel H=1.96 W=15.66 D=19.5  
Panel cut-out: 12.1 x 12.1

- Separate bodies, bezels and actuators for increased versatility
  - One body type for rocker and lever actuators, one body type for push buttons
  - Choice of bezels and actuator colours
  - Epoxy sealed rocker and lever switch bodies
  - UL Recognised
- Contact rating (Push Button) 0.4VA @ 20V ac/dc  
Contact rating (Rocker/Lever) 5A@28Vdc or 115Vac, 2A@250Vac  
Electrical life 50000 ops  
Contact resistance 20mR @ 4V dc  
Operating temperature -30°C to +85°C

**Actuators**

Colour	Rocker	Lever	Push Button
	Order Codes		
Black	981-2172	981-2229	981-2270
Red	981-2180	981-2237	981-2288
Yellow	981-2199	981-2245	981-2296
Green	981-2202	981-2253	
Blue	981-2210	981-2261	—

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Order Multiple=1	Order Code	1+	50+	100+	250+	1K+
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<b>Switch Bodies for Rocker and Lever</b>						
SPDT On-On	947-3742					
SPDT (On)-Off-(On)	947-3769					
SPDT On-Off-(On)	947-3777					
DPDT On-On	947-3793					
DPDT On-Off-On	947-3807					
DPDT (On)-Off-(On)	947-3815					
DPDT On-Off-(On)	947-3823					

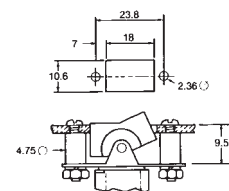
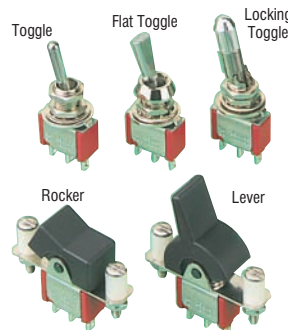
<b>Switch Bodies for Push Button</b>						
SPDT Off-(On)	947-3840					
DPDT On-(On)	947-3858					

<b>Order Multiple=5</b>						
<b>Actuators</b>		5+	50+	100+	250+	
Rocker	All Colours					
Lever	All Colours					
Push button	All Colours					
Black bezel	981-2318					

**Panel Mounting**

5A @ 28V dc or 125V dc, 2A @ 250Vac (Silver)

0.4VA @ 20V ac/dc (Gold)



	Body Dimensions (mm)			
	H	W	D	
Toggles	SPDT	12.7	6.86	10.54
	DPDT	12.7	11.43	10.54
	3PDT	12.7	16.51	10.54
Rocker	4PDT	12.7	21.59	10.54
	SPDT	12.7	6.86	8.89
	DPDT	12.7	6.86	8.89

# Toggle Switches - continued

## Panel Mounting - continued

5A @ 28V dc or 125V dc, 2A @ 250Vac (Silver) - continued

Toggle panel cut-out=6.35mm dia.

- Half-hard brass contacts available with either gold-on-nickel or coin silver plating
- Epoxy sealed terminations

Coin silver contacts 5A @ 28V dc or 115V ac resistive load, 2A @ 250V ac  
 Brass contacts: gold on silver 0.4VA max. @ 20V max. ac/dc  
 Mechanical life 40000 operations  
 Contact resistance <10mohm  
 Bush thread 1/4" x 40 NS  
 Lever length 11mm  
 Operating temperature -55°C to 85°C

Mfrs. List No.	Order Code	7105SYZQE	957-5545	7107P3YZQE	957-5065
7101SYZQE	957-4816	7105SYZBE	957-5553	7201P3YZQE	957-5081
7101SYZBE	957-4824	7107SYZQE	957-5561	7301P3YZQE	957-5103
7103SYZQE	957-4832	7107SYZBE	957-5570	7401P3YZQE	957-5111
7103SYZBE	957-4840	7108SYZQE	957-5588	7101K2ZQE	120-1382
7201SYZQE	957-4859	7108SYZBE	957-5596	7103K2ZQE	120-1383
7201SYZBE	957-4867	7205SYZQE	957-5600	7201K2KQE	120-1385
7203SYZQE	957-4875	7207SYZQE	957-5618	7203K2ZQE	120-1386
7203SYZBE	957-4883	7101P3YZQE	957-5030	7101J1ZQE2	957-4913
7301SYZQE	957-4891	7103P3YZQE	957-5049	7201J1ZQE2	957-4921
7401SYZQE	957-4905	7105P3YZQE	957-5057		

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Switch Contact	Order Code	1+	25+	100+	250+
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Toggle	Order Code	1+	25+	100+	250+
SPDT On-On	Silver 957-4816				
SPDT On-On	Gold 957-4824				
SPDT On-Off-On	Silver 957-4832				
SPDT On-Off-On	Gold 957-4840				
DPDT On-On	Silver 957-4859				
DPDT On-On	Gold 957-4867				
DPDT On-Off-On	Silver 957-4875				
DPDT On-Off-On	Gold 957-4883				
3PDT On-On	Silver 957-4891				
4PDT On-On	Silver 957-4905				
SPDT (On)-Off-(On)	Silver 957-5545				
SPDT (On)-Off-(On)	Gold 957-5553				
SPDT On-Off-(On)	Silver 957-5561				
SPDT On-Off-(On)	Gold 957-5570				
SPDT On-(On)	Silver 957-5588				
SPDT On-(On)	Gold 957-5596				
DPDT (On)-Off-(On)	Silver 957-5600				
DPDT On-Off-(On)	Silver 957-5618				

Flat Toggle	Order Code	1+	25+	100+	250+
SPDT On-On	Silver 957-5030				
SPDT On-Off-On	Silver 957-5049				
SPDT (On)-Off-(On)	Silver 957-5057				
SPDT On-Off-(On)	Silver 957-5065				
DPDT On-On	Silver 957-5081				
3PDT On-On	Silver 957-5103				
4PDT On-On	Silver 957-5111				

Locking Toggle	Order Code	1+	25+	100+	250+
SPDT On-On	Silver 120-1382				
SPDT On-Off-On	Silver 120-1383				
DPDT On-On	Silver 120-1385				
DPDT On-Off-On	Silver 120-1386				

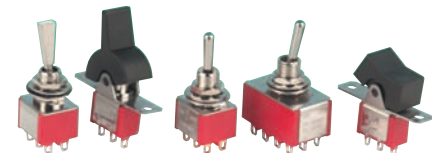
Rocker (Screw Mounting, Black Rocker)	Order Code	1+	25+	100+	250+
SPDT On-On	Silver 957-4913				
DPDT On-On	Silver 957-4921				

## Miniature, Panel Mounting

5A @ 28V dc or 125V dc, 2A @ 250Vac (Silver)  
 0.4VA @ 20V ac/dc (Gold)



- Copper alloy contacts, gold or silver plated
- Epoxy sealed terminations
- UL Recognised



Toggles		Body Dimensions		
		H	W	D
	SPDT	12.7	6.86	10.54
	DPDT	12.7	11.43	10.54
	3PDT	12.7	16.51	10.54
	4PDT	12.7	21.59	10.54
Rocker/ Lever handle	SPDT	12.7	6.86	9.56
	DPDT	12.7	11.43	9.56

Silver plated contacts: 5A @ 28V dc or 115V ac resistive load, 2A @ 250V ac  
 Gold plated contacts: 0.4VA @ 20V max. ac/dc  
 Electrical life 40000 operations  
 Contact resistance <10mohm @ 4Vdc 1A  
 Bush thread 1/4" x 40 NS  
 Lever length 10.4  
 Operating temperature -30°C to +85°C

311898

Toggle	Contacts	Order Code	1+	25+	100+	250+
SPDT On-On	Silver	947-3416				
SPDT On-On	Gold	947-3424				
SPDT On-Off-On	Silver	947-3432				
SPDT On-Off-On	Gold	947-3440				
SPDT (On)-Off-(On)	Gold	947-3467				
SPDT On-Off-(On)	Silver	947-3475				
SPDT On-Off-(On)	Gold	947-3483				
SPDT On-(On)	Silver	947-3491				
DPDT On-On	Silver	947-3513				
DPDT On-On	Gold	947-3521				
DPDT On-Off-On	Silver	947-3530				
DPDT On-Off-On	Gold	947-3548				
DPDT (On)-Off-(On)	Silver	947-3556				
DPDT (On)-Off-(On)	Gold	947-3564				
DPDT On-Off-(On)	Silver	947-3572				
DPDT On-Off-(On)	Gold	947-3580				
3PDT On-On	Silver	947-3599				
4PDT On-On	Silver	947-3602				

Flat Toggle	Order Code	1+	25+	100+	250+
SPDT On-On	Silver 947-3610				
SPDT On-Off-On	Silver 947-3629				
SPDT (On)-Off-(On)	Silver 947-3637				
SPDT On-Off-(On)	Silver 947-3645				
DPDT On-On	Silver 947-3661				
DPDT On-Off-On	Silver 947-3670				
3PDT On-On	Silver 947-3688				
4PDT On-On	Silver 947-3696				

## Gemini A Series - Long Lever

2A @ 250V ac, 5A @ 125V ac



- Silver contact material
- Toggle length 10.4mm
- Epoxy terminal seal
- Break before make contacts
- Threaded, 8.9mm long bushing
- Solder Tag Terminals
- UL Recognised

Contact rating Silver contact - 2A @ 250V ac, 5A @ 125V ac  
 Electrical life 30000 Cycles  
 Contact resistance 30mohm  
 Insulation resistance  
 Dielectric strength 1000 V rms @ sea level  
 Operating temperature -20°C to 85°C  
 Bush/thread dimensions 8.9mm x 1/4 x 40NS

Supplied with 2 x hex nuts, 1 x internal tooth locking washer and 1 x locking ring

248684

Switch function	Mfrs. List No.	Order Code	1+	25+	100+	250+
SPDT On-On	A101SYZQ	119-7667				
SPDT On-Off-On	A103SYZQ	119-7668				
DPDT On-On	A201SYZQ	119-7671				

## Panel Mounting

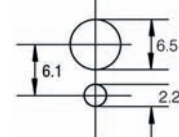
8A @ 6V dc, 3A @ 250V ac



108-2301 SPDT flat toggle  
 108-2313 DPDT standard pear toggle  
 108-2314 DPDT locking toggle

	Body Dimensions		
	H	W	D
SPDT	12	7	13.2
DPDT	12	12	13.2
3PDT	13	16.5	13.2
4PDT	13	21.2	13.2

Lever L=11.6 (flat), 10.5 (std. pear), 15 (locking)  
 Bush L=8 (all types)



Panel cut-out

Miniature toggle switches with a choice of flat, pear or locking toggles. The locking toggle prevents accidental switching, the toggle being first lifted before positioning.

Contact resistance	<10mR	Electrical life	50000 ops
Contacts	Silver	Mechanical life	100000 ops
Dielectric strength	1kV rms	Operating temperature	-40°C to +85°C

Mfrs List No.	5632A = 108-2297	5637A9 = 108-2303	5642A = 108-2311	5649A3V = 108-2317
5632A9 = 108-2298	5638A = 108-2304	5642A9 = 108-2312	5649A9 = 108-2318	
5636A = 108-2299	5638A9 = 108-2305	5646A = 108-2313	5656A = 108-2319	
5636A2V = 108-2300	5639A = 108-2306	5646A2V = 108-2314	5656A9 = 108-2320	
5636A9 = 108-2301	5639A3V = 108-2307	5646A9 = 108-2315	5666A = 108-2321	
5637A = 108-2302	5639A9 = 108-2308	5649A = 108-2316	5666A9 = 108-2323	

213083

		Price Each			
		1+	25+	50+	500+
<b>Flat Toggle</b>					
SPDT On-On	108-2301	●			
SPDT On-Off-On	108-2308	●			
SPDT (On)-Off-(On)	108-2303	●			
SPDT (On)-Off-On	108-2305	●			
SPDT On-(On)	108-2298	●			
DPDT On-On	108-2315	●			
DPDT	108-2318	●			
DPDT On-(On)	108-2312	●			
3PDT On-On	108-2320	●			
4PDT On-On	108-2323	●			
<b>Standard Pear Toggle</b>					
SPDT On-On	108-2299	●			
SPDT On-Off-On	108-2306	●			
SPDT (On)-Off-(On)	108-2302	●			
SPDT On-Off-(On)	108-2304	●			
SPDT On-(On)	108-2297	●			
DPDT On-On	108-2313	●			
DPDT	108-2316	●			
DPDT On-(On)	108-2311	●			
3PDT On-On	108-2319	●			
4PDT On-On	108-2321	●			
<b>Locking Toggle</b>					
SPDT On-On	108-2300	●			
SPDT On-Off-On	108-2307	●			
DPDT On-On	108-2314	●			
DPDT	108-2317	●			

### 0600 Series - Single Pole

3A @ 250V ac, 10A @ 6/24V ac/dc



140-600  
H=25.4, W=12.7,  
D (excl. terminals)=14.2  
Panel cut-out=12.7 dia  
Bush thread=1/8" x 32NS  
Tab=6.3

140-601  
H=25.4, W=12.7,  
D (excl. terminals)=14.2  
Panel cut-out=12.7 dia  
Bush thread=1/8" x 32NS,  
Tab=6.3

Termination	Lever	Lever Length	Mfrs. List No.	Order Code
SPST Tab	Chrome	15	C0600CCAEE	140-600
SPST Tab	Nylon	17.5	C0600HDAAF	140-601

213175

		Price Each				
		1+	100+	250+	500+	1K+
Order Code						
140-600	●					
140-601	●					

### Professional - Slow Make/ Break Action



6A @ 250V ac or 28V dc (Silver), 10mA @ 48V (Gold)



- A range of professional slow make break switches.
- Chrome plated lever.
- Solder bucket terminals.
- Gold contact versions are ideally suited for 'dry circuit switching'.

H=14.8, W=8 (SPDT), 13 (DPDT), 18 (3PDT), 23 (4PDT), D=10.5 (body)

		Gold contacts		Silver contacts	
Contact rating (max.)	10V, 10mA	Contact rating (max.)	250V ac/28V dc, 6A		
Maximum load	0.5VA	Maximum load	—		
Contact resistance	20mohm	Contact resistance	10mohm		
Electrical life	> 50000 operations	Electrical life	> 50000 operations		
Mechanical life	> 100000 operations	Mechanical life	> 100000 operations		
Temperature range	-25°C to +85°C	Temperature range	-25°C to +85°C		
Bush thread	M6 x 0.75	Bush thread	M6 x 0.75		

Mfrs List No.	Order Code	Mfrs List No.	Order Code	Mfrs List No.	Order Code
FTD0904	112-4175	FTF0904	112-4179	FTD09G04	112-4182
FTE0904	112-4176	FTS0904	112-4181	FTN09G04	112-4184
FTN0904	112-4177				

213125

		Price Each			
		1+	25+	100+	500+
<b>Silver Contacts</b>					
SPDT On-On	112-4175	●			
SPDT On-Off-On	112-4176	●			
SPDT On-(On)	112-4179	●			
DPDT On-On	112-4177	●			
DPDT (On)-Off-(On)	112-4181	●			
<b>Gold Contacts</b>					
SPDT On-On	112-4182	●			
DPDT On-On	112-4184	●			

### Locking Lever



6A @ 250V ac or 28V dc



- Locking lever can be retained in either position.
- Prevents accidental switching.

		Silver contacts	Gold contacts
Contact rating (max.)	250V ac/28V dc, 6A	48V, 10ma	48V, 10ma
Maximum load	—	0.5VA	0.5VA
Contact resistance	10mohm	20mohm	20mohm
Electrical life	> 50000 operations	> 50000 operations	> 50000 operations
Mechanical life	> 100000 operations	> 100000 operations	> 100000 operations
Temperature range	-25°C to +85°C	-25°C to +85°C	-25°C to +85°C
Bush thread	M6 x 0.75	M6 x 0.75	M6 x 0.75

Mfrs. List No  
FTNS9G = 112-4169 FTN59 = 112-4170

H=14.8, W=13, (DPDT), 8 (SPDT)  
D=10.5 (body), Lever length = 15 (17 extended)

213074

		Price Each					
		1+	10+	50+	100+	250+	+
<b>Gold Contacts</b>							
On-On	112-4169	●					
<b>Silver Contacts</b>							
On-On	112-4170	●					

### Quick Make, Quick Break



3A/8A/10A @ 250V ac/dc



120-3336

120-3335

Rating @ 250V ac/dc	Termination	Body Dimensions			Bush Length	Lever Length	Order Code
		H	W	D			
SPST 3A		24.5	13.3	14.3	11.9	12.7	120-3330
DPST 3A		30	13.1	14.3	11.9	12.7	120-3333
DPST 8A	Screw	44.5	20.6	19.1	11.9	16.7	120-3334
DPST 10A	Screw	54	25.4	22.2	11.9	16.7	120-3335
DPDT 3A		30	13.1	14.3	11.9	12.7	120-3336

Panel cut-out=12.7 dia  
Bush thread=1/8" x 32NS

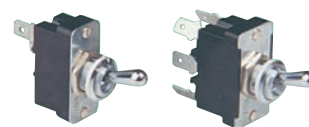
213220

		Price Each			
		1+	25+	50+	100+
<b>Mfrs.</b>					
List No.	Order Code				
110-B-63	120-3330	●			
2BK62-63	120-3333	●			
DK284-73	120-3334	●			
EK204-73	120-3335	●			
2BL63-63	120-3336	●			

### S-POT Series



10A @ 250V ac, 10A @ 20V dc



Single pole  
H=37.5, W=15, D=30

Double Pole  
H=37.5, W=20.6, D=39

Panel cut-out=12.7 dia  
Bush thread=1/8" x 32NS, Tab=6.3  
Lever L=17.0 (SPDT), 16.0 (DPDT)

		Price Each			
		1+	25+	50+	100+
<b>Mfrs List No.</b>					
SX0793/63 =	421-996	SX0794/63 =	422-009	SX0783/63 =	422-010
SX0784/63 =	422-022	SX0786/63 =	422-034	SX0792/63 =	422-046
SX0780/63 =	422-058	SX0782/63 =	422-060		

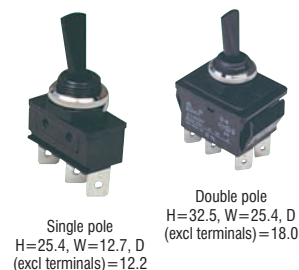
## S-POT Series - continued

10A @ 250V ac, 10A @ 20V dc - continued

213212

Two Position	Order Code	Price Each				
		1+	25+	50+	100+	250+
SPDT On-On	421-996					
SPST Off-On	422-009					
DPDT On-On	422-010					
DPST Off-On	422-022					
DPST Off-(On)	422-034					
Three Position						
SPDT (On)-Off-(On)	422-046					
DPDT On-Off-On	422-058					
DPDT (On)-Off-(On)	422-060					

## 1700 Series



- Black nylon levers.
- Approved to **BS3955, BEAB, VDE, SEMKO, SEV, OVE, KEMA** and **CSA**.
- **UL** recognised

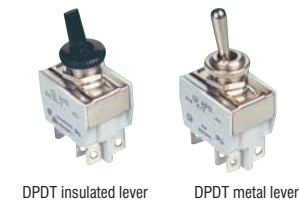
Mfrs List No.  
 C1700HOAAC=140-625 C1710HOAAC=140-626  
 C1720HOAAC=140-627 C1750HOAAC=140-621  
 C1760HOAAC=140-622 C1770HOAAC=140-624  
 Panel cut-out=12.7 dia  
 Bush thread=<sup>15</sup>/<sub>32</sub>" x 32NS, Tab=6.3 Lever L=17.8

213196

	Order Code	Price Each				
		1+	50+	100+	250+	500+
SPST Off-On	140-625					
SPDT On-On	140-626					
SPDT On-Off-On	140-627					
DPST Off-On	140-621					
DPDT On-On	140-622					
DPDT On-Off-On	140-624					

## 600 Series.

15A @ 250V ac



- **CSA** approved
- **UL** recognised

Proof Voltage 2500V rms  
 Electrical life 10000 operations  
 Insulation resistance MR  
 Operating temperature -20°C to +55°C  
 Initial contact resistance 10 MR  
 Body : H=15.0, W=14.0, D=29.5 (single pole)  
 H=21.5, W=21.5, D=29.7 (double pole)  
 Toggle : L=13.5 (insulated), L=17.5 (metal)  
 Bush : L=11.5 (insulated), L=10.5 (metal)  
 Dia.=12 x 0.75 Tabs : 6.35 x 0.8

Mfrs List No.

631NH/2= 108-2325	641NH/2= 108-2331	631H/2= 108-2324	641H/2= 108-2330
636NH/2= 108-2327	646NH/2= 108-2333	636H/2= 108-2326	646H/2= 108-2332
639NH/2= 108-2329	649NH/2= 108-2336	639H/2= 108-2328	649H/2= 108-2335

213172

Insulated Lever	Order Code	Price Each			
		1+	25+	50+	100+
SPST Off-On	108-2325				
SPDT On-On	108-2327				
SPDT On-Off-On	108-2329				
DPST Off-On	108-2331				
DPDT On-On	108-2333				
DPDT On-Off-On	108-2336				
Metal Lever					
SPST Off-On	108-2324				
SPDT On-On	108-2326				
SPDT On-Off-On	108-2328				
DPST Off-On	108-2330				
DPDT On-On	108-2332				
DPDT On-Off-On	108-2335				



## TROUBLESHOOTING TIPS

Chat online to one of our technical engineers at [farnell.com](http://farnell.com)

## TL Series - to MIL-S-3950

15A @ 250V ac, 10A @ 250V ac (momentary action versions)



- Military approved to MIL-S-3950
- Sealed switches with non-tracking case
- Screw terminals
- UL recognised, CSA certified, CE approved
- Temperature range -65°C to +71°C

H=34.3, W=15.7 (SP), 22.6 (DP), 41.6 (4P),  
 D=28.4(SP), 33.5 (DP,4P), Toggle=26.7

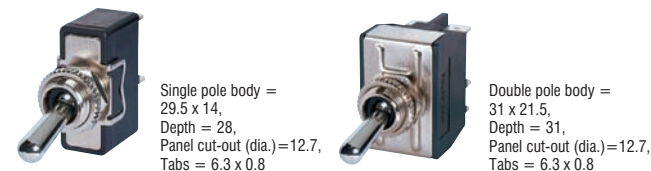
338549

Two Position	Mfrs. List No.	Order Code	Price Each		
			1+	10+	50+
SPST Off-On	1TL1-2	508-2183			
DPDT On-On	2TL1-3	508-2225			
Three Position					
DPDT (On)-Off-(On)	2TL1-7	508-2237			

## Metal Lever - 3900 Series



16(4)A @ 250V ac - ENEC(3900/3950), 10(4)A 250V ac (other circuits)  
 20A @ 125/277V ac - UL/CSA (3990/3950), 16A 125/277V ac (other circuits)



- Approved to **ENEC** and **CSA**, **UL** recognised
- Robust metal lever/neck construction
- Spring-loaded hinged guard (767-4341) to prevent accidental operation
- Momentary action option

Insulation Resistance	>MR	Operating Temp	0°C to +85°C
Contact Resistance	100mR	Contact Gap	3.0mm (On-Off types only)
Electrical Life	10000 ops	Mechanical Life	50000 ops

Mfrs. List No.

C3900BAAAA=767-4244	C3922BAAAA=767-4287	C3970BBAAA=767-4325
C3910BAAAA=767-4252	C3950BBAAA=767-4295	C3972BBAAA=767-4333
C3911BAAAA=767-4260	C3960BBAAA=767-4309	R171000AAA=767-4341
C3920BAAAA=767-4279	C3961BBAAA=767-4317	

347649/405379

	Order Code	Price Each				
		1+	25+	100+	250+	500+
SPST On-Off	767-4244					
SPDT On-On	767-4252					
SPDT On-Mom	767-4260					
SPDT On-Off-On	767-4279					
SPDT Mom-Of-Mom	767-4287					
DPST On-Off	767-4295					
DPDT On-On	767-4309					
DPDT On-Mom	767-4317					
DPDT On-Off-On	767-4325					
DPDT Mom-Off-Mom	767-4333					
Guard (Red)	767-4341					

## C1700 Series

16(4) A @ 250V ac



Mfrs. List No. C175000= 481-099 C176000= 481-105  
 C177000= 481-117

H=30.2, W=25.2, D (excl. terminals)=19.2  
 Panel cut-out=12.7 dia.,  
 Bush thread=<sup>15</sup>/<sub>32</sub> x 32NS, Tab=6.3  
 Toggle L=15.0

213180

	Order Code	Price Each			
		1+	100+	250+	500+
DPST Off-On	481-099				
DPDT On-On	481-105				
DPDT On-Off-On	481-117				



**IP67 Sealed**  
20A @ 250V ac or 30V dc



- Silver plated contacts.
- Sealed to IP67.
- Connections via 250 (1/4") receptacles or soldering.

H=33, W=19.5, D=17.5 (body) Bush diameter=11.4,  
Bush thread =M12 x 1.0, Bush length=6.5

Mfrs List No.

AWTN1504= 112-4163, AWTP1504= 112-4166, AWTT1504= 112-4167, AWTS1504= 112-4168  
AWTR1504= 112-4165,

213087

	Order Code	1+	10+	25+	50+	100+
DPDT On-On	112-4163					
DPDT On-(On)	112-4165					
DPDT On-Off-On	112-4166					
DPDT On-Off-(On)	112-4167					
DPDT (On)-Off-(On)	112-4168					

**IP67 Sealed**  
20A @ 250V ac



- Switches withstand water penetration into spaces between switches and mounting cut-out holes
- Contact mechanism designed to minimise noise
- UL 94V-0 Flammability rating
- Sealed to IP67.
- Connections via AMP 250 (1/4") receptacles or soldering.

H=22.9 (body), W=33, D=19.5mm  
Bush thread =M12 x 1.0, Bush length=5.5

Order Code	Part Number	Mfrs. List No.	Order Code	Part Number	Mfrs. List No.
162-9109	7-6437630-3	AWTA1504	162-9109	7-6437630-3	AWTA1504
143-6244	7-6437630-0	AWTD1504	162-9110	8-6437630-0	A4TK15W04
143-6245	7-6437630-1	AWTE1504	162-9111	8-6437630-1	A4TN15W04
143-6246	7-6437630-5	AWTG1504	162-9112	8-6437630-2	A4TP15W04

480821

Switch Function	Mfrs. List No.	Order Code	1+	10+	25+	50+
SPDT Off-On	AWTA1504	162-9109				
SPDT On-On	AWTD1504	143-6244				
SPDT On-Off-On	AWTE1504	143-6245				
SPDT (On)-Off-(On)	AWTG1504	143-6246				
4PNO Off-On	A4TK15W04	162-9110				
4PDT On-On	A4TN15W04	162-9111				
4PDT On-Off-On	A4TP15W04	162-9112				

**Toggle Switch - T15 Series**

**NEW**



- Sealed
- High Snap

Contacts SPST  
Switch Operation On-Off  
Contact rating 15A @ 250VDC / 0.5A @ 30VAC  
Terminals Quick Connect  
Material AgZnO Alloy

659023

Mfrs. List No.	Order Code	1+	25+	50+
T115AAF	209-5707			

**IP67 Sealed - 3600 Series**

12A @ 28V dc, 6A @ 250V ac



- Sealed to IP67, suitable for outdoor use
- Proof Voltage 2500V ac  
Electrical life 1000 operations  
Insulation resistance MR @ 500V dc  
Operating temperature -40°C to +85°C

H=35, W=21.5, D=23  
Bush thread=12 x 0.75, Tabs=6.35 x 0.8, Panel thickness=3.5 max.

Mfrs. List No. 3631NF/2= 108-2293 3641NF/2= 108-2295  
3636NF/2= 108-2294 3646NF/2= 108-2296

213156

	Order Code	1+	10+	50+	100+	250+
SPST Off-On	108-2293					
SPDT On-On	108-2294					
DPST Off-On	108-2295					
DPDT On-On	108-2296					

**IP68 Sealed**

16A @ 115V ac or 28V dc



- Rugged high performance toggle switch
- Doubled sealed with "O" ring and visible bushing sealed to IP68
- Withstands extreme shock and vibration
- Rear seal with potted contacts

H=32.2, W=27.9, D=21.8 (body)  
Bush thread =1/8 x 32 NS-2A, Bush length=11.9

Mfrs. List No.	T7111A5=	113-8734	T7212D5=	113-8737	T7212F5=	113-8739
	T7111B5=	113-8735	T7212E5=	113-8738	T7212G5=	113-8740
	T7212B5=	113-8736				

213148

	Order Code	1+	10+	25+	50+	100+
SPST Off-On	113-8734					
SPST On-On	113-8735					
DPDT On-On	113-8736					
DPST (On)-On	113-8737					
DPDT (On)-Off-(On)	113-8738					
DPDT On-Off-On	113-8739					
DPDT (On)-Off-(On)	113-8740					

**Toggle Switches - Power**

T9 Series - IP68 Sealed



- Compliant to MIL-DTL-3950
- Sealed per IP68 or per MIL-DTL-3950
- Electrical life 20,000 cycles full load
- Mechanical life 40,000 cycles
- Operating temperature range -65°C to +71°C

Body: H=34.8mm, W (SPDT)=16mm, W (DPDT)=23mm, D=34mm

The T9 Toggle Switch is an ideal switch for demanding applications, compliant to MIL-DTL-3950, this high performance switch is a logical choice for use in environments where sealing and resistance to shock and vibration are required. The T9 is particularly suitable for applications in off-road, aviation, commercial and industrial equipment. This compact, environmentally sealed switch is available in single and double pole configurations. TG series toggle guards fits standard size toggles, prohibiting actuation on (or OFF) without first flipping up the safety switch cover and closing the cover will flip the switch. The toggle guards meet the requirements of MIL DTL 7703 and MS25224-3

Contact ratings - Resistive	20A @ 28VDC, 15A @ 115VAC	Terminal type	Screw Terminals
Contact ratings - Inductive	15A @ 28VDC, 10A @ 115VAC	Electrical life	20000 ops
Contact plating	Silver	Mechanical life	40000 ops
Thread type	0.469-32 UNS - 2A	Operating temperature	-65°C to +71°C

502293

Switch Function	Mfrs. List.	Order Code	1+	10+	25+	50+	100+
<b>SPDT</b>							
Off-None-On	T9-CS1-22	NEW 187-8574					
On-On	T9-CS1-23	155-6041					
(On)-None-On	T9-CS1-26	NEW 187-8576					
(On)-Off-(On)	T9-CS1-27	NEW 187-8577					
(Off)-None-On	T9-CS1-29	NEW 187-8579					
(On)-None-Off	T9-CS1-30	NEW 187-8581					
(On)-Off-On	T9-CS1-31	NEW 187-8582					
<b>SPDT - Locked In 3 Positions</b>							
On-Off-On	T9-CS1-21A	NEW 187-8583					
<b>SPDT - Locked Out Of Center Position</b>							
Off-None-On	T9-CS1-22D	NEW 187-8585					
<b>DPDT</b>							
On-On	T9-CS2-23	155-6043					
Off-None-On	T9-CS2-22	NEW 187-8587					
(On)-None-On	T9-CS2-26	NEW 187-8590					
(On)-Off-(On)	T9-CS2-27	NEW 187-8594					
(Off)-None-On	T9-CS2-29	NEW 187-8597					
(On)-None-Off	T9-CS2-30	NEW 187-8599					
(On)-Off-On	T9-CS2-31	NEW 187-8600					
<b>Toggle Covers</b>							
	TG-00001	155-6045					
	TG-00006	NEW 187-8602					

# Toggle Switches - continued

## Toggle Switches 2A@250Vac

**NEW**



- Robust and powerful toggle switch with 50 000 mechanical switching cycles
- Central fastening with nut M12
- Metal or plastic lever

617265

Mfrs. List No.	Lever Type	Order Code	1+	10+	25+	50+	100+
<b>SPST</b>							
0100.1201-00	Plastic	183-9425					
0100.2901-00	Metal	183-9426					
<b>SPDT</b>							
0101.0401-00	Plastic	183-9427					
0101.0601-00	Metal	183-9428					
<b>DPST</b>							
0132.0101-01	Plastic	183-9429					
0132.0601-01	Metal	183-9430					
<b>DPDT</b>							
0133.0101-00	Plastic	183-9431					
0133.0501-00	Metal	183-9432					

## Toggle Switches 6A@250Vac

**NEW**



Contact resistance < 100mΩ  
 Insulation resistance > 100MΩ  
 Proof tracking 250 PTI  
 Protection type IP 40  
 Temperature -20°C to +100°C (terminal side)  
 -20°C to +55°C (actuating side)  
 Flammability UL 94 V-2  
 Material PA (Actuator)  
 PA Glass Fiber-reinforced (Housing)  
 Silver plated (Terminals)  
 Plug force of the terminals ≤ 80N

- 100 million times proven switching principle
- Long life endurance with 50000 mechanical switching cycles
- Excellent actuating characteristic
- Fastening with nut M12

617189

Mfrs. List No.	Terminal Type	Order Code	1+	10+	25+	50+
<b>SPST</b>						
1821.1101-01	Quick Connect	183-9473				
1821.6101-00	Solder	183-9472				
<b>SPDT</b>						
1823.6101-00	Solder	183-9474				
<b>SPDT - Center OFF</b>						
1828.1101-01	Quick Connect	183-9476				
1828.1301-01	Quick Connect	183-9477				
<b>DPDT</b>						
1824.1101-01	Quick Connect	183-9475				
<b>Protection Cap</b>						
343.001.023-00	Black	183-9488				

## Toggle Switches 10A@250Vac

**NEW**



Contact resistance < 100mΩ  
 Insulation resistance > 100MΩ  
 Protection type IP 40  
 Temperature -20°C to +100°C (terminal side)  
 -20°C to +55°C (actuating side)  
 Flammability UL 94 V-2  
 Material PA (Actuator)  
 PA (Housing)  
 Silver plated (Terminals)  
 Plug force of the terminals ≤ 80N

- Attractive toggle switches
- 100 million times proven switching principle
- Long life endurance with 100000 mechanical switching cycles
- Excellent actuating characteristic

617181

Mfrs. List No.	Legend	Order Code	1+	10+	25+	50+	100+
<b>SPST</b>							
1811.1102-01		183-9465					
<b>SPDT</b>							
1813.1102-00		183-9467					
<b>SPDT - (Center OFF)</b>							
1818.1102-00		183-9468					
1818.1302-00		183-9471					
<b>DPST</b>							
1812.1102-01	0	183-9466					

## Selector Switches



- Environmentally sealed toggle switch to IP68
- Multiple single pole functions available

Rating 3A @ 250V AC, 6A @ 125V AC, 4A @ 30V DC  
 Electrical life 50000 Cycles  
 Mechanical life 100000 Cycles  
 Contact resistance 10mohm  
 Insulation resistance min. @ 500VDC  
 Dielectric strength 1000Vrms  
 Operating temperature -40°C to 85°C

**NEW**

618959

Mfrs. List No.	Switch Operation	Order Code	1+	10+	25+	50+	100+
MTG22AD2	ON-MOM	185-7126					
MTG62AD2	ON-ON	185-7127					
MTG72AD2	MOM-OFF-MOM	185-7128					
MTG82AD2	ON-OFF-MOM	185-7129					
MTG92AD2	ON-OFF-ON	185-7130					

## Accessories

### Toggle Switch Cover



- Moulded black flexible PVC splashproof switch cover
- Nickel-plated brass threaded insert suitable for all 1 5/32" x 32NS bush threads.

H=25, Dia=25  
 Mfrs. List No. SX0550/Brass

213132

Order Code	1+	50+	100+	500+	1K+
151-352					

### Toggle Switch Accessories



Suitable for all Bush Threads of 1 5/32" x 32NS



Mfrs. List No.	Order code
A0331MOAAA	140-648
A1080MO	678-144
A0539MO	678-156
F0092TOAAA	140-663
F00232PAAA	140-658

213164

Order Code	Order Multiple = 10					
	10+	50+	100+	250+	500+	1K+
140-648						
678-144						
678-156						
140-663						
140-658						

## IMPROVED BACK ORDER DELIVERY

Receive email updates with the exact status, due date and despatch information of all your back order items [farnell.com](http://farnell.com)

## Sealing Boots



- Moulded black splashproof switch cover
- Available in two heights: low = 10.7mm, high = 14.4mm

**NEW**

659218

Thread Size	Order Code	Price Each				
		1+	25+	100+	250+	+
<b>Low Version</b>						
1/40-40 UNS-2A	211-3266					
M6P x 0.75 THD	211-3268					
<b>High Version</b>						
1/40-40 UNS-2A	211-3265					
M6P x 0.75 THD	211-3267					

## Toggle and Push Button Sealing Boots



Covered toggle seal    Protruding toggle seal    Push button seals

- Black silicone rubber sealing boots for most toggle and pushbutton switches
- Moulded-in brass, nickel plated hexagonal nut gives water-tight, dust-tight protection
- Provide low cost sealing for non-MIL spec applications
- Operating temperature -40°C to +85°C

Mfrs. List No. U1024=108-2517, U1602=108-2520, U1320=108-2519, U590=108-2529, U1231=108-2518, 213103

Thread Size	Order Code	Price Each				
		1+	25+	50+	100+	500+
<b>Covered Toggle Seal</b>						
11.9(15/32") 32 NS	108-2517					
6.35 (1/4") 40 NS	108-2518					
<b>Protruding Toggle Seal</b>						
11.9 (15/32") 32 NS	108-2520					
<b>Push Button Seals</b>						
6.35 (1/4") 40 NS	108-2519					
11.9(15/32") 32 NS	108-2529					

## Toggle and Push Button Sealing Boots

**APM HEXSEAL**

'Hexseals' (MIL spec)



Covered toggle seals    Protruding toggle seals    Push button seals

- Provide positive high pressure environmental seal for most toggle and push button switches
- Moulded-in brass, nickel plated hexagonal nut gives water-tight, dust-tight protection
- Fit around switch neck to seal both panel mounting hole and the switch
- Meet MIL-B-5423 specification
- Resistant to salt spray, weather, sunlight, ozone, fuel oils, and most acids
- Vibration resistant. Pressure range exceeds 15 psi internal or external

Operating temperature -70°C to +205°C

Thread size	Max. Toggle Length	Height	Mfrs.	
			List No.	Order Code
<b>Covered Toggle Seals</b>				
1/4" x 40NS	7.9	10.7	N5030	146-840
1/4" x 40NS	9.4	12.7	N5030L	146-841
1/4" x 40NS	12.7	15.1	N5030S	146-842
15/32" x 32 NS	16.8	21.4	N1030	146-843
15/32" x 32 NS-2B	18	23.8	C1131/28	142-6651
<b>Protruding Toggle Seals</b>				
1/4" x 40NS	1.6 to 4.8	6.4	N5032B	146-844
15/32" x 32 NS	3.9 to 6.1	11.1	N1030B	146-845
<b>Push Button Seals</b>				
1/4" x 40NS	5.2	7.9	N5040R	146-846
15/32" x 32 NS	7.14	13.9	N3030	146-847
15/32" x 32 NS	11.1	18.3	NC3030	146-848

213153

Thread Size	Order Code	Price Each			
		1+	25+	100+	500+
<b>Covered Toggle Seals</b>					
1/4" x 40NS	146-840				
1/4" x 40NS	146-841				
1/4" x 40NS	146-842				
15/32" x 32 NS	146-843				
15/32" x 32 NS-2B	142-6651				
<b>Protruding Toggle Seals</b>					
1/4" x 40NS	146-844				
15/32" x 32 NS	146-845				
<b>Push Button Seals</b>					
1/4" x 40NS	146-846				
15/32" x 32 NS	146-847				

## Slide Switches



### Momentary Action Slide Switches

25mA @ 24Vdc



Left Actuator

Right Actuator

Current switching  
Contact resistance  
Insulation resistance  
Dielectric strength  
Operating temperature  
Electrical life

25mA @ 24V  
70mohm max  
@ 100VDC  
100VAC for 1 minute  
-10°C to +60°C  
10000 operations min

- Momentary action SPDT
- Operating force 180gf ± 70gf
- Long life of 10,000 cycles
- Height 2mm, Width 11mm, Depth 3.5mm

498829

Actuator Position	Mfrs. List No.	Order Code	Price Each			
			1+	25+	50+	100+
Right	MCSSS-12RG	SMD152-2053				

### Miniature Slide Switch

25mA @ 24Vdc



H = 3.5, W = 9.5, D = 3.5mm

- DPDT
- Operating force 200gf ± 150gf
- Long life of 10,000 cycles
- Two different lead length versions available

Current switching 25mA @ 24V  
Current non-switching 100mA @ 50V  
Contact resistance 100mohm max @ 500VDC  
Insulation resistance 500VAC for 1 minute  
Dielectric strength -10°C to +60°C  
Operating temperature 10000 operations min  
Electrical life

498814

Pin Length	Mfrs. List No.	Order Code	Price Each				
			1+	25+	50+	100+	500+
3mm	MCLSS22	152-2046					
1mm	MCLSS22P	152-2047					

### Miniature Momentary Slide Switches

300mA @ 4Vdc



H = 2, W = 10.4, D = 3mm

- Momentary action (Double side recoil)
- Stem height only 1.5mm
- Operating force 100gf ± 50gf
- Long life of 50,000 cycles

Current switching 300mA @ 4V  
Current non-switching 200mA @ 5V  
Contact resistance 70mohm max @ 250VDC  
Insulation resistance 100VAC for 1 minute  
Dielectric strength -30°C to +80°C  
Operating temperature 50000 operations min  
Electrical life

498824

Switch Function	Mfrs. List No.	Order Code	Price Each			
			1+	25+	50+	100+
SPDT (On)-Off-(Off)	MCS2S-A15F	SMD152-2049				
SP3T (On)-On-(On)	MCS2S-B15F	SMD152-2051				

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# Slide Switches - continued



## Slide Switch

50mA @ 60V AC/DC



- Gold-plated clip contact and cleaning mechanisms ensure high reliability
- Specially designed to allow no grease entry into the contact portion
- Sealed against flux entry and a built-in "O-ring" ensures immersion wash ability
- Available with boot to protect against dust

Body: H=9, W=5.65, D=9.4mm

### Switch Specifications

Switching capacity	50mA @ 60V AC/DC
Electrical life	50000 Cycles
Mechanical life	50000 Cycles
Contact resistance	50mohm
Insulation resistance	
Dielectric strength	500VAC for 1 min between terminals, between terminals and ground

537367

Switch Type	Mftrs. List No.	Order Code	Price Each				
			1+	25+	100+	250+	500+
<b>Straight PCB Terminals - Bootless</b>							
SPDT - On-On	A9S11-0011	171-5769					
SPDT - On-Off-On	A9S12-0011	171-5771					
DPDT - On-On	A9S21-0011	171-5772					
DPDT - On-Off-On	A9S22-0011	171-5773					
<b>Straight PCB Terminals - With Boot</b>							
SPDT - On-On	A9S11-0021	171-5774					
<b>Right Angle PCB Terminals - Bootless</b>							
SPDT - On-On	A9S11-0012	171-5775					
SPDT - On-Off-On	A9S12-0012	171-5776					
DPDT - On-On	A9S21-0012	171-5777					
DPDT - On-Off-On	A9S22-0012	171-5778					
<b>Right Angle PCB Terminals - With Boot</b>							
SPDT - On-On	A9S11-0022	171-5779					

## SMD Slide - Ultraminiature

300mA, 6V dc



- Ultraminiature surface mount
- Low profile - 1.2mm
- SPDT and SP3T

Contact Rating	Resistance	Dielectric Strength	Operating Temp.		
				Voltage (V)	Current (mA)
6	300	70	500	-10 to 85°C	

241380

### Order Multiple=5

Contact configuration	Mftrs. List No.	Order Code	Price Each				
			5+	50+	100+	250+	500+
SPDT	PCM12SMTR	957-5146					

## Slide Switches

MSS Series



- Lead Free solderable

Contact resistance	100mohm
Contact current	25mA @ 24V
Electrical life	10000 cycles
Operating temperature	-20°C to 70°C

659205

Contact Configuration	Operating Force	Order Code	Price Each				
			5+	50+	100+	250+	500+
SPDT	150gf	211-3262					
DPDT	200gf	211-3263					

## Subminiature, PCB Mounting - 1K2

0.5A @ 12V



- Gold plated contacts
- Vertical and horizontal styles for PCB mounting
- Raised actuators for easy operation
- Vertical style stack on 2.54mm centres
- Horizontal style end-stackable on 2.54mm grid
- Designed to appear on the front face of equipment

- Switch connections work in opposite direction to actuator



Contact rating	<22mohm	674-345:	
Insulation resistance	> @ 500V dc	H (above PCB)=	7.9, W=2.5, D=10
Operating temperature	-40°C to +85°C	674-357:	
Contact material	0.5µ Gold Plated	H (above PCB)=	7.45, W=2.5, D (overall)=10
		PCB pin spacing =	2.54

213217

Mftrs. List No.	Order Code	Price Each		
		1+	100+	500+
SPDT, Vertical	09-03290.01	674-345		
SPDT, R/A	09-10290-01	674-357		

## Miniature Slide Switches

WS-SHT



- Miniature (10x2.5mm) slide switches in vertical or right angle style



**NEW**

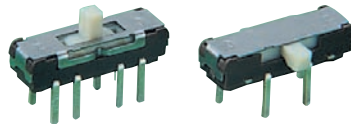
Switch operation	On-On	Contact resistance	30mohm
Contact configuration	SPDT	Operating temperature	-40°C to 85°C
Contact rating	500mA @ 12V	Contacts	Gold Plated

663245

Orientation	Mftrs. List No.	Order Code	Price Each				
			1+	100+	500+	+	+
Vertical	450301014042	213-4452					
Right Angle	450302014072	213-4453					

## Subminiature PCB Mounting - STSS2 Series

0.3A @ 6V dc



Vertical Knob	H (above PCB)=5.5, W=8.5 (3 pin), 13 (4 pin), D=3.3 PCB pin spacing=2.5 x 3.3 (DIL types)
Horizontal Knob	H (above PCB)=3.5, W=8.5 (3 pin), 13 (4 pin), D=5.5 (inc. knob) PCB pin spacing=2.5x3.3 (DIL types)

- High reliability, low noise design
- Widely used on audio mixing desks
- Non-shorting change over contacts

Electrical life	5000 cycles	Contact resistance	70mΩ
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213265

Poles/No. of Positions	Mftrs. List No.	Order Code	Price Each		
			1+	50+	100+
<b>Vertical Knob</b>					
SPDT	STSSS2121	112-3869			
DPDT	STSSS2221	112-3870			
DP3T	STSSS2231	112-3871			
<b>Horizontal Knob</b>					
SPDT	STSSS2122	112-3872			
DPDT	STSSS2222	112-3873			
DP3T	STSSS2232	112-3874			

## Sub-Miniature Slide Switch

400mA @ 60V AC/DC



### Switch Specifications

Switching capacity	@ 48V AC/DC
Mechanical life	40000 C
Contact resistance	50mohm
Insulation resistance	
Dielectric strength	500V for

**NEW**

Vertical Body: H=8, W=5, D=9.5mm  
Horizontal Body: H=5, W=9.5, D=8mm

Mftrs. List No.	Order Code	Mftrs. List No.	Order Code
MC5SES1S105M2RES	200-8800	MC5SED1S105M2RES	200-8805
MC5SES1S105M6RES	200-8801	MC5SED1S105M6RES	200-8806
MC5SES3S105M2RES	200-8802	MC5SED3S05M2RES	200-8807
MC5SES3S105M6RES	200-8803	MC5SED3S105M6RES	200-8808

640449

Switch Type	Order Code	Price Each				
		1+	25+	50+	100+	250+
<b>Vertical Actuator</b>						
SPST - On-None-On	200-8800					
SPST - On-Off-On	200-8802					
DPDT - On-None-On	200-8805					
DPDT - On-Off-On	200-8807					
<b>Horizontal Actuator</b>						
SPST - On-None-On	200-8801					
SPST - On-Off-On	200-8803					
DPDT - On-None-On	200-8806					
DPDT - On-Off-On	200-8808					



### Subminiature, Sealed PCB Mounting

0.4VA @ 20Vac/dc



Vertical: H=9.14, W=10.03, D=6.02  
Horizontal: H=6.38, W=10.03, D=9.37

- Sealed construction, internal O-ring and epoxy base sealed, no boot seal required
- Process compatible, withstands wave and reflow soldering and cleaning processes
- Tin lead alloy coats all sides of terminals for solder joint integrity

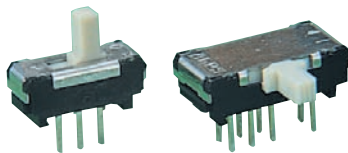
Electrical life 40000 ops    Operating temperature -30°C to +85°C  
Contact resistance 50mohm

213167

Contact/Positions	Mfrs. List No.	Order Code	1+	25+	50+	100+	500+	Price Each
<b>Vertical Acuator</b>								
SPST/3	ES21MCBE	120-1389						
<b>Horizontal Acuator</b>								
SPST/2	ES21MABE	120-1392						
<b>Horizontal - Acuator - Surface Mount</b>								
SPST/2	ES01MSABE	120-1394						

### Subminiature PCB Mounting - STSS9 Series

0.1A @ 12V dc



Vertical Knob  
H (above PCB)=10,  
W=11.5, D=4.7  
PCB pin spacing=2

Horizontal Knob  
H (above PCB)=5,  
W=11.5, D=9.7  
PCB pin spacing=2

- High quality switch designed for audio applications
- Non-shorting changeover contacts

Electrical life 10000 ops  
Contact resistance 30mohm

213266

Poles/No. of Positions	Mfrs. List No.	Order Code	1+	50+	100+	Price Each
<b>Vertical Knob</b>						
SPDT	STSSS9121	112-3875				
SP3T	STSSS9131	112-3876				
DPDT	STSSS9221	112-3878				
<b>Horizontal Knob</b>						
SPDT	SSSS916400	112-3880				
SP3T	STSSS9132	112-3881				
DPDT	SSSS925800	112-3882				

### Subminiature PCB Mounting - TSS Series

0.4VA @ 20V dc



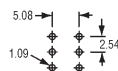
Vertical

Horizontal

PCB mounting plan



Vertical SPDT  
H=9.65, W=5.23, D=10.2



Horizontal SPDT  
H=5.23, W=10.20, D=9.65

213275

Vertical	Order Code	1+	25+	100+	250+	+	Price Each
SPDT	119-7656						
<b>Horizontal</b>							
SPDT	112-3977						

### Subminiature Washable, PCB Mounting

50mA @ 48V ac/dc



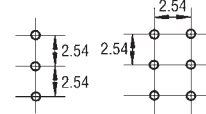
- Designed for low level switching PCB applications
- Switch slide fitted with silicone rubber cover enabling board washing, protected to IP67
- Cover may be removed after washing, or kept in place, still giving good positive action

Contact current range 1µA to 50mA  
Electrical life >50000 ops  
Insulation resistance >MΩ @ 250V dc  
Contact resistance <50mΩ max @ 1.5V @ 200u Vac  
Dielectric strength 500V @ 1 min  
Operating temperature -20°C to +80°C  
Terminal contacts Gold over Nickel Plate on Phosphor Bronze

PCB drilling plans

Vertical  
H=8, W=9.5, D=5  
H=(incl. pins)=11.3  
Overall H (including pins + slide)=14.6  
Pins: H=3.3, Dia=0.6

Mfrs. List Nos: SE1DGPC04=112-3958  
SE2DGPC04=112-3960



Vertical

SPDT

DPDT

213274

Configuration	Order Code	1+	25+	100+	250+	Price Each
SPDT - Vertical	112-3958					
DPDT - Vertical	112-3960					

### Miniature, PCB Mounting

0.1A @ 12V dc



443-6313  
H=8.4, W=8.2, D=8.6

443-6283  
H=11.5, W=8.2, D=4.3

- Variety of actuators and terminations
- Silver plated contacts

Rating 0.1A @ 12V    Insulation resistance @ 500V dc  
Operating life 10000 operations    Operating temperature -10°C to 70°C  
Contact arrangement SPDT    Dielectric strength 500V/1 min.  
Resistance, contact 20mohm

Mfrs. List No. OS102011MS2QN1 = 120-1430    OS102011MA1QN1 = 120-1431    311828

Orientation	Type	Order Code	5+	25+	100+	500+	Price Each
Vertical	SPDT	120-1430					
90 degree	SPDT	120-1431					

### Subminiature PCB Mounting

0.3A @ 115V ac/28V dc



- Unique design withstands aqueous or solvent cleaning processes
  - 2 or 4 pole types available
  - Bifurcated double wipe contacts provide dependable switching
  - Industry standard 0.1" x 0.3" pin spacing
- H=4.4, D=7.37, W=10.2(DP), 17.8 (4P)

Extended Top Actuator  
Electrical life 10000 cycles

213279

Mfrs. List No.	Order Code	1+	25+	100+	250+	Price Each
<b>Extended, Top Actuator</b>						
DPDT	ASE2204	112-3950				
4PDT	ASE4204	119-7659				

### GDH Series Slide Switch

8A @ 20V dc



- Unique design allows GDH series to withstand aqueous or solvent cleaning processes
- High temperature anti-static plastic construction

- GDH series -Flush actuator
- Bifurcated double wipe contacts provide dependable, telecom grade switching
- Industry standard .100 x .300 pin spacing

Contact Current 25mA    Electrical Life 1000 ops    Insulation Resistance    Contact Resistance 100mohm    Dielectric Strength    Operating Temperature -30 to 85°C

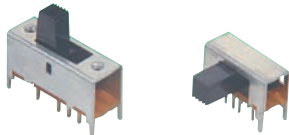
## GDH Series Slide Switch - continued

8A @ 20V dc - continued

Function		Mfrs. List No.	Order Code	1+	25+	100+	250+
Flush actuator							
DPDT on - on		GDH10S04	<b>SMD112-3957</b>				

## PCB Mounting

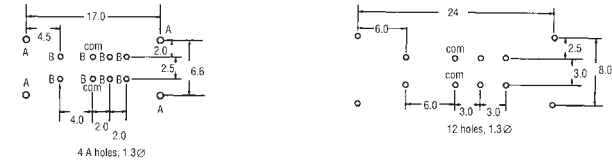
0.3A @ 125V ac/dc



Double pole 3 position slide switches available in vertical or right angle PCB mounting.

Contact resistance <20mohm  
Mfrs. List Nos: SP112=117-9934  
SN1010-DP3T=117-9935

117-9934 Body: L=25, W=8, Stand off H=19.5  
117-9935 Body: L=18, W=6.6, Stand off H=14



Order Code	Price Each				
	1+	25+	100+	250+	1K+
Vertical <b>117-9934</b>					
Right angle <b>117-9935</b>					

## Miniature Slide

0.4 VA @ 20V ac or dc



- 3 Position switch. ON in LH, OPEN in centre, ON in RH place
- Gold plated copper alloy contacts
- White nylon case with black case and actuator
- Epoxy sealed terminations

Contact Rating - Max. 0.4VA @ 20V ac/dc  
Contact Rating - Min. 10mA @ 20mV ac/dc  
Mechanical life 20000 operations  
Contact resistance <50mohm  
Operating temperature -40°C to +80°C

SPDT (Body) - H = 7.7, W = 14, D = 7.8mm  
DPDT (Body) - H = 7.7, W = 14, D = 12.8mm

Switch		Mfrs. List No.	Order Code	1+	25+	50+	100+	500+
2.8mm Top Actuator								
SPDT	6MS1S2M1RE	<b>155-0246</b>						
DPDT	6MD1S2M2RE	<b>155-0247</b>						
6mm Top Actuator								
SPDT	6MS1S4M1RE	<b>155-0248</b>						
DPDT	6MD1S4M2RE	<b>155-0249</b>						
2.3mm Side Actuator								
SPDT	6MS1S3M1RE	<b>155-0250</b>						

## Miniature, PCB Mounting

2A @ 250V ac (silver), 100mA 30V dc (gold)



Standard top button H=11, W=14, D=8 (DPDT=12.5)  
Side button H=8, W=14, D=10 (DPDT=12.5)  
High top button H=14, W=14, D=8

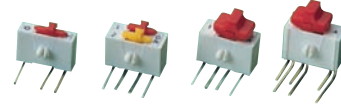
- Sealed terminals
- Gold plated contact options allow low level switching
- Switch positions are marked 1 & 2
- Switch button protrudes by 2mm (standard), 6mm (high)

Minimum load	100mA @ 10V (silver) 10µA @ 5V - 10mA @ 50mV (gold)	Initial contact resistance	<10mohm (silver) <10mohm (gold)
Insulation resistance	@ 500V	Electrical life	10000 ops
Mfrs. List No.	25136NAH=108-2284 25336NA=108-2289 25136NAH6=108-2285	Operating temperature	-40°C to +85°C
	25146NAH=108-2288 25546NA=108-2290		
	25136NLDH=108-2286 25136NLDH6=108-2287		

Silver Contacts	Order Code	Price Each				
		1+	25+	100+	250+	500+
SPDT, standard top button	<b>108-2284</b>					
SPDT, side button	<b>108-2289</b>					
SPDT, high top button	<b>108-2285</b>					
DPDT, standard top button	<b>108-2288</b>					
DPDT, side button	<b>108-2290</b>					
Gold Contacts						
SPDT, standard top button	<b>108-2286</b>					
SPDT, high top button	<b>108-2287</b>					

## Low Profile, Edge Mounting - Series 015/017

5A @ 100V ac



120-3424 H=5.1, W=11.6  
120-3426 H=5.1, W=11.6  
120-3427 H=5.1, W=14.9

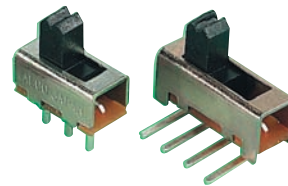
- Slide operation at right angle to pcb
  - Provides through panel access
  - Gold plated, 'U' piece contact
  - Pins on 2.54mm pitch
- Contact rating 5A @ 100V ac (non-switching) 1µA to 1A  
Initial contact resistance 10mohm typical (@ 10mA, 10mV)  
Insulation resistance (@ 500V dc min.)
- Operating temperature -55°C to +85°C  
Housing Polyester PBT, UL recognised  
Mechanical life 10000 ops

No. of Ways		Mfrs. List No.		Order Code		Price Each				
1+	25+	100+	250+	1+	25+	100+	250+	1K+	5K+	

<b>Single-in-line SPST</b>										
1	SDS-1-017	<b>120-3424</b>								
2	SDS-2-015	<b>120-3425</b>								
<b>Ganged style - DPST</b>										
1	SDD-1-015	<b>120-3426</b>								
<b>Ganged style DPDT</b>										
1	SCS-1G2-015	<b>120-3427</b>								

## Miniature PCB Mounting

0.25A @ 125Vac, 0.15A @ 12Vdc



Right Angle H=6, D=7.19  
Vertical H=10, D=5.9

Contacts (BBM)  
Case material Tin plate over steel  
Contact rating 250mA @ 125VAC, 150mA @ 12VDC 500V ac

Operating life 6000 ops  
Operating temp. -10°C to +60°C  
Contact resistance 30mohm max

Dielectric strength

PCB Mount	Length	Mfrs. List No.	Order Code	Price Each				
				1+	25+	100+	250+	
SPDT, vertical	11	SLS121PC04	<b>119-7660</b>					
SPDT, right angle	11	SLS121RA04	<b>112-3962</b>					

## Miniature 0.5A 50V dc



Miniature DPDT slide switch with solder tag connections. Ideal for prototyping, not recommended for industrial applications.

Contact Resistance <30mR  
Insulation Resistance 500mR @ 500V DC  
Mechanical Life 10000ops  
Proof Voltage ac 500V for 1 min

L=15.0 W=7.2, Fixing centres=19.0 Depth behind panel=11.5

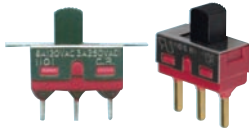
10 Per Pack		Price Per Pack				
Order Code	1+	10+	50+	250+	1K+	
<b>599-293</b>						

## Miniature - PCB and Panel Mount

3A @ 250V ac, 6A @ 28V dc



Panel mount Body: L=23, W=14, D=12, Panel cut-out=13.3 x 6.25, Fixing holes=3.3 dia x 34.0  
 Snap-in Body: L=27.35, W=14, D=14.8 Panel cut-out 29.75 to 30.65 x 14.2 to 14.3  
 PCB mount Body L=23, W=14, D=12



- Epoxy terminal seal, compatible with bottom-wash cleaning
- PCB mounting and Panel mount tab versions available
- PCB terminal and solder lug versions
- Silver-plated contacts for power switching
- CSA Approved, UL Recognised

Rating	6A @ 120VAC / 28V 3A @ 250V	Insulation resistance	1000V <sub>RMS</sub>
Operating life	40000 operations	Dielectric strength	-30°C to 65°C
Resistance, contact	10mohm	Operating temperature	

483267

Type	Mfrs. List No.	Order Code	1+	25+	100+	250+
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### PCB Terminals - Vertical Mount

SPDT - On-On	1101M2S3CQE2	143-7697				
SPDT - On-Off-On	1103M2S3CQE2	143-7698				
DPDT - On-On	1201M2S3CQE2	143-7699				
DPDT - On-Off-On	1203M2S3CQE2	143-7700				

### PCB Terminals - Right Angle Horizontal Actuation

SPDT - On-On	1101M2S3AQE2	143-7701				
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### Panel Mount - PCB Terminals - Vertical Mount

SPDT - On-On	1101M1S3CQE2	143-7710				
SPDT - On-Off-On	1103M1S3CQE2	143-7711				

### Panel Mount - Solder Lug Terminals - Vertical Mount

SPDT - On-On	1101M1S3ZQE2	143-7714				
DPDT - On-On	1201M1S3ZQE2	143-7716				

## Slide Switches

16A @ 125V ac, 10A @ 250V ac



- Black bodied switches positive action
- Black nylon (UL 94V-2) frames and actuators
- Brass terminals with silver plating
- Snap-in mounting
- 0.187" (4.75mm) square terminals
- UL Recognised

H = 20.6, W = 37.2, D = 22.4mm

Ratings - 1/3HP	16A @ 125V	Insulation Resistance	@ 500VDC
Ratings - 1/2HP	10A @ 250V	Dielectric Strength	1500VAC
Contact Resistance	50mohm	Flamability	UL 94V-2

520484

Switch Function	Mfrs. Marking	List No.	Order Code	1+	25+	50+	100+
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### SPST

Off-On	On Off	R13-608A1-02-BB-9A	163-4609				
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### SPDT

Off-On	On Off	R13-608C1-02-BB-9A	163-4617				
Off-On	I II	R13-608C1-02-BB-5A	163-4619				
On-Off-On	I II	R13-608D1-02-BB-5A	163-4620				

## Voltage Selectors

### Slide Switch, Snap-In Panel Mounting

5A @ 250V ac



- Two position mains slide switch with 120V or 240V markings
- Black nylon housing UL recognised
- Actuator lies flush with main body of switch to prevent inadvertent operation
- Approved to VDE, SEV and CSA

Operating Temperature -40°C to +85°C

Body: L=33, W=19, Depth behind panel=16  
 Panel cut-out=31.5 x 17.5, Tabs=2.8 x 0.8

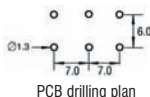
Mfrs. List No. SE1022

213110

Order Code	1+	25+	50+	100+	500+
106-213					

### Slide Switch, PCB and Panel Mounting

6(1)A @ 250V ac



- Two position mains slide switches with 115V and 230V markings
- Low profile actuator
- Approved to VDE, SEV, DEMKO, NEMKO, SEMKO, KEMA, SETI, OVE, UTE, SAA and CSA, UL recognised

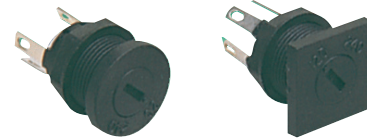
Mfrs. List No. T22205B=147-911, T22208E=242-536, X22205C=152-274

SW32/213263

Order Code	Price Each			
	1+	25+	100+	250+
Panel Mount T22205BAAC	147-911			
Snap-in T22208EAAG	242-536			
PCB Mount X22205CAAK	152-274			

## Rotary Switch, Panel Mounting

6.3A @ 250V ac



Body: L=14.3, Panel cut-out=12.75 dia, Bezel: Round=15.9 dia, Square=15.9 x 15.9, Keyway=2.54 x 1.25, Tabs L=7.9, W=2.8

- Two position mains rotary switch with 120 and 240 voltage markings
- Approved to VDE, CSA and SEMKO

Mfrs. List No. VS0002=149-288, VS0001=150-362

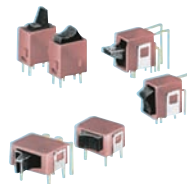
SW126/222296

Order Code	Price Each			
	1+	100+	250+	500+
Round	149-288			
Square	150-362			

## Rocker Switches

### Ultraminiature Rocker and Lever

0.4 VA @ 20V ac or dc



- Rocker and Lever actuator styles available
- Black actuators
- Gold plated copper alloy contacts
- Glass filled nylon body, UL 94V-0 Rated

Body Dimensions (mm) - Rocker and Lever	H	W	D
SPDT - Vertical Vertical	7	4.5	7
DPDT - Vertical Vertical	7	4.5	7
SPDT - Solder	5.15	7	7.69
DPDT - Solder	5.15	7	7.69
SPDT - Vertical Right Angle	7.65	4.5	7.68
DPDT - Vertical Right Angle	7.65	4.5	7.68

Contact Rating	0.4VAMax. @ 20V ac/dc	Rocker length	2.3mm
Mechanical life	50000 operations	Lever length	3.8mm
Contact resistance	<100mohm	Operating temperature	-30°C to +85°C

501416

Switch Function	Mfrs. List No.	Order Code	1+	50+	100+	500+
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### Rocker - Horizontal Mount, Right Angle Body

SPDT - On-On	4US1R102M6RN	155-0222				
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### Rocker - Vertical Mount, Right Angle Body

SPDT - On-On	4US1R102M7RN	155-0227				
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### Lever - Vertical Mount, Vertical Body

SPDT - On-On	4US1R202M2RN	155-0231				
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### Lever - Horizontal Mount, Right Angle Body

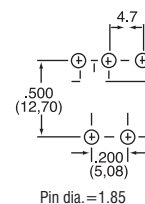
SPDT - On-On	4US1R202M6RN	155-0235				
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### Lever - Vertical Mount, Right Angle Body

DPDT - On-On	4UD1R202M7RN	155-0243				
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## Miniature, Sealed PCB

SPDT 0.4VA max. @ 20V ac/dc



Body H=6.6, W=12.7, D=12.7  
 Pin dia.=1.85

- Gold plated contacts for low level switching
- Mounting bracket solders directly to PCB
- Process sealed to withstand machine soldering and pressure wash cleaning
- Anti-static rocker

Contact Resistance	< 10mRtp.	Operating Temperature	-30°C to +85°C
Insulation Resistance	<MR	Static Resistance	11kV rms

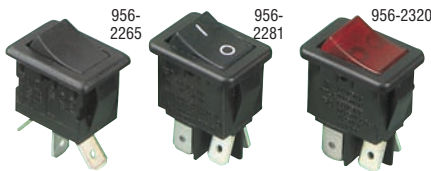
Mfrs. List No. E101J1ABE2

List No.	Order Code	Price Each			
		1+	50+	100+	500+
E101J1ABE2	957-5421				

# Rocker Switches - continued

## Miniature

4A @ 250V ac 10(6) @ 250V ac



Bezel=21 x 15  
Depth= x 22.7  
Tabs=4.8 x 0.8  
Cut out: 1mm panel  
(Min) 19.3 x 13  
3mm panel  
(max) 19.5 x 13

- Compact range of rocker switches
- Fit standard panel cut-out

Mechanical Life	>100000 ops	Insulation Resistance	>MR
Operating Temperature	0°C to +85°C	Contact Resistance	20mR
Dielectric Strength	3.5KV ac	Inrush Current	100A

213292

Rating	Mfrs.	Order Code	1+	50+	100+	250+
<b>Non-Illuminated</b>						
<b>4A @ 250V ac</b>						
SPST	MC36328-001-01	956-2257				
SPDT	MC36328-011-01	956-2265				
DPST	MC3813-011-01	956-2273				
DPST - I/O	MC3813-011-021	956-2281				
<b>Illuminated</b>						
DPST Red	MC3811-091-02 Red	956-2320				
DPST Green	MC3811-091-05 Green	956-2338				

## Miniature - CWSC Series

9A @ 125V ac or 6A @ 250V ac



- Full face LED illumination
- Interior shield prevents contamination of rocker
- Front panel snap-in mounting
- Snap action gives smooth action and audible feedback
- Solder lug/Quick connect terminals
- LED supply accessed by two separate terminals

Bezel = 21.1 x 15.1mm,  
Panel cut-out = 19.2 x 12.9mm

Electrical Life	10000 ops	Insulation Resistance	> @ 500V dc
Mechanical Life	30000 ops	Contact Resistance	<20mR
Operating Temperature	-10°C to +50°C	Operating Force (Nom.)	SPST - 4.5N, DPST - 10N

### LED

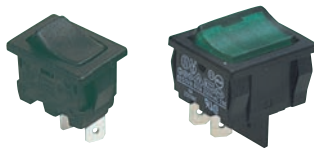
Forward Peak Current	30 mA
Continuous Forward Current	20 mA
Reverse Peak Voltage	5 V
Forward Voltage	2.0 V

444680

Illumination	Mfrs.	Order Code	1+	50+	100+	250+	500+
<b>SPST</b>							
Green	CWSC11JFAFS	123-0622					
<b>DPST</b>							
Green	CWSC21JFAFS	123-0625					

## Miniature - 8600 Series

6(1)A @ 250V ac (SPST Momentary, SPDT, DPST Illuminated, DPST)  
10(4)A @ 250V ac (SPST, DPST)



Single pole

Double pole

Single pole Bezel=21 x 15, Depth=19, Panel cut-out=19.3 x 13, Tab=4.8 x 0.8  
Double pole Bezel=24 x 21, Depth=19, Panel cut-out=19.3 x 21.9, Tab=4.8 x 0.8

- Approved to BEAB, VDE, SEV, DEMKO, SEMKO, NEMKO, SEMKO, KEMA, SETI, UTE, OVE and CSA. UL recognised
- Momentary type has push-to-make spring return action
- Illuminated type available with coloured illuminated rocker

Electrical Life	10000 ops	Insulation Resistance	>MR
Mechanical Life	50000 ops	Contact Resistance	<10mR
Operating Temperature	0°C to +90°C		
Mfrs. List No.	H8600VBAAA=151-133 H8601VBAAA=480-393 H8610VBAAA=151-134	H8620VBAAA=733-878 H8650VBAAA=151-135 H8660VBAAA=151-136	H8653VBNAC=152-266 H8653VBNAD=149-286 H8670VBAAA=767-4058

222306

Non Illuminated	Order Code	Price Each			
		1+	25+	100+	500+
SPST	151-133				
SPST	480-393				
SPDT	151-134				
SPDT	733-878				
DPST	151-135				
DPDT	151-136				
DPDT	767-4058				
<b>Illuminated</b>					
DPST, Red	152-266				
DPST, Green	149-286				

## Miniature Rocker Switches

16A @ 125V ac or 16A @ 250V ac



- For high current switching
- Available with vertical or horizontal marking
- Dust & waterproof construction
- 1 to 2.8mm panel thickness (2mm with rubber cap)
- Easy to mount by snap fitting
- UL Recognised

Bezel = 24 x 17mm, Depth = 2mm  
Body = 21.5 x 25.8 x 14.8mm

Rating	16A @ 125V
Electrical Life	10000 ops.
Mechanical Life	50000 ops.
Insulation Resistance	@ 500VDC
Dielectric Strength	2000 VAC 50/60Hz, for 1min between terminals of the same polarity 4000 VAC 50/60Hz, for 1min between terminal and case ground.
Temperature operating	-25 to 55°C

535695

Mfrs.	Switch	Function	Marking	Order Code	1+	25+	100+	250+	500+
List No.									
A8WS-1162	SPST	Vertical		169-5870					
A8WS-1163	SPST	Horizontal		169-5871					
A8WD-1163	DPST	Horizontal		169-5866					
A8WD-263	DPST	Horizontal		169-5868					
<b>Accessories</b>									
A8W-RUBBER CAP	Rubber Cap			169-5869					

## Miniature - 'Mini Visirocker'™

6(4)A @ 250V ac



- Matt black switches with coloured section (red or green) on rocker that becomes visible in 'ON' position
- I/O markings on rocker for status indication
- Approved to VDE, SEV, SEMKO, BEAB, DEMKO, NEMKO, SETI and CSA. UL recognised

Bezel=21.0 x 15.0, Depth=27, Panel cut-out=19.2 x 12.9, Tab=4.7mm

Mfrs. List No.	6211691909V 6211691909G	Order Code	120-3337 120-3338	Mfrs. List No.	6211591909V 6211591909G	Order Code	120-3339 120-3340
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624118

	Order Code	Price Each				
		1+	25+	100+	250+	500+
SPST, Red	120-3337					
SPST, Green	120-3338					
DPST, Red	120-3339					
DPST, Green	120-3340					

## Miniature - 8800 Series

10(6)A @ 250V ac



- Slimline body
- High rating 10(6)A @ 250V ac
- Approved to BEAB, VDE, SEMKO, DEMKO, NEMKO, SETI, KEMA, OVE, SEV, NF-USE, IMQ and CSA. UL recognised
- Available with or without I/O status marking

Bezel=21 x 9.5, Depth=24,  
Panel cut-out=19.3 x 6.8, Tab=4.8 x 0.8

Electrical Life	10000 ops	Contact Gap	> 3.0mm
Contact Resistance	<10mR	Insulation Resistance	MR
Breakdown Voltage	<2kV		

Mfrs. List No. H8800VA BLK = 678-120, H8800VA BLK = 678-132

213215



**NEW**

	Order Code	1+	100+	250+	500+	1K+
SPST	678-120					
SPST, I/O	678-132					

**Miniature - 8500 Series**  
10(6)A @ 250V ac, 85A Inrush (EN61058-1)



Bezel=21 x 15, Body=16.9 x 12.1, Depth=23,  
Panel cut-out=19.3 x 13, Tab=4.8 x 0.8

- DPST switches that fit into standard SPST panel cut-out
- Approved to **BEAB, VDE, SEV, DEMKO, SEMKO, NEMKO, KEMA, SETI, UTE, IMQ** and **CSA**. UL recognised
- Non-illuminated type available with or without I/O marking for status indication
- Illuminated type available with coloured illuminated rocker

Electrical Life	10000 ops	Insulation Resistance	>MR
Mechanical Life	50000 ops	Contact Resistance	<10mR
Operating Temperature	0°C to +125°C		

Mfrs. List No.	H8550VBAAA=149-905 H8500XBAAA=389-997 H8500XBAAAC=390-010	H8550VBACA=273-200 H8550XBAAA=390-021 H8550XBAAAC=566-147	H8553VBNAF=149-863 H8553VBNAE=149-864 H8553VBNAO=150-388
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Non-Illuminated	Rocker/Marking	Order Code	1+	25+	100+	250+	500+
SPST	Black with I/O Red	389-997					
SPST	Black with I/O Green	390-010					
DPST	Black	149-905					
DPST	Black with I/O White	273-200					
DPST	Black/Red with I/O	390-021					
DPST	Black/Green with I/O	566-147					
Illuminated							
DPST	Red	149-863					
DPST	Green	149-864					
DPST	Amber	150-388					

**Splash Proof Covers**



Single pole cut-out 19.3 x 13  
Double pole cut-out 19.3 x 21.9

- PVC
- Cover simply clips over the switch mounted on the panel
- Seals to **IP64** and **DIN40050**, switch operation is unaffected
- Single pole size is suitable for Arcoelectric subminiature rocker switches 8600 series (single pole size) and 8500 series
- Double pole size is suitable for Arcoelectric subminiature rocker switches 8600 series (double pole size)

Mfrs. List No.  
L167=149-287, F0180LQ=151-575

Order Multiple=10	Order Code	10+	100+	250+	500+
Mfrs. List No.					
F0167LOAAA	149-287				
F0180LOAAA	151-575				

**Miniature Rocker Switches**  
10A@250Vac

**NEW**



Operating Force	≤ 5N
Inrush current	100A
Contact resistance	< 100mΩ
Insulation resistance	> 100MΩ
Protection type	IP 40
Temperature	-20°C to +100°C (terminal side) -20°C to +55°C (actuating side)
Flammability	UL 94 V-0
Material	PA (Actuator) PA (Housing) Silver plated (Terminals)
Plug force of the terminals	≤ 80N

Size: H 21 x W 15 x D 28

- Non-illuminated rocker switch
- Powerful with inrush currents (capacitive) up to 100 A
- Immediately self-extinguishing due to UL 94 V-0 material
- Conformant acc. to EN 60065 par. 14.6

Mfrs. List No.	Terminal Legend	Type	Order Code	1+	10+	25+	50+
1858.1102-01		Quick Connect	183-9496				
1858.1103-01	O I	Quick Connect	183-9497				
1858.4205-01		PCB	183-9498				

**Miniature Rocker Switches - DPDT**

4A @ 250V ac



Size: H 21 x W 15 x D 23.5

Contact resistance	< 100mΩ
Insulation resistance	> 100MΩ
Protection type	IP 40
Temperature	-20°C to +85°C (terminal side) -20°C to +55°C (actuating side)
Flammability	UL 94 V-2
Material	PA (Actuator) PA (Housing) Silver plated (Terminals)
Plug force of the terminals	≤ 80N

Mfrs. List No.	Actuator Colour	Order Code	1+	10+	25+	50+	100+
1855.1102-00	Red	183-9492					
1855.1104-00	Yellow	183-9493					
1855.1108-00	Green	183-9495					

**Rocker Switch**

6A@250Vac

**NEW**



Operating force	2 - 5N
Contact resistance	< 100mΩ
Insulation resistance	> 100MΩ
Protection type	IP 40
Temperature	-20°C to +85°C (terminal side) -20°C to +55°C (actuating side)
Flammability	UL 94 V-2
Material	PA (Actuator) PA (Housing) Silver plated (Terminals)
Plug force of the terminals	≤ 80N

Size: H 21 x W 9.5 x D 22.5

- Reliable leaf spring contact system with contact spacing ≥ 3mm
- Contact Configuration: SPST
- Actuator color: Black
- Attractive, slim design
- Low space requirement due to small sizes
- Quick connect terminals

Mfrs. List No.	Order Code	1+	25+	50+	100+	250+
1911.1102	183-1127					

**Rocker Switches**

6A@250Vac

**NEW**



Contact resistance	< 100mΩ
Insulation resistance	> 100MΩ
Protection type	IP 40
Temperature	-20°C to +105°C (connection side) -20°C to +55°C (actuating side)
Flammability	UL 94 V-2
Material	PA / PC (Actuator) PA (Housing) Silver plated (Connections)
Plug force of the terminals	≤ 80N

Size: H 31.5 x W 14 x D 27

- 100 million times proven switching principle
- Mechanical life endurance up to 1 million switching cycles
- Wide variety
- Two housing variants
- Excellent actuating characteristic
- Illuminated and non-illuminated variants

Mfrs. List No.	Actuator Colour	Legend	Order Code	1+	25+	50+	100+
<b>Non-Illuminated - SPNO</b>							
1831.3402-02	Black		183-1110				
<b>Non-Illuminated - DPST</b>							
1834.3302	Black		183-1113				
1832.3312	Black	I O	183-1111				
<b>Illuminated - DPST</b>							
1835.3112	Red	I O	183-1114				
1835.3118	Green	I O	183-1115				

# Rocker Switches - continued



## Standard - 40 Series Single pole, 50 Series Double pole

10(4)A @ 250V ac



- Standard Range of Rocker Switches available in single and double pole
- CSA approved, UL Recognised
- Single pole has VDE approved

Single pole bezel=30 x 13.9 Depth=29.6 Tabs=6.3  
Cut-out: 1mm panel (min.) 27.3 x 12.2  
3mm panel (max) 27.5 x 12.2

Double pole bezel=21 x 15 Depth=22.7 Tabs=6.3  
Cut-out: 1mm panel (min) 27.2 x 22.1 3mm panel (max) 27.2 x 22.3

Mechanical Life >100000 ops  
Operating Temperature 0°C to +85°C  
Dielectric Strength 3.5kV ac  
Insulation Resistance >MR  
Contact Resistance 20mR

213293

Switch Function	Mfrs. List No.	Order Code	1+	50+	100+	250+
SPST	MC33428-001-11	956-2290				
SPDT Centre Off	MC33412-041-11	956-2346				
DPST	MC33523-001-91	956-2303				
DPDT	MC33523-011-91	956-2311				
DPDT Centre Off	MC3350-041-91	956-2354				

## Latching Action - RSS and RSM Series

10A @ 250V ac



- Compact range of rocker switches
- Sealed to IP40, IP65 with transparent cover
- Fit standard panel cut-out
- VDE Approved, UL Recognised
- Snap in mounting

Switching Capacity (UL 1054) 10A @ 125-250V  
Switching Capacity (EN 61058-1) 10(4)A250V 6(4)250V 5E4  
Mechanical Life >50000 ops  
Operating Temperature (max.) (UL 1054) 65°C  
Contact opening >3mm  
Insulation Resistance >MR  
Contact Resistance <50mohm  
Creeping current resistance PTI 250

Dimensions H x W x D (body) L x W x D (panel cut-out) Terminal Type  
116-2728 11.7 x 15 x 21mm 13 x 19 x 3mm 1.7mm x 0.8mm - Solder Terminals  
116-2729 11.7 x 18.5 x 12.9mm 13 x 19 x 3mm 4.8mm x 0.8mm -  
116-2734 14 x 15 x 21mm 13 x 19 x 3mm 4.8mm x 0.8mm -  
116-2735 11.7 x 24 x 21mm 19 x 22 x 4mm 4.8mm x 0.8mm -

428907

Colour	Mfrs. List No.	Order Code	1+	10+	50+	100+
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### Single Pole - RSS

Black	1301.9205	116-2728				
Black	1301.9206	116-2729				

### Illuminated, Double Pole - RSS

Green	1301.9211	116-2734				
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### Illuminated, Double Pole - RSM

Green	1301.9212	116-2735				
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### IP 65 Transparent Covers

For RSS Models	1301.9209	116-2732				
For RSM Models	1301.9210	116-2733				

## Standard - 'Softline' Series

10(3)A 250V ac, 16A 6 to 24V dc (Standard Versions)

16(4)A 250V ac, 150A Inrush (High Inrush Versions)



150-552 150-554 151-573  
Single pole Bezel=14 x 30.2, Depth=16.2, Panel cut-out=11.5 x 28.2, Tab=6.35 x 0.8mm  
Double pole Bezel=25 x 30.2, Depth=16.2, Panel cut-out=22.3 x 28.2, Tab=6.35 x 0.8mm

- Ergonomic design and appearance
- Illuminated types available with either coloured illuminated rocker or coloured neon spot illumination on rocker (Illumination requires 230Vac)
- All double pole on/off types feature contact gap greater than 3mm suitable for mains

isolation to CEE24 class 2

● High inrush types are rated 150A Inrush to IEC65

● Approved to BSI, BEAB, VDE, SEV, SEMKO, NEMKO, DEMKO, KEMA, SETI, UTE, OVE and CSA. UL recognised

Electrical Life 10000  
Mechanical Life 50000  
Operating Temperature 0°C to 125°C (standard)  
0°C to 85°C (high rush)  
Insulation Resistance <  
Contact Resistance <10Mohm

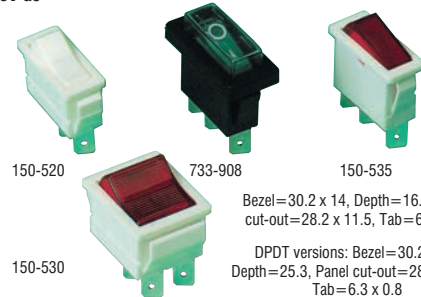
Mfrs. List No.	Order Code	Mfrs. List No.	Order Code	Mfrs. List No.	Order Code
C1500ATAAA	150-549	C1561ATAAA	767-4210	C1553ATNAE	151-573
C1501ATAAA	480-381	C1570ATAAJ	150-556	C1553PTNAB	150-557
C1510ATAAA	150-550	C1572ATAAA	767-4201	C1553PTNAO	150-558
C1520ATAAA	150-551	C5503ATNAB	151-574	C1350ATAAB	242-822
C1522ATAAA	767-4180	C5503ATNAF	311-6888	C1353ATNAN	242-834
C1550ATAAD	150-554	C5503PTNAM	150-552	C1353AT0/1GRN	521-942
C1560ATAAB	150-555	C5503PTNAN	150-553		

624074

	Order Code	1+	25+	100+	250+	500+
<b>Non-Illuminated</b>						
SPST Off-On	150-549					
SPST Off-(On)	480-381					
SPDT On-On	150-550					
SPDT On-Off-On	150-551					
SPDT (On)-Off-(On)	767-4180					
DPST Off-On	150-554					
DPDT On-On	150-555					
DPDT On-(On)	767-4210					
DPDT On-Off-On	150-556					
DPDT (On)-Off-(On)	767-4201					
<b>Illuminated</b>						
SPST Off-(On)	151-574					
SPST Off-(On)	311-6888					
SPDT Off-(On)	150-552					
SPDT Off-(On)	150-553					
DPST Off-On	151-573					
DPST Off-On	150-557					
DPST Off-On	150-558					
<b>High Inrush, with I/O marking</b>						
DPST Off-On	242-822					
DPST Off-On	242-834					
DPST Off-(On)	521-942					

## Standard - 1500 Series

16(4)A @ 250V ac



Bezel=30.2 x 14, Depth=16.2, Panel cut-out=28.2 x 11.5, Tab=6.3 x 0.8

DPDT versions: Bezel=30.2 x 25, Depth=25.3, Panel cut-out=28.3 x 22.4, Tab=6.3 x 0.8

Approved to BS3955, VDE, SEV, DEMKO, NEMKO, OVE and CSA. UL recognised

Electrical Life 10000 ops  
Mechanical Life 50000 ops  
Operating Temperature 0°C to +85°C  
Insulation Resistance >MR  
Contact Resistance <10MR

Mfrs. List No.

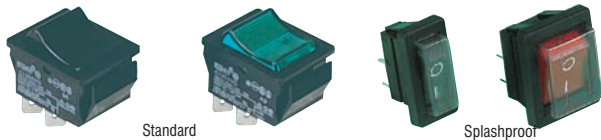
C1500VQASG=150-519 = C1553VQNAM=150-530 C5503FQNAE=150-535  
C1500VQAAJ=150-520 C1560VQAAA=150-533 C1553VQNAL=150-531 C5503ALNEA=733-891  
C1510VQASB=150-525 C1553VQNAL=150-529 C1553VQNAF=150-532 C5503ALNEB=733-908

213241

	Body Colour	Order Code	1+	50+	100+	250+
<b>Non-Illuminated (Curved Rocker)</b>						
SPST	Black	150-519				
SPST	White	150-520				
SPDT	Black	150-525				
DPDT	Black	150-533				
<b>Illuminated (Curved Rocker)</b>						
DPST, red	Black	150-529				
DPST, red	White	150-530				
DPST, green	Black	150-531				
DPST, green	White	150-532				
<b>Illuminated, High Brightness (Flat Rocker)</b>						
SPST, red	White	150-535				
<b>Splashproof</b>						
SPST, red illumination		733-891				
SPST, green illumination		733-908				

## Standard - 1350 Series, High Inrush Positive Break

16(4)A @ 250V ac, 150A Inrush



Standard  
Bezel=30.2 x 25, Depth=16.2,  
Panel cut-out=28.2 x 22.3, Tab=6.3 x 0.8

Splashproof  
Single pole Bezel=32 x 14,  
Depth=25.3  
Panel cut-out=30 x 11  
Double pole Bezel=36 x 29,  
Depth=25.3(behind panel  
inc. pins)  
Panel cut-out=30 x 22.1

- 150A Inrush rated to IEC65
- Non-illuminated types with black gloss rocker
- Illuminated types with coloured illuminated rocker
- White I/O markings on rocker for status indication
- Splashproof types have clear flexible cover giving switch sealing to IP65, and fit 'European' cut-out
- Suitable for class II appliances
- Approved to VDE, BEAB, SEV, DEMKO, NEMKO, SEMKO, KEMA, SETI, OVE and CSA. UL recognised

Initial inrush current	150A to IEC65	Insulation Resistance	>MR
Electrical Life	10000 ops	Contact Resistance	<10mR
Mechanical Life	50000 ops	Operating Temperature	0°C to +85°C

Mfrs. List No.

C1350VQAAB=149-901	C1353VQAC=149-904	C1350ALGAE=480-356
C1350VQ0/1BLK=521-954	C1353VQ0/1RED=521-966	C1353ALGNF=480-368
C1353VQAAA=149-902	C1353VQ0/1GRN=521-978	C1353ALGNE=480-370
C1353VQANAB=149-903	C1300ALGAA=733-880	

213096

		Price Each				
Non-Illuminated	Order Code	1+	50+	100+	250+	500+
DPST	149-901					
DPST, I/O marking	521-954					
<b>Illuminated</b>						
DPST, red	149-902					
DPST, amber	149-903					
DPST, green	149-904					
DPST, I/O marking, red	521-966					
DPST, I/O marking, green	521-978					
<b>Splashproof</b>						
SPST, non-illuminated	733-880					
DPST, non-illuminated	480-356					
DPST, red illumination	480-368					
DPST, green illumination	480-370					

## Standard - 1350 Series Rocker Switch with Guard

16(4)A, 250Vac, 150A Inrush



Bezel = 32 x 25 x 9.2, Panel cut-out = 30.1 x 22.2, Tab = 6.3 x 0.8mm

- Provides additional security against accidental operation
- Standard double pole rocker switch
- Illuminated and non-illuminated versions
- Approvals: UL & CSA (20A, 250Vac), IEC (16(4)A, 250Vac)

Initial inrush current	150A to EN61058-1	Contact Resistance	<10mohm
Electrical Life	10000	Insulation Resistance	>
Mechanical Life	50000	Operating Temperature	0°C to +85°C

544802

		Price Each					
Body	List No.	Order Code	1+	25+	100+	250+	500+
<b>Non-Illuminated</b>							
Guard	C1350AGAAA	175-8735					
Cover	C1350AHAAA	175-8738					
<b>Illuminated</b>							
Red Guard	C1353AGNAA	175-8736					
Green Guard	C1353AGNAB	175-8737					
Red Cover	C1353AHNAA	175-8739					
Green Cover	C1353AHNAB	175-8740					

## Splashproof - 6000 Series

16(4)A @ 250V ac - ENEC, 20A @ 277V ac - UL/CSA



- Approved to ENEC and CSA, UL recognised
- Double pole switches printed with I/O marking
- Splashproof to IP44
- High in-rush capability: 150A to EN61058-1

Insulation Resistance	>MR	Operating Temp	0°C to +125°C
Contact Resistance	20mR	Contact Gap	3.0mm
Electrical Life	10000 ops	Mechanical Life	50000 ops

Double Pole: Bezel = 31.25 x 25, Depth = 30,  
Panel Cutout = 30 x 22.1, Tab = 6.3 x 0.8

Mfrs. List No.

C6050ALAAC=767-4155	C6053ALNAE=767-4163	C6053ALNAM=767-4171
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347638/405389

		Price Each				
Rocker	Order Code	1+	25+	100+	250+	500+
<b>Non-Illuminated</b>						
DPST	Black	767-4155				
<b>Illuminated</b>						
DPST	Red	767-4163				
DPST	Green	767-4171				

## Sealed - IP68

16A @ 28Vdc, 10A @ 120Vac



- Sealed to IP68 withstands direct waterspray without the need for a cover
- UV and solvent resistant
- Withstands extreme shock and vibration
- Switches up to 16A
- Rear seal with potted contacts
- Black rocker, black bezel with 1-0 legend option

Single Pole: Bezel 28.5 x 16, Depth=36.83 (inc. tabs), Panel cut-out 27.22 x 12.19, Tab 6.3 x 0.8  
Double Pole: Bezel 28.5 x 26.9, Depth=36.83 (inc. tabs), Panel cut-out 27.22 x 22, Tab 6.3 x 0.8

Electrical Life 50000 ops Operating Temperature -30°C to +85°C

213155

		Price Each				
Rocker	List No.	Order Code	1+	25+	50+	
SPST	Black I/O	K1ABAAAAAR	113-8733			
DPST	Black I/O	K2ABAAAAAR	113-8773			

## Rocker Switches - IP65

20A@250Vac



Operating force	3 - 8N
Contact resistance	< 100mΩ
Insulation resistance	> 100MΩ
Protection type	IP 65
Temperature	-30°C to +105°C (terminal side) -30°C to +55°C (actuating side)
Flammability	UL 94 V-2 UL 94 V-0 (housing and socket only)
Material	PC / TPU (Actuator) PA (Housing) Silver plated (Terminals)
Plug force of the terminals	≤ 80N

Size: H 36.4 x W 27.6 x D 35.29

- Illuminated and non-illuminated variants with various switching functions
- IP 65 with integrated gasket for high dust and water protection
- Inrush currents (capacitive) up to 120 A
- Approval for 400 V
- 100 million times proven switching principle
- Modern rocker design

617262

		Price Each					
Mfrs. List No.	Actuator Colour	Legend	Order Code	1+	10+	25+	50+
<b>DPST</b>							
1932.3112-02	Black	O I	183-9503				
<b>DPDT</b>							
1934.3114-02	Black	O I	183-9504				
<b>DPDT - Center OFF</b>							
1939.3119-04	Black	I O II	183-9505				

## Sealed - IP68

20(15)A @ 28 Vdc, 16A @ 110Vac



- Snap in panel mount rocker switches to IP68
- 6.35mm Faston terminals
- Cut out 44 x 22mm
- Double pole options in ST, DT, momentary and illuminated
- UL recognised

Bezel=25.9 x 48.00, Depth=48.48 (inc. tabs). Panel Cut Out = 22 x 43, Tab 6.3 x 0.8



# Rocker Switches - continued

## Sealed - IP68 - continued

### 20(15)A @ 28 Vdc, 16A @ 110Vac - continued

Mfrs. List No.	Rocker	Configuration	Sequence	Order Code
K3AB2AAA	Black	DPST	on-off	113-8763
K3AB2EAA	Black	DPDT	mom-off-mom	113-8774
K3ABANB-10	Red LED	DPST	on-off	113-8764
K3AB2APB-20	Green LED	DPST	on-off	113-8766
K3AB1BAA00-E3E4992	I/O	SPDT	on-off	113-8767

Mechanical Life: 100000 ops  
 Electrical Life: 25000 ops  
 Rating: 20(15)A@28Vdc, 8A@240VAC  
 Illumination: 12V LED  
 Seal: IP68  
 Operating Temperature: -40°C to +85°C

Case/Bezel: Thermoplastic  
 Actuator: Thermoplastic  
 Contacts: Silver Alloy  
 Terminals: Brass

227860

Sequence	Order Code	1+	25+	50+
DPST on-off	113-8763			
DPDT mom-off-mom	113-8774			
DPST on-off	113-8764			
DPST on-off	113-8766			
SPDT on-off	113-8767			
Seal Gasket	113-8768			

- Black bodied switches positive action
  - Non-illuminated types available with either I/O status marking or with coloured section (red or green) that becomes visible in 'ON' position
  - Illuminated types available with colour illuminated rocker
  - Snap-in mounting
  - 6.3 x 0.8mm Quick connect terminals
  - CSA, VDE and CQC Approved, UL recognised
- Ratings - UL & CSA: 20A @ 125V ac, 15A @ 250VAC  
 Ratings - VDE, SEMKO & CQC: 16(6)A @ 250VAC  
 Contact Resistance: 20mohm  
 Insulation Resistance: @ 500VDC  
 Dielectric Strength: 3.5kV  
 Flammability: UL 94V-2

Function	Colour	Mfrs. List No.	Order Code	1+	25+	100+
<b>Non-Illuminated</b>						
SPDT	Black	MC34231-011-21	145-4380			
SPST	Black I/O	MC34231-001-71	145-4381			
SPST	Black / Red	MC34224-071-1601	145-4382			
DPST	Black I/O	MC37920-001-1101	145-4383			
<b>Illuminated</b>						
SPST	Red I/O	MC34231-091-72	145-4386			
DPST	Green I/O	MC37920-021-1104	145-4388			

Electromechanical

## Standard - H11/21 Series

### 16(4)A @ 250V ac



Illuminated Bezel=35.4 x 27.4, Depth=33.25, Panel cut-out=34.5 x 23.5, Tabs=6.3  
 Non-illuminated Bezel=33.4 x 27.4, Depth=33.25, Panel cut-out=34.5 x 23.5, Tabs=6.3

- Attractively styled dark grey plastic bezels and silk-chrome finish rockers
- Illuminated type has integral neon viewed through red polycarbonate lens

Maximum Working Temperature: +85°C  
 Mfrs. List No. H21CG1=996-8296 H21CG1R2=996-8288  
 H11CG1R2=996-8261

213239

Non-Illuminated	Order Code	1+	50+	100+	250+	500+
DPST	996-8296					
<b>Illuminated</b>						
SPST, red	996-8261					
DPST, red	996-8288					

## Standard - 'Softline' Series, European Cut-Out

### 16(4)A @ 250V ac (Standard Versions, except Centre Off =13.5A)

### 16(4)A @ 250V ac, 150A Inrush (High Inrush Versions)



273-211 273-247 521-930  
 Single pole : Bezel=33.4x14.0, Depth=16.2, Panel cut-out=30 x 11, Tab=6.3 x 0.8  
 Double pole : Bezel=33.4 x 25.0, Depth=16.2, Panel cut-out=30 x 22.1, Tab=6.3 x 0.8

- Matt black switches with 'European size' cut-out
  - Rockers available with either I/O status marking or with coloured section (red or green) that becomes visible in 'ON' position
  - Single throw versions have 150A inrush capability to IEC65
  - Illuminated types available with coloured illuminated rocker
  - Approved to VDE, SEMKO, DEMKO, NEMKO, SETI, BEAB, KEMA, OVE, SEV, NF-USE, IMQ and CSA. UL recognised
- Insulation Resistance >MR Operating Temp 0°C to +125°C (standard)  
 Contact Resistance 10mR 0°C to +85°C (high inrush)  
 Electrical Life 10000 ops
- Mfrs. List No.  
 C1510AB BLK=678-170 C1350ABAAB=273-235 C5503ABNAN=678-211  
 C1300ABAAA=273-211 C1350XBAAA=273-247 C1353ABO/1RED=521-929  
 C1300XBAAA=273-223 C1350XB BLK/GRN=678-223 C1353ABO/1GRN=521-930

## Standard - 'Visirocker™' Series, High Inrush

### 16(6)A @ 250V ac, 125A Inrush



- SPST matt black switches with coloured section (red or green) on rocker that becomes visible in 'ON' position
- I/O markings on rocker for status indication
- CSA approved, UL recognised

Bezel=31.35 x 17.07, Panel cut-out: 27.23 x 12.19 to 28.58 x 13.97, Tab=6.35 x 0.8

Current Rating 15A @ 250V ac Mechanical Life 100000 ops  
 16A(6)A @ 250V ac VDE Operating Temperature 0°C to +85°C  
 20A @ 125V ac  
 ¾HP @ 125V to 250V ac

Mfrs. List No. RSCA201VBB9V = 120-3341, RSCA201VBB9G = 120-3342

213117

Order Code	1+	25+	100+	250+	500+
SPST, red	120-3341				
SPST, green	120-3342				

## Standard Rocker Switches - MC34 & MC37 Series

### 16(4)A @ 250V ac



Single pole : Bezel=32 x 13.7, Body=27.7 x 10.6 x 18, Panel cut-out=30 x 11mm  
 Double pole : Bezel=32 x 25, Body=29 x 22.1 x 18, Panel cut-out=30 x 22.5mm

## Antimicrobial High Inrush Rocker

### 1300 Series

### 16(4)A @ 250VAC



- Uses BioCote® silver ion technology, providing antimicrobial properties
- Designed for 30x11 and 30x22 cut outs
- High inrush current capability - 150A
- Silver contacts with positive breaking switching action
- Recommended for use in Class II equipment
- O/I marking
- Connection by 6.3mm x 0.8mm blade terminals
- 50,000 operation electrical life



Contact rating	20A @ 250V	Insulation resistance	>20MΩ
Contact resistance	20mohm	Operating temperature max	85°C
Contact material	150A	Colour	Black



Mfrs.		Price Each					
Type	List No.	Order Code	1+	25+	100+	250+	500+
<b>Non-illuminated</b>							
SPST	C1300ALAAAB	206-8577					
DPST	C1350ALAAFB	206-8578					
<b>Illuminated (DPST)</b>							
Red	C1353ALGNBB	206-8579					
Green	C1353ALGNCB	206-8580					

### Antimicrobial Rocker

1500 Series  
16(4)A @ 250VAC



- Uses BioCote® silver ion technology, providing antimicrobial properties
- Designed for 30x11 and 30x22 cut outs
- Silver alloy contacts
- 85°C maximum operating temperature
- Connection by 6.3mm x 0.8mm blade terminals
- 10,000 operation electrical life
- 230VAC supply voltage for illuminated switches
- Approvals: ENEC, UL, CSA

**NEW**

Contact rating	16A @ 250V	IP rating	IP40
Contact resistance	100mohm	Colour	Black
Insulation resistance	>20MΩ		

Switch		Price Each				
Operation	Mfrs. List No.	Order Code	1+	25+	100+	250+
<b>SPST</b>						
On-Off	C1500ALAAAB	206-8581				
On-(Off)	C1501ALAAAB	206-8582				
On-Off-On	C1520ALAAEB	206-8583				
(On)-Off-(On)	C1522ALAAAB	206-8584				
<b>DPDT</b>						
On-On	C1560ALAAAB	206-8585				
(On)-On	C1561ALAAAB	206-8586				
On-Off-On	C1570ALAAAB	206-8587				
(On)-Off-(On)	C1572ALAAAB	206-8589				
<b>Illuminated (On-Off)</b>						
Red	C1553PLNAAB	206-8591				
Green	C1553PLNACB	206-8592				

### Antimicrobial Rocker Switches

6000 Series  
16(10)A @ 250VAC



- Uses BioCote® silver ion technology, providing antimicrobial properties
- Double pole high inrush rocker switches with splashproof construction to IP44 which protects current carrying switch parts and ducts any droplets entering the switch out through ports in the body
- 3mm contact gap
- 150A inrush current
- O/I marking
- Silver alloy contacts
- DPST
- Connection by 6.3mm x 0.8mm blade terminals

Contact rating	16A @ 250V / 10A @ 400V	Case material	-20°C to 85°C
Contact resistance	>100mohm		

Mfrs.		Price Each				
Type	List No.	Order Code	1+	25+	100+	250+
Non - Illuminated	C6050ALAACB	206-8573				
Red	C6053ALNAEB	206-8574				
Green	C6053ALNAMB	206-8575				

### Antimicrobial Miniature Rocker Switches

8500 Series  
10A @ 250VAC



- Uses BioCote® silver ion technology, providing antimicrobial properties
- O/I marking
- Silver contacts
- Inrush rating: 85A to EN61085-01
- Temperature range: 0°C to 125°C
- Connection by 4.8mm x 0.8mm blade terminals

**NEW**

Contact configuration	DPST	Insulation resistance	>20MΩ
Contact rating	10A @ 250V	Electrical life	10 <sup>5</sup>
Contact resistance	>100mohm	Case material	Nylon 6.6
Dielectric strength (between poles)	>1500V		

Mfrs.		Price Each				
Type	List No.	Order Code	1+	25+	100+	250+
Non - Illuminated	H8550VBACAB	206-8570				
Green	H8553VBNCRB	206-8571				
Red	H8553VBNACB	206-8572				

### Antimicrobial Splashproof Covers



- Uses BioCote® silver ion technology, providing antimicrobial properties
- Offers protection against moisture, grease and dust to panel mounted rocker switches
- Suitable for use with miniature illuminated rocker switches, curved rocker switches and mini Visi rocker switches

**NEW**

- Also suitable for 8300 and 8500 antimicrobial switches

Mfrs.		Price Each				
List No.	Order Code	1+	25+	100+	250+	500+
F0167L0AAAB	206-8593					

### Front/Rear Panel Mount - C1250 AN/AP

10(6)A @ 240V ac



480-344  
Panel cut-out=26.2 x 12.4 (snap-in fixing)  
Facia=23.8 x 13.1 with 3.4 radius corners  
Panel thickness=0.75/1.25, Tab=6.3 x 0.8

481-087  
Panel cut-out=27.2 x 12.4 (snap-in fixing)  
Bezel=29.5 x 15.0

- Double pole on-off switch with I/O markings
- Designed for front/rear snap fit panel mounting
- Particularly suited to equipment with removable front panels
- 3mm contact gap
- Suitable for Class II appliances
- Approvals include VDE, SEV, DEMKO, SEMKO, NEMKO, SETI, OVE, KEMAKEUR and CSA. UL recognised

Initial inrush current	75A to IEC65	Insulation Resistance	>MΩ
Electrical Life	10000 ops	Contact Resistance	<10mΩ
Mechanical Life	50000 ops	Operating Temperature	0°C to +85°C

		Price Each				
	Order Code	1+	25+	100+	250+	500+
DPST, Rear mount	480-344					
DPST, Front mount	481-087					

### Rocker Switches

20A@250Vac



Contact resistance	< 100mΩ
Insulation resistance	> 100MΩ
Temperature	-20°C to +100°C (terminal side) -20°C to +55°C (actuating side)
Flammability	UL 94 V-2 UL 94 V-0 PA / PC (Actuator) PA (Housing)
Material	
Plug force of the terminals	≤ 80N

Size: H 31.5 x W 14 x D 29.1

- 100 million times proven switching principle
- Mechanical life endurance up to 1 million switching cycles
- Two housing variants
- Excellent actuating characteristic
- Illuminated and non-illuminated variants
- Quick connect terminal

Mfrs.		Actuator		Price Each			
List No.	Colour	Legend	Order Code	1+	10+	25+	50+
<b>Illuminated - SPST</b>							
1830.3112-02	Red		183-9478				
1830.3118-02	Green		183-9479				
<b>Non-Illuminated - SPST</b>							
1831.1102	Black		183-1109				
<b>Non-Illuminated - SPDT - Center OFF</b>							
1838.3901-01	Red		183-9483				
1838.1509-01	Black	I O II	183-9481				
<b>Non-Illuminated - DPDT</b>							
1834.3309-00	Black	II I	183-9480				
<b>Protection Cap</b>							
203.731.011-00	For use with Single Pole		183-9484				
203.201.011-00	For use with Double Pole		183-9485				



## Rocker Switches

16A@250Vac

**NEW**



Contact resistance < 100mΩ  
 Insulation resistance > 100MΩ  
 Protection type IP 40  
 Temperature -20°C to +100°C (connection side)  
 -20°C to +55°C (actuating side)  
 Flammability UL 94 V-2  
 Material PA (Actuator)  
 PA (Housing)  
 Plug force of the terminals ≤ 80N

- Inrush currents (capacitive) up to 100 A
- Two housing variants (with flange or lower lying)
- With mechanical forced opening
- Illuminated window with lens effect
- Quick connect terminal

Size: H 30 x W 15 x D 29.8

617681

Mfrs. List No.	Actuator Colour	Legend	Order Code	1+	25+	50+	100+
<b>Non-Illuminated - SPST</b>							
1551.3102	Black		183-1103				
<b>Illuminated - SPST</b>							
1555.3102	Red	0	183-1119				
1555.3108	Green	0	183-1120				

## Rocker Switches

10A@250Vac

**NEW**



Contact resistance < 100mΩ  
 Insulation resistance > 100MΩ  
 Protection type IP 40  
 Temperature -20°C to +100°C (terminal side)  
 -20°C to +55°C (actuating side)  
 Flammability UL 94 V-2  
 Material PA / PC (Actuator)  
 PA (Housing)  
 Plug force of the terminals ≤ 80N

- 100 million times proven switching principle
- High, flexible design variety
- Excellent actuating characteristic
- Illuminated and non-illuminated variants

Size: H 21 x W 15 x D 26.9

617246

Mfrs. List No.	Actuator Colour	Legend	Legend	Order Code	1+	10+	25+
<b>Illuminated - SPST</b>							
1800.1102-01	Red		Quick Connect	183-9444			
1800.1108-01	Green		Quick Connect	183-9446			
<b>Illuminated - DPST</b>							
1805.7109-02	Green		Quick Connect	183-9455			
1805.7110	Red	I O	Quick Connect	183-1108			
<b>Non-Illuminated - SPST</b>							
1801.2106-01	Black	I O	PCB	183-9447			
1801.6101-01	White		Solder	183-9448			
1801.1119	Black		Quick Connect	183-1104			
1801.1146	Black	I O	Quick Connect	183-1105			
<b>Non-Illuminated - SPNO</b>							
1801.6122-00	Black		Solder	183-9449			
<b>Non-Illuminated - SPDT</b>							
1803.1121-00	Black		Quick Connect	183-9450			
1803.2102-00	Black		PCB	183-9451			
1803.6121-00	Black		Solder	183-9452			
<b>Non-Illuminated - SPDT - Center OFF</b>							
1808.1103-00	Black	I O II	Quick Connect	183-9459			
1808.6103-00	Black	I O II	Solder	183-9460			
1808.6302-00	Black		Solder	183-9461			
<b>Non-Illuminated - DPST</b>							
1802.1108	Black		Quick Connect	183-1106			
<b>Non-Illuminated - DPDT</b>							
1804.6121-00	Black		Solder	183-9454			
1804.1121-00	Black		Quick Connect	183-9453			
<b>Non-Illuminated - DPDT - Center OFF</b>							
1809.1102-00	Black		Quick Connect	183-9462			
<b>Non-Illuminated - DPNO</b>							
1802.1221	Black		Quick Connect	183-1107			
<b>Lamp</b>							
1807.1102-01	Red		Quick Connect	183-9456			
1807.1108-01	Green		Quick Connect	183-9458			
<b>Protection Cap</b>							
203.089.011-00			For use with Single Pole	183-9463			
203.090.011-00			For use with Double Pole	183-9464			

16 A @ 230 V ac



H = 53, W = 30, D = 38mm

A new type of manually operated switch. An electromagnet sets the switch when turned on. If for any reason voltage loss occurs then the power is tripped out. The switch must then be manually re-set before power can be restored, preventing inadvertent re-start.

VDE and UL recognised

Mfrs. List No. 3251-00.01  
 3251-01.01  
 AAE003-251/Z016

Order Code 996-8407  
 996-8415  
 996-8423

Rocker Operated Switch	Bipolar	Rocker Operated Switch	Snap-in
Contacts	230VAC@ 50Hz	Cut Out	45.3 x 21.8mm
Rated Operational Voltage	AC1-16(A), AC3-14.5(A)	Protection - TP2351-00	IP40
Rated Operational Current	6.35mm x 0.8mm	Protection - TP2351-01	IP40(rear), IP54 (front)
Connection			245122

Description	Order Code	1+	10+	50+
Standard rocker	996-8407			
Standard rocker (Aux contact)	996-8415			
Seal /Protection kit	996-8423			

## Reset Rocker Switch

A8G Series



Rated Load 20A @ 250V ac (Non-inductive resistive load)  
 10A @ 250V ac (Non-inductive lamp load)  
 8A @ 250V ac (Inductive load)  
 8A @ 250V ac (Inductive motor load)

Insulation resistance 50000 - Switching, 10000 - Coil  
 Operations - Mechanical 100000 - Switching, 10000 - Coil  
 Operations - Electrical 100 ms max.  
 Contact release time -10°C to 55°C  
 Operating Temperature

Bezel=37 x 27, Body=34 x 23.6 x 22.5,  
 Panel cut-out= 34.4 x 24.4mm

- Energy-saving reset function triggered with external signals
- Incorporates unique switching mechanism switching 20 A with excellent inrush-current durability
- Double-pole, double-throw (DPDT) contact
- Contact gap of 3 mm minimum

542246

Mfrs. List No.	Order Code	1+	10+	25+	50+	100+
A8G-107-1-24	174-0376					

## Rocker Switches

6A @ 125V ac, 3A @ 250V ac



- Snap-in mounting
- Oval shaped bezel
- Sculptured rocker surface
- Black nylon frame and base
- Solder lug terminal, brass with silver plating
- 15mm panel cutout
- 0.75 to 3mm panel thickness

H (Body) = 14 (Bezel) = 5, W = 24, D = 20.5

Rating	6A @ 125V	Insulation Resistance	@ 500VDC
Rating	3A @ 250VAC	Dielectric Strength	1500VAC
Contact Resistance	50mohm	Temperature operating	-20 to 65°C

520519

Switch Function	Mfrs. List No.	Order Code	1+	25+	50+	100+
<b>SPST</b>						
Off-On	R13-234A-05-BB-0A	163-4637				
<b>SPDT</b>						
On-On	R13-234C-05-BB-0A	163-4638				
On-Off-On	R13-234D-05-BB-0A	163-4639				
(On)-Off-(On)	R13-234I-05-BB-0A	163-4640				



## INTELLIGENT ONLINE BUYING SYSTEM PROVIDING

Complete cost control, reduced administration time, visibility of your spend, flexibility and personalised to your company's needs.  
[farnell.com/ibuy](http://farnell.com/ibuy)

## Round Rocker Switches

12A@250Vac



- Attractive round rocker switch
- High mechanical rating with at least 100000 switching cycles
- Low depth with 18.7mm
- Appliance cut-out with 20mm



Contact resistance	< 100mΩ	Flammability	UL 94 V-2
Insulation resistance	> 100MΩ	Material	PA (Actuator) PA (Housing)
Protection type	IP 40		Silver plated (Terminals)
Temperature	-20°C to +100°C (terminal side) -20°C to +55°C (actuating side)	Plug force of the terminals	≤ 80N

616962

Mftrs. List No.	Actuator Colour	Legend	Order Code	1+	10+	25+	50+
<b>SPST</b>							
1881.1104-00	Red	I O	183-9499	●			
1881.1105-00	White	I O	183-9501	●			
<b>SPDT</b>							
1883.1105-00	Black		183-9502	●			

## Round, Panel Mount - R13 Series



Panel Cut-out=20.2, Bezel=23 dia.



- Attractive circular rocker design
- Choice of red and green illuminated, black and white non-illuminated and red spot illuminated
- Non-illuminated versions printed with I/O marking (except momentary version)
- Single and double pole configurations
- Snap fixing into panel thickness ≤3mm
- Approvals include VDE, SEV, DEMKO, NEMKO, SETI and CSA. UL recognised

Maximum Working Temperature	+85°C
Contact Resistance	100mohm
Insulation Resistance	
Operating Voltage	All 230 Vac max except 396-6781 (which is 24 Vdc max)

Mftrs. List Nos.:

R13-112A	= 186-764	R13112BNAB	= 767-4074	R13244BNA	= 767-4104
R13-112BNA	= 186-776	R13208FAAA	= 767-4082	R13-112B2	= 396-6781
R13112AAB	= 767-4066	R13244AAAA	= 767-4090		

213304

Order Code	1+	100+	250+	500+
<b>Non-Illuminated Switch - 250V ac @ 6A</b>				
SPST Black, I/O	186-764	●		
SPST White, I/O	767-4066	●		
SPST Black	767-4082	●		
DPST Black, I/O	767-4090	●		
<b>Illuminated - 250V ac @ 6A</b>				
SPST Red	186-776	●		
SPST Green	767-4074	●		
DPST Red	767-4104	●		
<b>LED Illuminated - 12/24V dc @ 10A</b>				
SPST Black	396-6781	●		

## Rocker Switches

16A @ 125V ac, 10A @ 250V ac



- Snap-in mounting
- Illuminated actuators moulded in PC
- Frames in nylon (UL 94V-2)
- Solder lug terminal, brass with silver plating
- 3mm panel thickness
- CSA, VDE, TUV, FIMKO, DEMKO, NEMKO, SEMKO, ENEC, CQC and CNS Approvals
- UL Recognised

R13-112 Series. H (Body) = 14.5 (Bezel) = 2, Dia. 23, Dia. Cut-out = 20.2mm
R13-244 Series. H (Body) = 15.8, (Bezel) = 2, Dia. 23.5, Dia. Cut-out = 20.2mm

Rating	16A @ 125V	Insulation Resistance	@ 500VDC
Rating	10A @ 250VAC	Dielectric Strength	1500VAC
Contact Resistance	50mohm	Temperature operating	-20 to 65°C

520583

Colour	Legend	Mftrs. List No.	Order Code	1+	25+	50+	100+
<b>Non-illuminated - SPST</b>							
Black		R13-112A-02-BB-0A	163-4642	●			
Black		R13-112F-02-BB-0A *	163-4643	●			
White		R13-112A5-02-WW-0A	163-4644	●			
Black	I O	R13-112A-02-BB-3A	163-4645	●			
Black	I O	R13-112F-02-BB-3A *	163-4646	●			
White	I O	R13-112A5-02-WW-3A	163-4647	●			
<b>IP65 Sealed</b>							
Black		R13-112A8-02-BB-0A	163-4652	●			
Black		R13-112F8-02-BB-0A *	163-4654	●			
Black	I O	R13-112A8-02-BB-2A	163-4655	●			
Black	I O	R13-112F8-02-BB-2A *	163-4656	●			
<b>Illuminated</b>							
Black	Red	R13-112B-02-BR-0A	163-4657	●			
Black	Green	R13-112B-02-BG-0A	163-4658	●			
Black	Red - LED	R13-112B9-02-BBR-0A	163-4663	●			
Black	Green - LED	R13-112B9-02-BBG-0A	163-4664	●			
<b>IP65 Sealed</b>							
Black	Red	R13-112B8W-02-BR-0A	163-4661	●			
Black	Green	R13-112B8W-02-BG-0A	163-4662	●			
<b>Non-illuminated - DPST</b>							
Black		R13-244A-02-BB-0A	163-4648	●			
White		R13-244A5-02-WW-0A	163-4649	●			
Black	I O	R13-244A-02-BB-3A	163-4650	●			
White	I O	R13-244A5-02-WW-3A	163-4651	●			
<b>Illuminated - DPST</b>							
Black	Red	R13-244B-02-BR-0A	163-4659	●			
Black	Green	R13-244B-02-BG-0A	163-4660	●			
Waterproof Cover		R13-112BT	163-4666	●			

\* Momentary Action Version

## MR-R Series - Illuminated Round Rockers

8A @ 250V ac



Bezel=23mm (dia), Depth=18.2mm, Panel cut-out=20mm (dia), Tab = 4.8mm

- Double Pole
- Snap-in mounting
- Constructed from Nylon 66 to UL94V-2
- Choice of three colours: black, illuminated red and illuminated green
- Coloured actuators are printed with O/I legend, black actuator is plain
- Approved to CSA, UL, VDE, SEMKO, DEMKO, NEMKO, FIMKO, SEV

Electrical Life	ops	Insulation Resistance	<MR
Operating Temperature	-20°C to +85°C	Contact Resistance	<20mR

347604/405438

Colour	Mftrs. List No.	Order Code	1+	25+	50+	100+	250+
Green	MR210R5LGB	108-2460	●				
Red	MR210R5LBR	108-2461	●				
Black	MR210R2NBB	108-2459	●				

## Switch Modules



The switch modules designed to be installed into front panels, multi-function grips or other switching units.

Types	QS1 = Four K12 switches, one switching function per direction QS2 = Eight K12 switches, two switching functions per direction
Dimensions (LxWxH)	QS = 58.9 x 43 x 27.5mm
Operating Life	>1 million cycles
Operating Temperature	-25°C to 80°C
Protection Level	With sealing: IP65 (from above when mounted)



# Rocker Switches - continued

## Switch Modules - continued

554129

Type	Order Code	1+	10+	25+	50+	100+
<b>Standard Decals</b>						
QS1	178-0571					
QS2	178-0570					

## Analog Rocker Switches



Analog Rockers are developed to provide the reliability required in demanding environmental conditions such as multifunction grips, dashboards or armrest controls for heavy duty industrial applications. The unique sensing design makes the rocker module an ideal proportional function solution for 'off-road' machinery.

● Contactless sensing - Hall effect	● Life greater than 2 million cycles	● One sensor - optional second sensor for redundancy	● Integrated temperature compensation	● Short circuit protection
Current Rating	50mA @ 24V	Vertical Load Max.	30N	
Life	>2 million cycles	Protection Level	IP 65 (from above when mounted)	
Operating Temperature	-35°C to 70°C	Rocker Deflecton Angle	±30°	
Actuator Type	Supply Voltage	Operation Force	No. of Sensors	Output Voltage
Long Lever	5V	4N	2	0.5 to 4.5V @ 1mA
Long Lever	8.5 to 30V	4N	1	0.5 to 4.5V @ 1mA
Long Lever	5V	4N	1	0.5 to 4.5V @ 1mA
Short Lever	5V	5N	1	0.5 to 4.5V @ 1mA

Mfrs. List No.	Order Code	1+	10+	25+	50+	100+
AR3S 01 GY 30/30 4N 1 V200	178-0548					
AR3S 01 GY 30/30 4N 0 V102	178-0551					
AR3S 01 GY 30/30 4N 1 V102	178-0555					
AR3S 02 GY 30/30 5N 1 V102	178-0556					

## Push Button Switches

### Sealed Ultraminiature Pushbutton Switches

400 mA @ 20V AC/DC



<b>Switch Specifications</b>	
Switching capacity	400mA @ 20V AC/DC
Mechanical life	40000 Cycles
Contact resistance	100mohm
Insulation resistance	
Dielectric strength	500V

**NEW**

Mfrs. List No.	Order Code	Mfrs. List No.	Order Code
MC8US9R2A2M6RES	200-8719	MC8UD8WR2C2M7RES	200-8723
MC8US9R2A2M7RES	200-8720	MC8UD9R2A2M2RES	200-8724
MC8US9R2A2M2RES	200-8721	MC8UD9R2A2M6RES	200-8726
MC8US8WR2C2M7RES	200-8722	MC8UD9R2A2M7RES	200-8727

640463

Switch Type	Order Code	1+	25+	50+	100+	250+
<b>Standard</b>						
SPDT - Off-(On)	200-8721					
DPDT - Off-(On)	200-8724					
<b>Right Angle</b>						
SPDT - Off-(On)	200-8719					
DPDT - Off-(On)	200-8726					
<b>Vertical Right Angle</b>						
SPDT - Off-(On)	200-8720					
SPDT - On-(On)	200-8722					
DPDT - On-(On)	200-8723					
DPDT - Off-(On)	200-8727					

### SMD Sealed Sub-Miniature Pushbutton Switches

400mA @ 20V AC/DC



<b>Switch Specifications</b>	
Switching capacity	400mA @ 20V AC/DC
Mechanical life	50000 Cycles
Contact resistance	20mohm
Insulation resistance	
Dielectric strength	1000V

**NEW**

Mfrs. List No.	Order Code
MC8BS8MTRES	200-8747
MC8BS9MZRES	200-8748

640471

Switch Type	Order Code	1+	25+	50+	100+	250+
<b>Right Angle Terminations</b>						
SPDT - On-(On)	200-8747					
<b>Standard Terminations</b>						
SPDT - On-(On)	200-8748					

### Sealed Sub-Miniature Pushbutton Switches

400mA @ 20V AC/DC



<b>Switch Specifications</b>	
Switching capacity	400mA @ 20V AC/DC
Mechanical life	50000 Cycles
Contact resistance	20mohm
Insulation resistance	
Dielectric strength	1000V

**NEW**

Mfrs. List No.	Order Code
MC8AS9M2RES	200-8744
MC8AS9M6RES	200-8745
MC8AS9V7RES	200-8746

640469

Switch Type	Order Code	1+	25+	50+	100+	250+
<b>Through Hole</b>						
SPDT - Off-(On)	200-8744					
<b>Right Angle Through Hole</b>						
SPDT - Off-(On)	200-8745					
<b>V-Bracket</b>						
SPDT - Off-(On)	200-8746					

### Sub-Miniature Pushbutton Switches



<b>Switch Specifications</b>	
Switching capacity	3A @ 120V AC/28V DC, 1A @ 250V AC (Silver Contacts)
Mechanical life	400mA @ 20V AC/DC (Gold Contact)
Contact resistance	50000 Cycles
Insulation resistance	20mohm
Dielectric strength	1000V

**NEW**

Mfrs. List No.	Order Code	Mfrs. List No.	Order Code
MC8MS9P1B05M1QE	200-8728	MC8MS8P1B06VS2QES	200-8736
MC8MS8P1B05M1QES	200-8729	MC8MS9AP1M22M1QES	200-8738
MC8MD9P1B10M2RES	200-8730	MC8MSLP1B05M1QE-5	200-8739
MC8MS9P1B06M6RES	200-8731	MC8MSLP1B06M2QES	200-8740
MC8MD9P1B10M6RES	200-8732	MC8MSLP1B06M6RES	200-8741
MC8MS9P1B06M7QES	200-8733	MC8MSLP1B06M7QES	200-8742
MC8MS8P1B06M7QES	200-8734	MC8MSLP1B06VS2QES	200-8743
MC8MS9P1B06VS2QES	200-8735		

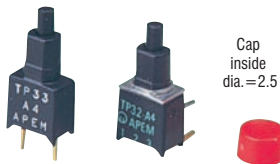
640466

Switch Type	Order Code	1+	25+	50+	100+	250+
<b>Solder Lug - Threaded Bushing</b>						
SPDT - Off-(On)	200-8728					
SPDT - On-(On)	200-8729					
SPDT - On-On	200-8739					
<b>Through Hole</b>						
SPDT - On-On	200-8740					
DPDT - Off-(On)	200-8730					
<b>Right Angle Through Hole</b>						
SPDT - Off-(On)	200-8731					
DPDT - Off-(On)	200-8732					
SPDT - On-On	200-8741					
<b>Vertical Right Angle Through Hole</b>						
SPDT - Off-(On)	200-8733					
SPDT - On-(On)	200-8734					
SPDT - On-On	200-8742					
<b>Snap-In V-Bracket</b>						
SPDT - Off-(On)	200-8735					
SPDT - On-(On)	200-8736					
SPDT - On-On	200-8743					
<b>Solder Lug - Black Frame/Cap Colour</b>						
SPST - Off-(On)	200-8738					



## Subminiature Washable, Momentary

0.4VA @ 20V ac/dc

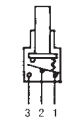


Cap inside dia.=2.5

Vertical, single pole  
H=17.75 (excl pins),  
W=8.1, D=5.0  
(108-2514=8.1)

Right angle, single pole,  
horizontal mount  
H, excl. pins=5.0, (108-2515=9.1)  
W=8.1, D=18.18

Right angle, single pole,  
vertical mount  
H=8.65, W=5.0, D=17.83

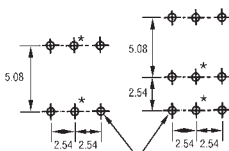


SPDT, DPDT

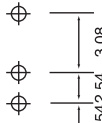


SPST

Pin dia.=1.1



Vertical Right angle, horizontal mounting



Right angle, vertical mounting

PCB drilling plans  
\*Pins only used on double throw (DT) switches

- Manufactured from polyester, UL recognised
- Totally sealed by 'O' ring gasket inside the bushing
- Gold plated contacts allow low voltage switching
- Ideal for PCB designs, board washable, wave solderable
- Caps in 3 colours, 6.5mm dia., 4mm high

Initial Contact Resistance	10mR max	Electric Life	2 position	100000 ops
Insulation Resistance	MR min	Operating Force	3 position	50000 ops
Dielectric Strength	1000V rms @ 50Hz			220g
Operating Temperature	-20°C to +85°C			

Mftrs. List No.

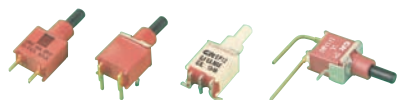
TP33P0080=108-2511	TP33W0080=108-2512	TP33WW080=108-2513	U573=108-2526
TP32P0080=108-2508	TP32W0080=108-2509	TP32WW080=108-2510	U576=108-2527
TP42P0080=108-2514	TP42W0080=108-2515	U572=108-2525	

SW153/213118

Vertical	Order Code	Price Each				
		1+	25+	100+	250+	500+
SPDT	108-2511					
SPDT	108-2508					
DPDT	108-2514					
Right Angle, Horizontal Mounting						
SPDT	108-2512					
SPDT	108-2509					
DPDT	108-2515					
Right Angle, Vertical Mounting						
SPST	108-2513					
SPDT	108-2510					
Order Multiple = 10						
Caps		10+	30+	100+	250+	
Black	108-2525					
Green	108-2526					
Red	108-2527					

## Subminiature Washable, Momentary

0.4VA @ 20V ac/dc



Vertical mounting

Type 1 Horizontal mounting

Type 2 Horizontal mounting

- Process sealed - withstands machine soldering and pressure wash processes
- Epoxy sealed terminals
- Gold contacts for low level/dry circuit switching

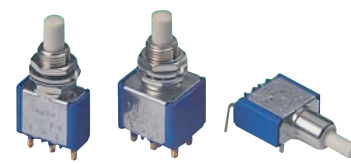
Electrical Life	60000 ops (30,000 SPDT versions)	Contact Resistance	<20mR
		Operating Temperature	-30°C to +85°C
Mftrs. List No.	EP11SD1CBE=957-4662	EP11SD1ABE=957-4689	EP11SD1AVBE=957-4700
	EP12SD1CBE=957-4670	EP12SD1ABE=957-4697	EP12SD1AVBE=957-4719

624124

Vertical	Order Code	Price Each				
		1+	25+	50+	100+	500+
SPST, Off-(On)	957-4662					
SPDT, On-(On)	957-4670					
Type 1, Horizontal						
SPST, Off-(On)	957-4689					
SPDT, On-(On)	957-4697					
Type 2, Horizontal						
SPST, Off-(On)	957-4700					
SPDT, On-(On)	957-4719					

## Miniature, Microswitch Action

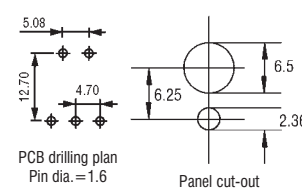
SPDT and DPDT - Momentary - 100mA @ 30V dc



108-2278  
H=13.2, W=7.0, D=29.5

108-2281  
H=13.2, W=12.0, D=29.5

108-2277  
H=12.0, W=13.2, D=26.8



Initial Contact Resistance 50mR max  
Insulation Resistance MR min  
Dielectric Strength 1000V rms @ 50Hz

- Momentary snap-action for high precision and reliability
- Gold plated copper contacts for low level switching
- Panel mounting switches with solder lug terminals
- PCB mounting switch with right-angled terminals

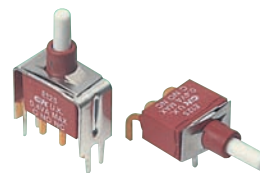
Electrical Life 60000 ops  
Operating Temperature -30°C to +65°C

SW226/213192

Order Multiple = 1	Mftrs.	Order Code	Price Each			
			1+	25+	100+	250+
Switches	List No.					
SPDT, Solder lug	18535CD	108-2278				
DPDT, Solder lug	18545CD	108-2281				
SPDT, PCB	18235WCD3	108-2277				
Order Multiple = 10			Price Each			
Caps			10+	50+	100+	250+
Black	U482	108-2522				
Green	U483	108-2523				
Red	U486	108-2524				

## SPDT Momentary - Sealed

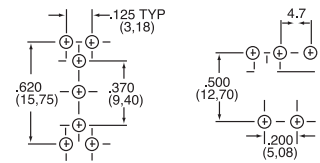
1A @ 120V ac/28V dc



H=20.4 (excl. pins)  
W=8.13  
D=15.75  
Plunger L=7.16, Dia.=1.1  
Pin dia.=1.85

H=6.6 (excl. pins)  
W=12.7  
D=26.6 (overall)  
Pin dia.=1.85

- Gold plated contacts for low level switching
- Mounting bracket solders directly to PCB
- Process sealed to withstand machine soldering and pressure wash cleaning
- Snap-acting



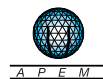
Contact Resistance (initial) <50mR> typ  
Insulation Resistance >MR  
Operating Temperature -30°C to +75°C  
Electrical Life 60000 ops, full load

SW227/213193

Mounting	Order Code	Price Each			
		1+	50+	100+	500+
Vertical	957-5430				
Horizontal	957-5448				

## SPNO and SPNC Momentary

100mA @ 30V dc



L=19.3, Dia=6.5  
Bush thread=M4, Button dia=2.5, Panel cut-out=4.2

- SPNO and SPNC switches with either solder lug or PCB terminations
- Gold plated contacts allow low current switching
- Caps in 3 colours, 6.5mm dia., 4mm high
- Switch may be used without cap being fitted
- M4 sealing hood protects against moisture and dust ingress

Initial Contact Resistance	<30mR			
Mftrs. List No.	9533CD=108-2343	9233CD=108-2341	U572=108-2525	U576=108-2527
	9532CD=108-2342	U1829=108-2521	U573=108-2526	

SW39/213331

Order Multiple = 1	Switches	Order Code	Price Each			
			1+	25+	100+	500+
SPST-NO, Solder Lug		108-2343				
SPST-NC, Solder Lug		108-2342				
SPST-NO, PCB		108-2341				
Sealing Hood		108-2521				

## Push Button Switches - continued

### SPNO and SPNC Momentary - continued

100mA @ 30V dc - continued

Order Multiple=1	Price Each			
	10+	30+	100+	250+
<b>Order Multiple=10</b>				
<b>Caps</b>				
Black	108-2525			
Green	108-2526			
Red	108-2527			

### SPNO and SPNO/SPNC Momentary

300mA @ 250V ac, 1A @ 30V dc (silver), 100mA @ 30V dc (gold)



L=26.5, Dia=10, Bush thread= 1/4 x 40 NS,  
Button dia=4, Panel cut-out=6.35

- SPNO and SPNO/SPNC (changeover) contacts
- Contacts either silver or gold plated
- Gold plated contacts allow low current switching
- Caps in 3 colours, 10mm dia.
- Switch may be used without cap being fitted

Insulation Resistance MR @ 500V dc  
Electrical Life 250000 ops  
Initial Contact Resistance <50mR

Mfrs. List No. 9633NA=108-2344 9635CD=108-2347 U483=108-2523  
9633NCD=108-2345 U482=108-2522 U486=108-2524

SW40/213333

Order Multiple=1	Price Each				
	1+	25+	100+	250+	500+
<b>Switches</b>					
SPST-NO, Silver	108-2344				
SPST-NO, Gold	108-2345				
SPST-NC, Gold	108-2347				
<b>Order Multiple=10</b>					
<b>Caps</b>					
Black	108-2522				
Green	108-2523				
Red	108-2524				

### SPNO B3WN Series - Sealed



- Unique double sealing construction ensures water tight and dust tight performance
- Ideal for humid environments
- Supplied on radial tape for automatic insertion process
- Above board height allows use where conformal coating is required
- Sealed to IP67

H=13, W=8, D=8 Lead Pitch=17, Pitch 5

Contact rating 50mA Minimum load 1mA, @ 5Vdc  
Contact resistance 100mR Operating life 100000 ops min  
Voltage rating 12Vdc

213127

Order Multiple=5	Price Each				
	5+	50+	100+	250+	500+
Mfrs. List No.	Order Code				
B3WN-6002	994-5423				

### SPNO Momentary

1A @ 0.1 to 28V dc



Sub-miniature single pole push-to-make switch with red or black operating button.

L=16, Dia=10,  
Bush thread=1/4 x 28 UNF, Panel cut-out=6.35

Mfrs. List No. MP16/Red=422-204, MP16/Black=422-216

SW48/213340

Order Code	Price Each				
	1+	50+	100+	250+	500+
Red	422-204				
Black	422-216				

## FREE GLOBAL LEGISLATION SUPPORT

RoHS, REACH, WEEE, ErP, Batteries Directive - latest updates, free white papers and live online Q&A at [element14.com/legislation](http://element14.com/legislation)



## Push Button Switches - Momentary

3A @ 125V ac, 1.5A @ 250V ac



- Buttons available in either black or red
- NO or NC versions available
- Black nylon body, UL 94V-2
- Silver plated brass solder terminals

Rating 3A @ 125V  
Rating 1.5A @  
Contact Resistance 50mohm  
Insulation Resistance @ 500VDC  
Dielectric Strength 1000VAC  
Flammability UL 94V-2

Body - H (NO) = 9.5, H (NC) = 11.8, Button - Dia. = 6mm  
L (Thread) = 7, (Button & stem) - 6.9mm

520658

Switch Function	Mfrs. List No.	Order Code	Price Each				
			1+	50+	100+	500+	1K+
<b>Black Actuator</b>							
SPST-NO	R13-509A-05-BB	163-4682					
SPST-NC	R13-509B-05-BB	163-4683					
<b>Red Actuator</b>							
SPST-NO	R13-509A-05-BR	163-4684					
SPST-NC	R13-509B-05-BR	163-4685					

## Push Button Switches - Momentary

3A @ 125V ac, 1.5A @ 250V ac



- Black base
- Buttons available in either black or red
- Two button sizes available, 8 x 5.6 and 10 x 8.5mm

- NO or NC versions available
- Nickel plated brass body
- PBT actuators, phenolic base

Rating 3A @ 125V  
Rating 1.5A @  
Contact Resistance 50mohm  
Insulation Resistance @ 500VDC  
Dielectric Strength 1000VAC

Body - H (NO) = 9.1, H (NC) = 9.4, Button - Dia. = 6mm  
L (Thread) = 6, (Button & stem) - 8.6mm  
Dia. cut-out = 7.2mm

520669

Button Switch Colour/Function	Mfrs. List No.	Order Code	Price Each				
			1+	50+	100+	500+	1K+
<b>6 x 5.6mm Button</b>							
Black SPST-NO	R13-24A-05-BB	163-4687					
Red SPST-NO	R13-24A-05-BR	163-4691					
Red SPST-NC	R13-24B-05-BR	163-4692					
<b>10 x 8.5mm Button</b>							
Black SPST-NO	R13-24AL-05-BB	163-4693					
Black SPST-NC	R13-24BL-05-BB	163-4694					
Red SPST-NO	R13-24AL-05-BR	163-4695					
Red SPST-NC	R13-24BL-05-BR	163-4696					

## Push Button Switches

3A @ 125V ac, 1.5A @ 250V ac



- SPST with black body
- Black or coloured illuminated buttons
- Frames are nylon, UL94V-2
- Illuminated buttons are molded in PC
- Solder terminals are silver plated brass
- Snap-in mounting

H (Body) = 16, (Button) = 6, Dia. (Bezel) = 14mm  
Dia. (Panel cut-out) = 12.2mm

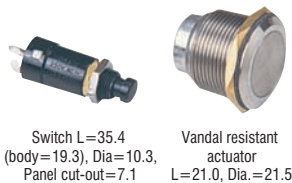
Rating @14Vdc, 3A@dc Insulation Resistance @ 500VDC  
Rating 3A@125Vac, 1.5A@ac Dielectric Strength 1500VAC  
Contact Resistance 50mohm Temperature operating -20 to 65°C

520641

Colour Actuator	Mfrs. List No.	Order Code	Price Each			
			1+	10+	100+	250+
<b>Latching action</b>						
Black	R13-548B-05-BB	163-4675				
Red	R13-548DL-05-BR	163-4676				
Green	R13-548DL-05-BG	163-4678				
<b>Momentary action</b>						
Black	R13-548A-05-BB	163-4679				
Red	R13-548CL-05-BR	163-4680				
Green	R13-548CL-05-BG	163-4681				

## SPNO, SPNC and SPDT Momentary

0.5A @ 250V ac, (SPDT 50V dc only)



Switch L=35.4  
(body=19.3), Dia=10.3,  
Panel cut-out=7.1

Vandal resistant  
actuator  
L=21.0, Dia.=21.5

- Switches have different coloured bases to identify them
- Vandal resistant actuator available, fits all switches
- Actuator screws on to front of switch (without normal fixing nut) and is internally and panel sealed to IP66

Mfrs. List No.

T0916SOAAA=140-690, T0918SOAAA=140-695, T0917SOAAA=147-405, A1015SAAAA=273-259  
T0916SOAAB=140-692, T0918SOAAB=140-697,

SW43/213336

Switches	Colour	Order Code	Price Each					
			1+	50+	100+	250+	500+	1K+
SPST-NO	Black	140-690						
SPST-NO	Red	140-692						
SPST-NC	Black	140-695						
SPST-NC	Red	140-697						
SPDT	Black	147-405						
		273-259						

## Single & Double Switch Modules



The rubber cap offers the possibility to use both switch modules under severe ambient conditions where dust, water, oil, solvents etc. can effect or destroy the function of standard switches. With the rubber cap the two modules are sealed to IP 65 when mounted.

The single switch module ESM and the double switch module DSM are ready-to-install units, consisting of:

- Switches: K12 (for both ESM or DSM) K12G (DSM only with two switching-points) PVA1H4 (ESM only)

- PC board
- Rubber cap
- Optional cable or connector

### Applications

- Tractors
- Harvesting equipment
- Industrial controls

Switch Type	Switch Travel	Operating Force	Cap	Terminal Type	Legend	Order Code
<b>Single Switch Modules</b>						
K12	1mm	5N	With	Cable		178-0564
K12	1mm	5N	With	Connector		178-0565
<b>Double Switch Modules</b>						
K12G	1.5mm	3.5N	With	Cable		178-0561

554126

Mfrs. List No.	Order Code	Price Each			
		1+	10+	25+	50+
<b>Single Switch Modules</b>					
ESM K12 1 5N C L130 -	178-0564				
ESM K12 1 5N C - -	178-0565				
<b>Double Switch Modules</b>					
DSM K12G 1.5 3.5N C L130 PL PR	178-0561				

## SPNO - 1100 Series

0.125A @ 125V ac/45V dc



- Snap-in panel mounting
- Gold contacts
- Solder lug connection

Insulation Resistance >MR  
Insulation Class II  
Operating Life >50000 Cycles  
Operating Temperature -20°C to +55°C

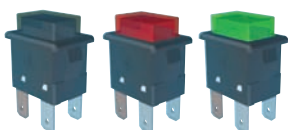
Bezel=21 x 15, Body=16.9 x 12.1, Depth=23,  
Panel cut-out=19.3 x 13, Tab=2.5 x 0.5

SW318/213261

Type	List No.	Order Code	Price Each			
			1+	100+	250+	500+
Momentary	T1101BBT1101BBAAA	733-921				

## DPST - MC3310 Series

16(4)A @ 250 Vac



- Snap-In panel mounting
- 3mm contact gap
- 8mm Insulation spacing
- 4.8 x 0.8 push-on quick connect terminals
- VDE and ENEC Approvals, UL Recognised

Bezel = 21 x 15,  
Body 19.2 x 12.8,  
Panel Cut-out = 19.2  
x 13mm

Depth 25.5  
Tab=4.8 x 0.8

Ratings - UL/C-UL  
Ratings - VDE / ENEC  
Contact Resistance

16A @ 125V ac, 8A @  
16(4)A @  
20mohm

Insulation Resistance  
Dielectric Strength  
Flamability

@ 500VDC  
3.5kV  
UL 94V-2

485850

Colour & Function	Mfrs. List No.	Order Code	Price Each			
			1+	10+	100+	250+
<b>Non-Illuminated</b>						
Black - Mom	MC3310-031-01	145-4375				
Black - Latching	MC3310-011-01	145-4376				

## Pushbutton Switches

16A@250Vac



NEW



- Illuminated and non-illuminated pushbutton switch
- Proven jump contact switching system (double interrupting)
- Opening and closing speed independent of the actuating speed
- Product-dependent with external lamp connection

Contact resistance < 100mΩ  
Insulation resistance > 100MΩ  
Protection type IP 40  
Temperature -20°C to +85°C (terminal side)  
-20°C to +55°C (actuating side)

Flammability Material  
UL 94 V-2  
PA (Actuator)  
PA (Housing)  
Copper (Terminals)

Plug force of the terminals ≤ 80N

617162

Mfrs. List No.	Actuator Colour	Order Code	Price Each				
			1+	10+	25+	50+	100+
<b>Illuminated - DPST</b>							
1660.0201-00	Orange	183-9436					
1660.0202-00	Green	183-9437					
<b>Non-Illuminated - DPNO</b>							
1661.0101-00	Black	183-9438					
<b>Non-Illuminated - DPDT</b>							
1661.0201-00	Black	183-9439					

## Pushbutton Switches

16A @ 250V ac



NEW



- Illuminated and non-illuminated pushbutton switch
- Internal gasket for IP 54
- Proven jump contact switching system (double interrupting)
- Opening and closing speed independent of the actuating speed
- Product-dependent with external lamp connection

Contact resistance < 100mΩ  
Insulation resistance > 100MΩ  
Protection type IP 54  
Temperature -20°C to +85°C (terminal side)  
-20°C to +55°C (actuating side)

Flammability Material  
UL 94 V-2  
PA (Actuator)  
PA (Housing)  
Copper (Terminals)

Plug force of the terminals ≤ 80N

616956

Mfrs. List No.	Actuator Colour	Order Code	Price Each				
			1+	10+	25+	50+	100+
<b>Non-Illuminated - DPST</b>							
1671.5201-00	Black	183-9443					
<b>Illuminated - DPST</b>							
1670.5201-00	Orange	183-9440					
1670.5202-00	Green	183-9441					
<b>Non-Illuminated - DPNO</b>							
1671.5101-00	Black	183-9442					

## Pushbutton Switches

2A @ 250V ac



NEW



- Small, compact pushbutton switch
- Long life endurance with 500000 mechanical switching cycles
- Special design for dust and water protection

# Push Button Switches - continued

Contact rating	12A @ 250V	Insulation resistance	>20MΩ
Contact resistance	>20mohm	Electrical life	10 <sup>3</sup>
Contact material	Ag Alloy	Operating temperature max	105°C
Dielectric strength (between poles)	>1500V	Case material	Nylon 6.6

659702

## Pushbutton Switches - continued

### 2A @ 250V ac - continued

Contact resistance	< 100mΩ	Material	PA (Actuator)
Insulation resistance	> 100MΩ		PA (Housing)
Protection type	IP 40		Silver plated / tinned (Terminals)
Temperature	-20°C to +85°C (terminal side)	Plug force of the terminals	≤ 80N
	-20°C to +55°C (actuating side)		
Flammability	UL 94 V-2		

Mftrs.	Terminal	Price Each				
List No.	Type	Order Code	1+	10+	25+	100+
1846.0201-01		183-9490				
1846.2201-01		183-9491				

## Pushbutton Switches

### 16A@250Vac



- Million times proven, double lifting contact system
- High electrical rating up to 16 A
- High rating with 100000 mechanical switching cycles
- Illuminated and non-illuminated variants
- Quick connect terminal



Contact resistance	< 100mΩ
Insulation resistance	> 100MΩ
Temperature	-20°C to +100°C (connection side)
	-20°C to +55°C (actuating side)
Flammability	UL 94 (actuator: V-0, socket: V-1, housing: V-2)
Material	PC (Actuator)
	PA / PA glass fiber-reinforced (Housing)
	Silver plated (Connections)
Plug force of the terminals	≤ 80N

Mftrs.	Actuator	Price Each				
List No.	Colour	Order Code	1+	25+	50+	100+

<b>Non-Illuminated - SPST</b>						
1683.1101	Black	183-1122				
<b>Illuminated - SPST</b>						
1686.1101	Red	183-1125				
<b>Non-Illuminated - DPST</b>						
1684.1101	Black	183-1123				
<b>Illuminated - DPST</b>						
1687.1104	Green	183-1126				

## DPST-8300 Series

### 12(2)A @ 250 Vac



- Non illuminated and illuminated versions available
- Snap-In panel mounting
- 3mm contact gap (suitable for class II appliances)
- 4.8 x 0.8 push on terminal connection

Bezel = 21 x 15, Body 19 x 12.1, Panel Cut-out=19.2 x 13.	Depth 25.5, Tab=4.8 x 0.8	H8351AB=389-973, H8350AB=389-948, H8353ABBLK/RED=389-950, H8353ABBLK/GRN=389-961
Insulation Resistance	>MR Class II	Operating Life 10000 Cycles
Insulation		Operating Temperature 0°C to +105°C

Order Code	1+	10+	25+	100+	500+
------------	----	-----	-----	------	------

Non-Illuminated Switch	
Momentary	389-973
Latching	389-948
Illuminated Switch	
Red, Latching	389-950
Green, Latching	389-961

## Antimicrobial Mains Pushbutton

### 8300 Series

#### 12A @ 250VAC



- Uses BioCote® silver ion technology, providing antimicrobial properties
- Double pole switches for snap fitting into a 19.2mm x 13mm panel cut out
- Latching and momentary options
- 3mm contact gap
- Neon illumination available
- Connection by 4.8mm x 0.8mm blade terminals

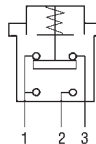


**NEW**

Mftrs.	Type	List No.	Order Code	1+	25+	100+	250+	500+
<b>Non-illuminated</b>								
	On-Off	H8350ABAAA	206-8566					
	Off-(On)	H8351ABAAA	206-8567					
<b>Illuminated (Latching)</b>								
	Red	H8353ABNAAB	206-8568					
	Green	H8353ABNABB	206-8569					

## SPDT Momentary

### 2(1)A @ 250V ac, 4A 125V ac



- Snap-in panel mounting
- Low cost
- Solder lug connections

Insulation Resistance	MR @ 500V dc
Operating Cycles	10000 Cycles
Initial Contact Resistance	10mR @ 1A 2V dc
Operating Temperature	-20°C to +55°C

Mftrs.List No. 1415NC + Colour

H=18, W=18, L=24.0 (19 behind panel), Panel cut-out=16.5 x 14.3 Max. panel thickness=2

Button	Order Code	1+	50+	100+	250+	500+
Black	108-2275					
Red	108-2276					

## Round Pushbutton Switches

### 4A @ 250V ac



- Round pushbutton switch
- Efficient contact system at least 200000 mechanical switching cycles
- Variant with sealing cap for IP 54 dust and water protection
- Appliance cut-out with diameter 16 mm, alternatively with fixing pin
- Wall thickness: 1.4 to 1.7mm
- Terminal type: Quick Connector

Protection type	IP 40
	IP 54 (in variant with sealing cap)
Temperature	-20°C to +85°C (terminal side)
	-20°C to +55°C (actuating side)
Flammability	UL 94 V-2
Material	PA glass fiber-reinforced (Actuator)
	PA glass fiber-reinforced (Housing)
	Silver plated (Terminals)
Plug force of the terminals	≤ 64N

Mftrs.	Actuator	Price Each				
List No.	Colour	Order Code	1+	10+	25+	100+
5000.0101-01	Grey	183-9508				
5000.0103-01	Orange	183-9509				
5000.0104-01	Black	183-9510				

With IP54 Sealing Cap	
5000.0501-01	Black 183-9511

## Push Button Switches



- Illuminated and non-illuminated
- Tactile feedback
- Flat actuator for optional marking
- Sealed to IP67
- Rear mounted

Rating	2A @ 250V AC, 4A @ 48V DC (Screw terminals)
	0.4A @ 32V AC, 0.1A @ 50V DC, 0.125A @ 125V AC (Solder & Wire terminals)
Electrical life	500000 Cycles
Mechanical life	1000000 Cycles
Total travel	1.7mm
Operating force	5N
Contact resistance	50mohm
Insulation resistance	min. @ 500VDC
Dielectric strength	1000Vrms
Operating temperature	-40°C to 85°C



61958



Mftrs. List No.	Actuator Colour	Illumination Colour	Order Code	1+	10+	25+	50+	100+
<b>Solder Lugs Terminals</b>								
IZR3S422	Black		185-7109					
IZR1S422	Black		185-7111					
IZR3S422LOS	Black	Red	185-7115					
<b>Wire Leads Terminals</b>								
IZR3F422	Black		185-7116					
IZR1F422LOS	Black	Red	185-7117					
IZR1F422	Black		185-7118					
<b>Screw Terminals</b>								
IZR3V222	Black		185-7110					



### Push Button Switches

10A @ 125V ac, 6A @ 250V ac



- SPST & DPST, momentary or latching action versions
- IP 56 alternatives available
- Black nylon frames, UL94V-2
- 4.75mm square, quick connect terminals
- Terminals made from silver plated brass
- UL Recognised

H (Body) = 14.5, Dia. (Bezel) = 23, (Body) = 19.8mm  
Dia. (Panel cut-out) = 20.2mm

Rating - 1/2 HP	10A @ 125V	Insulation Resistance	@ 500VDC
Rating - 1/2 HP	6A @	Dielectric Strength	1000VAC
Contact Resistance	50mohm	Temperature operating	-20 to 65°C

520628

Switch Type	Mftrs. List No.	Order Code	1+	10+	100+	250+
<b>Latching action</b>						
SPST	R13-527D-02-BB	163-4667				
DPST	R13-527B-02-BB	163-4669				
SPST - IP56	R13-527D2-02-BB	163-4671				
DPST - IP56	R13-527B2-02-BB	163-4673				
<b>Momentary action</b>						
SPST	R13-527C-02-BB	163-4668				
DPST	R13-527A-02-BB	163-4670				
SPST - IP56	R13-527C2-02-BB	163-4672				
DPST - IP56	R13-527A2-02-BB	163-4674				

### Push Button Switches

0.1A @ 24V DC



- Illuminated and non-illuminated
- Tactile feedback
- Curved actuator for optional marking
- Sealed to IP67
- Rear mounted



Rating	0.1A @ 24V DC	Contact resistance	100mohm
Electrical life	200000 Cycles	Insulation resistance	min. @ 500VDC
Mechanical life	200000 Cycles	Dielectric strength	1500Vrms
Total travel	2.5mm	Operating temperature	-40°C to 85°C
Operating force	5N		

626653

Mftrs. List No.	Actuator Colour	Illumination Colour	Order Code	1+	10+	25+	50+	100+
<b>Solder Lugs Terminals</b>								
IZPR1S422	Black		188-2248					
<b>Wire Leads Terminals</b>								
IZPR1F422LOS	Black	Red	188-2251					
IZPR1F422	Black		188-2252					

### Push Button Switches

2A @ 250V AC, 4A @ 48V DC (Screw terminals)  
0.2A @ 48V DC, 0.2A @ 250V AC (Solder & Wire terminals)



- Illuminated and non-illuminated
- Tactile feedback
- Curved actuator for optional marking
- Sealed to IP67
- Rear mounted



Rating	2A @ 250V AC, 4A @ 48V DC (Screw terminals) 0.2A @ 48V DC, 0.2A @ 250V AC (Solder & Wire terminals)
Electrical life	500000 Cycles
Mechanical life	1000000 Cycles
Total travel	1.8mm

Operating force	6N
Contact resistance	100mohm
Insulation resistance	min. @ 500VDC
Dielectric strength	1000Vrms
Operating temperature	-40°C to 85°C

626652

Mftrs. List No.	Actuator Colour	Illumination Colour	Order Code	1+	10+	25+	50+	100+
<b>Solder Lugs Terminals</b>								
IZPR3S422	Black		188-2245					
IZPR3S422LOS	Black	Red	188-2249					
<b>Wire Leads Terminals</b>								
IZPR3F422	Black		188-2250					
<b>Screw Terminals</b>								
IZPR3V222	Black		188-2246					

### Commercial Grade Push Button

10A @ 28V dc or 115V ac



- Button sealed with patented "rolling sleeve" principle
- Contact area sealed at button & terminals
- Less than 25mΩ contact resistance
- Ideal for low level switching as well as up to 20 amp duty
- Positive tactile feedback
- Engraved buttons & bezels available
- 1000000 million mechanical cycle life



Contact Configuration	SP3T	IP Rating	IP64
Rating	10A @ 28V dc or 115V ac	Operating Temperature	-55°C to 85°C
Case Material	Aluminum	Terminal Type	

626483

Button Colour	Mftrs. List No.	Order Code	1+	10+	25+	50+	100+
Red	P3-90318-1	187-8604					
Black	P3-90318-2	187-8605					

### SPNO Momentary

0.25A @ 250V ac, 2A @ 12V dc



- Polished chrome bezel
- Screw terminal connections

Mftrs. List No. MP12/RED=422-228  
MP12/BLACK=422-230

L=25, Dia=22, Panel cut-out=19.1

SIW105/213070

Button Colour	Order Code	1+	50+	100+	250+	500+
Red	422-228					
Black	422-230					

### Pushbutton Switches

6A @ 250V ac



- 100 million times proven switching principle with longer life endurance with 100000 mechanical switching cycles
- Fastening by round nut M12
- Excellent actuating characteristic

Contact resistance	< 100mΩ
Insulation resistance	> 100MΩ
Protection type	IP 40
Temperature	-20°C to +100°C (terminal side) -20°C to +55°C (actuating side)

Flammability	UL 94 V-2
Material	PA (Actuator) PA (Housing) Silver plated (Terminals)
Plug force of the terminals	≤ 80N

616963

Mftrs. List No.	Contact Configuration	Order Code	1+	10+	25+	50+	100+
1841.1101-01	SPST	183-9486					
1841.1201-01	SPNO	183-9487					
1843.1101-01	SPDT	183-9489					

# Push Button Switches - continued

## SPST Latching 10(6)A @ 250V ac



- Single pole 10A rated push button with latching action
- Approved to **VDE, SEMKO, DEMKO, NEMKO, SETI, BEAB, KEMA, OVE, SEV, NF-USE, IMQ** and **CSA**. **UL** recognised

H=20.5, W=23.2, D (behind panel, min.)=23.3  
Panel cut-out=12.7 dia., Panel thickness=9.5 max.,  
Button dia.=8.0 Tab=4.8 x 0.8

213216

Mfrs. List No.	Order Code	1+	100+	250+	500+
H8500PO	678-168				

## SPDT and DPDT, Momentary and Latching 3A @ 250V ac, 4A @ 30V dc



L=39.5, D=22, Panel cut-out=6.4 dia  
Body size=10 x 13.2 (SPDT), 12 x 13.2 (DPDT) Bush thread ¼ x 40 NS, Button dia=4

- Caps in 3 colours, 10mm dia
- Solder terminals
- Momentary and latching types, single and double pole

Initial Contact Resistance <10mR

Mfrs. List No.	8632A=108-2337	8642A=108-2339	U482=108-2522	U486=108-2524
	8636A=108-2338	8646A=108-2340	U483=108-2523	

213334

Order Multiple=1	Order Code	1+	25+	100+	250+	500+
SPDT Mom	108-2337					
SPDT Latching	108-2338					
DPDT	108-2339					
DPDT	108-2340					

Order Multiple=10	Order Code	10+	50+	100+	250+
Black	108-2522				
Green	108-2523				
Red	108-2524				

## SPDT Momentary - VAQ Series 15A @ 110V ac, 10A @ 230V ac



- Pure silver contacts
- Body: H=21.9, W=18, L=28,  
Bush thread=M10, Button diameter=13,  
Panel cut-out=10.2 dia

Mfrs. List No. VAQ-0V-15-1C5=990-1655

213312

	Order Code	1+	50+	100+
SPDT Switch	990-1655			
Switch Cap	990-1566			

## SPDT and DPDT, Panel Mounting 10(4)A @ 250V ac



- Single and double pole panel mounting switches.
- Momentary-push-pull (reset) - 'Cheat'
- Snap-in mounting.
- Approved to **CSA** and **VDE**. **UL** recognised

Mechanical life 200,000 ops  
Operating temperature -40°C to +85°C

H=26.6, W=23.1, D=13.7  
Panel cut-out=14.0 x 28.3 (910-569),  
36.7 (910-570).

213322

Switch Function	Mfrs. List No.	Order Code	1+	25+	50+	100+	250+
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### Basic Momentary Action

SPDT	0E69-00A0	NEW 142-6671					
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### Momentary Action

SPDT	F69-30A	118-0027					
DPDT	F79-30A	118-0028					

## SPNO/SPNC Momentary 'Flexibutton' 5A @ 250V ac, 'Flameproof'



- IP67 protection to IEC 144/BS5420
- Iceproof to -40°C
- Positive tactile feel
- Flame retardant, **UL** recognised
- Choice of 6 button colours
- Mount into standard DIN 22.5mm hole or by reversing locknut into 25mm dia. hole
- Supplied with locknut and sealing washer

L=29.5, Dia=30,  
Panel cut-out=22.5

Button colours:	White =	106-207	Red =	106-208	Green =	106-209
	Blue =	106-210	Yellow =	106-211	Black =	106-212
Dielectric strength		1kV for 1min	Electrical life			100000 ops
Insulation resistance		MR @ 500V	Mechanical life			10000000 ops
Contact resistance		<25mR (max. initial)	Operating force			6.75N/12.75N
Terminals		Solid silver/solder connect	Operating temperature			-40°C to +80°C

Mfrs. List No. 76-911x/439088, where x=colour

213100

	Order Code	1+	25+	50+	100+
All Switches					

## Push Button Switches

200mA @ 48V dc, 200mA @ 250V ac



- Electrical function : NO
- Illuminated and non-illuminated
- Tactile feedback
- Flat round actuator for optional marking
- Sealed to IP67

### Switch Specifications

Rating	@ V DC	Contact resistance	100mohm
Rating	200mA @ V AC	Insulation resistance	min. @ 500VDC
Electrical life	500000 Cycles	Dielectric strength	1500Vrms
Mechanical life	1000000 Cycles	Operating temperature	-40°C to 85°C

537411

Mfrs. List No.	Actuator Colour	Illumination Colour	Order Code	1+	10+	25+	50+	100+
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### Solder Lugs Terminals - Round Actuator

IRR3S4B2	Blue		171-4118					
IRR3S422	Black		171-4121					
IRR3S462	Red		171-4124					

### Wire Leads Terminals - Round Actuator

IRR3F4B2	Blue		171-4137					
IRR3F422	Black		171-4138					
IRR3F432	Green		171-4139					
IRR3F462	Red		171-4141					
IRR3F492	Orange		171-4143					

### Wire Leads Terminals - Square Actuator

IRC3F432	Green		171-4148					
IRC3F452	Yellow		171-4149					
IRC3F462	Red		171-4150					
IRC3F492	Orange		171-4152					

### Solder Lugs Terminals - Round Actuator

IRR3S422LOS	Black	Red	171-4153					
IRR3S422LOG	Black	Green	171-4154					
IRR3S422LOY	Black	Yellow	171-4155					
IRR3S462LOS	Red	Red	171-4172					
IRR3S432LOG	Green	Green	171-4173					
IRR3S4B2LOB	Blue	Blue	171-4175					

### Solder Lugs Terminals - Square Actuator

IRC3S422LOS	Black	Red	171-4158					
IRC3S422LOG	Black	Green	171-4159					
IRC3S422LOY	Black	Yellow	171-4160					
IRC3S462LOS	Red	Red	171-4176					

Mfrs. List No.	Actuator Colour	Illumination Colour	Order Code	1+	10+	25+	50+	100+
<b>Wire Leads Terminals - Round Actuator</b>								
IRR3F422LOS	Black	Red	171-4162					
IRR3F422LOG	Black	Green	171-4163					
IRR3F422LOY	Black	Yellow	171-4164					
IRR3F422LOB	Black	Blue	171-4165					
IRR3F462LOS	Red	Red	171-4180					
IRR3F432LOG	Green	Green	171-4182					
<b>Wire Leads Terminals - Square Actuator</b>								
IRC3F422LOS	Black	Red	171-4166					
IRC3F422LOY	Black	Yellow	171-4169					
IRC3F462LOS	Red	Red	171-4185					
IRC3F432LOG	Green	Green	171-4186					
IRC3F4B2LOB	Blue	Blue	171-4188					

### Miniature, Sealed, Snap-In 125mA @ 125V ac



- Compact switches, snap in mounting
- Sealed to meet **IP67**
- Constructed from lightweight thermoplastic **UL94-V0**
- Available in a wide choice of colours

Bezel = 17.5 (dia), Depth = 13mm,  
Panel cut-out = 13.6mm (dia),  
Tab = 5.08mm

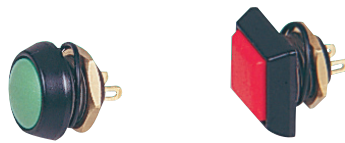
Electrical Life	500000 ops	Insulation Resistance	<MR
Operating Temperature	-40°C to +125°C (standard)	Contact Resistance	<50mR
Total Travel	1.5mm	Operating Force	3N

347607/405608

Mfrs. List No.	Order Code	1+	10+	25+	50+
Blue	IBR3SAD1	108-2436			
Black	IBR3SAD2	108-2438			
Green	IBR3SAD3	108-2439			
Red	IBR3SAD6	108-2440			

### SPNO Momentary 0.125A @ 125V ac, 0.4A @ 32V ac, 0.1A @ 50V dc IP67 Sealed

**ITW Switches**



Round Bezel L=20.0, Bezel dia.=17.45  
Square Bezel L=20.0, Bezel=17.45 x 17.45

All Switches  
Panel cut-out (single flat) = 13.65 x 12.90,  
Max. panel thickness = 3.0mm, Depth behind panel = 13.0mm

- Panel sealed to **IP67**
- Constructed from **NCB 481/1965** approved non-sparking zinc alloy or PBT
- Choice of 6 actuator colours, round, square and PBT round bezel
- Small size, robust construction

Contacts	Palladium Nickel, Gold plated	Electrical life	500000 ops
Contact resistance	50mR	Mechanical life	1000000 ops
Dielectric strength	1000V ac	Operating temperature	-55°C to +125°C
Insulation resistance	MR		

<b>Metal round bezel switches:</b>			
Black = 519-315	Red = 519-327	Green = 519-339	
White = 519-340	Yellow = 519-352	Blue = 519-364	

<b>Metal square bezel switches:</b>			
Black = 519-376	Red = 519-388	Green = 519-390	
White = 519-406	Yellow = 519-418	Blue = 519-420	

<b>Plastic round bezel switches:</b>			
Black = 443-4390	Red = 443-4407	Green = 443-4419	Orange = 443-4456
White = 443-4420	Yellow = 443-4432	Blue = 443-4444	

Mfrs. List No. Bezel: Std Round=59-11+colour, Std square=59-21+colour PBT round bezel: 59-51+colour

311633

Order Code	1+	25+	50+	100+	250+
<b>Metal Bezel Switches</b>					
<b>Plastic Bezel Switches</b>					

### SPNO Momentary - For Harsh Environments 200mA @ 250V ac/50V dc



- Compact - 13.6mm dia. panel cutout
- Sealed to **IP 67**
- Zinc alloy construction
- Gold plated, silver contacts

Supplied with 1 x hex. nut (0.551", 14mm across flats) and 1 x 'O' ring

Operating temperature	-40°C to 85°C	Terminals	Solder lugs, 5.2 x 2.0mm
Panel thickness	1.5mm to 5.5mm	Depth, behind panel	13.2mm
Torque, applied to nut	1.5 Nm	Overall diameter	17.5mm

244897

Chrome Bezel Button colour	Mfrs. List No.	Order Code	1+	10+	25+	50+
Black	IPR3SAD2101	108-2446				
Green	IPR3SAD3101	108-2447				
Red	IPR3SAD6101	108-2448				

### ON OFF Latching - For Harsh Environments 2A @ 125V ac, 100mA @ 24V dc



- Compact - 13.6mm dia. panel cutout
- Sealed to **IP 67**
- Zinc alloy construction
- Gold plated, silver contacts

Supplied with 1 x hex. nut (0.551", 14mm across flats) and 1 x 'O' ring

Latching - Non illuminated	Illuminated		
Operating temperature	-40°C to 85°C	Depth, behind panel	13.2mm
Panel thickness	1.5mm to 5.5mm	Overall diameter	17.5mm
Torque, applied to nut	1.5 Nm	LED forward current	
Terminals	Solder lugs, 5.2 x 2.0mm		

244901

Colour (Non illuminated) Bezel	Button	Mfrs. List No.	Order Code	1+	10+	25+	50+
Black	Black	IPR1SAD2	108-2441				
Chrome	Black	IPR1SAD2101	108-2442				

#### Colour (Illuminated)

Bezel & button	Central LED	Mfrs. List No.	Order Code	1+	10+	25+	50+
Black	Red	IPR1SAD2LOS	108-2444				
Black	Green	IPR1SAD2LOG	108-2443				
Black	Yellow	IPR1SAD2LOY	108-2445				

### Push Button Switches - Momentary



3A @ 125V ac, 1.5A @ 250V ac



- Nylon or nickel plated brass bodied switches, momentary action
- Solder lug terminals
- Brass terminals with silver plating
- Snap-in mounting
- 5.8mm long terminals
- **UL Recognised**

H (Nylon) = 15, H (Metal) = 17.3, Dia. = 12.7mm

Rating	3A @ 125V	Insulation Resistance	@ 500VDC
Rating	1.5A @	Dielectric Strength	500VDC
Contact Resistance	50mohm	Flamability	UL 94V-2

520513

Switch Function	Colour	Mfrs. List No.	Order Code	1+	25+	50+	100+
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#### Black Nylon Body

SPST	Red	R13-502A-05-R	163-4621				
SPST	Black	R13-502A-05-B	163-4622				

#### Nickel Plated Brass Body

SPST	Red	R13-502MA-05-R	163-4623				
SPST	Black	R13-502MA-05-B	163-4624				
SPDT	Red	R13-502MC-05-R	163-4625				
SPDT	Black	R13-502MC-05-B	163-4626				

### Push Button Switches



3A @ 125V ac, 1.5A @ 250V ac



- SPST, momentary or latching action versions
- Black phenolic bodied switches with ABS (UL 94HB) buttons
- Solder lug terminals
- M12 x 1.0 threaded mounting
- 5.8mm long terminals
- 12.2mm diameter panel cutout
- **CSA Approved**

H (Body) = 22.9, Bezel = 15.5mm Sq., Button = 11mm Sq.

Rating	3A @ 125V	Insulation Resistance	@ 500VDC
Rating	1.5A @	Dielectric Strength	1000VAC
Contact Resistance	50mohm	Temperature operating	-20 to 65°C

# Push Button Switches - continued

## Push Button Switches - continued

3A @ 125V ac, 1.5A @ 250V ac - continued

520517

Button Mfrs.		Price Each					
Colour	List No.	Order Code	1+	25+	50+	100+	500+
<b>Momentary action</b>							
Red	R13-23A-05-BR	163-4627					
Black	R13-23A-05-BB	163-4629					
White	R13-23A-05-BW	163-4631					
Green	R13-23A-05-BG	163-4632					
<b>Latching action</b>							
Red	R13-23B-05-BR	163-4633					
Black	R13-23B-05-BB	163-4634					
White	R13-23B-05-BW	163-4635					

## SPNO and SPNC Momentary and Latching



10A @ 250V ac, Impact Resistant



Flush actuator Raised actuator Domed actuator Rotary actuator Large circular actuator  
 L=31.0, Dia=30.0 (domed actuator=35.0, large circular actuator=46.5),  
 Panel cut-out (double flat)=22.0 x 20.0, Depth behind panel=23.0, Max. panel thickness=6.0

- Impact resistant and panel sealed to IP679
- Constructed from NCB481/1965 approved non-sparking zinc alloy
- Momentary and latching SPNO/SPNC pushbuttons and matching
- 2 position snap-action SPNO/SPNC latching rotary switches

Contacts	Silver	Insulation resistance	
Minimum contact rating	10mA @ 5V dc	Electrical life @ 20°C	100000 ops
Contact resistance	<25mR	Mechanical life	1000000 ops
Dielectric strength	1000V rms	Operating temperature	-40°C to +135°C

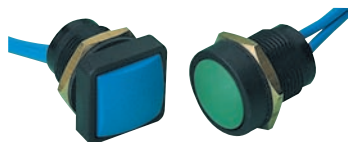
Mfrs. List No. Flush=76-9410/439088B + colour, Raised=76-9420/439088B + colour  
 Domed=76-9450/439088B + colour, Rotary=76-9470/439088G  
 76-9430/439088NBlue=607-630, 76-9440/439088NBlue=607-642

SW184/222299

		Price Each					
Colour	Order Code	1+	10+	25+	50+	100+	250+
<b>Flush Actuator, Momentary</b>							
Black	109-280						
Green	109-281						
Red	109-282						
<b>Raised Actuator, Momentary</b>							
Black	109-283						
Green	109-284						
Red	109-285						
Blue	273-132						
<b>Domed Actuator, Momentary</b>							
Black	241-507						
Green	241-519						
Red	241-520						
<b>Large Circular Actuator, Momentary</b>							
Blue	607-642						
<b>Rotary Actuator, Latching</b>							
Green	241-532						
Red	241-544						

## SPNO Momentary - 49-59 Series

0.4A @ 32V ac, 'Sealed'



L=23.8, Bezel=19.8 x 19.8 L=23.1, Bezel dia.=19.8

Suggested Panel Cut Out utilising the 'D'-flats



- Industry standard 16mm cut-out
- IP67 rating
- UL recognised
- Gold contacts, suitable for logic switching

- Ideal for retro-fitting
- 500mm lead termination
- Choice of 6 colours

Contact rating (resistive)	0.4A @ 32V dc @ 50V dc	Dielectric strength	1000V ac
	0.125A @ ac	Insulation resistance	MR
Contact resistance	60mR max. (incl. leads)	Electrical life @ 20°C	500000 ops
Contacts	Gold Plated, Palladium Nickel1000V	Mechanical life	1000000 ops
		Operating temperature	-55°C to +105°C

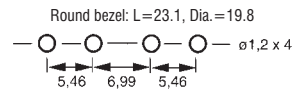
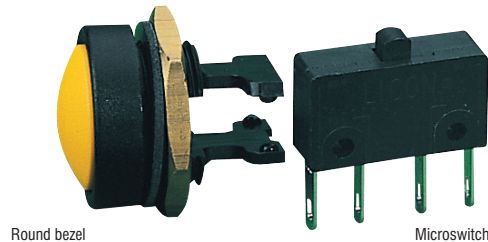
SW327/213271

Colour	Mfrs. List No.	Order Code	Price Each			
			1+	25+	50+	100+
<b>Round Bezel</b>						
Black	49-59111	734-070				
Red	49-59112	734-081				
Green	49-59113	734-093				
Yellow	49-59115	734-111				
Blue	49-59116	734-123				
<b>Square Bezel</b>						
Black	49-59211	734-135				
Red	49-59212	734-147				
Green	49-59213	734-159				
White	49-59214	734-160				
Yellow	49-59215	734-172				
Blue	49-59216	734-184				

## SPNO/SPNC Momentary - 49-59 Series



10A @ 250V ac, 'Microswitch'



- Panel sealed to IP67
- Positive snap action
- 110 fast-on terminals with soldering facility
- Push button used with snap-on mains rated microswitch
- UL recognised
- Standard 16mm cut-out

Contacts rating (resistive)	10A @ 250V ac	Electrical life	100000 ops @ 20°C
	25mR	Contact resistance	50000 ops @ 70°C
Dielectric strength	1kV ac, 1 minute	Mechanical life	1000000 ops
Insulation resistance	MR @ 500V dc	Operating temperature	-55°C to +135°C

SW319/213262

		Price Each				
Colour	Mfrs. List No.	Order Code	1+	25+	50+	100+
<b>Round Bezel</b>						
Black	49-59121	734-196				
Red	49-59122	734-202				
Green	49-59123	734-214				
Yellow	49-59125	734-238				
Blue	49-59126	734-240				

## Series 76-97 - Coloured, Panel-Sealed



10A @ 250V ac



- Panel sealed to IP67
- Robust construction
- Wide operating temperature range: -40°C to 105°C
- Choice of 7 actuator colours

Contacts	Fine Silver
Contact resistance	25mR
Dielectric strength	1000V ac
Contact resistance	25mR
Electrical life	100000 ops
Mechanical life	2000000 ops
Operating temperature	-40°C to +105°C
Termination	

347658/406521

Pushbutton/ Rim Colour		Mfrs. List No.	Order Code	Price Each			
				1+	25+	100+	250+
<b>Momentary</b>							
Red / Yellow		76-9711/439088R	770-5492				
Green / Yellow		76-9711/439088G	770-5506				
<b>Latching</b>							
Red / Yellow		76-9712/439088R	770-5522				
Green / Yellow		76-9712/439088G	770-5530				
Black / Red		76-9712/439088B	770-5549				



**SPNO and SPNC Momentary**  
5A @ 115Vac or 28Vdc, 2.5A @ 250Vac



L=21, Dia=17.5  
Panel cut-out=11.9 x 11.3 (single flat), depth behind panel=14.0

- Attractive flush and raised dome actuator button options
- SPNO and SPNC set of gold contacts
- Positive tactile feedback with momentary snap action
- Thermoplastic case and bezel, sealed to IP64
- Rear panel seal with potted contacts
- Available with white and black body snap action

Contacts Gold Plated Silver Alloy Operating temperature -55°C to +85°C  
Mechanical life 1000000 ops

213134

Colour		Order Code	Price Each				
Button	Bezel		1+	10+	25+	50+	100+
<b>Flush Dome Actuator</b>							
Red	Black	113-8748					
Black	Black	113-8749					
Yellow	Black	113-8750					
Green	Black	113-8751					
Blue	Black	113-8752					
Grey	Black	113-8754					
White	Black	113-8755					
Red	White	177-5849					
Black	White	177-5850					
Orange	White	177-5851					
Green	White	177-5853					
<b>Raised Dome Actuator</b>							
Red	Black	113-8756					
Black	Black	113-8757					
Yellow	Black	113-8758					
Green	Black	113-8759					
Blue	Black	113-8760					
Grey	Black	113-8761					
White	Black	113-8762					
Red	White	177-5855					
Yellow	White	177-5859					
<b>Accessories</b>							
O Ring Sael - IP68		NEW 187-2184					

**SPNO and SPNC**  
10A (5A) @ 115Vac or 28Vdc, 5A @ 240Vac



L=35.8, Dia=26.6  
Panel cut-out=16, depth behind panel=25

- Attractive flush and raised dome actuator button options
- SPNO and SPNC set of contacts
- Positive tactile feedback with momentary snap action
- Black anodised case and bezel
- Rear panel seal with potted contacts

Contacts Silver Alloy Operating temperature -55°C to +85°C  
Mechanical life 1000000 ops

213149

Order Code	Price Each					
	1+	10+	25+	50+	100+	250+
<b>Flush Dome Actuator, Momentary</b>						
Red	113-8742					
Black	113-8743					
Green	113-8744					
<b>Raised Dome Actuator, Momentary</b>						
Red	113-8745					
Black	113-8746					
Green	113-8747					
<b>Raised Dome Actuator, Latching</b>						
Black	113-8770					
<b>Accessories - O Ring Seal</b>						
IP68	NEW 207-5311					

**Pendant Switch**



Remote hand held pushbutton switch with flying leads.

Contact Configuration SPST-NO / SPST-NC  
Contact rating - Current 50000  
Contact rating - Voltage 28V  
Current Rating 5A  
Body Material Aluminum  
Button Colour Red



626471

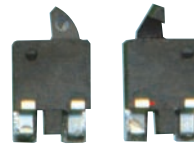
Mfrs. List No.	Order Code	1+	10+	25+	50+	100+
U2-124	187-8603					

**Detect Switches**



**Detect Switch - Card**

Left and Right Hand Operating Direction - SMD



A horizontally actuated detector switch with one NO contact. The switch has a side push of 2.15mm with a 40gf to operate. Available with either left hand or right hand operating direction.

H = 2.0, W = 5.5, D (Body) = 5.2 - (Overall) = 8.4mm

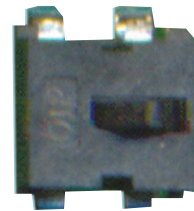
Voltage Rating (VDC)	Current Rating (mA)	Dielectric strength (VAC)/1 minute	Contact resistance (Ω)	Insulation resistance (MΩ) @ 100V dc	Operating temp. min/max (°C)
20	50	100	1	100	-10 to 60

Operating Direction	Mfrs. List No.	Order Code	1+	10+	50+	100+	500+
Right Hand	MCTE-MRR-V	SMD 131-6980					
Left Hand	MCTE-MRL-V	SMD 131-6981					

**Detect Switch - Card**



Top Actuated - SMD



A top actuated TACT switch with one NO contact. The switch has a low operating force of 40gf with very small overall dimensions.

H = 2.3 - Body. O/A - 5.3 (Long Lever), 3.8 (Short Lever), W = 4.7, D = 3.8mm

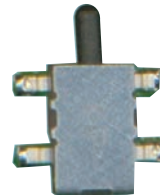
Voltage Rating (VDC)	Current Rating (mA)	Dielectric strength (VAC)/1 minute	Contact resistance (Ω)	Insulation resistance (MΩ) @ 100V dc	Operating temp. min/max (°C)
5	1	100	1	100	-20 to 70

Lever Type	Mfrs. List No.	Order Code	1+	10+	50+	100+	500+
Long	MCATE-1-V	SMD 131-6982					
Short	MCATE-2-V	SMD 131-6983					

**Detect Switch - Horizontal**



Micro-Miniature - SMD



A horizontally actuated detect switch with a choice of either one NO or one NC contact. The switch requires a side push of 50gf to operate and has a very small PCB footprint.

H = 2.0, W = 4.0, D (Body) = 5.5 - (Overall) = 8.0mm

Voltage Rating (VDC)	Current Rating (mA)	Dielectric strength (VAC)/1 minute	Contact resistance (Ω)	Insulation resistance (MΩ)	Operating temp. min/max (°C)
5	1	100	2	100	-10 to 60

Contact Style	Mfrs. List No.	Order Code	1+	10+	50+	100+	500+
NO	MCFTE-2C-V	SMD 131-6984					
NC	MCFTE-3C-V	SMD 131-6985					

**Side Actuated Detection Switch**



1mA - 5V dc



- Ultra-small size and ultra-low profile
- High contact reliability
- High precision operation
- Surface mount
- Available with left or right hand direction of operation

H = (Body) 0.9, W (Body) = 3, D (Body) = 3.4mm

Contact Configuration	SPST-NO / SPST-NC	Insulation resistance	min
Contact rating - Current	1mA	Dielectric strength	100VAC
Contact rating - Voltage	5VDC	Life cycle	100000 Operations (Min)
Contact resistance	30hm max	Operating temperature	-25°C to +85°C
Order Code	Mfrs. List No.	Order Code	Mfrs. List No.
133-3657	D3SH-AOR	133-3658	D3SH-AOL

Operating Direction	Contact Type	Order Code	5+	50+	100+	250+	500+
<b>Standard Lever Version</b>							
Right	SPST-NO	SMD 133-3657					
Left	SPST-NO	SMD 133-3658					

## Detect Switches - continued

### Micro Mini - Top or Side Actuation

1mA, 5VDC



- Low profile package sits just 3.35mm off PCB
- Design allows top or side actuation
- Low actuation force, 30 grams max
- Pick and place compatible

W=3.5, D=2.8, H=3.35mm

Mfrs. List No.	Contact Rating Voltage (V)	Contact Rating Current (mA)	Resistance Contact (mR)	Resistance Insulation (mR)	Operating Temp. (Degree C)
HDT0001	5	1	500	50	10 to 60°C

311824

Mfrs. List No.	Order Code	1+	25+	100+	1K+	3K+
HDT0001	957-5154					



### Detect Switch - Top Actuated

Ultra-miniature KSU



- Hard metal actuator
- Totally protected against overload
- Gold contacts
- Compatible with infrared soldering processes and also pick & place machines

A top-actuated detect switch without tactile feedback (linear F/d curve). The momentary action, normally open contacts are designed to be compatible with Surface Mount Technology processes.

Actuating force (N)	Power (VA)	Voltage (V)	Switching current Max (mA)	Contact resistance mΩ	Insulation resistance MΩ's	Operating temp. min/max °C
1.1	0.5	50	10	100	1000	-40 to 125

333927

Mfrs. List No.	Order Code	1+	50+	100+
KSU213WLFQ	SMD120-1432			



### Detect - Micro Mini

100mA, 12V dc



- Low profile, 2mm height above PCB
- 2mm overtravel
- Low actuator force - 100g max
- Pick and place compatible

W = 5, D = 5.7, H = 2mm

Mfrs. List No.	Contact Rating Voltage (V)	Contact Rating Current (mA)	Resistance Contact (mR)	Resistance Insulation (mR)	Operating Temp. (Degree C)
SDS001	12	100	100	100	-20 to 60°C
SDS002	12	100	100	100	-20 to 60°C

241379

Mfrs. List No.	Order Code	5+	50+	100+	250+	500+
SDS001 N O	957-5120					
SDS002 N C	957-5138					



### Detector Switches

ESE58 Series



- Thin body: 0.9mm
- Circuit type: Normally-open and normally-closed types
- J-bent terminals
- Lineup with variations in right-left operations
- Applications: Detection of media in portable electronic equipment (mobile phones, digital cameras, DVCs etc)

Mfrs. List No.	Contact Rating Voltage (V)	Contact Rating Current (mA)	Resistance Contact (mR)	Resistance Insulation (mR)	Operating Temp. (Degree C)
ESE58L61B	3	100	100	100	-10°C to 60°C
ESE58L11B	3	100	100	100	-10°C to 60°C

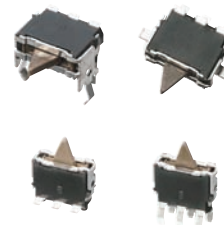
656238

Mfrs. List No.	Order Code	1+	10+	25+	50+	100+	250+
ESE58L61B	207-9584						
ESE58L11B	207-9585						



## Bidirectional Detector Switches

ESE24 Series



- Lever type detector switch with high reliability using sliding mechanical contacts
- Auto return to mid point
- Long over-travel
- Used as an operation switch (input device)
- Applications: Detection of media in portable electronic equipment (CD-ROM, DVD, Digital still cameras etc), operating switches for electronic equipment

Mfrs. List No.	Operating Force (mN)	Mounting Height (mm)	Full Travel (Pushing distance) (mm)	Order Code
ESE24SV3	0.35N	5.6	6.1mm (2.45mm)	207-9587
ESE24SH1	0.35N	4.65	2.6mm (2.45mm)	207-9588
ESE24MV1	0.35N	5.6	6.1mm (2.45mm)	207-9589
ESE24MH1T	0.35N	3.0	1.4mm (2.45mm)	207-9590

656239

Mfrs. List No.	Order Code	1+	10+	25+	50+	100+
<b>Vertical Type for wave soldering</b>						
ESE24SV3	207-9587					
<b>Horizontal Type for wave soldering</b>						
ESE24SH1	207-9588					
<b>Vertical Type for reflow soldering</b>						
ESE24MV1	207-9589					
<b>Horizontal Type for reflow soldering</b>						
ESE24MH1T	207-9590					

### Detector Switches

ESE23 Series



- Auto return to mid point
- Long over-travel
- Usable as an operation switch (input device)
- 1mm full travel
- Straight or J-bent type with boss



- SPDT configuration (OFF at midpoint)
- Applications: Detection of media in portable electronic equipment (CD-ROM, DVD, Digital still cameras, etc)

Mfrs. List No.	Operating Force (mN)	Terminal Type	Order Code
ESE23J101	0.3N	J-bent	207-9591
ESE23F101	0.3N	Straight	207-9592

656240

Mfrs. List No.	Order Code	1+	10+	25+	50+	100+	250+
ESE23J101	207-9591						
ESE23F101	207-9592						

### Detector Switches

ESE18 Series



- Thin body
- Ideals for detection of media in portable electronic equipment



Mfrs. List No.	Operating Force (mN)	Boss	Terminal Type	Order Code
ESE18L61D	SPST-NC	Yes	Straight	207-9623
ESE18L61B	SPST-NC	Yes	J Bend	207-9625
ESE18L61C	SPST-NC	No	Straight	207-9624
ESE18L61A	SPST-NC	No	J Bend	207-9626
ESE18L11D	SPST-NO	Yes	Straight	207-9627
ESE18L11B	SPST-NO	Yes	J Bend	207-9631
ESE18L11C	SPST-NO	No	Straight	207-9629
ESE18L11A	SPST-NO	No	J Bend	207-9632



Right Hand Operation	SPST-NC	Yes	Straight	207-9614
ESE18R61D	SPST-NC	Yes	J Bend	207-9617
ESE18R61B	SPST-NC	No	Straight	207-9615
ESE18R61C	SPST-NC	No	J Bend	207-9618
ESE18R61A	SPST-NC	No	J Bend	207-9618
ESE18R11D	SPST-NO	Yes	Straight	207-9619
ESE18R11B	SPST-NO	Yes	J Bend	207-9621
ESE18R11C	SPST-NO	No	Straight	207-9620
ESE18R11A	SPST-NO	No	J Bend	207-9622

659377

Mfrs.	List No.	Order Code	1+	10+	25+	50+	100+	250+
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**Left Hand Operation**

ESE18L61D	207-9623	●						
ESE18L61B	207-9625	●						
ESE18L61C	207-9624	●						
ESE18L61A	207-9626	●						
ESE18L11D	207-9627	●						
ESE18L11B	207-9631	●						
ESE18L11C	207-9629	●						
ESE18L11A	207-9632	●						

**Right Hand Operation**

ESE18R61D	207-9614	●						
ESE18R61B	207-9617	●						
ESE18R61C	207-9615	●						
ESE18R61A	207-9618	●						
ESE18R11D	207-9619	●						
ESE18R11B	207-9621	●						
ESE18R11C	207-9620	●						
ESE18R11A	207-9622	●						

**Detector Switches****ESE22****NEW****Panasonic**  
ideas for life

- Can be operating with different actuation angles (horizontally and vertically)
- Reflow soldering
- Configuration: SPST, normally open
- Light operating force (300 mN max.)
- Applications: Detection of media in portable electronic equipment

Rating  
Contact Resistance  
Insulation Resistance  
Dielectric Withstanding Voltage  
Temperature Range

50 $\mu$ A @ 3Vdc to 10mA @ 5Vdc. (Resistive Load)  
500 m $\Omega$  max.  
100 M $\Omega$  min (at 100 Vdc)  
100 Vac for 1 min  
-10°C to 70°C

Mfrs.	Actuator Angle	Full Travel (Pushing distance)	Order Code
List No.			
ESE22MV21T	Vertical	4.1mm	207-9593
ESE22MV21	Vertical	4.1mm	207-9594
ESE22MH54	Horizontal	2.85mm (With Frame Type)	207-9595
ESE22MH52	Horizontal	2.85mm (With Frame Type)	207-9596
ESE22MH24	Horizontal	2.1mm	207-9597
ESE22MH22	Horizontal	2.1mm	207-9599

656241

Mfrs.	List No.	Order Code	1+	10+	25+	50+	100+	250+
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ESE22MV21T	207-9593	●						
ESE22MV21	207-9594	●						
ESE22MH54	207-9595	●						
ESE22MH52	207-9596	●						
ESE22MH24	207-9597	●						
ESE22MH22	207-9599	●						

**Detector Switches****ESE13****NEW****Panasonic**  
ideas for life

- Thin type: Height = 1.2mm
- Highly reliable contact
- SMD type (Embossed taping, reflow soldering)
- Configuration: SPST
- Straight or J-bent terminals
- H type (from under to top), V type (from top to under)
- With or without boss
- Applications: Detection of media in portable electronic equipment (mobile phones, digital cameras, camcorders etc)

Rating  
Contact Resistance  
Insulation Resistance  
Dielectric Withstanding Voltage  
Full Travel (Pushing Distance)  
Temperature Range

50 $\mu$ A @ 3Vdc to 10mA @ 5Vdc. (Resistive Load)  
500 m $\Omega$  max.  
100 M $\Omega$  min (at 100 Vdc)  
100 Vac for 1 min  
Type V: 2.15mm / Type H: 3.05mm  
-10°C to 60°C

Mfrs.	Terminal Type	Boss Included	Order Code
List No.			
ESE13V01D	V	Straight	207-9634
ESE13V01C	V	Straight	207-9635
ESE13V01B	V	J-bent	207-9636
ESE13V01A	V	J-bent	207-9637

Mfrs.	Terminal Type	With	Order Code
List No.			
ESE13H21B	H	Straight	207-9638
ESE13H01D	H	Straight	207-9639
ESE13H01C	H	Straight	207-9640
ESE13H01B	H	J-bent	207-9642
ESE13H01A	H	J-bent	207-9643

656243

Mfrs.	List No.	Order Code	1+	10+	25+	50+	100+	250+
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**Straight Terminals**

ESE13V01D	207-9634	●						
ESE13V01C	207-9635	●						
ESE13H01D	207-9639	●						
ESE13H01C	207-9640	●						
ESE13H21B	207-9638	●						

**J-bent Terminals**

ESE13V01B	207-9636	●						
ESE13V01A	207-9637	●						
ESE13H01B	207-9642	●						
ESE13H01A	207-9643	●						

**1VR Detector Switches****ESE16 Series****NEW****Panasonic**  
ideas for life

- External Dimensions : 2.2 x 3.3mm
- Light operating force: 250mN or less
- SPST
- Auto mounting supported: Can be mounted by standard nozzles
- Applications: Detection of media in portable electronic equipment (mobile phones, digital cameras, camcorders)

Rating  
Contact Resistance  
Insulation Resistance  
Dielectric Withstanding Voltage  
Operating Temperature

10 $\mu$ A @ 2Vdc to 50mA @ 15Vdc. (Resistive Load)  
100 m $\Omega$  max.  
100 M $\Omega$  min (at 100 Vdc)  
250 Vac for 1 min  
-30°C to 85°C

Mfrs.	List No.	Order Code	1+	10+	25+	50+	100+	250+
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ESE16J001	207-9633	●						
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656244

**Detector Switches****ESE11 Series****NEW****Panasonic**  
ideas for life

- Wide range of customizable features including operational directions
- Light operating force - 350 nM max. (full travel)
- Horizontal or vertical mount
- Configuration: SPST
- Wave or reflow soldering available
- Applications: Detection of media in portable electronic equipment

Rating  
Contact Resistance  
Insulation Resistance  
Dielectric Withstanding Voltage  
Temperature Range

50 $\mu$ A @ 3Vdc to 10mA @ 5Vdc. (Resistive Load)  
500 m $\Omega$  max.  
100 M $\Omega$  min (at 100 Vdc)  
100 Vac for 1 min  
-10°C to 70°C

Mfrs.	List No.	Full Travel (mm)	Mounting Height (mm)	Mounting Type	Order Code
ESE11SV1		6.1	4.9	Through Hole	207-9644
ESE11SH2C		3.0	5.25	Through Hole	207-9645
ESE11SH1C		3	5.25	Through Hole	207-9646
ESE11MV1T		6.1	4.9	SMD Gull Wing	207-9647
ESE11MH2T		1.7	4.25	SMD	207-9648
ESE11MH2		1.7	4.25	SMD	207-9649
ESE11MH1T		1.7	4.25	SMD	207-9650
ESE11MH1		1.7	4.25	SMD	207-9651
ESE11HS2		6.3	3.6	Solder Lug	207-9652
ESE11HS1		6.3	3.6	Solder Lug	207-9654

656245

Mfrs.	List No.	Order Code	1+	10+	25+	50+	100+	250+
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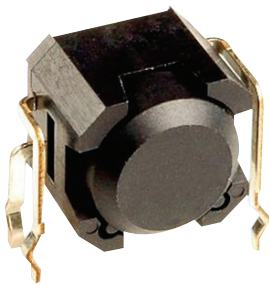
ESE11SV1	207-9644	●						
ESE11SH2C	207-9645	●						
ESE11SH1C	207-9646	●						
ESE11MV1T	207-9647	●						
ESE11MH2T	207-9648	●						
ESE11MH2	207-9649	●						
ESE11MH1T	207-9650	●						
ESE11MH1	207-9651	●						
ESE11HS2	207-9652	●						
ESE11HS1	207-9654	●						



## Detect Switches - continued

### Tilt Switch

Sealed - Photo interrupter



Input	Forward Current ( $I_f$ )	50 mA
	Reverse Voltage ( $V_R$ )	5 V
	Power Dissipation ( $P_D$ )	75 mW
Output	Collector-Emitter Voltage ( $V_{CE0}$ )	30 V
	Emitter-Collector Voltage ( $V_{EC0}$ )	3 V
	Collector Current ( $I_C$ )	20 mA
	Collector Power Dissipation ( $P_C$ )	50 mW

Right Angle PCB - Body H=9.5, W=10, D=8.8mm

- Photo interrupter ensures high reliability
- Sealed construction for environmental protection
- Totally sealed body for automated processing
- Internal steel ball movement allows functionality of 360°
- Switch is triggered when tilted beyond  $\pm 30^\circ$  of the horizontal
- Operating temperature range -25°C to +80°C

474790

Mfrs.	Order Code	1+	10+	50+	100+
DSBA1H	137-2331				

## Navigation Switches

### Navigation Switch - Multidirectional

Micro-Miniature - SMD



These multidirectional navigation switches require an operating force of 160gf with a centre push of 320gf. They have a very long electrical life of at least 100,000 cycles.

H = 1.67, W = 4.7, D (Body) = 3.5 - (Overall) = 4.5mm

Voltage Rating (VDC)	Current Rating (mA)	Dielectric strength (VAC)/1 minute	Contact resistance (mΩ)	Insulation resistance (MΩ) @ 100V dc	Operating temp. min/max (°C)
12	50	250	100		-25 to 85

453569

Directions	Mfrs.	Order Code	1+	5+	10+	50+	100+
4	MCMT4-F-V	SMD131-6986					
5	MCMT5-F-V	SMD131-6987					

### Navigation Switch

5 Way Multidirectional - SMD



A multi-directional TACT switch with a centre push function. The operating force required for the side switches is 180gf while the centre push force is 320gf. The device has an exceptional life expectancy of 200,000 electrical cycles.

H = 1.55, W = 9.8, D = 9.8mm

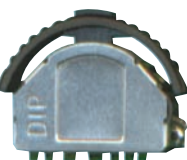
Voltage Rating (VDC)	Current Rating (mA)	Dielectric strength (VAC)/1 minute	Contact resistance (mΩ)	Insulation resistance (MΩ) @ 500V dc	Operating temp. min/max (°C)
12	50	250	100	100	-20 to 70

453570

Mfrs.	Order Code	1+	5+	10+	50+	100+
MCTT5-V	SMD131-6988					

### Navigation Switch

Push and Lever Series - SMD



This series of 3 way navigation switches has an integrated centre push switch. They have an electrical life in excess of 100,000 operations. The MCPLJ switch requires an operating force of 40gf on the return actuator and 150gf on the centre push switch. The MCPLS series requires 70gf on the return actuator and 200gf on the centre push switch. MCPL3-AC-V switch has an integrated Mounting Knob.

MPLJ - H = 2.55, W = 12, D = 9.3mm MPL3 - H = 2.35, W = 11.8, D = 11.8mm

Voltage Rating (VDC)	Current Rating (mA)	Dielectric Strength (VAC)/1 minute	Contact Resistance (mΩ)	Insulation Resistance (MΩ) @ 500V dc	Operating Temp. min/max (°C)	Order Code
5	10	100	100	100	-25 to 80	131-6991
5	1	100	500	100	-30 to 80	131-6992
5	1	100	500	100	-30 to 80	131-6993

453571

Mfrs.	Force (gf)	Order Code	1+	10+	25+	50+	100+
MCPLJ-G2-K-V	150/40	SMD131-6991					
MCPL3-AC-V	200/70	SMD131-6992					
MCPL3-BC-V	200/70	SMD131-6993					

## Silent Navigation Switches



NEW



- Excellent tactile feel
- SMT switch adapted for low current
- Only actuate 1 direction at a time
- Provides logic level control
- **Applications:** Seat adjustments, Industrial controls, mirror adjustment, home entertainment and multi-function steering wheel

Rating 20mA @ 20mV dc, 1mA @ 30V dc  
Bounce Time  $\leq 1$ ms  
Operating Temperature -40°C to 85°C

Mfrs.	Directions	Operating Force	Actuator (Total Height)	Angle
QSA2S3.5NH3G7	2	3.5N	23.5mm	7°
QSA4S3.5NH1G8	4	3.5N	22.4mm	8°
QSA4S3.5NH4G7	4	3.5N	18.3mm	7°

638458

Mfrs.	Order Code	1+	10+	25+	50+	100+
QSA2S3.5NH3G7	190-8264					
QSA4S3.5NH1G8	190-8265					
QSA4S3.5NH4G7	190-8266					

## Function Tact and Scroll Wheels



NEW



- Compact and slim
- Multiple function in one component (rotary, select)
- Easy installation
- Through hole termination
- Integrated decoration (B type)
- **Applications:** Remote controls, desk phones, keyboards, printers, entertainment systems and white goods

Rating 1mA @ 10V dc  
Contact Resistance  $\leq 300$ mΩ  
Insulation Resistance  $\geq 100$ MΩ  
Operating Temperature 0°C to 40°C

Designation	No. of Circuits	Rotation Actuation Force	Push Actuation Force	Rotation Cycle Life	Push Cycle Life
TSWA	3	60g/cm max.	200g $\pm$ 50g	1000000 cycles	1000000 cycles
TSWB	5	50g/cm max.	300g max.	1000000 cycles	1000000 cycles

Mfrs.	List No.	Description
	TSW A-3N-C LFS	Base switch with jog and select, no decoration
	TSW A-3N-CB11 LFS	Base switch with jog and select, white central button, white dial
	TSW A-3N-CD23 LFS	Base switch with jog and select, black central button, grey dial
	TSW B-3N-CB111 LFS	Central select with jog and 4 directions, white central button, dial & direction ring
	TSW B-3N-CB222 LFS	Central select with jog and 4 directions, black central button, dial & direction ring

638460

Mfrs.	Order Code	1+	10+	25+	50+	100+
TSW A-3N-C LFS	190-8267					
TSW A-3N-CB11 LFS	190-8268					
TSW A-3N-CD23 LFS	190-8269					
TSW B-3N-CB111 LFS	190-8270					
TSW B-3N-CB222 LFS	190-8271					



## 9 Way Navigation Switch

### Centre Push Function



- A centre push switch built into an 8 directional switch
- Strong tactile feel
- Thin shape with main body only 6.4mm thick
- Push travel only 0.2mm
- Rated at 10mA @ 5V dc

H (body) = 6.4, W = 15, D = 14.8mm

Operating angle (°)	Voltage (V dc)	Current Rating (mA)	Voltage proof V ac	Insulation resistance MΩ's	Operating temp. min/max °C
12 ± 3	5	10	300		-30 to 70

482415

Mfrs. List No.	Order Code	1+	50+	100+
RKJXL100401V	143-5770			

## 9 Way Navigation Switch

### Centre Push Function



- A centre push switch built into an 8 directional switch
- Different operating angles and force provided for each operating direction, four + directions and four x directions
- Push travel only 0.3mm
- Rated at 10mA @ 5V dc

H (body) = 6.6, W = 9.9, D = 10.7mm

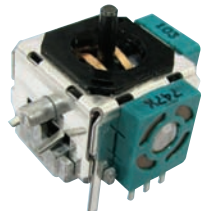
Operating angle	Voltage (V dc)	Current Rating (mA)	Voltage proof V ac	Insulation resistance MΩ's	Operating temp. min/max °C
10° for + directions, 12° for x directions	5	10	300		-30 to 70

482416

Mfrs. List No.	Order Code	1+	50+	100+
RKJXM1015001	143-5771			

## Navigation Switch

### RKJXK Series



- Operational feeling free from gaps in operating directions
- With lever return mechanism
- Ideal for finger-tip operation
- Compact size
- Integrated TACT switch™ for selection contributes to the improvement of user-friendliness of the set.
- Operating temperature -10 to 70°C

#### Applications

- Remote controllers for audio systems and TVs
- Game and electronic toy controllers

Without Center Push Button  
Dimensions (mm): H=12.9,  
W=22.7, D=20.7

Mfrs. List No.	Max Operating Voltage (Vac / Vdc)	Operating Life	Insulation Resistance (mΩ)	Operating Force (N) Direction	Push
RKJXK122000D	50 / 5	100000		6	-

524165

Mfrs. List No.	Center Push	Order Code	1+	50+	100+
RKJXK122000D	Without	165-6441			

## 4 Way Navigation Switch

### With or Without Centre Push Function



1435773

1435774

1435775

1435776

- High tactile feedback gives a sharp click feel
- The stem is provided with a shape which allows a button or knob to be fitted
- Snap in type allows automatic flow soldering
- SMD type allows reflow soldering
- Rated at 50mA @ 12V dc

Voltage (V dc)	Current Rating (mA)	Voltage proof V ac	Insulation resistance MΩ's	Operating temp. min/max °C
12	50	100		-30 to 85

482417

## ALPS

Mfrs. List No.	Dimensions H x W x D (mm)	Order Code	5+	50+	100+
<b>4 Directional Types</b>					
SKQUAAA010	7.1 x 10 x 10	143-5773			
SKQUBAE010	7.1 x 10 x 10	SMD 143-5774			
<b>4 Direction with Centre Push Types</b>					
SKQUCAA010	10 x 10 x 10	143-5775			
SKQUDBE010	8.6 x 10 x 10	SMD 143-5776			

## Tri-Direction Scan Switch

### Subminiature TPC



A side-actuated miniature switch with normally open contacts. Rotation of the actuator closes two individual contacts (left or right), while pushing down in the central position closes the the two (select) contacts.

- Right or left actuation prevent select function actuation
- Good tactile feedback - 1.0N actuating force, left or right. 2N actuating force, select
- Extended life - 100,000 operations per direction
- Compatible with infrared soldering and also pick & place machines

Power Voltage (VA)	Current (V)	Min/Max (mA)	Dielectric strength VDC	Contact resistance mΩ	Insulation resistance MΩ's	Operating temp. min/max °C
1.0	50	1/50	250	300		-40 to 125

241238

Mfrs. List No.	Order Code	1+	50+	100+
TPC1133G	SMD 120-1401			

## Navigation Switch Kits

### Navimec Series



- Stand-alone SPNO momentary switches, ready prepared in kits
- 50mA @ 24V dc
- 10,000,000 Operations life
- IP67 sealed
- Temperature range from -40°C to 115°C
- Choice of button colour
- Outer buttons marked with white arrow, Centre button marked with white OK
- Through Hole or Surface Mount versions available

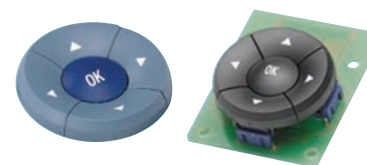
Each kit contains 5 switches with caps.

476133

Mfrs. List No.	Order Code	1+	50+	100+	250+
<b>Black Buttons</b>					
NAVIKITTH09WL	139-0523				
NAVIKITSM09WL	SMD 139-0524				
<b>Blue Buttons</b>					
NAVIKITTH30WL	139-0525				

## Navigation Switch Module

### Navimec Series



H(Above PCB) = 10, W = 40, D = 50mm  
H(Under PCB) = 7mm (Connector)

- Ready assembled Navimec™ switches on PCB
- 50mA @ 24V dc
- 10,000,000 Operations life
- IP67 sealed switches
- Temperature range from -40°C to 115°C
- Choice of button colour
- Outer buttons marked with white arrow, Centre button marked with white OK
- Under PCB connector JST SMT S10B-PH-SM3-TB

mec SWITCHES

## Navigation Switches - continued

### Navigation Switch Module - continued

#### Navimec Series - continued

Description	Mfrs. List No.	Order Code	Price Each		
			1+	5+	10+
Black Button Module	9509136118	139-0595			
Blue Button Module	9530136118	139-0596			
Accessories			Price Each		
Connector	PHR-10	361-6265	10+	100+	250+
			Price Each		
Crimp Terminal	BPH-002T-P0.5S	361-7210	100+	250+	500+

## Keyboard Switches and Accessories

### SMD Push Button Switch



- PCB-mounted switch, especially suitable for use with Mentor
- Illuminated button caps
- Compact size
- Long mechanical & electrical life
- Gull wing connection design

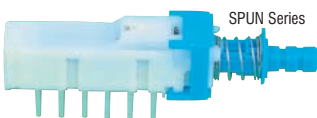
Mfrs. List No.	Type	Dimensions (mm)			Switch Type	Order Code
		Width	Length	Height		
2271.1003	Push Button Cap	19	19	8.9	1	177-5321
2271.1004	Push Button Cap	19	19	8.9	2	177-5322
2271.1006	Push Button Cap	19	19	11.7	1	177-5323
2271.1007	Push Button Cap	19	19	11.7	2	177-5324
2271.1009	Push Button Cap	15	15	8.9	1	177-5325
2271.1010	Push Button Cap	15	15	8.9	2	177-5326
2271.1011	Push Button Cap	15	15	11.7	1	177-5328
2271.1012	Push Button Cap	15	15	11.7	2	177-5329
2271.1005	Signal Indicator	19	19	9.2	-	177-5330
2271.1008	Signal Indicator	19	19	12	-	177-5331
2271.1013	Signal Indicator	15	15	9.2	-	177-5332
2271.1014	Signal Indicator	15	15	12	-	177-5333

Switch Type 1: Mentor (1254.1007) and Omron (B3FS-1052), Switch Type 2: Rafi Racon 8

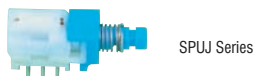
Contact Configuration	SPST	Insulation resistance	>
Switch Function Type	On-Off	Electrical life	500000 operations min
Current rating	50mA @ 12V		

Mfrs. List No.	Order Code	Price Each				
		1+	25+	50+	100+	250+
1254.1007	177-5334					
<b>Push Button Cap</b>						
2271.1003	177-5321					
2271.1004	177-5322					
2271.1006	177-5323					
2271.1007	177-5324					
2271.1009	177-5325					
2271.1010	177-5326					
2271.1011	177-5328					
2271.1012	177-5329					
<b>Signal Indicator</b>						
2271.1005	177-5330					
2271.1008	177-5331					
2271.1013	177-5332					
2271.1014	177-5333					

### Horizontally Actuated



- Non-shorting
- Latching
- PC board mounting
- Straight terminals
- Operating temperature -10°C to +60°C



Contact rating 30Vdc Life cycles 10000

#### Order Multiple=1

Standard	Mfrs. List No.	Order Code	Price Each		
			1+	50+	100+
2 Pole Latching	SPUN191400	112-3855			
4 Pole Latching	SPUN194700	112-3856			

#### Miniature

2 Pole Latching	SPUJ190900	112-3857			
4 Pole Latching	SPUJ193700	112-3858			
6 Pole Latching	SPUJ195500	112-3859			
2 Pole Momentary	SPUJ191500	112-3860			

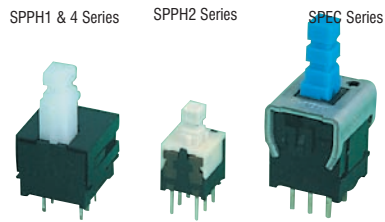
#### Order Multiple=10

Rectangular Caps for Standard Switches	Mfrs. List No.	Order Code	Price Each		
			10+	50+	100+
Black	PB0150000B	112-3884			
Grey	PB0150000G	112-3885			
Red	PB0150000R	112-3886			
White	PB0150000W	112-3887			

#### Rectangular Caps for Miniature Switches

Black	PB0151000B	112-3888			
Grey	PB0151000G	112-3891			
Red	PB0151000R	112-3892			
White	PB0151000W	112-3893			

### Vertically Actuated



- SPPH1 & 4 Series - Double Pole, 1.5mm Travel, 0.1A @ 30V dc
- SPPH2 Series - Double Pole, 1.0mm Travel, 0.1A @ 12V dc
- SPEC Series - Double Pole, 2.5mm Travel, 0.1A @ 30V dc

Mfrs. List No.	Order Code	Price Each		
		1+	50+	100+
<b>SPPH1 Series</b>				
2 Pole Momentary Standard	SPPH110300	112-3862		
<b>SPPH2 Series</b>				
2 Pole Momentary Miniature	SPPH210500	112-3864		
<b>SPPH4 Series</b>				
2 Pole	SPPH410100	143-5768		
2 Pole	SPPH410200	143-5769		
<b>SPEC Series</b>				
2 Pole Latching Standard	SPEC121100	112-3866		

### Momentary Push Switches



#### ESE20C/ESE20D Series



- User-friendly tactile feedback when operated
- Long over-travel
- Straight or Formed terminal shapes
- Applications: Operation switches for automobiles (for heater controls, overdrive, steering etc), secondary power switches for lower voltage in consumer electronic equipment and different types of mode switches

Rating	0.01 A @ 5Vdc to 0.1 A @ 14Vdc. (Resistive Load)				
Full Travel	2.5mm				
Mounting Height	8.9mm				
Configuration	SPST				
Operating Mode	Non-lock				
Operating Force	2N ± 1N, 4N ± 1.5N				

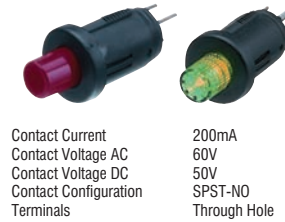
Mfrs. List No.	Operating Force	Travel (mm)	Lever Height	Terminal Shape	Order Code
ESE20C323	2N	2.5	12.5mm	Straight	207-9612
ESE20C321	2N	2.5	12.5mm	Formed	207-9613
ESE20C343	4N	2.5	12.5mm	Straight	207-9610
ESE20C341	4N	2.5	12.5mm	Formed	207-9611
ESE20C423	2N	2.5	17.5mm	Straight	207-9608
ESE20C421	2N	2.5	17.5mm	Formed	207-9609
ESE20C443	4N	2.5	17.5mm	Straight	207-9606
ESE20C441	4N	2.5	17.5mm	Formed	207-9607
ESE20D323	2N	2.5	12.5mm	Straight	207-9603
ESE20D321	2N	2.5	12.5mm	Formed	207-9605
ESE20D423	2N	2.5	17.5mm	Straight	207-9601
ESE20D421	2N	2.5	17.5mm	Formed	207-9602
ESE20D441	4N	2.5	17.5mm	Formed	207-9600

656242

Mftrs.	List No.	Order Code	1+	10+	25+	50+	100+	250+
<b>For Automotive Use</b>								
ESE20C443	207-9606							
ESE20C441	207-9607							
ESE20C423	207-9608							
ESE20C421	207-9609							
ESE20C343	207-9610							
ESE20C341	207-9611							
ESE20C323	207-9612							
ESE20C321	207-9613							
<b>For Consumer Products</b>								
ESE20D441	207-9600							
ESE20D423	207-9601							
ESE20D421	207-9602							
ESE20D323	207-9603							
ESE20D321	207-9605							

### Data Switches

#### LDS/LDT Series



- Absolute reliability and simple assembly
- Compact design with very small mounting depth
- Excellent price/performance ratio
- Suitable for front and print-mounting
- Good illumination
- Many different application fields

**NEW**

Switch Operation	Colour	Mftrs. List No.	Order Code	1+	25+	50+
<b>Non-Illuminated</b>						
Momentary	Red	0041.9141.3107	208-2856			
Momentary	Green	0041.9141.5107	208-2857			
<b>Illuminated</b>						
Momentary	Transparent Red	0041.9146.3117	208-2859			
Momentary	Transparent Green	0041.9146.5127	208-2861			
Latching	Transparent Green	0041.9156.5127	208-2862			

### Latching Vertical Push Switches

**NEW**

Panasonic  
ideas for life

#### ESB33 Series



Rating: 50µA @ 3Vdc to 0.2A @ 14Vdc. (Resistive Load)  
 Operating Mode: Self Lock  
 Contact Configuration: DPDT  
 Terminal: Wave Soldering  
 Operating Force: 3N ± 1N

- Low profile (H=6mm)
- 3N operating force
- Applications: Operating switches for automobiles (heater control switches etc), secondary power switches for lower voltage in consumer electronic equipment and different types of mode switches

656246

Mftrs.	List No.	Order Code	1+	10+	25+	50+	100+	250+
	ESB33133	207-9655						

### Latching Push Switch

**NEW**

Panasonic  
ideas for life

#### ESB30



- Reduced interlock operation switching noise (-10dB compared to current value)
- Simultaneous locking prevention mechanism
- Applications: Operation switches for automobiles (air conditioners, switches, hazard switches etc)

Rating: 50µA @ 3Vdc to 0.2A @ 14Vdc. (Resistive Load)  
 Operating Mode: Self Lock  
 Contact Configuration: DPDT  
 Terminal Shape: Formed  
 Operating Force: 2N ± 1N

656917

Mftrs.	List No.	Order Code	1+	10+	25+	50+	100+	250+
	ESB30B102	207-9657						

### Latching Middle Current Push Switch

Panasonic  
ideas for life

#### ESB32



- Long travel
- Can be fitted to a printed circuit board
- Applications: Operation switches for automobiles (overdrive, hazard and map lamp switches etc), used for detecting function in relay and solenoid controls, secondary power switches for consumer electronic equipment

Rating: 0.1A @ 12Vdc to 3A @ 12Vdc. (Resistive Load)  
 Operating Mode: Self Lock  
 Contact Configuration: DPST, NO  
 Travel: Lock : 2.45mm, Full: 4.5mm  
 Operating Force: 3.5N

656918

Mftrs.	List No.	Order Code	1+	10+	25+	50+	100+	250+
	ESB32101N	207-9656						

### Data Switch

#### Momentary



Actuator: Round, Black  
 Contact Current: 2A  
 Contact Voltage AC: 125V  
 Contact Voltage DC: 50V  
 Contact Configuration: SPDT  
 Terminals: Through Hole

**NEW**

658361

Mftrs.	List No.	Order Code	1+	25+	50+	100+
	0041.0401	208-2855				

### Non-Illuminated, Low Profile



- SPNO momentary keyboard switches for PCB mounting
- Gold crosspoint contacts, keypads are ochre coloured

Low profile module

213388

Order Code	1+	25+	100+
Low profile switch module	118-0016		

### PCB Mount SPNO, Momentary

#### D6 Series, 100mA @ 100V ac



D6 square 151-137 to 151-144  
 H above PCB=11.5, Max. dia.=12  
 Cap size= 7.7 x 7.7 square, Lead pitch=5 x 5



D6 round 151-145 to 151-152  
 H above PCB=14.5, Max. dia.=12  
 Cap size=9.0 dia round, Lead pitch=5 x 5

- Tactile feedback contact operation
- Minimum centre spacing of 12.7mm
- Specially designed for digital electronic controls
- Strapped terminals permit X, Y coding
- Round or square styles in a choice of 8 colours

Max. breaking power: 6VA  
 Contact resistance: <100mR  
 Insulation resistance: MR  
 Operating life: 250000 ops  
 Operating force: 1.3N ±0.30%  
 Travel: 0.8mm ±0.2mm  
 Contact bounce: <3ms  
 Operating temperature: -20°C to +85°C

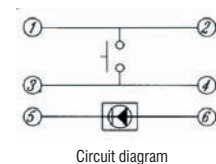
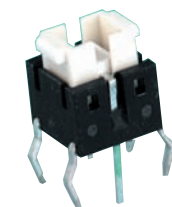
	D6 Square		D6 Round	
	Mftrs. List No.	Order Code	Mftrs. List No.	Order Code
Black	D6C90LFS	120-1367	D6R90LFS	120-1375
Yellow	D6C30LFS	120-1368	D6R30LFS	120-1376
White	D6C00LFS	120-1369	D6R00LFS	120-1377
Green	D6C50LFS	120-1370	D6R50LFS	120-1378
Red	D6C40LFS	120-1371	D6R40LFS	120-1379
Blue	D6C60LFS	120-1373	D6R10LFS	120-1381
Grey	D6C10LFS	120-1374	D6R10LFS	120-1381

213120

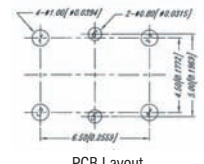
Order Code	1+	25+	100+	250+	1K+
All Order Codes					

### TACT With LED Illumination

#### 50mA @ 12Vdc



Circuit diagram



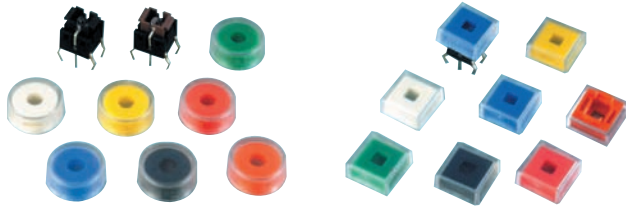
PCB Layout

H=7, W=6.1, D=4.5

# Keyboard Switches and Accessories - continued

## TACT With LED Illumination - continued

50mA @ 12Vdc - continued



Dia. = 10, cap height = 3.9

Cap height = 3.9, W = 10, D = 10

- Sharp click with positive tactile feed-back
- Ultraminiature and light weight
- Contact moulding prevents flux build-up enabling auto-dipping

Rating	50mA @ 12V dc	Insulation resistance	@ 500V dc
Contact arrangement	SPST	Dielectric strength	250VAC/1 min.
Force, operating	160±50gf	Resistance, contact	100mohm
Stroke	0.20±0.10mm	Operating life	200000 ops
		Operating temperature	-25°C to 70°C

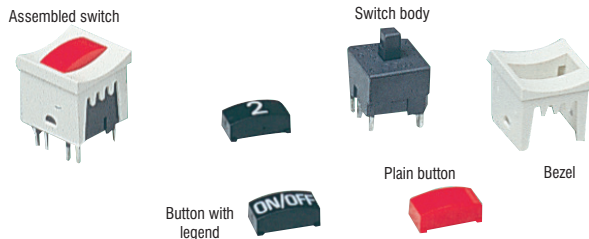
Switch bodies	Mftrs.	Order Code	Price Each			
LED colour	List No.		1+	25+	100+	250+
Red	TLL-62BR	947-1995				
Yellow	TLL-62BY	947-2002				
Green	TLL-62BG	947-2010				

340599/341729

Caps	Order Code		Price Each			
	Round	Square	5+	100+	500+	1K+
Ivory	956-1595	956-1668				
Black	956-1609	956-1676				
Green	956-1617	956-1684				

## Unimec - DPNO+DPNC Momentary and Latching

250mA @ 120V, 9W ac/6W dc



- PCB/Panel mount switch bodies with 2NO and 2NC contacts,
- Choice of momentary or latching action, and silver or gold contacts
- Range of plain coloured and legend buttons (white on black) to fit switch bodies
- Range of coloured bezels to fit switch bodies
- 4 x 4 support bracket for up to 16 switches is available, also blanking cap to fit unused switch holes

Contact finish	Silver over nickel	Operating force	Momentary 1500000 ops
Dielectric strength	1000V for 2 minutes	Operating temperature	Latching 500000 ops
Insulation resistance	MR		-25°C to +75°C
Capacitance	<0.5pF		

213381

Order Multiple=1	Order Code	Price Each			
Switches		1+	50+	100+	250+
Momentary/silver	113-2859				
Latching/silver	113-2860				
Momentary/gold	113-2876				
Latching/gold	113-2877				
<b>Buttons</b>					
On / Off	113-2871				
Reset	113-2872				

Order Multiple=10	Order Code	Price Each			
Bezels		10+	50+	100+	250+
Black	113-2867				
White	113-2868				
Grey	113-2869				
Red	113-2870				

Order Multiple=10	Order Code	Price Each			
Plain buttons		10+	50+	100+	250+
Black	113-2861				
White	113-2862				
Grey	113-2863				
Red	113-2864				
Blue	113-2865				

## Hinge - B3J Series, SPNO

50mA @ 24V dc



L=18, W=12, D=10.3

- Black, hinge type keyswitch with tactile feedback and short keystroke
- Available with or without red LED illumination.

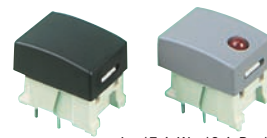
Contact arrangement	Off-On	Insulation resistance	MR min @ 250V dc
Min permissible load	1mA @ 5V dc	Dielectric strength	500V ac for 1min
Contact resistance	100mR max	Mech+elec life	30000000 ops

213077

Mftrs.	Actuator	LED	Order Code	Price Each		
List No.	Colour	Colour		1+	10+	25+
B3J1000	Grey	-	NEW 196-0997			
B3J-1100	Black	-	176-461			
B3J1200	Orange	-	NEW 196-0998			
B3J1300	Yellow	-	NEW 196-0999			
B3J1400	Blue	-	NEW 196-1000			
B3J2000	Grey	Red	NEW 196-1001			
B3J-2100	Black	Red	176-451			
B3J2200	Orange	Red	NEW 196-1002			
B3J2300	Yellow	Red	NEW 196-1003			
B3J2400	Blue	Red	NEW 196-1004			
B3J3000	Grey	Yellow	NEW 196-1005			
B3J3100	Black	Yellow	NEW 196-1006			
B3J3200	Orange	Yellow	NEW 196-1008			
B3J3300	Yellow	Yellow	NEW 196-1009			
B3J3400	Blue	Yellow	NEW 196-1010			
B3J4000	Grey	Green	NEW 196-1011			
B3J4100	Black	Green	NEW 196-1012			
B3J4200	Orange	Green	NEW 196-1013			
B3J4300	Yellow	Green	NEW 196-1014			
B3J4400	Blue	Green	NEW 196-1015			
B3J5000	Grey	Red / Yellow	NEW 196-1016			
B3J5100	Black	Red / Yellow	NEW 196-1017			
B3J5200	Orange	Red / Yellow	NEW 196-1018			
B3J5300	Yellow	Red / Yellow	NEW 196-1021			
B3J5400	Blue	Red / Yellow	NEW 196-1022			
B3J6000	Grey	Red / Green	NEW 196-1023			
B3J6100	Black	Red / Green	NEW 196-1024			
B3J6200	Orange	Red / Green	NEW 196-1025			
B3J6300	Yellow	Red / Green	NEW 196-1026			
B3J6400	Blue	Red / Green	NEW 196-1027			
B3J7000	Grey	Yellow / Green	NEW 196-1028			
B3J7100	Black	Yellow / Green	NEW 196-1029			
B3J7200	Orange	Yellow / Green	NEW 196-1030			
B3J7300	Yellow	Yellow / Green	NEW 196-1031			
B3J7400	Blue	Yellow / Green	NEW 196-1033			

## Hinge - Series 96 SPCO

Sealed 42V/100mA



L=17.4, W=12.4, D=14

- Attractive modern lens design
- Available with LED illumination
- Sealed to IP67 for process washing
- 1NO/1NC Gold Plated Contacts

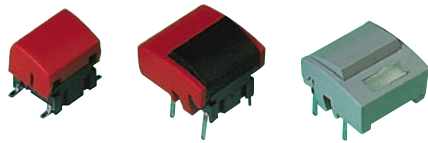
Max. Rating	42V/100mA	Contact Bounce:	<2.5mS
Contact Resistance:	<1000mR	LED Vf at 20mA:	2.2V
Mechanical Life:	>5000000ops	Lens Size:	17.4 x 12.4mm

213289

Mftrs.	Order Code	Price Each		
List No.		1+	10+	100+
<b>Switch Without LED</b>				
Black Momentary	K96-901.01BLK	185-322		
<b>Switch With Red LED</b>				
Black Momentary	K96-902.01BLK/2	185-360		
Black Latching	K96-906.01BLK/2	185-371		
Grey Momentary	K96-902.81/2GRY	185-383		



## Rocker Style Pushbuttons



1132924 + 1132925    1132924 + 1132929 + 1132931    1132924 + 1132930 + 1132937

- Flat button switch with unique hinged rocker style caps
- Switch available in throughhole or surface mount
- Caps with or without bezels should be ordered separately
- Bezel option with clear lens for opto applications, LED should be ordered separately

213151

Order Multiple=1	Mfrs.	Order Code	Price Each			
	List No.		1+	50+	100+	250+
<b>Switch Body</b>						
PCB	3ATL6	113-2922				
Surface mount	3ASH9	113-2924				
<b>Order Multiple=10</b>						
<b>Keycaps - Rectangular</b>						
			10+	50+	100+	250+
Red	1A08	113-2925				
Black	1A09	113-2926				
Grey	1A03	113-2927				
<b>Keycaps Rectangular - Requiring 2A bezel</b>						
Red	1B08	113-2928				
Black	1B09	113-2929				
Grey	1B03	113-2930				
<b>Plain Bezels - To fit 1B caps</b>						
Black	2A09	113-2932				
<b>Bezels with Clear Lens</b>						
Black	2B091	113-2936				
Grey	2B031	113-2937				

## Tactile Switches - Alps



### Tactile Switch - SPST SKHH Series



- Snap-in type allows switch to be mounted directly onto the PC board
- Part of the output terminal can also be applied as jumper leads, making circuit design easier
- Horizontal or Vertical mounting options available
- Operating temperature -35 to 85°C

Vertical Dimensions (mm): Horizontal Dimensions (mm):  
H=3.5, W=6, D=6    H=6, W=6, D=3.5

#### Applications

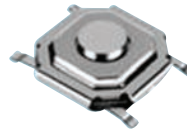
- Audio equipment
- Office devices
- Communication devices
- Measuring devices
- TVs, VCRs and in-car components

Mfrs. List No.	Input max (V / mA)	Operating Life	Contact Resistance (mΩ)	Operating Force (N)
SKHHAKA010	12 / 50	1000000	100	0.98
SKHHAMA010	12 / 50	500000	100	1.57
SKHHARA010	12 / 50	200000	100	2.55
SKHHLMA010	12 / 50	1000000	100	0.98
SKHHLNA010	12 / 50	500000	100	1.57
SKHHLPA010	12 / 50	200000	100	2.55

524082

Mfrs. List No.	Order Code	5+	25+	50+	100+	500+
<b>Vertical</b>						
SKHHAKA010	165-6423					
SKHHAMA010	165-6424					
SKHHARA010	165-6425					
<b>Horizontal</b>						
SKHHLMA010	165-6426					
SKHHLNA010	165-6427					
SKHHLPA010	165-6428					

## Tactile Switch - SPST SKQG Series



Dimensions (mm): H=1.2, W=5.2, D=5.2

Mfrs. List No.	Input max (V / mA)	Operating Life	Contact Resistance (mΩ)	Operating Force (N)
SKQGABE010	12 / 50	500000	100	1.57
SKQGADE010	12 / 50	100000	100	2.55
SKQGAKE010	12 / 50	100000	100	3.43

524159

Mfrs. List No.	Order Code	5+	25+	50+	100+	500+
SKQGABE010	SMD 165-6433					
SKQGADE010	SMD 165-6434					
SKQGAKE010	SMD 165-6435					

## Tactile Switch - SPST SKQY Series



- 6.1 x 3.7mm dimensions with 2.5mm height suitable for high density mounting
- Highly reliable with dust-proof structure
- Reflow solderable
- Vertical mounting
- Operating temperature -30 to 85°C

Dimensions (mm): H=2.5, W=6.1, D=3.7

#### Applications

- Audio equipment
- Video recorders
- Communication devices
- In-car components
- TVs

Mfrs. List No.	Input max (V / mA)	Operating Life	Contact Resistance (mΩ)	Operating Force (N)
SKQYAAE010	12 / 50	50000	500	1.57
SKQYABE010	12 / 50	50000	500	2.55
SKQYAFE010	12 / 50	50000	500	3.14

524160

Mfrs. List No.	Order Code	5+	25+	50+	100+	500+
SKQYAAE010	165-6436					
SKQYABE010	165-6437					
SKQYAFE010	165-6438					

## Tactile Switches - C&K

### Nano-Miniature SMT Top Actuated Switches



- Smallest footprint
- Smallest thickness with integrated actuator
- High number of cycles within the smallest packaging
- IP68 rated
- Applications: Mobile phones, hearing aids, MP3 accessories and bluetooth headset

Rating 50mA @ 20mV dc, 1mA @ 32V dc  
Dielectric Strength ≥250Vrms  
Contact Resistance ≤300mΩ  
Insulation Resistance ≥50MΩ  
Bounce Time ≤6ms  
Operating Temperature -40°C to 85°C

638456

Mfrs. List No.	Operating Size	Order Code	1+	25+	50+	100+	250+
KMT011NGJLHS	1N	190-8259					
KMT021NGJLHS	1.6N	190-8260					
KMT031NGJLHS	3.4N	190-8262					
KMT071NGJLHS	2.3N	190-8263					

## INTELLIGENT ONLINE BUYING SYSTEM PROVIDING



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# Tactile Switches - C&K - continued

## Miniature Tactile Switches



- Excellent tactile feel
- Wide variety of LED's, travel and actuation forces
- Designed for low-level switching
- **Applications:** Automotive, industrial electronics, computers and network equipment



Rating	10A @ 2V dc, 100mA @ 30V dc
Dielectric Strength	≥300V
Contact Resistance	≤50mΩ
Insulation Resistance	≥10000MΩ
Bounce Time	≤1ms
Travel	1.5mm
Operating Temperature	-40°C to 85°C

Mfrs. List No.	LED Colour	Operating Force	Contact Configuration
<b>Through Hole</b>			
K6B1.52N0D	-	2N	SPST-NO
K6B1.53N	-	3N	SPST-NO
K6B1.55N	-	5N	SPST-NO

Mfrs. List No.	LED Colour	Operating Force	Contact Configuration
<b>Through Hole with LED</b>			
K6BLOG1.53NL315	Orange	3N	SPST-NO
K6BLGN1.52N0DL306	Green	2N	SPST-NO
K6BLGN1.53NL306	Green	3N	SPST-NO
K6BLRD1.52N0DL352	Red	2N	SPST-NO
K6BLYE1.52N0DL327	Yellow	2N	SPST-NO
K6BLYE1.55NL327	Yellow	5N	SPST-NO

Mfrs. List No.	LED Colour	Operating Force	Contact Configuration
<b>Surface Mount</b>			
K6S1.52N0DSD	-	2N	SPST-NO
K6S1.55NSD	-	5N	SPST-NO

Mfrs. List No.	LED Colour	Operating Force	Contact Configuration
<b>Surface Mount with LED</b>			
K6SLWH1.55NL302SD	White	5N	SPST-NO
K6SLEYE1.55NL327SD	Yellow	5N	SPST-NO

638425

Mfrs. List No.	Order Code	1+	10+	25+	50+	100+
<b>Through Hole</b>						
K6B1.52N0D	190-8219	●				
K6B1.53N	190-8220	●				
K6B1.55N	190-8221	●				
<b>Through Hole with LED</b>						
K6BLOG1.53NL315	190-8222	●				
K6BLGN1.52N0DL306	190-8223	●				
K6BLGN1.53NL306	190-8225	●				
K6BLRD1.52N0DL352	190-8226	●				
K6BLYE1.52N0DL327	190-8227	●				
K6BLYE1.55NL327	190-8228	●				
<b>Surface Mount</b>						
K6S1.52N0DSD	190-8229	●				
K6S1.55NSD	190-8230	●				
<b>Surface Mount with LED</b>						
K6SLWH1.55NL302SD	190-8231	●				
K6SLEYE1.55NL327SD	190-8232	●				

## Tactile Switches



- Wide choice of LED colors, travel and actuator forces
- High reliability / long life
- Sealed version available
- Designed for low-level switching



Rating	10A @ 2V dc, 100mA @ 30V dc
Dielectric Strength	≥500V
Contact Resistance	≤50mΩ
Insulation Resistance	≥10000MΩ
Bounce Time	≤1ms
Operating Temperature	-40°C to 85°C

Mfrs. List No.	Cap Colour	LED Colour	Travel	Operating Force	Contact Configuration
<b>No Snap-In Pegs</b>					
K12ABK1.52.5N	Black	-	1.5mm	2.5N	SPST-NO
K12ABK1.55N	Black	-	1.5mm	5N	SPST-NO
K12ABK12.5N	Black	-	1mm	2.5N	SPST-NO
K12ABK15N	Black	-	1mm	5N	SPST-NO
<b>No Snap-In Pegs with Ventral LED</b>					
K12ALYE15NL327	Yellow	Yellow	1mm	5N	SPST-NO
<b>Sealed Contact with Rubber Cap (IP67)</b>					
K12C12.5N	-	-	1mm	2.5N	SPST-NO
K12C15N	-	-	1mm	5N	SPST-NO
<b>Two Step Switch</b>					
K12G0BK1.53.57N	Black	-	1.5mm	7N	SPST-NO
K12G0BK1.5612N	Black	-	1.5mm	12N	SPST-NO
K12G0BK2612N.5	Black	-	2mm	12N	SPST-NO
<b>Two Step Switch with Central LED</b>					
K12G0LWH1.5612NL302	White	White	1.5mm	12N	SPST-NO
K12G0LYE1.5612NL327	Yellow	Yellow	1.5mm	12N	SPST-NO
<b>With Snap-In Pegs</b>					
K12PBK1.53.5N	Black	-	1.5mm	3.5N	SPST-NO

Mfrs.	Cap	LED	Operating	Contact
<b>With Snap-In Pegs</b>				
K12PBK1.55N	Black	-	1.5mm	5N
K12PBK13.5N1R	Black	-	1mm	3.5N
K12PBK15N	Black	-	1mm	5N
K12PBK21.5N0D	Black	-	2mm	1.5N
K12PBK23.5N	Black	-	2mm	3.5N
K12PBK25N	Black	-	2mm	5N
K12PYE25N	Yellow	-	2mm	5N
<b>With Snap-In Pegs with Central LED</b>				
K12PLGN1.55NL306	Green	Green	1.5mm	5N
K12PLGN15NL306	Green	Green	1mm	5N
K12PLRD15NL352	Red	Red	1mm	5N
K12PLWH1.55NL302	White	White	1.5mm	5N
K12PLWH15NL302	White	White	1mm	5N
K12PLYE15NL327	Yellow	Yellow	1mm	5N

638425

Mfrs. List No.	Order Code	1+	10+	25+	50+	100+
<b>No Snap-In Pegs</b>						
K12ABK1.52.5N	190-8189	●				
K12ABK1.55N	190-8191	●				
K12ABK12.5N	190-8192	●				
K12ABK15N	190-8193	●				
<b>No Snap-In Pegs with Ventral LED</b>						
K12ALYE15NL327	190-8195	●				
<b>Sealed Contact with Rubber Cap (IP67)</b>						
K12C12.5N	190-8196	●				
K12C15N	190-8197	●				
<b>Two Step Switch</b>						
K12G0BK1.53.57N	190-8198	●				
K12G0BK1.5612N	190-8199	●				
K12G0BK2612N.5	190-8201	●				
<b>Two Step Switch with Central LED</b>						
K12G0LWH1.5612NL302	190-8202	●				
K12G0LYE1.5612NL327	190-8203	●				
<b>With Snap-In Pegs</b>						
K12PBK1.53.5N	190-8204	●				
K12PBK1.55N	190-8205	●				
K12PBK13.5N1R	190-8206	●				
K12PBK15N	190-8207	●				
K12PBK21.5N0D	190-8208	●				
K12PBK23.5N	190-8209	●				
K12PBK25N	190-8210	●				
K12PYE25N	190-8218	●				
<b>With Snap-In Pegs with Central LED</b>						
K12PLGN1.55NL306	190-8211	●				
K12PLGN15NL306	190-8213	●				
K12PLRD15NL352	190-8214	●				
K12PLWH1.55NL302	190-8215	●				
K12PLWH15NL302	190-8216	●				
K12PLYE15NL327	190-8217	●				

## Sealed Tact Switch

### KSA Series



- Designed for automatic or manual insertion
- Cambered terminals to ensure self retention
- Suitable for automotive, industrial and telecommunication networks applications



Contact rating	SPST-NO	Contact resistance	100mohm
Contact rating force	50mA @ 32V	Operating temperature	-40°C to 85°C
	1.3N	Contacts	Silver

663255

Mfrs. List No.	Order Code	1+	100+	500+	1K+	+
KSA0M211-LFT	213-3929	●				

## Tact Switch - Miniature

### KSR/KMR Sealed



- Extremely small overall dimension
- 3 different actuating force
- Designed for easy pick and place operation
- KMR micro-miniature features sharp tactile feedback in the smallest dimensions available

KSR: H=2.5, W=6, D=3.8mm
KMR2: H=1.9, W=4.1, D=2.8mm
KMR4: H=2.5, W=4.2, D=2.8mm

Mfrs. List No.	Rating Min/Max Voltage	Current	Actuation Force	Contact Material	Grounding Option	Low Current Capability
KSR221G LFS	20mV / 50V	1mA / 50mA	2N	Silver	x	x
KSR211G LFS	20mV / 50V	1mA / 50mA	1.8N	Silver	x	x
KSR231G LFS	20mV / 50V	1mA / 50mA	3N	Silver	x	x
KSR251G LFS	20mV / 50V	1mA / 50mA	4.5N	Silver	x	x



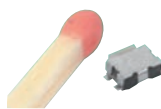
Mftrs.	Rating Min/Max	Actuation	Contact	Grounding	Low Current
KMR211G LFS	32V 1mA / 50mA	1.2N	Silver	x	x
KMR221G LFS	32V 1mA / 50mA	2N	Silver	x	x
KMR231G LFS	32V 1mA / 50mA	3N	Silver	x	x
KMR241G LFS	32V 1mA / 50mA	4N	Silver	x	x
KMR421GLFS	20mV / 32V 1mA / 50mA	2N	Silver	✓	x
KMR421GULCLFS	20mV / 32V 1µA / 50mA	2N	Silver	✓	✓
KMR421NGLFS	20mV / 32V 1mA / 50mA	2N	Silver	x	x
KMR421NGULCLFS	20mV / 32V 1µA / 50mA	2N	Silver	x	✓
KMR431GLFS	20mV / 32V 1mA / 50mA	3N	Silver	✓	x
KMR431GULCLFS	20mV / 32V 1µA / 50mA	3N	Silver	✓	✓
KMR431NGLFS	20mV / 32V 1mA / 50mA	3N	Silver	x	x
KMR431NGULCLFS	20mV / 32V 1µA / 50mA	3N	Silver	x	✓
KMR432GLFS	20mV / 32V 1mA / 50mA	3N	Silver	✓	x
KMR432GULCLFS	20mV / 32V 1µA / 50mA	3N	Silver	✓	✓
KMR432NGLFS	20mV / 32V 1mA / 50mA	3N	Silver	x	x
KMR432NGULCLFS	20mV / 32V 1µA / 50mA	3N	Silver	x	✓
KMR433GULCLFG	20mV / 32V 1µA / 10mA	3N	Gold	✓	✓
KMR433NGLFG	20mV / 32V 1mA / 10mA	3N	Gold	x	x
KMR433NGULCLFG	20mV / 32V 1µA / 10mA	3N	Gold	x	✓
KMR441GLFS	20mV / 32V 1mA / 50mA	4N	Silver	✓	x
KMR441GULCLFS	20mV / 32V 1µA / 50mA	4N	Silver	✓	✓
KMR441NGLFS	20mV / 32V 1mA / 50mA	4N	Silver	x	x
KMR441NGULCLFS	20mV / 32V 1µA / 50mA	4N	Silver	x	✓
KMR442GLFS	20mV / 32V 1mA / 50mA	4N	Silver	✓	x
KMR442GULCLFS	20mV / 32V 1µA / 50mA	4N	Silver	✓	✓
KMR442NGLFS	20mV / 32V 1mA / 50mA	4N	Silver	x	x
KMR442NGULCLFS	20mV / 32V 1µA / 50mA	4N	Silver	x	✓

241370

Mftrs.	Order Code	1+	50+	100+	+
KSR221G LFS	<b>SMD120-1421</b> ●				
KSR211G LFS	<b>SMD143-7634</b> ●				
KSR231G LFS	<b>SMD120-1422</b> ●				
KSR251G LFS	<b>SMD120-1423</b> ●				
KMR211G LFS	<b>SMD143-7635</b> ●				
KMR221G LFS	<b>SMD120-1424</b> ●				
KMR231G LFS	<b>SMD143-7636</b> ●				
KMR241G LFS	<b>SMD143-7637</b> ●				
KMR421GLFS	<b>NEW 190-8233</b> ●				
KMR421GULCLFS	<b>NEW 190-8234</b> ●				
KMR421NGLFS	<b>NEW 190-8235</b> ●				
KMR421NGULCLFS	<b>NEW 190-8237</b> ●				
KMR431GLFS	<b>NEW 190-8238</b> ●				
KMR431GULCLFS	<b>NEW 190-8239</b> ●				
KMR431NGLFS	<b>NEW 190-8240</b> ●				
KMR431NGULCLFS	<b>NEW 190-8241</b> ●				
KMR432GLFS	<b>NEW 190-8242</b> ●				
KMR432GULCLFS	<b>NEW 190-8243</b> ●				
KMR432NGLFS	<b>NEW 190-8244</b> ●				
KMR432NGULCLFS	<b>NEW 190-8245</b> ●				
KMR433GULCLFG	<b>NEW 190-8246</b> ●				
KMR433NGLFG	<b>NEW 190-8247</b> ●				
KMR433NGULCLFG	<b>NEW 190-8249</b> ●				
KMR441GLFS	<b>NEW 190-8251</b> ●				
KMR441GULCLFS	<b>NEW 190-8252</b> ●				
KMR441NGLFS	<b>NEW 190-8253</b> ●				
KMR441NGULCLFS	<b>NEW 190-8254</b> ●				
KMR442GLFS	<b>NEW 190-8255</b> ●				
KMR442GULCLFS	<b>NEW 190-8256</b> ●				
KMR442NGLFS	<b>NEW 190-8257</b> ●				
KMR442NGULCLFS	<b>NEW 190-8258</b> ●				

### Tact Switch - Side Actuated

#### Micro-miniature KMS



W = 4.6, D = 3.5,  
H = 1.42mm

- Compact size
- Strong tactile feedback
- Minimum travel - 0.3mm to make, 0.45mm total
- Compatible with infrared reflow soldering and pick & place SMT machines

A side-actuated microminiature SPST, sharp tactile feedback switch with normally open contacts.

Operating force (N)	Power (VA)	Voltage (V)	Switching current Max (mA)	Contact resistance mΩ	Insulation resistance MΩ's	Operating temp. min/max °C
2	1	32	50	100		-40 to 85
3	1	32	50	100		-40 to 85

241324

Mftrs. List No.	Operating force (N)	Order Code	1+	50+	100+
KMS221G LFS	2	<b>SMD143-7638</b> ●			
KMS231G LFS	3	<b>SMD120-1409</b> ● <b>RL</b>			

### Tact Switch - Side Actuated

#### Miniature KSS



Body - W=5.5, D=3.5,  
H=1.63mm

Designed for SMT use, this range of normally open, momentary, SPST switches has a minimal height of 1.6mm (0.063")

- Requires minimum space for high density component applications
- Long life - in excess of 100,000 operations
- Minimum travel - 0.3mm (0.012")

Mftrs. List No.	Operating force (N)	Power (VA)	Voltage (V)	Current Min/Max (mA)	Dielectric strength VDC	Contact resistance mΩ	Insulation resistance MΩ's	Operating temp. min/max °C
KSS221G LFS	2	1	50	1/50	250	100		-40 to 85
KSS231G LFS	2.5	1	32	1/50	250	100		-40 to 85
KSS321G LFS	2	1	32	1/50	250	100		-40 to 85
KSS331G LFS	2.5	1	50	1/50	250	100		-40 to 85
KSS341G LFS	4	1	50	1/50	250	100		-40 to 85

241290

Mftrs. List No.	Operating force (N)	Order Code	1+	50+	100+
KSS221G LFS	2	<b>SMD120-1406</b> ● <b>RL</b>			
KSS231G LFS	2.5	<b>143-7639</b> ●			

Levier standard (1.1mm)					
KSS221G LFS	2	<b>SMD120-1406</b> ● <b>RL</b>			
KSS231G LFS	2.5	<b>143-7639</b> ●			

Levier large (1.8mm)					
KSS321G LFS	2	<b>143-7642</b> ●			
KSS331G LFS	2.5	<b>SMD120-1407</b> ● <b>RL</b>			
KSS341G LFS	4	<b>SMD120-1408</b> ● <b>RL</b>			

### Key Switch - Miniature

#### K5G Snap Action



- SPST with 2 x NO contacts
- Double stroke
- Strong tactile feel
- Low profile
- Quiet actuation

#### Typical Applications

- Automotive - Window lift
- Automotive - Sunroof control
- Multi-function devices

H = 6, W = 8.25, D = 8mm

Mftrs. List No.	Power (VA)	Voltage Min (mV dc)/Max (V dc)	Current Min/Max (mA)	Contact resistance mΩ	Insulation resistance GΩ's	Operating temp. min/max °C
K5G-4/6.5N	1	20/30	0.01/50	100		-40 to 85

482965

Mftrs. List No.	Order Code	1+	50+	100+	250+	500+
K5G-4/6.5N	<b>SMD143-7631</b> ●					

## Tactile Switches - MEC

### Multimec® IP67 - SPNO Momentary



PCB and surface mounting SPNO momentary action switches with a very positive tactile feel. The switches employ high temperature plastics, silicone seals, ultrasonic welding and insert moulded terminals, sealed to IP67.

The switches are available as either

- Stand-alone
- Basic switches plus caps and bezels
- Illuminated switches plus caps and bezels
- Rocker Style Pushbuttons

The caps and bezels are available in various shapes and colours, suitable for both through hole and surface mount switches.

Contact resistance	<30mR	Contact material	Silver
Insulation resistance	>MR	Travel	1mm
Mechanical life	10000000 operations		
Operating temperature	-40°C to +115°C (through hole) -40°C to +115°C (surface mount)		

213221

### Stand Alone Switches



Body W=10.1, D=10.1, H (standard type)=6.4, Button. dia.=6.5mm  
PCB layout=4x0.9 ∅ holes, rectangular formation, centres 10.16 x 7.62mm

- Stand-alone SPNO switches for use in through panel applications or under a membrane overlay to produce a high tactility keyboard
- Choice of button colour and button height
- Surface mount and right angled versions available

# Tactile Switches - MEC - continued

## Stand Alone Switches - continued

624120

Mfrs. List No.	Order Code	Price Each			
		1+	50+	100+	250+
<b>Standard Height, 6.4mm Button</b>					
White 3CTL6	113-2874				
Black 3CTL9	113-2875				
<b>Extended Height, Black Button</b>					
8mm 3ETL9-8.0	189-5309				
9.5mm 3ETL9-9.5	113-2881				
10.4mm 3ETL9-10.4	113-2883				
12mm 3ETL9-12.0	113-2884				
15mm 3ETL9-15.0	113-2953				
<b>Surface Mount Switch, 6.4mm Button</b>					
Black 3CSH9	113-2899				

## Switches with Caps and Bezels



1132885, 1132885, 113-2892, 1132896, 1132900, 1132915, 1132916, 1132915

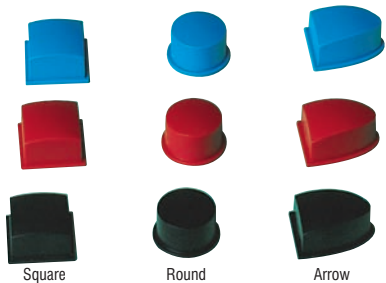
Switch base W=10.1, D=10.1, Overall H : Round=14.9, Square=19.1, Rectangular=14.4  
Caps : Round=11 dia., Square=14.3 x 14.3, Rectangular=12.5 x 6.5, Bezel=17.75 x 17.75

- These switches and caps should be ordered separately
- Switch available as through-hole or surface mount
- Caps available in 3 shapes and wide colour selection
- Bezels are available and recommended for use with square caps

213223

Mfrs. List No.	Order Code	Price Each			
		1+	50+	100+	250+
<b>Order Multiple=1</b>					
PCB 3FTL6	113-2885				
Surface mount 3FSH9	113-2900				
Right angle 3FTL6RAS	113-2916				
<b>Order Multiple=10</b>					
		10+	50+	100+	250+
<b>Round caps</b>					
Black 1D09	113-2886				
Grey 1D03	113-2887				
Red 1D08	113-2888				
Blue 1D00	113-2912				
Yellow 1D04	113-2913				
White 1D06	113-2914				
<b>Square caps</b>					
Black 1K0916	113-2889				
Grey 1K0316	113-2890				
Red 1K0816	113-2892				
<b>Rectangular caps</b>					
Black 1P09	113-2893				
Grey 1P03	113-2894				
White 1P06	113-2915				
<b>Bezels to fit square caps</b>					
Black 2K09	113-2896				

## Softline Style Caps



- Softline styled caps with curved top for aesthetic and ergonomic appeal with square, round and arrow options

213157

Colour	Mfrs. List No.	Order Code	Price Each			
			10+	50+	100+	250+
<b>Square caps</b>						
Blue	1T00Blue	113-2938				
Grey	1T03Grey	113-2939				
Black	1T09Black	113-2941				
<b>Round caps</b>						
Blue	1U00Blue	113-2942				
Grey	1U03Grey	113-2943				
Red	1U08Red	113-2944				
Black	1U09Black	113-2946				
<b>Arrow caps</b>						
Blue	1V00Blue	113-2947				
Grey	1V03Grey	113-2948				
Black	1V09Black	113-2950				

## Extended Height Caps



- For use with '3F' Series switches
- Black caps offer overall height of 16, 19 or 22.5mm.
- Extender section gives additional 10mm height.



213142

Mfrs. List No.	Order Code	Price Each			
		10+	50+	100+	250+
<b>Order Multiple=10</b>					
16mm Cap 1S09-16.0	113-2917				
19mm Cap 1S09-19.0	113-2918				
22.5mm Cap 1S09-22.5	113-2919				
10mm Extender 2S09-10.0	113-2920				

## Illuminated with Caps and Bezels



1132904, 1132911, 1132901, 1132902, 1132898, 1132906, 1132907  
Dimensions as non-illuminated types (above)

- Switches incorporate either red or green, blue or bicolor red/green LED's for illumination
- Caps have clear lenses within the coloured moulding and can therefore be used with either colour LED
- Round or rectangular caps available in black or grey
- Transparent square cap is supplied with diffuser. Custom legends may be placed between cap and diffuser
- Bezels are available and recommended for use with square caps
- Extended height versions offer 16 or 19mm overall height

FOR SUITABLE BEZELS FOR SQUARE CAPS  
SEE ORDER CODES 113 - 2896 / 2897 / 2898.

213219

Mfrs. List No.	Order Code	Price Each			
		1+	50+	100+	250+
<b>Order Multiple=1</b>					
<b>Switch Body with LED</b>					
Green LED 3FTL620	113-2901				
Red LED 3FTL680	113-2902				
Blue LED 3FTL600	113-2954				
Red/Green LED 3FTL68020	113-2955				
H.I. Green LED 3FTL622	113-2903				
H.I. Red LED 3FTL688	113-2904				
<b>Order Multiple=10</b>					
		1+	50+	100+	250+
<b>Caps with Clear Lens</b>					
Square cap, with diffuser 1K1116	113-2911				
Round Black 1E091	113-2905				
Round Grey 1E031	113-2906				
Rectangular Black 1Q091	113-2907				
Rectangular Grey 1Q031	113-2909				
<b>Extended Height Caps with Clear Lens - Round</b>					
16mm 1S11-16	113-2951				
19mm 1S11-19	113-2952				
10mm 2S09-10.0	113-2920				



## Variable Height & Extender Components



- Select stand alone switch (3C/3E) or switch (3F) & extender & cap
- Extenders are stackable offering a large range of overall height options
- Extenders are suitable for both illuminated and non illuminated variants

624156

Order Multiple=10		Price Each				
Description	Mfrs. List No.	Order Code	10+	50+	100+	250+
<b>Extenders - Height (mm)</b>						
5	2S09-05	113-2956				
6	2S09-06	113-2958				
7	2S09-07	113-2959				
8	2S09-08	113-2961				
9	2S09-09	113-2962				
10	2S09-10.0	113-2920				
<b>Extender caps - Height (mm)</b>						
9	1S09-16.0	113-2917				
19	1S09-19.0	113-2918				
22.5	1S09-22.5	113-2919				
<b>Clear Round caps - Height (mm)</b>						
16	1S11-16	113-2951				
19	1S11-19	113-2952				

## Panel Seal Kit - Components



- IP67 sealed cap and switch
- Can be used with any 3F Series switch
- 10 million cycle mechanical life
- 1mm travel with 2.5N force
- Select switch & cap & bush & boot for full panel seal solution
- Use transparent cap/boot for illuminated applications
- Boot made from silicone, 2 million cycles -40°C to +85°C

624158

Kit Mfrs.		Price Each				
Description	Qty/List No.	Order Code	5+	50+	100+	250+
<b>Order Multiple=1</b>						
Panel bush 0.5 - 2.5	5 AQN0.5	113-2963				
Panel bush 2.5 - 4.0	5 AQN2.5	113-2964				
Sealing boot - black	5 AQB0109	113-2971				
Sealing boot - transparent	5 AQB0111	113-2972				
<b>Order Multiple=10</b>						
Cap, black 24.2 mm	5 AQC09-24.2	113-2965				
Cap, black 25.2 mm	5 AQC09-25.2	113-2966				
Cap, transparent 24.2 mm	5 AQC11-24.2	113-2967				
Cap, transparent 25.2 mm	5 AQC11-25.2	113-2968				

## Illuminated Single Pole Momentary Switches

### Illume™ 4F Series



- Through Hole or SMD Versions
- 50mA @ 24V dc
- Single Pole, Momentary Action
- 10,000,000 Operations Life
- IP67 Sealed
- Caps available separately
- Temperature Range from -30°C to 85°C

H = 10.4, W = 10.3, D = 12.5mm

476156

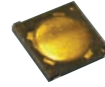
LED		Price Each				
Colour	Mfrs. List No.	Order Code	1+	25+	50+	100+
<b>Through Hole versions</b>						
Blue	4FTH901	139-0579				
Green	4FTH922	139-0580				
White	4FTH961	139-0583				
Green / Yellow	4FTH92242	139-0585				
Red / Green	4FTH98222	139-0586				

LED		Price Each				
Colour	Mfrs. List No.	Order Code	1+	25+	50+	100+
<b>SMD versions</b>						
Blue	4FSH901	SMD 139-0587				
Green	4FSH922	SMD 139-0588				
Yellow	4FSH942	SMD 139-0589				
White	4FSH961	SMD 139-0590				
Red	4FSH982	SMD 139-0591				

## Tactile Switches - Multicomp



### TACT Switch - Vertical Ultra Low Profile - SMD



Ultra-low design with a very small profile, dust-proof case for a multitude of applications in telecommunications, video recorders, digital cameras and audio devices.

H = 0.56, W = 4.4, D = 4.75mm

Voltage Rating (VDC)	Current Rating (mA)	Dielectric strength (VAC)/1 minute	Contact resistance (mΩ)	Insulation resistance (MΩ) @ 500V dc	Operating temp. min/max (°C)
12	50	350	100		-20 to 70

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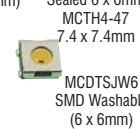
Mfrs.		Price Each				
List No.	Order Code	1+	50+	100+	500+	8K+
MCTJ-416-V	SMD 131-6994					

## Tact Switches



### SPNO

Raised MCDTS2 (12 x 6mm)



- Comprehensive range of SPNO tact switch
- High reliability, long operating life
- Select by overall height, body and actuator length, and operating force

Applicable Series	MCDTS2, MCDTS6, MCDTSHW6, MCDTSHW6, MCDTSA6 & MCDTSJW6	MCTA3	MCTA4 & MCTH4
Voltage rating	12V dc	5VDC	50VDC
Current rating	50mA	1.5mA	50mA

213130

Order Multiple=5		Price Each				
Order Code		5+	50+	100+	250+	500+

Actuator style/Operating Force (N)	
------------------------------------	--

MCDTS2 Series (12mm x 12mm) - PCB drilling 12.5mm x 5.0mm	
Raised/160	947-1634
Flat/160	947-1642
Raised/260	947-1650
Flat/260	947-1669

MCDTS6 Series (6mm x 6mm) - PCB drilling 6.5mm x 4.5mm	
Overall height/Operating Force (N)	
4.3mm/100	947-1677
4.3mm/160	947-1685
4.3mm/260	947-1693
5mm/160	947-1707
5mm/260	947-1715
7mm/100	947-1723
7mm/160	947-1731
7mm/260	947-1740
9.5mm/100	947-1758
9.5mm/160	947-1766
9.5mm/260	947-1774

MCDTSHW6 Series (6mm x 6mm) Washable - PCB drilling 6.5mm x 4.0mm	
3.8mm/160	947-1782

MCDTSA6 Series (6mm x 6mm) Right Angled - PCB drilling about C/L of actuator 4.5mm & 7.0mm row separation 2.5mm	
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Overall length (Switch body & actuator)/Operating force (N)	
8.35mm/100	947-1790
8.35mm/160	947-1804
8.35mm/260	947-1820
3.85mm/100	947-1839

# Tactile Switches - Multicomp - continued

## Tact Switches - continued

### SPNO - continued

Order Multiple=5	Price Each					
	Order Code	5+	50+	100+	250+	500+
<b>MCDTSA6 Series</b> (6mm x 6mm) Right Angled - PCB drilling about C/L of actuator						
3.85mm/160	947-1847					
3.85mm/260	947-1855					
<b>MCDTSJW6 Series</b> (6mm x 6mm) SMD Washable						
Overall height/Operating force (N)						
2.3mm/	947-1863					
3.1mm/	947-1871					

### Caps for MCDTS2 series



- Round and square caps for use with 12x12 MCDTS2 series of Multicomp tact switches

Order Code	5+	100+	500+
<b>Square caps:</b>			
Red =956-1463	Green =956-1439	Yellow =956-1447	Blue =956-1455
Orange =956-1498	Ivory =956-1471	Black =956-1480	
Red =956-1536	Ivory =956-1501	Yellow =956-1510	Blue =956-1528
	Ivory =956-1544	Black =956-1552	

624166

Order Code	5+	100+	500+
<b>All Order Codes</b>			

### Tact Switches - SPNO

#### 50mA @ 12Vdc - Sharp Click



- Long life
- Short stroke
- Sharp click positive tactile feedback

Current rating	50mA	Voltage rating	12Vdc min.
Contact resistance	100mR max	Insulation resistance	MR 500 Vdc
Dielectric strength	250 Vac/1 minute	Stop strength	3kgf 15 Sec.
Operating temperature	-25°C to +70°C	Wave solder	260°C max 5 sec.
Electrical life	100000 operations min	Hand solder	320°C 2 sec./30W iron
Materials	Base: High temp. thermoplastic (947-1880) Stem: Brass (947-1880)		Nylon, UL recognised Nylon, UL recognised

Operation Force gf	Stroke mm	Dimensions (mm)			Mfrs. List No.	Order Code
		H	W	D		
1.57	0.25	1.5	5.2	5.2	TM-533I-Q-T/R	947-1880
3.14	0.25	3.5	6	3.5	DTSM-32S-B	947-1898
0.98	0.25	2.5	6.4	6.4	DTSGL-61K-B	947-1901
2.55	0.25	2.5	6.4	6.4	DTSL-61R-B	947-1910
1.96	0.3	1.7	6	3.8	MCTAEF-25N-V	160-5484
2.94	0.35	1.7	7.3	3.8	MCTAEF-25R-V	160-5485
4.41	0.45	1.7	7.3	3.8	MCTAEF-25S-V	160-5486

233660

Mfrs. List No.	Order Code	Price Each			
		5+	50+	100+	250+
TM-533I-Q-T/R	SMC 947-1880				
DTSM-32S-B	SMC 947-1898				
DTSGL-61K-B	SMC 947-1901				
DTSL-61R-B	SMC 947-1910				
MCTAEF-25N-V	SMC 160-5484				
MCTAEF-25R-V	SMC 160-5485				
MCTAEF-25S-V	SMC 160-5486				

### Tact Switches - SPNO

#### 50mA @ 12Vdc



Side Push  
H = 1.42, W = 4.34, D = 3.55mm

Vertical Push  
W = 4.34, D = 2.8mm

- Compact size
- Easy for Pick and Place
- Dust proof to IP40
- Side Push and Vertical Push types available

Current rating	50mA	Voltage rating	12VDC
Contact resistance	100mR max	Insulation resistance	@ 100VDC
Dielectric strength	100VAC / 1 minute	Stroke	0.25mm
Operating temperature	-30°C to +80°C	Operating force - Horizontal Push	220gf
Electrical life	100000 operations min	Operating force - Vertical Push	160gf

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Order Multiple=5	Price Each						
O/A Height (mm)	Mfrs. List No.	Order Code	1+	50+	100+	500+	1K+

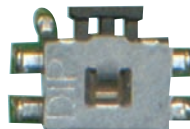
#### Horizontal Push

1.42	MCIPTG14K-V	SMC 160-5469					
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#### Vertical Push

1.9	MCIPTG23K-V	SMC 160-5470					
2.5	MCIPTG33K-V	SMC 160-5472					

### TACT Switch - Horizontal Micro-Miniature - SMD



A horizontally actuated TACT switch with one NO contact. The switch has a side push of 0.3mm with a 220gf to operate and a very small PCB footprint. Available with (947-1987) or without (131-6979) Locating Posts.

H = 1.67, W = 4.7, D (Body) = 3.5 - (Overall) = 4.5mm

Voltage Rating (VDC)	Current Rating (mA)	Dielectric strength (VAC)/1 minute	Contact resistance (mΩ)	Insulation resistance (MΩ) @ 500V dc	Operating temp. min/max (°C)
12	50	250	100		-25 to 70

453557

Mfrs. List No.	Order Code	1+	10+	50+	100+	500+
MCPTF-V	SMC 131-6979					
MCPTCF-V	SMC 947-1987					

### Tact Switches - Double Action



#### 50mA @ 12Vdc



- Double Action Switches
- Standard 6mm x 6mm size
- 1<sup>st</sup> Action = 80gf, 2<sup>nd</sup> Action = 250gf
- Stainless contact disc with silver cladding
- Long life of 30,000 cycles

152-2041, H = 1.5mm    152-2045, H = 3mm

Current rating	50mA @ 12V
Contact resistance	100mohm max
Dielectric strength	250VAC for 1 minute
Operating temperature	-25°C to +70°C
Electrical life	30000 operations min

498789

Mfrs. List No.	Order Code	1+	50+	100+	250+	500+
MC2A-F	SMC 152-2041					
MC2A-1F	SMC 152-2042					

### Pushbutton TACT Switch



#### 50mA @ 12Vdc



- SPST
- Long operational life
- Long travel of 1.3mm
- Excellent tactile feedback without audible click sound
- Low contact resistance

H = 5, W = 6, D = 6mm

Current switching	50mA @ 12V
Contact resistance	100mohm max
Insulation resistance	@ 500VDC
Dielectric strength	300VAC for 1 minute
Operating temperature	-40°C to +85°C
Electrical life	30000 operations min

498835

Mfrs. List No.	Order Code	1+	25+	50+	100+
MCLTL-613R	SMC 152-2054				

### Tact Pushbutton



#### 50mA @ 12V dc



- SPST
- Momentary action
- Black switch body
- Strong tactile feedback
- Short switch travel
- Low operating force

Bezel - 10mm Square.  
O/A H = 8.2mm

Bezel - Dia. = 10mm  
O/A H = 8.2mm

Contact Rating - Max.	50mA @ 12VDC	Operating force	1.57N
Mechanical life	100000 operations	Total travel	0.25mm
Contact resistance	<100mohm	Operating temperature	-10°C to +60°C
Insulation resistance	>		

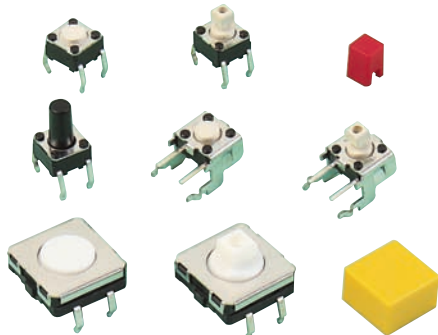
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Colour	Mftrs.	Price Each						
Cap	LED	List No.	Order Code	1+	25+	50+	100+	500+
<b>Non-Illuminated - Square</b>								
Black	TSOA22	155-0253						
Green	TSOA26	155-0255						
<b>Non-Illuminated - Round</b>								
Black	TSOB22	155-0257						
Green	TSOB26	155-0259						
<b>LED Illuminated - Square</b>								
Red	Red	TS3A23	155-0260					
Green	Green	TS6A26	155-0261					

## Tactile Switches -Omron

### PCB Mount, SPNO

B3F/W Series - Sealed and Unsealed, 50mA @ 24V dc



- Positive tactile switch action through dome design
- Available with flat, projected or extended plunger
- Horizontal or Vertical mounting options available
- Available either unsealed or sealed suitable for immersion cleaning or harsh environments
- Range of coloured caps available suitable for all projected plungers

Switching capacity  
Contact configuration  
Contact resistance  
Insulation resistance  
Dielectric strength  
Bounce time

5 to 24 VDC, 1 to 50 mA (resistive load)  
SPST-NO  
100 mΩ max.  
100 MΩ min. (at 250 VDC)  
500 VAC, 50/60 Hz for 1 min  
5 ms max.

#### 6 x 6mm - B3F Series

Type	Plunger	Height	Operating Force	Ground Terminal	
				Without	With
Horizontal	Flat	4.3mm	0.98N	B3F-1000	B3F1100
Horizontal	Flat	4.3mm	1.47N	B3F1002	B3F1102
Horizontal	Flat	4.3mm	2.55N	B3F1005	B3F1105
Horizontal	Flat	4.3mm	4.9N	B3F1006	-
Horizontal	Flat	5.0mm	0.98N	B3F1020	B3F1120
Horizontal	Flat	5.0mm	1.47N	B3F-1022	B3F1122
Horizontal	Flat	5.0mm	2.55N	B3F-1025	B3F1125
Horizontal	Flat	5.0mm	4.9N	B3F1026	-
Horizontal	Flat	5.0mm	0.98N	-	B3F1110
Horizontal	Flat	7.0mm	0.98N	B3F1060	-
Horizontal	Flat	7.0mm	1.47N	B3F1062	-
Horizontal	Flat	9.5mm	0.98N	B3F-1070	-
Horizontal	Flat	9.5mm	1.47N	B3F1072N	-
Horizontal	Flat	9.5mm	2.55N	B3F1075	-
Horizontal	Projected	7.3mm	0.98N	B3F-1050	B3F1150
Horizontal	Projected	7.3mm	1.47N	B3F1052	B3F1152
Horizontal	Projected	7.3mm	2.55N	-	B3F1155
Horizontal	Projected	7.3mm	4.9N	B3F1056	-
Vertical	Flat	3.15mm	0.98N	-	B3F-1070
Vertical	Flat	3.15mm	0.98N	-	B3F-3100
Vertical	Flat	3.15mm	1.47N	-	B3F3102
Vertical	Flat	3.15mm	2.55N	-	B3F3105
Vertical	Flat	3.85mm	0.98N	-	B3F3120
Vertical	Flat	3.85mm	1.47N	-	B3F3122
Vertical	Flat	3.85mm	2.55N	-	B3F-3125
Vertical	Projected	6.15mm	0.98N	-	B3F-3150
Vertical	Projected	6.15mm	1.47N	-	B3F3152
Vertical	Projected	6.15mm	2.55N	-	B3F3155

#### 12 x 12mm - B3F Series

Type	Plunger	Height	Operating Force	Ground Terminal	
				Without	With
Standard	Flat	4.3mm	1.27N	B3F-4000	B3F4100
Standard	Flat	4.3mm	2.55N	B3F4005	B3F4105
Standard	Projected	7.3mm	1.27N	B3F-4050	B3F4150
Standard	Projected	7.3mm	2.55N	B3F4055	B3F4155
Long Life	Flat	4.3mm	1.27N	B3F5000	B3F5100
Long Life	Projected	7.3mm	1.27N	B3F5050	B3F5101
High Reliability	Flat	4.3mm	1.27N	B3F5001	B3F5150
High Reliability	Projected	7.3mm	1.27N	B3F5051	B3F5151

#### 6 x 6mm - B3W Series

Type	Plunger	Height	Operating Force	Ground Terminal	
				Without	With
Horizontal	Flat	4.3mm	1.57N	B3W-1000	B3W1100
Horizontal	Flat	4.3mm	2.25N	B3W1002	B3W1102
Horizontal	Projected	7.3mm	1.57N	B3W-1050	B3W1150
Horizontal	Projected	7.3mm	2.25N	B3W1052	B3W1152

#### 6 x 6mm Radial Models - B3F Series

Type	Plunger	Height	Operating Force	Ground Terminal
Standard	Flat	4.3mm	0.98N	Without B3F6000
Standard	Flat	5.0mm	0.98N	With B3F6020
Standard	Flat	5.0mm	1.47N	B3F6022
Standard	Projected	7.3mm	0.98N	B3F6050
Standard	Projected	7.3mm	1.47N	B3F6052

#### 6 x 6mm - B3FS Series

Type	Plunger	Height	Operating Force	Ground Terminal
Horizontal	Flat	3.1mm	0.98N	Without B3FS1000P
Horizontal	Flat	3.1mm	1.47N	With B3FS1002P
Horizontal	Flat	3.1mm	2.55N	B3FS1005
Horizontal	Flat	4.3mm	1.47N	B3FS1015

#### 12 x 12mm - B3W Series

Type	Plunger	Height	Operating Force	Ground Terminal
Horizontal	Flat	4.3mm	1.96N	Without B3W-4000S
Horizontal	Flat	4.3mm	3.43N	With B3W4005
Horizontal	Projected	7.3mm	1.96N	B3W-4050
Horizontal	Projected	7.3mm	3.43N	B3W4055

4 x 4mm caps suitable for all 6 x 6mm switches with projected plunger:

Black = 176-437 Yellow = 176-439 Blue = 176-440  
Red = 262-419 Green = 262-407 Grey = 176-436

9 x 9mm caps suitable for all 12 x 12mm switches with projected plunger:

Black = 176-444 Green = 262-420 Blue = 176-447  
Red = 262-432 Grey = 176-443

Mftrs. List No.	Mftrs. List No.	Mftrs. List No.	Mftrs. List No.
B32-1000=176-436	B32-1040=176-440	B32-1200=176-443	B32-1250=262-420
B32-1010=176-437	B32-1050=262-407	B32-1210=176-444	B32-1280=262-432
B32-1030=176-439	B32-1080=262-419	B32-1240=176-447	

Mftrs. List No.	Order Code	5+	100+	250+
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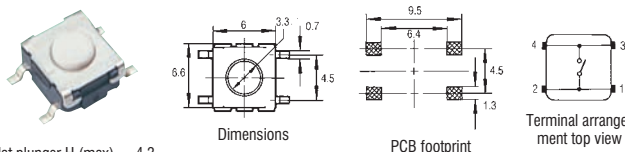
#### Unsealed Switches - B3F Series

B3F-1000	176-432			
B3F1002	NEW 196-0936			
B3F1005	NEW 196-0937			
B3F1006	NEW 196-0938			
B3F1020	NEW 196-0939			
B3F-1022	NEW 182-9495			
B3F-1025	NEW 182-9512			
B3F1026	NEW 196-0941			
B3F-1050	176-433			
B3F1052	NEW 196-0942			
B3F1056	NEW 196-0943			
B3F1060	NEW 196-0944			
B3F1062	NEW 196-0946			
B3F-1070	959-698			
B3F1072N	NEW 196-0947			
B3F1075	NEW 196-0948			
B3F1100	NEW 196-0949			
B3F1102	NEW 196-0950			
B3F1105	NEW 196-0951			
B3F1110	NEW 196-0952			
B3F1120	NEW 196-0953			
B3F1122	NEW 196-0954			
B3F1125	NEW 196-0955			
B3F1150	NEW 196-0956			
B3F1152	NEW 196-0958			
B3F1155	NEW 196-0959			
B3F-3100	959-704			
B3F3102	NEW 196-0961			
B3F3105	NEW 196-0962			
B3F3120	NEW 196-0963			
B3F3122	NEW 196-0964			
B3F-3125	NEW 182-9513			
B3F-3150	959-716			
B3F3152	NEW 196-0966			
B3F3155	NEW 196-0967			
B3F-4000	176-434			
B3F4005	NEW 196-0971			
B3F-4050	176-435			
B3F4055	NEW 196-0973			
B3F4100	NEW 196-0974			
B3F4105	NEW 196-0975			
B3F4150	NEW 196-0976			
B3F4155	NEW 196-0977			
B3F5000	NEW 196-0978			
B3F5001	NEW 196-0979			
B3F5050	NEW 196-0980			
B3F5051	NEW 196-0981			
B3F5100	NEW 196-0983			
B3F5101	NEW 196-0984			
B3F5150	NEW 196-0985			
B3F5151	NEW 196-0986			
B3F6000	NEW 196-0987			
B3F6020	NEW 196-0988			

### PCB Mount, SPNO - continued

#### 6 x 6mm Radial Models - B3F Series - continued

Mfrs.	List No.	Order Code	5+	100+	250+
<b>Unsealed Switches - B3F Series</b>					
	B3F6022	<b>NEW 196-0989</b>			
	B3F6050	<b>NEW 196-0990</b>			
	B3F6052	<b>NEW 196-0991</b>			
<b>Unsealed Switches - B3FS Series</b>					
	B3FS1000P	<b>NEW 196-0992</b>			
	B3FS1002P	<b>NEW 196-0993</b>			
	B3FS1005	<b>NEW 196-0995</b>			
	B3FS1015	<b>NEW 196-0996</b>			
<b>Sealed Switches - B3W Series</b>					
	B3W-1000	<b>176-986</b>			
	B3W-1050	<b>176-987</b>			
	B3W1002	<b>NEW 196-1037</b>			
	B3W1052	<b>NEW 196-1038</b>			
	B3W1100	<b>NEW 196-1039</b>			
	B3W1102	<b>NEW 196-1040</b>			
	B3W1150	<b>NEW 196-1041</b>			
	B3W1152	<b>NEW 196-1042</b>			
	B3W-4000S	<b>176-988</b>			
	B3W4005	<b>NEW 196-1043</b>			
	B3W-4050	<b>176-989</b>			
	B3W4055	<b>NEW 196-1045</b>			
<b>Accessories</b>					
	Caps	<b>All Order Codes</b>			



Flat plunger H (max) = 4.3

- Surface mount version of Omron B3W keyswitch
- Sealed construction, suitable for PCB immersion cleaning
- General purpose and high force actuation versions available

Operating force	1.57N	Operating temperature	-25°C to +70°C
Pre-travel	0.25mm	Contact resistance	100mohm
Mech. + elec. life	500000 ops min	Dielectric strength	500V

Mfrs.	Operating Force	Order Code	1+	10+	25+	50+
<b>Without Ground Terminals</b>						
	B3S-1000	1.57N	<b>177-807</b>	<b>RL</b>		
	B3S-1002	2.26N	<b>SMD959-728</b>	<b>RL</b>		
<b>With Ground Terminals</b>						
	B3S-1100	1.57N	<b>NEW 207-6272</b>			
	B3S1102	2.26N	<b>NEW 196-1034</b>			
	B3S-1102P	2.26N	<b>NEW 207-6273</b>			

### SMD Tactile Switch - B3FS-4



- Surface-mounting device of B3F-4 series
- Distinctive snapping action
- Extended mechanical/electrical durability



Dimensions: 12mm x 12mm x 4.3mm

Contact configuration	SPST-NO	Operating temperature	-25°C to +70°C
Operating force	1.47N	Contact resistance	100mohm
Pre-travel	0.25mm	Dielectric strength	500V
Mech. + elec. life	3000000 ops min		

Mfrs.	List No.	Order Code	1+	25+	100+	250+	500+
	B3FS-4002P	<b>211-3269</b>					

### Long Stroke Tactile Switches



Rating	1mA @ 5V dc, 50mA @ 16V dc
Dielectric Strength	250V ac
Contact Resistance	100mΩ
Insulation Resistance	100MΩ
Bounce Time	5ms max.
Operating Temperature	-40°C to 90°C



Dimensions: H=5, W=6, D=6.9mm

Mfrs.	List No.	Actuator Colour	Operating Force	Releasing Force	Pretravel	Order Code
	B3AL1000P	Red	1.96N	0.24N	1.3mm	190-8272
	B3AL1001P	Green	2.45N	0.49N	1.3mm	190-8274
	B3AL1002P	Black	3N	0.6N	1.3mm	190-8275
	B3AL1003P	White	3.5N	0.7N	1.3mm	190-8276

638487

Mfrs.	List No.	Order Code	1+	10+	25+	50+	100+
	B3AL1000P	<b>190-8272</b>					
	B3AL1001P	<b>190-8274</b>					
	B3AL1002P	<b>190-8275</b>					
	B3AL1003P	<b>190-8276</b>					

### Tactile switch - SPST

#### B3SL Series



Dimensions (mm): H=5.1, W=6.5, D=6.2



Dimensions (mm): H=3.4, W=6.5, D=6.2

- Sealed construction conforming to IP64
- Crisp click feeling and middle stroke with rubber plunger
- Surface mount
- Operating temperature: -25 to 90°C

Contact Configuration	SPST NO	Insulation resistance	min
Contact rating - Current	1 to 50mA	Dielectric strength	250V
Contact rating - Voltage	5 to 12V	Durability	100000 Operations (Min)
Contact resistance	100mohm max	Operating temperature	-25°C to +90°C

535696

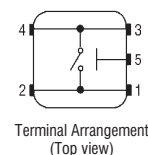
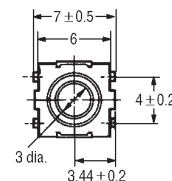
Mfrs. List No.	Order Code	1+	50+	100+	250+	500+
	B3SL-1002P	<b>SMD169-5875</b>				
	B3SL-1022P	<b>SMD169-5876</b>				

### SPNO B3SN Series - Sealed

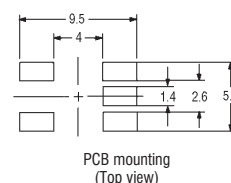
#### 30mA @ 24V dc



Flat plunger H=3.1



- Low profile, meets high-density mounting requirements
- Compact design - more than 1mm thinner than conventional key switches
- Sealed construction provides high reliability in dusty or humid environments
- Ground terminal for protection against static electricity



Contact rating	30mA	Voltage rating	24V dc
Contact resistance	100mR max	Dielectric strength	250V ac
Insulation resistance	MR min	Life cycle	50000 actuations
Operating temperature	-25°C to +70°C		

Mfrs. List No.	B3SN-3112=990-2031	B3SN-3112P=207-6274
	B3SN-3012=118-1018	

213281

Ground Terminal Version	Order Code	1+	+	+	+	+
With	<b>SMD990-2031</b>	<b>RL</b>				
Without	<b>SMD118-1018</b>					

### SPST-NO B3U Series

#### 30mA - 12V dc



- Ultra-small size
- Dust-proof construction
- Surface mount
- Available with or without mounting boss



H = (Body) 1.2, W (Body) = 3, D (Body) = 2.5mm



Contact Configuration	SPST NO	Insulation resistance	min
Contact rating - Current	1 to 50mA	Dielectric strength	250VAC
Contact rating - Voltage	5 to 12VDC	Life cycle - Top/Side	200000 / 100000 Operations (Min)
Contact resistance	100mohm max	Operating temperature	-25°C to +70°C

Order Code	Mfrs. List No.	Order Code	Mfrs. List No.	Order Code	Mfrs. List No.
133-3652	B3U-1000P	196-1035	B3U1100P	133-3656	B3U-3000P-B
133-3654	B3U-1000P-B	133-3655	B3U-3000P	196-1036	B3U3100P

Mounting		Price Each				
Type	Order Code	5+	50+	100+	250+	500+

**Top Actuated - Without Ground Terminals**

Without Boss	<b>SMD 133-3652</b>				
With Boss	<b>SMD 133-3654</b>				

**Side Actuated - Without Ground Terminals**

Without Boss	<b>SMD 133-3655</b>				
With Boss	<b>SMD 133-3656</b>				

**Top Actuated - With Ground Terminals**

Without Boss	<b>NEW 196-1035</b>				
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**Side Actuated - With Ground Terminals**

Without Boss	<b>NEW 196-1036</b>				
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**Ultra-Low Profile Dome Key**

**Tactile - B3D Series**

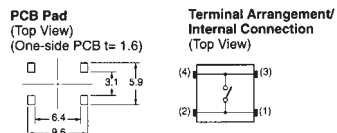
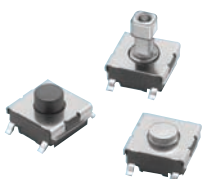


- No soldering required. Attach directly to PCB to make an ultra-low profile tactile switch
- Construction provides strong resistance to static electricity by having no soldered terminals
- Matrix adhesive used to create highly dust-proof construction with good ventilation
- Lower profile, lighter weight and crisp clicking action achieved using stainless steel contact dome
- Omron's unique circular contact action ensures a high level of resistance to foreign matter
- Supplied as a Sheet of 25, on a 5 x 5 grid

	B3D-4112	B3D-5112
Diameter of Contact Dome	4mm	5mm
Operating Force		1.67±0.49N
Releasing Force		0.2N min.
Pretravel		0.2±0.1mm
Thickness		0.3±0.1mm
Life Expectancy	500000 operations min.	
Switching Capacity	12 VDC, 10mA (resistive load) recommended minimum load: 3 VDC, 1mA (resistive load)	
Ambient Operating Temperature	-40°C to 80°C	
Ambient Storage Temperature	-40°C to 85°C	
Contact Dome	Stainless Steel	
Plating	Silver	

Mfrs. List No.	Order Code	1+	+	+	+	+
B3D-4112	<b>877-4455</b>					
B3D-5112	<b>877-4471</b>					

**SPNO B3FS Series**



H=2.6 (3.1 or 4.3 flat plunger, 7.3 extended plunger)

- Low cost unsealed switch specifically designed for no clean production processes
- Available in 2 operating force versions, 100gf and 150gf
- Suitable for re-flow soldering
- Positive tactile feedback
- Available with extended plungers which allow use of B3F series cap

Contact rating	50mA	Minimum load	1mA 5Vdc
Contact resistance	100mR	Operating life	1000000 ops min (standard),
Voltage rating	24Vdc		

Order Multiple=5		Price Each			
Mfrs. List No.	Order Code	5+	50+	100+	250+

**Flat Plunger - 3.1mm Height**

0.98N	B3FS-1000	<b>SMD 312-1161</b>			
1.47N	B3FS-1002	<b>SMD 312-1173</b>			

**Flat Plunger - 4.3mm Height**

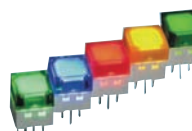
0.98N	B3FS-1010	<b>SMD 118-1016</b>			
1.47N	B3FS-1012	<b>SMD 118-1017</b>			

**Extended Plunger**

0.98N	B3FS-1050	<b>SMD 312-1185</b>			
1.47N	B3FS-1052	<b>SMD 312-1197</b>			

**SPST-NO Momentary**

**50mA - 24V dc**



H = 11, W = 10, D = 10mm

- Compact construction
- Bright uniform illumination
- 1.57N Operating force
- Sealed switch part protects contacts from dust

Contact Configuration	SPST-NO
Contact rating - Current	1 to 50mA
Contact rating - Voltage	5 to 24VDC
Contact resistance	100mohm max
Insulation resistance	min
Life	100000 Operations (Min)
Operating temperature	-25°C to +70°C

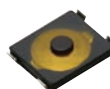
Mfrs. List No.	Colour - Cap	Colour - LED	Order Code
<b>Standard LED</b>			
B3W-9000-R1R	Red	Red	157-3154
B3W-9000-G1G	Green	Green	157-3155
B3W-9000-Y1Y	Yellow	Yellow	157-3157
B3W-9000-B1B	Blue	Blue	157-3156
B3W-9000-R1N	White	Red	157-3158
B3W-9000-G1N	White	Green	157-3161
B3W-9000-Y1N	White	Yellow	157-3163
B3W-9000-B1N	White	Blue	157-3162
B3W9000R2R	Red	Red / Red	196-1055
B3W9000R2N	White	Red / Red	196-1054
B3W9000G2N	White	Green / Green	196-1049
B3W9000G2G	Green	Green / Green	196-1048
B3W9000Y2Y	Yellow	Yellow / Yellow	196-1058
B3W9000Y2N	White	Yellow / Yellow	196-1057
B3W9000B2B	Blue	Blue / Blue	196-1046
B3W9000B2N	White	Blue / Blue	196-1047
B3W-9000-RG2N	White	Red + Green / Red + Green	157-3164
<b>High Brightness LED</b>			
B3W9000HG1G	Green	Green	196-1050
B3W9000HG1N	White	Green	196-1051
B3W9000HG2G	Green	Green / Green	196-1052
B3W9000HG2N	White	Green / Green	196-1053

Mfrs. List No.	Order Code	1+	10+	25+	50+	100+
B3W-9000-R1R	<b>157-3154</b>					
B3W-9000-G1G	<b>157-3155</b>					
B3W-9000-Y1Y	<b>157-3157</b>					
B3W-9000-B1B	<b>157-3156</b>					
B3W-9000-R1N	<b>157-3158</b>					
B3W-9000-G1N	<b>157-3161</b>					
B3W-9000-Y1N	<b>157-3163</b>					
B3W-9000-B1N	<b>157-3162</b>					
B3W9000R2R	<b>NEW 196-1055</b>					
B3W9000R2N	<b>NEW 196-1054</b>					
B3W9000G2N	<b>NEW 196-1049</b>					
B3W9000G2G	<b>NEW 196-1048</b>					
B3W9000Y2Y	<b>NEW 196-1058</b>					
B3W9000Y2N	<b>NEW 196-1057</b>					
B3W9000B2B	<b>NEW 196-1046</b>					
B3W9000B2N	<b>NEW 196-1047</b>					
B3W-9000-RG2N	<b>157-3164</b>					
B3W9000HG1G	<b>NEW 196-1050</b>					
B3W9000HG1N	<b>NEW 196-1051</b>					
B3W9000HG2G	<b>NEW 196-1052</b>					
B3W9000HG2N	<b>NEW 196-1053</b>					

**Tactile Switches - Panasonic**

**SMD Light Touch Tactile Switch**

**EVPAF Series**



- External Dimensions :3 x 2.6mm
- High operability
- Snap action / Push-on type SPST
- Bouncing: 10 ms max, (ON, OFF)
- Equipped with J-bent terminals and actuator

- Applications: Operation switches for portable electronic equipment (Mobile phone, portable audio etc)

Rating	10µA @ 2Vdc to 20mA @ 15Vdc. (Resistive Load)		
Contact Resistance	500 mΩ max.		
Insulation Resistance	50 MΩ min (at 100 Vdc)		
Dielectric Withstanding Voltage	250 Vac for 1 min		
Operating Temperature	-30°C to 85°C		
Mfrs. List No.	Operating Force	Operating Life	Order Code
EVPAFFB65	1.6N	100000	207-9579

Mfrs. List No.	Order Code	1+	10+	25+	50+	100+	250+
EVPAFFB65	<b>207-9579</b>						

# Tactile Switches - Panasonic - continued

## 4mm Square SMD Tactile Switches

Light Touch, EVQP6 / EVQP6P series



**NEW**



- External Dimensions : 4.1 x 4.1mm
- Snap action / Push-on type SPST
- Long-life : 1000000 cycles min.
- With or without actuator as well as with ground terminal (without actuator)
- Operating force: 1.6 or 2.4N

- Bouncing: 8 ms max. (ON, OFF)
- Dust-proof structure
- Applications: Operating switches for portable electronic equipment (mobile phones, camcorders, portable audio players etc)

Rating	10µA @ 2Vdc to 20mA @ 15Vdc. (Resistive Load)
Contact Resistance	500 mΩ max.
Insulation Resistance	50 MΩ min (at 100 Vdc)
Dielectric Withstanding Voltage	250 Vac for 1 min
Operating Temperature	-30°C to 85°C

Mfrs. List No.	Operating Force	With Actuator / Without Actuator	Order Code
EVQP6YB55	2.4N	With Actuator	207-9539
EVQP6PB35	2.4N	Without Actuator	207-9540
EVQP6LB55	1.6N	With Actuator	207-9541
EVQP6DB35	1.6N	Without Actuator	207-9542
EVQ9P701K	1.6N	Without Actuator / With Ground Terminal	207-9572
EVQ9P6B40	2.4N	Without Actuator / With Ground Terminal	207-9573
EVQ9P105M	3.5N	Without Actuator / With Ground Terminal	207-9575
EVQ6P6B40	1.6N	Without Actuator / With Ground Terminal	207-9576

Mfrs. List No.	Order Code	1+	10+	25+	50+	100+	250+
<b>With Actuator</b>							
EVQP6YB55	207-9539						
EVQP6LB55	207-9541						
<b>Without Actuator</b>							
EVQP6PB35	207-9540						
EVQP6DB35	207-9542						
<b>Ground Terminal</b>							
EVQ9P701K	207-9572						
EVQ9P6B40	207-9573						
EVQ9P105M	207-9575						
	207-9576						

## Surface Mount Tactile Switches

EVQPQ Series

**NEW**



- External Dimensions : 4.5 x 4.5mm
- Lightweight: 20 mg (1/2 compared with conventional type)
- Applications: Operating switches for portable electronic equipment (eg. portable audio players, camcorders etc)

Rating	10µA @ 2Vdc to 20mA @ 15Vdc. (Resistive Load)
Contact Resistance	100 mΩ max.
Insulation Resistance	50 MΩ min (at 100 Vdc)
Dielectric Withstanding Voltage	250 Vac for 1 min
Operating Temperature	-20°C to 70°C

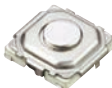
Mfrs. List No.	Operating Force	Height	Operating Life	Order Code
EVQPQMB55	2.4N	0.55mm	200000	207-9479
EVQPQHB55	1.6N	0.55mm	50000	207-9480

Mfrs. List No.	Order Code	1+	10+	25+	50+	100+	250+
EVQPQMB55	207-9479						
EVQPQHB55	207-9480						

## Surface Mount Tactile Switches

EVQPL Series

**NEW**



- External Dimensions : 4.9 x 4.9mm
- Available with or without actuator
- Applications: Operating switches for portable electronic equipment (eg. notebooks, PCs, camcorders, portable audio players), car audio systems etc

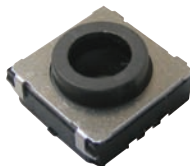
Rating	10µA @ 2Vdc to 20mA @ 15Vdc. (Resistive Load)
Contact Resistance	50 mΩ max.
Insulation Resistance	50 MΩ min (at 100 Vdc)
Dielectric Withstanding Voltage	250 Vac for 1 min
Operating Temperature	-20°C to 70°C

Mfrs. List No.	Operating Force	Height	Operating Life	Order Code
EVQPLKA08	2.6N	0.8mm	30000	207-9485
EVQPLFA08	1.6N	0.8mm	50000	207-9487
EVQPLBA08	1N	0.8mm	50000	207-9489
EVQPLMA15	2.6N	1.5mm	30000	207-9484
EVQPLHA15	1.6N	1.5mm	50000	207-9486
EVQPLDA15	1N	1.5mm	50000	207-9488

Mfrs. List No.	Order Code	1+	10+	25+	50+	100+	250+
EVQPLKA08	207-9485						
EVQPLFA08	207-9487						
EVQPLBA08	207-9489						
<b>With Actuator</b>							
EVQPLMA15	207-9484						
EVQPLHA15	207-9486						
EVQPLDA15	207-9488						

## 10mm Square Center Light Touch Switches

**NEW**



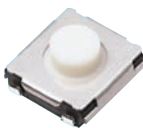
Contact Configuration	SPST
Rating	10 µA @ 2Vdc, 50mA @ 12Vdc
Contact Resistance	100mΩ
Insulation Resistance	MΩ min. (@ 100Vdc)
Operating Force	4N±0.8N
Travel	1mm±0.15mm
Operating Life	100000
Operating Temperature	-40°C to 85°C

H=4.6, W=9.8, D=9.8mm

- The open center space allows for flexibility in choosing a LED
- Up to a 4.2-mm diameter chip LED can be mounted
- Long stroke (1 mm)
- Supports auto reflow soldering
- Operating switches for car electronic equipment (car audio systems, car air conditioners, etc.)

Mfrs. List No.	No. of Terminals	Order Code	1+	10+	25+	50+	100+
EVPADJ04K	8	182-1263					
EVPADK04K	6	182-1264					

## 6mm Square Reflow Light Touch Switches



- Easy operation with push plate
- Low Contact Resistance
- Short push travel - 0.25 mm
- J - bend or Straight terminals available
- Suitable for use as control switches in small electronic devices

D = 6.5, W = 6.5mm

Mfrs. List No.	Operating Force (N)	Operating Height (mm)	Operating Life (Cycles - Min.)	Mfrs. List No.	Operating Force (N)	Operating Height (mm)	Operating Life (Cycles - Min.)
EVQQ2B03W	0.5	3.1	2000000	EVQQ2S01W	1.6	2	1000000
EVQQ2D01W	0.5	2	2000000	EVQQ2S02W	1.6	2.5	1000000
EVQQ2D02W	0.5	2.5	2000000	EVQQ2S03W	1.6	3.1	1000000
EVQQ2D03W	0.5	3.1	2000000	EVQQ2U03W	2.6	3.1	200000
EVQQ2F03W	1	3.1	1000000	EVQQ2W01W	2.6	2	200000
EVQQ2H01W	1	2	1000000	EVQQ2W02W	2.6	2.5	200000
EVQQ2H02W	1	2.5	1000000	EVQQ2W03W	2.6	3.1	200000
EVQQ2H03W	1	3.1	1000000	EVQQ2Y03W	3.5	3.1	100000
EVQQ2M01W	1.3	2	1000000	EVQQ2Z01W	3.5	2	100000
EVQQ2M02W	1.3	2.5	1000000	EVQQ2Z02W	3.5	2.5	100000
EVQQ2M03W	1.3	3.1	1000000	EVQQ2Z03W	3.5	3.1	100000
EVQQ2P03W	1.6	3.1	1000000				

Mfrs. List No.	Operating Force (N)	Operating Height (mm)	Operating Life (Cycles - Min.)	Mfrs. List No.	Operating Force (N)	Operating Height (mm)	Operating Life (Cycles - Min.)
EVQQ2T03W	0.5	3.1	2000000	EVQQ2503W	2.6	3.1	200000
EVQQ2X03W	1	3.1	1000000	EVQQ2703W	3.5	3.1	100000
EVQQ2403W	1.6	3.1	1000000				

Rating	20mA @ 15 VDC	Contact Resistance	100 mΩ
Operating temperature	-40°C to 85°C	Contacts	SPST

Mfrs. List No.	Order Code	1+	50+	100+
<b>J Bend Terminals</b>				
EVQQ2B03W	996-2832			
EVQQ2D01W	182-1242			
EVQQ2D02W	182-1243			
EVQQ2D03W	182-1244			
EVQQ2F03W	996-2840			
EVQQ2H01W	182-1245			
EVQQ2H02W	182-1247			
EVQQ2H03W	182-1248			
EVQQ2M01W	182-1249			
EVQQ2M02W	182-1250			
EVQQ2M03W	182-1251			
EVQQ2P03W	996-2859			
EVQQ2S01W	182-1252			
EVQQ2S02W	182-1253			
EVQQ2S03W	182-1254			
EVQQ2U03W	996-2867			
EVQQ2W01W	182-1255			
EVQQ2W02W	182-1256			
EVQQ2W03W	182-1257			
EVQQ2Y03W	996-2875			

Mfrs. List No.	Order Code	Price Each		
		1+	50+	100+
<b>J Bend Terminals</b>				
EVQQ2201W	182-1259			
EVQQ2202W	182-1261			
EVQQ2203W	182-1262			
<b>Straight Terminals</b>				
EVQQ2T03W	996-2883			
EVQQ2X03W	996-2891			
EVQQ2403W	996-2905			
EVQQ2503W	996-2913			
EVQQ2703W	996-2921			

Mfrs. List No.	Operating Force	Actuator Colour	Actuator Place (mm)	Operating Life	Order Code
EVQPF308K	2.6N	Black	8.35	50000	207-9497
EVQPF306K	2.6N	Black	5.85	50000	207-9498
EVQPF304R	2.6N	Red	3.85	50000	207-9499
EVQPF303M	2.6N	White	3.15	50000	207-9500
EVQPF208K	1.6N	Black	8.35	100000	207-9502
EVQPF206K	1.6N	Black	5.85	100000	207-9503
EVQPF204R	1.6N	Red	3.85	100000	207-9504
EVQPF203M	1.6N	White	3.15	100000	207-9505
EVQPF108K	1.3N	Black	8.35	100000	207-9506
EVQPF106K	1.3N	Red	5.85	100000	207-9507
EVQPF104R	1.3N	Red	3.85	100000	207-9508
EVQPF103M	1.3N	White	3.15	100000	207-9509
EVQPF008K	1N	Black	8.35	100000	207-9510
EVQPF006K	1N	Black	5.85	100000	207-9511
EVQPF004R	1N	Red	3.85	100000	207-9512
EVQPF003M	1N	White	3.15	100000	207-9514

### Tactile Switches

**NEW**

**Panasonic**  
ideas for life

#### EVQPJ Series



- External Dimensions: 6 x 3.5mm
  - Wave soldering
  - Applications: Operating switches for electronic equipment
- Rating 10µA @ 2Vdc to 50mA @ 12Vdc. (Resistive Load)
- Contact Resistance 100 mΩ max.
- Insulation Resistance 100 MΩ min (at 100 Vdc)
- Dielectric Withstanding Voltage 250 Vac for 1 min
- Operating Temperature -30°C to 70°C

Mfrs. List No.	Operating Force	Height	Actuator Colour	Operating Life	Order Code
EVQPJJ05T	2.4N	5mm	Brown	30000	207-9490
EVQPJJ04T	2.4N	4.3mm	Brown	30000	207-9491
EVQPJH05K	1.6N	5mm	Black	50000	207-9492
EVQPJH04K	1.6N	4.3mm	Black	50000	207-9493
EVQPJG05Q	1N	5mm	Grey	50000	207-9494
EVQPJG04Q	1N	4.3mm	Grey	50000	207-9496

656187

Mfrs. List No.	Order Code	1+	10+	25+	50+	100+	250+
EVQPJJ05T	207-9490						
EVQPJJ04T	207-9491						
EVQPJH05K	207-9492						
EVQPJH04K	207-9493						
EVQPJG05Q	207-9494						
EVQPJG04Q	207-9496						

### Tactile Switches

**NEW**

**Panasonic**  
ideas for life

#### EVQQJ Series



- External Dimensions : 8 x 8mm
- Long life (self-cleaning)
- Low contact resistance with metal contacts
- Small bouncing
- Operating switches for car air conditioners, car audio systems etc
- Camcorders
- Ten key switch for telephones

Rating 10µA @ 2Vdc to 5mA @ 12Vdc. (Resistive Load)

Contact Resistance 200 mΩ max.

Insulation Resistance 50 MΩ min (at 100 Vdc)

Dielectric Withstanding Voltage 250 Vac for 1 min

Operating Temperature -20 to +70°C

Mfrs. List No.	Operating Force	Travel	Height	Actuator Colour	Operating Life	Order Code
EVQQJJ05Q	0.8N	1.0mm	5.0mm	Grey	1000000 cycles	207-9455
EVQQJE05D	1.3N	1.0mm	5.0mm	Orange	100000 cycles	207-9456
EVQQJD05B	2.5N	1.2mm	5.5mm	Blue	100000 cycles	207-9457

656179

Mfrs. List No.	Order Code	1+	10+	25+	50+	100+	250+
EVQQJJ05Q	207-9455						
EVQQJE05D	207-9456						
EVQQJD05B	207-9457						

### Side Operational Tactile Switches

**NEW**

**Panasonic**  
ideas for life

#### EVQPF Series



- Horizontal, snap-in terminals
- Can be automatically dip-soldered
- Integral molding of the terminals and main body prevents the escape of flux
- Applications: operating switches for electronic equipment

Rating 10µA @ 2Vdc to 20mA @ 15Vdc. (Resistive Load)

Contact Resistance 50 mΩ max.

Insulation Resistance 50 MΩ min (at 100 Vdc)

Dielectric Withstanding Voltage 250 Vac for 1 min

Operating Temperature -20 to +70°C

Mfrs. List No.	Order Code	1+	10+	25+	50+	100+	250+
EVQPF308K	207-9497						
EVQPF306K	207-9498						
EVQPF304R	207-9499						
EVQPF303M	207-9500						
EVQPF208K	207-9502						
EVQPF206K	207-9503						
EVQPF204R	207-9504						
EVQPF203M	207-9505						
EVQPF108K	207-9506						
EVQPF106K	207-9507						
EVQPF104R	207-9508						
EVQPF103M	207-9509						
EVQPF008K	207-9510						
EVQPF006K	207-9511						
EVQPF004R	207-9512						
EVQPF003M	207-9514						

656185

### Side-operational Light Touch Switches

**Panasonic**  
ideas for life

#### EVQPC Series



- Horizontal, snap action/Push-on type SPST
- Can be automatically dip-soldered
- Integral molding of the terminals and main body prevents the escape of flux
- Actuator colour: black
- Operating life: 100000 cycles
- Applications: operating switches for electronic equipment

Rating 10µA @ 2Vdc to 20mA @ 15Vdc. (Resistive Load)

Contact Resistance 50 mΩ max.

Insulation Resistance 50 MΩ min (at 100 Vdc)

Dielectric Withstanding Voltage 250 Vac for 1 min

Operating Temperature -20°C to 70°C

Mfrs. List No.	Operating Force	Mounting Type	Order Code
EVQPC005K	1N	Through Hole	207-9527
EVQPC105K	1.3N	Through Hole	207-9526
EVQPC205K	1.6N	Through Hole	207-9524
EVQPC405K	1N	Through Hole	207-9523

656225

Mfrs. List No.	Order Code	1+	10+	25+	50+	100+	250+
EVQPC005K	207-9527						
EVQPC105K	207-9526						
EVQPC205K	207-9524						
EVQPC405K	207-9523						

### SMD Light Touch Switches

**Panasonic**  
ideas for life

#### EVPA Series



- External Dimensions : 3.5 x 2.9mm
- Snap action / Push-on type SPST
- High operating force (5 N max.)
- Bouncing: 10 ms max. (ON, OFF)
- Applications: Operation switches for portable electronic devices (mobile phones, digital cameras etc), operating switches for key-less entry systems

Rating 10µA @ 2Vdc to 20mA @ 15Vdc. (Resistive Load)

Contact Resistance 100 mΩ max.

Insulation Resistance 100 MΩ min (at 100 Vdc)

Dielectric Withstanding Voltage 250 Vac for 1 min

Operating Temperature -30°C to 85°C

Mfrs. List No.	Operating Force	Actuator Colour	Order Code
EVPA002K	1N	Black	207-9583
EVPA020K	1.6N	Black	207-9582
EVPA0402W	2.4N	White	207-9581
EVPA0602W	3.5N	White	207-9580



# Tactile Switches - Panasonic - continued

## SMD Light Touch Switches - continued

### EVPA Series - continued

Mfrs.		Price Each					
List No.	Order Code	1+	10+	25+	50+	100+	250+
EVPA002K	207-9583						
EVPA020K	207-9582						
EVPA040W	207-9581						
EVPA060W	207-9580						

656237

## Light Touch Tactile Switches

### EVQA/EVQP Series



- Snap action / Push-on type SPST
- With or without ground terminal
- Bouncing: 3 ms max. (ON), 10 ms max. (OFF)
- Operating force : 2.6N
- Actuator colour: Red
- Can be automatically dip-soldered
- Integral molding of the terminals and main body prevents the escape of flux
- Applications: Operating switches for electronic equipment

Rating  
Contact Resistance 10µA @ 2Vdc to 20mA @ 15Vdc. (Resistive Load)  
Insulation Resistance 50mΩ max.  
Dielectric Withstanding Voltage 50 MΩ min (at 100 Vdc)  
Operating Temperature 250 Vac for 1 min  
-20°C to 70°C

Mfrs.		Price Each					
List No.	Order Code	1+	10+	25+	50+	100+	250+
EVQPB05R	207-9528						
EVQPA05R	207-9529						

656226

## Light Touch Tactile Switches

### Side-operational, SMD, EVQP7 Series



- External Dimensions : 3.5 x 2.9mm
- Terminal type: Straight, J-bent
- Snap action / Push-on type SPST
- With or without boss
- Bouncing: 10 ms max. (ON, OFF)
- Actuator Colour : Black
- Operating force: 1.6 or 2.2N
- High mount ability
- Applications: Operation switches for portable electronic equipment (mobile phones, digital still cameras, camcorders etc)

Rating  
Contact Resistance 10µA @ 2Vdc to 50mA @ 12Vdc. (Resistive Load)  
Insulation Resistance 500 mΩ max.  
Dielectric Withstanding Voltage 100 MΩ min (at 100 Vdc)  
Operating Temperature 250 Vac for 1 min  
-20°C to 70°C

Mfrs. List No.	Operating Force	Terminal Type	Order Code
EVQP7M01K	1.6N	J-bent	207-9530
EVQP7L01K	1.6N	Straight	207-9531
EVQP7K01K	1.6N	J-bent	207-9532
EVQP7J01K	1.6N	Straight	207-9533
EVQP7D01K	2.2N	J-bent	207-9534
EVQP7C01K	2.2N	Straight	207-9535
EVQP7B01K	2.2N	J-bent	207-9536
EVQP7A01K	2.2N	Straight	207-9538

656227

Mfrs.		Price Each					
List No.	Order Code	1+	10+	25+	50+	100+	250+
<b>With Boss</b>							
EVQP7M01K	207-9530						
EVQP7L01K	207-9531						
EVQP7D01K	207-9534						
EVQP7C01K	207-9535						
<b>Without Boss</b>							
EVQP7K01K	207-9532						
EVQP7J01K	207-9533						
EVQP7B01K	207-9536						
EVQP7A01K	207-9538						

## Surface Mount Tactile Switches

### Side Operational, EVQPS Series



- External Dimensions : 6.1 x 4.0mm
- Snap action / Push-on type SPST
- Terminal shapes: straight, J-bent
- Applications: Operating switches for electronic equipment
- Actuator Colour : Black
- Height: 1.8mm

Rating  
Contact Resistance 10µA @ 2Vdc to 50mA @ 15Vdc. (Resistive Load)  
Insulation Resistance 500 mΩ max.  
Dielectric Withstanding Voltage 100 MΩ min (at 100 Vdc)  
Operating Temperature 250 Vac for 1 min  
-20°C to 70°C

Mfrs. List No.	Operating Force	Terminal Shape	Order Code
EVQPSR02K	2.2N	Straight	207-9470
EVQPSQ02K	2.2N	Straight	207-9472
EVQPSM02K	1.6N	Straight	207-9473
EVQPSL02K	1.6N	Straight	207-9474
EVQPSH02K	2.2N	J-bent	207-9475
EVQPSG02K	2.2N	J-bent	207-9476
EVQPSD02K	1.6N	J-bent	207-9477
EVQPS02K	1.6N	J-bent	207-9478

656191

Mfrs.		Price Each					
List No.	Order Code	1+	10+	25+	50+	100+	250+
<b>With Boss</b>							
EVQPSR02K	207-9470						
EVQPSQ02K	207-9472						
EVQPSM02K	207-9473						
EVQPSL02K	207-9474						
<b>Without Boss</b>							
EVQPSH02K	207-9475						
EVQPSG02K	207-9476						
EVQPSD02K	207-9477						
EVQPS02K	207-9478						

## SMD Small Tactile Switches

### Side-operational, EVQPU Series



- External Dimensions : 4.7 x 3.5mm
- Snap action / Push-on type SPST
- Terminal shapes: J-bent
- Applications: Operating switches for portable equipment (Mobile phones, cameras, camcorders etc)
- Actuator Colour : Black
- Height: 1.65mm

Rating  
Contact Resistance 10µA @ 2Vdc to 50mA @ 15Vdc. (Resistive Load)  
Insulation Resistance 500 mΩ max.  
Dielectric Withstanding Voltage 100 MΩ min (at 100 Vdc)  
Operating Temperature 250 Vac for 1 min  
-40°C to 85°C

Mfrs. List No.	Operating Force	Order Code
EVQPUM02K	1.6N	207-9466
EVQPUK02K	1.6N	207-9467
EVQPUD02K	2.2N	207-9468
EVQPUB02K	2.2N	207-9469

656195

Mfrs.		Price Each					
List No.	Order Code	1+	10+	25+	50+	100+	250+
<b>With Boss</b>							
EVQPUM02K	207-9466						
EVQPUD02K	207-9468						
<b>Without Boss</b>							
EVQPUK02K	207-9467						
EVQPUB02K	207-9469						

## Double Action Tactile Switches

### Edge Mount/Surface Mount, EVQQ Series



- External Dimensions : 6.2 x 3.75mm (excluding actuator)
- Good operability due to long stroke : 1st 0.4mm, 2nd 0.5mm
- Improved soldering strength in the operating direction when mounted
- Recommended applications: Camera function (digital still, camcorders, mobile phones etc), operating switches for menu scrolling and confirmation for portable equipment

Rating  
Contact Resistance 10µA @ 2Vdc to 20mA @ 15Vdc. (Resistive Load)  
Insulation Resistance 500 mΩ max.  
Dielectric Withstanding Voltage 100 MΩ min (at 100 Vdc)  
Operating Temperature 100 Vac for 1 min  
-20°C to 70°C

Mfrs. List No.	Operating Force	Mounting Type	Order Code
EVQQG03K	1st Action 1N / 2nd Action 2.6N	Edge Mount	207-9461
EVQQC03K	1st Action 1N / 2nd Action 2.6N	Surface Mount	207-9462

656209

Mfrs.		Price Each					
List No.	Order Code	1+	10+	25+	50+	100+	250+
EVQQG03K	207-9461						
EVQQC03K	207-9462						



## Edge Mount Tactile Switch

**Panasonic**



### Applications:

- Operation switches for portable electronic equipment (Mobile phones, Digital still cameras, Camcorders Portable audio players, etc.)
- Keyless entry (car electronics)
- Car audio equipment

Body - W=5.7, D=2.55, H=3.5mm

- SPST
- Travel of 0.25mm
- Side operation

- Surface mount
- Operating temperature: -40°C to 85°C

Mfrs. List No.	Input max (V / mA)	Operating Life	Contact Resistance (mΩ)	Operating Force (N)
EVQP4003M	15 / 20	1000000	100	1
EVQP4203M	15 / 20	1000000	100	1.6
EVQP4403M	15 / 20	500000	100	2.4

547119

Mfrs. List No.	Order Code	1+	10+	50+	100+	250+	500+
EVQP4003M	176-1632						
EVQP4203M	176-1633						
EVQP4403M	176-1634						

## Tactile Switches

### Press Fit / Surface Mount, EVQ Series



- External Dimensions : 6 x 3.5mm
- Snap action / Push-on type SPST
- Mounting type: Surface mount and pressfit / through hole
- Wave soldering available for press fit type
- Applications: Press Fit, Operating switches for electronic products. Surface mount, car audio equipment

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**NEW**

Rating	10μA @ 2Vdc to 50mA @ 12Vdc. (Resistive Load)
Contact Resistance	100 mΩ max.
Insulation Resistance	100 MΩ min (at 100 Vdc)
Dielectric Withstanding Voltage	250 Vac for 1 min
Operating Temperature	-30°C to 85°C

Mfrs. List No.	Operating Force	Actuator Colour	Mounting Type	Order Code
EVQPE404Q	1N	Grey	Through Hole	207-9520
EVQPE405Q	1N	Grey	Through Hole	207-9519
EVQPE105K	1N	Black	SMD	207-9521
EVQPE104K	1N	Black	SMD	207-9522
EVQPE504K	1.6N	Black	Through Hole	207-9518
EVQPE505K	1.6N	Black	Through Hole	207-9517
EVQPNF05M	1.6N	Natural	SMD	207-9481
EVQPNF04M	1.6N	Natural	SMD	207-9482
EVQPE604T	2.4N	Brown	Through Hole	207-9516
EVQPE605T	2.4N	Brown	Through Hole	207-9515
EVQ5PN05K	2.4N	Black	SMD	207-9577
EVQ5PN04K	2.4N	Black	SMD	207-9578

656224

Mfrs. List No.	Order Code	1+	10+	25+	50+	100+	250+
EVQPE404Q	207-9520						
EVQPE405Q	207-9519						
EVQPE105K	207-9521						
EVQPE104K	207-9522						
EVQPE504K	207-9518						
EVQPE505K	207-9517						
EVQPNF05M	207-9481						
EVQPNF04M	207-9482						
EVQPE604T	207-9516						
EVQPE605T	207-9515						
EVQ5PN05K	207-9577						
EVQ5PN04K	207-9578						

## SMD Light Touch Tactile Switches

### EVQP2 Series



- External Dimensions : 4.7 x 3.5mm
- Snap action / Push-on type SPST
- Middle and short push travel available
- Bidirectional return
- High operating force and long operational life (up to 1000000 cycles)
- High mountability with J-bent terminals
- With or without ground terminal
- Applications: Operation switches for portable electronic equipment (mobile phones, digital cameras, camcorders etc), Keyless entry systems (automotive), car audio equipment

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**NEW**

Rating	10μA @ 2Vdc to 20mA @ 15Vdc. (Resistive Load)
Bouncing	2.5N, 3.5N, 5N (middle push) / 1N, 1.6N, 2.4N, 3.5N, 5N (short push)
Contact Resistance	100 mΩ max.
Insulation Resistance	100 MΩ min (at 100 Vdc)
Dielectric Withstanding Voltage	250 Vac for 1 min
Operating Temperature	-30°C to 85°C

Mfrs. List No.	Operating Force	Height	Actuator Colour	Ground Terminal	Order Code
<b>Short Push Travel</b>					
EVQP2V02W	3.5N	2.5mm	Natural	With	207-9543
EVQP2V02M	3.5N	2.1mm	Natural	With	207-9544
EVQP2T02W	2.4N	2.5mm	Natural	With	207-9545
EVQP2T02M	2.4N	2.1mm	Natural	With	207-9546
EVQP2R02W	1.6N	2.5mm	Natural	With	207-9547
EVQP2R02M	1.6N	2.1mm	Natural	With	207-9548
EVQP2P02W	1N	2.5mm	Natural	With	207-9551
EVQP2P02M	1N	2.1mm	Natural	With	207-9552
EVQP2B02B	3.5N	2.5mm	Grey	Without	207-9553
EVQP2K02Q	2.5N	2.5mm	Blue	Without	207-9554
EVQP2H02B	5N	2.5mm	Black	Without	207-9555
EVQP2F02Q	3.5N	2.5mm	Grey	Without	207-9556
EVQP2D02Q	2.5N	2.5mm	Blue	Without	207-9557
EVQP2B02B	3.5N	2.5mm	Natural	Without	207-9558
EVQP2K02Q	3.5N	2.1mm	Natural	Without	207-9559
EVQP2H02B	2.4N	.5mm	Natural	Without	207-9560
<b>Medium Push Travel</b>					
EVQP2F02Q	2.4N	2.1mm	Natural	With	207-9561
EVQP2D02Q	1.6N	2.5mm	Natural	With	207-9563
EVQP2B02B	1.6N	2.1mm	Natural	With	207-9564
EVQP2K02Q	1N	2.5mm	Natural	Without	207-9565
EVQP2H02B	1N	2.1mm	Natural	Without	207-9566

656229

Mfrs. List No.	Order Code	1+	10+	25+	50+	100+	250+
<b>Short Push Travel with Ground Terminal</b>							
EVQP2V02W	207-9543						
EVQP2V02M	207-9544						
EVQP2T02W	207-9545						
EVQP2T02M	207-9546						
EVQP2R02W	207-9547						
EVQP2R02M	207-9548						
EVQP2P02W	207-9551						
EVQP2P02M	207-9552						
<b>Short Push Travel without Ground Terminal</b>							
EVQP2602W	207-9558						
EVQP2602M	207-9559						
EVQP2402W	207-9560						
EVQP2402M	207-9561						
EVQP2202W	207-9563						
EVQP2202M	207-9564						
EVQP2002W	207-9565						
EVQP2002M	207-9566						
<b>Middle Push Travel with Ground Terminal</b>							
EVQP2F02Q	207-9555						
EVQP2D02Q	207-9556						
EVQP2B02B	207-9557						
<b>Middle Push Travel without Ground Terminal</b>							
EVQP2K02Q	207-9553						
EVQP2H02B	207-9554						

## Over Travel Tactile Switches

### Light Touch, EVQP0 Series



- External Dimensions : 6.2 x 6.2mm
- Snap action / Push-on type SPST
- Comfortable for long-time operation due to over-travel
- Excellent light-touch operational feel
- Actuator Colour : Black
- Applications: Operating switches for electronic equipment, operational switch for PC mice

Rating	10μA @ 2Vdc to 50mA @ 30Vdc. (Resistive Load)
Contact Resistance	100 mΩ max.
Insulation Resistance	100 MΩ min (at 100 Vdc)
Dielectric Withstanding Voltage	600 Vac for 1 min
Pre-Travel	0.5mm max.
Movement Differential	0.12mm max.
Over Travel	0.2mm max.
Operating Temperature	-30°C to 85°C

Mfrs. List No.	Operating Force	Operating Life	Order Code
EVQP0E07K	0.74N	5000000	207-9570
EVQP0D07K	1.3N	1000000	207-9571

656231

## Long Travel Tactile Switches

### 6mm, EVQP1 Series



- External Dimensions : 6 x 6.1mm
- Steady, low contact resistance
- Snap action / Push-on type SPST
- Bouncing: 10 ms max. (ON, OFF)
- Excellent solderability (J-bent type terminals)
- Actuator colour: natural
- Applications: Operating switches for car electronic equipment,

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**NEW**

# Tactile Switches - Panasonic - continued

## Long Travel Tactile Switches - continued

### 6mm, EVQP1 Series - continued

input on operating switches for telephones, electronic musical instruments etc

Rating	10µA @ 2Vdc to 50mA @ 12Vdc. (Resistive Load)		
Contact Resistance	100 mΩ max.		
Insulation Resistance	100 MΩ min (at 100 Vdc)		
Dielectric Withstanding Voltage	250 Vac for 1 min		
Operating Temperature	-30°C to 85°C		
Mfrs. List No.	Operating Force	Travel	Order Code
EVQP1K05M	2.2N	1mm	207-9567
EVQP1F05M	2N	1.3mm	207-9568
EVQP1D05M	2.5N	1.3mm	207-9569

656230

Mfrs. List No.	Order Code	1+	10+	25+	50+	100+	250+
EVQP1K05M	207-9567						
EVQP1F05M	207-9568						
EVQP1D05M	207-9569						

## Long Travel Tactile Switches

### EVQPV Series



- External Dimensions : 6 x 6.1mm
- Snap action / Push-on type SPST
- Applications: Operating switches for car electronic equipment, input on operating switches for telephones, electronic musical instruments etc
- Actuator Colour : Black
- Height: 5mm (including actuator)

Rating	10µA @ 2Vdc to 50mA @ 15Vdc. (Resistive Load)		
Contact Resistance	100 mΩ max.		
Insulation Resistance	100 MΩ min (at 100 Vdc)		
Dielectric Withstanding Voltage	250 Vac for 1 min		
Operating Temperature	-30°C to 85°C		

Mfrs. List No.	Operating Force	Travel (mm)	Order Code
EVQPVG05K	2N	1.3	207-9463
EVQPVF05K	2.5N	1.3	207-9464
EVQPVA05K	2.2N	1	207-9465

656198

Mfrs. List No.	Order Code	1+	10+	25+	50+	100+	250+
EVQPVG05K	207-9463						
EVQPVF05K	207-9464						
EVQPVA05K	207-9465						

## Long Travel Tactile Switch

### Surface Mount, EVQQ1 Series



- External Dimensions : 8.5 x 8.5mm (including the actuator)
- High operating force which prevents incorrect operation
- Actuator Colour : Natural
- Applications: Operating switches for car electronic equipment, car audio systems as well as steering switches

Rating	10µA @ 2Vdc to 50mA @ 15Vdc. (Resistive Load)		
Contact Resistance	100 mΩ max.		
Insulation Resistance	100 MΩ min (at 100 Vdc)		
Dielectric Withstanding Voltage	250 Vac for 1 min		
Operating Temperature	-40°C to 85°C		

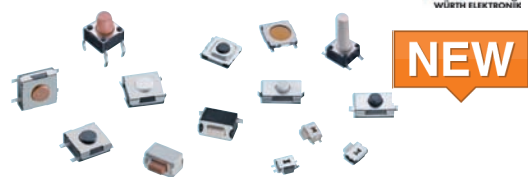
Mfrs. List No.	Operating Force	Travel	Order Code
EVQQ1D06M	4N	1mm	207-9459

656208

Mfrs. List No.	Order Code	1+	10+	25+	50+	100+	250+
EVQQ1D06M	207-9459						

# Tactile Switches - Würth

## Tactile Switches - Surface Mount



**NEW**

- Operating force: 160g to 260g
- Height: 0.8mm up to 5mm
- Washable and non-washable types available
- Operating temperature: -40°C to 85°C
- Contact: Stainless steel with silver cladding
- Terminals: Silver plated

Mfrs. List No.	Contact Rating (V / mA)	Operating Force (g)	Operating Life	Contacts	Height (mm)	Actuator Colour	Order Code
<b>6x6mm Washable</b>							
430481025816	12 / 50	160	1000000	DPST	2.5	Black	186-7983
430481031816	12 / 50	160	1000000	DPST	3.1	Black	186-7984
430471025826	12 / 50	2.55	500000	DPST	2.5	White	186-7985
430471031826	12 / 50	260	500000	DPST	3.1	White	186-7986
<b>J-Bend - 6x6mm Washable</b>							
430483025816	12 / 50	160	1000000	DPST	2.5	Black	186-7987
430483031816	12 / 50	160	1000000	DPST	3.1	Black	186-7988
430473025826	12 / 50	260	500000	DPST	2.5	White	186-7989
430473031826	12 / 50	260	500000	DPST	3.1	White	186-7990
<b>5x5mm With Ground Terminal</b>							
431181008816	15 / 20	160	1000000	SPST	0.8		186-7974
431181015816	15 / 20	160	1000000	SPST	1.5	Black	186-7975
431151008826	15 / 20	260	200000	SPST	0.8		186-7976
431151015826	15 / 20	260	200000	SPST	1.5	White	186-7977
<b>J-Bend - 5x5mm With Ground Terminal</b>							
431183008816	15 / 20	160	1000000	DPST	0.8		186-7978
431183015816	15 / 20	160	1000000	DPST	1.5	Black	186-7979
431153008826	15 / 20	260	200000	SPST	0.8		186-7980
431153015826	15 / 20	260	200000	DPST	1.5	White	186-7981

Mfrs. List No.	Contact Rating (V / mA)	Operating Force (g)	Operating Life	Contacts	Height (mm)	Actuator Colour	Order Code
<b>6x3.5mm</b>							
434121043816	12 / 50	160	50000	SPST	4.3	Black	186-8022
434121050816	12 / 50	160	50000	SPST	5	Black	186-8023
434111043826	12 / 50	260	30000	SPST	4.3	White	186-8024
434111050826	12 / 50	260	30000	SPST	5	White	186-8025
<b>J-Bend - 6x3.5mm</b>							
434123043816	12 / 50	160	50000	SPST	4.3	Black	186-8026
434123050816	12 / 50	160	50000	SPST	5	Black	186-8027
434113043826	12 / 50	260	30000	SPST	4.3	White	186-8028
434113050826	12 / 50	260	30000	SPST	5	White	186-8029

Mfrs. List No.	Contact Rating (V / mA)	Operating Force (g)	Operating Life	Contacts	Height (mm)	Actuator Colour	Order Code
<b>6x3.8mm</b>							
434121025816	12 / 50	1.56	50000	SPST	2.5	Black	186-7991
434111025826	12 / 50	260	30000	SPST	2.5	White	186-7992
<b>J-Bend - 6x3.8mm</b>							
434123025816	12 / 50	160	50000	SPST	2.5	Black	186-7993
434113025826	12 / 50	260	30000	SPST	2.5	White	186-7995

Mfrs. List No.	Contact Rating (V / mA)	Operating Force (g)	Operating Life	Contacts	Height (mm)	Actuator Colour	Order Code
<b>3.5x4.7mm Side Push</b>							
434351045816	12 / 50	160	200000	DPST	1.65	White	186-7996
434331045822	12 / 50	220	100000	DPST	1.65	Black	186-7997
<b>J-Bend - 3.5x4.7mm Side Push</b>							
434353045816	12 / 50	160	200000	DPST	1.65	White	186-7998
434333045822	12 / 50	220	100000	DPST	1.65	Black	186-7999
<b>3.5x4.7mm Side Push - Boss Design</b>							
436351045816	12 / 50	160	200000	DPST	1.65	White	186-8018
436331045822	12 / 50	220	100000	DPST	1.65	Black	186-8016
<b>J-Bend - 3.5x4.7mm Side Push - Boss Design</b>							
436353045816	12 / 50	160	200000	DPST	1.65	White	186-8021
436333045822	12 / 50	220	100000	DPST	1.65	Black	186-8017

622957

Mfrs. List No.	Order Code	1+	25+	50+	100+	250+
<b>6x6mm Washable</b>						
430481025816	186-7983					
430481031816	186-7984					
430471025826	186-7985					
430471031826	186-7986					

Mfrs. List No.	Order Code	1+	25+	50+	100+	250+
<b>J-Bend - 6x6mm Washable</b>						
430483025816	186-7987					
430483031816	186-7988					
430473025826	186-7989					
430473031826	186-7990					

Mfrs. List No.	Order Code	1+	25+	50+	100+	250+
<b>5x5mm With Ground Terminal</b>						
431181008816	186-7974					
431181015816	186-7975					
431151008826	186-7976					
431151015826	186-7977					

Mfrs. List No.	Order Code	1+	25+	50+	100+	250+
<b>J-Bend - 5x5mm With Ground Terminal</b>						
431183008816	186-7978					
431183015816	186-7979					
431153008826	186-7980					
431153015826	186-7981					

Mfrs. List No.	Order Code	1+	25+	50+	100+	250+
<b>6x3.5mm</b>						
434121043816	186-8022					
434121050816	186-8023					
434111043826	186-8024					
434111050826	186-8025					

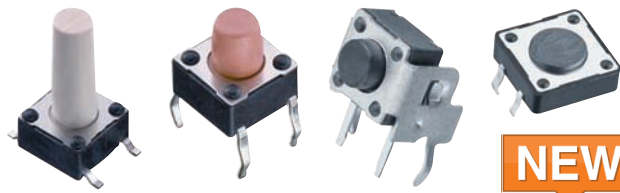
Mfrs. List No.	Order Code	1+	25+	50+	100+	250+
<b>J-Bend - 6x3.5mm</b>						
434123043816	186-8026					
434123050816	186-8027					
434113043826	186-8028					
434113050826	186-8029					

Mfrs. List No.	Order Code	1+	25+	50+	100+	250+
<b>6x3.8mm</b>						
434121025816	186-7991					
434111025826	186-7992					
<b>J-Bend - 6x3.8mm</b>						
434123025816	186-7993					
434113025826	186-7995					

Mfrs. List No.	Order Code	1+	25+	50+	100+	250+	Price Each
<b>3.5x4.7mm Side Push</b>							
434351045816	186-7996						
434331045822	186-7997						
<b>J-Bend - 3.5x4.7mm Side Push</b>							
434353045816	186-7998						
434333045822	186-7999						
<b>3.5x4.7mm Side Push - Boss Design</b>							
436351045816	186-8018						
436331045822	186-8016						
<b>J-Bend - 3.5x4.7mm Side Push - Boss Design</b>							
436353045816	186-8021						
436333045822	186-8017						

## Tactile Switches

50mA @ 12V dc



**NEW**

- Operating force: 160g to 360g
- Height: 0.8mm up to 9.5mm
- Washable and non-washable types available

Contact rating Insulation resistance	50mA @ 12V		Contact resistance Operating temperature	100mohm -40°C to 85°C		
Mfrs. List No.	Operating Force (g)	Operating Life	Contacts	Height (mm)	Actuator Colour	Order Code

<b>6x6mm SMD</b>						
430182043816	160	1000000	DPST	4.3	Black	206-5105
430182050816	160	1000000	DPST	5	Black	206-5106
430182070816	160	1000000	DPST	7	Black	206-5107
430182095816	160	1000000	DPST	9.5	Black	206-5108
430152043826	260	200000	DPST	4.3	White	206-5109
430152050826	260	200000	DPST	5	White	206-5110
430152070826	260	200000	DPST	7	White	206-5111
430152095826	260	200000	DPST	9.5	White	206-5112
430152043836	360	200000	DPST	4.3	Salmon	206-5114
430152050836	360	200000	DPST	5	Salmon	206-5115
430152070836	360	200000	DPST	7	Salmon	206-5116
430152095836	360	200000	DPST	9.5	Salmon	206-5117

<b>6x6mm THT</b>						
430186043916	160	1000000	DPST	4.3	Black	206-5118
430186050916	160	1000000	DPST	5	Black	206-5119
430186070916	160	1000000	DPST	7	Black	206-5120
430186095916	160	1000000	DPST	9.5	Black	206-5121
430156043926	260	200000	DPST	4.3	White	206-5122
430156050926	260	200000	DPST	5	White	206-5123
430156070926	260	200000	DPST	7	White	206-5124
430156095926	260	200000	DPST	9.5	White	206-5126
430156043936	360	200000	DPST	4.3	Salmon	206-5127
430156050936	360	200000	DPST	5	Salmon	206-5128
430156070936	360	200000	DPST	7	Salmon	206-5129
430156095936	360	200000	DPST	9.5	Salmon	206-5130

<b>6x6mm Right Angle THT</b>						
431256031716	160	200000	SPST	3.15	Black	206-5131
431256031726	260	200000	SPST	3.15	White	206-5132
431256031736	360	200000	SPST	3.15	Salmon	206-5133
431256038716	160	200000	SPST	3.85	Black	206-5134
431256038726	260	200000	SPST	3.85	White	206-5135
431256038736	360	200000	SPST	3.85	Salmon	206-5136

<b>12x12mm Washable THT</b>						
430456043736	360	200000	DPST	4.3	White	206-5138
430456073736	360	200000	DPST	7.3	White	206-5139
430456085736	360	200000	DPST	8.5	White	206-5140
430466043726	260	300000	DPST	4.3	Salmon	206-5141
430466073726	260	300000	DPST	7.3	Salmon	206-5142
430466085726	260	300000	DPST	8.5	Salmon	206-5143

Mfrs. List No.	Order Code	1+	25+	50+	100+	250+	Price Each
<b>6x6mm SMD</b>							
430182043816	206-5105						
430182050816	206-5106						
430182070816	206-5107						
430182095816	206-5108						
430152043826	206-5109						
430152050826	206-5110						
430152070826	206-5111						
430152095826	206-5112						
430152043836	206-5114						
430152050836	206-5115						
430152070836	206-5116						
430152095836	206-5117						

Mfrs. List No.	Order Code	1+	25+	50+	100+	250+	Price Each
<b>6x6mm THT</b>							
430186043916	206-5118						
430186050916	206-5119						
430186070916	206-5120						
430186095916	206-5121						
430156043926	206-5122						
430156050926	206-5123						
430156070926	206-5124						
430156095926	206-5126						
430156043936	206-5127						
430156050936	206-5128						
430156070936	206-5129						
430156095936	206-5130						

<b>6x6mm Right Angle THT</b>							
431256031716	206-5131						
431256031726	206-5132						
431256031736	206-5133						
431256038716	206-5134						
431256038726	206-5135						
431256038736	206-5136						

<b>12x12mm Washable THT</b>							
430456043736	206-5138						
430456073736	206-5139						
430456085736	206-5140						
430466043726	206-5141						
430466073726	206-5142						
430466085726	206-5143						

<b>Caps for 12x12mm Switches</b>							
Black	NEW	213-4448					
Red	NEW	213-4449					
Green	NEW	213-4450					

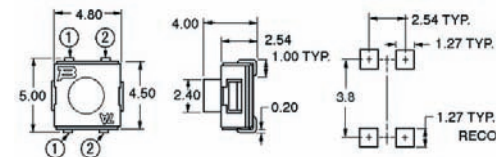
## SPNO, 4mm

100mA @ 24V



- Surface mount 4mm size
- Positive tactile operation
- Sealed construction
- Compatible with all surface mount soldering processes

BOURNS



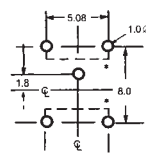
Current rating	100mA	Voltage rating	16V
Contact resistance	100mR max	Dielectric strength	250Vac
Insulation resistance	MR min @ 500V dc	Life cycle	10000 actuations
		Operating temperature	-55°C to +125°C

Mfrs. List No. 7914J-001-000 213188

Order Code	5+	25+	100+	250+
SMD112-3624				

## PCB Mount, SPNO Momentary

50mA @ 24V dc



- Low profile snap-action SPNO switch
- Very short stroke 0.3mm
- Precious metal contact system gives long life and reliability

Maximum contact chatter	5ms
Dielectric withstand voltage	250V dc for 1 minute
Operating temperature	-20°C to +80°C

Mfrs. List No.  
FES311121=146-202 FES311161=146-203  
FES311131=146-204 FES311171=146-205

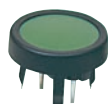
Colour	Order Code	1+	25+	100+	250+	1K+
Red	146-202					
Dark Grey	146-203					
Light Grey	146-204					
Blue	146-205					



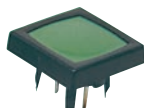
# Tactile Switches - Wurth - continued

## Membrane, SPNO Momentary

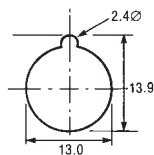
125mA @ 48V dc



Dia=18, H=4.2  
Pin pitch=7.62



H=4.2, W=18, D=18  
Pin pitch=7.62



Panel cut-out

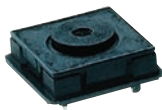
- Push-fit panel mounting membrane switches with a tactile feel
- Coloured actuator snaps on to black body
- Straight pin connections allow PCB mounting or wirewrap
- 'O' ring kit available, seals switch to IP65

Actuator Colour	Mfrs. List No.	Order Code	Round Bezel Actuator Colour	Round Bezel Actuator Colour	Price Each
Black	1241.1113.7097	<b>NEW 208-2866</b>	Grey	12411104796	150-246
Red	1241.1104.7093	150-242	Red	12411100793	150-247
Yellow	12411104791	150-243	Green	12411100795	150-248
Black	12411104797	150-244	Black	12411100797	150-249
White	1241.1113.7098	<b>NEW 208-2867</b>	Yellow	12411100791	150-250
Green	1241.1104.7095	150-245	Grey	12411100796	150-251
'O' Ring Sealing Kit	0098.9201	148-921			
Contact resistance	110 to 115mR		Mechanical life	1000000 ops	
SW1/213066					
<b>Price Each</b>					
	<b>Order Code</b>		1+	50+	100+ 250+
<b>All Switches</b>					
<b>Price Per Pack</b>					
<b>5 Per Pack</b>			1+	100+	250+ 1K+
Sealing Kit	148-921				

## MTG Series



**NEW**



- Simple assembly
- Long lifetime
- Reliable tactile feedback

Contact Current	1241.1002	1241.1022	1241.1082.8
Contact Voltage DC	50mA	50mA	125mA
Contact Configuration	24V	24V	48V
Terminals	2.5N	2.5N	2.5N
	Through Hole	Through Hole	Through Hole
658367			
<b>Price Each</b>			
Mfrs. List No.	<b>Order Code</b>		1+ 25+ 50+ 100+
Actuator			
Short	1241.1002	<b>208-2863</b>	
Long	1241.1022	<b>208-2864</b>	
White Cap	1241.1082.8	<b>208-2865</b>	

## 1301 Series



- Simple assembly
- Long life time
- Reliable tactile feedback

Contact Voltage:	12VDC@50mA	Stroke Length:	0.25mm
Contact Resistance:	100mΩ	Solderability:	230°C/3s
Lifecycles:	100000	Body Dimensions:	6 x 6.5mm
Temperature Range	Storage: -20°C to +70°C		
	Operation: -10°C to +60°C		
240492			

Overall Height	Typ	Best.-Nr.	1+	50+	100+
<b>Gullwing</b>					
4.3	1301.9314	121-7763			
5.0	1301.9315	121-7764			
5	1301.9315.24	<b>NEW 208-2886</b>			
7.0	1301.9316	121-7765			
7.3	1301.9317	121-7767			
8.0	1301.9318	121-7769			
9.5	1301.9319	121-7771			
<b>Through Hole</b>					
12.5	1301.9320	121-7772			
5.0	1301.9302	121-7773			
7.0	1301.9303	121-7774			
7.3	1301.9304	121-7775			
9.5	1301.9306	121-7776			
12.5	1301.9307	121-7777			

Overall Height	Typ	Best.-Nr.	1+	50+	100+
<b>Right Angle</b>					
3.85	1301.9501	121-7780			
11.35	1301.9502	121-7782			
<b>Square Actuator</b>					
7.4	1301.9308	121-7778			
7.4	1301.9309	121-7779			

## Keypads

### Universal Keypad + Keyboard Encoder



W=88.9, D=60

The Storm 420 Series encoder allows interfacing between keypad and host system.

- Input Power + 5V ± 0.25V dc
- RS232 Output via 6 pin Molex 2.54mm (.100") Pitch KK® connector
- Direct connection to underpanel mounted 12-, 16- and 20 way Storm Keypads
- Ribbon Cable needed for top panel fixing 4-, 12- and 16 way Storm Keypads
- Can drive LCD display on Storm FT series keypads

- Overall footprint 89mm x 66mm

346031

Mfrs. List No.	Order Code	1+	5+	25+
4200-001-FEC	<b>980-9988</b>			
<b>RS232 Encoder/LCD Ribbon Cable</b>				
4200-101	<b>NEW 189-2810</b>			

### Sealed and Rugged Keypads - IP67



Storm 700 Series and 900 Series



981-0021: W=96, D=32



Legend Tiles

#### Illuminated keypads

- Excellent tactile characteristics
- Interchangeable legends fit into recess in keys
- Dual LEDs allow red or green illumination of any key
- 0.1" gold plated connectors (compatible with Molex KK range)
- Six legend tile sets available, for information see legend tile character library
- Comprehensive instructions supplied

Operating voltage	24V max.	Operating temp. range	-55°C to +125°C (700 series) -25°C to +85°C (900 Series)
Operating current	50mA max.	Keypoint travel	1.5mm nominal
Breakdown voltage	500V max.	Actuation force	160g typ
Insulating resistance	50MR	Environ sealing	<b>BS5490 IP67</b>
Contact resistance	100R max.	Illuminated keypads only:	
Contact bounce	5ms max.	LED drive current	20mA typ. 25mA max.
Operational life to 70°C	2 million cycles	LED drive voltage	3.3V typ.
Material:		LED drive voltage (single diode)	
Keypad surface	Engineering grade silicone rubber.	LED drive voltage (double diode)	
Keypad chassis	Anodised aluminium		
213253			

	Mfrs. List No.	Order Code	1+	10+	50+
<b>Non illuminated</b>					
Grey, 4 way	70040101	<b>981-0021</b>			
Black, 4 way	70040201	<b>981-0030</b>			
Grey, 12 way	70120101	<b>981-0048</b>			
Black, 12 way	70120201	<b>981-0056</b>			
Grey, 16 way	70160101	<b>981-0064</b>			
Black, 16 way	70160201	<b>981-0072</b>			

<b>Illuminated</b>					
keypad, 4 way	90040101	<b>981-0102</b>			
keypad, 12 way	90120101	<b>981-0110</b>			

#### Keypad Legend Tiles



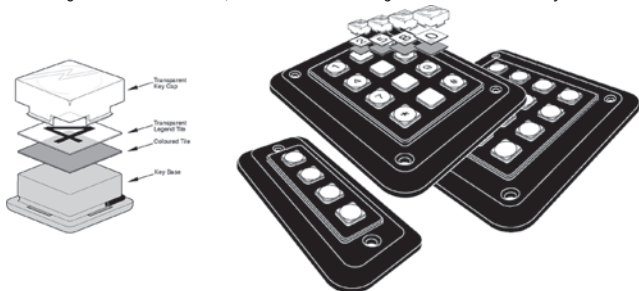
Non illuminated	Mfrs.	Order Code	Price Each		
	List No.		1+	10+	50+
<b>Non-Illuminated</b>					
Set A	70A00101	135-0268			
Set B	70B00101	135-0269			
Set C	70C00101	135-0270			
Set D	70D00101	135-0271			
Set E	70E00101	135-0272			
Set F	70F00101	135-0273			
<b>Illuminated</b>					
Set A	90A00101	135-0275			

### Storm Graphic Series+ Configurable Keypads



Keypad legends can be custom configured without the need to dismantle the keypad. Transparent polymer legend tiles can be selected from an extensive library of standard characters or symbols and located in the keypad by a unique snap-on keypad cap. Customised keypad graphics can be created using laser printed acetate film or screen printed polymer film. Coloured keytops are achieved by inserting a second, coloured tile under the polymer legend tile. The impact resistant keypad cap provides a permanent, tamper resistant lens protecting the encapsulated legend from wear, physical damage and water ingress.

- High impact polymer
- Sealed to IP54
- Interchangeable with Storm K Series keypads
- Ideal for use in industrial, commercial, public and point of sale applications
- Six legend tile sets available, for information see legend tile character library below
- Quick and easy to install
- Top surface or under panel mounting



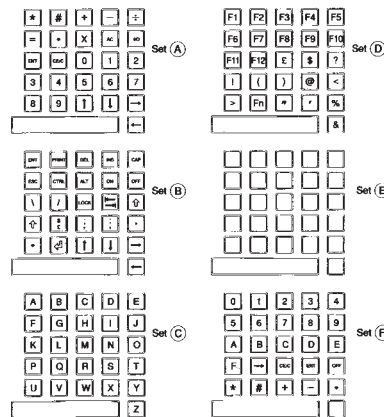
Contacts	Gold over Nickel	Breakdown voltage	500V ac
Contact Rating	24V dc, 50mA	Insulation resistance	50mΩ
Operating temperature	-10°C (dry) to +85°C		

213233

Terminal Type	Order Code	Price Each		
		1+	10+	50+
<b>Graphic Series</b>				
4 Key	981-0170			
12 Key	981-0188			
16 Key	981-0196			
<b>Keypad Legend Tiles</b>				
Set A	135-0248			
Set B	135-0251			
Set C	135-0253			
Set D	135-0254			
Set E	135-0255			
Set F	135-0256			
<b>Legend Background</b>				
Grey	135-0257			
Yellow	135-0264			
Spare Keypads (set of 4)	135-0265			

### Legend Tile Character Library

#### STORM Graphic and 700/900 Series Keypads



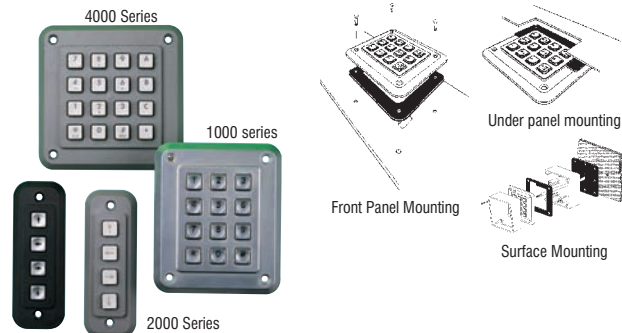
Library of standard format keypad character sets ('A' to 'F') for use with STORM Graphic and 700/900 series keypads.

213254

### Storm Multi-Purpose Keypad Range - Up to IP67



#### Storm 'K' Series



1000PLX 3000 Series

- 5 ranges of keypads offering excellent price/performance for all applications
- Keypads are completely interchangeable across the series
- Easy to install and use
- High specification gold plated circuitry and connectors provide high reliability
- Supplied with comprehensive instructions

#### Product Selection Guide

Conditions	Vandal Resist	Impact Resist	Sealed to IP67	Sealed to IP65	Sealed to IP54	Replaceable Keypads
Range						
1000 Series Public Outdoor	✓	✓	✓	✓	✓	✓
1000PLX Series Public Outdoor	✓	✓	X	✓	✓	✓
2000 Series Industrial/Outdoor	X	✓	X	✓	✓	✓
3000 Series Sheltered Outdoor	X	X	X	X	✓	✓
4000 Series Light Duty/Indoor	X	X	X	X	X	Keypads

Series	Key Life (cycles)	Service Temperature	Case Material	Keypad Material	Keypad Legends	Legend Colour
1000	4 million	-40°C to +100°C	Chromed zinc	Chromed zinc	Engraved	Black
1000PLX	4 million	-40°C to +100°C	Super high impact polymer	Chromed zinc	Engraved	Black
2000	4 million	-25°C to +85°C	Super impact polymer	Super impact polymer	Laser marked	Dark Grey
3000	2 million	-10°C to +85°C	General Service Polymer	General Service Polymer	Printed	Dark Grey
4000	2 million	0°C to +70°C	General Service Polymer	Silicon Rubber	Printed	Dark Grey

Contacts	Carbon/Gold, 100mΩ (max.), 5ms (max.) bounce	Operation	24V dc, 50mA
Insulation	50mΩ (min)	Actuation	180g
Breakdown	500V ac (60secs)	Connections	0.1" gold plated, square pin male

230750

	Order Code	Price Each		
		1+	10+	50+
<b>1000 Series - Vandal Resistant - IP67</b>				
4 Key (F1, F2, F3, F4)	980-9805			
4 Key (↑ ↓ ← →)	980-9791			
12 Key Calc. style	980-9813			
12 Key Tel. style	980-9821			
16 Key Calc. style	980-9830			
16 Key Tel. style	980-9848			
<b>1000PLX Series - Vandal Resistant -IP65</b>				
12 Key Tel. style	981-0226			

**INTELLIGENT ONLINE BUYING SYSTEM PROVIDING**

Complete cost control, reduced administration time, visibility of your spend, flexibility and personalised to your company's needs.

[farnell.com/ibuy](http://farnell.com/ibuy)

# Keypads - continued

## Storm Multi-Purpose Keypad Range - Up to IP67 - continued

### Storm 'K' Series - continued

	Order Code	Price Each		
		1+	10+	50+
<b>2000 Series - Impact Resistant - IP65</b>				
12 Key Calc. style	980-9929			
12 Key Tel. style	980-9937			
16 Key Calc. style	980-9945			
<b>3000 Series - General Service - IP64</b>				
4 Key (↑↓←→)	980-9953			
12 Key Tel. style	980-9961			
16 Key Tel. style	980-9970			
<b>4000 Series - Light Duty</b>				
<b>Mounting box for 12 way keypads</b>				
	135-0245			
<b>Blank Keys</b>				
1000 series (set of 4)	135-0246			

## Alpha Numeric Keypad - DDA Compliant

### Storm 6000 Series



H = 17.5 (overall), W = 124,  
D = 118.5mm

- DDA Compliant
- Rugged, reliable and responsive data entry keypads
- Vandal resistant
- Weather resistant to IP65
- Large buttons for clarity and ease of use
- High contrast, laser engraved keytop graphics will not wear off over time
- Front plate is made of brushed stainless steel
- Keys: Super high impact polymer

For full legislative details, see: [www.dda-compliance.com](http://www.dda-compliance.com)

Description	Mfrs. List No.	Order Code	Price Each		
			1+	10+	50+
<b>Non Illuminated</b>					
Matrix Output	6000-210011-FEC	101-5740			
<b>Mounting Kit</b>					
6000 Series	6000-MK0001-FEC	101-5743			

## Toughened Display Module

### Storm 5000 Series



H = 17, W = 110, D = 88mm

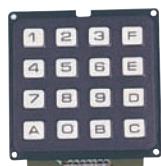
- Impact resistant to 10J BS EN 60068-2-75
- Clear, scratch resistant, anti-reflective window
- Weather resistant to IP65
- Responsive menu navigation and option select keys
- Under-panel fixing through panel thicknesses of up to 2 mm
- Supplied complete with panel gasket and 4 x 20 character LCD display
- Resistant to petrochemicals and most commonly used cleaning agents
- Silver-grey bezel with Black keys
- Compatible with STORM keypads and interface devices

Unit is supplied complete with a 4 line x 20 character backlit LCD display module.

Description	Mfrs. List No.	Order Code	Price Each		
			1+	10+	50+
Bezel with 20 x 4 LCD	5001-200202-FEC	101-5744			

## Low Cost Miniature Keypads

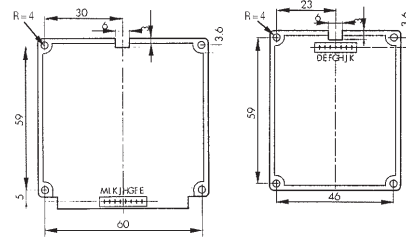
### ECO Series



113-0805



113-0806



Miniature matrix circuit keypads in a black flush mounting case with white keys and black markings. Fitted with a 0.1" pitch header (7 pin for 12 way and 8 pin for 16 way keypads).

Operating voltage	24V max.	Operational life	1000000 operations
Operating Current	50mA max.	Contact	Amorphous Carbon on Gold
Contact resistance	220R/1N	Operating temp.	-25°C to 70°C
Contact bounce	5ms		

213246

Description	Mfrs. List No.	Order Code	Price Each		
			1+	10+	50+
Keypad, 12 way	ECO.12150.06	113-0805			
Keypad, 16 way	ECO.16250.06	113-0806			

## Vandal Resistant Keypads - IP67

### S. Series illuminated/Non-illuminated



A range of vandal resistant keypads which include yellow or blue LED illuminated and lower cost non-illuminated 12 key keypads. These rugged impact resistant keypads can either be front mounted using screws or rear mounted using studs. The polished chrome Zamac keys and casing offers superb looks along with a high degree of vandal and impact resistance. Non illuminated versions have superb black filled markings whilst illuminated versions have glass filled keys for bright clear illumination and a good viewing angle.

- High impact resistance housing and keys
- Anti-pull off keys
- Key lifetime 4 million operations
- Front or rear panel mounting
- Front face sealed to IP67 using gasket supplied
- Connection via 0.1" pitch headers

Operating voltage	24V max.	Key and body material	Chromed Zamac
Nominal current	5 mA	Contact	Amorphous Carbon on Gold
Contact resistance	≤200mΩ	Operating Temp.	-25°C to +85°C
Insulation resistance	>1000 MΩ	Keypad travel	1.3±0.3mm
LED operating voltage	2.5V (yellow)	Actuation force	1 to 3 N
Individual LED current	20mA (yellow)	Front face seal	IP67
Life expectancy	4 million operations		

213191

Description	Mfrs. List No.	Order Code	Price Each		
			1+	10+	50+
<b>12 Key - Non Illuminated</b>					
Telephone Keypad	S.12X00.342	100-6085			
<b>12 Key - Illuminated</b>					
Yellow LED - Telephone markings	S.12150.241	113-0817			
<b>16 Key - Illuminated</b>					
Yellow LED - 16 Key hex. markings	S.16350.241	113-0818			

## Plastic Keypad

### Telephone Type



Connection is via PCB pre drilled 2.54mm solder terminals. Switches are configured on a standard matrix layout. White keypads have white keys with black legends. Black keypads have white keys with black legends.

12 Key - H = 14 (overall),  
W = 56.2, D = 72mm

16 Key - H = 15.7 (overall),  
W = 82, D = 70.4mm

Contact rating	20mA @ 24V	Operating temperature	-20 to 60°C
Contact resistance	200ohm (Max.)	Operating force	0.98N
Life	1000000 Cycles per key	Key travel	12 Key = 1.4mm, 16 Key = 1.5mm

Mfrs. List No.	MCAK304NWB=118-2235
Mfrs. List No.	MCAK1604NWB=118-2238

Mfrs. List No.	MCAK304NBWB=118-2236
Mfrs. List No.	MCAK1604NBWB=118-2239

431434

Description	Order Code	Price Each				
		1+	10+	25+	50+	100+
<b>White</b>						
12 Keys - 4 x 3	118-2235					
16 Keys - 4 x 4	118-2238					
<b>Black</b>						
12 Keys - 4 x 3	118-2236					
16 Keys - 4 x 4	118-2239					

## Plastic Keypad - IP67

Telephone Type



Connection is via PCB pre drilled 2.54mm solder terminals. Switches are configured on a standard matrix layout. Black keys with white legends.

12 Key - H = 14 (overall),  
W = 56.2, D = 72mm

Contact rating	20mA @ 24V	Operating temperature	-20 to 60°C
Contact resistance	200ohm (Max.)	Operating force	1.18N
Life	2000000 Cycles per key	Key travel	2mm

431428.432724

Description	Order Code	Price Each				
		1+	10+	25+	50+	100+
<b>Black</b>						
12 Keys - 4 x 3	118-2232					
Bezel - 4 x 4	NEW 189-5305					

## Metal Keypad - IP67



Connection is via PCB pre drilled 2.54mm solder terminals.

Contact rating	20mA @ 24V	Operating temperature	-20 to 60°C
Contact resistance	200ohm (Max.)	Key travel	2mm
Life	2000000 Cycles per key		

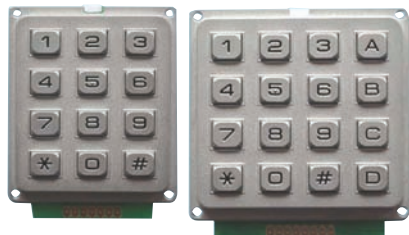
Mfrs. List No.	Keypad Array	Legend Type	Panel Cut Out	Operating Force	Order Code
MCAK101BSSSWPMM	1 x 1		23mm x 23mm	1.18N	118-2227
MCAK102BSSSWPMM	1 x 2		38.5mm x 23mm	1.18N	118-2228
MCAK103BSSSWPMM	1 x 3		55.25mm x 23mm	1.18N	118-2229
MCAK104BSSSWPMM	1 x 4		72mm x 23mm	1.18N	118-2230
MCAK206NSSBWPMMGKT	2 x 6	Numeric	105.5mm x 39.75mm	1.47N	189-5306
MCAK206ASSBWPMMGKT	2 x 6	Alpha / Numeric	105.5mm x 39.75mm	1.47N	189-5307

431422.432723

Mfrs. List No.	Order Code	1+	10+	25+	50+	100+
MCAK101BSSSWPMM	118-2227					
MCAK102BSSSWPMM	118-2228					
MCAK103BSSSWPMM	118-2229					
MCAK104BSSSWPMM	118-2230					
MCAK206NSSBWPMMGKT	NEW 189-5306					
MCAK206ASSBWPMMGKT	NEW 189-5307					

## Low Profile Metal Keypad

Waterproof - IP67



12 Key - H = 10.3 (overall),  
W = 51, D = 64mm

16 Key - H = 8.9 (overall),  
W = 65, D = 64mm

Connection is via PCB pre drilled 2.54mm solder terminals. Switches are configured on a standard matrix layout.

Contact rating	20mA @ 24V	Operating temperature	-20 to 60°C
Contact resistance	200ohm (Max.)	Operating force	0.98N
Life	2000000 Cycles per key	Key travel	1.4mm

Mfrs. List No. MCAK304NSSBWPMM=118-2219  
MCAK1604NSSBWPMM=118-2221

431310.432709

Description	Order Code	Price Each				
		1+	10+	25+	50+	100+
12 Keys - 4 x 3	118-2219					
16 Keys - 4 x 4	118-2221					

## Waterproof Vandal Resistant Keypads

Illuminated and Non-Illuminated



- Connection is via PCB pre drilled 2.54mm solder terminals
- Switches are configured on a standard matrix layout
- Illuminated versions have each key lit by a LED producing a low level glow
- Keypads are supplied with front fitting sealing gasket

Contact rating	20mA @ 24V	Life	2000000 cycles
LED contact rating	3.5V	Operating Temperature	-20°C to 60°C
Contact resistance	200ohm		

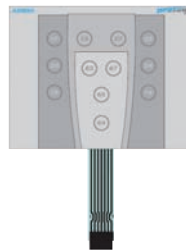
Mfrs. List No.	Keypad Array	Illumination Colour	Panel Cut Out	Key Travel	Operating Force	Order Code
MCAK707NSSBWPMM	3 x 4		70.4mm x 62mm	2mm	0.98N	118-2222
MCAK207NSSLWPMM	3 x 4	Green	72mm x 56mm	2mm	1.18N	118-2224
MCAK304NSSLWPMMBLGKT	3 x 4	Blue	57mm x 46mm	1.4mm	1.18N	189-5301
MCAK304NSSLWPMMYLGKT	3 x 4	Green / Yellow	57mm x 46mm	1.4mm	1.18N	189-5302
MCAK1604NSSLWPMMBLGKT	4 x 4	Blue	57mm x 60mm	1.5mm	1.18N	189-5303
MCAK1604NSSLWPMMYLGKT	4 x 4	Green / Yellow	57mm x 60mm	1.5mm	1.18N	189-5304

631302

Mfrs. List No.	Order Code	1+	10+	25+	50+	100+
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<b>Non-Illuminated - Standard</b>						
MCAK707NSSBWPMM	118-2222					
<b>Illuminated - Standard</b>						
MCAK207NSSLWPMM	118-2224					
<b>Illuminated - Low Profile</b>						
MCAK304NSSLWPMMBLGKT	NEW 189-5301					
MCAK304NSSLWPMMYLGKT	NEW 189-5302					
MCAK1604NSSLWPMMBLGKT	NEW 189-5303					
MCAK1604NSSLWPMMYLGKT	NEW 189-5304					

## Membrane Keypad Developer's Kit



The developer's keypad can be simply cut to various shapes to suit several standard keypad enclosures. Alternatively the keypad can be used as is, without trimming.

To enhance your prototypes, the kit includes many useful design tools to enable you to create prototype overlays for design presentations, exhibitions, concept models, or prototype function testing. Cut and paste your chosen keypad profiles, key shapes, borders, and colours into your preferred graphics design software. Colour print your design onto self adhesive paper. (5 sheets included with this kit). For added protection, your printed design can be over laminated with clear self adhesive polyester before cutting to the required shape. (5 self adhesive polyester sheets included with this kit) Templates, including dimensions, are also included on the CD for cutting the required keypad tail exit slot into your chosen enclosure or support panel.

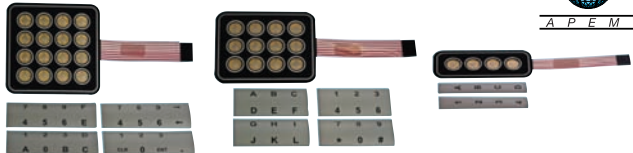
**Kit contents:** Protean plus keypad, A4 Inkjet/Laser White Self Adhesive Paper Sheets (Pk4), A4 Clear Self Adhesive Polyester Cover Sheets (Pk4), CD Data File.

Rating	0.1A @ 30V DC	Dielectric strength	250Vrms
Contact resistance	30ohm	Operating temperature	-30°C to 55°C
Insulation resistance	min. @ 500VDC		

626655

Mfrs. List No.	Order Code	1+	5+	10+	25+	50+
AC3875	188-2253					

## Membrane Keypads



Customisable membrane keypads which can be attached to any clean flat surface.

- Keypads with insertable legends for custom use
- Tactile feedback
- Perimeter embossed for key finger location
- Graphic material polyester/poly-carbonate
- 3M adhesive backed
- Sealed to IP65

Voltage Rating	30V	Operating Temperature	-30°C to 55°C
Current rating	100mA	Contact Force	400g
Insulation Resistance	> @ 100V	Travel	0.8 to 0.9mm
Dielectric Strength	250V		



## Keypads - continued

### Membrane Keypads - continued

Mfrs. List No.	Keypad Array	Order Code	Price Each			
			1+	10+	50+	100+
AC3559	1 x 4	177-4829				
AC3560	3 x 4	177-4830				
AC3561	4 x 4	177-4831				
<b>Illuminated</b>						
AC3559FILL	1 x 4	NEW 188-2242				
AC3560FILL	3 x 4	NEW 188-2243				
AC3561FILL	4 x 4	NEW 188-2244				

## Keyboards

### Vandal Resistant Keyboards



- Vandal resistant
- Weather resistant
- Operational life: 4 million cycles per key
- Integral 38mm trackball with left & right click keys
- 63 keys
- Compact format: 360 x 118.5 x 438.5mm
- RF/EMI Protection in accordance with current European and US directives

Mfrs. List No.	Description	Order Code	Price Each		
			1+	5+	25+
<b>Rugged - IP65</b>					
2210-220211	Polymer Keys	135-0281			
2210-320311	Metal Keys	135-0282			
<b>Rugged - IP65 - Factory Fitted 2.5m USB Cable</b>					
2210-252211	Polymer Keys	NEW 189-2808			
2212-352311	Metal Keys	NEW 189-2807			
<b>Robust - IP54 - Factory Fitted 2.5m USB Cable</b>					
2210-452211	Metal Keys	NEW 189-2809			
<b>Accessories</b>					
1200-001001	Keyboard PS2 Cable	980-9767			
1200-002001	Keyboard USB Cable	980-9775			
2210-MK0001	Underpanel Fixing Kit	377-8927			

### Top Mounting Keyboards



- Vandal resistant
- Weather resistant to IP65
- Integral 38mm trackball with left & right click keys
- 63 keys
- Compact format: 384 x 142 x 40mm
- Operational life: 4 million cycles per key
- Suitable for fixing into work surfaces

Mfrs. List No.	Description	Order Code	Price Each		
			1+	5+	25+
2212-252211	Polymer Keys	189-2806			

### Integrated Keypad & Display

#### Storm 5000 Series



H = 46.8, W = 120,  
D = 178.5mm

Developed for a wide range of industrial and commercial applications. This integrated keypad and display module is extremely tough and weather resistant. It is ideal for use in hostile, exposed or public environments.

The integrated keypad and display module can be supplied with a 20 character x 4 line illuminated LCD display securely located behind a coated, scratch resistant, polycarbonate window. Alternatively, the module can be ordered without the LCD display module for those applications requiring different display types or technologies. The module is designed for easy installation into a control panel or equipment housing with generous provision for the fixing and accommodation of additional circuit boards and components.

Connection to the keypad device is achieved via a 0.1" square pin male connector with locking ramps. Connection to the display module (when fitted) is via a 16 way 0.1" square female connector.

Available in either 'vandal resistant' (VR) specification (with a brushed stainless steel front plate and engraved metal keys) or 'robust' (R) specification (with black polycarbonate front plate and re-legendable 'Graphics Keys').

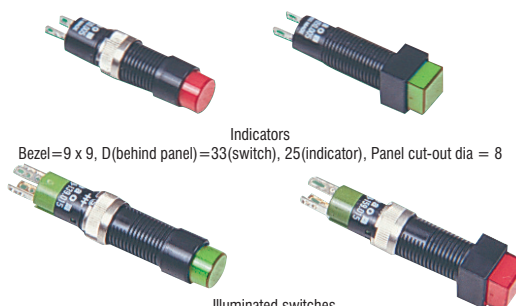
- Weather and vandal resistant for outdoor and unsupervised public environments
- 20 character x 4 line, illuminated LCD display (optional)
- Rapid, responsive and reliable data entry
- Stainless steel brushed front plate
- Easily and securely installed in vending machines, automated teller machines, public telephones, ticketing machines, car parking control equipment etc.

Description	Mfrs. List No.	Order Code	Price Each		
			1+	10+	50+
<b>No-Display Version</b>					
VR - Metal Keys	FT1K0501	981-0137			
<b>Display Version</b>					
R - Graphics Keys	FT4K0901	981-0153			
VR - Metal Keys	FT1K0801	981-0145			

## Industrial Push Button Switches

### Miniature 8mm - 19 Series

#### Illuminated Push Buttons and Indicators



Indicators  
Bezel=9 x 9, D(behind panel)=33(switch), 25(indicator), Panel cut-out dia = 8

Illuminated switches  
Bezel=9 x 9, D(behind panel)=33(switch), 25(indicator), Panel cut-out dia = 8

- SPNO momentary or latching switches with gold or silver contacts
- Round or square bezel types available, matching lenses
- Matching indicators available
- Switches require T1 bi-pin lamps for illumination

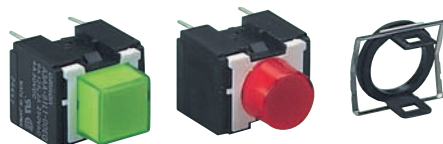
	<50mR
0.8A @ 50V ac or 72V dc	<15mR
100mA @ 50V ac 72V dc	0.8W
	1000V ac
<1.5ms	
<100µs	-25°C to +45°C
	-25°C to +65°C

**Note:** Lamps must be run with a 20% reduced voltage to prevent excessive heating of the actuator.

Indicator	Mfrs. List No.	Order Code	Price Each		
			1+	25+	100+
Round	19-030.005	146-206			
Square	19-050.005	146-207			
<b>Switch, Momentary</b>					
Round, silver contacts	19-139.015	146-208			
Round, gold contacts	19-431.035	150-583			
Square, silver contacts	19-159.015	146-209			
Square, gold contacts	19-451.035A	150-584			
<b>Switch, Latching</b>					
Round, silver contacts	19-279.015	146-210			
Round, gold contacts	19-471.035	150-585			
Square, silver contacts	19-289.015	146-211			
Square, gold contacts	19-481.035	150-586			
<b>Square Lens</b>					
Red	19-951.2	146-216			
Yellow	19-951.4	146-217			
Green	19-951.5	146-218			
White	19-951.9	146-219			
<b>Round Lens</b>					
Red	19-931.2	146-220			
Yellow	19-931.4	146-221			
Green	19-931.5	146-222			
White	19-931.9	146-223			

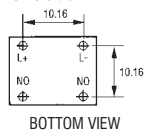
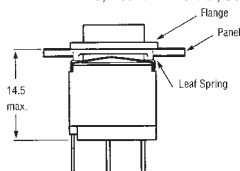
### Miniature - A3A Series

#### SPST Momentary and Latching



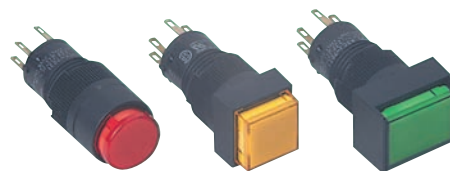


H=12.7, W=15.2, D=14.5 Buttons: Square=8.9 x 8.9, Round=8.9 dia Panel cut-out: Square=11.5 x 11.5, Round=11.5 dia., Solder tabs W=1.7, PCB pins=0.6 dia.



### Miniature 12mm - A3C Series

Illuminated Push Buttons and Indicators - 1A @ 125V ac, 30V dc



Round Bezel=14 dia.  
Square Bezel=14 x 14  
Rectangular Bezel=14 x 18  
Depth behind panel (inc. terminals)=26.5

- Surface LED illuminated round or square push buttons
- Minimal rear panel depth, PCB or solder tag terminals
- VDE and CSA approvals, UL recognised
- Switches supplied complete with cap. Mounting flanges available as separate item.

Contacts SPNO  
Contact switch rating From 1mA @ 5V dc to 6A @ 125V ac, 2A @ 250V ac  
LED ratings V=2.1V (3.0V max.), I=10mA (20mA max.)  
Operating force 250g max.  
Insulation resistance 100MR @ 500V dc

213205

Order Multiple=1		Price Each			
Mfrs. List No.	Order Code	1+	10+	50+	100+

Switch with square Cap, PCB Terminals					
Momentary, Red	A3AA-91K1-00ER	137-2572			
Momentary, Green	A3AA-91K1-00EG	118-1286			
Latching, Green	A3AA-91L1-00EG	137-2574			

Switch with Round Cap, Solder Terminals					
Latching, Green	A3AT-90L1-00EG	118-1288			

Order Multiple=5		Price Each			
Flanges		1+	10+	50+	100+
Square	A3A-211	176-430			

### Miniature 8mm - A3D Series

100mA @ 30V dc



Round Bezel=9 dia Square Bezel=9 x 9 Rectangular Bezel=14 x 9  
Depth behind panel (inc. terminals)=24.5

- Round, square and rectangular options
- Compact housing - requires only 18mm mounting depth
- Lenses include built-in LED
- All LED's lenses and legends replaceable without tools
- Switch contacts are SPST NO
- Excellent operability/visibility
- Sealed to IP40

Note: Built-in LED requires appropriate current limiting resistor.  
Red/Green LED IF=20mA/VF=1.7V, Yellow LED IF=20mA/VF=2.2V

213284

Mfrs. List No.		Price Each				
	Order Code	1+	10+	50+	100+	250+

Switch Body - Momentary						
Round	A3DT-7111	118-1349				
Square	A3DA-7111	118-1351				
Rectangular	A3DJ-7111	118-1352				

Switch Body - Latching						
Round	A3DT-7121	118-1353				
Square	A3DA-7121	118-1354				
Rectangular	A3DJ-7121	118-1355				

Lens - Round						
Red/Red	A3DT-500R	959-911				
Green/Green	A3DT-500GY	959-923				
Yellow/Yellow	A3DT-500Y	959-935				

Lens - Square						
Red/Red	A3DA-500R	985-958				
Green/Green	A3DA-500GY	985-960				
Yellow/Yellow	A3DA-500Y	985-971				

Lens - Rectangular						
Red/Red	A3DJ-500R	985-983				
Green/Green	A3DJ-500GY	985-995				
Yellow/Yellow	A3DJ-500Y	986-008				

- Excellent operability
- Sealed to IP40
- High visibility
- CSA approved, UL recognised
- Round, square and rectangular options
- All LEDs, lamps, lenses and legends replaceable without tools
- Compact housing - requires only 20mm mounting depth
- Switch contacts are SPST NO + SPST NC

Note : For suitable light source's see Omron A16 series, AC3 range not suitable for Neon illumination.

222303

Mfrs. List No.		Price Each		
	Order Code	1+	50+	100+

Switch Bodies - Momentary				
Round	A3CT-7011	118-1356		
Square	A3CA-7011	619-220		
Rectangular	A3CJ-7011	118-1357		

Switch Bodies - Latching				
Round	A3CT-7021	118-1358		
Square	A3CA-7021	619-255		
Rectangular	A3CJ-7021	118-1359		

Indicator Bodies				
Round	M2CT-7001	118-1360		
Square	M2CA-7001	619-280		
Rectangular	M2CJ-7001	118-1362		

Lens - Round				
Red	A3CT-500R	619-309		
Green	A3CT-500G	619-310		
Green (LED illumination)	A3CT-500GY	619-322		
Yellow	A3CT-500Y	619-334		
White	A3CT-500W	619-346		

Lens Square				
Red	A3CA-500R	619-358		
Green	A3CA-500G	619-360		
Green (LED illumination)	A3CA-500GY	619-371		
Yellow	A3CA-500Y	619-383		
White	A3CA-500W	619-395		

Lens - Rectangular				
Red	A3CJ-500R	619-401		
Green	A3CJ-500G	619-413		
Green (LED illumination)	A3CJ-500GY	619-425		
Yellow	A3CJ-500Y	619-437		
White	A3CJ-500W	619-449		

### Illuminated Miniature Push Button Switches

1A @ 125V ac/250V ac or 1A @ 30V dc



- Super bright LED illumination
- Audible and tactile feedback with responsive action
- Long life, snap-action mechanism
- 12mm body diameter
- Molded-in terminals lock out flux, dust and other contaminants
- 8mm panel thickness
- CSA Approved, UL Recognised

Round - H = 30mm, Bezel Dia = 14mm  
Square - H = 30mm, Bezel = 14 x 14mm

**Switch Specifications**  
Electrical capacity 1A @ 125V / 250V ac or @  
Electrical life 50000 Cycles  
Contact resistance 50mohm  
Insulation resistance @ 500VDC  
Dielectric strength 1000VAC between contacts for 1 minute minimum  
Operating temperature -25°C to 50°C



**TROUBLESHOOTING TIPS**  
Chat online to one of our technical engineers at [farnell.com](http://farnell.com)



APEM

### Illuminated Miniature Push Button Switches - continued

1A @ 125V ac/250V ac or 1A @ 30V dc - continued

498421

LED Colour & Switch Type	Mfrs. List No.	Order Code	Price Each			
			1+	10+	25+	50+
<b>Round Bezel</b>						
White - SPDT On-On	KB16CKW01-6B-JB	152-4299				
Blue - SPDT On-On	KB16CKW01-6G-JB	152-4300				
Blue - SPDT On-(On)	KB15CKW01-6G-JB	152-4302				
White - DPDT On-On	KB26CKW01-6B-JB	152-4303				
Blue - DPDT On-On	KB26CKW01-6G-JB	152-4304				
White - DPDT On-(On)	KB25CKW01-6B-JB	152-4305				
Blue - DPDT On-(On)	KB25CKW01-6G-JB	152-4307				
<b>Square Bezel</b>						
Blue - SPDT On-(On)	KB15SKW01-6G-JB	152-4311				
White - DPDT On-On	KB26SKW01-6B-JB	152-4312				

### Pushbutton Switches

D16 Series



- Each contact block has one double break snap action switching mechanism
- SPDT & DPDT, momentary or latching action versions
- Silver contact material

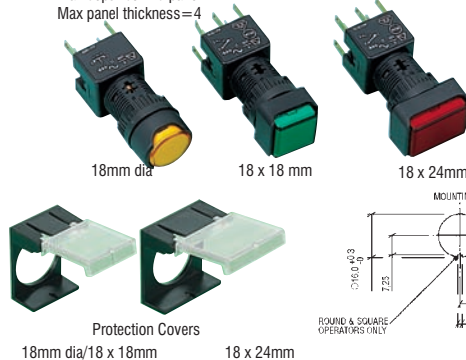
Rating	5A @ 250V ac 8A @ 125V ac 0.2A @ 250V dc 6A @ 24V dc	Operating travel Mechanical Lifetime Actuating force	3mm 1000000 operations 2 - 5N
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542251

Mfrs. List No.	Order Code	1+	25+	50+	100+	250+
<b>Momentary - SPDT</b>						
Round	D16-LMR1-1AB	173-6729				
Square	D16-LMS1-1AB	173-6740				
Rectangular	D16-LMT1-1AB	173-6751				
<b>Momentary - DPDT</b>						
Square	D16-LMS1-2AB	173-6741				
Round	D16-LMR1-2AB	173-6730				
Rectangular	D16-LMT1-2AB	173-6752				
<b>Latching - SPDT</b>						
Square	D16-LAS1-1AB	173-6742				
Round	D16-LAR1-1AB	173-6731				
Rectangular	D16-LAT1-1AB	173-6753				
<b>Latching - DPDT</b>						
Round	D16-LAR1-2AB	173-6732				
Square	D16-LAS1-2AB	173-6743				
Rectangular	D16-LAT1-2AB	173-6754				
<b>Lens - Round</b>						
Blue	50-001-01	173-6733				
Green	50-001-02	173-6734				
Orange	50-001-03	173-6736				
Red	50-001-04	173-6737				
White	50-001-05	173-6738				
Yellow	50-001-06	173-6739				
<b>Lens - Square</b>						
Blue	50-003-01	173-6744				
Green	50-003-02	173-6745				
Orange	50-003-03	173-6746				
Red	50-003-04	173-6748				
White	50-003-05	173-6749				
Yellow	50-003-06	173-6750				
<b>Lens - Rectangular</b>						
Blue	50-002-01	173-6755				
Green	50-002-02	173-6756				
Orange	50-002-03	173-6757				
Red	50-002-04	173-6758				
White	50-002-05	173-6761				
Yellow	50-002-06	173-6762				
<b>Protection Cap</b>						
Square	50-011-01	173-6763				
Rectangular	50-011-02	173-6765				
<b>Splash Guard</b>						
Rectangular	50-010-01	173-6764				

### Illuminated Push Buttons and Indicators - 6A @ 250V ac

Max depth behind panel=42  
Max panel thickness=4



- Modular constructed push buttons and indicators
- Single or double pole C/O switch blocks
- Momentary or latching action
- Illuminated by neon, filament or multi segmented LED lamps
- Gold flashed silver contacts
- IP65 sealed
- Approved to BEAB, VDE and CSA. UL recognised
- Push button assembly: Actuator+Lens+Lamp+Contact block
- Indicator assembly: Indicator body+Lens+Lamp

Parameter	Value
Contact rating	10mA @ 5V ac min 6A @ 250V ac max.
Contact resistance	10mR @ 4V dc, 1A
Insulation resistance	>50MR
Mechanical life	Momentary>1 million ops Latching>100,000 ops
Operating temperature	-20°C to +55°C

224507

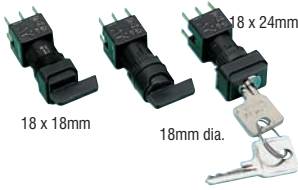
Order Multiple=1	Mfrs. List No.	Order Code	1+	25+	100+
<b>Push Button Actuators - Momentary</b>					
18mm dia	A0109Y	108-2429			
18 x 18mm	A0105Y	108-2351			
18 x 24mm	A0101Y	108-2349			
<b>Push Button Actuators - Latching</b>					
18mm dia	A0109X	108-2352			
18 x 18mm	A0105X	108-2350			
18 x 24mm	A0101X	108-2348			
<b>Indicator Body</b>					
18mm dia	A0173	108-2372			
18 x 18mm	A0172	108-2370			
18 x 24mm	A0171	108-2369			
<b>Contact Blocks</b>					
Single pole	A0151B	108-2353			
Double pole	A0152B	108-2354			
<b>Order Multiple=5</b>					
<b>18mm Round Lens</b>					
Red	A0163B	108-2365			
Amber	A0163C	108-2366			
Green	A0163E	108-2367			
Blue	A0163F	108-2368			
<b>18 x 18mm Lens</b>					
Red	A0162B	108-2361			
Amber	A0162C	108-2362			
Green	A0162E	108-2363			
Blue	A0162F	108-2364			
<b>18 x 24mm Lens</b>					
Red	A0161B	108-2355			
Amber	A0161C	108-2356			
Green	A0161E	108-2357			
Blue	A0161F	108-2359			
<b>Order Multiple=1</b>					
<b>Tools</b>					
Bulb remover	30-0002	925-639			
Lens remover	30-0006	925-640			
Tool kit (all above)	30-0126	108-2291			
<b>Protection Covers</b>					
18mm dia/18 x 18	A01FG2	108-2382			
18 x 24	A01FG1	108-2381			
110V	A0143G	126-2194			
220V	A0143H	126-2195			

### IMPROVED BACK ORDER DELIVERY

Receive email updates with the exact status, due date and despatch information of all your back order items [farnell.com](http://farnell.com)

## Standard 16mm - A01 Series

### Key Switches and Rotary Lever Switches - 6A @ 250V ac



- Modular constructed key switch and rotary lever
- Single or double pole switching
- Two position latching operators
- Gold flashed silver contacts
- **IP65** sealed
- Approved to **BEAB, VDE** and **CSA**
- **UL** recognised
- Key switch and rotary lever assembly: Actuator+contact block

Max depth behind panel=42  
max panel thickness=4

Contact rating	10mA @ 5V ac max. 6A @ 250V ac max.	Insulation resistance	>50mR
Contact resistance	<10mR @ 4V dc, 1A	Mechanical life	>100,000 ops.
		Operating temperature	-20°C to +55°C/-2055°C

213385

Key Switch Actuator	Mftrs. List No.	Order Code	Price Each		
			1+	25+	100+
18mm dia two position	A018301	<b>108-2375</b>			
18 x 18mm two position	A018201	<b>108-2374</b>			
18 x 24mm two position	A018101	<b>108-2373</b>			
<b>Rotary Lever Actuator</b>					
18mm dia two position	A019501	<b>108-2378</b>			
18 x 18mm two position	A019301	<b>108-2377</b>			
18 x 24mm two position	A019101	<b>108-2376</b>			
<b>Contact Blocks</b>					
Single Pole	A0151B	<b>108-2353</b>			
Double Pole	A0152B	<b>108-2354</b>			

## Standard 16mm - A01 Series

### Emergency Stop Switch - 6A 250V ac



- Emergency stop
- Supplied with double pole positive break switch block
- Prominent 24 mm diameter red mushroom actuator
- Push to operate, twist to reset
- **IP65** sealed
- Yellow self-adhesive 60mm emergency stop label available
- Approved to **VDE** and **CSA**. **UL** recognised

Mftrs. List Nos. A01ES+A0154B = 108-2379.  
A01YL1 = 108-2386

Bezel dia.=18 , Max depth behind panel=42  
max panel thickness=42

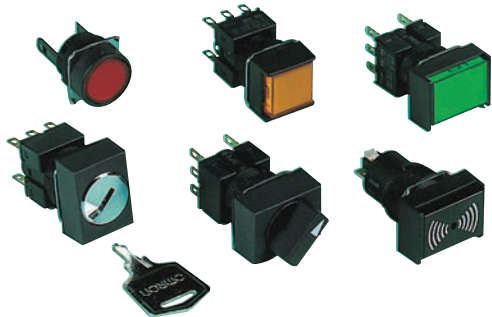
Contact rating	10mA @ 5V ac min 6A @ 250V ac max.	Insulation resistance	>50mΩ
Contact resistance	<10mΩ @ 4V dc, 1A	Mechanical life	>100,000 ops
		Operating temperature	-20°C to +55°C

SW90/213387

	Order Code	Price Each		
		1+	25+	100+
Switch	<b>108-2379</b>			
Label	<b>108-2386</b>			

## Compact 16mm IP65 Sealed - A16 Series

### Illuminated Push Buttons, Indicators, Key Switch, Selector Switch, Emergency Stop, Buzzer. 3A @ 250Vac or 30Vdc, 5A @ 125Vac. 1mA @ 5Vdc minimum load



Switches & Indicators L=37.8, depth behind panel=28.5,  
Key Switch L=38, depth behind panel=28.5  
Selector Switch L=47, depth behind panel=28.5  
Emergency Stop Switch L=48.5, depth behind panel=28.5  
Buzzer L=38, depth behind panel=28.5  
All switches Tabs=2.8 x 0.5, Panel cut-out=16  
Panel spacing: Round, Square=19 x 19, Rectangular=24 x 19

- Sealed to **IP65**
- Features detachable contact block for ease of installation
- Lamp, LED or Neon illumination
- Single or double pole, latching or momentary action

- Meets **EN60947-5-1**
- **CSA** approved. **UL** recognised
- Complete switch = Switch/indicator body + contact block + light source + lens

**Note:** Indicator types consist of the momentary action switch body and a Dummy Socket.  
Operating temperature -55°C to + 85°C

213150

## Switch Sockets

**Note:** For indicators use dummy socket



Mftrs. List No.	Order Code	Price Each				
		1+	10+	50+	100+	250+
<b>Switch Units</b>						
SPDT socket	A16-1	<b>118-1289</b>				
DPDT socket	A16-2	<b>118-1290</b>				
Dummy socket	M16-0	<b>118-1291</b>				
Socket/Lens removal tool	A16Z-5080	<b>311-9970</b>				

213234

## Switch, Indicator, Buzzer and Key Switch Bodies



Round, square, rectangular, buzzer or key switch options

**Note:** For indicator use momentary switch body and dummy socket

	List No.	Order Code
18mm dia round, momentary action	A16S-CTM	<b>118-1293</b>
18mm dia round, latching action	A16S-CTA	<b>118-1295</b>
18mm x 18mm square, momentary action	A16S-CAM	<b>118-1296</b>
18mm x 18mm square, latching action	A16S-CAA	<b>118-1297</b>
18mm x 24mm rectangular, momentary action	A16S-CJM	<b>118-1298</b>
18mm x 24mm rectangular, latching action	A16S-CJA	<b>118-1299</b>
<b>Selector Switch Body</b>		
18mm x 24mm rectangular, 2 position latching	A16SS-J2M-2	<b>137-2568</b>
<b>Buzzer</b>		
18mm x 24mm rectangular, 12-24V ac/dc	M2BJ-B24	<b>118-1292</b>
<b>Key Switch Body</b>		
18mm x 24mm rectangular, 2 position.	A16SK-J2ML	<b>118-1301</b>

213235

Order Code	Price Each				
	1+	10+	50+	100+	250+
<b>All Momentary Switch Bodies</b>					
<b>All Latching Switch Bodies</b>					
<b>118-1292</b>					
<b>137-2568</b>					
<b>118-1301</b>					

## Emergency Stop Switch



- 40mm Button size
  - Less than 28.5mm depth behind the panel
  - Contact gap exceeds 3mm
  - Sealed to **IP65**
  - Conforms to **EN418, EN60947-5-1**
- Mftrs List No: A165E-M-02

213162

Order Code	Price Each				
	1+	10+	50+	100+	250+
Switch	<b>137-2566</b>				
Yellow Nameplate	<b>311-9968</b>				

## Light Source



- Choice of filament, neon or LED illumination
- LED lamps are 4 LED clusters and offer much longer life, thereby reducing maintenance costs

Light source	Voltage (V)	Current (mA)	Operational Life (hrs)	Mftrs. List No.	Order Code
Filament lamp	5	60	3000	A16-5	<b>118-1328</b>
Filament lamp	14	40	16000	A16-12	<b>118-1329</b>
Filament lamp	28	24	16000	A16-24	<b>118-1330</b>
Neon, orange	110ac	1.5	10000	A16-1NRN	<b>118-1331</b>
Neon, green	110ac	1.5	10000	A16-2NRN	<b>118-1333</b>
Neon, green	250ac	1.5	10000	A16-2NGN	<b>118-1334</b>
LED, red	5	30	50000	A16-5DR	<b>118-1335</b>
LED, red	12	15	50000	A16-12DR	<b>118-1337</b>
LED, red	24	10	50000	A16-24DR	<b>118-1338</b>
LED, yellow	5	30	50000	A16-5DY	<b>118-1339</b>
LED, yellow	12	15	50000	A16-12DY	<b>118-1340</b>
LED, yellow	24	10	50000	A16-24DY	<b>118-1341</b>
LED, green	5	30	50000	A16-5DG	<b>118-1342</b>
LED, green	12	15	50000	A16-12DG	<b>118-1343</b>
LED, green	24	10	50000	A16-24DG	<b>118-1344</b>
LED, blue	12	15	50000	A16-12DA	<b>118-1346</b>
LED, blue	24	10	50000	A16-24DA	<b>118-1347</b>

Illuminated Push Buttons, Indicators, Key Operated Switch, Buzzer - 6A @ 250V ac

### Light Source - continued

213237

Order Code	Price Each				
	1+	10+	50+	100+	250+
All Lamps					
All Neons					
All LEDs					

### Lens Screen



- Round, square or rectangular options to match bodies
- Choice of 6 colours

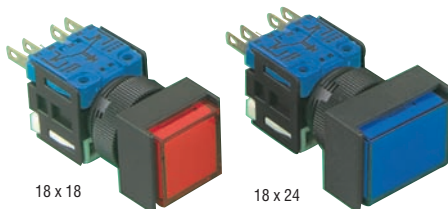
Colour	Light Source	Lens Screen		
		Round Order Code	Square Order Code	Rectangular Order Code
Red	Filament lamp or LED	118-1302	118-1303	118-1304
Yellow	Filament lamp or LED	118-1305	118-1306	118-1307
Green	Filament lamp or LED	118-1308	118-1309	118-1310
White	Filament lamp or LED*	118-1311	118-1313	118-1314
Blue	Filament lamp	118-1315	118-1316	118-1317
Red	Neon	118-1318	118-1319	118-1320
Green	Neon	118-1321	118-1322	118-1323
Black	--	118-1325		

213236

Order Code	Price Each				
	1+	10+	50+	100+	250+
All Colours					

### Compact, 16mm hole mounting - 35mm Series

Illuminated Push Buttons and Indicators - 6A @ 250V ac



18 x 18

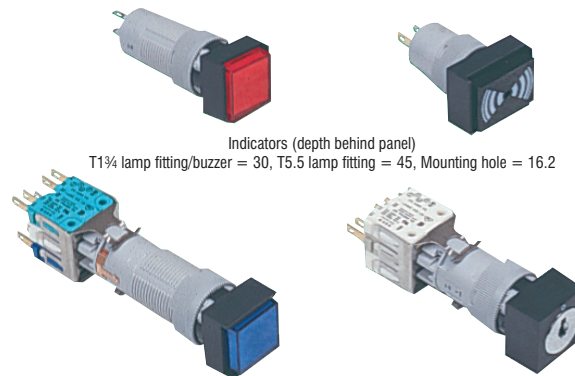
18 x 24

Panel cut-out dia. = 16

- 35mm maximum back panel depth
- Removable contact blocks for pre-wiring
- Lamp or LED Illumination T1¼ midget groove
- IP40 and IP65 version available
- Gold plated snap action switch
- Complete switch = Actuator + Contact Block + Lens + Light Source
- VDE, CSA, SEV and SEMKO approved. UL recognised.

224508

Mfrs. List No.	Order Code	Price Each		
		1+	10+	100+
<b>18 x 18mm Bezeled Actuators</b>				
Momentary IP40	680-4000-00	185-644		
Momentary IP65	680-4000-W0	185-656		
Latching IP40	600-4000-00	185-668		
<b>18 x 24mm Bezeled Actuators</b>				
Momentary IP40	680-6000-00	185-700		
Momentary IP65	680-6000-W0	185-711		
Latching IP40	600-6000-00	185-723		
<b>18 x 18mm Lenses</b>				
Red	600-3120-00	185-760		
Yellow	600-3170-00	185-772		
Green	600-3140-00	185-784		
Blue	600-3150-00	185-796		
<b>18 x 24mm Lenses</b>				
Red	600-5120-00	185-802		
Yellow	600-5170-00	185-814		
Green	600-5140-00	185-826		
Blue	600-5150-00	185-838		
<b>Contact Blocks</b>				
1 NO/1 NC	601-0000-00	185-840		
2 NO/2 NC	602-0000-00	185-851		
Indicator Lamp Block	600-0000-00	185-863		

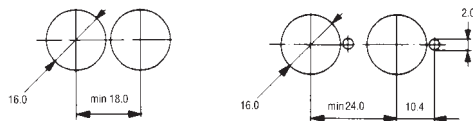


Indicators (depth behind panel)

T1¼ lamp fitting/buzzer = 30, T5.5 lamp fitting = 45, Mounting hole = 16.2

Switches (depth behind panel)

T1¼ lamp fitting/key switch = 55, T5.5 lamp fitting = 70, Mounting Hole = 16.2



18 x 18mm units

Panel cut-outs

18 x 24mm units

- Panel mounting through 16.2mm hole diameter
- Square and rectangle bezeled units available, matching lenses
- Matching indicators available
- Same switch mechanism can serve as either latching or momentary. Supplied as latching, can be converted to momentary by simply removing a phosphor bronze spring on the side of the switch body
- Choice of body style, to take either T1¼ midget groove or T5.5 telephone side lamps
- SPDT or DPDT contacts, ie. 1 or 2 contact elements of 1N/O + 1N/C
- Extra elements (1N/O + 1N/C) can be added to a maximum of 3
- Contacts are hard silver, gold plated
- Matching key operated switch available 1N/O + 1N/C contacts, 2 positions, latching
- Matching 12 volt buzzer available
- Approved to VDE, SEV, SEMKO, DEMKO, NEMKO and CSA

Mfrs List No.

890-000-K0+200-4000-00=141-200, 990-000-K0+200-4000-00=141-201, 801-0000-00+200-4000-00=141-202, 901-000-00+200-4000-00=141-203, 802-0000-00+200-4000-00=141-204, 902-0000-00+200-4000-00=141-205, 911-4001=151-153, 200-3120-00=141-225, 200-3170-00=141-226, 200-3140-00=141-227, 200-3150-00=141-228, 200-3160-00=141-229, 890-000-K0+200-6000-00=141-208, 901-000-00+200-6000-00=141-211, 802-0000-00+200-6000-00=141-212, 902-0000-00+200-6000-00=141-213, 200-5120-00=141-230, 200-5170-00=150-241, 200-5140-00=141-232, 200-5150-00=141-233, 200-5160-00=141-234, 300-0001=141-235, 300-0002=141-236, 200-5009-00=141-239, 200-6008-00=141-240, 201-0400-00=141-242,

224509

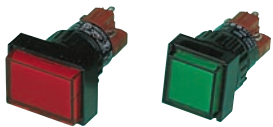
18 x 18mm Bezeled Units	Order Code	Price Each			
		1+	10+	40+	200+
Indicator body T5.5	141-200				
Indicator body T1¼	141-201				
Switch SPDT T5.5	141-202				
Switch SPDT T1¼	141-203				
Switch DPDT T5.5	141-204				
Switch DPDT T1¼	141-205				
Keypswitch, 2 position	151-153				
<b>18 x 18mm Clear Lens with Diffuser</b>					
Red	141-225				
Yellow	141-226				
Green	141-227				
Blue	141-228				
White	141-229				
<b>18 x 24mm Bezeled Units</b>					
Indicator body T5.5	141-208				
Indicator body T1¼	141-209				
Buzzer, 12V	113-0804				
Switch SPDT T5.5	141-210				
Switch SPDT T1¼	141-211				
Switch DPDT T5.5	141-212				
Switch DPDT T1¼	141-213				
<b>18 x 24mm Clear Lens with Diffuser</b>					
Red	141-230				
Yellow	150-241				
Green	141-232				
Blue	141-233				



18 x 18mm Bezeled Units	Order Code	1+	10+	40+	200+
<b>Accessories</b>					
Lens extractor	141-235				
Lamp extractor	141-236				
18 x 24 splashproof cover	141-239				
18 x 24 protection cover	141-240				
Contact element, green	141-242				
Contact element, grey	143-030				

### Tactile Snap Action, 16mm hole mounting - 31 Series

Illuminated Pushbuttons and Indicators 5A, 250Vac, IP40



- Tactile self-cleaning elements
- One or two changeover elements
- Square or rectangular front bezels
- Gold plated silver contacts
- VDE, CSA, SEV approved, UL recognised

Depth behind panel Unit 1NO, 1NC = 29  
Unit 2NO, 2NC = 36.5  
Indicator = 23.5

Rectangular Lenses:	Red	Orange	Yellow
	= 925-159	= 925-160	= 925-172
Square Lenses:	Green	Blue	Clear
	= 925-184	= 925-196	= 925-202
	Red = 925-214	Orange = 925-226	Yellow = 925-238
	Green = 925-240	Blue = 925-251	Clear = 925-263

213315

Order Multiple=1	Mfrs. List No.	Order Code	1+	10+	100+
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18 x 24mm Bezeled					
SPDT-1NO / 1 NC Momentary Units	31-121.0252	311-2081			
DPDT Momentary Units	31-122.0252	311-2093			
SPDT-1NO / 1 NC Latching	31-261.0252	311-2100			
DPDT Latching	31-262.0252	311-2111			
Indicator	31-040.005	311-2123			

18 x 18mm Bezeled Units					
SPDT-1NO / 1 NC Momentary Units	31-151.0252	311-2135			
DPDT-CO Momentary Units	31-152.0252	311-2147			
SPDT-1NO / 1 NC Latching	31-281.0252	311-2159			
DPDT-CO Latching	31-282.0252	311-2160			
Indicator	31-050.005	311-2172			

Order Multiple=3	Lenses - See Above	3+	15+	60+
Rectangular	All Order Codes			
Square	All Order Codes			

### Flush Mounted Pushbutton Switches

6A @ 25V ac, 6A @ 12V dc



- Solder and quick-connect terminals
- Flushing mounted
- Sealed to IP65
- Illuminated and non-illuminated
- 22m diameter panel cut-out

Switch Specifications	
Rating	6A @ 250V AC, 6A @ 12V DC
Electrical life	50000 Cycles
Contact resistance	10mohm
Insulation resistance	
Dielectric strength	750Vrms
Operating temperature	-20°C to 55°C

**NEW**

618953

Mfrs. List No.	Legend	Illumination Colour	LED Voltage	Order Code	1+	5+	10+	25+	50+
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Latching action									
A1PCA1X220J103		Red	12V	185-7055					
A1PCA1X220J203		Green	12V	185-7056					
A1PCA1X220J303		Amber	12V	185-7057					
A1PCA1X220J403		Blue	12V	185-7059					
A1PCA1X220K103		Red	24V	185-7061					
A1PCA1X220K203		Green	24V	185-7062					
A1PCA1X220K303		Amber	24V	185-7063					
A1PCA1X220K403		Blue	24V	185-7064					
A1PCA1X203J103	Start	Red	12V	185-7074					
A1PCA1X203J203	Start	Green	12V	185-7075					
A1PCA1X203J303	Start	Amber	12V	185-7076					
A1PCA1X203J403	Start	Blue	12V	185-7077					
A1PCA1X203K103	Start	Red	24V	185-7078					
A1PCA1X203K203	Start	Green	24V	185-7079					
A1PCA1X203K303	Start	Amber	24V	185-7080					
A1PCA1X203K403	Start	Blue	24V	185-7081					
A1PCA1X284J103	Standby	Red	12V	185-7091					
A1PCA1X284J203	Standby	Green	12V	185-7092					

Mfrs. List No.	Legend	Illumination Colour	LED Voltage	Order Code	1+	5+	10+	25+	50+
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Latching action									
A1PCA1X284J303	Standby	Amber	12V	185-7093					
A1PCA1X284J403	Standby	Blue	12V	185-7094					
A1PCA1X284K103	Standby	Red	24V	185-7096					
A1PCA1X284K203	Standby	Green	24V	185-7097					
A1PCA1X284K303	Standby	Amber	24V	185-7098					
A1PCA1X284K403	Standby	Blue	24V	185-7099					

Momentary action									
A1PCA1Y220J103		Red	12V	185-7065					
A1PCA1Y1220J203		Green	12V	185-7066					
A1PCA1Y1220J303		Amber	12V	185-7067					
A1PCA1Y1220J403		Blue	12V	185-7068					
A1PCA1Y1220K103		Red	24V	185-7069					
A1PCA1Y1220K203		Green	24V	185-7070					
A1PCA1Y220K303		Amber	24V	185-7072					
A1PCA1Y220K403		Blue	24V	185-7073					
A1PCA1Y203J103	Start	Red	12V	185-7082					
A1PCA1Y203J203	Start	Green	12V	185-7084					
A1PCA1Y203J303	Start	Amber	12V	185-7085					
A1PCA1Y203J403	Start	Blue	12V	185-7086					
A1PCA1Y203K103	Start	Red	24V	185-7087					
A1PCA1Y203K203	Start	Green	24V	185-7088					
A1PCA1Y203K303	Start	Amber	24V	185-7089					
A1PCA1Y203K403	Start	Blue	24V	185-7090					

### Industrial 22mm - A02 Series

Illuminated Push Buttons and indicators - 16A @ 250V ac



29mm Plastic Bezel    29mm Metal Bezel    29 x 29    Indicator  
H (above panel)=60, D behind panel=38, Panel cut out=22.5

- Modular design
- Momentary or latching action
- Round or square bezels available
- Panel sealed to IP65
- Screw termination
- Push button: Actuator + Contact block + Lens + Lamp
- Indicator: Actuator + Lens + T 1 3/4 Midget Groove Lamp
- VDE, CSA and BEAB approved
- UL recognised

Contact rating	25mA @ 5V ac min 16A @ 250V ac	Mechanical life	Momentary >1000000 ops Latching > 100000 ops
Contact resistance	<10mΩ @ 1A 4Vdc	Operating temperature	-20°C to +85°C
Insulation resistance	>50MΩ		

227869

Order Multiple=1	Order Code	1+	10+	50+	100+	500+
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Push Button Actuators - momentary						
29mm dia, plastic	A0207Y	108-2390				
29mm dia, metal	A0210Y	108-2392				

Push Button Actuators - latching						
29mm dia, metal	A0210X	108-2391				
Order Multiple=5			5+	10+	50+	100+

29mm dia. Lens						
Red	A0263B	108-2393				
Green	A0263E	108-2404				
Clear	A0263G	108-2405				

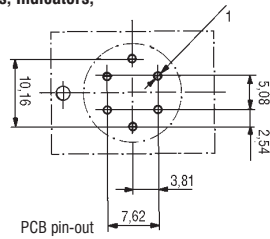
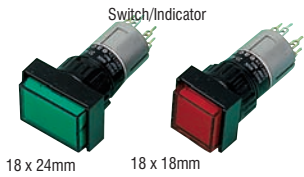
Order Multiple=1	1+	10+	50+	100+	500+
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Contact Blocks						
1NC	A02502	108-2396				
2NO	A02503	108-2397				
2NC	A02504	108-2398				
1NO / 1NC	A02505	108-2399				

Replacement Neon Lamps						
110V	A0143G	126-2194				
220V	A0143H	126-2195				

## Low Level Switching 16mm - 31 Series

Illuminated Silent Action Push Button Switches, Indicators,  
10µA/100µV to 100mA/42V



Depth behind panel = 36 (inc. terminals). Panel cut-out = 16

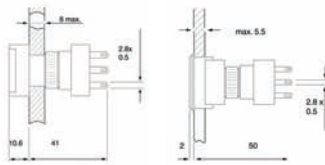
- Low signal level switches
- Silent operation for momentary actuators
- Square or rectangular push buttons and indicators
- Terminals suitable for PCB, solder or plug-in (2.8 x 0.5mm) connection
- PCB socket adaptor available for easy switch removal
- Contact bounce less than 100µs, initial contact resistance ≤50mR
- Mechanical life 5 million operations

224510

Order Multiple=1	Mftrs. List No.	Order Code	1+	10+	100+	Price Each
<b>18 x 24mm Bezeled Units</b>						
	SPST-NO Momentary	31-425.036	<b>925-093</b>			
	SPDT-1NO / 1 NC Momentary	31-423.036	<b>925-100</b>			
	DPDT-NO Momentary	31-421.036	<b>925-111</b>			
	SPDT-1NO / 1 NC Latching	31-463.036	<b>925-123</b>			
	DPDT-NO Latching	31-461.036	<b>925-135</b>			
	Indicator unit	31-041.006	<b>925-147</b>			
<b>18 x 18mm Bezeled Units</b>						
	SPST-NO Momentary	31-455.036	<b>925-032</b>			
	SPDT-1NO / 1 NC Momentary	31-453.036	<b>925-044</b>			
	DPDT-NO Momentary	31-451.036	<b>925-056</b>			
	SPDT-1NO / 1 NC Latching	31-483.036	<b>925-068</b>			
	Indicator unit	31-051.006	<b>925-081</b>			
<b>Order Multiple=3</b>						
<b>18 x 24mm Lenses</b>						
	Red	31.903.2	<b>925-159</b>	3+	15+	60+
	Orange	31.903.3	<b>925-160</b>			
	Yellow	31.903.4	<b>925-172</b>			
	Green	31.903.5	<b>925-184</b>			
	Blue	31.903.6	<b>925-196</b>			
	Clear	31.903.7	<b>925-202</b>			
<b>18 x 18mm Lenses</b>						
	Red	31.953.2	<b>925-214</b>	3+	15+	60+
	Orange	31-953.3	<b>925-226</b>			
	Yellow	31-953.4	<b>925-238</b>			
	Green	31-953.5	<b>925-240</b>			
	Blue	31-953.6	<b>925-251</b>			
	Clear	31-953.7	<b>925-263</b>			
<b>Order Multiple=1</b>						
<b>Accessories</b>						
	PCB adaptor	31-940	<b>925-275</b>	1+	10+	100+
	Lens removing tool	02-905	<b>925-287</b>			
	Lamp/LED remover	02-906	<b>925-299</b>			

## Raised/Ultra Flush Mounted IP65 Sealed - 61 Series

Illuminated Push Buttons, Indicators, Emergency Stop Push Buttons 5A @ 250Vac



Flush mount: L = 50mm  
Depth behind panel max = 48mm  
Panel cut out: 25mm dia = 22.5, 24 x 24 = 21 x 21, 24 x 30 = 21 x 27mm  
Raised: L = 51.6, depth behind panel max = 41 panel cut out 16mm, E stop L = 80mm  
Depth behind panel max 43mm, panel cut out 16mm

- Modular system consisting of actuators, lenses and contact blocks
- Square, rectangular and round ultra flush mount versions
- Ultra flush version - height above panel only 2mm
- Conventional 16mm mounted square and rectangular shape switches
- Keypswitch and Selector Actuators available
- Sealing to IP65
- Foolproof Emergency Stop to EN-609547-5-1, EN418
- Approved to VDE, CSA and SEV. UL recognised

624133

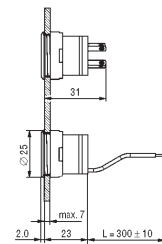
Mftrs. List No.	Order Code	1+	10+	100+	Price Each
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Mftrs. List No.	Order Code	1+	10+	100+	Price Each
<b>Flush Mount Push Button Actuators and Indicator</b>					
	Momentary	61-1100.0	<b>311-6086</b>		
	Latching	61-1200.0	<b>311-6098</b>		
	Indicator	61-0000.02	<b>311-6104</b>		
<b>Bezels for Flush Mount Bodies</b>					
	24 x 24mm Square Plastic	61-9930.0	<b>618-457</b>		
	24 x 30mm Rectangular Plastic	61-9931.0	<b>618-469</b>		
	25mm Round Aluminium	61-9933.0	<b>311-6128</b>		
	25mm Round Plastic	61-9933.10	<b>311-6130</b>		
<b>Round Flush Lenses</b>					
	Red	61-9642.2	<b>618-470</b>		
	Yellow	61-9642.4	<b>311-6153</b>		
	Green	61-9642.5	<b>618-494</b>		
	Clear	61-9642.7	<b>618-500</b>		
<b>Square Flush Lenses</b>					
	Red	61-9671.2	<b>311-6207</b>		
	Yellow	61-9671.4	<b>311-6219</b>		
	Green	61-9671.5	<b>311-6220</b>		
	Clear	61-9671.7	<b>311-6232</b>		
<b>Rectangular Flush lenses</b>					
	Red	61-9681.2	<b>311-6244</b>		
	Yellow	61-9681.4	<b>311-6256</b>		
	Green	61-9681.5	<b>311-6268</b>		
	Clear	61-9681.7	<b>311-6281</b>		
<b>Raised Push Button Actuators and Indicators</b>					
<b>Rectangular - 18 x 24</b>					
	Momentary	61-1130.0	<b>311-6300</b>		
	Latching	61-1230.0	<b>311-6311</b>		
<b>Raised Rectangular Lenses</b>					
	Red	61-9331.2	<b>311-6384</b>		
	Green	61-9331.5	<b>311-6402</b>		
<b>Contact Blocks - Gold</b>					
	1 N/O	61-8410.22	<b>618-597</b>		
	2 N/O	61-8420.22	<b>618-603</b>		
	1 N/O, 1 N/C	61-8470.22	<b>618-615</b>		
<b>Foolproof Emergency Stop Actuator</b>					
	Arrow Marking	61-3440.4/1	<b>618-627</b>		
	Stop Marking	61-3440.4/2	<b>618-639</b>		
<b>Slow Make Contact Block for Emergency Stop</b>					
	2 N/C	61-8755.17	<b>618-652</b>		
<b>Tool Kit</b>					
	Lens, contact, LAMP/LED remover and mounting key	K61-999.100	<b>618-676</b>		

## Ultra Flush Mount IP67 - 84 Series



Push buttons/Indicators  
Bezel = 25 dia. Panel cut-out = 22.5



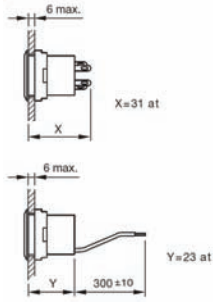
- Ultra flush mounting - height above panel 2mm only
- Integrated multi-chip LED (illuminated versions, 24V dc operating voltage)
- Flying lead or solder/plug-in terminations
- Detachable switch unit for easy wiring
- Gold plated normally open, momentary contacts
- Sealing to IP67

213198

Mftrs. List No.	Order Code	1+	10+	100+	Price Each
<b>Push Button Illuminated - Solder Terminal</b>					
	RedRed	K84-603.4205	<b>113-0811</b>		
	YellowYellow	K84-603.4609	<b>113-0812</b>		
	GreenGreen	K84-603.3511	<b>113-0813</b>		
<b>Push Button Illuminated - Flying Lead</b>					
	Red	K84-603.4305	<b>113-0814</b>		
	Green	K84-603.3611	<b>113-0816</b>		
<b>Accessories</b>					
	Mounting Tool	84-997	<b>619-085</b>		
	Lens remover	61-9730.0	<b>619-097</b>		

## Low Profile Flushmount Switches

Series 84 Halo Bezel



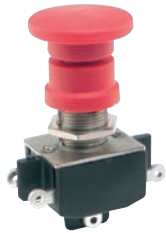
- IP67 Front Protection
- Short Back Panel Depth with plug-in terminals
- Bi-colour red/green switch 300mm flying leads
- High Brightness LED Illuminated bezel
- Raised aluminium lens
- 24VDC LED Voltage
- Gold Plated 1NO Momentary Contact
- 100m / 42V Max Power 2W

543154

Mfrs. List No.	Order Code	1+	10+	50+	100+	250+
<b>Push Button Illuminated - Plug-in</b>						
Green	K84-603.HG	175-5877				
Red	K84-603.RG	175-5878				
<b>Push Button Illuminated - Flying Lead</b>						
Red / Green	K84-603.HRG	175-5879				

## Push-Pull Switches

2A @ 250V ac



- Latching double-pole changeover
- Selection of button colours
- Solder lug terminals

Electrical Life 10000 ops  
Contact Resistance 10mR  
Operating Temp °C to +°C2070  
Travel 2.3mm

Mfrs. List No.  
N46B=108-2464

Bezel dia.=24, Depth = 22, Panel cut-out (dia.) = 12, thickness=8 max.



347655/405519

Actuator Colour	Order Code	1+	10+	50+	100+
Red	108-2464				

## Mushroom Head Pushbutton Switches - Enclosed

6A 250V ac



- Pushbutton switches in robust polycarbonate enclosures
- Available with coloured momentary and twist-to-release (emergency stop) actuators
- Sealed to IP65
- Knockouts for popular conduit sizes

Actuator dia.=40, Body height=55, Width/Depth=65

	Momentary	E-Stop	
Contact rating	6A @ 250V ac	1.5A @ 250V ac (E-Stop)	
Electrical Life	6050 ops	50000 ops	
Operating Temperature	-20°C to 55°C		
Mfrs. List No.	A01ESSP354B+PEA01	= 108-2380	A01MMESP352B+PEA01 = 108-2385
	A01MMBSP352B+PEA01	= 108-2384	



347654/405523

Momentary Action	Order Code	1+	10+	25+	50+
Actuator Colour	108-2384				
	108-2385				
<b>Emergency Stop</b>	108-2380				



## Mushroom Switch with Key Reset

Panel Cut-out 22.5mm



- Mushroom cap, 40mm diameter
- Positive opening operation
- Light action
- Faston terminals 2.8 x 0.5mm
- 1NO+1NC contacts

Switching Capacity 6A @ 230VAC  
Contact Resistance <30mohm  
Operating Temperature -25 to 55°C  
IP Rating IP40

Cap dia 40mm, panel cut-out 22.5mm

347665/405524

Mfrs. List No.	Order Code	1+	5+	10+
TH885503691	777-1860			



## 16mm - Sealed

Emergency Stop Switch



Dia. = 42mm,  
Cut Out = 16mm

- Emergency stop
- Push to operate, twist to reset
- Supplied with Snap On, 2 x NC/NO contact block
- High actuation force to prevent inadvertent operation
- Quick Connect/Solder terminals
- Complete with terminal cover and self adhesive "EMERGENCY STOP" disc
- Plain and Illuminated versions available

Dia. - Button = 28mm, Cut Out = 16mm  
Length O/A = 73.4mm  
Panel Thickness = 5mm (Max.)

Contact rating 5A @ 250VAC  
Panel Thickness 0.5 to 5mm

Protection IP65  
Operating temperature -40 to 70°C

511687

Type	Mfrs. List No.	Order Code	1+	10+	25+
Blade Terminals	MCADA16E6-R11-B10R	160-6957			
12V, LED Illum	MCADA16E6-R11-B1JR	160-6958			
24V, LED Illum	MCADA16E6-R11-B1KR	160-6959			
110V, Neon Illum	MCADA16E6-R11-B1FR	160-6960			
240V, Neon Illum	MCADA16E6-R11-B1GR	160-6961			



## Sealed Emergency Stop Switch to EN 418

Panel Cut-out 16.2mm



- Mushroom cap, 27mm diameter
- Rotary reset
- Faston terminals 2.8 x 0.5mm
- Two normally closed terminals

Switching Capacity 6A @ 230VAC  
Contact Resistance <30mohm  
Operating Temperature -25 to 55°C  
IP Rating IP66

347669/405526

Mfrs. List No.	Order Code	1+	10+	25+	50+
TH880204691	777-1851				



## Standard 16mm

Emergency Stop Switch



- Emergency stop
- Supplied with integral NO /NC switch block
- Prominent 24 mm diameter red mushroom actuator
- Push to operate, twist to reset

Dia. - Button = 24mm, Cut Out = 16mm  
Panel Thickness = 5mm (Max.)

Contact rating - PCB Pin Model @ 5A @ 250VAC  
Contact rating - Blade Terminal Model

Panel Thickness 0.5 to 5mm  
Operating temperature -40 to 70°C

511642

Terminal Type	Mfrs. List No.	Order Code	1+	10+	25+	50+
Blade	MCOS38008	160-6956				

## E-Stop Push Button Switches



- 16 mm dia. mounting hole
- Push to operate, twist to reset
- Visible actuation status
- Choice of connection methods: solder, faston or PCB mount
- Protected to IP65 from the front



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# Industrial Push Button Switches - continued

## E-Stop Push Button Switches - continued

Contact Rating Solder: 5 VAC/DC @ 1 mA min., 250 VAC/DC @ 5 A max.  
Faston: 5 VAC/DC @ 1 mA min., 250 VAC/DC @ 5 A max.  
PCB: 100  $\mu$ V/10  $\mu$ A min., 42 VAC/DC @ 100 mA max.  
100000 cycles

Operating life 100000 cycles

Operating Temperature -25°C to 55°C

Actuating force 4 to 6N (depending on the switching element)

Housing Material Polyamide, Thermoplastic elastomer

Contact Material Solder: Gold Plated Silver  
Faston: Gold Plated Silver  
PCB: Gold Plated

627796

Mfrs.	Contact	Termination	Order Code	1+	10+	25+	50+
51-256.025	1NC / 1NO	Solder	188-9176				
51-259.025	2NC / 2NO	Solder	188-9177				
51-253.022	1NC / 1NO	Faston	188-9178				
51-253.026	1NC / 1NO	PCB	188-9179				

## Illuminated E-Stop Push Button

3A @ 120V ac, 1.5A @ 240V ac



Button dia = 32, cutout = 22.3,  
depth below panel = 18 (inc terminals),  
13.5 (ribbon cable version)

- 32mm button size
- Compatible with all 84 series range
- Yellow ring bezel available as accessories
- IP65 sealed
- Manufactured to EN60947-1, EN60947-5-1, EN60947-5-5, EN 418, DIN EN 60204-1

Contact rating 0.22A @ 120V dc max.  
Operating temperature -25°C to +85°C  
Operating life >50000 operations  
Peak rated voltage 2.5 kV  
LED supply voltage 5 - 30 Vdc  
Contact material Gold plate on silver

347729/405528

Termination	Mfrs. List No.	Order Code	1+	5+	10+
<b>Non-illuminated</b>					
Solder terminals	84-5030.0020	134-6927			
Ribbon cable	84-5030.0040	134-6928			
<b>Illuminated</b>					
Solder terminals	84-5031.2B20	134-6929			
Ribbon cable	84-5031.2B40	134-6930			
<b>Accessories</b>					
Yellow Ring Bezel	44-950	772-8000			



- Stainless steel body
- Front panel sealed to IP66
- Dot and ring illumination
- Integral supply resistors for 6, 12 & 24V
- Red, Green & Blue illumination
- Bright daylight LED's
- Tactile feel
- Screw or 2.8mm tag termination
- Internal TVS protection

Contacts SPST-NO

Switch rating 50mA @ 24V dc

LED (ratings @ 20mA)

Colours Red Green Blue

Lum. Intensity 900mcd 2500mcd 1500mcd

Fwd Voltage 1.85V 3.5V 3.5V

Contact resistance 100mohm

Insulation resistance

Temperature range -30°C to 70°C

605505

Mfrs.	Colour	Voltage	Termination	Order Code	1+	10+	25+	50+
<b>Dot Illumination</b>								
MPI001/28/RD/6	Red	6V	Solder Tags	181-2227				
MPI001/28/GN/6	Green	6V	Solder Tags	181-2228				
MPI001/28/BL/6	Blue	6V	Solder Tags	181-2229				
MPI001/28/GN/12	Green	12V	Solder Tags	181-2231				
MPI001/TE/RD/6	Red	6V	Screw	181-2237				
MPI001/TE/RD/12	Red	12V	Screw	181-2240				
MPI001/TE/GN/12	Green	12V	Screw	181-2241				
MPI001/TE/GN/24	Green	24V	Screw	181-2244				

Mfrs.	Colour	Voltage	Termination	Order Code	1+	10+	25+	50+
<b>Ring Illumination</b>								
MPI002/28/RD/6	Red	6V	Solder Tags	181-2247				
MPI002/28/GN/6	Green	6V	Solder Tags	181-2248				
MPI002/28/BL/6	Blue	6V	Solder Tags	181-2249				
MPI002/28/RD/12	Red	12V	Solder Tags	181-2250				
MPI002/28/GN/12	Green	12V	Solder Tags	181-2251				
MPI002/28/BL/12	Blue	12V	Solder Tags	181-2252				
MPI002/28/GN/24	Green	24V	Solder Tags	181-2254				
MPI002/28/BL/24	Blue	24V	Solder Tags	181-2255				
MPI002/TE/BL/6	Blue	6V	Screw	181-2259				
MPI002/TE/RD/12	Red	12V	Screw	181-2260				
MPI002/TE/GN/12	Green	12V	Screw	181-2261				
MPI002/TE/BL/12	Blue	12V	Screw	181-2262				
MPI002/TE/RD/24	Red	24V	Screw	181-2263				
MPI002/TE/GN/24	Green	24V	Screw	181-2264				
MPI002/TE/BL/24	Blue	24V	Screw	181-2265				

## Vandal Resistant Switches

### Vandal Resistant - IP65



**NEW**



- Three actuator styles available
- 25.4mm bezel diameter
- M19 panel hole
- Depth behind panel 26.2mm
- Maximum panel thickness 10mm
- Single Pole Momentary action
- Stainless steel

Terminals Screw

Contact Material Silver Alloy

Contact Rating 2A @ 36VDC

Contact Resistance 50mohm

Operations - Electrical 200000

Contact resistance 50mohm

Insulation resistance 2000V

Dielectric Strength 2000V

Operating Temperature -20°C to 55°C

Operating Force 4N

616523

Mfrs. List No.	Actuator Style	Order Code	1+	10+	25+	100+	250+
AV01-B22-M1-F-IP65	Flat	184-3022					
AV01-B22-M1-R-IP65	Raised	184-3024					
AV01-B22-M1-IP65	Curved	184-3025					

### Illuminated - Vandal Resistant - IP66 - with integral resistors

50mA @ 24V dc

**NEW**

Screw Terminal  
L=31.0, Bezel=22.0 dia, Panel cut-out=19.2mm



2.8 Solder Tag  
L=32.7, Bezel=22.0dia, Panel cut-out=19.2mm

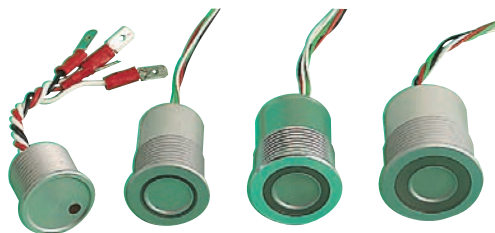
Screw Terminal  
L=31.0, Bezel=22.0 dia, Panel cut-out=19.2mm



2.8 Solder Tag  
L=32.7, Bezel=22.0dia, Panel cut-out=19.2mm

## Vandal-Proof Piezo Switches

SPNO illuminated



M22 M27 M30 M24

- Vandal resistant
- Switch has no moving parts
- High reliability

- Sealed to IP67
- LED illumination

Switch Types M22 1241.3020.M M24 1241.3010 M27 1241.3011 M30 1241.3012

Connector type Leads, 200mm length Leads, 200mm length Leads, 200mm length

FASTON terminated leads, 90mm o/a length

Illumination Point illuminated, red 24V led Ring illuminated, red/green 24V led's Ring illuminated, red/green 24V led's Ring illuminated, red/green 24V led's

Voltage, switching dc max. 60

Voltage, switching ac max. 42

Current, switching max. 0.1

Capacity, breaking max. 1W

Life, at breaking capacity 50≥Cycles

Resistance, isolation >

Resistance, initial contact <20ohm

Capacitance 30pF

Current, led (I) 2.0mA

Temperature, operating -2060°C to °C

Force, operating min. 1.53N

Travel (contact) 0.002mm

248883

Mfrs.	Order Code	1+	10+	50+
1241.3020.M	979-3763			
1241.3010	979-3739			
1241.3011	979-3747			
1241.3012	979-3755			

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## Vandal-Proof Piezo Switches



### SPNO



- High reliability
- Sealed to IP67
- Vandal resistant
- Switch has no moving parts

#### Switch Types

	General	Prolonged signal
Voltage, switching dc max.	60	60
Voltage, switching ac max.	42	42
Current, switching max.	0.1	2.6
Capacity, breaking max.	1W	15.6W
Life, at breaking capacity	20000000≥Cycles	≥20000000Cycles
Resistance, isolation (OFF = not actuated)	>	>
Resistance, initial contact (ON = actuated)	<20ohm	<20ohm
Capacitance	30pF	30pF
Temperature, operating	-2060°C to °C	
Force, operating min.	1.53 to N (4.25N for mechanical stroke version)	
Travel (contact)	0.002mm	

#### Price Each

Colour	Mfrs. List No.	Order Code	1+	10+	50+
<b>M16 Plastic Housing</b>					
Pin Terminals, <b>General</b>					
Natural	1241.2352	979-3658			
<b>M16 Aluminum Housing</b>					
Pin Terminals, <b>General</b>					
Red	1241.2411.3	979-3666			
Green	1241.2411.5	979-3674			
Natural	1241.2411.8	979-3682			
Black	1241.2411.7	NEW 208-2868			
<b>M16 Aluminum Housing</b>					
Faston-Terminals, <b>Prolonged signal</b>					
Natural	1241.2434.8	979-3690			
<b>M16 Aluminum Housing</b>					
Faston-terminated 200mm leads, <b>General</b>					
Natural	1241.3003	979-3712			
<b>M19 Aluminum Housing</b>					
Faston-terminated leads, <b>General</b>					
Silver	1241.5003	NEW 208-2870			
<b>M22 Aluminum Housing</b>					
Pin Terminals, <b>General</b>					
Natural	1241.3008	979-3720			

## Vandal-Proof Stainless Steel Switches



### DPDT, mechanical stroke, M19 and M22



Standard

Point Illumination

Ring Illumination

Both the housing and the actuator of this range of MSM, vandal-proof switches are made of high-quality stainless steel. This robust construction method enables the switches to be used in harsh environments. There are two mounting diameters available, 19mm and 22mm. The switch is equipped with two separate switching contacts which are available as normally open, normally closed or as change-over. These MSM switches are supplied with flat-pin plugs to permit fast and simple connection. The cables are plugged onto the microswitch which is subsequently plugged onto the previously mounted housing assembly. Point and ring illuminated versions are available for applications in low-light conditions or for optical status indication. The switches are delivered complete with fixing nut, gasket and microswitch.

Switch action	Off-(On)	Temperature, operating	-25°C to 85°C
Contact Rating - ac	3A @	Force, operating min.	5N
Contact Rating - ac	5A @ 125V	Travel (contact)	1mm
Capacity, breaking max.	1250W	Protection class	IP40
Life, at breaking capacity	200,000		

522718

Illumination	Mfrs. List No.	Order Code	1+	25+	100+	250+
<b>M19 Mounting - M22 Button diameter</b>						
None	1241.6921.1120000	163-7583				
Point / Red	1241.6923.1121000	163-7584				
Point / Green	1241.6923.1122000	163-7585				
Point / Blue	1241.6923.1124000	163-7586				
Ring / Red	1241.6924.1121000	163-7588				
Ring / Green	1241.6924.1122000	163-7589				
Ring / Blue	1241.6924.1124000	163-7590				

Illumination	Mfrs. List No.	Order Code	1+	25+	100+	250+
<b>M22 Mounting - M25 Button diameter</b>						
None	1241.6831.1120000	163-7579				
Point / Red	1241.6834.1121000	163-7580				
Point / Green	1241.6834.1122000	163-7581				
Point / Blue	1241.6834.1124000	163-7582				
Ring / Red	1241.6934.1121000	163-7595				
Ring / Red	1241.6833.1121000	NEW 208-2884				
Ring / Green	1241.6934.1122000	163-7596				
Ring / Blue	1241.6934.1124000	163-7597				
Ring / Blue	1241.6833.1124000	NEW 208-2885				

## SPNO Momentary

### 200mA @ 48V dc 'Vandal Resistant', Screw Terminals



- Three options available, curved actuator, flat actuator, curved actuator with chamfer
- Robust stainless steel construction
- Screw terminal connections
- Sealed to IP54

Insulation Resistance	MR min./500V dc
Contact Resistance	50mR max.
Operating Temperature	-20°C to +55°C
Mechanical Life	1000000 ops

Mfrs. List No.	AV1630C940=108-2435
	AV0630C940=108-2430
	AV0830C940=108-2431

L=23.8, Dia=18.0,  
Depth behind panel=20.7  
Max panel thickness=6.0,  
Panel cut-out=16.2

SW269/213231

	Order Code	1+	25+	100+	250+
Curved Actuator	108-2435				
Flat Actuator	108-2430				
Curved Actuator with Chamfer	108-2431				

## 'Vandal Resistant' - IP67



### 10A @ 250V ac



**15mm Button:** L = 33.5, Dia. = 21.5, Depth behind panel = 31.0  
Max. panel thickness = 8.0, Panel cut-out = 19.25 dia.

**19mm Button:** Max. panel thickness = 2.5, Panel cut-out = 22.5 dia.  
L = 29.0, Dia. = 27.0, Depth behind panel = 25.7

**25mm Button:** L = 35.0, Dia. = 43.0, Depth behind panel = 32.5  
Max. panel thickness = 3.0, Panel cut-out = 30.1 dia.

- Logic-level switching
- Panel sealed to IP67
- Form Z contacts to cover all switching needs
- Wide temperature range
- Microswitch Action
- Solder terminals
- Front and rear mounting versions

Switch rating	5A max. (resistive), 24V dc	Insulation resistance	MΩ min
Contact resistance	25mΩ max.	Temperature range	-30°C to +105°C

Mfrs. List Nos:

76-9510/4044	= 438-9463	76-9512/4044	= 438-9487
76-9511/4044	= 438-9475		

273292

Button Dia.	Order Code	1+	10+	25+	100+
15mm	438-9463				
19mm	438-9475				
25mm	438-9487				

## SPNO and SPNC Momentary

### 10mA @ 5V dc, 10A @ 250V ac IP67 Sealed



- Vandal resistant
- Attractively machined in stainless steel, available in six colours
- Low profile bezel protrudes only 2.5mm
- Solder terminals
- Panel sealed to IP67

# Vandal Resistant Switches - continued

## SPNO and SPNC Momentary - continued

10mA @ 5V dc, 10A @ 250V ac IP67 Sealed - continued

Bezel dia=21.5, D(behind panel)=31,  
Panel cut-out dia = 19.25

Contacts	Silver	Insulation resistance	500000 ops
Contact resistance	25mR	Electrical life	-30°C to +105°C
Dielectric strength	1kV ac	Operating temperature	

311643

Colour	Order Code	Price Each			
		1+	25+	100+	100+
Red	443-4468				
Green	443-4470				
Black	443-4481				
Gold	443-4493				
Blue	443-4500				
Purple	443-4511				

## Vandal Resistant - Stainless Steel

2A @ 50V ac/dc



MPL031 - 21.5mm

L=31.6, Dia=21.5, Depth behind panel=30.0  
Max. panel thickness=7.1, Panel cut-out=19.2



MPL038 - 27.8mm

Max. panel thickness=4.0, Panel cut-out=25.8  
L=26.8, Dia=27.8, Depth behind panel= 25.2

- Low profile
- Robust stainless steel construction
- Solder tag terminations
- Panel sealed versions

Terminals	Solder	Operations - Electrical	8000 (Min.)
Contact Material	Silver	Contact resistance	10mohm
Switch Rating	2A @ 50V ac/dc	Insulation resistance	
Contact Resistance	10mohm	Dielectric Strength	2000VAC
Operations - Mechanical	8000 (Min.)	Operating Temperature	-20°C to 70°C

542228

Mfrs. List No.	Order Code	Price Each				
		1+	10+	50+	100+	250+
<b>Dia 21.5mm</b>						
Sealed to IP66	MPL031	174-0292				
<b>Dia 27.8mm</b>						
Sealed to IP66	MPL038	174-0293				

## Vandal Resistant - Stainless Steel

5A @ 250V ac



- Sealed to IP68
- 32mm bezel diameter
- 27.18mm panel hole
- Depth behind panel 30.5mm
- Maximum panel thickness 5.7mm
- Momentary action
- Polished stainless steel

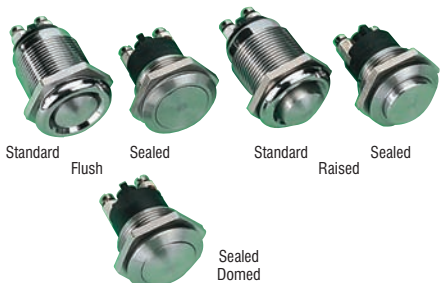
Terminals	Solder	Operations - Electrical	35000 (Min.)
Contact Material	Silver	Contact resistance	10mohm
Switch Rating	5A @ 250V ac/dc	Insulation resistance	
Contact Resistance	10mohm	Dielectric Strength	2000VAC
Operations - Mechanical	1000000 (Min.)	Operating Temperature	-20°C to 70°C

542243

Mfrs. List No.	Actuator Style	Order Code	Price Each				
			1+	10+	50+	100+	250+
MP0050	Flush	174-0294					
MP0050/2	Raised	174-0296					

## SPNO Momentary

1A @ 50V dc 'Vandal Resistant', Screw Terminals



Standard Flush Sealed Standard Raised Sealed

Sealed Domed

Sealed  
L=28.4, Dia=21.5, Depth behind panel=25.3  
Max panel thickness=4.0, Panel cut-out=19.2

Standard  
L=36.0, Dia=22.1, Depth behind panel=33.0  
Max panel thickness=15.0, Panel cut-out=19.2

- Stainless steel button, chromium plated brass body
- Available with flush or raised actuators
- Screw terminal connections for ease of wiring, particularly servicing
- Sealed low profile versions are both panel and barrier sealed to IP66

Insulation Resistance	MR	Contacts	Silver
Dielectric Strength	2.5kV ac -20°C/85°C	Operating Temperature	-20°C to +85°C (150-379) -20°C to +70°C (560-431)

Mfrs. List No.	MP0013=150-379 MP0037=560-431	MP0013/2=311-4594 MP0037/2=311-4648	MP0037/3=324-8835
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SW145/213108

Flush Actuator	Order Code	Price Each			
		1+	25+	100+	250+
Standard	150-379				
Sealed, low profile	560-431				
<b>Raised Actuator</b>					
Standard	311-4594				
Sealed, low profile	311-4648				
<b>Domed Actuator</b>					
Sealed, low profile	324-8835				

## Vandal Resistant - Stainless Steel

2A @ 48V dc



- Three actuator styles available
- 18mm bezel diameter
- 16mm panel hole
- Depth behind panel 20.3mm

- Maximum panel thickness 6mm
- Single Pole Momentary action
- Polished stainless steel

Terminals	Silver	Operations - Electrical	100000 (Min.)
Contact Material	@	Contact resistance	50mohm
Switch Rating		Insulation resistance	
Contact Resistance	50mohm Max.	Dielectric Strength	2000VAC (Min.)
Operations - Mechanical	1000000 (Min.)	Operating Temperature	-20°C to 55°C

458426

Mfrs. List No.	Actuator Style	Order Code	Price Each			
			1+	10+	50+	100+
MP0042/1	Flush Profile	133-1987				
MP0042/2	Domed Profile	133-1988				
MP0042/3	Prominent Button	133-1989				

## Vandal Resistant - Stainless Steel

3A @ 250V ac



- Two actuator styles available
- 18mm bezel diameter
- 16mm panel hole
- Depth behind panel 36.5mm

- Maximum panel thickness 10mm
- Momentary and Latching action versions available
- Polished stainless steel

Terminals	Silver	Operations - Electrical	30000 (Min.)
Contact Material	3A @	Contact resistance	50mohm
Switch Rating		Insulation resistance	
Contact Resistance	50mohm Max.	Dielectric Strength	2000VAC (Min.)
Operations - Mechanical	200000 (Min.)	Operating Temperature	-20°C to 55°C

458435

Mfrs. List No.	Actuator Style	Order Code	Price Each			
			1+	10+	50+	100+
<b>DPDT-CO - DPDT-CO</b>						
MP0045/1DONN000	Low Profile	133-1990				
MP0045/3DONN000	Prominent Button	133-1992				
<b>DPDT-CO - DPDT-CO</b>						
MP0045/1EONN000	Low Profile	133-1993				
MP0045/3EONN000	Prominent Button	133-1994				

## Vandal Resistant - Stainless Steel

3A @ 250V ac - LED Illuminated



- Two illumination styles available
- Separate LED terminals
- LED supply voltage 12V dc
- 18mm bezel diameter
- 16mm panel hole

- Depth behind panel 36.5mm
- Maximum panel thickness 10mm
- Latching action
- Polished stainless steel

Terminals		Operations - Electrical	30000 (Min.)
Contact Material	Silver	Contact resistance	50mohm
Switch Rating	3A @	Insulation resistance	
Contact Resistance	50mohm Max.	Dielectric Strength	2000VAC (Min.)
Operations - Mechanical	200000 (Min.)	Operating Temperature	-30°C to 55°C

458441

Mfrs. List No.	Colour	Order Code	1+	10+	50+	100+
<b>DPDT-CO - Dot Illuminated</b>						
MP0045/1E1RD012	Red	133-1995				
MP0045/1E1GN012	Green	133-1996				
MP0045/1E1BL012	Blue	133-1997				
<b>DPDT-CO - Ring Illuminated</b>						
MP0045/1E2RD012	Red	133-1998				
MP0045/1E2GN012	Green	133-1999				
MP0045/1E2BL012	Blue	133-2000				

### SPNO/SPNC Momentary - Low Profile 5A @ 250V ac, 'Vandal Resistant', Solder Tags



21.5mm

L=33.2, Dia=21.5, Depth behind panel=31.6  
Max. panel thickness=7.1, Panel cut-out=19.2

Raised

27.8mm

L=27.6, Dia=27.8, Depth behind panel=26.0  
Max. panel thickness=4.0, Panel cut-out=25.8

- Low profile
- Solder tag terminations
- Robust stainless steel construction
- Available with flush and raised actuator options
- Sealed versions are both panel and barrier sealed to **IP66**

Insulation Resistance	MR	Contacts	Silver
Dielectric Strength	2kV ac	Operating Temperature	-20°C to +70°C
Mfrs. List No.	MP0031=152-253	MP0027=519-297	MP0038/2=311-4650
	MP0031/2=311-4624	MP0038=733-799	MP0027/3=324-8823
	MP0031/3=324-8811	MP0027/2=311-4612	MP0038/3=324-8847

SW180/213143

Order Code	1+	25+	100+	250+
<b>Dia. 21.5mm - Flush Actuator</b>				
Sealed	152-253			
<b>Dia. 21.5mm - Raised Actuator</b>				
Sealed	311-4624			
<b>Dia. 21.5mm - Domed Actuator</b>				
Sealed	324-8811			
<b>Dia 27.8mm - Flush Actuator</b>				
Non-Sealed	519-297			
Sealed	733-799			
<b>Dia 27.8mm - Raised Actuator</b>				
Non-Sealed	311-4612			
Sealed	311-4650			
<b>Dia. 27.8mm - Domed Actuator</b>				
Non-Sealed	324-8823			
Sealed	324-8847			

### Vandal Resistant - Brass, Chrome Plated



MPB 031, MPB 037, MPB 038

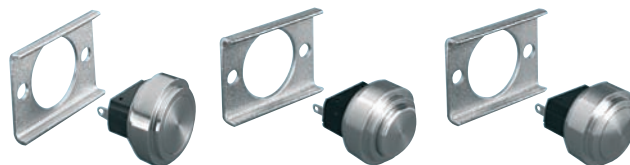
- Low cost
- Front panel sealed
- Shock resistant
- Single Pole switches
- Tactile feel
- Choice of screw or solder tag termination

Mfrs. List No.	MPB031	MPB038	MPB037
Terminations	Solder Tags	Solder Tags	Screw
Contacts	Off-(On) momentary action	Off-(On) push to make	Off-(On) push to make
Switch rating	5A @ 250V ac	5A @ 250V ac	1A @ 50V ac
Panel Hole Dia.	19.2mm	25.8mm	19.2mm
Contact resistance	10mohm	10mohm	10mohm
Insulation resistance			
Temperature range	-20°C to 70°C	-20°C to 70°C	-20°C to 70°C

242035

Front Panel	Mfrs.	Order Code	1+	25+	100+	250+
Sealed to:	List No.					
IP66	MPB031	421-2277				
IP66	MPB038	421-2290				
IP68	MPB037	421-2289				

### SPNO and SPNC Momentary-Flush Mounting 5A @ 250V ac, Vandal Resistant



- Flush mounting
- Solder tag terminations
- Robust stainless steel construction
- Supplied with rear panel mounting bracket

Insulation Resistance	MR	Contacts	Silver
Dielectric Strength	2kV ac	Operating Temperature	-20°C to +70°C
Mfrs. List No.	MP0025=238-193	MP0034=519-303	

SW197/213161

Dia.	Order Code	1+	25+	100+	250+
<b>Flush Actuator</b>					
27mm	238-193				
20mm	519-303				

### SPDT Momentary and Latching 15A @ 250V ac



Round bezel

Rectangular bezel

Vandal resist,  
stainless steel

Switch body H=31.6, W=15.0, D=43.0, Tabs=6.3 x 0.8  
Panel cut-out=12.7 (19 for vandal resist), Max panel thickness=5.0  
Round bezel=22.0 dia, H=10.9, Rectangular bezel=23.9 x 20.1, H=10.9, Vandal resist=21.5 dia

- Round style has button slightly recessed in metal bezel
- Rectangular style has black plastic bezel
- Round style available with latching action
- Vandal resist style has stainless steel actuator and surround, sealed to **IP66**
- Approved to **BEAB, VDE, SEMKO, DEMKO, NEMKO, KEMA, UL** recognised
- Choice of coloured buttons

Contact resistance	<10mR	Mechanical life	10000000 ops
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Mfrs. List No.

Round bezel, momentary = C0911KB + colour  
Rectangular bezel = C0911RB + colour  
Round bezel, latching = C0910KB + colour  
Vandal resist = C0911VAAA

213165

Colour	Order Code	1+	25+	100+	250+	500+
<b>Momentary, Round Metal Bezel</b>						
Black	242-731					
Green	242-743					
Red	242-755					
<b>Momentary, Rectangular Plastic Bezel</b>						
Green	242-779					
Red	242-780					
<b>Momentary, Vandal Resist Stainless Steel</b>						
	480-400					



### Vandal Resistant - 8300 Series

16(4)A @ 250V ac/8(8)A @ 250V ac - ENEC



- Approved to **ENEC** and **CSA, UL** recognised
- Robust stainless steel 'Vandal Resist' button
- Front panel sealed to IP66
- Choice of latching or momentary action
- Double pole

Bezel (dia.) = 21.5, Panel cut-out (dia.) = 19.2, Tabs = 4.8 x 0.8, Max panel thickness = 6.0

Insulation Resistance	>MR	Operating Temp	0°C to +85°C
Contact Resistance	100mR	Contact Gap	3.0mm
Electrical Life	10000 ops	Mechanical Life	50000 ops
Mfrs. List No.	H8350RPAAA=767-4228	H8351RPAAA=767-4236	347648

Order Code	Price Each				
	1+	25+	100+	250+	500+
DPST	767-4228				
DPST	767-4236				

### Vandal Resistant - IP66

50mA @ 24V dc



L(Tab) = 32.7mm, Bezel = 22mm dia., Panel cut-out - 19.2mm  
 L(Screw) = 31.0mm, Bezel = 22mm dia., Panel cut-out - 19.2mm

- Stainless steel body
- Front panel sealed to **IP66**
- Dot and ring illumination styles, choice of illumination colours.
- Bright daylight LED's
- Momentary action, tactile feel
- Choice of screw or 2.8mm tab termination

Contacts	SPST-NO	LED intensity	Amber 220 mcd
Switch rating	50mA @ 24V dc	LED intensity	White 900mcd
LED Rating	1.85V dc, 20mA	Contact resistance	100mohm
LED intensity	Red 900mcd	Insulation resistance	
LED intensity	Green 1500mcd	Temperature range	-30°C to +70°C
LED intensity	Blue 1500mcd		

Colour	Mfrs. List No.	Price Each				
Illumination		Order Code	1+	25+	100+	250+
<b>Dot Illumination</b>						
Red Connector	MPI001/28/RD	324-8859				
Amber Connector	MPI001/28/AM	765-9008				
Green Connector	MPI001/28/GN	324-8860				
White Connector	MPI001/28/WH	145-4955				
Red Screw	MPI001/TERM/RD	324-8872				
Green Screw	MPI001/TERM/GN	324-8884				
Blue Screw	MPI001/TERM/BL	430-3064				
<b>Ring Illumination</b>						
Red Connector	MPI002/28/RD	324-8896				
Amber Connector	MPI002/28/AM	765-9024				
Green Connector	MPI002/28/GN	324-8902				
Blue Connector	MPI002/28/BL	430-3076				
White Connector	MPI002/28/WH	145-4958				
Red Screw	MPI002/TERM/RD	324-8914				
Amber Screw	MPI002/TERM/AM	733-7024				
Green Screw	MPI002/TERM/GN	324-8926				
Blue Screw	MPI002/TERM/BL	430-3088				
White Screw	MPI002/TERM/WH	145-4959				

### Illuminated - Dual Colour - Vandal Resistant - IP66

50mA @ 24V dc



L(Tabs) = 31.0mm, Bezel = 22mm dia., Panel cut-out - 19.2mm  
 L(Screw) = 32.7mm, Bezel = 22mm dia., Panel cut-out - 19.2mm

- Stainless steel body
- Front panel sealed to **IP66**
- Dot and ring, dual colour illumination
- Bright daylight LED's
- Momentary action, tactile feel
- Choice of screw or 2.8mm tab termination

Contacts	SPST-NO	Contact resistance	100mohm
Switch rating	50mA @ 24V	Insulation resistance	

LED Rating	@ 20mA	LED intensity - Red / Blue	2000 / 850mcd
LED intensity - Red / Green	2500mcd / 5000mcd	LED intensity - Blue / Green	2000 / 4000mcd
		Temperature range	-30°C to +70°C

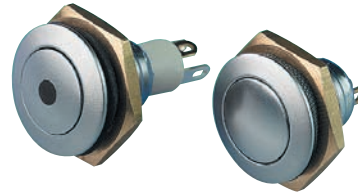
  

Colour LED - Termination	Mfrs. List No.	Order Code	1+	25+	100+	Price Each
<b>Dot Illumination</b>						
Red / Green - Connector	MPI001/28/D1	145-4941				
Blue / Green - Connector	MPI001/28/D5	145-4943				
Red / Green - Screw	MPI001/TERM/D1	145-4944				
Red / Blue - Screw	MPI001/TERM/D4	145-4945				
Blue / Green - Screw	MPI001/TERM/D5	145-4946				
<b>Ring Illumination</b>						
Red / Green - Connector	MPI002/28/D1	145-4947				
Red / Blue - Connector	MPI002/28/D4	145-4949				
Blue / Green - Connector	MPI002/28/D5	145-4951				
Red / Green - Screw	MPI002/TERM/D1	145-4952				
Red / Blue - Screw	MPI002/TERM/D4	145-4953				
Blue / Green - Screw	MPI002/TERM/D5	145-4954				

### 'Miniature Vandal Resistant' - IP67



Illuminated and Non-Illuminated - 400mA @ 32V ac



Non-Illuminated: L = 20.45, Dia. = 18.5, Depth behind panel = 18.0  
 Illuminated: L = 30.45, Dia. = 18.5, Depth behind panel = 28.0  
 Max. panel thickness = 3.0, Panel cut-out = 16.1 x 14.75

- Logic-level switching
- Panel sealed to **IP67**
- Status illumination option
- Wide temperature range (up to 125°C)
- Solder terminals
- Gold contacts
- Momentary action

Switch rating	100mA max. (resistive), 24V dc	Insulation resistance	MΩ min
LED (illuminated types)	2.1V @ 10mA, red or green	Temperature range	-40°C to +85°C
Contact resistance	50mΩ initial		
Mfrs. List No.	57-111 = 438-9396 57-112G = 438-9402 57-112R = 438-9414		273212

Order Code	Price Each			
	1+	10+	25+	100+
<b>Non-Illuminated</b>				
	438-9396			
<b>Illuminated</b>				
Green	438-9402			
Red	438-9414			

### 'Vandal Resistant' - IP67



Illuminated and Non-Illuminated - 400mA @ 32V ac



Non-Illuminated: L = 19.5, Dia. = 21.5, Depth behind panel = 17.5  
 Max. panel thickness = 6.0, Panel cut-out = 19.25  
 Illuminated: L = 29.0, Dia. = 21.5, Depth behind panel = 27.0

- Machined stainless steel
- Panel sealed to **IP67**
- Non-rotating button
- Status illumination option
- Wide operating temperature range
- Solder terminals
- Gold contacts
- Momentary action

Switch rating	100mA max. (resistive), 24V dc	Insulation resistance	MΩ min
LED (red/green)	2.1V @ 10mA	Temperature range	-30°C to +85°C (non-illuminated)
LED (blue)	3.8V @ 20mA	Temperature range	-30°C to +85°C (non-illuminated)
Contact resistance	50mΩ max.		
Mfrs. List No.	76-5910 = 438-9426 76-5910G = 438-9438 76-5910R = 438-9440 76-5910B = 438-9451		273291

Order Code	Price Each			
	1+	10+	25+	100+
<b>Non-Illuminated</b>				
	438-9426			
<b>Illuminated</b>				
Green	438-9438			
Red	438-9440			
Blue	438-9451			

## Vandal-Proof Stainless Steel Switches

SPDT, mechanical stroke, M19 and M22



Standard Point Illumination Ring Illumination

Both the housing and the actuator of this range of MSM, vandal-proof switches are made of high-quality stainless steel. This robust construction method enables the switches to be used in harsh environments. There are two mounting diameters available, 19mm and 22mm. The MSM switches are equipped with flat-pin plugs to permit fast and simple connection. The cables are plugged onto the microswitch which is subsequently plugged onto the previously mounted switch. Point and ring illuminated versions are available for applications in low-light conditions or for optical state indication. The switches are delivered complete with fixing nut, gasket and microswitch

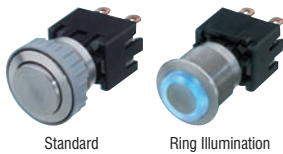
Switch action	Off-(On)	Temperature, operating	-25°C to 85°C
Contact voltage, max.	3A @	Force, operating min.	4.5N
Contact current, max.	5A @ 125V	Travel (contact)	1mm
Capacity, breaking max.	1250W	Protection class	IP40
Life, at breaking capacity 200,000 Operations @ Max. breaking capacity			

522462

Illumination Type/Colour	Mfrs. List No.	Order Code	Price Each			
			1+	25+	100+	250+
<b>M16 Mounting - M19 Button diameter</b>						
None	1241.6611.1130000	NEW 208-2872				
<b>M19 Mounting - M22 Button diameter</b>						
None	1241.6621.1120000	163-7559				
None	1241.6621.1180000	NEW 208-2873				
Point / Blue	1241.6623.1124000	163-7562				
Ring / Red	1241.6624.1121000	163-7564				
Ring / Red	1241.6624.1131000	NEW 208-2874				
Ring / Red	1241.6624.1181000	NEW 208-2876				
Ring / Green	1241.6624.1122000	163-7565				
Ring / Green	1241.6624.1132000	NEW 208-2875				
<b>M22 Mounting - M25 Button diameter</b>						
None	1241.6631.1130000	NEW 208-2877				
None	1241.6631.1180000	NEW 208-2878				
Point / Blue	1241.6633.1124000	163-7570				
Ring / Red	1241.6634.1121000	163-7571				
Ring / Red	1241.6634.1131000	NEW 208-2879				
Ring / Red	1241.6634.1181000	NEW 208-2881				
Ring / Green	1241.6634.1122000	163-7572				
Ring / Green	1241.6634.1132000	NEW 208-2880				
Ring / Blue	1241.6634.1124000	163-7573				
<b>M30 Mounting - M36 Button diameter</b>						
Ring / Blue	1241.6664.1124000	NEW 208-2882				

## Vandal-Proof Stainless Steel Switches

DPST, mechanical stroke, M19 and M22



Standard Ring Illumination

Both the housing and the actuator of this range of MSM, vandal-proof switches are made of high-quality stainless steel. This robust construction method enables the switches to be used in harsh environments. These MSM switches are equipped with Quick Connect terminals to permit fast and simple connection. The cables are plugged onto the microswitch which

is subsequently plugged onto the previously mounted housing assembly. Point and ring illuminated versions are available for applications in low-light conditions or for optical state indication. The switches are delivered complete with fixing nut, gasket and microswitch

Switch action		Temperature, operating	-20°C to 85°C
Contact Rating - ac	12A @	Force, operating min.	10N
Contact Rating - dc	0.1A @	Travel (contact)	4.5mm
Capacity, breaking max.	3000W	Protection class	
Life, at breaking capacity 50,000 Operations @ 8A / 250V ac			

522482

Illumination Ring Colour	Mfrs. List No.	Order Code	Price Each			
			1+	25+	100+	250+
<b>M19 Mounting - M22 Button diameter</b>						
None	1241.6821.1120000	163-7574				
Red	1241.6824.1121000	163-7576				
Green	1241.6824.1122000	163-7577				
Blue	1241.6824.1124000	163-7578				

### IMPROVED BACK ORDER DELIVERY

Receive email updates with the exact status, due date and despatch information of all your back order items [farnell.com](http://www.farnell.com)

## 'Vandal Resistant' - IP65

Illuminated and Non-Illuminated - 50mA @ 24V dc



L = 23.8, Dia. = 22.0, Depth behind panel = 21.6  
Max. panel thickness = 10.5, Panel cut-out = 19.2  
Connections : Switch = 1,2, LED = +, - (illuminated types)

- Vandal resistant, low profile
- Robust stainless steel bushing and plunger, sealed to IP65
- Available LED illuminated red or green, or non-illuminated
- Gold plated contacts for low level switching
- Momentary/Snap action

Switch rating	50mA max. (resistive), 24V dc	Insulation resistance	MR min
LED (illuminated types)	2.5V @ 10mA, red or green	Temperature range	-30°C to +70°C
Contact resistance	100mR max.		
Mfrs. List No.	AV09C703D240E = 108-2432 AV09C7L3D2403E = 108-2433	AV09C7L3D2406E = 108-2434	

213204

Order Code	Price Each			
	1+	10+	50+	100+
<b>Non-illuminated</b>				
108-2432				
<b>Illuminated</b>				
108-2434				
108-2433				

## Vandal-Proof Mechanical Switches

SPNO, mechanical stroke, M19



- Vandal resistant
- M19 x 0.75 thread for panel or enclosure mounting
- Available with plain stainless steel finish or diecast zinc finish
- Momentary action
- Legend or LED illumination options

Contact voltage, dc max.	48V (Silver)	Temperature, operating	-25°C to 60°C
Contact current, max.	125mA (Silver)	Force, operating min.	3.7N
Capacity, breaking max.	0.72W	Travel (contact)	0.4mm
Life, at breaking capacity ≥ million cycles			

311374

Finish	Mfrs. List No.	Order Code	Price Each			
			1+	10+	50+	100+
<b>Zinc Diecast Finish</b>						
Standard Pins	1241.2800	979-3542				
Pins with Soldering Aid	1241.2801	979-3550				
Standard Pins	1241.2805	NEW 208-2869				
<b>Zinc Diecast Housing, Stainless Steel actuator - LED Illuminated</b>						
Red	1241.2855	979-3771				
Green	1241.2856	979-3780				
Red/Green	1241.2858	979-3801				

## Rotary Switches

### Independent Lighted Rotary Switches



- IP68 rated
- Snap-in panel mounting into industry standard 1.45" x .83" panel cutout
- Unique lighting options up to three independent LED light positions
- "Soft Touch" knob
- 2 or 3 positions in all combinations of momentary and maintained action

Used in the heavy equipment, marine, process control and instrumentation markets the R2 rotary switch is an excellent replacement for rocker switches offering improved visual position indication.

Order Code	Switch Configuration Location			LED Light Location		
	A	B	C	A	B	C
177-5862	Maintain	Maintain	-	None	None	None
177-5867	Maintain	-	Maintain	None	None	None
177-5869	Maintain	Maintain	Maintain	None	Red	Red
177-5871	Maintain	Maintain	Maintain	Red	None	Green
177-5873	Maintain	Maintain	Maintain	None	None	None

## Independent Lighted Rotary Switches - continued

Mfrs.	List No.	Order Code	1+	10+	25+	50+	100+
	R2AB111N11	177-5862					
	R2AB2122N11	177-5867					
	R2AB4449DN11	177-5869					
	R2AB4455C1N2	177-5871					
	R2AB4455N11	177-5873					

## RMS Series

4/80A @ 250V ac, 10A @ 12V dc



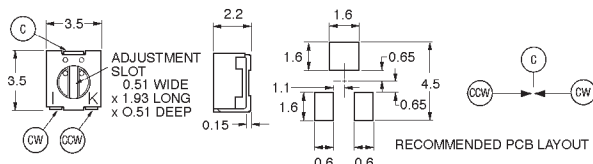
Switch Function DPST  
 Switch Rating 4/80A @ 250V, 10A @ 12V  
 Proof voltage 3kV ac (Initial)  
 Life 10000 Cycles  
 Contact resistance <20mohm (Initial)  
 Insulation resistance > @ 500VDC (Initial)  
 Indexing angle 45°  
 Contact material Silver Cadmium Oxide,  
 Operating temperature -25°C to +85°C  
 Approvals EN / SEMKO

H = 24, W = 17, D (Body) = 9.8mm

Mfrs.	List No.	Order Code	5+	25+	100+	250+
	RMS1035	136-0552				

## SPDT Sealed - Surface Mount

100mA @ 24V



- Compatible with all surface mount manufacturing processes
- Sealed construction allows immersion cleaning of the PCB
- Break-before-make (non-shorting) contacts
- Choice of 3mm or 4mm square package
- Supplied on 12mm embossed tape

Current rating	100mA max.	Insulation resistance	MR
Contact resistance	2R max.	Dielectric strength	250V ac
Rotational life	2000 cycles	Operating temperature	-55°C to +125°C

Package size	Order Code	1+	25+	100+	250+
7813J-001-023Emm square	3mm SMD 112-3625				
7814J-001-023Emm square	4mm SMD 112-3626				

## Rotary - Non shorting

150mA @ 250V ac/dc, 1A @ 12V ac/dc



- Standard 30° indexing
- Adjustable stop to restrict the number of positions
- Solder clip terminals
- 25.4mm diameter switch
- 6mm dia. x 50mm long, No Flat, mild steel spindle

Contact Rating @ 250V ac/dc	150mA	Contact resistance	<20mohm
Contact Rating @ 110V ac/dc	350mA	Insulation resistance	>
Contact Rating @ 12V ac/dc	1A	Operating temperature	-30°C to +85°C
Operational life	10000 operations		

Switch	Mfrs.	List No.	Order Code	1+	10+	25+	50+	100+
1	12	RA01A12BSFMSOX	156-6715					
3	4	RA01C04BSFMSOX	156-6717					
4	3	RA01D03BSFMSOX	156-6718					

## Rotary Encoder Switch

25mA @ 24V dc



- Rotary code switches
- Switch with ground terminal
- 8 Positions with either 7 or 8 circuits
- Operational life in excess of 10,000 cycles

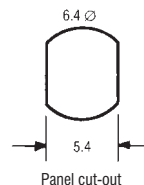
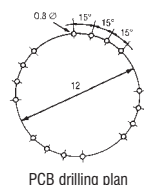
Body - H = 2, W = 11.5,  
D = 11mm

Switching Capacity	10mA @ 24V	Ambient Temperature	-20 to 80°C
Contact Resistance	200mohm	Voltage Proof	300VAC for 1 minute
Insulation Resistance	@ 500VDC	Life Expectancy	10000 steps min.

Circuits	Force	Mfrs.	List No.	Order Code	1+	50+	100+	250+
7	1.27N	MCSR-8R7C	SMD	152-2044				
8	0.39N	MCSR-8R8C	SMD	152-2045				

## Miniature Waterproof

0.4W @ 20V ac



- Miniature size, 12.5mm dia., suitable for portable and compact equipment
- Moulded-in terminals and mounting bush 'O' ring give perfect seal against ingress of flux and water

Body dia = 12.5, Shaft L = 19, Shaft dia = 3.2, H (above board) = 8mm

Contact resistance	100mohm (2V dc @ 200mA)	Water proofing	1m depth for 30mins
Insulation resistance		Contacts	Gold plate over nickel/non-shorting

Mfrs.	List No.	Order Code	1+	10+	25+	50+
	1	12	MRJE11204	112-4185		
	2	6	MRJE2604	118-6545		
	3	4	MRJE3404	118-6546		

## Adjustable Stopper Rotary Switches

MR Series



- Low profile, screwdriver actuated versions for space saving PCB applications
- Shaft actuated versions for panel thickness from 8.2mm to 17mm
- Positive detent mechanism for distinct feel and audible feedback
- Metal bushing and housing construction for increased durability
- Adjustable stopper
- Self cleaning contact mechanism for reliability
- Break-before-make contact timing
- Interior housing seal and molded-in PC terminals allow cleaning after automated soldering

Low Profile - Dia. = 14, H = 10.1mm  
 Standard - Dia. = 16, H = 17mm

Switch Specifications	Screwdriver and Low Profile	Standard
Electrical capacity	0.4VA @ 28V ac/dc	250mA @ 125V
Electrical life	10000 Cycles	10000 Cycles
Contact resistance	50mohm	10mohm
Insulation resistance	@ 500VDC	@ 500VDC
Dielectric strength (1 Minute Min.)	500VAC	1000VAC
Operating temperature	-10°C to 70°C	-10°C to 70°C

Switch Type	Mfrs.	List No.	Order Code	1+	25+	100+	250+
<b>Screwdriver Actuated</b>							
- 2 to 12 Positions	MRF112		152-4317				
- 2 to 6 Positions	MRF206		152-4319				
<b>Low Profile Shaft Actuated</b>							
- 2 to 12 Positions	MRK112-A		152-4321				
- 2 to 6 Positions	MRK206-A		152-4322				
<b>Standard Shaft Actuated</b>							
- 2 to 12 Positions	MRA112-A		152-4323				



## Optical Encoder



- MOS, TTL & HCMOS compatible
- 1,000,000 cycle life.
- No requirement to de-bounce.
- Smoother waveform than mechanical devices.
- Metal shaft and bushing for superior feel.
- Incorporates push button switch
- Supplied with nut and washer.

Small device for detented incremental switching. Used for menu select & enter setting, radio frequency, drill depth, GPS and medical application systems.

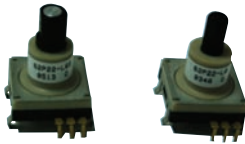
Voltage	5 Vdc
Current	10 mA resistive
Contact resistance	Less than 10 ohms
Contact bounce	< 4mS at make - < 10mS at break
Coding	2-bit quadrature coded output
Logic output levels	High - 3.8 to 2.3 Vdc, Low - 0.8 Vdc
Operating temperature	High - 3.8 to 2.3 Vdc, Low - 0.8 Vdc

232168

Mfrs. List No.		Order Code	1+	10+	25+
62A11-02-P	0.1" pitch pins	119-0396			
62A22-02-060C	0.05" cable	119-0397			

## PCB Mount Optical Encoders

### Series 62P



- Low cost
- Compact size
- PCB mount
- Reliable, up to 2 million cycles
- Quadrature output
- Ideal for automotive controls, white goods and audio systems

Voltage	5VDC ±0.25V dc
Current	30mA maximum @ 5V dc
Contact Resistance	<10Ω (TTL or CMOS compatible)
Logic Outputs	High: 3.0V min. Low: 1.0V max.
Contact Bounce	<4mS @ make and <10mS @ break
Actuation Life (Rotations)	3000000
Operating Temperature	-40 to 85°C

415389

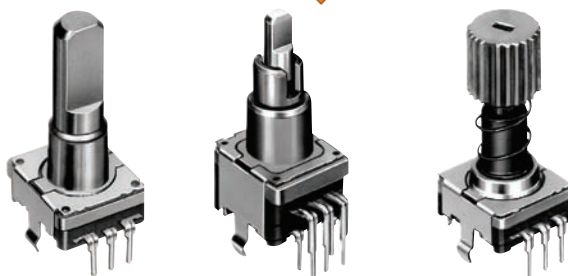
Description	Mfrs. List No.	Order Code	1+	10+	25+
Push/Rotary Optical Encoder	62P22-L6S	100-5754			
Rotary Optical Encoder	62P22-L0S	100-5755			

## Rotary Encoders

### EC11 Series

**NEW**

**ALPS**



Flat Shaft

Dual Shaft

Serrated Shaft

- Compact and highly accurate sliding contact type encoder
- Incremental type
- Operating temperature -40 to 85°C
- Ratings: 10mA / 5 VDC

### Applications

- Controlling volume in car AV equipment
- Volume and menu selection in car navigation systems
- Various in-car components
- DVD players/recorders
- CD players, portable audio players and various AV equipment

Mfrs. List No.	Number of Detent	Operating Pulse	Force	Structure	Shaft Style	Shaft Length	Life Cycles	Push-On Switch Travel
<b>EC111</b>								
EC1110120005	-	-	3 - 30mN-m	Self-return switch	Flat	15mm	15000	-
EC111012010H	-	-	3 - 30mN-m	Self-return switch	Flat	20mm	15000	0.5mm
EC1110120201	-	-	3 - 30mN-m	Self-return switch	Flat	20mm	15000	1.5mm
<b>EC11B</b>								
EC11B15202AA	30	15	12mN-m	Horizontal	Flat	20mm	15000	-
EC11B15242AE	30	15	12mN-m	Horizontal	Flat	20mm	15000	0.5mm
EC11B15242AF	30	15	12mN-m	Horizontal	Flat	20mm	15000	1.5mm
<b>EC11E</b>								
EC11E09204A4	18	9	10mN-m	Vertical	Flat	20mm	15000	-
EC11E09244AQ	18	9	10mN-m	Vertical	Flat	20mm	15000	1.5mm
EC11E09244BS	18	9	10mN-m	Vertical	Flat	20mm	15000	0.5mm

Mfrs.	Number of	Operating		Shaft	Shaft	Life	Push-On	
<b>EC11E</b>								
EC11E0B2LB01	30	15	10mN-m	Dual-Shaft	Flat/Slotted	25mm	15000	1.5mm
EC11E15204A3	30	15	10mN-m	Vertical	Flat	20mm	15000	-
EC11E15244B2	30	15	10mN-m	Vertical	Flat	20mm	15000	1.5mm
EC11E15244C0	30	15	10mN-m	Vertical	Flat	20mm	15000	0.5
EC11E15244G1	30	15	10mN-m	Vertical	Flat	20mm	15000	0.5mm
EC11E152T409	30	15	10mN-m	Push lock	Serrated	25mm	15000	-
EC11E152U402	30	15	10mN-m	Push lock	Serrated	26.4mm	15000	8mm
EC11E1530401	-	15	7mN-m	Vertical	Flat	20mm	15000	-
EC11E1534408	-	15	7mN-m	Vertical	Flat	20mm	15000	1.5mm
EC11E153440D	-	15	7mN-m	Vertical	Flat	20mm	15000	0.5mm
EC11E1820402	36	18	10mN-m	Vertical	Flat	20mm	15000	-
EC11E18244A5	36	18	10mN-m	Vertical	Flat	20mm	15000	1.5mm
EC11E18244AU	36	18	10mN-m	Vertical	Flat	20mm	15000	0.5mm
EC11E1830401	-	18	7mN-m	Vertical	Flat	20mm	15000	-
EC11E1834403	-	18	7mN-m	Vertical	Flat	20mm	15000	1.5mm
EC11E183440C	-	18	7mN-m	Vertical	Flat	20mm	15000	0.5mm
EC11EBB24C03	30	15	10mN-m	Dual-Shaft	Flat/Slotted	25mm	15000	0.5mm
EC11EH124403	18	-	10mN-m	ABC switch	Flat	20mm	30000	0.5mm
EC11EH124404	18	-	10mN-m	ABC switch	Flat	20mm	30000	1.5mm
EC11EH224403	30	-	10mN-m	ABC switch	Flat	20mm	30000	0.5mm
EC11EH224404	30	-	10mN-m	ABC switch	Flat	20mm	30000	1.5mm

Mfrs.	Number of	Operating		Shaft	Shaft	Life	Push-On	
<b>EC11J</b>								
EC11J0920402	18	9	12mN-m	Reflow	Flat	20mm	100000	-
EC11J0920602	18	9	12mN-m	Reflow	Flat	20mm	500000	-
EC11J0920802	18	9	12mN-m	Reflow	Flat	20mm	1000000	-
EC11J0924411	18	9	12mN-m	Reflow	Flat	20mm	100000	0.5mm
EC11J0924602	18	9	12mN-m	Reflow	Flat	20mm	500000	0.5mm
EC11J0924801	18	9	12mN-m	Vertical	Flat	10mm	100000	1.5
EC11J0924802	18	9	12mN-m	Reflow	Flat	20mm	1000000	0.5mm
EC11J0925403	18	9	12mN-m	Reflow	Flat	20mm	100000	1.5mm
EC11J0925602	18	9	12mN-m	Reflow	Flat	20mm	500000	1.5mm
EC11J0925802	18	9	12mN-m	Reflow	Flat	20mm	1000000	1.5mm
EC11J1520402	30	15	12mN-m	Reflow	Flat	20mm	100000	-
EC11J1520602	30	15	12mN-m	Reflow	Flat	20mm	500000	-
EC11J1520801	30	15	12mN-m	Vertical	Flat	12mm	100000	-
EC11J1520803	30	15	12mN-m	Reflow	Flat	20mm	1000000	-
EC11J1524413	30	15	12mN-m	Reflow	Flat	20mm	100000	0.5mm
EC11J1524604	30	15	12mN-m	Reflow	Flat	20mm	500000	0.5mm
EC11J1524801	30	15	12mN-m	Vertical	Flat	10mm	100000	1.5
EC11J1524802	30	15	12mN-m	Reflow	Flat	20mm	1000000	0.5mm
EC11J1525402	30	15	12mN-m	Reflow	Flat	20mm	100000	1.5mm
EC11J1525602	30	15	12mN-m	Reflow	Flat	20mm	500000	1.5mm
EC11J1525802	30	15	12mN-m	Reflow	Flat	20mm	1000000	1.5mm

Mfrs.	Number of	Operating		Shaft	Shaft	Life	Push-On	
<b>EC11K</b>								
EC11K0920401	18	9	12mN-m	Vertical	Flat	20mm	100000	-
EC11K0920601	18	9	12mN-m	Vertical	Flat	20mm	500000	-
EC11K0920801	18	9	12mN-m	Vertical	Flat	20mm	1000000	-
EC11K0924401	18	9	12mN-m	Vertical	Flat	20mm	100000	0.5mm
EC11K0924601	18	9	12mN-m	Vertical	Flat	20mm	500000	0.5mm
EC11K0924801	18	9	12mN-m	Vertical	Flat	20mm	1000000	0.5mm
EC11K0925401	18	9	12mN-m	Vertical	Flat	20mm	100000	1.5mm
EC11K0925601	18	9	12mN-m	Vertical	Flat	20mm	500000	1.5mm
EC11K0925801	18	9	12mN-m	Vertical	Flat	20mm	1000000	1.5mm
EC11K1520401	30	15	12mN-m	Vertical	Flat	20mm	100000	-
EC11K1520601	30	15	12mN-m	Vertical	Flat	20mm	500000	-
EC11K1520801	30	15	12mN-m	Vertical	Flat	20mm	1000000	-
EC11K1524402	30	15	12mN-m	Vertical	Flat	20mm	100000	0.5mm
EC11K1524601	30	15	12mN-m	Vertical	Flat	20mm	500000	0.5mm
EC11K1524801	30	15	12mN-m	Vertical	Flat	20mm	1000000	0.5mm
EC11K1525401	30	15	12mN-m	Vertical	Flat	20mm	100000	1.5mm
EC11K1525601	30	15	12mN-m	Vertical	Flat	20mm	500000	1.5mm
EC11K1525801	30	15	12mN-m	Vertical	Flat	20mm	1000000	1.5mm

524167

Mfrs. List No.	Order Code	1+	10+	25+	50+
<b>EC111</b>					
EC1110120005	206-5017				
EC111012010H	206-5018				
EC1110120201	206-5019				
<b>EC11B</b>					
EC11B15202AA	206-4977				
EC11B15242AE	206-4978				
EC11B15242AF	206-4979				
<b>EC11E</b>					
EC11E09204A4	206-4980				
EC11E09244AQ	206-4990				
EC11E09244BS	206-4985				
EC11E0B2LB01	206-5026				
EC11E15204A3	152-0804				
EC11E15244B2	206-4991				
EC11E15244C0	152-0806				
EC11E15244G1	206-4986				
EC11E152T409	206-5015				
EC11E152U402	206-5016				
EC11E1530401	206-4981				
EC11E1534408	206-4992				
EC11E153440D	206-4987				
EC11E1820402	206-4982				
EC11E18244A5	206-4993				
EC11E18244AU	206-4988				
EC11E1830401	206-4983				
EC11E1834403	152-0807				
EC11E183440C	206-4989				
EC11EBB24C03	206-5025				
EC11EH124403	206-5020				

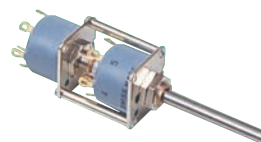
## Rotary Encoders - continued

### EC11 Series - continued

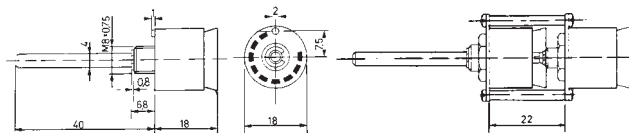
Mfrs. List No.	Order Code	1+	10+	25+	50+
<b>EC11E</b>					
EC11EH124404	206-5023				
EC11EH224403	206-5021				
EC11EH224404	206-5024				
<b>EC11J</b>					
EC11J0920402	206-5027				
EC11J0920602	206-5033				
EC11J0920802	206-5040				
EC11J0924411	206-5029				
EC11J0924602	206-5036				
EC11J0924801	165-6446				
EC11J0924802	206-5042				
EC11J0925403	206-5031				
EC11J0925602	206-5038				
EC11J0925802	206-5044				
EC11J1520402	206-5028				
EC11J1520602	206-5035				
EC11J1520801	165-6445				
EC11J1520803	206-5041				
EC11J1524113	206-5030				
EC11J1524604	206-5037				
EC11J1524801	165-6447				
EC11J1524802	206-5043				
EC11J1525402	206-5032				
EC11J1525602	206-5039				
EC11J1525802	206-5045				
<b>EC11K</b>					
EC11K0920401	206-4994				
EC11K0920601	206-5001				
EC11K0920801	206-5007				
EC11K0924401	206-4997				
EC11K0924601	206-5003				
EC11K0924801	206-5011				
EC11K0925401	206-4999				
EC11K0925601	206-5005				
EC11K0925801	206-5013				
EC11K1520401	206-4995				
EC11K1520601	206-5002				
EC11K1520801	206-5008				
EC11K1524402	206-4998				
EC11K1524601	206-5004				
EC11K1524801	206-5012				
EC11K1525401	206-5000				
EC11K1525601	206-5006				
EC11K1525801	206-5014				

## Miniature - 01 Series

1A @ 2V ac/dc, 0.5A @ 24V ac/dc, 0.1A @ 200V ac/dc



- Fibreglass reinforced Makrolon case
- Compact size
- Stainless steel shaft suitable for use in humid atmospheres
- Maximum of 12 positions (or 11 positions with 'Stop')



Current rating (non-switching)	3A	Wafer insulation (minimum)	M8
Contact resistance	5mohm	Bush thread	60° (Non-shorting)
Test voltage	750V	Indexing angle	30° (Shorting)
Capacitance, contact to contact	0.8pF	Contact material	Hard Silver with Gold Flash

Mfrs. List No.	Order Code	Mfrs. List No.	Order Code	Mfrs. List No.	Order Code
01-1101	140-514	01-1120	140-517	01-1430	140-526
01-1161	140-513	01-1110	140-516	01-2260	140-528
01-1421	140-525	01-1260	140-519	01-1100	140-515
01-2421	140-529				

**Stop Screws:** The switches are fitted with stop screws as indicated below. Additional stop screws may be ordered separately.

624132

			Price Each			
Poles	Positions	No. of Wafers	Order Code	1+	50+	100+
<b>Non-Shorting</b>						
1	6▲	1	140-514			
1	6	1	140-513			
4	2		140-525			
8	2	2	140-529			
<b>Shorting</b>						
1	12▲	1	140-517			
1	11	1	140-516			
2	6	2	140-519			
4	3	1	140-526			
4	6	2	140-528			
1	10▲	1	140-515			

## Selector Switches

### 01 Series



- Compact and versatile 12 positions multi wafer switch
- 25000 switching cycles with up to 6 Ncm switching torque
- Gold plated contacts: 3 micron
- Metal housing with metal shaft

**NEW**

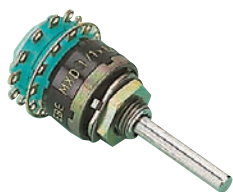
Voltage rating		Insulation resistance	500V
Current rating	2A	Dielectric voltage	-40°C to 85°C
Contact resistance	10mohm	Operating temperature	

626419

Mfrs. List No.	Poles	Positions	Order Code	1+	25+	50+	100+	+
<b>Shorting - 30° Indexing - Endless Rotating</b>								
01-1123	1	12	187-6074					
01-2123	2	12	187-6060					
<b>Shorting - 30° Indexing</b>								
01-1113	1	11	187-6073					
01-2113	2	11	187-6059					
01-1263	2	6	187-6078					
01-2263	4	6	187-6070					
01-1433	4	3	187-6080					
<b>Non-Shorting - 30° Indexing</b>								
01-2103	2	10	187-6058					
01-2164	2	6	187-6068					
01-2234	4	3	187-6069					
<b>Shorting - 36° Indexing - Endless Rotating</b>								
01-1103	1	10	187-6071					
<b>Non-Shorting - 60° Indexing - Endless Rotating</b>								
01-1104	1	6	187-6072					
<b>Non-Shorting - 60° Indexing</b>								
01-1164	1	6	187-6075					
01-1234	2	3	187-6076					
01-1424	4	2	187-6079					

## Miniature - MX Series

0.5A @ 115V



- Rugged construction
- Stainless steel shaft, double D form
- Ball indexing
- Adjustable switch stop
- Central fixing with M7 x 0.75 bush

Body : Depth behind panel = 17  
(1 wafer), 23.5(2 wafer)  
Dia = 17, Bush thread M7 x 0.75  
Spindle Dia. = 4mm, 3mm Across Flats

non switching	2A	Operational life	≥25000 ops
switching	0.5A	Insulation resistance	MR
Indexing angle	30°	Operating temperature	-40°C to +85°C

213306

			Price Each					
No of Poles	Positions	Wafers	Order Code	1+	25+	50+	100+	250+
<b>Non-Shorting</b>								
1	12	1	116-5280					
2	6	1	116-5281					
4	3	1	116-5223					
2	12	2	116-5224					
4	6	2	116-5282					
6	4	2	116-5225					
8	3	2	116-5226					

## Selector Switches

### 08 Series



- Compact and versatile 12 positions multi wafer switch
- PCB mounting
- 25000 switching cycles with up to 9 Ncm switching torque
- Gold plated contacts: 3 micron
- Metal housing with metal shaft

Voltage rating	1.5A	Insulation resistance	500V
Current rating		Dielectric voltage	-40°C to 85°C
Contact resistance	20mohm	Operating temperature	

**NEW**

Mfrs. List No.	No. of Wafers	Poles	Positions	Order Code	1+	25+	50+	100+	+
<b>Shorting</b>									
08-1263	1	2	6	187-6062					
<b>Non-Shorting</b>									
08-1104	1	1	12	187-6061					
08-1264	1	2	6	187-6063					
08-1344	1	3	4	187-6064					
08-2104	2	2	12	187-6066					
08-2264	2	4	6	187-6067					

## Adjustable stop - 71 Series

### 200mA @ 115 Vac or 28 Vdc



The adjustable stop switches allow the number of positions per pole to be changed. Remove and relocate stop pins in the front of the switch. The shaft is sealed by an O-ring inside the bushing. The panel is sealed by an O-ring at the base of the bushing. The panel seal is silicone rubber. The shaft seal is an O-ring per MIL-P-5516B.

- Adjustable stops
- 30° indexing angle
- Shaft size 1/4"
- Solder lug terminals
- Compact design
- Stop position can be set as required using pins provided

Shaft Diam.	6.35mm/1/4"
Body Diam. (mm)	17.45
Thread	3/8"-32 UNEF-2A
Length, shaft	7.929, 53mm
Current rating	4A
Current switching	500mA @ 115V ac, 250mA @ 28V dc
Contact Resistance	50mR max, 20mR initially
Mechanical life (operations)	15000

#### Switch configuration

Mfrs. List No.	No. of decks	No. of poles per deck	Contact arrangement
<b>1/4" Shaft</b>			
71BD30-01-1-AJN	Single	One	Non-shorting
71BD30-01-2-AJN	Single	Two	Non-shorting
71BD30-02-1-AJN	Two	One	Non-shorting

Mfrs. List No.	Order Code	1+	10+	25+
71BD30-01-1-AJN	119-0399			
71BD30-01-2-AJN	119-0400			
71BD30-02-1-AJN	119-0401			

## 25.4mm - 44/42 Series

### 1A @ 115V ac or 28V dc



- Rugged construction
- Solder terminals
- Non shorting contacts
- UL and CSA approved
- Adjustable stop facility

Body: Depth behind panel = 26 (1 wafer), 34.8 (2 wafer)  
 Dia = 29.5 (30°), 25.4 (36°), Bushthread = 3/8-32 NEF  
 Spindle: L = 11.1, dia = 6.35

non switching switching	10A	Operational life	100000 ops
Contact resistance	1A @ 115V ac/28V dc	Contact material	Silver Alloy
	50mR (max)	Insulation resistance	MR

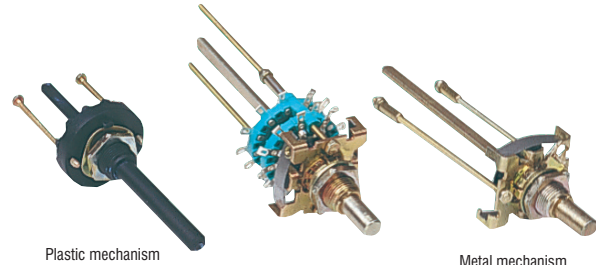
Mfrs. List No.	44D30-01-1-AJN = 119-0368	42D36-01-1-AJN = 119-0372
	44D30-01-2-AJN = 119-0371	42D36-01-2-AJN = 119-0373

Poles	Positions	No of Wafers	Order Code	1+	5+	10+	25+	50+
<b>Non-Shorting - 30° Indexing</b>								
1	2-12	1	119-0368					
2	2-6	1	119-0371					
<b>Non-Shorting - 36° Indexing</b>								
1	2-10	1	119-0372					
2	2-5	1	119-0373					



## 25.4mm - MA Series, 2A

### Mechanisms - 500mA @ 30V ac/dc, 50mA @ 300V ac/dc



- Wafers are 25.4mm diameter
- MA miniature version of MK standard switch
- Use mechanism with appropriate wafers and accessories to assemble switches to specific requirements
- 146-047 features plastic mechanism of moulded construction, giving protection against corrosion

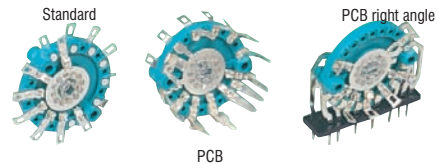
(non switching)	2A	Metal	13mm
Contact resistance	<10mR	Plastic	39mm
Insulation resistance	MR	Stop setting	Adjustable
Overall length		Maximum number of wafers per switch	4
Metal	100mm	Plastic (8 poles max or 4 wafers, whichever is the greater)	
Plastic	84mm		
Spindle diameter	6mm	(N.B. dependant upon spacers used)	M10
		Bush thread	

Spindle length			
Mfrs. List No.	MU 454882FPA(MA) = 116-5268	MU 454883FPA(MA) = 116-5270	
	SLMAD S454619FPA(MA) = 116-5269		

Mechanisms	Order Code	1+	25+	50+	100+	250+
30° indexing (metal)	116-5268					
30° indexing (plastic)	116-5269					
36° indexing (metal)	116-5270					

## Wafers and Accessories

### MA Series

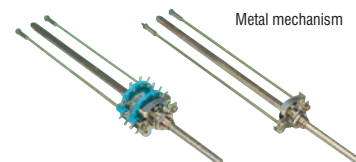


Note: Dummy wafer has 12 clips but no rotor.

Poles	Positions	Mfrs. List No.	Order Code	1+	25+	50+
<b>Standard, Non-Shorting</b>						
1	12	MA112N 454623/1/MA	146-049			
2	6	MA206N 454624/1/MA	146-050			
3	4	MA304N 454625/1/MA	146-051			
4	3	MA403N 454626/1/MA	146-052			
6	2	MA602N 454627/1/MA	146-053			
<b>Standard, Non-Shorting, 36° Indexing</b>						
1	10	MB110N 454630/1/MA	146-054			
2	5	MB205N 454631/1/MA	146-055			
1	12	MA112S 454623MA	146-057			
<b>PCB, Non-Shorting</b>						
2	6	455768MA	149-174			
<b>PCB, Non-Shorting Right Angle</b>						
1	12	455771MA	149-177			
2	6	455772MA	149-178			
<b>Accessories</b>						
Spacer, 3mm	MAS3 SPACER 220012 3MM	116-5271				
Spacer, 6mm	MAS6 SPACER 220012 6MM	116-5272				

## 32mm - MK Series, 5A

### Mechanism - 500mA @ 30V ac/dc, 150mA @ 250V ac, 60mA @ 250V dc





# Rotary Switches - continued

## 32mm - MK Series, 5A - continued

Mechanism - 500mA @ 30V ac/dc, 150mA @ 250V ac, 60mA @ 250V dc - continued

- Use mechanism with MK wafers and accessories to assemble switches to specific requirements
- Wafers are 32mm diameter with silver plated 5A contacts

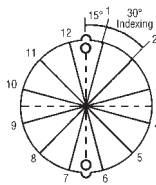
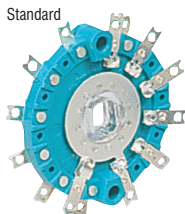
Current rating (non switching)	5A	Spindle length	51mm
Insulation resistance	MR	Stop setting	Adjustable
Overall length	212mm	(N.B. dependant upon spacers used)	10
Spindle diameter	6mm	Bush thread	M10

Mftrs. List No. MU-MKD 454622FPA(MK)

213360

Order Code	Price Each				
	1+	25+	50+	100+	250+
Mechanism, 30° indexing	116-5262				

## Wafers and Accessories - MK Series



Note: Dummy wafer has 12 clips but no rotor

Mftrs. List No.

MK112N 454633/1/MK=	146-034
MK403N 454636/1/MK=	146-037
MK000D 454638MK=	146-040
MKS33 SPACER 221805 3MM=	116-5265
MK206N 454634/1/MK=	146-035
MK112S 454633MK=	146-038

MK1120C 454639MK=	146-041
MKS6 SPACER 221805 6MM=	116-5266
MK304N 454635/1/MK=	146-036
MK206S 454634MK=	146-039
MKSH SCREEN 105921=	116-5263
MKS10 SPACER 221805 10MM=	116-5267

213084

Poles	Positions	Order Code	Price Each			
			1+	25+	50+	100+
<b>Standard, Non-Shorting</b>						
1	12	146-034				
2	6	146-035				
3	4	146-036				
4	3	146-037				

<b>Standard, Shorting</b>					
1	12	146-038			
2	6	146-039			

Accessories	
Rotating open circuit wafer	146-041
Spacer, 3mm	116-5265
Spacer, 6mm	116-5266
Spacer, 10mm	116-5267

## Key Actuator (for MK and MA Series)



- Six position key actuator for use with either MA or MK series wafers
- Maximum of 4 MA or 3 MK wafers may be used
- Supplied with two different sized shafts to accommodate MA or MK wafers
- 5 disc tumbler with 60° between positions is fitted, key being removable in any position
- Supplied with two random keys

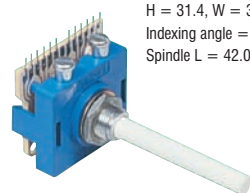
Panel Cut-out=19 dia, Max panel thickness=13.5

Mftrs. List No. A20667

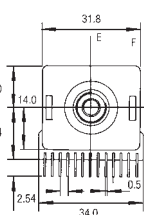
213362

Order Code	Price Each			
	1+	25+	100+	250+
116-2587				

## PT Series



H = 31.4, W = 31.8, D = 16.7  
 Indexing angle = 30°, Bush L = 8, Th = M10 x 0.75  
 Spindle L = 42.0 (exc. bush), Dia = 6.0



End View



- Printed circuit mounting
- Non-shorting
- Moulded from flame retardant polyester and rear glass fibre PCB
- Supplied with adjustable stop, 2 to 12 position
- 3 pole/3 way switch can also have an 'OFF' position

Voltage rating	250V ac/dc	Insulation resistance	MR
Proof voltage	1000V	Contacts	Silver plated
Current rating (non-switching)	2A continuous	Contact resistance	<50mR
Contact rating	0.5A continuous	Switching life	10000 ops

Mftrs. List No. PT6434/BMH= 112-3674, PT6422/BMH= 112-3675, PT6509/BMH= 112-3676  
 213116

Poles	Positions	Order Code	Price Each			
			1+	15+	100+	250+
1	12	112-3674				
2	5	112-3675				
3	3	112-3676				

## CK Series

150mA @ 250V ac/dc



PCB terminals

Max body dia = 27.5, body H = 14.1  
 Spindle L = 46, Dia = 6.0mm

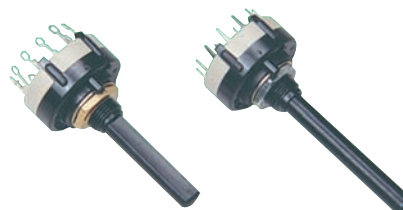
Switch Rating	150mA @ 250V ac/dc	Contact resistance	<20mR
Proof voltage	1500V (Initial)	Indexing angle	30°
Life	>10000 Cycles	Contact / Terminal Material	Brass CZ108 Ag Plated
Insulation resistance	> @ 500VDC (Initial)	Operating temperature	-30°C to +85°C

550799

List No.	Poles	Positions	Order Code	Price Each				
				1+	25+	100+	250+	1K+
CK3609	1	12	177-4549					
CK3610	2	6	177-4550					
CK3611	3	4	177-4551					
CK3612	4	3	177-4552					

## CK Series

350mA @ 110V ac/dc, 150mA @ 250V ac/dc



Solder terminals

Max body dia = 27.5, body H = 12.8  
 Mounting bush: L = 8, Dia = 9.5  
 Spindle L = 38, Dia = 6.35 (with 30mm flat) Imperial  
 Dia = 6.0 Metric

PCB terminals

Max body dia = 27.5, body H = 12.8  
 Mounting bush: L = 8, Dia = 10  
 Spindle L = 50, Dia = 6.0

- Single bank switches moulded in glass filled nylon, UL recognised
- Adjustable stop facility mechanism
- Positive indexing obtained from dual spring plunger
- Choice of non-shorting or shorting contacts
- Choice of metric or imperial spindle diameter
- Choice of solder or PCB terminals

Voltage rating	300V ac/dc	Indexing angle	30°
Proof voltage	1000V	Contact material	Brass, Silver Plated,
Current rating (non-switching)	5A continuous	Operating temperature	-30°C to +85°C
Contact resistance	<200mR		

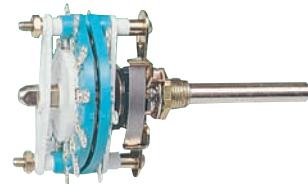
213364

Poles	Positions	List No.	Order Code	Price Each			
				1+	25+	100+	250+
<b>Non-shorting</b>							
1	12	CK1024	112-3687				
2	6	CK1025	112-3688				
3	4	CK1026	112-3704				
4	3	CK1027	112-3689				
<b>Shorting</b>							
1	12	CK1034	112-3690				
2	6	CK1035	112-3691				
3	4	CK1036	112-3692				
4	3	CK1037	112-3693				

Poles	Positions	Mfrs. List No.	Order Code	Price Each			
				1+	25+	100+	250+
<b>Non-shorting</b>							
1	12	CK1049	112-3694				
2	6	CK1050	112-3696				
3	4	CK1051	112-3697				
4	3	CK1052	112-3698				
<b>Shorting</b>							
1	12	CK1059	112-3699				
2	6	CK1060	112-3700				
3	4	CK1061	112-3702				
4	3	CK1062	112-3703				
<b>Metric with Solder Terminals</b>							
<b>Non-shorting</b>							
1	12	CK1029	112-3705				
2	6	CK1030	112-3706				
3	4	CK1031	112-3707				
4	3	CK1032	112-3708				

**MSD Series - Non-Shorting**

6A @ 250V ac, 10A @ 30V dc



- Heavy duty, high current ratings
- Complies with BS3955

Spindle dia = 6.4 (1/4"), Spindle L = 37, Bush thread = 3/8" x 32 UNEF

Voltage rating	250V ac	Rotor	Glass Filled Nylon
Proof voltage	2000V dc	Indexing	30°
Contact resistance	<5mR	Stop setting	Adjustable

Mfrs. MSD1112N MU454494MSD1 = MSD1206N MU454493MSD1 =  
List No: 116-5277 116-5279

213367

Poles	Positions	No. of Wafers	Order Code	Price Each		
				1+	25+	50+
1	12	1	116-5277			
2	6	1	116-5279			

**CKS Series**

150mA @ 250V ac/dc, 1A @ 24V dc



- IP67 waterproof version of CK series
- Moulded 27.5mm diameter
- Standard 30° indexing
- Moulded in UL94 V0 material
- Printed Circuit Board Terminals
- Up to 4 poles per switch
- Maximum 12 positions

PCB terminals

Max body dia = 27.5, body H = 12.8  
Mounting bush: L = 8, Dia = 10  
Spindle L = 50, Dia = 6.0

Voltage rating	250V ac/dc	Indexing angle	30°
Proof voltage	1500V	Contact material	Brass, Silver Plated,
Current rating	150mA	Operating temperature	-30°C to +85°C
Contact resistance	<20mR		

535325

Mfrs. List No.	Poles	Positions	Order Code	Price Each			
				1+	25+	100+	250+
CKS1049	1	12	170-1498				
CKS1050	2	6	170-1499				
CKS1051	3	4	170-1500				
CKS1052	4	3	170-1501				

**Binary Coded Rotary Switches - BCKS Series**

150mA @ 50V ac/dc



- Binary coded Hexadecimal
- Panel Sealed to IP65 rating
- Printed Circuit Terminals
- Adjustable stop to restrict number of positions or continuous rotation

PCB terminals

Max body dia = 27.5, body H = 14.1  
Spindle L = 42, Dia = 6.0mm

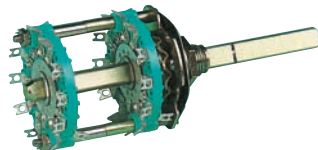
Switch Rating	150mA @ 50V ac/dc	Contact resistance	<50mR
Proof voltage	250V (Initial)	Indexing angle	22.5°
Life	>10000 Cycles	Contact / Terminal Material	Brass CZ108 Ag Plated
Insulation resistance	> @ (Initial)	Operating temperature	85°C to +30°C

626404

Mfrs. List No.	Type	Order Code	Price Each			
			1+	25+	100+	250+
BCKS1001	No Stop	187-6054				
BCKS1002	16 Position	187-6055				

**JMK Series - Non-Shorting**

1A @ 28V dc, 100mA @ 250V ac, 50mA @ 300V dc



Spindle dia = 6.4mm (1/4"), Spindle L = 37, Bush thread = 3/8" x 32 UNEF

Voltage rating	250V ac/dc	Rotor	Nylon with hard brass, silver plated blades
Proof voltage	1000V ac	Indexing	30°
Current rating (non-switching)	5A	Stop setting	Adjustable
Contact resistance	<3mR		

213365

Poles	Positions	No. of Wafers	Mfrs. List No.	Order Code	Price Each		
					1+	25+	50+
1	12	1	459101JMK1	116-5221			
2	12	2	459102JMK2	116-5273			
2	7	1	459103JMK1	116-5274			
4	4	1	459104JMK1	116-5275			

**Key Operated Switches**

**2 and 3 Position - S215 and S216 Series**

4A @ 125V ac, 2A @ 250V ac, 4A @ 28V dc



- 150 combinations available
- 4 disk tumblers mechanism

Contacts	SPST	Contacts Resistance	10mohm
Contact rating	4A @ 125Vac, 2A @ 250V ac, 4A @ 28V dc	Insulation Resistance	

Mfrs. List No.	Positions	Terminals	Key Pulls	Terminals	Switch Function Type	Indexing
S215E-SP	3	2	1	Wire	Mom - On - Mom	45°
S216R	2	2	1	Solder	On - On	90°

540763

Mfrs. List No.	Order Code	Price Each					
		1+	10+	50+	100+	500+	250+
S215E-SP	173-5383						
S216R	173-5384						

**2 Position - NS106 and S116 Series**

1A @ 125V ac, 0.5A @ 250V ac



- 200 combinations available
- 4 pins tumbler mechanism

Contact rating	1A @ 125Vac, 0.5A @ 250V ac
Contacts Resistance	10mohm
Insulation Resistance	
Indexing Angle	90°

Mfrs. List No.	Pole	Positions	Terminals	Key Pulls	Switch Function Type	Contact Configuration
NS106-1	1	2	2	1	Off-On	SPST
NS106-2	1	2	2	2	Off-On	SPST
S116-1	1	2	4	1	On-On	SPDT
S116-2	1	2	4	2	On-On	SPDT
NS106-M	1	2	2	1	Off-(On)	SPST

540822

Mfrs. List No.	Order Code	Price Each				
		1+	10+	50+	100+	250+
NS106-1	173-5376					
NS106-2	173-5377					
S116-1	173-5379					
S116-2	173-5381					
NS106-M	173-5382					

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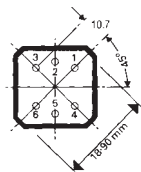
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# Key Operated Switches - continued

## 2 Position Miniature - E Series

100mA @ 30V dc



D behind panel = 28.0  
Panel cut-out = 15.1 x 15  
W (Bezel) = 18 x 16  
Max panel thickness = 14.28

- Lock mechanism and key are glass filled polyester. **UL** recognised
- Gold plated contacts suitable for low level switching (5mV/1mA dc)
- Each keyswitch is provided with two keys
- Suitable as tamperproof switch in low level security applications where accidental operation of a function is undesirable

Proof voltage	1000V for 1 minute	Contact resistance	20mΩ max.
Operating life	>50000 ops	Static resistance	30kV
Indexing	90°	Operating temperature	-20°C to +55°C

Mfrs. List No. E1ACAAAE = 116-2593

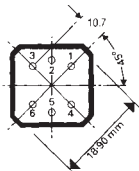
213095

Order Code	Price Each		
	1+	10+	50+

Key removable in one position only	<b>116-2593</b>			
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## 2 Position Miniature - M Series

100mA @ 30V dc



Panel cut-out

Standard depth 28mm W (bezel) = 18 x 16 Panel cut-out = 15.1 Depth behind panel = 28 Max. panel thickness = 14.28 Pins: L = 3.4, Dia = 1	Low depth 19.8mm W (bezel) = 18 x 18 Panel cut-out = 15.1 x 15.1 Depth behind panel = 19.8 Height above panel = 11.7 Pins: L = 3.4, Dia = 1
---	--

- 5 disc tumbler lock and diecast body
- Polished chrome lock face has engraved arrowhead to indicate switch position
- Available with either flush mounting or raised bezel
- Raised bezel types give low depth behind panel
- Switch body is glass filled polyester. **UL** recognised
- Gold plated contacts and terminals suitable for low level switching (5mV/1mA dc)
- Each keyswitch is provided with two keys
- Suitable for use in cash registers, security panels, computers etc. to give tamperproof security

Proof voltage	1000V for 1 minute	Contact resistance	20mΩ max.
Operational life	50000 ops	Static resistance	7kV
Indexing	90°	Operating temperature	-20°C to +55°C

**Note:** Key trapping versions have the key retained in the clockwise position.

Mfrs. List No.	M1BAAAAE = 116-2594	M1BCEAAE = 116-2599
	M1BCAAAEE = 116-2595	TOK NO 001 SPARE KEY M = 116-2601
	M1BAEAAE = 116-2598	

**Caution:** Care should be taken when soldering the pins, heat in excess of 300°C for more than 2 seconds could damage the pins.

213098

DPDT	Standard Depth 28mm	Order Code	Price Each		
			1+	10+	50+

Key removable in both positions, standard keyM1BAAAAE	<b>116-2594</b>			
---	-----------------	--	--	--

Key removable in one position only, standard keyM1BCAAAEE	<b>116-2595</b>			
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<b>Low Depth 19.8mm</b>				
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Key removable in both positions, standard keyM1BAEAAE	<b>116-2598</b>			
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Key removable in one position only, standard key	<b>116-2599</b>			
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Spare key (TOK No.001) for 116-2594, 116-2595, 116-2598, 116-2599	<b>116-2601</b>			
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## 150mA @ 250V ac/dc

CK Series



- Moulded Single Wafer Lock switch.
- Two part construction. The lock is inserted into the panel from the front
- The CK module either bracketed or snap-on, from the rear of the panel.
- Switch indexed 90°
- All contacts are non-shorting (BBM).
- Solder terminals
- Two keys per lock

Switch Rating	150mA @ 250V	Insulation resistance	> @ 500VDC (Initial)
Proof voltage	1.5kV ac (Initial)	Indexing angle	90°
Life	10000 Cycles	Contact / Terminal Material	Brass CZ108 Ag Plated
Contact resistance	<20mohm (Initial)	Operating temperature	-30°C to +85°C

Mfrs. List No.	Key Code	Switch Positions	Total Lock Movement	Key Withdraw Position	Switch Index Angle	No. of Switch Poles
CKL6004	Differs	2	90°	1,4	90°	2
CKL6014	Differs	3	180°	1,4,7	90°	1

550787

Price Each

Mfrs. List No.	Order Code	1+	25+	100+	250+	1K+
CKL6004	<b>177-4545</b>					
CKL6014	<b>177-4546</b>					

## 1 Position - IRL Series

1A @ 250V ac, 1A @ 25V dc



- Miniature key-operated Lock switch
- Keys are double entry (they can be inserted into the lock either way up)
- Standard solder terminals
- Keys to pass (same key all locks) or differ (different key per lock)



Contact rating	1A @ 115V ac, 24V dc	Insulation resistance	> @ 500V dc (Initial)
Contact resistance	<20mohm (Initial)	Proof voltage	750V ac (Initial)

Mfrs. List No.	Key Numbers	Switch Type	Position Key Free	Order Code
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<b>Parallel Lock Head</b>				
IRL-5-K-S-2	Same	DPDT	60°	187-6049
IRL-5-K-D-2	Differs	DPDT	60°	187-6050

<b>Tapered Lock Head</b>				
IRL-5-M-S-2	Same	DPDT	60°	187-6051
IRL-5-M-D-2	Differs	DPDT	60°	187-6052

626400

Price Each

Mfrs. List No.	Order Code	1+	25+	100+	250+	500+
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<b>Parallel Lock Head</b>					
IRL-5-K-S-2	<b>187-6049</b>				
IRL-5-K-D-2	<b>187-6050</b>				

<b>Tapered Lock Head</b>					
IRL-5-M-S-2	<b>187-6051</b>				
IRL-5-M-D-2	<b>187-6052</b>				

## 1 Position - HRL Series

1A @ 250V ac, 1A @ 25V dc



- Miniature key-operated Lock switch
- Keys are double entry (they can be inserted into the lock either way up)
- Standard solder terminals
- Keys to pass (same key all locks) or differ (different key per lock)



Contact rating	1A @ 115V ac, 24V dc	Insulation resistance	> @ 500V dc (Initial)
Contact resistance	<20mohm (Initial)	Proof voltage	750V ac (Initial)

Mfrs. List No.	Key Numbers	Switch Type	Position Key Free	Order Code
HRL-5-E-S-2	Same	SPST	90°	187-6056
HRL-5-M-S-2	Same	DPDT	60°	187-6057

626402

Price Each

Mfrs. List No.	Order Code	1+	25+	100+	250+	500+
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HRL-5-E-S-2	<b>187-6056</b>					
HRL-5-M-S-2	<b>187-6057</b>					

## 2 Position - MSL Series

4/80A @ 250V ac



- Two part construction. The lock is inserted into the panel from the front. The mains switch module either bracketed or snap-on, from the rear of the panel
- Standard solder terminals
- Two keys per lock
- Keys to pass (same key all locks) or differ (different key per lock)

Contact rating	4 / 80A @ 250V ac	Insulation resistance	> @ 500VDC (Initial)
Contact resistance	<20mohm (Initial)	Proof voltage	3kV ac (Initial)



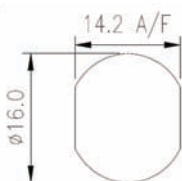
Mfrs. List No.	Key Numbers	Switch Type	Position Key Free	Order Code
MSL8601B	Differs	DPDT	90°	177-4547
MSL8602B	Same	DPDT	90°	177-4548

550797

Mfrs. List No.	Order Code	1+	25+	100+	250+	1K+
MSL8601B	177-4547					
MSL8602B	177-4548					

## 2 Position - S16 Series

1A @ 24V dc



- Radial pin
- Tapered lock head front panel mount
- Single pole, Dual throw lock switch, 90° indexing
- Bright Chrome plated zinc alloy die cast housing
- Key insertion/removal in one position
- Radial cylinder with 7 pin tumblers

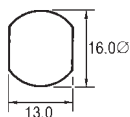
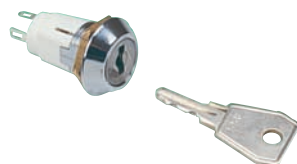
Proof voltage	500V dc	Indexing	90° (SPDT),
Current rating (non switching)	1A	Insulation resistance	>MR
Operating life	>10000 ops	Operating temperature	-20°C to +65°C

535320

List No.	Key No.	Order Code	1+	25+	100+	250+	1K+
S16-B-S-2	Same	170-1495					
S16-B-D-2	Different	170-1497					

## 2 Position - SRL Series

5A @ 115V ac, 3A @ 50V dc



Dia (bezel) = 22.0  
D behind panel = 29.7 (SPDT), 30.7 (DPDT)  
Max panel thickness = 4.5 (SPDT), 5.0 (DPDT)

- Silver plated brass contacts
- Spare keys are available for common key profile
- Each keyswitch is provided with two keys, random or common profile

Proof voltage	750V dc	Insulation resistance	MR
Current rating (non switching)	5A	Contact resistance	20mR max.
Operating life	>50000 ops	Operating temperature	-20°C to +65°C
Indexing	90° (SPDT), 60° (DPDT)		

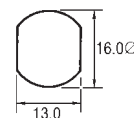
Mfrs. List No:	SRL-5-E-D-2= 112-3677	SRL-5-D-S-2= 112-3682	SRL-5-L-D-2= 112-3680
	SRL-5-E-S-2= 112-3681	SRL-5-M-D-2= 112-3679	SRL-5-L-S-2= 112-3685
	901= 112-3686	SRL-5-M-S-2= 112-3684	SRL020= 136-0558
	SRL-5-D-D-2= 112-3678		

213144

Random Key Profile	Order Code	1+	25+	100+	250+
<b>SPDT</b>					
Key removable in 1 position	112-3677				
Key removable in 2 positions	112-3678				
<b>DPDT</b>					
Key removable in 1 position	112-3679				
Key removable in 2 positions	112-3680				
<b>Common Key Profiles, SPDT</b>					
Key removable in 1 position	112-3681				
Key removable in 2 positions	112-3682				
<b>DPDT</b>					
Key removable in 1 position	112-3684				
Key removable in 2 positions	112-3685				
Spare common keys	112-3686				
Dust Cap	136-0558				

## 2 Position - SRL Series

4A @ 250V ac, 80A surge



Dia (bezel) = 22mm  
Panel depth = 3.4mm

Switch Unit - H = 12.4, W = 18, D = 18mm

- Two part construction
- Snap on switch unit
- Standard solder terminals
- Two keys per lock
- 5 disc lock
- 90° key movement steps

Proof voltage	3kV dc	Insulation resistance	MR
Current rating	4A @ 250VAC	Contact resistance	20mR max.
Operating life	>10000 ops	Operating temperature	-25°C to +85°C

Mfrs. List No:	SRLM-5-Q-D= 113-8694	SRLM-5-Q-S= 113-8696	SRLM-5-S-S= 113-8697	SRL020= 136-0558
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424999

Key Profiles	Order Code	1+	25+	100+	250+
<b>Random - 2 Pole NO</b>					
Key removable in 2 positions	113-8694				
<b>Common - 2 Pole NO</b>					
Key removable in 2 positions	113-8696				
Key removable in 1 position	113-8697				
<b>Accessories</b>					
Dust Cap	136-0558				

## WRL Series

5A @ 115V ac, 3A @ 50V dc



Dia. (Body) = 16, Depth (Body) = 22.4, L (Pins) = 7.2, Panel Thickness (Max.) 4.5mm

Switch Function	SPDT
Switch Rating	5A @ 115VAC, 3A @ 50VDC
Proof voltage	750VDC ac (Initial)
Life	10000 Cycles
Contact resistance	<20mohm (Initial)
Insulation resistance	> @ 500VDC (Initial)
Indexing angle	90°
Contact material	Brass CZ108 Ag Plated,
Operating temperature	-20°C to +65°C
Lock type	5 Disc

474190

Key Withdrawal Positions	Movement/Indexing	Mfrs. List No.	Order Code	1+	25+	100+
<b>Random Key - Switch</b>						
1 Only	60°/60	WRL-5-M-D-2	155-1856			
<b>Common Key - Switch</b>						
1 Only	90°/90	WRL-5-E-S-2	136-0556			
1 and 4	90°/90	WRL-5-D-S-2	136-0557			
1 Only	60°/60	WRL-5-M-S-2	155-1857			
<b>Accessories</b>						
Dust Cap		SRL020	136-0558			
Common Key		901	112-3686			

## High Security - 2 Position

4/80A @ 250V ac



- Dimpled 6 pin lock
- Two part construction
- The lock is inserted from the front of the panel
- The mains switch module snaps-on from rear of panel
- Standard solder terminals

- Two keys per lock
- Spare keys (common) available

Key Type	Switch Type	Position Key Free	Mfrs. List No.	Order Code
Random	DPST-NO	0° & 90°	DSL-6-A-D	125-3503
Random	DPST-NO	0°	DSL-6-B-D	125-3504
Common	DPST-NO	0°	DSL-6-D-S	125-3507

446113

Mfrs. List No.	Order Code	1+	25+	100+	250+
DSL-6-A-D	125-3503				
DSL-6-B-D	125-3504				
DSL-6-D-S	125-3507				
<b>Spare Keys - Common</b>					
DSL-6-KEY COM	125-3512				

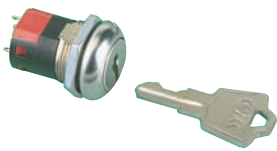
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# Key Operated Switches - continued

## 2 Position - Y Series

2A @ 250Vac, 4A @ 125Vac/30Vdc



- SPCO or DPCO contacts
- 4 tumbler lock, 90° indexing
- Supplied with 2 standard keys
- Zinc alloy body with stainless steel face

N.B. Keys offer level 1 security and are interchangeable with all Y series key switch locks

Depth behind panel=28.8  
Maximum panel thickness=4.95

Mfrs. List No:	Y1011U2C203NQ = 120-1397	Y101132C203NQ = 120-1399
	Y2011U2C203NQ = 120-1398	Y201132C203NQ = 120-1400

Rating	Order Code	1+	10+	25+	100+	250+
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Key Removable in Both Positions						
SPST-CO	120-1397					
DPST-CO	120-1398					

Key Removable in One Position Only						
SPST-CO	120-1399					
DPST-CO	120-1400					

## Keylock Switches



- Zinc alloy nickel-plated housing and 4 disc tumbler cylinder
- Two single bitted brass keys
- 19.2mm dia. panel cutout



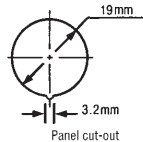
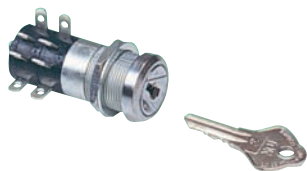
Rating	4A @ 125V AC/28V DC, 2A @ 250V AC	Insulation resistance	min.
Electrical life	6000 Cycles	Dielectric strength	1000Vrms
Contact resistance	10mohm		

Mfrs. List No.	Indexing	No. of Switch Positions	Key Pull Positions
JD90126W	90°	2	1
JD9J126W	45°	3	1, 2, 3
JD9S126W	90°	2	1, 2
JD9H126W	45°	3	1
JD10B126W	45° (Momentary)	2	1
JD10F126W	45° (Momentary)	3	1

Mfrs. List No.	Order Code	1+	10+	25+	50+	100+
JD90126W	185-7119					
JD9J126W	185-7120					
JD9S126W	185-7121					
JD9H126W	185-7122					
JD10B126W	185-7123					
JD10F126W	185-7124					

## 2 Position - P2/3

2A @ 250V ac, 4A @ 125V ac, 10A @ 12V dc



D behind panel=51.5  
W (body)=19  
Max panel thickness=9.5

- 2 N/O + 2 N/C sets of fine silver contacts, break-before-make
- 5 disc tumbler lock, 90° indexing (except 116-2591, 45°)

Key Code	Key Trapping	Spring Return	Mfrs List No.	Order Code
Random	None	No	P2/3TMA 209	116-2579
TOK 3	None	No	P2/3FDA 209	116-2580
TOK 3	None	Yes	P2/3FDA.206	116-2591
TOK 2	Horizontally, right	No	P2/3FCC 209	116-2583

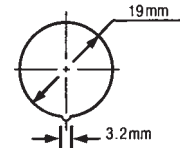
Mfrs List No	Order Code	1+	10+	25+	100+	250+
P2/3TMA 209	116-2579					
P2/3FDA 209	116-2580					
P2/3FDA.206	116-2591					
P2/3FCC 209	116-2583					

## Keys

	Order Code	1+	10+	25+	100+	250+
TOK 3	116-2590					
TOK 2	116-2592					

## 3 Position - P2/3-TMA-1473

2A @ 250V ac, 4A @ 125V ac, 10A @ 12V dc  
Ideal for 'Off' - 'Test' - 'Set Alarm' applications



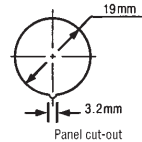
Panel cut-out  
D=51.1, W (body)=19  
Max panel thickness=11

- Key removable in all 3 positions
- 5 disc tumbler lock, 90° indexing
- 3 sets of N/O contacts, one set makes in each of the 3 positions, break-before-make
- Supplied with two keys, random selection (2000 variants)
- Switch lock protrudes from switch body by 0.05mm

Order Code	1+	10+	25+	100+
116-2581				

## 2 and 3 Position - K2/3

2A @ 250V ac, 4A @ 125V ac, 10A @ 12V dc



D behind panel=39.6  
W (body)=19  
Max panel thickness=11

- Key removable in all positions
- 5 disc tumbler lock, 90° indexing
- Switch lock protrudes from switch body by 0.05mm
- Supplied with two keys, random selection (2000 variants)
- 2 and 3 position keyswitches with two sets of fine silver contacts, break-before make

Mfrs. List No.	K2/3TMA 201 = 116-2584	K2/3TMA 109 = 116-2586	K2/3TMA 123 = 116-2578
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Order Code	1+	10+	25+	100+
2 positions, 2 N/O sets of contacts, (DP Off/On)	116-2584			
2 positions 1 N/O, 1 N/C sets of contacts, (cross connection give SPDT)	116-2586			
3 positions SPDT, centre off	116-2578			

## CK & SK Series Key Switches



SK Series - Low and Medium Security

CK Series - High Security

- Wide choice of security levels and keying options
- Single pole contacts
- Solder lug terminals

Contact Rating	Low/Medium Security - SK Series	High Security - CK Series
Contact Resistance	3A @ 125V ac	3A @ 250V ac
Insulation Resistance	10mohm	20mohm
Mechanical Life	30000 operations	30000 operations
Angle of Throw	90° for 2-position, 45° for 3-position	
Keys	Low security: matt chrome-plated zinc alloy Med: Gloss nickel-plated zinc alloy	Nickel-plated brass, PBT handle
Keys Supplied	Low Security Switches: 2 Med Security: 1 (random)	1 (random)

Pos.	Pos.	Key	Mfrs. List No.	Order Code	1+	10+	25+	50+
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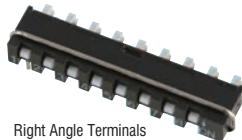
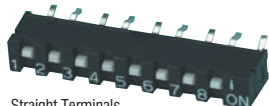
Low Security								
On	None	On	1 & 3	SK12AAW01	118-7780			
On	None	On	1	SK12BAW01	118-7781			
On	Off	On	1, 2, 3	SK13DAW01	118-7782			
On	Off	On	2	SK13EAW01	118-7783			

Pos.	Pos.	Key	Mftrs.	Removes	List No.	Order Code	1+	10+	25+	50+	Price Each
1	2	3									
<b>Medium Security</b>											
On	Off	On	2	SKL13EDW01	118-7786						
<b>High Security</b>											
<b>19mm Bushing</b>											
On	None	On	1	CKL12BFW01	118-7793						
On	Off	On	2	CKL13EFW01	118-7794						
<b>16mm Bushing</b>											
On	None	On	1 & 3	CKM12AFW01	118-7787						
On	None	On	1	CKM12BFW01	118-7789						
On	None	On	2	CKM13EFW01	118-7791						

## SIL Switches

### Splay Terminals - Automatic Insertion

100mA @ 50Vdc



- Double contacts
- Low contact resistance
- High reliability
- Self clean contact area
- High pressure contact structure prevents vibration shock

Contacts	Alloy Copper C5210-EH	Insulation resistance	@ 500V dc
Current, switching rating	5Vdc max	Dielectric strength	300VAC/1 min.
Current, carry rating	100mA @ 50Vdc max	Capacitance	5pF
Initial contact resistance	100mohm max	Operating life	500 ops
Body material	Nylon High-temp Thermoplastic	Operating temperature	-30°C to 80°C

No. of Ways	Length (mm)	Mftrs. List No.	Order Code	1+	25+	100+	250+	Price Each
<b>Straight Terminals</b>								
4	12.7	SIP-04T	152-1991					
6	17.78	SIP-06T	947-1960					
8	22.86	SIP-08T	947-1979					
<b>Right Angle Terminals</b>								
4	12.7	SIP-04A	152-1994					
8	22.86	SIP-08A	152-1996					

## DIL Switches

### Surface Mount DIP Switches

25mA @ 24V dc



- Low profile of 3mm and 2.54 pitch
- Gold plated twin contact
- Self cleaning mechanisms



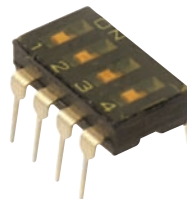
Contacts	Gold	Dielectric strength	500V ac
Contact resistance	200mΩ	Operating temperature	-20°C to 70°C
Insulation resistance	100MΩ	Mechanical life	1000 ops min

Mftrs. List No.	No. of Poles	Length (mm)	Order Code	1+	10+	25+	50+	100+	Price Each
<b>Flat - Standard</b>									
A6S1101H	1	3.48	196-0889						
A6S2101H	2	6.02	196-0893						
A6S3101H	3	8.56	196-0895						
A6S4101H	4	11.1	196-0898						
A6S5101H	5	13.64	196-0900						
A6S6101H	6	16.18	196-0903						
A6S7101H	7	18.72	196-0905						
A6S8101H	8	21.26	196-0909						
A6S9101H	9	23.8	196-0912						
A6S0101H	10	26.34	196-0887						
<b>Flat - With Seal Tape</b>									
A6S1102H	1	3.48	196-0890						
A6S3102H	3	8.56	196-0896						
A6S5102H	5	13.64	196-0901						
A6S7102H	7	18.72	196-0906						
A6S9102H	9	23.8	196-0913						
<b>Raised - Standard</b>									
A6S1104H	1	3.48	196-0892						
A6S2104H	2	6.02	196-0894						
A6S3104H	3	8.56	196-0897						
A6S4104H	4	11.1	196-0899						
A6S5104H	5	13.64	196-0902						

Mftrs. List No.	No. of Poles	Length (mm)	Order Code	1+	10+	25+	50+	100+	Price Each
<b>Raised - Standard</b>									
A6S6104H	6	16.18	196-0904						
A6S7104H	7	18.72	196-0907						
A6S8104H	8	21.26	196-0911						
A6S9104H	9	23.8	196-0914						
A6S0104H	10	26.34	196-0888						

## DIP Switches

25mA @ 24V dc



- Low profile of 3.6mm and 2.54 pitch
- Gold plated twin contact
- Self cleaning mechanisms

Contacts	Gold
Contact resistance	200mΩ
Insulation resistance	100MΩ
Dielectric strength	500V ac
Operating temperature	-20°C to 70°C
Mechanical life	1000 ops min

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Mftrs. List No.	No. of Poles	Length (mm)	Order Code	1+	10+	25+	50+	100+	Price Each
<b>Flat - Standard</b>									
A6T1101	1	3.48	196-0917						
A6T2101	2	6.02	196-0920						
A6T3101	3	8.56	196-0923						
A6T4101	4	11.1	196-0926						
A6T6101	6	16.18	196-0929						
A6T7101	7	18.72	196-0931						
A6T8101	8	21.26	196-0934						
A6T0101	10	26.34	196-0915						
<b>Flat - With Seal Tape</b>									
A6T1102	1	3.48	196-0918						
A6T2102	2	6.02	196-0922						
A6T3102	3	8.56	196-0924						
A6T4102	4	11.1	196-0927						
A6T6102	6	16.18	196-0930						
A6T7102	7	18.72	196-0932						
A6T8102	8	21.26	196-0935						
A6T0102	10	26.34	196-0916						
<b>Raised - Standard</b>									
A6T1104	1	3.48	196-0919						
A6T3104	3	8.56	196-0925						
A6T5104	5	13.64	196-0928						

## Sealed A6E & A6ER Series

25mA @ 24V dc



A6ER Series

A6E Series

- The sealed bottom prevents flux penetration
- A variety of models with short or long actuators (levers) available

Switching Capacity	25 mA at 24VDC, 10μA (minimum current) at 3.5 VDC
Ambient Temperature	-20 to 70°C (with no icing)
Ambient Humidity	Operating: 35 to 90%
Insulation Resistance	MΩ min. (at 250VDC)
Contact Resistance	200mΩ max. (initial value)
Dielectric Strength	500 VAC for 1 min between terminals of the same polarity and between terminals of different polarity
Vibration Resistance	Malfunction: 10 to 55Hz, 1.5mm double amplitude
Shock Resistance	Malfunction: 300m/s <sup>2</sup> min.
Operating Force	0.29N
Life Expectancy	Mechanical: 1000 operations min. Electrical: 1000 operations min.
Weight	A6E: 0.66g (2 poles), 1.00g (4 poles), 1.32g (6 poles), 1.65g (8 poles), 1.98g (10 poles) A6ER: 1.01g (2 poles), 1.51g (4 poles), 2.00g (6 poles), 2.51g (8 poles), 3.02g (10 poles)

386003/405575

No. of Ways	Mftrs. List No.	Order Code	1+	25+	100+	250+	Price Each
<b>A6E Series</b>							
<b>Flat Actuator</b>							
2	A6E-2101	877-4072					
3	A6E3101	NEW 196-0868					
4	A6E-4101	877-4099					
5	A6E5101	NEW 196-0870					
6	A6E-6101	877-4110					
7	A6E7101	NEW 196-0872					
8	A6E-8101	877-4137					



# DIL Switches - continued

## Sealed A6E & A6ER Series - continued

### 25mA @ 24V dc - continued

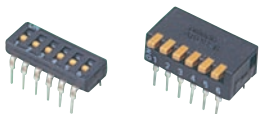
No. of Ways	Mfrs. List No.	Order Code	Price Each			
			1+	25+	100+	250+
9	A6E9101	<b>NEW 196-0874</b>				
<b>Raised Actuator</b>						
2	A6E-2104	<b>877-4080</b>				
3	A6E3104	<b>NEW 196-0869</b>				
4	A6E-4104	<b>877-4102</b>				
5	A6E5104	<b>NEW 196-0871</b>				
6	A6E-6104	<b>877-4129</b>				
7	A6E7104	<b>NEW 196-0873</b>				
8	A6E-8104	<b>877-4145</b>				
9	A6E9104	<b>NEW 196-0875</b>				
10	A6E-0104	<b>877-4064</b>				

### A6ER Series

<b>Side Actuator (Short Lever)</b>						
2	A6ER-2101	<b>877-4170</b>				
3	A6ER3101	<b>NEW 196-0876</b>				
4	A6ER-4101	<b>877-4196</b>				
5	A6ER5101	<b>NEW 196-0879</b>				
7	A6ER7101	<b>NEW 196-0882</b>				
8	A6ER-8101	<b>877-4234</b>				
<b>Side Actuator (Long Lever)</b>						
2	A6ER-2104	<b>877-4188</b>				
3	A6ER3104	<b>NEW 196-0877</b>				
4	A6ER-4104	<b>877-4200</b>				
5	A6ER5104	<b>NEW 196-0881</b>				
7	A6ER7104	<b>NEW 196-0883</b>				
8	A6ER-8104	<b>877-4242</b>				
9	A6ER9104	<b>NEW 196-0884</b>				

## Sealed Low Profile - A6D Series

### 100mA @ 50V dc



- BT approved to D8173 specification
- Moulded in polybutylene terephthalate
- Fully sealed construction, without tape seal
- Choice of IC style top actuators or 'piano key' actuators

Contacts	Beryllium (Bifurcated, auto cleaning)	Dielectric strength	500V dc
Contact resistance	100mohm max	Operating temperature	-20°C to 70°C
Insulation resistance	@ 250V dc	Mechanical life	5000 ops min

Mfrs. List No.	No. of Ways	Length	Order Code	Price Each			
				1+	50+	100+	500+

### Fiat Actuated

A6D-2100	2	7.1	<b>114-8638</b>				
A6D-4100	4	12.2	<b>990-1680</b>				
A6D6100	6	17.3	<b>990-1698</b>				
A6D8100	8	22.4	<b>990-1701</b>				
A6D0100	10	27.4	<b>990-1710</b>				

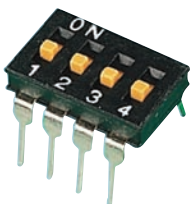
### Raised Actuated

A6D2103	2	7.1	<b>NEW 196-0862</b>				
A6D4103	4	12.2	<b>NEW 196-0863</b>				
A6D6103	6	17.3	<b>NEW 196-0864</b>				
A6D8103	8	22.4	<b>NEW 196-0865</b>				
A6D0103	10	27.4	<b>NEW 196-0861</b>				

### Side Actuated

A6DR2100	2	7.1	<b>NEW 196-0867</b>				
A6DR-4100	4	12.2	<b>990-1728</b>				
A6DR-6100	6	17.3	<b>990-1736</b>				
A6DR-8100	8	22.4	<b>990-1744</b>				

## Low Profile - A6T Series



- Bifurcated movable contacts offer superb reliability
- Smooth switching action
- Through hole version has raised actuators for easy operation
- Auto insertable

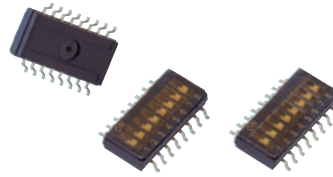
A6T:H=3.6, W=6.2, Pins  
7.62 x 2.54 spacing

Contacts	Beryllium Copper	Operating temperature	-20°C to 70°C
Contact rating	25mA @ 24Vdc	Dielectric strength	500Vdc

No. of Ways	Length	Mfrs. List No.	Order Code	Price Each		
				1+	+	+
<b>Through Hole - A6T Series</b>						
2	6.02	A6T-2104	<b>990-1809</b>			
4	11.10	A6T-4104	<b>990-1817</b>			
6	16.18	A6T-6104	<b>990-1825</b>			
8	21.26	A6T-8104	<b>990-1833</b>			
10	26.34	A6T-0104	<b>990-1841</b>			

## Half/Pitch Surface Mount A6H Series

### 25mA @ 24V dc



- Very low profile of 1.55mm
- Mounting space reduced by 63% (compared with conventional models)
- Washable, seal tape models available
- Embossed taping models available

OMRON

SMD

Switching Capacity	25 mA at 24VDC, 10µA (minimum current) at 3.5 VDC
Ambient Temperature	Operating: -20 to 70°C (with no icing or condensation) Storage: -40 to 85°C (with no icing or condensation)
Ambient Humidity	Operating: 35 to 90%
Insulation Resistance	Ms2 min. (at 250VDC)
Contact Resistance	200mΩ max. (initial value)
Dielectric Strength	300 VAC for 1min between terminals of the same polarity and between terminals of different polarity
Vibration Resistance	Malfuction: 10 to 55Hz, 1.5mm double amplitude
Shock Resistance	Malfuction: 300m/s <sup>2</sup> min.
Life Expectancy	Mechanical: 1000 operations min. Electrical: 1000 operations min.
Operating Force	0.29 to 0.49N
Weight	0.09g (4 poles), 0.12g (6 poles), 0.15g (8 poles), 0.18g (10 poles)

386004

No. of Ways	Mfrs. List No.	Order Code	Price Each			
			1+	25+	100+	250+

<b>Standard</b>						
2	A6H2101	<b>NEW 196-0885</b>				
4	A6H-4101	<b>877-4269</b>				
6	A6H-6101	<b>877-4277</b>				
8	A6H-8101	<b>877-4285</b>				
10	A6H-0101	<b>877-4250</b>				

### Seal Tape

2	A6H2102	<b>NEW 196-0886</b>				
4	A6H-4102	<b>NEW 183-2569</b>				
6	A6H-6102	<b>NEW 182-9491</b>				
8	A6H-8102	<b>NEW 182-9492</b>				
10	A6H-0102	<b>NEW 182-9489</b>				

## Low Profile

### 100mA @ 20 Vdc



- Low profile DIL switches, tape sealed to allow washing

Dielectric strength	500V dc	Operating temperature	-40°C to 100°C
Mechanical life	2000 ops		

H=3.3, W=7.1, Pins=7.62x2.54 spacing

213146

No. of Ways	Length	Mfrs. List No.	Order Code	Price Each		
				1+	25+	100+

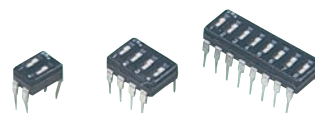
<b>DIL</b>						
2	5.6	M402SNL	<b>996-8300</b>			
4	10.70	M404SNL	<b>996-8318</b>			
8	21.3	M408SNL	<b>996-8326</b>			

### SMD

2	5.5	M402SMGNL	<b>SMD 996-8342</b>			
4	10.5	M404SMGNL	<b>SMD 996-8350</b>			
8	21.3	M408SMGNL	<b>SMD 996-8334</b>			

## Low Profile Machine Insertable

### 100mA @ 50V dc



H=3.4, W=7.2  
Pins=7.62 x 2.54 spacing

- Auto-insertable switches, tape sealed to allow washing

Contacts	Gold Plated sliding auto cleaning	Dielectric strength	500V rms 50Hz
Contact rating	100mA @ 50V dc max	Capacitance	Less than 5pF
Contact resistance	Less than 50mohm	Mechanical life	3000 ops/3000
Insulation resistance	@ 500V dc	Operating temperature	-40°C to 85°C

No. of Ways	Length	Mftrs. List No.	Order Code	Price Each			
				1+	25+	100+	250+
2	6	NDIRO2ST	108-2466				
4	11.1	NDIRO4ST	108-2467				
6	16.1	NDIRO6ST	108-2468				
8	21.2	NDIRO8ST	108-2469				
10	26.3	NDIR10ST	108-2470				

213382

### Piano Key 0.4VA @ 20mA



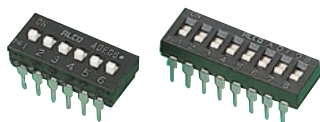
- High pressure wiping contact allows aqueous or solvent cleaning without tape seal
- Side mounted actuators for easy movement
- Lever down 'ON'
- PCB mountable
- Unique design can withstand vapour phase reflow or wave soldering conditions

H=5.25, W=7.50

213314

No. of Ways	Length	Mftrs. List No.	Order Code	Price Each			
				1+	25+	100+	250+
<b>Piano Key - Lever down 'ON'</b>							
2	7.06	ADP0204	126-4578				
4	12.14	ADP0404	112-3947				
8	22.3	ADP0804	112-3948				
10	27.38	ADP1004	112-3949				

### Extended and Flush Actuator



H=5.25, W=7.50

- High pressure wiping contact allows aqueous or solvent cleaning without tape and seal
- Unique design can withstand vapour phase reflow or wave soldering conditions
- PCB mountable
- Extended actuator for easy movement

- Flush actuator types are machine insertable

Flammability rating	UL recognised	Insulation Resistance	min @ 100VDC
Contacts	Gold Flashed Copper Alloy	Dielectric strength	500VAC
Contact rating	0.4VA @ 24V dc max.VA	Operating life	1000
Contact Resistance	50mohm max	Operating temperature	-45°C to 85°C

213313/405612

No. of Ways	Length	Mftrs. List No.	Order Code	Price Each			
				1+	25+	100+	250+
<b>Extended Actuator</b>							
2	7.06	ADE0204	112-3936				
4	12.14	ADE0404	112-3938				
6	17.22	ADE0604	112-3939				
7	19.76	ADE0704	112-3940				
8	22.3	ADE0804	112-3941				

### Half Pitch - Surface Mount



- Compact half pitch 1.27mm package
- Gold wiping contact system
- UL recognised

H=2.30, W=6.00, Pins = 7.6 x 1.27 spacing

Moving contacts	Gold over Nickel over Copper Alloy	Initial contact resistance:	100mohm
Fixed contact:		Insulation Resistance:	
Contact rating	0.4VA25mA @ 24VDC	Operating life:	1000 ops
		Operating temperature:	-30°C to 85°C

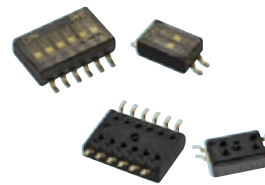
213310

No. of Ways	Length	Mftrs. List No.	Order Code	Price Each			
				1+	25+	100+	250+
2	3.66	GDH02S04	SMD112-3952				
4	6.20	GDH04S04	SMD112-3953				
6	8.75	GDH06S04	SMD112-3954				
8	11.92	GDH08S04	SMD112-3955				
10	13.82	GDH10S04	SMD112-3957				

### Flat Actuator with Top Tape - Surface Mount

25mA @ 25V dc

NEW



Contact rating	25mA @ 24V
Insulation resistance	50mohm
Contact resistance	PPS / PA46
Insulator	Black
Colour	Copper Alloy
Contact material	Gold
Contact Plating	Gold
Terminal plating	Gold
Operating temperature	-40°C to 85°C

Dimensions: H=2, D=5.6, Pitch Spacing=1.27mm

622963

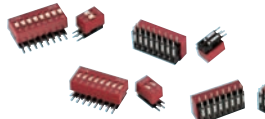
No. of Ways	Width (mm)	Mftrs. List No.	Order Code	Price Each				
				1+	25+	50+	100+	250+
2	3.58	416131160802	186-8000					
4	6.12	416131160804	186-8001					
6	8.66	416131160806	186-8002					
8	11.2	416131160808	186-8003					
10	13.74	416131160810	186-8004					

### Piano Type with Flat Actuator - Surface Mount

25mA @ 24V dc



NEW



Dimensions: H=9.6, D=7.99, Pitch Spacing=2.54mm

Contact rating	25mA @ 24V	Contact material	Copper Alloy
Insulation resistance		Contact Plating	Gold
Contact resistance	50mohm	Terminal plating	Tin
Insulator	PPS / HTN / PA46	Operating temperature	-40°C to 85°C
Colour	Red		

622966

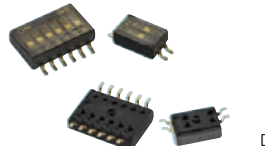
No. of Ways	Width (mm)	Mftrs. List No.	Order Code	Price Each				
				1+	25+	50+	100+	250+
2	6.08	418217170902	186-8005					
4	11.16	418217170904	186-8006					
6	16.24	418217170906	186-8008					
8	21.32	418217170908	186-8009					
10	26.4	418217170910	186-8010					

### Right Angled with Flat Actuator - Through Hole

25mA @ 25V dc



NEW



Dimensions: H=6.5, D=9.4, Pitch Spacing=2.54mm

Contact rating	25mA @ 24V	Contact material	Copper Alloy
Insulation resistance		Contact Plating	Gold
Contact resistance	50mohm	Terminal plating	Tin
Insulator	PBT / PA66	Operating temperature	-40°C to 85°C
Colour	Black		

622967

No. of Ways	Width (mm)	Mftrs. List No.	Order Code	Price Each				
				1+	25+	50+	100+	250+
2	6.08	418311170802	186-8011					
4	11.16	418311170804	186-8012					
6	16.24	418311170806	186-8013					
8	21.32	418311170808	186-8014					
10	26.4	418311170810	186-8015					

### Flat Actuator with Top Tape - Surface Mount

25mA @ 24V dc



NEW



Contact rating	25mA @ 24V
Insulation resistance	50mohm
Contact resistance	PA / PPS
Insulator	White
Colour	Copper Alloy
Contact material	Gold
Contact Plating	Gold
Terminal plating	Gold
Operating temperature	-40°C to 85°C

Dimensions: H=3.2, D=6, Pitch Spacing=2.54mm

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RoHS, REACH, WEEE, ErP, Batteries Directive - latest updates, free white papers and live online Q&A at [element14.com/legislation](http://element14.com/legislation)

# DIL Switches - continued

## Flat Actuator with Top Tape - Surface Mount - continued

25mA @ 24V dc - continued

644399

No. of Width Mftrs.		Price Each					
Ways (mm)	List No.	Order Code	1+	25+	50+	100+	250+
1	2.98	418121160801	206-5144				
2	5.52	418121160802	206-5145				
3	8.06	418121160803	206-5146				
4	10.6	418121160804	206-5147				
5	13.14	418121160805	206-5148				
6	15.68	418121160806	206-5151				
8	20.76	418121160808	206-5152				
10	25.84	418121160810	206-5153				
12	30.92	418121160812	206-5154				

## Surface Mount DIP Switches - A6SN Series

25 mA @ 24V dc



H= 3.5mm, W= 7.5mm,  
Lead spacing= 2.54mm

Operating temperature -30°C to +85°C  
 Operating humidity 35% to 95%  
 Insulation resistance 100 MΩ min. at 100 VDC  
 Contact resistance 200 mΩ max.  
 Dielectric strength 300 VAC  
 Life expectancy 1000 operations min.  
 Operating force 0.98 to 7.9 N



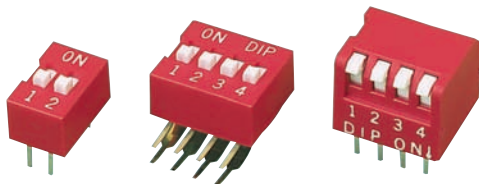
- Knife-edge high pressure mechanics
- High reliability
- Embossed taping models available for automatic mounting

640418

No. of Mftrs.		Price Each							
Ways	Length	List No.	Order Code	1+	10+	25+	50+	100+	250+
<b>Flat actuator</b>									
2	7mm	A6SN-2101	202-9424						
4	12.1mm	A6SN-4101	202-9425						
6	17.2mm	A6SN-6101	202-9426						
8	22.3mm	A6SN-8101	202-9427						
10	27.3mm	A6SN-0101	202-9428						

## DS and DP Series

100mA @ 50V dc



Top actuated H=6.9, W=6.6  
 Side actuated H=9.9, W=11.52  
 Piano key actuated H=10.3, W=11.7  
 Pin dia=0.6, Pins=7.62 x 2.54 spacing

- Gold plated contacts and terminals, single throw
- Suitable for most cleaning and soldering processes
- Choice of top actuators or 'piano key' actuators

Dielectric strength 500V dc  
 Operating temperature -40°C to 70°C  
 Initial contact resistance 50mohm @ 500V dc  
 Insulation resistance

It is recommended to solder switches in the 'off' factory supplied position

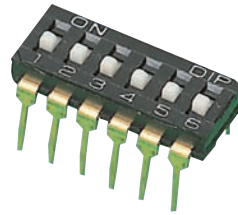
213171

No. of Mftrs.		Price Each						
Ways	Length	List No.	Order Code	1+	50+	100+	500+	1K+
<b>Top Actuated</b>								
2	6.60	MCDS02	947-2126					
3	8.98	MCDS03	125-5223					
4	11.68	MCDS04	947-1570					
5	14.06	MCDS05	125-5225					
6	16.76	MCDS06	947-1588					
7	19.14	MCDS07	125-5226					
8	21.84	MCDS08	947-1596					
9	24.22	MCDS09	125-5227					
10	26.92	MCDS10	947-2134					
12	32.00	MCDS12	947-2142					
<b>Side Actuated</b>								
2	6.44	MCDA02	125-5229					
4	11.72	MCDA04	947-1545					
6	16.8	MCDA06	947-1553					
8	21.88	MCDA08	947-1561					
10	26.76	MCDA10	125-5231					
12	31.84	MCDA12	125-5232					

No. of Mftrs.		Price Each						
Ways	Length	List No.	Order Code	1+	50+	100+	500+	1K+
<b>Piano Key Actuated</b>								
2	6.64	MCDP02	125-5233					
3	9.18	MCDP03	152-2004					
4	11.71	MCDP04	947-1600					
5	14.26	MCDP05	152-2005					
6	16.80	MCDP06	947-1618					
8	21.87	MCDP08	947-1626					
9	24.42	MCDP09	152-2007					
10	26.96	MCDP10	125-5234					
12	32.04	MCDP12	125-5235					

## Low Profile - Through Hole

25mA @ 24V dc



Body - H = 2.8, D = 6mm.  
Lead Pitch = 7.62 x 2.54mm

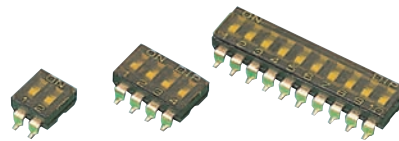
- End stackable DIL switches
  - Two types of actuators available, Raised and Recessed
  - Raised actuator is 0.40mm in height
- Contact rating 25mA @ 24V  
 Contact resistance 100mohm @ 500VDC  
 Insulation resistance @500V  
 Dielectric Strength 500VAC for 1 minute  
 Contacts Alloy Copper with Gold plating  
 Terminals Brass with Gold plating  
 Life expectancy 2000 ops.  
 Operating temperature -20°C to 85°C

498975

No. of Width Mftrs.		Price Each					
Ways (mm)	List No.	Order Code	1+	25+	50+	100+	500+
<b>Raised Actuator</b>							
2	4.98	MCEI-02	152-3984				
3	7.52	MCEI-03	152-3985				
4	10.06	MCEI-04	152-3986				
5	12.60	MCEI-05	152-3987				
6	15.14	MCEI-06	152-3988				
8	20.22	MCEI-08	152-3990				
10	25.30	MCEI-10	152-3992				
12	30.38	MCEI-12	152-3993				
<b>Recessed Actuator</b>							
2	4.98	MCEIR-02	152-3994				
3	7.52	MCEIR-03	152-3996				
4	10.06	MCEIR-04	152-3997				
5	12.60	MCEIR-05	152-3998				
8	20.22	MCEIR-08	152-4001				
9	22.76	MCEIR-09	152-4002				

## Low Profile - Surface Mount

25mA @ 24V dc



Body - H = 2.8, D = 6mm. Lead pitch = 7.62 x 2.54mm

Contact rating 25mA @ 24V  
 Contact resistance 100mohm @ 500VDC  
 Insulation resistance @500V  
 Dielectric Strength 500VAC for 1 minute  
 Terminals Alloy Copper with Gold plating  
 Life expectancy Brass with Gold plating  
 Operating temperature 2000 ops.  
 -20°C to 85°C

498925

No. of Width Mftrs.		Price Each					
Ways (mm)	List No.	Order Code	1+	25+	50+	100+	
2	4.98	MCEMR-02-T	SMD 152-4005				
3	7.52	MCEMR-03-T	SMD 152-4006				
4	10.06	MCEMR-04-T	SMD 152-4007				
5	12.80	MCEMR-05-T	SMD 152-4009				
6	15.14	MCEMR-06-T	SMD 152-4011				
7	17.68	MCEMR-07-T	SMD 152-4012				
8	20.22	MCEMR-08-T	SMD 152-4013				
9	22.76	MCEMR-09-T	SMD 152-4014				
10	25.30	MCEMR-10-T	SMD 152-4015				
12	30.38	MCEMR-12-T	SMD 152-4016				

## Half Pitch

High or Low Profile





Low Profile H=1.5, W=4.5, L=6.31 - 4 way H=2.3, W=5.4, L=11.56  
High Profile 11.39 - 8 way

- Single pole single throw half pitch DIL switches
- Available in low or high profile
- Recessed Actuator
- UL recognised

Contacts	Gold Plated over Nickel	Terminals	Gold
Contact rating	25mA @ 24Vdc, @ 50Vdc non switching	Life expectancy	2000 ops.
Operating temperature	-30°C to 85°C	Insulation resistance	@500V
Dielectric Strength	300Vac 1 min.		

It is recommended to solder switches in the 'off' factory supplied position

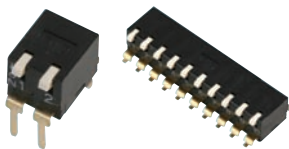
213299

No. of Mfrs.	Price Each
Ways	1+ 25+ 50+ 100+ 500+

High Profile	Order Code	1+	25+	50+	100+	500+
8 MCHDS-08-T	SMD 947-2096					
<b>Low Profile - Without Tape</b>						
2 MCDHN-02F-V	SMD 160-5473					
4 MCDHN-04F-V	SMD 160-5474					
6 MCDHN-06F-V	SMD 160-5475					
8 MCDHN-08F-V	SMD 160-5476					
10 MCDHN-10F-V	SMD 160-5477					
<b>Low Profile - Top Tape Sealed</b>						
2 MCDHN-02F-T-V	SMD 160-5478					
4 MCDHN-04F-T-V	SMD 160-5479					
6 MCDHN-06F-T-V	SMD 160-5480					
8 MCDHN-08F-T-V	SMD 160-5481					
10 MCDHN-10F-T-V	SMD 160-5482					

### Piano Key - Through Hole & Surface Mount

25mA @ 24V dc



- Piano style SPST DIP switches.
- Flammability rated UL94V-0
- Contacts are gold clad copper alloy
- Long operational life of 2000 cycles

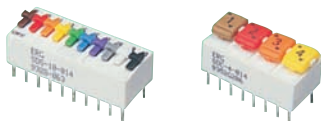
Contact resistance	100mohm	Operating force	800gf
Insulation resistance		Operating temperature	-20°C to 85°C
Dielectric strength	500VAC for 1 min.		

498726

No. of Width Mfrs.	Price Each
Ways (mm) List No.	1+ 50+ 100+ 500+
<b>Through Hole Versions</b>	
2 5 MCEPI-02	152-2017
4 5 MCEPI-04	152-2018
6 5 MCEPI-06	152-2019
10 5 MCEPI-10	152-2021
<b>Surface Mount Versions</b>	
2 5 MCEPM-02	SMD 152-2022
4 5 MCEPM-04	SMD 152-2023
6 5 MCEPM-06	SMD 152-2025
8 5 MCEPM-08	SMD 152-2026
10 5 MCEPM-10	SMD 152-2027

### End Stackable - 014 Series

1A @ 100V up to 10VA



SDS single throw  
H=8.3, W=10.6

SDC double throw (PCB linked)  
H=9.2, W=10.6

- End stackable
- Single throw style have 'ON' and 'OFF' status clearly indicated by arrowheads
- Double throw style will give break-before-make changeover action with pairs of pins on one side of the switch PCB linked
- International coded actuators ease identification and enhance appearance of circuit layout

Initial contact resistance	20mohm
Body material	Glass Filled Polyamide
Insulation resistance	
Dielectric strength	500V rms
Capacitance	Less than 1pF, between open contacts
Operating life	30000 ops within rated load is typical
Operating temperature	-55°C to 100°C

(All ratings are at 20° and 70% RH)

213366

No. of Ways	Length	Mfrs. List No.	Order Code	1+	+	+	+
<b>Single Throw Style</b>							
2	5	SDS-2-014	422-630				
4	10	SDS-4-014	422-642				
6	15	SDS-6-014	422-654				
8	20	SDS-8-014	422-666				
10	25	SDS-10-014	422-678				
<b>Double Throw Style (PCB Linked)</b>							
1	5	SDC-1-014	422-680				
2	10	SDC-2-014	422-691				
4	20	SDC-4-014	422-708				

### Recessed - 023 Series

1A @ 100V up to 10VA



H=8.8 (above PCB),  
W=10.5



Single throw



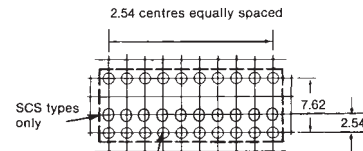
Double throw (PCB linked)



Double throw Triple-in-Line



Ganged



- International coded actuators
- Tape sealed suitable for flow soldering and solvent cleaning
- Meets requirements of BS9566 F0001 and BTD8173 and exceeds requirements of MIL-S-83504
- Specification as End-Stackable 014 Series (see above)

213375

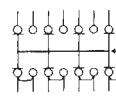
No. of Ways	Length	Mfrs. List No.	Order Code	1+	+	+	+
<b>Single Throw Style</b>							
2	7	SDS-2-023	422-710				
4	12	SDS-4-023	422-721				
6	17	SDS-6-023	422-733				
8	22	SDS-8-023	422-745				
10	27	SDS-10-023	422-757				
<b>Double Throw Triple-in-Line</b>							
2	7	SCS-2-023	422-769				
4	12	SCS-4-023	422-770				
6	17	SCS-6-023	422-782				
8	22	SCS-8-023	422-794				
<b>Double Throw Style (PCB Linked)</b>							
1	7	SDC-1-023	422-812				
2	12	SDC-2-023	422-824				
4	22	SDC-4-023	422-848				
<b>Ganged Style</b>							
1	7	SDD-1-023	422-861				

### Slide - 16 Series

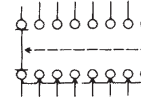
250mA @ 30V dc up to 7.5VA



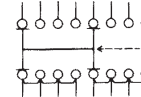
H=9.3, W=9.9,  
L=22.7



DS16C 4 2



DS16C 1 8



DS16C 2 4  
Base views

- Slide action, break-before-make contacts
- Tape sealed suitable for flow soldering and solvent cleaning
- Fitted with transparent hinged dust cover

Initial contact resistance	30mohm	Dielectric strength	500V rms
Body material	Glass Filled Polyamide	Operating life	20000 ops
Insulation resistance		Operating temperature	-55°C to 100°C

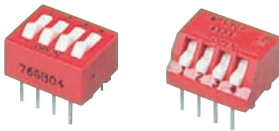
(All ratings are at 20° and 70% RH)

213386

Mfrs. List No.	Order Code	1+	25+	100+	250+
1 Pole, 8 way	DS16C1-8				
2 Pole, 4 way	DS16C2-4				
4 Pole, 2 way	DS16C4-2				

## DIL Switches - continued

### Rocker and Lever - 76 Series



- Rocker and lever key operated single throw switches
- Reliable positive wiping contact action
- Base sealed to MIL-S-202, manufactured to MIL-S-83504 specification
- Tape sealed versions available for flow soldering and solvent cleaning

Rocker: H=7.5, W=9.5 Pins=3.96x0.51x0.31  
Lever Key: H=7.14, W=9.5 Pins=3.96x0.51x0.31

Contacts Gold Plated Brass  
Current rating 5A max @ 20°C rise  
Initial contact resistance <30mohm  
(50mV, 2mA max)  
Body material Moulded thermoplastic polyester

Insulation resistance @ 100V dc  
Dielectric resistance 500V rms  
Capacitance Less than 5pF  
Operating life 35000 ops @ 50mA 30V dc  
Operating temperature -40°C to +85°C

221805

No. of Ways	Length	Mfrs. List No.	Order Code	1+	100+	500+
<b>Rocker</b>						
2	7.11	76SB02T	947-9155	●		
4	12.19	76SB04T	947-9163	●		
6	17.27	76SB06T	947-9171	●		
8	22.35	76SB08T	947-9180	●		
10	27.43	76SB10T	947-9198	●		
<b>Rocker - Tape Sealed</b>						
4	12.19	76SB04ST	947-9007	●		
6	17.27	76SB06ST	947-9015	●		
8	22.35	76SB08ST	947-9023	●		
<b>Lever Key</b>						
4	12.19	76PSB04T	947-9210	●		
6	17.27	76PSB06T	947-9228	●		
8	22.35	76PSB08T	947-9236	●		
10	27.43	76PSB10T	947-9244	●		
<b>Lever Key - Tape Sealed</b>						
4	12.19	76PSB04ST	947-9139	●		
8	22.35	76PSB08ST	947-9147	●		

### Slide - 78 Series



- SPST contacts
- Sealed base
- Spring and ball contact arrangement for added reliability
- Top tape sealed option available

Insulation resistance @ 100V dc  
Dielectric strength 500V rms  
Operating life 20000 ops  
Operating temperature -40°C to 85°C  
H=7.49, D=9.65, Pins=7.62 x 2.54 spacing

Contacts Gold Plated Brass  
Current rating 4A  
Initial contact resistance <30mohm  
Body material Thermoplastic, UL recognised

222305

No. of Ways	Length	Mfrs. List No.	Order Code	1+	100+	500+
<b>Slide</b>						
2	7.1	78B02T	947-9031	●		
4	12.2	78B04T	947-9040	●		
6	17.3	78B06T	947-9066	●		
8	22.4	78B08T	947-9074	●		
<b>Slide - Top Sealed</b>						
4	12.2	78B04ST	947-9058	●		
8	22.4	78B08ST	947-9082	●		

### Slide - 90 Series

#### Surface Mount



- SPST surface mount
- Top sealed with clear tape, suitable for high pressure aqueous cleaning
- Spring and ball contact system for high reliability

H=4.19, W=7.37,  
Pins spacing=7.62 x 2.54

Contacts Gold Plated Brass  
Current rating 3A  
Initial contact resistance <20mohm  
Insulation resistance @ 100V dc

Dielectric strength 500V rms  
Body material Thermoplastic UL94V0A  
Operating life 5000ops  
Operating temperature -40°C to 85°C

222304

No. of Ways	Length	Mfrs. List No.	Order Code	1+	10+	500+
4	11.9	90HBW04PT	SMD 947-9104	●		
8	22.1	90HBW08PT	SMD 947-9112	●		

## Rotary DIL Switches

### Truth Tables

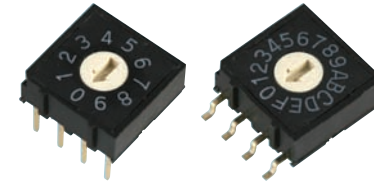
Output codes as used in digital and rotary DIL switches.

Binary Coded Decimal (BCD)	Binary Coded Decimal (BCD) Complement	Hexadecimal	Hexadecimal Complement	Decimal																																																																																																																																																																																																																																																																																														
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### 10mm x 10mm Rotary DIP Switches



25mA @ 24V dc



- Real codes DIP switching
- Available in either Through Hole or Surface Mount versions
- Flammability rating UL 94V-0

Switching Capacity  
Non-Switching Rating  
Contact Resistance  
Insulation Resistance

25mA @ 24V  
100mA @ 50V  
200mohm  
@ 250VDC

Ambient Temperature  
Voltage Proof  
Life Expectancy

-25 to 80°C  
250VAC for 1 minute  
20000 steps min.

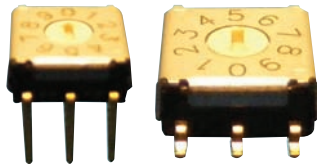
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No. of Ways Config.	Pin	Mfrs. List No.	Order Code	1+	25+	100+	250+
<b>Through Hole Mounting - Recessed Actuator</b>							
10	4 x 1	MCRH4AF-10R	152-2028	●			
10	3 x 3	MCRH3AF-10R	152-2029	●			
10	3 x 2	MCRH2AF-10R	152-2030	●			
16	4 x 1	MCRH4AF-16R	152-2031	●			
16	3 x 3	MCRH3AF-16R	152-2032	●			
16	3 x 2	MCRH2AF-16R	152-2033	●			
<b>Through Hole Mounting - 3.2mm Actuator</b>							
10	3X2	MCRH2MAF-10R-V-B	NEW 208-2992	●			
16	3X2	MCRH2MAF-16R-V-B	NEW 208-2993	●			
10	3X3	MCRH3MAF-10R-V-B	NEW 208-2994	●			
16	3X3	MCRH3MAF-16R-V-B	NEW 208-2995	●			
<b>Through Hole Mounting - 7.3mm Actuator</b>							
10	3X2	MCRH2HAF-10R-V-B	NEW 208-2985	●			
16	3X2	MCRH2HAF-16R-V-B	NEW 208-2987	●			
10	3X3	MCRH3HAF-10R-V-B	NEW 208-2988	●			
16	3X3	MCRH3HAF-16R-V-B	NEW 208-2989	●			
10	4X1	MCRH4HAF-10R-V-B	NEW 208-2990	●			
16	4X1	MCRH4HAF-16R-V-B	NEW 208-2991	●			
<b>Surface Mount - Recessed Actuator</b>							
10	3 x 2	MCRM2AF-10R	152-2037	●			
16	3 x 3	MCRM3AF-16R	152-2039	●			
16	3 x 2	MCRM2AF-16R	152-2040	●			
<b>Surface Mount - 3.2mm Actuator</b>							
10	3X2	MCRM2MAF-10R-V-B	NEW 208-3004	●			
16	3X2	MCRM2MAF-16R-V-B	NEW 208-3005	●			
10	3X3	MCRM3MAF-10R-V-B	NEW 208-3006	●			
16	3X3	MCRM3MAF-16R-V-B	NEW 208-3007	●			
<b>Surface Mount - 7.3mm Actuator</b>							
10	3X2	MCRM2HAF-10R-V-B	NEW 208-2996	●			
16	3X2	MCRM2HAF-16R-V-B	NEW 208-2997	●			
10	3X3	MCRM3HAF-10R-V-B	NEW 208-2999	●			
16	3X3	MCRM3HAF-16R-V-B	NEW 208-3001	●			
10	4X1	MCRM4HAF-10R-V-B	NEW 208-3002	●			
16	4X1	MCRM4HAF-16R-V-B	NEW 208-3003	●			
<b>Through Hole Mounting - Right Angle Terminals</b>							
10	3X2	MCRV2AF-10R-V-B	NEW 208-3008	●			
16	3X2	MCRV2AF-16R-V-B	NEW 208-3009	●			
10	3X3	MCRV3AF-10R-V-B	NEW 208-3010	●			
16	3X3	MCRV3AF-16R-V-B	NEW 208-3011	●			
10	4X1	MCRV4AF-10R-V-B	NEW 208-3013	●			
16	4X1	MCRV4AF-16R-V-B	NEW 208-3014	●			

No. of Pin	Mfrs.	Price Each	1+	25+	100+	250+
Ways Config.	List No.	Order Code				
<b>Through Hole Mounting - Kinked Pins</b>						
10	MCRS2AF-10R-V-B	<b>NEW</b> 208-3015				
16	MCRS2AF-16R-V-B	<b>NEW</b> 208-3016				
10	MCRS3AF-10R-V-B	<b>NEW</b> 208-3017				
16	MCRS3AF-16R-V-B	<b>NEW</b> 208-3018				
10	MCRS4AF-10R-V-B	<b>NEW</b> 208-3019				
16	MCRS4AF-16R-V-B	<b>NEW</b> 208-3020				

### Miniature Rotary DIP Switches

25mA @ 24V dc



- Throughhole or SMD versions
- Gold plated contacts for high reliability
- 1.96N operating torque

Rating	25mA @ 24V 10µA @ 3.5
Electrical Life	20000 ops.
Contact Resistance	200mohm
Insulation Resistance	
Dielectric Strength	250 VAC for 1 minute between terminals of the same polarity, and between terminals of different polarity
Temperature operating	-30 to 80°C

Mfrs.	No. of	Pin.	Price Each	1+	25+	100+	250+	500+
List No.	Ways	Config.	Order Code					

<b>THT - Top-Actuated (Flat)</b>								
A6K-102RF	10		169-5805					
A6K-104RF	10	Surface Mount	169-5807					
A6K-162RF	16		169-5809					
A6K-164RF	16	Through Hole	169-5811					

<b>THT - Top-Actuated (Extended shaft)</b>								
A6K-102RS	10		169-5806					
A6K-104RS	10	Through Hole	169-5808					
A6K-162RS	16		169-5810					
A6K-164RS	16	Through Hole	169-5813					

<b>SMT - Top-Actuated (Flat)</b>								
A6KS-102RF	10		169-5814					
A6KS-104RF	10	Surface Mount	169-5816					
A6KS-162RF	16		169-5818					
A6KS-164RF	16	Surface Mount	169-5820					

<b>SMT - Top-Actuated (Extended shaft)</b>								
A6KS-102RS	10		169-5815					
A6KS-162RS	16		169-5819					
A6KS-164RS	16	Surface Mount	169-5821					

<b>THT - Side-Actuated (Flat)</b>								
A6KV-102RF	10		169-5827					
A6KV-104RF	10	Through Hole	169-5829					
A6KV-162RF	16		169-5831					
A6KV-164RF	16	Through Hole	169-5833					

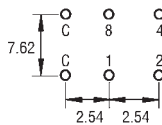
<b>THT - Side-Actuated (Extended shaft)</b>								
A6KV-104RS	10	Through Hole	169-5830					
A6KV-162RS	16		169-5832					
A6KV-164RS	16	Through Hole	169-5834					

<b>SMT - Side-Actuated (Flat)</b>								
A6KSV-164RF	16	Surface Mount	169-5825					

<b>SMT - Side-Actuated (Extended shaft)</b>								
A6KSV-104RS	10	Surface Mount	169-5823					
A6KSV-164RS	16	Surface Mount	169-5826					

### Sealed 'IC Style' - A6C Series

100mA @ 30V dc



H=4.5, W=6.6, L=9  
Pins: L=3.5,  
Th=0.5 x 0.25

H=9.1, W=7.1, L=9  
Pins: L=3.5,  
Th=0.5 x 0.25

Drilling plan

- Bifurcated contacts
- Screwdriver setting
- Low operating force
- Fully sealed construction, without tape seal
- Available BCD (10 positions, 0 - 9) and hex (16 positions, 0 - 9, A - F)

Min permissible load	100µA @ 3.5V dc	10000 ops
Contact resistance	<100mohm	2000 ops
Insulation resistance	@ 250V dc	
Contact material	Gold over Nickel	Operating temperature -20°C to 70°C

213111

Horizontal	Mfrs. List No.	Order Code	1+	50+	100+
BCD	A6C-10R(N)	990-1760			
Hex	A6C-16R(N)	990-1779			
<b>Vertical</b>					
BCD	A6CV-10R	990-1787			
Hex	A6CV-16R	990-1795			

### Rotary Encoder Switch

25mA @ 24V dc



- Rotary code switches
- Switch with ground terminal
- 8 Positions with either 7 or 8 circuits
- Operational life in excess of 10,000 cycles

Body - H = 2, W = 11.5,  
D = 11mm

Switching Capacity	10mA @ 24V	Ambient Temperature	-20 to 80°C
Contact Resistance	200mohm	Voltage Proof	300VAC for 1 minute
Insulation Resistance	@ 500VDC	Life Expectancy	10000 steps min.

498897

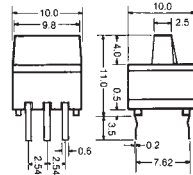
CircuitsForce	Mfrs.	Price Each	1+	50+	100+	250+
No. of ActuatingList No.	Order Code					
7	1.27N MCSR-8R7C	SMD 152-2044				
8	0.39N MCSR-8R8C	SMD 152-2045				

### Knob Control

125mA @ 30V

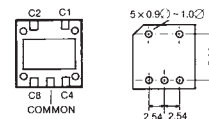


- Large coloured knob with 'V' cut-out to indicate code selected
- Selection of knob colours
- Available BCD (10 positions, 0 - 9) and hex (16 positions, 0 - 9, A - F)



Maximum static contact rating 125mA @ 100V rms non switched @ 85°C/125mA/85°C  
100mohm

Contact resistance (10mV, 10mA max)  
Body material Black polyamide, UL recognised @ 240V dc min  
Insulation resistance 250V rms for 1 minute  
Dielectric strength <5pF @ 1 MHz  
Capacitance 20000 ops  
Operating life -55°C to 85°C



Bottom view

213332

Knob Colour	Mfrs. List No.	Order Code	1+	25+	100+	250+
BCDRed	Red	ERG10-412/2120-3413				
BCDBlue	Blue	ERG10-412/6120-3414				
BCD complementRed	Red	ERG10-422/2120-3415				
HexRed	Red	ERG16-412/2120-3416				
HexGreen	Green	ERG16-412/5120-3417				
HexBlue	Blue	ERG16-412/6120-3419				
Hex complementRed	Red	ERG16-422/2120-3420				
Hex complementBlue	Blue	ERG16-422/6120-3422				

### Coded Switches

07 Series



- 16 position hexadecimal coding
- Rugged environments
- Up to 3.5 Ncm switching torque
- Gold plated contacts
- Washable (sealed contact system)

Voltage rating	200mA
Current rating	50mohm
Contact resistance	
Insulation resistance	
Dielectric voltage	500V
Operating temperature	-40°C to 85°C

626432

Mfrs. List No.	Order Code	1+	25+	50+	100+	+
<b>Non-Shorting - Horizontal</b>						
07-1154	187-6081					
<b>Shorting - Vertical</b>						
07-3153	187-6082					
<b>Non-Shorting - Vertical</b>						
07-3154	187-6083					



# Rotary DIL Switches - continued

## Sealed PCB Mounting

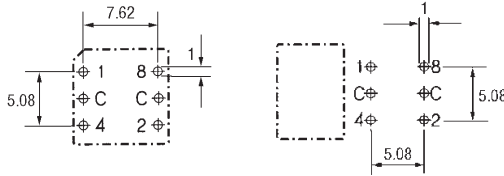
400mA @ 24V dc (non-switching),  
150mA @ 24Vdc (switching)



Horizontal screwdriver H=6.5, W=10, D=10  
Right angle screwdriver H=10, W=10, D=11.9  
Spindle H=13.8, W=10, D=10



Knurled wheel H=9.2, W=10, D=10  
Segment wheel H=10.9, W=10, D=10



Standard mounting (except right angle) PCB drilling plans

Right angled mounting

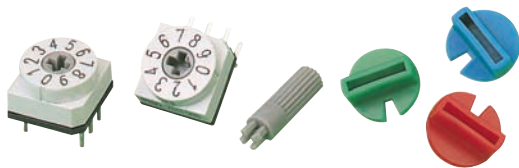
- Wide variety of styles
- Gold plated terminals
- All types solder flux sealed and washable

Initial contact resistance	<80mohm	Mechanical life	10000 operations
Insulation resistance	>	Operating temperature	-20°C to 70°C
Mfrs. List No.	PT65-101 = 108-2476 PT65-102 = 108-2478 PT65-103 = 108-2479 PT65-106 = 108-2481	PT65-121 = 108-2482 PT65-101-L508 = 108-2477 PT65-103-L508 = 108-2480 PT65-301 = 108-2483	PT65-303 = 108-2484 PT65-401 = 108-2485 PT65-501 = 108-2487 PT65-503 = 108-2488

	Order Code		Price Each			
	1+	25+	100+	250+	500+	
<b>Horizontal Screwdriver</b>						
BCD	108-2476					
BCD complement	108-2478					
Hex	108-2479					
Hex complement	108-2481					
Decimal 4 position	108-2482					
<b>Right Angle Screwdriver</b>						
BCD	108-2477					
Hex	108-2480					
<b>Spindle</b>						
BCD	108-2483					
Hex	108-2484					
<b>Knurled Wheel</b>						
BCD	108-2485					
<b>Segment Wheel</b>						
BCD	108-2487					
Hex	108-2488					

## Sealed PCB Mounting

With Spindles and Segment Wheels  
400mA @ 24Vdc (non-switching),  
150mA @ 24V dc (switching)



Horizontal cross-head: H=7, W=10, D=10  
Right angle cross-head: H=10, W=10, D=10

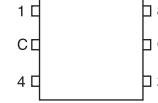
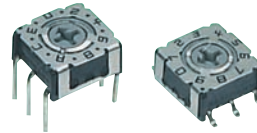
- Press-fit activators
- Choice of two spindle heights
- Selection of segment wheel colours
- Horizontal and right angle mounted cross-head rotary DIL switches with a variety of spindles and segment wheels to suit.

213225

Head	Order Code	Price Each				
		1+	25+	100+	250+	500+
BCD	108-2489					
HEX	108-2491					
HEX/COMP	108-2493					
<b>Right Angle Crosshead</b>						
BCD	108-2490					
HEX	108-2492					
<b>Spindles</b>						
11.6mm	108-2494					
13.3mm	108-2495					
<b>Segment Wheels</b>						
Blue	108-2531					
Black	108-2532					
Green	108-2533					
Red	108-2534					

## Sealed Through Hole and Surface Mount - P36 Series

400mA @ 24V dc (non-switching), 100mA @ 24V dc (switching)



Connections  
PCB pin spacing : 2.54x7.62, H=3.6  
SMT overall dims. : H=3.8, W=9.5, D=7.4

- Flux sealed and washable
  - High reliability and long life
  - Compact, low profile
  - Positive detent
  - Through hole and surface mount versions
  - BCD (10 position) and hex (16 position) version
- |                             |  |                       |                      |
|-----------------------------|--|-----------------------|----------------------|
| Operating voltage           | 24Vdc max.                             | Expected life         | 10000 switching ops. |
| Initial contact resistance  | <250mohm                               | Operating temperature | -30°C to 90°C        |
| Insulation resistance       | >                                      |                       |                      |
| Soldering recommendations : |  |                       |                      |
| Hand soldering (max.)       | 340°/2 secs. (40W iron max.)           |                       |                      |
| Wave soldering (max.)       | 260°/10 secs.                          |                       |                      |
| Mfrs. List No.              | P36101 = 108-2471<br>P36103 = 108-2472 | P36S101 = 108-2473    | P36S103 = 108-2475   |

	Order Code		Price Each			
	1+	25+	100+	250+		
Through hole, BCD	108-2471					
Through hole, hex.	108-2472					
Surface mount, BCD	SMD108-2473					
Surface mount, hex.	SMD108-2475					

## 7mm x 7mm Rotary DIP Switches

25mA @ 24V dc



- Real codes DIP switching
- Available in either Through Hole or Surface Mount versions
- Flammability rating UL 94V-0

Switching Capacity	25mA @ 24V Operating Temperature (MCR7 Series) -30 to 80°C
Operating Force	200gf Life Expectancy 20,000 steps
Operating Temperature (MCRJ Series)	-40 to 85°C

MCRJ Series				Price Each			
No. of Ways	Pin Config.	Mfrs. List No.	Order Code	1+	25+	100+	250+
<b>Through Hole Mounting - Recessed Actuator</b>							
10	3X2	MCRJH3-10R-Q	208-3026				
16	3X2	MCRJH3-16R-Q	208-3027				
<b>Through Hole Mounting - 3mm Actuator</b>							
10	3X2	MCRJH3H-10R-Q	208-3028				
16	3X2	MCRJH3H-16R-Q	208-3029				
<b>Surface Mount - Recessed Actuator</b>							
10	3X2	MCRJM3-10R-Q	208-3021				
16	3X2	MCRJM3-16R-Q	208-3022				
<b>Surface Mount - 3mm Actuator</b>							
10	3X2	MCRJM3H-10R-Q	208-3023				
16	3X2	MCRJM3H-16R-Q	208-3025				

MCR7 Series				Price Each			
No. of Ways	Pin Config.	Mfrs. List No.	Order Code	1+	25+	100+	250+
<b>Through Hole Mounting - Recessed Actuator</b>							
10	3X3	MCR7H3-10RA-V-B	208-3039				
10	4X1	MCR7H4-10RA-V-B	208-3041				
16	3X3	MCR7H3-16RA-V-B	208-3040				
16	4X1	MCR7H4-16RA-V-B	208-3042				

658383

No. of Ways	Pin Config.	Mfrs. List No.	Order Code	1+	25+	100+	250+
<b>Through Hole Mounting - 3mm Actuator</b>							
10	3X3	MCR7H3H-10RA-V-B	208-3043				
10	4X1	MCR7H4H-10RA-V-B	208-3045				
16	3X3	MCR7H3H-16RA-V-B	208-3044				
16	4X1	MCR7H4H-16RA-V-B	208-3046				
<b>Surface Mount - Recessed Actuator</b>							
10	3X3	MCR7M3-10RA-V-B	208-3030				
10	4X1	MCR7M4-10RA-V-B	208-3032				
16	3X3	MCR7M3-16RA-V-B	208-3031				
16	4X1	MCR7M4-16RA-V-B	208-3033				
<b>Surface Mount - 3mm Actuator</b>							
10	3X3	MCR7M3H-10RA-V-B	208-3034				
10	4X1	MCR7M4H-10RA-V-B	208-3037				
16	3X3	MCR7M3H-16RA-V-B	208-3035				
16	4X1	MCR7M4H-16RA-V-B	208-3038				

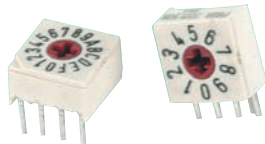
### Sealed PCB Mounting, 4 + 1 Pin Connection

With Spindles and Segment Wheels

400mA @ 24Vdc (non-switching), 150mA @ 24V dc (switching)



Horizontal cross-head:  
H=6, W=10, D=10, Pins  
(3 x 2.54) x 7.62



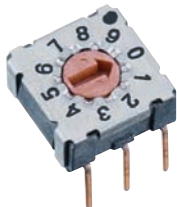
Right angle cross-head:  
H=10, W=10, D=10,  
Pins (3 x 2.54) x 5.08

- Choice of horizontal or right angle orientation
- 4 + 1 Pin connection
- Press-fit activators
- Choice of two spindle heights
- Selection of segment wheel colours

241415

Head	Order Code	1+	25+	100+	250+	500+
<b>Horizontal Cross</b>						
BCD	996-8369					
HEX	996-8377					
<b>Right Angle Crosshead</b>						
BCD	996-8385					
HEX	996-8393					
<b>Spindles</b>						
11.6mm	108-2494					
13.3mm	108-2495					
<b>Segment Wheels</b>						
Blue	108-2531					
Black	108-2532					
Green	108-2533					
Red	108-2534					

### Rotary DIP Switches



- Operating force: 120g or 700g versions
- Height: 3.65mm (7x7mm version) and 6.5mm (10x10mm version)
- Washable and non-washable types available
- Contact: Gold plated
- Terminals: Gold plated



NEW

Mfrs. List No.	No. of Position	Actuator Colour	Contact Rating (V / mA)	Operating Force (g)	Operating Life	Code	Order Code
<b>7x7mm THT</b>							
428547320910	10	Red	42 / 100	120	25000	Real	206-5155
428547320911	10	Orange	42 / 100	120	25000	Complement	206-5156
428547320916	16	Grey	42 / 100	120	25000	Real	206-5157
428547320917	16	Ivory	42 / 100	120	25000	Complement	206-5158
<b>10x10mm SMD</b>							
428521320810	10	Grey	24 / 150	700	10000	Real	206-5159
428521320811	10	Blue	24 / 150	700	10000	Complement	206-5160
428521320816	16	Grey	24 / 150	700	10000	Real	206-5161
428521320817	16	Blue	24 / 150	700	10000	Complement	206-5163

644397

Mfrs. List No.	Order Code	1+	25+	50+	100+	250+
<b>7x7mm THT</b>						
428547320910	206-5155					
428547320911	206-5156					
428547320916	206-5157					
428547320917	206-5158					

Mfrs. List No.	Order Code	1+	25+	50+	100+	250+
<b>10x10mm SMD</b>						
428521320810	206-5159					
428521320811	206-5160					
428521320816	206-5161					
428521320817	206-5163					

### Rotary Switch Actuators



- The cut-out of the actuator types should be in line with the positioning arrow of the rotary switch
- POM UL HB material
- To be fitted after the soldering process



NEW

663236

Colour	Mfrs. List No.	Order Code	1+	5+	25+	50+	100+
<b>Rotary Actuators</b>							
Black	714281050	213-4443					
Grey	714284050	213-4444					
Red	714286050	213-4446					
Blue	714287050	213-4447					
<b>Spindle for 10x10mm Rotary Switches</b>							
Grey	714284060	213-4451					

### Digital Switches

#### Truth Tables

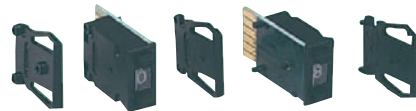
Output codes as used in digital and rotary DIL switches.

Binary Coded Decimal (BCD)	Binary Coded Decimal (BCD) Complement	Hexadecimal	Hexadecimal Complement	Decimal

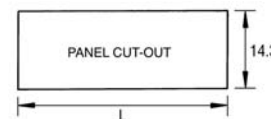
213242

### Ultra-Miniature Push Button - PA Series

100mA @ 50V ac/dc



$L = (N \times 7.62) + 3.3 + (S \times 2.5)$  where N=No of switches and S=No of spacers  
Switch: H=15, W=7.62, D=18 (behind panel) (24 including PCB terminals)  
Spacer: H=15, W=2.5, D=18 (behind panel)  
End cheek: H=15, W=1.5, D=18 (behind panel)



- White engraved legends behind perspex window on matt black background
- Panel mounting by means of snap-in end cheeks
- All parts, including spacers and end cheeks, clip together by means of integral pips and lugs

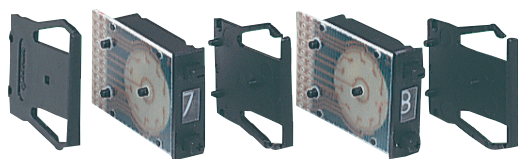
Contacts	Gold	Operating life	1000000 ops
Contact resistance	0.1ohm<	Housing material	PPO Noryl
Insulation resistance		Operating temperature	-20°C80°C to
Dielectric strength	500V ac		
Mfrs. List No.	PAAA3000118-0017 6090801118-0014	PACA3000118-0018 6090799118-0013	6090803118-0015

213086

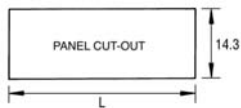
Output Code	Readout	Order Code	1+	25+	100+	250+	1K+
<b>Switch Modules</b>							
Decimal	0 - 9	118-0017					
BCD	0 - 9	118-0018					
<b>Accessories</b>							
LH end cheek		118-0014					
RH end cheek		118-0013					
2.5mm spacer		118-0015					

## Sub-Miniature Push Button - PE Series

100mA @ 50V ac/dc



L = (N x 7.62) + 3 + (S x 2.5) where N = No of switches and S = No of spacers  
 Switch: H=24, W=7.62, D=26 (behind panel) (34 including PCB terminals)  
 Spacer: H=24, W=2.5, D=26 (behind panel)  
 End cheek: H=24, W=3.0, D=26 (behind panel)

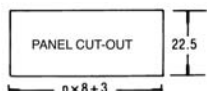
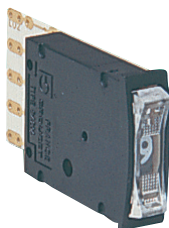


● As PA series detailed above, but switch height is 24mm instead of 15mm

Mfrs. List No.  
 PEAA3000 = 118-0020      6090754 = 118-0007  
 PEFA3000 = 118-0021      6090756 = 118-0011  
 PEHA3000 = 118-0023      6090760 = 118-0012

Output Code	Readout	Order Code	1+	25+	100+	250+	1K+
Decimal	0-9	118-0020					
BCD + Complement	0-9	118-0021					
Hex	0-9, A-F	118-0023					
<b>Accessories</b>							
LH end cheek		118-0007					
RH end cheek		118-0011					
Order Multiple=5			1+	25+	100+	250+	1K+
2.5mm spacer		118-0012					

## Miniature Rocker - 84214 Series



H=24.0, W=7.5 (switch),  
 W=6.0 (end plates per pair)  
 D=26.0, Board length=16.0  
 Max panel thickness=3.5  
 Pad pitch: 143-632=2.54, 143-633=2.0

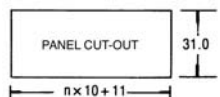
- Front panel mounting by retaining clips on end plates
- Switch modules and end plates all snap together
- Rocker action digit incrementing either up or down
- Long boards fitted to modules to accommodate diodes and resistors

Mfrs. List No.      84214009 = 143-632      84214010 = 143-633  
 79214283 = 143-634      79214216 = 143-640

Output Code	Readout	Order Code	1+	50+	100+	250+	1K+
BCD	0 - 9	143-632					
Decimal	0 - 9	143-633					
<b>Accessories</b>							
End plates, pair		143-634					
Spacer		143-640					

## Standard Rocker and LED Readout Module

84211/84217 Series



H=33.0, W=10.0 (switch),  
 W=13.0 (end plates per pair)  
 W=10.0 (accessories)  
 D=28.5, Board length=18.5,  
 Max panel thickness=3.5, Pad pitch=2.54

- Front panel mounting by retaining clips on end plates and separators
- Modules and end plates all snap together
- Rocker action digit incrementing either up or down
- Long board fitted to modules to accommodate diodes and resistors
- Spacer: blank module used to replace a module assembly
- Separator: used to fit 2 switches into one unit (complete with 2 clips)
- Matching 7-segment LED display modules are common cathode and are available with or without a decoder:-

143-629: Anodes are brought out to the edge connector via series resistors suitable for 5V operation  
 143-630: Module decodes BCD to 7-segment and handles ripple blanking and lamp test  
 143-631/147-150: Modules decode BCD to 7-segment with 4-bit memory latch  
 Mfrs. List No.      84211004 = 143-624      84211023 = 143-625  
                          84217018 = 143-630      79211836143-627 = =  
                          79211847 = 143-626      79211848143-628 = =

213346

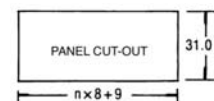
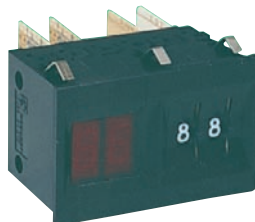
Output Code	Readout	Order Code	1+	50+	100+	250+	1K+
BCD	0 - 9	143-624					
Decimal	0 - 9	143-625					
<b>LED Readout Modules</b>							
BCD, +5V		143-630					
<b>Accessories</b>							
End plates, pair		143-626					
Spacer		143-627					
Separator		143-628					

Output Code	Readout	Order Code	1+	50+	100+	250+	1K+
BCD		143-624					
Decimal		143-625					
BCD, +5V		143-630					
End plates, pair		143-626					
Spacer		143-627					
Separator		143-628					

## Standard Thumbwheel and LED Readout Module



84210/84216 Series



H=33.0, W=8.0 (switch),  
 W=9.0 (end plates per pair)  
 W=8.0 (accessories), D=28.5,  
 Board length=18.5  
 Max panel thickness=3.5, Pad pitch=2.54

- Front panel mounting by retaining clips on end plates and separators
- Modules and end plates all snap together
- Standard thumbwheel switches
- Long board fitted to modules to accommodate diodes and resistors
- Matching 7-segment LED display is common cathode, decodes BCD to 7-segment, has memory and handles ripple blanking
- Spacer: blank module used to replace a module assembly
- Separator: used to fit 2 switches into one unit (complete with 2 clips)

Mfrs. List No.      84210056 = 143-616      84216005 = 145-217      79211745 = 143-619  
 84210054 = 143-617      79211759 = 143-618      79211760 = 143-620

213347

Output Code	Readout	Order Code	1+	50+	100+	250+	500+
BCD	0 - 9	143-616					
Decimal	0 - 9	143-617					
<b>LED Readout Module</b>							
BCD with memory, +5V		145-217					
<b>Accessories</b>							
End plates, pair		143-618					
Spacer		143-619					
Separator		143-620					

## Joystick / Direction Controllers

### Single Axis Fingertip Rocker (Potentiometer)



- Conductive plastic track technology - absolute position control and maintenance free operating life
- Developed for applications where compact size and minimal above panel height is paramount
- Fitted with flying leads
- Sealed to IP65

Input voltage (max)      35V  
 Total track resistance      2kohm  
 Power rating      250mW  
 Mechanical life      >5 million operations  
 Operating temperature      20°C to +70°C

H=47.5, W=47.5, D=27

338013

Mfrs. List No.	Order Code	1+	5+	10+	25+
JC030-R-STD-BLK	119-1276				



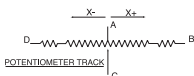
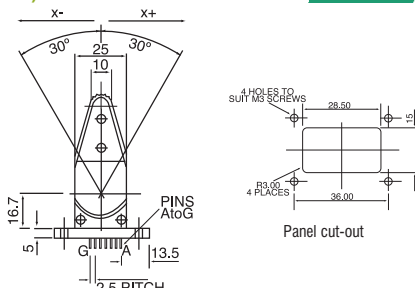
## Single Axis (Potentiometer)

Perry+Giles

613469



H=70, Base W=34, D=46



Connections

- Potentiometric single axis control
- Compact size and easy to install
- Proportional output and independent switched output
- Sealed to **IP66**, suitable for outdoor use
- Internal padding resistors enable user to detect possible faults in their equipment
- Connection by 7-way connector, mating connector and data supplied

### Track details:

Track resistance $4K\Omega \pm 20\%$ + padding resistance	kohm $\pm 20\%$ total
Padding resistance (each end)	kohm $0.5 \pm 20\%$
Power dissipation	0.25W @ 20°C
Wiper current	5mA max.
Current centre tap self-centre within tap width	$\pm 2.5^\circ$ nominal
Switch wiper current	2mA max.
Temperature range	-20°C to 70°C

213202

Mfrs.	Order Code	1+	5+	10+	25+
JC100-002-5K	<b>119-1277</b>				

## Compact, Single Axis (Potentiometer)

Perry+Giles

119-1274: H=63.75, W=50, D=26.5



119-1273: H=54, W=50, D=26.5

- Conductive plastic track technology - absolute position control and maintenance free operating life
- Low profile lever avoids unintentional operation
- EMC Protected
- Sealed to **IP66**

Input voltage (max)	35V	Power rating	250mW
Current consumption	5mA	Mechanical life	>5 million operations
Total track resistance	5kohm	Operating temperature	-25°C to +70°C

338009

Handle	Mfrs.	Order Code	1+	5+	10+	25+
Style	List No.					
Short handle	JC120-0002	<b>119-1273</b>				
Long handle	JC120-0005	<b>119-1274</b>				

### Connector

500mm	SA301649	<b>119-1544</b>				
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## Paddle Control

BF Series



A P E M

**NEW**



The BF Series Paddle is the very latest generation in high precision contactless controls. It combines the features of a contactless single axis joystick and a switch in one control. Long trouble-free life is assured with the latest hall effect technology. The all-new design with its innovative mechanism and ergonomic styling is specifically designed for robustness, strength and performance.

Power Supply	5V $\pm 0.5V$ Transient free
Current Consumption	<20mA
Output at Centre	V/2 $\pm (5\% \times \text{Gain})$
Gain (Output Voltage Span)	$\pm 10\% \times V$ to $\pm 50\% \times V$
Operating Temperature	-25°C to +70°C
Life Cycles	5000000 (Sprung version only) 2000000 (Detents)

Mfrs. List No.	Order Code	Mfrs. List No.	Order Code	Mfrs. List No.	Order Code
BF240A01BK1200	182-9794	BF240D03BK1200	182-9795	BF240SD3BK1200	182-9796

Lever Operation	Order Code	1+	5+	10+
Spring to Centre	<b>182-9794</b>			
+/- 12.5° & 25° Detents	<b>182-9795</b>			
Spring to Centre and +/- 12.5° & 25° Detents	<b>182-9796</b>			

Price Each

## Thumbwheel Switches



The HFX Thumbwheel is a self centering, single-axis device developed for thumb-actuated applications requiring proportional output control. Utilizing non-contact Hall effect technology for long life performance. Configuration options include choice of linear voltage output as well as wheel color. The HFX Thumbwheel is available as a stand-alone device or may be incorporated into one of CH Products custom joysticks.

**NEW**

Supply voltage	4V to 5V	Output options	0V to 5V
Supply current	10mA		0.5V to 4.5V
Actuation force	0.78N		1V to 4V
Electrical life	5000000	Output current	2mA max.
Operating temperature	-40°C to 85°C	Output tolerance	$\pm 2\%$

618956

Mfrs.	Order Code	1+	10+	25+	50+	100+
<b>Without Tab</b>						
HTW-12-RED	Red	<b>185-7100</b>				
HTW-12-BLU	Blue	<b>185-7102</b>				
HTW-12-BLK	Black	<b>185-7103</b>				
HTW-12-GRY	Grey	<b>185-7104</b>				
<b>With Tab</b>						
HTW-02-RED	Red	<b>185-7105</b>				
HTW-02-BLU	Blue	<b>185-7106</b>				
HTW-02-BLK	Black	<b>185-7107</b>				
HTW-02-GRY	Grey	<b>185-7108</b>				

## Dual Axis (Potentiometer)

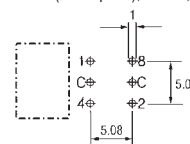
multicomp



- Miniature size uses 26 x 26 panel area (excluding potentiometer)
- PCB mount with both self centering and absolute (put and stay) options
- $\pm 30^\circ$  lever movement
- Supplied with robust metallic knob

Potentiometer resistance	10kohm
Operating life	300000 ops

H=33(above panel), W=34, D=34, Below panel depth=20



213311

Description	Order Code	1+	5+	10+
Absolute	<b>190-9746</b>			
Self Centering	<b>190-9747</b>			

## Dual Axis (Potentiometer)

PRODUCTS

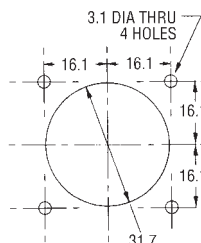
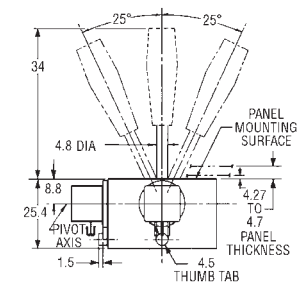


Electromechanical

33

Switches

## Dual Axis (Potentiometer) - continued

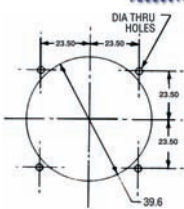
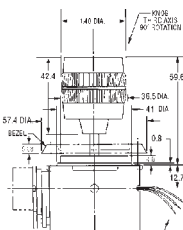


Panel Cut Out

- Potentiometric dual axis control
  - Self centering to zero position
  - Precision ground stainless steel ball pivot and shaft
  - Special blended plastics reduce friction on the bearing surfaces
  - Supplied with a square black textured bezel
- Joystick travel: % from centre in all directions  
 Return to centre repeatability: ±1%  
 Potentiometer: 5KR, 1W conductive plastic, set at centre of resistance
- Panel thickness: 1.25mm to 4.75mm  
 Mechanical life: > 5 million operations  
 Operating temperature: -10°C to +65°C

Mfrs. List No.	Order Code	1+	10+	25+	50+
M11Q061P	112-4084				

## Three Axis (Potentiometer)



Panel Cut Out

- Potentiometric three axis control rotational movement of the joystick knob gives control in the Z axis
- Supplied with a two piece bezel consisting of a textured ring and rubber boot for sealing

FOR TECHNICAL SPECIFICATION SEE [www.farnell.com](http://www.farnell.com)

Mfrs. List No.	Order Code	1+	10+	25+	50+
M31L081A	112-4085				

## Resistive Miniature Joysticks

### Dual & Triple Axis



Dual

Triple

- Potentiometric sensing
- Low profile design
- One million life cycles

Joystick travel: 56° (28° from center)  
 Breakout force: 0.029Nm  
 Operational force: 0.041Nm  
 Maximum force: 0.062Nm  
 Centering: Spring centering  
 Housing: High impact glass-filled nylon  
 Life cycles: 1000000 operations

The Resistive Joystick is a low profile, potentiometric controller providing unwavering, multi-axis finger-positioning control. Miniature Resistive Joysticks are ideal for applications requiring a compact and reliable, low operating force controller. Featuring two ergonomically designed handles and available in dual or triple axis configurations, typical applications include CCTV equipment, robotic controls, electric wheelchairs and electron microscopes.

Mfrs. List No.	No. of Axis	Order Code	1+
M21L0H1P	2	182-9792	
M41L091P	3	182-9793	

## Miniature Joysticks



The TS Series Thumbstick is a proportional two axes joystick in a miniature package. Featuring non-contacting Hall effect technology for long life performance, the TS Series Thumbstick is available with multiple linear output options including single and dual (redundant) outputs. It is similar in size and operation to "gamepad" controls, but in a rugged industrial package. Typical applications include pendant and remote controls as well as joystick handle and arm rest integration.

**NEW**

- 1 or 2 axes
  - Non-contact hall effect technology
  - Submersible to 1m at IP68
  - Pressure washable to IP69K
  - Drop in mounted
  - Castle handle
  - 25cm wire termination
- Resolution: 1.22mV  
 Supply voltage: 5V±0.01V  
 Reverse polarity max.: -10V  
 Overvoltage max.: 20V  
 Output impedance: 2Ω  
 Return to center voltage tolerance: ±250mV  
 Output voltage: Single: 0.5V to 4.5V temperature
- Dual: 0.5V to 4.5V, 4.5V to 0.5V  
 Error signal: 1%  
 Operating force: 3.1N±0.5N  
 Life cycles: 1000000  
 Lever action: Spring centering  
 Operating temperature: -40°C to 85°C

Mfrs. List No.	Axis	No. of Output	Order Code	1+	5+	10+	25+	50+
TS-1D1U02A	1	1	185-7131					
TS-1D1S02A	2	1	185-7132					
TS-1D1S09A	2	2	185-7133					
TS-1D1U09A	1	2	185-7134					

## Multi-Function Joystick

### 60C Series



The 60C is a effective replacement of a stationary mouse or trackball with improved control over cursor movement. An integral Schmitt Trigger is used to stabilize against noise and vibration. As a compact cursor control device, this product is ideal

**NEW**

ly suited for automotive and aviation dashboards, where use of separate joysticks, encoders and pushbuttons might be impractical. It provides all the functionality of a stationary mouse or trackball in a single-shaft design with a 1"x1"x 3/4" deep housing. The joystick manipulates a cursor left, right, up and down; the rotary encoder facilitates sequential scrolling through menu options; and the pushbutton performs on-screen menu selects.

- 16 positions
- Three-in-One Joystick, Optical Encoder and Pushbutton
- Standard quadrature 2-bit code
- 152.4mm cable length
- Application: Avionics, Medical Equipment and Automotive Navigation, Information & Entertainment Equipment

Mfrs. List No.	Order Code	1+	10+	25+	50+	100+
60C22-M7-4-040C	188-9180					

Control Knob  
 607702/607703    188-9181

## Potentiometer Joystick

### Low Profile



- Low profile installation
- Simple interface
- Ergonomic design
- Low current drain
- Specifically designed for keyboards and CCTV applications

H = 73 (overall), W = 41.5, D = 41.5mm

Potentiometers: 5kohm - 55°  
 Operating voltage - Max.: 10V  
 Power rating: 0.125W  
 Lever Travel: ±20°

Potentiometers: 5kohm - 55°  
 Operation life: >1000000 Operations  
 Operating temperature: -10 to 55°C

Number of Axes/Handle style	Mfrs. List No.	Order Code	1+	5+	10+
2 / Conical	5T25-1S0F-21-127	142-8461			
3 / Third Axis	5T35-1S0W-21-127	142-8462			







IP Desktop USB



- Three axes joystick for precise control
- Programmable push-buttons
- USB 1.1 HID compliant "game controller" device
- Easy to use and operate



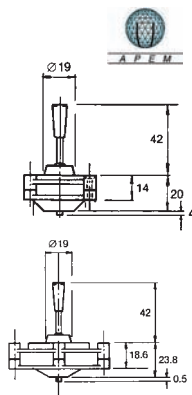
The IP Desktop features a two button three axes Hall effect joystick, 10 tactile pushbuttons switches and USB 1.1 interface. Recommended and used by the most innovative companies in network surveillance, the IP Desktop has become an industry standard for security professionals.

Voltage Rating	5V dc	Operating Force	0.151Nm
Current Rating	32mA max.	Max. Force	0.169Nm
Operating Travel	36° (18° from center)	Operating Temperature	-40°C to 85°C
Centering	Single spring, omni-directional	Life Expectancy	10000000 operations
Breakout Force	0.109Nm	Termination	USB 1.1

Mfrs. List No.	Order Code	Price Each
100-550BLK	182-9788	1+

Microswitch Joysticks

Panel/Surface Mount Sealed Joysticks



- Assemblies fitted with 4 standard changeover microswitches
- Joystick will activate none, one or two neighbouring microswitches depending on position
- Supplied with two joystick guides to limit movement to one or two axes
- Suitable for panel or surface mounting
- Sealing to panel against dust and moisture provided by PVC gaiter at joystick base
- Supplied with panel bezel and 4 fixing screws

989-5736	989-5744		
Fixing centres=64.0	Fixing centres=36.0		
Contact rating	5A @ 250V ac	989-5736	10A @ 250V ac
Contact type	Double throw	989-5744	10A @ 250V ac
Operation angle	±12°		
Termination	Solder tab	Tab	

Panel or Surface Mount Joystick

IP 65 Sealed



- Modern "stubby" design
- 22mm bush or screw mounting
- Construction based on V4 micro-switches with change over contacts
- Gold flash terminals for reliable low current switching
- Black Conical handle made from Nylon
- Supplied with adhesive sealing gasket

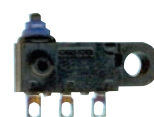
H = 64 (Overall), W = 44, D = 44 (Base)

Contact rating	6A @ 250V	Contact rating	6A @ 250V
Contact type	Change-over	Contact type	Change-over
Lever Travel	±12° from centre	Mounting bush	22mm Bush
Operation life	≥5000000 Operations	Operating temperature	-20 to 50°C

Contact	Mfrs.	Price Each
Rating	List No.	Order Code
6 A	1D1-5F-15-71	142-8454

Ultra Subminiature

Sealed D2HW Series



- The smallest sealed Snap-Action switch in the industry with a very long stroke for reliable On/Off action
- The case dimensions are 78% of conventional models, contributing to down-sizing of mechanical modules
- Extra-long stroke even without levers (OT: 1.4mm)
- Made of environment-friendly materials
- All models are lead-free

Body:  
H = 6.5, W = 18.5,  
D = 5.3mm

Operating Speed 1mm to 500mm/s (for pin plunger models)  
Operating Frequency 30 operations/min  
Insulation Resistance MΩ min. (at 500VDC)  
Contact Resistance 100mΩ max.  
Dielectric Strength 600VAC, 50/60Hz for 1 min between terminals of same polarity

Vibration Resistance 1500VAC, 50/60Hz for 1 min between current-carrying metal parts and ground, and between each terminal and non-current-carrying metal parts  
Shock Resistance Malfunction: 10 to 55Hz, 1.5mm double amplitude  
Life Expectancy Malfunction: 300m/s<sup>2</sup> min.  
Mechanical: 1,000,000 operations min. (30 operations/min)  
Electrical: 100,000 operations min. (20 operations/min)

Degree of Protection IP50  
Degree of Protection Class I  
Against Electric Shock Class I  
Proof Tracking Index 175  
Operating Temperature -40 to 85°C (with no icing)  
Ambient Operating Humidity 95% max. (in temperature range 5 to 35°C)  
Weight Approx. 0.7g (for pin plunger models)

Actuator	Mfrs. List No.	Order Code	1+	10+	25+
<b>SPDT - PCB Terminals - Base Mounting</b>					
Leaf Lever	D2HWA261D	NEW 196-1118			
Lever	D2HWA211D	NEW 196-1113			
Long Lever	D2HWA221D	NEW 196-1115			
Pin Plunger	D2HWA201D	NEW 196-1112			
Simulated Roller Lever	D2HWA231D	NEW 196-1116			
Simulated Roller Lever	D2HWA231DS	NEW 196-1117			
<b>SPDT - PCB Terminals - Posts on Right</b>					
Simulated Roller Leaf Lever	D2HW-BR271D	NEW 206-9732			
<b>SPDT - PCB Terminals - Posts on Left</b>					
Leaf Lever	D2HW-BL261D	NEW 206-9657			
Simulated Roller Leaf Lever	D2HW-BL271D	NEW 206-9668			
<b>SPDT - Right Angled PCB Terminals - Posts on Right</b>					
Lever	D2HW-BR211DR	NEW 206-9692			
Long Lever	D2HW-BR221DR	NEW 206-9703			
Pin Plunger	D2HW-BR201DR	NEW 206-9681			
Simulated Roller Lever	D2HW-BR231DR	NEW 206-9712			
<b>SPDT - Left Angled PCB Terminals - Base Mounting</b>					
Lever	D2HWA211DL	NEW 196-1114			
<b>SPDT - Left Angled PCB Terminals - Posts on Left</b>					
Lever	D2HWBL211DL	NEW 196-1129			
Long Lever	D2HWBL221DL	NEW 196-1139			
Pin Plunger	D2HWBL201DL	NEW 196-1119			
Simulated Roller Lever	D2HWBL231DL	NEW 196-1149			
<b>SPDT - Solder Terminals - Posts on Right</b>					
Leaf Lever	D2HW-BR261H	NEW 206-9723			
Lever	D2HW-BR211H	NEW 206-9693			
Long Lever	D2HW-BR221H	NEW 206-9704			
Pin Plunger	D2HW-BR201H	NEW 206-9682			
Simulated Roller Lever	D2HW-BR231H	NEW 206-9713			
Simulated Roller Leaf Lever	D2HW-BR271H	NEW 206-9733			
<b>SPDT - Solder Terminals - Posts on Left</b>					
Leaf Lever	D2HW-BL261H	NEW 206-9658			
Lever	D2HWBL211H	NEW 196-1130			
Long Lever	D2HWBL221H	NEW 196-1140			
Pin Plunger	D2HWBL201H	NEW 196-1120			
Simulated Roller Lever	D2HWBL231H	NEW 196-1150			
Simulated Roller Leaf Lever	D2HW-BL271H	NEW 206-9669			
<b>SPDT - Solder Terminals - M3 Screw Mount</b>					
Leaf Lever	D2HW-C261H	NEW 877-4528			
Lever	D2HW-C211H	NEW 877-4498			
Long Lever	D2HW-C221H	NEW 877-4501			
Pin Plunger	D2HW-C201H	NEW 877-4480			
Simulated Roller Lever	D2HW-C231H	NEW 877-4510			
Simulated Roller Leaf Lever	D2HW-C271H	NEW 877-4536			
<b>SPDT - Molded Leads - Posts on Right</b>					
Leaf Lever	D2HW-BR261M	NEW 206-9724			
Lever	D2HW-BR211M	NEW 206-9694			
Long Lever	D2HW-BR221M	NEW 206-9743			
Long Lever	D2HW-BR221M	NEW 206-9705			
Pin Plunger	D2HW-BR201M	NEW 206-9683			

Actuator	Mfrs.		Price Each		
	List No.	Order Code	1+	10+	25+
<b>SPDT - Molded Leads - Posts on Right</b>					
	D2HW-BR241M	<b>NEW 206-9722</b>	●		
Simulated Roller Lever	D2HW-BR231M	<b>NEW 206-9715</b>	●		
Simulated Roller Leaf Lever	D2HW-BR271M	<b>NEW 206-9734</b>	●		
<b>SPDT - Molded Leads - Posts on Left</b>					
Leaf Lever	D2HW-BL261M	<b>NEW 206-9661</b>	●		
Lever	D2HWBL211M	<b>NEW 196-1131</b>	●		
Long Lever	D2HW-BL281M	<b>NEW 206-9678</b>	●		
Long Lever	D2HWBL221M	<b>NEW 196-1141</b>	●		
Pin Plunger	D2HWBL201M	<b>NEW 196-1121</b>	●		
	D2HW-BL241M	<b>NEW 206-9656</b>	●		
Simulated Roller Lever	D2HWBL231M	<b>NEW 196-1151</b>	●		
Simulated Roller Leaf Lever	D2HW-BL271M	<b>NEW 206-9670</b>	●		
<b>SPDT - Molded Leads - M3 Screw Mount</b>					
Leaf Lever	D2HW-C261M	<b>NEW 206-9771</b>	●		
Lever	D2HW-C211M	<b>NEW 206-9753</b>	●		
Long Lever	D2HW-C281M	<b>NEW 206-9785</b>	●		
Long Lever	D2HW-C221M	<b>NEW 206-9758</b>	●		
	D2HW-C241M	<b>NEW 206-9770</b>	●		
Simulated Roller Lever	D2HW-C231M	<b>NEW 206-9765</b>	●		
Simulated Roller Leaf Lever	D2HW-C271M	<b>NEW 206-9779</b>	●		
<b>SPST-NC - Molded Leads - Posts on Right</b>					
Leaf Lever	D2HW-BR262M	<b>NEW 206-9725</b>	●		
Lever	D2HW-BR212M	<b>NEW 206-9695</b>	●		
Long Lever	D2HW-BR282M	<b>NEW 206-9744</b>	●		
Long Lever	D2HW-BR222M	<b>NEW 206-9706</b>	●		
Pin Plunger	D2HW-BR202M	<b>NEW 206-9685</b>	●		
Simulated Roller Lever	D2HW-BR232M	<b>NEW 206-9716</b>	●		
Simulated Roller Leaf Lever	D2HW-BR272M	<b>NEW 206-9735</b>	●		
<b>SPST-NC - Molded Leads - Posts on Left</b>					
Leaf Lever	D2HW-BL262M	<b>NEW 206-9662</b>	●		
Lever	D2HWBL212M	<b>NEW 196-1132</b>	●		
Long Lever	D2HW-BL282M	<b>NEW 206-9679</b>	●		
Long Lever	D2HWBL222M	<b>NEW 196-1142</b>	●		
Pin Plunger	D2HWBL202M	<b>NEW 196-1122</b>	●		
Simulated Roller Lever	D2HWBL232M	<b>NEW 196-1152</b>	●		
Simulated Roller Leaf Lever	D2HW-BL272M	<b>NEW 206-9671</b>	●		
<b>SPST-NC - Molded Leads - M3 Screw Mount</b>					
Leaf Lever	D2HW-C262M	<b>NEW 206-9772</b>	●		
Lever	D2HW-C212M	<b>NEW 206-9754</b>	●		
Long Lever	D2HW-C282M	<b>NEW 206-9786</b>	●		
Long Lever	D2HW-C222M	<b>NEW 206-9759</b>	●		
Pin Plunger	D2HW-C202M	<b>NEW 206-9746</b>	●		
Simulated Roller Lever	D2HW-C232M	<b>NEW 206-9766</b>	●		
Simulated Roller Leaf Lever	D2HW-C272M	<b>NEW 206-9780</b>	●		
<b>SPST-NC - Molded Right Side Leads - Posts on Right</b>					
Leaf Lever	D2HW-BR262MR	<b>NEW 206-9728</b>	●		
Lever	D2HW-BR212MR	<b>NEW 206-9698</b>	●		
Long Lever	D2HW-BR282MR	<b>NEW 206-9708</b>	●		
Pin Plunger	D2HW-BR202MR	<b>NEW 206-9687</b>	●		
Simulated Roller Lever	D2HW-BR232MR	<b>NEW 206-9718</b>	●		
Simulated Roller Leaf Lever	D2HW-BR272MR	<b>NEW 206-9737</b>	●		
<b>SPST-NC - Molded Right Side Leads - Posts on Left</b>					
Leaf Lever	D2HW-BL262MR	<b>NEW 206-9664</b>	●		
Lever	D2HWBL212MR	<b>NEW 196-1134</b>	●		
Long Lever	D2HWBL222MR	<b>NEW 196-1144</b>	●		
Pin Plunger	D2HWBL202MR	<b>NEW 196-1125</b>	●		
Simulated Roller Lever	D2HW-BL232MR	<b>NEW 206-9652</b>	●		
Simulated Roller Leaf Lever	D2HW-BL272MR	<b>NEW 206-9674</b>	●		
<b>SPST-NC - Molded Right Side Leads - M3 Screw Mount</b>					
Leaf Lever	D2HW-C262MR	<b>NEW 206-9773</b>	●		
Leaf Lever	D2HW-C262MRS	<b>NEW 206-9774</b>	●		
Lever	D2HW-C212MR	<b>NEW 206-9755</b>	●		
Long Lever	D2HW-C282MR	<b>NEW 206-9788</b>	●		
Long Lever	D2HW-C222MR	<b>NEW 206-9760</b>	●		
Pin Plunger	D2HW-C202MR	<b>NEW 206-9747</b>	●		
Pin Plunger	D2HW-C202MRS	<b>NEW 206-9748</b>	●		
Simulated Roller Lever	D2HW-C232MR	<b>NEW 206-9767</b>	●		
Simulated Roller Leaf Lever	D2HW-C272MR	<b>NEW 206-9781</b>	●		
<b>SPST-NC - Molded Left Side Leads - Posts on Right</b>					
Leaf Lever	D2HW-BR262ML	<b>NEW 206-9727</b>	●		
Lever	D2HW-BR212ML	<b>NEW 206-9697</b>	●		
Long Lever	D2HW-BR222ML	<b>NEW 206-9707</b>	●		
Pin Plunger	D2HW-BR202ML	<b>NEW 206-9686</b>	●		
Simulated Roller Lever	D2HW-BR232ML	<b>NEW 206-9717</b>	●		
Simulated Roller Leaf Lever	D2HW-BR272ML	<b>NEW 206-9736</b>	●		
<b>SPST-NC - Molded Left Side Leads - Posts on Left</b>					

Actuator	Mfrs.		Price Each		
	List No.	Order Code	1+	10+	25+
<b>SPST-NC - Molded Left Side Leads - Posts on Left</b>					
Leaf Lever	D2HW-BL262ML	<b>NEW 206-9663</b>	●		
Lever	D2HWBL212ML	<b>NEW 196-1133</b>	●		
Long Lever	D2HWBL222ML	<b>NEW 196-1143</b>	●		
Pin Plunger	D2HWBL202ML	<b>NEW 196-1124</b>	●		
Simulated Roller Lever	D2HW-BL232ML	<b>NEW 206-9651</b>	●		
Simulated Roller Leaf Lever	D2HW-BL272ML	<b>NEW 206-9673</b>	●		
<b>SPST-NO - Molded Leads - Posts on Right</b>					
Leaf Lever	D2HW-BR263M	<b>NEW 206-9729</b>	●		
Lever	D2HW-BR213M	<b>NEW 206-9699</b>	●		
Long Lever	D2HW-BR283M	<b>NEW 206-9745</b>	●		
Long Lever	D2HW-BR223M	<b>NEW 206-9709</b>	●		
Pin Plunger	D2HW-BR203M	<b>NEW 206-9688</b>	●		
Simulated Roller Lever	D2HW-BR233M	<b>NEW 206-9719</b>	●		
Simulated Roller Leaf Lever	D2HW-BR273M	<b>NEW 206-9739</b>	●		
<b>SPST-NO - Molded Leads - Posts on Left</b>					
Leaf Lever	D2HW-BL263M	<b>NEW 206-9665</b>	●		
Lever	D2HWBL213M	<b>NEW 196-1136</b>	●		
Long Lever	D2HW-BL283M	<b>NEW 206-9680</b>	●		
Long Lever	D2HWBL223M	<b>NEW 196-1145</b>	●		
Pin Plunger	D2HWBL203M	<b>NEW 196-1126</b>	●		
Simulated Roller Lever	D2HW-BL233M	<b>NEW 206-9653</b>	●		
Simulated Roller Leaf Lever	D2HW-BL273M	<b>NEW 206-9675</b>	●		
<b>SPST-NO - Molded Leads - M3 Screw Mount</b>					
Leaf Lever	D2HW-C263M	<b>NEW 206-9776</b>	●		
Lever	D2HW-C213M	<b>NEW 206-9756</b>	●		
Long Lever	D2HW-C283M	<b>NEW 206-9789</b>	●		
Long Lever	D2HW-C223M	<b>NEW 206-9761</b>	●		
Long Lever	D2HW-C223MS	<b>NEW 206-9764</b>	●		
Pin Plunger	D2HW-C203M	<b>NEW 206-9749</b>	●		
Pin Plunger	D2HW-C203MS	<b>NEW 206-9752</b>	●		
Simulated Roller Lever	D2HW-C233M	<b>NEW 206-9768</b>	●		
Simulated Roller Leaf Lever	D2HW-C273M	<b>NEW 206-9782</b>	●		
<b>SPST-NO - Molded Right Side Leads - Posts on Right</b>					
Leaf Lever	D2HW-BR263MR	<b>NEW 206-9731</b>	●		
Lever	D2HW-BR213MR	<b>NEW 206-9701</b>	●		
Long Lever	D2HW-BR223MR	<b>NEW 206-9711</b>	●		
Pin Plunger	D2HW-BR203MR	<b>NEW 206-9691</b>	●		
Simulated Roller Lever	D2HW-BR233MR	<b>NEW 206-9721</b>	●		
Simulated Roller Leaf Lever	D2HW-BR273MR	<b>NEW 206-9742</b>	●		
<b>SPST-NO - Molded Right Side Leads - Posts on Left</b>					
Leaf Lever	D2HW-BL263MR	<b>NEW 206-9667</b>	●		
Lever	D2HWBL213MR	<b>NEW 196-1138</b>	●		
Long Lever	D2HWBL223MR	<b>NEW 196-1148</b>	●		
Pin Plunger	D2HWBL203MR	<b>NEW 196-1128</b>	●		
Simulated Roller Lever	D2HW-BL233MR	<b>NEW 206-9655</b>	●		
Simulated Roller Leaf Lever	D2HW-BL273MR	<b>NEW 206-9677</b>	●		
<b>SPST-NO - Molded Right Side Leads - M3 Screw Mount</b>					
Leaf Lever	D2HW-C263MR	<b>NEW 206-9777</b>	●		
Leaf Lever	D2HW-C263MRS	<b>NEW 206-9778</b>	●		
Lever	D2HW-C213MR	<b>NEW 206-9757</b>	●		
Long Lever	D2HW-C283MR	<b>NEW 206-9790</b>	●		
Long Lever	D2HW-C223MR	<b>NEW 206-9762</b>	●		
Pin Plunger	D2HW-C203MR	<b>NEW 206-9750</b>	●		
Simulated Roller Lever	D2HW-C233MR	<b>NEW 206-9769</b>	●		
Simulated Roller Leaf Lever	D2HW-C273MR	<b>NEW 206-9783</b>	●		
Simulated Roller Leaf Lever	D2HW-C273MRS	<b>NEW 206-9784</b>	●		
<b>SPST-NO - Molded Left Side Leads - Posts on Right</b>					
Leaf Lever	D2HW-BR263ML	<b>NEW 206-9730</b>	●		
Lever	D2HW-BR213ML	<b>NEW 206-9700</b>	●		
Long Lever	D2HW-BR223ML	<b>NEW 206-9710</b>	●		
Pin Plunger	D2HW-BR203ML	<b>NEW 206-9689</b>	●		
Pin Plunger	D2HW-BR203MLS	<b>NEW 206-9690</b>	●		
Simulated Roller Lever	D2HW-BR233ML	<b>NEW 206-9720</b>	●		
Simulated Roller Leaf Lever	D2HW-BR273ML	<b>NEW 206-9741</b>	●		
<b>SPST-NO - Molded Left Side Leads - Posts on Left</b>					
Leaf Lever	D2HW-BL263ML	<b>NEW 206-9666</b>	●		
Lever	D2HWBL213ML	<b>NEW 196-1137</b>	●		
Long Lever	D2HWBL223ML	<b>NEW 196-1146</b>	●		
Pin Plunger	D2HWBL203ML	<b>NEW 196-1127</b>	●		
Simulated Roller Lever	D2HW-BL233ML	<b>NEW 206-9654</b>	●		
Simulated Roller Leaf Lever	D2HW-BL273ML	<b>NEW 206-9676</b>	●		

# Microswitches - continued

## Ultraminiature Turquoise Series ABJ



1A @ 124Vac/30V dc



Pin plunger Hinge lever Roller lever

- Ultra-miniature (12.8mm x 6.5mm x 6mm)
- Resistant to most environmental influences
- Watertight housing sealed to IP67
- Able to withstand frost
- UL recognised and CSA approved

Contacts	SPDT	Insulation resistance	MΩ @ dc
Contact resistance	50mR (solder)	Electrical life	30000 ops.
Contact rating	50mR (Pin plunger type) 1A @ 30V dc, 124V ac	Mechanical life	1000000
Switch type	Pin plunger Hinge lever	Operating temperature	-40°C to +85°C
SPDT, Wire leads(bottom entry)	Pin plunger Hinge lever	Over-travel, min.	0.25mm 0.5mm
Operating force, max.	1.23N 1.23N	Movement differential, max.	0.12mm 0.5mm
Release force, min.	25gf 5.0N	Actuator length	— 13.3
Pre-travel, max.	0.6mm 3.0mm		

240298

Mfrs.		Price Each			
ABJ Series	List No.	Order Code	1+	10+	25+ 50+

### Lead Wires

Pin plunger	ABJ161040	372-6939			
Hinge Lever	ABJ161240	372-6940			

### PCB Mount

Pin plunger	ABJ151261J	NEW 209-5696			
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## Ultraminiature Microswitch - AV Series



- Superminiature type, light-weight snap action switch
- Switches can be mounted close together in any directions
- For compact equipment



Size: H 4.5 x W 2.5 x D 7.5

Contacts	SPDT	Insulation resistance	10MΩ @250V dc
Contact resistance	200mohm	Life Expectancy	300000 ops.
Contact rating	100mA @ 30V	Operating temperature	-25°C to +80°C

659000

Mfrs.		Price Each			
Actuator	Terminals	List No.	Order Code	1+	25+ 50+

### Silver Contacts

Hinge Lever	Solder Lug	AV402461J	209-5703		
Hinge Lever	Through Hole	AV462461J	209-5706		
Simulated Roller Lever	Solder Lug	AV404461J	209-5704		

### Gold Contacts

Simulated Roller Lever	Solder Lug	AV4044J	209-5705		
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## Microswitches - D2FD Series



### Dust Proof Ultra Subminiature



- Sealing by using rubber packing means the switch can be used in dust-proof environments (IEC IP6X)
- Switch rating of 2 A at 125 VAC possible with a single-leaf movable spring. Models for micro loads are also available



Size: H 12.8 x W 6 x D 12.2

Contacts	D2FD-01	D2FD-2
Contact current	SPDT	SPDT
Operating temperature	100mA @ 30VDC / 125VAC	2A @ 30VDC / 125VAC
Insulation resistance	-20°C to 70°C	-20°C to 70°C
Contact resistance	100 MΩ min	100 MΩ min
Mechanical life	100mohm	30mohm
Mechanical life	300000 ops min	300000 ops min
Mechanical life	100000 ops min	30000 ops min

659257

Mfrs.		Price Each			
Actuator	List No.	Order Code	1+	25+	50+

### D2FD-01 - Solder Terminals

Pin Plunger	D2FD-01L0-1H	213-4429			
Hinge Lever	D2FD-01L1-1H	213-4431			
Simulated Roller Lever	D2FD-01L30-1H	213-4434			

### D2FD-01 - PCB Pins

Pin Plunger	D2FD-01L0-1T	213-4430			
Hinge Lever	D2FD-01L1-1T	213-4432			
Simulated Roller Lever	D2FD-01L30-1T	213-4435			

Mfrs.		Price Each			
Actuator	List No.	Order Code	1+	25+	50+

## Miniature M140T01 Series

5A @ 125V ac, 3A @ 250V ac



- PBT housing
- Choice of actuator types
- Round mounting hole fixing
- Solder terminals

Body: H=10.6, W=19.8, D=6.4mm

Contacts	SPDT	Insulation Resistance	
Contact rating	3A @ 125Vac, 5A @ 250V	Mechanical life	1000000 cycles
Contacts Resistance	50mohm	Operating temperature	-20°C to 80°C

Mfrs. List No.	Actuator Type	Operating Force	Pre. Travel	Order Code
M140T01-AD0500A		210gf	1.1mm	173-5349
M140T01-AE0501A	Short Lever	60gf	3.6mm	173-5350
M140T01-AE0502A	Lever	55gf	4.2mm	173-5351
M140T01-AE0507A	Long Lever	45gf	3.5mm	173-5352
M140T01-AE0509A		60gf	4.2mm	173-5353
M140T01-AE0505A		60gf	4.0mm	173-5355

540660

Mfrs.		Price Each				
List No.	Order Code	1+	10+	50+	100+	250+ 500+

M140T01-AD0500A	173-5349					
M140T01-AE0501A	173-5350					
M140T01-AE0502A	173-5351					
M140T01-AE0507A	173-5352					
M140T01-AE0509A	173-5353					
M140T01-AE0505A	173-5355					

## Miniature M141T02 Series

10A @ 125V ac, 10A @ 250V ac



- PBT housing
- Choice of actuator types
- Round mounting hole fixing
- Quick connect terminals

Body: H=15.8, W=27.8, D=9.7mm

Contacts	SPDT	Insulation Resistance	
Contact rating	10A @ 125Vac, 10A @ 250V	Mechanical life	1000000
Contacts Resistance	100mohm	Operating temperature	-20°C to 85°C

Mfrs. List No.	Actuator Type	Operating Force	Pre. Travel	Order Code
M141T02-AC0300D		200gf	1.2mm	173-5356
M141T02-AC0304D	Short Lever	201gf	1.6mm	173-5357
M141T02-AC0303D	Lever	100gf	3.2mm	173-5358
M141T02-AD0302D	Long Lever	60gf	7.6mm	173-5359
M141T02-AC0301D		120gf	3.5mm	173-5360
M141T02-AC0306D	Short Roller	200gf	1.6mm	173-5361
M141T02-AC0305D	Long Roller	120gf	3.2mm	173-5362

540678

Mfrs.		Price Each				
List No.	Order Code	1+	10+	50+	100+	250+ 500+

M141T02-AC0300D	173-5356					
M141T02-AC0304D	173-5357					
M141T02-AC0303D	173-5358					
M141T02-AD0302D	173-5359					
M141T02-AC0301D	173-5360					
M141T02-AC0306D	173-5361					
M141T02-AC0305D	173-5362					



## Subminiature DM Series

1A @ 125V ac, 30mA @ 5V dc



- PBT housing
  - Choice of actuator types
  - Round mounting hole fixing
  - PCB Mount
- Contacts SPDT  
 Contact rating 1A @ 125V ac, 30mA @ 5V dc  
 Contacts Resistance 100mohm  
 Insulation Resistance  
 Mechanical life 1000000  
 Operating temperature -25°C to 65°C  
 Body: H=6.5, W=12.8, D=5.7mm

Mfrs. List No.	Actuator Type	Operating Force	Order Code	Price Each					
DM1-00P-110-3		110gf	173-5363	1+	10+	50+	100+	250+	500+
DM1-01P-30-3	Short Lever	30gf	173-5364						
DM1-02P-30-3		20gf	173-5365						
DM1-03P-30-3	Long Lever	30gf	173-5367						

## Microminiature SSM Series

500mA @ 30V dc



- PBT housing
  - Choice of lever types
  - PCB terminals
- Contacts SPDT  
 Contact rating 500mA @ 30V dc  
 Contacts Resistance 100mohm  
 Insulation Resistance  
 Mechanical life 100000  
 Operating force 50gf  
 Operating temperature -15°C to 70°C  
 Body: H=6.2, W=8.2, D=2.7mm

Mfrs. List No.	Lever Type	Order Code	Price Each					
SSM-001	Plastic	173-5368	1+	10+	50+	100+	250+	500+
SSM-002	With Out	173-5369						
SSM-003	Metal	173-5370						
SSM-004	Stainless Steel	173-5371						

## Superminiature Series AV4

0.1A @ 30V dc (resistive load)



Hinge lever Pin plunger

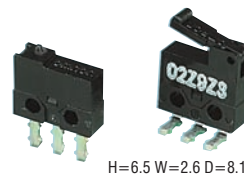
- Superminiature size (7.5 x 4.5 x 2.5 mm)
- Light weight with snap action
- Long life expectancy of 300,000 operations

Contacts	SPDT-1NC / 1NO	Insulation resistance	MΩ @ dc
Contact resistance	200mR (solder)	Electrical life	200000 ops.
Contact rating	@ 30V	Mechanical life	300000
Operating temperature	-25°C to +80°C		
Switch type	Hinge lever	Simulated roller lever	
Operating force, max.	0.25N	0.29N	
Pre-travel, max.	2.4mm	2.2mm	
Over-travel, min.	0.4mm	0.3mm	
Movement differential, max.	0.7mm	0.7mm	

Mfrs. List No.	Order Code	Price Each			
AV4 Series		1+	10+	25+	50+
Hinge Lever	AV442461 372-7051				
Simulated roller lever	AV444461 372-7063				

## Microminiature PCB Mount - D2MQ Series

500mA @ 30V dc



H=6.5 W=2.6 D=8.1

- Super miniature design
  - Ideal for applications where size and weight restrictions are crucial
- Contacts SPDT  
 Operating temperature -15°C to 70°C  
 Insulation resistance MR min  
 Contact resistance 100mR max  
 Electrical life 10000 ops min  
 Mechanical life 30000 ops min

Vertical type - Silver	Mfrs. List No.	Order Code	1+	+	+
Plunger	D2MQ-1	990-1906			
Lever	D2MQ-4L-1	990-1914			
Vertical Type - Gold					
Plunger	D2MQ-1-105	NEW 207-6430			
Leaf Lever	D2MQ-1L-105	NEW 207-6431			
Lever	D2MQ-4L-105-1	NEW 207-6434			
Right Angle Type - Silver					
Plunger	D2MQ-1-TR	990-1922			
Lever	D2MQ-4L-1-R	990-1930			
Right Angle Type - Gold					
Plunger	D2MQ-1L-TR	NEW 207-6432			
Lever	D2MQ-4L-105-1-R	NEW 207-6436			
Left Angle Type - Gold					
Lever	D2MQ-4L-105-1-L	NEW 207-6435			

## Microminiature - D2F

Series3A @ 125V ac, 2A @ 30V dc Microload 0.1A @ 30V dc



Body : H=6.5, W=5.8, D=12.8, Fixing centres=5.08  
 Actuator lever L=12.8

Microminiature switches with solder/PCB terminals

- Microload types have gold plated contacts for low level switching
- Standard load types have silver contacts for general purpose applications
- CSA approved, UL recognised

Contacts	SPDT	Insulation resistance	MΩ @ 500V dc
Contact resistance	30mR (standard)	Electrical life	30000 ops. min.
(initial)	100mR (microload)	Operating temperature	-25°C to +85°C
Switch type	Pin Plunger	Hinge Lever	Hinge Roller Lever
Operating force, max.	1.47N	0.78N	0.78N
Release force, min.	0.2N	0.05N	0.05N
Pre-travel, max.	0.5mm	—	—
Over-travel, min.	0.25mm	0.55mm	0.55mm
Movement differential, max.	0.12mm	0.05mm	0.05mm

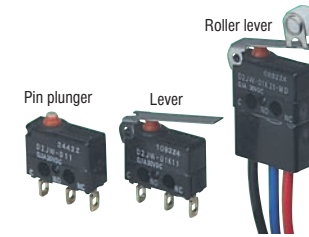
Description	Mfrs. List No.	Order Code	1+	+	+	+
Pin Plunger	D2F-01	990-1949				
Hinge Lever	D2F-01L	990-1957				
Hinge Roller Lever	D2F-01L2	990-1965				
Pin Plunger	D2F01F	NEW 196-1066				
Hinge Lever	D2F01FL	NEW 196-1071				
Hinge Roller Lever	D2F01FL2	NEW 196-1072				
Roller Lever	D2F01FL3	NEW 196-1073				
Pin Plunger	D2F01T	NEW 196-1086				
Hinge Lever	D2F01LT	NEW 196-1085				
Pin Plunger	D2F01FT	NEW 196-1077				
Hinge Lever	D2F01LA	NEW 196-1083				
Hinge Lever	D2F01FLA	NEW 196-1075				
Pin Plunger	D2F01D3	NEW 196-1065				
Roller Lever	D2F-01L3-D3	NEW 182-9496				
Pin Plunger	D2F01FD3	NEW 196-1069				
Pin Plunger	D2F01D	NEW 196-1064				
Hinge Lever	D2F01LD	NEW 196-1084				
Hinge Roller Lever	D2F01L2D	NEW 196-1080				
Roller Lever	D2F01L3D	NEW 196-1082				
Pin Plunger	D2F01FD	NEW 196-1067				
Hinge Lever	D2F01FLD	NEW 196-1076				
Roller Lever	D2F01FL3D	NEW 196-1074				
Pin Plunger	D2F	990-1663				
Hinge Lever	D2FL	990-1671				
Hinge Roller Lever	D2F-L2	990-1973				
Pin Plunger	D2FF	NEW 196-1090				
Hinge Lever	D2FFL	NEW 196-1095				
Hinge Roller Lever	D2FFL2	NEW 196-1096				
Roller Lever	D2FFL3	NEW 196-1097				

**Microminiature - D2F - continued**

**Series3A @ 125V ac, 2A @ 30V dc Microload 0.1A @ 30V dc - continued**

Description	Mfrs. List No.	Order Code	Price Each			
			1+	+	+	+
Pin Plunger	D2FT	NEW 196-1110				
Hinge Lever	D2FLT	NEW 196-1109				
Pin Plunger	D2FFT	NEW 196-1102				
Roller Lever	D2FFL3T	NEW 196-1099				
Pin Plunger	D2FA	NEW 196-1087				
Hinge Lever	D2FLA	NEW 196-1106				
Pin Plunger	D2FFA	NEW 196-1091				
Pin Plunger	D2FA1	NEW 196-1088				
Pin Plunger	D2FFA1	NEW 196-1092				
Hinge Lever	D2FLD3	NEW 196-1108				
Pin Plunger	D2FD	NEW 196-1089				
Hinge Lever	D2FLD	NEW 196-1107				
Hinge Roller Lever	D2FL2D	NEW 196-1104				
Roller Lever	D2FL3D	NEW 196-1105				
Pin Plunger	D2FFD	NEW 196-1094				
Hinge Lever	D2FFLD	NEW 196-1101				
Roller Lever	D2FFL3D	NEW 196-1098				

0.1A @ 30V dc



- Subminiature watertight housing sealed to **IP67**
- Gold crossbar contact and coil spring offer long life expectancy and high contact reliability
- Available with either solder terminals or 300mm moulded leads

Solder types : H (body)=9.4, W=5.3, D=12.7  
Moulded lead types : H (body)=16.6, W=5.3, D=12.7  
Fixing centres=4.8

Contacts	SPDT	Insulation resistance	MΩ @ 500V dc
Contact resistance	100mR (solder)	Electrical life	100000 ops.
	140mR (moulded lead)	Operating temperature	-40°C to +85°C
Contact rating	0.1A @ 30V dc (res.)		
Switch type	Broad plunger	Short Lever	Lever
Operating force, max.	2.45N	1.15N	0.8N
Release force, min.	0.98N	23gf	0.15N
Pre-travel, max.	0.6mm	5.4mm	6.4mm
Over-travel, min.	0.3mm	0.7mm	1.4mm
Movement differential, max.	0.1mm	0.5mm	0.7mm
Actuator length	—	12.7	16.5

213208

**Subminiature PCB Mount- DG Series**

**125V ac or 30V dc Switching**



- SPDT
- Degree of protection IP40
- Electrical life 6000 operations
- Operating temperature -25°C to 85°C
- UL Recognised

Body - H = 6.5, W = 12.8, D = 5.8mm

UL Rating	Actuator	Terminals	Operating Force (gf)	Mfrs. List No.	Order Code
0.05A @ 30V	Short Lever	Through Hole	0.44	DG23-B1LA	151-9072
3A @ 125V / 2A @ 30V	Short Lever	Through Hole	0.44	DG13-B1LA	151-9076

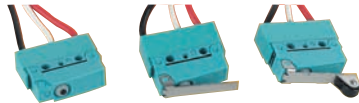
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Mfrs. List No.	Order Code	Price Each				
		1+	25+	50+	100+	250+
DG23-B1LA	151-9072					
DG13-B1LA	151-9076					

**Subminiature Turquoise Series ABS**

**2A @ 250Vac/124Vac/30V dc, 0.4A @ 125V dc (resistive load)**

**NAIS**



Pin plunger Hinge lever, Roller lever

- Subminiature (19.8 x 11.1 x 6.4 mm)
- Watertight housing sealed to **IP67**
- Highly resistant to environmental influences
- **CSA, VDE and SEMKO** approved.
- UL recognised

Contacts	SPDT	Insulation resistance	MΩ @ 500VDC
Contact resistance	100mR (solder)	Electrical life	50000 ops.
Contact rating	2A @ 250V ac/30V dc	Mechanical life	5000000 ops.
Operating temperature	-40°C to +85°C		
Switch type	Hinge lever	Roller lever	Hinge lever
SPDT, Wire leads(bottom entry)			
Operating force, max.	0.34N	0.39N	1.47N
Release force, min.	1.7gf	2.0gf	0.2N
Pre-travel, max.	2.8mm	2.5mm	0.6mm
Over-travel, min.	1.2mm	0.8mm	0.4mm
Movement differential, max.	0.8mm	0.5mm	0.1mm

241388

Mfrs. List No.	Order Code	Price Each			
		1+	10+	25+	50+
<b>ABS Series</b>					
Hinge Lever	ABS161240	372-6976			
Roller lever	ABS161640	372-6988			
Plunger	ABS1110519J	NEW 209-5697			

**Microswitches - D2MQ Series Sealed Subminiature**

**NEW**



Size: H 16.3 x W 8.2 x D 16.4

- Reliable ON/OFF action even in severe environmental conditions
- Extra-long stroke even without levers
- Clip contacts with highly reliable slide contact mechanism.
- High temperature resistance up to 85°C
- Drip-proof structure for wide range of applications

Contacts	SPST-NO	Insulation resistance	100 MR min
Contact current	10mA @ 14V / 1mA @ 30V	Contact resistance	100mohm
Operating temperature	-40°C to 85°C	Mechanical life	500000 ops min

659234

Actuator	Mfrs. List No.	Order Code	Price Each		
			1+	25+	100+
<b>Solder Terminals</b>					
Pin Plunger	D2QW-C003H	211-3271			
Simulated Roller Leaf Lever	D2QW-C073H	211-3273			
<b>PCB Terminals</b>					
Pin Plunger	D2QW-C003D	211-3274			

**Subminiature - ASQ1 Series**

**Panasonic**  
ideas for life



Size: H 9.6 x W 5.4 x D 13.3

- Ultra long stroke
- Since contact pressure does not depend on the operation stroke, the range of possible use over the entire stroke is greatly increased
- High contact reliability to support low level switching loads
- Highly effective sealing for resistance against adverse environments
- Silent operation
- Direct operation possible from lateral direction with pin plunger

Contacts	SPST-NC	Insulation resistance	10MΩ @100V dc
Contact resistance	1ohm	Life Expectancy	100000 ops.
Actuator	Pin Plunger	Operating Force	1.5N
Contact rating	100mA @ 30V	Operating temperature	-40°C to +85°C

658993

Mfrs. List No.	Order Code	Price Each			
		1+	25+	50+	100+
ASQ10620J	209-5702				

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## Sub Miniature - SM Series

5A @ 30V dc



H = 12.4, W = 19.8, D = 6.35mm

The SM Series Sub miniature Switches are used for simple or precision on/off application needs. These switches combine small size and light weight with ample electrical capacity, precision operation and long life.

- Choice of solder termination
- SM3-T = Single length Solder Terminal, SM3-T2 = Double length Solder Terminal
- Elongated mounting hole for easier, more accurate mounting
- Choice of auxiliary actuators
- Auxiliary Actuators complete with Pad, Mounting Screws, Nuts and Washers
- CSA Approved and UL Recognised

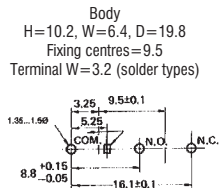
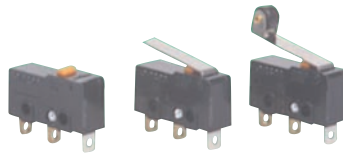
Switch type	SPDT	Switch type	SPDT
Operating force (max.)	1.39N	Differential travel (max.)	0.1mm
Return force (min.)	0.28N	Operating temperature	-53 to 121°C
Pre travel (max.)	0.5mm		

445106

Actuator	Mftrs.	Order Code	1+	25+	50+	100+
<b>Button actuated Switches</b>						
Button Plunger	11SM3-T	126-5323				
<b>Auxiliary Actuators</b>						
Roller Lever	JS5	126-5327				

## Subminiature 'V4' Style - SS Series

5A & 10A @ 125V ac, 0.1A @ 30V dc



Body fixing centres conform to international standards.

Electrical life	100000 ops
Mechanical life	30000000 ops
Operating temperature	-15°C to 85°C

Actuator	Operating Force	Current Rating @ 125VAC	Contact Configuration	Mftrs. List No.	Order Code
<b>Quick Connect Terminals</b>					
Lever	0.25N	100mA	SPDT	SS-01GL-ET	207-6298
Lever	0.49N	100mA	SPDT	SS-01GL-FT	207-6302
Pin Plunger	0.25N	100mA	SPDT	SS-01-ET	207-6279
Pin Plunger	1.47N	100mA	SPDT	SS-01T	182-9508
Hinge Roller Lever	0.25N	100mA	SPDT	SS-01GL2-ET	207-6291
Hinge Roller Lever	0.49N	100mA	SPDT	SS-01GL2-FT	207-6294
Hinge Roller Lever	1.47N	100mA	SPDT	SS-01GL2T	207-6295
Simulated Roller Lever	0.25N	100mA	SPDT	SS-01GL13-ET	207-6284
Simulated Roller Lever	0.49N	100mA	SPDT	SS-01GL13-FT	207-6288
Lever	0.49N	5A	SPDT	SS-5GL-FT	207-6328
Lever	1.47N	5A	SPDT	SS-5GLT	207-6331
Pin Plunger	0.49N	5A	SPDT	SS-5-FT	207-6318
Pin Plunger	1.47N	5A	SPST-NC	SS-5-2T	207-6313
Pin Plunger	1.47N	5A	SPDT	SS-5T	207-6332
Hinge Roller Lever	0.49N	5A	SPDT	SS-5GL2-FT	207-6325
Hinge Roller Lever	1.47N	5A	SPDT	SS-5GL2T	207-6326
Simulated Roller Lever	0.49N	5A	SPDT	SS-5GL13-FT	207-6322
Simulated Roller Lever	1.47N	5A	SPDT	SS-5GL13T	182-9516
Lever	1.47N	10.1A	SPDT	SS-10GLT	207-6309
Pin Plunger	1.47N	10.1A	SPDT	SS-10T	207-6310
Hinge Roller Lever	1.47N	10.1A	SPDT	SS-10GL2T	207-6308
Simulated Roller Lever	1.47N	10.1A	SPDT	SS-10GL13T	207-6307
<b>Solder Terminals</b>					
Lever	0.25N	100mA	SPDT	SS-01GL-E	207-6296
Lever	0.49N	100mA	SPDT	SS-01GL-F	207-6300
Pin Plunger	0.25N	100mA	SPDT	SS-01-E	207-6277
Pin Plunger	1.47N	100mA	SPDT	SS-01	182-9514
Hinge Roller Lever	0.25N	100mA	SPDT	SS-01GL2-E	207-6289
Hinge Roller Lever	0.49N	100mA	SPDT	SS-01GL2-F	207-6292
Roller Lever	1.47N	100mA	SPDT	SS-01GL2	182-9515
Simulated Roller Lever	0.25N	100mA	SPDT	SS-01GL13-E	207-6282
Simulated Roller Lever	0.49N	100mA	SPDT	SS-01GL13-F	207-6285
Lever	0.49N	5A	SPDT	SS-5GL	103-444
Lever	1.47N	5A	SPDT	SS-5GL1112	182-9509
Lever	1.47N	5A	SPDT	SS-5GL1131	182-9510
Pin Plunger	0.49N	5A	SPDT	SS-5-F	207-6315
Pin Plunger	1.47N	5A	SPST-NC	SS-5-2	207-6311
Pin Plunger	1.47N	5A	SPDT	SS-5	103-443
Hinge Roller Lever	0.49N	5A	SPDT	SS-5GL2-F	207-6323
Roller Lever	0.49N	5A	SPDT	SS-5GL2	103-445
Simulated Roller Lever	0.49N	5A	SPDT	SS-5GL13-F	207-6320
Lever	0.49N	10.1A	SPDT	SS-10GL2	118-1021
Simulated Roller Lever	1.47N	10.1A	SPDT	SS-10GL13	207-6304
<b>PCB Terminals</b>					
Lever	0.25N	100mA	SPDT	SS-01GL-ED	207-6297
Lever	0.49N	100mA	SPDT	SS-01GL-FD	207-6301
Pin Plunger	0.25N	100mA	SPDT	SS-01-ED	207-6278
Pin Plunger	0.49N	100mA	SPDT	SS-01-FD	207-6280
Pin Plunger	1.47N	100mA	SPDT	SS-01D	207-6276
Hinge Roller Lever	0.49N	100mA	SPDT	SS-01GL2-ED	207-6290
Hinge Roller Lever	1.47N	100mA	SPDT	SS-01GL2-FD	207-6293
Simulated Roller Lever	0.49N	100mA	SPDT	SS-01GL13-ED	207-6283
Simulated Roller Lever	1.47N	100mA	SPDT	SS-01GL13-FD	207-6286
Simulated Roller Lever	1.47N	100mA	SPDT	SS-01GL13D	207-6281
Lever	0.49N	5A	SPDT	SS-5GL-FD	207-6327
Lever	1.47N	5A	SPDT	SS-5GLD	170-567
Pin Plunger	0.49N	5A	SPDT	SS-5-FD	207-6316
Pin Plunger	1.47N	5A	SPDT	SS-5-2D	207-6312
Pin Plunger	1.47N	5A	SPDT	SS-5-3D	207-6314
Pin Plunger	1.47N	5A	SPDT	SS-5D	170-566
Hinge Roller Lever	0.49N	100mA	SPDT	SS-5GL2-FD	207-6324
Roller Lever	1.47N	100mA	SPDT	SS-5GL2D	170-568
Simulated Roller Lever	0.25N	100mA	SPDT	SS-5GL13-FD	207-6321

Actuator	Operating Force	Current Rating @ 125VAC	Contact Configuration	Mftrs. List No.	Order Code
<b>Quick Connect Terminals</b>					
Hinge Roller Lever	0.49N	100mA	SPDT	SS-01GL2-FD	207-6293
Simulated Roller Lever	0.25N	100mA	SPDT	SS-01GL13-ED	207-6283
Simulated Roller Lever	0.49N	100mA	SPDT	SS-01GL13-FD	207-6286
Simulated Roller Lever	1.47N	100mA	SPDT	SS-01GL13D	207-6281
Lever	0.49N	5A	SPDT	SS-5GL-FD	207-6327
Lever	0.49N	5A	SPDT	SS-5GLD	170-567
Pin Plunger	0.49N	5A	SPDT	SS-5-FD	207-6316
Pin Plunger	1.47N	5A	SPST-NC	SS-5-2D	207-6312
Pin Plunger	1.47N	5A	SPST-NO	SS-5-3D	207-6314
Pin Plunger	1.47N	5A	SPDT	SS-5D	170-566
Hinge Roller Lever	0.49N	5A	SPDT	SS-5GL2-FD	207-6324
Roller Lever	0.49N	5A	SPDT	SS-5GL2D	170-568
Simulated Roller Lever	0.49N	5A	SPDT	SS-5GL13-FD	207-6321
Simulated Roller Lever	1.47N	5A	SPDT	SS-5GL13D	207-6319
Pin Plunger	1.47N	10A	SPDT	SS-10D	118-1022
Simulated Roller Lever	1.47N	10.1A	SPDT	SS-10GL13D	207-6306
<b>Left Angle PCB Terminals</b>					
Pin Plunger	1.47N	10.1A	SPDT	SS-10D1	207-6303

21391

Actuator	Mftrs.	Order Code	1+	50+	100+	250+
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<b>Quick Connect Terminals</b>						
Lever	SS-01GL-ET	NEW	207-6298			
Lever	SS-01GL-FT	NEW	207-6302			
Pin Plunger	SS-01-ET	NEW	207-6279			
Pin Plunger	SS-01T	NEW	182-9508			
Hinge Roller Lever	SS-01GL2-ET	NEW	207-6291			
Hinge Roller Lever	SS-01GL2-FT	NEW	207-6294			
Hinge Roller Lever	SS-01GL2T	NEW	207-6295			
Simulated Roller Lever	SS-01GL13-ET	NEW	207-6284			
Simulated Roller Lever	SS-01GL13-FT	NEW	207-6288			
Lever	SS-5GL-FT	NEW	207-6328			
Lever	SS-5GLT	NEW	207-6331			
Pin Plunger	SS-5-FT	NEW	207-6318			
Pin Plunger	SS-5-2T	NEW	207-6313			
Pin Plunger	SS-5T	NEW	207-6332			
Hinge Roller Lever	SS-5GL2-FT	NEW	207-6325			
Hinge Roller Lever	SS-5GL2T	NEW	207-6326			
Simulated Roller Lever	SS-5GL13-FT	NEW	207-6322			
Simulated Roller Lever	SS-5GL13T	NEW	182-9516			
Lever	SS-10GLT	NEW	207-6309			
Pin Plunger	SS-10T	NEW	207-6310			
Hinge Roller Lever	SS-10GL2T	NEW	207-6308			
Simulated Roller Lever	SS-10GL13T	NEW	207-6307			

<b>Solder Terminals</b>						
Lever	SS-01GL-E	NEW	207-6296			
Lever	SS-01GL-F	NEW	207-6300			
Pin Plunger	SS-01-E	NEW	207-6277			
Pin Plunger	SS-01	NEW	182-9514			
Hinge Roller Lever	SS-01GL2-E	NEW	207-6289			
Hinge Roller Lever	SS-01GL2-F	NEW	207-6292			
Roller Lever	SS-01GL2	NEW	182-9515			
Simulated Roller Lever	SS-01GL13-E	NEW	207-6282			
Simulated Roller Lever	SS-01GL13-F	NEW	207-6285			
Lever	SS-5GL		103-444			
Lever	SS-5GL1112	NEW	182-9509			
Lever	SS-5GL1131	NEW	182-9510			
Pin Plunger	SS-5-F	NEW	207-6315			
Pin Plunger	SS-5-2	NEW	207-6311			
Pin Plunger	SS-5		103-443			
Hinge Roller Lever	SS-5GL2-F	NEW	207-6323			
Roller Lever	SS-5GL2		103-445			
Simulated Roller Lever	SS-5GL13-F	NEW	207-6320			
Lever	SS-10GL2	NEW	118-1021			
Simulated Roller Lever	SS-10GL13	NEW	207-6304			

<b>PCB Terminals</b>						
Lever	SS-01GL-ED	NEW	207-6297			
Lever	SS-01GL-FD	NEW	207-6301			
Pin Plunger	SS-01-ED	NEW	207-6278			
Pin Plunger	SS-01-FD	NEW	207-6280			
Pin Plunger	SS-01D	NEW	207-6276			
Hinge Roller Lever	SS-01GL2-ED	NEW	207-6290			
Hinge Roller Lever	SS-01GL2-FD	NEW	207-6293			
Simulated Roller Lever	SS-01GL13-ED	NEW	207-6283			
Simulated Roller Lever	SS-01GL13-FD	NEW	207-6286			
Simulated Roller Lever	SS-01GL13D	NEW	207-6281			
Lever	SS-5GL-FD	NEW	207-6327			
Lever	SS-5GLD		170-567			
Pin Plunger	SS-5-FD	NEW	207-6316			
Pin Plunger	SS-5-2D	NEW	207-6312			
Pin Plunger	SS-5-3D	NEW	207-6314			
Pin Plunger	SS-5D		170-566			
Hinge Roller Lever	SS-5GL2-FD	NEW	207-6324			
Roller Lever	SS-5GL2D		170-568			
Simulated Roller Lever	SS-5GL13-FD	NEW	207-6321			



# Microswitches - continued

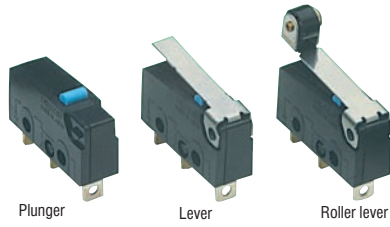
## Subminiature 'V4' Style - SS Series - continued

5A & 10A @ 125V ac, 0.1A @ 30V dc - continued

Actuator Type	Mftrs.		Price Each			
	List No.	Order Code	1+	50+	100+	250+
<b>PCB Terminals</b>						
Simulated Roller Lever	SS-5GL13D	<b>NEW 207-6319</b>				
Pin Plunger	SS-10D	<b>118-1022</b>				
Simulated Roller Lever	SS-10GL13D	<b>NEW 207-6306</b>				
<b>Left Angle PCB Terminals</b>						
Pin Plunger	SS-10D1	<b>NEW 207-6303</b>				

## Subminiature 'V4' Style - SSG Series

Wide Temperature Range, 3A @ 250V ac



Body H=7.7, W=19.8, D=6.4. Fixing centres=9.5

- Wide operating temperature range -25°C to +125°C
- Solder, quick connect and PCB terminal options
- PCB terminal pin spacing conforms to **DIN 41635 Form B**
- Flux resistant PCB terminals
- Conforms to **EN61058-1 (IEC1058-1)** and **CSA C22.2.U1** recognised

Mechanical life	10000000 ops.		Mftrs. List No.	Order Code
	200000 ops.			
Electrical life	200000 ops.			
Operating temperature	25°C to 125°C			
Operating Force	Current Rating @ 125VAC/Actuator			
Solder Terminals				
153gf	100mA	Lever	SSG-01L1H	207-6335
153gf	100mA	Pin Plunger	SSG-01H	207-6333
51gf	100mA	Pin Plunger	SSG-01H-5	207-6334
153gf	100mA	Hinge Roller Lever	SSG-01L2H	207-6338
153gf	100mA	Simulated Roller Lever	SSG-01L3H	207-6341
0.6N	5A	Lever	SSG-5L1H	619-516
51gf	5A	Pin Plunger	SSG-5H-5	207-6346
1.5N	5A	Pin Plunger	SSG-5H	619-504
0.6N	5A	Roller Lever	SSG-5L2H	619-528
Quick Connect Terminals				
153gf	100mA	Lever	SSG-01L1T	207-6337
153gf	100mA	Pin Plunger	SSG-01T	207-6345
153gf	100mA	Hinge Roller Lever	SSG-01L2T	207-6340
153gf	100mA	Simulated Roller Lever	SSG-01L3T	207-6343
51gf	5A	Pin Plunger	SSG-5T-5	207-6350
0.6N	5A	Roller Lever	SSG-5L2T	619-553
153gf	5A	Simulated Roller Lever	SSG-5L3T	207-6348
PCB Terminals				
153gf	100mA	Lever	SSG-01L1P	207-6336
153gf	100mA	Pin Plunger	SSG-01P	207-6344
153gf	100mA	Hinge Roller Lever	SSG-01L2P	207-6339
51gf	5A	Pin Plunger	SSG-5P-5	207-6349
1.5N	5A	Pin Plunger	SSG-5P	619-565
1.5N	5A	Roller Lever	SSG-5L2P	182-9511
153gf	5A	Simulated Roller Lever	SSG-5L3P	207-6347



Actuator	Mftrs.		Price Each			
	List No.	Order Code	1+	50+	100+	250+
<b>PCB Terminals</b>						
Lever	SSG-01L1P	<b>NEW 207-6336</b>				
Pin Plunger	SSG-01P	<b>NEW 207-6344</b>				
Hinge Roller Lever	SSG-01L2P	<b>NEW 207-6339</b>				
Pin Plunger	SSG-5P-5	<b>NEW 207-6349</b>				
Pin Plunger	SSG-5P	<b>619-565</b>				
Roller Lever	SSG-5L2P	<b>NEW 182-9511</b>				
Simulated Roller Lever	SSG-5L3P	<b>NEW 207-6347</b>				

## Subminiature 'V4' Style - D2SW Series



- Monoblock construction ensures high sealing capability
- Moulded lead type sealed to **IP67**, Solder type sealed to **IP50**
- **CSA** and **VDE/EN61058-1** approved. **UL** recognised

Rated Voltage	D2SW-3		D2SW-01	
	125V AC 250V AC 30V DC	3A 2A 3A	100mA	100mA
Operating Speed	0.1 mm to 1 m/s (pin plunger models)			
Insulation Resistance	100 MΩ min. (at 500 VDC)			
List No.	Actuator	Actuator	Rating	Force
<b>Molded Leads</b>				
D2SW-01L1M	SPDT	Lever	100mA	0.59N
D2SW-01L1M-0		Lever		
D2SW-01MS	SPDT	Pin Plunger	100mA	0.59N
D2SW-01L2-3M	SPST-NO	Roller Lever	100mA	0.59N
D2SW-01L2M	SPDT	Roller Lever	100mA	0.59N
D2SW-01L3-2M	SPST-NC	Simulated Roller Lever	100mA	0.59N
D2SW-01L3M	SPDT	Simulated Roller Lever	100mA	0.59N
D2SW-3L14M		Lever		
D2SW-3L1MS	SPDT	Lever	3A	0.59N
D2SW-3L1M	SPDT	Lever	3A	0.59N
D2SW-3-2M	SPST-NC	Pin Plunger	3A	0.59N
D2SW-3-3M	SPST-NO	Pin Plunger	3A	0.59N
D2SW-3-3MS	SPST-NO	Pin Plunger	3A	0.59N
D2SW-3M	SPDT	Pin Plunger	3A	1.77N
D2SW-3L2M	SPDT	Roller Lever	3A	0.59N
D2SW-3L2-2M	SPST-NC	Roller Lever	3A	0.59N
D2SW-3L2-3M	SPST-NO	Roller Lever	3A	0.59N
D2SW-3L3-2M	SPST-NC	Simulated Roller Lever	3A	0.59N
D2SW-3L3-3M	SPST-NO	Simulated Roller Lever	3A	0.59N
D2SW-3L3M	SPDT	Simulated Roller Lever	3A	0.59N
<b>PCB Terminals</b>				
D2SW-01L1D	SPDT	Lever	100mA	0.59N
D2SW-01D	SPDT	Pin Plunger	100mA	0.59N
D2SW-01L2D	SPDT	Roller Lever	100mA	0.59N
D2SW-01L3D	SPDT	Simulated Roller Lever	100mA	0.59N
D2SW-3L1D	SPDT	Lever	3A	0.59N
D2SW-3D	SPDT	Pin Plunger	3A	0.59N
D2SW-3DS	SPDT	Pin Plunger	3A	0.59N
D2SW-3L2D	SPDT	Roller Lever	3A	0.59N
D2SW-3L3D	SPDT	Simulated Roller Lever	3A	0.59N
<b>Quick Connect Terminals</b>				
D2SW-01L1T	SPDT	Lever	100mA	0.59N
D2SW-01T	SPDT	Pin Plunger	100mA	1.77N
D2SW-01L2T	SPDT	Roller Lever	100mA	0.59N
D2SW-01L3T	SPDT	Simulated Roller Lever	100mA	0.59N
D2SW-3L1T	SPDT	Lever	3A	0.59N
D2SW-3T	SPDT	Pin Plunger	3A	0.59N
D2SW-3L2T	SPDT	Roller Lever	3A	0.59N
D2SW-3L3T	SPDT	Simulated Roller Lever	3A	0.59N
<b>Solder Terminals</b>				
D2SW-01L1H	SPDT	Lever	100mA	0.59N
D2SW-01HS	SPDT	Pin Plunger	100mA	0.59N
D2SW-01H	SPDT	Pin Plunger	100mA	1.77N
D2SW-01L2H	SPDT	Roller Lever	100mA	0.59N
D2SW-01L3H	SPDT	Simulated Roller Lever	100mA	0.59N
D2SW-01L3HS	SPDT	Simulated Roller Lever	100mA	0.59N
D2SW-3L1H	SPDT	Lever	3A	0.59N
D2SW-3H	SPDT	Pin Plunger	3A	1.77N
D2SW-3L2H	SPDT	Roller Lever	3A	0.59N
D2SW-3L3H	SPDT	Simulated Roller Lever	3A	0.59N
<b>Subminiature - Molded Leads</b>				
D2SW-P01L1-2M	SPST-NC	Lever	100mA	0.6N
D2SW-P01L1M	SPDT	Lever	100mA	0.6N
D2SW-P2L1M	SPDT	Lever	2A	0.6N
D2SW-P01M	SPDT	Pin Plunger	100mA	1.8N
D2SW-P2M	SPDT	Pin Plunger	2A	1.8N
D2SW-P01L2M	SPDT	Roller Lever	100mA	0.6N
D2SW-P2L2M	SPDT	Roller Lever	2A	0.6N
D2SW-P01L3M	SPDT	Simulated Roller Lever	100mA	0.6N
D2SW-P2L3M	SPDT	Simulated Roller Lever	2A	0.6N
<b>Subminiature - PCB Terminals</b>				
D2SW-P01L1D	SPDT	Lever	100mA	0.6N
D2SW-P2L1D	SPDT	Lever	2A	0.6N
D2SW-P01L1B	SPDT	Lever	100mA	0.6N
D2SW-P2L1B	SPDT	Lever	2A	0.6N
D2SW-P01D	SPDT	Pin Plunger	100mA	1.8N
D2SW-P2D	SPDT	Pin Plunger	2A	1.8N
D2SW-P01B	SPDT	Pin Plunger	100mA	1.8N

Mfrs. List No.	Actuator	Order Code	1+	25+	50+	100+	Price Each
D2SW-P2B	SPDT	Pin Plunger	2A	1.8N			
D2SW-P01L2D	SPDT	Roller Lever	100mA	0.6N			
D2SW-P2L2D	SPDT	Roller Lever	2A	0.6N			
D2SW-P01L2B	SPDT	Roller Lever	100mA	0.6N			
D2SW-P2L2B	SPDT	Roller Lever	2A	0.6N			
D2SW-P01L3D	SPDT	Simulated Roller Lever	100mA	0.6N			
D2SW-P2L3D	SPDT	Simulated Roller Lever	2A	0.6N			
D2SW-P01L3B	SPDT	Simulated Roller Lever	100mA	0.6N			
D2SW-P2L3B	SPDT	Simulated Roller Lever	2A	0.6N			
<b>Subminiature - Quick Connect Terminals</b>							
D2SW-P01L1T	SPDT	Lever	100mA	0.6N			
D2SW-P2L1T	SPDT	Lever	2A	0.6N			
D2SW-P01T	SPDT	Pin Plunger	100mA	1.8N			
D2SW-P2T	SPDT	Pin Plunger	2A	1.8N			
D2SW-P01L2T	SPDT	Roller Lever	100mA	0.6N			
D2SW-P2L2T	SPDT	Roller Lever	2A	0.6N			
D2SW-P01L3T	SPDT	Simulated Roller Lever	100mA	0.6N			
D2SW-P2L3T	SPDT	Simulated Roller Lever	2A	0.6N			
<b>Subminiature - Solder Terminals</b>							
D2SW-P01L1H	SPDT	Lever	100mA	0.6N			
D2SW-P2L1H	SPDT	Lever	2A	0.6N			
D2SW-P01H	SPDT	Pin Plunger	100mA	1.8N			
D2SW-P2H	SPDT	Pin Plunger	2A	1.8N			
D2SW-P01L2H	SPDT	Roller Lever	100mA	0.6N			
D2SW-P2L2H	SPDT	Roller Lever	2A	0.6N			
D2SW-P01L3H	SPDT	Simulated Roller Lever	100mA	0.6N			
D2SW-P2L3H	SPDT	Simulated Roller Lever	2A	0.6N			

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Mfrs. List No.	Actuator	Order Code	1+	25+	50+	100+	Price Each
<b>Molded Leads</b>							
D2SW-01L1M	Lever	NEW 206-8295					
D2SW-01L1M-0	Lever	NEW 206-8296					
D2SW-01MS	Pin Plunger	NEW 206-8309					
D2SW-01L2-3M	Roller Lever	NEW 206-8298					
D2SW-01L2M	Roller Lever	NEW 206-8301					
D2SW-01L3-2M	Simulated Roller Lever	NEW 206-8302					
D2SW-01L3M	Simulated Roller Lever	NEW 206-8306					
D2SW-3L14M	Lever	NEW 206-8316					
D2SW-3L1MS	Lever	NEW 206-8318					
D2SW-3L1M	Lever	NEW 959-832					
D2SW-3-2M	Pin Plunger	NEW 206-8311					
D2SW-3-3M	Pin Plunger	NEW 206-8312					
D2SW-3-3MS	Pin Plunger	NEW 206-8313					
D2SW-3M	Pin Plunger	959-820					
D2SW-3L2M	Roller Lever	959-844					
D2SW-3L2-2M	Roller Lever	NEW 206-8320					
D2SW-3L2-3M	Roller Lever	NEW 206-8322					
D2SW-3L3-2M	Simulated Roller Lever	NEW 206-8325					
D2SW-3L3-3M	Simulated Roller Lever	NEW 206-8326					
D2SW-3L3M	Simulated Roller Lever	NEW 206-8329					
<b>PCB Terminals</b>							
D2SW-01L1D	Lever	NEW 206-8294					
D2SW-01D	Pin Plunger	NEW 206-8292					
D2SW-01L2D	Roller Lever	NEW 206-8299					
D2SW-01L3D	Simulated Roller Lever	NEW 206-8303					
D2SW-3L1D	Lever	NEW 206-8317					
D2SW-3D	Pin Plunger	NEW 206-8314					
D2SW-3DS	Pin Plunger	NEW 206-8315					
D2SW-3L2D	Roller Lever	NEW 206-8323					
D2SW-3L3D	Simulated Roller Lever	NEW 206-8327					
<b>Quick Connect Terminals</b>							
D2SW-01L1T	Lever	NEW 206-8297					
D2SW-01T	Pin Plunger	NEW 182-9500					
D2SW-01L2T	Roller Lever	NEW 182-9499					
D2SW-01L3T	Simulated Roller Lever	NEW 206-8307					
D2SW-3L1T	Lever	NEW 206-8319					
D2SW-3T	Pin Plunger	NEW 206-8331					
D2SW-3L2T	Roller Lever	NEW 206-8324					
D2SW-3L3T	Simulated Roller Lever	NEW 206-8330					
<b>Solder Terminals</b>							
D2SW-01L1H	Lever	NEW 182-9498					
D2SW-01HS	Pin Plunger	NEW 206-8293					
D2SW-01H	Pin Plunger	NEW 182-9497					
D2SW-01L2H	Roller Lever	NEW 206-8300					
D2SW-01L3H	Simulated Roller Lever	NEW 206-8304					
D2SW-01L3HS	Simulated Roller Lever	NEW 206-8305					
D2SW-3L1H	Lever	959-807					
D2SW-3H	Pin Plunger	959-790					
D2SW-3L2H	Roller Lever	959-819					
D2SW-3L3H	Simulated Roller Lever	NEW 206-8328					
<b>Subminiature - Molded Leads</b>							
D2SW-P01L1-2M	Lever	NEW 206-8336					
D2SW-P01L1M	Lever	NEW 206-8340					
D2SW-P2L1M	Lever	NEW 206-8362					
D2SW-P01M	Pin Plunger	NEW 206-8353					
D2SW-P2M	Pin Plunger	NEW 206-8376					
D2SW-P01L2M	Roller Lever	NEW 206-8346					

Mfrs. List No.	Actuator	Order Code	1+	25+	50+	100+	Price Each
<b>Subminiature - Molded Leads</b>							
D2SW-P2L2M	Roller Lever	NEW 206-8367					
D2SW-P01L3M	Simulated Roller Lever	NEW 206-8351					
D2SW-P2L3M	Simulated Roller Lever	NEW 206-8374					
<b>Subminiature - PCB Terminals</b>							
D2SW-P01L1D	Lever	NEW 206-8338					
D2SW-P2L1D	Lever	NEW 206-8360					
D2SW-P01L1B	Lever	NEW 206-8337					
D2SW-P2L1B	Lever	NEW 206-8359					
D2SW-P01D	Pin Plunger	NEW 206-8334					
D2SW-P2D	Pin Plunger	NEW 206-8356					
D2SW-P01B	Pin Plunger	NEW 206-8332					
D2SW-P2B	Pin Plunger	NEW 206-8355					
D2SW-P01L2D	Roller Lever	NEW 206-8363					
D2SW-P2L2D	Roller Lever	NEW 206-8365					
D2SW-P01L2B	Roller Lever	NEW 206-8342					
D2SW-P2L2B	Roller Lever	NEW 206-8364					
D2SW-P01L3D	Simulated Roller Lever	NEW 206-8334					
D2SW-P2L3D	Simulated Roller Lever	NEW 206-8372					
D2SW-P01L3B	Simulated Roller Lever	NEW 206-8348					
D2SW-P2L3B	Simulated Roller Lever	NEW 206-8371					
<b>Subminiature - Quick Connect Terminals</b>							
D2SW-P01L1T	Lever	NEW 206-8341					
D2SW-P2L1T	Lever	NEW 206-8363					
D2SW-P01T	Pin Plunger	NEW 206-8354					
D2SW-P2T	Pin Plunger	NEW 206-8374					
D2SW-P01L2T	Roller Lever	NEW 206-8347					
D2SW-P2L2T	Roller Lever	NEW 206-8368					
D2SW-P01L3T	Simulated Roller Lever	NEW 206-8352					
D2SW-P2L3T	Simulated Roller Lever	NEW 206-8375					
<b>Subminiature - Solder Terminals</b>							
D2SW-P01L1H	Lever	NEW 206-8339					
D2SW-P2L1H	Lever	NEW 206-8361					
D2SW-P01H	Pin Plunger	NEW 206-8335					
D2SW-P2H	Pin Plunger	NEW 206-8358					
D2SW-P01L2H	Roller Lever	NEW 206-8344					
D2SW-P2L2H	Roller Lever	NEW 206-8366					
D2SW-P01L3H	Simulated Roller Lever	NEW 206-8350					
D2SW-P2L3H	Simulated Roller Lever	NEW 206-8373					
<b>Accessories</b>							
D2SW TERMINAL COVER		NEW 206-8290					

Mfrs. List No.	Actuator	Order Code	1+	25+	50+	100+	Price Each
<b>Molded Leads</b>							
D2SW-01L1M	Lever	NEW 206-8295					
D2SW-01L1M-0	Lever	NEW 206-8296					
D2SW-01MS	Pin Plunger	NEW 206-8309					
D2SW-01L2-3M	Roller Lever	NEW 206-8298					
D2SW-01L2M	Roller Lever	NEW 206-8301					
D2SW-01L3-2M	Simulated Roller Lever	NEW 206-8302					
D2SW-01L3M	Simulated Roller Lever	NEW 206-8306					
D2SW-3L14M	Lever	NEW 206-8316					
D2SW-3L1MS	Lever	NEW 206-8318					
D2SW-3L1M	Lever	NEW 959-832					
D2SW-3-2M	Pin Plunger	NEW 206-8311					
D2SW-3-3M	Pin Plunger	NEW 206-8312					
D2SW-3-3MS	Pin Plunger	NEW 206-8313					
D2SW-3M	Pin Plunger	959-820					
D2SW-3L2M	Roller Lever	959-844					
D2SW-3L2-2M	Roller Lever	NEW 206-8320					
D2SW-3L2-3M	Roller Lever	NEW 206-8322					
D2SW-3L3-2M	Simulated Roller Lever	NEW 206-8325					
D2SW-3L3-3M	Simulated Roller Lever	NEW 206-8326					
D2SW-3L3M	Simulated Roller Lever	NEW 206-8329					
<b>PCB Terminals</b>							
D2SW-01L1D	Lever	NEW 206-8294					
D2SW-01D	Pin Plunger	NEW 206-8292					
D2SW-01L2D	Roller Lever	NEW 206-8299					
D2SW-01L3D	Simulated Roller Lever	NEW 206-8303					
D2SW-3L1D	Lever	NEW 206-8317					
D2SW-3D	Pin Plunger	NEW 206-8314					
D2SW-3DS	Pin Plunger	NEW 206-8315					
D2SW-3L2D	Roller Lever	NEW 206-8323					
D2SW-3L3D	Simulated Roller Lever	NEW 206-8327					
<b>Quick Connect Terminals</b>							
D2SW-01L1T	Lever	NEW 206-8297					
D2SW-01T	Pin Plunger	NEW 182-9500					
D2SW-01L2T	Roller Lever	NEW 182-9499					
D2SW-01L3T	Simulated Roller Lever	NEW 206-8307					
D2SW-3L1T	Lever	NEW 206-8319					
D2SW-3T	Pin Plunger	NEW 206-8331					
D2SW-3L2T	Roller Lever	NEW 206-8324					
D2SW-3L3T	Simulated Roller Lever	NEW 206-8330					
<b>Solder Terminals</b>							
D2SW-01L1H	Lever	NEW 182-9498					
D2SW-01HS	Pin Plunger	NEW 206-8293					
D2SW-01H	Pin Plunger	NEW 182-9497					
D2SW-01L2H	Roller Lever	NEW 206-8300					
D2SW-01L3H	Simulated Roller Lever	NEW 206-8304					
D2SW-01L3HS	Simulated Roller Lever	NEW 206-8305					
D2SW-3L1H	Lever	959-807					
D2SW-3H	Pin Plunger	959-790					
D2SW-3L2H	Roller Lever	959-819					
D2SW-3L3H	Simulated Roller Lever	NEW 206-8328					
<b>Subminiature - Molded Leads</b>							
D2SW-P01L1-2M	Lever	NEW 206-8336					
D2SW-P01L1M	Lever	NEW 206-8340					
D2SW-P2L1M							

## Subminiature Snap Action Micro Switches

### Z Series



Size: H 19.8 x W 6.4 x D 13.8

The switches combines small size and light weight with ample electrical capacity and enhanced life. These reliable and rugged switches offer a variety of actuators, terminations, circuitry configurations, electrical ratings, operating characteristics, and sealing allows them to be utilized in numerous potential applications. Carefully manufactured and thoroughly inspected, these switches are a great value for applications requiring sensing presence or absence of an object.

**NEW**

- Small size and light weight switches lend themselves to numerous potential applications
- Broad range of amp ratings (from 0.1 A to 5 A)
- Watertight IP67 sealing available on some listings allows the switch to be used where sealing and presence/absence detection is required
- Application: Industrial, transportation and medical

Mfrs. List No.	Current Rating	Voltage Rating	Operating Force	Terminal Type	Actuator Type	Order Code
<b>Standard</b>						
ZD30S60A05-Z	3A	12Vdc / 125Vac	1.27N	Through Hole	Plunger	196-1745
ZD30S60C02-Z	3A	12Vdc / 125Vac	1.27N	Through Hole	Lever	196-1746
ZD30S60H02-Z	3A	12Vdc / 125Vac	1.27N	Through Hole	Simulated Roller Lever	196-1747
ZW10F15CD1-Z	100mA	125Vac / 250Vac	0.54N	Solder Lug	Lever	196-1748
ZW50F15AD1-Z	5A	125Vac / 250Vac	1.99N	Solder Lug	Plunger	196-1749
ZW50F15CD1-Z	5A	125Vac / 250Vac	1.99N	Solder Lug	Lever	196-1750
ZW50F15FD1-Z	5A	125Vac / 250Vac	1.99N	Solder Lug	Roller Lever	196-1751
<b>IP67 Rating</b>						
ZW50F91AW1-Z	5A	125Vac / 250Vac	1.99N	Wire Leads	Plunger	196-1752
ZW-50F92AW1-Z	5A	125Vac / 250Vac	1.99N	Wire Leads	Plunger	196-1753

Mfrs. List No.	Order Code	1+	10+	25+	50+	100+
<b>Standard</b>						
ZD30S60A05-Z	196-1745					
ZD30S60C02-Z	196-1746					
ZD30S60H02-Z	196-1747					
ZW10F15CD1-Z	196-1748					
ZW50F15AD1-Z	196-1749					
ZW50F15CD1-Z	196-1750					
ZW50F15FD1-Z	196-1751					
<b>IP67 Rating</b>						
ZW50F91AW1-Z	196-1752					
ZW-50F92AW1-Z	196-1753					

## Watertight Miniature Micro Switches

### V15W Series



- Degree of protection: IP67
- Wide current range: 0.1 A, 5 A, 10 A
- Pre-leaded wires for easy installation
- Wide temperature range
- Long mechanical/electrical service life

**NEW**

V15W is a miniature sized basic switch designed for harsh duty, wash down areas. Rugged yet precise, the Series gives highly accurate machine control for turning circuits on and off. The V15W can be used in a wide range of challenging environments, including food packaging plants, forklifts, ATVs, golf carts, lawn mowers, garbage trucks, salt trucks, commercial buses, and wheelchair lifts for conversion vans. By utilizing an epoxy resin, the V15W Series switches deliver high sealing capability with an IP67 rating (pre-leaded only). They may also be used in dusty places or in washdown applications.

Electrical Rating	W1: 0.1A @ 125/250V ac, 0.1A @ 48V dc W2: 5A @ 125/250V ac, 5A @ 30V dc W3: 10.1A @ 125/250V ac, 0.25A @ 250V dc
Circuitry	SPDT
Operating Force	200g
Operating Temperature	-40°C to 85°C
Insulation Resistance	100MΩ min. at 500V dc
Contact Resistance	Quick Connect: 100mΩ max. Wire Lead: 300mΩ max.
Contacts	Silver Nickel
Mechanical Life	1000000
Weight	Quick Connect: 8g Wire Lead: 18g
Case Material	PBT
Plunger Seal	Silicone Rubber
External Lever	Stainless Steel

Mfrs. List No.	Lever Type	Order Code	1+	10+	25+
<b>Quick Connect - 4.8 x 0.8mm</b>					
V15W11-DZ200A02-AW1	Lever	206-5390			
V15W11-DZ200-AW1	Plunger	206-5391			
V15W11-DZ200A06-AW1	Long Roller Lever	206-5392			
V15W11-DZ200A06-W2	Long Roller Lever	206-5395			
V15W11-DZ200A02-W2	Lever	206-5396			
V15W11-DZ200A05-AW1	Roller Lever	206-5399			
V15W11-DZ200A04-W2	Simulated Roller Lever	206-5401			

644332

Mfrs. List No.	Lever Type	Order Code	1+	10+	25+
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Mfrs. List No.	Lever Type	Order Code	1+	10+	25+
<b>Quick Connect - 4.8 x 0.5mm</b>					
V15W11-EZ200-W3	Plunger	206-5403			
<b>Wire Lead - 300mm length</b>					
V15W11-WZ200A02-W2	Lever	206-5397			
V15W11-WZ200A06-AW1	Long Roller Lever	206-5398			
V15W11-WZ200A02-AW1	Lever	206-5402			
V15W11-WZ200-W3	Plunger	206-5404			

## Sub-miniature 'V4' Style, IP67 Sealed - Long Overtravel

saia-burgess

### 5A @ 250V ac



H=16.05, W=6.45, D=20, Fixing centres = 9.53

- SPDT contacts
- Sealed to IP67
- Minimum over travel of 2.2mm compared to 0.4/0.9 available from standard switches
- Ideal for applications where the movement of the actuating medium cannot be precisely controlled

Operating force, max	240gf
Release force, min	40g
Pre travel, max	1.5mm
Differential travel, max	0.6mm
Over travel, min	2.2mm

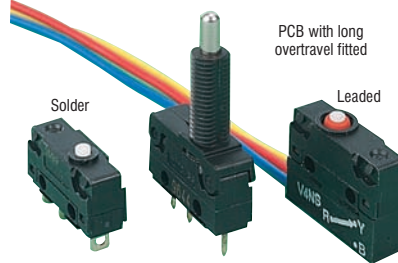
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Mfrs. List No.	Order Code	1+	25+	50+	100+
V4LS	116-2617				

## Panel Mount Actuator

saia-burgess

### 5A @ 250V ac



Microswitch: H=10.2 (unsealed), 16.05 (sealed), W=6.45, D=20 Fixing centres=9.53  
Long over travel kit H=23.95 (from fixing centres) Thread=M6 fine. Lead length (318-9650)=0.5mm.

- Pushbutton actuator system based on the popular V4 microswitch
- Long over travel kit has a spring loaded, stainless steel plunger that converts the assembly into a miniature limit switch and simply clips to the microswitch body
- Ideal for machine applications such as end of travel detection
- 5mm over travel allows use in high tolerance applications
- Single round hole fixing
- Simple assembly

Contacts	SPST-CO	Mechanical life	10000000
Contact rating	5A @ 240Vac	Operating temperature	-40°C to 85°C

213327

Mfrs. List No.	Order Code	1+	25+	50+	100+
<b>Microswitches - Unsealed</b>					
Solder	V4NT7	116-2606			
<b>Microswitches - Sealed</b>					
Solder	V4NST7	116-2607			
Leaded	V4NS	116-2608			
Long over travel kit	QA4	116-2609			

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## Environment Proof Sealed Subminiature Switches

# Honeywell

- SPDT silver contacts
- Fully sealed version to IP67

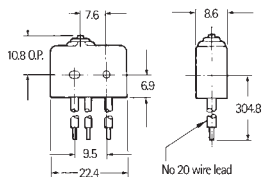
- Nylon 64 housing UL recognised
- Approved to VDE and BEAB



Micro switch 719-0384



Roller lever actuator 719-0396



- SE sub-miniature switch combines small size with environment-proof sealing and precision operation
- Conforms to BS4683 Part 3 type 'N' protection - enclosed break
- High-quality basic switch is sealed in epoxy resin within a corrosion-resistant aluminium housing
- Pin plunger stainless steel with silicone rubber seal

- Pre-wired with 300mm of PTFE cable
- Stainless steel roller lever auxiliary actuators available separately
- BASEEFA approved No 4028U, rating Ex n d II
- 5A resistive 250V ac, SPDT
- Mechanical life to 10 million operations
- Temperature range -62°C to 150°C

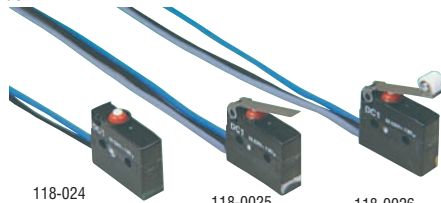
	Pin Plunger	With Lever
Operating force	140g-480g	340g max.
Release force	113g	57g min.
Pre-travel	1.3mm	3.8mm
Over-travel	0.08mm	0.4mm
Differential travel	0.1mm	0.6mm
Operating position from mounting centres	10.8mm	16.2mm
Free position	—	20.1mm

214227

Mfrs.	List No.	Order Code	1+	+	+	+
Micro Switch	91SE1	719-0384				
Roller Lever Actuator	JE-5	160-8188				

## Subminiature 'V4' Style, IP67 Sealed

6A @ 250V ac



Body H=15.85, W=6.5, D=19.9, Fixing centres=9.5

- Polyester housing UL recognised and sealed to IP67
- SPDT silver contacts
- Pre-wired with 500mm long 0.75mm<sup>2</sup> PVC leads
- Wire colour code: Blue = NO, Grey = NC, Black = Common

Mechanical life	1000000 ops	Operating temperature	-40°C to 120°C		
Electrical life	10000 ops	Order codes	118-0024	118-0025	118-0026
Operating force, max	2N	Operating force, max	2N	0.7N	0.8N
Pre-travel, max	1.0	Pre-travel, max	1.0	5.0	5.0
Over-travel, max	0.6	Over-travel, max	0.6	1.5	1.5
Differential travel	0.1	Differential travel	0.1	0.6	0.6

213145

Mfrs.	List No.	Order Code	1+	25+	50+	100+
UDC1C-C3AA		118-0024				
UDC1C-C3LC		118-0025				
UDC1C-C3RC		118-0026				

## Subminiature 'V4' Style - IP67 Sealed and Unsealed

5 (1) A @ 250V ac

# ITW Switches



Mechanical life 1000000 ops  
Electrical life 100000 ops

Operating temperature -40°C to +125°C

### IP67 Sealed Switches

Plunger 19N402  
Lever 19N402L18  
Long lever 19N402L63  
Roller lever 19N402R15

Plunger	Lever	Long lever	Roller lever
Operating force (Max.)	2N	0.6N	0.17N
Release force (Min.)	0.27N	0.08N	0.02N
Pre travel (Max.)	1.2mm	4.1mm	21.0mm
Differential travel (Max.)	0.2mm	0.7mm	6.35mm
Actuator length	—	18mm	63mm

### Unsealed Switches

Plunger 19N502L18  
Lever 19N502L63  
Long lever 19N502R15

Plunger	Lever	Long lever	Roller lever
Operating force (Max.)	1.5N	0.45N	0.15N
Release force (Min.)	0.27N	0.08N	0.02N
Pre travel (Max.)	1.2mm	4.1mm	21.0mm
Differential travel (Max.)	0.2mm	0.7mm	6.35mm
Actuator length	—	18mm	63mm

213177

### IP67 Sealed Switches

Solder Type	Mfrs. List No.	Order Code	1+	50+	100+	250+
Plunger	19N402	521-840				
Lever	19N402L18	521-851				
Long lever	19N402L63	521-863				
Roller lever	19N402R15	521-875				

### PCB Type

Solder Type	Mfrs. List No.	Order Code	1+	50+	100+	250+
Lever	19N502L18	521-899				
Long lever	19N502L63	521-905				
Roller lever	19N502R15	521-917				

### Unsealed Switches

Solder Type	Mfrs. List No.	Order Code	1+	50+	100+	250+
Plunger	19N403	624-664				
Lever	19N403L18	624-676				
Long lever	19N403L63	624-688				
Roller lever	19N403R15	624-690				

### PCB Type

Solder Type	Mfrs. List No.	Order Code	1+	50+	100+	250+
Lever	19N503L18	624-718				
Long lever	19N503L63	624-720				
Roller lever	19N503R15	624-731				

## Subminiature PCB Mount- DC Series

250V ac Switching



- SPDT
- Sealed switch IP6K7
- Meets the glow-wire specification requirements
- Operating temperature up to 120°C (105°C Leaded version)
- Wide variety of terminal types available
- Mechanical operating life min. 1,000,000 actuations
- Leaded versions with 500mm leads
- Kema-Keur, ENEC Approved, UL Recognised

Body - H = 9.25 (15.25 Leaded Version), W = 20, D = 6.5mm

UL Rating @ 250V	Actuator	Terminals	Operating Force (gf)	Mfrs. List No.	Order Code
100mA	Pin Plunger	Solder / Quick Connect	1.96	DC3C-A1AA	151-9010
5A	Pin Plunger	Solder / Quick Connect	1.96	DC1C-A1AA	151-9023
5A	Long Lever	Solder / Quick Connect	1.96	DC1C-A1LD	151-9027
5A	Medium Roller Lever	Solder / Quick Connect	0.8	DC1C-A1RC	151-9029
10A	Medium Lever	Solder / Quick Connect	1.2	DC2C-A1LC	151-9040

493870

Mfrs. List No.	Order Code	1+	25+	50+	100+	+
DC3C-A1AA	151-9010					
DC1C-A1AA	151-9023					
DC1C-A1LD	151-9027					
DC1C-A1RC	151-9029					
DC2C-A1LC	151-9040					

## Subminiature PCB Mount- DB Series

250V ac Switching



- SPDT
- High precision switch with high repeat accuracy
- Operating temperature up to 120°C
- Wide variety of terminal types available
- Kema-Keur, ENEC Approved, UL Recognised

Body - H = 10, W = 20, D = 6.5mm

UL Rating @ 250V	Actuator	Terminals	Operating Force (gf)	Mfrs. List No.	Order Code
100mA	Short Lever	Short Solder	60	DB3C-A1LB	151-8967
100mA	Medium Roller Lever	Short Solder	55	DB3C-A1RC	151-8969
100mA	Plunger	Quick Connect	150	DB3C-B1AA	151-8971
5A	Plunger	Short Solder	150	DB1C-A1AA	151-8979
5A	Short Lever	Short Solder	60	DB1C-A1LB	151-8980
5A	Medium Lever	Short Solder	50	DB1C-A1LC	151-8981
5A	Short Roller Lever	Short Solder	65	DB1C-A1RB	151-8982
5A	Plunger	PCB Straight	150	DB1C-C1AA	151-8991

# Microswitches - continued

## Subminiature PCB Mount- DB Series - continued

### 250V ac Switching - continued

UL Rating @ 250V	Actuator	Terminals	Operating Force (gf)	Mftrs. List No.	Order Code
5A	Medium Roller Lever	PCB Straight	55	DB1C-C1RC	151-8992
5A	Plunger	PCB, RH with Locating Pins	150	DB1C-D2AA	151-8994
10A	Plunger	Short Solder	250	DB2C-A1AA	151-8996
10A	Medium Roller Lever	Short Solder	95	DB2C-A1RC	151-9000
10A	Plunger	PCB Straight	250	DB2C-C1AA	151-9007

493827

#### Price Each

Mftrs. List No.	Order Code	1+	25+	50+	100+	250+
DB3C-A1LB	151-8967					
DB3C-A1RC	151-8969					
DB3C-B1AA	151-8971					
DB1C-A1AA	151-8979					
DB1C-A1LB	151-8980					
DB1C-A1LC	151-8981					
DB1C-A1RB	151-8982					
DB1C-C1AA	151-8991					
DB1C-C1RC	151-8992					
DB1C-D2AA	151-8994					
DB2C-A1AA	151-8996					
DB2C-A1RC	151-9000					
DB2C-C1AA	151-9007					

Contact resistance < 100mΩ  
 Insulation resistance > 100MΩ  
 Contact distance < 3mm  
 Difference travel max. 0.3mm  
 Temperature -40°C to +100°C  
 Material PA (Actuator)  
 Duroplast type 182 / PA glass fiber-reinforced (Housing)  
 Silver-plated / chromated (Connections)  
 Solder terminals

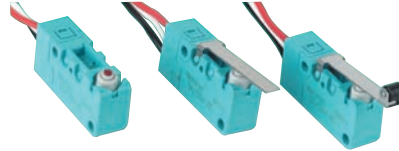
#### Connection type

Mftrs. List No.	Operating Force	Order Code	1+	25+	50+	100+
1005.0401	1.5N - 2.5N	183-1098				
1005.0404	2.4N - 3.8N	183-1099				

617710

## Miniature Turquoise Series ABV

### 3A @ 250V ac



Pin plunger, Hinge lever, Roller lever

- Miniature (33 x 15.9 x 10.3 mm)
- Long life expectancy and high contact reliability
- Watertight housing sealed to IP67
- CSA, VDE and SEMKO approved. UL recognised

Contacts	SPDT	Insulation resistance	MΩ @ dc
Contact resistance	100mR (solder)	Electrical life	100000 ops.
Contact rating	3A @ 250V ac	Mechanical life	5000000
Operating temperature	-40°C to +85°C		
Switch type	Pin plunger	Hinge lever	Roller lever
SPDT, Wire leads(side entry)			
Release force, min.	25gf	10gf	10gf
Pre-travel, max.	1.6mm	3.2mm	3.2mm
Over-travel, min.	0.8mm	1.2mm	1.2mm
Movement differential, max.	0.4mm	1.2mm	1.2mm

241389

ABV Series	Mftrs. List No.	Operating Force (N)	Order Code	1+	10+	25+
Pin plunger	ABV161061	2.94	372-6990			
Pin plunger	ABV16106131J	2.94	NEW 209-5699			
Pin plunger	ABV1210503	1.96	NEW 209-5698			
Hinge Lever	ABV161261	1.77	372-7002			
Roller lever	ABV161661	1.77	372-7014			

## Subminiature Snap-Action Switch

### 4A@12Vdc/2A@24Vdc

**NEW**



Contact resistance < 50mΩ  
 Insulation resistance > 100MΩ  
 Operating force ≤ 1.3N  
 Difference travel max. 0.4mm  
 Temperature -40°C to +85°C  
 Contact material Silver gold-plated  
 Material POM (Actuator)  
 PBTP (Housing)  
 Tinned (Connections)  
 Solder terminals

#### Connection type

- Large overtravel of ≥ 1.2mm for small size
- The specially designed pushbutton guide enables a start-up angle of 40°
- The modular principle offers a wide selection of connections, auxiliary actuators and fastening types

617705

Mftrs. List No.	Order Code	1+	25+	50+	100+	250+
1056.0351	183-1121					

## Subminiature Snap-Action Switches

### 5A@250Vac

**NEW**



Contact resistance < 100mΩ  
 Insulation resistance > 100MΩ  
 Operating force ≤ 1.5N  
 Bounce time < 5ms  
 Difference travel max. 0.2mm  
 Temperature -40°C to +100°C  
 Contact material Silver  
 Material PA (Actuator)  
 PBTP (Housing)  
 Tinned (Connections)

- Lateral approach from both directions possible due to mushroom-shaped actuator
- Selection of auxiliary actuators
- Contact configuration: SPDT

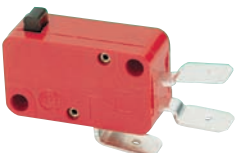
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Mftrs. List No.	Terminal Type	Actuator Type	Order Code	1+	25+	50+	100+
1050.0202	Solder Lug		183-1101				
1050.1102	Quick Connect		183-1102				

## Miniature Snap-Action Switches

### 10A@400Vac

**NEW**



- Friction contact system the shearing movement of which can loosen weldings
- Very high inrush currents (capacitive)
- Contact distances less and greater than 3mm
- Actuator type: Button

## Standard Basic Switches

### 15A - BZ Series



- Accepted standard "Large Basic" switch
- Single Pole Double throw action
- 15A @ 125V ac Switching
- Low operating force and differential travel
- Long mechanical life up to 20,000,000 cycles
- Elongated mounting hole for easier, more accurate mounting

- Screw terminals
- CSA and DEMKO Approved, UL Recognised

Order Code	Force (N)			Travel (mm)	
	Operating	Release	Pre-travel	Over-travel	Differential
126-2125	3.61	1.11	0.33	0.13	0.05
126-2126	3.61	1.11	0.38	1.52	0.05
126-2127	3.61	1.11	0.38	3.56	0.05
126-2128	3.61	1.11	0.38	5.56	0.05
126-2131					
126-2132	0.7	0.14		5.56	1.27
126-2133	1.67	0.42		2.39	0.51
126-2135	0.97	0.21		3.96	1.0

444825

Actuator Type	Mftrs. List No.	Order Code	Price Each				
			1+	5+	10+	25+	50+
Pin Plunger	BZ-2R-A2	126-2125					
Button Plunger	BZ-2RD-A2	126-2126					
Roller Plunger	BZ-2RQ18M-A2	126-2127					
Panel Plunger	BZ-2RQ1M-A2	126-2128					
Wire Hinge Lever	BZ-2RW53-A2	126-2131					
Hinge Lever	BZ-2RW80-A2	126-2132					
Roller Lever	BZ-2RW822-A2	126-2133					
Roller Lever	BZ-2RW82-A2	126-2135					

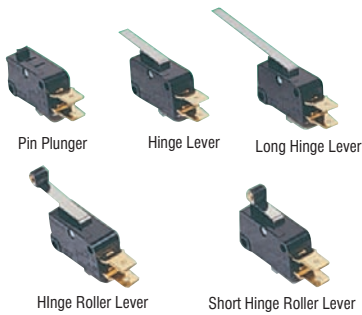
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## Miniature 'V3' Style - V Series

15A @ 240V ac



Body: H=15.9, W=10.3, D=27.9,  
Fixing centres=22.2 x 10.3, Quick-connect terminals=6.35 x 0.8

- Body fixing centres conform to international standards
- Switches with integral or separate actuator available

Contacts	SPDT	Electrical life	25000 ops				
Mechanical life	500000 ops	Operating temperature	-25°C to +80°C				
Actuator Type		Pin Plunger	Hinge Lever	Long Hinge Lever	Short Hinge Roller Lever	Hinge Roller Lever	
Operating force, max		1.96N	1.96N	1.96N	1.96N	1.96N	
Return force, min		0.49N	0.14N	0.06N	0.49N	0.14N	
Pre travel, max		1.2mm	4.0mm	9.0mm	1.6mm	4.0mm	
Overtravel, min		1.0mm	1.6mm	2.0mm	0.8mm	1.6mm	
Movement differential, max		0.4mm	1.5mm	2.8mm	0.6mm	1.5mm	

222320

Actuator Type	Mfrs.	Price Each			
Type	List No.	Order Code	1+	50+	100+
<b>15A @ 250VAC</b>					
Pin Plunger	V-15-1C5	990-1604	●		
Long Hinge Lever	V-153-1C5	990-1620	●		
Hinge Roller Lever	V-156-1C5	990-1639	●		
Short Hinge Roller Lever	V-155-1C5	990-1647	●		
<b>16A @ 250VAC</b>					
Pin Plunger	V-16-1C5	NEW 183-2583	●		
Hinge Lever	V-162-1C5	NEW 183-2584	●		
Long Hinge Lever	V-163-1C5	NEW 183-2585	●		
Short Hinge Roller Lever	V-165-1C5	NEW 183-2586	●		
Hinge Roller Lever	V-166-1C5	NEW 183-2587	●		

## Miniature D3V Series



- Reliable basic switch with external lever
- Self-cleaning contacts
- Quick-Connect terminals
- Mounting hole size of 3.1mm
- Conforms to EN61058-1 and UL1054

Rated Voltage	D3V-21	D3V-16	D3V-11
250V AC	21A	16A	11A
8V DC	21A	16A	11A
30V DC	14A	10A	6A
125V DC	0.6A	0.6A	0.6A
250V DC	0.3A	0.3A	0.3A

Operating Speed 0.1 mm to 1 m/s (pin plunger models)  
Insulation Resistance 100 M $\Omega$  min. (at 500 VDC)

Mfrs. List No.	Actuator	Current Rating	Operating Force
<b>SPDT, Solder Terminals</b>			
D3V-162-1A4	Lever	16A	0.98N
D3V-162M-1A4	Lever	16A	0.98N
D3V-163-1A4	Long Lever	16A	0.98N
D3V-164-1A4	Simulated Roller Lever	16A	0.98N
D3V-164K-1A4	Simulated Roller Lever	16A	0.98N
D3V-164M-1A4	Simulated Roller Lever	16A	0.98N
D3V-162-1A5	Lever	16A	1.96N
D3V-162K-1A5	Lever	16A	1.96N
D3V-162M-1A5	Lever	16A	1.96N
D3V-163-1A5	Long Lever	16A	1.96N
D3V-166-1A5	Lever	16A	1.96N
D3V-161-1A5	Short Lever	16A	1.96N
D3V-164-1A5	Simulated Roller Lever	16A	1.96N
<b>SPDT, Quick Connect Terminals</b>			
D3V-163-1C26	Long Lever	16A	1.96N
D3V-166-1C25	Lever	16A	0.98N
D3V-162-1C24	Lever	16A	0.98N
D3V-162-1C4	Lever	16A	0.98N
D3V-162M-1C24	Lever	16A	0.98N
D3V-163-1C4	Long Lever	16A	0.98N
D3V-113-1C24	Long Lever	11A	0.98N
D3V-16-1C24	Pin Plunger	16A	0.98N
D3V-16-1C4	Pin Plunger	16A	0.98N
D3V-16-1C5	Plunger	16A	1.96N
D3V-16-1C5	Plunger	16A	1.96N
D3V-161-1C24	Short Lever	16A	0.98N
D3V-161M-1C24	Short Lever	16A	0.98N
D3V-161-1C5	Short Lever	16A	1.96N
D3V-164K-1C24	Simulated Roller Lever	16A	0.98N
D3V-164K-1C4	Simulated Roller Lever	16A	0.98N

Mfrs.	Actuator	Current	Operating Force
D3V-162-1C25	Lever	16A	1.96N
D3V-162-1C5	Lever	16A	1.23N
D3V-163-1C5	Long Lever	16A	1.96N
D3V-113-1C5T	Lever	11A	1.23N
D3V-16-1C25	Pin Plunger	16A	1.96N
D3V-16G-1C25	Pin Plunger	16A	1.96N
D3V-16G-1C5	Pin Plunger	16A	1.96N
D3V-21G-1C5B	Plunger	21A	1.96N
D3V-166M-1C25	Lever	16A	1.96N
D3V-166M-1C5	Lever	16A	1.96N
D3V-166-1C5	Roller Lever	16A	1.23N
D3V-161-1C25	Short Lever	16A	1.96N
D3V-161M-1C5	Short Lever	16A	1.96N
D3V-165-1C25	Short Roller Lever	16A	1.96N
D3V-165M-1C5	Short Roller Lever	16A	1.96N
D3V-165-1C5	Short Roller Lever	16A	1.96N
<b>SPST-NC, Solder Terminals</b>			
D3V-16-2A5	Pin Plunger	16A	1.96N
D3V-165M-2A5	Short Roller Lever	16A	1.96N
D3V-164-2A5	Simulated Roller Lever	16A	1.96N
D3V-164M-2A5	Simulated Roller Lever	16A	1.96N
<b>SPST-NC, Quick Connect Terminals</b>			
D3V-16-2C4	Pin Plunger	16A	0.98N
D3V-165-2C4	Short Roller Lever	16A	0.98N
D3V-16-2C25	Pin Plunger	16A	1.96N
D3V-16-2C5	Pin Plunger	16A	1.96N
D3V-16G-2C25	Pin Plunger	16A	1.96N
D3V-16G-2C5	Pin Plunger	16A	1.96N
D3V-161M-2C5	Short Lever	16A	1.96N
D3V-165M-2C25	Short Roller Lever	16A	1.96N
D3V-164-2C25	Simulated Roller Lever	16A	1.96N
D3V-164M-2C25	Simulated Roller Lever	16A	1.96N
<b>SPST-NO, Solder Terminals</b>			
D3V-16-3A4	Pin Plunger	16A	0.98N
D3V-163-3A5	Long Lever	16A	1.96N
D3V-16-3A5	Pin Plunger	16A	1.96N
<b>SPST-NO, Quick Connect Terminals</b>			
D3V-16-3C24	Pin Plunger	16A	0.98N
D3V-16-3C4	Pin Plunger	16A	0.98N
D3V-162M-3C5	Lever	16A	1.96N
D3V-163-3C5	Long Lever	16A	1.96N
D3V-16-3C25	Pin Plunger	16A	1.96N
D3V-16-3C5	Pin Plunger	16A	1.96N
D3V-16-3C6	Pin Plunger	16A	1.96N
D3V-16G-3C25	Pin Plunger	16A	1.96N
D3V-16G-3C5	Pin Plunger	16A	1.96N
D3V-166M-3C5	Lever	16A	1.96N
D3V-161-3C25	Short Lever	16A	1.96N
D3V-161-3C5	Short Lever	16A	1.96N
D3V-161M-3C5	Short Lever	16A	1.96N
D3V-165K-3C5	Short Roller Lever	16A	1.96N
D3V-165M-3C5	Short Roller Lever	16A	1.96N
D3V-164M-3C5	Simulated Roller Lever	16A	1.96N
<b>High Temperature, SPDT</b>			
D3V-16-1A5-H	Pin Plunger	16A	1.96N
D3V-16-1C25-H	Pin Plunger	16A	1.96N
D3V-16-1C5-H	Pin Plunger	16A	1.96N
<b>High Temperature, SPST-NC</b>			
D3V-16-2A5-H	Pin Plunger	16A	1.96N
D3V-16-2C25-H	Pin Plunger	16A	1.96N
D3V-16-2C5-H	Pin Plunger	16A	1.96N
<b>High Temperature, SPST-NO</b>			
D3V-16-3A5-H	Pin Plunger	16A	1.96N
D3V-16-3C5-H	Pin Plunger	16A	1.96N

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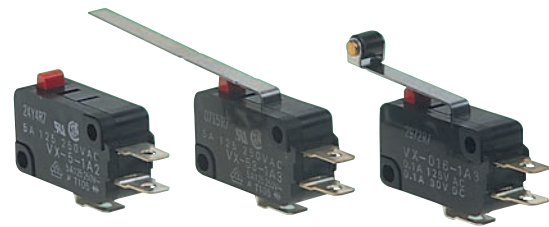
Mfrs. List No.	Actuator	Order Code	1+	25+	100+
<b>SPDT, Solder Terminals</b>					
D3V-162-1A4	Lever	NEW 206-8221	●		
D3V-162M-1A4	Lever	NEW 206-8236	●		
D3V-163-1A4	Long Lever	NEW 206-8240	●		
D3V-164-1A4	Simulated Roller Lever	NEW 206-8258	●		
D3V-164K-1A4	Simulated Roller Lever	NEW 206-8262	●		
D3V-164M-1A4	Simulated Roller Lever	NEW 206-8265	●		
D3V-162-1A5	Lever	NEW 206-8222	●		
D3V-162K-1A5	Lever	NEW 206-8235	●		
D3V-162M-1A5	Lever	NEW 206-8237	●		
D3V-163-1A5	Long Lever	NEW 206-8241	●		
D3V-166-1A5	Lever	NEW 206-8277	●		
D3V-161-1A5	Short Lever	NEW 206-8204	●		
D3V-164-1A5	Simulated Roller Lever	NEW 206-8259	●		
<b>SPDT, Quick Connect Terminals</b>					
D3V-163-1C26	Long Lever	NEW 206-8243	●		
D3V-166-1C25	Lever	NEW 206-8279	●		
D3V-162-1C24	Lever	NEW 206-8223	●		
D3V-162-1C4	Lever	NEW 206-8225	●		
D3V-162M-1C24	Lever	NEW 206-8238	●		
D3V-163-1C4	Long Lever	NEW 206-8244	●		
D3V-113-1C24	Long Lever	NEW 182-9501	●		
D3V-16-1C24	Pin Plunger	NEW 206-8211	●		
D3V-16-1C4	Pin Plunger	NEW 206-8214	●		
D3V-16-1C5	Plunger	NEW 877-4579	●		
D3V-161-1C24	Short Lever	NEW 206-8206	●		
D3V-161M-1C24	Short Lever	NEW 206-8216	●		
D3V-161-1C5	Short Lever	877-4560	●		
D3V-164K-1C24	Simulated Roller Lever	NEW 206-8263	●		
D3V-164K-1C4	Simulated Roller Lever	NEW 206-8264	●		



**Miniature D3V Series - continued**

Mfrs. List No.	Actuator	Order Code	Price Each		
			1+	25+	100+
<b>SPDT, Quick Connect Terminals</b>					
D3V-162-1C25	Lever	<b>NEW 206-8224</b>			
D3V-162-1C5	Lever	<b>877-4587</b>			
D3V-163-1C5	Long Lever	<b>NEW 206-8245</b>			
D3V-113-1C5T	Lever	<b>125-7583</b>			
D3V-16-1C25	Pin Plunger	<b>NEW 206-8212</b>			
D3V-16G-1C25	Pin Plunger	<b>NEW 206-8285</b>			
D3V-16G-1C5	Pin Plunger	<b>NEW 206-8286</b>			
D3V-21G-1C5B	Plunger	<b>NEW 182-9502</b>			
D3V-166M-1C25		<b>NEW 206-8282</b>			
D3V-166M-1C5		<b>NEW 206-8283</b>			
D3V-166-1C5	Roller Lever	<b>877-4617</b>			
D3V-161-1C25	Short Lever	<b>NEW 206-8207</b>			
D3V-161M-1C5	Short Lever	<b>NEW 206-8218</b>			
D3V-165-1C25	Short Roller Lever	<b>NEW 206-8270</b>			
D3V-165M-1C5	Short Roller Lever	<b>NEW 206-8273</b>			
D3V-165-1C5	Short Roller Lever	<b>877-4609</b>			
<b>SPST-NC, Solder Terminals</b>					
D3V-16-2A5	Pin Plunger	<b>NEW 206-8226</b>			
D3V-165M-2A5	Short Roller Lever	<b>NEW 206-8274</b>			
D3V-164-2A5	Simulated Roller Lever	<b>NEW 206-8260</b>			
D3V-164M-2A5	Simulated Roller Lever	<b>NEW 206-8267</b>			
<b>SPST-NC, Quick Connect Terminals</b>					
D3V-16-2C4	Pin Plunger	<b>NEW 206-8232</b>			
D3V-165-2C4	Short Roller Lever	<b>NEW 206-8271</b>			
D3V-16-2C25	Pin Plunger	<b>NEW 206-8228</b>			
D3V-16-2C5	Pin Plunger	<b>NEW 206-8233</b>			
D3V-16G-2C25	Pin Plunger	<b>NEW 206-8287</b>			
D3V-166-2C5		<b>NEW 206-8281</b>			
D3V-161M-2C5	Short Lever	<b>NEW 206-8219</b>			
D3V-165M-2C25	Short Roller Lever	<b>NEW 206-8275</b>			
D3V-164-2C25	Simulated Roller Lever	<b>NEW 206-8261</b>			
D3V-164M-2C25	Simulated Roller Lever	<b>NEW 206-8268</b>			
<b>SPST-NO, Solder Terminals</b>					
D3V-16-3A4	Pin Plunger	<b>NEW 206-8248</b>			
D3V-163-3A5	Long Lever	<b>NEW 206-8246</b>			
D3V-16-3A5	Pin Plunger	<b>NEW 206-8249</b>			
<b>SPST-NO, Quick Connect Terminals</b>					
D3V-16-3C24	Pin Plunger	<b>NEW 206-8251</b>			
D3V-16-3C4	Pin Plunger	<b>NEW 206-8253</b>			
D3V-162M-3C5	Lever	<b>NEW 206-8239</b>			
D3V-163-3C5	Long Lever	<b>NEW 206-8247</b>			
D3V-16-3C25	Pin Plunger	<b>NEW 206-8252</b>			
D3V-16-3C5	Pin Plunger	<b>NEW 206-8255</b>			
D3V-16-3C6	Pin Plunger	<b>NEW 206-8257</b>			
D3V-16G-3C25	Pin Plunger	<b>NEW 206-8288</b>			
D3V-16G-3C5	Pin Plunger	<b>NEW 206-8289</b>			
D3V-166M-3C5		<b>NEW 206-8284</b>			
D3V-161-3C25	Short Lever	<b>NEW 206-8208</b>			
D3V-161-3C5	Short Lever	<b>NEW 206-8209</b>			
D3V-161M-3C5	Short Lever	<b>NEW 206-8220</b>			
D3V-165K-3C5	Short Roller Lever	<b>NEW 206-8272</b>			
D3V-165M-3C5	Short Roller Lever	<b>NEW 206-8276</b>			
D3V-164M-3C5	Simulated Roller Lever	<b>NEW 206-8269</b>			
<b>High Temperature, SPDT</b>					
D3V-16-1A5-H	Pin Plunger	<b>NEW 206-8210</b>			
D3V-16-1C25-H	Pin Plunger	<b>NEW 206-8213</b>			
D3V-16-1C5-H	Pin Plunger	<b>NEW 206-8215</b>			
<b>High Temperature, SPST-NC</b>					
D3V-16-2A5-H	Pin Plunger	<b>NEW 206-8227</b>			
D3V-16-2C25-H	Pin Plunger	<b>NEW 206-8231</b>			
D3V-16-2C5-H	Pin Plunger	<b>NEW 206-8234</b>			
<b>High Temperature, SPST-NO</b>					
D3V-16-3A5-H	Pin Plunger	<b>NEW 206-8250</b>			
D3V-16-3C5-H	Pin Plunger	<b>NEW 206-8256</b>			

**Miniature 'V3' Style, Long Life/  
Low Operating Force - VX Series**  
5A @ 250V ac/30V dc



Broad plunger      Long lever      Roller lever  
Body H=15.9, W=10.3, D=27.8, Fixing centres=22.2 x 10.3  
Solder/tab terminals=4.75 x 0.5

- Unique mechanism gives ultra-low force operation and high reliability
- Industry standard 'V3' style housing
- CSA and VDE approvals, UL recognised

Contacts	SPDT	Electrical life	500000 ops
Contact resistance	30mR max. (initial)	Operating temperature	-25°C to +80°C
Mechanical life	50million ops		

Switch type	Broad plunger	Long lever	Roller lever
Operating force, max	0.25N(25gf)	0.2N(20gf)	0.29N(30gf)
Return force, min	0.03N(3gf)	—	—
Pre travel, max	1.2mm	9.0mm	4.0mm
Overtravel, min	1mm	3.2mm	1.6mm
Movement differential, max	0.3mm	2mm	0.8mm
Activator length	—	51.3mm	25.9mm

213206

Mfrs. List No.	Order Code	Price Each		
		1+	50+	100+
Broad plunger	VX5-1A2	<b>673-626</b>		
Long lever	VX53-1A3	<b>673-638</b>		
Roller lever	VX56-1A3	<b>673-640</b>		

**Miniature XG Series**  
15A @ 250V ac



- Wide range of force variants
- High mechanical and electrical life
- Quick Connect termination
- Micro disconnection
- Plain or roller lever

Force (N)	Sealing Pos. (mm)	Terminal	Actuator	Contacts	Order Code
3.2	IP40	14.7	Quick Connect Plunger	Silver / Silver Nickel	777-1550
1.4	IP40	14.9	Quick Connect Plain Lever	Silver / Silver Nickel	777-1568
0.65	IP40	13.7	Quick Connect Plain Lever	Silver / Silver Nickel	777-1584
3.2	IP40	20.2	Quick Connect Roller Lever	Silver / Silver Nickel	777-1592
1.55	IP40	20.1	Quick Connect Roller Lever	Silver / Silver Nickel	777-1606

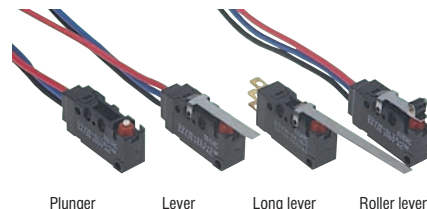
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Mfrs. List No.	Order Code	Price Each			
		1+	50+	100+	500+
XGG2-88-Z1	<b>777-1550</b>				
XGG2-88-J23Z1	<b>777-1568</b>				
XGG2-88-J27Z1	<b>777-1584</b>				
XGG2-88-S20Z1	<b>777-1592</b>				
XGG2-88-S21Z1	<b>777-1606</b>				

**Miniature 'V3' Style IP67 Sealed (Lead Type) - D2VW Series**



5A @ 250V ac/ 0.1A @ 30V dc



Plunger      Lever      Long lever      Roller lever  
Body: H=15.9, W=10.3, D=33, Fixing centres=22.2 x 10.3  
Solder/tab terminals=4.8 x 0.5, Wire leads L=300

- Long life
- High operating position accuracy (0.4mm)
- Wire lead types are sealed to IP67
- Wide operating temperature range
- CSA approved, UL recognised

Electrical life	100000 ops.
Insulation resistance	MR @ 500V dc
Enclosure rating	IP67 (lead type) IP50 (tab type)
Operating temperature	-40°C to +90°C

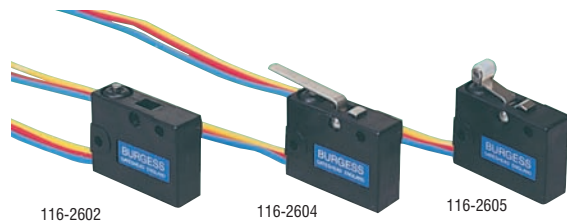
**The first online technical portal for design engineers**  
Log on, research, refine and design

Actuator	Operating Force	Current Rating @ 125VAC	Contact Configuration	Mfrs. List No.	Order Code
Moulded Leads					
Pin Plunger	1.96N	100mA	SPDT	D2VW-01-1M	207-6357
Pin Plunger	1.96N	100mA	SPST-NC	D2VW-01-2M	207-6358
Pin Plunger	1.96N	100mA	SPST-NO	D2VW-01-3M	207-6359
Short Lever	1.96N	100mA	SPDT	D2VW-01L1A-1M	207-6360
Long Lever	0.59N	100mA	SPDT	D2VW-01L1B-1M	207-6362
Short Roller Lever	2.25N	100mA	SPDT	D2VW-01L2A-1M	207-6367
Simulated Roller Lever	1.18N	100mA	SPDT	D2VW-01L3-1M	207-6369
Short Lever	1.96N	5A	SPDT	D2VW-5L1A-1M	207-6372
Lever	1.18N	5A	SPDT	D2VW-5L1B-1M	673-596
Long Lever	0.59N	5A	SPDT	D2VW-5L1B-1M	673-602
Pin Plunger	1.96N	5A	SPDT	D2VW-5-1MS	207-6370
Pin Plunger	1.96N	5A	SPDT	D2VW-5-1M	673-584
Hinge Roller Lever	1.18N	5A	SPDT	D2VW-5L2-1M	207-6373
Short Roller Lever	2.25N	5A	SPDT	D2VW-5L2A-1M	673-614
Simulated Roller Lever	1.18N	5A	SPDT	D2VW-5L3-1M	207-6375
Solder Terminals					
Long Lever	0.59N	100mA	SPDT	D2VW-01L1B-1	207-6361
Pin Plunger	1.96N	100mA	SPDT	D2VW-01-1	207-6356
Hinge Roller Lever	1.18N	100mA	SPDT	D2VW-01L2-1	207-6363
Short Roller Lever	2.25N	100mA	SPDT	D2VW-01L2A-1	207-6365
Simulated Roller Lever	1.18N	100mA	SPDT	D2VW-01L3-1	207-6368
Short Lever	1.96N	5A	SPDT	D2VW-5L1A-1	207-6371
Long Lever	0.59N	5A	SPDT	D2VW-5L1B-1	673-560
Pin Plunger	1.96N	5A	SPDT	D2VW-5-1	673-547
Simulated Roller Lever	1.18N	5A	SPDT	D2VW-5L3-1	207-6374

213207

Actuator	Mfrs. List No.	Order Code	1+	25+	50+
<b>Moulded Leads</b>					
Pin Plunger	D2VW-01-1M	NEW 207-6357			
Pin Plunger	D2VW-01-2M	NEW 207-6358			
Pin Plunger	D2VW-01-3M	NEW 207-6359			
Short Lever	D2VW-01L1A-1M	NEW 207-6360			
Long Lever	D2VW-01L1B-1M	NEW 207-6362			
Short Roller Lever	D2VW-01L2A-1M	NEW 207-6367			
Simulated Roller Lever	D2VW-01L3-1M	NEW 207-6369			
Short Lever	D2VW-5L1A-1M	NEW 207-6372			
Lever	D2VW-5L1B-1M	673-596			
Long Lever	D2VW-5L1B-1M	673-602			
Pin Plunger	D2VW-5-1MS	NEW 207-6370			
Pin Plunger	D2VW-5-1M	673-584			
Hinge Roller Lever	D2VW-5L2-1M	NEW 207-6373			
Short Roller Lever	D2VW-5L2A-1M	673-614			
Simulated Roller Lever	D2VW-5L3-1M	NEW 207-6375			
<b>Moulded Leads</b>					
Long Lever	D2VW-01L1B-1	NEW 207-6361			
Pin Plunger	D2VW-01-1	NEW 207-6356			
Hinge Roller Lever	D2VW-01L2-1	NEW 207-6363			
Short Roller Lever	D2VW-01L2A-1	NEW 207-6365			
Simulated Roller Lever	D2VW-01L3-1	NEW 207-6368			
Short Lever	D2VW-5L1A-1	NEW 207-6371			
Long Lever	D2VW-5L1B-1	673-560			
Pin Plunger	D2VW-5-1	673-547			
Simulated Roller Lever	D2VW-5L3-1	NEW 207-6374			

**Miniature 'V3' Style IP67 Sealed - Type 'V3S'**  
5A @ 250V ac/30V dc



Body H=24.2, W=10.5, D=31.7, Fixing centres=22.2 x 10.3

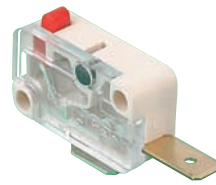
- Sealed to IP67
- Pre-wired with 500mm long PVC leads
- Colour code : N.O.=Blue, N.C.=Grey, Common=Black
- Mechanical life 10000000 ops
- Operating temperature -10°C to +70°C
- Order Codes 116-2602 116-2604 116-2605
- Operating force, max. 4N 1.7N 4N
- Release force, min. 1.1N 0.43N 1.1N
- Pre-travel, max. 1.9mm 4.2mm 2.34mm
- Differential travel 0.4mm 1mm 0.4mm

213163

Mfrs. List No.	Order Code	1+	10+	100+	250+
Plunger	V3S UL	116-2602			
Lever	V3SY1 UL	116-2604			
Roller lever	V3SYR UL	116-2605			

**Miniature 'V3' Style - Failsafe - Positive Break BVM3 Series**

10A @ 250V ac



- Positive action ensures that contacts are forced open, even in the event of welding
- SPNC contacts
- Re-inforced plastic casing and transparent polycarbonate cover
- Contact gap greater than 3mm at full travel
- CSA and VDE approved, UL recognised

Switch body: H=15.9, W=10.1, D=28.0 Fixing Centres=22.2

Mfrs. List No.	Order Code	1+	25+	50+	100+	250+
Roller	BVM3FYR	318-9697				

**V9 Series Microswitch, Miniature**  
10A @ 250V ac

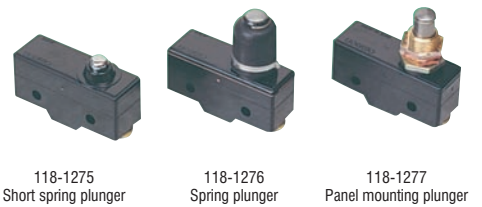


- Robust metal housing
- IEC IP67 sealed mechanism
- Rated 10A @ 250V ac
- Side mounting screw terminals
- Silver contacts
- CSA approved, UL recognised

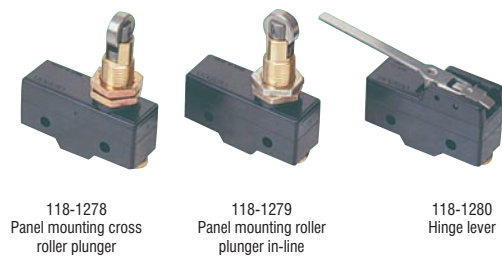
Dimensions: 42.3 x 28.1 x 16mm

Mfrs. List No.	Order Code	1+	10+	25+	50+
V9NV	777-1770				

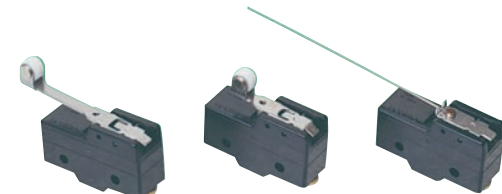
**General Purpose - Type 'Z'**  
15A @ 240V ac



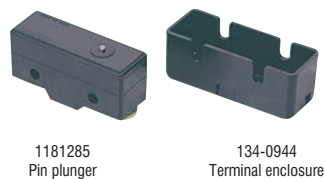
118-1275 Short spring plunger  
118-1276 Spring plunger  
118-1277 Panel mounting plunger



118-1278 Panel mounting cross roller plunger  
118-1279 Panel mounting roller plunger in-line  
118-1280 Hinge lever



118-1281 Hinge roller lever  
118-1283 Short hinge roller lever  
118-1284 Wire hinge lever



1181285 Pin plunger  
134-0944 Terminal enclosure

## Microswitches - continued

### General Purpose - Type 'Z' - continued

#### 15A @ 240V ac - continued

Switch body: H=24, W=17.5, D=49.2, Fixing centres=25.4

- Body fixing centres conform to international standards
- Wide range of integral actuators available

Contacts	SPDT	Electrical life			700000 ops
Mechanical life	10000000 ops	Operating temperature			-25°C to +80°C
<b>Plunger Types</b>	118-1275	118-1276	118-1277	118-1278	118-1285
Operating force	250 to 350gf	540gf max	350gf	250 to 350gf	250 to 350gf
Release force, min	114gf	114gf	114gf	114gf	114gf
Pre-travel, max mm	0.4	2.4	0.4	0.4	0.4
Overtravel, min mm	1.6	3.5	5.5	3.58	0.13
Movement diff, mm	0.05 max	0.06 max	0.05 max	0.05 max	0.05 max
<b>Lever Types</b>	118-1280	118-1281	118-1283	118-1284	118-1279
Operating force, max	70gf	100gf	160gf	4gf	350gf
Release force, min	70gf	42gf	42gf	0.3gf	114gf
Pre-travel, mm	6.8 to 10	3.9 to 7.1	2.7 max	10 max	max0.4
Overtravel, min mm	5 to 6	4	2.4	6	3.58
Movement diff, mm	0.18 to 1.27	0.10 to 1.02	0.5 max	0.9max	max0.05
Actuator length, mm	63.5	48.5	26.6	110	33.4

#### Accessories

134-0944 Phenolic resin terminal enclosure

213069

Plunger Switches	Mfrs. List No.	Order Code	Price Each		
			1+	5+	10+
Short spring	Z-15GD-B7 SEV	118-1275			
Spring	Z-15GK355-B7	118-1276			
Panel Mounting	Z-15GQ-B7 SEV	118-1277			
Panel mtg, cross roller	Z-15GQ21B	118-1278			
Panel mtg, in-line roller	Z-15GQ22B	118-1279			
Pin	Z-15G-B7 SEV+	118-1285			
<b>Lever Switches</b>					
Hinge	Z-15GW-B7+	118-1280			
Hinge roller	Z-15GW2B	118-1281			
Short hinge roller	Z-15GW22B	118-1283			
Wire	Z-15HW78-B7	118-1284			
<b>Terminal Enclosures</b>					
Phenolic	APB	134-0944			

### 3BR Microswitch

#### 5A @ 250 Vac

saia-burgess



- IP54 sealed version
- Precise movements and exceptional repeat accuracy
- Robust plastic housing
- Silver contacts
- CSA approved, UL recognised

H= 30.8, W=20.6, D=53.1

347732/405592

Mfrs. List No.	Order Code	1+	10+	25+	100+
<b>IP54 Sealed</b>					
3BR-103	777-1525				

### Special Purpose Safety - Type D2D

#### 16A @ 250V ac

OMRON

Screw Mounting  
Switch body  
H=33.6(excl Plunger)  
W=30, D=12.4  
Fixing centres=22



Panel Mounting  
Switch body  
H= 33.7(excl Plunger)  
W=30, D=12.4,  
Bezel: 40 x 21 Panel cut-out=37 x 13.5

- Direct drive positive contact opening
- Minimum contact gap of 3mm
- Screw or panel mounting versions available
- Double internal/external return spring mechanism (Pull to lock internal only)
- Pull to lock on version available for easy maintenance
- Conforms to Class II of VDE Insulation
- CSA, VDE, and SEMKO approved, UL recognised

Contacts	SPST-NC, SPDT-1NO / 1 NC	Electrical life	100000 ops (min)
Mechanical life	10000000 ops (min)	Operating temperature	-25°C to +80°C

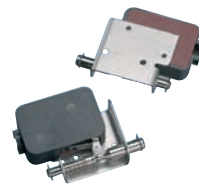
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Contact Arrangement	Mfrs. List No.	Order Code	Price Each			
			1+	50+	100+	250+
<b>Screw Mounting</b>						
SPDT-1NO / 1 NC	D2D-1000	990-2058				
SPDT-NO	D2D1001	NEW 196-1059				
SPST-NC	D2D-1002	990-2040				
<b>Screw Mounting (Pull to Lock)</b>						
SPDT-1NO / 1 NC	D2D-2000	990-2066				
<b>Panel Mounting</b>						
SPDT-1NO / 1 NC	D2D-1100	990-2074				
SPDT-NO	D2D1101	NEW 196-1060				
SPDT-NC	D2D1102	NEW 196-1061				
SPDT-2NO / 1NC	D2D3103	NEW 196-1062				
DPDT-NO	D2D3104	NEW 196-1063				
<b>Panel Mounting (Pull to Lock)</b>						
SPST-1NO / 1NC	D2D-2100	990-2082				

### 'V3S' Door Interlock Switch

#### 10A @ 250V ac, 6A @ 30V dc

Switches



- Sealed to IP67
- Pre-wired with 500mm long PVC leads

Colour code : N.O.=Blue, N.C.=Grey, Common=Black

Electrical life >100,000 ops

Operating force, max. 11.11N

347661/405595

Mfrs. List No.	Order Code	1+	10+	50+	100+
73-6905	466-2246				

## Foot Switches

### Palm/Footswitch

#### 3A @ 240V ac

herga



- Can be hand or foot operated
- Hinge is located at the front for improved operator comfort
- Switch is moulded in glass filled nylon for strength and rigidity
- Supplied with 2 metres of 3 core cable
- 733-829 sealed to IPx2, 733-830 sealed to IPx7

Contact rating SPCO, 3A @ 240V ac

Mfrs. List No.6220-IP40=733-829, 6221-CABB-ZZE=733-830

213273

Mfrs. List No.	Order Code	1+	10+	25+
Palm/Footswitch, IPx2	733-829			
Palm/Footswitch, IPx7	733-830			

### Treadle Footswitch

#### 3/6A @ 240V ac

herga



- Non-slip base and foot pad
- Provided with 2 metres of cable
- Incorporates two momentary SPST foot switches wired in parallel

H=25, W=760, L=95

Current rating 6A resistive, 3A inductive @ 240V ac

213269

Mfrs. List No.	Order Code	1+	5+	10+	25+	+
6289-01	733-817					



## Industrial, Medium Duty

3/6A @ 240V ac



- Die-cast aluminium base and cover
- SPDT momentary contacts
- Non-slip base and foot pad

H=46, W=95, D=150

Current rating 6A resistive, 3A Inductive @ 240V ac

213272

Mftrs. List No.	Order Code	1+	10+	25+	50+	100+
6254-CT	733-805					

## USB Footswitch



- No software required
- Self programmable
- Multi keystroke functions available
- Momentary action
- 2.5m cable

H=40, W=105, L=140

658452

Mftrs. List No.	Order Code	1+	10+	25+	50+
6210-0113	208-4222				

## Foot Switches

6A@250Vac



- Long life endurance up to 300000 mechanical switching cycles
- Robust design
- Cable can be retrofitted by customer
- Ergonomical dimensions with different switch actuating forces
- With wall hanger
- Operating force: 31N
- Contact configuration: SPDT momentary
- Contact material: Silver plated
- Screw terminals

617696

Mftrs. List No.	Terminal Type	Operating Force	Order Code	1+	25+	50+
<b>Normally open contact (SPNO)</b>						
2410.0301-01	Screw	31N	183-9506			
<b>Normally open contact (SPNO) double-pole</b>						
2410.1001-01	Wire	45N	183-9507			
<b>Changeover switch (SPDT momentary)</b>						
2410.0401	Screw	31	183-1116			

## Heavy Duty Metal Footswitch, 1 or 2 Pedals

10A @ 500V ac



- Ultra strong die-cast aluminium construction
- Snap-action contacts 1NO/1NC (latching and two stage, slow make/break)
- Positive drive forced disconnect on NC contacts
- Dual stage pedal has two sets of 1NO/1NC contacts
- Latching type (press once - on, press again - off)
- Mounting holes allow fixing to floor or machine

Single Pedal H=60, W=70, D=220,  
Single pedal guarded H=146, W=156, D=250  
Double pedal guarded H=146, W=276, D=250

Housing	Die-cast aluminium	Operating temp	-30 to +80°C
Protection	IP 65	Mechanical life	10 x 10 <sup>8</sup> switch operations
Cable entries		Max inrush current	acc. IEC 947-5-1; AC15; DC 13
Single pedal	1 x M20	Max Voltage	500V ac.
Two stage single pedal	3 x M20	Thermal current	1 <sup>st</sup> 10A.
Two pedal	1 x M20	Approvals	BG, CSA, UL recognised

213079

## herga

Type	Mftrs List No.	Order Code	1+	5+	10+
Momentary - Without shroud	606-1300-011	178-891			
Momentary - With shroud	606-1800-012	176-493			
Latching - With shroud	616-1800-247	178-890			
Dual stage - Guarded	F1	101-6446			
Latching - With Manual Reset	F1	101-6448			
Double pedal - Guarded	F2	101-6447			

## Heavy Duty Footswitch with Safety Function

10A @ 500V ac



- 3 stage operation with emergency off (latched)  
Stage 1 (rest) OFF  
Stage 2 ON (machine running)  
Stage 3 EMERGENCY OFF (contacts latched)
- Manual reset button to return to normal operation
- Ultra strong Die-cast aluminium construction

Protection	IP65
Cable Entry	1 x M20
Operating Temperature	-30°C to 80°C
Approvals	BG, UL, CSA

H=146, W=156, D=250

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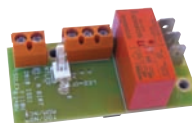
Mftrs. List No.	Order Code	1+	5+	10+	50+
F1-SU1Z/UV1 DUN	101-6448				

## Isolated Switch Module

### Isolated Switch Modules



ISOLEX7™



The ISOLEX7™ is an alternative to air switch systems and tubing. These AC powered, miniature (60 X 30 mm) units utilise advanced ferro-magnetic technology to provide full galvanic isolation to connected electrical switches. The novel, low impedance technique, passes near zero current through the connected switch creating a safe, earthed 'electric free' circuit. The devices can be used with momentary or latching electrical switches, connected by up to 50 metres of earthed cable to the switch input. The module has an integral 16 amp changeover relay to control external power loads. Inbuilt safety circuits automatically deenergise the output if the connected switch wiring is short circuited or inhibit the output if the AC power is interrupted whilst the connected switch is already on. An on board LED indicates relay active/inactive, diagnostic and fault conditions.

Supply voltage	230V AC ±15% , 110V AC
Supply current (nominal)	Relay off: 2.5mA Relay on: 10mA
Operation	Momentary operation or latch on/off action, link selectable
Switch circuit power	>30 μW
Relay output	SPCO, 16A resistive @ 240V AC
Operating temperature	-20°C to 65°C
Connection	5 off screw terminals, 3 off 6.3mm blades (relay contacts)

626390

Mftrs. List No.	Supply Voltage	Order Code	1+	5+	10+	50+
ISOLEX7 240V	230V	187-5320				
ISOLEX7 110V	110V	187-5321				

## Air Switching System

### herga

The air operated switching system allows safe operation of electrical circuits in dangerous, dirty or difficult environments. Actuated by a simple bellows, which when compressed causes air to move down the tubing to the switch. The pressurised air then causes the bellows in the switch to operate the electrical contacts. The switch and all electrical wiring can be mounted outside the hazardous area.

Applications include hospitals, laboratories, garages, agricultural, food industry, factory production lines, etc. where explosive gases, vapours or substances exist or in areas which are wet and dirty or may need washing down.

Operating temperature -10°C to + 50°C (subject to tube length limitations)

213121

## Foot Actuator, Light Duty



- Foot operated air actuator for light duty applications
- Heavy gauge pressed steel base and cover
- Suitable for use with all air-operated switching elements
- Supplied with 2 metres of tubing (3mm bore, 6mm O.D.)

H=20, W=63, L=89

## Foot Actuator, Light Duty - continued

Mfrs.	Order Code	1+	10+	25+	50+
6289-OB	733-866				

## Foot Actuator, Heavy Duty

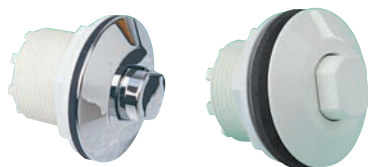


- Foot operated air actuator for heavy duty applications
- Aluminium base and cover
- Non-slip base and foot pad
- Supplied with 2 metres of 9mm O.D. armoured tubing
- Suitable for use with all air operated switching elements

H=46, W=95, L=150

Mfrs.	Order Code	1+	10+	25+	50+
6254-OB	733-842				

## Push Button Actuator



- Push-button actuators with chrome plated or white finish
- Suitable for use with all air-operated switch elements

Dia = 63, D (behind panel) = 43, Panel cut-out = 42 dia, Max. panel thickness = 28

Finish	Mfrs. List No.	Order Code	1+	10+	25+	50+
Chromeplated	6442-BCCA-A000	107-272				
White	6442-OW	733-854				

## Bellows



- Soft flexible PVC bellows for air switches
- Mat Finish
- Panel mount with integral thread and nut
- 4mm air connection

L=93mm, Ø=65mm

Colour	Mfrs. List No.	Order Code	1+	10+	25+	50+
White	208-4224					
Black	208-4225					

## SPDT Air Switches



Side entry H=37, W=25, Fixing centres=20  
Base entry

- Air-operated SPDT switches for use with actuators 107-271 and 107-272
  - Designed to operate at pressures as low as 25 inches of water to a maximum of 5psi
  - Momentary (press-on, release-off) and latching (press-on, press-off) versions
  - Available either surface mounting with air connection at the side, or panel mounting with air connection through the base
  - UL recognised
- Switch rating = 16A resistive, 4A inductive @ 250Vac

Momentary	Mfrs. List No.	Order Code	1+	10+	25+	50+
Side entry	6871-01	286-151				
Base entry	6871-0C	286-163				
Latching						
Base entry	6871-AC	286-187				

## Air Tubing and Accessories



Bulkhead connector 107-277



Tee-piece 107-278



PVC tubing (10m reel) 107-279

- Flexible PVC tubing enables remote switching (3mm bore, 6mm O.D.)
- In-line/bulkhead connectors and tee pieces give extra versatility to the switch system

Mfrs. List No.	Order Code	1+	10+	25+	50+
Bulkhead connector	6419-00	107-277			
Tee piece	6421-00	107-278			
Tubing (10m reel)	6401-0004	107-279			

## Reed Switches & Magnets

### Reed Switch - Glass

SMD



Gull wing package

G1 - Dia. = 1.8, L (body) = 5, L (overall) = 8.7mm  
G2 - Dia. = 1.8, L (body) = 5, L (overall) = 10.16mm



J-lead package

Dia. = 1.8, L (body) = 5, L (overall) = 7.1mm

These SMT devices are dry reed switches hermetically sealed in a gas-filled glass envelope. They are single-pole single-throw (SPST) type, having normally open contacts and containing two magnetically actuated reeds. The switch is a double-ended type and may be actuated with an electromagnet, a permanent magnet or a combination of both. The devices are intended for use in relays, sensors, pulse counters or similar products.

Operate range (AT)	5 - 15	Switching current ac rms(max)	250mA
Release range (AT)	2 - 13	Switch carry current (max)	0.5A
Switch power (max)	5W	Contact resistance (max)	160mohm
Switch voltage dc(max)	175VDC	Insulation resistance (Min)	
Switch voltage ac rms(max)	140VAC	Temperature, operating	-55 to +125°C
Switching current dc(max)	0.5A		

Mfrs. List No.	Order Code	1+	25+	50+	100+	250+
RI-80SMD0515-G1	SMD108-1703					
RI-80SMD0515-G2	SMD108-1704					
RI-80SMD0515-J1	SMD108-1705					

### Reed Switch - Moulded

CT Series



Model CT05 - Gull wing package  
H = 2.31, W = 6.4, D = 2.31mm



Model CT10  
H = 2.92, W = 11.6, D = 2.41mm

These SMT devices are moulded dry reed switches. They are single throw (SPST) type, having normally open ruthenium contacts. The switch is a double-ended type and may be actuated with an electromagnet, a permanent magnet or a combination of both.

Model	CT05	CT10
Operate range (AT)	15 - 50	10 - 40
Release range (AT)	5 - 45	3 - 35
Switch power (max)	5W	10W
Switch voltage dc(max)	140VDC	200VDC
Switch voltage ac rms(max)	100VAC	140VAC
Switching current dc(max)	500mA	500mA
Switching current ac rms(max)	250mA	500mA
Switch carry current (max)	500mA	500mA
Contact resistance (max)	160mohm	150mohm
Insulation resistance (Min)		
Temperature, operating	-40 to +125°C	-40 to +125°C

Mfrs. List No.	Order Code	Feature	Mfrs. List No.	Order Code	Feature
CT05-3050-G1	108-1694	Gull Wing	CT10-1530-G1	108-1696	Gull Wing
			CT10-1540-G1	108-1697	Gull Wing

COIL	Price Each						
V dc	Ω ±10%	Order Code	1+	10+	50+	100+	250+
<b>Model CT05 - SPST-NO</b>							
		SMD108-1694					
		SMD108-1695					
<b>Model CT10 - SPST-NO</b>							
		SMD108-1696					
		SMD108-1697					

## Reed Sensor

### Magnet Detection - SMD



Products for Tomorrow...



MK15 - H = 2.5, W = 16, D = 2.5mm  
 MK16 - H = 2.3, W = 11.5, D = 2.3mm  
 MK17 - H = 2.1, W = 8.5, D = 2.1mm

These sensors are magnetically operated Reed proximity switches for SMD mounting. The special features of this series are the small dimensions and the simple internal structure.

Contact Form	SPNO	Switching current A (max)	0.5
Contact resistance mR (max)	150	Switch carry current A (max)	0.5
Switch power W (max)	10	Breakdown voltage V dc	200
Switch voltage V dc (max)	200	Temperature, operating °C	-40 to +130°C

417821

Pull in	Mftrs.	Price Each				
Range	List No.	Order Code	1+	10+	25+	50+
10mm to 15mm	MK15-B-2	<a href="#">SMD107-9484</a>				
15mm to 20mm	MK15-C-2	<a href="#">SMD107-9485</a>				
10mm to 15mm	MK16-B-2	<a href="#">SMD107-9486</a>				
15mm to 20mm	MK16-C-2	<a href="#">SMD107-9488</a>				
10mm to 15mm	MK17-B-2	<a href="#">SMD144-7645</a>				
15mm to 20mm	MK17-C-2	<a href="#">SMD144-7647</a>				

## Reed Sensor

### Magnet Detection



Products for Tomorrow...



These sensors are magnetically operated Reed proximity switches for direct PCB mounting. The sensor should be mounted on a fixed surface with the actuating magnet on the moving surface. The Reed Sensor and the magnet must be fixed at a fixed distance from each other.

MK6-5x - H = 3.2, W = 14.3, D = 2.8mm  
 MK6-8x - H = 4.2, W = 22.32, D = 3.3mm

Contact Form	SPNO	Switching current A (max)	0.5
Contact resistance mR (max)	150	Switch carry current A (max)	0.5
Switch power W (max)	10	Breakdown voltage V dc	230
Switch voltage V dc (max)	200	Temperature, operating °C	°C to +85-20
Switching current A (max)	0.5		

417783

Pull in	Mftrs.	Price Each				
Range	List No.	Order Code	1+	10+	25+	50+
10mm to 15mm	MK6-5-B	<a href="#">107-9479</a>				
15mm to 20mm	MK6-5-C	<a href="#">107-9480</a>				
10mm to 15mm	MK6-8-B	<a href="#">107-9481</a>				

## Reed Sensor - Magnetic

### Cylindrical Proximity Switch



Products for Tomorrow...



L = 10, Dia. = 3mm

The MK20 and MK20/1 sensors are magnetically operated reed proximity switches in a cylindrical module, fitted with 100mm interconnect cable. The sensor should be mounted on a fixed surface with the actuating magnet on the moving surface. The module

has a flat side to indicate maximum sensitivity. Introduction or removal of the magnetic field determines the closing or opening of the reed switch.

Contact ratings	5W	Carry current	0.5A
Switching voltage	175VDC or 175V ac peak	Contact resistance	150mohm
Switching current	0.25A	Operating temperature	-20 to 70°C

486388

Pull-in	Mftrs.	Price Each				
Range	List No.	Order Code	1+	10+	25+	50+
10mm to 15mm	MK20/1-B-100W	<a href="#">144-7648</a>				
15mm to 20mm	MK20/1-C-100W	<a href="#">144-7649</a>				

## INTELLIGENT ONLINE BUYING SYSTEM PROVIDING

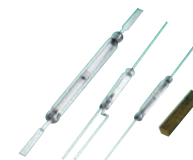


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## Glass Reed Switches

### Switches and Magnets

HAMLIN



- Hermetically sealed contacts
- Capable of switching European mains voltages
- Low, stable contact resistance
- Zero operating power required for contact change

UL recognised (File E47258) except DRR-DTH, MLRR-3 and MITI-3

Glass L (mm)	Dia (mm)	Style	Voltage switching (V) dc		Current switching (A)		Resistance Contact (mR)	Order Code
			max	min	max	max (A)		
<b>Standard Size</b>								
39.67	5.53	SPDT-CO	500	1200	0.5	3	125	433-2349
50.8	5.25	SPST-NO	400	600	3	6	100	433-2337
<b>Miniature Size</b>								
20.32	2.84	SPST-NO	250	750	1	2.5	100	433-2350
15.24	2.66	SPST-NO	200	250	1	1.2	100	433-2374
<b>Sub miniature</b>								
12.7	1.8	SPST-NO	200	250	0.5	800	100	433-2362
15.24	2.28	SPST-NO	200	250	0.5	1.2	100	433-2453
<b>Ultra miniature</b>								
6.86	1.8	SPST-NO	170	170	0.5	500	150	433-2441

### Magnets

Order Code	Dimensions (mm)			Order Code	L	W	D
	L	W	D				
433-2386	12.7	1.6	1.6	433-2404	19.1	3.2	3.2
433-2398	25.4	4.8	4.8	433-2416	25.4	6.35	6.35

249251

Mftrs.	Price Each						
List No.	Order Code	1+	25+	100+	250+	500+	1K+

### C O contacts

DRR-DTH	<a href="#">433-2349</a>
---------	--------------------------

### N O contacts

DRR-129	<a href="#">433-2337</a>
---------	--------------------------

### Miniature

MRPR-8	<a href="#">433-2350</a>
--------	--------------------------

MLRR-3	<a href="#">433-2374</a>
--------	--------------------------

### Sub miniature

MDSR-7	<a href="#">433-2362</a>
--------	--------------------------

MDCG-4	<a href="#">433-2453</a>
--------	--------------------------

### Ultra miniature

MITI-3V1	<a href="#">433-2441</a>
----------	--------------------------

### Magnets

H31	<a href="#">433-2386</a>
-----	--------------------------

H32	<a href="#">433-2398</a>
-----	--------------------------

H33	<a href="#">433-2404</a>
-----	--------------------------

H34	<a href="#">433-2416</a>
-----	--------------------------

## Reed Switch - Glass



### Axial lead



RI-23 - Dia. = 2.54, L (body) = 15, L (overall) = 46mm  
 RI-27 - Dia. = 1.8, L (body) = 13.2, L (overall) = 46mm  
 RI-46 - Dia. = 2.7, L (body) = 20.5, L (overall) = 54.8mm  
 RI-70 - Dia. = 1.8, L (body) = 7, L (overall) = 46mm

These devices are dry reed switches hermetically sealed in a gas-filled glass envelope. They are single-pole single-throw (SPST) type, having normally open contacts and containing two magnetically actuated reeds. The switch is a double-ended type and may be actuated with an electromagnet, a permanent magnet or a combination of both. The devices are intended for use in relays, sensors, pulse counters or similar products.

Model	RI-23	RI-27	RI-46	RI-46
Operate range (AT)	18 - 32	20 - 34	24 - 51	7 - 21
Release range (AT)	8 - 22	7 - 19.5	8 - 20.5	3 - 16
Switch power (max)	10W	10W	40W	10W
Switch voltage dc(max)	200VDC	200VDC	200VDC	170VDC
Switch voltage ac rms(max)	140VAC	140VAC	250VAC	120VAC
Switching current dc(max)	2.5A	1.75A	3A	400mA
Switching current ac rms(max)	500mA	500mA	1000mA	500mA
Switch carry current (max)	2.5A	1.75A	3A	400mA
Contact resistance (max)	100mohm	100mohm	90mohm	150mohm
Insulation resistance (Min)				
Temperature, operating	-55 to +125°C	-55 to +125°C	-55 to +125°C	-55 to +125°C

418482

Mftrs.	Price Each					
List No.	Order Code	1+	25+	50+	100+	250+
RI-23A	<a href="#">108-1699</a>					
RI-27A	<a href="#">108-1700</a>					
RI-46B	<a href="#">108-1701</a>					
RI-70GP0715	<a href="#">108-1702</a>					



# Reed Switches & Magnets - continued

## Reed Switch Rhodium Contacts



Products for tomorrow...



1A Contacts



1C Contacts

Model	1A35	1A46	1A66	1A80	1A87	1C90U
Dia. (body) mm	2.2	2	2.2	1.8	2	2.54
Length (body) mm	10.5	12	14	7	10	14
Length (overall) mm	34.5	44.1	44.1	35.6	35.5	56.1

Model	1A35	1A46	1A66	1A80	1A87	1C90U
Contact Form	SPST-NO	SPST-NO	SPST-NO	SPST-NO	SPST-NO	SPDT
Contact resistance mR (max)	150	150	150	200	150	150
Rated power (max)	20W	10W	10VA	10W	10W	10W
Switch voltage V dc (max)	200	200	180	170	200	175
Switching current A (max)	1.0	0.5	0.5	0.5	0.5	0.5
Switch carry current A (max)	1.25	1	1.25	500	500	1
Breakdown voltage V dc	320	225	225	210	230	200
Insulation voltage V dc	1500	1500	1500	1500	1500	1500
Time, operate/release ms (max)	0.5/0.1	-/0.1	0.5/0.1	0.6/0.1	0.6/0.1	0.7/1.5
Temperature, operating °C	-20 to +130	-20 to +130	-20 to +130	-20 to +130	-20 to +130	-20 to +130

417762

### Price Each

Mftrs. List No.	Order Code	1+	10+	25+	50+
KSK-1A35-1520	107-9467				
KSK-1A46-1020	144-7642				
KSK-1A66-1020	107-9468				
KSK-1A66-2030	107-9469				
KSK-1A80-1020	107-9470				
KSK-1A87-1020	107-9471				
KSK-1C90U-2034	107-9472				

## Encapsulated Reed - PCB moun 69600 Series



### HE 69600 Series



- Reed switch protected by strong plastic case
- Easy installation
- Long reliable life

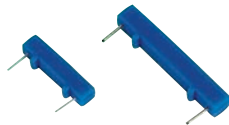
495 - H = 4.2, W = 15.0, D = 3.2mm  
496 - H = 4.7, W = 25.0, D = 3.7mm

	Standard	High voltage	Standard	High voltage
Switch power W (max)	10W	10V	Contact resistance R (max)	100
Switch voltage V dc (max)	200V	300V	Insulation resistance	100
Switching current A (max)	0.5A	0.5A	Temperature, operating	-40°C to 85°C
Switch carry current A (max)	800	1.5		-40°C to 85°C

249247

Switching voltage	Mftrs. List No.	Order Code	1+	25+	100+	250+	500+	1K+
<b>Standard</b>								
200	59600-495	433-2428						
<b>High voltage</b>								
300	59600-496	433-2430						

## PCB Mounting, Moulded Case



- Easy PCBinsertion
- Positive protection against accidental damage

Reed switches in strong polystyrene moulded cases for easy handling and to protect the glass body of the reed switch.

599-785/732-011: H=4.2 (above PCB), W=3.2, L=15, Pin spacing=12  
732-023: H=4.7 (above PCB), W=3.7, L=25, Pin spacing=22

Switching voltage (max.)	24VAC
Switching current (max.)	0.1A
Switching capacity (max.)	1.0VA
Switching resistance (max.)	0.2ohm

231085

Mftrs. List No.	Order Code	1+	25+	100+	200+
PPS24	732-011				

## Reed Sensor - Magnetic for Harsh Conditions

### Screw Mount Proximity Switch



Products for tomorrow...



H = 6.35, W = 26.8, D = 19mm



M21 Series Magnet  
H = 6.35, W = 28.6, D = 19mm

MK21 sensors are magnetically operated reed proximity switches designed for screw mounting. The sensor should be mounted on a fixed surface with the actuating magnet on the moving surface. Introduction or removal of the magnetic field determines the closing and opening of the reed switch. The 500mm long leads are PTFE coated. Designed for extreme environments. High temperatures, 150 °C Imprevions to water, fuels, oils, inks and most acids.

Contact ratings	10W	Carry current	1.25A
Switching voltage	200VDC or 200V ac peak	Contact resistance	150mohm
Switching current	0.5A	Operating temperature	-30 to 150°C

486606

Pull-in Range	Mftrs. List No.	Order Code	Price Each		
			1+	10+	25+
10mm to 15mm	MK21P-1A66B-500W	144-7650			
15mm to 25mm	MK21P-1A66C-500W	144-7651			
<b>Magnet</b>	MAGNET M21P	144-7652			

## Sensor Magnets



Products for tomorrow...



M4



NdFeB



Bar

AlNiCo bar magnets are suitable for the operation of most Reed Switches and should ideally be the moving part of the sensing application. The selection of the magnet and the sensitivity of the Reed Switch will determine the Pull-In and Drop-Out distances.

SmCo (samarium cobalt) and NdFeB (neodymium iron boron) magnets are made from rare earth materials and have especially good magnetic properties concerning stability and energy product.

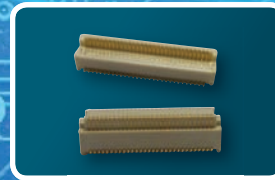
Dimensions	Order Code	H (mm)	W (mm)	D (mm)	Dimensions	Order Code	H (mm)	W (mm)	D (mm)
107-9492	5.9	23	13.9	107-9496	22	5			
Order Code	L (mm)	Dia. (mm)		107-9497	4	3			
107-9493	27	7.5		107-9498	4	5			
107-9494	12	3		107-9500	15	8			
107-9495	19	4		Order Code	H (mm)	W (mm)	D (mm)		
				107-9501	5	10	1.9		

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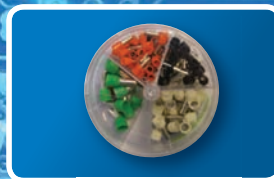
Mftrs. List No.	Order Code	1+	10+	25+	50+
<b>AlNiCo500</b>					
MAGNET M4	107-9492				
ALNIC0500 7.5X27MM	107-9493				
ALNIC0500 3X12MM	107-9494				
ALNIC0500 4X19MM	107-9495				
ALNIC0500 5X22MM	107-9496				
<b>SmCo</b>					
SMCO5 3X4MM	107-9497				
SMCO5 5X4MM	107-9498				
<b>NdFeB</b>					
NDFEB 8X15MM	107-9500				
NDFEB 10X5X1.9MM	107-9501				



# Design with confidence...



PCB Connectors



Crimp Connectors



RF Coaxial Connectors



Audio Connectors



Multipole Connectors



DIN Rail Terminals



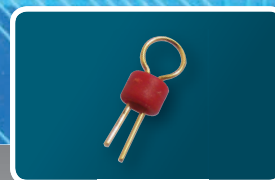
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