

SECTION A

TOGGLE SWITCHES

Introduction



Industrial – Environmentally Sealed Switches

- Watertight seal per MIL-STD-108
- Ratings at 28VDC and 115VAC 60/400Hz
- One, two and four pole configurations
- Toggle and designerline actuators
- Positive detent action
- Multi-circuit variations offered



Econoswitch – Environmentally Sealed Switches

- Watertight seal per MIL-STD-108
- Ratings at 28VDC and 115VAC 60/400 Hz
- One, two and four pole configurations
- Patented base compression seal
- Toggle, lever lock and designerline actuators
- Terminal variations—screw, spade and solder lug



Military - Environmentally Sealed Switches

- MS approved and OPL listed to MIL-S-3950
- One, two and four pole configurations
- Terminal variations—screw and IWTS
- Toggle and lever lock actuators
- Positive detent action



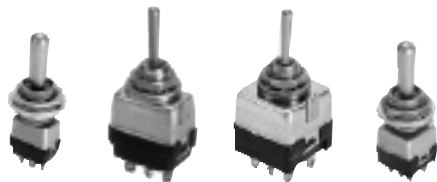
Multi-Circuit Switches

- Ratings up to 7 amperes
- Two, four, six and eight pole configurations
- Lever lock or standard lever actuators
- Double turret terminals
- One hole mounting



Environmentally Sealed Positive Action Switches

- Meets MIL-S-8834 requirements
- AC/DC Ratings - Switches 30A to 25 μ A loads
- One, two and four pole configurations
- Standard lever and lever lock actuators
- High reliability—Mechanical and electrical
- Screw and solder lug.



Miniature Positive Action Switches

- MS approved and OPL listed to MIL-S-8834
- Rating variation—power to logic levels
- One and two pole configurations
- Bushing sealed per MIL-S-8834
- Non-teasible mechanism
- Toggle and lever lock actuators
- Terminal variations—solder lug, printed circuit and IWTS



Miniature Integral Switches

- Ratings up to 20 amperes
- One and two pole configurations
- Choice of terminals
- Maintained contacts
- One hole mounting



High Capacity Switches

- High current capability at 28VDC and 115VAC 60Hz
- One and three pole arrangements
- Positive detent action
- Flush mounted
- Large toggle actuators

INDUSTRIAL—ENVIRONMENTALLY SEALED SWITCHES

Series—8510, 8511, 8512

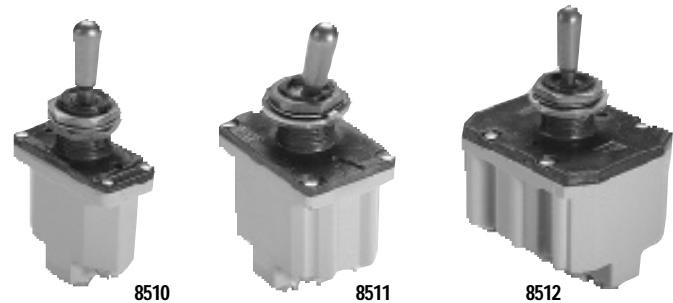
Environmentally Sealed Toggle Switches

FEATURES	SPECIFICATIONS	CURRENT RATINGS								
		No. of Poles	Catalog Number	Type of Operation	28VDC			115VAC 60 or 400Hz		
					Lamp Load	Resistive Load	Inductive Load	Lamp Load	Resistive Load	Inductive Load
<ul style="list-style-type: none"> Completely sealed against dust, moisture, and other contaminants 1, 2 and 4 pole circuitry One hole mounting for easy installation Multi-circuits offered 2 & 3 position with maintained and momentary action Molded-in terminal inserts Molded-in terminal numbers See 8520-8528 for UL recognized and CSA certified version on page 13. 	<ul style="list-style-type: none"> Watertight seal per MIL-STD-108E exceeds IP66/67 Thermoset molding materials meet flame retardant requirements Temperature Range: -50°F to +150°F (-46°C to +66°C) Life: 20,000 operations at rated load Bushing: 15/32" - 32 thread 	1	8510	Maintained	5	20	15	3	15	10
				Momentary	4	15	10	2	15	7
		2	8511	Maintained	7	20	15	4	15	15
				Momentary	5	18	10	2	11	8
		4	8512	Maintained	5	20	12	4	15	15
				Momentary	4	18	10	2	11	8

TOGGLE SWITCHES

SELECTION TABLE

FLUSH TERMINAL SCREWS



CIRCUIT WITH LEVER IN...			ONE POLE	TWO POLE	FOUR POLE
Up Position	Center Position	Down Position (Keyway)	Catalog Number	Catalog Number	Catalog Number
ON	OFF	ON	8510K1	8511K1	8512K1
ON	NONE	OFF	K9	K9	K9
ON	NONE	ON	K4	K4	K4
ON	OFF	NONE	K6	K6	K6
ON	OFF*	NONE	K8	K8	K8
ON	NONE	ON*	8510K5	8511K5	8512K5
* ON	OFF	ON*	K2	K2	K2
NONE	OFF	ON*	K7	K7	K7
ON	NONE	OFF*	K10	K10	K10
OFF	NONE	ON*	K11	K11	K11
ON	OFF	ON*	8510K3	8511K3	8512K3
* ON	ON	NONE	K12	K12	K12
ON	ON	NONE	K13	K13	K13
ON	ON	ON		8511K14	8512K15
ON	ON	ON*		K15	K16
* ON	ON	ON*		K16	K17

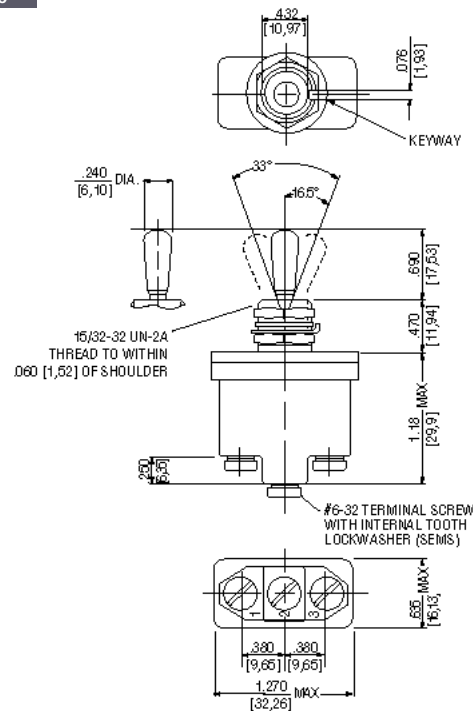
*Momentary contact.
See Page 73 for circuit diagrams.

INDUSTRIAL—ENVIRONMENTALLY SEALED SWITCHES

Series—8510, 8511, 8512

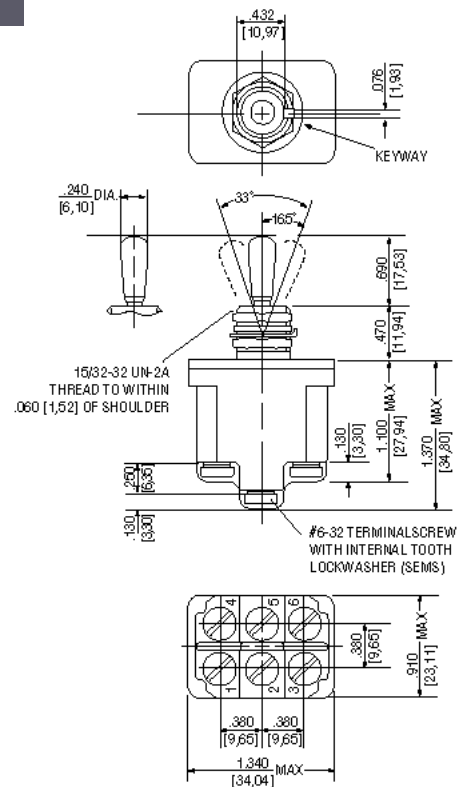
Environmentally Sealed Toggle Switches

MOUNTING DIMENSIONS—ONE POLE / 8510



Terminal Identification

MOUNTING DIMENSIONS—TWO POLE / 8511



Terminal Identification

STANDARD
 0.00 = inches
 [0,0] = mm

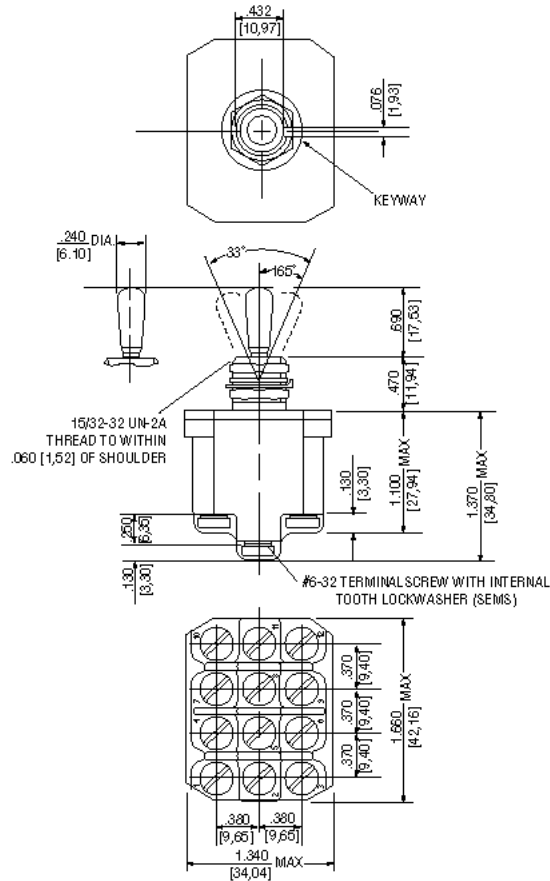
Mounting dimensions for reference only.
 Non-functional terminals not supplied.

INDUSTRIAL—ENVIRONMENTALLY SEALED SWITCHES

Series—8510, 8511, 8512

Environmentally Sealed Toggle Switches

MOUNTING DIMENSIONS—FOUR POLE / 8512

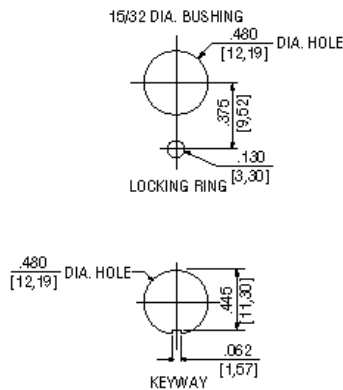


Terminal Identification

OPTIONS/ACCESSORIES

- Special mounting hardware
- Mounting hardware furnished assembled
- Terminal screws furnished assembled
- Special toggle levers
- Special circuits
- Panel seal, Part Number 32-341
- Spade terminal adapters available

PANEL CUTOUT DIMENSIONS



STANDARD
0.00 = inches
[0,0] = mm

Mounting dimensions for reference only.

Non-functional terminals not supplied.

INDUSTRIAL—ENVIRONMENTALLY SEALED SWITCHES

Series—8520-8522, 8526-8528

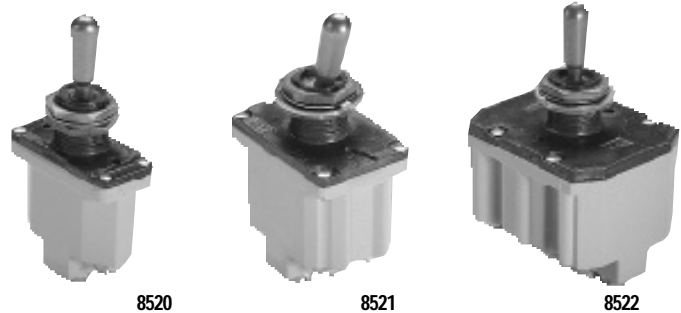
Environmentally Sealed Toggle Switches
UL Recognized and CSA Certified

FEATURES	SPECIFICATIONS	CURRENT RATINGS				
		No. of Poles	Catalog Number	Amperes		Maximum Horsepower
125V	250V			1 Phase		3 Phase
		125VAC	250VAC	125VAC	250VAC	125/250VAC
<ul style="list-style-type: none"> Completely sealed against dust, moisture, and other contaminants UL and CSA approved One hole mounted bushing for easy installation Multi-circuits offered 2 & 3 position with maintained and momentary action Molded-in terminal inserts and terminal numbers 1, 2 and 4 pole circuitry 	<ul style="list-style-type: none"> Watertight seal per MIL-STD-108E exceeds IP66/67 Thermoset molding materials meet flame retardant requirements UL recognized and CSA certified per specifications listed below Temperature Range: -50°F to +150°F (-46°C to +66°C) Life: 20,000 operations at rated load 40,000 operations mechanical life 6,000 operations at HP ratings per UL and CSA requirements Bushing: 15/32" - 32 thread 	18	9	1/4	1/2	–
		18	9	1/2	1	–
		18	9	1/2	1	1
		18	9	–	–	–
		18	9	–	–	–

TOGGLE SWITCHES

SELECTION TABLE

FLUSH TERMINAL SCREWS



CIRCUIT WITH LEVER IN...			ONE POLE	TWO POLE	FOUR POLE
Up Position	Center Position	Down Position (Keyway)	Catalog Number	Catalog Number	Catalog Number
ON	OFF	ON	8520K1	8521K1	8522K1
ON	NONE	OFF	K9	K9	K9
ON	NONE	ON	K4	K4	K4
ON	NONE	ON*	8526K5	8527K5	8528K5
ON	OFF	ON	K2	K2	K2
ON	OFF	ON*	8526K3	8527K3	8528K3

*Momentary contact.
See Page 73 for circuit diagrams.

UL & CSA Approval Numbers

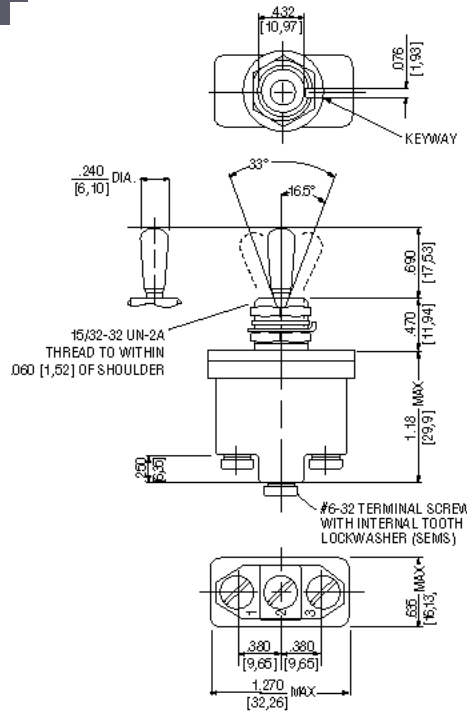
UL – Where devices are UL recognized, recognition is listed under file number E15346; Guide card number is W0YR2.
CSA – Where devices are CSA certified; certification number is LR40068, class number 6241.

INDUSTRIAL—ENVIRONMENTALLY SEALED SWITCHES

Series—8520-8522, 8526-8528

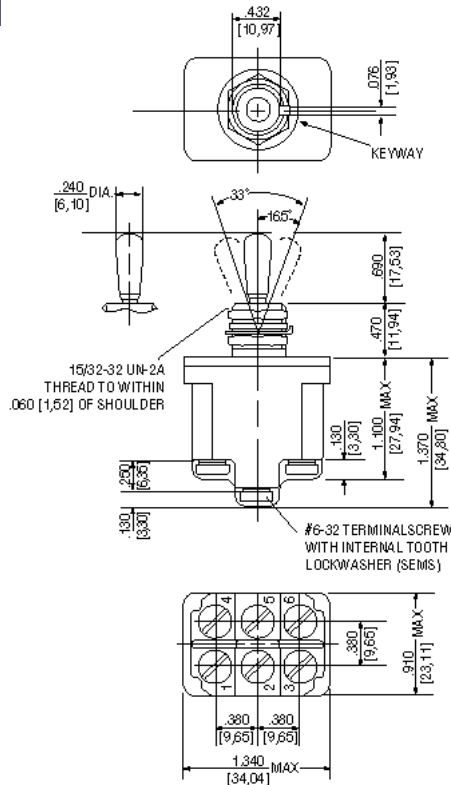
Environmentally Sealed Toggle Switches
UL Recognized and CSA Certified

MOUNTING DIMENSIONS—ONE POLE / 8520



Terminal Identification

MOUNTING DIMENSIONS—TWO POLE / 8521



Terminal Identification

STANDARD
0.00 = inches
[0,0] = mm

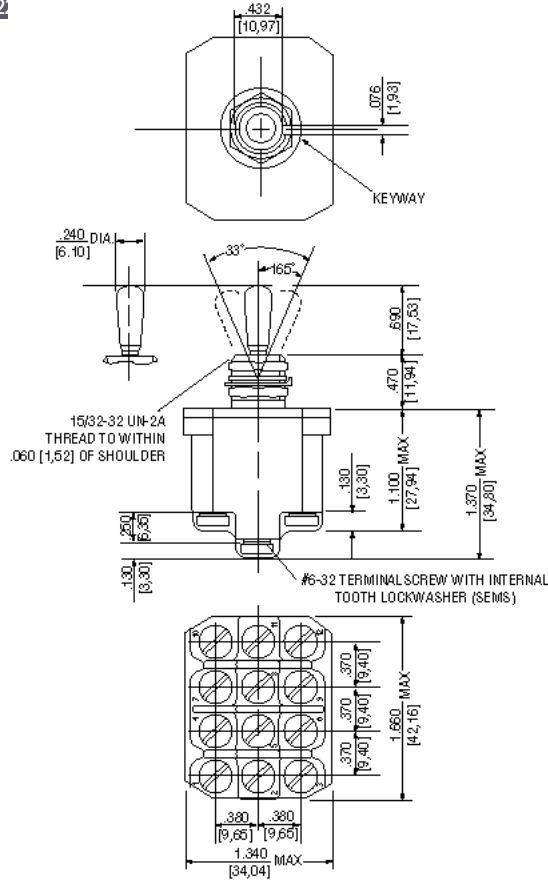
Mounting dimensions for reference only.
Non-functional terminals not supplied.

INDUSTRIAL—ENVIRONMENTALLY SEALED SWITCHES

Series—8520-8522, 8526-8528

Environmentally Sealed Toggle Switches
UL Recognized and CSA Certified

MOUNTING DIMENSIONS—FOUR POLE / 852

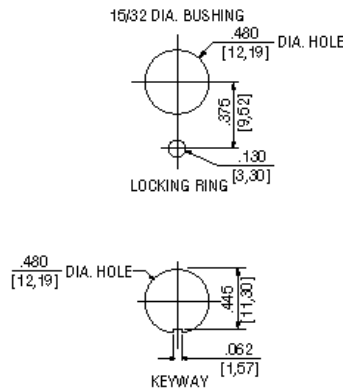


Terminal Identification

OPTIONS/ACCESSORIES

- Special mounting hardware
- Mounting hardware furnished assembled
- Terminal screws furnished assembled
- Special circuits
- Panel seal, part number 32-341
- Spade terminal adapters available

PANEL CUTOUT DIMENSIONS



STANDARD
0.00 = inches
[0,0] = mm

Mounting dimensions for reference only.

Non-functional terminals not supplied.

INDUSTRIAL—ENVIRONMENTALLY SEALED SWITCHES

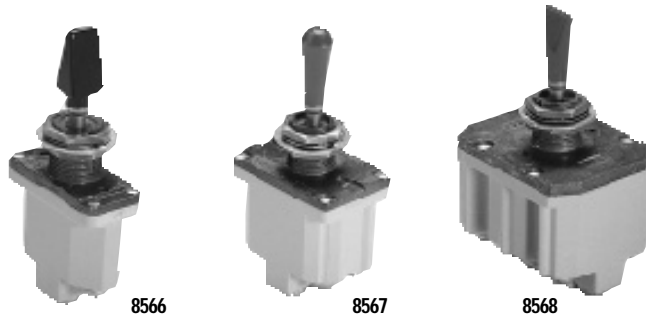
Series—8566, 8567, 8568 Environmentally Sealed Designerline Toggle Switches

FEATURES	SPECIFICATIONS	No. of Poles	Catalog Number	Type of Operation	CURRENT RATINGS					
					28VDC			115VAC 60 or 400Hz		
					Lamp Load	Resistive Load	Inductive Load	Lamp Load	Resistive Load	Inductive Load
<ul style="list-style-type: none"> Completely sealed against dust, moisture, and other contaminants Variety of lever styles and colors One hole mounting for easy installation 2 & 3 position with maintained and momentary action 1, 2 and 4 pole circuitry Molded-in terminal inserts and terminal numbers Coded shaped levers for operator feel and cosmetic appearance 	<ul style="list-style-type: none"> Watertight seal per MIL-STD-108E exceeds IP 66/67 Bushing: 15/32" - 32 thread Temperature Range: -50°F to +150°F (-46°C to +66°C) Life: 20,000 operations at rated load 40,000 operations mechanical life Thermoset molding materials meet flame retardant requirements 	1	8566	Maintained Momentary	5	20	15	3	15	10
					4	15	10	2	15	7
		2	8567	Maintained Momentary	7	20	15	4	15	15
					5	18	10	2	11	8
		4	8568	Maintained Momentary	5	20	12	4	15	15
					4	18	10	2	11	8

TOGGLE SWITCHES

SELECTION TABLE

FLUSH SCREW TERMINALS



CIRCUIT WITH LEVER IN...			ONE POLE	TWO POLE	FOUR POLE	LEVER SUFFIXES ①		
Up Position	Center Position	Down Position (Keyway)	Catalog Number	Catalog Number	Catalog Number	Shape ②	Color Letter	Suffix Number
			8566K1	8567K1	8568K1	All	White	21
ON	OFF	ON	K9	K9	K9			
ON	NONE	OFF	K4	K4	K4			
ON	NONE	ON	K6	K6	K6			
ON	OFF*	NONE	K8	K8	K8			
ON	NONE	ON*	8566K5	8567K5	8568K5	All	Red	22
ON	OFF	ON	K2	K2	K2			
NONE	OFF	ON*	K7	K7	K7			
ON	NONE	OFF*	K10	K10	K10			
OFF	NONE	ON*	K11	K11	K11			
ON	OFF	ON*	8566K3	8567K3	8568K3	All	Yellow	25
*ON	ON	NONE	K12	K12	K12			
ON	ON	NONE	K13	K13	K13			
ON	ON	ON		8567K14	8568K15	All	Black	27
ON	ON	ON*		K15	K16			
ON	ON	ON		K16	K17			

*Momentary contact.

See Page 73 for circuit diagrams.

① A complete catalog number consists of a basic switch number followed by a lever shape suffix letter and a two-digit lever color suffix number. Example: 8566K1C21.

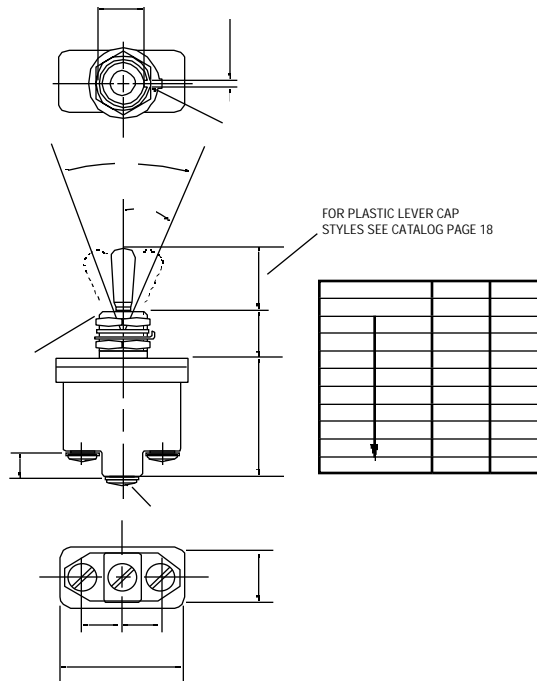
② Select lever shape suffix letter from Page 18.

INDUSTRIAL—ENVIRONMENTALLY SEALED SWITCHES

Series—8566, 8567, 8568

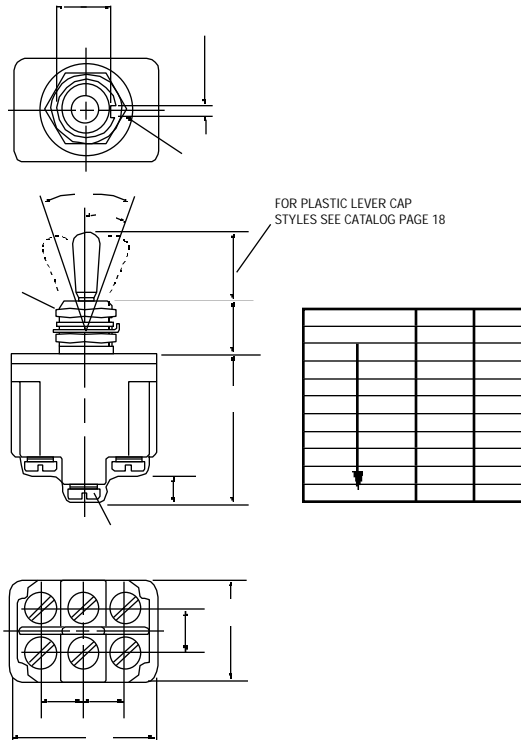
Environmentally Sealed Designerline Toggle Switches

MOUNTING DIMENSIONS—ONE POLE / 8566



Terminal Identification

MOUNTING DIMENSIONS—TWO POLE / 8567



STANDARD
 0.00 = inches
 [0,0] = mm

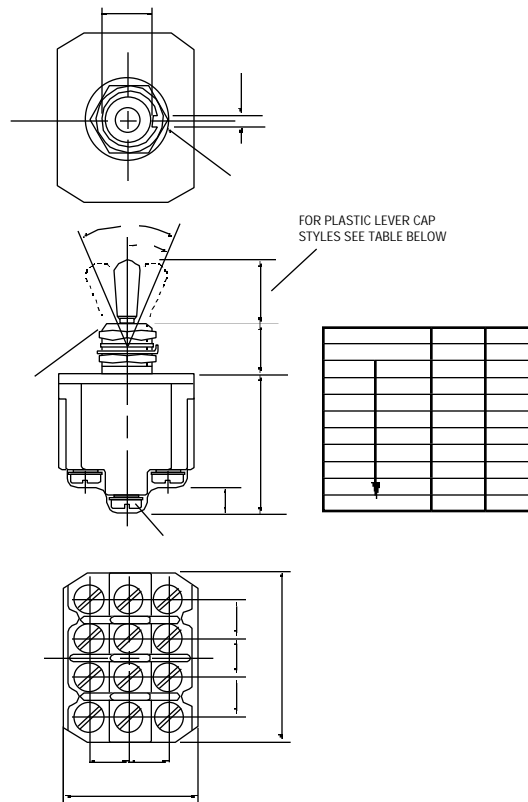
Mounting dimensions for reference only.
 Non-functional terminals not supplied.

Terminal Identification

INDUSTRIAL—ENVIRONMENTALLY SEALED SWITCHES

Series—8566, 8567, 8568 Environmentally Sealed Designerline Toggle Switches

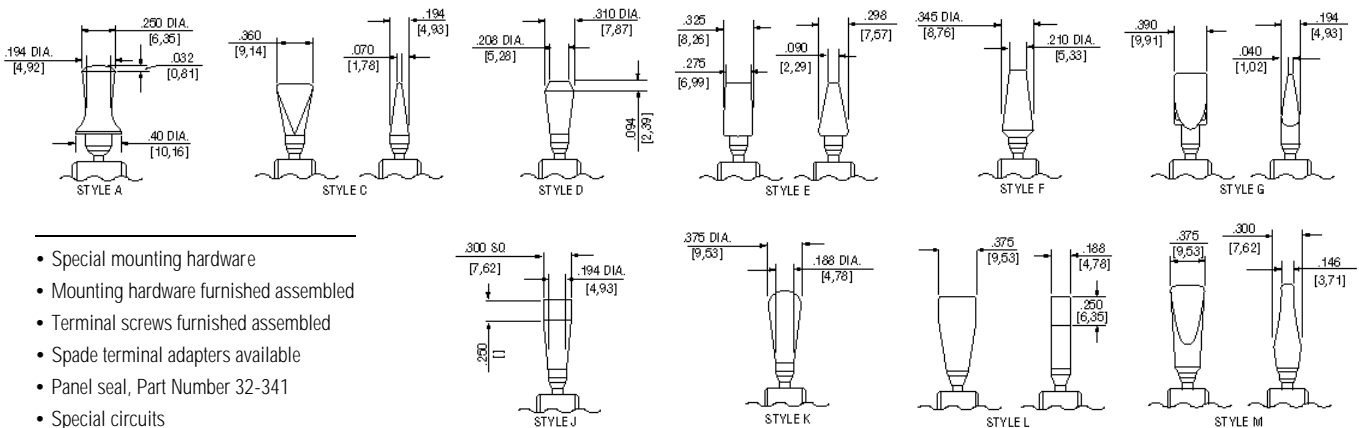
MOUNTING DIMENSIONS—FOUR POLE / 8568



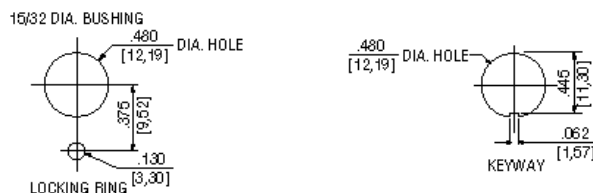
Terminal Identification

Non-functional terminals not supplied.

OPTIONS/ACCESSORIES



PANEL CUTOUT DIMENSIONS



STANDARD
0.00 = inches
[0,0] = mm

Mounting dimensions for reference only.



ECONOSWITCH—ENVIRONMENTALLY SEALED SWITCHES

Series—8530, 8531, 8532

Econoswitch Sealed Toggle Switches

FEATURES	SPECIFICATIONS	CURRENT RATINGS								
		No. of Poles	Catalog Number	Type of Operation	28VDC			115VAC 60 or 400Hz		
					Lamp Load	Resistive Load	Inductive Load	Lamp Load	Resistive Load	Inductive Load
<ul style="list-style-type: none"> Environmentally sealed 1, 2 and 4 pole Circuitry One hole mounting for easy installation Multi-circuits 2 & 3 position with maintained and momentary action Three types of termination offered as standard 	<ul style="list-style-type: none"> Watertight seal per MIL-STD-108E exceeds IP 66/67 UL recognized and CSA certified Three standard types of terminals <ul style="list-style-type: none"> screw 6-32 UNC-2A solder lug .125 [3,17] dia. hole spade .250 [6,35] x .032 [0,81] thick Life: 50,000 operations at rated load. 100,000 operations mechanical life. Temperature Range: -50°F to +150°F (-46°C to +66°C) 	1	8530	Maintained Momentary	5	20	15	3	15	10
		2	8531	Maintained Momentary	7	20	15	4	15	15
		4	8532	Maintained Momentary	5	20	12	4	15	15

For the UL/CSA ratings see page 72.

TOGGLE SWITCHES

STANDARD LEVER SELECTION TABLE

	CIRCUIT WITH LEVER IN...			CATALOG NUMBER		
	Up Position	Center Position	Down Position (Keyway)	Screw Terminals	Solder Lug Terminals	Spade Terminals
<p>8530</p>	ONE POLE					
	ON	OFF	ON	8530K1	8530K91	8530K31
	ON	NONE	OFF	K9	K99	K39
	ON	NONE	ON	K4	K94	K34
	ON	OFF	NONE	K6	K96	K36
	ON	OFF*	NONE	K8	K98	K38
	ON	NONE	ON*	8530K5	8530K95	8530K35
	* ON	OFF	ON*	K2	K92	K32
	NONE	OFF	ON*	K7	K97	K37
	ON	NONE	OFF*	K10	K910	K310
	OFF	NONE	ON*	K11	K911	K311
	ON	OFF	ON*	8530K3	8530K93	8530K33
	* ON	ON	NONE	K12	K912	K312
	ON	ON	NONE	K13	K913	K313
	<p>8531</p>	TWO POLE				
ON		OFF	ON	8531K1	8531K91	8531K31
ON		NONE	OFF	K9	K99	K39
ON		NONE	ON	K4	K94	K34
ON		OFF	NONE	K6	K96	K36
ON		OFF*	NONE	K8	K98	K38
ON		NONE	ON*	8531K5	8531K95	8531K35
* ON		OFF	ON*	K2	K92	K32
NONE		OFF	ON*	K7	K97	K37
ON		NONE	OFF*	K10	K910	K310
OFF		NONE	ON*	K11	K911	K311
ON		OFF	ON*	8531K3	8531K93	8531K33
* ON		ON	NONE	K12	K912	K312
ON		ON	NONE	K13	K913	K313
ON		ON	ON	K14	K914	K314
ON	ON	ON*	K15	K915	K315	
* ON	ON	ON*	8531K16	8531K916	8531K316	
ON	ON	ON	K17	K917	K317	
ON	ON	ON*	K18	K918	K318	
* ON	ON	ON*	K19	K919	K319	
<p>8532</p>	FOUR POLE					
	ON	OFF	ON	8532K1	8532K91	8532K31
	ON	NONE	OFF	K9	K99	K39
	ON	NONE	ON	K4	K94	K34
	ON	OFF	NONE	K6	K96	K36
	ON	OFF*	NONE	K8	K98	K38
	ON	NONE	ON*	8532K5	8532K95	8532K35
	* ON	OFF	ON*	K2	K92	K32
	NONE	OFF	ON*	K7	K97	K37
	ON	NONE	OFF*	K10	K910	K310
	OFF	NONE	ON*	K11	K911	K311
	ON	OFF	ON*	8532K3	8532K93	8532K33
	* ON	ON	NONE	K12	K912	K312
	ON	ON	NONE	K13	K913	K313
	ON	ON	ON	K15	K915	K315
ON	ON	ON*	K16	K916	K316	
* ON	ON	ON*	K17	K917	K317	

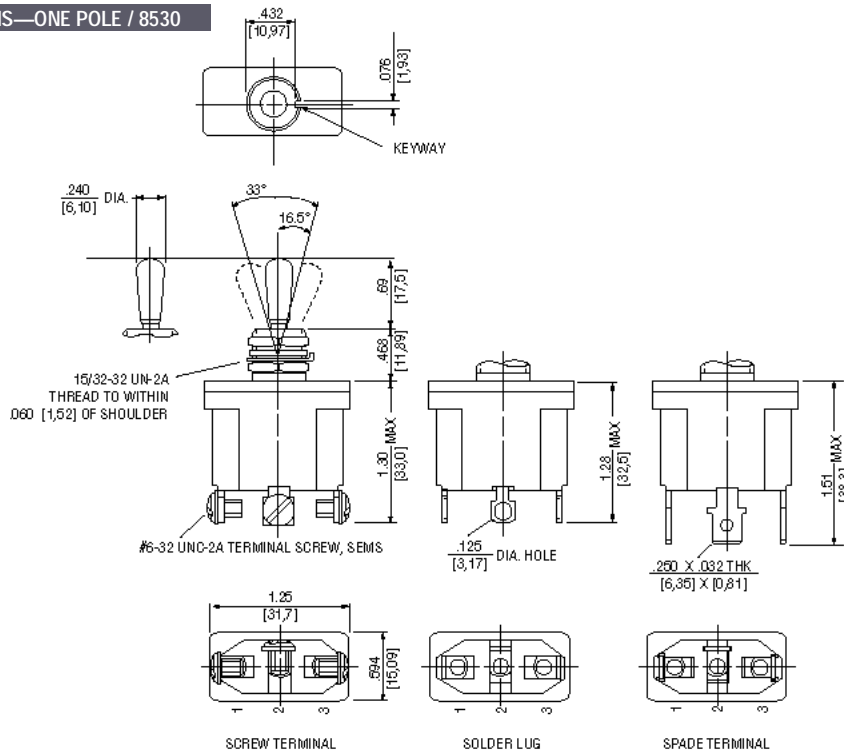
* Momentary contact.
See Page 73 for circuit diagrams.

ECONOSWITCH—ENVIRONMENTALLY SEALED SWITCHES

Series—8530, 8531, 8532

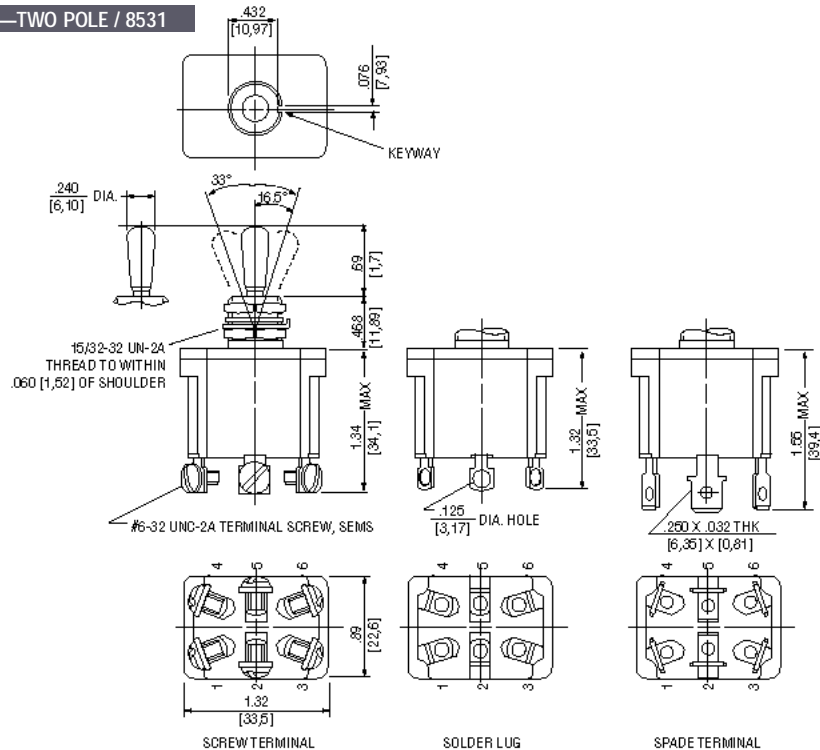
Econoswitch Sealed Toggle Switches

MOUNTING DIMENSIONS—ONE POLE / 8530



Terminal Identification

MOUNTING DIMENSIONS—TWO POLE / 8531



Terminal Identification

STANDARD
0.00 = inches
[0,0] = mm

Mounting dimensions for reference only.
Non-functional terminals not supplied.

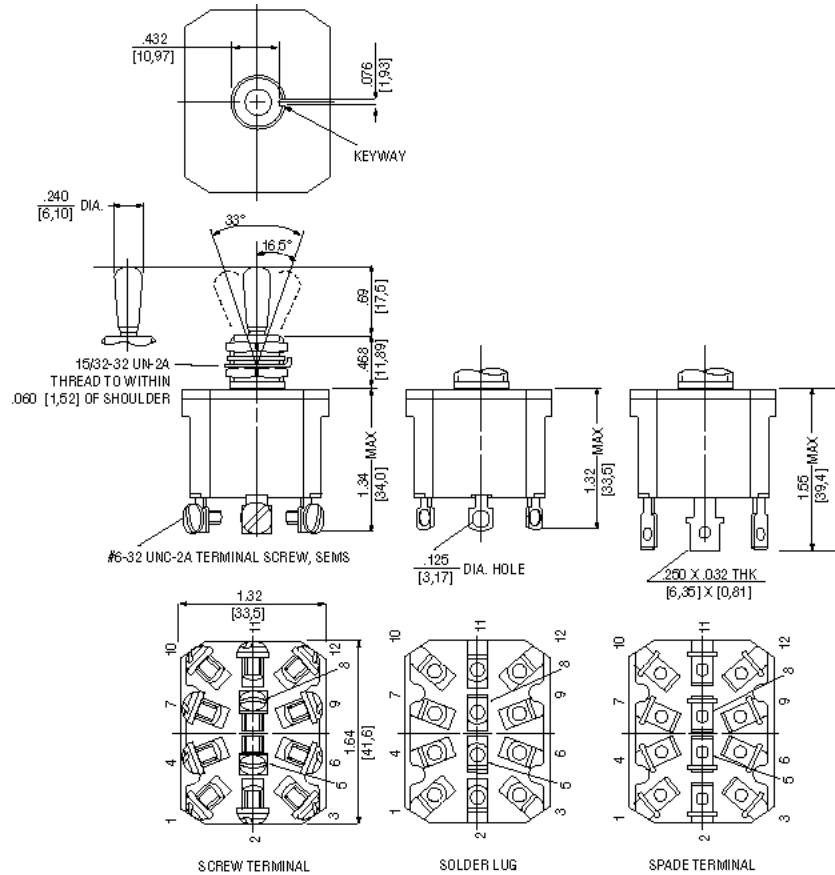
TOGGLE SWITCHES

ECONOSWITCH—ENVIRONMENTALLY SEALED SWITCHES

Series—8530, 8531, 8532

Econoswitch Sealed Toggle Switches

MOUNTING DIMENSIONS—FOUR POLE / 8532



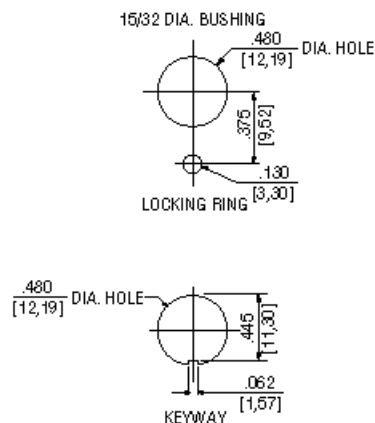
Terminal Identification

Non-functional terminals not supplied.

OPTIONS/ACCESSORIES

- Special mounting hardware
- Mounting hardware furnished assembled
- Terminal screws furnished assembled
- Special circuits
- Panel seal, Part Number 32-341
- Custom wire harnesses
- Mating connector available for two poles with spade terminal
- External jumpers available
 - bussing jumper
 - reversing jumpers

PANEL CUTOUT DIMENSIONS



STANDARD

0.00 = inches

[0,0] = mm

Mounting dimensions for reference only.



ECONOSWITCH—ENVIRONMENTALLY SEALED SWITCHES

Series—8536, 8537, 8538

Econoswitch Sealed Leverlock Toggle Switches

FEATURES

- Environmentally sealed
- 1, 2, and 4 pole circuitry
- Locking actuator for safety
- One hole mounting for easy installation
- Over 25 standard locking configurations to choose from
- 2 & 3 position with maintained and momentary action
- Three types of termination offered as standard

SPECIFICATIONS

- Watertight seal per MIL-STD-108E exceeds IP66/67
- UL recognized and CSA certified
- Temperature range: -50°F to +150°F (-46°C to +66°C)
- Life: 50,000 operations at rated load
100,000 operations mechanical life
- Bushing: 15/32" - 32 thread



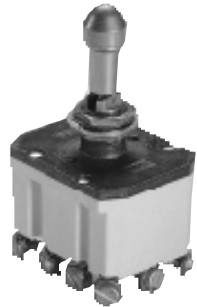
CURRENT RATINGS

No. of Poles	Catalog Number	Type of Operation	28VDC			115VAC 60 or 400Hz		
			Lamp Load	Resistive Load	Inductive Load	Lamp Load	Resistive Load	Inductive Load
1	8536	Maintained Momentary	5	20	15	3	15	10
			4	15	10	2	15	7
2	8537	Maintained Momentary	7	20	15	4	15	15
			5	18	10	2	11	8
4	8538	Maintained Momentary	5	20	12	4	15	15
			4	18	10	2	11	8

For the UL/CSA ratings see page 72.

TOGGLE SWITCHES

LEVER LOCK SELECTION TABLE

	CIRCUIT WITH LEVER IN...			CATALOG NUMBER			
	Up Position	Center Position	Down Position (Keyway)	Screw Terminals	Solder Lug Terminals	Spade Terminals	Available Locking Configurations
 <p>8536</p>	ONE POLE						
	ON	OFF	ON	8536K1	8536K91	8536K31	ALL
	ON	NONE	OFF	K9	K99	K39	D, F, G
	ON	NONE	ON	K4	K94	K34	D, F, G
	ON	OFF	NONE	K6	K96	K36	E, F, K, M
	ON	OFF*	NONE	K8	K98	K38	F
	ON	NONE	ON*	8536K5	853K95	8536K35	F
	ON	OFF	ON	K2	K92	K32	E, L, N
	NONE	OFF	ON*	K7	K97	K37	E
	ON	NONE	OFF*	K10	K910	K310	F
	OFF	NONE	ON*	K11	K911	K311	F
	ON	OFF	ON*	8536K3	8536K93	8536K33	E, F, K, L, M, N
	*ON	ON	NONE	K12	K912	K312	E
	ON	ON	NONE	K13	K913	K313	E, F, K, M
	 <p>8537</p>	TWO POLE					
ON		OFF	ON	8537K1	8537K91	8537K31	ALL
ON		NONE	OFF	K9	K99	K39	D, F, G
ON		NONE	ON	K4	K94	K34	D, F, G
ON		OFF	NONE	K6	K96	K36	E, F, K, M
ON		OFF*	NONE	K8	K98	K38	F
ON		NONE	ON*	8537K5	8537K95	8537K35	F
ON		OFF	ON	K2	K92	K32	E, L, N
NONE		OFF	ON*	K7	K97	K37	E
ON		NONE	OFF*	K10	K910	K310	F
OFF		NONE	ON*	K11	K911	K311	F
ON		OFF	ON*	8537K3	8537K93	8537K33	E, F, K, L, M, N
*ON		ON	NONE	K12	K912	K312	E
ON		ON	NONE	K13	K913	K313	E, F, K, M
ON		ON	ON	8537K14	8537K914	8537K314	ALL
ON	ON	ON*	K15	K915	K315	E, F, K, L, M, N	
ON	ON	ON	K16	K916	K316	E, L, N	
 <p>8538</p>	FOUR POLE						
	ON	OFF	ON	8538K1	8538K91	8538K31	ALL
	ON	NONE	OFF	K9	K99	K39	D, F, G
	ON	NONE	ON	K4	K94	K34	D, F, G
	ON	OFF	NONE	K6	K96	K36	E, F, K, M
	ON	OFF*	NONE	K8	K98	K38	F
	ON	NONE	ON*	8538K5	8538K95	8538K35	F
	ON	OFF	ON	K2	K92	K32	E, L, N
	NONE	OFF	ON	K7	K97	K37	E
	ON	NONE	OFF*	K10	K910	K310	F
	OFF	NONE	ON*	K11	K911	K311	F
	ON	OFF	ON*	8538K3	8538K93	8538K33	E, F, K, L, M, N
	*ON	ON	NONE	K12	K912	K312	E
	ON	ON	NONE	K13	K913	K313	E, F, K, M
	ON	ON	ON	8538K15	8538K915	8538K315	ALL
ON	ON	ON*	K16	K916	K316	E, F, K, L, M, N	
ON	ON	ON	K17	K917	K317	E, L, N	

* Momentary contact.

Complete part number requires this symbol to be replaced with a locking configuration letter—selected from Page 24.

Example: **8536K31** Δ **E** **8536K31E**

Basic Switch Locking Style

Complete Part Number

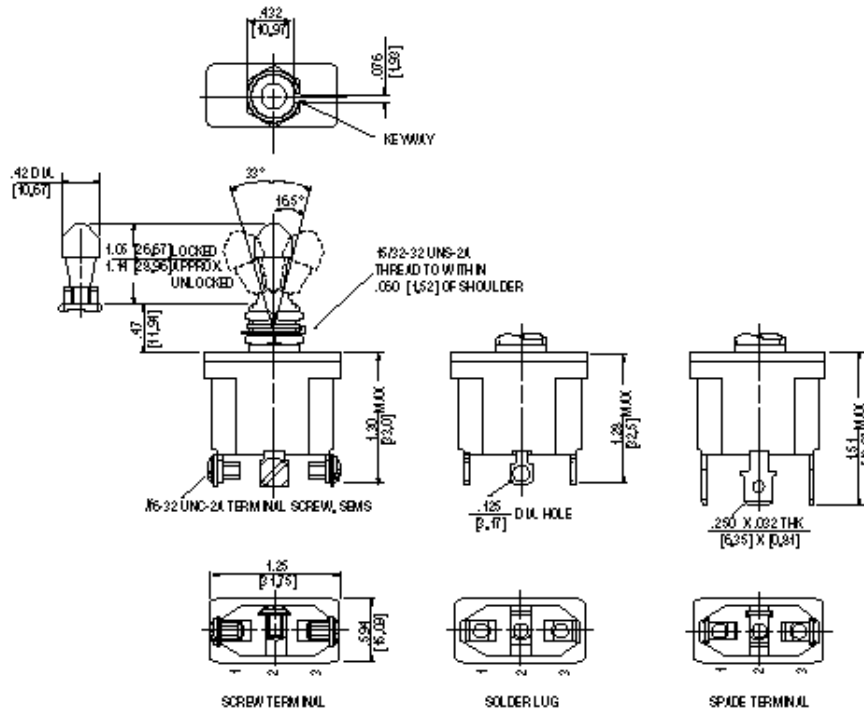
See page 73 for circuit diagrams.

ECONOSWITCH—ENVIRONMENTALLY SEALED SWITCHES

Series—8536, 8537, 8538

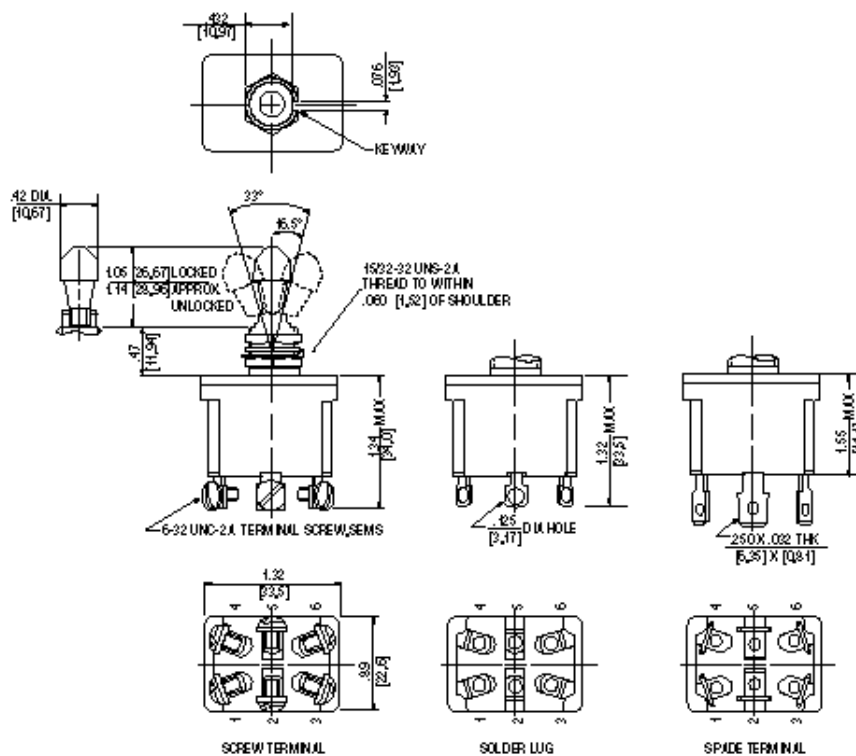
Econoswitch Sealed Leverlock Toggle Switches

MOUNTING DIMENSIONS—ONE POLE / 8536



Terminal Identification

MOUNTING DIMENSIONS—TWO POLE / 8537



Terminal Identification

STANDARD
0.00 = inches
[0.0] = mm

Mounting dimensions for refer
Non-functional terminals not supplied.

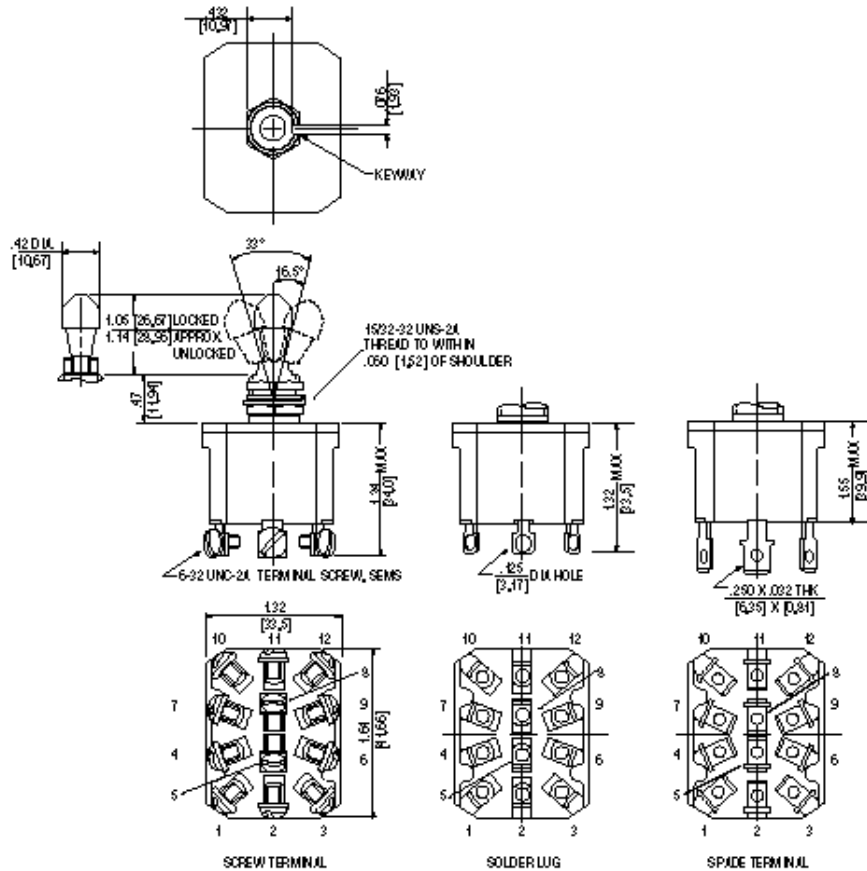
TOGGLE SWITCHES

ECONOSWITCH—ENVIRONMENTALLY SEALED SWITCHES

Series—8536, 8537, 8538

Econoswitch Sealed Leverlock Toggle Switches

MOUNTING DIMENSIONS—FOUR POLE / 8538

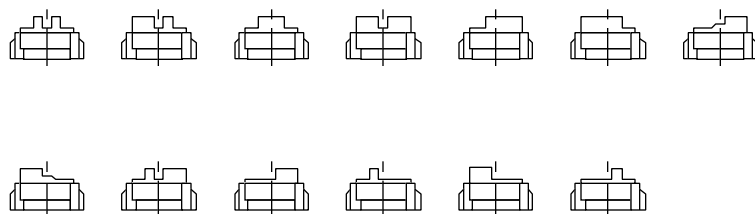


Terminal Identification

Non-functional terminals not supplied.

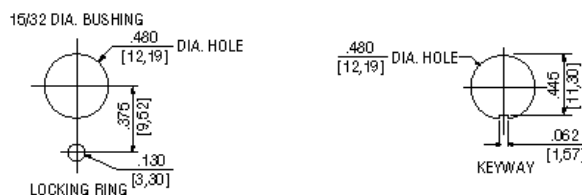
OPTIONS/ACCESSORIES

- Special mounting hardware
- Mounting hardware furnished assembled
- Terminal screws furnished assembled
- Special circuits
- Panel seal, Part Number 32-341



Figures A thru P do not represent details of construction. They schematically illustrate locking functions.

PANEL CUTOUT DIMENSIONS



STANDARD
0.00 = inches
[0.0] = mm

Mounting dimensions for reference only.



ECONOSWITCH—ENVIRONMENTALLY SEALED SWITCHES

Series—8533, 8534, 8535

Econoswitch Sealed Designerline Toggle Switches

FEATURES	SPECIFICATIONS	CURRENT RATINGS								
		No. of Poles	Catalog Number	Type of Operation	28VDC			115VAC 60 or 400Hz		
					Lamp Load	Resistive Load	Inductive Load	Lamp Load	Resistive Load	Inductive Load
<ul style="list-style-type: none"> Environmentally sealed 1, 2, and 4 pole circuitry One hole mounting for easy installation Variety of lever styles and colors Coded shaped levers for operator feel and cosmetic appearance. 2 & 3 position with maintained and momentary action Three types of termination offered as standard Also available with toggle and lever lock actuators. For details see page 19 for toggles and 22 for lever locks. 	<ul style="list-style-type: none"> Watertight seal per MIL-STD-108E exceeds IP 66/67 UL recognized and CSA certified Bushing: 15/32" - 32 thread Temperature range: -50°F to +150°F (-46°C to +66°C) Life: 50,000 operations at rated load 100,000 operations mechanical life 	1	8533	Maintained Momentary	5 4	20 15	15 10	3 2	15 15	10 7
		2	8534	Maintained Momentary	7 5	20 18	15 10	4 2	15 11	15 8
		4	8535	Maintained Momentary	5 4	20 18	12 10	4 2	15 11	15 8

For the UL/CSA ratings see page 72.

TOGGLE SWITCHES

SELECTION TABLE

	CIRCUIT WITH LEVER IN...			CATALOG NUMBER					
	Up Position	Center Position	Down Position (Keyway)	Screw Terminals ①	Solder Lug Terminals ①	Spade Terminals ①	Shape Suffix ②	Color Letter	Suffix Number
<p>8533</p>	ONE POLE								
	ON	OFF	ON	8533K1	8533K91	8533K31			
	ON	NONE	OFF	K9	K99	K39			
	ON	NONE	ON	K4	K94	K34	All	White	21
	ON	OFF	NONE	K6	K96	K36		Grey	23
	ON	OFF*	NONE	K8	K98	K38			
	ON	NONE	ON*	8533K5	8533K95	8533K35	All	Red	22
	ON	OFF	ON	K2	K92	K32		Green	24
	NONE	OFF	ON*	K7	K97	K37			
	ON	NONE	OFF*	K10	K910	K310		Yellow	25
	OFF	NONE	ON*	K11	K911	K311	All	Black	27
	ON	OFF	ON*	8533K3	8533K93	8533K33		Blue	26
*ON	ON	NONE	K12	K912	K312				
ON	ON	NONE	K13	K913	K313				
<p>8534</p>	TWO POLE								
	ON	OFF	ON	8534K1	8534K91	8534K31			
	ON	NONE	OFF	K9	K99	K39			
	ON	NONE	ON	K4	K94	K34	All	White	21
	ON	OFF	NONE	K6	K96	K36			
	ON	OFF*	NONE	K8	K98	K38			
	ON	NONE	ON*	8534K5	8534K95	8534K35		Grey	23
	ON	OFF	ON	K2	K92	K32			
	NONE	OFF	ON*	K7	K97	K37	All	Red	22
	ON	NONE	OFF*	K10	K910	K310		Green	24
	OFF	NONE	ON*	K11	K911	K311			
	ON	OFF	ON*	8534K3	8534K93	8534K33		Yellow	25
*ON	ON	NONE	K12	K912	K312	All	Black	27	
ON	ON	NONE	K13	K913	K313		Blue	26	
ON	ON	ON	8534K14	8534K914	8534K314				
ON	ON	ON*	K15	K915	K315				
ON	ON	ON	K16	K916	K316				
<p>8535</p>	FOUR POLE								
	ON	OFF	ON	8535K1	8535K91	8535K31			
	ON	NONE	OFF	K9	K99	K39			
	ON	NONE	ON	K4	K94	K34	All	White	21
	ON	OFF	NONE	K6	K96	K36		Grey	23
	ON	OFF*	NONE	K8	K98	K38			
	ON	NONE	ON*	8535K5	8535K95	8535K35			
	ON	OFF	ON	K2	K92	K32	All	Red	22
	NONE	OFF	ON*	K7	K97	K37			
	ON	NONE	OFF*	K10	K910	K310		Green	24
	OFF	NONE	ON*	K11	K911	K311			
	ON	OFF	ON*	8535K3	8535K93	8535K33		Yellow	25
*ON	ON	NONE	K12	K912	K312	All	Black	27	
ON	ON	NONE	K13	K913	K313		Blue	26	
ON	ON	ON	8535K15	8535K915	8535K315				
ON	ON	ON*	K16	K916	K316				
ON	ON	ON	K17	K917	K317				

* Momentary contact.

① A complete catalog number consists of a basic switch number followed by a lever shape suffix letter and a two-digit lever color suffix number. Example: 8533K91E27
See page 73 for circuit diagrams.

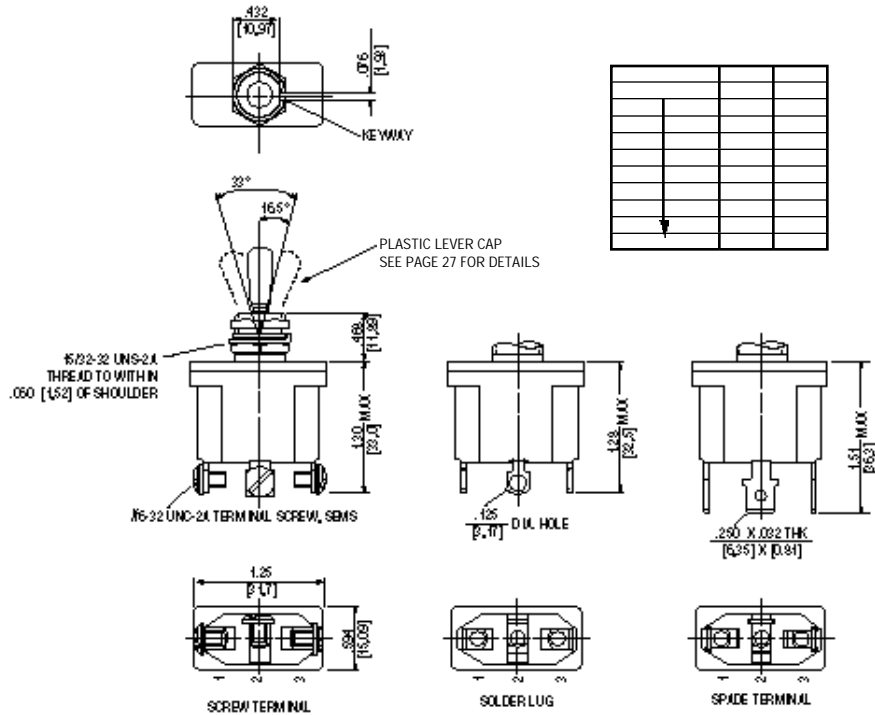
② Select lever shape suffix letter from Page 27.

ECONOSWITCH—ENVIRONMENTALLY SEALED SWITCHES

Series—8533, 8534, 8535

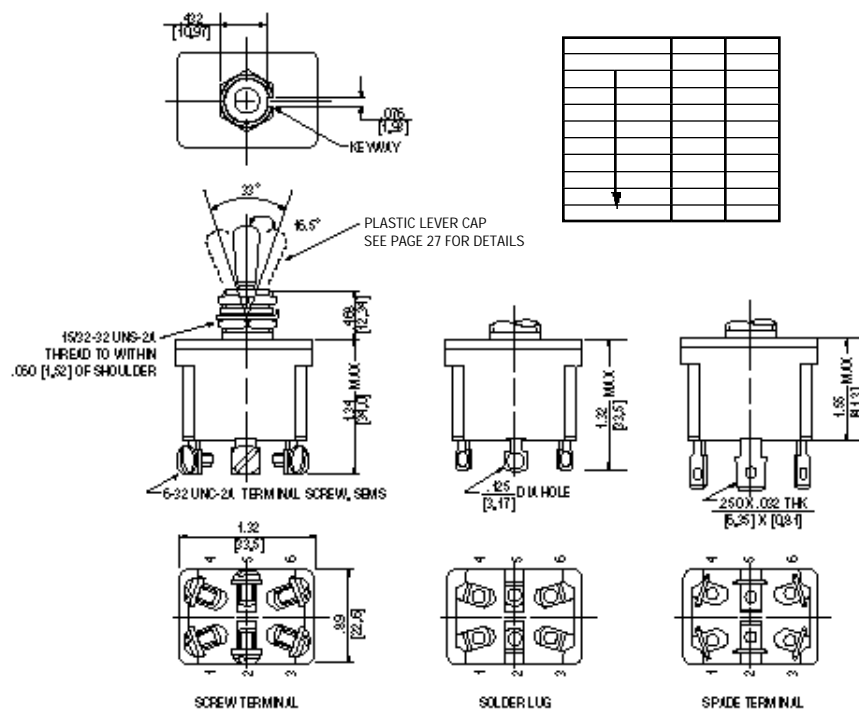
Econoswitch Sealed Designerline Toggle Switches

MOUNTING DIMENSIONS—ONE POLE / 8533



Terminal Identification

MOUNTING DIMENSIONS—TWO POLE / 8534



Terminal Identification

STANDARD
0.00 = inches
[0.0] = mm

Mounting dimensions for reference only.
Non-functional terminals not supplied.

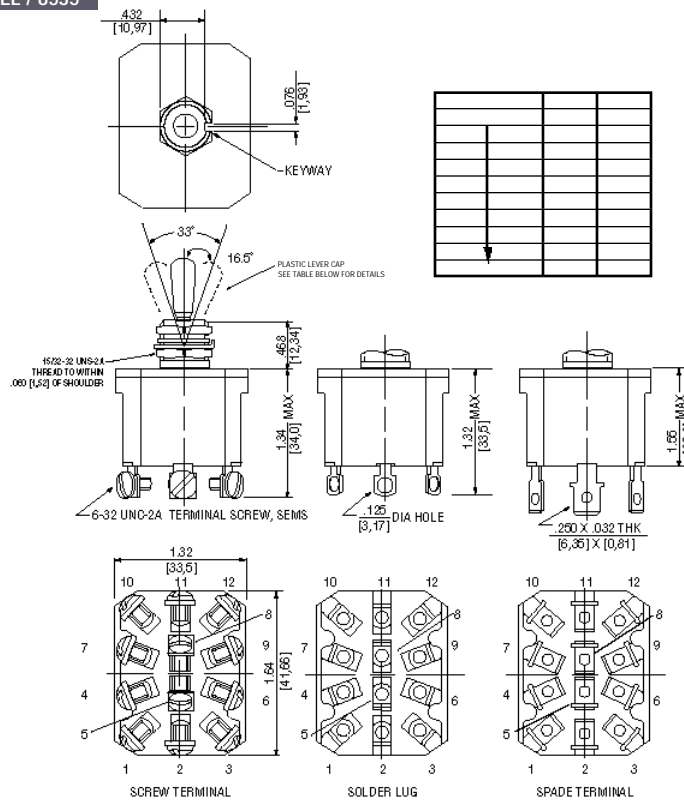
ECONOSWITCH—ENVIRONMENTALLY SEALED SWITCHES

Series—8533, 8534, 8535

Econoswitch Sealed Designerline Toggle Switches

TOGGLE SWITCHES

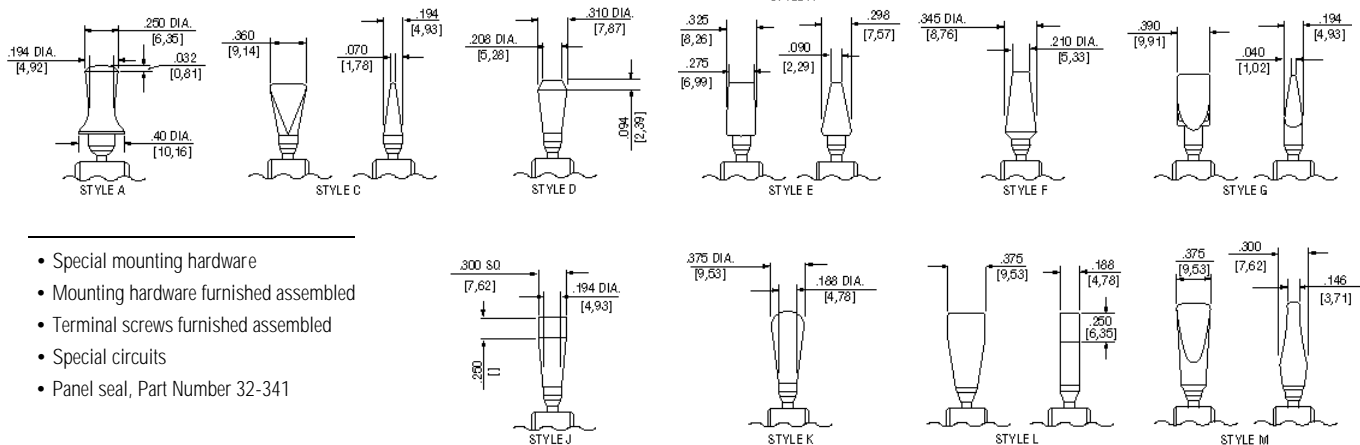
MOUNTING DIMENSIONS—FOUR POLE / 8535



Terminal Identification

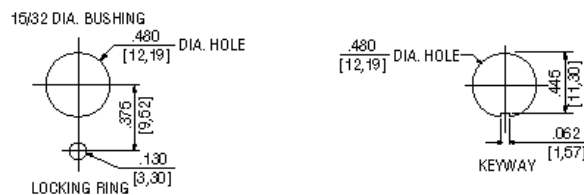
Non-functional terminals not supplied.

OPTIONS/ACCESSORIES



- Special mounting hardware
- Mounting hardware furnished assembled
- Terminal screws furnished assembled
- Special circuits
- Panel seal, Part Number 32-341

PANEL CUTOUT DIMENSIONS



STANDARD
0.00 = inches
[0.0] = mm

Mounting dimensions for reference only.

MILITARY—ENVIRONMENTALLY SEALED SWITCHES

Series—8500, 8501, 8502

MIL-S-3950 Toggle Switches

FEATURES	SPECIFICATIONS	CURRENT RATINGS								
		No. of Poles	Catalog Number	Type of Operation	28VDC			115VAC 60 or 400Hz		
					Lamp Load	Resistive Load	Inductive Load	Lamp Load	Resistive Load	Inductive Load
<ul style="list-style-type: none"> Environmentally sealed 1, 2, and 4 pole circuitry 2 & 3 position with maintained and momentary action Molded-in terminal inserts and terminal numbers Environmentally sealed per MIL-S-3950 	<ul style="list-style-type: none"> MS approved and QPL'd per MIL-S-3950 Thermoset molding materials meet flame retardant requirements Bushing: 15/32" - 32 thread Temperature Range: -85°F to +160°F (-65°C to +71°C) Life: 20,000 operations at rated load 40,000 operations mechanical life 	1	8500	Maintained Momentary	5	20	15	3	15	10
					4	15	10	2	15	7
		2	8501	Maintained Momentary	7	20	15	4	15	15
					5	18	10	2	11	8
		4	8502	Maintained Momentary	5	20	12	4	15	15
					4	18	10	2	11	8

Minimum Rating: "Intermediate Current" per MIL-S-3950

TOGGLE SWITCHES

STANDARD LEVER SELECTION TABLE



CIRCUIT WITH LEVER IN...			ONE POLE		TWO POLE		FOUR POLE	
Up Position	Center Position	Down Position (Keyway)	MS Part Number	Catalog Number	MS Part Number	Catalog Number	MS Part Number	Catalog Number
ON	OFF	ON	MS24523-21	8500K1	MS24524-21	8501K1	MS24525-21	8502K1
ON	NONE	OFF	-22	K9	-22	K9	-22	K9
ON	NONE	ON	-23	K4	-23	K4	-23	K4
ON	OFF	NONE	-24	K6	-24	K6	-24	K6
ON	OFF *	NONE	-25	K8	-25	K8	-25	K8
ON	NONE	ON *	MS24523-26	8500K5	MS24524-26	8501K5	MS24525-26	8502K5
*ON	OFF	ON *	-27	K2	-27	K2	-27	K2
NONE	OFF	ON *	-28	K7	-28	K7	-28	K7
ON	NONE	OFF *	-29	K10	-29	K10	-29	K10
OFF	NONE	ON *	-30	K11	-30	K11	-30	K11
ON	OFF	ON *	MS24523-31	8500K3	MS24524-31	8501K3	MS24525-31	8502K3
*ON	ON	NONE	-32	K12	-32	K12	-32	K12
ON	ON	NONE	-33	K13	-33	K13	-33	K13
ON	ON	ON	-	-	MS27407-1	8501K14	MS27406-1	8502K15
ON	ON	ON *	-	-	-2	K15	-2	K16
*ON	ON	ON *	-	-	-3	K16	-3	K17
ON	ON	ON	-	-	-4	K17	-	-
ON	ON	ON *	-	-	-5	K18	-	-
*ON	ON	ON *	-	-	-6	K19	-	-

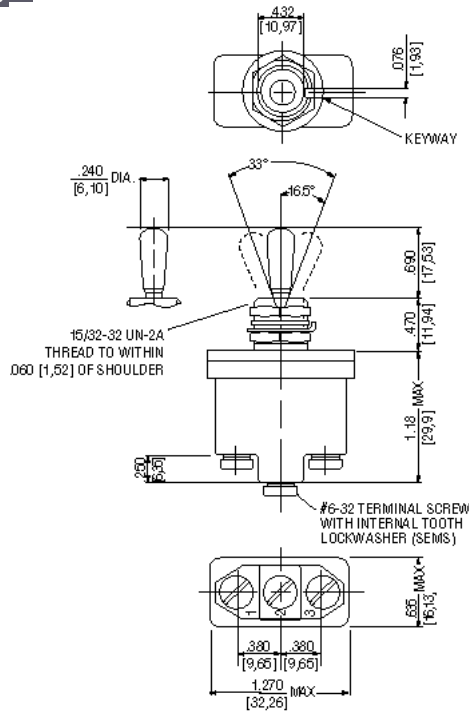
* Momentary contact.
See Page 73 for circuit diagrams.

MILITARY—ENVIRONMENTALLY SEALED SWITCHES

Series—8500, 8501, 8502

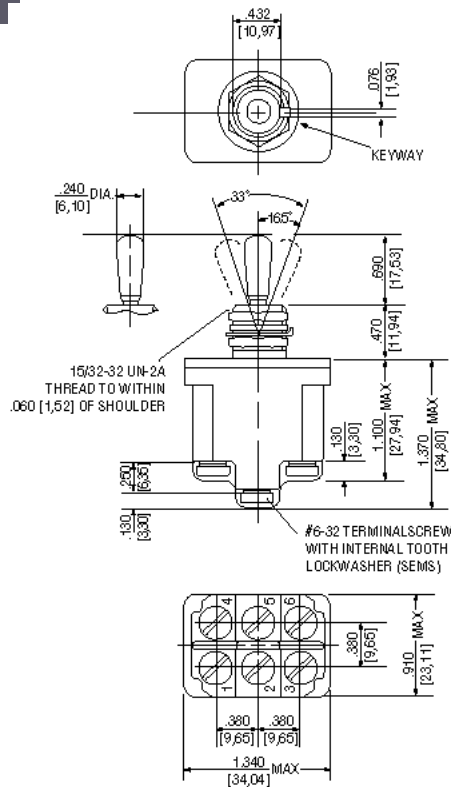
MIL-S-3950 Toggle Switches

MOUNTING DIMENSIONS—ONE POLE / 8500



Terminal Identification

MOUNTING DIMENSIONS—TWO POLE / 8501



Terminal Identification

STANDARD
0.00 = inches
[0,0] = mm

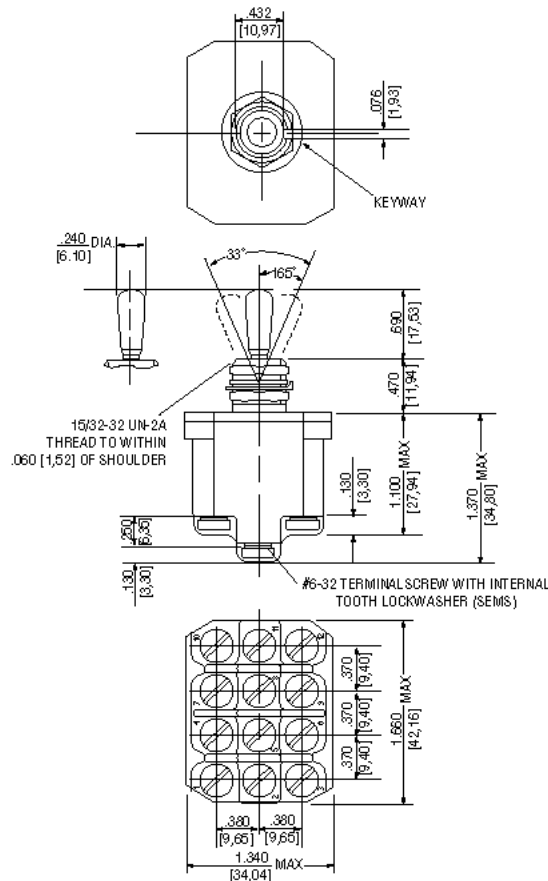
Mounting dimensions for reference only.
Non-functional terminals not supplied.

MILITARY—ENVIRONMENTALLY SEALED SWITCHES

Series—8500, 8501, 8502

MIL-S-3950 Toggle Switches

MOUNTING DIMENSIONS—FOUR POLE / 8502



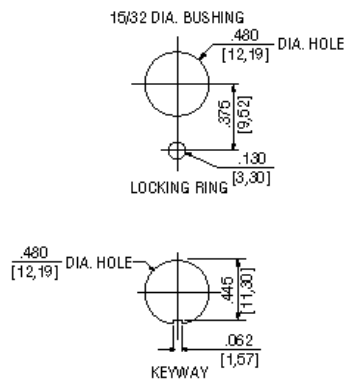
Terminal Identification

Non-functional terminals not supplied.

OPTIONS/ACCESSORIES

- Special mounting hardware
- Mounting hardware furnished assembled
- Terminal screws furnished assembled
- Special circuits
- Panel seal, part number 32-341 (See Accessories and Custom Components section)
- Special "3 Cateye" luminous lever attachment
- Lever extensions and attachable tips (See Accessories and Custom Components section)
- Custom wiring harnesses

PANEL CUTOUT DIMENSIONS



STANDARD
0.00 = inches
[0,0] = mm

Mounting dimensions for reference only.

MILITARY—ENVIRONMENTALLY SEALED SWITCHES

Series—8503, 8504, 8505

MIL-S-3950 Lever Lock Switches

FEATURES	SPECIFICATIONS	CURRENT RATINGS								
		No. of Poles	Catalog Number	Type of Operation	28VDC			115VAC 60 or 400Hz		
					Lamp Load	Resistive Load	Inductive Load	Lamp Load	Resistive Load	Inductive Load
<ul style="list-style-type: none"> Environmentally sealed 1, 2, and 4 pole circuitry 2 & 3 position with maintained and momentary action Locking actuator for safety Molded-in terminal inserts and terminal numbers 	<ul style="list-style-type: none"> Environmentally sealed per MIL-S-3950 MS approved and OPL'd per MIL-S-3950 Thermoset molding materials meet flame retardant requirements of Bushing: 15/32" - 32 thread Temperature Range: -85°F to +160°F (-65°C to +71°C) Life: 20,000 operations at rated load 40,000 operations mechanical life 	1	8503	Maintained Momentary	5	20	15	3	15	10
					4	15	10	2	15	7
					2	8504	Maintained Momentary	7	20	15
		4	8505	Maintained Momentary	5	20	12	4	15	15
					4	18	10	2	11	8
					8	8	8	8	8	8

Minimum Rating: "Intermediate Current" per MIL-S-3950

TOGGLE SWITCHES

LEVER LOCK SELECTION TABLE



CIRCUIT WITH LEVER IN...			ONE POLE		TWO POLE		FOUR POLE		
Up Position	Center Position	Down Position (Keyway)	Lever Lock Bushing Style	Flush Screw Terminals		Flush Screw Terminals		Flush Screw Terminals	
				MS Part Number	Catalog Number	MS Part Number	Catalog Number	MS Part Number	Catalog Number
ON→	←OFF→	← ON	A	MS24658-21A	8503K1	MS24659-21A	8504K1	MS24660-21A	8505K1
ON	←OFF→	← ON	B	-21B	K27	-21B	K27	-21B	K27
ON→	←OFF→	← ON	D	-21D	K5	-21D	K5	-21D	K5
ON	←OFF→	ON	E	-21E	K2	-21E	K2	-21E	K2
ON→	OFF	ON	F	-21F	K28	-21F	K28	-21F	K28
ON	OFF	← ON	G	MS24658-21G	8503K3	MS24659-21G	8504K3	MS24660-21G	8505K3
ON→	OFF→	ON	H	-21H	K29	-21H	K29	-21H	K29
ON	←OFF→	← ON	J	-21J	K30	-21J	K30	-21J	K30
ON→	←OFF→	ON	K	-21K	K31	-21K	K31	-21K	K31
ON	OFF→	ON	L	-21L	K32	-21L	K32	-21L	K32
ON→	←OFF	ON	M	MS24658-21M	8503K33	MS24659-21M	8504K33	MS24660-21M	8505K33
ON	←OFF	ON	N	-21N	K4	-21N	K4	-21N	K4
ON	OFF→	← ON	P	-21P	K34	-21P	K34	-21P	K34
ON→	NONE	← OFF	D	-22D	K10	-22D	K10	-22D	K10
ON→	NONE	OFF	F	-22F	K35	-22F	K35	-22F	K35
ON	NONE	← OFF	G	MS24658-22G	8503K9	MS24659-22G	8504K9	MS24660-22G	8505K9
ON→	NONE	← ON	D	-23D	K6	-23D	K6	-23D	K6
ON→	NONE	ON	F	-23F	K36	-23F	K36	-23F	K36
ON	NONE	← ON	G	-23G	K7	-23G	K7	-23G	K7
ON	←OFF	NONE	E	-24E	K16	-24E	K16	-24E	K16
ON→	OFF	NONE	F	MS24658-24F	8503K37	MS24659-24F	8504K37	MS24660-24F	8505K37
ON→	←OFF→	NONE	K	-24K	K38	-24K	K38	-24K	K38
ON→	←OFF	NONE	M	-24M	K11	-24M	K11	-24M	K11
ON→	OFF*	NONE	F	-25F	K22	-25F	K22	-25F	K22
ON→	NONE	ON*	F	-26F	K20	-26F	K20	-26F	K20
ON	←OFF→	ON	E	MS24658-27E	8503K12	MS24659-27E	8504K12	MS24660-27E	8505K12
ON	OFF→	ON	L	-27L	K39	-27L	K39	-27L	K39
ON	←OFF	ON	N	-27N	K14	-27N	K14	-27N	K14
NONE	OFF→	ON*	E	-28E	K15	-28E	K15	-28E	K15
ON→	NONE	OFF*	F	-29F	K21	-29F	K21	-29E	K21
OFF→	NONE	ON*	F	MS24658-30F	8503K19	MS24659-30F	8504K19	MS24660-30F	8505K19
ON	←OFF→	ON*	E	-31E	K18	-31E	K18	-31E	K18
ON→	OFF	ON*	F	-31F	K40	-31F	K40	-31F	K40
ON→	←OFF→	ON*	K	-31K	K41	-31K	K41	-31K	K41
ON	OFF→	ON*	L	-31L	K13	-31L	K13	-31L	K13

* Momentary contact.
→ Indicates direction against which lever is locked.

See page 73 for circuit diagrams.
① Reference bushing styles on Page 34.

MILITARY—ENVIRONMENTALLY SEALED SWITCHES

Series—8503, 8504, 8505

MIL-S-3950 Lever Lock Switches

TOGGLE SWITCHES

LEVER LOCK SELECTION TABLE, CONT.



CIRCUIT WITH LEVER IN...			ONE POLE		TWO POLE		FOUR POLE		
Up Position	Center Position	Down Position (Keyway)	Lever ^① Lock Bushing Style	Flush Screw Terminals MS Part Number Catalog Number	Flush Screw Terminals MS Part Number Catalog Number	Flush Screw Terminals MS Part Number Catalog Number	Flush Screw Terminals MS Part Number Catalog Number		
ON → ON * ON ON → ON →	← OFF ← OFF ← ON → ← ON → ON	ON* ON* NONE NONE NONE	M N E E F	MS24658-31M -31N -32E -33E -33F	8503K17 K8 K23 K24 K25	MS24659-31M -31N -32E -33E -33F	8504K17 K8 K23 K24 K25	MS24660-31M -31N -32E -33E -33F	8505K17 K8 K23 K24 K25
ON → ON → ON → ON → ON →	← ON → ← ON → ← ON → ← ON → ON	NONE NONE ← ON ← ON ← ON	K M A B D	MS24658-33K -33M	8503K26 K42	MS24659-33K -33M MS27408-1A	8504K26 K42 K43 K44 K45	MS24660-33K -33M MS27409-1A	8505K26 K42 K43 K44 K45
ON ON → ON ON → ON	← ON → ON ON ON → ← ON	ON ON ← ON ON ← ON	E F G H J	-	-	MS27408-1E -1F -1G 1H -1J	8504K46 K47 K48 K49 K50	MS27409-1E -1F -1G -1H -1J	8505K46 K47 K48 K49 K50
ON → ON ON → ON ON	← ON → ON → ← ON → ← ON → ON →	ON ON ON ON ← ON	K L M N P	-	-	MS27408-1K -1L -1M -1N -1P	8504K51 K52 K53 K54 K55	MS27409-1K -1L -1M -1N -1P	8505K51 K52 K53 K54 K55
ON ON → ON → ON ON →	← ON → ON ← ON → ON → ← ON	ON* ON* ON* ON* ON*	E F K L M	-	-	MS27408-2E -2F -2K -2L -2M	8504K56 K57 K58 K59 K60	MS27409-2E -2F -2K -2L -2M	8505K56 K57 K58 K59 K60
ON * ON * ON * ON ON →	← ON → ← ON → ON → ← ON → ← ON →	ON* ON* ON* ON* ← ON	N E L N A	-	-	MS27408-2N -3E -3L -3N -4A	8504K61 K62 K63 K64 K65	MS27409-2N -3E -3L -3N	8505K61 K62 K63 K64
ON ON → ON ON → ON	← ON → ON ← ON → ON ON	← ON ← ON ON ON ← ON	B D E F G	-	-	MS27408-4B -4D -4E -4F -4G	8504K66 K67 K68 K69 K70	-	-
ON → ON ON → ON ON →	ON → ← ON → ← ON → ON → ← ON	ON ← ON ON ON ON	H J K L M	-	-	MS27408-4H -4J -4K -4L -4M	8504K71 K72 K73 K74 K75	-	-
ON ON ON ON → ON →	← ON → ON → ← ON → ON ← ON →	ON ← ON ON* ON* ON*	N P E F K	-	-	MS27408-4N -4P -5E -5F -5K	8504K76 K77 K78 K79 K80	-	-
ON ON → ON * ON * ON	ON → ← ON → ← ON → ← ON → ON →	ON* ON* ON* ON* ON*	L M N E L	-	-	MS27408-5L -5M -5N -6E -6L	8504K81 K82 K83 K84 K85	-	-
* ON ON	← ON → ← ON →	ON* ← ON	N B	-	-	-6N -7B	K86 K87	-	-

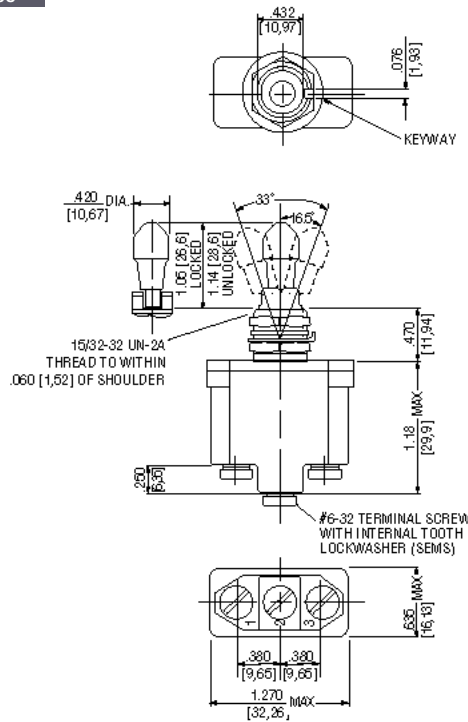
*Momentary contact.
 → Indicates direction against which lever is locked.
 See page 73 for circuit diagrams.
 ① Reference bushing styles on Page 34.

MILITARY—ENVIRONMENTALLY SEALED SWITCHES

Series—8503, 8504, 8505

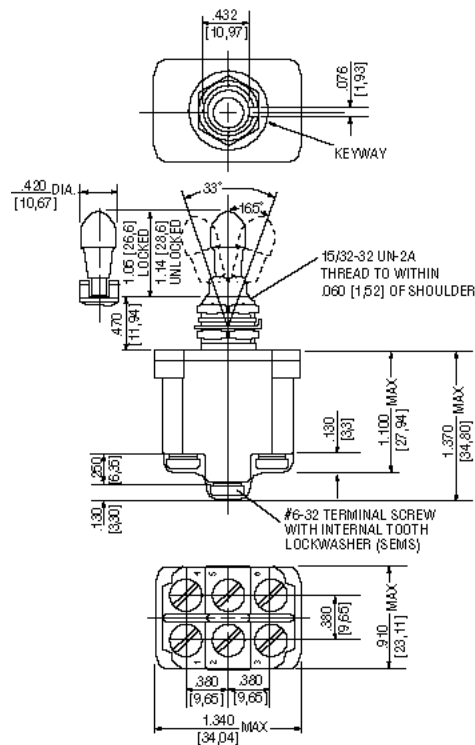
MIL-S-3950 Lever Lock Switches

MOUNTING DIMENSIONS—ONE POLE / 8503



Terminal Identification

MOUNTING DIMENSIONS—TWO POLE / 8504



Terminal Identification

STANDARD
0.00 = inches
[0,0] = mm

Mounting dimensions for reference only.
Non-functional terminals not supplied.



MILITARY—ENVIRONMENTALLY SEALED SWITCHES

Series—8570, 8571, 8572

MIL-S-3950 IWTS Toggles

FEATURES	SPECIFICATIONS	CURRENT RATINGS								
		No. of Poles	Catalog Number	Type of Operation	28VDC			115VAC 60 or 400Hz		
					Lamp Load	Resistive Load	Inductive Load	Lamp Load	Resistive Load	Inductive Load
<ul style="list-style-type: none"> Environmentally sealed 1, 2 and 4 pole circuitry 2 & 3 position with maintained and momentary action Integrated wire termination system (IWTS) for ease of wiring Terminal numbers molded into silicone base seal 	<ul style="list-style-type: none"> Environmentally sealed per MIL-S-3950 MS approved and QPL'd per MIL-S-3950 Thermoset molding materials meet flame retardant requirements Bushing: 15/32" - 32 thread Temperature Range: -85°F to +160°F (-65°C to +71°C) Accepts MIL-C-39029/1-101 pin Life: 20,000 operations at rated load 40,000 operations mechanical life 	1	8570	Maintained Momentary	5 4	20 15	15 10	3 2	15 15	10 7
		2	8571	Maintained Momentary	7 5	20 18	15 10	4 2	15 11	15 8
		4	8572	Maintained Momentary	5 4	20 18	12 10	4 2	15 11	15 8

• Minimum Rating: Intermediate current per MIL-S-3950

TOGGLE SWITCHES

STANDARD LEVER SELECTION TABLE – Terminals Accept Wire Contact Within Dimensional Limits of M39029/1-102 for -16 wire size – Terminals Accept Wire Contact Within Dimensional Limits of M39029/1-101 for -20 wire size



CIRCUIT WITH LEVER IN...			ONE POLE		TWO POLE		FOUR POLE	
Up Position	Center Position	Down Position (Keyway)	MS Part Number	Catalog Number	MS Part Number	Catalog Number	MS Part Number	Catalog Number
ON	OFF	ON	MS27722-21	8570K1-16	MS27723-21	8571K1-16	MS27724-21	8572K1-16
ON	NONE	OFF	-22	K9-16	-22	K9-16	-22	K9-16
ON	NONE	ON	-23	K4-16	-23	K4-16	-23	K4-16
ON	OFF	NONE	-24	K6-16	-24	K6-16	-24	K6-16
ON	OFF*	NONE	-25	K8-16	-25	K8-16	-25	K8-16
ON	NONE	ON*	MS27722-26	8570K5-16	MS27723-26	8571K5-16	MS27724-26	8572K5-16
ON	OFF	ON	-27	K2-16	-27	K2-16	-27	K2-16
NONE	OFF	ON*	-28	K7-16	-28	K7-16	-28	K7-16
ON	NONE	OFF*	-29	K10-16	-29	K10-16	-29	K10-16
OFF	NONE	ON*	-30	K11-16	-30	K11-16	-30	K11-16
ON	OFF	ON*	MS27722-31	8570K3-16	MS27723-31	8571K3-16	MS27724-31	8572K3-16
*ON	ON	NONE	-32	K12-16	-32	K12-16	-32	K12-16
ON	ON	NONE	-33	K13-16	-33	K13-16	-33	K13-16
ON	ON	ON	-	-	MS27723-1	8571K17-16	MS27724-1	8572K15-16
ON	ON	ON*	-	-	-2	K18-16	-2	K16-16
ON	ON	ON	-	-	-3	K19-16	-3	K17-16
ON	OFF	ON	MS27784-21	8570K1-20	MS27785-21	8571K1-20	MS27786-21	8572K1-20
ON	NONE	OFF	-22	K9-20	-22	K9-20	-22	K9-20
ON	NONE	ON	-23	K4-20	-23	K4-20	-23	K4-20
ON	OFF	NONE	-24	K6-20	-24	K6-20	-24	K6-20
ON	OFF*	NONE	-25	K8-20	-25	K8-20	-25	K8-20
ON	NONE	ON*	MS27784-26	8570K5-20	MS27785-26	8571K5-20	MS27786-26	8572K5-20
ON	OFF	ON	-27	K2-20	-27	K2-20	-27	K2-20
NONE	OFF	ON*	-28	K7-20	-28	K7-20	-28	K7-20
ON	NONE	OFF*	-29	K10-20	-29	K10-20	-29	K10-20
OFF	NONE	ON*	-30	K11-20	-30	K11-20	-30	K11-20
ON	OFF	ON*	MS27784-31	8570K3-20	MS27785-31	8571K3-20	MS27786-31	8572K3-20
*ON	ON	NONE	-32	K12-20	-32	K12-20	-32	K12-20
ON	ON	NONE	-33	K13-20	-33	K13-20	-33	K13-20
ON	ON	ON	-	-	MS27785-1	8571K17-20	MS27786-1	8572K15-20
ON	ON	ON*	-	-	-2	K18-20	-2	K16-20
ON	ON	ON	-	-	-3	K19-20	-3	K17-20

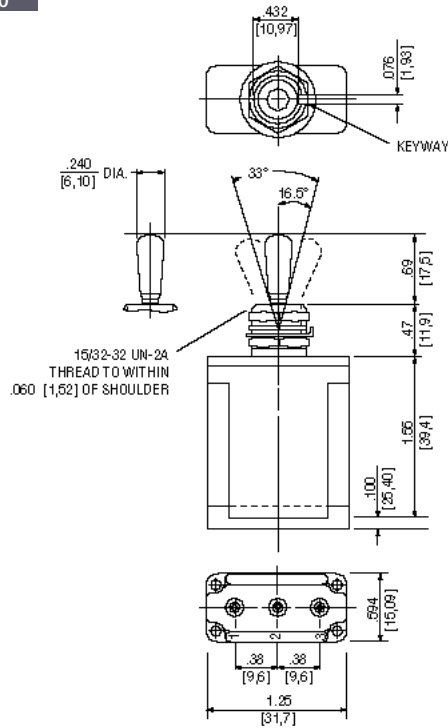
*Momentary contact.
See page 73 for circuit diagrams.

MILITARY—ENVIRONMENTALLY SEALED SWITCHES

Series—8570, 8571, 8572

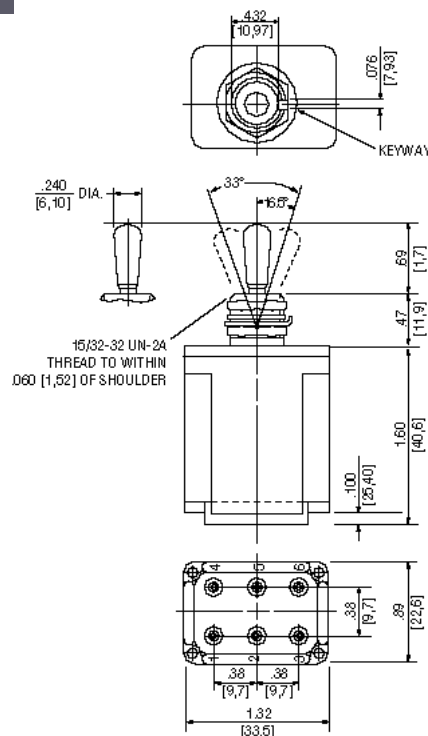
MIL-S-3950 IWTS Toggles

MOUNTING DIMENSIONS—ONE POLE / 8570



Terminal Identification

MOUNTING DIMENSIONS—TWO POLE / 8571



Terminal Identification

STANDARD
 0.00 = inches
 [0.0] = mm

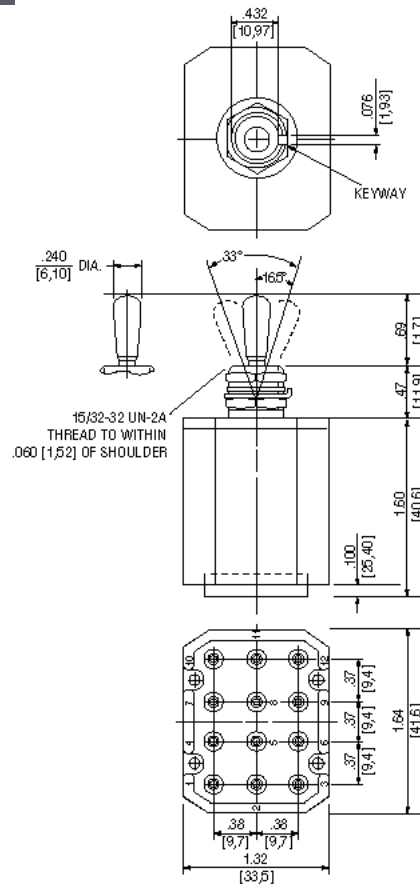
Mounting dimensions for reference only.
 Non-functional terminals not supplied.

MILITARY—ENVIRONMENTALLY SEALED SWITCHES

Series—8570, 8571, 8572

MIL-S-3950 IWTS Toggles

MOUNTING DIMENSIONS—FOUR POLE / 8572

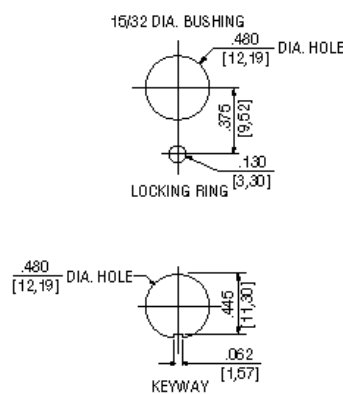


Terminal Identification

OPTIONS/ACCESSORIES

- Special mounting hardware
- Mounting hardware furnished assembled
- Special circuits
- Panel seal, part number 32-341 (See Accessories and Custom Components section)
- Special "3 Cateye" luminous lever attachment
- Lever extensions and attachable tips (See Accessories and Custom Components section)
- Custom wiring harnesses

PANEL CUTOUT DIMENSIONS



STANDARD
0.00 = inches
[0,0] = mm

Mounting dimensions for reference only.



MILITARY—ENVIRONMENTALLY SEALED SWITCHES

Series—8573, 8574, 8575

MIL-S-3950 IWTS Lever Locks

FEATURES	SPECIFICATIONS	CURRENT RATINGS								
		No. of Poles	Catalog Number	Type of Operation	28VDC			115VAC 60 or 400Hz		
					Lamp Load	Resistive Load	Inductive Load	Lamp Load	Resistive Load	Inductive Load
<ul style="list-style-type: none"> Environmentally sealed 1, 2, and 4 pole circuitry 2 & 3 position with maintained and momentary action Integrated wire termination system (IWTS) for ease of wiring Terminal numbers molded into silicone base seal 	<ul style="list-style-type: none"> Environmentally sealed per MIL-S-3950 MS approved and QPL'd per MIL-S-3950 Thermoset molding materials meet flame retardant requirements Bushing: 15/32" - 32 thread Temperature Range: -85°F to +160°F (-65°C to +71°C) Accepts MIL-C-39029/1-101 pin Life: 20,000 operations at rated load 40,000 operations mechanical life 	1	8573	Maintained Momentary	5	20	15	3	15	10
					4	15	10	2	15	7
		2	8574	Maintained Momentary	7	20	15	4	15	15
					5	18	10	2	11	8
4	8575	Maintained Momentary	5	20	12	4	15	15		
			4	18	10	2	11	8		

Minimum Rating: "Intermediate Current" per MIL-S-3950

TOGGLE SWITCHES

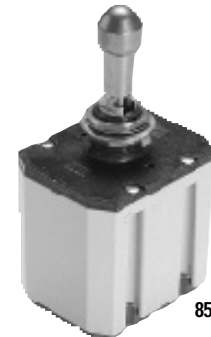
LEVER LOCK SELECTION TABLE – T er minals Accept W ire Contact Within Dimensional Limits of M39029/1-102 for -16 wire size
Ter minals Accept W ire Contact Within Dimensional Limits of M39029/1-101 for -20 wire size



8573



8574



8575

CIRCUIT WITH LEVER IN...			Lever Lock Bushing Style	ONE POLE		TWO POLE		FOUR POLE	
Up Position	Center Position	Down Position (Keyway)		MS Part Number	Catalog Number	MS Part Number	Catalog Number	MS Part Number	Catalog Number
ON→	← OFF→	← ON	A	MS27781-21A	8573K1-16	MS27782-21A	8574K1-16	MS27783-21A	8575K1-16
ON→	← OFF→	← ON	B	-21B	K27-16	-21B	K27-16	-21B	K27-16
ON→	← OFF→	← ON	D	-21D	K5-16	-21D	K5-16	-21D	K5-16
ON→	← OFF→	ON	E	-21E	K2-16	-21E	K2-16	-21E	K2-16
ON→	← OFF→	ON	F	-21F	K28-16	-21F	K28-16	-21F	K28-16
ON	OFF	← ON	G	MS27781-21G	8573K3-16	MS27782-21G	8574K3-16	MS27783-21G	8575K3-16
ON→	← OFF→	ON	H	-21H	K29-16	-21H	K29-16	-21H	K29-16
ON	← OFF→	← ON	J	-21J	K30-16	-21J	K30-16	-21J	K30-16
ON→	← OFF→	ON	K	-21K	K31-16	-21K	K31-16	-21K	K31-16
ON	← OFF→	ON	L	-21L	K32-16	-21L	K32-16	-21L	K32-16
ON→	← OFF	ON	M	MS27781-21M	8573K33-16	MS27782-21M	8574K33-16	MS27783-21M	8575K33-16
ON	← OFF	ON	N	-21N	K4-16	-21N	K4-16	-21N	K4-16
ON	← OFF→	← ON	P	-21P	K34-16	-21P	K34-16	-21P	K34-16
ON→	NONE	← OFF	D	-22D	K10-16	-22D	K10-16	-22D	K10-16
ON→	NONE	OFF	F	-22F	K35-16	-22F	K35-16	-22F	K35-16
ON	NONE	← OFF	G	MS27781-22G	8573K9-16	MS27782-22G	8574K9-16	MS27783-22G	8575K9-16
ON→	NONE	← ON	D	-23D	K6-16	-23D	K6-16	-23D	K6-16
ON→	NONE	ON	F	-23F	K36-16	-23F	K36-16	-23F	K36-16
ON	NONE	← ON	G	-23G	K7-16	-23G	K7-16	-23G	K7-16
ON	← OFF→	NONE	E	-24E	K16-16	-24E	K16-16	-24E	K16-16
ON→	← OFF	NONE	F	MS27781-24F	8573K37-16	MS27782-24F	8574K37-16	MS27783-24F	8575K37-16
ON→	← OFF→	NONE	K	-24K	K38-16	-24K	K38-16	-24K	K38-16
ON→	← OFF	NONE	M	-24M	K11-16	-24M	K11-16	-24M	K11-16
ON→	← OFF*	NONE	F	-25F	K22-16	-25F	K22-16	-25F	K22-16
ON→	NONE	ON*	F	-26F	K20-16	-26F	K20-16	-26F	K20-16
* ON	← OFF→	ON*	E	MS27781-27E	8573K12-16	MS27782-27E	8574K12-16	MS27783-27E	8575K12-16
* ON	← OFF→	ON*	L	-27L	K39-16	-27L	K39-16	-27L	K39-16
* ON	← OFF	ON*	N	-27N	K14-16	-27N	K14-16	-27N	K14-16
NONE	← OFF→	ON*	E	-28E	K15-16	-28E	K15-16	-28E	K15-16
ON→	NONE	OFF*	F	-29F	K21-16	-29F	K21-16	-29F	K21-16
OFF→	NONE	ON*	F	MS27781-30F	8573K19-16	MS27782-30F	8574K19-16	MS27783-30F	8575K19-16
ON	← OFF→	ON*	E	-31E	K18-16	-31E	K18-16	-31E	K18-16
ON→	← OFF	ON*	F	-31F	K40-16	-31F	K40-16	-31F	K40-16
ON→	← OFF→	ON*	K	-31K	K41-16	-31K	K41-16	-31K	K41-16
ON	← OFF→	ON*	L	31L	K13-16	-31L	K13-16	-31L	K13-16

* Momentary contact.

→ Indicates direction against which lever is locked.

See page 73 for circuit diagrams.

① Reference bushing styles on Page 42.



MILITARY—ENVIRONMENTALLY SEALED SWITCHES

Series—8573, 8574, 8575

MIL-S-3950 IWTS Lever Locks

LEVER LOCK SELECTION TABLE, CONT.



TOGGLE SWITCHES

CIRCUIT WITH LEVER IN...			Lever ① Lock Bushing Style	ONE POLE		TWO POLE		FOUR POLE	
Up Position 	Center Position 	Down Position (Keyway) 		MS Part Number	Catalog Number	MS Part Number	Catalog Number	MS Part Number	Catalog Number
ON → ON * ON ON → ON →	← OFF ← OFF ← ON → ← ON → ON	ON* ON* NONE NONE NONE	M N E E F	MS27781-31M -31N -32E -33E -33F	8573K17-16 K8-16 K23-16 K24-16 K25-16	MS27782-31M -31N -32E -33E -33F	8574K17-16 K8-16 K23-16 K24-16 K25-16	MS27783-31M -31N -32E -33E -33F	8575K17-16 K8-16 K23-16 K24-16 K25-16
ON → ON → ON → ON ON →	← ON → ← ON ← ON → ← ON → ON	NONE NONE ← ON ← ON ← ON	K M A B D	MS27781-33K -33M	8573K26-16 K42-16	MS27782-33K -33M -1A -1B -1D	8574K26-16 K42-16 K65-16 K66-16 K67-16	MS27783-33K -33M -1A -1B -1D	8575K26-16 K42-16 K43-16 K44-16 K45-16
ON ON → ON ON → ON	← ON → ON ON ← ON → ← ON	ON ON ← ON ON ← ON	E F G H J	-	-	MS27782-1E -1F -1G -1H -1J	8574K68-16 K69-16 K70-16 K71-16 K72-16	MS27783-1E -1F -1G -1H -1J	8575K46-16 K47-16 K48-16 K49-16 K50-16
ON → ON ON → ON ON	← ON → ON → ← ON ← ON ON →	ON ON ON ON ← ON	K L M N P	-	-	MS27782-1K -1L -1M -1N -1P	8574K73-16 K74-16 K75-16 K76-16 K77-16	MS27783-1K -1L -1M -1N -1P	8575K51-16 K52-16 K53-16 K54-16 K55-16
ON ON → ON → ON ON →	← ON → ON ← ON → ON → ← ON	ON* ON* ON* ON* ON*	E F K L M	-	-	MS27782-2E -2F -2K -2L -2M	574K78-16 K79-16 K80-16 K81-16 K82-16	MS27783-2E -2F -2K -2L -2M	8575K56-16 K57-16 K58-16 K59-16 K60-16
ON * ON * ON * ON	← ON ← ON → ON → ← ON	ON* ON* ON* ON*	N E L N	-	-	MS27782-2N -3E -3L -3N	8574K83-16 K84-16 K85-16 K86-16	MS27783-2N -3E -3L -3N	8575K61-16 K62-16 K63-16 K64-16

*Momentary contact.
 → Indicates direction against which lever is locked.
 See page 73 for circuit diagrams.
 ① Reference bushing styles on Page 42.



MILITARY—ENVIRONMENTALLY SEALED SWITCHES

Series—8573, 8574, 8575

MIL-S-3950 IWTS Lever Locks

CIRCUIT WITH LEVER IN...			ONE POLE		TWO POLE		FOUR POLE		
Up Position	Center Position	Down Position (Keyway)	Lever Lock Bushing Style	Flush Screw Terminals		Flush Screw Terminals		Flush Screw Terminals	
				MS Part Number	Catalog Number	MS Part Number	Catalog Number	MS Part Number	Catalog Number
ON→	←OFF→	←ON	A	MS27787-21A	8573K1-20	MS27788-21A	8574K1-20	MS27789-21A	8575K1-20
ON	←OFF→	←ON	B	-21B	K27-20	-21B	K27-20	-21B	K27-20
ON→	←OFF→	←ON	D	-21D	K5-20	-21D	K5-20	-21D	K5-20
ON	←OFF→	←ON	E	-21E	K2-20	-21E	K2-20	-21E	K2-20
ON→	←OFF→	←ON	F	-21F	K28-20	-21F	K28-20	-21F	K28-20
ON	OFF	←ON	G	MS27787-21G	8573K3-20	MS27788-21G	8574K3-20	MS27789-21G	8575K3-20
ON→	←OFF→	←ON	H	-21H	K29-20	-21H	K29-20	-21H	K29-20
ON	←OFF→	←ON	J	-21J	K30-20	-21J	K30-20	-21J	K30-20
ON→	←OFF→	←ON	K	-21K	K31-20	-21K	K31-20	-21K	K31-20
ON	←OFF→	←ON	L	-21L	K32-20	-21L	K32-20	-21L	K32-20
ON→	←OFF	ON	M	MS27787-21M	8573K33-20	MS27788-21M	8574K33-20	MS27789-21M	8575K33-20
ON	←OFF	ON	N	-21N	K4-20	-21N	K4-20	-21N	K4-20
ON	←OFF→	←ON	P	-21P	K34-20	-21P	K34-20	-21P	K34-20
ON→	NONE	←OFF	D	-22D	K10-20	-22D	K10-20	-22D	K10-20
ON→	NONE	←OFF	F	-22F	K35-20	-22F	K35-20	-22F	K35-20
ON	NONE	←OFF	G	MS27787-22G	8573K9-20	MS27788-22G	8574K9-20	MS27789-22G	8575K9-20
ON→	NONE	←ON	D	-23D	K6-20	-23D	K6-20	-23D	K6-20
ON→	NONE	←ON	F	-23F	K36-20	-23F	K36-20	-23F	K36-20
ON	NONE	←ON	G	-23G	K7-20	-23G	K7-20	-23G	K7-20
ON	←OFF→	NONE	E	-24E	K16-20	-24E	K16-20	-24E	K16-20
ON→	←OFF	NONE	F	MS27787-24F	8573K37-20	MS27788-24F	8574K37-20	MS27789-24F	8575K37-20
ON→	←OFF→	NONE	K	-24K	K38-20	-24K	K38-20	-24K	K38-20
ON→	←OFF	NONE	M	-24M	K11-20	-24M	K11-20	-24M	K11-20
ON→	←OFF	NONE	F	-25F	K22-20	-25F	K22-20	-25F	K22-20
ON→	←OFF	ON*	F	-26F	K20-20	-26F	K20-20	-26F	K20-20
ON	←OFF→	ON	E	MS27787-27E	8573K12-20	MS27788-27E	8574K12-20	MS27789-27E	8575K12-20
ON	←OFF→	ON	L	-27L	K39-20	-27L	K39-20	-27L	K39-20
ON	←OFF	ON	N	-27N	K14-20	-27N	K14-20	-27N	K14-20
NONE	←OFF→	ON*	E	-28E	K15-20	-28E	K15-20	-28E	K15-20
ON→	←OFF	OFF*	F	-29F	K21-20	-29F	K21-20	-29F	K21-20
OFF→	NONE	ON*	F	MS27787-30F	8573K19-20	MS27788-30F	8574K19-20	MS27789-30F	8575K19-20
ON	←OFF	ON*	E	-31E	K18-20	-31E	K18-20	-31E	K18-20
ON→	←OFF	ON*	F	-31F	K40-20	-31F	K40-20	-31F	K40-20
ON→	←OFF→	ON*	K	-31K	K41-20	-31K	K41-20	-31K	K41-20
ON	←OFF→	ON*	L	31L	K13-20	-31L	K13-20	-31L	K13-20
ON→	←OFF	ON*	M	MS27787-31M	8573K17-20	MS27788-31M	8574K17-20	MS27789-31M	8575K17-20
ON	←OFF	ON*	N	-31N	K8-20	-31N	K8-20	-31N	K8-20
*ON	←ON→	NONE	E	-32E	K23-20	-32E	K23-20	-32E	K23-20
ON	←ON→	NONE	E	-33E	K24-20	-33E	K24-20	-33E	K24-20
ON→	←ON	NONE	F	-33F	K25-20	-33F	K25-20	-33F	K25-20
ON→	←ON→	NONE	K	MS27787-33K	8573K26-20	MS27788-33K	8574K26-20	MS27789-33K	8575K26-20
ON→	←ON→	NONE	M	-33M	K42-20	-33M	K42-20	-33M	K42-20
ON→	←ON→	←ON	A	-	-	-1A	K65-20	-1A	K43-20
ON	←ON→	←ON	B	-	-	-1B	K66-20	-1B	K44-20
ON→	←ON	←ON	D	-	-	-1D	K67-20	-1D	K45-20
ON	←ON→	ON	E	MS27787-1E	8574K68-20	MS27788-1E	8574K68-20	MS27789-1E	8575K46-20
ON→	←ON	ON	F	-	-	-1F	K69-20	-1F	K47-20
ON	←ON	←ON	G	-	-	-1G	K70-20	-1G	K48-20
ON→	←ON→	ON	H	-	-	-1H	K71-20	-1H	K49-20
ON	←ON	←ON	J	-	-	-1J	K72-20	-1J	K50-20
ON→	←ON→	ON	K	MS27788-1K	8574K73-20	MS27788-1K	8574K73-20	MS27789-1K	8575K51-20
ON	←ON→	ON	L	-	-	-1L	K74-20	-1L	K52-20
ON→	←ON	ON	M	-	-	-1M	K75-20	-1M	K53-20
ON	←ON	ON	N	-	-	-1N	K76-20	-1N	K54-20
ON	←ON→	←ON	P	-	-	-1P	K77-20	-1P	K55-20
ON	←ON→	ON*	E	MS27788-2E	8574K78-20	MS27788-2E	8574K78-20	MS27789-2E	8575K56-20
ON→	←ON	ON*	F	-	-	-2F	K79-20	-2F	K57-20
ON→	←ON→	ON*	K	-	-	-2K	K80-20	-2K	K58-20
ON	←ON→	ON*	L	-	-	-2L	K81-20	-2L	K59-20
ON→	←ON	ON*	M	-	-	-2M	K82-20	-2M	K60-20
ON	←ON	ON*	N	MS27788-2N	8574K83-20	MS27788-2N	8574K83-20	MS27789-2N	8575K61-20
ON	←ON→	ON	E	-	-	-3E	K84-20	-3E	K62-20
ON	←ON→	ON	L	-	-	-3L	K85-20	-3L	K63-20
ON	←ON	ON	N	-	-	-3N	K86-20	-3N	K64-20

* Momentary contact.
 → Indicates direction against which lever is locked.
 See page 73 for circuit diagrams.
 ① Reference bushing styles on Page 42.

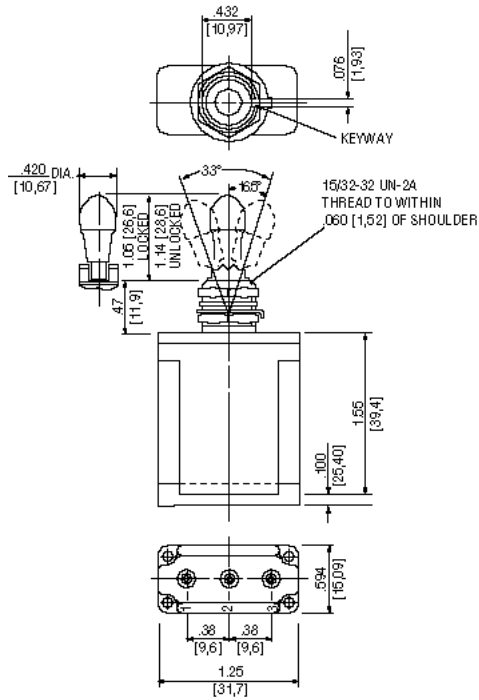
MILITARY—ENVIRONMENTALLY SEALED SWITCHES

Series—8573, 8574, 8575

MIL-S-3950 IWTS Lever Locks

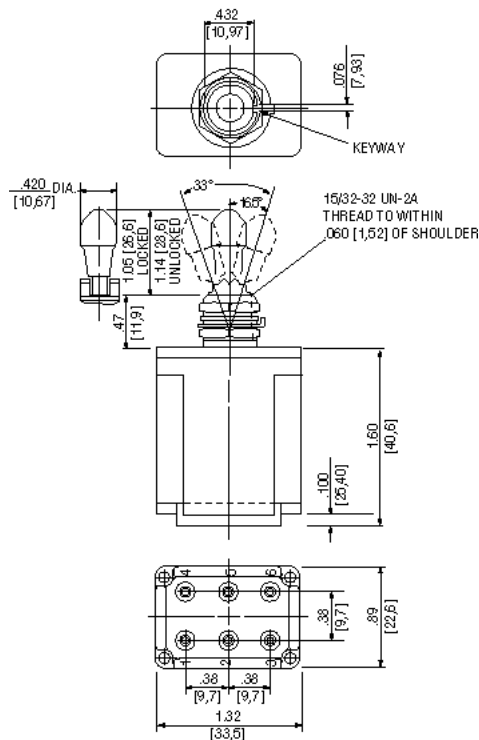
TOGGLE SWITCHES

MOUNTING DIMENSIONS—ONE POLE / 8573



Terminal Identification

MOUNTING DIMENSIONS—TWO POLE / 8574



Terminal Identification

STANDARD

0.00 = inches

[0.0] = mm

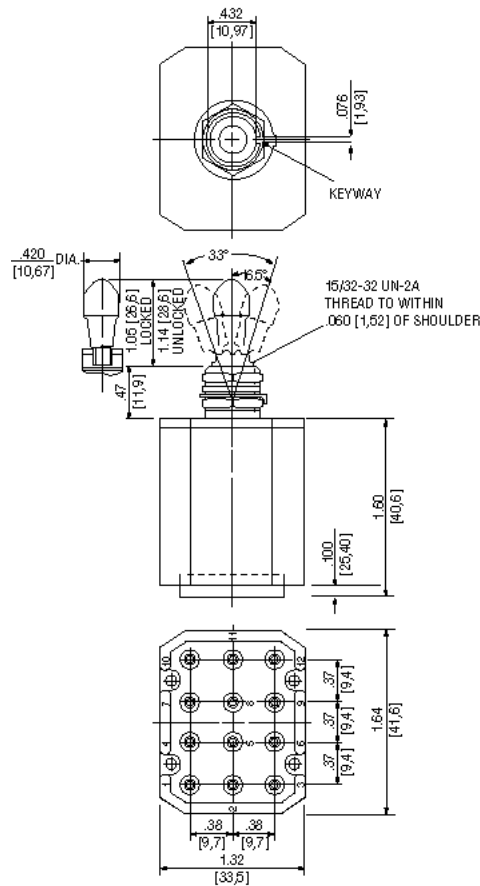
Mounting dimensions for reference only.
Non-functional terminals not supplied.

MILITARY—ENVIRONMENTALLY SEALED SWITCHES

Series—8573, 8574, 8575

MIL-S-3950 IWTS Lever Locks

MOUNTING DIMENSIONS—FOUR POLE / 8575

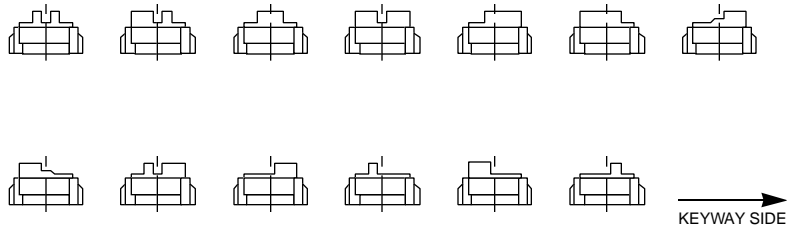


Terminal Identification

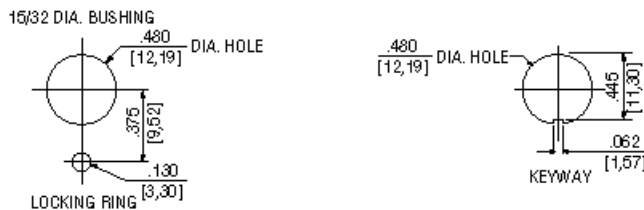
OPTIONS/ACCESSORIES

- Special mounting hardware
- Mounting hardware furnished assembled
- Special circuits
- Panel seal, part number 32-341 (See Accessories and Custom Components section)
- Special shaped caps available
- Custom wiring harnesses

LEVER LOCK – BUSHING STYLES



PANEL CUTOUT DIMENSIONS



STANDARD
0.00 = inches
[0,0] = mm

Mounting dimensions for reference only.

MULTI-CIRCUIT SWITCHES

Series—A3

MIL-S-8805 or Industrial Grade Toggle Switches

FEATURES	SPECIFICATIONS	CURRENT RATINGS																																																																																																					
		No. of Poles	Part Number	Basic Switches	28VDC				115VAC																																																																																														
					Inrush Load	Resistive Load	Inductive Load	Lamp Load	Inrush Load	Resistive Load	Inductive Load	Lamp Load																																																																																											
<ul style="list-style-type: none"> Two and three position Isolated circuitry Multi-circuit, compact 2, 4, 6, or 8 poles Maintained and momentary action Lever locking configurations Stainless steel construction Double turret terminals 	<ul style="list-style-type: none"> Ambient operating temperature, -65°F to +165°F (-54°C to 74°C) Operating force 1 to 6 pounds (.22 to 1.35N) Electrical life: 25,000 operations minimum Mechanical life: 100,000 operations minimum 	2	A3-212 to A3-213	STD	25	7	4	2.5	20	7	7	2			4	A3-200 to A3-201	STD	25	7	4	2.5	20	7	7	2			6	A3-202 to A3-203	STD	25	7	4	2.5	20	7	7	2			8	A3-204 to A3-205	STD	25	7	4	2.5	20	7	7	2			2	A3-214 to A3-215	Sealed	24	5	3	2.4	15	5	5	1.5			4	A3-206 to A3-207	Sealed	24	5	3	2.4	15	5	5	1.5			6	A3-208 to A3-209	Sealed	24	5	3	2.4	15	5	5	1.5			8	A3-210 to A3-211	Sealed	24	5	3	2.4	15	5	5	1.5
		4	A3-200 to A3-201	STD	25	7	4	2.5	20	7	7	2			6	A3-202 to A3-203	STD	25	7	4	2.5	20	7	7	2			8	A3-204 to A3-205	STD	25	7	4	2.5	20	7	7	2			2	A3-214 to A3-215	Sealed	24	5	3	2.4	15	5	5	1.5			4	A3-206 to A3-207	Sealed	24	5	3	2.4	15	5	5	1.5			6	A3-208 to A3-209	Sealed	24	5	3	2.4	15	5	5	1.5			8	A3-210 to A3-211	Sealed	24	5	3	2.4	15	5	5	1.5													
		6	A3-202 to A3-203	STD	25	7	4	2.5	20	7	7	2			8	A3-204 to A3-205	STD	25	7	4	2.5	20	7	7	2			2	A3-214 to A3-215	Sealed	24	5	3	2.4	15	5	5	1.5			4	A3-206 to A3-207	Sealed	24	5	3	2.4	15	5	5	1.5			6	A3-208 to A3-209	Sealed	24	5	3	2.4	15	5	5	1.5			8	A3-210 to A3-211	Sealed	24	5	3	2.4	15	5	5	1.5																										
		8	A3-204 to A3-205	STD	25	7	4	2.5	20	7	7	2			2	A3-214 to A3-215	Sealed	24	5	3	2.4	15	5	5	1.5			4	A3-206 to A3-207	Sealed	24	5	3	2.4	15	5	5	1.5			6	A3-208 to A3-209	Sealed	24	5	3	2.4	15	5	5	1.5			8	A3-210 to A3-211	Sealed	24	5	3	2.4	15	5	5	1.5																																							
		2	A3-214 to A3-215	Sealed	24	5	3	2.4	15	5	5	1.5			4	A3-206 to A3-207	Sealed	24	5	3	2.4	15	5	5	1.5			6	A3-208 to A3-209	Sealed	24	5	3	2.4	15	5	5	1.5			8	A3-210 to A3-211	Sealed	24	5	3	2.4	15	5	5	1.5																																																				
		4	A3-206 to A3-207	Sealed	24	5	3	2.4	15	5	5	1.5			6	A3-208 to A3-209	Sealed	24	5	3	2.4	15	5	5	1.5			8	A3-210 to A3-211	Sealed	24	5	3	2.4	15	5	5	1.5																																																																	
		6	A3-208 to A3-209	Sealed	24	5	3	2.4	15	5	5	1.5			8	A3-210 to A3-211	Sealed	24	5	3	2.4	15	5	5	1.5																																																																														
		8	A3-210 to A3-211	Sealed	24	5	3	2.4	15	5	5	1.5																																																																																											

① 0.05 sec. duration.

TOGGLE SWITCHES

SELECTION TABLE

TOGGLE POSITION & ACTION				WITH STANDARD BASIC SWITCHES			
Positions	Position #1 (On/Off)	Position #2 (Center)	Position #3 (On/Off)	2 Poles	4 Poles	6 Poles	8 Poles
STANDARD (NON-LOCKING) TOGGLES							
2 Position	On *On On	None None None	On* On On	A3-212-07 -06 -05	A3-200-07 -06 -05	A3-202-07 -06 -05	A3-204-07 -06 -05
3 Position	*On On *On On	Off Off Off Off	On* On* On On	A3-212-04 -03 -02 -01	A3-200-04 -03 -02 -01	A3-202-04 -03 -02 -01	A3-204-04 -03 -02 -01
LEVER-LOCK TOGGLES (Complete by adding code letter from below after "slash")							
2 Position	On *On On	None None None	On* On On	A3-213-07/ -06/ -05/	A3-201-07/ -06/ -05/	A3-203-07/ -06/ -05/	A3-205-07/ -06/ -05/
3 Position	*On On *On On	Off Off Off Off	On* On* On On	A3-213-04/ -03/ -02/ -01/	A3-201-04/ -03/ -02/ -01/	A3-203-04/ -03/ -02/ -01/	A3-205-04/ -03/ -02/ -01/
TOGGLE POSITION & ACTION				WITH SEALED BASIC SWITCHES			
Positions	Position #1 (On/Off)	Position #2 (Center)	Position #3 (On/Off)	2 Poles	4 Poles	6 Poles	8 Poles
STANDARD (NON-LOCKING) TOGGLES							
2 Position	On *On On	None None None	On* On On	A3-214-07 -06 -05	A3-206-07 -06 -05	A3-208-07 -06 -05	A3-210-07 -06 -05
3 Position	*On On *On On	Off Off Off Off	On* On* On On	A3-214-04 -03 -02 -01	A3-206-04 -03 -02 -01	A3-208-04 -03 -02 -01	A3-210-04 -03 -02 -01
LEVER-LOCK TOGGLES (Complete by adding code letter from below after "slash")							
2 Position	On *On On	None None None	On* On On	A3-215-07/ -06/ -05/	A3-207-07/ -06/ -05/	A3-209-07/ -06/ -05/	A3-211-07/ -06/ -05/
3 Position	*On On *On On	Off Off Off Off	On* On* On On	A3-215-04/ -03/ -02/ -01/	A3-207-04/ -03/ -02/ -01/	A3-209-04/ -03/ -02/ -01/	A3-211-04/ -03/ -02/ -01/

*Momentary contact.

LEVER LOCKING CONFIGURATION SUFFIXES

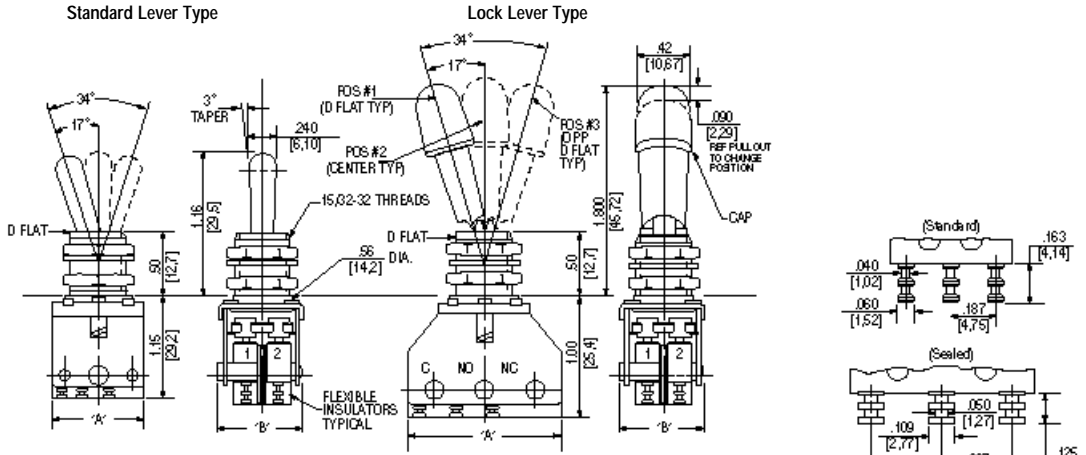
- A** – Locked in three positions
- B** – Locked in center and extreme position ("D" flat side)
- D** – Locked out of center position
- E** – Locked in center position
- F** – Locked in extreme position (Opposite "D" flat)
- G** – Locked in extreme position ("D" flat side)
- H** – Locked out of center and extreme position ("D" flat side)

- J** – Locked out of center and extreme position (Opposite "D" flat)
- K** – Locked in center and extreme position (Opposite "D" flat)
- L** – Locked out of extreme position ("D" flat side)
- M** – Locked out of and into extreme position (Opposite "D" flat)
- N** – Locked out of extreme position (Opposite "D" flat)
- P** – Locked out of and into extreme position ("D" flat side)

MULTI-CIRCUIT SWITCHES

Multi-Circuit Toggle Switches

APPROXIMATE DIMENSIONS



STANDARD

Max. Dimension	2 Pole	4 Pole	6 Pole	8 Pole
"A"	0.72 in. (18.3 mm)	1.30 in. (33.0 mm)	1.30 in. (33.0 mm)	1.30 in. (33.0 mm)
"B"	0.67 in. (17.0 mm)	.67 in. (17.0 mm)	.93 in. (23.6 mm)	1.17 in. (29.7 mm)

SEALED

Max. Dimension	2 Pole	4 Pole	6 Pole	8 Pole
"A"	1.22 in. (41.9 mm)	1.65 in. (41.9 mm)	1.65 in. (41.9 mm)	1.65 in. (41.9 mm)
"B"	0.67 in. (17.0 mm)	0.67 in. (17.0 mm)	0.93 in. (23.6 mm)	1.17 in. (29.7 mm)

CROSS REFERENCE

BACK CONFIGURATIONS

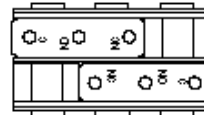
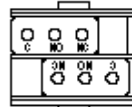
SCHEMATIC DIAGRAMS

MIL-S-8805	Eaton Part Number
M8805/93-001	A3-212-1
M8805/93-002	A3-212-2
M8805/93-003	A3-212-3
M8805/93-004	A3-212-4
M8805/93-005	A3-212-5
M8805/93-006	A3-212-6
M8805/93-007	A3-212-7
M8805/93-008	A3-200-1
M8805/93-009	A3-200-2
M8805/93-010	A3-200-3
M8805/93-011	A3-200-4
M8805/93-012	A3-200-5
M8805/93-013	A3-200-6
M8805/93-014	A3-200-7
M8805/93-015	A3-202-1
M8805/93-016	A3-202-2
M8805/93-017	A3-202-3
M8805/93-018	A3-202-4
M8805/93-019	A3-202-5
M8805/93-020	A3-202-6
M8805/93-021	A3-202-7
M8805/93-022	A3-204-1
M8805/93-023	A3-204-2
M8805/93-024	A3-204-3
M8805/93-025	A3-204-4
M8805/93-026	A3-204-5
M8805/93-027	A3-204-6
M8805/93-028	A3-204-7

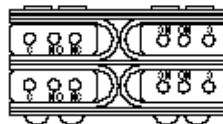
Standard

Sealed

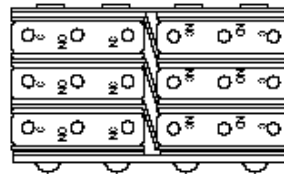
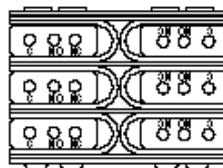
2 Pt



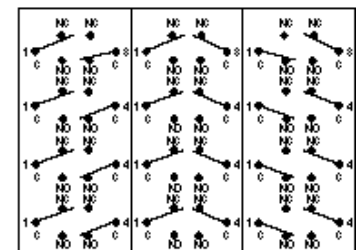
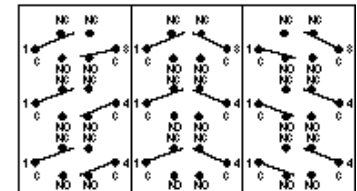
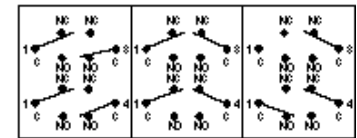
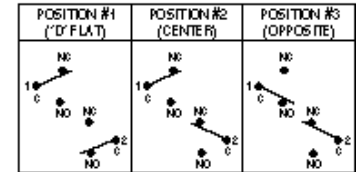
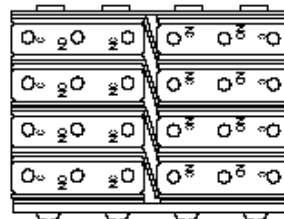
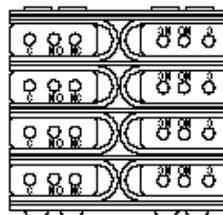
4 Pt



6 Pt



8 Pt



MULTI-CIRCUIT SWITCHES

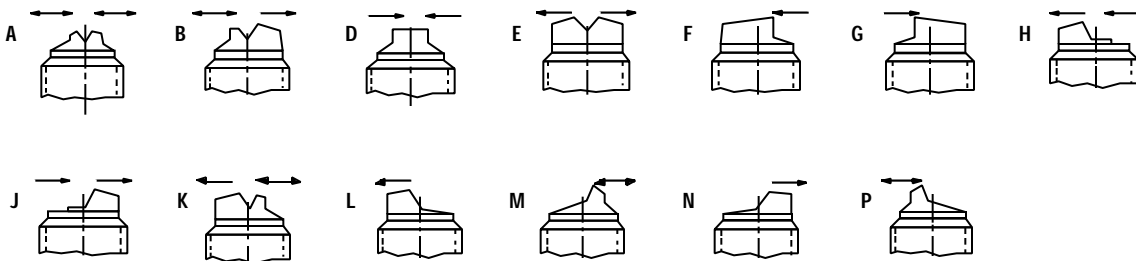
Series—A3

MIL-S-8805 or Industrial Grade Toggle Switches

ORDERING EXAMPLES

- Standard - A3-206-03 equals a 3-position (ON-OFF-MOM ON) 4-pole switch with sealed basics.
- Lever Lock - A3-213-04/E equals a 3-position (MOM ON-OFF-MOMON) 2-pole switch with std. basics and E-lock.
- Available Locking Configurations (See table above. Add code letter after partial type number)

LEVER LOCKING CONFIGURATION SUFFIXES - BUSHING STYLES

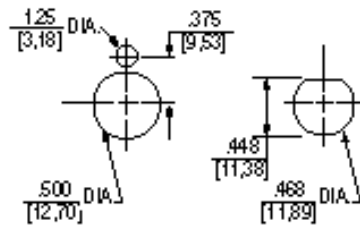


- Notes: 1. Arrows (<>) indicated lever must be unlocked to move against the arrow direction.
 2. "D" flat is on the left side as viewed.

OPTIONS

- Low level circuitry
- Pin type termination
- Quick Connect terminals
- Lever seal
- Various color caps available

PANEL CUTOUT DIMENSIONS



Recommended Panel Mounting Dimensions

ENVIRONMENTALLY SEALED POSITIVE ACTION SWITCHES

Series—8836-8838 MIL-S-8834 Environmentally Sealed Positive Action Switches & 8843-8845

FEATURES	SPECIFICATIONS	CURRENT RATINGS													
		No. of Poles	Catalog Number	Type of Operation	28VDC (Amperes per pole)			115VAC 400Hz			115VAC 60Hz				
<ul style="list-style-type: none"> Environmentally sealed High electrical/mechanical reliability Non-teasible mechanism Wiping action contacts Positive make and break action Molded-in terminal numbers One hole mounting for easy installation Terminal variations Toggle and lever lock actuators Dry circuit (logic level loads) to power switching levels 1, 2, and 4 pole circuitry Solderable screw terminals 	<ul style="list-style-type: none"> Environmentally sealed per MIL-S-8834 MS approved and OPL'd per MIL-S-8834 Two terminal variations <ul style="list-style-type: none"> Screw 6-32 UNC-2B threads Solder Lug .125 [3,17] dia. hole Temperature range: -67°F to +160°F (-55°C to +71°C) Life: 20,000 cycles at rated load 40,000 cycles mechanical life Positive action mechanism for high reliability and low contact bounce 				Lamp Load	Resistive Load	Inductive Load	Lamp Load	Resistive Load	Inductive Load	Lamp Load	Resistive Load	Inductive Load		
		1	8836 and 8843	Maintained and Momentary	7	25	15	7	25	15	7	20	15		
		2	8837 and 8844	Maintained and Momentary	7	25	15	7	25	15	7	20	15		
		4	8838 and 8845	Maintained and Momentary	7	25	15	7	25	15	7	20	15		

Minimum Rating: 25 μA at 5 millivolts.

TOGGLE SWITCHES

SELECTION TABLE

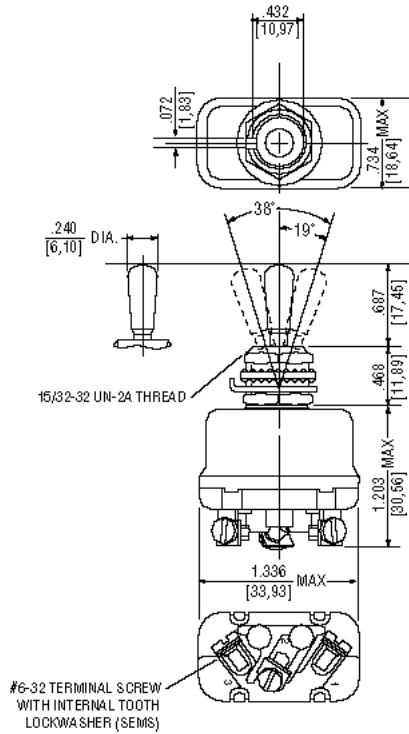
CIRCUIT WITH LEVER IN...								
	Up Position	Center Position	Down Position (Keyway)	Screw Terminal	Solder Lug			
				MS Part Number	Catalog Number	MS Part Number	Catalog Number	
ONE POLE								
8836	ON	OFF	ON	MS25306-212	8836K1	MS14001-212	8836K91	
	ON	NONE	OFF	-222	K9	-222	K99	
	ON	NONE	ON	-232	K4	-232	K94	
	ON	OFF	NONE	-242	K6	-242	K96	
	ON	NONE	ON *	MS25306-262	8836K5	MS14001-262	8836K95	
	* ON	OFF	ON *	-272	K2	-272	K92	
	NONE	OFF	ON *	-282	K7	-282	K97	
	ON	NONE	OFF *	-292	K10	-292	K910	
	OFF	NONE	ON *	MS25306-302	8836K11	MS14001-302	8836K911	
	ON	OFF	ON *	-312	K3	-312	K93	
	TWO POLE							
	8837	ON	OFF	ON	MS25307-212	8837K1	MS14002-212	8837K91
ON		NONE	OFF	-222	K9	-222	K99	
ON		NONE	ON	-232	K4	-232	K94	
ON		OFF	NONE	-242	K6	-242	K96	
ON		NONE	ON *	MS25307-262	8837K5	MS14002-262	8837K95	
* ON		OFF	ON *	-272	K2	-272	K92	
NONE		OFF	ON *	-282	K7	-282	K97	
ON		NONE	OFF *	-292	K10	-292	K910	
OFF		NONE	ON *	MS25307-302	8837K11	MS14002-302	8837K911	
ON		OFF	ON *	-312	K3	-312	K93	
FOUR POLE								
8838		ON	OFF	ON	MS25308-212	8838K1	MS14003-212	8838K91
	ON	NONE	OFF	-222	K9	-222	K99	
	ON	NONE	ON	-232	K4	-232	K94	
	ON	OFF	NONE	-242	K6	-242	K96	
	ON	NONE	ON *	MS25308-262	8838K5	MS14003-262	8838K95	
	* ON	OFF	ON *	-272	K2	-272	K92	
	NONE	OFF	ON *	-282	K7	-282	K97	
	ON	NONE	OFF *	-292	K10	-292	K910	
	OFF	NONE	ON *	MS25308-302	8838K11	MS14003-302	8838K911	
	ON	OFF	ON *	-312	K3	-312	K93	

* Momentary contact.
See page 77 for special circuit diagrams.

ENVIRONMENTALLY SEALED POSITIVE ACTION SWITCHES

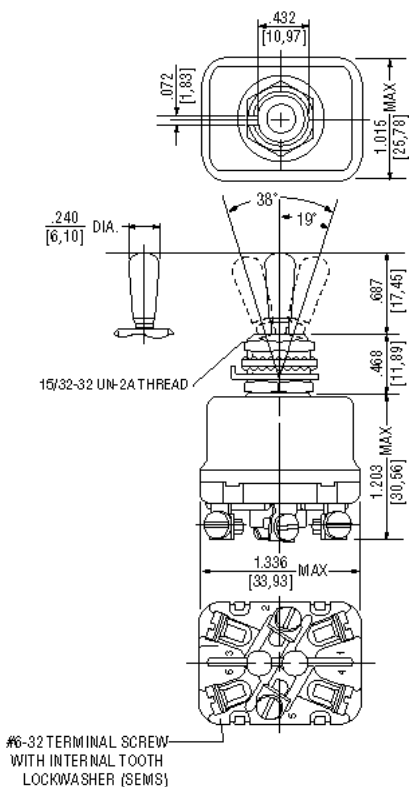
Series—8836-8838 MIL-S-8834 Environmentally Sealed Positive Action Switches & 8843-8845

MOUNTING DIMENSIONS—ONE POLE / 8836 SCREW TERMINALS



Terminal Identification

MOUNTING DIMENSIONS—TWO POLE / 8837 SCREW TERMINALS



Terminal Identification

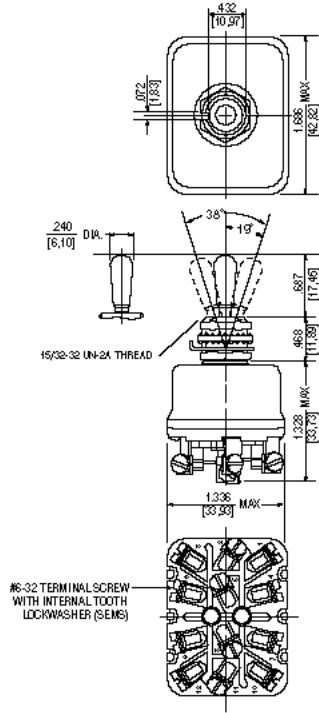
STANDARD
0.00 = inches
[0,0] = mm

Mounting dimensions for reference only.
Non-functional terminals not supplied.

ENVIRONMENTALLY SEALED POSITIVE ACTION SWITCHES

Series—8836-8838 MIL-S-8834 Environmentally Sealed Positive Action Switches & 8843-8845

MOUNTING DIMENSIONS—FOUR POLE / 8838 SCREW TERMINALS

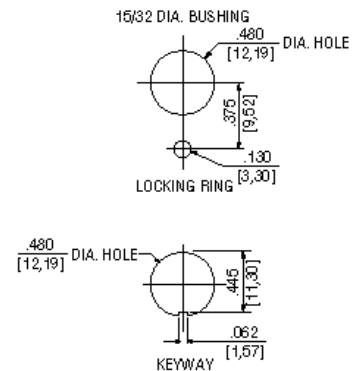


Terminal Identification
Non-functional terminals not supplied.

OPTIONS/ACCESSORIES

- Special mounting hardware
- Mounting hardware furnished assembled
- Panel seal, Part Number 32-341
- Terminal screws furnished assembled
- Terminal screws omitted
- Solder lug termination
- Substitute sems screws
- Special marking
- Special "3 Cateye" luminous lever attachment - 8836-8838 only
- Lever extensions and attachable tips (See Accessories and Custom components section)

PANEL CUTOUT DIMENSIONS

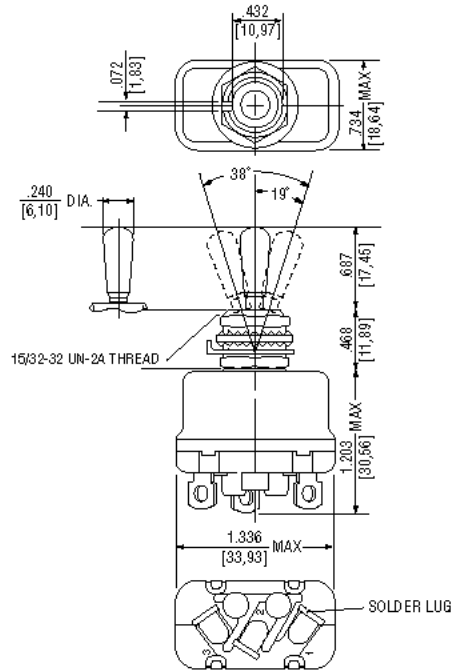


STANDARD
0.00 = inches
[0.0] = mm

ENVIRONMENTALLY SEALED POSITIVE ACTION SWITCHES

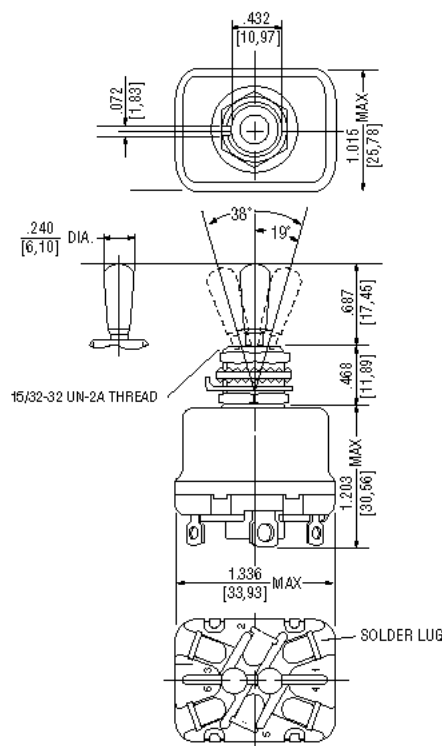
Series—8836-8838 MIL-S-8834 Environmentally Sealed Positive Action Switches & 8843-8845

MOUNTING DIMENSIONS—ONE POLE / 8836 SOLDER LUG TERMINALS



Terminal Identification

MOUNTING DIMENSIONS—TWO POLE / 8837 SOLDER LUG TERMINALS



Terminal Identification

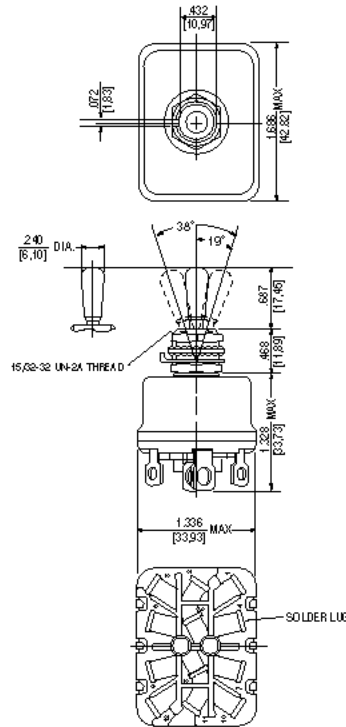
STANDARD
0.00 = inches
[0,0] = mm

Mounting dimensions for reference only.
Non-functional terminals not supplied.

ENVIRONMENTALLY SEALED POSITIVE ACTION SWITCHES

Series—8836-8838 MIL-S-8834 Environmentally Sealed Positive Action Switches & 8843-8845

MOUNTING DIMENSIONS—FOUR POLE / 8838 SOLDER LUG TERMINALS



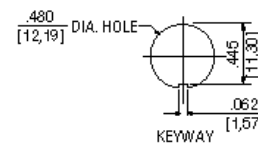
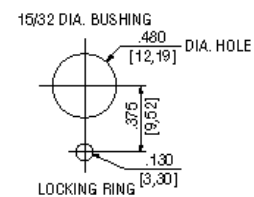
Terminal Identification

Non-functional terminals not supplied.

OPTIONS/ACCESSORIES

- Special mounting hardware
- Mounting hardware furnished assembled
- Panel seal, Part Number 32-341
- Terminal screws furnished assembled
- Terminal screws omitted
- Solder lug termination
- Substitute sems screws
- Special marking
- Special "3 Cateye" luminous lever attachment - 8836-8838 only
- Lever extensions and attachable tips (See Accessories and Custom components section)
- Custom wiring harnesses

PANEL CUTOUT DIMENSIONS



STANDARD
0.00 = inches
[0.0] = mm




Mounting dimensions for reference only.

ENVIRONMENTALLY SEALED POSITIVE ACTION SWITCHES

Series—8836-8838
& 8843-8845

MIL-S-8834 Environmentally Sealed Positive Action Switches
Lever Lock

SELECTION TABLE

		CIRCUIT WITH LEVER IN...			Lever Lock ① Bushing Style	MS Part Number	Catalog Number
		Up Position	Center Position	Down Position (Keyway)			
		ONE POLE					
	ON →	← OFF →	← ON	A	MS24612-A212	8843K1	
	ON	← OFF →	ON	B	-B212	K2	
	ON	← OFF →	NONE	B	-B242	K16	
	ON	OFF	← ON	C	-C212	K3	
	ON	NONE	← OFF	C	-C222	K9	
	ON	NONE	← ON	C	MS24612-C232	8843K7	
	ON	← OFF →	ON	D	-D212	K4	
	ON →	OFF	← ON	E	-E212	K5	
	ON →	NONE	← OFF	E	-E222	K10	
	ON →	NONE	← ON	E	-E232	K6	
	* ON	← OFF →	ON *	F	MS24612-F272	8843K12	
	ON	OFF →	ON *	G	-G312	K13	
	* ON	← OFF →	ON *	H	-H272	K14	
	ON →	← OFF →	NONE	J	-J242	K11	
	NONE	OFF →	ON *	K	-K282	K15	
ON	← OFF →	ON *	K	MS24612-K312	8843K18		
ON →	NONE	ON *	L	-L262	K20		
ON →	NONE	OFF *	L	-L292	K21		
OFF →	NONE	ON *	L	-L302	K19		
ON	← OFF →	ON *	M	-M312	K8		
ON →	← OFF →	ON *	N	-N312	K17		
		TWO POLE					
	ON →	← OFF →	← ON	A	MS24613-A212	8844K1	
	ON	← OFF →	ON	B	-B212	K2	
	ON	← OFF →	NONE	B	-B242	K16	
	ON	OFF	← ON	C	-C212	K3	
	ON	NONE	← OFF	C	-C222	K9	
	ON	NONE	← ON	C	MS24613-C232	8844K7	
	ON	← OFF →	ON	D	-D212	K4	
	ON →	OFF	← ON	E	-E212	K5	
	ON →	NONE	← OFF	E	-E222	K10	
	ON →	NONE	← ON	E	-E232	K6	
	* ON	← OFF →	ON *	F	MS24613-F272	8844K12	
	ON	OFF →	ON *	G	-G312	K13	
	* ON	← OFF →	ON *	H	-H272	K14	
	ON →	← OFF →	NONE	J	-J242	K11	
	NONE	OFF →	ON *	K	-K282	K15	
ON	← OFF →	ON *	K	MS24613-K312	8844K18		
ON →	NONE	ON *	L	-L262	K20		
ON →	NONE	OFF *	L	-L292	K21		
OFF →	NONE	ON *	L	-L302	K19		
ON	← OFF →	ON *	M	-M312	K8		
ON →	← OFF →	ON *	N	-N312	K17		
		FOUR POLE					
	ON →	← OFF →	← ON	A	MS24614-A212	8845K1	
	ON	← OFF →	ON	B	-B212	K2	
	ON	← OFF →	NONE	B	-B242	K16	
	ON	OFF	← ON	C	-C212	K3	
	ON	NONE	← OFF	C	-C222	K9	
	ON	NONE	← ON	C	MS24614-C232	8845K7	
	ON	← OFF →	ON	D	-D212	K4	
	ON →	OFF	← ON	E	-E212	K5	
	ON →	NONE	← OFF	E	-E222	K10	
	ON →	NONE	← ON	E	-E232	K6	
	* ON	← OFF →	ON *	F	MS24614-F272	8845K12	
	ON	OFF →	ON *	G	-G312	K13	
	* ON	← OFF →	ON *	H	-H272	K14	
	ON →	← OFF →	NONE	J	-J242	K11	
	NONE	OFF →	ON *	K	-K282	K15	
ON	← OFF →	ON *	K	MS24614-K312	8845K18		
ON →	NONE	ON *	L	-L262	K20		
ON →	NONE	OFF *	L	-L292	K21		
OFF →	NONE	ON *	L	-L302	K19		
ON	← OFF →	ON *	M	-M312	K8		
ON →	← OFF →	ON *	N	-N312	K17		

* Momentary contact.

→ Indicates direction of movement against which lever is locked.

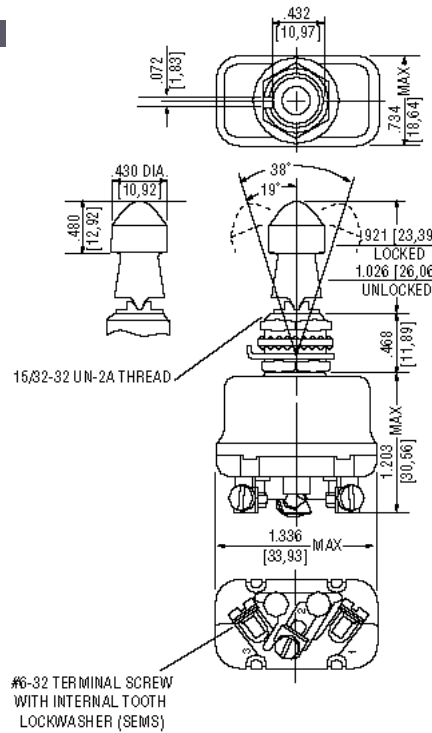
See page 77 for circuit diagrams.

① Reference bushing styles on Page 53.

ENVIRONMENTALLY SEALED POSITIVE ACTION SWITCHES

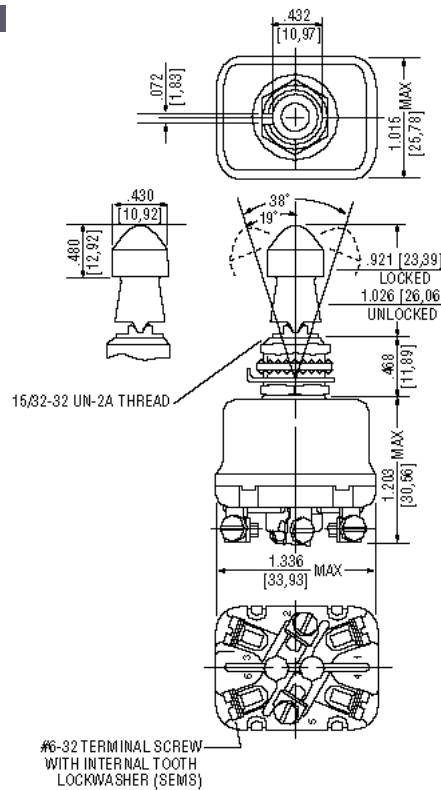
Series—8836-8838 MIL-S-8834 Environmentally Sealed Positive Action Switches
& 8843-8845 Lever Lock

MOUNTING DIMENSIONS—ONE POLE / 8843



Terminal Identification

MOUNTING DIMENSIONS—TWO POLE / 8844



Terminal Identification

STANDARD

0.00 = inches

[0.0] = mm

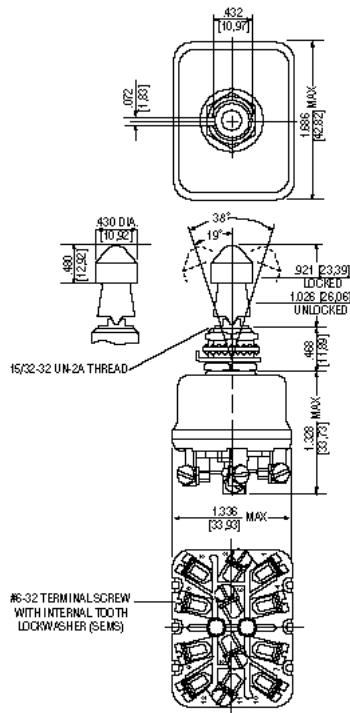
Mounting dimensions for reference only.
Non-functional terminals not supplied.

ENVIRONMENTALLY SEALED POSITIVE ACTION SWITCHES

Series—8836-8838
& 8843-8845

MIL-S-8834 Environmentally Sealed Positive Action Switches
Lever Lock

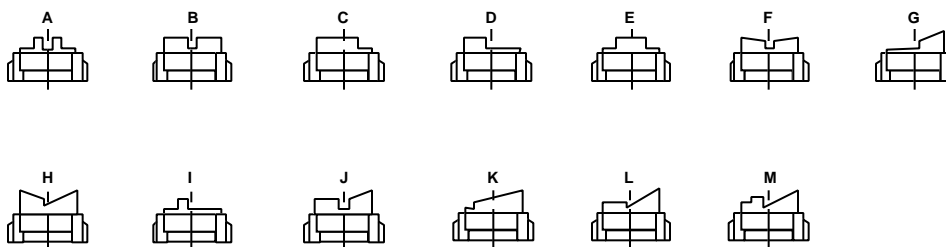
MOUNTING DIMENSIONS—FOUR POLE / 8845



Terminal Identification
Non-functional terminals not supplied.

LEVER LOCK – BUSHING STYLES

KEYWAY SIDE →

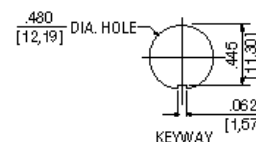
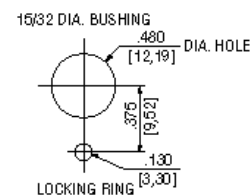


OPTIONS/ACCESSORIES

- Special mounting hardware
- Mounting hardware furnished assembled
- Panel seal, Part Number 32-341
- Terminal screws furnished assembled
- Terminal screws omitted
- Solder lug termination
- Substitute sems screws

- Special marking
- Special "3 Cateye" luminous lever attachment - 8836-8838 only
- Lever extensions and attachable tips (See Accessories and Custom components section)

PANEL CUTOUT DIMENSIONS



STANDARD
0.00 = inches
[0,0] = mm

Mounting dimensions for reference only.

MINIATURE POSITIVE ACTION SWITCHES

Series—8866-8869

MIL-S-8834 Miniature Positive Action Switches
Solder Lug Terminals

FEATURES	SPECIFICATIONS	CURRENT RATINGS										
		No. of Poles	Catalog Number	Type of Operation	28 and 50VDC (Amperes per pole)				115VAC 60Hz and 400Hz (Amperes per pole)			
Resistive Load					Inductive Load		Resistive Load		Inductive Load			
					28VDC	50VDC	28VDC	50VDC	60Hz	400Hz	60Hz	400Hz
<ul style="list-style-type: none"> Sealed bushing Current rating versatility 1, and 2 pole circuitry Non-teasible mechanism for all but center "ON" circuits Dry circuit (logic level loads) to power switching levels Wiping action contacts Positive make and break action Small and large size bushings and actuators Solder lug terminals Also available with locking actuators, integrated wire termination and printed circuit board terminals. 	<ul style="list-style-type: none"> Bushing seal or bonded seal per MIL-S-8834 MS approved and QPL'd to MIL-S-8834 Temperature range: -67°F to +160°F (-55°C to +71°C) Life: 20,000 operations at rated load 40,000 mechanical life "O" ring panel seal on 1/4"-40 type bushing size Solder lug terminals .050 [1,27] dia. hole 	1	8866 and 8868	Maintained and Momentary	5	1	1	—	2	3	1	2
		2	8867 and 8869	Maintained and Momentary	5	1	1	—	2	3	1	2

Minimum Rating: 25 μA at 5 millivolts.

SELECTION TABLE

		CIRCUIT WITH LEVER IN...			Military Part Number	Catalog Number [Ⓜ]
		Up Position	Center Position	Down Position (Keyway)		
8866		ONE POLE				
		ON	OFF	ON	MS24655-211	8866K1
		ON	NONE	OFF	-221	K7
		ON	NONE	ON	-231	K4
		ON	OFF	NONE	-241	K5
		* ON	OFF	ON*	MS24655-271	8866K2
		NONE	OFF	ON*	-281	K6
		ON	OFF	ON*	-311	K3
		NONE	ON	ON*	-321	K8 [Ⓛ]
		TWO POLE				
8867		ON	OFF	ON	MS24656-211	8867K1
		ON	NONE	OFF	-221	K7
		ON	NONE	ON	-231	K4
		ON	OFF	NONE	-241	K5
		* ON	OFF	ON*	MS24656-271	8867K2
		NONE	OFF	ON*	-281	K6
		ON	OFF	ON*	-311	K3
		NONE	ON	ON*	MS24656-321	8867K8 [Ⓛ]
		ON	ON	ON	-331	K9 [Ⓛ]
		ON	ON	ON*	-351	K10 [Ⓛ]
* ON	ON	ON*	-341	K11 [Ⓛ]		

* Momentary contact.

See page 77 for special circuit diagrams.

Ⓛ Dielectric per MIL-S-8834 except limited to 1250 volts. Delayed action of the switch toggle lever may cause circuit to close or open before snap action mechanism trips.

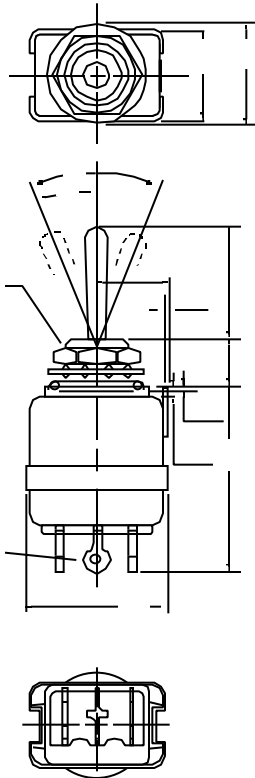
Ⓜ Caution should be exercised during soldering and flux removal. See page 62 for details.

MINIATURE POSITIVE ACTION SWITCHES

Series—8866-8869

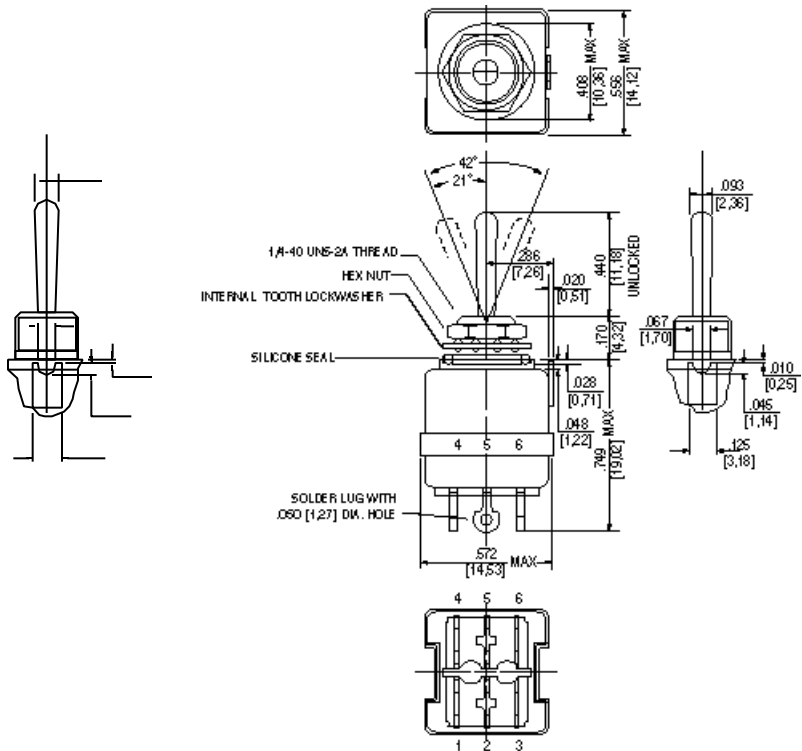
MIL-S-8834 Miniature Positive Action Switches
Solder Lug Terminals

MOUNTING DIMENSIONS—ONE POLE / 8866



Terminal Identification

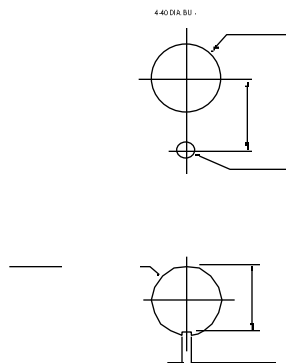
MOUNTING DIMENSIONS—TWO POLE / 8867



Terminal Identification

Non-functional terminals not supplied.

PANEL CUTOUT DIMENSIONS



STANDARD
0.00 = inches
[0.0] = mm



Mounting dimensions for reference only.

MINIATURE POSITIVE ACTION SWITCHES

Series—8866-8869

MIL-S-8834 Miniature Positive Action Switches
Solder Lug Terminals

SELECTION TABLE

		CIRCUIT WITH LEVER IN...							
		Up Position	Center Position	Down Position (Keyway)	MS Part Number	Catalog Number ^②	MS Part Number ^③	Catalog Number ^②	
8868		ONE POLE							
		ON	OFF	ON	MS90310-211	8868K1		Feature Not Available in Single Pole Switches	
		ON	NONE	OFF	-221	K7			
		ON	NONE	ON	-231	K4			
		ON	OFF	NONE	-241	K5			
		* ON	OFF	ON*	MS90310-271	8868K2			
		NONE	OFF	ON*	-281	K6			
		ON	OFF	ON*	-311	K3			
		NONE	ON	ON*	MS21351-321	K8 ^①			
		8869		TWO POLE					
ON	OFF			ON	MS90311-211	8869K1	MS90311-711	8869K1X	
ON	NONE			OFF	-221	K7	-721	K7X	
ON	NONE			ON	-231	K4	-731	K4X	
ON	OFF			NONE	-241	K5	-741	K5X	
* ON	OFF			ON*	MS90311-271	8869K2	MS90311-771	8869K2X	
NONE	OFF			ON*	-281	K6	-781	K6X	
ON	OFF			ON*	-311	K3	-811	K3X	
NONE	ON			ON*	MS21353-321	8869K8 ^①	MS21353-821	8869K8X ^①	
ON	ON			ON	-331	K9 ^①	-831	K9X ^①	
ON	ON	ON*	-351	K10 ^①	-851	K10X ^①			
* ON	ON	ON*	-341	K11 ^①	-841	K11X ^①			

* Momentary contact.

① Dielectric per MIL-S-8834 except limited to 1250 volts. Delayed action of the switch toggle lever may cause circuit to close or open before snap action mechanism trips.

② Caution should be exercised during soldering and flux removal. See page 62 for details.

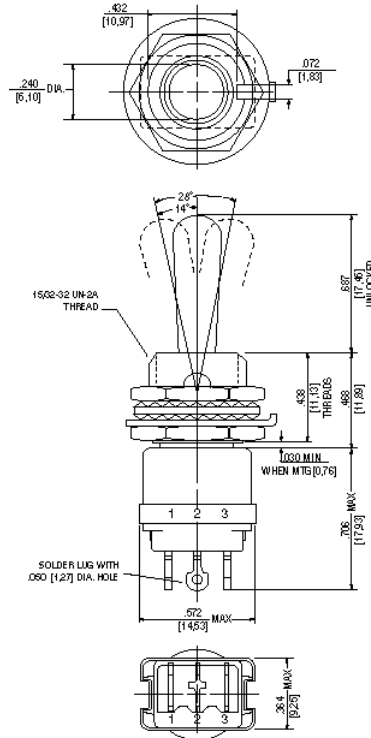
③ Furnished with Bonded Seal Feature. (Meets 15' head of water sealing level.)

MINIATURE POSITIVE ACTION SWITCHES

Series—8866-8869

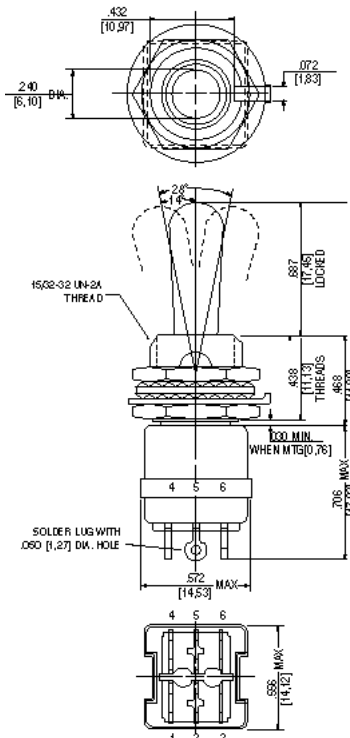
MIL-S-8834 Miniature Positive Action Switches
Solder Lug Terminals

MOUNTING DIMENSIONS—ONE POLE / 8868



Terminal Identification

MOUNTING DIMENSIONS—TWO POLE / 8869



Terminal Identification

STANDARD

0.00 = inches

[0,0] = mm

Mounting dimensions for reference only.
Non-functional terminals not supplied.

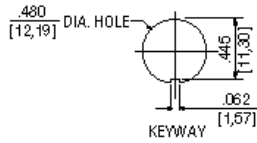
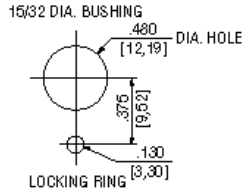
MINIATURE POSITIVE ACTION SWITCHES

Series—8866-8869

MIL-S-8834 Miniature Positive Action Switches
Solder Lug Terminals

OPTIONS/ACCESSORIES PANEL CUTOUT DIMENSIONS

- Special mounting hardware
- Special marking
- Mounting hardware furnished assembled
- Panel seal, Part Number 32-341
- Lever extensions and attachable tips
- Special circuits
- Special bushing and lever plating
- Mounting adapter nuts
- Custom wire harnesses
- EMI/RFI capability on two pole (large bushing)
- Gold plated contacts



STANDARD
0.00 = inches
[0,0] = mm

Mounting dimensions for reference only.

See page 62 for soldering and cleaning recommendations

TOGGLE SWITCHES



MINIATURE POSITIVE ACTION SWITCHES

Series—8866, 8867, 8868, 8869

MIL-S-8834 Miniature Positive Action Switches
Printed Circuit Terminals

FEATURES	SPECIFICATIONS	CURRENT RATINGS										
		No. of Poles	Catalog Number	Type of Operation	28 and 50VDC (Amperes per pole)		115VAC 60Hz and 400Hz (Amperes per pole)					
					Resistive Load 28VDC	50VDC	Inductive Load 28VDC	50VDC	Resistive Load 60Hz	400Hz	Inductive Load 60Hz	400Hz
<ul style="list-style-type: none"> Sealed bushing Dry circuit (logic level loads) to power switching levels Two bushing and toggle lever sizes 1 and 2 pole circuitry Non-teasible mechanism for all but center "ON" circuits Wiping action contacts Positive make and break action Small and large size bushings and acutators Printed circuit board termination Two types of printed circuit board terminals <ul style="list-style-type: none"> - straight - formed 	<ul style="list-style-type: none"> Bushing seal or bonded seal per MIL-S-8834 MS approved and QPL'd to MIL-S-8834 Temperature range: -67°F to +160°F (-55°C to +71°C) Life: 20,000 operations at rated load 40,000 operations mechanical life "O" ring panel seal on 1/4"-40 type bushing size 	1	8866 and 8868	Maintained and Momentary	5	1	1	-	2	3	1	2
		2	8867 and 8869	Maintained and Momentary	5	1	1	-	2	3	1	2

Minimum Rating: 25 μ A at 5 millivolts or less.

TOGGLE SWITCHES

SELECTION TABLE

CIRCUIT WITH LEVER IN...											
			Small Lever with Straight Mount PC Terminals		Small Lever with Formed Mount PC Terminals		Large Lever with Straight Mount PC Terminals				
			MS Part Number	Catalog ² Number	MS Part Number	Catalog ² Number	MS Part Number	Catalog ² Number	MS Part ³ Number	Catalog ² Number	
Up Position	Center Position	Down Position (Keyway)									
ONE POLE											
BONDED SEAL											
ON	OFF	ON	MS21354-211	8866K61	MS21433-211	8866KA61	MS21356-211	8868K61	Feature Not Available In Single Pole Switches		
ON	NONE	OFF	-221	K67	-221	KA67	-221	K67			
ON	NONE	ON	-231	K64	-231	KA64	-231	K64			
ON	OFF	NONE	-241	K65	-241	KA65	-241	K65			
* ON	OFF	ON*	MS21354-271	8866K62	MS21433-271	8866KA62	MS21356-271	8868K62			
NONE	OFF	ON*	-281	K66	-281	KA66	-281	K66			
ON	OFF	ON*	-311	K63	-311	KA63	-311	K63			
NONE	ON	ON*	-321	K68 ¹	-321	KA68 ¹	-321	K68 ¹			
TWO POLE											
BONDED SEAL											
ON	OFF	ON	MS21355-211	8867K61	MS21434-211	8867KA61	MS21357-211	8869K61	MS21357-711	8869K61X	
ON	NONE	OFF	-221	K67	-221	KA67	-221	K67	-721	K67X	
ON	NONE	ON	-231	K64	-231	KA64	-231	K64	-731	K64X	
ON	OFF	NONE	-241	K65	-241	KA65	-241	K65	-741	K65X	
* ON	OFF	ON*	MS21355-271	8867K62	MS21434-271	8867KA62	MS21357-271	8869K62	MS21357-771	8869K62X	
NONE	OFF	ON*	-281	K66	-281	KA66	-281	K66	-781	K66X	
ON	OFF	ON*	-311	K63	-311	KA63	-311	K63	-811	K63X	
NONE	ON	ON*	MS21355-321	8867K68 ¹	MS21434-321	8867KA68 ¹	MS21357-321	8869K68 ¹	MS21357-821	8869K68X ¹	
ON	ON	ON	-331	K69 ¹	-331	KA69 ¹	-331	K69 ¹	-831	K69X ¹	
ON	ON	ON*	-351	K610 ¹	-351	KA610 ¹	-351	K610 ¹	-851	K610X ¹	
* ON	ON	ON*	-341	K611 ¹	-341	KA611 ¹	-341	K611 ¹	-841	K611X ¹	

* Momentary contact.

See page 77 for special circuit diagrams.

¹ Dielectric per MIL-S-8834 except limited to 1250 volts. Delayed action of the switch toggle lever may cause circuit to close or open before snap action mechanism trips.

² Caution should be exercised during soldering and flux removal. See page 62 for details.

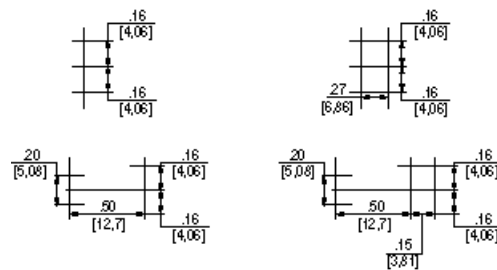
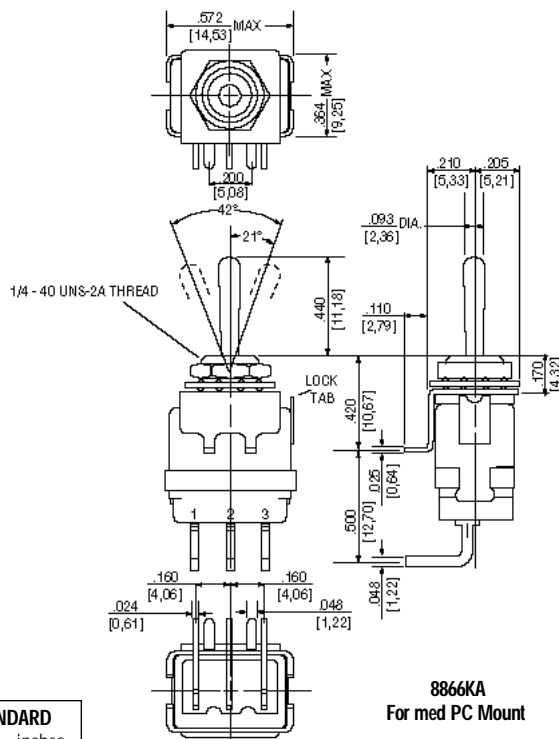
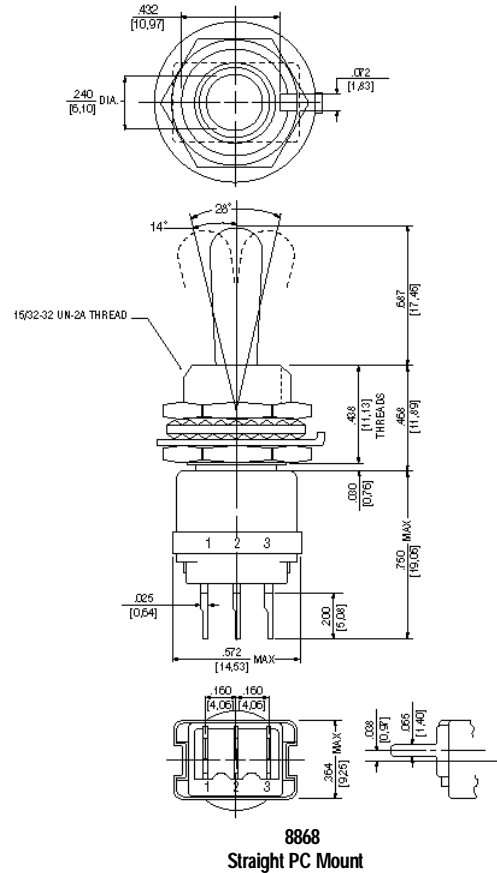
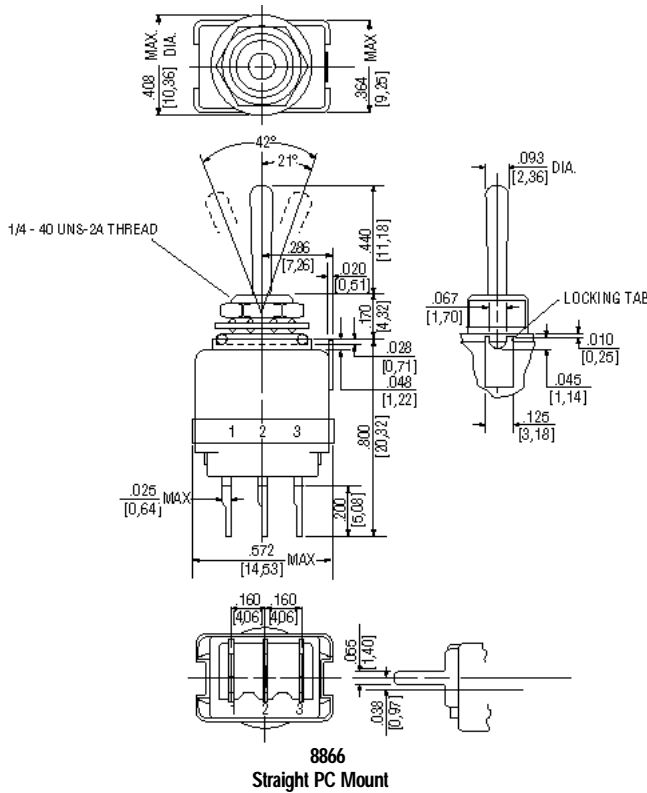
³ Furnished with Bonded Seal Feature. (Meets 15' head of water sealing level.)

MINIATURE POSITIVE ACTION SWITCHES

Series—8866, 8867, 8868, 8869

MIL-S-8834 Miniature Positive Action Switches
Printed Circuit Terminals

MOUNTING DIMENSIONS—ONE POLE



STANDARD
0.00 = inches
[0,0] = mm

Terminal Identification

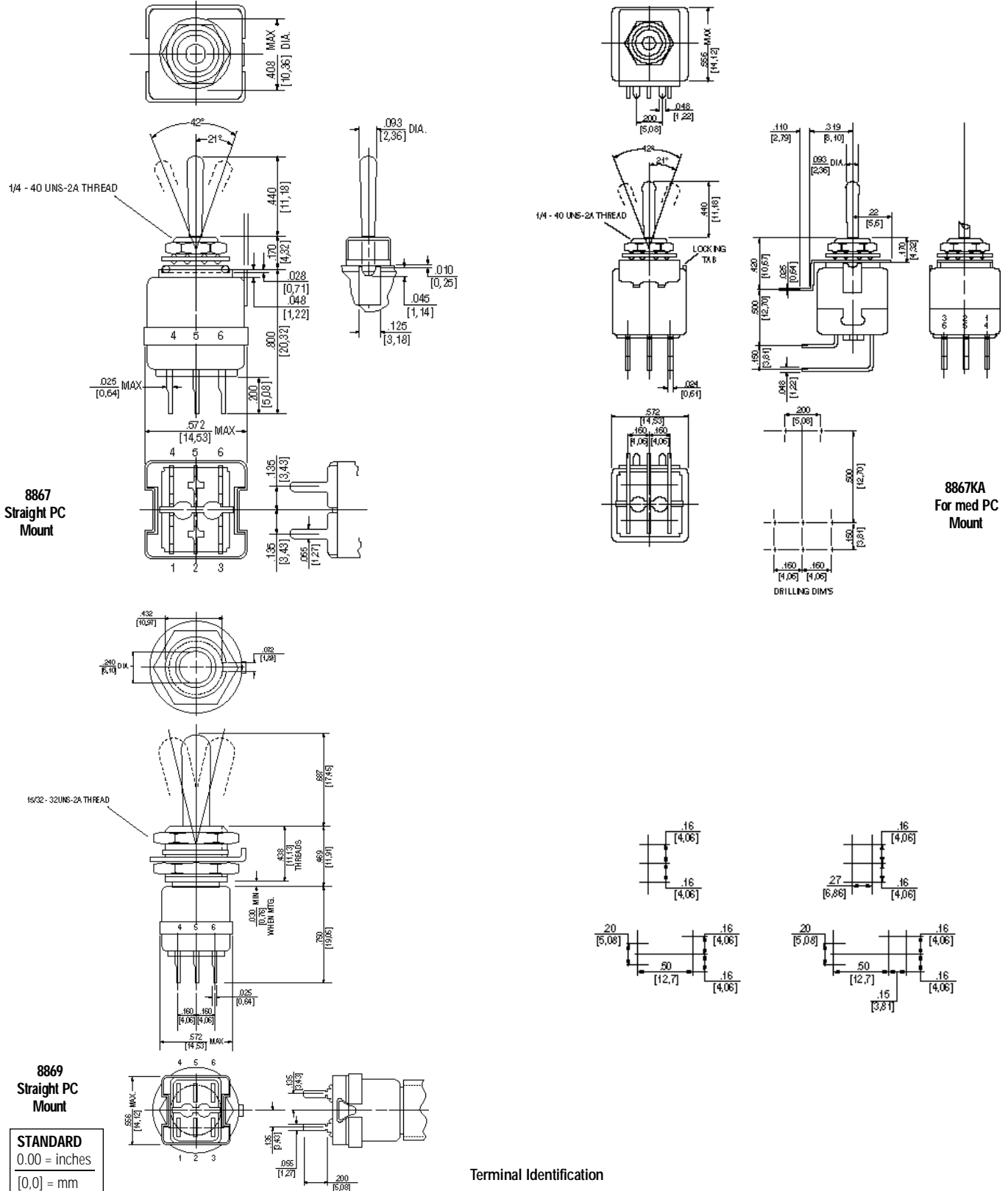
MINIATURE POSITIVE ACTION SWITCHES

Series—8866, 8867, 8868, 8869

MIL-S-8834 Miniature Positive Action Switches
Printed Circuit Terminals

TOGGLE SWITCHES

MOUNTING DIMENSIONS—TWO POLE



MINIATURE POSITIVE ACTION SWITCHES

Series—8866, 8867, 8868, 8869

MIL-S-8834 Miniature Positive Action Switches
Printed Circuit Terminals

CAUTION AND RECOMMENDATION FOR CLEANING AND SOLDERING

Contamination of the contacts of miniature switches is the most common cause of problems in low energy circuits, resulting in the inability of current to flow through the increased resistance of the switch contacts.

As most contamination occurs during the installation and cleaning of the switch, proper care when installing the switch can reduce problems in this area. The following procedures should be followed to reduce the possibility of switch contact contamination.

Hand Solder

1. Use rosin core solder .030" – .040" diameter.
2. A small soldering iron in the 30 to 40 watt range should be used.
3. The solder joint should not be overheated.
4. Do not position switch with terminations straight up.
5. No clean up should be necessary. However if used, do not allow solvents to enter non-sealed areas of switches.

Wave Solder – Miniature Switches

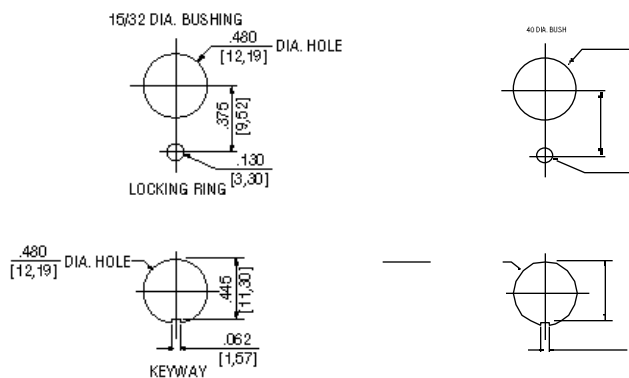
Do not immerse or spray with solvents to remove flux except for switches designed for this type of cleaning.

The use of wave solder oil is not advised.

OPTIONS/ACCESSORIES

- Special mounting hardware
- Special marking
- Mounting hardware furnished assembled
- Panel seal, Part Number 32-341 (15/32" - 32 bushing only)
- Special circuits
- Special bushing and lever plating
- Mounting adapter nut
- Custom wire harnesses
- EMI/RFI capability on two pole (15/32" - 32 bushing only)
- Gold plated contacts

PANEL CUTOUT DIMENSIONS





MINIATURE POSITIVE ACTION SWITCHES

Series—8855, 8856

MIL-S-8834 Miniature Positive Action Switches
Lever Lock/Solder Lug Terminals

FEATURES	SPECIFICATIONS	CURRENT RATINGS										
		No. of Poles	Catalog Number	Type of Operation	28 and 50VDC (Amperes per pole)		115VAC 60Hz and 400Hz (Amperes per pole)					
					Resistive Load 28VDC	50VDC	Inductive Load 28VDC	50VDC	Resistive Load 60Hz	400Hz	Inductive Load 60Hz	400Hz
<ul style="list-style-type: none"> Sealed bushing Dry circuit (logic level loads) to power switching levels 1, and 2 pole circuitry Non-teasible mechanism for all but center "ON" circuits High electrical/mechanical reliability Two styles of lever lock actuators Locking actuator for safety Wiping action contacts Positive make and break action Solder lug termination 	<ul style="list-style-type: none"> Bushing seal or bonded seal per MIL-S-8834 MS approved and OPL'd to MIL-S-8834 Temperature range: -67°F to +160°F (-55°C to +71°C) Life: 20,000 operations at rated load 40,000 operations mechanical life Solder lug terminal .050 [1,27] dia. hole <p>★ Momentary contact. → Indicates direction against which lever is locked. See page 77 for special circuit diagrams.</p> <p>① Dielectric per MIL-S-8834 except limited to 1250 volts. Delayed action of the switch toggle lever may cause circuit to close or open before snap action mechanism trips. ② Furnished with Bonded Seal Feature. (Meets with 15' head of water level.) ③ Not military MS approved.</p>	1	8855	Maintained and Momentary	5	1	1	-	2	3	1	2
		2	8856	Maintained and Momentary	5	1	1	-	2	3	1	2

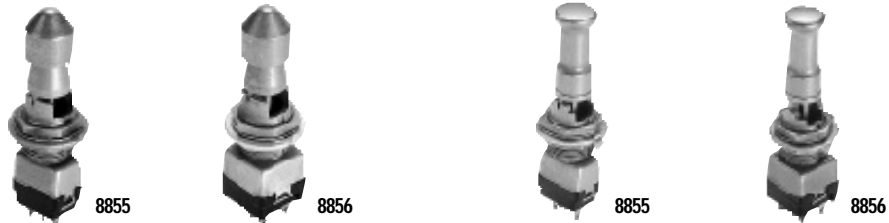
Minimum Rating: 25 μA at 5 millivolts.

TOGGLE SWITCHES

SELECTION TABLE

STANDARD CAP STYLE

MUSHROOM CAP STYLE



CIRCUIT WITH LEVER IN...			Standard Cap Style				Mushroom Cap Style				
Up Position	Center Position	Down Position (Keyway)	Lever Lock ① Bushing Style	MS Part Number	Catalog ② Number	MS Part ③ Number	Catalog ② Number	MS Part Number	Catalog ② Number	MS Part ③ Number	Catalog ② Number
ONE POLE											
BONDED SEAL											
ON →	← OFF →	← ON	A	MS21026-A211	8855K4	Feature Not Available		MS21436-A211	8855K74	Feature Not Available	
ON	← OFF →	ON	B	-B211	K5	In Single Pole Switches		-B211	K75	In Single Pole Switches	
ON	← OFF →	NONE	B	-B241	K19			-B241	K719		
ON	NONE	← OFF →	C	-C221	K13			-C221	K713		
ON	NONE	← ON	C	-C231	K7			-C231	K77		
ON	← OFF →	ON	D	MS21026-D211	8855K10			MS21436-D211	8855K710		
ON →	← OFF →	← ON	E	-E221	K14			-E221	K714		
ON →	← OFF →	← ON	E	-E231	K8			-E231	K78		
* ON	← OFF →	ON *	F	-F271	K15			-F271	K715		
ON	← OFF →	ON *	G	-G311	K16			-G311	K716		
* ON	← OFF →	ON *	H	MS21026-H271	8855K17			MS21436-H271	8855K717		
ON →	← OFF →	NONE	J	-J241	K9			-J241	K79		
NONE	← OFF →	ON *	K	-K281	K18			-K281	K718		
ON	← OFF →	ON *	K	-K311	K20			-K311	K720		
ON	← OFF →	ON *	L	-L311	K12			-L311	K712		
TWO POLE											
BONDED SEAL											
ON →	← OFF →	← ON	A	MS21027-A211	8856K4	MS21027-A711	8856K4X	MS21437-A211	8856K74	MS21437-A711	8856K74X
ON	← OFF →	ON	B	-B211	K5	-B711	K5X	-B211	K75	-B711	K75X
ON	← OFF →	NONE	B	-B241	K19	-B741	K19X	-B241	K719	-B741	K719X
ON	NONE	← OFF →	C	-C221	K13	-C721	K13X	-C221	K713	-C721	K713X
ON	NONE	← ON	C	-C231	K7	-C731	K7X	-C231	K77	-C731	K77X
ON	← OFF →	ON	D	MS21027-D211	8856K10	MS21027-D711	8856K10X	MS21437-D211	8856K710	MS21437-D711	8856K710X
ON →	← OFF →	← ON	E	-E221	K14	-E721	K14X	-E221	K714	-E721	K714X
ON →	← OFF →	← ON	E	-E231	K8	-E731	K8X	-E231	K78	-E731	K78X
* ON	← OFF →	ON *	F	-F371	K27	-F871	K27X	-F371	K727	-F871	K727X
ON	← OFF →	ON *	G	-G311	K16	-G811	K16X	-G311	K716	-G811	K716X
* ON	← OFF →	ON *	H	MS21027-H371	8856K29	MS21027-H871	8856K29X	MS21437-H371	8856K729	MS21437-H871	8856K729X
ON →	← OFF →	NONE	J	-J241	K9	-J741	K9X	-J241	K79	-J741	K79X
NONE	← OFF →	ON *	K	-K381	K28	-K881	K28X	-K381	K728	-K881	K728X
ON	← OFF →	ON *	K	-K311	K20	-K811	K20X	-K311	K720	-K811	K720X
ON	← OFF →	ON *	L	-L311	K12	-L811	K12X	-L311	K712	-L811	K712X
ON →	← ON →	← ON	A	MS21027-A331	8856K21①	MS21027-A831	8856K21X①	MS21437-A331	8856K721①	MS21437-A831	8856K721X①
ON	← ON →	ON	B	-B331	K30①	-B831	K30X①	-B331	K730①	-B831	K730X①
ON	ON	← ON	C	-C331	K31①	-C831	K31X①	-C331	K731①	-C831	K731X①
ON	← ON →	ON	D	-D331	K32①	-D831	K32X①	-D331	K732①	-D831	K732X①
* ON	← ON →	ON *	F	-F341	K22①	-F841	K22X①	-F341	K722①	-F841	K722X①
* ON	← ON →	ON *	H	MS21027-H341	8856K34①	MS21027-H841	8856K34X①	MS21437-H341	8856K734①	MS21437-H841	8856K734X①
NONE	← ON →	ON *	K	-K321	K24①	-K821	K24X①	-K321	K724①	-K821	K724X①
ON	ON →	ON *	G	-G351	K35①	-G851	K35X①	-G351	K735①	-G851	K735X①
ON	← ON →	ON *	K	-K351	K23①	-K851	K23X①	-K351	K723①	-K851	K723X①
ON	← ON →	ON *	L	-L351	K36①	-L851	K36X①	-L351	K736①	-L851	K736X①

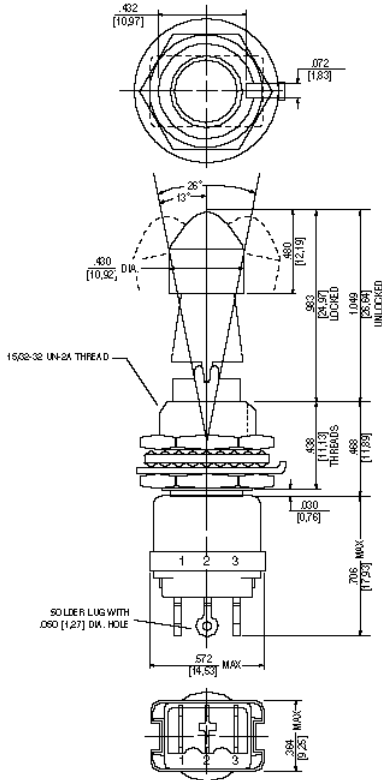
① Reference bushing styles on Page 65.

MINIATURE POSITIVE ACTION SWITCHES

Series—8855, 8856

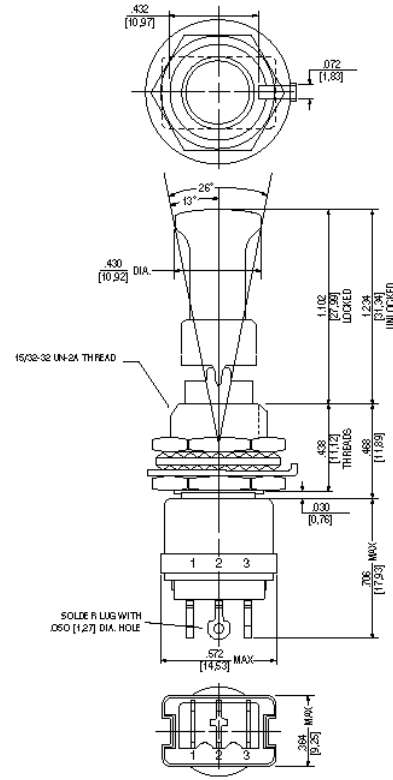
MIL-S-8834 Miniature Positive Action Switches
Lever Lock/Solder Lug Terminals

MOUNTING DIMENSIONS—ONE POLE / 8855



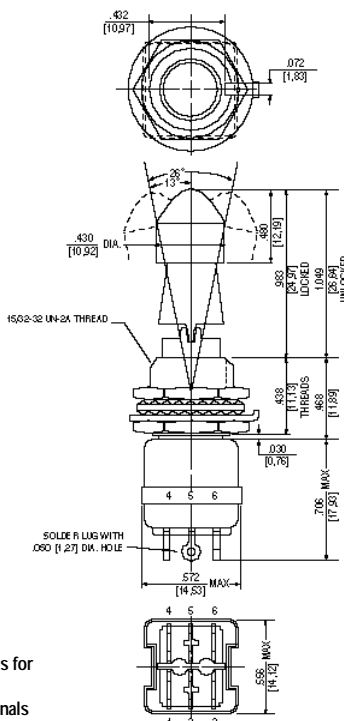
Standard Cap Style

Terminal Identification



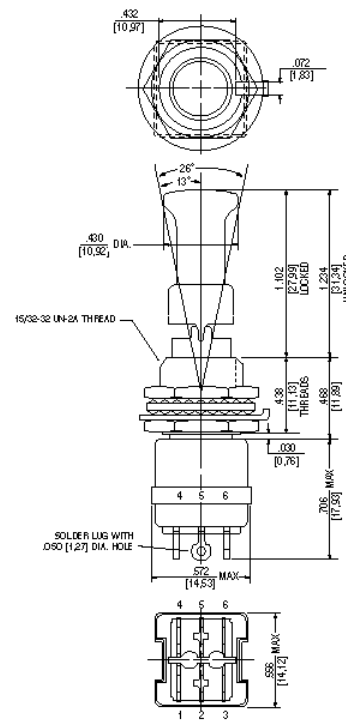
Mushroom Cap Style

MOUNTING DIMENSIONS—TWO POLE / 8856



Standard Cap Style

Terminal Identification



Mushroom Cap Style

STANDARD
0.00 = inches
[0.0] = mm

Mounting dimensions for reference only.
Non-functional terminals not supplied.

MINIATURE POSITIVE ACTION SWITCHES

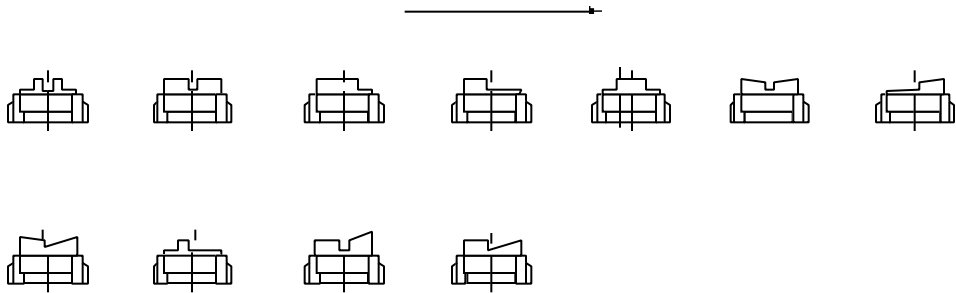
Series—8855, 8856

MIL-S-8834 Miniature Positive Action Switches
Lever Lock/Solder Lug Terminals

OPTIONS/ACCESSORIES

- Special mounting hardware
- Special marking
- Mounting hardware furnished assembled
- Special locking configurations
- Panel seal, Part Number 32-341
- Special circuits
- Special locking cap style
- Custom wire harnesses
- EMI/RFI capability on two pole

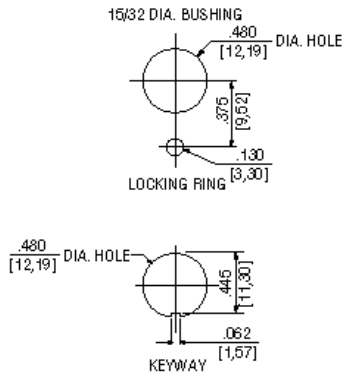
LEVER LOCK – BUSHING STYLES



OPTIONS/ACCESSORIES

- Special mounting hardware
- Special marking
- Mounting hardware furnished assembled
- Special locking configurations
- Panel seal, Part Number 32-341
- Special circuits
- Special locking cap style
- Custom wire harnesses
- EMI/RFI capability on two pole
- Gold plated contacts

PANEL CUTOUT DIMENSIONS



MINIATURE POSITIVE ACTION SWITCHES

Series—8855, 8856, 8866-69

MIL-S-8834 Miniature Positive Action Switches
Toggle and Lever Lock/IWTS Terminals

FEATURES	SPECIFICATIONS	CURRENT RATINGS										
		No. of Poles	Catalog Number	Type of Operation	28 and 50VDC (Amperes per pole)		115VAC 60Hz and 400Hz (Amperes per pole)					
Resistive Load 28VDC	50VDC				Inductive Load 28VDC	50VDC	Resistive Load 60Hz	400Hz	Inductive Load 60Hz	400Hz		
<ul style="list-style-type: none"> Sealed bushing Dry circuit (logic level loads) to power switching levels 1 and 2 pole circuitry Non-teasible mechanism for all but center "ON" circuit Small and large size bushings and actuators Toggle and lever lock actuators Wiping action contacts Positive make and break action Integrated wire termination system (IWTS) 	<ul style="list-style-type: none"> Bushing seal or bonded seal per MIL-S-8834 MS approved and OPL listed to MIL-S-8834 Temperature range: -67°F to +160°F (-55°C to +71°C) Life: 20,000 operations at rated load 40,000 operations mechanical life Bushing thread sizes: Small Toggle: 1/4" – 40 thread Large Toggle and Lever Lock: 15/32" – 32 thread Accepts MIL-C-39029/1-101 Pin 	1	8855 8866 8868	Maintained and Momentary	5	1	1	–	2	3	1	2
					5	1	1	–	2	3	1	2
		2	8856 8867 8869	Maintained and Momentary	5	1	1	–	2	3	1	2

Minimum Rating: 25 µA at 5 millivolts.

TOGGLE SWITCHES

SELECTION TABLE



CIRCUIT WITH LEVER IN...			ONE POLE			TWO POLE				
Up Position	Center Position	Down Position (Keydown)	MS Part Number	Large Lever Catalog Number	Small Lever Catalog Number	MS Part Number	Large Lever Catalog Number	Small Lever Catalog Number	MS Part Number	Catalog Number ②
ON	OFF	ON	MS21346-211	8868K51	8866K51	MS21347-211	8869K51	8867K51	MS2134-711	8869K51X
ON	NONE	OFF	-221	K57	K57	-221	K57	K57	-721	K57X
ON	NONE	ON	-231	K54	K54	-231	K54	K54	-731	K54X
ON	OFF	NONE	-241	K55	K55	-241	K55	K55	-741	K55X
ON	OFF	ON	MS21346-271	8868K52	8866K52	MS21347-271	8869K52	8867K52	MS21347-771	8869K52X
NONE	OFF	ON*	-281	K56	K56	-281	K56	K56	-781	K56X
ON	OFF	ON*	-311	K53	K53	-311	K53	K53	-811	K53X
NONE	ON	ON*	MS21346-321	K58①	K58①	MS21347-321	8869K58①	8867K58①	MS21347-821	8869K58X①
ON	ON	ON	–	–	–	-331	K59①	K59①	-831	K59X①
ON	ON	ON*	–	–	–	-351	K510①	K510①	-851	K510X①
ON	ON	ON	–	–	–	-341	K511①	K511①	-841	K511X①

* Momentary contact.
 ① Dielectric per MIL-S-8834 except limited to 1250 volts. Delayed action of the switch toggle lever may cause circuit to close or open before snap action mechanism trips.
 ② Furnished with Bonded Seal Feature. (Meets with 15" head of water level.)

MINIATURE POSITIVE ACTION SWITCHES

Series—8855, 8856, 8866-69

MIL-S-8834 Miniature Positive Action Switches
Toggle and Lever Lock/IWTS Terminals

SELECTION TABLE



8855



8856

CIRCUIT WITH LEVER IN...			ONE POLE		TWO POLE		
Up Position	Center Position	Down Position (Keyway)	Lever Lock Bushing Style	MS Part Number	Catalog Number	MS Part Number	Catalog Number
ON →	← OFF →	← ON	A	MS21346-A211	8855K54	MS21347-A211	8856K54
ON	← OFF →	ON	B	-B211	K55	-B211	K55
ON	← OFF →	NONE	B	-B241	K519	-B241	K519
ON	NONE	← OFF	C	-C221	K513	-C221	K513
ON	NONE	← ON	C	-C231	K57	-C231	K57
ON	← OFF →	ON	D	MS21346-D211	8855K510	MS21347-D211	8856K510
ON →	NONE	← OFF	E	-E221	K514	-E221	K514
ON →	NONE	← ON	E	-E231	K58	-E231	K58
* ON	← OFF →	ON*	F	-F271	K515	-E271	K515
ON	OFF →	ON*	G	-G311	K516	-G311	K516
* ON	← OFF →	ON*	H	MS21346-H271	8855K517	MS21347-H271	8856K517
ON →	← OFF →	NONE	J	-J241	K59	-J241	K59
NONE	OFF →	ON*	K	-K281	K518	-K281	K518
ON	← OFF →	ON*	K	-K311	K520	-K311	K520
ON	← OFF →	ON*	L	-L311	K512	-L311	K512
ON →	← ON →	← ON	A				8856K527

* Momentary contact.

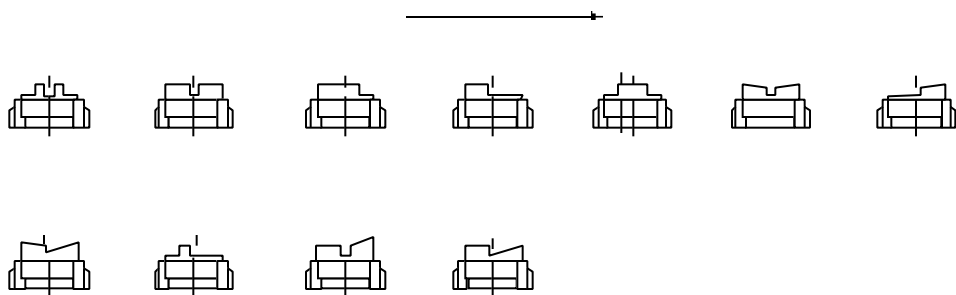
→ Indicates direction against which lever is locked.

See page 77 for special circuit diagrams.

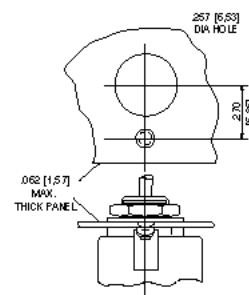
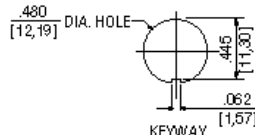
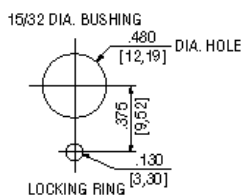
OPTIONS/ACCESSORIES

- Special mounting hardware
- Special marking
- Mounting hardware furnished assembled
- Panel seal, Part Number 32-341 (15/32" - 32 bushing only)
- Special circuits
- Special bushing and lever finish
- Special locking cap style on lever lock switches
- EMI/RFI capability on two pole (15/32" - 32 bushing only)

LEVER LOCK – BUSHING STYLES



PANEL CUTOUT DIMENSIONS

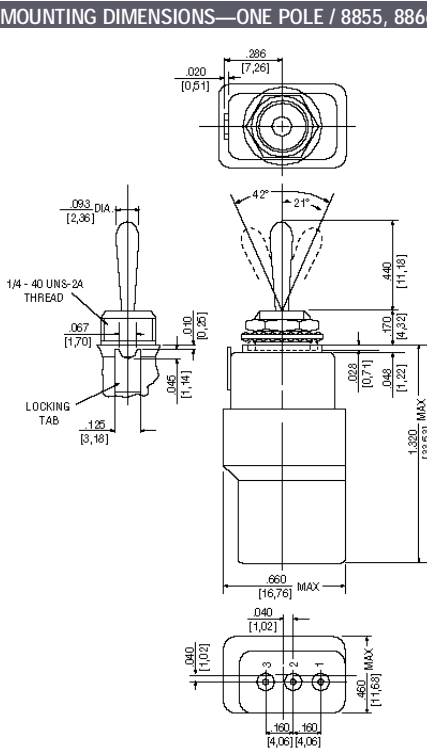


MINIATURE POSITIVE ACTION SWITCHES

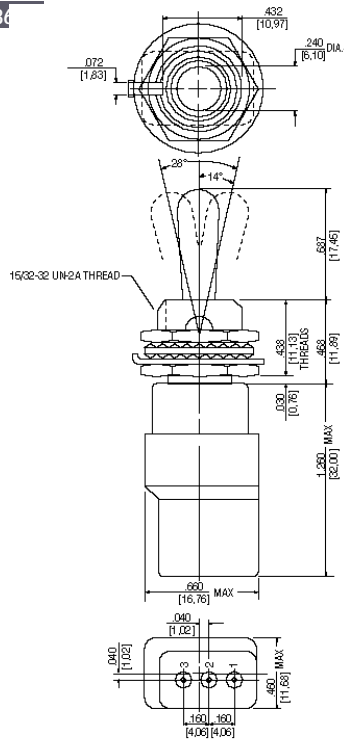
Series—8855, 8856, 8866-69

MIL-S-8834 Miniature Positive Action Switches
Toggle and Lever Lock/IWTS Terminals

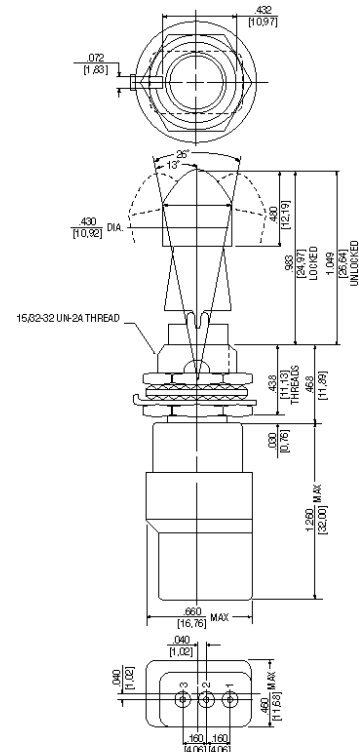
MOUNTING DIMENSIONS—ONE POLE / 8855, 8866, 8869



Small Toggle

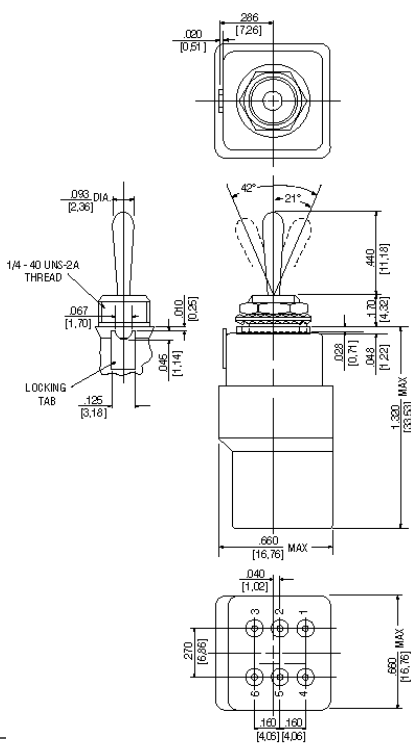


Large Toggle / Terminal Identification

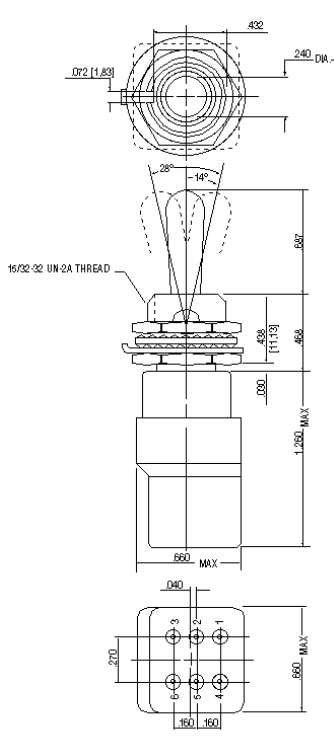


Lever Lock

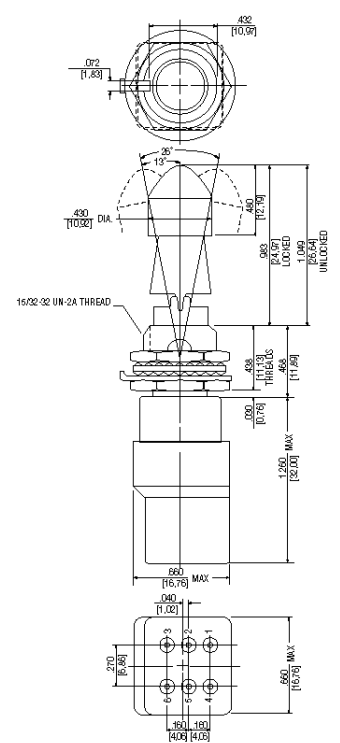
MOUNTING DIMENSIONS—TWO POLE / 8856, 8867, 8869



Small Toggle



Large Toggle / Terminal Identification



Lever Lock

STANDARD
0.00 = inches
[0.0] = mm

MINIATURE INTEGRAL TOGGLE SWITCHES

Series T and TW

T 2150, TW 20,000, T 2660, TW 20,001

Series T

SPECIFICATIONS

Seal: Dust resistant
 Type of Operation: Maintained
 Electrical Life: 10,000 operations at 28VDC or 115VAC
 Mechanical Life: 20,000 operations
 Operating Temp.Range: -150°F to +160°F
 (-65°C to +71°C)

CURRENT RATINGS

Catalog Number	Poles and Throw	28VDC			115VAC		
		Lamp Load (Amps)	Resistive Load (Amps)	Inductive Load (Amps)	Lamp Load (Amps)	Resistive Load (Amps)	Inductive Load (Amps) (.75 pf)
T1002	1 P.S.T.	5	20	15	3	10	10
T1003	1 P.D.T.	5	20	15	3	10	10
T2106	1 P.D.T.*	3.0	10	5	3	10	5
T2114	1 P.D.T.*	3.0	10	5	3	10	5
T2150	2 P.D.T.	.5	3	1	.5	3	1
T2153	2 P.D.T.	.5	3	1	.5	3	1
T3103	1 P.D.T.	1.0	5	3	1.0	5	3
T3113	1 P.D.T.	1.0	5	3	1.0	5	3

*Two Circuit



T2153



T3113



T2114



T1003

Series TW (Sealed)

SPECIFICATIONS

Seal: Dust proof (per MIL-S-83731)
 Type of Operation: Maintained
 Electrical Life: 20,000 operations at 28VDC or 115VAC
 Mechanical Life: 40,000 operations
 Operating Temp.Range: -40°F to +160°F
 (-40°C to +71°C)

CURRENT RATINGS

Catalog Number	MS Number ①	Poles and Throw	28VDC			115VAC		
			Lamp Load (Amps)	Resistive Load (Amps)	Inductive Load (Amps)	Lamp Load (Amps)	Resistive Load (Amps)	Inductive Load (Amps) (.75 pf)
TW1002	-	1 P.S.T.	5	20	15	3	10	10
TW1003	-	1 P.D.T.	5	20	15	3	10	10
TW20000	-	2 P.D.T.	.5	2	.5	.1	.1	.1
TW20001	-	1 P.D.T.*	.5	2	.5	.1	.1	.1
TW20002	-	1 P.D.T.	.5	1	.5	.1	.1	.1

① Qualified to MIL-S-83731

*Two Circuit



TW20000



TW20002



TW20001



TW1003

HIGH CAPACITY SWITCHES


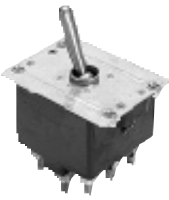
Series—8780, 8790

High Capacity Flush Mounted Switches

FEATURES	SPECIFICATIONS	No. of Poles	Catalog Number	Type of Operation	CURRENT RATINGS					
					28VDC			115VAC 60 or 400Hz		
					Lamp Load	Resistive Load	Inductive Load	Lamp Load	Resistive Load	Inductive Load
<ul style="list-style-type: none"> • 1 and 3 pole circuitry • Flush mounted (5 holes required) • High capacity ratings • Terminal stud termination 	<ul style="list-style-type: none"> • Military approved to MIL-S-3950C and E1663 specifications • Current ratings up to 175 Amp on AN3230 type and 80 Amp on E1663 type • Temperature range: -67°F to +160°F (-55°C to +71°C) • Life: 10,000 operations at rated load 20,000 operations mechanical life • Power studs have .250 [6,35] -20 threads 	1	8780K11 8781K11 8782K11	Maintained	35	175	45	11	55	45
		3	8790K4 8792K3	Maintained	12	80	30	7.5	30	20

TOGGLE SWITCHES

SELECTION TABLE

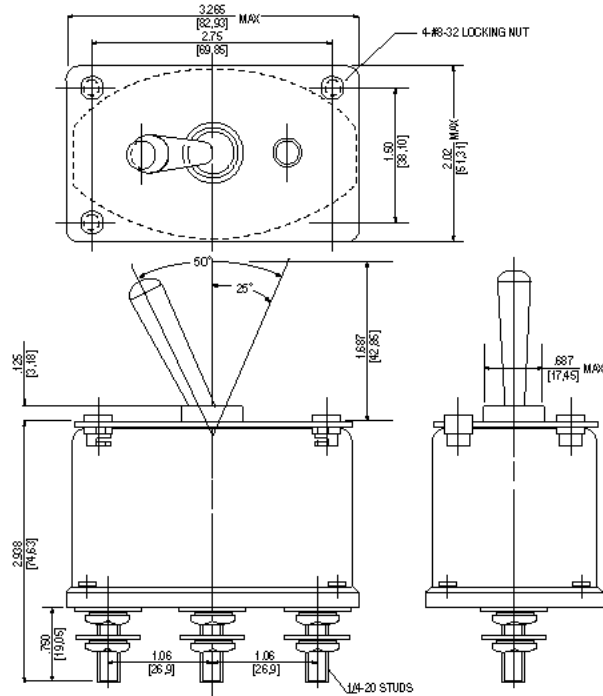
		CIRCUIT WITH LEVER IN...			MS or Government Drawing Number	AN Part Number	Catalog Number
		Up Position (Lockable)	Center Position	Down Position			
 <p>8780</p>	 <p>8790</p>	ONE POLE - HIGH CAPACITY					
		ON	OFF	ON	—	AN3230-1	8780K11
		ON	NONE	OFF	—	-2	8781K11
		ON	NONE	ON	—	-3	8782K11
		THREE POLE - HIGH CAPACITY					
		ON	OFF	ON	E1663-1	—	8790K4
ON	NONE	ON	-3	—	8792K3		

HIGH CAPACITY SWITCHES

Series—8780, 8790

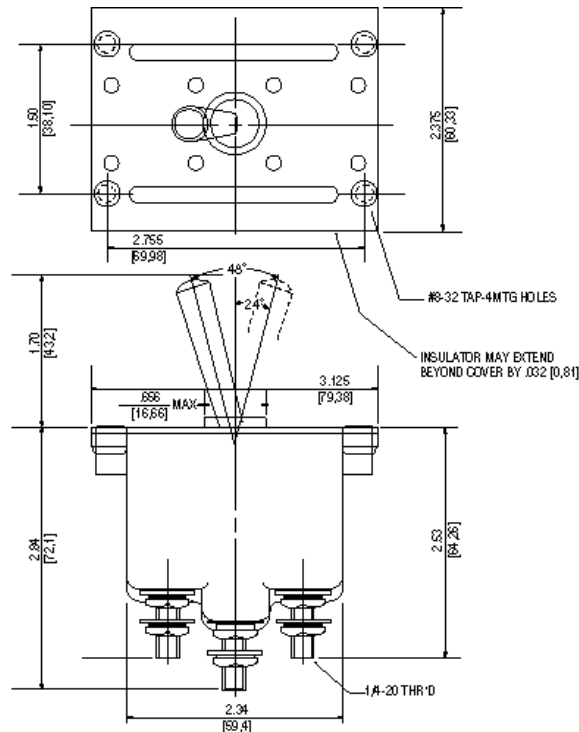
High Capacity Flush Mounted Switches

MOUNTING DIMENSIONS—ONE POLE / 8780



Terminal Identification

MOUNTING DIMENSIONS—THREE POLE / 8790



Terminal Identification

STANDARD
0.00 = inches
[0,0] = mm

Mounting dimensions for reference only.
Non-functional terminals not supplied.

TOGGLE SWITCHES

NOMINAL RATINGS AND CIRCUIT DIAGRAMS

UL AND CSA NOMINAL RATINGS

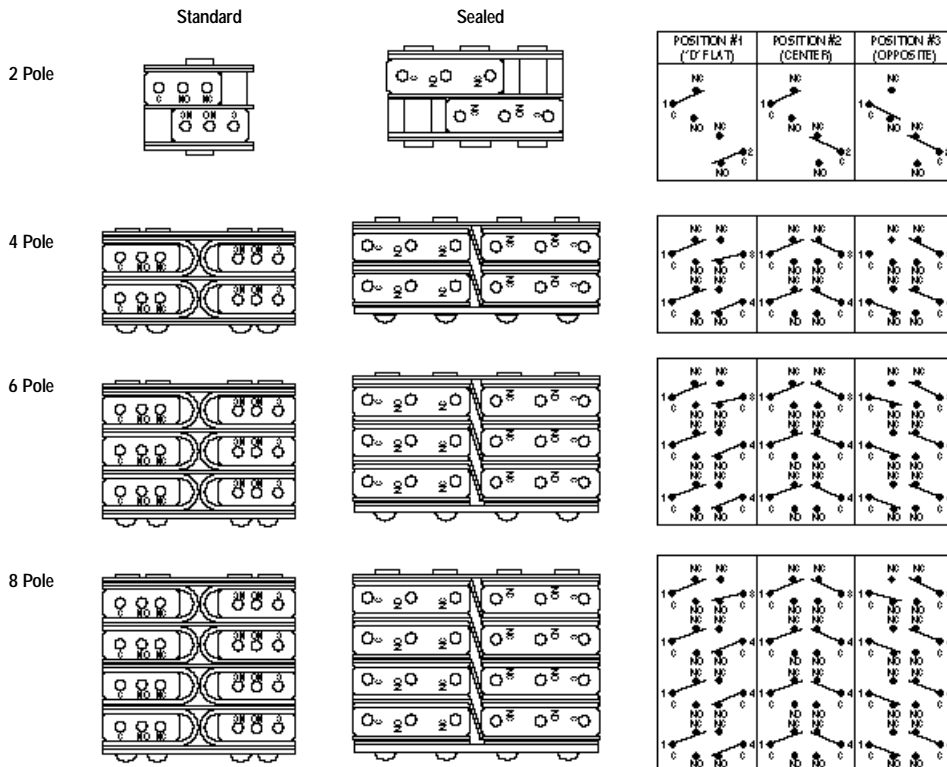
Catalog Number	Amperes		Maximum Horsepower		
			1 Phase		3 Phase
	125VAC	250VAC	125VAC	250VAC	125/250VAC
8520K1-5, K9	18	9	¼	½	—
8521K1-5, K9	18	9	½	1	—
8522K1-5, K9	18	9	½	1	1
8526K1-5, K9	18	9	—	—	—
8527K1-5, K9	18	9	—	—	—
8528K1-5, K9	18	9	—	—	—
8530K1-13, K31-313, K91-913	18	9	¼	½	—
8531K1-16, K31-316, K91-916	18	9	½	1	—
8532K1-17, K31-317, K91-917	18	9	½	1	1
8533K1-13, K31-313, K91-913	18	9	¼	½	—
8534K1-13, K31-316, K91-916	18	9	½	1	—
8535K1-17, K31-317, K91-917	18	9	½	1	1
8536K1-13, K31-313, K91-913	18	9	¼	½	—
8537K1-16, K31-316, K91-916	18	9	½	1	—
8538K1-17, K31-317, K91-917	18	9	½	1	1

TOGGLE SWITCHES

BASIC SWITCH CIRCUITS

BACK CONFIGURATIONS

SCHEMATIC DIAGRAMS



TOGGLE SWITCHES – ENVIRONMENTALLY SEALED SWITCHES

Standard Circuit Arrangements Industrial, Econoswitch and MIL-S-3950 Series

CIRCUIT WITH LEVER IN...

Number of Poles and Throws	Switch Circuit ①	Up Position 	Center Position 	Down Position (Keyway)
1PST	ON-NONE-OFF		NONE	OFF
	ON-OFF-NONE		OFF	NONE
	ON-OFF* -NONE		OFF(MOM.)	NONE
	NONE-OFF-ON*	NONE	OFF	OFF(MOM.)
	ON-NONE-OFF*		NONE	OFF(MOM.)
OFF-NONE-ON*	OFF	NONE		
1PDT	ON-OFF-ON			
	ON-NONE-ON		NONE	
	ON-NONE-ON*		NONE	
	ON-OFF-ON		OFF	
	ON-OFF-ON*		OFF	
*ON-ON-NONE			NONE	
ON-ON-NONE			NONE	
2PST	ON-NONE-OFF		NONE	OFF
	ON-OFF-NONE		OFF	NONE
	ON-OFF* -NONE		OFF(MOM.)	NONE
	NONE-OFF-ON*	NONE	OFF	
	ON-NONE-OFF*		NONE	OFF(MOM.)
OFF-NONE-ON*	OFF	NONE		
2PDT	ON-OFF-ON			
	ON-NONE-ON		NONE	
	ON-NONE-ON*		NONE	
	ON-OFF-ON			
	ON-OFF-ON*			
	*ON-ON-NONE			NONE
	ON-ON-NONE			NONE
4PST	ON-NONE-OFF		NONE	OFF
	ON-OFF-NONE		OFF	NONE
	ON-OFF* -NONE		OFF(MOM.)	NONE
	NONE-OFF-ON*	NONE	OFF	
	ON-NONE-OFF*		NONE	OFF(MOM.)
	OFF-NONE-ON*	OFF	NONE	

TOGGLE SWITCHES – ENVIRONMENTALLY SEALED SWITCHES

Standard Circuit Arrangements Industrial, Econoswitch and MIL-S-3950 Series

CIRCUIT WITH LEVER IN...C on't

Number of Poles and Throws	Switch Circuit ①	Up Position 	Center Position 	Down Position (Keyway)
	ON-OFF-ON		OFF	
	ON-NONE-ON		NONE	
	ON-NONE-ON*		NONE	
4PDT	*ON-OFF-ON*		OFF	
	ON-OFF-ON*		OFF	
	*ON-ON-NONE			NONE
	ON-ON-NONE			NONE

① See page 77 for ON-ON-ON and special circuits.

* Momentary contact.

TOGGLE SWITCHES - ENVIRONMENTALLY SEALED SWITCHES

Special ON-ON-ON Circuit Arrangements for Two and Four Pole Switches

Industrial, Econoswitch and MIL-S-3950 Series

CIRCUIT WITH LEVER IN...

Number of Poles	Up Position	Center Position	Down Position (Keyway)	Catalog Part Number
TWO POLE				
2	Maintained 	Maintained 	Maintained 	8501K14, 8504K43-K55, 8511K14 8531K14, 8531K914, 8531K314 8534K14, 8534K914, 8534K314 8537K14, 8537K914, 8537K314, 8567K14
2	Maintained 	Maintained 	Momentary 	8501K15, 8504K56-K61, 8511K15 8531K15, 8531K915, 8531K315 8534K15, 8534K915, 8534K315 8537K15, 8537K915, 8537K315, 8567K15
2	Momentary 	Maintained 	Momentary 	8501K16, 8504K62-K64, 8511K16 8531K16, 8531K916, 8531K316 8534K16, 8534K916, 8534K316 8537K16, 8537K916, 8537K316, 8567K16
2	Maintained 	Maintained 	Maintained 	8501K17, 8504K65-K77, 8511K17 8531K17, 8531K917, 8531K317 8567K17, 8571K17-16, 8571K17-20 8574K65-16 - 8574K77-16 8574K65-20 - 8574K77-20
2	Maintained 	Maintained 	Momentary 	8501K18, 8504K78-K83, 8511K18 8531K18, 8531K918, 8531K318 8567K18, 8571K18-16, 8571K18-20 8574K78-16 - 8574K83-16 8574K78-20 - 8574K83-20
2	Momentary 	Maintained 	Momentary 	8501K19, 8504K84-K87, 8511K19 8531K19, 8531K919, 8531K319 8567K19, 8571K19-16, 8571K19-20 8574K84-16, 8574K86-16 8574K84-20, 8574K86-20
FOUR POLE				
4	Maintained 	Maintained 	Maintained 	8502K15, 8512K15 8532K15, 8532K915, 8532K315 8535K15, 8535K915, 8535K315 8538K15, 8538K915, 8538K315 8568K15 8575K43-16 - 8575K55-16 8575K43-20 - 8575K55-20
4	Maintained 	Maintained 	Momentary 	8502K16, 8512K16 8532K16, 8532K916, 8532K316 8535K16, 8535K916, 8535K316 8538K16, 8538K916, 8538K316 8568K16 8575K56-16 - 8575K61-16 8575K56-20 - 8575K61-20
4	Momentary 	Maintained 	Momentary 	8502K17, 8512K17 8532K17, 8532K917, 8532K317 8535K17, 8535K917, 8535K317 8538K17, 8538K917, 8538K317 8568K17 8575K62-16 - 8575K64-16 8575K62-20 - 8575K64-20

TOGGLE SWITCHES – ENVIRONMENTALLY SEALED SWITCHES

Special Circuit Arrangements for Two and Four Pole Switches

Industrial, Econoswitch and MIL-S-3950 Series

SPECIAL "ON-ON-ON" CIRCUIT ARRANGEMENTS

"Three Independent" ON-ON-ON Circuit Diagram

For switch modified with "Three Independent" ON-ON-ON Special Circuit.

External Jumpers are required. User to connect wiring per instructions given below.

Connection Points	Single Pole ①	Double Pole ②
Connect Common to Terminals	2	2 and 11
Connect Circuit "A" to Terminals	6	6 and 9
Connect Circuit "B" to Terminals	4	4 and 7
Connect Circuit "C" to Terminals	1	1 and 10

Circuit Poles	No. of Poles	Up Position	Center Maintained Position	Down Position (Keyway)
Circuit for Single Pole (Jumper between Terminals #3 & #5)	1			
Circuit for Double Pole (Jumpers between Terminals #3 & #5 #8 & #12)	2			

① Requires using a two pole switch to accomplish single pole independent "on-on-on" circuit.

② Requires using a four pole switch to accomplish a double pole independent "on-on-on" circuit.

Note: Basic circuit same as offered with part numbers 8501K14, 8501K15 or 8501K16 for two pole devices and part numbers 8502K15, 8502K16 or 8502K17 for four pole devices.

SPECIAL CIRCUIT (OFF-ON-ON)

Circuit	No. of Poles	OFF	ON	ON	Circuit Being Made . . .	Terminal Numbers Making The Circuit
		Up Position	Center Maintained Position	Down Position (Keyway)		
Circuit for Single Pole (Jumper between terminals #2 & #4). Common terminal #5. Non-functional terminal #6.	2				UP (OFF)	—
					CENTER (ON)	#3 & #5
					DOWN (ON)	#1 & #5
Circuit for Double Pole (Jumpers between terminals #2 & #4 and #7 & #11). Common terminals #5 & #11. Non-functional terminals #6 & #9.	4				UP (OFF)	—
					CENTER (ON)	#3 & #5 #8 & #12
					DOWN (ON)	#1 & #5 #8 & #10

TOGGLE SWITCHES – ENVIRONMENTALLY SEALED SWITCHES

Special Circuit Arrangements for Two and Four Pole Switches

Industrial, Econoswitch and MIL-S-3950 Series

SPECIAL PROJECTOR CIRCUIT (OFF-ON-ON)		OFF	ON	ON		
Circuit	No. of Poles	Up Position	Center Maintained Position	Down Position (Keyway)	Circuit Being Made . . .	Terminal Numbers Making The Circuit
Note: Requires two poles to achieve a single pole device or four poles to achieve a double pole device. Circuit for Single Pole (Jumper between terminals #2 & #5). Common terminal #5. Non-functional terminal #1 & #4.	2	(ON)	(ON)	(OFF)	UP (ON)	#2 & #3 #5 & #6
					CENTER (ON)	#5 & #3
					DOWN (OFF)	—
Circuit for Double Pole (Jumpers between terminals #2 & #5 and #8 & #11). Common terminals #5 & #11. Non-functional terminals #1, #7 & #9.	4	(ON)	(ON)	(OFF)	UP (ON)	#2 & #3 #5 & #6 #11 & #12
					CENTER (ON)	#3 & #5 #11 & #12
					DOWN (OFF)	—

SPECIAL ON-ON-ON CIRCUITS FOR MINIATURE POSITIVE ACTION SWITCHES

Circuit Arrangements

CIRCUIT WITH LEVER IN...

Number of Poles	Up Position	Center Position	Down Position (Keyway)	Catalog Part Number
TWO POLE				
2	(Maintained) 	(Maintained) 	(Maintained) 	8856K21, K30, K31, K32 8856K21X, K30X, K31X, K32X 8856K721, K730, K731, K732 8867K9, 8867K69, 8867KA69 8869K9, 8869K9X, 8869K69, 8869K69X
2	(Maintained) 	(Maintained) 	(Momentary) 	8856K23, K35, K36 8856K23X, K35X, K36X 8856K723, K735, K736 8867K10, 8867K610, 8867KA610 8869K10, 8869K10X, 8869K610, 8869K610X
2	(Momentary) 	(Maintained) 	(Momentary) 	8856K22, K34 8856K22X, K34X 8856K722, K734 8867K11, 8867K611, 8867KA611 8869K11, 8869K11X, 8869K611, 8869K611X

TOGGLE SWITCHES

SPECIAL "ON-ON-ON" CIRCUIT ARRANGEMENTS

"Three Independent" ON-ON-ON Circuit Diagram
 For switch modified with "Three Independent" ON-ON-ON Special Circuit.
 External Jumpers are required. User to connect wiring per instructions given below.

Connection Points	Single Pole ①	Double Pole ②
Connect Common to Terminals	2	2 and 11
Connect Circuit "A" to Terminals	6	6 and 9
Connect Circuit "B" to Terminals	4	4 and 7
Connect Circuit "C" to Terminals	1	1 and 10

Circuit Poles	No. of Poles	Up Position	Center Maintained Position	Down Position (Keyway)
Circuit for Single Pole (Jumper between Terminals #3 & #5)	1			