

EAO – Your Expert Partner for
Human Machine Interfaces



Emergency-Stop & Stop Switches

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Emergency-stop and Stop switches by comparison

EAO, the experts for Human Machine Interfaces, offers a complete range of E-stops (Emergency-stops) and stop switches, as part of their comprehensive choice of actuators and indicators.

Put simply, the difference between an “E-stop” and a “stop” is that E-stops are foolproof and conform to the relevant norms and standards.

1. Emergency-stop switches, foolproof

E-stop equipment incorporates positive opening action and is tested according to the pre-determined standards EN 60947-5-1 and EN 60947-5-5. They are also suitable for applications complying with DIN EN ISO 13850 and EN 60204. This is why they must be equipped with a red lens with a clearly marked unlocking symbol and must have a yellow background.

E-stop switches are always foolproof. This means that no contact may open before the mechanical interlocking has taken place. The norms and specifications read as follows: “It shall not be possible for the emergency stop device to latch-in without generating the emergency stop signal (EN 60947-5-5 chapter 6.2.1 / 1)”.

2. Stop switches, non-foolproof

Stop switches do not have to comply with the above mentioned norms and specifications. This is why they are of less demanding design. They do not have to be foolproof and the contact may open before the mechanical interlocking has taken place. In addition, neither the lens colour has to be red nor the background has to be yellow. Positive opening contacts may be used with stop switches, even though this is not a binding requirement.

3. Stop switches, foolproof (customer specific)

As an exception to the rule, stop switches can be ordered that correspond technically and norm-wise with an E-stop switch but use a different colour code – the red lens and the yellow background are not allowed to be used. In addition to being foolproof, special stop switches can be equipped with positive opening contacts also. This type of stop switch is especially suited for wireless handheld control panels.

These three types of switch enable original equipment manufacturers and designers to exactly select the type of product that best suits their requirements. For example, the emergency-call switch on page 18, even though not being of the forced opening type, fulfils all the required functions.

Of special interest are the illuminated Series 84 E-stops on page 24. They are of mono-block design with an especially low behind-panel depth which renders them especially suitable for compact, space-restricted applications.

If you have any questions regarding E-stop or stop switches, or for information regarding HMI applications, please do not hesitate to contact your local EAO subsidiary, or visit our website at www.eao.com.

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Emergency-Stop Switches, foolproof



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Stop Switches, non-foolproof



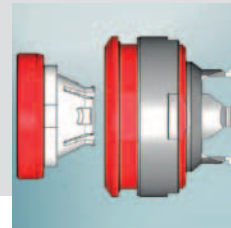
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Stop Switches, foolproof



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Technical Data and Technical Drawings



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IP & IK Ratings



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Colour Coding



Switches, Pushbuttons,
Actuators



Switching Elements,
Adapters



Accessories

Easy configuration

To simplify the ordering of these switches and indicators, only one type of switch is shown per page. To configure a complete unit, just select the red, green and/or yellow coded components.

Product Overview

EAO Emergency-stop switches and stop switches may be equipped with up to four contacts. The opening contacts are forced opening. EAO offers different series with 16 mm, 22.5 mm or 30.5 mm mounting diameter. Accessories such as surface-mounted enclosures, labels and protective shrouds complement the product range. The low 13.5 mm mounting depth of the Series 84 Emergency stop makes it especially useful for small control panels.

Emergency-Stop Switches, foolproof

Foolproof to EN IEC 60947-5-5, EN ISO 13850 and EN 60947-5-1

| Features | Series 04 | Series 44 | Series 61 | Series 84 |
|-----------------------------|----------------------|-------------------------|-------------------------|---------------------------|
| Mounting | 22.5 mm | 22.5 mm | 16 mm | 22.5 mm |
| Minimal mounting depth | 53 mm, 2 contacts | 53/64 mm, 3 contacts | 44/46 mm, 2 contacts | 13.5/18 mm, 2 contacts |
| Degree of protection | IP65 | IP65 | IP65 | IP65 |
| Screw terminal | x | x | x | – |
| Plug-in terminal | 2 × 6.3 × 0.8 mm | – | 2.8 × 0.5 mm | 2.8 × 0.5 mm |
| Soldering terminal | – | – | x | x |
| Ribbon cable | – | – | – | x |
| Illuminated | – | – | – | x |
| Max. current I _n | 10 A | 10 A | 5 A | 5 A |
| Max. voltage | 500 VAC/600 VDC | 600 VAC/250 VDC | 250 VAC | 250 VAC/DC |
| Min. current/voltage | 10 mA, 24 VDC | 20 mA, 6 V | 100 mA, 20 VAC/DC | 1 mA, 1 VAC/DC |
| Silver contacts | x | x | x | – |
| Gold-plated contacts | x | x | – | x |
| Number of contacts | max. 4 | max. 3 | max. 2 | max. 2 |
| Twist release | x | x | x | x |
| Key release | x | x | x | – |
| Head cap colour | red | red | red | red |
| Head cap diameter | 37 mm | 37 mm | 27 mm | 32 mm |
| Head cap height | 47 mm | 47 mm | 33.5 mm | 26 mm |

Stop Switches, non-foolproof

| Features | Series 04 | Series 44 | Swisstac |
|-----------------------------|----------------------|-------------------------|-------------------------|
| Mounting | 22.5/30.5 mm | 22.5 mm | 16 mm |
| Minimal mounting depth | 53 mm, 2 contacts | 53/64 mm, 3 contacts | 52/70 mm, 3 contacts |
| Degree of protection | IP65 | IP65 | IP40/IP65 |
| Screw terminal | x | x | – |
| Plug-in terminal | 2 × 6.3 × 0.8 mm | – | 2.8 × 0.5 mm |
| Soldering terminal | – | – | x |
| PCB terminal | – | – | x |
| Ribbon cable | – | – | – |
| Illuminated | – | – | – |
| Max. current I _n | 10 A | 10 A | 5 A |
| Max. voltage | 500 VAC/600 VDC | 600 VAC/250 VDC | 250 VAC/DC |
| Min. current/voltage | 10 mA, 24 VDC | 20 mA, 6 V | 20 mA, 20 VAC/DC |
| Silver contacts | x | x | – |
| Gold-plated contacts | x | x | x |
| Number of contacts | max. 4 | max. 3 | max. 3 |
| Twist release | x | x | x |
| Key release | x | – | x |
| Head cap colour | red | red | red |
| Head cap diameter | 40 mm | 50 mm | 24 mm |
| Head cap height | 25/14 mm | 38 mm | 25 mm |

Stop Switches, foolproof




| Series 61 | Series 84 |
|-------------------------|---------------------------|
| 16 mm | 22.5 mm |
| 44/46 mm, 2 contacts | 13.5/18 mm, 2 contacts |
| IP65 | IP65 |
| x | – |
| 2.8 × 0.5 mm | 2.8 × 0.5 mm |
| x | x |
| – | – |
| – | x |
| – | x |
| 5 A | 5 A |
| 250 VAC | 250 VAC/DC |
| 2 mA, 10 VAC/DC | 1 mA, 1 VAC/DC |
| x | – |
| x | x |
| max. 2 | max. 2 |
| x | x |
| x | – |
| grey/black | grey/black |
| 27 mm | 32 mm |
| 33.5 mm | 26 mm |




EAO Emergency-Stop Switches



Foolproof




16 mm Ø, Series 61, IP65, non-illuminated




| Emergency-stop actuator | | | | Emergency-stop actuator | | | | Switching element | | |
|---|-------------|-----------------|------------|---|-----------|-----------------|------------|---|----------|--------------------|
|  | | | |  | | | |  | | |
| Twist release; head cap red 27 mm Ø; foolproof | | | | Key release; head cap red 27 mm Ø; foolproof | | | | Slow make; silver contacts; forced opening | | |
| Part No. | Marking | Indication ring | Fixing nut | Part No. | Labelling | Indication ring | Fixing nut | Part No. | Contacts | Terminals |
| 61-3440.4/1 | Arrows | Black | Plastic | 61-5441.4/K | Stop | Black | Plastic | 61-8755.11 | 2NC | Screw |
| 61-3440.4/2 | Stop+Arrows | Black | Plastic | | | | | 61-8755.17 | 2NC | Soldering-/Plug-in |
| 61-344.4/D | Arrows | Black | Metal | | | | | 61-8775.11 | 1NO/1NC | Screw |
| | | | | | | | | 61-8775.17 | 1NO/1NC | Soldering-/Plug-in |
| | | | | | | | | 61-8745.11 | 1NC | Screw |
| | | | | | | | | 61-8745.17 | 1NC | Soldering-/Plug-in |
| Foolproof according to EN IEC 60947-5-5, EN ISO 13850 and EN 60204-1 | | | | Foolproof according to EN IEC 60947-5-5, EN ISO 13850 and EN 60204-1 | | | | | | |
| For complete unit also order switching element | | | | For complete unit also order switching element | | | | Conforming to IEC 60947-5-1 | | |

| Label | | Enclosure | | | Mounting tool | | |
|--|-----------------|--|-----------------|----------------------|---|-----------|------------------|
|  | |  | | |  | | |
| Yellow 43 mm Ø; labelling in German, English and French | | Bottom grey; cover yellow, lead-sealable; IP66; cable gland with traction relief; IP68 | | | 1) For tightening or loosening of the fixing nut 2) For dismantling of the switching element | | |
| Part No. | Labelling | Part No. | Reference | Dimensions l × w × h | Image | Part No. | Reference |
| 61-9970.0 | None | 61-9480.5 | Housing | 65 × 65 × 57 mm | 1 | 01-907 | Mounting tool |
| 61-9970.1 | NOT AUS | 61-9481.6 | Cable gland M16 | | 2 | 61-9711.0 | Dismantling tool |
| 61-9970.2 | EMERGENCY STOP | 704.945.6 | Cable gland M20 | | | | |
| 61-9970.3 | ARRÊT D'URGENCE | | | | | | |
| 61-9970.6 | NOT HALT | | | | | | |
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- Technical data and technical drawings available on pages 26 to 28
- For 3D downloads, please refer to the EAO website




22.5 mm Ø, Series 84, IP65, non-illuminated




| Emergency-stop switch | | | Emergency-stop switch | | | Label | | |
|--|----------|-----------------|--|----------|-----------------|---|-----------------|----------------|
|  | | |  | | |  | | |
| Twist release; head cap red 32 mm Ø; gold-silver contacts; forced opening; foolproof; soldering-/plug-in terminals | | | Twist release; head cap red 32 mm Ø; gold-silver contacts; forced opening; foolproof; ribbon cable | | | Yellow; labelling in German, English and French | | |
| Part No. | Contacts | Indication ring | Part No. | Contacts | Indication ring | Part No. | Labelling | Outer diameter |
| 84-5020.0020 | 1NC | Black | 84-5020.0040 | 1NC | Black | 704.963.0 | NOT AUS | 90 mm |
| 84-5030.0020 | 1NC/1NO | Black | 84-5030.0040 | 1NC/1NO | Black | 704.963.1 | EMERGENCY STOP | 90 mm |
| 84-5040.0020 | 2NC | Black | 84-5040.0040 | 2NC | Black | 704.963.3 | NOT HALT | 90 mm |
| 84-5120.0020 | 1NC | Green | 84-5120.0040 | 1NC | Green | 704.963.5 | NOT AUS | 60 mm |
| 84-5130.0020 | 1NC/1NO | Green | 84-5130.0040 | 1NC/1NO | Green | 704.963.6 | EMERGENCY STOP | 60 mm |
| 84-5140.0020 | 2NC | Green | 84-5140.0040 | 2NC | Green | 704.963.7 | ARRET D'URGENCE | 60 mm |
| | | | | | | 704.963.8 | NOT HALT | 60 mm |
| Foolproof according to EN IEC 60947-5-5, EN ISO 13850 and EN 60204-1 | | | Foolproof according to EN IEC 60947-5-5, EN ISO 13850 and EN 60204-1 | | | | | |

| Protective shroud | | Enclosure | | | Mounting tool | |
|---|----------------|---|-----------------|----------------------|---|---------------|
|  | |  | | |  | |
| Yellow; labelling in German and English; outer diameter 50 mm, height 11 mm | | Bottom grey, cover yellow, lead-sealable; IP66; cable gland for sealing and strain relief, IP68 | | | For tightening (or loosening) of the emergency-stop fixing nut | |
| Part No. | Labelling | Part No. | Reference | Dimensions l × w × h | Part No. | Reference |
| 84-902 | None | 84-910 | Housing | 65 × 65 × 57 mm | 84-996 | Mounting tool |
| 84-902A | NOT AUS | 61-9481.6 | Cable gland M16 | | | |
| 84-902B | EMERGENCY STOP | 704.945.6 | Cable gland M20 | | | |
| 84-902D | NOT HALT | | | | | |
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- Technical data and technical drawings available on pages 31 to 33
- For 3D downloads, please refer to the EAO website


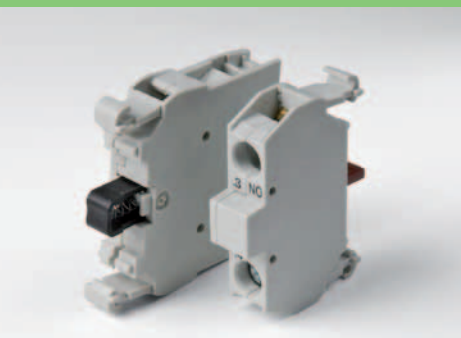

22.5 mm Ø, Series 84, IP65, illuminated




| Emergency-stop switch | | | Emergency-stop switch | | | Label | | |
|---|----------|-----------------|--|----------|-----------------|---|-----------------|----------------|
|  | | |  | | |  | | |
| Twist release; head cap red 32 mm Ø; gold-silver contacts; forced opening; foolproof; soldering- /plug-in terminals | | | Twist release; head cap red 32 mm Ø; gold-silver contacts; forced opening; foolproof; ribbon cable | | | Yellow; labelling in German, English and French | | |
| Part No. | Contacts | Indication ring | Part No. | Contacts | Indication ring | Part No. | Labelling | Outer diameter |
| 84-5021.2B20 | 1NC | Black | 84-5021.2B40 | 1NC | Black | 704.963.0 | NOT AUS | 90 mm |
| 84-5041.2B20 | 1NC/1NO | Black | 84-5041.2B40 | 1NC/1NO | Black | 704.963.1 | EMERGENCY STOP | 90 mm |
| 84-5031.2B20 | 2NC | Black | 84-5031.2B40 | 2NC | Black | 704.963.3 | NOT HALT | 90 mm |
| 84-5121.2B20 | 1NC | Green | 84-5121.2B40 | 1NC | Green | 704.963.5 | NOT AUS | 60 mm |
| 84-5131.2B20 | 1NC/1NO | Green | 84-5131.2B40 | 1NC/1NO | Green | 704.963.6 | EMERGENCY STOP | 60 mm |
| 84-5141.2B20 | 2NC | Green | 84-5141.2B40 | 2NC | Green | 704.963.7 | ARRET D'URGENCE | 60 mm |
| | | | | | | 704.963.8 | NOT HALT | 60 mm |
| Foolproof according to EN IEC 60947-5-5, EN ISO 13850 and EN 60204-1 | | | Foolproof according to EN IEC 60947-5-5, EN ISO 13850 and EN 60204-1 | | | | | |

| Protective shroud | | Enclosure | | | Mounting tool | |
|--|----------------|---|-----------------|----------------------|---|---------------|
|  | |  | | |  | |
| Yellow; labelling in German and English; outer diameter 50 mm, height 11 mm | | Bottom grey, cover yellow lead-sealable; IP66; cable gland with traction relief, IP68 | | | For tightening (or loosening) of the emergency-stop fixing nut | |
| Part No. | Labelling | Part No. | Reference | Dimensions l × w × h | Part No. | Reference |
| 84-902 | None | 84-910 | Housing | 65 × 65 × 57 mm | 84-996 | Mounting tool |
| 84-902A | NOT AUS | 61-9481.6 | Cable gland M16 | | | |
| 84-902B | EMERGENCY STOP | 704.945.6 | Cable gland M20 | | | |
| 84-902D | NOT HALT | | | | | |
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- Technical data and technical drawings available on pages 31 to 33
- For 3D downloads, please refer to the EAO website



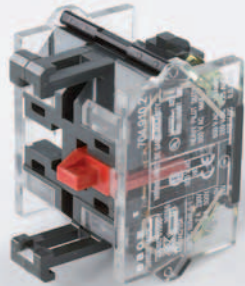
22.5 mm Ø, Series 44, IP65, non-illuminated

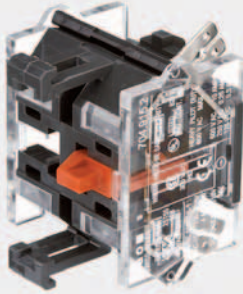

| Emergency-stop switch | | Switching element | | | Front adapter | | |
|--|---------------|--|----------|------------------|--|----------|-------------------|
|  <p>Twist- or Key release; mushroom head red 37 mm Ø; foolproof</p> | |  <p>Slow make; forced opening; front mounting; screw terminals</p> | | |  <p>For switching element</p> | | |
| Part No. | Reference | Part No. | Contacts | Contact material | Front mounting | Part No. | Labelling |
| 44-712 | Twist release | 44-131 | 1NC/NO | Hard Silver | Stackable | 44-900 | without |
| 44-713 | Key release | 44-151 | 1NC | Hard Silver | Stackable | 44-901 | 1 3 2 |
| | | 44-161 | 1NO | Hard Silver | Stackable | 44-902 | 1/2 5/6 4/3 |
| | | 44-132 | 1NC/NO | Gold-Silver | Stackable | 44-903 | 1/2/3 7/8/9 6/5/4 |
| | | 44-152 | 1NC | Gold-Silver | Stackable | | |
| | | 44-162 | 1NO | Gold-Silver | Stackable | | |
| | | 44-111 | 1NC | Hard Silver | Non-stackable | | |
| | | 44-121 | 1NC | Hard Silver | Non-stackable | | |
| Foolproof according to EN IEC 60947-5-5, EN ISO 13850 and EN 60204-1 | | Conforming to IEC 60947-5-1 | | | Please refer to main catalogue | | |

| Label | | | Label | | | Enclosure | | |
|--|-----------------|----------------|---|-----------------|----------------|---|-----------------|----------------------|
|  <p>Yellow; adhesive; labelling in German, English and French</p> | | |  <p>Yellow; adhesive; labelling in German, English and French</p> | | |  <p>Yellow; with adapter for base-mounting</p> | | |
| Part No. | Labelling | Outer diameter | Part No. | Labelling | Outer diameter | Part No. | Reference | Dimensions l × w × h |
| 44-950 | None | 60 mm | 44-949 | None | 90 mm | 44-001.4 | Housing | 84 × 72 × 64 mm |
| 44-950.1 | NOT AUS | 60 mm | 44-949.1 | NOT AUS | 90 mm | 44-956 | Cable gland M20 | |
| 44-950.2 | EMERGENCY STOP | 60 mm | 44-949.2 | EMERGENCY STOP | 90 mm | | | |
| 44-950.3 | ARRET D'URGENCE | 60 mm | 44-949.3 | ARRET D'URGENCE | 90 mm | | | |
| 44-950.4 | NOT HALT | 60 mm | 44-949.4 | NOT HALT | 90 mm | | | |
| 44-951 | None | 45 mm | | | | | | |
| 44-951.1 | NOT AUS | 45 mm | | | | | | |
| 44-951.2 | EMERGENCY STOP | 45 mm | | | | | | |
| 44-951.3 | ARRET D'URGENCE | 45 mm | | | | | | |
| 44-951.4 | NOT HALT | 45 mm | | | | | | |

- Technical data and technical drawings available on pages 38 to 40
- For 3D downloads, please refer to the EAO website



22.5 mm Ø, Series 04, IP65, non-illuminated



| Emergency-stop actuator | | Emergency-stop actuator | | Switching element | | |
|---|--|---|--|---|--|--|
|  | |  | |  | | |
| Twist release; head cap red 37 mm Ø; foolproof | | Key release; head cap red 37 mm Ø; foolproof | | Slow make; forced opening; screw terminals | | |
| Part No. Marking | | Part No. Marking | | Part No. Contacts Contact material | | |
| 704.064.2 Arrows | | 704.066.2 Arrows | | 704.910.1 1NO Hard Silver | | |
| | | | | 704.910.2 1NC Hard Silver | | |
| | | | | 704.910.3 2NO Hard Silver | | |
| | | | | 704.910.4 2NC Hard Silver | | |
| | | | | 704.910.5 1NC/1NO Hard Silver | | |
| | | | | 704.911.1 1NO Gold-Silver | | |
| | | | | 704.911.2 1NC Gold-Silver | | |
| Foolproof according to EN IEC 60947-5-5, EN ISO 13850 and EN 60204-1 | | Foolproof according to EN IEC 60947-5-5, EN ISO 13850 and EN 60204-1 | | 704.911.3 2NO Gold-Silver | | |
| | | | | 704.911.4 2NC Gold-Silver | | |
| For complete unit also order switching element | | For complete unit also order switching element | | 704.911.5 1NC/1NO Gold-Silver | | |

| Switching element | | | Switching element | | |
|---|----------|------------------|---|----------|------------------|
|  | | |  | | |
| Slow make; forced opening; plug-in terminal | | | Slow make; forced opening; double plug-in terminal | | |
| Part No. | Contacts | Contact material | Part No. | Contacts | Contact material |
| 704.915.1 | 1NO | Hard Silver | 704.915.1/D | 1NO | Hard Silver |
| 704.915.2 | 1NC | Hard Silver | 704.915.2/D | 1NC | Hard Silver |
| 704.915.3 | 2NO | Hard Silver | 704.915.3/D | 2NO | Hard Silver |
| 704.915.4 | 2NC | Hard Silver | 704.915.4/D | 2NC | Hard Silver |
| 704.915.5 | 1NC/1NO | Hard Silver | 704.915.5/D | 1NC/1NO | Hard Silver |
| Conforming to IEC 60947-5-1 | | | Conforming to IEC 60947-5-1 | | |

- Technical data and technical drawings available on pages 34 to 37
- For 3D downloads, please refer to the EAO website

22.5 mm Ø, Series 04, IP65, non-illuminated

| Label | | | Enclosure | | |
|---|-----------------|----------------|---|-------------|----------------------|
|  | | |  | | |
| Yellow; labelling in German, English and French | | | Bottom grey; cover yellow lead-sealable; IP66; cable gland with traction relief; IP68 | | |
| Part No. | Labelling | Outer diameter | Part No. | Reference | Dimensions l × w × h |
| 704.963.0 | NOT AUS | 90 mm | 704.945.7 | Housing | 65 × 65 × 81 mm |
| 704.963.1 | EMERGENCY STOP | 90 mm | 704.945.8 | Housing | 94 × 65 × 81 mm |
| 704.963.3 | NOT HALT | 90 mm | 704.945.0 | Housing | 94 × 94 × 81 mm |
| 704.963.5 | NOT AUS | 60 mm | 61-9481.6 | Cable gland | M16 |
| 704.963.6 | EMERGENCY STOP | 60 mm | 704.945.6 | Cable gland | M20 |
| 704.963.7 | ARRET D'URGENCE | 60 mm | | | |
| 704.963.8 | NOT HALT | 60 mm | | | |
| | | | | | |
| | | | | | |
| | | | | | |

| Protective shroud | | Protective shroud | |
|--|------------|---|------------|
|  | |  | |
| For E-stop and stop switch applications; IP65; with anti-rotation pin; material: plastic | | For E-stop and stop switch applications only; material plastic | |
| Part No. | Dimensions | Part No. | Dimensions |
| 704.927.9 | 82 mm | 704.927.8 | 50 mm |
| | | | |
| | | | |
| | | | |
| Available: spring 2010 | | Available: spring 2010 | |
| | | | |
| Conforms to SEMI S2-93 12.4 in combination with E-stop switches | | The protective shroud 704.927.8 can obstruct sudden operation | |



- Technical data and technical drawings available on pages 34 to 37
- For 3D downloads, please refer to the EAO website



EAO Stop Switches



Non-Foolproof



16 mm Ø, Series Swisstac, IP65, non-illuminated



| Stop switch | | | | Stop switch | | | |
|--|----------------|----------|----------------------|--|----------------|----------|----------------------|
|  | | | |  | | | |
| Twist release; head cap red 24 mm Ø; gold contacts; forced opening; non-foolproof; incl. switching element | | | | Key release; head cap red 24 mm Ø; gold contacts; forced opening; non-foolproof; incl. switching element | | | |
| Part No. | Mounting depth | Contacts | Terminals | Part No. | Mounting depth | Contacts | Terminals |
| 951+2000-WP | 52 mm | 1NC | PCB | 961+2401-WP | 52 mm | 1NC | PCB |
| 952+2000-WP | 52 mm | 2NC | PCB | 962+2401-WP | 52 mm | 2NC | PCB |
| 953+2000-WP | 52 mm | 3NC | PCB | 963+2401-WP | 52 mm | 3NC | PCB |
| 951+2000-WO | 55 mm | 1NC | Soldering- / plug-in | 961+2401-WO | 55 mm | 1NC | Soldering- / plug-in |
| 952+2000-WO | 55 mm | 2NC | Soldering- / plug-in | 962+2401-WO | 55 mm | 2NC | Soldering- / plug-in |
| 953+2000-WO | 55 mm | 3NC | Soldering- / plug-in | 963+2401-WO | 55 mm | 3NC | Soldering- / plug-in |
| 851+2000-WP | 67 mm | 1NC | PCB | 861+2401-WP | 67 mm | 1NC | PCB |
| 852+2000-WP | 67 mm | 2NC | PCB | 862+2401-WP | 67 mm | 2NC | PCB |
| 853+2000-WP | 67 mm | 3NC | PCB | 863+2401-WP | 67 mm | 3NC | PCB |
| 851+2000-WO | 70 mm | 1NC | Soldering- / plug-in | 861+2401-WO | 70 mm | 1NC | Soldering- / plug-in |
| 852+2000-WO | 70 mm | 2NC | Soldering- / plug-in | 862+2401-WO | 70 mm | 2NC | Soldering- / plug-in |
| 853+2000-WO | 70 mm | 3NC | Soldering- / plug-in | 863+2401-WO | 70 mm | 3NC | Soldering- / plug-in |

| Mounting tool | | Jaw spanner | |
|---|---------------|--|-------------|
|  | |  | |
| For tightening (or loosening) of the fixing nut | | For tightening (or loosening) of the fixing nut and dismantling of the switching element block | |
| Part No. | Reference | Part No. | Reference |
| 300-0003-00 | Mounting tool | 300-0004-00 | Jaw spanner |
| | | | |
| | | | |
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| | | | |

- Technical data and technical drawings available on pages 29 to 30
- For 3D downloads, please refer to the EAO website




16 mm Ø, Series Swisstac, IP40, non-illuminated




| Stop switch | | | | Stop switch | | | |
|--|----------------|----------|----------------------|--|----------------|----------|----------------------|
|  | | | |  | | | |
| Twist release; head cap red 24 mm Ø; gold contacts; forced opening; non-foolproof; incl. switching element | | | | Key release; head cap red 24 mm Ø; gold contacts; forced opening; non-foolproof; incl. switching element | | | |
| Part No. | Mounting depth | Contacts | Terminals | Part No. | Mounting depth | Contacts | Terminals |
| 951+2000-0P | 52 mm | 1NC | PCB | 961+2401-0P | 52 mm | 1NC | PCB |
| 952+2000-0P | 52 mm | 2NC | PCB | 962+2401-0P | 52 mm | 2NC | PCB |
| 953+2000-0P | 52 mm | 3NC | PCB | 963+2401-0P | 52 mm | 3NC | PCB |
| 951+2000-00 | 55 mm | 1NC | Soldering- / plug-in | 961+2401-00 | 55 mm | 1NC | Soldering- / plug-in |
| 952+2000-00 | 55 mm | 2NC | Soldering- / plug-in | 962+2401-00 | 55 mm | 2NC | Soldering- / plug-in |
| 953+2000-00 | 55 mm | 3NC | Soldering- / plug-in | 963+2401-00 | 55 mm | 3NC | Soldering- / plug-in |
| 851+2000-0P | 67 mm | 1NC | PCB | 861+2401-0P | 67 mm | 1NC | PCB |
| 852+2000-0P | 67 mm | 2NC | PCB | 862+2401-0P | 67 mm | 2NC | PCB |
| 853+2000-0P | 67 mm | 3NC | PCB | 863+2401-0P | 67 mm | 3NC | PCB |
| 851+2000-00 | 70 mm | 1NC | Soldering- / plug-in | 861+2401-00 | 70 mm | 1NC | Soldering- / plug-in |
| 852+2000-00 | 70 mm | 2NC | Soldering- / plug-in | 862+2401-00 | 70 mm | 2NC | Soldering- / plug-in |
| 853+2000-00 | 70 mm | 3NC | Soldering- / plug-in | 863+2401-00 | 70 mm | 3NC | Soldering- / plug-in |

| Mounting tool | | Jaw spanner | |
|---|---------------|--|-------------|
|  | |  | |
| For tightening (or loosening) of the fixing nut | | For tightening (or loosening) of the fixing nut and dismantling of the switching element block | |
| Part No. | Reference | Part No. | Reference |
| 300-0003-00 | Mounting tool | 300-0004-00 | Jaw spanner |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

- Technical data and technical drawings available on pages 29 to 30
- For 3D downloads, please refer to the EAO website



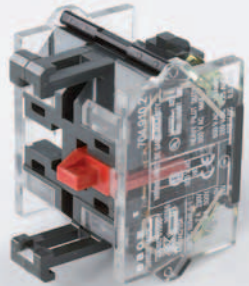
22.5 mm Ø, Series 44, IP65, non-illuminated

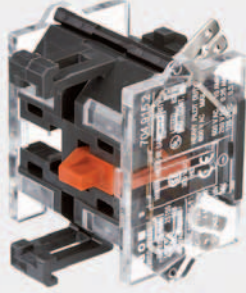


| Stop switch actuator | Stop switch actuator | Front adapter |
|---|---|---|
|  |  |  |
| Twist release; mushroom head red 50 mm Ø; non-foolproof | Twist release; mushroom head red 37 mm Ø; non-foolproof | In combination with switching element |
| Part No. | Part No. | Part No. |
| 44-710 | 44-711 | 44-900 |
| | | Marking |
| | | 44-901 1 3 2 |
| | | 44-902 1/2 5/6 4/3 |
| | | 44-903 1/2/3 7/8/9 6/5/4 |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | Please refer to main catalogue |

| Switching element | Switching element | Enclosure | | | | | | |
|---|---|---|---|----------|------------------|----------|--------------|----------------------|
|  |  |  | | | | | | |
| Slow make; forced opening; <i>stackable</i> ; front mounting; screw terminals | Slow make; forced opening; <i>non-stackable</i> ; front mounting; screw terminals | Grey; with adapter for basemounting | | | | | | |
| Part No. | Contacts | Contact material | Part No. | Contacts | Contact material | Part No. | Reference | Dimensions l x w x h |
| 44-131 | 1NC/NO | Hard Silver | 44-111 | 1NC | Hard Silver | 44-001.8 | Housing | 1 x 84 x 72 x 64 mm |
| 44-151 | 1NC | Hard Silver | 44-121 | 1NO | Hard Silver | 44-002.8 | Housing | 2 x 117 x 72 x 64 mm |
| 44-161 | 1NO | Hard Silver | | | | 44-003.8 | Housing | 3 x 150 x 72 x 64 mm |
| 44-132 | 1NC/NO | Gold-Silver | | | | 44-005.8 | Housing | 5 x 215 x 72 x 64 mm |
| 44-152 | 1NC | Gold-Silver | | | | 44-956 | Cable gland. | M20 |
| 44-162 | 1NO | Gold-Silver | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | Not to be used with emergency-stop switch | | | | | |
| Conforming to IEC 60947-5-1 | | | Conforming to IEC 60947-5-1 | | | | | |

- Technical data and technical drawings available on pages 38 to 40
- For 3D downloads, please refer to the EAO website



22.5 mm Ø, Series 04, IP65, non-illuminated




| Stop switch actuator | | | Stop switch actuator | | | Switching element | | |
|---|---------|------------------|---|------------------|-----------|---|------------------|--|
|  | | |  | | |  | | |
| Twist release; mushroom head red 40 mm Ø; non-foolproof; raised mounting | | | Key release; mushroom head red 40 mm Ø; non-foolproof; raised mounting | | | Slow make; forced opening; screw terminals | | |
| Conforming to IEC 60947-5-1 | | | | | | Conforming to IEC 60947-5-1 | | |
| Part No. | Marking | Front ring | Part No. | Front ring | Part No. | Contacts | Contact material | |
| 704.075.2 | Arrows | Aluminium nature | 704.078.0 | Aluminium nature | 704.910.1 | 1NO | Hard Silver | |
| 704.075.3 | Stop | Aluminium nature | 704.076.0 | Plastic grey | 704.910.2 | 1NC | Hard Silver | |
| 704.074.2 | Arrows | Plastic grey | | | 704.910.3 | 2NO | Hard Silver | |
| 704.074.3 | Stop | Plastic grey | | | 704.910.4 | 2NC | Hard Silver | |
| | | | | | 704.910.5 | 1NC/1NO | Hard Silver | |
| | | | | | 704.911.1 | 1NO | Gold-Silver | |
| | | | | | 704.911.2 | 1NC | Gold-Silver | |
| | | | | | 704.911.3 | 2NO | Gold-Silver | |
| | | | | | 704.911.4 | 2NC | Gold-Silver | |
| | | | | | 704.911.5 | 1NC/1NO | Gold-Silver | |
| For complete unit also order switching element | | | For complete unit also order switching element | | | | | |

| Switching element | | | Switching element | | | Enclosure | | | |
|---|----------|------------------|---|----------|------------------|---|-----------------|-------|----------------------|
|  | | |  | | |  | | | |
| Slow make; forced opening; plug-in terminal | | | Slow make; forced opening; double plug-in terminal | | | Grey; cover lead-sealable, IP66; cable gland with traction relief, IP68 | | | |
| Part No. | Contacts | Contact material | Part No. | Contacts | Contact material | Part No. | Reference | Holes | Dimensions l × w × h |
| 704.915.1 | 1NO | Hard Silver | 704.915.1/D | 1NO | Hard Silver | 704.945.1 | Housing | 1 x | 94 × 94 × 81 mm |
| 704.915.2 | 1NC | Hard Silver | 704.915.2/D | 1NC | Hard Silver | 704.945.2 | Housing | 2 x | 130 × 94 × 81 mm |
| 704.915.3 | 2NO | Hard Silver | 704.915.3/D | 2NO | Hard Silver | 704.945.3 | Housing | 3 x | 180 × 94 × 81 mm |
| 704.915.4 | 2NC | Hard Silver | 704.915.4/D | 2NC | Hard Silver | 704.945.4 | Housing | 4 x | 180 × 182 × 110 mm |
| 704.915.5 | 1NC/1NO | Hard Silver | 704.915.5/D | 1NC/1NO | Hard Silver | 704.945.5 | Housing | 6 x | 180 × 182 × 110 mm |
| | | | | | | 61-9481.4 | Cable gland M16 | | |
| | | | | | | 704.945.6 | Cable gland M20 | | |
| Conforming to IEC 60947-5-1 | | | Conforming to IEC 60947-5-1 | | | | | | |

- Technical data and technical drawings available on pages 34 to 37
- For 3D downloads, please refer to the EAO website


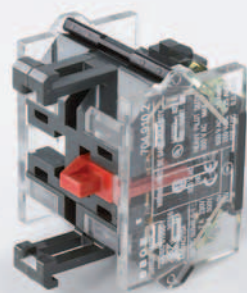
22.5 mm Ø, Series 04, IP67, non-illuminated

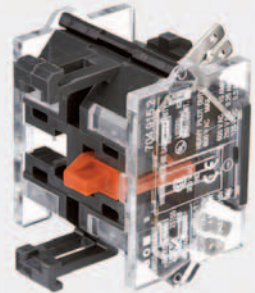

| Emergency call actuator | Switching element | Switching element | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|------------|---------------------------|--|----------|----------|------------------|-----------|-----|-------------|-----------|-----|-------------|-----------|-----|-------------|-----------|-----|-------------|-----------|---------|-------------|-----------|-----|-------------|-----------|-----|-------------|-----------|-----|-------------|-----------|-----|-------------|-----------|---------|-------------|--|----------|----------|------------------|-----------|-----|-------------|-----------|-----|-------------|-----------|-----|-------------|-----------|-----|-------------|-----------|---------|-------------|
|  |  |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Twist release; mushroom head red 60 mm Ø; metal powder coated; slipping clutch included; non-foolproof; raised mounting | Snap action; screw terminals | Snap action; plug-in terminals | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th>Part No.</th> <th>Reference</th> </tr> </thead> <tbody> <tr> <td>704.077.2D</td> <td>Unlocking with key insert</td> </tr> </tbody> </table> | Part No. | Reference | 704.077.2D | Unlocking with key insert | <table border="1"> <thead> <tr> <th>Part No.</th> <th>Contacts</th> <th>Contact material</th> </tr> </thead> <tbody> <tr><td>704.900.1</td><td>1NO</td><td>Hard Silver</td></tr> <tr><td>704.900.2</td><td>1NC</td><td>Hard Silver</td></tr> <tr><td>704.900.3</td><td>2NO</td><td>Hard Silver</td></tr> <tr><td>704.900.4</td><td>2NC</td><td>Hard Silver</td></tr> <tr><td>704.900.5</td><td>1NC/1NO</td><td>Hard Silver</td></tr> <tr><td>704.901.1</td><td>1NO</td><td>Gold-Silver</td></tr> <tr><td>704.901.2</td><td>1NC</td><td>Gold-Silver</td></tr> <tr><td>704.901.3</td><td>2NO</td><td>Gold-Silver</td></tr> <tr><td>704.901.4</td><td>2NC</td><td>Gold-Silver</td></tr> <tr><td>704.901.5</td><td>1NC/1NO</td><td>Gold-Silver</td></tr> </tbody> </table> | Part No. | Contacts | Contact material | 704.900.1 | 1NO | Hard Silver | 704.900.2 | 1NC | Hard Silver | 704.900.3 | 2NO | Hard Silver | 704.900.4 | 2NC | Hard Silver | 704.900.5 | 1NC/1NO | Hard Silver | 704.901.1 | 1NO | Gold-Silver | 704.901.2 | 1NC | Gold-Silver | 704.901.3 | 2NO | Gold-Silver | 704.901.4 | 2NC | Gold-Silver | 704.901.5 | 1NC/1NO | Gold-Silver | <table border="1"> <thead> <tr> <th>Part No.</th> <th>Contacts</th> <th>Contact material</th> </tr> </thead> <tbody> <tr><td>704.905.1</td><td>1NO</td><td>Hard Silver</td></tr> <tr><td>704.905.2</td><td>1NC</td><td>Hard Silver</td></tr> <tr><td>704.905.3</td><td>2NO</td><td>Hard Silver</td></tr> <tr><td>704.905.4</td><td>2NC</td><td>Hard Silver</td></tr> <tr><td>704.905.5</td><td>1NC/1NO</td><td>Hard Silver</td></tr> </tbody> </table> | Part No. | Contacts | Contact material | 704.905.1 | 1NO | Hard Silver | 704.905.2 | 1NC | Hard Silver | 704.905.3 | 2NO | Hard Silver | 704.905.4 | 2NC | Hard Silver | 704.905.5 | 1NC/1NO | Hard Silver |
| Part No. | Reference | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 704.077.2D | Unlocking with key insert | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Part No. | Contacts | Contact material | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 704.900.1 | 1NO | Hard Silver | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 704.900.2 | 1NC | Hard Silver | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 704.900.3 | 2NO | Hard Silver | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 704.900.4 | 2NC | Hard Silver | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 704.900.5 | 1NC/1NO | Hard Silver | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 704.901.1 | 1NO | Gold-Silver | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 704.901.2 | 1NC | Gold-Silver | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 704.901.3 | 2NO | Gold-Silver | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 704.901.4 | 2NC | Gold-Silver | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 704.901.5 | 1NC/1NO | Gold-Silver | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Part No. | Contacts | Contact material | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 704.905.1 | 1NO | Hard Silver | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 704.905.2 | 1NC | Hard Silver | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 704.905.3 | 2NO | Hard Silver | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 704.905.4 | 2NC | Hard Silver | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 704.905.5 | 1NC/1NO | Hard Silver | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| For additional customized products, please contact your local EAO sales office | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| For complete unit also order switching element | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Switching element | Switching element | Protective shroud | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|--|------------------|-------------|-----|-------------|-------------|-----|-------------|-------------|-----|-------------|-------------|-----|-------------|-------------|---------|-------------|-------------|-----|-------------|-------------|-----|-------------|-------------|-----|-------------|-------------|-----|-------------|-------------|---------|-------------|---|----------|----------|------------------|------------|-----|-------------|------------|-----|-------------|------------|-----|-------------|------------|-----|-------------|------------|---------|-------------|--|----------|-----------|-----------|-------------------|
|  |  |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Snap action; double plug-in terminals | Snap action; screw terminals for ring cable shoes | Yellow painted aluminium; outer diameter 50 mm; height 48 mm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th>Part No.</th> <th>Contacts</th> <th>Contact material</th> </tr> </thead> <tbody> <tr><td>704.901.1/D</td><td>1NO</td><td>Gold-Silver</td></tr> <tr><td>704.901.2/D</td><td>1NC</td><td>Gold-Silver</td></tr> <tr><td>704.901.3/D</td><td>2NO</td><td>Gold-Silver</td></tr> <tr><td>704.901.4/D</td><td>2NC</td><td>Gold-Silver</td></tr> <tr><td>704.901.5/D</td><td>1NC/1NO</td><td>Gold-Silver</td></tr> <tr><td>704.905.1/D</td><td>1NO</td><td>Hard Silver</td></tr> <tr><td>704.905.2/D</td><td>1NC</td><td>Hard Silver</td></tr> <tr><td>704.905.3/D</td><td>2NO</td><td>Hard Silver</td></tr> <tr><td>704.905.4/D</td><td>2NC</td><td>Hard Silver</td></tr> <tr><td>704.905.5/D</td><td>1NC/1NO</td><td>Hard Silver</td></tr> </tbody> </table> | Part No. | Contacts | Contact material | 704.901.1/D | 1NO | Gold-Silver | 704.901.2/D | 1NC | Gold-Silver | 704.901.3/D | 2NO | Gold-Silver | 704.901.4/D | 2NC | Gold-Silver | 704.901.5/D | 1NC/1NO | Gold-Silver | 704.905.1/D | 1NO | Hard Silver | 704.905.2/D | 1NC | Hard Silver | 704.905.3/D | 2NO | Hard Silver | 704.905.4/D | 2NC | Hard Silver | 704.905.5/D | 1NC/1NO | Hard Silver | <table border="1"> <thead> <tr> <th>Part No.</th> <th>Contacts</th> <th>Contact material</th> </tr> </thead> <tbody> <tr><td>704.900.1B</td><td>1NO</td><td>Hard Silver</td></tr> <tr><td>704.900.2B</td><td>1NC</td><td>Hard Silver</td></tr> <tr><td>704.900.3B</td><td>2NO</td><td>Hard Silver</td></tr> <tr><td>704.900.4B</td><td>2NC</td><td>Hard Silver</td></tr> <tr><td>704.900.5B</td><td>1NC/1NO</td><td>Hard Silver</td></tr> </tbody> </table> | Part No. | Contacts | Contact material | 704.900.1B | 1NO | Hard Silver | 704.900.2B | 1NC | Hard Silver | 704.900.3B | 2NO | Hard Silver | 704.900.4B | 2NC | Hard Silver | 704.900.5B | 1NC/1NO | Hard Silver | <table border="1"> <thead> <tr> <th>Part No.</th> <th>Reference</th> </tr> </thead> <tbody> <tr> <td>704.927.4</td> <td>Protective shroud</td> </tr> </tbody> </table> | Part No. | Reference | 704.927.4 | Protective shroud |
| Part No. | Contacts | Contact material | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 704.901.1/D | 1NO | Gold-Silver | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 704.901.2/D | 1NC | Gold-Silver | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 704.901.3/D | 2NO | Gold-Silver | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 704.901.4/D | 2NC | Gold-Silver | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 704.901.5/D | 1NC/1NO | Gold-Silver | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 704.905.1/D | 1NO | Hard Silver | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 704.905.2/D | 1NC | Hard Silver | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 704.905.3/D | 2NO | Hard Silver | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 704.905.4/D | 2NC | Hard Silver | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 704.905.5/D | 1NC/1NO | Hard Silver | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Part No. | Contacts | Contact material | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 704.900.1B | 1NO | Hard Silver | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 704.900.2B | 1NC | Hard Silver | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 704.900.3B | 2NO | Hard Silver | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 704.900.4B | 2NC | Hard Silver | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 704.900.5B | 1NC/1NO | Hard Silver | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Part No. | Reference | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 704.927.4 | Protective shroud | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | The protective shroud 704.927.4 is not suitable for proper use of the emergency-stop switch. It can obstruct sudden operation. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

- Technical data and technical drawings available on pages 34 to 37
- For 3D downloads, please refer to the EAO website

30.5 mm Ø, Series 04, IP65, non-illuminated

| Stop switch actuator | | | Switching element | | |
|---|-----------|------------------|---|----------|------------------|
|  | | |  | | |
| Twist release; mushroom head red 40 mm Ø; non-foolproof; flush mounting | | | Slow make; forced opening; screw terminals | | |
| | | | Conforming to IEC 60947-5-1 | | |
| Part No. | Labelling | Front ring | Part No. | Contacts | Contact material |
| 704.075.218 | Arrows | Aluminium nature | 704.910.1 | 1NO | Hard Silver |
| 704.075.210 | Arrows | Aluminium black | 704.910.2 | 1NC | Hard Silver |
| 704.075.318 | Stop | Aluminium nature | 704.910.3 | 2NO | Hard Silver |
| 704.075.310 | Stop | Aluminium black | 704.910.4 | 2NC | Hard Silver |
| | | | 704.910.5 | 1NC/1NO | Hard Silver |
| | | | 704.911.1 | 1NO | Gold-Silver |
| | | | 704.911.2 | 1NC | Gold-Silver |
| | | | 704.911.3 | 2NO | Gold-Silver |
| | | | 704.911.4 | 2NC | Gold-Silver |
| For complete unit also order switching element | | | 704.911.5 | 1NC/1NO | Gold-Silver |

| Switching element | | | Switching element | | |
|---|----------|------------------|---|----------|------------------|
|  | | |  | | |
| Slow make; forced opening; plug-in terminal | | | Slow make; forced opening; double plug-in terminal | | |
| Part No. | Contacts | Contact material | Part No. | Contacts | Contact material |
| 704.915.1 | 1NO | Hard Silver | 704.915.1/D | 1NO | Hard Silver |
| 704.915.2 | 1NC | Hard Silver | 704.915.2/D | 1NC | Hard Silver |
| 704.915.3 | 2NO | Hard Silver | 704.915.3/D | 2NO | Hard Silver |
| 704.915.4 | 2NC | Hard Silver | 704.915.4/D | 2NC | Hard Silver |
| 704.915.5 | 1NC/1NO | Hard Silver | 704.915.5/D | 1NC/1NO | Hard Silver |
| | | | | | |
| | | | | | |
| | | | | | |
| Conforming to IEC 60947-5-1 | | | Conforming to IEC 60947-5-1 | | |




- Technical data and technical drawings available on pages 34 to 37
- For 3D downloads, please refer to the EAO website






EAO Stop Switches

Foolproof




16 mm Ø, Series 61, IP65, non-illuminated

| Stop switch actuator | | | | Stop switch actuator | | | | Switching element | | |
|---|---------|-----------------|------------|---|-----------|-----------------|------------|---|----------|--------------------|
|  | | | |  | | | |  | | |
| Twist release; head cap grey 27 mm Ø; foolproof | | | | Key release; head black 27 mm Ø; foolproof | | | | Slow make; silver contacts; forced opening. | | |
| Part No. | Marking | Indication ring | Fixing nut | Part No. | Labelling | Indication ring | Fixing nut | Part No. | Contacts | Terminals |
| 61-3440.4/8 | Arrows | Black | Plastic | 61-5441.0/KA | None | Black | Plastic | 61-8755.11 | 2NC | Screw |
| | | | | | | | | 61-8755.17 | 2NC | Soldering-/plug-in |
| | | | | | | | | 61-8775.11 | 1NO/1NC | Screw |
| | | | | | | | | 61-8775.17 | 1NO/1NC | Soldering-/plug-in |
| | | | | | | | | 61-8745.11 | 1NC | Screw |
| | | | | | | | | 61-8745.17 | 1NC | Soldering-/plug-in |
| For complete unit also order switching element | | | | For complete unit also order switching element | | | | Conforming to IEC 60947-5-1 | | |

| Switching element | | | Enclosure | | | Protective shroud | |
|---|----------|--------------------|--|-----------------|----------------------|--|-------------------|
|  | | |  | | |  | |
| Slow make element; gold contacts | | | Grey, cover lead-sealable, IP66; cable gland with traction relief; IP68 | | | Aluminium anodised, yellow varnished; outer diameter 48 mm; height 35 mm | |
| Part No. | Contacts | Terminals | Part No. | Reference | Dimensions l × w × h | Part No. | Reference |
| 61-8745.37 | 1NC | Soldering-/plug-in | 61-9480.6 | Housing | 65 × 65 × 57 mm | 61-9965 | Protective shroud |
| 61-8775.37 | 1NC/1NO | Soldering-/plug-in | 61-9481.6 | Cable gland M16 | | | |
| 61-8755.37 | 2NC | Soldering-/plug-in | 704.945.6 | Cable gland M20 | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | The protective shroud 61-9965 is not suitable for proper use of the emergency-stop switch. It can obstruct sudden operation. | |

– Technical data and technical drawings available on pages 26 to 28
 – For 3D downloads, please refer to the EAO website




22.5 mm Ø, Series 84, IP65, non-illuminated

| Stop switch | | | Stop switch | | | Enclosure | | | |
|--|----------|-----------------|---|----------|-----------------|---|-----------------|-------|----------------------|
|  | | |  | | |  | | | |
| Twist release; head cap grey 32 mm Ø; gold-silver contacts; forced opening; foolproof; soldering- /plug-in terminals | | | Twist release; head cap grey 32 mm Ø; gold-silver contacts; forced opening; foolproof; ribbon cable | | | Grey; cover lead-sealable; IP66; cable gland with traction relief; IP68 | | | |
| Part No. | Contacts | Indication ring | Part No. | Contacts | Indication ring | Part No. | Reference | Holes | Dimensions l × w × h |
| 84-6020.0020 | 1NC | Black | 84-6020.0040 | 1NC | Black | 704.945.1 | Housing | 1 x | 94 × 94 × 81 mm |
| 84-6030.0020 | 1NC/NO | Black | 84-6030.0040 | 1NC/NO | Black | 704.945.2 | Housing | 2 x | 130 × 94 × 81 mm |
| 84-6040.0020 | 2NC | Black | 84-6040.0040 | 2NC | Black | 704.945.3 | Housing | 3 x | 180 × 94 × 81 mm |
| | | | | | | 704.945.4 | Housing | 4 x | 180 × 182 × 110 mm |
| | | | | | | 704.945.5 | Housing | 6 x | 180 × 182 × 110 mm |
| | | | | | | 61-9481.4 | Cable gland M16 | | |
| | | | | | | 704.945.6 | Cable gland M20 | | |
| Conforming to IEC 60947-5-1 | | | Conforming to IEC 60947-5-1 | | | | | | |

| Protective shroud | | Fixing nut | |
|--|-------------------|---|--|
|  | |  | |
| Yellow painted aluminium; outside diameter 48 mm; height 35 mm | | Plastic, black | |
| Part No. | Reference | Part No. | Reference |
| 84-909 | Protective shroud | 84-905 | 28 mm Ø, for limited space application |
| | | 84-908 | 30 mm Ø, standard delivery |
| The protective shroud 84-909 is not suitable for proper use of the emergency-stop switch. It can obstruct spontaneous operation. | | | |

- Technical data and technical drawings available on pages 31 to 33
- For 3D downloads, please refer to the EAO website

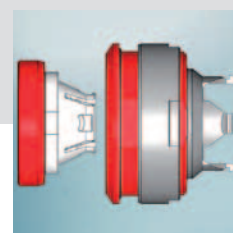
22.5 mm Ø, Series 84, IP65, illuminated

| Stop switch | | | Stop switch | | | Enclosure | | | |
|---|----------|-----------------|---|----------|-----------------|---|-----------------|-------|----------------------|
|  | | |  | | |  | | | |
| Twist release; head cap grey 32 mm Ø; gold-silver contacts; forced opening; foolproof; soldering- / plug-in terminals | | | Twist release; head cap grey 32 mm Ø; gold-silver contacts; forced opening; foolproof; ribbon cable | | | Grey; cover lead-sealable; IP66; cable gland with traction relief; IP68 | | | |
| Part No. | Contacts | Indication ring | Part No. | Contacts | Indication ring | Part No. | Reference | Holes | Dimensions l × w × h |
| 84-6021.2B20 | 1NC | Black | 84-6021.2B40 | 1NC | Black | 704.945.1 | Housing | 1 x | 94 × 94 × 81 mm |
| 84-6031.2B20 | 1NC/NO | Black | 84-6031.2B40 | 1NC/NO | Black | 704.945.2 | Housing | 2 x | 130 × 94 × 81 mm |
| 84-6041.2B20 | 2NC | Black | 84-6041.2B40 | 2NC | Black | 704.945.3 | Housing | 3 x | 180 × 94 × 81 mm |
| | | | | | | 704.945.4 | Housing | 4 x | 180 × 182 × 110 mm |
| | | | | | | 704.945.5 | Housing | 6 x | 180 × 182 × 110 mm |
| | | | | | | 61-9481.4 | Cable gland M16 | | |
| | | | | | | 704.945.6 | Cable gland M20 | | |
| Conforming to IEC 60947-5-1 | | | Conforming to IEC 60947-5-1 | | | | | | |

| Protective shroud | | Fixing nut | |
|--|-------------------|---|--|
|  | |  | |
| Yellow painted aluminium; outside diameter 48 mm; height 35 mm | | Plastic, black | |
| Part No. | Reference | Part No. | Reference |
| 84-909 | Protective shroud | 84-905 | 28 mm Ø, for limited space application |
| | | 84-908 | 30 mm Ø, standard delivery |
| The protective shroud 84-909 is not suitable for proper use of the emergency-stop switch. It can obstruct spontaneous operation. | | | |

- Technical data and technical drawings available on pages 31 to 33
- For 3D downloads, please refer to the EAO website

Technical Data and Technical Drawings



Series 61
Series Swisstac
Series 84
Series 04
Series 44

Emergency-stop switch and Stop switch

Switching system

Double-break slow-make system, contact opening width 2×1.5 mm, with 2×2 contact points per switching element.

NC-contact elements fulfill requirements of switches with forced opening as per EN IEC 60947-5-1.

The slow-make elements are optionally obtainable with the following switching functions: 1 NO or 2 NO, 1 NC or 2 NC, 1 NO + 1 NC.

Material

Head cap

Polyamide (PA 6), as per UL 94 HB

Actuator housing

Polyamide (PA 6.6), as per UL 94 HB

Material of contact

Silver contact: Ag-Ni alloy, silver plated

Gold contact: Cu-Ni alloy, gold plated

Switching element

Solder housing: Polyamide (PA), as per UL 94 V0

Screw housing: Polyamide (PA) and (PA 6.6), as per UL 94 V0 and

Polycarbonate (PC), as per UL 94 V2

Mechanical characteristics

Terminals

| | rigid | flexible | superflexible |
|----------|-----------------------------|------------------------------|---------------------|
| – Solder | | | |
| 1 wire | 0.5 ... 1.5 mm ² | 0.5 ... 0.75 mm ² | 0.5 mm ² |
| 2 wires | 0.75 mm ² | 0.5 mm ² | |
| – Screw | | | |
| 1 wire | 0.5 ... 1.5 mm ² | 0.5 ... 0.75 mm ² | 0.5 mm ² |
| 2 wires | 0.75 mm ² | 0.5 mm ² | 0.5 mm ² |

Actuating force

max. 65 N

Actuating travel

10 mm

Rebound time

2 ms, contact making and contact breaking

The rebound times apply to normal manual activation

Mechanical lifetime

Switching element: $\leq 50\,000$ cycles of operation

Emergency-stop switch: 6050 cycles of operation

Electrical characteristics

Standards

The devices comply with: EN IEC 61058-1 and EN IEC 60947-5-1, EN IEC 60947-5-5 (Emergency-stop)

Electrical lifetime

Switching element: $\leq 50\,000$ cycles of operation

at 250 VAC, 5 A, $\cos\phi$ 0.85, as per EN IEC 60947-5-1

Emergency-stop switch: 6050 cycles of operation

as per EN IEC 60947-5-5

Electric strength

4000 VAC, 50 Hz, 1 min., as per DIN IEC 60512-2

between all terminals and earth

Overvoltage category

III, as per EN IEC 60947-5-1

Protection class

Class II, as per EN IEC 61058-1

Degree of pollution

3, as per EN IEC 60947-1

Electrical characteristics for silver contacts

Rated operational voltage U_e

250 VAC/DC as per EN IEC 60947-1

Rated insulation voltage U_i

320 VAC, as per EN IEC 60947-5-1

Rated impulse withstand voltage U_{imp}

4 kV, as per EN IEC 60947-5-1

Contact resistance

New state ≤ 50 m Ω , as per DIN IEC 60512-2-4, measured at 100 mA, 10 V

Conventional free air thermal current I_{th}

5 A, as per EN IEC 60947-5-1

The maximum current in continuous operation and at ambient temperature must not exceed the quoted maximum values.

Switch rating

AC with silver contact and screw terminal, service category AC-15, as per EN IEC 60947-5-1

| | | |
|---------|---------|---------|
| Voltage | 125 VAC | 250 VAC |
|---------|---------|---------|

| | | |
|---------|-----|-----|
| Current | 3 A | 2 A |
|---------|-----|-----|

DC with silver contact and screw terminal, service category DC-13, as per EN IEC 60947-5-1

| | |
|---------|---------|
| Voltage | 250 VDC |
|---------|---------|

| | |
|---------|-------|
| Current | 0.2 A |
|---------|-------|

Recommended minimal operational data

20 VAC/DC, 100 mA

Electrical characteristics for gold contacts

Rated operational voltage U_e

50 AC/DC, as per EN IEC 60947-1

Rated insulation voltage U_i

320 VAC, as per EN IEC 60947-5-1

Rated impulse withstand voltage U_{imp}

EN IEC 60947-5-1

Contact resistance

New state $\leq 50 \text{ m}\Omega$, as per DIN IEC 60512-2-4, measured at 20 mV, 10 mA

Conventional free air thermal current I_{th}

3 A, as per EN IEC 60947-5-1

The maximum current in continuous operation and at ambient temperature must not exceed the quoted maximum values.

Switch rating

AC with gold contact, service category AC-15, as per EN IEC 60947-5-1

Voltage 50 VAC

Current 0.5 A

DC with gold contact, service category DC-13, as per EN IEC 60947-5-1

Voltage 50 VAC

Current 0.1 A

Recommended minimal operational data

10 mVAC/DC, 2 mA

Environmental conditions

Storage temperature

$-40^\circ\text{C} \dots +85^\circ\text{C}$

Operating temperature

$-25^\circ\text{C} \dots +55^\circ\text{C}$

Protection degree

as per EN IEC 60529

Frontside IP65 | rear side IP40

Shock resistance

(semi-sinusoidal)

max. 100 m/s^2 , pulse width 11 ms, 3-axis, as per EN IEC 60068-2-27

Vibration resistance

(sinusoidal)

max. 100 m/s^2 at 10 Hz ... 500 Hz, as per EN IEC 60068-2-6

Climate resistance

Damp heat, cyclic

96 hours, $+25^\circ\text{C} / 97\%$, $+55^\circ\text{C} / 93\%$ relative humidity, as per EN IEC 60068-2-30

Damp heat, state

56 days, $+40^\circ\text{C} / 93\%$ relative humidity, as per EN IEC 60068-2-78

Rapid change of temperature

100 cycles, $-40^\circ\text{C} \dots +80^\circ\text{C}$, as per EN IEC 60068-2-14

Approvals

Approbations

CB (IEC 60947)

CB (IEC 61058)

CSA

ENEC (EN 61058)

Germanischer Lloyd

GOST

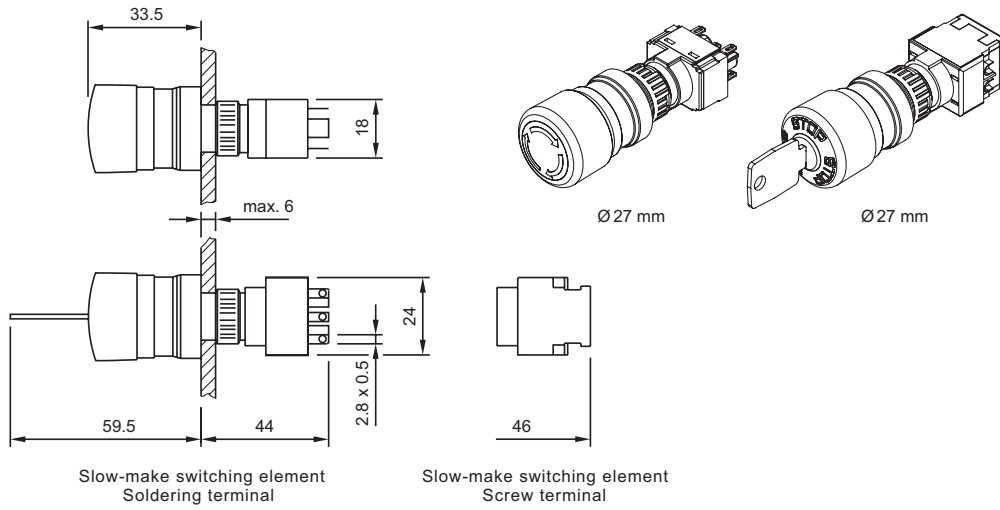
UL

VDE

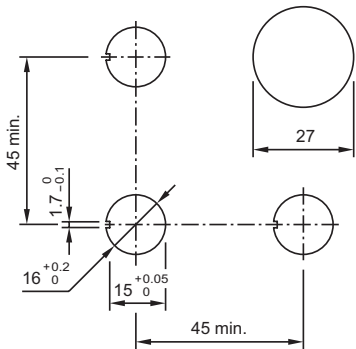
Declaration of conformity

CE

61 Emergency-stop switch and Stop switch



61 Cut-outs



Stop switch

Switching system

Is equipped with rigid contact link. The slow-make element opens positively and simply consists of a double-break NC, contact opening width 2 × 1.5 mm. The multi-layer contacts are designed according to EN IEC 60947-5-1.

Material

Head cap

Polyamide (PA)

Actuator housing

Polycarbonate (PC), as per UL 94 V0

Switching element

Rynite (PET), as per UL 94 V0

Material of contact

Ag-Ni, 2 µm gold plated

Mechanical characteristics

Terminals

Soldering terminal (also pluggable 2.8 × 0.5 mm) or PCB terminal,

Brass gold plated

Wire cross-section 1.0 mm² max.

Mechanical lifetime

8000 cycles of operation

Electrical characteristics

Rated operational voltage U_e

250 VAC, as per EN IEC 60947-1

Rated insulation voltage U_i

250 V, as per EN IEC 60947-5-1

Contact resistance

New state ≤ 50 m Ω , as per DIN IEC 60512-2-5

Electrical life

8000 cycles of operation at 250 VAC, 1 A

Conventional free air thermal current I_{th}

5 A, as per EN IEC 60947-5-1

The maximum current in continuous operation and at ambient temperature must not exceed the quoted maximum values.

Switch rating

AC (inductive) with silver contact (gold plated), service category AC-15, as per EN IEC 60947-5-1

Voltage 250 VAC

Current 1 A

Electric strength

Switching element 2000 VAC, 50 Hz, 1 min. (functional isolation)

Short-circuit protection

Series-connected blow-out fuse 5 A gL

Environmental conditions

Storage temperature

-40 °C ... +85 °C, as per EN IEC 60068

Operating temperature

-25 °C ... +55 °C, as per EN IEC 60068-2

Protection degree

Frontside IP65 and IP40, as per EN IEC 60529

Approvals

Approbations

CSA

UL

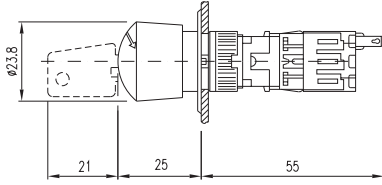
VDE

Declaration of conformity

CE

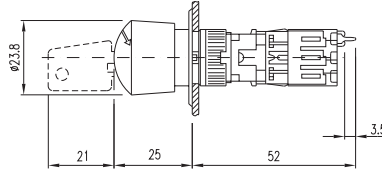
Swisstac Stop switch

55 mm; soldering-/plug-in terminal; IP40 and IP65; non-foolproof



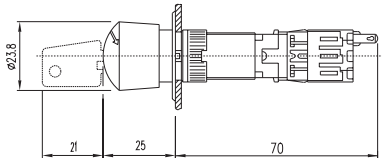
Swisstac Stop switch

52 mm; PCB terminal; IP40 and IP65; non-foolproof



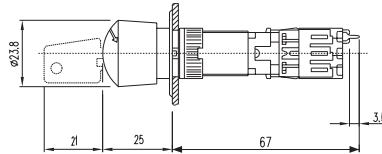
Swisstac Stop switch

70 mm; soldering-/plug-in terminal; IP40 and IP65; non-foolproof



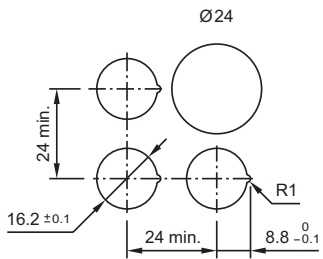
Swisstac Stop switch

67 mm; PCB terminal; IP40 and IP65; non-foolproof



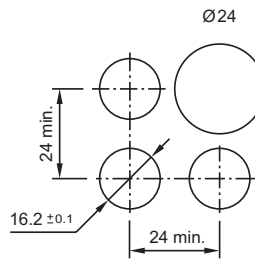
Swisstac Cut-outs

Stop switch; IP40; non-foolproof



Swisstac Cut-outs

Stop switch; IP65; non-foolproof



Emergency-stop switch and Stop switch

Switching system

The double-break switching system can be supplied for the following switching functions: 1 NC, 2NC, 1 NC + 1 NO.
The NC contacts have forced opening according to EN IEC 60947-5-1.

Material

Connection cable

Polyvinylchloride (PVC) flame retardant, operating temp. +65 °C

Mushroom-head cap

Polybutylenterephthalate (PBT), as per UL 94 V0 (red items)

Actuator housing

Polyamide (PA 66), as per UL 94 V0, flat ribbon cable-cover
Polyamide (PA 6.6), as per UL 94 V0

Material of contact

Silver alloy gold plated

Mechanical characteristics

Front panel thickness

Standard 1 ... 4 mm
With emergency-stop protective shroud part-no. 84-902, 1 ... 3 mm

Mounting hole

22.5 mm \varnothing as per EN IEC 60947-5-1 with anti-twist device

Terminals

Plug-in terminals 2.8 x 0.5 mm (solderable), CuSn6 tin-plated,
flat ribbon cable 2-, 4-, or 6-conductors 0.35 mm² (AWG 22)

Tightening torque

Fixing nut 80 Ncm

Actuating force

22 N \pm 4 N

Actuating travel

Approx. 4 mm to release the internal operation part

Mechanical lifetime

\geq 50 000 cycles of operations

Electrical characteristics

Standards

The devices comply with: EN IEC 60947-5-1, EN IEC 60947-5-5
(Emergency-stop), EN ISO 13850, EN 60947-5-1

Illumination

LED red with pole reversal, constant current source
Operation Voltage 5 VDC ... 30 VDC
Current consumption 9.7 mA ... 12.4 mA

Rated operational voltage U_e

250 VAC, as per EN IEC 60947-1

Rated insulation voltage U_i

250 V, as per EN IEC 60947-1

Rated impulse withstand voltage U_{imp}

2.5 kV, as per EN IEC 60947-1

Contact resistance

New state \leq 50 m Ω , as per DIN IEC 60512-2-3

Isolation resistance

$>$ 10¹¹ Ω between the open contacts at 500 VDC, as per
DIN IEC 60512-2-10

Electrical life

\geq 50 000 cycles of operations (inductive $\cos\phi$ 0.4),
as per EN IEC 60947-5-1

| | | | | |
|---------|---------|---------|---------|---------|
| Voltage | 120 VAC | 240 VAC | 125 VDC | 250 VDC |
| Current | 3 A | 1.5 A | 0.55 A | 0.27 A |

Reduced load \geq 50 000 cycles of operations (resistive)

| | | |
|---------|----------|-----------|
| Voltage | 1 VAC/DC | 42 VAC/DC |
| Current | 100 mA | 200 mA |

Conventional free air thermal current I_{th}

5 A, as per EN IEC 60947-5-1

The maximum current in continuous operation and at ambient temperature must not exceed the quoted maximum values.

Switch rating

AC with silver contact (gold plated), service category AC-15,
as per EN IEC 60947-5-1

| | | |
|---------|---------|---------|
| Voltage | 120 VAC | 240 VAC |
| Current | 3 A | 1.5 A |

DC for silver contact (gold plated), service category DC-13,
as per EN IEC 60947-5-1 (inductive)

| | | | | | | |
|--------------------------|--------|--------|--------|--------|---------|---------|
| Voltage | 12 VDC | 24 VDC | 48 VDC | 60 VDC | 125 VDC | 250 VDC |
| Current _{plug} | 5 A | 4 A | 2.1 A | 1.7 A | 0.55 A | 0.27 A |
| Current _{cable} | 3 A | 3 A | 2.1 A | 1.7 A | 0.55 A | 0.27 A |

Recommended minimal operational data

Silver contacts (gold plated)

| | |
|---------|----------|
| Voltage | 1 VAC/DC |
| Current | 1 mA |

Electric strength

500 VAC, 50 Hz, 1 min. as per DIN IEC 60512-2

Rated conditional short-circuit current

1000 A, type of short-circuit unit 6 A gG, as per EN IEC 60947-5-1

Protection class

Class II, as per EN IEC 60947-5

Overvoltage category

II, as per EN IEC 60947-1

Degree of pollution

3, as per EN IEC 60947-1

Environmental conditions

Operating temperature

-25 °C ... +65 °C

Storage temperature

-25 °C ... +80 °C

Front protection

IP65, as per EN IEC 60529

Shock resistance

(semi-sinusoidal)
max. 150 m/s², pulse width 11 ms, 3-axis, as per EN IEC 60068-2-27

Vibration resistance

(sinusoidal)
max. 50 m/s² at 10 Hz ... 500 Hz, 10 cycles, 3-axis,
as per EN IEC 60068-2-6

Approvals

Approbations

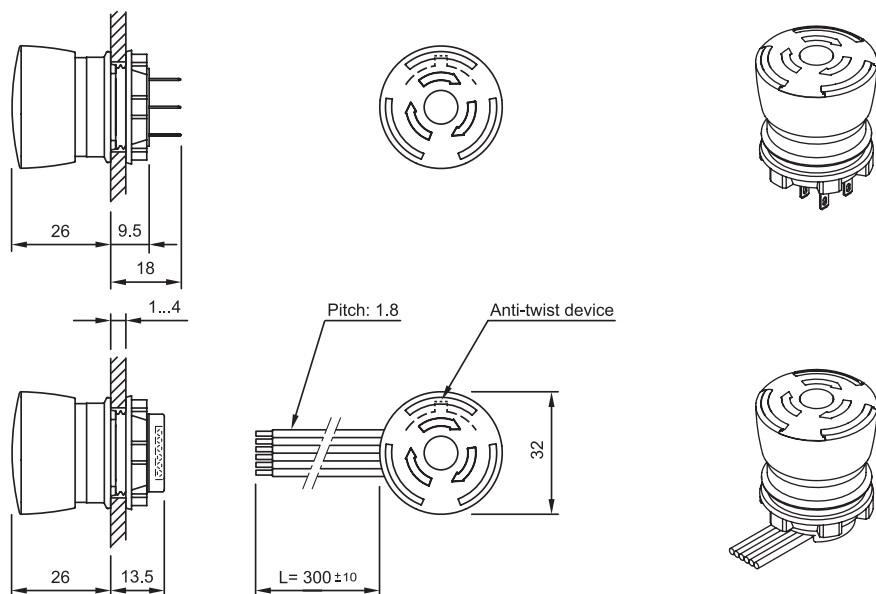
SEV
UL

Declaration of conformity

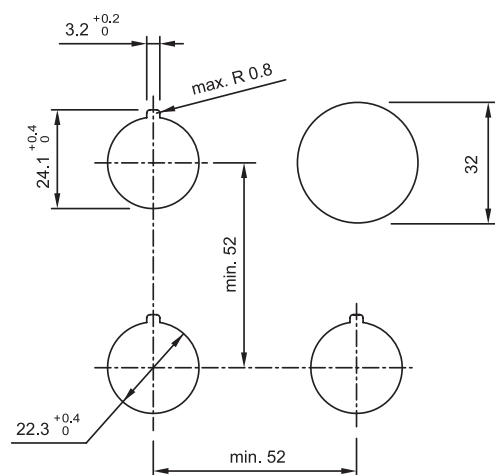
CE

84 Emergency-stop switch and Stop switch

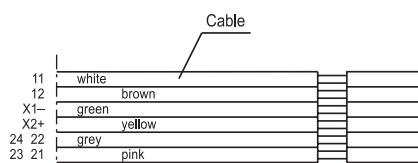
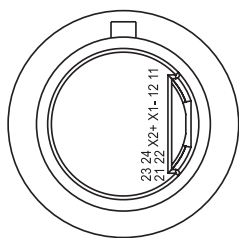
Illuminated and non-illuminated; plug-in and ribbon cable



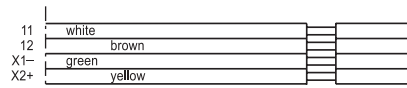
84 Cut-outs



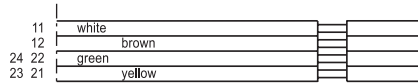
84 Flat ribbon cable



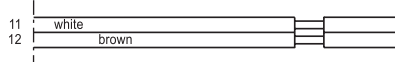
| | Terminals |
|--------------|-------------------|
| 1 NC + 1 NO | 11 / 12 + 23 / 24 |
| 2 NC | 11 / 12 + 21 / 22 |
| Illumination | X1- / X2+ |



| | Terminals |
|--------------|-----------|
| 1 NC | 11 / 12 |
| Illumination | X1- / X2+ |



| | Terminals |
|-------------|-------------------|
| 1 NC + 1 NO | 11 / 12 + 23 / 24 |
| 2 NC | 11 / 12 + 21 / 22 |



| | Terminals |
|------|-----------|
| 1 NC | 11 / 12 |

Emergency-stop switch and Stop switch

Switching system

The double-break, slow-make switching element is equipped with one or two independent contact systems, acting as normally open or normally closed contact. The normally closed contact has forced opening. Slow-make contacts with forced action are ideal for high switch ratings. Up to three switching elements can be snapped onto the actuator. For the emergency-stop switch use max. two slow make switching elements.

Material

Material of contact

Hard Silver, Gold-Silver

Switch housing

Polycarbonate (PC), as per UL 94 V0

Actuator housing

Polyamide (PA), as per UL 94 HB

Head cap

Polyamide (PA), as per UL 94 V2

Bayonet flange

Polyethylene terephthalate (PETP), as per UL 94 V0

Mechanical characteristics

Terminals

Screw terminals

Plug-in terminals 6.3×0.8 mm

Max. wire cross-section 2×2.5 mm²

Max. wire cross-section of stranded cable 2×1.5 mm²

For switches with plug-in terminals it is necessary to provide insulation sleeves and to maintain a spacing of 65 mm between rows (mounting dimensions)

Tightening torque

Screws at the mounting flange max. 25 Ncm

Screws at switching element max. 50 Ncm

Actuating force

1 normally closed 2 N

1 normally open 3.1 N

Actuating travel

5.8 mm ±0.2 mm

Rebound time

≤3 ms

Mechanical lifetime

(with 1 switching element)

Switching element > 50 000 Cycles of operation

Emergency-stop switch > 6 050 Cycles of operation

Electrical characteristics, slow make contacts

Standards

The switches comply with the "Standards for low-voltage switching devices" EN IEC 60947-5-1

Rated insulation voltage U_i

500 VAC/600 VDC, as per EN IEC 60947-5-1

Contact resistance

New state ≤50 mΩ as per DIN IEC 60512-2-4

Isolation resistance

≥10 MΩ between open contacts at 500 VDC, as per DIN IEC 60512-2-10

Conventional free air thermal current I_{th}

10 A, as per EN IEC 60947-5-1

The maximum current in continuous operation and at ambient temperature must not exceed the quoted maximum values.

Switch rating

AC for Gold-Silver and Hard Silver contacts, service category AC-15, as per EN IEC 60947-5-1 (cosφ 0.3)

| | | | |
|---------|---------|---------|---------|
| Voltage | 230 VAC | 400 VAC | 500 VAC |
| Current | 7 A | 5 A | 4 A |

DC for Gold-Silver and Hard Silver contacts, service category DC-13, as per EN IEC 60947-5-1

| | | | | |
|---------|--------|--------|---------|---------|
| Voltage | 24 VDC | 60 VDC | 110 VDC | 250 VDC |
| Current | 10 A | 5 A | 2.5 A | 0.6 A |

Recommended minimal operational data

Gold-Silver contacts:

| | | |
|---------|--------|---------|
| Voltage | 24 VDC | 110 VDC |
| Current | 10 mA | 2 mA |

Hard Silver contacts:

| | | |
|---------|--------|---------|
| Voltage | 24 VDC | 110 VDC |
| Current | 50 mA | 10 mA |

Protection class

Class II

Environmental conditions

Storage temperature

−40°C ... +85°C

Operating temperature

−40°C ... +55°C

Protection degree

Frontside IP65, as per EN IEC 60529

Shock resistance

(single impacts, semi-sinusoidal)

300 m/s² puls width 11 ms, as per EN IEC 60068-2-27

Vibration resistance

(sinusoidal)

100 m/s² at 10 Hz ... 500 Hz, amplitude 0.75 mm, as per

EN IEC 60068-2-6

Approvals

Approbations

CB (IEC 60947)

CCC

CSA

Germanischer Lloyd

GOST

SEV

UL

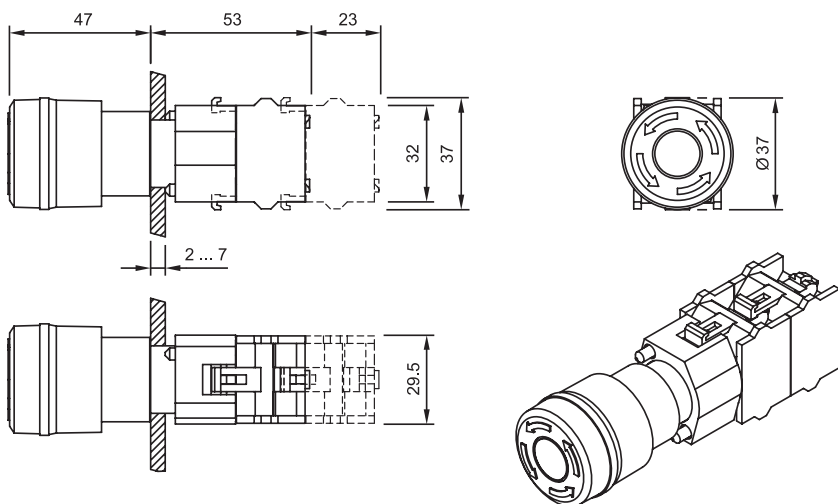
Declaration of conformity

CE

NF F16-102

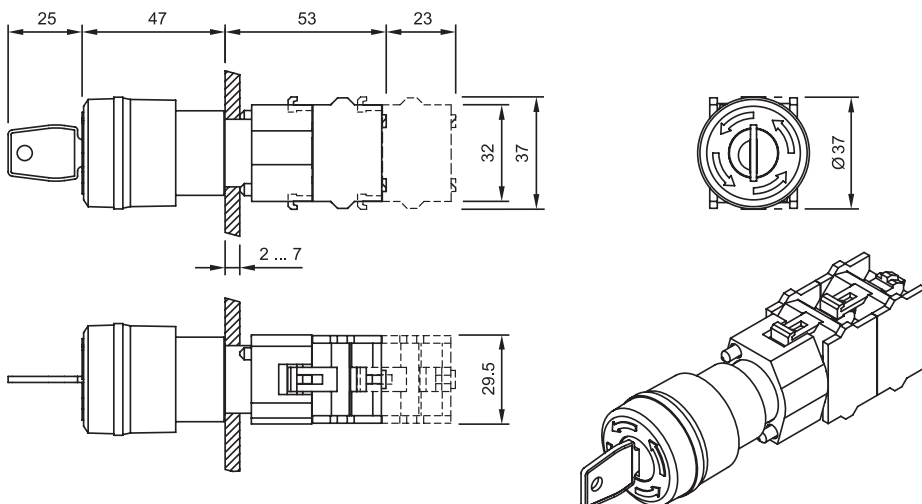
04 Emergency-stop switch

Twist release; foolproof



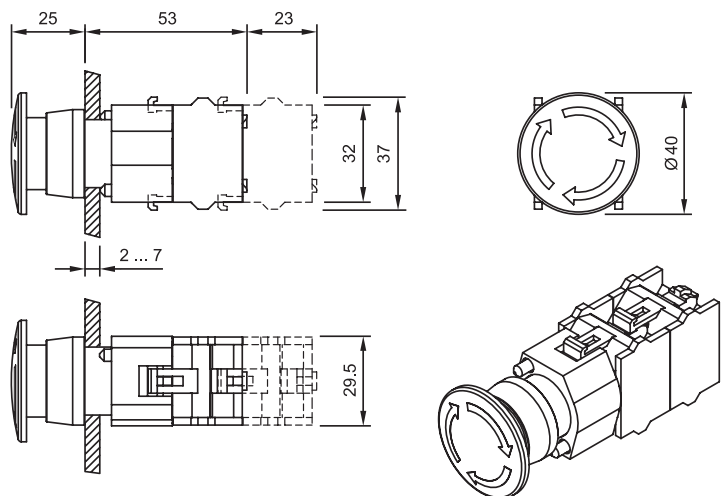
04 Emergency-stop switch

Key release; foolproof



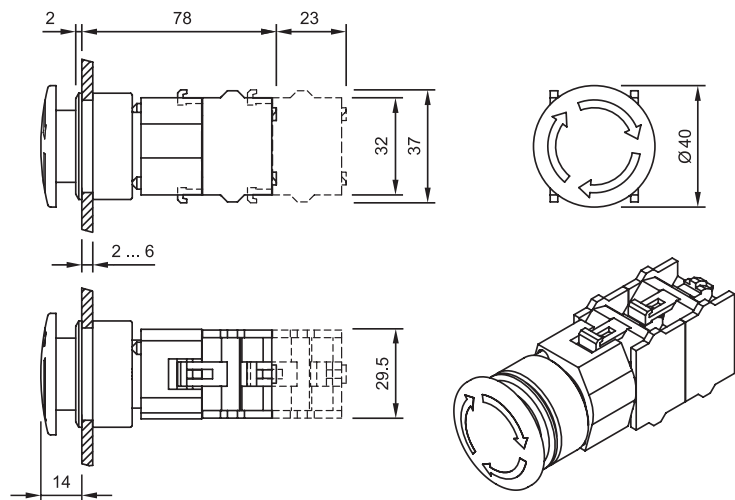
04 Stop switch

Raised mounting; non-foolproof



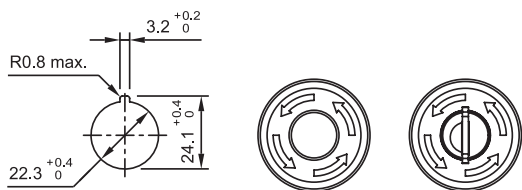
04 Stop switch

Flush mounting; non-foolproof



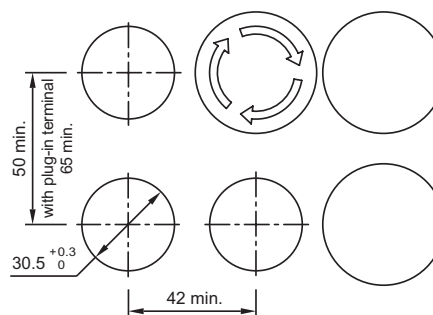
04 Cut-outs

Emergency-stop switch; foolproof



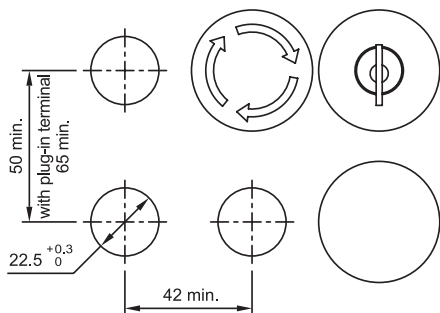
04 Cut-outs

Stop switch; flush mounting; non-foolproof



04 Cut-outs

Stop switch; raised mounting; non-foolproof



Emergency-stop switch and Stop switch

Switching system

The double-break switching system can be supplied for the following switching functions: 1 normally closed, 1 normally open or 1 changeover contact with or without overlap.

The normally closed contacts have forced opening according to EN IEC 60947-5-1.

The switching element offers high reliability due to its H-contact system with relative friction. The normally open and normally closed contacts can be used electrically separated.

The standard version is ideal for high breaking capacities. For lower capacities a special version can be supplied.

Material

Material of contact

Standard version: Ag-Ni alloy

Special version: Gold-Silver

Plastics

UL listed, Cd-free

Switching element

PC, PA 6.6 self-extinguishing

Front parts

PA 6, PA 12, PC

Adapter and enclosure

PC

Mechanical characteristics

Actuating force

Actuator foolproof ≤ 70 N

Actuating travel

Approx. 6 mm

Mechanical lifetime

Slow-make switching element 10×10^6 switching operations

Emergency-stop foolproof > 6050 cycles of operation

Electrical characteristics

Rated insulation voltage U_i

Slow-make switching element 660 V

Rated operational voltage U_e

AC 15 (inductive)

120 V, ~6 A

230 V, ~6 A

400 V, ~4 A

500 V, ~3 A

600 V, ~1.2 A

DC 13

24 V, 3 A

60 V, 1.3 A

120 V, 0.6 A

250 V, 0.3 A

Rated impulse withstand voltage U_{imp}

Slow-make switching element 6 kV*

*between the electrically separated normally closed contacts and normally open contacts for slow-make switching elements.

1 NC + 1 NO without overlap

$U_e > 400$ V, same polarity

$U_{imp} = 4000$ V

1 NC + 1 NO with overlap

$U_e > 250$ V, same polarity

$U_{imp} = 4000$ V

Rated Operational Current I_e

AC-12 (resistive)

500 V, ~5 A

DC-12

24 V, 10 A

60 V, 8 A

125 V, 3 A

250 V, 1 A

Contact resistance

Starting value (initial) ≤ 50 m Ω

Electrical life

AC-15

400 V, ~2 A, 1×10^6 switching operations

Conventional free air thermal current I_{th2}

10 A

Short-circuit protection

Max. series fuse to be provided 10 A gL

Switch rating

Ag-Ni alloy

minimal 6 V, 20 mA

(Standard version)

maximum 12 V, 10 mA

Gold-Silver

minimal 5 V, 1 mA

(Special version)

maximum 42 V, 100 mA

Degree of pollution

3, as per EN IEC 60947-1

Environmental conditions

Storage temperature

-40 °C ... +70 °C

Operating temperature

-25 °C, as per EN IEC 60068-2-1

+60 °C, as per EN IEC 60068-2-2

Protection degree

Actuators at front and enclosure IP65, as per EN IEC 60529

Shock resistance

40 g (duration 6 ms), as per EN IEC 60068-2-27

Vibration resistance

Sinusoidal, 5 g at 10-500 Hz, as per EN IEC 60068-2-6

Climate resistance

Humidity and heat constant, as per EN IEC 60068-2-3

Humidity and heat cyclic, as per EN IEC 60068-2-30

Approvals

Approbations

CSA

Germanischer Lloyd

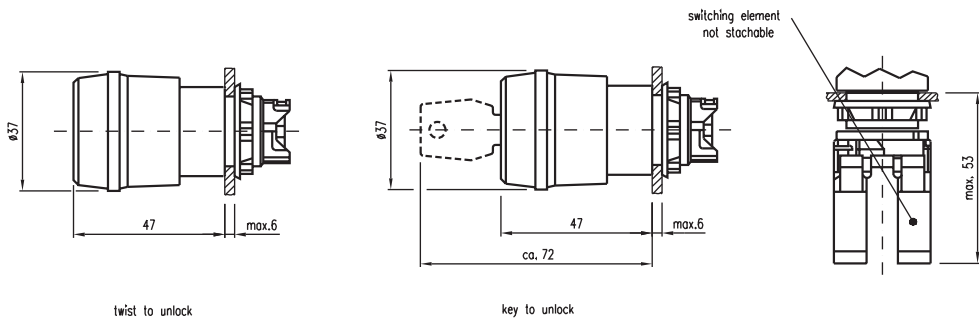
UL

VDE

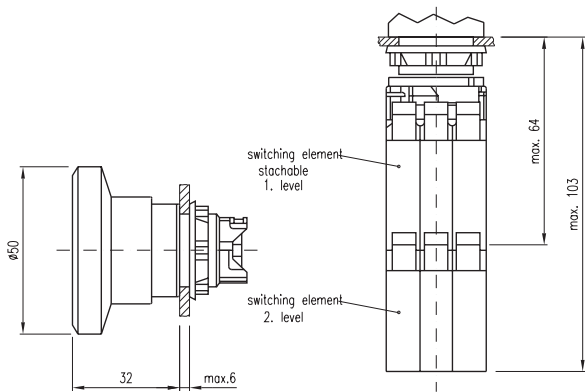
Declaration of conformity

CE

44 Emergency-stop switch

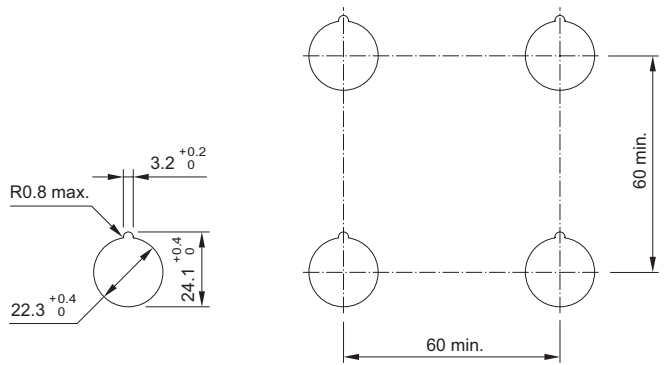


44 Stop switch

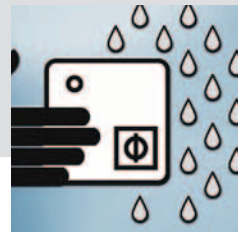


44 Cut-outs

Emergency-stop switch and Stop switch




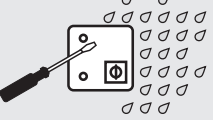
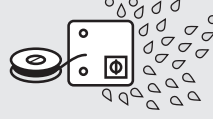
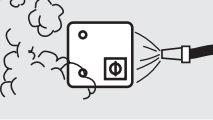
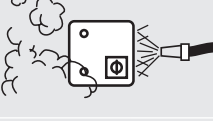
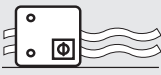
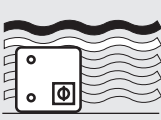
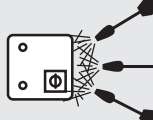


IP & IK Ratings







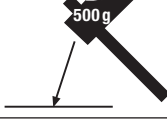
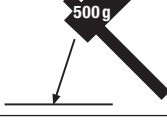
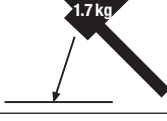
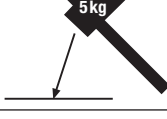
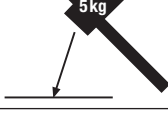


IP & IK Ratings

Degrees of protection to EN 60529

| Protection against ingress of solid objects | | Protection against water | |
|---|--------------|---|--|
| IP | First Figure | Second Figure | IP |
| No Protection | 0 |  | 0 No Protection |
| Solid object Ø ≥50.0 mm | 1 |  | 1 Vertical drops of water |
| Solid object Ø ≥12.5 mm | 2 |  | 2 Water droplets (at 15° from the vertical) |
| Solid object Ø ≥2.5 mm | 3 |  | 3 Sprinkled water |
| Solid object Ø ≥1.0 mm | 4 |  | 4 Water sprayed from any direction |
| Protection against dust: limited ingress | 5 |  | 5 Water jets from any direction |
| Total protection against dust | 6 |  | 6 Strong jets of water |
| | |  | 7 Temporary immersion |
| | |  | 8 Long periods of immersion |
| | |  | 9k* High pressure/ high-temperature jets of water * DIN 40050-9 |

Degrees of protection to EN 50102

| Protection against external mechanical impacts | | |
|---|----|-----------------------------|
| IK | | |
|  | 00 | No Protection |
|  | 01 | Impact energy 0.15 joule |
|  | 02 | Impact energy 0.2 joule |
|  | 03 | Impact energy 0.35 joule |
|  | 04 | Impact energy 0.5 joule |
|  | 05 | Impact energy 0.7 joule |
|  | 06 | Impact energy 1 joule |
|  | 07 | Impact energy 2 joule |
|  | 08 | Impact energy 5 joule |
|  | 09 | Impact energy 10 joule |
|  | 10 | Impact energy 20 joule |

For more details please contact your personal EAO consultant



eao ■

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