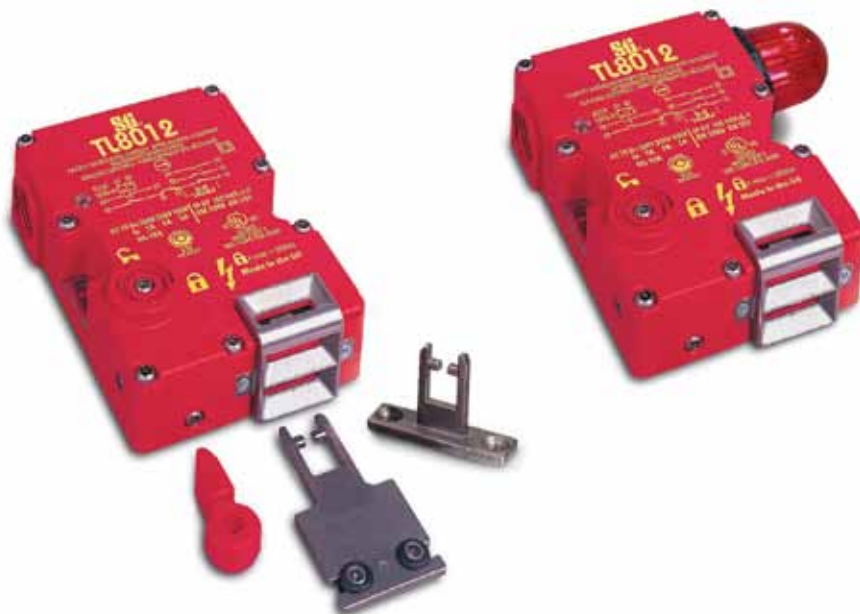




Conforms to EN1088, EN60947-5-1, EN292, EN60204-1
UL and C-UL listed



G

safety interlock switches

TL8012-S

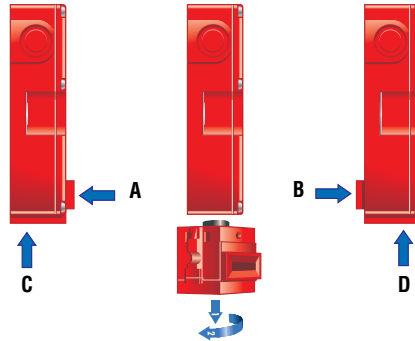
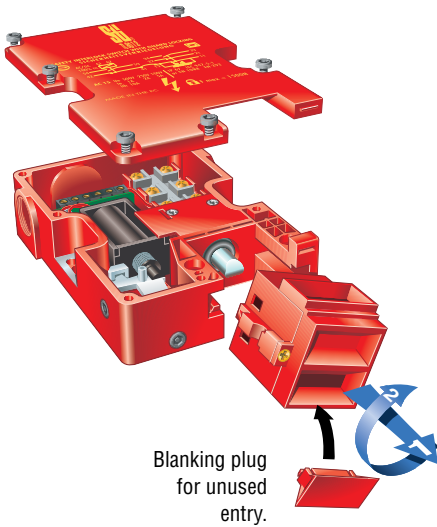
Versatile Safety Interlock Switch with Guard Door Locking

- High locking force of 2000 N (450 lb.)—locks guard door shut until machine is safe to enter
- NEMA 6 enclosure enables the TL8012-S to withstand water washdown cleaning
- Door and lock monitoring—the TL8012-S has a total of 5 contacts: 2 N/C safety + 1 N/O for door position monitoring plus 1 N/C + 1 N/O for lock monitoring
- Lid-mounted status light is on when solenoid is energized, indicating that solenoid has unlocked the guard door
- Rotatable head—the rotatable head of the TL8012-S provides 4 actuator entry positions to satisfy most installation requirements
- Optional key release—this option on power-to-unlock models allows emergency manual unlocking of the guard door
- Long life—the TL8012, with its variety of stainless steel actuators and stainless steel guide, is designed for a minimum of one million actuations.

A **Go to the Engineering Guide**
For in-depth information on safety standards and use.

N **For More Guarding Products**
See Section N for safeguarding cutting and turning machines

■ Operation

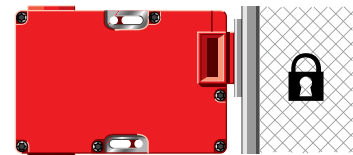
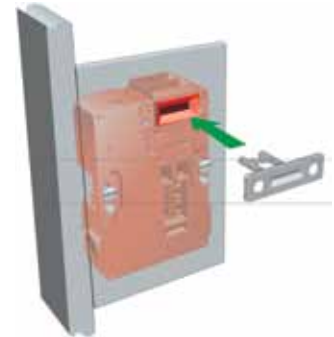


The head rotates 180° to give 4 possible actuator entry points.

A distance of 3.0 mm or less is required between face of switch and face of actuator for switch to lock.

Actuator Alignment Guide

Actuator alignment guide, easily replaced if damaged, provides an ideal letter box feature for mounting the switch behind a fixed panel.



Locking force = 450 lbs (2000 N) maximum

Optional SLD Series



Optional switch locking devices are available. See accessories section for details.



Optional Key Release Version

The TL8012-S is available with a key to provide emergency override of the switch locking mechanism by a qualified, responsible person.



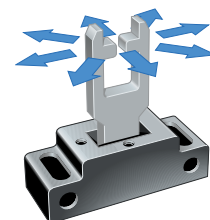
Optional Flat Actuator

Allows mounting to flat surfaces. Flexible rubber mounting bushings also allow for some actuator flexibility.



Optional Flexible 1 Actuator

15° flexibility in any direction. The actuator has 2 set screws for altering and locking adjustable angle.

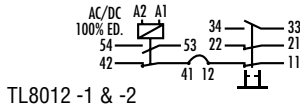


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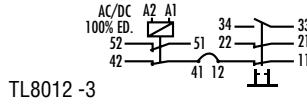
safety interlock switches

■ Operation (continued)

Contact Arrangements

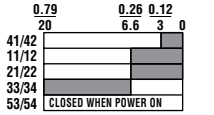


TL8012 -1 & -2



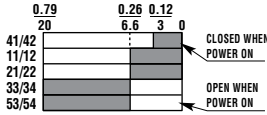
TL8012 -3

TL8012-1



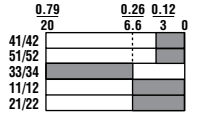
□ Contact Open ■ Contact Closed

TL8012-2



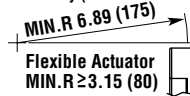
□ Contact Open ■ Contact Closed

TL8012-3

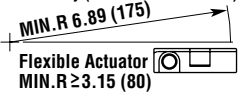


□ Contact Open ■ Contact Closed

Minimum Operating Radius
Front-Entry (Std. & Flat Actuators)

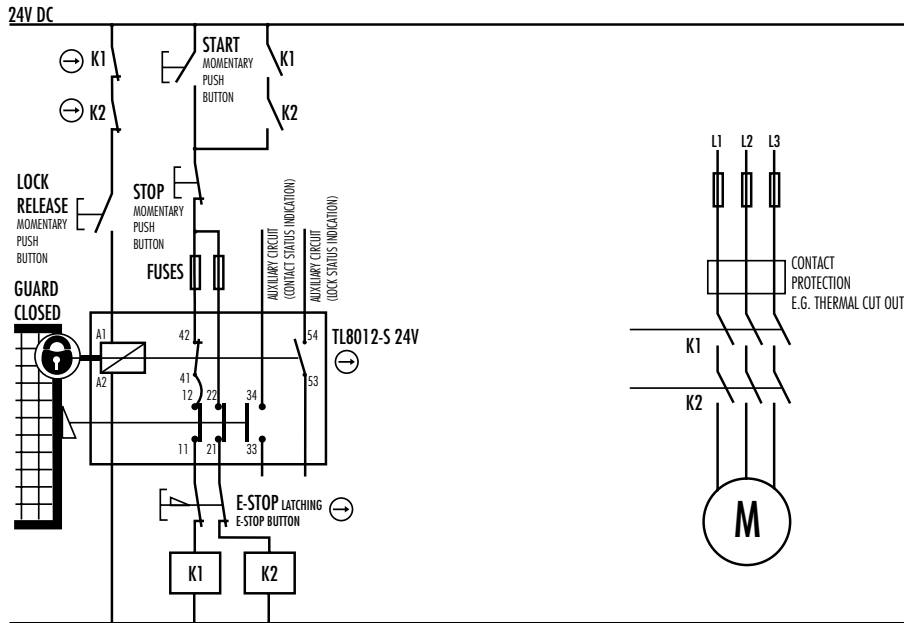
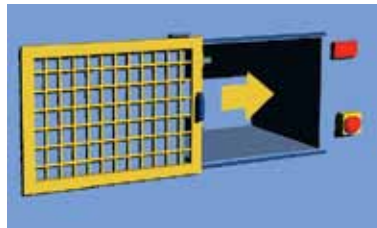


Minimum Operating Radius
End-Entry (Std. & Flat Actuators)



■ Applications

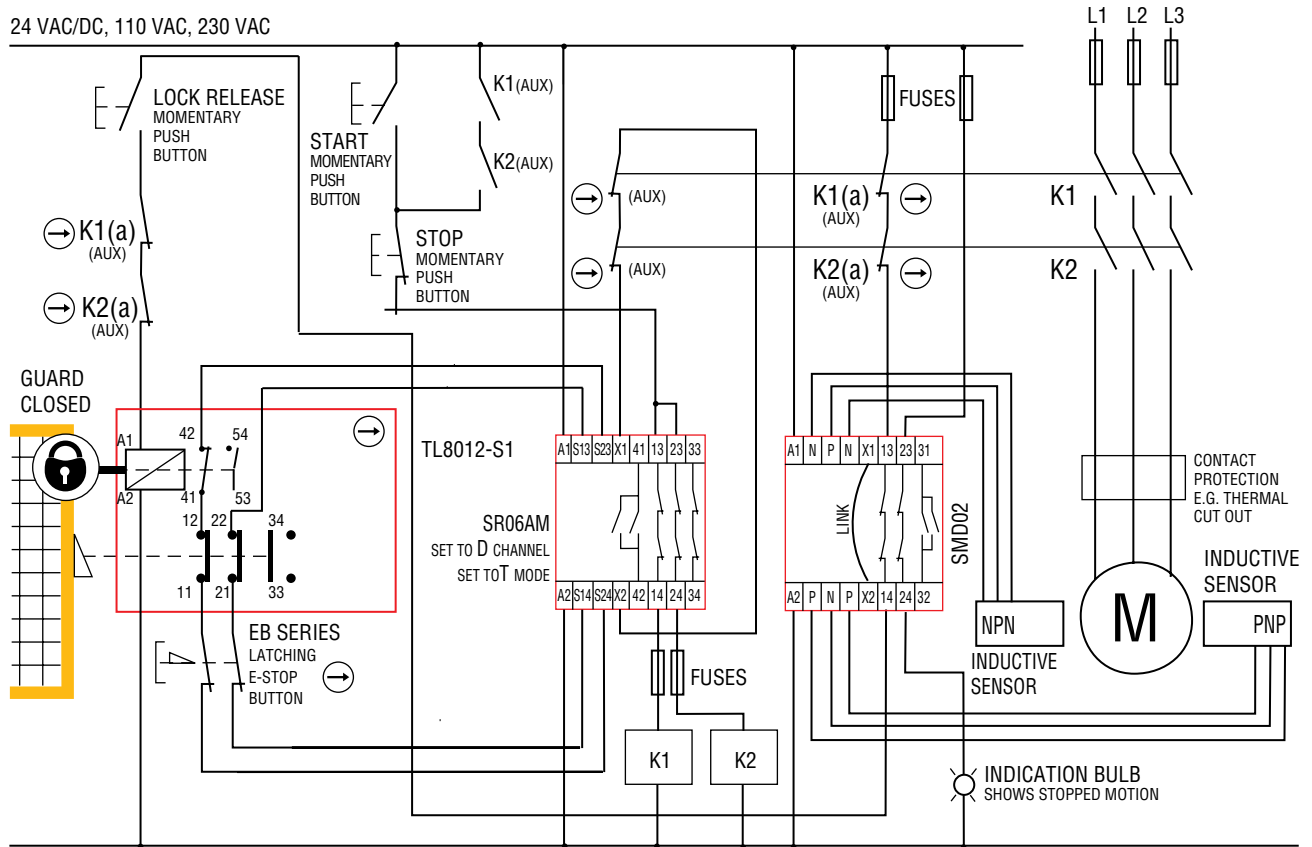
Typical applications are on sliding guard doors and swinging guard doors that must remain locked until a signal is applied to the internal solenoid that unlocks the guard door.



A Go to the Engineering Guide
For in-depth information on safety standards and use.

N For More Guarding Products
See Section N for safeguarding cutting and turning machines

■ Applications (continued)



For a full explanation of the circuit operating principle and fault detection, see "Common Circuit Examples" in the Engineering Section of this catalog.

■ Application Monitoring Units



SR223SMT Timer Unit

Used with the TL4024 for machines with constant overrun. Gives a timed delay to the lock/release signal. Failsafe and adjustable to a range of times from 1.0 seconds up to 31 seconds.

For information on the SR223SMT, see page H82



SR125SMS Stop Motion Sensing Unit

Used with the TL4024 for machines with inconstant or variable overrun. Senses back EMF of AC or DC motors. Failsafe and adjustable to a range of 0.01 V to 0.10 V.

For information on the SR125SMS, see page H42



Safety Monitoring Relay Units

Safety monitoring relays ensure a maximum level of safety by monitoring all wiring in the safety circuit, including switches and contactors. Any fault and the power to the machine is switched off. A variety of safety monitoring relay units are available.

For information on Safety Monitoring Relays, see page H1



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■ Specifications

| Electrical | TL8012-S1 & -S2 | All Models | TL8012-S3 |
|--|-------------------------------|--|----------------------|
| Contact Configurations: | 3 N/C + 2 N/O | | 4 N/C + 1 N/O |
| Safety Contacts: | 3 N/C positive break | | 4 N/C positive break |
| Switching Ability | | | |
| AC: | | 500 V–1 A, 250 V–2 A, 100 V–5 A | |
| DC: | | 250 V–0.5 A, 24 V–2 A | |
| Safety Contact Gap: | | > 2 mm (0.079 in.) | |
| Auxiliary Contacts: | 2 N/O (1 solenoid monitoring) | | 1 N/O |
| Max Switching Current/Volt/Amp: | | 500 V/500 VA | |
| Minimum Current: | | 5 V 5 mA DC | |
| Electrical Life: | | 1 x 10 ⁶ minimum | |
| Solenoid Supply Voltage: | | 24 VDC or 24 VAC/DC or 110 VAC or 220 VAC | |
| Solenoid Power: | | 7 W, approx. 900 mA inrush | |
| Solenoid Rating: | | 100% duty | |
| Mechanical | | | |
| Mounting: | | Any position | |
| Mounting Hardware: | | 4 x M5 screws | |
| Actuator Travel for Positive Opening: | | 7 mm (0.276 in.) | |
| Min Operating Radius: | | Approximately 80 mm (3.25 in.) with flex actuator Approximately 175 mm (7 in.) with standard actuator | |
| Max Holding Force: | | 2000 N (450 lb.) | |
| Max Actuation Speed: | | 160 mm/sec (6.3 in./sec) | |
| Max Activation Frequency: | | 1 cycle/sec | |
| Case Material: | | UL listed, glass-filled polyester | |
| Actuator Material: | | Stainless steel | |
| Wiring Entry: | | 3 x M20 conduit with 0.5 in. NPT adapter | |
| Weight: | | 400 g (14 oz.) | |
| Color: | | Red | |
| Mechanical Life: | | 1 x 10 ⁶ minimum | |
| Environmental | | | |
| Protection: | | IP67 (NEMA 6) | |
| Operating Temperature: | | -20 to 60°C (-4 to 176°F) | |
| Cleaning: | | Water washdown | |
| Compliance | | | |
| Standards: | | EN1088, EN60947-5-1, EN292, EN60204-1 | |
| Approvals/Listings: | | CE marked for all applicable directives, UL and C-UL | |

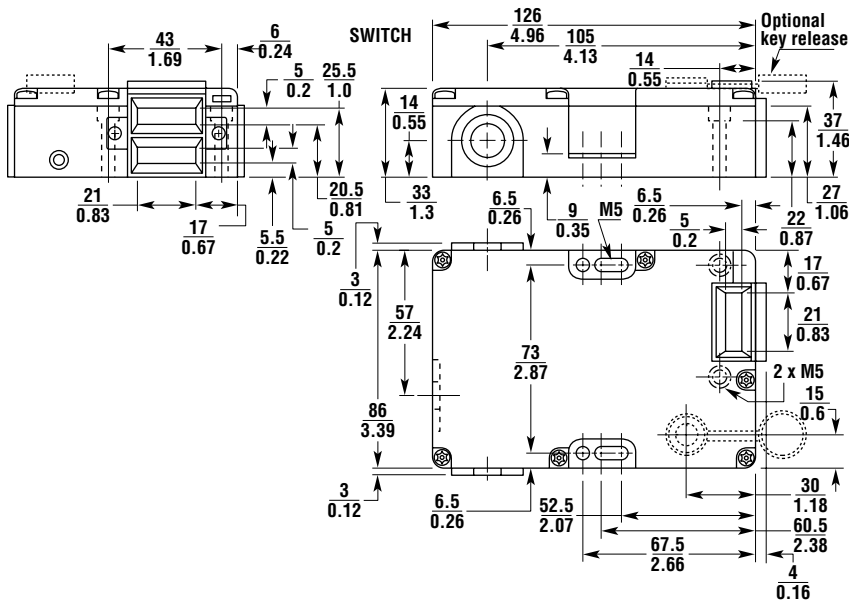
Specifications are subject to change without notice.

Note: The safety contacts of the Omron STI switches are described as normally closed (N/C)—i.e., with the guard closed, actuator in place, and the machine able to be started.

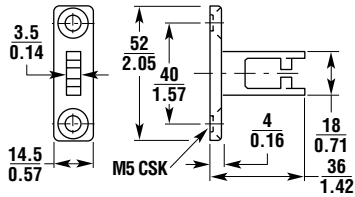
A **Go to the Engineering Guide**
For in-depth information on safety standards and use.

N **For More Guarding Products**
See Section N for safeguarding cutting and turning machines

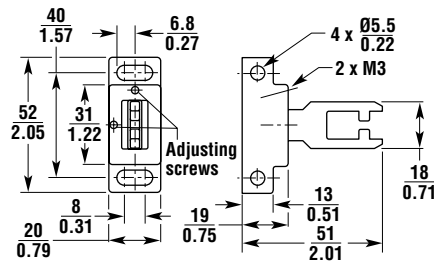
■ Dimensions — mm/in.



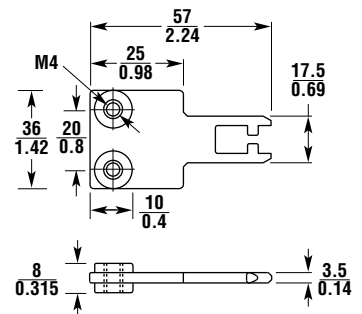
Standard Actuator



Flexible 1 Actuator



Flat Actuator



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safety interlock switches

■ Ordering

| Model | Solenoid | Contacts | Wiring Entry | Part No. |
|---|-----------|---------------|--------------------------|------------|
| POWER TO UNLOCK | | | | |
| TL8012-S1024SM (90-degree actuator) | 24 VAC/DC | 3 N/C + 2 N/O | 3 x M20 with NPT adapter | 44519-1080 |
| TL8012-S1110SM (90-degree actuator) | 110 VAC | 3 N/C + 2 N/O | 3 x M20 with NPT adapter | 44519-1020 |
| TL8012-S1220SM (90-degree actuator) | 220 VAC | 3 N/C + 2 N/O | 3 x M20 with NPT adapter | 44519-1030 |
| TL8012-S1024FM (flex actuator) | 24 VAC/DC | 3 N/C + 2 N/O | 3 x M20 with NPT adapter | 44519-1100 |
| TL8012-S1110FM (flex actuator) | 110 VAC | 3 N/C + 2 N/O | 3 x M20 with NPT adapter | 44519-1110 |
| TL8012-S1220FM (flex actuator) | 220 VAC | 3 N/C + 2 N/O | 3 x M20 with NPT adapter | 44519-1120 |
| TL8012-S1024TM (flat actuator) | 24 VAC/DC | 3 N/C + 2 N/O | 3 x M20 with NPT adapter | 44519-1130 |
| TL8012-S1110TM (flat actuator) | 110 VAC | 3 N/C + 2 N/O | 3 x M20 with NPT adapter | 44519-1140 |
| TL8012-S1220TM (flat actuator) | 220 VAC | 3 N/C + 2 N/O | 3 x M20 with NPT adapter | 44519-1150 |
| POWER TO UNLOCK WITH KEY | | | | |
| TL8012-S1024SKM w/ Key (90-degree actuator) | 24 VAC/DC | 3 N/C + 2 N/O | 3 x M20 with NPT adapter | 44519-1160 |
| TL8012-S1110SKM w/ Key (90-degree actuator) | 110 VAC | 3 N/C + 2 N/O | 3 x M20 with NPT adapter | 44519-1170 |
| TL8012-S1220SKM w/ Key (90-degree actuator) | 220 VAC | 3 N/C + 2 N/O | 3 x M20 with NPT adapter | 44519-1180 |
| TL8012-S1024FKM w/ Key (flex actuator) | 24 VAC/DC | 3 N/C + 2 N/O | 3 x M20 with NPT adapter | 44519-1190 |
| TL8012-S1110FKM w/ Key (flex actuator) | 110 VAC | 3 N/C + 2 N/O | 3 x M20 with NPT adapter | 44519-1200 |
| TL8012-S1220FKM w/ Key (flex actuator) | 220 VAC | 3 N/C + 2 N/O | 3 x M20 with NPT adapter | 44519-1210 |
| TL8012-S1024TKM w/ Key (flat actuator) | 24 VAC/DC | 3 N/C + 2 N/O | 3 x M20 with NPT adapter | 44519-1220 |
| TL8012-S1110TKM w/ Key (flat actuator) | 110 VAC | 3 N/C + 2 N/O | 3 x M20 with NPT adapter | 44519-1230 |
| TL8012-S1220TKM w/ Key (flat actuator) | 220 VAC | 3 N/C + 2 N/O | 3 x M20 with NPT adapter | 44519-1240 |

A **Go to the Engineering Guide**
For in-depth information on safety standards and use.

N **For More Guarding Products**
See Section N for safeguarding cutting and turning machines

■ Ordering (continued)

| Model | Solenoid | Contacts | Wiring Entry | Part No. |
|---|-----------|---------------|--------------------------|------------|
| POWER TO LOCK | | | | |
| TL8012-S2024SM (90-degree actuator) | 24 VAC/DC | 3 N/C + 2 N/O | 3 x M20 with NPT adapter | 44519-1040 |
| TL8012-S2110SM (90-degree actuator) | 110 VAC | 3 N/C + 2 N/O | 3 x M20 with NPT adapter | 44519-1050 |
| TL8012-S2220SM (90-degree actuator) | 220 VAC* | 3 N/C + 2 N/O | 3 x M20 with NPT adapter | 44519-1060 |
| TL8012-S2024FM (flex 1 actuator) | 24 VAC/DC | 3 N/C + 2 N/O | 3 x M20 with NPT adapter | 44519-1090 |
| TL8012-S2110FM (flex 1 actuator) | 110 VAC | 3 N/C + 2 N/O | 3 x M20 with NPT adapter | 44519-1250 |
| TL8012-S2220FM (flex 1 actuator) | 220 VAC* | 3 N/C + 2 N/O | 3 x M20 with NPT adapter | 44519-1070 |
| TL8012-S2024TM (flat actuator) | 24 VAC/DC | 3 N/C + 2 N/O | 3 x M20 with NPT adapter | 44519-1260 |
| TL8012-S2110TM (flat actuator) | 110 VAC | 3 N/C + 2 N/O | 3 x M20 with NPT adapter | 44519-1270 |
| TL8012-S2220TM (flat actuator) | 220 VAC* | 3 N/C + 2 N/O | 3 x M20 with NPT adapter | 44519-1280 |
| POWER TO UNLOCK | | | | |
| TL8012-S3024SM (90-degree actuator) | 24 VAC/DC | 4 N/C + 1 N/O | 3 x M20 with NPT adapter | 44519-1400 |
| TL8012-S3110SM (90-degree actuator) | 110 VAC | 4 N/C + 1 N/O | 3 x M20 with NPT adapter | 44519-1410 |
| TL8012-S3220SM (90-degree actuator) | 220 VAC* | 4 N/C + 1 N/O | 3 x M20 with NPT adapter | 44519-1420 |
| TL8012-S3024FM (flex 1 actuator) | 24 VAC/DC | 4 N/C + 1 N/O | 3 x M20 with NPT adapter | 44519-1430 |
| TL8012-S3110FM (flex 1 actuator) | 110 VAC | 4 N/C + 1 N/O | 3 x M20 with NPT adapter | 44519-1440 |
| TL8012-S3220FM (flex 1 actuator) | 220 VAC* | 4 N/C + 1 N/O | 3 x M20 with NPT adapter | 44519-1450 |
| TL8012-S3024TM (flat actuator) | 24 VAC/DC | 4 N/C + 1 N/O | 3 x M20 with NPT adapter | 44519-1460 |
| TL8012-S3110TM (flat actuator) | 110 VAC | 4 N/C + 1 N/O | 3 x M20 with NPT adapter | 44519-1470 |
| TL8012-S3220TM (flat actuator) | 220 VAC* | 4 N/C + 1 N/O | 3 x M20 with NPT adapter | 44519-1480 |
| Replacement 90-Deg Actuator | | | | 44519-0700 |
| Replacement Flex 1 Actuator with Alignment Guide | | | | 44519-0710 |
| Replacement Flat Actuator | | | | 44519-0720 |
| TL8012-S Replacement Head | | | | 44519-0730 |
| Spare TL8012-S Actuator Guide (Plastic) | | | | 44519-0740 |
| Spare TL8012-S Actuator Guide (Stainless Steel) | | | | 44519-0750 |
| Lid with Lock & Key (Use only with Power to Unlock) | | | | 44519-0760 |
| Override Key, Molded Plastic | | | | 44530-0700 |
| Spare M20 to NPT Adapter | | | | 44512-0110 |
| M20 Cord Grip | | | | 44512-0090 |
| Accessories (see page G238) | | | | |

*220 VAC units are available on special order. Minimum order quantities may apply.

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