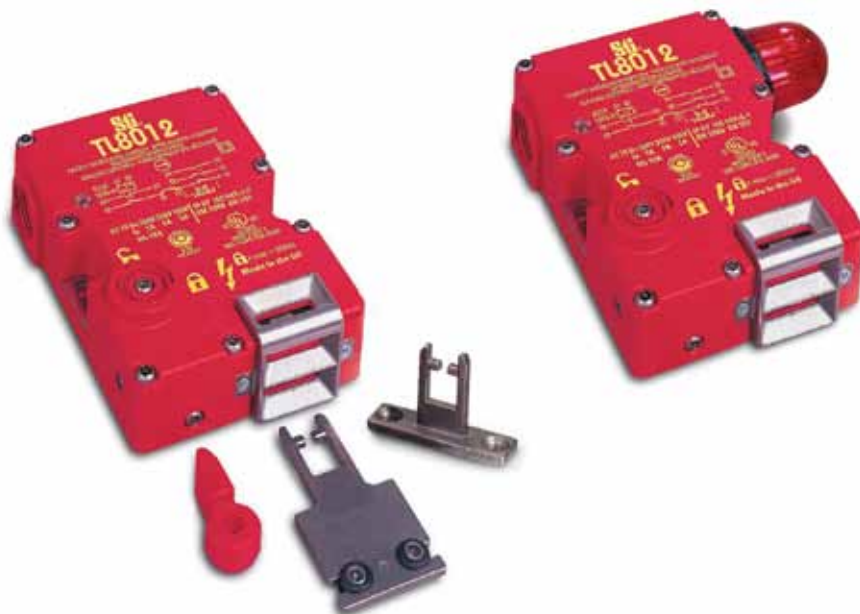




Conforms to EN1088, EN60947-5-1, EN292, EN60204-1
UL and C-UL listed



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safety interlock switches

TL8012-S

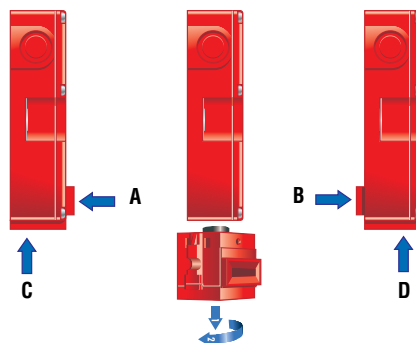
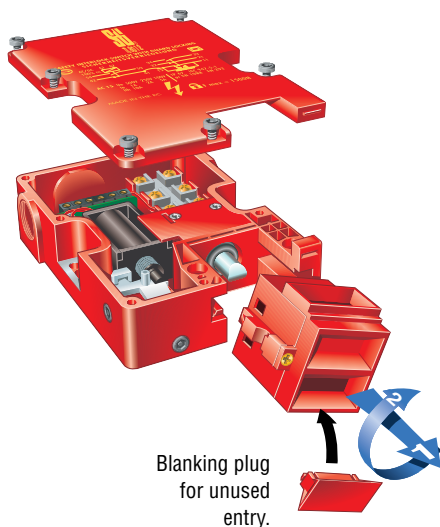
Versatile Safety Interlock Switch with Guard Door Locking

- 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

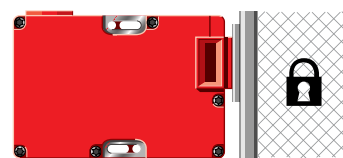
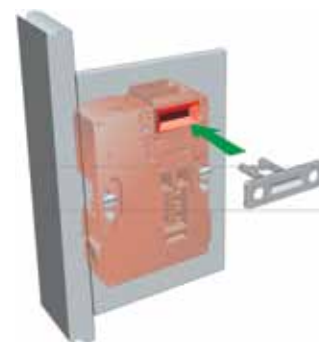


The head rotates 180° to give 4 possible actuator entry points.

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.



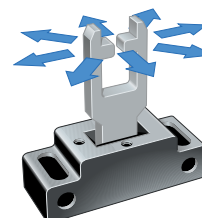
Optional Flat Actuator

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.

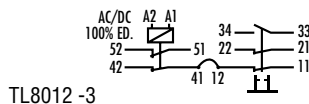
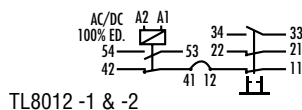


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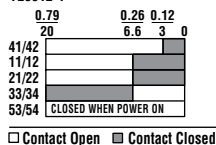
safety interlock switches

■ Operation (continued)

Contact Arrangements



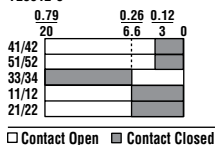
TL8012-1



TL8012-2



TL8012-3

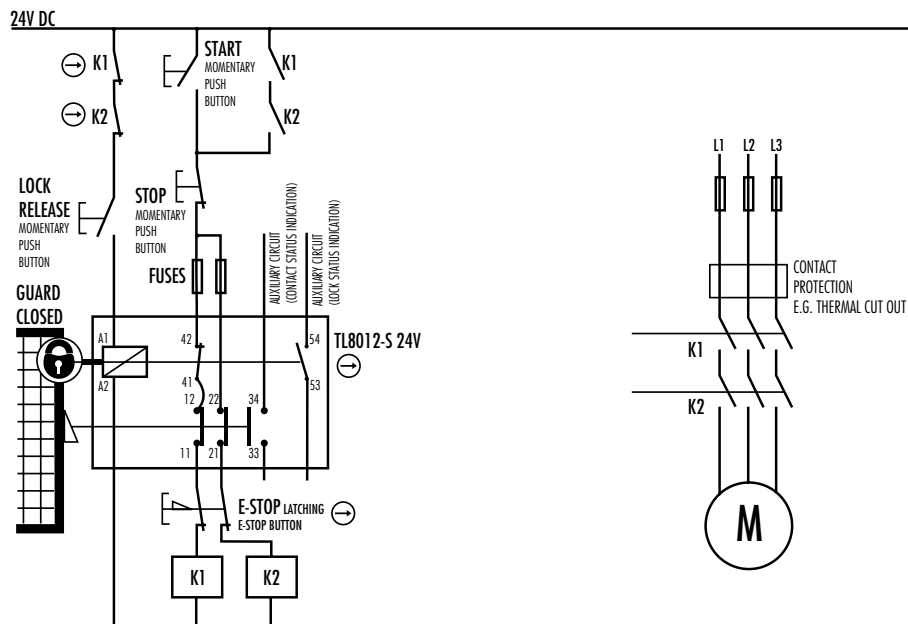
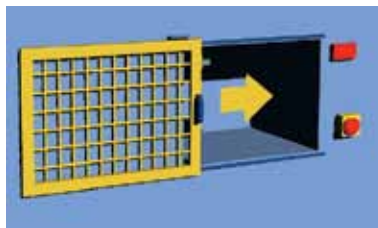


Minimum Operating Radius
Front-Entry (Std. & Flat Actuators)
MIN. R 6.89 (175)
Flexible Actuator
MIN. R ≥ 3.15 (80)

Minimum Operating Radius
End-Entry (Std. & Flat Actuators)
MIN. R 6.89 (175)
Flexible Actuator
MIN. R ≥ 3.15 (80)

■ 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.

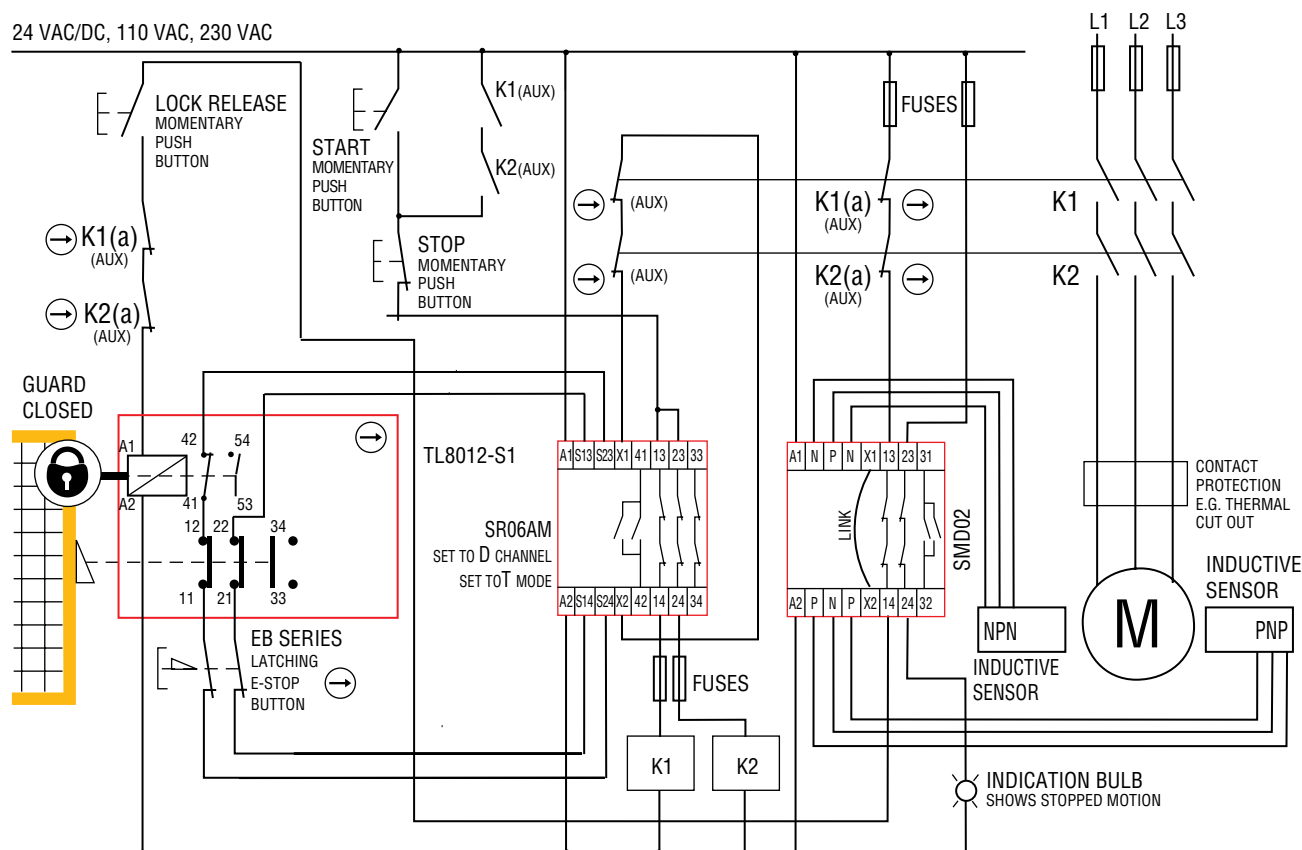


A Go to the Engineering Guide
For in-depth information on
safety standards and use.

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

■ Applications (continued)

24 VAC/DC, 110 VAC, 230 VAC



G
safety interlock switches

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

■ 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	

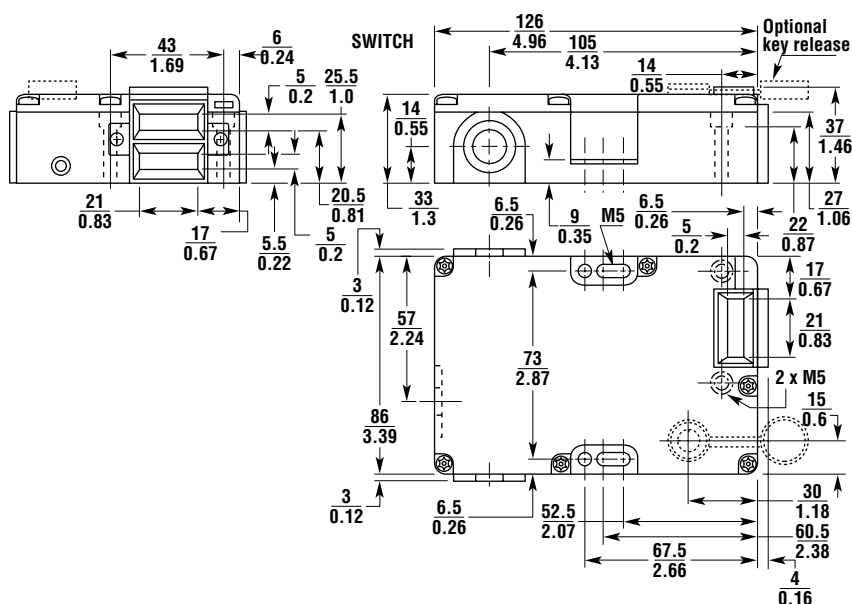
Specifications are subject to change without notice.

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.

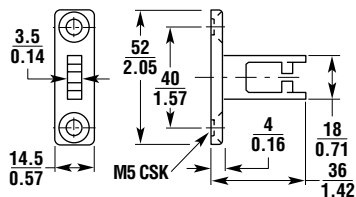
A Go to the Engineering Guide
For in-depth information on
safety standards and use.

N For More Guarding Products
See Section N for safeguarding
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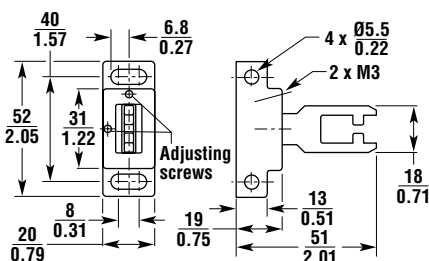
■ **Dimensions — mm/in.**



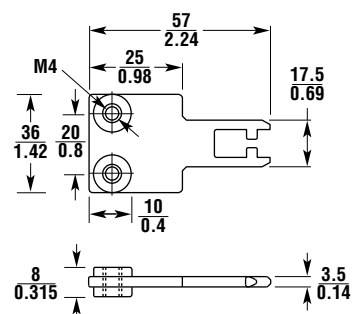
Standard Actuator



Flexible 1 Actuator



Flat Actuator



■ 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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