

# TL4019

## Safety Interlock Switch with Guard Door Locking

- High locking force of 1,200 N (270 lb.) locks guard door shut until machine is safe to enter
- IP67 (NEMA 6) enclosure enables the TL4019 to withstand water washdown
- Door and lock monitoring—the TL4019 has a total of 4 contacts: 2 N/C safety + 1 contact for door position monitoring + 1 contact for lock monitoring
- Rear manual release—allows unlocking of switch from inside of guarded area per ANSI/RIA R15.06
- Narrow profile enables mounting to 2 in. square tubing or in applications with space restrictions
- Rotatable head—the rotatable head of the TL4019 provides 8 actuator entry positions to satisfy most installation requirements
- Optional key release—this option on power-to-unlock models allows manual unlocking of the guard door
- Optional slide bolt with integral door handle aids installation on sliding and swinging guard doors
- A Rapid Delivery Product: Select models are available for shipment today or within 3 to 5 days



Conforms to EN60947-5-1, EN1088, EN ISO 13849-1  
UL and C-UL listed  
DGVV approved

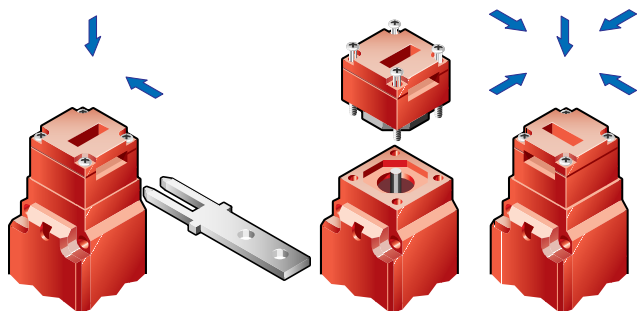
## Specifications

Electrical	All Models	TL4019-1 & -2	TL4019-3 & -4	TL4019-5
Safety Contacts:		2 N/C	2 N/C	1 N/C
Auxiliary Contacts:		2 N/O	1 N/O + 1 N/O 1 N/O + 1 N/C 1 N/C + 1 N/O	1 N/C + 1 N/O
Switching Ability	AC: 230 V – 4 A DC: 24 V – 4 A			
Safety Contact Material:	Silver alloy with gold flash			
Minimum Current:	24 V 1 mA			
Solenoid Supply Voltage:	24 VAC/DC or 110 VAC (all -15% / +10%)			
Solenoid Power:	8 W			
Solenoid Rating:	100% duty			
<b>Mechanical</b>				
Mounting:	Any position			
Mounting Hardware:	4 x M5 screws (not supplied)			
Min Operating Radius:	Approximately 100 mm (3.9 in.) with flex actuators Approximately 1000 mm (39 in.) with flat and 90-degree actuators			
Max Holding Force:	1200 N (270 lb.)			
Max Actuation Speed:	20 m/min.			
Case Material:	Reinforced thermoplastic			
Actuator Material:	Stainless steel			
Wiring Entry:	3 x M20 conduit with 0.5 in. NPT adapter			
Weight:	500 g (17 oz.)			
Color:	Red			
Mechanical Life:	1 x 10 <sup>6</sup> minimum			
<b>Environmental</b>				
Protection:	IP67 (NEMA 6)			
Operating Temperature:	-20 to 55°C (-4 to 131°F)			
Cleaning:	Water washdown			
<b>Compliance</b>				
Standards:	EN60947-5-1, EN1088, EN ISO 13849-1, ISO 14119			
Approvals/Listings:	CE marked for all applicable directives, UL and C-UL, DGVV			

Specifications are subject to change without notice.

Note: The safety contacts of the 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.

## Operation



### Optional Slide Bolts

- Allows easy installation of switch on machine guards
- Actuator included (order switch separately)
- Integral handle included
- Metal is ideal for heavy doors; plastic is suitable for smaller and lighter doors
- Slotted hole in bolt permits attaching multiple padlocks
- Yellow color for easy recognition



Metal Slide Bolt



Plastic Slide Bolt

### Alignment Guide

Optional stainless steel alignment guide aids actuator entry and is easily installed.



### Flat Actuator

Available with and without rubber bushings.



### 90-Degree Actuator

Available with and without rubber bushings.



### Optional Rear Release

- Allows manual rear release of a locked switch from inside a guarded area per ANSI/RIA R15.06
- May be installed on switch in conjunction with or without the use of a slide bolt
- Must use with Rear Release Switch Models only

### Optional Key Release

A key release unit is easily attached to the TL4019 to provide emergency override of the switch locking mechanism by a qualified, responsible person.



### Flexible 1 Actuator

15 degree flexibility may be adjusted with the set screw.



### Flexible 2 Actuator

15 degree flexibility may be adjusted with the set screw.



Rear Release Actuator (Included with Rear Release Switches)



Rear Release T-Handle (Order separately)

### Optional LED Lid Kit

Provides red and green LED indicators with user-configured operation.



### Optional Interior Lever Kit

Use with metal rear release slide bolts.

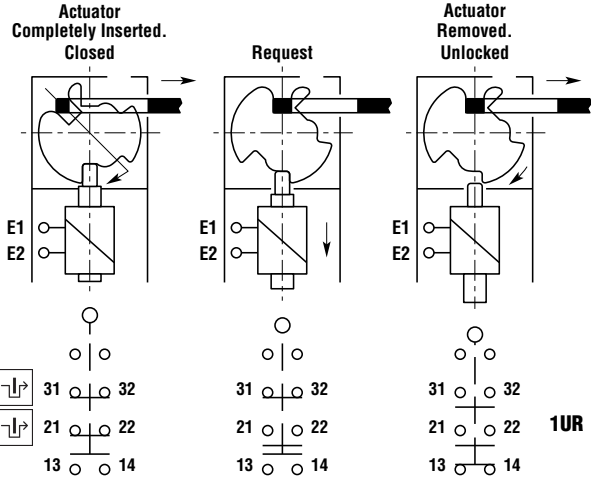


# Operation (continued)

## Contact Arrangements

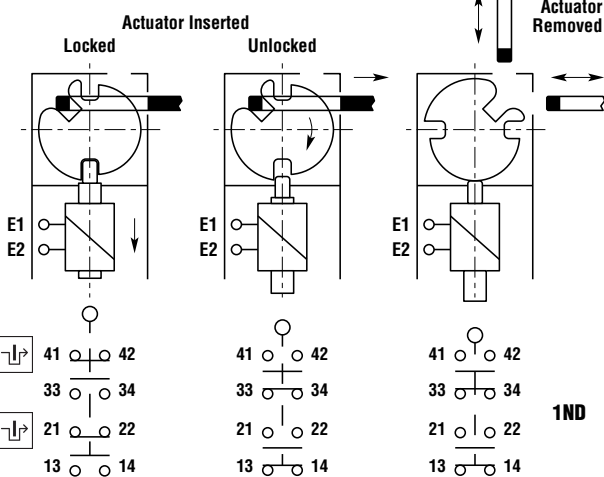
### With Unlock Request Contact

**1UR** 1 positively driven N/C contact as door unlock request contact  
1 positively driven N/C contact + 1 N/O (without door contact)



### Without Door Contact

**1ND** 2 positively driven N/C contacts + 2 N/O

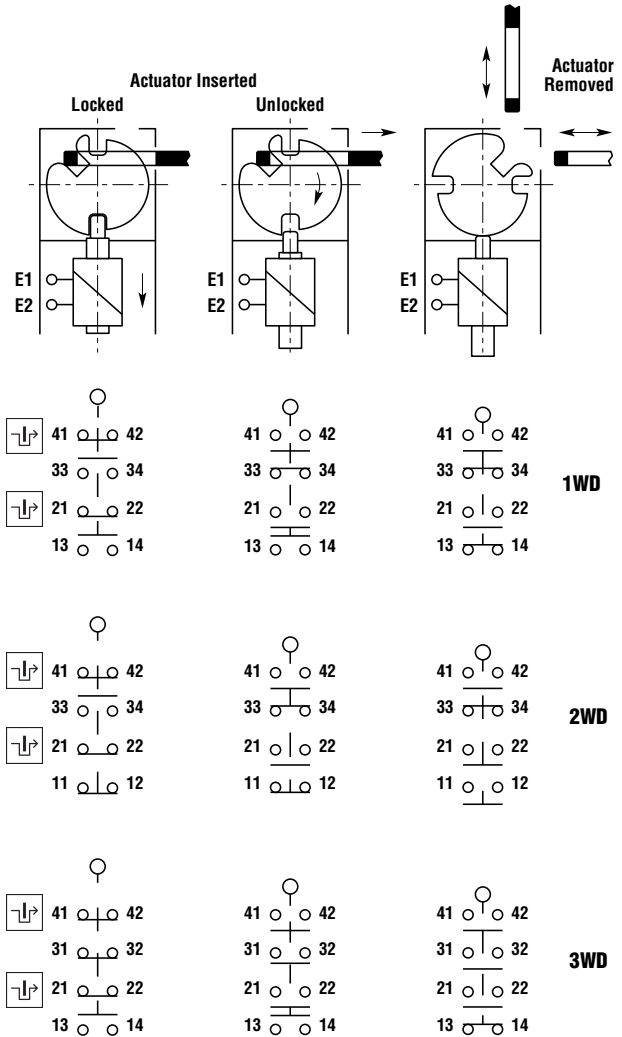


### With Door Contact

**1WD** 2 positively driven N/C contacts + 1 N/O + 1 N/O as door contact

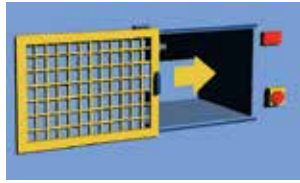
**2WD** 2 positively driven N/C contacts + 1 N/O + 1 N/C as door contact

**3WD** 2 positively driven N/C contacts + 1 N/C + 1 N/O as door contact



## 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.



## Application Monitoring Units



### SR223SMT Timer Unit

Used with the TL4019 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.



### SR125SMS45 Stop Motion Sensing Unit

Used with the TL4019 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.



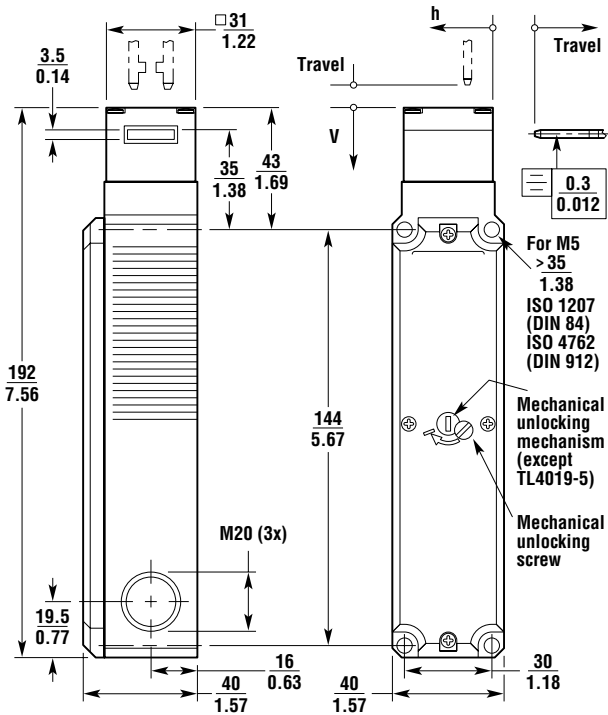
### Safety Monitoring Relay Units

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.

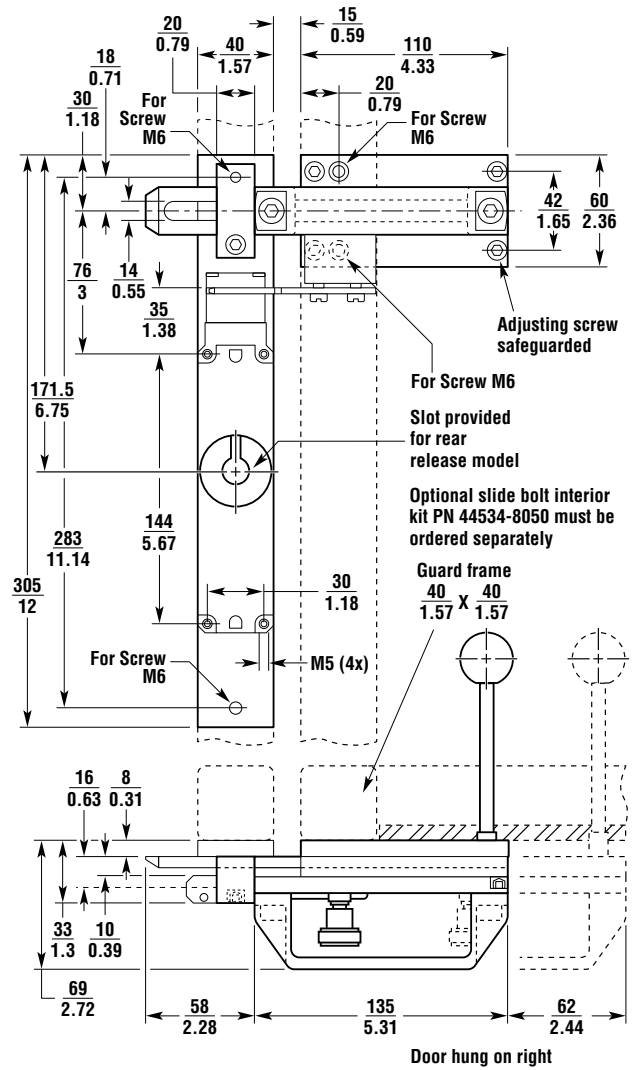
Dimensions

(mm/in.)

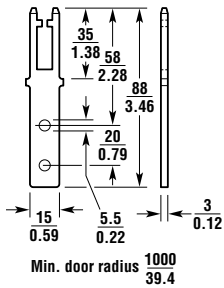
TL4019



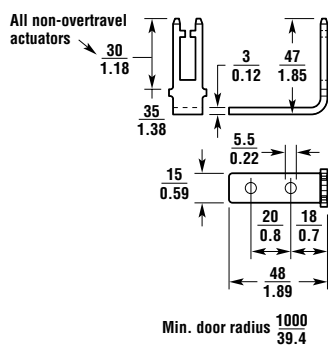
Optional Metal Slide Bolt for TL4019



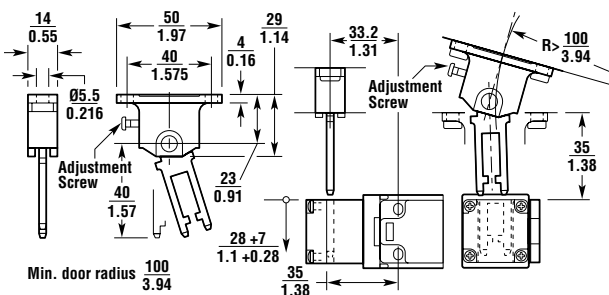
Overtravel Flat Actuator



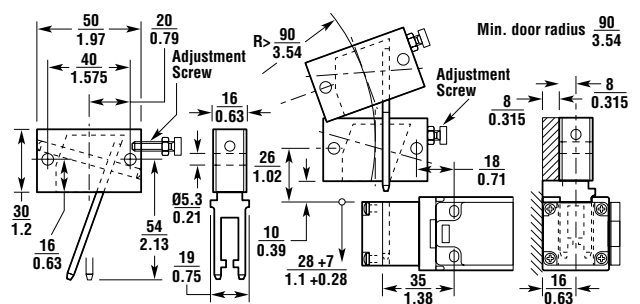
Overtravel 90-Degree Actuator



Flexible 1 Actuator



Flexible 2 Actuator



## Ordering

Model	Solenoid	Contacts	Wiring Entry	Part No.
<b>Power to Lock (without door contact)</b>				
TL4019-20241TM (flat actuator)	24 VAC/DC	2 N/C + 2 N/O	3 x M20 with NPT adapter	44534-0030
TL4019-20241SM (90-degree actuator)	24 VAC/DC	2 N/C + 2 N/O	3 x M20 with NPT adapter	44534-0130
TL4019-20241F2M (flex 2 actuator)	24 VAC/DC	2 N/C + 2 N/O	3 x M20 with NPT adapter	44534-0230
TL4019-20241F1M (flex 1 actuator)	24 VAC/DC	2 N/C + 2 N/O	3 x M20 with NPT adapter	44534-0330
TL4019-21101TM (flat actuator)	110 VAC	2 N/C + 2 N/O	3 x M20 with NPT adapter	44534-0040
TL4019-21101SM (90-degree actuator)	110 VAC	2 N/C + 2 N/O	3 x M20 with NPT adapter	44534-0140
TL4019-21101F2M (flex 2 actuator)	110 VAC	2 N/C + 2 N/O	3 x M20 with NPT adapter	44534-0240
TL4019-21101F1M (flex 1 actuator)	110 VAC	2 N/C + 2 N/O	3 x M20 with NPT adapter	44534-0340
<b>Power to Lock (with door contact)</b>				
TL4019-40241TM (flat actuator)	24 VAC/DC	2 N/C + 1 N/O + 1 N/O	3 x M20 with NPT adapter	44534-0410
TL4019-40241SM (90-degree actuator)	24 VAC/DC	2 N/C + 1 N/O + 1 N/O	3 x M20 with NPT adapter	44534-0510
TL4019-40241F2M (flex 2 actuator)	24 VAC/DC	2 N/C + 1 N/O + 1 N/O	3 x M20 with NPT adapter	44534-0610
TL4019-40241F1M (flex 1 actuator)	24 VAC/DC	2 N/C + 1 N/O + 1 N/O	3 x M20 with NPT adapter	44534-1710
TL4019-41101TM (flat actuator)	110 VAC	2 N/C + 1 N/O + 1 N/O	3 x M20 with NPT adapter	44534-0420
TL4019-41101SM (90-degree actuator)	110 VAC	2 N/C + 1 N/O + 1 N/O	3 x M20 with NPT adapter	44534-0520
TL4019-41101F2M (flex 2 actuator)	110 VAC	2 N/C + 1 N/O + 1 N/O	3 x M20 with NPT adapter	44534-0620
TL4019-41101F1M (flex 1 actuator)	110 VAC	2 N/C + 1 N/O + 1 N/O	3 x M20 with NPT adapter	44534-1720
TL4019-40242TM (flat actuator)	24 VAC/DC	2 N/C + 1 N/O + 1 N/C	3 x M20 with NPT adapter	44534-0430
TL4019-40242SM (90-degree actuator)	24 VAC/DC	2 N/C + 1 N/O + 1 N/C	3 x M20 with NPT adapter	44534-0530
TL4019-40242F2M (flex 2 actuator)	24 VAC/DC	2 N/C + 1 N/O + 1 N/C	3 x M20 with NPT adapter	44534-0630
TL4019-40242F1M (flex 1 actuator)	24 VAC/DC	2 N/C + 1 N/O + 1 N/C	3 x M20 with NPT adapter	44534-1730
TL4019-41102TM (flat actuator)	110 VAC	2 N/C + 1 N/O + 1 N/C	3 x M20 with NPT adapter	44534-0440
TL4019-41102SM (90-degree actuator)	110 VAC	2 N/C + 1 N/O + 1 N/C	3 x M20 with NPT adapter	44534-0540
TL4019-41102F2M (flex 2 actuator)	110 VAC	2 N/C + 1 N/O + 1 N/C	3 x M20 with NPT adapter	44534-0640
TL4019-41102F1M (flex 1 actuator)	110 VAC	2 N/C + 1 N/O + 1 N/C	3 x M20 with NPT adapter	44534-1740
TL4019-40243TM (flat actuator)	24 VAC/DC	2 N/C + 1 N/C + 1 N/O	3 x M20 with NPT adapter	44534-0450
TL4019-40243SM (90-degree actuator)	24 VAC/DC	2 N/C + 1 N/C + 1 N/O	3 x M20 with NPT adapter	44534-0550
TL4019-40243F2M (flex 2 actuator)	24 VAC/DC	2 N/C + 1 N/C + 1 N/O	3 x M20 with NPT adapter	44534-0650
TL4019-40243F1M (flex 1 actuator)	24 VAC/DC	2 N/C + 1 N/C + 1 N/O	3 x M20 with NPT adapter	44534-1750
TL4019-41103TM (flat actuator)	110 VAC	2 N/C + 1 N/C + 1 N/O	3 x M20 with NPT adapter	44534-0460
TL4019-41103SM (90-degree actuator)	110 VAC	2 N/C + 1 N/C + 1 N/O	3 x M20 with NPT adapter	44534-0560
TL4019-41103F2M (flex 2 actuator)	110 VAC	2 N/C + 1 N/C + 1 N/O	3 x M20 with NPT adapter	44534-0660
TL4019-41103F1M (flex 1 actuator)	110 VAC	2 N/C + 1 N/C + 1 N/O	3 x M20 with NPT adapter	44534-1760
<b>Power to Unlock (without door contact)</b>				
TL4019-10241TM (flat actuator)	24 VAC/DC	2 N/C + 2 N/O	3 x M20 with NPT adapter	44534-0010
TL4019-10241SM (90-degree actuator)	24 VAC/DC	2 N/C + 2 N/O	3 x M20 with NPT adapter	44534-0110
TL4019-10241F2M (flex 2 actuator)	24 VAC/DC	2 N/C + 2 N/O	3 x M20 with NPT adapter	44534-0210
TL4019-10241F1M (flex 1 actuator)	24 VAC/DC	2 N/C + 2 N/O	3 x M20 with NPT adapter	44534-0310
TL4019-11101TM (flat actuator)	110 VAC	2 N/C + 2 N/O	3 x M20 with NPT adapter	44534-0020
TL4019-11101SM (90-degree actuator)	110 VAC	2 N/C + 2 N/O	3 x M20 with NPT adapter	44534-0120
TL4019-11101F2M (flex 2 actuator)	110 VAC	2 N/C + 2 N/O	3 x M20 with NPT adapter	44534-0220
TL4019-11101F1M (flex 1 actuator)	110 VAC	2 N/C + 2 N/O	3 x M20 with NPT adapter	44534-0320
TL4019-10241SKM w/key (90-degree actuator)	24 VAC/DC	2 N/C + 2 N/O	3 x M20 with NPT adapter	44534-1110
TL4019-11101SKM w/key (90-degree actuator)	110 VAC	2 N/C + 2 N/O	3 x M20 with NPT adapter	44534-1120
<b>Power to Unlock (with door contact)</b>				
TL4019-30241TM (flat actuator)	24 VAC/DC	2 N/C + 1 N/O + 1 N/O	3 x M20 with NPT adapter	44534-0050
TL4019-30241SM (90-degree actuator)	24 VAC/DC	2 N/C + 1 N/O + 1 N/O	3 x M20 with NPT adapter	44534-0150
TL4019-30241F2M (flex 2 actuator)	24 VAC/DC	2 N/C + 1 N/O + 1N/O	3 x M20 with NPT adapter	44534-0250
TL4019-30241F1M (flex 1 actuator)	24 VAC/DC	2 N/C + 1 N/O + 1N/O	3 x M20 with NPT adapter	44534-0350
TL4019-31101TM (flat actuator)	110 VAC	2 N/C + 1 N/O + 1N/O	3 x M20 with NPT adapter	44534-0060
TL4019-31101SM (90-degree actuator)	110 VAC	2 N/C + 1 N/O + 1N/O	3 x M20 with NPT adapter	44534-0160
TL4019-31101F2M (flex 2 actuator)	110 VAC	2 N/C + 1 N/O + 1N/O	3 x M20 with NPT adapter	44534-0260
TL4019-31101F1M (flex 1 actuator)	110 VAC	2 N/C + 1 N/O + 1N/O	3 x M20 with NPT adapter	44534-0360
TL4019-30242TM (flat actuator)	24 VAC/DC	2 N/C + 1 N/O + 1N/C	3 x M20 with NPT adapter	44534-0070
TL4019-30242SM (90-degree actuator)	24 VAC/DC	2 N/C + 1 N/O + 1N/C	3 x M20 with NPT adapter	44534-0170
TL4019-30242F2M (flex 2 actuator)	24 VAC/DC	2 N/C + 1 N/O + 1N/C	3 x M20 with NPT adapter	44534-0270
TL4019-30242F1M (flex 1 actuator)	24 VAC/DC	2 N/C + 1 N/O + 1N/C	3 x M20 with NPT adapter	44534-0370

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Ordering (continued)

Model	Solenoid	Contacts	Wiring Entry	Part No.
TL4019-31102TM (flat actuator)	110 VAC	2 N/C + 1 N/O + 1N/C	3 x M20 with NPT adapter	44534-0080
TL4019-31102SM (90-degree actuator)	110 VAC	2 N/C + 1 N/O + 1N/C	3 x M20 with NPT adapter	44534-0180
TL4019-31102F2M (flex 2 actuator)	110 VAC	2 N/C + 1 N/O + 1N/C	3 x M20 with NPT adapter	44534-0280
TL4019-31102F1M (flex 1 actuator)	110 VAC	2 N/C + 1 N/O + 1N/C	3 x M20 with NPT adapter	44534-0380
TL4019-30243TM (flat actuator)	24 VAC/DC	2 N/C + 1 N/C + 1N/O	3 x M20 with NPT adapter	44534-0090
TL4019-30243SM (90-degree actuator)	24 VAC/DC	2 N/C + 1 N/C + 1 N/O	3 x M20 with NPT adapter	44534-0190
TL4019-30243F2M (flex 2 actuator)	24 VAC/DC	2 N/C + 1 N/C + 1 N/O	3 x M20 with NPT adapter	44534-0290
TL4019-30243F1M (flex 1 actuator)	24 VAC/DC	2 N/C + 1 N/C + 1 N/O	3 x M20 with NPT adapter	44534-0390
TL4019-31103TM (flat actuator)	110 VAC	2 N/C + 1 N/C + 1 N/O	3 x M20 with NPT adapter	44534-0400
TL4019-31103SM (90-degree actuator)	110 VAC	2 N/C + 1 N/C + 1 N/O	3 x M20 with NPT adapter	44534-0500
TL4019-31103F2M (flex 2 actuator)	110 VAC	2 N/C + 1 N/C + 1 N/O	3 x M20 with NPT adapter	44534-0600
TL4019-31103F1M (flex 1 actuator)	110 VAC	2 N/C + 1 N/C + 1 N/O	3 x M20 with NPT adapter	44534-1700
TL4019-30241SKM w/key (90-degree actuator)	24 VAC/DC	2 N/C + 1 N/O + 1 N/O	3 x M20 with NPT adapter	44534-1150
TL4019-31101SKM w/key (90-degree actuator)	110 VAC	2 N/C + 1 N/O + 1 N/O	3 x M20 with NPT adapter	44534-1160
TL4019-30242SKM w/key (90-degree actuator)	24 VAC/DC	2 N/C + 1 N/O + 1 N/C	3 x M20 with NPT adapter	44534-1170
TL4019-31102SKM w/key (90-degree actuator)	110 VAC	2 N/C + 1 N/O + 1 N/C	3 x M20 with NPT adapter	44534-1180
TL4019-30243SKM w/key (90-degree actuator)	24 VAC/DC	2 N/C + 1 N/C + 1 N/O	3 x M20 with NPT adapter	44534-1190
TL4019-31103SKM w/key (90-degree actuator)	110 VAC	2 N/C + 1 N/C + 1 N/O	3 x M20 with NPT adapter	44534-1500
<b>Power to Unlock (with unlock request contact) (mechanical unlocking is not available on these switches)</b>				
TL4019-50241TM (flat actuator)	24 VAC/DC	1 N/C + 1 N/C + 1 N/O	3 x M20 with NPT adapter	44534-0470
TL4019-50241SM (90-degree actuator)	24 VAC/DC	1 N/C + 1 N/C + 1 N/O	3 x M20 with NPT adapter	44534-0570
TL4019-50241F2M (flex 2 actuator)	24 VAC/DC	1 N/C + 1 N/C + 1 N/O	3 x M20 with NPT adapter	44534-0670
TL4019-50241F1M (flex 1 actuator)	24 VAC/DC	1 N/C + 1 N/C + 1 N/O	3 x M20 with NPT adapter	44534-1770
<b>Switch Only (no actuators or adapters included)</b>				
<b>Power to Unlock (without door contact)</b>				
TL4019-10241	24 VAC/DC	2 N/C + 2 N/O	3 x M20	44534-2010
TL4019-11101	110 VAC	2 N/C + 2 N/O	3 x M20	44534-2020
<b>Power to Unlock (with door contact)</b>				
TL4019-30241	24 VAC/DC	2 N/C + 1 N/O + 1 N/O	3 x M20	44534-2050
TL4019-31101	110 VAC	2 N/C + 1 N/O + 1 N/O	3 x M20	44534-2060
TL4019-30242	24 VAC/DC	2 N/C + 1 N/O + 1 N/C	3 x M20	44534-2070
TL4019-31102	110 VAC	2 N/C + 1 N/O + 1 N/C	3 x M20	44534-2080
TL4019-30243	24 VAC/DC	2 N/C + 1 N/C + 1 N/O	3 x M20	44534-2090
TL4019-31103	110 VAC	2 N/C + 1 N/C + 1 N/O	3 x M20	44534-2100
<b>Power to Unlock (with unlock request contact)</b>				
TL4019-50241	24 VAC/DC	1 N/C + 1 N/C + 1 N/O	3 x M20	44534-2170
<b>Power to Lock (without door contact)</b>				
TL4019-20241	24 VAC/DC	2 N/C + 2 N/O	3 x M20	44534-2030
TL4019-21101	110 VAC	2 N/C + 2 N/O	3 x M20	44534-2040
<b>Power to Lock (with door contact)</b>				
TL4019-40241	24 VAC/DC	2 N/C + 1 N/O + 1 N/O	3 x M20	44534-2110
TL4019-41101	110 VAC	2 N/C + 1 N/O + 1 N/O	3 x M20	44534-2120
TL4019-40242	24 VAC/DC	2 N/C + 1 N/O + 1 N/C	3 x M20	44534-2130
TL4019-41102	110 VAC	2 N/C + 1 N/O + 1 N/C	3 x M20	44534-2140
TL4019-40243	24 VAC/DC	2 N/C + 1 N/C + 1 N/O	3 x M20	44534-2150
TL4019-41103	110 VAC	2 N/C + 1 N/C + 1 N/O	3 x M20	44534-2160
<b>Rear Release (no actuators or adapters included; rear release actuator included; order T-handle separately)</b>				
<b>Power to Unlock (without door contact)</b>				
TL4019-10241RR	24 VAC/DC	2 N/C + 2 N/O	3 x M20	44534-3010
<b>Power to Unlock (with door contact)</b>				
TL4019-30241RR	24 VAC/DC	2 N/C + 1 N/O + 1 N/O	3 x M20	44534-3050
TL4019-30242RR	24 VAC/DC	2 N/C + 1 N/O + 1 N/C	3 x M20	44534-3070
TL4019-30243RR	24 VAC/DC	2 N/C + 1 N/C + 1 N/O	3 x M20	44534-3090
<b>Power to Lock (without door contact)</b>				
TL4019-20241RR	24 VAC/DC	2 N/C + 2 N/O	3 x M20	44534-3030
<b>Power to Lock (with door contact)</b>				
TL4019-40241RR	24 VAC/DC	2 N/C + 1 N/O + 1 N/O	3 x M20	44534-3110
TL4019-40242RR	24 VAC/DC	2 N/C + 1 N/O + 1 N/C	3 x M20	44534-3130
TL4019-40243RR	24 VAC/DC	2 N/C + 1 N/C + 1 N/O	3 x M20	44534-3150

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## Ordering (continued)

Accessories				Part No.
<b>Standard Actuators</b>				
Replacement flat actuator for TL4019				44534-0700
Replacement 90-degree actuator for TL4019				44534-0710
Replacement flex 2 actuator for TL4019				44534-0720
Replacement flex 1 actuator for TL4019				44534-0730
<b>Standard Actuators with Rubber Bushing</b>				
Replacement flat actuator RB for TL4019				44534-0740
Replacement 90-degree actuator RB for TL4019				44534-0750
<b>Overtravel Actuators</b>				
Replacement flat actuator OT for TL4019				44534-0701
Replacement 90-degree actuator OT for TL4019				44534-0711
Replacement flex 2 actuator OT for TL4019				44534-0721
Replacement flex 1 actuator OT for TL4019				44534-0731
<b>Overtravel Actuators with Rubber Bushing</b>				
Replacement flat actuator OTRB for TL4019				44534-0741
Replacement 90-degree actuator OTRB for TL4019				44534-0751
<b>Slide Bolts</b>				
Bolt for right-hung door for TL4019 with/without rear release (yellow metal)				44534-8130
Bolt for left-hung door for TL4019 with/without rear release (yellow metal)				44534-8140
Plastic slide bolt for right or left-hung door for TL4019 (yellow) (okay for rear release switches)				44534-8070
Slide bolt interior lever kit (use with rear release slide bolts only)				44534-8050
Rear release T-handle (use with rear release switches only)				44534-8060
Bracket for TL4019 (galvanized)				44534-8020
Handle without snap-in (use with 44534-8020 bracket) (galvanized)				44534-8000
Handle with snap-in (use with 44534-8020 bracket) (galvanized)				44534-8010
<b>Miscellaneous</b>				
Stainless steel alignment guide for TL4019 (must use with Overtravel Actuator)				44534-0780
Latch spring for TL4019 (provides greater retention force for actuator)				44534-0760
Lockout bar for TL4019 (prevents insertion of actuator into switch)				44534-0770
Key lock release for TL4019 (2 keys included) (Do not use with TL4019-5)				44534-0802
Spare keys for key lock above (44534-0802) for TL4019				44534-0812
Spare keys for key lock (44534-0800, no longer available)				44534-0810
Unique key lock release for TL4019 (2 unique keys included) (Do not use with TL4019-5)				44534-0820
Replacement head for TL4019				44534-0790
LED lid kit (for 24 VAC/DC switches only)				44534-0761



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