

# TL4024

## Safety Interlock Switch with Guard Door Locking

- High locking force of 1,500 N (337 lb.) locks guard door shut until machine is safe to enter
- IP67 (NEMA 6) enclosure withstands water washdown
- Door and lock monitoring—the TL4024 has a total of 4 contacts: 2 N/C safety + 1 contact for door position monitoring + 1 contact for lock monitoring
- Unlocking is possible with a back load on the door to satisfy the demands of high cycle time applications
- Narrow profile enables mounting to 2 in. square tubing or in applications with space restrictions
- Rotatable head—the rotatable head 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
- Two LED (red/green) status indicators on the lid may be wired to suit the application
- 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  
DGVU approved

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## Specifications

| Electrical               |  |
|--------------------------|--|
| Safety Contacts:         | 2 N/C  |
| Auxiliary Contacts:      | 1 N/O + 1 N/C<br>1 N/O + 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:         | 12 V 10 mA, 24 V 1 mA                                      |
| Solenoid Supply Voltage: | 24 VAC/DC or 110 VAC (all -15% / +10%)                     |
| Solenoid Power:          | 8 W  |
| Solenoid Rating:         | 100% duty  |
| Mechanical               |  |
| Mounting:                | Any position   |
| Mounting Hardware:       | 4 x M5 screws (not supplied)                               |
| Min Operating Radius:    | Approximately 300 mm (12 in.) with 90-degree actuator      |
| Max Holding Force:       | 1500 N (337 lb.)   |
| Max Actuation Speed:     | 20 m/min.  |
| Case Material:           | Anodized die-cast alloy                                    |
| Actuator Material:       | Stainless steel  |
| Wiring Entry:            | 3 x 0.5 in. NPT  |
| Weight:                  | 800 g (28 oz.)   |
| Color:                   | Red  |
| Mechanical Life:         | 1 x 10 <sup>6</sup> minimum                                |
| Environmental            |  |
| Protection:              | IP67 (NEMA 6)  |
| Operating Temperature:   | -20 to 80°C (-4 to 176°F)                                  |
| Cleaning:                | Water washdown   |
| Compliance               |  |
| Standards:               | EN60947-5-1, EN1088, EN ISO 13849-1                        |
| Approvals/Listings:      | CE marked for all applicable directives, UL and C-UL, DGVU |

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.

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## Operation

The head may be rotated in 90 degree increments to give 8 possible entry points.



### Flat Actuator

Flexible rubber mounting bushings allow for some actuator flexibility.



### Flexible 1 Actuator

15 degree flexibility may be adjusted with the set screw.



### 90-Degree Actuator

Flexible rubber mounting bushings allow for some actuator flexibility.



### Flexible 2 Actuator

15 degree flexibility may be adjusted with the set screw.



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### Optional Slide Bolt

- Allows easy installation of switch on machine guards
- Actuator included (order switch separately)
- Integral handle included
- Robust for use with heavy doors
- Slotted hole in bolt permits attaching multiple padlocks
- Yellow color for easy recognition



### Optional Key Release

A key release unit is easily attached to the TL4024 to provide emergency override of the switch locking mechanism by a qualified, responsible person.



### Optional SLD Series

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



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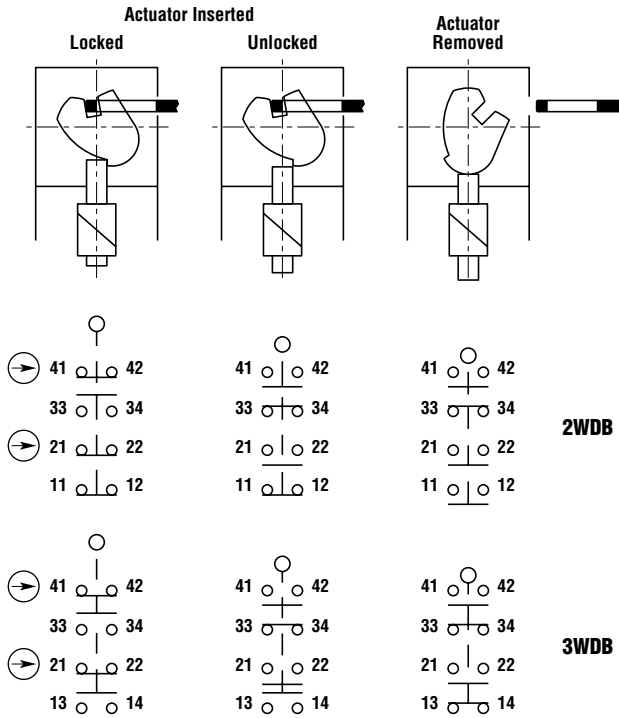
Visit this product on [www.sti.com](http://www.sti.com) for details.

## Operation (continued)

### Contact Arrangements

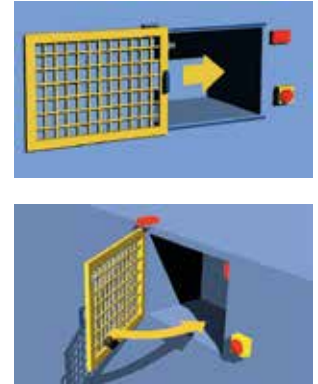
#### With Door Contact PLUS With & Without Back Load Unlocking

**2WDB** 2 positively driven N/C contact + 1 N/O + 1/NC as door contact  
**3WDB** 2 positively driven N/C contact + 1 N/O + 1/NO 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.



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## 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.



For information on these Safety Monitoring Relays, see page I1.

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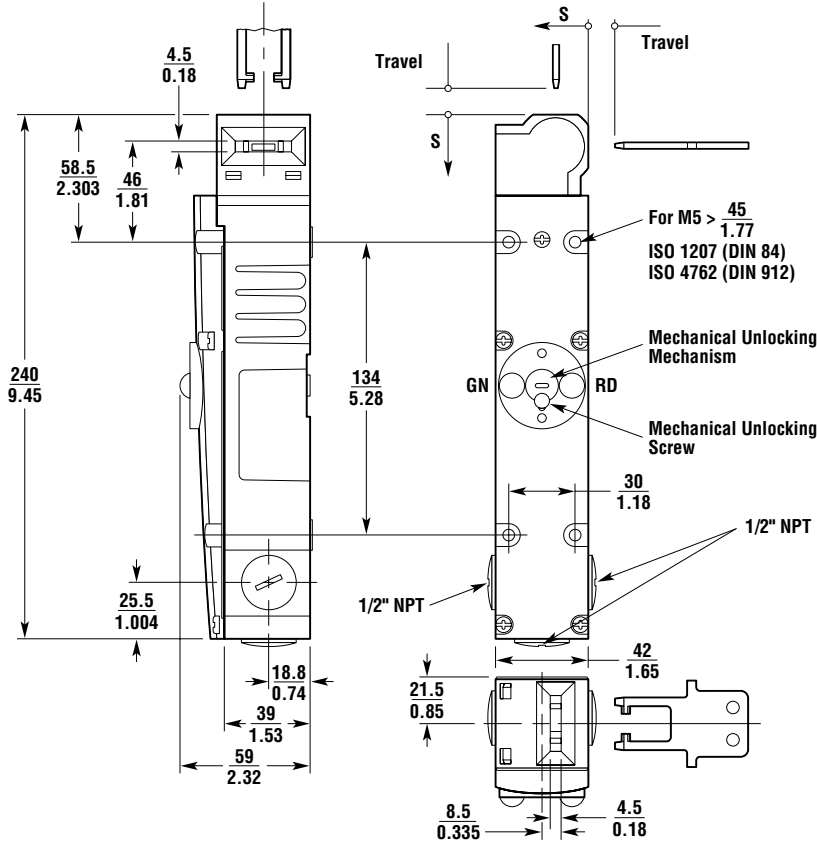
Visit this product on [www.sti.com](http://www.sti.com) for details.



Dimensions

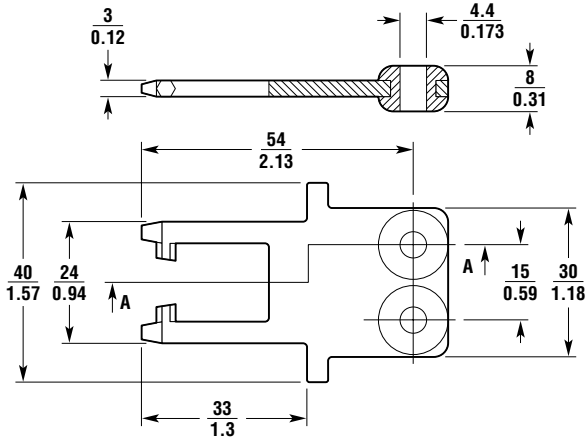
(mm/in.)

TL4024

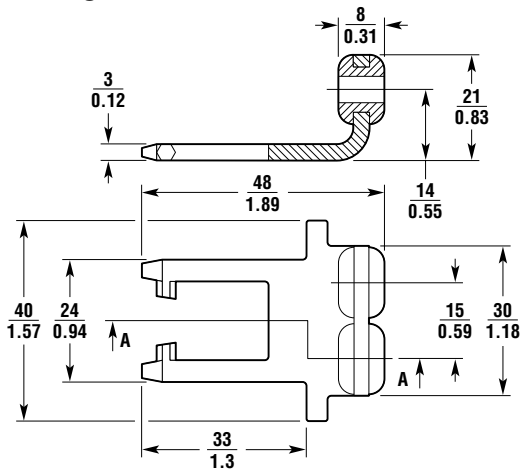


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Flat Actuator



90-degree Actuator



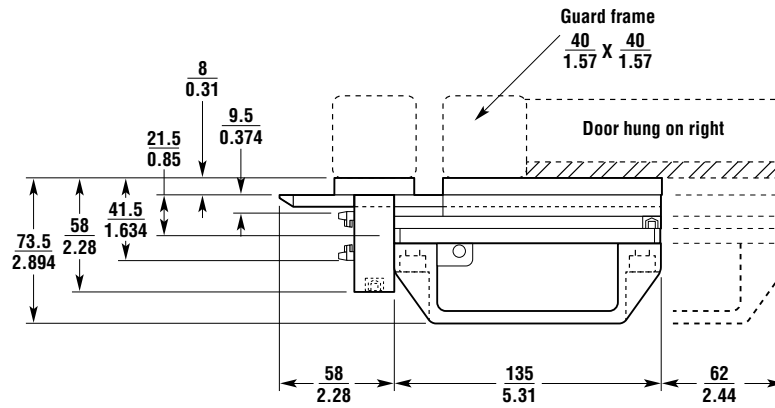
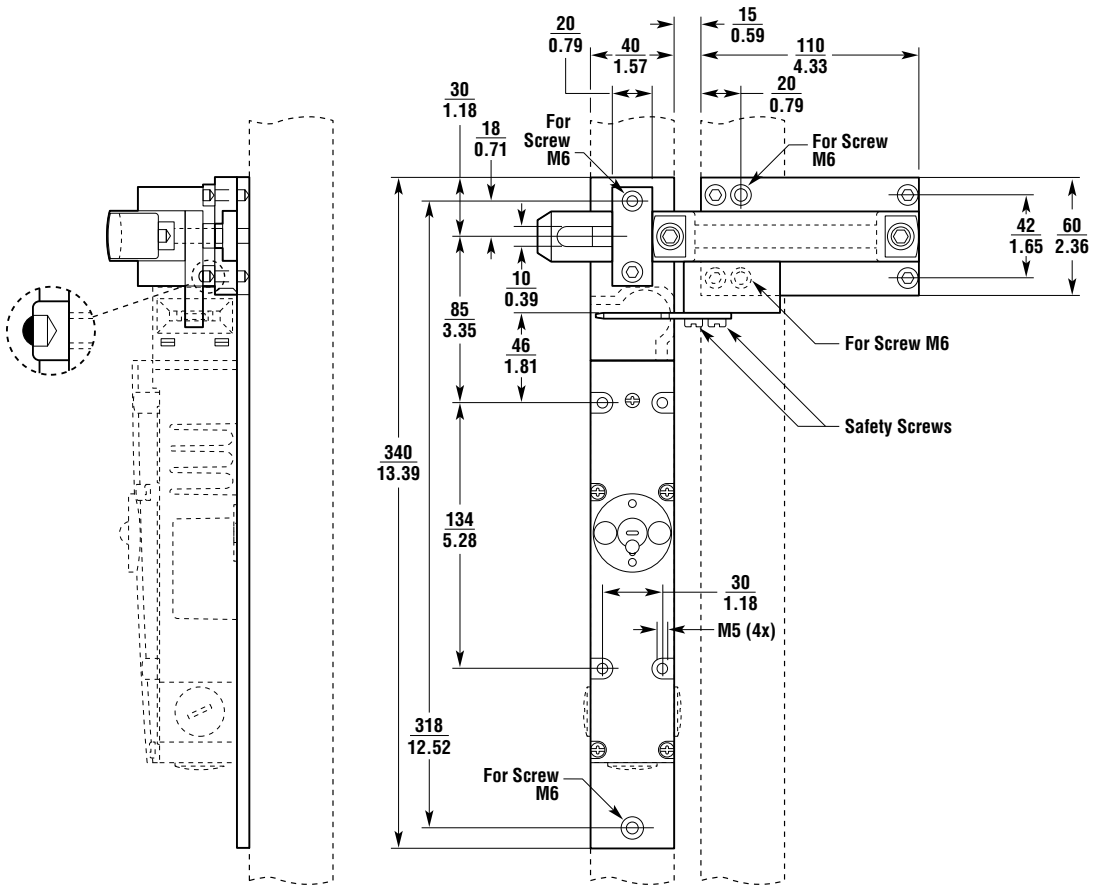
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Dimensions (continued)

(mm/in.)

Optional Metal Slide Bolt for TL4024



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## Ordering

| Model   | Solenoid  | Contacts              | Wiring Entry            | Part No.   |
|---|-----------|-----------------------|-------------------------|------------|
| <b>Power to Unlock (with door contact)</b>                            |           |                       |                         |            |
| TL4024-10242TM (flat actuator)  | 24 VAC/DC | 2 N/C + 1 N/O + 1 N/C | 3 x 0.5 in. NPT conduit | 44535-0010 |
| TL4024-10242SM (90-degree actuator)                                   | 24 VAC/DC | 2 N/C + 1 N/O + 1 N/C | 3 x 0.5 in. NPT conduit | 44535-0110 |
| TL4024-11102TM (flat actuator)  | 110 VAC   | 2 N/C + 1 N/O + 1 N/C | 3 x 0.5 in. NPT conduit | 44535-0020 |
| TL4024-11102SM (90-degree actuator)                                   | 110 VAC   | 2 N/C + 1 N/O + 1 N/C | 3 x 0.5 in. NPT conduit | 44535-0120 |
| TL4024-10243TM (flat actuator)  | 24 VAC/DC | 2 N/C + 1 N/O + 1 N/O | 3 x 0.5 in. NPT conduit | 44535-0030 |
| TL4024-10243SM (90-degree actuator)                                   | 24 VAC/DC | 2 N/C + 1 N/O + 1 N/O | 3 x 0.5 in. NPT conduit | 44535-0130 |
| TL4024-11103TM (flat actuator)  | 110 VAC   | 2 N/C + 1 N/O + 1 N/O | 3 x 0.5 in. NPT conduit | 44535-0040 |
| TL4024-11103SM (90-degree actuator)                                   | 110 VAC   | 2 N/C + 1 N/O + 1 N/O | 3 x 0.5 in. NPT conduit | 44535-0140 |
| TL4024-10242SKM w/key (90-degree actuator)                            | 24 VAC/DC | 2 N/C + 1 N/O + 1 N/C | 3 x 0.5 in. NPT conduit | 44535-1110 |
| TL4024-11102SKM w/key (90-degree actuator)                            | 110 VAC   | 2 N/C + 1 N/O + 1 N/C | 3 x 0.5 in. NPT conduit | 44535-1120 |
| TL4024-10243SKM w/key (90-degree actuator)                            | 24 VAC/DC | 2 N/C + 1 N/O + 1 N/O | 3 x 0.5 in. NPT conduit | 44535-1130 |
| TL4024-11103SKM w/key (90-degree actuator)                            | 110 VAC   | 2 N/C + 1 N/O + 1 N/O | 3 x 0.5 in. NPT conduit | 44535-1140 |
| <b>Power to Unlock (with door contact) (with back load unlocking)</b> |           |                       |                         |            |
| TL4024-30242TM (flat actuator)  | 24 VAC/DC | 2 N/C + 1 N/O + 1 N/C | 3 x 0.5 in. NPT conduit | 44535-0410 |
| TL4024-30242SM (90-degree actuator)                                   | 24 VAC/DC | 2 N/C + 1 N/O + 1 N/C | 3 x 0.5 in. NPT conduit | 44535-0510 |
| TL4024-31102TM (flat actuator)  | 110 VAC   | 2 N/C + 1 N/O + 1 N/C | 3 x 0.5 in. NPT conduit | 44535-0420 |
| TL4024-31102SM (90-degree actuator)                                   | 110 VAC   | 2 N/C + 1 N/O + 1 N/C | 3 x 0.5 in. NPT conduit | 44535-0520 |
| TL4024-30243TM (flat actuator)  | 24 VAC/DC | 2 N/C + 1 N/O + 1 N/O | 3 x 0.5 in. NPT conduit | 44535-0430 |
| TL4024-30243SM (90-degree actuator)                                   | 24 VAC/DC | 2 N/C + 1 N/O + 1 N/O | 3 x 0.5 in. NPT conduit | 44535-0530 |
| TL4024-31103TM (flat actuator)  | 110 VAC   | 2 N/C + 1 N/O + 1 N/O | 3 x 0.5 in. NPT conduit | 44535-0440 |
| TL4024-31103SM (90-degree actuator)                                   | 110 VAC   | 2 N/C + 1 N/O + 1 N/O | 3 x 0.5 in. NPT conduit | 44535-0540 |
| TL4024-30242SKM w/key (90-degree actuator)                            | 24 VAC/DC | 2 N/C + 1 N/O + 1 N/C | 3 x 0.5 in. NPT conduit | 44535-1180 |
| TL4024-31102SKM w/key (90-degree actuator)                            | 110 VAC   | 2 N/C + 1 N/O + 1 N/C | 3 x 0.5 in. NPT conduit | 44535-1190 |
| TL4024-30243SKM w/key (90-degree actuator)                            | 24 VAC/DC | 2 N/C + 1 N/O + 1 N/O | 3 x 0.5 in. NPT conduit | 44535-1510 |
| TL4024-31103SKM w/key (90-degree actuator)                            | 110 VAC   | 2 N/C + 1 N/O + 1 N/O | 3 x 0.5 in. NPT conduit | 44535-1520 |
| <b>Power to Lock (with door contact)</b>                              |           |                       |                         |            |
| TL4024-20242TM (flat actuator)  | 24 VAC/DC | 2 N/C + 1 N/O + 1 N/C | 3 x 0.5 in. NPT conduit | 44535-0050 |
| TL4024-20242SM (90-degree actuator)                                   | 24 VAC/DC | 2 N/C + 1 N/O + 1 N/C | 3 x 0.5 in. NPT conduit | 44535-0150 |
| TL4024-21102TM (flat actuator)  | 110 VAC   | 2 N/C + 1 N/O + 1 N/C | 3 x 0.5 in. NPT conduit | 44535-0060 |
| TL4024-21102SM (90-degree actuator)                                   | 110 VAC   | 2 N/C + 1 N/O + 1 N/C | 3 x 0.5 in. NPT conduit | 44535-0160 |
| TL4024-20243TM (flat actuator)  | 24 VAC/DC | 2 N/C + 1 N/O + 1 N/O | 3 x 0.5 in. NPT conduit | 44535-0070 |
| TL4024-20243SM (90-degree actuator)                                   | 24 VAC/DC | 2 N/C + 1 N/O + 1 N/O | 3 x 0.5 in. NPT conduit | 44535-0170 |
| TL4024-21103TM (flat actuator)  | 110 VAC   | 2 N/C + 1 N/O + 1 N/O | 3 x 0.5 in. NPT conduit | 44535-0080 |
| TL4024-21103SM (90-degree actuator)                                   | 110 VAC   | 2 N/C + 1 N/O + 1 N/O | 3 x 0.5 in. NPT conduit | 44535-0180 |
| <b>Switch Only Models (no actuator and no adapter included)</b>       |           |                       |                         |            |
| <b>Power to Unlock (with door contact)</b>                            |           |                       |                         |            |
| TL4024-10242  | 24 VAC/DC | 2 N/C + 1 N/O + 1 N/C | 3 x 0.5 in. NPT conduit | 44535-2010 |
| TL4024-11102  | 110 VAC   | 2 N/C + 1 N/O + 1 N/C | 3 x 0.5 in. NPT conduit | 44535-2020 |
| TL4024-10243  | 24 VAC/DC | 2 N/C + 1 N/O + 1 N/O | 3 x 0.5 in. NPT conduit | 44535-2030 |
| TL4024-11103  | 110 VAC   | 2 N/C + 1 N/O + 1 N/O | 3 x 0.5 in. NPT conduit | 44535-2040 |
| <b>Power to Unlock (with door contact) (with back load unlocking)</b> |           |                       |                         |            |
| TL4024-30242  | 24 VAC/DC | 2 N/C + 1 N/O + 1 N/C | 3 x 0.5 in. NPT conduit | 44535-2410 |
| TL4024-31102  | 110 VAC   | 2 N/C + 1 N/O + 1 N/C | 3 x 0.5 in. NPT conduit | 44535-2420 |
| TL4024-30243  | 24 VAC/DC | 2 N/C + 1 N/O + 1 N/O | 3 x 0.5 in. NPT conduit | 44535-2430 |
| TL4024-31103  | 110 VAC   | 2 N/C + 1 N/O + 1 N/O | 3 x 0.5 in. NPT conduit | 44535-2440 |
| <b>Power to Lock (with door contact)</b>                              |           |                       |                         |            |
| TL4024-20242  | 24 VAC/DC | 2 N/C + 1 N/O + 1 N/C | 3 x 0.5 in. NPT conduit | 44535-2050 |
| TL4024-21102  | 110 VAC   | 2 N/C + 1 N/O + 1 N/C | 3 x 0.5 in. NPT conduit | 44535-2060 |
| TL4024-20243  | 24 VAC/DC | 2 N/C + 1 N/O + 1 N/O | 3 x 0.5 in. NPT conduit | 44535-2070 |
| TL4024-21103  | 110 VAC   | 2 N/C + 1 N/O + 1 N/O | 3 x 0.5 in. NPT conduit | 44535-2080 |

| Accessories                                     | Model No.  |
|---|------------|
| <b>Standard Actuators with Rubber Bushing</b>   |            |
| Replacement flat actuator RB for TL4024         | 44535-0700 |
| Replacement 90-degree actuator RB for TL4024    | 44535-0710 |
| <b>Overtravel Actuators with Rubber Bushing</b> |            |
| Replacement flat actuator OTRB for TL4024       | 44535-0720 |
| Replacement 90-degree actuator OTRB for TL4024  | 44535-0730 |

| Accessories  | Model No.  |
|--|------------|
| <b>Flexible Actuators</b>  |            |
| Replacement flex 1 actuator for TL4024                                 | 44535-0750 |
| Replacement flex 2 actuator for TL4024                                 | 44535-0760 |
| <b>Slide Bolts</b>   |            |
| Bracket with handle for right-hung door for TL4024 (yellow)            | 44535-8000 |
| Bracket with handle for left-hung door for TL4024 (yellow)             | 44535-8010 |
| <b>Miscellaneous</b>   |            |
| Key lock release for TL4024 (2 keys included)                          | 44535-0802 |
| Spare keys for key lock above (44535-0802) for TL4024                  | 44535-0812 |
| Spare keys for key lock (44535-0800, no longer available)              | 44535-0810 |
| Unique key lock release for TL4024 (2 unique keys included)            | 44535-0820 |
| Replacement head for TL4024 (Not available for 44535-0470, 0570, 1570) | 44535-0740 |

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