

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
DGV approved

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Specifications

| Electrical | |
|--------------------------|---|
| Safety Contacts: | 2 N/C |
| Auxiliary Contacts: | 1 N/O + 1 N/C 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 ⁶ 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, DGV |

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.



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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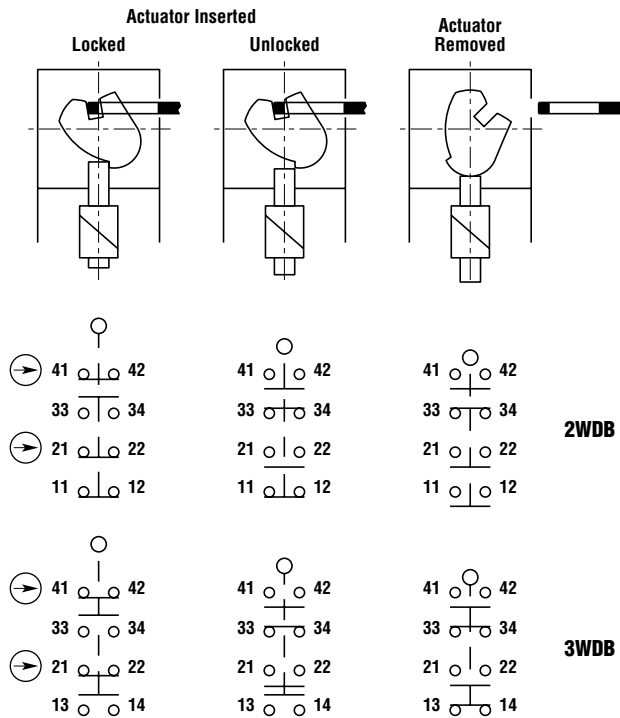
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Operation (continued)

Contact Arrangements

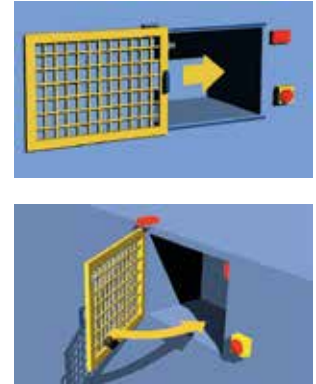
With Door Contact PLUS With & Without Back Load Unlocking

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.

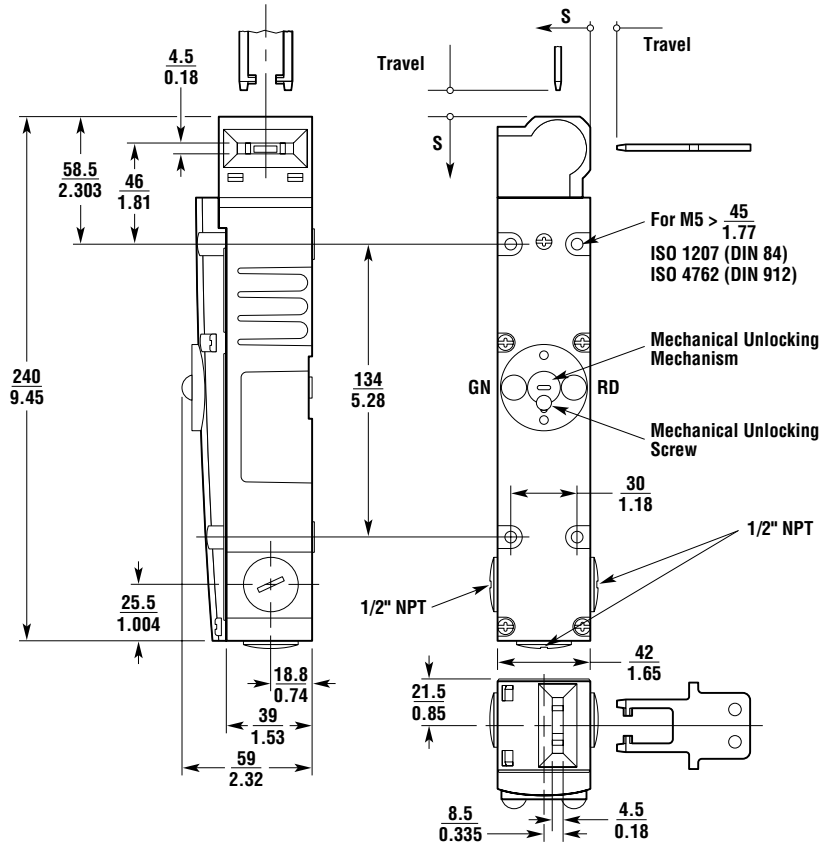
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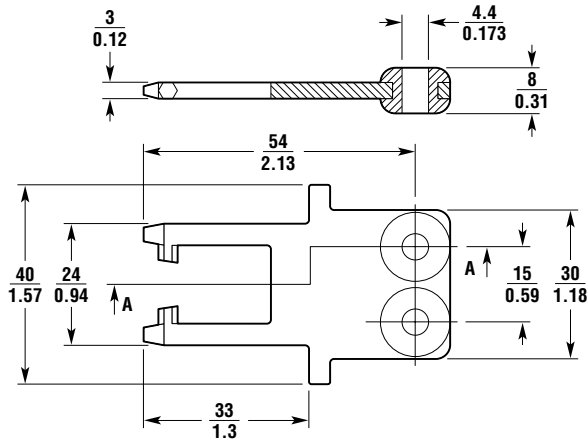
Dimensions

(mm/in.)

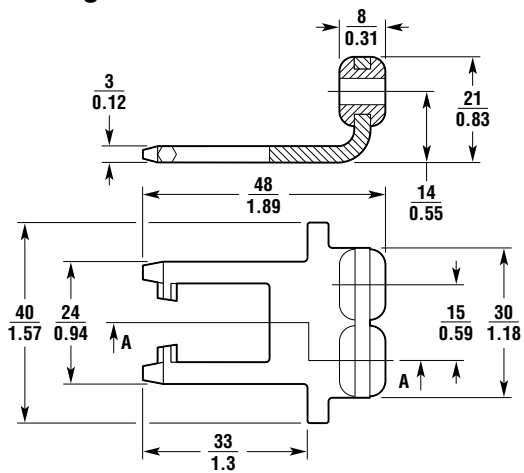
TL4024



Flat Actuator



90-degree Actuator



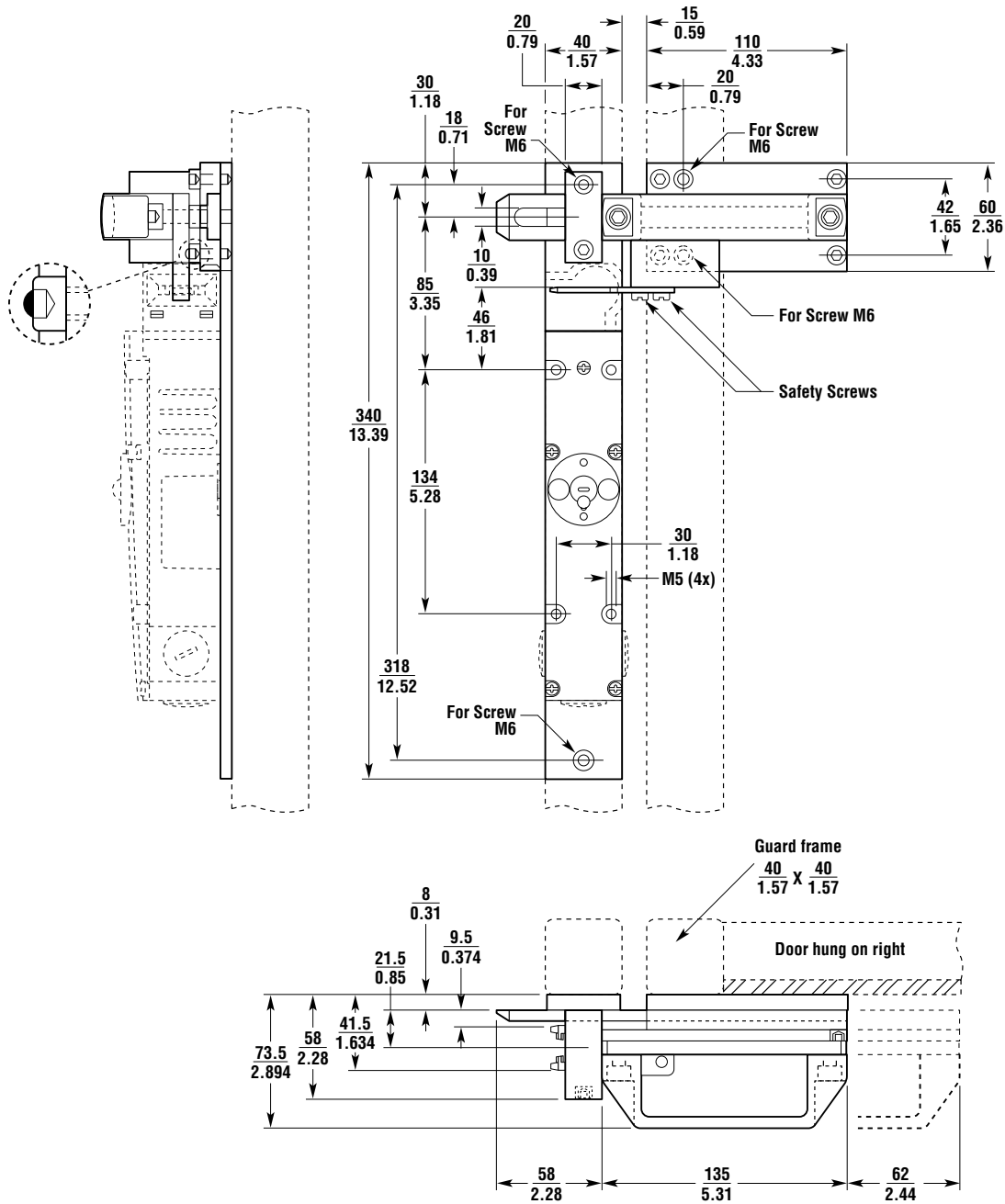
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Dimensions (continued)

(mm/in.)

Optional Metal Slide Bolt for TL4024



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Ordering

| Model | Solenoid | Contacts | Wiring Entry | Part No. |
|---|-----------|-----------------------|-------------------------|------------|
| Power to Unlock (with door contact) | | | | |
| 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 |
| Power to Unlock (with door contact) (with back load unlocking) | | | | |
| 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 |
| Power to Lock (with door contact) | | | | |
| 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 |
| Switch Only Models (no actuator and no adapter included) | | | | |
| Power to Unlock (with door contact) | | | | |
| 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 |
| Power to Unlock (with door contact) (with back load unlocking) | | | | |
| 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 |
| Power to Lock (with door contact) | | | | |
| 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. |
|---|------------|
| Standard Actuators with Rubber Bushing | |
| Replacement flat actuator RB for TL4024 | 44535-0700 |
| Replacement 90-degree actuator RB for TL4024 | 44535-0710 |
| Overtravel Actuators with Rubber Bushing | |
| Replacement flat actuator OTRB for TL4024 | 44535-0720 |
| Replacement 90-degree actuator OTRB for TL4024 | 44535-0730 |

| Accessories | Model No. |
|--|------------|
| Flexible Actuators | |
| Replacement flex 1 actuator for TL4024 | 44535-0750 |
| Replacement flex 2 actuator for TL4024 | 44535-0760 |
| Slide Bolts | |
| Bracket with handle for right-hung door for TL4024 (yellow) | 44535-8000 |
| Bracket with handle for left-hung door for TL4024 (yellow) | 44535-8010 |
| Miscellaneous | |
| 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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- Ultrasonic Sensors • Vision Sensors

Industrial Components

- RFID/Code Readers • Relays • Pushbuttons & Indicators
- Limit and Basic Switches • Timers • Counters • Metering Devices
- Power Supplies

Safety

- Laser Scanners • Safety Mats • Edges and Bumpers • Programmable Safety Controllers • Light Curtains • Safety Relays • Safety Interlock Switches