Model TOSY Outside Screw and Yoke Valve Supervisory Switch, APAC and EMEA Only

TFP2113 DECEMBER 2022

Important: Refer to technical data sheet *TFP2300* for warnings pertaining to regulatory and health information.

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NOTICE

The TYCO Model TOSY Outside Screw and Yoke Valve Supervisory Switch described herein must be installed and maintained in compliance with this document, in addition to the standards of any other authorities having jurisdiction. Failure to do so may impair the performance of the related devices.

The owner is responsible for maintaining their fire protection system and devices in proper operating condition. Contact the installing contractor or product manufacturer with any questions.



General description

The TYCO Model TOSY Outside Screw and Yoke Valve Supervisory Switch is designed to monitor the position of an outside screw and yoke type gate valve, and indicate when the valve is not in the open position.

The switch is weather proof and tamper resistant. The cover incorporates tamper resistant screws that require a special tamper resistant key for removal. One tamper resistant key is supplied with each device.

The switch mounts to most TYCO outside screw and yoke gate valves in the 2 in. (50 mm) to 12 in. (300 mm) size range.

Note: For switch information for valves in the 14 in. (355.6 mm) to 24 in. (600 mm) size range, contact your local sales organization.

Models

The switch models are based on the number of sets of single-pole, double-throw (SPDT) contacts featured as described in Table 1.

Table 1: Switch models

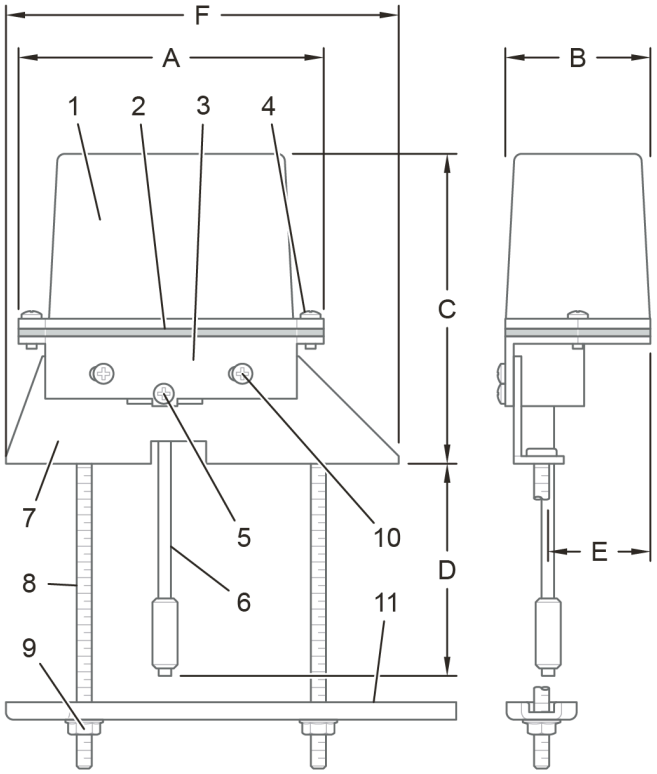
Model	Description
TOSY-1	1 set of SPDT contacts
TOSY-2	2 sets of SPDT contacts

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Assembly

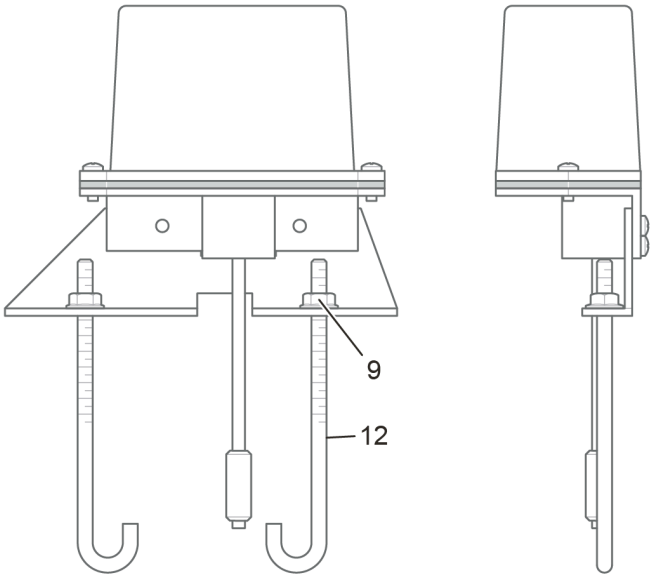
Figure 1: Main components and dimensions



Callout	Component
1	Cover
2	Gasket
3	Housing
4	Tamper resistant cover screw
5	Trip rod locking screw
6	Trip rod
7	Bracket
8	Carriage bolt
9	Hex nut
10	Bracket lock screw
11	Clamp bar

Callout	Dimension
A	4.55 in. (116 mm)
B	2.36 in. (60 mm)
C	4.84 in. (123 mm)
D	Minimum: 1.77 in. (45 mm); Maximum: 3.35 in. (85 mm)
E	1.65 in. (42 mm)
F	6.18 in. (157 mm)

Figure 2: Hook components



Callout	Component
9	Hex Nut
12	J hook

Technical Data

Approvals

- UL and cUL Listed
- FM Approved
- CE

Contact ratings

- 10 A at 125/250 VAC
- 2.5 A at 30 VDC Resistive

Operating temperature range

- -40°F to +140°F (-40°C to +60°C)

IP rating

- IP67

Note: The switch is suitable for indoor or outdoor use.

Dimensions

- See Figure 1

Physical characteristics

Cover	Die-cast finish, powder coat
Base	Die-cast finish

Note: All components have corrosion resistant finishes.

Operation

The TYCO Model TOSY Outside Screw and Yoke Valve Supervisory Switch is mounted with carriage bolts and a bracket. The normal condition is the valve is fully open, and the supervisory switch trip rod is in the groove of the valve stem.

Closing the valve causes the trip rod to ride up out of the groove and activates the switch. Removing the switch from the valve causes the spring to pull the trip rod in the other direction which also activates the switch.

Installation

The TYCO Model TOSY Outside Screw and Yoke Valve Supervisory Switch must be installed according to the instructions in this section.

Installing the ½ inch to 2 ½ inch size range

Before you begin:

- The ½ in. to 2 ½ in. size switch range must be installed according to the instructions in this section.

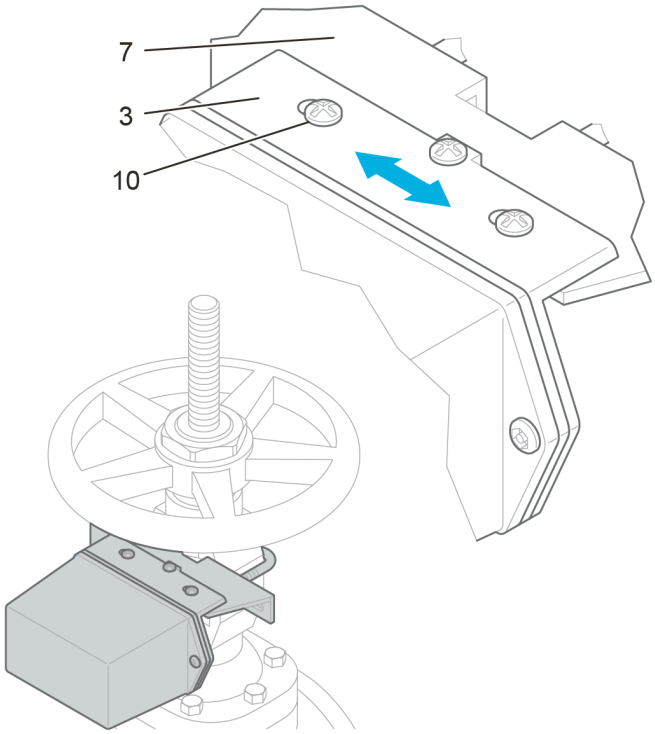
1. Choose an installation location with adequate clearance for installing or removing the switch.
2. Position the indicator valve to the FULL OPEN position.
3. Locate the switch with the bracket near the hand wheel as shown in Figure 3. Avoid creating a pinch point between the wheel and the switch.
4. Loosen the locking screw that holds the trip rod in place. Adjust the rod length to extend past the valve screw but does not contact the bracket clamp bar.

   ⓘ **Note:** If the trip rod length is too long, loosen the locking screw and remove the trip rod from the trip lever. Break off the 1 in. (2.54 mm) excess length at the notch using pliers. Re-install the trip rod and repeat step 4.
5. Tighten the locking screw to 5 in-lbs (0.56 N·m) minimum to secure the trip rod in place, and seal the enclosure.
6. Mount the switch and finger-tighten the carriage bolts on the clamp bar assembly.

   ⓘ **Note:** Do not tighten the assembly in place at this time.

   ⓘ **Note:** J-hooks are supplied to replace the carriage bolt and clamp bar for valves with limited clearance.
7. Deburr and smooth the edges of the groove, to allow the trip rod to slide in and out of the groove without catching as the valve opens and closes, and to prevent damage to the valve packing.
8. To make final adjustments, loosen the two screws on the bracket a small amount, and use the micro-adjustment feature as shown in Figure 3. Final adjustments are complete when with the valve in the open position, there is no continuity between COM and NO terminals, and the plungers are depressed by the actuator.

Figure 3: ½ in. to 2 ½ in. size range installation



Callout	Component
3	Housing
7	Bracket
10	Bracket lock screw

9. Tighten the adjustment screws and all the mounting hardware to 20 in-lbs (2.26 N·m) minimum. Verify the rod slides in and out of the groove easily.
10. Verify the switch activates within two turns when the valve is operated from the FULL OPEN position toward the CLOSED position.
11. Reinstall the cover and tighten the tamper resistant cover screws to a minimum 15 in-lbs (1.69 N·m) to form a proper seal.

Installing the 3 inch to 12 inch size range

Before you begin:

- The 3 in. to 12 in. switch size range must be installed according to the instructions in this section.

1. Ensure the valve is in the FULL OPEN position. Locate the switch across the valve yoke as far from the valve gland as possible so that the spring loaded trip rod of the switch is pulled against the non-threaded portion of the valve stem. Position the switch with the bracket near the hand wheel. Avoid creating a pinch point between the wheel and the switch.
2. Mount the switch loosely using the carriage bolts and clamp bar provided.
3. Loosen the locking screw that holds the trip rod in place. Adjust the rod length to extend past the valve screw but does not contact the bracket clamp bar.

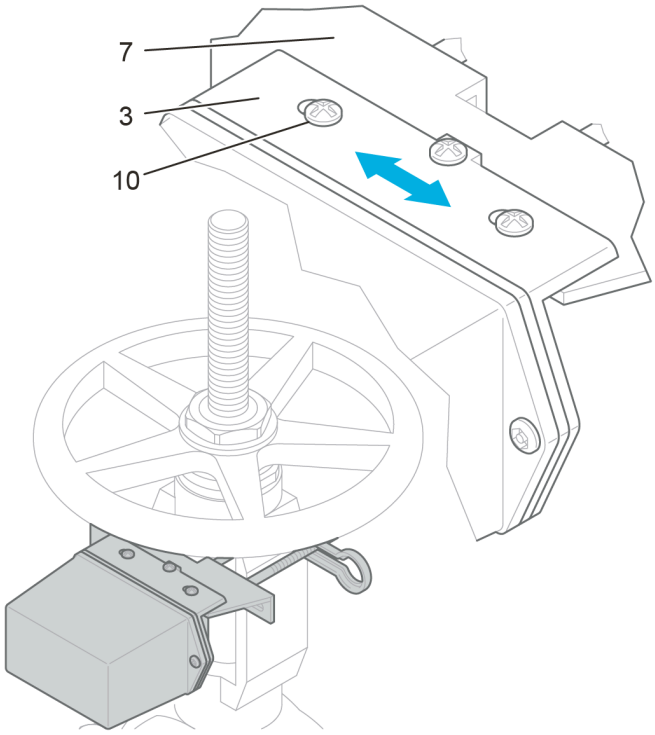
   ⓘ **Note:** If the trip rod length is too long, loosen the locking screw and remove the trip rod from the trip lever. Break off the 1 in. (2.54 mm) excess length at the notch using pliers. Re-install the trip rod and repeat step 4.
4. Tighten the locking screw to 5 in-lbs (0.56 N·m) minimum to secure the trip rod in place and seal the enclosure.
5. Mount the switch and finger-tighten the carriage bolts on the clamp bar assembly.

   ⓘ **Note:** Do not tighten the assembly in place at this time.

   ⓘ **Note:** J-hooks are supplied to replace the carriage bolt and clamp bar for valves with limited clearance.
6. Deburr and smooth the edges of the groove, to allow the trip rod to slide in and out of the groove without catching as the valve opens and closes, and to prevent damage to the valve packing.

   ⓘ **Note:** On valves with limited clearance use the j-hooks supplied instead of the carriage bolts and clamp bar to mount the valve.
7. To make final adjustments, loosen the two screws on the bracket a small amount and use the micro-adjustment feature as shown in Figure 4. Final adjustments are complete when with the valve in the open position, there is no continuity between COM and NO terminals, and the plungers are depressed by the actuator.

Figure 4: 3 in. to 12 in. size range installation



Callout	Component
3	Housing
7	Bracket
10	Bracket lock screw

8. Tighten the adjustment screws and all mounting hardware securely to 20 in-lbs (2.26 N·m) minimum. Check to ensure that the rod moves out of the groove easily and that the switch activates within two turns when the valve is operated from the FULL OPEN to the CLOSED position.
9. Verify the switch activates within two turns when the valve is operated from the FULL OPEN position toward the CLOSED position.
10. Reinstall the cover and tighten the tamper resistant cover screws to a minimum 15 in-lbs (1.69 N·m) to form a proper seal.

Wiring the switch

Before you begin:

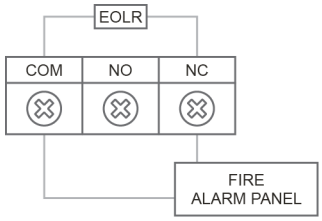
- The switch must be wired according to the instructions in this section.

1. Remove the tamper resistant screw with a key.

   Note: Do not leave the cover off for an extended period of time.

2. Route the wiring through an agency approved conduit connector and attach the connector to the switch.
3. Connect the wiring to the appropriate terminals according to the intended use as shown in Figure 5.

Figure 5: Typical wiring connections



Care and maintenance

The TYCO Model TOSY Outside Screw and Yoke Valve Supervisory Switch must be maintained and serviced in accordance with this section, in addition to any specific requirements of the NFPA, and any impairment must be immediately corrected. The inspection procedure must be performed as described.

Before closing a fire protection system control valve for inspection or maintenance work on the fire protection system that it controls, permission to shut down the affected fire protection system must first be obtained from the proper authorities and all personnel who may be affected by this action must be notified. After placing a fire protection system in service, notify the proper authorities and advise those responsible for monitoring proprietary and/or central station alarms.

The owner is responsible for the inspection, testing, and maintenance of their fire protection system and devices in compliance with this document, as well as with the applicable standards of the NATIONAL FIRE PROTECTION ASSOCIATION such as NFPA 25, in addition to the standards of any authority having jurisdiction (AHJ). Contact the in stalling contractor or product manufacturer with any questions.

It is recommended that automatic sprinkler systems be inspected, tested, and maintained by a qualified inspection service.

Inspecting the supervisory switch

Before you begin:

- The inspection procedure must be performed as specified, in addition to any specific requirements of the NFPA, and any impairment must be immediately corrected.
- The operation of the switch and its associated monitoring system must be tested upon completion of installation.
- Test the switch periodically in accordance with applicable NFPA codes and standards and/or the authority having jurisdiction (AHJ). A quarterly arrangement is recommended.

To inspect the supervisory switch, complete the following steps:

1. Turn the valve operating mechanism towards the closed position. Verify the switch operates within the first two revolutions of the operating mechanism.
2. Fully close the valve and verify the switch does not reset.
3. Fully open the valve and verify the switch restores to the normal condition.

Limited Warranty

For warranty terms and conditions, visit http://www.tyco-fire.com.

Ordering Procedure

Contact your local distributor for availability. When placing an order, indicate the full product name, and part number (PN).

Outside screw and yoke valve (2 in. to 12 in.), supervisory switch

Specify: Model (see Table 2), Outside screw and yoke valve supervisory switch, quantity, PN (see Table 2).

Table 2: Switch part numbers

Model	Part number
TOSY-1	300201
TOSY-2	300202

Note: For switch ordering information for valves in the 14 in. (356.6 mm) to 24 in. (600 mm) range, contact your local sales organization.

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