

**802T**

## Introduction



Plug-in Style  
802T-AP with  
Lever

NonPlug-in Style  
802T-A with  
Lever

**Description**

Bulletin 802T limit switches are ideal for applications in which heavy duty pilot ratings, small size, a high degree of versatility and a rugged NEMA Type 4 and 13 oiltight construction are desirable. An important factor in the automation of industry, these limit switches are being applied extensively on conveyor systems, transfer machines, automatic turret lathes, milling and boring machines, radial drills, and many other types of modern, high speed production equipment.

**High Degree of Versatility**

Bulletin 802T limit switches can be mounted in any position, with operating heads that can be rotated and fastened in any one of four positions 90° apart. Most operating levers are interchangeable and can be rotated and clamped in any position through 360°. Accessories can be added to switches already in the field.

**NEMA Type 4, 13 and 6P ① Oiltight Construction**

802T limit switches feature NEMA Type 4 and 13 construction with synthetic rubber seals to protect the operating parts against entry of oil, dust, abrasives, water and coolant, within the limits of NEMA-specified tests.

① Plug-in lever type except low-torque models.

**Rugged, Dependable Contact Block**

The contacts used in Bulletin 802T switches are snap-action type with high snap-through force resulting in minimum contact rebound. Double break, fine silver contacts are electrically independent, but cannot be used on opposite polarities.

**Easy Mounting and Wiring**

Each switch base has four mounting holes: two “through” holes for front mounting and two tapped holes in the back for rear mounting. The pressure plate type terminals on the contact block face to the front of the switch and have ample wiring space around them. The switch conduit opening is a 1/2-inch threaded pipe tap in the bottom of the housing.

**Direct Opening Action Position Interlock Switches**

Bulletin 802T Direct Opening Action limit switches have been designed for use in control reliable applications and safety applications per ISO 14119.

Direct Opening Action assures that the normally closed contacts open when the limit switch is actuated. This opening will occur even in the event of a contact weld condition, up to 10 Newtons.

**Lever Type Switches**

These switches are operated by means of a lever which is clamped to a knurled shaft extending from the operating head.

Lever type switches can be equipped with a variety of operating levers: roller lever, adjustable roller lever, micrometer adjustment roller lever, rod lever, one-way rod or roller lever and fork lever. These can be used interchangeably on all lever type switches except the **low operating force switch**.

**Push Type Switches**

These switches are actuated by means of a rod or plunger located on the top or side of the operating head. Pushing the plunger into the head causes the contacts to operate. Two types of plungers are available: rod type and steel roller. Side push rod switches can be supplied in spring return or maintained contact constructions. An adjustable length top push rod is also

available. The contacts are snap-acting with high snap-through force resulting in minimum contact rebound.

**Wobble Stick and Cat Whisker Type Switches**

Both switches are actuated by a rod or wire extending from the top of the operating head. Moving the rod through a specified angle in any direction causes the contacts to operate. All wobble stick and cat whisker switches are supplied with spring return construction only. The contacts are snap-action type with high snap-through force resulting in minimum contact rebound.

**Dual Switches**

The dual switch is actually two limit switches which function independently but have a common enclosure. These switches are used for installations where two switches would be mounted side by side. There is a saving on installation time and fittings (see page 5-71).

**Plug-in Switches**

Plug-in style limit switches can reduce costly downtime by eliminating the need for rewiring switches. The head and switch body can be replaced without disturbing the wiring chamber in the base. These units, featuring a castle lock head design, snap-action contacts and reliable plug-in connection are available in 2-circuit or 4-circuit construction. Plug-in style limit switches are listed on page 5-41.

**Four-Circuit NonPlug-in Switches**

These switches contain two single pole single throw contact blocks (a total of two N.O. and two N.C. contacts) mounted in a common enclosure. The blocks are mounted one above the other in the vertical limit switch construction, or side by side in the horizontal construction. Switch plungers are mechanically coupled in both constructions. When actuated, contacts in both blocks are operated. These switches in both types of construction are listed on page 5-54.

**General Information**

Plug-in Style . . . . . page 5-41  
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**Operating Levers**

Lever Selection . . . . . page 5-130



## Description

Bulletin 802T limit switches are ideal for applications in which heavy duty pilot ratings, small size, a high degree of versatility and a rugged NEMA Type 4, 13 and 6P<sup>1</sup> construction are desirable. An important factor in the automation of industry, these limit switches are being applied extensively on conveyor systems, transfer machines, automatic turret lathes, milling and boring machines, radial drills, and many other types of modern, high speed production equipment.

A wide variety of operating heads and operating levers are available. Operating heads can be mounted in four positions, 90° apart.

## Features

- Front mount for simplified mounting
- Plug-in style for ease of wiring
- Side rotary, wobble stick, cat whisker, adjustable top and top or side push styles with and without rollers
- Quick mode change to clockwise and counterclockwise operation only
- Castle lock head design for high durability

<sup>1</sup> Plug-in lever type except low-torque models.

<sup>2</sup> Temperature range below 0 °C (+32 °F) is based on the absence of freezing moisture or water. See page 5-53 for low temperature options.

<sup>3</sup> Low operating torque-spring return ratings only.

## Specifications

Enclosure Rating	NEMA 4, 13, 6P <sup>1</sup> and IP67
Pollution Degree	3
Certifications	UL Listed, CSA Certified CE Marked for applicable directives
Ambient Temperature [C (F)] <sup>2</sup>	-18...+110° (0...+230°) Exception: Wobble stick and cat whisker devices are rated from -18...+54° (0...+130°)

### AC Contact Rating (Maximum per Pole, 50 or 60 Hz, 2 Circuits Same Polarity)

NEMA Rating Designation	Max Voltage	A		Continuous Carrying Current	VA	
		Make	Break		Make	Break
A600 AC-15	120	60	6.00	10	7200	720
	240	30	3.00	10	7200	720
	480	15	1.50	10	7200	720
	600	12	1.20	10	7200	720
B600 <sup>3</sup> AC-15	120	30	3.00	5	3600	360
	240	15	1.50	5	3600	360
	480	7.5	0.75	5	3600	360
	600	6	0.60	5	3600	360

### AC Contact Rating (Maximum per Pole, 50 or 60 Hz, 4 Circuits Same Polarity)

NEMA Rating Designation	Max Voltage	A		Continuous Carrying Current	VA	
		Make	Break		Make	Break
A300	120	60	6.00	10	7200	720
	240	30	3.00	10	7200	720

### DC Contact Rating (Maximum per Pole)

Circuits	Voltage Range	Current Rating
2	115-125	0.4 A
	230-250	0.2 A
	550-600	0.1 A
4	115-125	0.4 A
	230-250	0.2 A

## Plug-in Style

Lever Type • Spring Return page 5-42  
Standard and Low Operating Torque Models

Lever Type • Maintained . . . page 5-44  
Contact and Neutral Position

Push Type • Spring Return . . . page 5-45

Wobble Stick and Cat . . . . . page 5-47  
Whisker • Spring Return

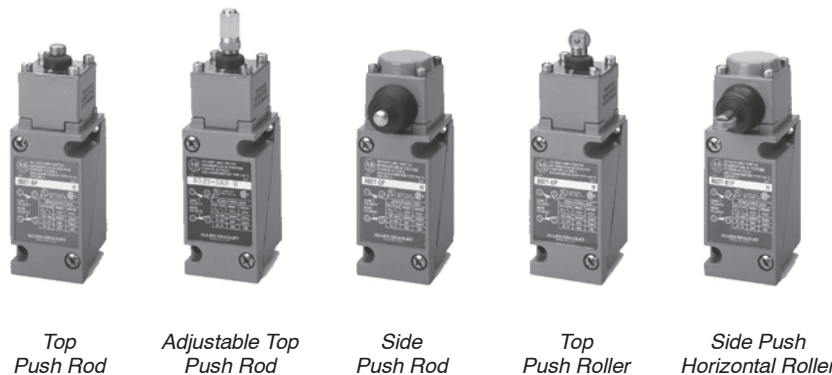
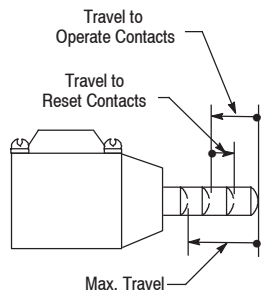
Modifications and . . . . . page 5-53  
Accessories

## 802T Operating Levers

Lever Selection . . . . . page 5-130

# 802T Push Type • Spring Return Plug-in Style Oiltight Switches

## Range of Operation



## Product Selection

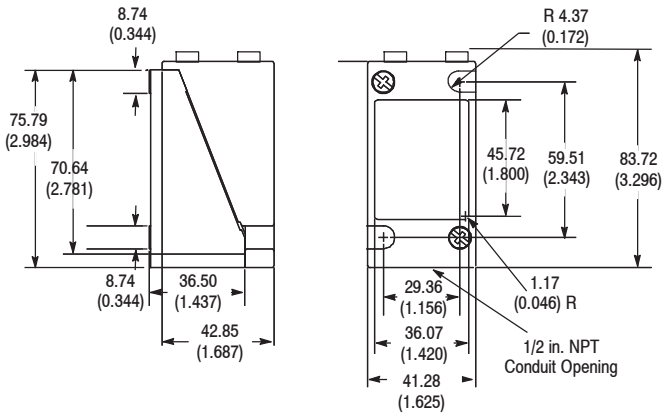
Number of Circuits	Contact Operation		Operator Type	Torque/Force to Operate, Max.	Travel to Operate Contacts, Max.	Maximum Travel	Travel to Reset Contacts, Max.	Cat. No.																	
	Normal	Operated						Switch w/o Lever	Switch w/o Lever and Base																
2	<table border="1"> <tr><td>1</td><td>2</td></tr> <tr><td>3</td><td>4</td></tr> </table>	1	2	3	4	<table border="1"> <tr><td>1</td><td>2</td></tr> <tr><td>3</td><td>4</td></tr> </table>	1	2	3	4	Top Push Rod	13.8 N (3.1 lb)	1.4 mm (0.057 in.)	6.0 mm (0.236 in.)	0.9 mm (0.034 in.)	802T-BP	802T-BP1								
		1	2																						
		3	4																						
		1	2																						
		3	4																						
		Adjustable Top Push Rod	802T-BAP	802T-BAP1																					
Side Push Rod	16.4 N (3.7 lb)	3.3 mm (0.131 in.)	5.7 mm (0.226 in.)	1.9 mm (0.074 in.)	802T-CP	802T-CP1																			
Top Push Roller	13.8 N (3.1 lb)	1.4 mm (0.057 in.)	6.0 mm (0.236 in.)	0.9 mm (0.034 in.)	802T-DP	802T-DP1																			
Side Push Vertical Roller	16.4 N (3.7 lb)	3.3 mm (0.131 in.)	5.7 mm (0.226 in.)	1.9 mm (0.074 in.)	802T-KP	802T-KP1																			
Side Push Horizontal Roller					802T-K1P	802T-K1P1																			
4	<table border="1"> <tr><td>1</td><td>2</td></tr> <tr><td>3</td><td>4</td></tr> <tr><td>5</td><td>6</td></tr> <tr><td>7</td><td>8</td></tr> </table>	1	2	3	4	5	6	7	8	<table border="1"> <tr><td>1</td><td>2</td></tr> <tr><td>3</td><td>4</td></tr> <tr><td>5</td><td>6</td></tr> <tr><td>7</td><td>8</td></tr> </table>	1	2	3	4	5	6	7	8	Top Push Rod	22.2 N (5.0 lb)	1.4 mm (0.057 in.)	6.0 mm (0.236 in.)	0.9 mm (0.034 in.)	802T-BTP	802T-BTP1
		1	2																						
		3	4																						
		5	6																						
		7	8																						
		1	2																						
3	4																								
5	6																								
7	8																								
Adjustable Top Push Rod	802T-BATP	802T-BATP1																							
Side Push Rod	24.9 N (5.6 lb)	3.3 mm (0.131 in.)	5.7 mm (0.226 in.)	1.9 mm (0.074 in.)	802T-CTP	802T-CTP1																			
Top Push Roller	22.2 N (5.0 lb)	1.4 mm (0.057 in.)	6.0 mm (0.236 in.)	0.9 mm (0.034 in.)	802T-DTP	802T-DTP1																			
Side Push Vertical Roller	24.9 N (5.6 lb)	3.3 mm (0.131 in.)	5.7 mm (0.226 in.)	1.9 mm (0.074 in.)	802T-KTP	802T-KTP1																			
Side Push Horizontal Roller					802T-K1TP	802T-K1TP1																			

Modifications and Accessories—See page 5-53.

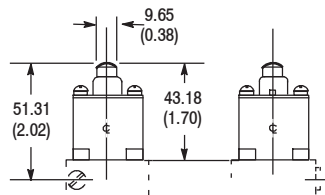
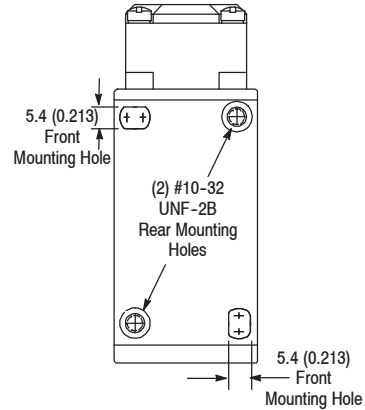
Limit Switches

**802T Push Type • Spring Return**  
**Plug-in Style Oiltight Switches**

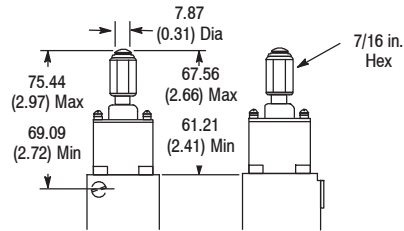
Approximate Dimensions [mm (in.)]



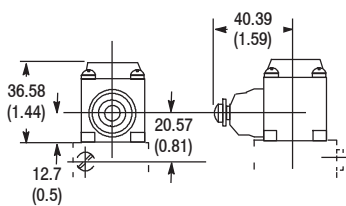
Switch Body



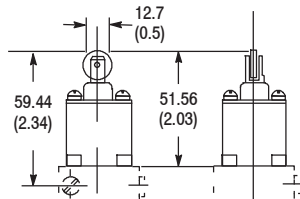
40146-013-59  
 Top Push Rod Head  
 Shipping Wt. 0.142 kg (5 oz)



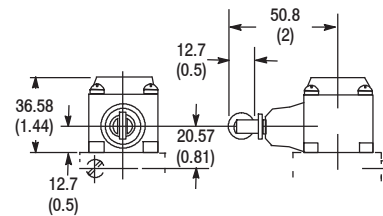
40146-013-65  
 Adjustable Top Push Rod Head  
 Shipping Wt. 0.142 kg (5 oz)



40146-017-63  
 Side Push Rod Head  
 Shipping Wt. 0.142 kg (5 oz)



40146-013-60  
 Top Push Roller Head  
 Shipping Wt. 0.142 kg (5 oz)



40146-017-64  
 Side Push Roller Head  
 Shipping Wt. 0.142 kg (5 oz)

Modifications and Accessories—See page 5-53.

## 802T Modifications and Accessories

### Plug-in Style Oiltight Switches



Manifold Mount

Indicating Light

### Manifold Mount

All two-circuit plug-in limit switches can be supplied with a special terminal base which permits mounting the switch manifold style on a machine base, panel or raceway. As shown above, this base is supplied with a wiring hole and gasket on the back.

To order a manifold mount switch, add the letter **U** to the listed cat. no.. Example: Cat. No. 802T-AP becomes Cat. No. 802T-APU.

### Indicating Light

Bulletin 802T two-circuit plug-in limit switches (except for the cat whisker, wobble stick, and manifold mount devices) can be supplied with an indicating light. To order add the letter **N** for 120V AC, 50/60 Hz or **N5** for 240V AC 50/60 Hz. Example: Cat. No. 802T-AP becomes Cat. No. 802T-APN.

The indicating light is internally connected to two isolated terminals in the base assembly allowing the user to wire the light to either the N.O. or the N.C. contact. Switches with an indicating light have a contact rating of NEMA A300.

Where an indicator light and a pre-wired 5-pin mini connector are used, the light is pre-wired to the N.C. contact with J1 wiring and to the N.O. contact with J9 wiring. Indicating lights are not available on 4-circuit 802T switches.

### Fluorinated Elastomer Seals

To order limit switches with all fluorinated elastomer seals, add the letter **V** to the end of the listed cat. no. Not available on manifold mount, low operating torque, low temperature or limit switches with an indicating light.

To order lever type limit switches with the fluorinated elastomer shaft seal only, add **V1** to the end of the listed cat. no.

### Base Assembly

The limit switch base, including the terminal block, is available as a separate unit per the following table.

	Cat. No.
2-Circuit Base . . . . .	<b>802T-X7</b>
2-Circuit Base with Indicating Light . . . . .	<b>802T-X7 N</b>
2-Circuit Manifold Mount Base . . . . .	<b>802T-X7U</b>
4-Circuit Base . . . . .	<b>802T-X8</b>

### Low Temperature Operation

Plug-in limit switches are designed to operate in an ambient temperature range of -18...+110°C (0...+230°F), -18...+54°C (0...+130°F) for wobble stick and cat whisker. Special limit switches modified for low temperature operation at -40...+110°C (-40...+230°F) are available. Temperature ranges below 0°C (+32°F) are based on absence of freezing moisture or water. To order, add the letter **E** to cat. no. **Not available** on wobble stick, cat whisker or pre-wired cable switches; standard on low torque and maintained devices.

### Pre-Wired Cable

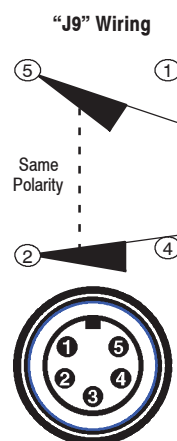
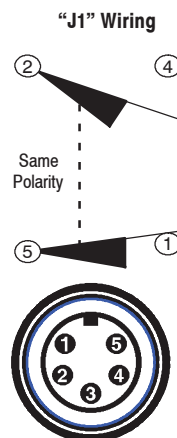
To order factory installed pre-wired type "**STOOW-A**" cable for 2-circuit (5-conductor) and 4-circuit (9-conductor) switches, add the suffix **Y** plus the number of feet required. Example: To order an 802T-AP with 2.4 m (5 ft) of cable the cat. no. would become 802T-APY5.

The standard cable length is 2.4 m (5 ft). Extended cable lengths are available in multiples of 1.22 m (4 ft) only.

### Mini-Type Receptacles

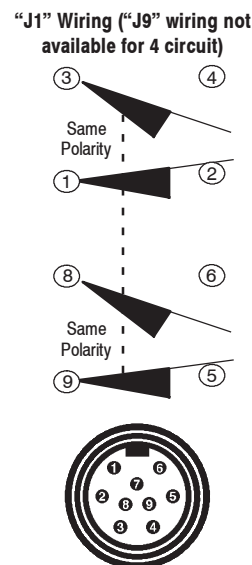
To order a bulletin 802T pre-wired limit switch with a five-pin (2 circuit) or nine pin (4 circuit) mini connector, add the suffix **J1** or **J9** depending on desired wiring (J9 wiring not available for 4-circuit models).

### 5-Pin Mini-Type Receptacle



An appropriate female connector with cable (889N-F5AFC-6F) is available on page 8-4 in Connection Systems.

### 9-Pin Mini-Type Receptacle



An appropriate female connector with cable (889N-F9AF-2) is available on page 8-14 in Connection Systems.