

Safety Switches NEMA Style Switches 802T Direct Opening Action



Description

The 802T Direct Opening Action limit switches have been designed for use in control reliable applications and safety applications per ISO 14119. These limit switches utilize the same mounting dimensions as other NEMA style limit switches. The rugged metal construction and plug-in body are designed for use in harsh industrial environments.

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



ATTENTION: To ensure that the normally closed (safety) contacts open, the limit switch actuator must be displaced beyond the point of Direct Opening Action (see specifications).

Features

- Direct opening action
- Snap acting contacts
- Rugged metal construction
- Long life and reliability
- Plug-in design
- NEMA 12, 13, 4, 6P/IP67 sealing

Typical Applications

- Machine guards
- Access gates and doors
- Cranes or hoists
- Transfer stations
- Indexing tables
- Robotic cells

Specifications

Safety Ratings	
Standards	EN 954-1, ISO 13849-1, IEC/EN 60204-1, NFPA 79, EN 1088, ISO 14119, IEC/EN 60947-5-1, ANSI B11.19, AS 4024.1
Safety Classification	Cat. 1 Device per EN 954-1 Dual channel limit switch suitable for Cat. 3 or 4 systems
Functional Safety Data * Note: For up-to-date information, visit http://www.ab.com/Safety/	B10d = > 2 x 10 ⁶ operations at min. load PFH _D = > 3 x 10 ⁻⁷ MTTF _d = > 385 years Dual channel limit switch may be suitable for Performance levels Pl _e or Pl _d (according to ISO 13849-1:2006) and for use in SIL2 or SIL3 systems (according to IEC 62061) depending on application characteristics
Certifications	CE Marked for all applicable directives, cULus Listed, and TÜV for 2- and 4-circuit models

Outputs	
Safety Contacts *	1 N.C. snap acting or 2 N.C. snap acting
Auxiliary Contacts	1 N.O. snap acting or 2 N.O. snap acting
Thermal Current _{I_{th}}	10 A
Rated Insulation Voltage	300V AC or 600V AC
Switching Current @ Voltage, Min.	—

Utilization Category					
A600/AC-15	(Ue)	600V	500V	240V	120V
	(Ie)	1.2 A	1.4 A	3.0 A	6.0 A
N600/DC-13	(Ue)	600V	500V	250V	125V
	(Ie)	0.4 A	0.55 A	1.1 A	2.2 A

Operating Characteristics	
Actuation Speed, Max.	200 ft/min varies with applied loading and actuation method*
Actuation Speed, Min.	200 ft/min varies with applied loading and actuation method*
Actuation Frequency, Max.	8000 operations per hour
Mechanical Life	20 million cycles

Environmental	
Enclosure Type Rating	NEMA 4, 6P, 12, 13 and IP65/67
Operating Temperature [C (F)]	-18...+110° (0...+230°)
Pollution Degree	3

Physical Characteristics	
Housing Material	Die-cast alloy
Actuator Material	Various metals or plastics
Mounting	2 #10 equal length fasteners
Vibration	Contact fragility (10...2000 Hz @ 0.06 inch peak-to-peak)
Shock	Contact fragility (25 Gn 3 pulses per axis)
Conduit Entry	1/2 inch NPT or M20
Color	Grey

* Usable for ISO 13849-1:2006 and IEC 62061. Data other than B10d is based on:

- Usage rate of 1op/10 mins., 24 hrs/day, 360 days/year, representing 51840 operations per year
- Mission time/Proof test interval of 38 years

* The safety contacts are described as normally closed (N.C.) i.e., with the guard closed, actuator in place (where relevant) and the machine able to be started.

Safety Switches

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

NEMA Rating Designation	Max Voltage	A		Continuous Carrying Current	VA	
		Make	Break		Make	Break
A600	120	60	6.00	10	7200	720
	240	30	3.00	10	7200	720
AC-15	480	15	1.50	10	7200	720
	600	12	1.20	10	7200	720

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

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)

NEMA Rating Designation	Max Voltage	A		Continuous Carrying Current	VA	
		Make	Break		Make	Break
Q300	250	0.27	0.27	2.5	69	69
	125	0.55	0.55	2.5	69	69
DC 13						

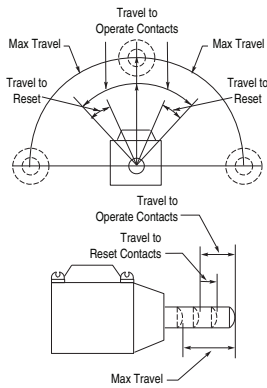
Low Voltage DC

24V DC @ 1.1 Amps resistive load

3-Limit Switches

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802T Direct Opening Action

Range of Operation



**Lever Type
Spring Return**



**Top Push Roller
Spring Return**



**Side Push
Vertical Roller
Spring Return**



**Side Push
Horizontal Roller
Spring Return**

Product Selection

Number of Circuits	Lever Movement	Description	Typical Force/Torque to Operate	Travel to Operate Contacts [mm (in.)]	Torque/Force to Operate Direct Opening Action	Travel to Operate Direct Opening Action [mm (in.)]	Maximum Travel [mm (in.)]	Travel to Reset Contacts [mm (in.)]	Cat. No.
Lever Type • Spring Return									
2	Clockwise or Counter Clockwise		0.45 N•m (4.0 lb•in), max.	13°, max.	0.90 N•m (8 lb•in), min.	25°, min.	90°	7°, max.	Switch w/o Lever 802T-APD
4									802T-ATPD
Top Push Roller • Spring Return									
2	Normal	Operated	28.47 N•m (6.4 lb•in), max.	1.17 (0.046), max.	66.72 N (15.0 lb), min.	2.29 (0.090), min.	5.99 (0.236)	0.64 (0.025), max.	Complete Switch 802T-DPD
	4								802T-DTPD
Side Push Vertical Roller • Spring Return									
2	Normal	Operated	24.5 N•m (5.5 lb•in), max.	2.08 (0.082), max.	53.4 N (12.0 lb), min.	4.19 (0.165), min.	5.74 (0.226)	1.14 (0.045), max.	Complete Switch 802T-KPD
	4								802T-KTPD
Side Push Horizontal Roller • Spring Return									
2	Normal	Operated	24.5 N•m (5.5 lb•in), max.	2.08 (0.082), max.	53.4 N (12.0 lb), min.	4.19 (0.165), min.	5.74 (0.226)	1.14 (0.045), max.	Complete Switch 802T-K1PD
	4								802T-K1TPD

3-Limit Switches

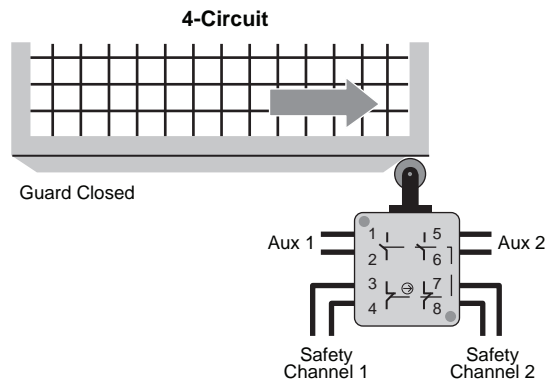
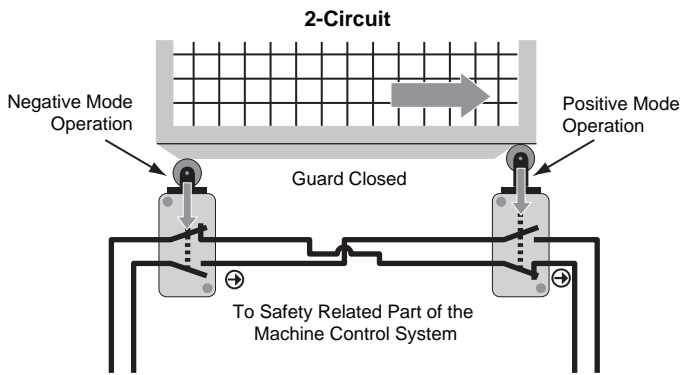
Modifications and Typical Levers—page 3-159.

Safety Switches

NEMA Style Switches

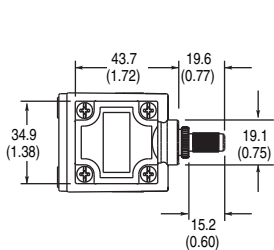
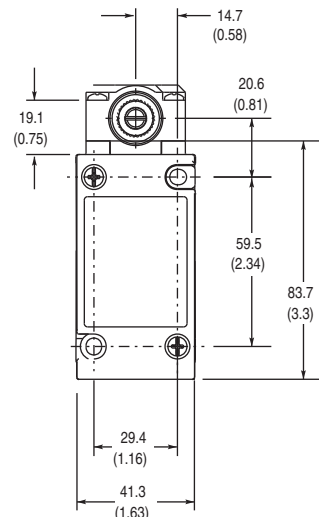
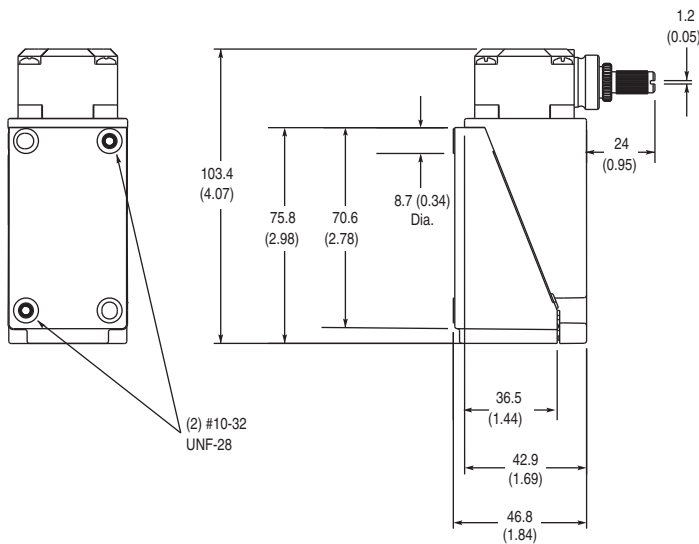
802T Direct Opening Action

Typical Example of a Dual Channel Safety Application

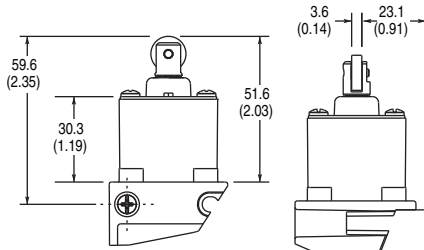


Approximate Dimensions [mm (in.)]

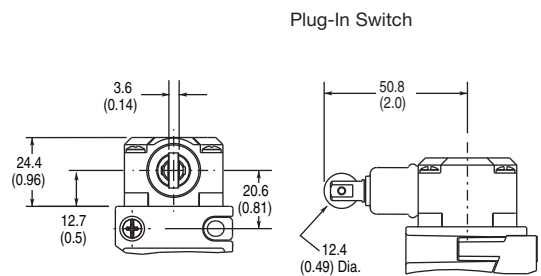
Dimensions are not intended to be used for installation purposes.



Lever Type Head



Top Push Roller Head



Plug-In Switch

Side Push Roller Head

3-Limit
Switches

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Modifications

Metric Conduit Entry

To order a limit switch with a 20 mm conduit entry, add the suffix **S6** to the cat. no. **Example: 802T-APDS6.**

Pre-wired Cable

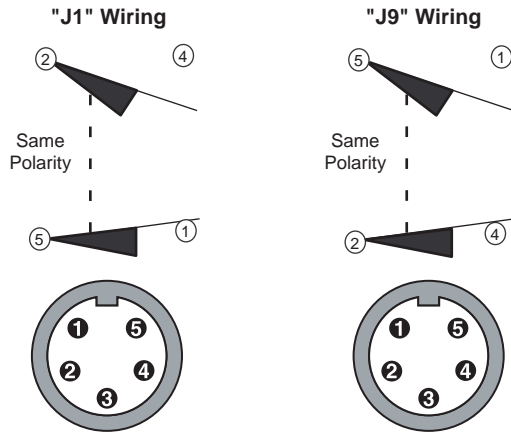
To order a factory-installed pre-wired type ST00W-A cable (5-conductor), add the suffix **Y** plus the number of feet required. The standard cable length is 1.52 m (5 ft). Extended cable lengths are available in multiples of 1.22 m (4 ft) only.

Example: To order a limit switch with a factory-installed 1.52 m (5 ft) cable, the cat. no. would become **802T-APDY5.** To order a limit switch with a factory-installed 2.44 m (8 ft) cable, the cat. no. would become **802T-APDY8.**

Mini-Style Quick-Disconnect

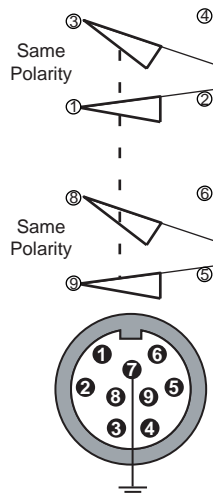
To order an 802T pre-wired limit switch with a 5-pin (2 circuit) or 9-pin (4 circuit) mini connector, add the suffix **J1** or **J9** depending on desired wiring (J9 wiring not available for 4-circuit models) to the cat. no. **Example: 802TAPDJ1.**

5-Pin Mini-Type Receptacle (2 circuit)



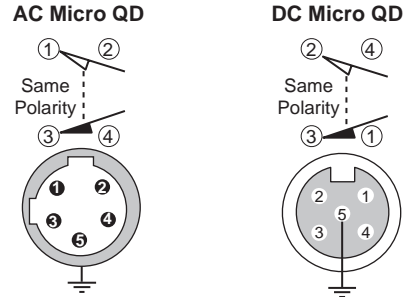
9-Pin Mini-Type Receptacle (4 circuit)

"J1" Wiring ("J9" wiring not available for 4 circuit)



Micro-Style Quick-Disconnect

Micro quick-disconnects are available with a 5-pin 2-keyway AC or 5-pin single keyway DC. To order a limit switch with a AC micro quick-disconnect, add the suffix **R5** to the cat. no. To order a limit switch with a DC micro quick-disconnect, add the suffix **D5** to the cat. no. **Example: 802TAPDR5** and **802TAPDD5.**



Levers

Type	Roller [mm (in.)]			Cat. No.
	Material	Diameter	Width	
	Nylon	19.05 (0.75)	7.11 (0.28)	802T-W1
	Nylon	19.05 (0.75)	25.4 (1.0)	802T-W1H
	Steel	19.05 (0.75)	6.35 (0.25)	802T-W1A
	Ball Bearing	19.05 (0.75)	5.84 (0.23)	802T-W1B

Note: Additional lever options are available in the Limit Switch section of the Sensors catalog.

3-Limit
Switches