Safety dialog solutions
Cable pull switches, type XY2

XY2CE1A196

XY2CH13150

Operating Principle

XY2 Cable Pull Switches provide for an emergency stop to be signaled at any point along a cable up to 165 feet (50 m) in length. This is many times preferred to installing many individual emergency stop push button stations along a conveyor or around the machine, providing a more cost effective solution. Typical applications include conveyor systems, packaging, textiles, transfer machines, presses, woodworking equipment, paint lines, and test laboratories.

The cable pull switch is typically mounted at one end of a machine or conveyor and the operating cable is routed along the conveyor or around the machine and secured at the other end. The operation of the XY2 is based on the taut cable principle – the cable must be tight and have appropriate tension applied to set or reset the switch. Once cable tension has been set, the device will open the N.C. control contacts if either the cable is pulled or if it should become slack due to stretching or breakage of the cable. Once the switch is tripped, it must be manually reset.

Two versions are available:

- Emergency stop versions have positive opening N.C. contacts that latch upon tripping (positive opening) and must be manually reset.
- Normal stop versions are used where a momentary, non-emergency signal is required at any point along a cable. These devices have snap acting contacts and are non-latching devices.

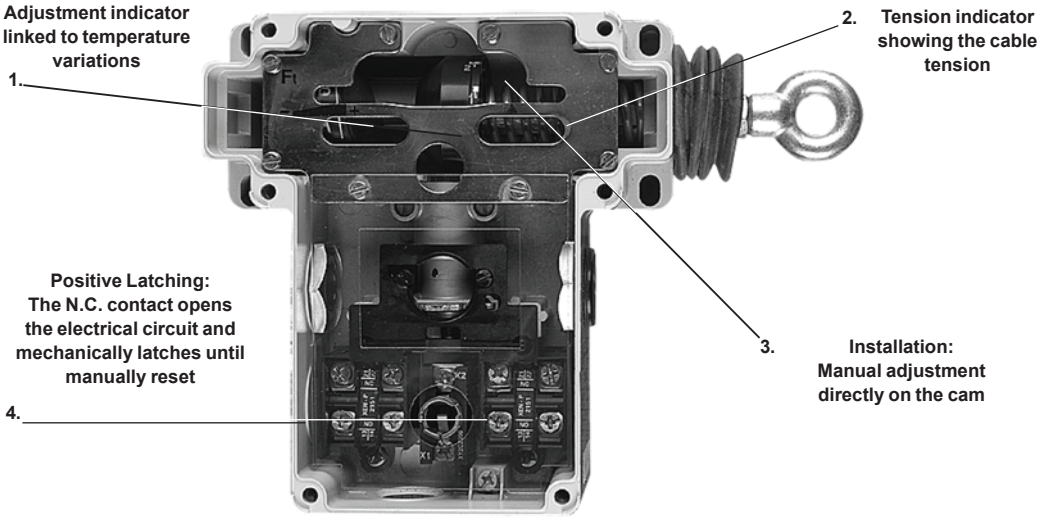
Features Include:

3 cable entries 1/2" NPT	Manual tripping force adjustment (XY2CE)
Positive latching (no teasing)	Adjustment indicator
Slow-make slow-break for emergency stop	UL Listed and CSA Certified
Snap action contacts for momentary switch	XY2CH for applications up to 50 feet (15m)
Works properly even if spring is broken	XY2CH has two viewing windows to aid in setting and adjusting the switch
Padlock attachment	XY2CE for applications up to 165 feet (50m)
Doesn't reset if out of adjustment	Positive opening N.C. contacts meets the IEC and EN requirements for positive opening contacts per IEC/EN 60947-5-1; and NEMA ICS-5, part 6 (direct opening action).

The use of an end spring is strongly advised when using cable pull devices on continuous duty mechanical handling equipment and systems.

The following standards allow the use of cable pull (pull cord) devices in e-stop circuits:

IEC 60204-1: 10.7 AND 10.8	ISO 13850	NFPA 79 (2002): 10.7.2



Interior View of XY2CE

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Cable pull switches, type XY2

Characteristics

Conformity to Standards Approvals	ANSI A 17.1, IEC 60947-5-1, EN 60204-1, NFC 79-130, NFC 63144, VDE 0660-207. XY2CE and XY2CH: UL Listed and CSA Approved.
Ambient Temperature	For operation from -13 °F to +158 °F (-25 °C to +70 °C) for standard devices; -40 °F to 158 °F (-40 °C to +70 °C) for TK (corrosion proof) versions. For storage from -40 °F to +158 °F (-40 °C to +70 °C) for all devices. The minimum temperatures listed are based on the absence of freezing moisture or water. ♦
Vibration Resistance	XY2CE: 10G, (F=10 to 300 Hz), XY2CH: 10G, (F=10 to 150 Hz), conforming to IEC 68-2-6
Shock Resistance	50G, duration 11 ms, conforming to IEC 600068-2-27
Electric Shock Protection	UL 508, 19-1, Class I conforming to IEC 60536 and NF C 20-030.
Enclosure Rating	Type 1,4,12. IP 65 conforming to IEC 60529, IP 657 conforming to NF C 20-010 (IP 667 with booted push button).
Mechanical Life	10,000 operations for emergency stop; 100,000 operations for normal stop
Cable Entry	3 x 0.5" NPT
Operating Position	All positions.
Length of Protected Area	XY2CE: maximum 165 ft. (50m), XY2CH: maximum 50 ft. (15m)

♦ The minimum temperatures listed are based on the absence of freezing moisture or water. Care should be taken to avoid sub-freezing temperatures where dripping or splashing water is present and to avoid bringing a cold device into a humid atmosphere and then back into sub-freezing temperatures. The water or moisture may freeze around internal or external components and prevent it from performing as intended.

Electrical Characteristics

Rated Thermal Current	10A conforming to UL 508, CSA C 22-2 N° 14, IEC/EN 60947-5-1, NFC 63140, VDE 0660-200.
Rated Insulation Voltage	300 Vac and Vdc conforming to UL 508, CSA 22-2 N° 14. 500 V conforming to IEC 158-1, NFC 20-040; 300 V conforming to VDE 0660-207.
Contact Operation	SPDT Slow-make slow-break, positive ∗ opening operation contacts for emergency stops. SPDT Snap action for normal stops without mechanical latching.
Resistance Between Terminals	• 25 mΩ
Terminal Referencing	13-14 normally open, 21-22 normally closed (conforming to CENELEC EN 50013).
Voltage Range	24 to 380 V
Wiring Terminals	Screw clamp terminals. Min: 1#20 AWG (1 x 1.05mm²), Max: 2#16 AWG (2 x 1.5mm²)
Recommended Terminal Clamp Torque	7.0 in.lbs. (0.8 Nvm)
Short Circuit Protection*	In U.S. use fast action fuse 10A type SC; form I Class J, H or equivalent. 10A cylindrical fuses type g1 or N conforming to IEC 337-1B- and VDE 0660-200
Contact Rating	Utilization category A300 and Q300. Operating rate: 3600 operations/hour. Load factor: 0.5.
Minimum Contact Rating	15 Vdc, 2mA (based on clean environment)
Rated Power	Conforms to IEC/EN 60947-5-1, duty categories AC 15 and DC 13. Operating rate: 3600 operations per hour. Load factor: 0.5

∗ Positive opening N.C. contacts meet the IEC and EN requirements for positive opening contacts per IEC/EN 60947-5-1; and NEMA ICS-5, part 6.

• The use of the recommended fuse is mandatory for emergency stop applications. Without a fuse to protect the circuit, the contacts may develop a weld significant enough that the positive opening contact mechanism may not be able to break through the weld.

AC Voltage and Current Ratings 50-60 Hz

Contact Rating Designation	Thermal Continuous Test Current, Amperes	Maximum Current, Amperes								Voltamperes	
		120 Volts		240 Volts		480 Volts		600 Volts			
		Make	Break	Make	Break	Make	Break	Make	Break	Make	Break
A300	10	60	6.00	30	3.00	. . .	. . .	. . .	. . .	7200	720

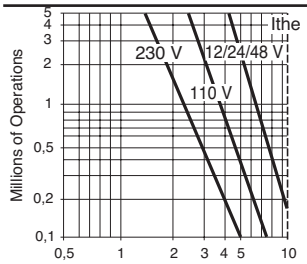
DC Voltage and Current Ratings

Contact Rating Designation	Thermal Continuous Test Current, Amperes	Maximum Make or Break Current, Amperes			Make or Break at 300 Volts or Less, Voltamperes
		125 Volts	250 Volts	301 to 600 Volts	
Q300	2.5	0.55	0.27	. . .	69

Snap Action Contact — **For Normal Stop**

AC supply 50-60 Hz
Inductive circuit

DC Supply
Power broken in W
for 5 million operations

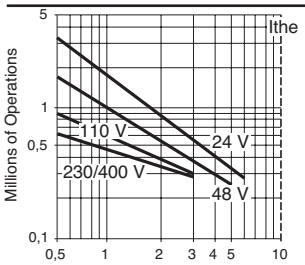


Voltage V	24	48	120
Power W	10	7	4

Slow Break Contact — **For Emergency Stop**

AC supply 50-60 Hz
Inductive circuit

DC Supply
Power broken in W
for 5 million operations



Voltage V	24	48	120
Power W	13	9	7

The product life expressed above is based on average usage and normal operating conditions. Actual operating life will vary with conditions. The above statements are not intended to nor shall they create any express or implied warranties as to product operation or life. For information on the limited warranty offered on this product refer to the Square D ® terms and conditions of sale found in the Square D ® Digest.

General: page 4/3 | Principle: page 4/3 | Characteristics: page 4/4 | References: page 4/5 | Dimensions: page 4/9 | Wiring Diagrams: page 4/14

Safety dialog solutions
Cable pull switches,
type XY2 C

XY2CE Cable Pull for up to 165 ft. (50 m) cable length

Cable and accessories must be selected and ordered separately from pages4/7 and 4/8.

Right Cable Mount

Left Cable Mount

Emergency Stop

Emergency Stop (Latching contact - reset by push button - positive ∗ opening contacts)
Available only with slow break contacts.

The N.O. contacts will close after the N.C. contacts open. They do not change state simultaneously.

*The N.C. contacts only should be used in the safety control circuit. The N.O. contacts are provided solely for signaling – **NOT** for safety functions.*

To conform with ISO 13850 of the European Union Machinery Directive safety circuits must use emergency stop devices with 2 N.C. contacts in category 3 or 4 safety control systems. Using devices with 1 N.O. and 1 N.C. contact will not allow the system to meet category 3 or 4 as it would not meet the requirements for redundancy. Cable pull switches with 1 N.O. and 1 N.C. contact would be suitable for Category B, 1 or 2 safety control systems. XY2 cable pull switches are ideal choices for use with Preventa™ XPS Safety Relays.

Reset	Contact	Pilot light (only available on 2 N.O. - 2 N.C. devices)	Catalog Number
Right cable mount			
Standard push button	N.O. + N.C.	No	**XY2CE1A150**
Booted push button ∇	N.O. + N.C.	No	**XY2CE1A250**
Standard push button	2 N.O. + 2 N.C.	No	**XY2CE1A190**
Standard push button	2 N.O. + 2 N.C.	Yes ♦	**XY2CE1A196**
Booted push button ∇	2 N.O. + 2 N.C.	No	**XY2CE1A290**
Booted push button ∇	2 N.O. + 2 N.C.	Yes ♦	**XY2CE1A296**
Left cable mount			
Standard push button	N.O. + N.C.	No	**XY2CE2A150**
Booted push button ∇	N.O. + N.C.	No	**XY2CE2A250**
Standard push button	2 N.O. + 2 N.C.	No	**XY2CE2A190**
Standard push button	2 N.O. + 2 N.C.	Yes ♦	**XY2CE2A196**
Booted push button ∇	2 N.O. + 2 N.C.	No	**XY2CE2A290**
Booted push button ∇	2 N.O. + 2 N.C.	Yes ♦	**XY2CE2A296**

∇ Recommended for outdoors applications where icy conditions are likely.
♦ Bulb not included, see spare parts list on page 4/7 For 220 V Δ change last digit to 7, bulb included.
∗ Positive opening N.C. contacts meet the IEC and EN requirements for positive opening contacts per IEC/EN 60947-5-1; and NEMA ICS-5, part 6 (direct opening action).

Normal Stop

Normal stop Δ (momentary action - no reset, no positive ∗ opening contact)
Available only with snap action contacts. Not for use in safety circuit.

	Contact	Pilot Light (only available on 2 N.O.-2 N.C. devices)	Catalog Number
Right cable mount	N.O.+N.C.	No	**XY2CE3A010**
	2 N.O.+2N.C.	No	**XY2CE3A020**
	2 N.O.+2N.C.	Yes ♦	**XY2CE3A026**
Left cable mount	N.O.+N.C.	No	**XY2CE4A010**
	2 N.O.+2N.C.	No	**XY2CE4A020**
	2 N.O.+2N.C.	Yes ♦	**XY2CE4A026**

∇ Recommended for outdoors applications where icy conditions are likely.
♦ Bulb not included, see spare parts list on page 4/7 For 220VΔ change last digit to 7, bulb included.
∗ Positive opening N.C. contacts meet the IEC and EN requirements for positive opening contacts per IEC/EN 60947-5-1; and NEMA ICS-5, part 6 (direct opening action).

Options for XY2CE

Description	Designator
Corrosion resistant (only available on devices with booted push button on Emergency Stop devices and all Normal Stop devices) Not available on key operated emergency stop reset nor mushroom head reset versions. Enclosure color changes from beige to an olive-blue color.	Provides a silicone boot, special finish, and copper/brass eyelet. -For non-pilot light devices: 1. Add suffix TK to the part number 2. Change A to C Example: XY2CE1A250 changes to XY2CE1C250TK -For pilot light devices: 1. Add suffix TK to the part number 2. Change A to E Example: XY2CE1A296 changes to XY2CE1E296TK
Low Temperature -40 °F (-40 °C) The minimum temperatures listed are based on the absence of freezing moisture or water.	Non pilot light versions -Change A to C - silicone boot Ex: XY2CE1A150 changes to XY2CE1C150 Pilot light versions -Change A to E - silicone boot Ex: XY2CE1A196 changes to XY2CE1**E**196
N.C. + N.C. contact	-Change the 9th digit to 7 (for emergency stop only) **Ex:** XY2CE1A150 changes to XY2CE1A170
Mushroom head reset	-Change the 8th digit to 3 Ex: XY2CE1A150 changes to XY2CE1A350
Key operated emergency stop reset (Uses Ronis key No. 421)	-Change the 8th digit to 4. Ex: XY2CE1A150 changes to XY2CE1A450

Δ These devices or components are not UL/CSA.

Acceptable Wire Sizes . . . . . 14-24 AWG
Recommended Terminal Clamp Torque . . . . . 13 in-lbs.