

Applications

Cable Pull switches for:

- conveyor systems
- material handling
- machine tools
- electrical testing stations
- woodworking machinery
- textile machinery



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Features	For cable lengths up to 230 ft (70 m). Can be tripped by the operator at any point in the work zone.	For cable lengths up to 98 ft (30 m). Can be tripped by the operator at any point in the work zone.	For cable lengths up to 98 ft (30 m). Can be tripped by the operator at any point in the work zone.
Conformity to standards			
Products	EN/IEC 60947-5-5, EN/ISO 13850:2006, UL 508 and CSA C22-2 n° 14 (with H7)	EN/IEC 60947-5-5, EN/ISO 13850:2006, UL 508 and CSA C22-2 n° 14 (with H7)	EN/IEC 60947-5-5, EN/ISO 13850:2006, UL 508 and CSA C22-2 n° 14 (with H7)
Machine assemblies	EN/IEC 60204-1, Machinery directive: 2006/42/EC, Work equipment directive: 89/655/EEC	EN/IEC 60204-1, Machinery directive: 2006/42/EC, Work equipment directive: 89/655/EEC	EN/IEC 60204-1, Machinery directive: 2006/42/EC, Work equipment directive: 89/655/EEC
Protective treatment	Special version, "TK" with silicone bellows	Special version, "TK" with silicone bellows	—
Ambient temperature			
Operating	–13 to +158 °F (–25 to +70 °C), Standard version –40 to +158 °F (–40 to +70 °C), "TK" version	–13 to +158 °F (–25 to +70 °C), Standard version –40 to +158 °F (–40 to +70 °C), "TK" version	–13 to +158 °F (–25 to +70 °C), Standard version
Storage	–40 to +158 °F (–40 to +70 °C)	–40 to +158 °F (–40 to +70 °C)	–40 to +158 °F (–40 to +70 °C)
Electric shock protection conforming to EN/IEC 61140	Class I	Class I	Class I
Degree of protection	XY2CE: IP65 conforming to EN/IEC 60529	XY2CH: IP65 conforming to EN/IEC 60529	XY2CJ: IP66 and IP67 conforming to EN/IEC 60529
Positive operation conforming to EN/IEC 60947-5-1 Section 3	N.C. contacts with positive opening operation	N.C. contacts with positive opening operation	N.C. contacts with positive opening operation
Rated insulation voltage			
2-pole contacts	Ui = 500 V degree of pollution 3 conforming to EN/IEC 60947-1, Ui = 300 V conforming to UL 508, CSA C22-2 n° 14	Ui = 500 V degree of pollution 3 conforming to EN/IEC 60947-1, Ui = 300 V conforming to UL 508, CSA C22-2 n° 14	Ui = 500 V degree of pollution 3 conforming to EN/IEC 60947-1, Ui = 300 V conforming to UL 508, CSA C22-2 n° 14
3-pole contacts	Ui = 400 V degree of pollution 3 conforming to EN/IEC 60947-1, Ui = 300 V conforming to UL 508, CSA C22-2 n° 14	Ui = 400 V degree of pollution 3 conforming to EN/IEC 60947-1, Ui = 300 V conforming to UL 508, CSA C22-2 n° 14	Ui = 400 V degree of pollution 3 conforming to EN/IEC 60947-1, Ui = 300 V conforming to UL 508, CSA C22-2 n° 14
Rated impulse withstand voltage			
2-pole contacts	Uimp = 6 kV conforming to EN/IEC 60947-1	Uimp = 6 kV conforming to EN/IEC 60947-1	Uimp = 6 kV conforming to EN/IEC 60947-1
3-pole contacts	Uimp = 4 kV conforming to EN/IEC 60947-1	Uimp = 4 kV conforming to EN/IEC 60947-1	Uimp = 4 kV conforming to EN/IEC 60947-1
References	XY2CE	XY2CH	XY2CJ
Pages	6/9	6/10	6/11

Operating Principle



XY2CE1A296H7



XY2CH13250H7



XY2CJR19H7

XY2 cable pull switches provide for a stop or emergency stop to be signaled at any point along a cable up to 230 feet (70 m) in length. This is many times preferred to installing many individual stop or 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 the cable is pulled or if it becomes slack due to stretching or breakage of the cable. Once the switch is tripped, it must be manually reset. The XY2C devices are for use with tensioned stranded steel cables only (refer to "Cable specifications" on page 14). The use of hemp or polymer ropes in place of multi-stranded steel cables is not permissible due to the excessive elasticity of the ropes.

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.

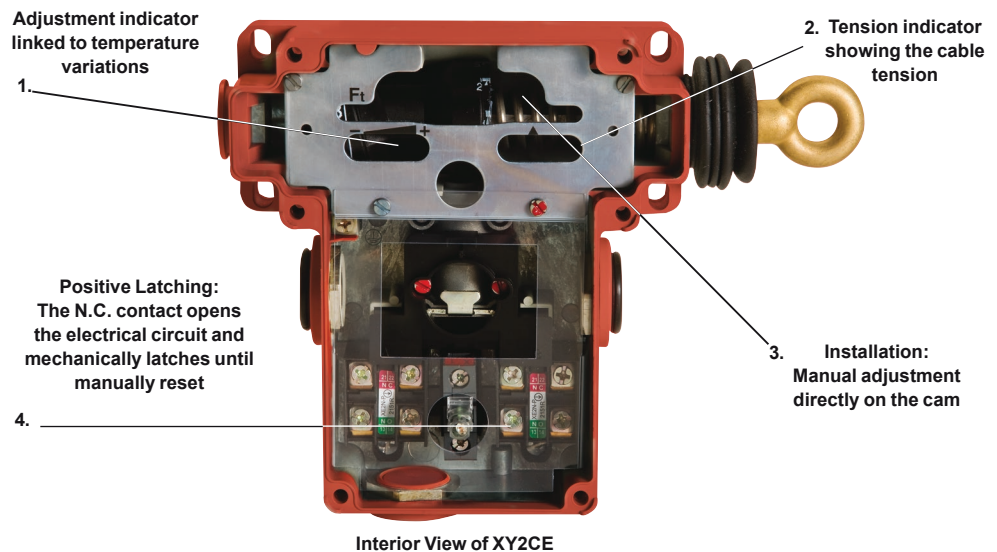
Features Include:

- 3 cable entries 1/2"-14 NPT (XY2CE and XY2CH)
- 1 cable entry 1/2"-14 NPT (XY2CJ)
- Positive latching (no teasing)
- Slow-make slow-break for emergency stop
- Snap action contacts for momentary switch
- Works properly even if spring is broken
- Padlock attachments available
- Doesn't reset if out of adjustment
- Manual tripping force adjustment (XY2CE)
- Adjustment indicator
- UL Listed and CSA certified
- XY2CH and XY2CJ for applications up to 98 feet (30 m)
- XY2CH has 2 viewing windows to aid in setting and adjusting the switch
- XY2CE for applications up to 230 feet (70 m)
- Positive opening N.C. contacts meet the IEC and EN requirements for positive opening contacts according to IEC/EN 60947-5-1 section 3, and meet 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



Note:
These devices are designed for use in tensioned cable pull applications. They are not suitable for use as slack rope pull devices.

Specifications

Conformity to Standards Approvals	ANSI A 17.1, EN/IEC 60947-5-5, EN/ISO 13850: 2006, Machine Directive: 2006/42/EC, NFC 79-130, NFC 63144, VDE 0660-207. XY2CE/XY2CH/XY2CJ : UL 508 & CSA C22-2 no 14 (H7 version), UL (NISD), CCC (1)
Maximum safety level (2)	PL e, category 4 conforming to EN/ISO 13849-1 and SIL CL3 conforming to EN/IEC 62061
Reliability data B_{10d}	XY2CE : 50,000 XY2CH : 5,000,000 XY2CJ : 500,000 (data values for a service life of 20 years: can be limited by contact and mechanical wear)
Ambient Temperature (3)	Operation : -13 to +158 °F (-25 to +70 °C) for standard devices; -40 to 158 °F (-40 to +70 °C) for TK versions (corrosion resistant). Storage : from -40 to +158 °F (-40 to +70 °C) for all devices.
Vibration Resistance	XY2CE : 10 gn (10–300 Hz). XY2CH, XY2CJ : 10 gn (10–150 Hz), conforming to EN/IEC 60068-2-6
Shock Resistance	50 gn, duration 11 ms, conforming to EN/IEC 600068-2-27
Electric Shock Protection	UL 508, 19-1, Class I conforming to IEC 61140 and NF C 20-030.
Enclosure Rating	XY2CE, XY2CH : IP65 conforming to IEC 60529, IP657 conforming to NF C 20-010 (IP 667 with booted push button). XY2CJ : IP 66 and IP 67 conforming to IEC 60529.
Mechanical Life	XY2CE : 10,000 operating cycles XY2CH : 800,000 operating cycles XY2CJ : 100,000 operating cycles
Cable Entry	XY2CE : 3 plain holes with 1/2"-14 NPT gland (H7) or ISO M20 x 1.5 gland (H29) or Pg 13.5 XY2CH : 3 tapped cable entries for 1/2"-14 NPT conduit (H7) or ISO M20 x 1.5 (H29) or Pg 13.5 XY2CJ : 1 tapped cable entry for 1/2"-14 NPT conduit (H7) or ISO M20 x 1.5 (H29) or Pg 13.5
Operating Position	All positions.
Length of Protected Area	XY2CE : maximum 230 ft (70 m). XY2CH, XY2CJ : maximum 98 ft (30 m)

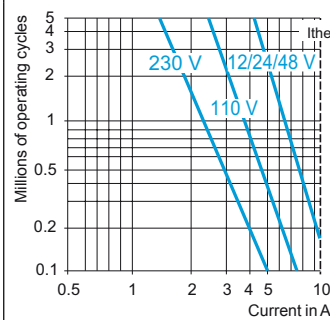
- (1) Only products XY2CH without pilot light are CCC and UL-CSA approved.
 (2) Using an appropriate and correctly connected control system.
 (3) The minimum temperatures listed are based on the absence of freezing moisture or water. Care should be taken to avoid sub-freezing temperatures where dripping 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 Specifications

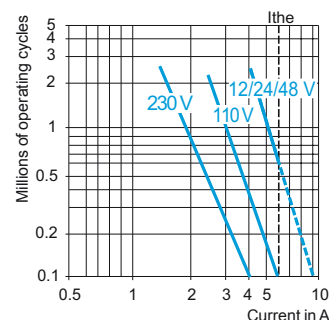
Rated operational characteristics	2-pole contact	XY2CJ, XY2CH, XY2CE : AC-15: A300 or Ue = 240 V, Ie = 3 A; DC-13: Q300 or Ue = 250 V, Ie = 0.27 A, conforming to EN/IEC 60947-5-1 Appendix A
	3-pole contact	XY2CJ, XY2CH : AC-15: B300 or Ue = 240 V, Ie = 1.5 A; DC-13: R300 or Ue = 250 V, Ie = 0.1 A, conforming to EN/IEC 60947-5-1 Appendix A
Nominal thermal current	2-pole contact	10 A
	3-pole contact	6 A
Rated insulation voltage	2-pole contact	XY2CJ, XY2CH, XY2CE : Ui = 500 V degree of pollution 3 conforming to EN/IEC 60947-1, Ui = 300 V conforming to UL 508, CSA C22-2 no. 14
	3-pole contact	XY2CJ, XY2CH : Ui = 400 V degree of pollution 3 conforming to EN/IEC 60947-1, Ui = 300 V conforming to UL 508, CSA C22-2 no. 14
Rated impulse withstand voltage	2-pole contact	XY2CJ, XY2CH, XY2CE : Uimp = 6 kV conforming to EN/IEC 60947-1
	3-pole contact	XY2CJ, XY2CH : Uimp = 4 kV conforming to EN/IEC 60947-1
Positive operation	NC contact with positive opening operation conforming to EN/IEC 60947-5-1 Section 3	
Resistance across terminals	≤ 25 mΩ conforming to NF C 93-050 method A or EN/IEC 60255-7 category 3	
Terminal referencing	Conforming to CENELEC EN 50013	
Short Circuit Protection (1)	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 (2 pole contacts)	
Rated operational power (Electrical durability)	XY2CJ, XY2CH, XY2CE Conforming to EN/IEC 60947-5-1 Appendix C. Utilization categories AC-15 and DC-13 Frequency: 3600 operating cycles/hour. Load factor: 0.5	

AC supply ~ 50/60 Hz
mm. Inductive circuit

2-pole contact



3-pole contact



DC supply ---
Power broken in W
for 1 million operating cycles. mm. Inductive circuit

	Voltage	V	24	48	120	Voltage	V	24	48	120
mm.	W		13	9	7	mm.	W	4	3	2

Contact connection

Screw clamp terminals
2 contacts: clamping capacity, min. 1 wire: 20 AWG (0.5 mm²), max. 2 wires: 16 AWG (1.5 mm²).
3 contacts: clamping capacity, min. 1 wire: 22 AWG (0.34 mm²), max. 1 wire: 18 AWG (1 mm²) or 2 wires: 20 AWG (0.75 mm²).
 Minimum tightening torque: 7.1 lb-in. (0.8 N.m). Maximum tightening torque: 10.6 lb-in. (1.2 N.m).

(1) 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.

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 Schneider Electric Conditions of Sale found in the Digest.

Right Cable Mount:



XY2CE1A150H7



XY2CE1A296H7

Left Cable Mount:



XY2CE2A250H7



XY2CE2A196H7

XY2CE Cable Pull for up to 230 ft (70 m) cable length

Cable and accessories must be selected and ordered separately from pages 6/12 and 6/14.

Emergency Stop

Emergency Stop (Latching contact—reset by push button—positive opening contacts) (3)

Available only with slow break contacts.

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

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

In category 3 or 4 safety architectures, to conform with ISO 13850 and the European Union Machinery Directive, safety circuits must use emergency stop devices with 2 N.C. contacts. 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 1 or 2 safety architectures. XY2 cable pull switches are ideal choices for use with Preventa™ XPS safety relays.

Cable mount	Contacts	Pilot light (available only on 2 N.O.—2 N.C. devices)	Reference
Right cable mount			
Standard push button	N.O. + N.C.	No	XY2CE1A150H7
Booted push button (1)	N.O. + N.C.	No	XY2CE1A250H7
Standard push button	2 N.O. + 2 N.C.	No	XY2CE1A190H7
Standard push button	2 N.O. + 2 N.C.	Yes (2)	XY2CE1A196H7
Booted push button (1)	2 N.O. + 2 N.C.	No	XY2CE1A290H7
Booted push button (1)	2 N.O. + 2 N.C.	Yes (2)	XY2CE1A296H7
Left cable mount			
Standard push button	N.O. + N.C.	No	XY2CE2A150H7
Booted push button (1)	N.O. + N.C.	No	XY2CE2A250H7
Standard push button	2 N.O. + 2 N.C.	No	XY2CE2A190H7
Standard push button	2 N.O. + 2 N.C.	Yes (2)	XY2CE2A196H7
Booted push button (1)	2 N.O. + 2 N.C.	No	XY2CE2A290H7
Booted push button (1)	2 N.O. + 2 N.C.	Yes (2)	XY2CE2A296H7

(1) Recommended for outdoor applications where icy conditions are likely.

(2) Includes LED Module 240–120 V. For 220 V LED module, change tenth digit to 7 (for example, XY2CE1A296H7 becomes XY2CE1A297H7).

(3) Positive opening N.C. contacts meet the IEC and EN requirements for positive opening contacts according to IEC/EN 60947-5-1, and meet NEMA ICS-5, part 6 (direct opening action).

Normal Stop

Normal stop (momentary action, no reset, no positive opening contact) (2)

Available only with snap action contacts. Not for use in safety related circuits.

	Contacts	Pilot Light (only available on 2 N.O.—2 N.C. devices)	Reference
Right cable mount	N.O.+N.C.	No	XY2CE3A010H7
	2 N.O.+2 N.C.	No	XY2CE3A020H7
	2 N.O.+2 N.C.	Yes (1) (3)	XY2CE3A026H7
Left cable mount	N.O.+N.C.	No	XY2CE4A010H7
	2 N.O.+2 N.C.	No	XY2CE4A020H7
	2 N.O.+2 N.C.	Yes (1) (3)	XY2CE4A026H7

(1) Includes LED Module 240–120 V. For 220 V LED module, change tenth digit to 7 (for example, XY2CE3A026H7 becomes XY2CE3A027H7). See spare parts list on page 6/14.

(2) Positive opening N.C. contacts meet the IEC and EN requirements for positive opening contacts according to IEC/EN 60947-5-1, and meet NEMA ICS-5, part 6 (direct opening action).

(3) These devices or components are not UL/CSA.

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. The enclosure color is olive-blue instead of red.	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: XY2CE1A250H7 changes to XY2CE1C250H7TK -For pilot light devices: 1. Add suffix TK to the part number 2. Change A to E Example: XY2CE1A296H7 changes to XY2CE1E296H7TK
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: XY2CE1A150H7 changes to XY2CE1C150H7 Pilot light versions -Change A to E: silicone boot Ex: XY2CE1A196H7 changes to XY2CE1E196H7
N.C. + N.C. contact	-Change the 9th digit to 7 (for emergency stop only) Ex: XY2CE1A150H7 changes to XY2CE1A170H7
Mushroom head reset (Ø 30 mm)	-Change the 8th digit to 3 Ex: XY2CE1A150H7 changes to XY2CE1A350H7
Key operated emergency stop reset (Uses Ronis key No. 421)	-Change the 8th digit to 4. Ex: XY2CE1A150H7 changes to XY2CE1A450H7