

5 - Control and signalling units for safety applications

Metal foot switches, Harmony types XPE M/R

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Plastic foot switches, Harmony types XPE A/B/G/Y

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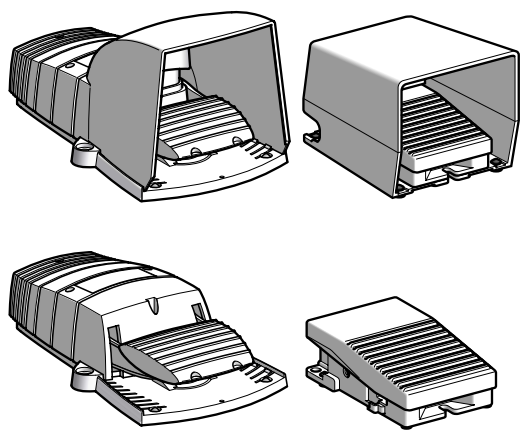
Control and signalling units for safety applications

Foot switches, Harmony type XPE
With positive opening operation on release

Presentation

Foot switches type XPE are an ideal solution for providing start and stop instructions for many types of industrial machines, running in various operating modes: normal (pulsed) start, inching, hold to run.

The range comprises metal case foot switches (heavy duty, high risk) complying to very strict regulations, and plastic case foot switches (light duty, low risk).



Fitted with a **protective cover**, the foot switches are for applications where, for each issuing of the start instruction, a high level of danger exists (**high risk**).

Foot switches **without a protective cover** are suitable for applications where the issuing of the start instruction presents a **reduced level of danger**.

Contact

Switches incorporate snap action contacts with positive opening operation

The foot switches can incorporate **one or two N/C + N/O contact blocks**.

Positive opening operation on release of pedal: the hold down or return to the rest position of the pedal (machine stop) is positive acting.

Terminology

Positive opening operation

A switch meets this requirement when all its N/C contacts can be switched to the open position with certainty, i.e. there are no flexible links between the moving contacts and the actuator to which the operating force is applied.

All pedal operated foot switches incorporate a snap action N/C + N/O contact block with positive opening operation, and conform fully to standard IEC 60947-5-1 Section 3.

Snap action contact (quick break)

The displacement speed of the moving contacts is not related to the speed at which the contact actuator is operated. This feature gives consistent electrical performance, even when the contact actuator device is operated at low speeds.

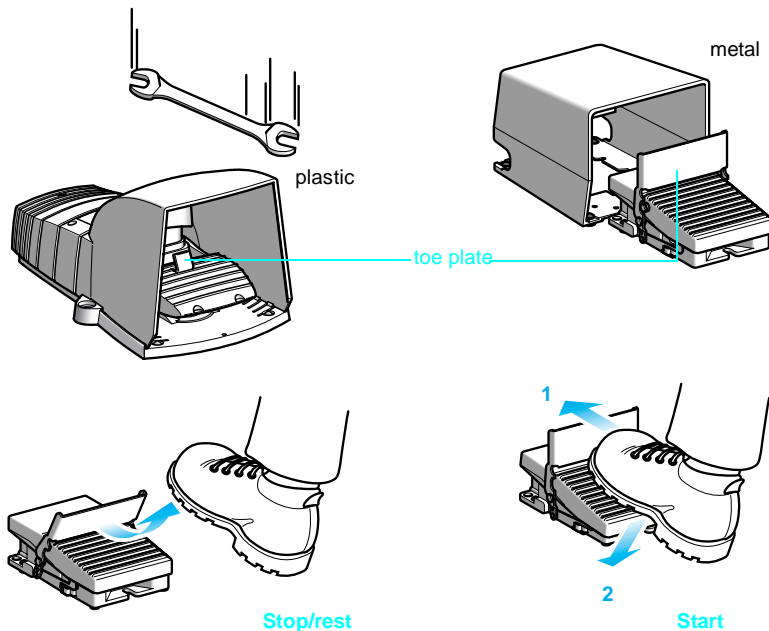
Control and signalling units for safety applications

Foot switches, Harmony type XPE

With positive opening operation on release

Start instructions

Foot switches XPE with protective cover are ideally suited for issuing a safety "Start" instruction for potentially dangerous machines.



The protective cover over the operating pedal avoids the risk of accidental operation, either by human action or by falling objects, which could result in unintentional starting of the machine.

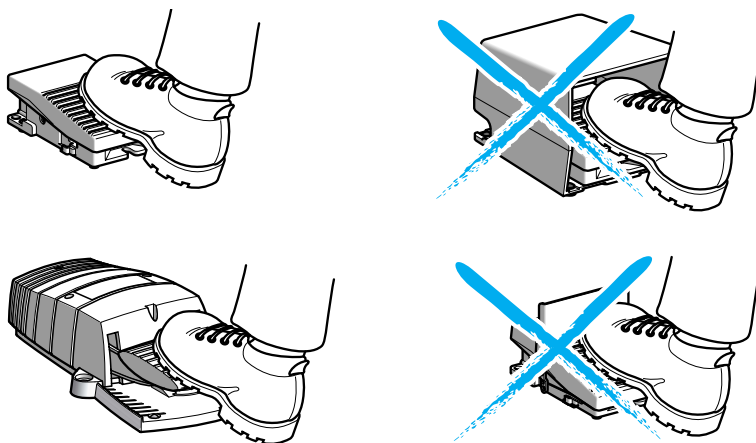
A trigger mechanism (**toe plate**) enables locking of the pedal in the rest (released) position.

Positive action is required on the toe plate **1** before the pedal **2** can be depressed to start the machine.

On releasing the pedal to stop the machine, the trigger mechanism re-engages and locks the pedal in the rest position.

Normal stop instructions

All foot switches of the XPE range can be used for issuing a normal stop instruction to a machine.



Never use the protective cover nor the trigger mechanism for this type of application. Access to the stop control must be as unrestricted as possible and without any constraints.

For machine stop instructions, use the N/C contact(s).

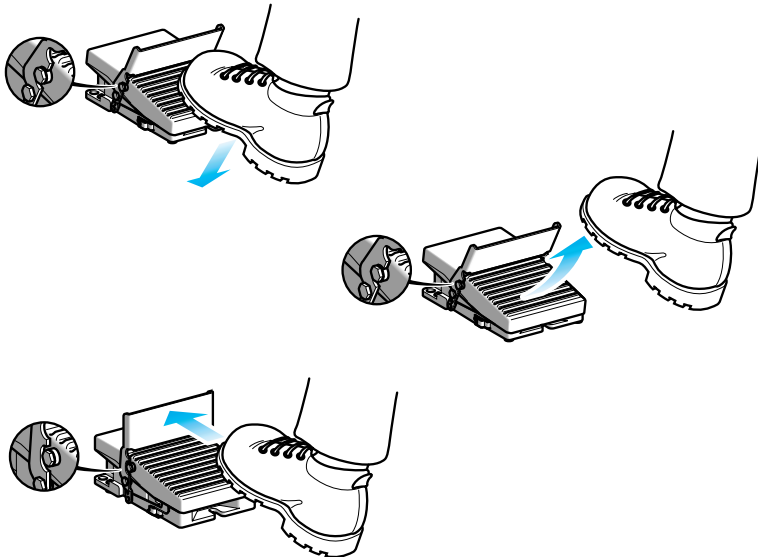
Control and signalling units for safety applications

Foot switches, Harmony type XPE

With positive opening operation on release

Pedal latching device when depressed

Foot switches with pedal latching device are particularly suited for the control of "hold to run" machines and also, for adjustment operations.



Pressing the pedal issues the machine start instruction and, when the pedal reaches its stop, it latches in the operated position.

Removing the foot from the pedal will not stop the "machine" cycle (**hold to run**), the pedal remains latched.

For issuing a normal stop instruction, the foot is replaced on the pedal and the toe plate operated: this returns the pedal to the rest position.

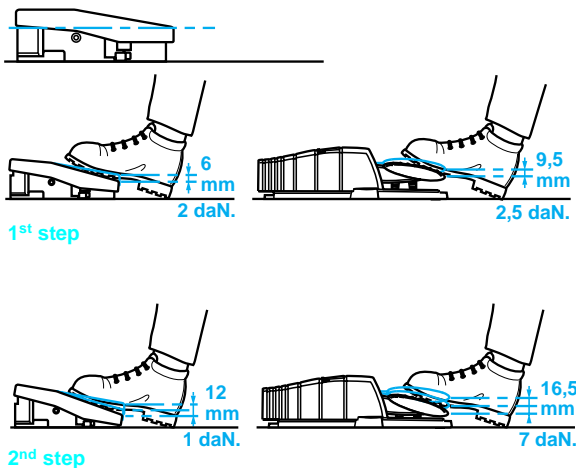
5

Switches with 2 step contact operation

Foot switches featuring 2 step contact operation are ideal for applications involving 2-speed machines.

Examples:

- First speed: low (used for setting-up, adjustment or tool maintenance).
- Second speed: fast (normal machine operating speed).



The first step, at 6 mm pedal travel and light foot pressure (2 daN), actuates a N/C + N/O contact block.

The second step, at maximum pedal travel (12 mm) and required foot pressure (9 daN), actuates a second N/C + N/O contact block.

Applications

Many types of machines are fitted with foot switches

- Bending machine
- Dosing machine
- Assembly station
- Packaging machines
- Cutting presses, stamping presses
- Machine tools (numerical control, lathes, milling machines, grinders, machining centres)
- Guillotines, cutters, folders, saws
- Forging machines, rolling machines, cold metal forming machines

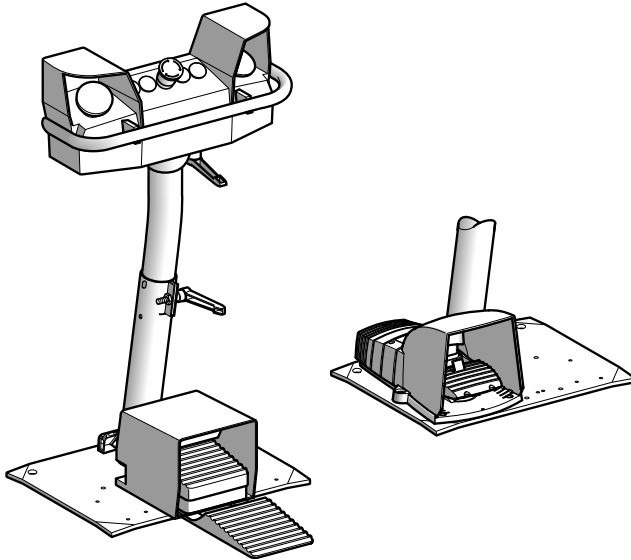
Control and signalling units for safety applications

Foot switches, Harmony type XPE

With positive opening operation on release

Foot switches
used in conjunc-
tion with two-hand
control stations

Foot switches XPE can be mounted directly on the baseplate (without drilling additional fixing holes) of the pedestal XY2 SB90 for two-hand control stations XY2 SB7●.

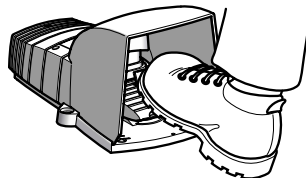


The baseplate of the two-hand control station pedestal XY2 SB90 is pre-drilled with fixing holes to suit the mounting of either:

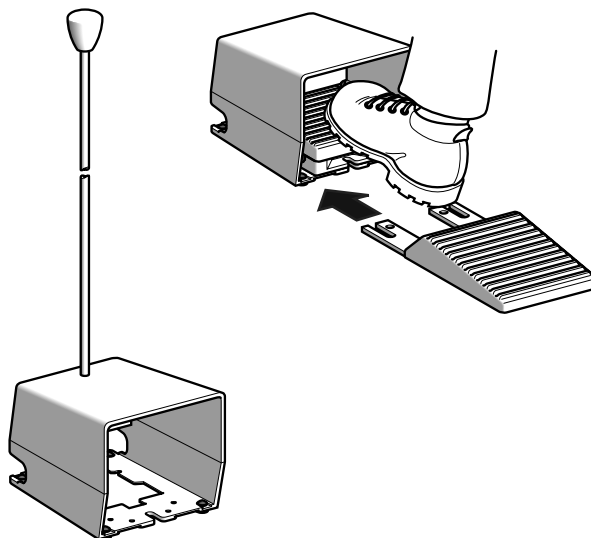
- One XPE foot switch, with or without protective cover.
- Two XPE R foot switches, each with its own protective cover or fitted with a common (double) cover.

Ergonomic

The protective cover is very strong and is sufficiently dimensioned to accommodate all types of footwear (large size, safety boots, etc.).



The foot switch is designed such that the operating pedal is close to the ground and at a comfortable angle.



Various accessories improve the working comfort for machine operators and help to avoid discomfort in the base of the spine due to unbalanced positioning of the pelvis:

- Heel rest (metal XPE).
- Hand grip for mounting on protective cover.

Control and signalling units for safety applications

Metal foot switches, Universal,
Harmony types XPE M/R

With positive opening operation on release

Environment

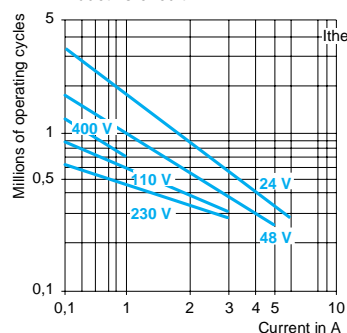
Conformity to standards	Without protective cover		IEC/EN60947-5-1, VDE 0660-200, CSA C22 2 n° 14
	With protective cover		NF E 09-031
Product certifications	Standard version		FI, CSA A300 - Q300 with tapped entries for cable gland
	Special version		CSA A300 - Q300 with 1/2" NPT adaptor
Protective treatment	Standard version		"TC"
	Special version		"TH"
Ambient air temperature	For operation	°C	- 25...+ 70
	For storage	°C	- 40...+ 70
Vibration resistance			15 gn (10...500 Hz) conforming to IEC 60068-2-6
Shock resistance			20 gn conforming to IEC 60068-2-27 (150 gn conforming to NF E 09-031)
Electric shock protection			Class I conforming to IEC 60536 and NF C 20-030
Mechanical life			5 million operating cycles
Degree of protection			IP 66 conforming to IEC 60529 and IP 669 conforming to NF C 20-010 (with protective cover)
Cable entries			See dimensions, page 5/9

Contact block characteristics

Rated operational voltage	~ AC-15		A300 or Ue = 240 V, Ie = 3 A
	--- DC-13		Q300 or Ue = 250 V, Ie = 0.27 A conforming to IEC/EN 60947-5-1 Appendix A
Rated insulation voltage		V	Ui = 500, degree of pollution 3 conforming to IEC/EN 60947-1, group C conforming to NF C 20-040 and VDE 0110
			Ui = 300 conforming to UL 508, CSA C22 -2 n° 14
Rated impulse withstand voltage		kV	U imp = 6 conforming to IEC/EN 60947-1, IEC 60664
Positive operation			N/C contact with positive opening operation conforming to IEC/EN 60947-5-1 Appendix K
Resistance across terminals		mΩ	≤ 25 conforming to NF C 93-050 method A or IEC 60255-7 category 3
Short-circuit protection			10 A cartridge fuse type gG (gl) conforming to IEC/EN 60947-5-1, VDE 0660-200
Foot switches with snap action contacts	Operational power		Conforming to IEC/EN 60947-5-1 Appendix C
	Utilisation categories		AC-15 and DC-13
	Operating rate		3600 operating cycles/hour. Load factor: 0.5

a.c. supply ~ 50-60 Hz

Inductive circuit



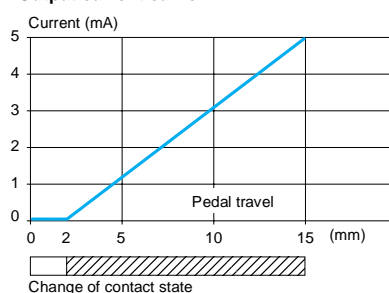
d.c. supply ---

Power broken in W
for 5 million operating cycles

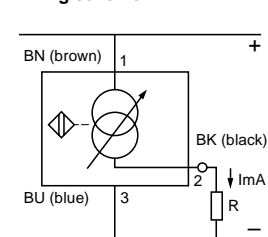
Voltage V	24	48	120
Power W	10	7	4

Foot switches with analogue output	Nominal supply voltage	V	--- 24...48
	Voltage limits	V	--- 19...58
	Current consumption, no-load	mA	4
	Output current drift (IS) in relation to temperature		0...+ 50 °C: + 2...- 6% - 25...+ 70 °C: + 2...- 12%

Output current curve



Wiring scheme



Connection	Screw clamp terminals		Maximum clamping capacity: 1 x 2.5 mm ² or 2 x 1.5 mm ² with or without cable end
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Control and signalling units for safety applications

Metal foot switches, Universal,
Harmony types XPE M/R

With positive opening operation on release



XPE M510



XPE R5100D



XPE M310



XPE R3100D

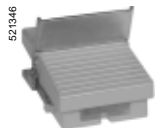
Single and double pedal foot switches with protective cover

Description	Pedal	Contact operation		Housing colour	Reference	Weight kg
Metal With trigger mechanism requiring positive action to allow pedal operation	Single	1 step	1 N/C + N/O	Blue	XPE M510	2.570
	Double	1 step	2 x 1 N/C + N/O	Blue	XPE M5100D	6.070
	Single	1 step	1 N/C + N/O	Orange	XPE R510	2.570
	Double	1 step	2 x 1 N/C + N/O	Orange	XPE R5100D	6.070
	Single	1 step	2 N/C + N/O	Blue	XPE M511	2.590
	Double	1 step	2 x 2 N/C + N/O	Blue	XPE M5110D	6.090
	Single	1 step	2 N/C + N/O	Orange	XPE R511	2.590
	Double	1 step	2 x 2 N/C + N/O	Orange	XPE R5110D	6.090
	Single	2 step	2 N/C + N/O	Blue	XPE M711	2.590
				Orange	XPE R711	2.590
Metal Without trigger mechanism	Single	1 step with analogue output	2 N/C + N/O	Blue	XPE M529	2.600
				Orange	XPE R529	2.600
	Single	1 step	1 N/C + N/O	Blue	XPE M310	2.400
	Double	1 step	2 x 1 N/C + N/O	Blue	XPE M3100D	5.900
	Single	1 step	1 N/C + N/O	Orange	XPE R310	2.400
	Double	1 step	2 x 1 N/C + N/O	Orange	XPE R3100D	5.900
	Single	1 step	2 N/C + N/O	Blue	XPE M311	2.420
	Double	1 step	2 x 2 N/C + N/O	Blue	XPE M3110D	5.920
	Single	1 step	2 N/C + N/O	Orange	XPE R311	2.420
	Double	1 step	2 x 2 N/C + N/O	Orange	XPE R3110D	5.920
	Single	1 step latching	1 N/C + N/O	Blue	XPE M410	2.400
				Orange	XPE R410	2.420
	Single	2 step	2 N/C + N/O	Blue	XPE M611	2.420
				Orange	XPE R611	2.420
	Single	1 step with analogue output	2 N/C + N/O	Blue	XPE M329	2.420

Control and signalling units for safety applications

Metal foot switches, Universal,
Harmony types XPE M/R

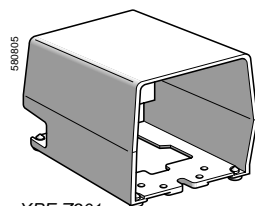
With positive opening operation on release



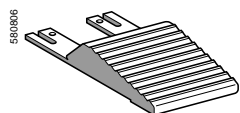
XPE R810



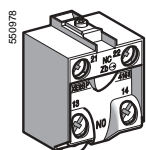
XPE M110



XPE Z901



XPE Z902



XE2S P4151●

Foot switches without protective cover

Description	Contact operation		Housing colour	Reference	Weight kg
Metal With trigger mechanism requiring positive action to allow pedal operation	1 step	1 N/C + N/O	Orange	XPE R810	1.200
	2 step	2 N/C + N/O	Orange	XPE R911	1.200
	Analogue output	2 N/C + N/O	Orange	XPE R929	1.200
Metal Without trigger mechanism	1 step	1 N/C + N/O	Blue	XPE M110	1.200
			Orange	XPE R110	1.200
		2 N/C + N/O	Blue	XPE M111	1.200
			Orange	XPE R111	1.200
	2 step	2 N/C + N/O	Blue	XPE M211	1.200
			Orange	XPE R211	1.200
	Analogue output	2 N/C + N/O	Orange	XPE R229	1.200

Accessories

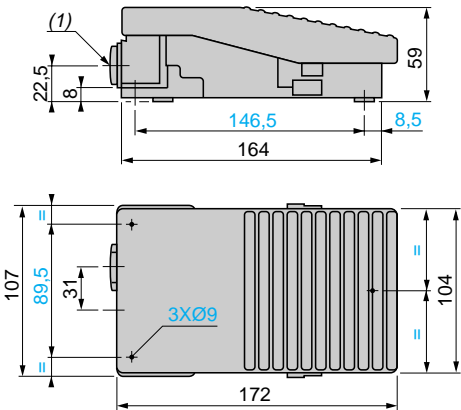
Description	For use with	Unit reference	Weight kg
Single protective cover	XPE M	XPE Z901	1.200
	XPE R	XPE Z911	1.200
Double protective cover	XPE M	XPE Z931	1.200
	XPE R	XPE Z921	1.200
Hand grip for protective cover	XPE Z901 or XPE Z911	XPE Z913	0.450
Heel rest	XPE M	XPE Z902	0.240
	XPE R	XPE Z912	0.240
Trigger mechanism	XPE M or XPE R	XPE Z903	0.170
Latching device (replacement for foot switches with this feature)	XPE M or XPE R	XPE Z904	0.170
Cable clamp	XPE M or XPE R	XPE Z905	0.010
Contact blocks Snap action	1 step switches: 1 st or 2 nd N/C + N/O	XE2S P4151	0.020
	2 step switches: 1 st N/C + N/O	XE2S P4151B	0.020
ISO M20 adaptor (Sold in lots of 5)	XPE M or XPE R	DE9 RA1620	0.050

Control and signalling units for safety applications

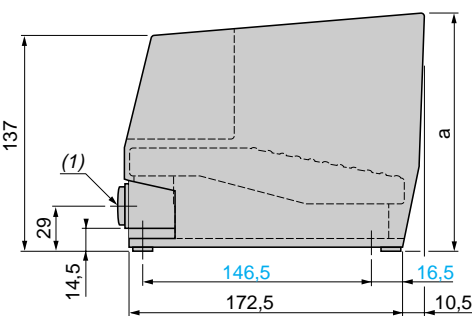
Metal foot switches, Universal,
Harmony types XPE M/R

With positive opening operation on release

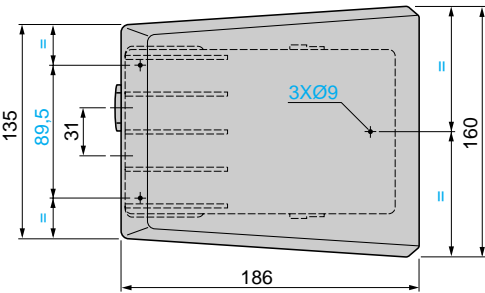
XPE M, XPE R without protective cover



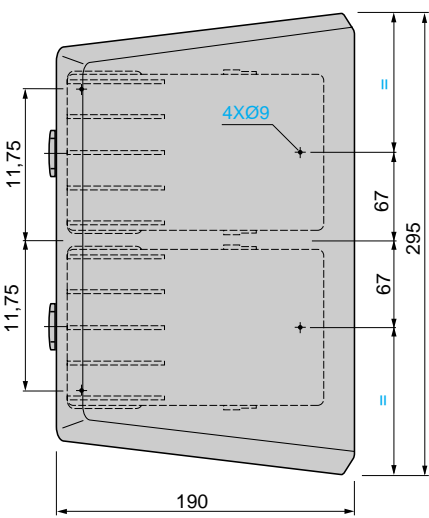
XPE M, XPE R with protective cover



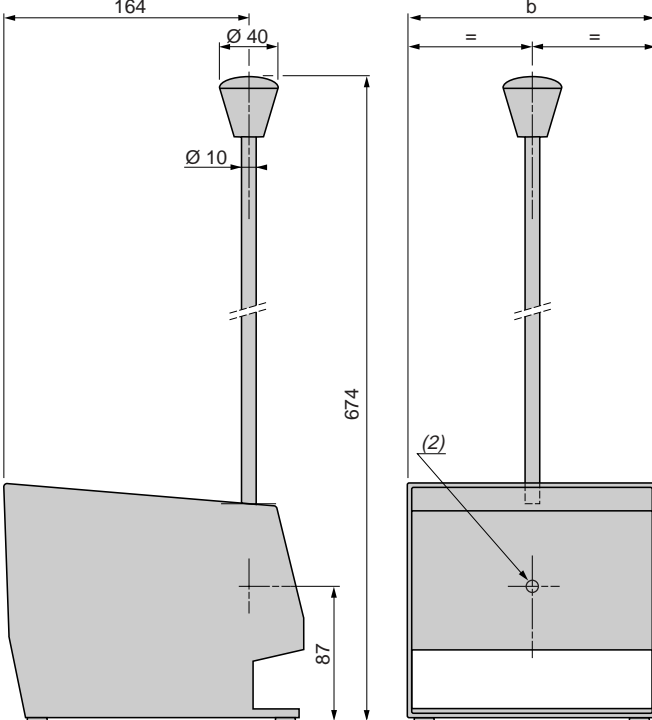
Single



Double



XPE Z913



	a	b
Single pedal	152	160
Double pedal	155	295

(1) 2 tapped entries for n° 16 (Pg 16) cable gland. For ISO M20, use adaptor DE9 RA1620.
(2) 1 Ø 6 plain hole.

Control and signalling units for safety applications

Plastic foot switches,
Harmony types XPE A/B/G/Y
With positive opening operation on release

Environment

Conformity to standards			XPE A, XPE B, XPE G, XPE Y without protective cover: IEC/EN 60947-5-1, VDE 0660200 XPE B, XPE G, UL 508, CSA C22 2 n° 14 XPE B, XPE G with protective cover: NF E 09-031
Product certifications	Standard version		XPE B, XPE G: UL, CSA A300 - Q300 with knock-out entries for ISO M20 cable gland
Protective treatment	Standard version		"TH"
Ambient air temperature	For operation	°C	XPE B, XPE G: - 25...+ 70 XPE A, XPE Y: - 25...+ 55
	For storage	°C	- 40...+ 70
Vibration resistance	Conforming to IEC 60068-2-6		5 gn (10...500 Hz)
Shock resistance	Conforming to IEC 60068-2-27		XPE A: 25 gn, XPE B, XPE G, XPE Y: 20 gn
Electric shock protection	Conforming to IEC 60536 and NF C 20-030		Class II
Mechanical life			XPE A, XPE Y: 2 million operating cycles XPE B, XPE G: 5 million operating cycles
Degree of protection			XPE A: IP 43 conforming to IEC 60529 XPE Y: IP 55 conforming to IEC 60529 XPE B, XPE G: IP 66 conforming to IEC 60529
Cable entries			See dimensions, pages 5/13 and 5/14

Contact block characteristics

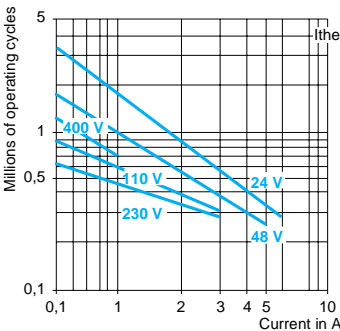
Rated operational voltage		~ AC-15; A 300 or Ue = 240 V, Ie = 3 A = DC-13; Q 300 or Ue = 250 V, Ie = 0.27 A conforming to IEC/EN 60947-5-1 Appendix A
Rated insulation voltage		Ui = 500 V degree of pollution 3 conforming to IEC/EN 60947-1, group C conforming to NF C 20-040 and VDE 0110 Ui = 300 V conforming to UL 508, CSA C22 -2 n° 14
Rated impulse withstand voltage		U imp = 4 kV conforming to IEC/EN 60947-1, IEC 60664
Positive operation		N/C contact with positive opening operation conforming to IEC/EN 60947-5-1 Appendix K
Resistance across terminals		≤ 25 mΩ conforming to NF C 93-050 method A or IEC 60255-7 category 3
Short-circuit protection		10 A cartridge fuse type gG (gl) conforming to IEC/EN 60947-5-1, VDE 0660-200

Operational power
conforming to IEC/EN 60947-5-1 Appendix C

Foot switches with snap action contacts

Utilisation categories AC-15 and DC-13
Operating rate: 3600 operating cycles/hour
Load factor: 0.5

a.c. supply ~ 50-60 Hz
Inductive circuit



d.c. supply =

Power broken in W for 5 million operating cycles

Voltage V	24	48	120
W	10	7	4

Connection

Screw clamp terminals
Maximum clamping capacity: 1 x 2.5 mm² or 2 x 1.5 mm² with or without cable end

Control and signalling units for safety applications

Plastic foot switches,
Harmony types XPE A/B/G/Y
With positive opening operation on release



XPE 510



XPE 310



XPE G810



XPE 110



XPE A110



XE2S P4151

Single pedal foot switches with protective cover

Description	Contact operation	Housing colour	Reference	Weight kg
With trigger mechanism requiring positive action to allow pedal operation	1 step	1 N/C + N/O	Yellow	XPE Y510 (1)
			Blue	XPE B510
			Grey	XPE G510
	2 N/C + N/O	Yellow	XPE Y511 (1) ▲	0.700
			Blue	XPE B511
			Grey	XPE G511
	2 step	2 N/C + N/O	Yellow	XPE Y711 (1) ▲
			Blue	XPE B711
			Grey	XPE G711
Without trigger mechanism	1 step	1 N/C + N/O	Yellow	XPE Y310 (1)
			Blue	XPE B310
			Grey	XPE G310
	2 N/C + N/O	Yellow	XPE Y311 (1) ▲	0.690
			Blue	XPE B311
			Grey	XPE G311
	2 step	2 N/C + N/O	Yellow	XPE Y611 (1) ▲
			Blue	XPE B611
			Grey	XPE G611

Foot switches without protective cover

Description	Contact operation	Housing colour	Reference	Weight kg
With trigger mechanism requiring positive action to allow pedal operation	1 step	1 N/C + N/O	Grey	XPE G810
	2 step	2 N/C + N/O	Grey	XPE G911
Without trigger mechanism	1 step	1 N/C + N/O	Yellow	XPE Y110 (1)
			Blue	XPE B110
			Grey	XPE G110
			Black	XPE A110
	2 N/C + N/O	Blue	XPE B111	0.570
			Grey	XPE G111
			Black	XPE A111
	2 step	2 N/C + N/O	Yellow	XPE Y211 (1) ▲
			Blue	XPE B211
			Grey	XPE G211

Accessories for foot switches with or without protective cover

Description	For use with	Sold in lots of	Unit reference	Weight kg
M20 x 1.5 cable gland	Cable Ø 6...12 mm	5	DE9RA200612	0.014
	Cable Ø 10...14 mm	5	DE9RA201014	0.014
Contact blocks, snap action	1 step switches: 1 st or 2 nd N/C + N/O 2 step switches: 1 st N/C + N/O	1	XE2S P4151	0.020

(1) IP 55, not UL, CSA approved.

▲ Available 1st quarter 2005

General:
pages 5/2 to 5/5

Characteristics:
page 5/10

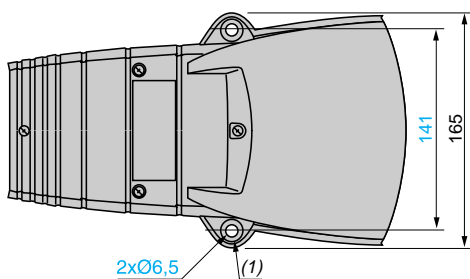
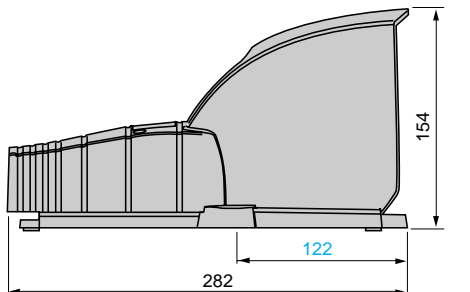
Dimensions:
pages 5/13 and 5/14

Control and signalling units for safety applications

Plastic foot switches,
Harmony types XPE A/B/G/Y
With positive opening operation on release

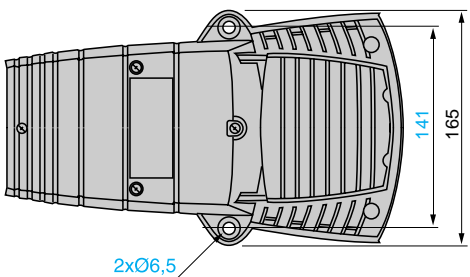
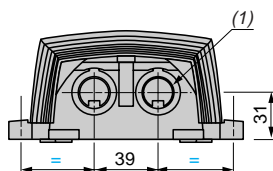
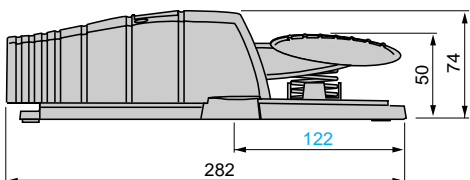
XPE B, XPE G, XPE Y

With protective cover



(1) Ø 16 x 4 counterbored hole.

Without protective cover

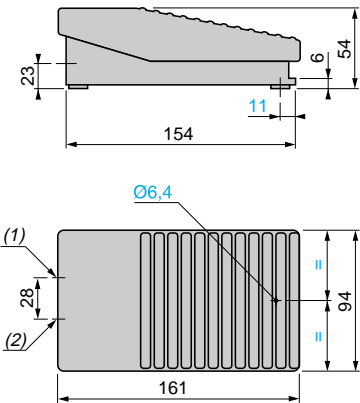


(1) 2 plain holes for ISO M20 or n° 13 (Pg 13.5) cable gland.

Control and signalling units for safety applications

Plastic foot switches,
Harmony types XPE A/B/G/Y
With positive opening operation on release

XPE A



(1) 1 plain hole for ISO M20 or n° 13 (Pg 13.5) cable gland.
(2) 1 plain hole for ISO M16 or n° 9 (Pg 11) cable gland.

Control and signalling units for safety applications

Emergency stop trip wire switches, type XY2 C

Presentation

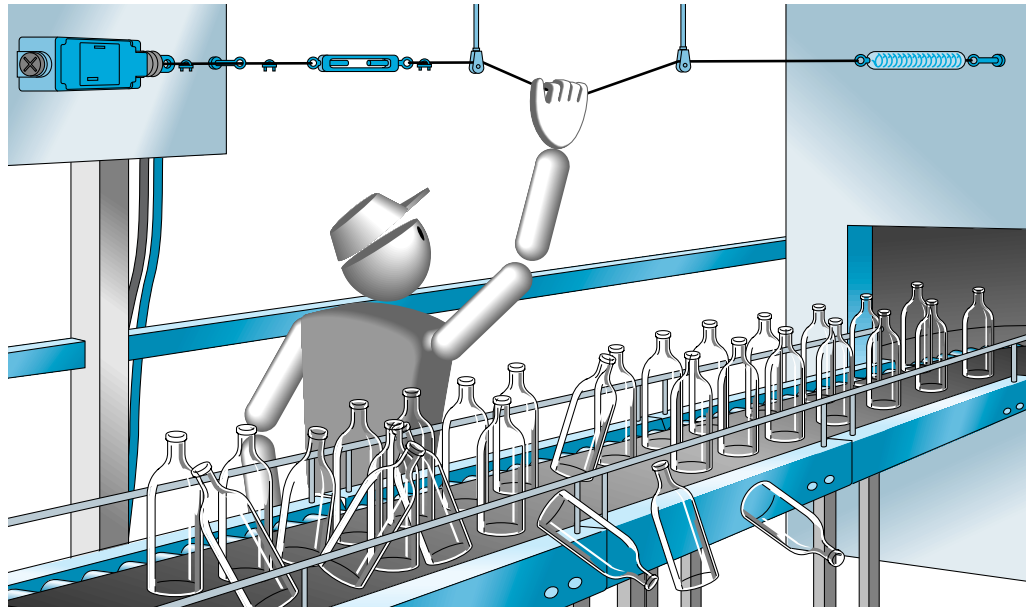
Emergency stop trip wire switches

Emergency stop trip wire switches are designed to:

- Avert hazards (dangerous phenomena) at the earliest possible moment, or to reduce risks which could cause injury to persons or damage either to machines or work in progress.
- Be tripped by a single human action when a normal Emergency stop function is not available.
- Trip in the event of the trip wire breaking.

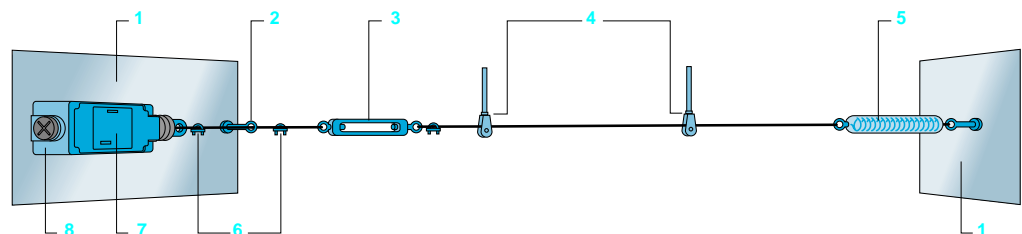
Emergency stop trip wire switches are essential in premises and on machines that are potentially dangerous when in operation. The operator must be able to trigger the stop instruction at any point within their working area.

Application examples: woodworking machines, shears, conveyor systems, transfer machines, printing machines, textile machines, rolling mills, test laboratories, paint shops, surface treatment works.



Installation and setting-up

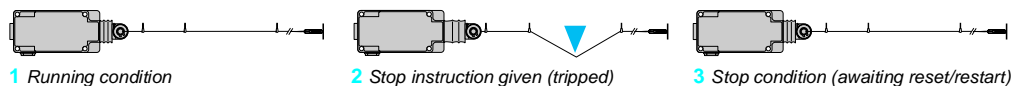
Typical installation



- | | | |
|-----------------------|-------------------------------|---------------------|
| 1 Fixing support | 4 Pulley supports and pulleys | 7 Switch adjustment |
| 2 First cable support | 5 End spring | 8 Emergency stop |
| 3 Turnbuckle | 6 Cable grips | |

Notes: All XY2 CH/CE/CB trip wire switches can be fitted with a pilot light to indicate that the switch has been tripped. It is essential that pulleys be used with trip wires that deviate from a straight run, i.e. angled to form a protected zone. Important: The total sum of the angles through which the trip wire bends must be less than 180°.

Main features



Positive operation

Latching

Resetting

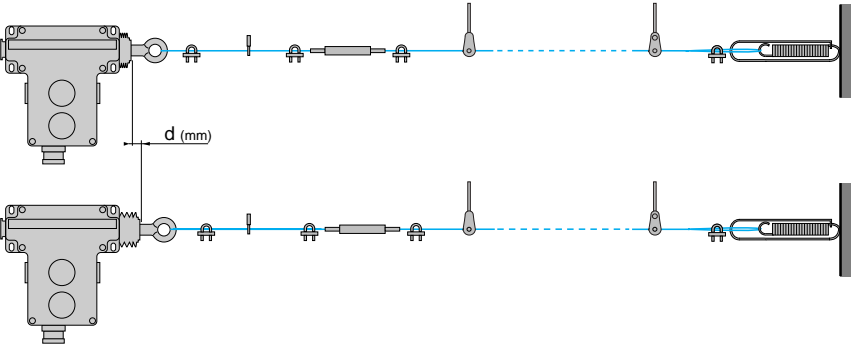
- 1 The switches incorporate positive opening operation contacts, the tripping of the switch being made with positive action.
- 2 The switch latches in the tripped position (N/C safety contact(s) open). The function of the N/O contact is purely for signalling.
- 3 The switches incorporate a reset button, which re-closes the safety contact(s). Restarting of the machine must only be achieved by manual operation of a control device within the machine start circuit, remote to the trip wire switch.

Control and signalling units for safety applications

Emergency stop trip wire switches,
type XY2 C

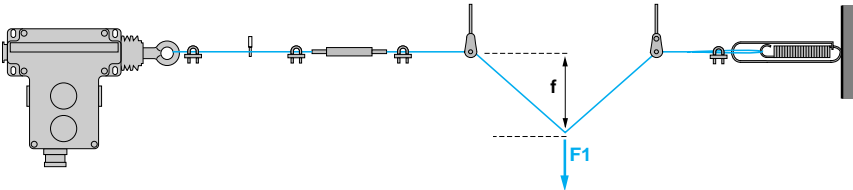
Trip wire expansion
and contraction: d

Temperature variations likely to be encountered in the protected zone will obviously cause the trip wire to expand or contract.
To enable instant verification that the trip wire is at its correct tension (and for making any necessary adjustments), trip wire switches XY2 CH and XY2 CE incorporate a trip wire tension indicator.



Tripping force: F1
Tripping deflection: f

The tripping force **F1** is the force necessary on the trip wire to cause the switch to trip.
The tripping deflection **f** is the distance that the trip wire has to be deflected from its taut position to the point at which the switch trips.



Adjustment values
(with end spring)

For Emergency stop trip wire switches type XY2 CE: the adjustment values depend on the positions of the cam located inside the switch.
Adjustment is made by rotating the cam after the switch has been installed.
Each notched position of the cam is referenced by the letters A to F, and the selected letter is visible through a viewing port.
Temperature range: < 25 °C.

Type	Position of cam	Maximum length of cable	End spring	Average tripping deflection values f and tripping forces F1 for distance between cable supports of 5 m and cable							
				Force F1 (daN)				Deflection f for (mm)			
				Standard		Light		Standard force		Light force	
				Cable Ø 3.2 mm	Cable Ø 5 mm	Cable Ø 3.2 mm	Cable Ø 5 mm	Cable Ø 3.2 mm	Cable Ø 5 mm	Cable Ø 3.2 mm	Cable Ø 5 mm
XY2 CH	—	15 m	XY2 CZ703	2.4	3	—	—	190	230	—	—
XY2 CE	A	50 m	XY2 CZ702	7	7	4	4.4	270	260	240	250
	B			8.6	8.4	4.4	4.8	300	280	250	270
	C			10.1	9.6	4.8	5.1	320	300	270	270
	D			11	10.2	4.6	5.3	330	320	280	280
	E			12.5	12.3	5.8	6	360	340	310	290
	F			14.4	13.3	6.4	6.6	390	360	330	320
XY2 CB	—	100 m	XY2 CZ707	6.8	—	—	—	350	—	—	—

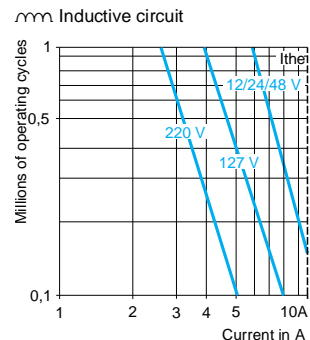
Standards

Trip wire switches XY2 CH and CE meet all the requirements of the harmonised European standard **EN 418**, relating to Emergency stop devices.
All the trip wire switches are **CE** marked and supplied with an EC declaration of conformity.

Control and signalling units for safety applications

Emergency stop trip wire switches, type XY2

Environment		
Conformity to standards	Products	XY2 CB: IEC/EN 60947-5-1, CSA C 22-2 n° 14 (if specified) XY2 CE, CH: IEC/EN 60947-5-1, EN 418, CSA C 22-2 n° 14 (if specified)
	Machine assemblies	XY2 CE, CH, CB: EN 60204-1, EN 292, Machinery directive: 98/37/EC and 91/368/EEC, Health and Safety directive: 89/655/EEC
Product certifications	Special version	XY2 CB: CSA ~ 600 V heavy duty. XY2 CE: UL-CSA A 300-Q 300. XY2 CH: UL-CSA
Protective treatment	Standard version	"TC"
	Special version	"TH"
Ambient air temperature	For operation	- 25...+ 70 °C
	For storage	- 40...+ 70 °C
Vibration resistance		XY2 CE: 10 gn (10...300 Hz) conforming to IEC/EN 60068-2-6 XY2 CH: 10 gn (10...150 Hz)
Shock resistance		XY2 CE, CH: 50 gn (duration 11 ms) conforming to IEC/EN 60068-2-27
Electric shock protection		Class I conforming to IEC/EN 60536 and NF C 20-030
Degree of protection		XY2 CB: enclosure IP 22, contact housing IP 65, conforming to IEC/EN 60529 and NF C 20-010 XY2 CE, CH: IP 65
Mechanical life		XY2 CE, CH (Emergency stop): 10,000 operating cycles
Length of protected zone (trip wire)		XY2 CH: ≤ 15 metres, XY2 CE: ≤ 50 metres, XY2 CB: 100 metres and 200 metres
Cable entries		See dimensions, page 5/23.
Contact block characteristics		
Rated operational characteristics		AC-15: A300 or Ue = 240 V, Ie = 3 A DC-13: Q300 or Ue = 250 V, Ie = 0.27 A conforming to IEC/EN 60947-5-1 Appendix A
Nominal thermal current		10 A
Rated insulation voltage		XY2 CE, CH: Ui = 500 V degree of pollution 3 conforming to IEC/EN 60947-1, Ui = 300 V conforming to UL 508, CSA C22-2 n° 14 XY2 CB: Ui = 500 V degree of pollution 3 conforming to IEC/EN 60947-1, Ui = 600 V conforming to CSA C22-2 n° 14
Rated impulse withstand voltage		XY2 CE, CH: U imp = 6 kV conforming to IEC/EN 60947-1, IEC/EN 60664
Positive operation		N/C contact with positive opening operation conforming to IEC/EN 60947-5-1 Section 3
Contact operation		XY2 CB, CE, CH (Emergency stop): N/C + N/C or N/C + N/O slow break
Resistance across terminals		≤ 25 mΩ conforming to NF C 93-050 method A or IEC/EN 60255-7 category 3
Terminal referencing		Conforming to CENELEC EN 50013
Operational voltage		~ 24...380 V
Short-circuit protection		XY2 CB, CE, CH: 10 A cartridge fuse type gG (gl) conforming to IEC/EN 60269
Rated operational power (Electrical durability)	XY2 CB Conforming to IEC/EN 60947-5-1 Appendix C Utilisation categories AC-15 and DC-13 a.c. supply ~ 50...60 Hz Power broken in VA (1) Inductive circuit Voltage V 24 48 127 220 VA 250 250 500 500	XY2 CE, CH Conforming to IEC/EN 60947-5-1 Appendix C Utilisation categories AC-15 and DC-13 a.c. supply ~ 50...60 Hz Power broken in W (1) Inductive circuit Voltage V 24 48 120 W 50 100 100 (1) For 1 million operating cycles.
Operating rate: 3600 operating cycles/hour Load factor: 0.5		
Connection		Screw clamp terminals Clamping capacity: min. 1 x 0.5 mm ² , max. 1 x 2.5 mm ² or 2 x 1.5 mm ²



Control and signalling units for safety applications

Emergency stop trip wire switches, type XY2 C

Latching Emergency stops (cable not included)

Without pilot light (1)

Length of cable	Distance between cable supports	Reset	Type of contact	Cable anchor point	Reference	Weight kg
≤ 15 m	5 m	By bootied pushbutton	1 1 N/C + N/O slow break	RH side or LH side	XY2 CH13250 (3)	0.865
		By key release pushbutton (key n° 421) (2)	1 1	RH side or LH side	XY2 CH13450 (3)	0.910
		By bootied pushbutton	2 – N/C + N/C slow break	RH side or LH side	XY2 CH13270 (3)	0.865
		By key release pushbutton (key n° 421) (2)	2 –	RH side or LH side	XY2 CH13470 (3)	0.910
≤ 50 m	5 m	By bootied pushbutton	1 1 N/C + N/O slow break	RH side	XY2 CE1A250	1.450
			1 1	LH side	XY2 CE2A250	1.450
			2 – N/C + N/C slow break	RH side	XY2 CE1A270	1.450
			2 –	LH side	XY2 CE2A270	1.450
		By key release pushbutton (key n° 421) (2)	1 1 N/C + N/O slow break	RH side	XY2 CE1A450	1.465
			1 1	LH side	XY2 CE2A450	1.465
			2 – N/C + N/C slow break	RH side	XY2 CE1A470	1.470
			2 –	LH side	XY2 CE2A470	1.470
≤ 100 m	5 m	From inside enclosure	1 1 N/C + N/O slow break	LH side	XY2 CB10 (4)	15.000
			1 1	RH side	XY2 CB20 (4)	15.000
2 x 100 m	5 m	From inside enclosure	1 1 N/C + N/O slow break	RH and LH sides	XY2 CB30 (4)	25.000

With pilot light (5)

Length of cable	Distance between cable supports	Reset	Supply (direct) Bulb included	Type of contact	Cable anchor point	Reference	Weight kg
≤ 50 m	5 m	By bootied pushbutton	230 V	2 2 N/C + N/O slow break	RH side	XY2 CE1A297	1.470
				2 2	LH side	XY2 CE2A297	1.470
Length of cable	Distance between cable supports	Reset	Supply (via integral transformer) (6)	Type of contact	Cable anchor point	Reference	Weight kg
≤ 100 m	5 m	From inside enclosure	24 V/6 V	1 1 N/C + N/O slow break	LH side	XY2 CB11 (4)	15.600
				1 1	RH side	XY2 CB21 (4)	15.600
			127 V/6 V	1 1	LH side	XY2 CB13 (4)	15.600
				1 1	RH side	XY2 CB23 (4)	15.600
			220 V/6 V	1 1	LH side	XY2 CB14 (4)	15.600
				1 1	RH side	XY2 CB24 (4)	15.600
2 x 100 m	5 m	From inside enclosure	24 V/6 V	1 1 N/C + N/O slow break	RH and LH sides	XY2 CB31 (4)	25.600
			127 V/6 V	1 1	RH and LH sides	XY2 CB33 (4)	25.600
			220 V/6 V	1 1	RH and LH sides	XY2 CB34 (4)	25.600

(1) These Emergency stops are also available fitted with a pilot light, see ordering forms for XY2 CH and XY2 CE trip wire switches on pages 5/18 and 5/19.

(2) Ø 30 mushroom head key release pushbutton. Locking and key withdrawal in the rest (unactuated) position.

(3) For ISO M20 threaded cable entry version, add the suffix H29 to the reference selected. Example: XY2 CH13250 becomes XY2 CH13250H29.

(4) End spring included for XY2 CB.

(5) Factory pre-wiring of the N/O contact available in series with the pilot light.

(6) BA 7s - 6 V bulb included.

Other version

See order forms on pages 5/18 and 5/19.

XY2 CE with reset by Ø 40 mm mushroom head pushbutton or with integral cable tensioner and support.

Please consult your Regional Sales Office.

Control and signalling units for safety applications

Emergency stop trip wire switches,
type XY2 C

Complete units, pre-assembled

Customer			Schneider Electric Industries SA	
Company	Order N°	Delivery date	Sales office - Subsidiary Co.	Order N°

How to use this form:

- indicate the number of Emergency stop switches required,
- complete the basic reference.

Reference

Number of identical Emergency stops

XY2 CH

Model									
Emergency stop (latching)	1								
Degree of protection									
IP 65 (standard bellows) without tensioner	1								
IP 65 (silicone bellows) without tensioner	2								
IP 65 (standard bellows) with integral tensioner	3								
IP 65 (silicone bellows) with integral tensioner	4								
Type of reset									
Emergency stop (1)	Flush	1							
Reset by spring return pushbutton	Booted	2							
	Mushroom head, Ø 30	3							
	Key release mushroom head, Ø 30 (key n° 421)	4							
	Key release mushroom head, Ø 30 (key n° 455)	5							
	Pull knob	6							
	Key release mushroom head, Ø 30 (2)	9							
Contact block for Emergency stop function (3)									
Slow break	1 N/C + N/O (N/O staggered)	5							
	1 N/C + N/C	7							
Pilot light									
Without pilot light		0							
With 24 V direct supply pilot light		3							
With 48 V direct supply pilot light		4							
With 130 V direct supply pilot light		5							
With 230 V direct supply pilot light		7							
ISO M20 tapped cable entries							H29		
Increased protective treatment against corrosion								TK	

(1) Opening of a circuit + mechanical latching in the open position.

(2) Other key numbers:

458A	520E	1242A	1243E	1344A	1422A	1431E
2123E	2132E	3112E	3113A	3122A	3123A	3233A
3423A	3432A	4241A				

(3) Emergency stop trip wire switches can only be fitted with slow break contact blocks.

Control and signalling units for safety applications

Emergency stop trip wire switches,
type XY2 C

Complete units, pre-assembled

Customer			Schneider Electric Industries SA	
Company	Order N°	Delivery date	Sales office - Subsidiary Co.	Order N°

How to use this form:

- indicate the number of Emergency stop switches required,
- complete the basic reference.

Reference

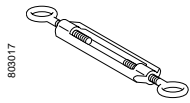
Number of identical Emergency stops		<input type="text"/>	XY2 CE	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Model									
Emergency stop (latching)	Anchor point on RH side, standard force	1							
	Anchor point on LH side, standard force	2							
	Anchor point on RH side, light force	5							
	Anchor point on LH side, light force	6							
Degree of protection and "cable under tension" window									
IP 65 (standard bellows) without "cable under tension" window		A							
IP 65 (silicone bellows) without "cable under tension" window		C							
IP 65 (standard bellows) with "cable under tension" window		D							
IP 65 (silicone bellows) with "cable under tension" window		E							
Type of reset									
Emergency stop (1)	Flush	1							
Reset by spring return pushbutton	Booted	2							
	Mushroom head, Ø 30	3							
	Key release mushroom head, Ø 30 (key n° 421)	4							
	Key release mushroom head, Ø 30 (key n° 455)	5							
	Pull knob	6							
	Key release mushroom head, Ø 30 (2)	9							
Contact block for Emergency stop function (3)									
Slow break	1 N/C + N/O	5							
	1 N/C + N/C	7							
	2 N/C + N/O (compulsory with pilot light) (4)	9							
Pilot light									
Without pilot light		0							
With 24-48-130 V direct supply pilot light. Bulb not included (provide for 2 contact blocks)		6							
With 230 V direct supply, via integral resistor, pilot light. Bulb included (provide for 2 contact blocks)		7							
Increased protective treatment against corrosion									TK
(1) Opening of N/C contact + mechanical latching in the open position.									
(2) Other key numbers:									
458A	520E	1242A	1243E	1344A	1422A	1431E			
2123E	2132E	3112E	3113A	3122A	3123A	3233A			
3423A	3432A	4241A							

(3) Emergency stop trip wire switches can only be fitted with slow break contact blocks.

(4) The use of a pilot light means selecting a switch fitted with 2 N/C + N/O contacts: XY2 CE●●●9

Control and signalling units for safety applications

Emergency stop trip wire switches, type XY2 C



XY2 CZ402



XY2 CZ503



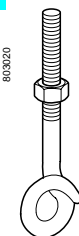
XY2 CZ524



XY2 CZ601



XY2 CZ602



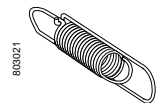
XY2 CZ705



XY2 CZ708



XY2 CZ701



XY2 CZ702

Separate components

Description	For use with	Diameter mm	Length m	Reference	Weight kg
Galvanised cables with red sheath	XY2 CH	3.2	10.5	XY2 CZ301	0.280
			15.5	XY2 CZ3015	0.410
			25.5	XY2 CZ302	0.690
			50.5	XY2 CZ305	1.360
			100.5	XY2 CZ310	2.700
	XY2 CH, XY2 CE and XY2 CB	5	15.5	XY2 CZ1015	0.850
			25.5	XY2 CZ102	1.400
			50.5	XY2 CZ105	2.750
			100.5	XY2 CZ110	5.500
Description	Type	For use with	Sold in lots of	Unit reference	Weight kg
Turnbuckles	M6 x 60 + locknut	All models except XY2 CH (1)	1	XY2 CZ402	0.060
	M8 x 70 + locknut	All models except XY2 CH (1)	1	XY2 CZ404	0.100
Cable grips	Single	Cable Ø 3 to 5 mm	10	XY2 CZ503	0.007
	Double	Cable Ø 3 to 5 mm	10	XY2 CZ513	0.016
	Clamp	Cable Ø 3.2 mm	10	XY2 CZ523	0.050
		Cable Ø 5 mm	10	XY2 CZ524	0.080
Cable supports	Fixed	All models	10	XY2 CZ601	0.030
	Swivelling	All models	1	XY2 CZ602	0.130
	Pulley support	All models	1	XY2 CZ705	0.060
Pulley	Cable Ø 5 mm max.	All models	1	XY2 CZ708	0.002
Cable end protectors		Cable Ø 3.2 mm	10	XY2 CZ701	0.002
		Cable Ø 5 mm	10	XY2 CZ704	0.010
End springs		XY2 CE	1	XY2 CZ702	0.080
		XY2 CH	1	XY2 CZ703	0.035
		XY2 CB	1	XY2 CZ707	0.080

Documentation

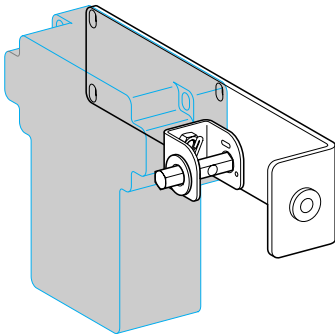
Description	For use with	Reference	Weight kg
Installation manual	All XY2 C trip wire switches	XCOM2512	0.200

(1) Emergency stop trip wire switches XY2 CH incorporate a cable tensioner as standard.

Control and signalling units for safety applications

Emergency stop trip wire switches,
type XY2 C

803022



XY2 CZ917

Mounting kits

Contents	For use with	Diameter mm	Length of cable m	Reference	Weight kg
Tensioner + bracket	XY2 CE	–	–	XY2 CZ917	0.612
Kit comprising: - 1 galvanised cable, Ø 3.2 mm, length according to that selected, - 1 cable grip XY2 CZ523 , - 1 end spring XY2 CZ703	XY2 CH	3.2	10	XY2 CZ9310	0.415
	XY2 CH	3.2	15	XY2 CZ9315	0.535
Kit comprising: - 1 galvanised cable, Ø 3.2 mm, length according to that selected, - 4 cable grips XY2 CZ523 , - 1 turnbuckle XY2 CZ404 , - 1 cable support XY2 CZ601 , - 3 cable end protectors XY2 CZ701 , - 1 end spring XY2 CZ702	XY2 CE	3.2	25	XY2 CZ9325	1.250
	XY2 CE/CB	3.2	50	XY2 CZ9350	1.980
Kit comprising: - 1 galvanised cable, Ø 5 mm, length according to that selected, - 4 cable grips XY2 CZ524 , - 1 turnbuckle XY2 CZ404 , - 1 cable support XY2 CZ601 , - 3 cable end protectors XY2 CZ704 , - 1 end spring XY2 CZ702	XY2 CE	5	25	XY2 CZ9525	1.905
	XY2 CE/CB	5	25	XY2 CZ9550	3.280

Other version

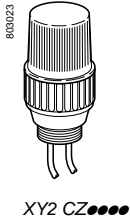
Padlocking kit (for up to 3 padlocks), for reset pushbutton.
Please consult your Regional Sales Office.

Control and signalling units for safety applications

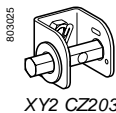
Emergency stop trip wire switches,
type XY2 C

Spare parts

Description	Type		Reference	Weight kg	
Reset pushbutton (blue), spring return for XY2 CE and XY2 CH	Flush with "R" marked on push		ZA2 BA639	0.030	
	Booted		ZA2 BP6	0.025	
	Mushroom head, Ø 30		ZA2 BC64	0.045	
	Key release mushroom head, Ø 30 (key n° 421)		ZA2 BS06212	0.090	
Key for latching mushroom head reset pushbutton	N° 421		Q99900911	0.006	
Pilot light head assembly	Yellow, for XY2 CE and XY2 CH		ZA2 BV05	0.015	
Pilot light lens	Yellow, for XY2 CE and XY2 CH		ZB2 BV015	0.003	
Pilot lights	Yellow, for XY2 CH	24 V	XY2 CZ0024	0.035	
		48 V	XY2 CZ0048	0.035	
		130 V	XY2 CZ0130	0.035	
		230 V	XY2 CZ0230	0.035	
Description	Type		Sold in lots of	Unit reference	Weight kg
Incandescent bulbs	BA 9s base fitting Maximum Ø 11 mm Length 28 mm for XY2 CE	24 V - 2.6 W	10	DL1 CE024	0.002
		48 V - 2.6 W	10	DL1 CE048	0.002
		130 V - 2.6 W	10	DL1 CE130	0.002
	Screw base fitting Maximum Ø 17 mm Length 34 mm for XY2 CH	24 V - 6 W	10	DL1 AA024	0.004
		48 V - 6 W	10	DL1 AA048	0.004
		130 V - 6 W	10	DL1 AA127	0.004
		230 V - 6 W	10	DL1 AA220	0.004
	BA 7s base fitting for XY2 CB	6 V - 200 mA	1	DL1 GA006	0.002
Dust and damp protecting bellows	For XY2 CE	Polychloroprene	1	XY2 CZ901	0.017
		Silicone	1	XY2 CZ904	0.005
	For XY2 CH	Polychloroprene	1	XY2 CZ902	0.017
		Silicone	1	XY2 CZ903	0.005
Tensioner	For XY2 CE	—	1	XY2 CZ203	0.095
Adaptor	For XY2 CB	ISO M20	5	DE9 RP13520	0.050



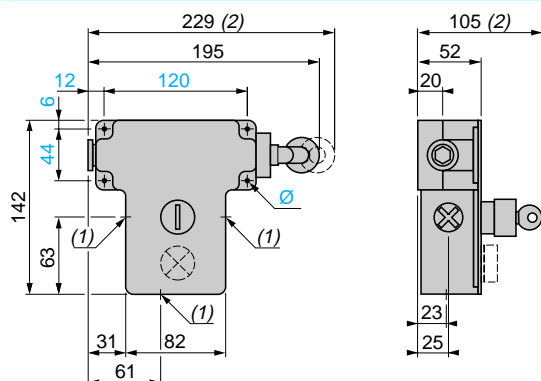
5



Control and signalling units for safety applications

Emergency stop trip wire switches,
type XY2 C

XY2 CE●A●●●

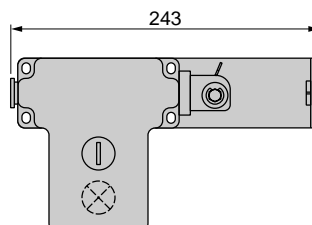


(1) 3 plain holes for n° 13 (Pg 13.5) or ISO M20 cable gland.

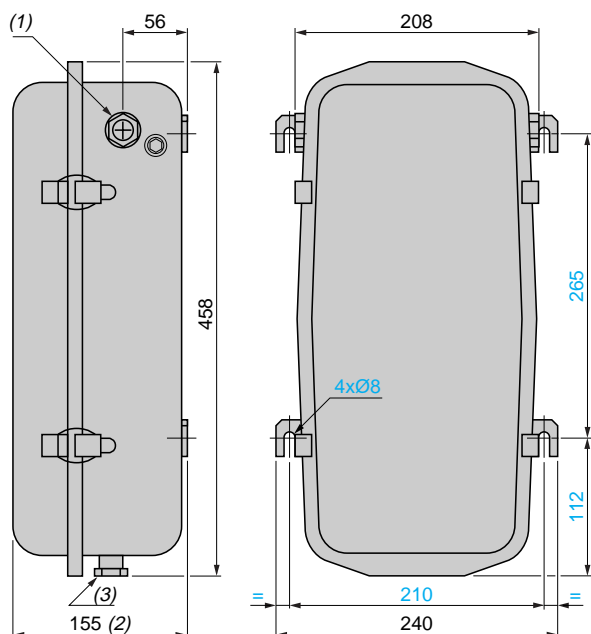
(2) Maximum extension.

Ø: 4 elongated holes Ø 6 mm.

XY2 CE●A●●● + XY2 CZ917



XY2 CB●●



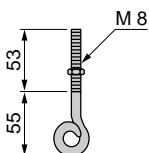
(1) 2 access points for operating cable.

(2) + 125 for opening cover.

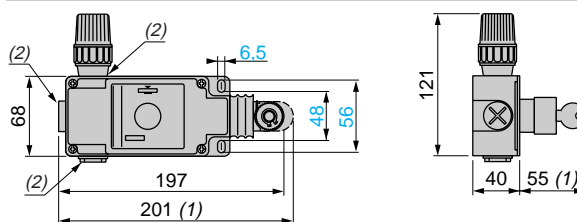
(3) 1 tapped entry for n° 13 (Pg 13.5) cable gland.

For ISO M20 use adaptor DE9 RP13520.

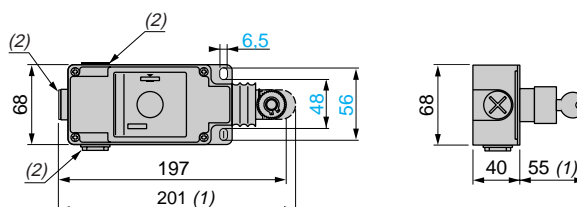
XY2 CZ705

 XY_2CH

With pilot light



Without pilot light



(1) *Maximum extension.*

(2) Tapped entries for n° 13 (Pg 13.5) cable gland.

For ISO M20 the reference becomes **XY2 CH●●●●●H29**.

XY2 CZ708

