
Telemecanique Sensors

The essential guide of Detection



Simply easy!™

Telemecanique Sensors

Simply easy!™

Founded over 90 years ago, **Telemecanique Sensors** specializes in sensors and sensor-related technology.

As a **global leader** in the sensors business, we help our customers select the right technology to get the best performance and reliability from their machines.



Focused on 3 core values – **Simplicity, Proximity and Expertise** – we have become experts in factory automation sensors as well as specialists in demanding applications, making our customers' lives **Simply easy!**

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Telemecanique Sensors team is available for pre and post sales support. We become an extension of your team and share our expertise with you.

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Detection

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Telemecanique Sensors

Zoom on...

- Safety sensors and switches

The new **XUSL4M Range** of safety Light Curtains help protect machine operators while allowing the temporary suspension of safety-related functions for designed automated processes.



◀ The new **XCSR Range** of RFID contactless safety switches help secure hazardous areas. A high level of safety in a compact size, highly tamper-proof and easy to install.

- Wireless limit switches

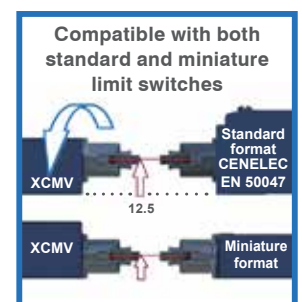


Wireless and battery-less limit switches are now available in miniature format! Enhance machine communication where cabling is difficult, expensive, or unwanted. The **XCMW Range** is also the perfect way to give mobile machines more freedom of movement.

- Mobile equipment limit switches



Plugging quality and reliability into your mobile equipment has never been easier with **XCMV Limit switches**. The new line of XC limit switches has been engineered for quality and compatibility featuring a universal, flexible mounting design, compatible with both standard and miniature limit switches.



- Smart RFID system



- ◀ The new **XG Range** of Telemecanique Sensors RFID Readers strengthen the machine's safety via an innovative and easy-to-configure system. This new solution can be easily integrated into a control panel via a standard 22mm hole. It will allow each user the appropriate machine functions based on their assigned profile.

- Cloud Connected Sensors

The new **Cloud Connected Sensor XIOT** is the "Simply Easy!" way to monitor your industrial assets! The XIOT captures event information at your remote locations and sends data to the internet cloud, which sends an alert directly to your phone or other mobile device.



- Ultrasonic sensors

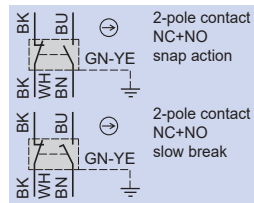


- ◀ The groundbreaking **XX Range** of software-configurable ultrasonic sensors can detect virtually any object. They offer a wide variety of sensing distances, outputs and operation modes to provide the flexibility and capabilities required for demanding industrial applications.

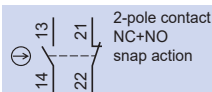
XC Limit switches

Compact and miniature, complete switches (variable composition, see pages 6-7)

XCMD



XCKT



Miniature XCMD metal, Pre-cabled; fixing by the body or by the head

Type of operator	Metal end plunger	Steel roller plunger	Thermoplastic roller lever	Steel roller lever	Variable length thermoplastic roller lever	M12 head metal end plunger	
Mechanical durability (millions of operating cycles)	10	10	10	10	10	10	
Actuation speed (in m/s)	0,5	0,5	1,5	1,5	1,5	0,5	
Switches conforming to standard IEC 947-5-1 section 3 ➡	➡	➡	➡	➡	➡	➡	
Product certification	CE, UL, CSA, CCC						
Degree of protection conforming to IEC 60529	IP66 and IP67						
Rated operational characteristics (conforming to EN IEC 60947-5-1)	AC 15 ; B 300 (Ue = 240 V, Ie = 1,5 A) / DC 13 ; R 300 (Ue = 250 V, Ie = 0,1 A)						
Fixing centres (mm)	20					M12 x 1	
Body dimensions (mm) W x D x H	30 x 16 x 50						
Connection	Pre-cabled, adjustable direction, length = 1 m (other lengths available on request)						
Complete switch	2-pole NC+NO snap action	XCMD2110L1	XCMD2102L1	XCMD2115L1	XCMD2116L1	XCMD2145L1	XCMD21F0L1
	2-pole NC+NO break before make, slow break	XCMD2510L1	XCMD2502L1	XCMD2515L1	XCMD2516L1	XCMD2545L1	XCMD25F0L1
	Connector	M12					
Complete switch	NO+NC snap action (M12 - 5-pins)	XCMD2110C12	XCMD2102C12	XCMD2115C12	XCMD2116C12	XCMD2145C12	XCMD21F0C12
	1C/O snap action (M12 - 4-pins) (1)	XCMD2110M12	XCMD2102M12	XCMD2115M12	XCMD2116M12	XCMD2145M12	XCMD21F0M12

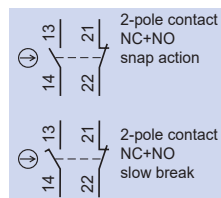
New

Miniature mobile equipment metal range, Pre-cabled; fixing by the body or by the head

	Connector		AMP 4P		
Complete switch	NC+NO snap (2)		XCMD2110AM4	XCMD2102AM4	XCMD2115AM4
	Connector		Deutsch DT04 4P		
Complete switch	NC+NO snap (2)		XCMV2110D44	XCMV2102D44	XCMV2115D44
	Connector		M12		
Complete switch	NC+NO snap (2)		XCMV2110M12	XCMV2102M12	XCMV2115M12

- Although their design is identical to the Pre-cabled switches, the switches incorporating an M12 4-pin connector cannot be marked ⊕ because they are single-pole C/O.
- Also available in NC + NO slow versions. Replace the first "1" with a "5". Example: XCMD2110AM4 becomes **XCMD2510AM4**.

XCKP/XCKD



Compact XCKD metal and XCKP plastic conforming to standard EN 50047

Type of operator	Metal end plunger	Steel roller plunger	Thermoplastic roller lever plunger, horizontal actuation (6)	M18 head metal end plunger	M18 head steel roller plunger	
Mechanical durability (millions of operating cycles)	15	10	15	10	10	
Actuation speed (in m/s)	0,5	0,5	1	0,5	0,5	
Switches conforming to standard IEC 947-5-1 section 3 ➞	➞	➞	➞	➞	➞	
Product certification	CE, CSA, CCC, EAC					
Degree of protection conforming to IEC 60529	IP66 and IP67					
Rated operational characteristics (conforming to EN IEC 60947-5-1)	AC 15 ; A 300 (Ue = 240 V, Ie = 3 A) / DC 13 ; Q 300 (Ue = 250 V, Ie = 0,27 A)					
Pre-cabled entry	1 tapped entry for ISO M16 x 1.5 pre-cabled gland (5) or M12 connector					
Fixing centres (mm)	20	20	20	M18 x 1	M18 x 1	
Body dimensions (mm) W x D x H	31 x 30 x 65					
Metal switches						
Complete switch	2-pole NC+NO snap action	XCKD2110P16	XCKD2102P16	XCKD2121P16	XCKD21H0P16	XCKD21H2P16
	2-pole NC+NO break before make, slow break	XCKD2510P16	XCKD2502P16	XCKD2521P16	XCKD25H0P16	XCKD25H2P16
	2-pole NC+NO snap action (M12-5-pins)	XCKD2110M12	XCKD2102M12	XCKD2121M12	XCKD21H0M12	XCKD21H2M12
Plastic, double insulated switches						
Complete switch	2-pole NC+NO snap action	XCKP2110P16	XCKP2102P16	XCKP2121P16	XCKP21H0P16	XCKP21H2P16
	2-pole NC+NO break before make, slow break	XCKP2510P16	XCKP2502P16	XCKP2521P16	XCKP25H0P16	XCKP25H2P16
	2-pole NC+NO snap action (M12-4-pins)	XCKP2110M12	XCKP2102M12	XCKP2121M12	XCKP21H0M12	XCKP21H2M12

(5) For Pg 11 pre-cabled entries, replace P16 by G11. Example: XCKD2110P16 becomes **XCKD2110G11**.
For other pre-cabled entries, see customised assembly on page 7.



				Compact XCKT plastic, 2 cable entries					
Retractable steel roller lever plunger	M12 head steel roller plunger	"Cat's whisker"		Metal end plunger	Steel roller plunger	Thermoplastic roller lever	Variable length thermoplastic roller lever	Thermoplastic roller lever plunger, horizontal actuation (3)	"Cat's whisker"
10	10	5		15	10	10	10	15	5
0,5	0,1	1		0,5	0,5	1,5	1,5	1	1
⊖	⊕	—		⊖	⊖	⊖	⊖	⊖	—
				CE, CSA, CCC, EAC					
				IP66 and IP67					
				AC 15 ; A 300 (Ue = 240 V, Ie = 3 A) / DC 13 ; Q 300 (Ue = 250 V, Ie = 0,27 A)					
20	M12 x 1	20		20 ou 40					
				58 x 30 x 51					
				2 tapped entries for ISO M16 x 1.5 pre-cabled gland (4)					
XCMD2124L1	XCMD21F2L1	XCMD2106L1		XCKT2110P16	XCKT2102P16	XCKT2118P16	XCKT2145P16	XCKT2121P16	XCKT2106P16
XCMD2524L1	XCMD25F2L1	XCMD2506L1		—	—	—	—	—	—
XCMD2124C12	XCMD21F2C12	XCMD2106C12		—	—	—	—	—	—
XCMD2124M12	XCMD21F2M12	XCMD2106M12		—	—	—	—	—	—

(3) Actuation in 1 direction

(4) For Pg 11 pre-cabled entries, replace P16 by G11. Example: XCKT2110P16 becomes **XCKT2110G11**.



				Application - XCPR and XCDR with manual reset					
Thermoplastic roller lever	Variable length Thermoplastic roller lever	Thermoplastic roller lever Ø 50 mm	"Cat's whisker"	Metal end plunger	Steel roller plunger	Thermoplastic roller lever plunger, horizontal actuation (6)	Thermoplastic roller lever plunger, vertical actuation (6)	Thermoplastic roller lever	
10	10	10	5	1	1	1	1	1	
1.5	1.5	1.5	1	0.5	0.5	1	1	1.5	
⊖	⊖	⊖	—	⊖	⊖	⊖	⊖	⊖	
				CE, CSA, CCC, EAC					
				IP66 and IP67					
				AC 15 ; A 300 (Ue = 240 V, Ie = 3 A) / DC 13 ; Q 300 (Ue = 250 V, Ie = 0,27 A)					
				1 tapped entry for ISO M20 x 1.5 pre-cabled gland (7)					
20	20	20	20	20	20	20	20	20	
				31 x 30 x 95					
XCKD2118P16	XCKD2145P16	XCKD2139P16	XCKD2106P16	XCDR2110P20	XCDR2102P20	XCDR2121P20	XCDR2127P20	XCDR2118P20	
XCKD2518P16	XCKD2545P16	XCKD2539P16	XCKD2506P16	XCDR2510P20	XCDR2502P20	XCDR2521P20	XCDR2527P20	XCDR2518P20	
XCKD2118M12	XCKD2145M12	XCKD2139M12	XCKD2106M12	—	—	—	—	—	
XCKP2118P16	XCKP2145P16	XCKP2139P16	XCKP2106P16	XCPR2110P20	XCPR2102P20	XCPR2121P20	XCPR2127P20	XCPR2118P20	
XCKP2518P16	XCKP2545P16	XCKP2539P16	XCKP2506P16	XCPR2510P20	XCPR2502P20	XCPR2521P20	XCPR2527P20	XCPR2518P20	
XCKP2118M12	XCKP2145M12	XCKP2139M12	XCKP2106M12	—	—	—	—	—	

(6) Actuation in 1 direction.

(7) For Pg 13.5 pre-cabled entries, replace P20 by G13. Example: XCDR2110P20 becomes **XCDR2110G13**.

For other pre-cabled entries, see customised assembly on page 7.

Customised assembly of miniature and compact

Metal plunger and multi-directional heads

Metal rotary heads and levers

Bodies

Miniature

(4) For contact 2NC+NO or 2NC+2NO, replace 21 by 37, 39 or 4D. Example ZCMD21L1 becomes ZCMD4DL1

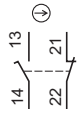
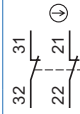
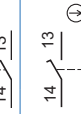
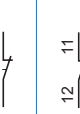
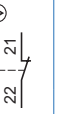
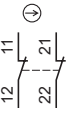
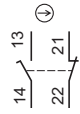
Specific Pre-cabled connection components						Option : PUR pre-wired M12 connector, L = 2 m (1)	
	for ZCMD21	for ZCMD39	for ZCMD25	for ZCMD37	for ZCMD4D	5-pin 	4-pin
L = 1 m	ZCMC21L1	ZCMC39L1	ZCMC25L1	ZCMC37L1	ZCMC4DL1		
L = 2 m	ZCMC21L2	ZCMC39L2	ZCMC25L2	ZCMC37L2	ZCMC4DL2		
L = 5 m	ZCMC21L5	ZCMC39L5	ZCMC25L5	ZCMC37L5	ZCMC4DL5	XZCP1164L2	XZCP1141L2

(1) For PVC cable see page 65

Thermoplastic roller lever plunger, vertical actuation	M12 head metal end plunger	M18 head metal end plunger	M12 head steel roller plunger	M18 head steel roller plunger	Spring rod	Spring rod with plastic end	"Cat's whisker"
							
⊕ ZCE27	⊕ ZCEF0 (2)	⊕ ZCEH0 (1)	⊖ ZCEF2 (2)	⊕ ZCEH2 (1)	ZCE08	ZCE07	ZCE06

Thermoplastic roller lever, track: 20/36 mm (ZCMD) 24/40 mm (ZCD/P/T)	Steel roller lever, track: 20/36 mm (ZCMD) 24/40 mm (ZCD/P/T)	Ceramic roller lever	Variable length thermoplastic roller lever	Round, glass fibre rod lever Ø 3 mm L = 125 mm	Metal spring-rod lever	Thermoplastic roller lever Ø 50 mm	Adjustable thermoplastic roller lever Ø 50 mm
							
⊕ ZCY18 (1)	⊕ ZCY19 (1)	⊖ ZCY22	⊖ ZCY45	ZCY55	ZCY91	⊖ ZCY39	⊕ ZCY49

Compact

									
Type of contact									
Ref. metal body	ZCD21	ZCD39	ZCD25	ZCD27	ZCD28	ZCD29	ZCD37	ZCD21M12	—
Ref. plastic body	ZCP21	ZCP39	ZCP25	ZCP27	ZCP28	ZCP29	ZCP37	—	ZCP21M12

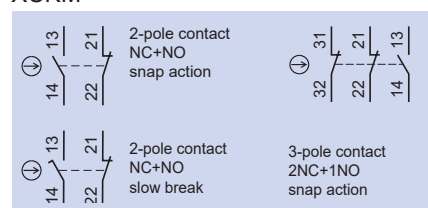
Connection of compact bodies

Interchangeable outlet for cable gland							Option : PUR prolongateur M12, L = 2 m (1)	
Description	For ISO M16 cable gland	For ISO M20 cable gland	For Pg 11 cable gland	For Pg 13.5 cable gland	For 1/2" NPT cable gland	For PF 1/2 (G12) cable gland		
Metal	ZCDEP16	ZCDEP20	ZCDEG11	ZCDEG13	ZCDEN12	ZCDEF12	XZCP1164L2	XZCP1141L2
Plastic	ZCPEP16	ZCPEP20	ZCPEG11	ZCPEG13	ZCPEN12	ZCPEF12	(1) For PVC cable see page 65	

XC Limit switches

Classic - XCKM, XCKL, complete switches

XCKM



ISO entry
(to EN 50262)



Type XCKM metal, 3 cable entries, XCKL metal, 1 cable entry

Type of operator	Metal end plunger	Steel roller plunger	Roller lever plunger, horizontal actuation in 1 direction	Thermoplastic roller lever	“Cat’s whisker”
Mechanical durability (millions of operating cycles)	20	20	20	15	10
Actuation speed (in m/s)	0,5	0,5	1,5	1,5	0,5
Product certification	CE, UL, CSA, CCC, EAC, C-TICK, BV				
Degree of protection conforming to IEC 60529	IP66				
Rated operational characteristics (conforming to EN IEC 60947-5-1)	AC 15 ; A 300 (Ue = 240 V, Ie = 3 A) / DC 13 ; Q 300 (Ue = 250 V, Ie = 0,27 A)				
Cable entry (1)	XCKM	3 tapped entries for ISO M20 x 1.5 cable gland (2 entries fitted with blanking plugs)			
	XCKL	1 cable entry with cable gland			
Fixing centres (mm)	41				
Body dimensions (mm) W x D x H	XCKM / XCKL	64 x 30 x 64 / 52 x 30 x 72			

Complete switch	XCKM					
	2-pole NC+NO snap action	⇒ XCKM110H29	⇒ XCKM102H29	⇒ XCKM121H29	⇒ XCKM115H29	XCKM106H29
	2-pole NC+NO, break before make, slow break	⇒ XCKM510H29	⇒ XCKM502H29	⇒ XCKM521H29	⇒ XCKM515H29	—
Complete switch	XCKL					
	2-pole NC+NO snap action	⇒ XCKL110	⇒ XCKL102	⇒ XCKL121	⇒ XCKL115	XCKL106

1) For Pg 11 pre-cabled entries delete the reference suffix H29. Example : XCKM110H29 becomes **XCKM110**

Classic - XCKM, XCKL, Customised assembly - Body/contact sub-assemblies



Type XCKM metal, 3 pre-cabled entries

Type of contact

Reference of body with contact block	⇒ ZCKM1H29	⇒ ZCKM5H29	⇒ ZCKMD39H29	⇒ ZCKMD37H29
XCKL reference of body with contact block (2)	⇒ ZCKL1	⇒ ZCKL5	—	—
Reference of contact block only	⇒ XE2SP2151	⇒ XE2NP2151	⇒ XE3SP2141	⇒ XE3NP2141

(2) For cable entry 1/2" NPT, add H7. Example: XCKL1 becomes **XCKL1H7**. ⇒ Positive opening operation.

Operating heads, complete or for customer assembly



Complete switch

=



Body/contact assembly

+



Head

+



Lever

Rotary or multi-directional heads

metal head with
thermoplastic
roller lever

metal head with
steel roller lever

with variable len-
gth thermoplastic
roller lever (2)

with Ø 6 mm
thermoplastic rod
L = 200 mm (3)

with thermoplastic
roller lever (3)
for actuation from
left AND right
or
left OR right

with "Cat's
whisker"

with spring rod



Reference

⊕ ZCKD15

⊕ ZCKD16

ZCKD41

ZCKD59

⊕ ZCKD31

ZCKD06

ZCKD08

Plunger heads

with metal
end plunger

with metal end
plunger and
protective boot

with steel
roller plunger

with steel roller
plunger and
protective boot

with thermoplastic
roller lever plunger,
horizontal actuation
in 1 direction

with steel
roller lever plunger,
horizontal actuation
in 1 direction



Reference

⊕ ZCKD10

⊕ ZCKD109

⊕ ZCKD02

⊕ ZCKD029

⊕ ZCKD21

⊕ ZCKD23

Rotary heads and separate levers

spring return,
for actuation from
left AND right
or
left OR right

lever with
thermoplastic
roller (2)

lever with
steel roller (2)

variable length
lever with
thermoplastic
roller (2)

variable length
lever with
steel roller (2)

rod, Ø 6 mm
thermoplastic
L = 200 mm (3)



Reference

⊕ ZCKD05

⊕ ZCKY31

⊕ ZCKY33

ZCKY41

ZCKY43

ZCKY59

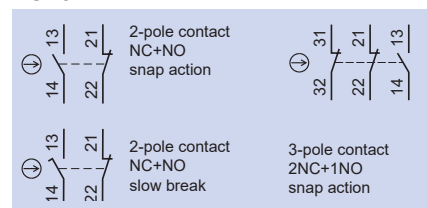
(2) Adjustable throughout 360° in 5° steps, or in 90° steps by reversing the notched washer.

(3) Adjustable throughout 360° in 5° steps, or in 45° steps by reversing the lever mounting.

XC Limit switches

Industrial - XCKJ, complete switches

XCKJ



ISO entry
(to EN 50262)



Type XCKJ metal, fixed body, conforming to standard EN 50041

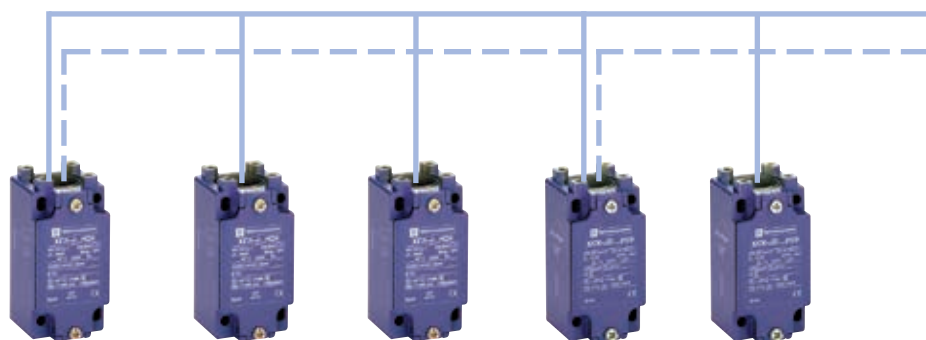
Type of operator	Metal end plunger	Steel roller plunger	Thermoplastic roller lever	Steel roller lever	Variable length thermoplastic roller lever	Polyamide Ø 6 mm rod lever L = 200 mm
Mechanical durability (millions of operating cycles)	30	25	30	30	30	30
Actuation speed (in m/s)	0,5	1	1,5	1,5	1,5	1,5
Product certification	CE, UL, CSA, CCC, EAC, C-TICK, BV					
Degree of protection conforming to IEC 60529	IP 66					
Rated operational characteristics (conforming to EN IEC 60947-5-1)	AC 15 ; A 300 (Ue = 240 V, Ie = 3 A) / DC 13 ; Q 300 (Ue = 250 V, Ie = 0,27 A).					
Cable entry (1)	1 tapped entry for ISO M20 x 1.5 cable gland					
Fixing centres (mm)	30 x 60					
Body dimensions (mm) W x D x H	40 x 44 x 77					

Complete switch	M20	2-pole NC+NO snap action	⊕ XCKJ161H29	⊕ XCKJ167H29	⊕ XCKJ10511H29	⊕ XCKJ10513H29	XCKJ10541H29	XCKJ10559H29
		2-pole NC+NO break before make, slow break	⊕ XCKJ561H29	⊕ XCKJ567H29	⊕ XCKJ50511H29	⊕ XCKJ50513H29	XCKJ50541H29	XCKJ50559H29
	1/2" NPT	2-pole NC+NO snap action	⊕ XCKJ161H7	⊕ XCKJ167H7	⊕ XCKJ10511H7	⊕ XCKJ10513H7	XCKJ10541H7	XCKJ10559H7
	M12 5P	2-pole NC+NO snap action	⊕ XCKJ161D	⊕ XCKJ167D	⊕ XCKJ10511D	⊕ XCKJ10513D	XCKJ10541D	XCKJ10559D

(1) For Pg 13.5 pre-cabled entry delete the reference suffix H29. Example: XCKJ161H29 becomes **XCKJ161**. ⊕ Positive opening operation.

Industrial - XCKJ,

Customised assembly - Body/contact sub-assemblies



Type XCKJ metal, 1 cable entry

Type of contact

		2-pole NC+NO snap action	2-pole NC+NO slow break	2 C/O snap action Simultaneous	3-pole 2NC+1NO snap action	3-pole 2NC+1NO slow break
Cable entry (1)		1 tapped entry for ISO M20 x 1.5 cable gland				
Reference of body with contact block	M20	⊕ ZCKJ1H29	⊕ ZCKJ5H29	ZCKJ2H29	⊕ ZCKJD39H29	⊕ ZCKJD37H29
	Pg13	⊕ ZCKJ1	⊕ ZCKJ5	ZCKJ2	—	—
	1/2" NPT	⊕ ZCKJ1H7	⊕ ZCKJ5H7	ZCKJ2H7	—	—
	M12 (5-pins)	⊕ ZCKJ1D	⊕ ZCKJ5D	—	—	—
Reference of contact block only		⊕ XE2SP2151	⊕ XE2NP2151	—	⊕ XE3SP2141	⊕ XE3NP2141

Operating heads, complete or for customer assembly



Complete switch

=



Body/contact assembly

+



Head

+



Lever

Plunger or multi-directional heads

with reinforced
steel roller
end plunger

with metal
end plunger

with thermoplastic
roller lever plunger,
1 direct. of actuation

with steel
roller lever plunger,
1 direct. of actuation

with steel roller
end plunger

with steel
ball bearing
end plunger

End steel roller
plunger with
protective boot



Reference ⊕ ZCKE67 ⊕ ZCKE61 ⊕ ZCKE21 ⊕ ZCKE23 ⊕ ZCKE62 ⊕ ZCKE66 ⊕ ZCKE629

with metal
side plunger

Side steel roller
plunger,
horizontal

Side steel roller
plunger,
vertical

with spring rod

with "Cat's whisker"



Reference ⊕ ZCKE63 ⊕ ZCKE64 ZCKE65 ZCKE08 ZCKE06

Separate rotary heads and levers

spring return
for actuation
from
left AND right
or
left OR right

lever with
thermoplastic
roller (2)

lever with
steel roller (2)

variable length
lever with
thermoplastic
roller (2)

variable length
lever with
steel roller (2)

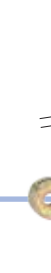
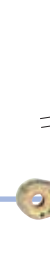
rod, Ø 6 mm
thermoplastic
L = 200 mm (2)

square rod lever,
steel, U 3 mm
L = 125 mm (2)

round rod lever,
steel, Ø 3 mm
L = 125 mm (2)

spring lever
with
thermoplastic
end (3)

spring-metal
rod lever



Reference ⊕ ZCKE05 ⊕ ZCKY11 ⊕ ZCKY13 ZCKY41 ZCKY43 ZCKY59 ZCKY51 ZCKY53 ZCKY81 ZCKY91

stay put
for actuation from
left AND right

forked arm lever
with thermoplastic
rollers, 1 track (2)

forked arm lever
with thermoplastic
rollers, 2 track (2)



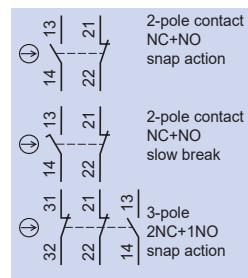
Reference ZCKE09 ZCKY71 ZCKY61

(2) Adjustable throughout 360° in 5° steps, or in 45° steps by reversing the lever mounting.
(3) Adjustable throughout 360° in 5° steps, or in 90° steps by reversing the notched washer.

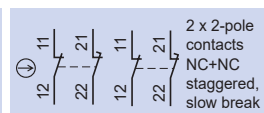
XC Limit switches

Classic - XCKS, complete switches

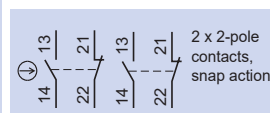
XCKS



XCKMR



XCR



ISO entry
(to EN 50262)



Type XCKS plastic, double insulated, conforming to standard EN 50041

Type of operator	Metal end plunger	Steel roller plunger	Thermoplastic roller lever	Variable length thermoplastic roller lever	Rubber roller lever Ø 50 mm	Polyamide Ø 6 mm rod lever L = 200 mm
Mechanical durability (millions of operating cycles)	25	15	20	20	20	20
Actuation speed (in m/s)	0,5	0,5	1,5	1,5	1	1
Product certification	CE, UL, CSA, CCC, EAC					
Degree of protection conforming to IEC 60529	IP65 / IP67					
Rated operational characteristics (conforming to EN IEC 60947-5-1)	AC 15 ; A 300 (Ue = 240 V, Ie = 3 A) / DC 13 ; Q 300 (Ue = 250 V, Ie = 0,27 A)					
Cable entry	1 tapped entry for ISO M20 x 1.5 pre-cabled gland (1) (2)					
Fixing centres (mm)	30 x 60					
Body dimensions (mm) W x D x H	XCKS : 40 x 37 x 78 / ZCKS: 40 x 36 x 73					

Complete switch	2-pole NC+NO snap action	⊕ XCKS101H29	⊕ XCKS102H29	⊕ XCKS131H29	⊕ XCKS141H29	XCKS139H29	XCKS159H29
	2-pole NC+NO break before make, slow break	⊕ XCKS501H29	⊕ XCKS502H29	⊕ XCKS531H29	⊕ XCKS541H29	XCKS539H29	XCKS559H29
	2-pole NC+NO snap action	⊕ ZCKS1H29	⊕ ZCKS1H29	⊕ ZCKS1H29	⊕ ZCKS1H29	⊕ ZCKS1H29	⊕ ZCKS1H29
	2-pole NC+NO break before make, slow break	⊕ ZCKS5H29	⊕ ZCKS5H29	⊕ ZCKS5H29	⊕ ZCKS5H29	⊕ ZCKS5H29	⊕ ZCKS5H29
Corps	3-pole 2NC+1NO snap action	⊕ ZCKSD39H29	⊕ ZCKSD39H29	⊕ ZCKSD39H29	⊕ ZCKSD39H29	⊕ ZCKSD39H29	⊕ ZCKSD39H29
	Associated head (including operator)	⊕ ZCKD01	⊕ ZCKD02	⊕ ZCKD31	⊕ ZCKD41	ZCKD39	ZCKD59
Operating lever for rotary head		—	—	⊕ ZCKY31	⊕ ZCKY41	ZCKY39	ZCKY59
Complete switch	Snap-action 2-pole 2X (1 NC + 1 NO) contact	—	—	—	—	—	—
	Both contacts act in each direction of actuation	—	—	—	—	—	—
	1 contact operates in each direction	—	—	—	—	—	—
Complete switch	2 C/O staggered snap action contacts	—	—	—	—	—	—
	2 x 2 pole NC+NC staggered, slow break contacts	—	—	—	—	—	—

⊕ Positive opening operation.

ZCKS have different designs

(1) For Pg 13.5 Cable entry delete the reference suffix H29. Example: XCKS131H29 becomes **XCKS131**.

(2) For 1/2" NPT cable entry, the suffix would be H7. Example: XCKS131H29 becomes **XCKS131H7**.

Wireless & battery-less - XCMW



XCMW (Miniature format)

Type of operator	Metal end plunger	Metal roller plunger	Plastic roller plunger	Metal roller lever	Variable length plastic roller lever
References of plastic body	XCMW110	XCMW102	XCMW115	XCMW116	XCMW145
Communication protocol	Zigbee (Green Power) to 2.4 Ghz (IEEE 802.15.4)				
Sensing distance	100 m free field / 300 m with relay antenna ZBRA1 / 25 m with receiver in metallic enclosure				
Product certification	EN/IEC 60947-5-1, EC directive 2004/108/EC, R&TTE directive 1999/5/EC, EAC, conformity to CE marking				
Radio agreement	FCC, IC				
Max switching operation / hour	3600/h				
Max force for set actuation	5 daN 0,5 N.m				
Fixing dimensions	30 x 70 mm				
Ambiant temperature operating // storage	-25°C + 55°C // -40°C + 70°C				
IP degree of protection IEC	IP66, IP67 according to IEN/IEC 60529				

XCKMR and XCR, complete switches



Types XCKMR and XCR "Application - hoisting, materials handling, conveying"							
	Square rod levers U 6 mm, "crossed"	Square rod levers U 6 mm, "crossed"	Square rod lever U 6 mm	Large roller rod lever Ø 50 mm	Square rod levers U 6 mm, "crossed" or "T"	Conveyor belt shift monitoring switches	
						Galvanised steel operating lever	Stainless steel operating lever
	2	1	10	10	10	0,3	0,3
	1,5	1,5	1,5	1,5	1,5	1,5	1,5
	CE, CSA, CCC, EAC						
	IP66	IP65	IP54			IP66	
	AC 15 ; A 300 (Ue = 240 V, Ie = 3 A) / DC 13 ; Q 300 (Ue = 250 V, Ie = 0,27 A)						
	3 x ISO M20 x 1.5 entries	1x ISO M20x1.5 entry & 2 holes for ISO M20 cable gland		1 tapped entry for n° 13 pre-cabled gland (for ISO M20 x 1.5, adaptor DE9RA1620 must be ordered separately)			
	61,5			85 x 75			105 x 70
	118 x 59 x 77	116 x 66 x 77		85 x 75 x 95			85 x 87 x 146

	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
	-	-	⇒ XCRA11(2)	⇒ XCRA15	⇒ XCRE18(2)	-	-
	-	-	⇒ XCRB11(2)	-	⇒ XCRF17(3)	-	-
	-	-				XCRT115	XCRT315 (4)
	XCKMR54D1H29 (2)	XCKVR54D1H29 (2)(5)	-	-	-	-	-

(2) Steel rods, $L = 200 \text{ mm}$

(3) Steel "T" rods, $L = 200$ mm, $W = 300$ mm.

(4) Polyester enclosure²

(5) Plastic enclosure



Receivers for wireless limit switches

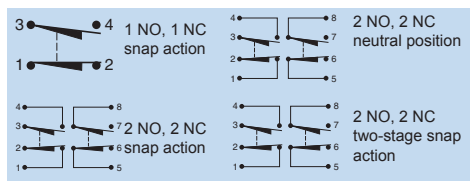
Reference	XZBWR2STT24	ZBRRC	ZBRRD	ZBRN1/2
Number of emitters	2	32	32	60
Number and Output type	2 x PNP +2 for diagnostic	4 x PNP	2 x relay RT	60 modbus TCP protocol and serial line
Supply voltage supply	24VDC (-15...+ 15%)		24...240V AC/DC (-10...+ 10%)	
Nominal current and voltage of output	0.2A / 24V DC		0.3A / 48V DC 3A / 120V AC according to IEC 90947-5-1 3A / 250V AC according toUL 508 & CSA C22.14	
Product and radio certification	EN/IEC 60947-5-1 conformity to CE marking	EN/IEC 60947-5-1, UL508, CSA C22.2 n° 14, CCC, EAC FCC, RSS, C-stick, ANATEL, SRRC conformity to CE marking		
Ambiant temperature operating // storage	-25°C +55°C // -40°C + 70°C			

Packages with transmitter and receiver

Package	Reference
XCMW102 transmitter and ZBRD receiver	XCMWD02
XCMW115 transmitter and ZBRD receiver	XCMWD15

Square D Limit switches

Industrial Heavy Duty – 9007C



9007C metal, plug-in style body, conforming to UL508

Type of operator	Top metal end-plunger	Top steel roller plunger	Rotary level arm type (1)	Plastic wobble stick	Metal wire cat's whisker	Side push rod plunger
Mechanical durability (millions of operating cycles) (2)	30					
Pretravel, mm (in.)	2 (0.08)		10°	10°	20°	2 (0.08)
Product certification	UL, CSA, CE					
Degree of protection conforming to NEMA and UL, oil-tight	NEMA Types 1, 2, 4, 6, 6P, 12, 13, and IP67 conforming to IEC 60529					
Rated operational specifications	NEMA A600, (Ue=600V, Ie=1.2A, 240 V Ie=A3) NEMA Q600 (Ue=600V, Ie=0.1A, 250 V Ie=0.27 A, two-pole 250 V Ie=0.11 A)					
Cable entry	1/2"-14 NPT standard, optional M20 x 1.5 mm					
Mounting hole centers, mm (in.)	30 x 60 (1.18 x 2.36)					
Body dimensions, without head, W x D x H, mm (in.)	39 x 45 x 75 (1.54 x 1.77 x 2.95)					
Complete switch (4)	SPDT-DB Form Z, NO + NC snap action	9007C54E	9007C54D	9007C54B2	9007C54J	9007C54L
	DPDT-DB Form ZZ, 2 NO + 2 NC snap action	9007C62E	9007C62D	9007C62B2	9007C62J	9007C62L
	SPDT-DB ISO M20 x 1.5 mm metric threads	9007C54EM11	9007C54DM11	9007C54B2M11	9007C54JM11	9007C54LM11
	DPDT-DB ISO M20 x 1.5 mm metric threads	9007C62EM11	9007C62DM11	9007C62B2M11	9007C62JM11	9007C62LM11

Industrial—9007C, Customized Assembly: Body/Contact Sub-Assemblies



9007C metal, 1 conduit/cable entry

Type of contact					
Terminology SPDT: single pole, double throw DPDT: double pole, double throw DB: double break	SPDT-DB Form Z NO + NC snap action, single pole	DPDT-DB Form ZZ 2 NO + 2 NC snap action, two pole	DPDT-DB Form ZZ 2 NO + 2 NC snap action, two stage	DPDT-DB Form ZZ 2 NO + 2 NC snap action, neutral position	SPDT-DB Form Z NO + NC snap action, compact body
Plug-in switch top (includes contact block)	9007CO54	9007CO62	9007CO66	9007CO68	9007CO52
1/2"-14 NPT standard receptacle (3)	9007CT54	9007CT62	9007CT62	9007CT62	9007CT52



(1) Over 200 lever arms and roller types available. Order separately.

(2) Depending on the application.

(3) For ISO M20 x 1.5 mm threads, add **M11** to the end of the part number. Example: 9007CT54 becomes **9007CT54M11**.

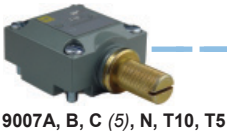
(4) For other assembly options, contact the Customer Care Center.

Operating heads, complete or for customer assembly

Plunger or multi-directional heads

				
9007L	9007K	9007J	9007KC	Requires a mushroom head, sold separately
				
9007E	9007ED	9007D	9007JKC	9007R
				
9007H	9007G	9007F	9007GD	

Separate rotary heads and levers (more than 200 rotary style operators are available—some examples are shown below)



					
9007MA11	9007HA1	9007FA1	9007EA1	9007FA6	9007LA19 (5)
					
9007AA1	9007LA4 (5)	9007KB11	9007CA11	9007MA12	9007BA3
					
9007HA5	9007KA11	9007HA21	9007RA11	9007HA23	9007DA1

(5) 9007LA● forked levers are recommended for use with 9007C maintained (stay put) operating head.

Square D Limit switches

Miniature

- Mounting hole centers: 0.98 in. (25 mm)
- Standard cable: 3.0 ft (0.9 m)

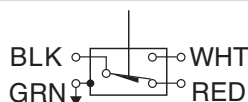


General specifications

Temperature range	−4 to +220 °F (−20 to 104 °C)
Enclosure rating	NEMA Types 1, 2, 4, 6, 6P, 12, 13, IP67
Vibration resistance	10 G (75–1200 Hz)
Shock resistance	35 G
Cable entry	18 AWG (0.823 mm ²) SJTO

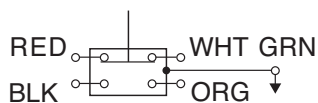
Type MS circuit Form C

	Electrical Ratings / SPDT			
	Silver Contacts			Gold Contacts
1 NO or 1 NC	Volts	Make	Break	100 mA @ 125 Vac
	120 Vac	60 A	6 A	
	240 Vac	30 A	3 A	30 mA
	10.0 A continuous			
DC contact rating: 5 A (resistance), 28 Vdc				28 Vdc



Type ML circuit Form Z

	Electrical Ratings / SPDT-DB		
	Silver Contacts		
1 NO or 1 N.C	Volts	Make	Break
	120 Vac	60 A	6 A
	240 Vac	30 A	3 A
	10.0 A continuous		
DC contact rating: 5 A (resistance), 28 Vdc			



Contact specifications

Rated thermal current	10 A (standard)
Rated insulation voltage	300 Vac and Vdc (standard)
Gold contact switching ratings	0.1 A, 24 Vdc; 0.24 VA

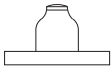
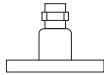
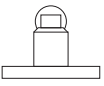
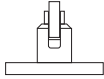
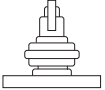
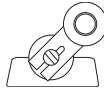
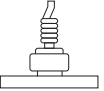
Lever arm selection

	Length		Catalog suffix					
	in.	mm	0.25 in. (6 mm) wide		0.5 in. (13 mm) wide		0.75 in. (19 mm) wide	1.0 in. (25 mm) wide
			Nylon	Steel	Nylon	Steel	Nylon	Nylon
Style 7: diameter 0.75 in. (18 mm), nylon or steel roller— outside roller type	0.875	22.23	7A2N	7A2	7B2N	7B2	7F2N	7J2N
	1.375	34.93	7A3N	—	7B3N	—	7F3N	7J3N
	1.50	38.10	7A1N	7A1	7B1N	—	7F1N	7J1N
	1.75	44.45	7A7N	—	7B7N	—	7F7N	7J7N
	2.0	50.80	7A4N	—	7B4N	—	7F4N	7J4N
Style 7X: diameter 0.75 in. (18 mm), nylon or steel roller— inside roller type	0.875	22.23	7XA2N	7XA2	7XB2N	7XB2	7XF2N	7XJ2N
	1.375	34.93	7XA3N	—	7XB3N	—	7XF3N	7XJ3N
	1.50	38.10	7XA1N	7XA1	7XB1N	—	7XF1N	7XJ1N
	1.75	44.45	7XA7N	—	7XB7N	—	7XF7N	7XJ7N
	2.0	50.8	7XA4N	—	7XB4N	—	7XF4N	7XJ4N

Specialty Arms and Options

Description	Length	Diameter	Width	Catalog number
Style 7D adjustable length, metal roller	1.38–3.38 in. (35–85.8 mm)	0.75 in. (19 mm)	0.25 in. (6.35 mm)	7D
Style 7DN adjustable length, nylon roller	1.38–3.38 in. (35–85.8 mm)	0.75 in. (19 mm)	0.25 in. (6.35 mm)	7DN
Style 7E rod arm	10.0 in. (254 mm)	0.125 in. (3.175 mm)	—	7E
Style 7N nylon rod	5.0 in. (127 mm)	0.3 in. (7.6 mm)	—	7N
Style 7S spring nylon rod	6.0 in. (152.4 mm)	0.3 in. (7.6 mm)	—	7S

Rotary and plunger head descriptions

Rotary and plunger head descriptions		Standard	Bushing Mounted	Booted	Adjustable (no boot)
Top plunger					
Operating Force or Torque		80 oz (0.6 N)			
Contact type	Form Z, Silver	9007ML01S0100	9007ML06S0100	9007ML10S0100	9007ML09S0100
	Form C, Silver	9007MS01S0100	9007MS06S0100	9007MS10S0100	9007MS09S0100
	Form C, Gold	9007MS01G0100	9007MS06G0100	9007MS10G0100	9007MS09G0100
Parallel roller plunger					
Operating Force or Torque		80 oz (0.6 N)			
Contact type	Form Z, Silver	9007ML02S0100	9007ML07S0100	9007ML12S0100	
	Form C, Silver	9007MS02S0100	9007MS07S0100	9007MS12S0100	
	Form C, Gold	9007MS02G0100	9007MS07G0100	9007MS12G0100	
Cross roller plunger					
Operating Force or Torque		80 oz (0.6 N)			
Contact type	Form Z, Silver	9007ML03S0100	9007ML08S0100	9007ML13S0100	
	Form C, Silver	9007MS03S0100	9007MS08S0100	9007MS13S0100	
	Form C, Gold	9007MS03G0100	9007MS08G0100	9007MS13G0100	
Rotary lever, CW and CCW					
Operating Force or Torque		48 oz-in (0.3 N•m)			
Contact type	Form Z, Silver	9007ML04S0100			
	Form C, Silver	9007MS04S0100			
	Form C, Gold	9007MS04G0100			
Omni-directional, cat's whisker (NEMA types 1, 2, 12, 13 only)					
Operating Force or Torque		15 oz-in (0.1 N•m)			
Contact type	Form Z, Silver	9007ML05S0100			
	Form C, Silver	9007MS05S0100			
	Form C, Gold	9007MS05G0100			

XM Sensors for pressure control

Electronic sensors XMLP Low pressure

For industrial applications
(hydraulic circuits, water pumping)



Pressure range (bar) (1)	-1...0	0...0,5	0...1	0...2,5	0...4	0...6	-1...+1	-1...+5
Fluids controlled	Hydraulic oils, air, fresh water							
Ambient air temperature	- 30... + 85°C							
Degree of protection	IP65 (EN175301-803-A), IP65, IP67, IP69K (M12 connector)							
Product certification	CE, cULus conforming to UL 61010-1, NSF61							
Voltage limits (V) (V)	7...33 Vdc for 4...20 mA, 12...33 Vdc for 0...10 V							
Dimensions (mm) H x W x D	26 x 34,3 (M12), 26 x 55 (EN175301-803-A)							
Fluid connection (2)	G1/4A (male)							
Electrical connection (3)	M12 4-pin, EN175301-803-A							
Output type (4)	4...20 mA 2-wires technique, 0...10V 3-wires technique							
Analogue output	M12 4-pins	XMLPM00GD21F	XMLP500MD21F	XMLP001GD21F	XMLP2D5GD21F	XMLP004GD21F	XMLP006GD21F	XMLPM01GD21F
4...20 mA	EN175301-803-A	XMLPM00GC21F	XMLP500MC21F	XMLP001GC21F	XMLP2D5GC21F	XMLP004GC21F	XMLP006GC21F	XMLPM01GC21F
Analogue output	M12 4-pins	XMLPM00GD71F	XMLP500MD71F	XMLP001GD71F	XMLP2D5GD71F	XMLP004GD71F	XMLP006GD71F	XMLPM01GD71F
0...10 V	EN175301-803-A	XMLPM00GC71F	XMLP500MC71F	XMLP001GC71F	XMLP2D5GC71F	XMLP004GC71F	XMLP006GC71F	XMLPM01GC71F

1) Also available with psi range (2) Also available with 1/4"-18NPT male or 7/16-20UNF female (3) Also available with 3-pins packard connector (4) Also available with 0.5...4.5 V ratiometric output Available in bulk packs for selling in lots of 25 pcs. Add Q suffix to the reference, ex: XMLP001GD21F becomes **XMLP001GD21FQ**

Electronic sensors XMLP High pressure

For industrial applications
(hydraulic circuits, HVAC)



Pressure range (bar) (1)	-1...+9	0...10	0...16	0...25	0...60	0...100	0...250	0...400
Fluids controlled	Hydraulic oils, air, fresh water, gas, refrigeration fluids from - 30... + 135°C							
Ambient air temperature	- 30... + 85°C							
Degree of protection (IEC 60529)	IP65 (EN175301-803-A), IP65, IP67 and IP69K (connector M12)							
Product certification	CE, cULus conforming to UL61010-1, NSF61							
Voltage limits (V)	7...33 V DC for 4...20 mA, 12...33 V DC for 0...10 V							
Dimensions (mm) Ø x L	26 x 38 (M12), 26 x 60,5 (EN175301-803-A)							
Fluid connection (2)	G 1/4 A (male)							
Electrical connection (3)	connector M12 4-pins, EN 175301-803-A							
Output type (4)	4...20 mA, technique 2-wires, 0...10V, technique 3-wires							
Analogue output	M12 4-pins	XMLPM09BD21F	XMLP010BD21F	XMLP016BD21F	XMLP025BD21F	XMLP060BD21F	XMLP100BD21F	XMLP250BD21F
4...20 mA	EN175301-803-A	XMLPM09BC21F	XMLP010BC21F	XMLP016BC21F	XMLP025BC21F	XMLP060BC21F	XMLP100BC21F	XMLP250BC21F
Analogue output	M12 4-pins	XMLPM09BD71F	XMLP010BD71F	XMLP016BD71F	XMLP025BD71F	XMLP060BD71F	XMLP100BD71F	XMLP250BD71F
0...10 V	EN175301-803-A	XMLPM09BC71F	XMLP010BC71F	XMLP016BC71F	XMLP025BC71F	XMLP060BC71F	XMLP100BC71F	XMLP250BC71F

(1) Also available with psi range (2) Also available with 1/4"-18NPT male or 7/16-20UNF female (3) Also available with 3-pins packard connector (4) Also available with 0.5...4.5 V ratiometric output. Available in bulk packs for selling in lots of 25 pcs. Add Q suffix to the reference, ex: XMLP001GD21F becomes **XMLP001GD21FQ**



Switch with display ZMLP

Only usable with 4-20mA analogue output pressure transmitter

Type of switching mode	Hysteresis	Windows
Displayed value range	-14,5 to 6000 with 27 selectable value ranges	
Degree of protection	IP65, IP67 and IP69K	
Product certification	CE cULus	
Supply voltage	24 VDC (17 ... 33 VDC)	
Electrical connection	Input: M12 female, 4-pins. Output: M12 male, 4-pins	
Analogue output	Switching output	
4...20 mA	PNP	ZMLPA1P2SH
4...20 mA	NPN	ZMLPA1N2SH
—	2 PNP	ZMLPA2P0SH
—	2 PNP	ZMLPA2N0SH

Accessories

Quick fixing bracket



Horizontal plan

XMLPZLH01



Vertical plan or pipe

XMLPZLV01

Electronic sensors XMLK

Electrical connection by EN 175301-803-A connector, M12 connector

For pumping applications



Pressure range (bar) (1)	0...6	0...10	0...16	0...25	0...6	0...10	0...16	0...25	
Fluids controlled	air, fresh water								
Ambient air temperature	0...+ 80°C								
Degree of protection (IEC 60529)	IP65								
Product certification	CE, UL, CSA								
Voltage limits (V)	8...33 V DC for 4...20 mA, 16,2...33V DC for 0...10 V								
Dimensions (mm) Ø x L	36 x 67,5 (not including connector)								
Fluid connection (2)	G 1/4" A (male)								
Electrical connection (3)	EN 175301-803-A				M12 3-pins male				
Output type (4)	4...20 mA, 2-wires technique, 0...10V, 3-wires technique								
Analogue output	4...20 mA	XMLK006B2C21	XMLK010B2C21	XMLK016B2C21	XMLK025B2C21	XMLK006B2D21	XMLK010B2D21	XMLK016B2D21	XMLK025B2D21
	0...10 V	XMLK006B2C71	XMLK010B2C71	XMLK016B2C71	XMLK025B2C71	XMLK006B2D71	XMLK010B2D71	XMLK016B2D71	XMLK025B2D71

(1) Also available with psi range. psi (2) Also available with 1/4"-18NPT male fluid entry. (3) Also available with 3-pins packard connector. (4) Other types of output; 0...5 V, 0...10 V, etc. Available in bulk packs for selling in lots. Add TQ suffix to the reference, ex: XMLK006B2C21 becomes **XMLK006B2C21TQ**.

Electronic sensors XMLR

Electronic + Display



Adjustable pressure range (bar) (1)	-1...0	0...1	0...2,5	0...10	0...16	0...25	0...40	0...250	0...400	
Fluids controlled	Hydraulic oils, air, fresh water, refrigerant fluids, gas									
Ambient air temperature	- 20...+ 80°C									
Degree of protection (conforming to IEC 60529)	IP65, IP67 conforming to EN/IEC 60529									
Product certification	CE, cULus conforming to UL 61010-1, NSF61									
Voltage limits (V)	17...33 Vdc									
Dimensions (mm) H x W x D	93 x 41 x 42							88 x 41 x 42		
Fluid connection (2)	G1/4A (female)									
Electrical connection	M12 connector 4-pins or 5-pins									
Configurable with 4-digit display										
Analogue output	4...20 mA	XMLRM01G0T25	XMLR001G0T25	XMLR2D5G0T25	XMLR010G0T25	XMLR016G0T25	XMLR025G0T25	XMLR040G0T25	XMLR250M0T25	XMLR400M0T25
	0...10 V	XMLRM01G0T75	XMLR001G0T75	XMLR2D5G0T75	XMLR010G0T75	XMLR016G0T75	XMLR025G0T75	XMLR040G0T75	XMLR250M0T75	XMLR400M0T75
Analogue output + commutation	4...20 mA	XMLRM01G1P25	XMLR001G1P25	XMLR2D5G1P25	XMLR010G1P25	XMLR016G1P25	XMLR025G1P25	XMLR040G1P25	XMLR250M1P25	XMLR400M1P25
PNP - NO/NC programmable	0...10 V	XMLRM01G1P75	XMLR001G1P75	XMLR2D5G1P75	XMLR010G1P75	XMLR016G1P75	XMLR025G1P75	XMLR040G1P75	XMLR250M1P75	XMLR400M1P75
2 switching outputs PNP - NO/NC prog.		XMLRM01G2P05	XMLR001G2P05	XMLR2D5G2P05	XMLR010G2P05	XMLR016G2P05	XMLR025G2P05	XMLR040G2P05	XMLR250M2P05	XMLR400M2P05
Analogue+2 switching outputs	4...20 mA	XMLRM01G2P25			XMLR010G2P25	XMLR016G2P25		XMLR040G2P25	XMLR250M2P25	XMLR400M2P25
Possible differential (bar)	Min.	0.03		0.08	0.3	0.48	0.8	1.2	7.5	12
(pressure switches)	Max.	0.95		2.38	9.5	15	23.8	38	238	380
Maximum permissible accidental pressure		3	7.5	12	40	62	100	150	750	1200

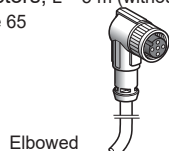
(1) For other pressure ranges consult our web site.

(2) Also available with 1/4"-18NPT female fluid entry.

Suitable female plug-in connectors

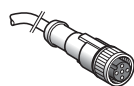
PUR Pre-wired connectors, L = 5 m (without LED) (1)

(1) For PVC cable see page 65



Elbowed

XZCP1241L5



Straight

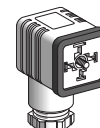
XZCP1141L5

Other connectors



Screw terminal

XZCC12FCM40B



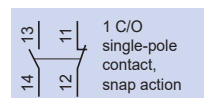
EN 175301-803-A

XZCC43FCP40B

XM Sensors for pressure control

Electromechanical pressure and vacuum switches

XMLA and XMLB



Size (bar)	-1	5	1	2.5
Environmental characteristics	Ambient air temperature (°C) : -25...+70 Degree of protection (conforming to IEC 60529) : IP66			
Rated operational characteristics (conforming to EN/IEC 60947-5-1)	AC-15 ; B300 (Ue = 240V, Ie = 1,5A - Ue = 120V, Ie = 3A) / DC-13 ; R300 (Ue = 250V, Ie = 0,1A)			
Product certification	CE, UL, CSA, CCC, BV, LROS, EAC			
Fluid connection	G 1/4" (female) (other connections possible, please consult us)			
Electrical connection	Screw terminals (1), tapped entry for ISO M20 x 1.5 cable gland - For n° 13 (DIN Pg 13.5) cable gland			

Fluids controlled	Hydraulic oils, fresh water, air up to 70°C	Hydraulic oils, air up to 160°C	Hydraulic oils, fresh water, air to 70°C
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Type XMLA - fixed differential, single threshold detection

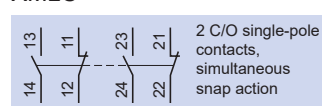
Setting range (bar) of upper limit (PH): pressure switches	- 0,28...- 1 (4)	-	0,03...1	0,15...2,5
Dimensions (mm) H x W x D	113 x 35 x 75	113 x 35 x 75	162 x 110 x 110	158 x 55 x 77,5
With setting scale 1 C/O single-pole, snap action contact	XMLAM01V2S12	-	XMLA001R2S12	XMLA002A2S12
Natural differential (bar) at low setting	0,24 (2)	-	0,02	0,13
subtract from PH to give PB at high setting	0,24 (2)	-	0,04	0,13

Type XMLB - adjustable differential, regulation between 2 thresholds

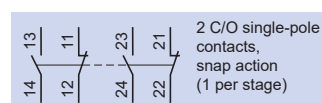
Setting range (bar) of upper limit (PH): pressure switches	- 0,14...- 1 (4)	- 0,5...5	0,05...1	0,3...2,5
With setting scale 1 C/O single-pole, snap action contact	XMLBM02V2S12	XMLBM05A2S12	XMLB001R2S12	XMLB002A2S12
Possible differential (bar) Min. at low setting	0,13 (3)	0,5	0,04	0,16
subtract from PH to give PB Min. at high setting	0,13 (3)	0,5	0,06	0,21
Max. at high setting	0,8 (3)	6	0,75	1,75

XMLC et XMLD

XMLC



XMLD



Fluids controlled	Hydraulic oils, fresh water, air up to 70°C	Hydraulic oils, air up to 160°C	Hydraulic oils, fresh water, air up to 160°C
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Type XMLC - adjustable differential, regulation between 2 thresholds

Setting range (bar) of upper limit (PH): pressure switches	0,14...- 1 (4)	0,05...1	0,3...2,5
Dimensions (mm) H x W x D	113 x 46 x 85	175 x 110 x 110	158 x 55 x 90
With setting scale 2 C/O single-pole, snap action contacts	XMLCM02V2S12	XMLC001R2S12	XMLC002B2S12
Possible differential (bar) Min. at low setting	0,13 (4)	0,03	0,13
subtract from PH to give PB Min. at high setting	0,14 (4)	0,04	0,17
Max. at high setting	0,8 (4)	0,8	2

Type XMLD - fixed differential, dual stage, for detection at each threshold

Setting range (bar)	2nd stage switching point (PB2)	- 0,12...- 1 (4)	-	-
	1st stage switching point (PB1)	- 0,10...- 0,98	-	-
	Spread between 2 stages (PB2 - PB1)	- 0,02...- 0,88	-	-
Without setting scale 2 C/O single-pole, snap action contacts (1 per stage)	XMLDM02V1S12	-	-	-
Natural differential (bar) at low setting	0,1 (2)	-	-	-
Subtract PH 1/2 to give PB 1/2 at high setting	0,1 (2)	-	-	-



	4	10	20	35	70	160	300	500
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conforming to IEC 947-5-1 Annexe A, En 60 947-5-1

tapped entry, replace the last number of the reference (2) by 1 (example: XMLA010A2S12 becomes XMLA010A2S11)

	Hydraulic oils, fresh water, air up to 70°C				Hydraulic oils up to 160°C			
--	--	--	--	--	----------------------------	--	--	--

	0,4...4	0,6...10	1...20	1,5...35	5...70	10...160	20...300	30...500
	113 x 35 x 75	113 x 35 x 75	113 x 35 x 75	113 x 35 x 75	113 x 35 x 75	113 x 35 x 75	113 x 35 x 75	113 x 35 x 75
	XMLA004A2S12	XMLA010A2S12	XMLA020A2S12	XMLA035A2S12	XMLA070D2S12	XMLA160D2S12	XMLA300D2S12	XMLA500D2S12
	0,35	0,5	0,4	1,25	3	5,5	16,5	20
	0,35	0,5	1	1,25	7,5	18	35	45

	0,25...4	0,7...10	1,3...20	3,5...35	7...70	10...160	22...300	30...500
	XMLB004A2S12	XMLB010A2S12	XMLB020A2S12	XMLB035A2S12	XMLB070D2S12	XMLB160D2S12	XMLB300D2S12	XMLB500D2S12
	0,02	0,57	1	1,7	4,7	9,3	19,4	23
	0,25	0,85	1,6	2,55	8,8	20,8	37	52,6
	2,4	7,5	11	20	50	100	200	300

(1) For electrical connection DIN 43650A (IP65), replace the suffix "S12" in the reference by "C11". Example XMLB010A2S12 becomes **XMLB010A2C11**

(2) For vacuum switch: natural differential to be added to PB to give PH.

(3) For vacuum switch: possible differential to be added to PB to give PH.

(4) Setting range (bar) of lower limit (PB): vacuum switch.



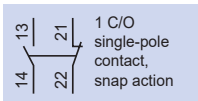
	Hydraulic oils, fresh water, air up to 160°C				Hydraulic oils up to 160°C			
--	---	--	--	--	----------------------------	--	--	--

	0,3...4	0,7...10	1,3...20	3,5...35	7...70	12...160	22...300	30...500
	113 x 46 x 85	113 x 46 x 85	113 x 46 x 85	113 x 46 x 85	113 x 46 x 85	113 x 46 x 85	113 x 46 x 85	113 x 46 x 85
	XMLC004B2S12	XMLC010B2S12	XMLC020B2S12	XMLC035B2S12	XMLC070D2S12	XMLC160D2S12	XMLC300D2S12	XMLC500D2S12
	0,15	0,45	0,7	1	4,5	9	16	19
	0,17	0,7	1	1,5	8,9	21	35	52
	2,5	8	11	22	60	110	240	340

	0,40...4	1,2...10	2,14...20	4,4...35	9,4...70	16,5...160	36...300	41...500
	0,19...3,79	0,52...9,32	0,9...18,76	1,9...32,5	6,6...67,2	10,5...154	25...289	25...484
	0,21...2,18	0,68...5,8	1,24...9,55	2,5...20,4	2,8...46	6...83	11...189	16...244
	XMLD004B1S12	XMLD010B1S12	XMLD020B1S12	XMLD035B1S12	XMLD070D1S12	XMLD160D1S12	XMLD300D1S12	XMLD500D1S12
	0,15	0,45	0,7	1,5	5	8,8	17	21
	0,19	0,6	1,3	2,6	9,5	20	42	65

XM Sensors for pressure control

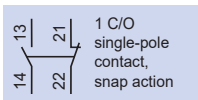
Electromechanical pressure switches XMX, XMA



Setting range of upper limit (PH) (bar)	1...6	1,3...12	3,5...25
Fluids controlled	Air, water (fresh water, sea water) from 0...+70°C		
Ambient air temperature	-25...+70°C		
Degree of protection (conforming to IEC 60529)	IP54		
Rated operational characteristics (conforming to EN/IEC 60947-5-1)	AC-15 ; B300 (Ue = 240 V, Ie = 1,5 A - Ue = 120 V, Ie = 3 A) / DC-13 ; R300 (Ue = 250 V, Ie = 0,1 A)		
Product certification	CE, UL, CSA, CCC, EAC		
Dimensions (mm) H x W x D	106 x 57 x 98		126 x 57 x 98
Fluid connection	1/4" BSP female		
Electrical connection	Screw terminals, 2 tapped entries for n° 13 (DIN Pg 13.5) cable gland		

Type XMX-with internal setting screw

Without setting scale, screw terminal connections				
1 C/O single-pole, snap action contact		XMXA06L2135	XMXA12L2135	XMXA25L2135
Possible differential (bar) subtract from PH to give PB	Min. at low setting	0,8	1	3,4
	Min. at high setting	1,2	1,7	4,5
	Max. at high setting	4,2	8,4	20

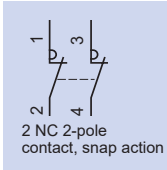


Setting range of upper limit (PH) (bar)	1...6	1,3...12	3,5...25
Fluids controlled	Air, water (fresh water, sea water) from 0...+70°C		
Ambient air temperature	-25...+70°C		
Degree of protection (conforming to IEC 60529)	IP54		
Rated operational characteristics (conforming to EN/IEC 60947-5-1)	AC-15 ; B300 (Ue = 240 V, Ie = 1,5 A - Ue = 120 V, Ie = 3 A) / DC-13 ; R300 (Ue = 250 V, Ie = 0,1 A)		
Product certification	CE, UL, CSA, CCC, EAC		
Dimensions (mm) H x W x D	113 x 57 x 98		133 x 57 x 98
Fluid connection	1/4" BSP female		
Electrical connection	Screw terminals, tapped entry for n° 13 (DIN Pg 13.5) cable gland		

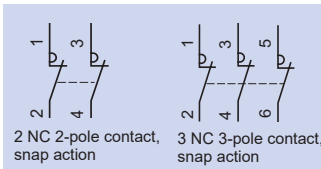
Type XMA with external setting screw (transparent cover)

Without setting scale, screw terminal connections				
1 C/O single-pole, snap action contact		XMAV06L2135	XMAV12L2135	XMAV25L2135
Possible differential (bar) subtract from PH to give PB	Min. at low setting	0,8	1	3,4
	Min. at high setting	1,2	1,7	4,5
	Max. at high setting	4,2	8,4	20

Electromechanical pressure switches for power circuits, adjustable differential for regulation between 2 thresholds



Degree of protection			IP 20			IP65		
Size (bar)			4,6	7	10,5	4,6	7	10,5
Setting range of upper limit (PH) (bar)			1,4...4,6	2,8...7	5,6...10,5	1,4...4,6	2,8...7	5,6...10,5
Fluids controlled			Water (fresh water, sea water) from 0...+55°C					
Electrical connection			Screw terminals, 2 cable entries with grommet			Screw terminals, 2 tapped entries for n° 13 (DIN Pg 13.5) cable gland		
Product certification			CE, EAC					
Ambient air temperature			For operation : 0...+50°C.			For storage: - 30...+80°C		
Rated operational characteristics (conforming to EN/IEC 60947-5-1)			Ie = 10 A, Ue = 250 V AC					
Power rating of controlled motors	110 V	AC 2-pole, single-phase	0,75 kW (1 HP)			0,75 kW (1 HP)		
		AC 2-pole, 3-phase	1,1 kW (1,5 HP)			1,1 kW (1,5 HP)		
	230 / 400 V	AC 2-pole, single-phase	1,5 kW (2 HP)			1,5 kW (2 HP)		
		AC 2-pole, 3-phase	2,2 kW (3 HP)			2,2 kW (3 HP)		
Dimensions (mm) H x W x D			96/105 x 72 x 102	94 x 72 x 102		115 x 72 x 106	115 x 72 x 106	
Connection hydraulique	G 1/4 (BSP female)		FSG2	FYG22	FYG32	FSG2NE	FYG22NE	FYG32NE
	R 1/4 (BSP male)		FSG9	FYG29	FYG39	–	–	–
	G 3/8 (BSP female) rotating nut		–	–	–	FSG2NEG	–	–
Possible differential (bar) subtract from PH to give PB	At low setting		1 min. - 2,1 max.	1,2 min. - 2,3 max.	1,9 min. - 3 max.	1 min. - 2,1 max.	1,2 min. - 2,3 max.	1,9 min. - 3 max.
	At middle setting		1,1 min. - 2,2 max.	1,4 min. - 2,5 max.	2,1 min. - 3,2 max.	1,1 min. - 2,2 max.	1,4 min. - 2,5 max.	2,1 min. - 3,2 max.
	At high setting		1,2 min. - 2,3 max.	1,6 min. - 2,7 max.	2,3 min. - 3,4 max.	1,2 min. - 2,3 max.	1,6 min. - 2,7 max	2,3 min. - 3,4 max.



Size (bar)			6		12		25	
Setting range of upper limit (PH) (bar)			1...6		1,3...12		3,5...25	
Fluids controlled			Air, water (fresh water, sea water) from 0...+70°C					
Ambient air temperature			For fonctionnement : -25...+70°C. For stockage : -40...+70°C					
Decompression valve / ONOff knob			without	with	without	with	without	
Fluid connection			G 1/4 (BSP female)	4xG 1/4 (BSP female)	G 1/4 (BSP female)	4xG 1/4 (BSP female)	G 1/4 (BSP female)	
Electrical connection			Screw terminals, 2 tapped entries for n° 13 (DIN Pg 13.5) cable gland					
Degree of protection			IP 54			IP 54		IP 54
Product certification			CE, EAC					
Rated insulation voltage			Ui = 500 V					
Electrical durability	Power	1,5 kW	400 V AC 3-phase : 1 000 000 operating cycles					
			230 VAC 3-phase : 600 000 operating cycles					
		2,2 kW	400 V AC 3-phase : 700 000 operating cycles					
		3 kW	400 V AC 3-phase : 500 000 operating cycles					
Dimensions (mm) H x W x D			106 x 57 x 97,5	138 x 57 x 97,5	106 x 57 x 97,5	138 x 57 x 97,5	126 x 57 x 97,5	
Type	2 NC 2-pole, snap action contact		XMPA06B2131	–	XMPA12B2131	XMPE12B2431	XMPA25B2131	
of contacts	3 NC 3-pole, snap action contact		XMPA06C2131	XMPE06C2431	XMPA12C2131	XMPE12C2431	XMPA25C2131	
Possible differential (bar)	Min. at low setting		0,8	0,8	1	1	3,4	
subtract from PH	Min. at high setting		1,2	1,2	1,7	1,7	4,5	
to give PB	Max. at high setting		4,2	4,2	8,4	8,4	20	

Square D 9012G electromechanical pressure switches

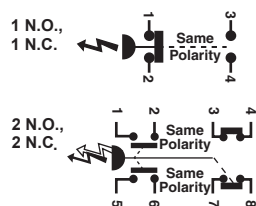
NEMA Type 4, 4X, 13 enclosures, adjustable differential



9012GAW5



9012GCW1



Contact Blocks

Range on decreasing pressure, psig	Adjustable differential (1) approximate at mid range	Maximum allowable pressure, psig	Class 9012 Type	
			SPDT	DPDT
Diaphragm actuated—Buna-N nitrile diaphragm, zinc plated steel housing				
0.2–10	.7–2	100	GAW1	GAW21
1–40	2.4–8	100	GAW2	GAW22
1.5–75	3.9–15	240	GAW4	GAW24
3–150	6.6–30	475	GAW5	GAW25
5–250	11–49	750	GAW6	GAW26
13–425	20–82	850	GBW1	GBW21
20–675	35–130	2000	GBW2	GBW22

Piston actuated—#440 stainless steel piston

#303 Stainless steel housing, Viton® fluorocarbon diaphragm and O-ring, Teflon® retaining ring

20–1000	65–200	1000	GCW1	GCW21
90–2900	187–560	15,000	GCW2	GCW22
170–5600	425–1050	20,000	GCW3	GCW23
270–9000	580–1500	25,000	GCW4	GCW24

Specifications

Fluids controlled	Air, water, hydraulic oils, gases, steam (depending on the model)	
Fluid connections	1/4" NPT (female) standard, Forms include G 1/4 (BSP) female, 1/4" NPTF, or 1/4"-18 NPT (2) (3)	
Weight (approximate)	3 lb (1.36 kg)	
Voltage limits	600 V	
Continuous current	10 A	
Electrical connections	1/2"-14 NPTF, Pg 13.5, or ISO M20. For 20 x 1.5 mm electrical conduit entry, add M after the W in the catalog number for all Types.	
Standards/ratings	CE, IEC 60957.5.1, UL 508, CSA 3211-03. UL Marine listed for use on vessels longer than 65 ft where ignition protection is not required.	
Degree of protection	NEMA Type 4, 4X, 13 enclosures	
Temperature ratings	Minimum	Maximum
Ambient	–10 °F (–23 °C)	+185 °F (+85 °C)
Media	Diaphragm: –40 °F (–40 °C); Piston and all switches with Form Q4: –15 °F (–26 °C)	+250 °F (+120 °C)

Connection

Form H10 	Form H11 	SPDT snap switches contain two double-break contact elements (1 NO, 1 NC) that must be used on circuits of the same polarity. DPDT snap switches contain two electrically separated sets of contact elements, allowing use on circuits of opposite polarity. Each set contains two double-break contact elements. (1 NO, 1 NC) that must be used on circuits of the same polarity.
Acceptable wire sizes: 12–22 AWG (0.5–2.5 mm ²)		Recommended terminal clamp torque: 7 lb-in (0.79 N•m)

- (1) The differential adds to the range setting and determines the operating point on rising pressure.
 (2) Form M12 includes 1/4"-19 BSP pressure connection and Pg 13.5 electrical conduit entry.
 (3) For other connections, consult the Customer Care Center.

Form	Description
G17	120 Vac or Vdc neon pilot light—clear lens
G18	120 Vac or Vdc neon pilot light—red lens
G21	24 Vdc only LED—clear lens
G22	24 Vdc only LED—red lens
H3	SPDT snap switch rated 1.1 A at 125 Vdc (minimum differential doubles)
H10, H11	Prewired 5-pin male receptacle (see the connection diagram above)
M12	Pg 13.5 electrical conduit thread and 1/4"-19 BSP pressure connection (available on 9012G•WM only)
V1	Range scale window
Y1	Special factory setting specified
Z	1/4" – 18 NPT external thread pressure connection

9012 NEMA Type 1 enclosure, adjustable differential



9012GNO5



9012GQO2



9012GNG1

Range on decreasing pressure, psig	Approximate mid range (1) differential (adds to the decreasing set point)	Maximum allowable pressure, psig	Class 9012 Type	
			Open Type	NEMA Type 1
Diaphragm actuated—Buna-N nitrile diaphragm, zinc plated steel housing				
0.2–10	0.6–1	100	GNO1	GNG1
1–40	1.6–5	100	GNO3	GNG3
1.5–75	2.5–6.5	240	GNO4	GNG4
3–150	4.8–13	475	GNO5	GNG5
5–250	8.5–20.5	750	GNO6	GNG6
13–425	20–41	850	GPO1	GPG1
20–675	35–66	2000	GPO2	GPG2

Piston actuated—#440 stainless steel piston

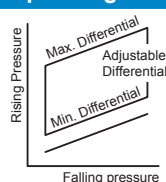
#303 Stainless steel housing, Viton® fluorocarbon diaphragm and O-ring, Teflon® retaining ring

20–1000	56–98	1000	GQO1	GQG1
90–2900	162–308	15,000	GQO2	GQG2
170–5600	355–563	20,000	GQO3	GQG3
270–9000	481–1050	25,000	GQO4	GQG4

Specifications

Fluids controlled	Air, water, hydraulic oils, gases, steam (depending on the model)		
Fluid connections	1/4" NPT (female) standard, Forms include G 1/4 (BSP) female, 1/4" NPTF, or 1/2"-14 NPT (2)		
Weight (approximate)	Type 1: 2 lb (0.91 kg); Open: 1.7 lb (0.77 kg)		
Voltage limits	600 V		
Continuous current	10 A		
Electrical connections	1/2" conduit entry, unthreaded		
Standards/ratings	CE, IEC 60957.5.1, UL 508, CSA 3211-03		
Degree of protection	NEMA Type 1 Enclosure		
Temperature ratings	Minimum	Maximum	
Ambient	–10 °F (–23 °C)	+185 °F (+85 °C)	
Media	Diaphragm	–40 °F (–40 °C)	
	Piston	–15 °F (–26 °C)	
	All with Form Q	–15 °F (–26 °C)	
		+250 °F (+120 °C)	

Operating curves



Contact blocks

SPDT
Form C
contacts



Acceptable wire sizes:

12–22 AWG (0.5–2.5 mm²)

Recommended terminal clamp torque:

7 lb-in (0.79 N•m)

(1) Determines the operating point on rising pressure.

(2) For other connections, consult the Customer Care Center.

Available modifications for 9012G pressure switches, Open Type or NEMA Type 1 enclosure UL listed and CSA certified as industrial control equipment

Modification	Applies to	Form
Standard Buna-N nitrile diaphragm in #316 stainless steel housing	GNG, GNO, GPG, GPO, GRG, GRO, GSG, GSO. Not available on 9012GRO1, GRG1, GNO1, GNG1.	Q1
Ethylene propylene diaphragm in #316 stainless steel housing	GNG, GNO, GPG, GPO, GRG, GRO, GSG, GSO. Not available on 9012GRO1, GRG1, GNO1, GNG1.	Q3
Viton fluorocarbon diaphragm in #316 stainless steel housing	GNG, GNO, GPG, GPO, GRG, GRO, GSG, GSO. Not available on GRO1, GRG1, GNO1, GNG1	Q4
1/4-18 NPT external thread pressure connection	GNG, GNO, GRG, GRO	Z
1/2-14 NPT external thread, 1/4-18 NPTF internal thread pressure connection. Standard actuator only.	GNG, GNO, GRG, GRO	Z16

XML electromechanical pressure and vacuum switches

Selection Guide

Applications	Type of installation	Control circuits			
	Media controlled	Air, water, hydraulic oils, corrosive fluids, viscous products			
	Type of operation	Fixed differential: Detection of a single threshold	Adjustable differential: Regulation between two thresholds	Dual-stage switches: Fixed differential, detection at each threshold	
					
Fluid characteristics		Air, fresh water, sea water, corrosive fluids, viscous products, up to 320 °F (160 °C) depending on model			
Size (pressure range)		–1 to 500 bar (–14.5 to 7250 psi)			
Dimensions of case: mm (in.) Width x height x depth		35 x 68 x 75 (1.4 x 2.7 x 3.0)	46 x 68 x 85 (1.8 x 2.7 x 3.3)	35 x 68 x 75 (1.4 x 2.7 x 3.0)	
Type of contacts		1 C/O single-pole, snap action	2 C/O single-pole, simultaneous, snap action	2 C/O single-pole, staggered, snap action	
Degree of protection		IP66 with terminal connections IP65 with plug-in connector	IP66 with terminal connections	IP66 with terminal connections IP65 with plug-in connector	
Agency listings		UL, CSA, CCC, BV, LROS, RINA, GL, DNV, VIT-SEPRO			
Electrical connection		Screw terminals: 1 tapped entry: 1/2 NPT; M20 x 1.5 mm for ISO conduit/cable; or PG 13.5 conduit/cable entry Connector: DIN 43650, M12			
Pressure connection		G 1/4 (BSP female), 1/4" NPTF, PT 1/4 (JIS B0203)			
Catalog number		XMLA	XMLB	XMLC	XMLD
Pages		11			
Other versions		For electromechanical pressure and vacuum switches with alternative tapped cable or fluid entries, consult the Customer Care Center.			

9012G and 9016G industrial pressure and vacuum switches

Selection Guide

Applications	Type of installation	Control circuits					Power circuits
	Media controlled	Air, water, hydraulic oils (1), gases, steam					
	Type of operation	Fixed differential: Detection of a single threshold	Adjustable differential: Regulation between two thresholds	Differential-pressure (change in the difference between two pressures)	Dual-stage switches: Fixed differential, detection at each threshold	Vacuum switches for control circuits	Vacuum switches for power circuits



Fluid characteristics	up to 248 °F (120 °C)					
Size (pressure range)	Diaphragm: 0.2–675 psi on falling pressure Piston actuated: 20–9,000 psi on falling pressure			0–28.7 inHg	0–25 inHg	
Dimensions of case: mm (in.) Width x height x depth	See specification sheets available on www.tesensors.com					
Type of contacts	SPDT or DPDT double break contacts; SPDT single break contacts				DPST (SPDT for Form H)	
Degree of protection	IP66 conforming to IEC 60957					
Agency listings	UL Listed and CSA certified as industrial control equipment					
Electrical connection (enclosed devices)	1/2"-14 NPTF, PG13.5, or ISO M20; 3/4"-14 NPTF available only on NEMA 7 and 9. NEMA 1 is 1/2" conduit entry, unthreaded.			1/2"-14 NPT	3 x 1/2" conduit entry, unthreaded	
Pressure connection	G1/4 (BSP) female, 1/4"-18 NPTF, 1/4-18 NPT internal or external (depending on model), 1/2"-14 NPT					
Catalog number	9012GD, GE, GF, GR, GS, GT	9012GA, GB, GC, GN, GP, GQ	9012GGW, GHW, GJW	9012GKW, GLW, GMW	9016GAW, GAR	9016GVG
Pages	8/85	8/87	8/89	8/90	94	95
Other versions	(1) The hydraulic fluids used for laboratory testing are equivalent to SAE 30 W oils. If oils have less viscosity than this type of oil, leakage can be expected. Schneider Electric does not have test data to support or predict fluid bypass with oils less than SAE 30W.					

9012G and 9016G Industrial pressure and vacuum switches

Selection and specifications - 9012G Machine Tool Pressure Switches

Selection and specifications—9012G pressure switches



9012GDW1

Single-Stage Operation

Class 9012 single-stage pressure switches are control circuit rated devices used in pneumatic or hydraulic systems on a wide variety of machine and process applications to protect the equipment and control or monitor the system pressure.

- Type G machine tool switches are available with NEMA 4, 4X, and 13 (IEC IP66) enclosure ratings.
- The NEMA 7 and 9 devices are UL listed for use in the following hazardous locations: Class I, Divisions 1 and 2, Groups C and D; and Class II, Divisions 1 and 2, Groups E, F, and G.
- NEMA 4, 4X, and 13 devices are suitable for use in Class I, Division 2, Groups A, B, C, and D hazardous locations or nonhazardous locations only.
- Enclosure materials are cast aluminum.
- To ensure repeatability and minimize setting drift, pressure settings should fall within the middle 80 percent of the pressure range.

Fixed differential

NEMA 4, 4X, 13 Enclosure

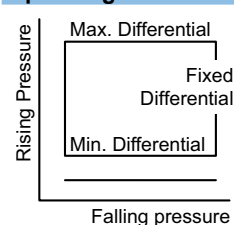
UL Listed and CSA Certified as Industrial Control Equipment

Range on decreasing pressure psig	Approximate differential at mid-range, psig ⁽¹⁾	Maximum allowable pressure, psig	Class 9012 Type	
			SPDT	DPDT
Diaphragm actuated—Nitrile diaphragm, zinc plated steel housing				
0.2–10	0.6 ± 0.1	100	GDW1	GDW21
1–40	1.6 ± 0.4	100	GDW2	GDW22
1.5–75	3.0 ± 0.5	240	GDW4	GDW24
3–150	6.0 ± 0.8	475	GDW5	GDW25
5–250	10.0 ± 1.5	750	GDW6	GDW26
13–425	16 ± 3.5	850	GEW1	GEW21
20–675	27 ± 5	2000	GEW2	GEW22
Piston actuated—#440 stainless steel piston #303 stainless steel housing, Viton® fluorocarbon diaphragm and O-ring, Teflon® retaining ring				
20–1000	59 ± 9	10,000	GFW1	GFW21
90–2900	170 ± 15	15,000	GFW2	GFW22
170–5600	289± 55	20,000	GFW3	GFW23
270–9000	495 ± 70	25,000	GFW4	GFW24

Specifications

Fluids controlled	Air, water, hydraulic oils, gases, steam (depending on the model)	
Pressure connection	1/4"-18 NPTF is standard. For metric threads, add M after the W on all types. (2) Other options are available (see specification sheets available on www.tesensors.com)	
Weight (approximate)	3 lb (1.36 kg)	
Voltage limits	600 V	
Continuous current	10 A	
Electrical connections	1/2"-14 NPTF (standard), For Pg 13.5, or ISO M20, see footnote (2).	
Standards/Ratings	CE, IEC 60957.5.1, UL 508, CSA 3211-03. UL Marine Listed for use on ships/vessels greater than 65 ft long where ignition protection is not required.	
Temperature ratings	Minimum	Maximum
Ambient	–23 °C (–10 °F)	+85 °C (+185 °F)
	Diaphragm	–40 °C (–40 °F)
Media	Piston	+120 °C (+250 °F)
	All with Form Q4	–26 °C (–15 °F)

Operating curves

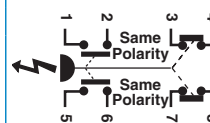


Contact blocks

1 N.O., 1 N.C.

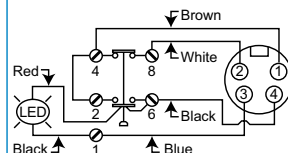


2 N.O., 2 N.C.

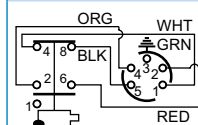


Connection

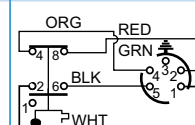
Form H17



Form H10



Form H11



SPDT snap switches contain two double-break contact elements (1 N.O., 1 N.C.) that must be used on circuits of the same polarity. **DPDT** snap switches contain two electrically separated sets of contact elements allowing use on circuits of opposite polarity. Each set contains two double-break contact elements (1 N.O., 1 N.C.) that must be used on circuits of the same polarity.

Acceptable wire sizes: 12–22 AWG **Recommended terminal clamp torque:** 7 lb-in

(1) The differential adds to the range setting and determines the operating point on rising pressure.

(2) To order a Pg13.5 electrical conduit entry and a 1/4"-19 BSP pressure connection, add M12 to the end of the catalog number, as well as adding "M" after "W" for metric threads. For example:

9012GAW1 = 1/2" NPT electrical conduit entry

9012GAWM1 = 20 x 1.5 mm electrical conduit entry and 1/4"-19 BSP pressure connection

9012GAWM1M12 = Pg13.5 electrical conduit entry and 1/4"-19 BSP pressure connection

9012G and 9016G Industrial pressure and vacuum switches

Selection and specifications (continued) - 9012G Machine Tool Pressure Switches



9012GDR

Fixed Differential

NEMA 7 & 9 Enclosure, Class I & II, Division 1 & 2, Groups C, D, E, F, G
UL Listed as Industrial Control Equipment

Range on Decreasing Pressure psig	Approximate Differential at Mid Range psig ⁽¹⁾	Maximum Allowable Pressure, psig	Class 9012 Type	
			SPDT	DPDT
Diaphragm Actuated—Nitrile Diaphragm, Zinc Plated Steel Housing				
0.2–10	1.0 ± 0.1	100	GDR1	GDR21
1–40	2.4 ± 0.8	100	GDR2	GDR22
1.5–75	4.5 ± 1	240	GDR4	GDR24
3–150	9 ± 1.5	475	GDR5	GDR25
5–250	15 ± 3	750	GDR6	GDR26
13–425	25 ± 7	850	GER1	GER21
20–675	41 ± 10	2000	GER2	GER22

Piston Actuated—#440 Stainless Steel Piston.

#303 Stainless Steel Housing, Viton® Fluorocarbon Diaphragm and O-ring, Teflon® Retaining Ring

20–1000	89 ± 18	10,000	GFR1	GFR21
90–2900	255 ± 30	15,000	GFR2	GFR22
170–5600	578 ± 110	20,000	GFR3	GFR23
270–9000	788 ± 140	25,000	GFR4	GFR24

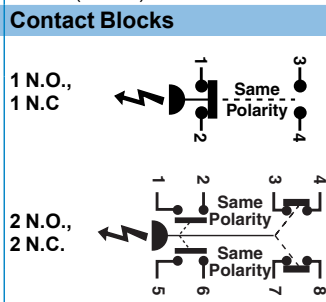
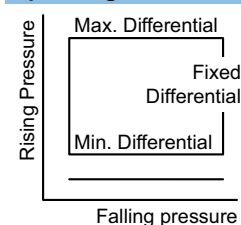
Specifications

Fluids Controlled	Air, water, hydraulic oils, gases, steam (depending on the model)
Pressure Connection	1/4"-18 NPTF (standard) or 1/2"-14 NPT. See specification sheets on www.tesensors.com .
Weight (approximate)	10 lb (4.54 kg)
Voltage Limits	600 V
Continuous Current	10 A
Electrical Connections	1/2"-14 NPTF, 3/4"-14 NPTF

Standards/Ratings	CE, IEC 60957.5.1, UL 508, CSA 3211-03. UL Marine Listed for use on vessels greater than 65 ft long where ignition protection is required.
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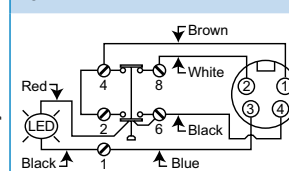
Temperature Ratings	Minimum	Maximum
Ambient	–23 °C (–10 °F)	+85 °C (+185 °F)
Diaphragm	–40 °C (–40 °F)	
Media	Piston	+120 °C (+250 °F)
	All with Form Q4	–26 °C (–15 °F)

Operating Curves

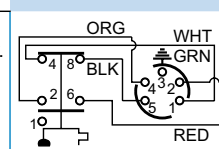


Connection

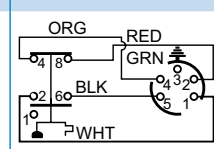
Form H17



Form H10



Form H11



SPDT snap switches contain two double-break contact elements (1 N.O., 1 N.C.) that must be used on circuits of the same polarity.
DPDT snap switches contain two electrically separated sets of contact elements allowing use on circuits of opposite polarity. Each set contains two double-break contact elements (1 N.O., 1 N.C.) that must be used on circuits of the same polarity.

Acceptable Wire Sizes: 12–22 AWG

Recommended Terminal Clamp Torque: 7 lb-in

⁽¹⁾ The differential adds to the range setting and determines the operating point on rising pressure.

NOTE: When pressure settings of the switches must be factory set (Form Y1), and only one setting is identified, specify whether this setting is on increasing or decreasing pressure.



File E12443
 File E12158
 File E12158

CCN NOWT
 CCN NKPZ
 CCN NTHT

Haz. Loc., G•R
 G•W, G•O, G•G
 Marine Use, G•W



File LR 25490
 File LR 26817

Class 3211-03
 Class 3218-02

G•W, G•O, G•G
 G•R



9012G and 9016G Industrial pressure and vacuum switches

Selection and specifications (continued) - 9012G Machine Tool Pressure Switches



9012GAW1

Adjustable Differential NEMA 4, 4X, 13 Enclosure UL Listed and CSA Certified as Industrial Control Equipment

Range on Decreasing Pressure, psig	Adjustable Differential ⁽¹⁾ Approximate at Mid Range	Maximum Allowable Pressure, psig	Class 9012 Type	
			SPDT	DPDT
Diaphragm Actuated—Nitrile Diaphragm, Zinc Plated Steel Housing				
0.2–10	0.7–2	100	GAW1	GAW21
1–40	2.4–8	100	GAW2	GAW22
1.5–75	3.9–15	240	GAW4	GAW24
3–150	6.6–30	475	GAW5	GAW25
5–250	11–49	750	GAW6	GAW26
13–425	20–82	850	GBW1	GBW21
20–675	35–130	2000	GBW2	GBW22

Piston Actuated—#440 Stainless Steel Piston. #303 Stainless Steel Housing, Viton® Fluorocarbon Diaphragm and O-ring, Teflon® Retaining Ring				
20–1000	65–200	10,000	GCW1	GCW21
90–2900	187–560	15,000	GCW2	GCW22
170–5600	425–1050	20,000	GCW3	GCW23
270–9000	580–1500	25,000	GCW4	GCW24

Specifications

Fluids Controlled	Air, water, hydraulic oils, gases, steam (depending on the model)	
Pressure Connection	1/4"-18 NPTF is standard. For metric threads (G1/4 BSP female pressure connection and M20 electrical connection), add M after the W in the catalog number. For additional pressure connections, see specification sheets on www.tesensors.com . ⁽¹⁾	
Weight (approximate)	3 lb (1.36 kg)	
Voltage Limits	600 V	
Continuous Current	10 A	
Electrical Connections	1/2"-14 NPTF is standard. For metric threads (G1/4 BSP female pressure connection and M20 electrical connection), add M after the W in the catalog number. ⁽²⁾	
Standards/Ratings	CE, IEC 60957.5.1, UL 508, CSA 3211-03. UL Marine Listed for use on ships/vessels greater than 65 ft long where ignition protection is not required.	
Temperature Ratings	Minimum	Maximum
Ambient	–23 °C (–10 °F)	+85 °C (+185 °F)
Diaphragm	–40 °C (–40 °F)	
Media	Piston	+120 °C (+250 °F)
	All with Form Q4	–26 °C (–15 °F)

Operating Curves

Contact Blocks

1 N.O., 1 N.C. Same Polarity

2 N.O., 2 N.C. Same Polarity

Connection

Form H17

SPDT snap switches contain two double-break contact elements (1 N.O., 1 N.C.) that must be used on circuits of the same polarity.

DPDT snap switches contain two electrically separated sets of contact elements allowing use on circuits of opposite polarity. Each set contains two double-break contact elements (1 N.O., 1 N.C.) that must be used on circuits of the same polarity.

Acceptable Wire Sizes:	12–22 AWG	Recommended Terminal Clamp Torque:	7 lb-in
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⁽¹⁾ The differential adds to the range setting and determines the operating point on rising pressure.

⁽²⁾ To order a Pg13.5 electrical conduit entry and a 1/4"-19 BSP pressure connection, add M12 to the end of the catalog number, as well as adding "M" after "W" for metric threads. For example:

9012GAW1 = 1/2" NPT electrical conduit entry

9012GAWM1 = 20 x 1.5 mm electrical conduit entry and 1/4"-19 BSP pressure connection

9012GAWM1M12 = Pg13.5 electrical conduit entry and 1/4"-19 BSP pressure connection

9012G and 9016G Industrial pressure and vacuum switches

Selection and specifications (continued) - 9012G Machine Tool Pressure Switches



9012GAR

Adjustable Differential

NEMA 7 & 9 Enclosure, Class I & II, Division 1 & 2, Groups C, D, E, F, G
UL Listed as Industrial Control Equipment

Range on Decreasing Pressure, psig	Adjustable Differential ⁽¹⁾ Approximate at Mid Range	Maximum Allowable Pressure, psig	Class 9012 Type	
			SPDT	DPDT
Diaphragm Actuated—Nitrile Diaphragm, Zinc Plated Steel Housing				
0.2–10	1.0–2	100	GAR1	GAR21
1–40	4–8	100	GAR2	GAR22
1.5–75	8–15	240	GAR4	GAR24
3–150	16–30	475	GAR5	GAR25
5–250	23–49	750	GAR6	GAR26
13–425	36–82	850	GBR1	GBR21
20–675	65–130	2000	GBR2	GBR22

Piston Actuated—#440 Stainless Steel Piston.

#303 Stainless Steel Housing, Viton® Fluorocarbon Diaphragm and O-ring, Teflon® Retaining Ring

20–1000	98–200	10,000	GCR1	GCR21
90–2900	281–560	15,000	GCR2	GCR22
170–5600	638–1050	20,000	GCR3	GCR23
270–9000	870–1500	25,000	GCR4	GCR24

Specifications

Fluids Controlled	Air, water, hydraulic oils, gases, steam (depending on the model)
Pressure Connection	1/4"-18 NPTF (standard) or 1/2"-14 NPT. See specification sheets on www.tesensors.com .
Weight (approximate)	10 lb (4.54 kg)
Voltage Limits	600 V
Continuous Current	10 A
Electrical Connections	1/2"-14 NPTF, 3/4"-14 NPTF

Standards/Ratings CE, IEC 60957.5.1, UL 508, CSA 3211-03. UL Marine Listed for use on vessels longer than 65 ft where ignition protection is required.

Temperature Ratings		
Ambient	Minimum	Maximum
	–23 °C (–10 °F)	+85 °C (+185 °F)
Diaphragm	–40 °C (–40 °F)	
Media	–26 °C (–15 °F)	+120 °C (+250 °F)
All with Form Q4	–26 °C (–15 °F)	

Operating Curves	Contact Blocks	Connection
	1 N.O., 1 N.C. 	Form H17
	2 N.O., 2 N.C. 	Form H10 Form H11

SPDT snap switches contain two double-break contact elements (1 N.O., 1 N.C.) that must be used on circuits of the same polarity.
DPDT snap switches contain two electrically separated sets of contact elements allowing use on circuits of opposite polarity. Each set contains two double-break contact elements (1 N.O., 1 N.C.) that must be used on circuits of the same polarity.

Acceptable Wire Sizes:	12–22 AWG	Recommended Terminal Clamp Torque:	7 lb-in
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⁽¹⁾ The differential adds to the range setting and determines the operating point on rising pressure.



File E12443 CCN NOWT Haz. Loc., G•R
 File E12158 CCN NKPZ G•W, G•O, G•G
 File E12158 CCN NTH T Marine Use, G•W



File LR 25490 Class 3211-03 G•W, G•O, G•G
 File LR 26817 Class 3218-02 G•R



9012G and 9016G Industrial pressure and vacuum switches

Selection and specifications (continued) - 9012G Pressure Switches for differential-pressure operation



9012GJW1

Differential-Pressure Operation

Pressure switches for differential-pressure operation are used to monitor the change in the difference between two pressures. The 9012G differential-pressure switches are unidirectional devices and are used in applications to signal that a predetermined pressure difference has been reached as a result of a widening or increasing difference between the two pressures. They can also be used in applications to signal that a predetermined pressure difference has been reached as a result of a narrowing or decreasing difference between the two pressures.

NEMA 4, 4X, and 13 devices are suitable for use in Class I, Division 2, Groups A, B, C, and D hazardous locations or nonhazardous locations only.

Adjustable differential

NEMA 4, 4X, 13 Enclosures

UL Listed and CSA Certified as Industrial Control Equipment

Working Pressure Range on decreasing X (upper) actuator	Adjustable Difference on Decreasing Pressure (Adds to working pressure) Y (lower) actuator	Adjustable Differential Actuates on increasing pressure (adds to adjustable difference)	Maximum Allowable Pressure	Class 9012 Type	
				SPDT	DPDT
Diaphragm Actuated—Nitrile Diaphragm, Zinc Plated Steel Housing					
0–75	0.25–10	1–2	100	GGW1	GGW21
0–175	0.5–36	5.6–15	240	GGW4	GGW24
0–500	3–175	26–90	850	GHW1	GHW21

Piston Actuated—#440 Stainless Steel Piston.

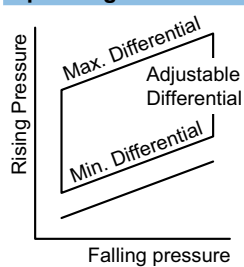
#303 Stainless Steel Housing, Viton® Fluorocarbon Diaphragm and O-ring, Teflon® Retaining Ring

0–5000	15–825	97–200	7500	GJW1	GJW21
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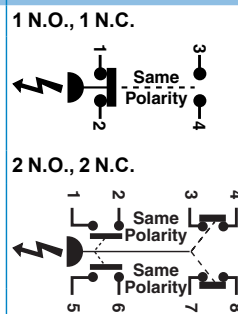
Specifications

Fluids Controlled	Air, water, hydraulic oils, gases, steam (depending on the model)	
Pressure Connection	1/4"-18 NPTF is standard. For metric threads (G1/4 BSP female pressure connection and M20 electrical connection), add M after the W in the catalog number. For other options, see specification sheets on www.tesensors.com .	
Weight (approximate)	3 lb (1.36 kg)	
Voltage Limits	600 V	
Continuous Current	10 A	
Electrical Connections	1/2"-14 NPTF (standard). For Pg 13.5, or ISO M20, see footnote (2) on page 8/87.	
Standards/Ratings	CE, IEC 60957.5.1, UL 508, CSA 3211-03. UL Marine Listed for use on vessels greater than 65 ft long where ignition protection is not required.	
Temperature Ratings	Minimum	Maximum
Ambient	–23 °C (–10 °F)	+85 °C (+185 °F)
Diaphragm	–40 °C (–40 °F)	
Media	–26 °C (–15 °F)	+120 °C (+250 °F)
Piston	–26 °C (–15 °F)	
All with Form Q4	–26 °C (–15 °F)	

Operating Curves

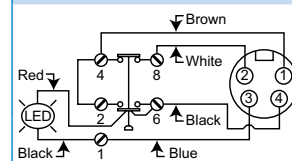


Contact Blocks

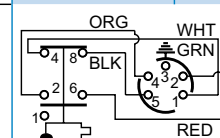


Connection

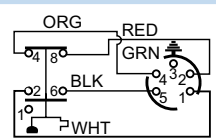
Form H17



Form H10



Form H11



SPDT snap switches contain two double-break contact elements (1 N.O., 1 N.C.) that must be used on circuits of the same polarity.

DPDT snap switches contain two electrically separated sets of contact elements allowing use on circuits of opposite polarity. Each set contains two double-break contact elements (1 N.O., 1 N.C.) that must be used on circuits of the same polarity.

Acceptable Wire Sizes:

12–22 AWG

Recommended Terminal Clamp Torque:

7 lb-in



File E12158 CCN NKPZ
File E12158 CCN NTHT - Marine Use



File LR25490 Class 3211-03



9012G and 9016G Industrial pressure and vacuum switches

Selection and specifications (continued) - 9012G dual stage pressure switches



9012GKW1

Dual-Stage Operation

The **9012G dual-stage pressure switches** are designed for use in applications where two separate pressure operations must be controlled by a single pressure monitoring device. These controls are most commonly used where dual functions are required or in sequencing applications such as alarm shutdowns. The spread between the two stages is adjustable, but the differential between the high (rising) and low (falling) operating points of each stage is fixed.

NEMA 4, 4X, and 13 devices are suitable for use in Class I, Division 2, Groups A, B, C, and D hazardous locations or nonhazardous locations only.

Fixed Differential

NEMA 4, 4X, 13 Enclosure

UL Listed and CSA Certified as Industrial Control Equipment

Range Setting Pressure limits between which Stage 1 can be adjusted to operate on decreasing pressure	Adjustable Spread Add to the range setting to obtain the decreasing operating point of Stage 2	Fixed Differential Add to the low operating point to obtain the approximate high operating point for each stage		Maximum Allowable Pressure	SPDT Each Stage
		Stage 1	Stage 2		Type
Diaphragm Actuated—Nitrile Diaphragm, Zinc Plated Steel Housing					
0.2–10	1.1–5	1.0 ± 0.2	1.5 ± 0.4	100	GKW1
1–40	4.4–20	4.0 ± 1.0	6.0 ± 1.5	100	GKW2
1.5–75	6.6–30	6.0 ± 1.5	8.0 ± 2.0	240	GKW4
3–150	13.2–75	8.0 ± 2.0	12 ± 3	475	GKW5
5–250	24.2–110	14 ± 3	21 ± 5	750	GKW6
13–425	44–180	20 ± 4	30 ± 7.5	850	GLW1
20–675	50–250	30 ± 6	45 ± 11	2000	GLW2

Piston Actuated—#440 Stainless Steel Piston.

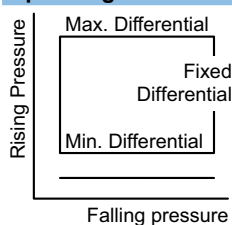
#303 Stainless Steel Housing, Viton® Fluorocarbon Diaphragm and O-ring, Teflon® Retaining Ring

20–1000	72–300	50 ± 10	75 ± 19	10,000	GMW1
90–2900	176–800	140 ± 30	210 ± 52	15,000	GMW2
170–5600	360–1700	275 ± 60	400 ± 100	20,000	GMW3
270–9000	550–2500	400 ± 80	800 ± 150	25,000	GMW4

Specifications

Fluids Controlled	Air, water, hydraulic oils, gases, steam (depending on the model)	
Pressure Connection	1/4"-18 NPTF is standard. For metric threads, add M after the W on all types. Other options are available (see specification sheets on www.tesensors.com). ⁽¹⁾	
Weight (approximate)	3 lb (1.36 kg)	
Voltage Limits	600 V	
Continuous Current	10 A	
Electrical Connections	1/2"-14 NPTF (standard), For Pg 13.5, or ISO M20, see footnote (2) on page 8/87.	
Standards/Ratings	CE, IEC 60957.5.1, UL 508, CSA 3211-03. UL Marine Listed for use on vessels greater than 65 ft long where ignition protection is not required.	
Temperature Ratings	Minimum	Maximum
Ambient	–23 °C (–10 °F)	+85 °C (+185 °F)
Media	Diaphragm	–40 °C (–40 °F)
	Piston	–26 °C (–15 °F)
	All with Form Q4	–26 °C (–15 °F)

Operating Curves



1 N.O.,
1 N.C.



Acceptable Wire Sizes:
12–22 AWG

Recommended Terminal Clamp Torque:
7 lb-in



File E12158
File E12158

CCN NKPZ
CCN NTHT - Marine Use



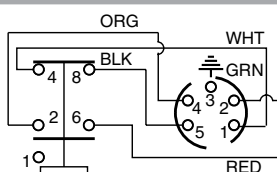
File LR25490 Class 3211-03



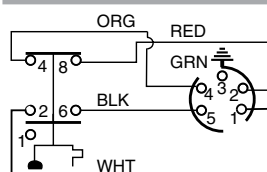
Wiring Diagrams for Receptacles and Connectors—Factory Modifications (Forms)—see page 8/91.

Prewired 5-pin male receptacle

Form H10

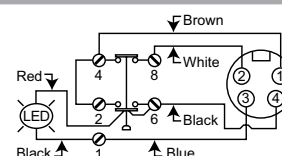


Form H11



Micro connector, 4-pin, for 24 Vdc pilot light

Form H17



9012G and 9016G Industrial pressure and vacuum switches

Selection and specifications (continued) - 9012G industrial pressure switches



9012GRG5

Fixed Differential

Open Type or NEMA 1 Enclosure

UL Listed and CSA Certified as Industrial Control Equipment

Range on Decreasing Pressure, psig	Approximate Differential ⁽¹⁾ At Mid Range, psig	Maximum Allowable Pressure, psig	Class 9012 Type	
			Open Type	NEMA 1
Diaphragm Actuated—Nitrile Diaphragm, Zinc Plated Steel Housing				
0.2–10	0.4 ± 0.1	100	GRO1	GRG1
1–40	1.2 ± 0.3	100	GRO3	GRG3
1.5–75	2.2 ± 0.4	240	GRO4	GRG4
3–150	4.2 ± 1	475	GRO5	GRG5
5–250	7.4 ± 2	750	GRO6	GRG6
13–425	13 ± 3	850	GSO1	GSG1
20–675	19 ± 5	2000	GSO2	GSG2

Piston Actuated—#440 Stainless Steel Piston.

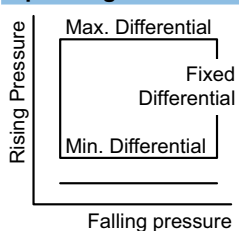
#303 Stainless Steel Housing, Viton® Fluorocarbon Diaphragm and O-Ring, Teflon® Retaining Ring

20–1000	49 ± 10	10,000	GTO1	GTG1
90–2900	141 ± 15	15,000	GTO2	GTG2
170–5600	200 ± 40	20,000	GTO3	GTG3
270–9000	350 ± 45	25,000	GTO4	GTG4

Specifications

Fluids Controlled	Air, water, hydraulic oils, gases, steam (depending on the model)	
Pressure Connection	1/4"-18 NPTF (standard), 1/2"-14 NPT, or 7/16"-20 UNF-2B. See spec. sheets on tesensors.com .	
Weight (approximate)	Type 1: 2 lb (0.91 kg); Open: 1.7 lb (0.77)	
Voltage Limits	600 V	
Continuous Current	10 A	
Electrical Connections	1/2" conduit entry, unthreaded	
Standards/Ratings	CE, IEC 60957.5.1, UL 508, CSA 3211-03	
Temperature Ratings	Minimum	Maximum
Ambient	–23 °C (–10 °F)	+85 °C (+185 °F)
Media	Diaphragm: –40 °C (–40 °F)	+120 °C (+250 °F)
	Piston: –26 °C (–15 °F)	
	All with Form Q4: –26 °C (–15 °F)	

Operating Curves



Contact Blocks

SPDT
Form C contacts



Acceptable Wire Sizes:
12–22 AWG

Recommended Terminal Clamp Torque:
7 lb-in

⁽¹⁾ Determines the operating point on rising pressure.



File E12158
CCN NKPZ



File LR 25490
Class 3211-03



9012G and 9016G Industrial pressure and vacuum switches

Selection and specifications (continued) - 9012G industrial pressure switches



9012GNO5



9012GQO2



9012GNG1

Adjustable Differential

Open Type or NEMA 1 Enclosure

UL Listed and CSA Certified as Industrial Control Equipment

Range on Decreasing Pressure psig	Approximate Mid Range ⁽¹⁾ Differential (adds to the decreasing set point)	Maximum Allowable Pressure psig	Class 9012 Type	
			Open Type	NEMA 1
Diaphragm Actuated—Nitrile Diaphragm, Zinc Plated Steel Housing				
0.2–10	0.6–1.0	100	GNO1	GNG1
1–40	1.6–5.0	100	GNO3	GNG3
1.5–75	2.5–6.5	240	GNO4	GNG4
3–150	4.8–13	475	GNO5	GNG5
5–250	8.5–20.5	750	GNO6	GNG6
13–425	20–41	850	GPO1	GPG1
20–675	35–66	2000	GPO2	GPG2

Piston Actuated—#440 Stainless Steel Piston.

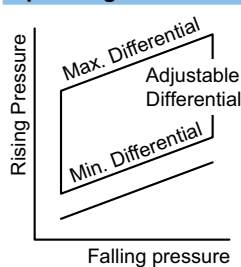
#303 Stainless Steel Housing, Viton® Fluorocarbon Diaphragm and O-Ring, Teflon® Retaining Ring

20–1000	56–98	10,000	GQO1	GQG1
90–2900	162–308	15,000	GQO2	GQG2
170–5600	355–563	20,000	GQO3	GQG3
270–9000	481–1050	25,000	GQO4	GQG4

Specifications

Fluids Controlled	Air, water, hydraulic oils, gases, steam (depending on the model)	
Pressure Connection	1/4"–18 NPTF (standard), G1/4 (BSP) female, or 1/2"–14 NPT. See Forms in the table below.	
Weight (approximate)	Type 1: 2 lb (0.91 kg); Open: 1.7 lb (0.77)	
Voltage Limits	600 V	
Continuous Current	10 A	
Electrical Connections	1/2" conduit entry, unthreaded	
Standards/Ratings	CE, IEC 60957.5.1, UL 508, CSA 3211-03	
Temperature Ratings	Minimum	Maximum
Ambient	–23 °C (–10 °F)	+85 °C (+185 °F)
Media	Diaphragm	–40 °C (–40 °F)
	Piston	–26 °C (–15 °F)
	All with Form Q4	–26 °C (–15 °F)
		+120 °C (+250 °F)

Operating Curves



Contact Blocks

SPDT Form C contacts



Acceptable Wire Sizes:

12–22 AWG

Recommended Terminal Clamp Torque:

7 lb-in

⁽¹⁾ Determines the operating point on rising pressure.

Factory Modifications (Forms) for 9012G Pressure Switches, Open Type or NEMA 1

UL Listed and CSA Certified as Industrial Control Equipment

Modification	Applies to	Form
Diaphragm	Standard Nitrile in #316 stainless steel housing	GNG, GNO, GPG, GPO, GRG, GRO, GSG, GSO
	Ethylene propylene in #316 stainless steel housing	Not available on GNG, GNO, GRG, GRO1. Available on all other GNG, GNO, GPG, GPO, GRG, GRO, GSG, GSO
	Viton® fluorocarbon in #316 stainless steel housing	GNG, GNO, GPG, GPO, GRG, GRO, GSG, GSO
Pressure connection	1/4"–18 NPT external thread	GNG, GNO, GRG, GRO
	1/2"–14 NPT external thread, 1/4"–18 NPTF internal thread. Standard actuator only.	GNG, GNO, GRG, GRO
	7/16"–20 UNF-2B internal thread	GNG, GNO, GPG, GPO, GQG, GQO, GRG, GRO, GSG, GSO, GTG, GTO

9012G and 9016G Industrial pressure and vacuum switches

Selection and specifications (continued) - 9016G vacuum switches for control applications

Selection and Specifications— 9016G Vacuum Switches



9016GAW2



9016GAR1

9016GAW Switches for Sensitive Control Applications

9016GAW vacuum switches have double throw contacts. Normally open and normally closed circuits allow the use of these controls for standard or reverse action applications.

Standard controls can be mounted from the front using the bracket provided. Two mounting screws are required for firm attachment to any smooth, flat surface. Allowance must be made for flange projection.

Controls with the Form F modification include two mounting feet with 9/32" mounting holes on 3–3/4 in. centers. The Range and Differential adjustments are accessed by removing the front cover.

- Maximum allowable positive pressure: 100 psig.
- Diaphragms are oil resisting, nitrile butadiene rubber (Buna-N).
- For electrical ratings and temperature limitations, see specification sheets on www.tesensors.com.
- For dimensions and modifications, see specification sheets on www.tesensors.com.

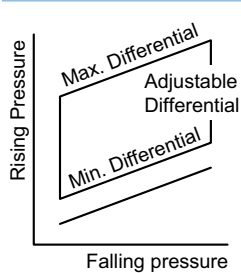
9016GAW Vacuum Switch for Control Applications, Diaphragm Actuated

Range on Decreasing Vacuum (inHg)	Adjustable Differential (inHg) Adds to Range (1)		Contact Arrangement	Pipe Tap (NPTF)	Class 9016 Type NEMA Enclosure Type	
	@ Minimum Range	@ Mid-Range			4, 4X & 13	7 & 9
0–28.7	0.8–9	1.3–7.4	1 N.O.–1 N.C.	1/4"-18	GAW1	GAR1
0–25	5–20	5–20	1 N.O.–1 N.C.	1/4"-18	GAW2	N/A
0–28.3	1–9	1.7–7.4	2 N.O.–2 N.C.	1/4"-18	GAW21	GAR21
0–25	5–20	5–20	2 N.O.–2 N.C.	1/4"-18	GAW22	N/A

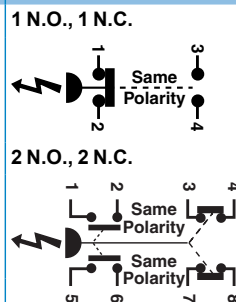
Specifications

Fluids Controlled	Air, water, hydraulic oils, gases, steam (depending on the model)	
Pressure Connection	NEMA 4, 4X & 13: 1/4"-18 NPTF (standard), G1/4 (BSP) female, or 1/2"-14 NPT. See Forms table on page 35 NEMA 7 & 9: 1/4" NPTF	
Weight (approximate)	Type 4, 4X, and 13: 3 lb (1.36 kg); Type 7 & 9: 10 lb (4.54 kg)	
Voltage Limits	600 V	
Continuous Current	10 A	
Electrical Connections	NEMA 4, 4X & 13: 1/2"-14 NPTF NEMA 7 & 9: 3/4"-14 NPTF	
Standards/Ratings	CE, IEC 60957.5.1, UL 508, CSA 3211-03	
Temperature Ratings	Minimum	Maximum
Ambient	–23 °C (–10 °F)	+85 °C (+185 °F)
	Diaphragm	–40 °C (–40 °F)
Media	Piston	–26 °C (–15 °F)
	All with Form Q4	–26 °C (–15 °F)

Operating Curves

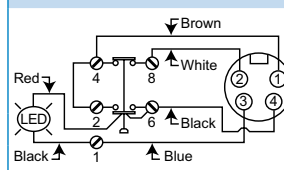


Contact Blocks

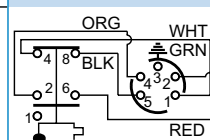


Connection

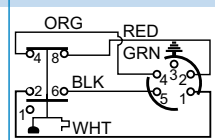
Form H17



Form H10



Form H11



SPDT snap switches contain two double-break contact elements (1 N.O., 1 N.C.) that must be used on circuits of the same polarity. **DPDT** snap switches contain two electrically separated sets of contact elements allowing use on circuits of opposite polarity. Each set contains two double-break contact elements (1 N.O., 1 N.C.) that must be used on circuits of the same polarity.

Acceptable Wire Sizes: 12–22 AWG

Recommended Terminal Clamp Torque: 7 lb-in

(1) Add the Differential to the Range to obtain the operating point on increasing vacuum (within vacuum limitations). The differential increases linearly over the range. The minimum differential doubles with NEMA 7 & 9 enclosures.



File E12443 Haz Loc
File E12158
File E12158
CCN NOWT (GAR)
CCN NKPZ (GAW)
CCN NTHT
Marine Use (GAW)



File LR 25490
Class 3211 06
Type GAW only

File LR26817
Type GAR only
(NEMA 7 and 9 Haz. Loc.)



9012G and 9016G Industrial pressure and vacuum switches

Selection and specifications (continued) - 9016G vacuum switches for power applications



9016GVG1J10

9016GVG Power Switches

The 9016GVG1 is designed as a companion to the 9036GG float switches in common use on vacuum heating pumps. Electrical ratings of float and vacuum switch types are equal.

For dimensions and modifications, see specification sheets on www.tesensors.com.

9016GVG Vacuum Switch for Power Applications

NEMA 1 Enclosure

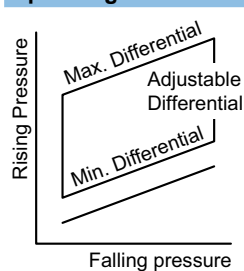
Contacts Open on Increasing Vacuum

Cut-Out Range, inHg	Approximate Adjustable Differential, inHg	Cut-In Range, inHg	Poles	Pressure Connection	Vacuum Setting, inHg	NEMA 1 Enclosure Class 9016 Type
5–25	5–10 inHg	0–20	2	1/4"-18 NPSF	3–8	GVG1J09
					16.5–25	GVG1J10
					17–22	GVG1J11
					18–23	GVG1J12
					20–25	GVG1J13
					Specify other vacuum (minimum order quantity: 4 pieces)	GVG1J99

Specifications

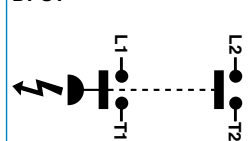
Fluids Controlled	Air, water, hydraulic oils, gases, steam (depending on the model)	
Pressure Connection	1/4"-18 NPTF (standard), G1/4 (BSP) female, or 1/2"-14 NPT. See Forms table, page 35.	
Max. Allowable Positive Pressure	100 psig	
Weight (approximate)	2 lb (0.91)	
Voltage Limits	600 V	
Continuous Current	10 A	
Electrical Connections	3 knockouts for 1/2" conduit	
Standards/Ratings	CE, IEC 60957.5.1, UL 508, CSA 3211-03	
Temperature Ratings	Minimum	Maximum
Ambient	–23 °C (–10 °F)	+85 °C (+185 °F)
Media	Diaphragm Piston All with Form Q4	+120 °C (+250 °F)

Operating Curves



Contact Blocks

DPST



Acceptable Wire Sizes:

8–14 AWG

Recommended Terminal Clamp Torque:

22–27 lb-in

For other ratings and specifications, see page 8/82.

Available Modifications for 9016GVG Vacuum Switches

Description	Form
3-way lever plus nameplate with marking: <i>Float only—Vacuum and Float—Continuous</i> (factory modification only)	E
Mounting bracket (for retrofit, order 9049A53 bracket kit)	F
Reverse action, normally open contacts	R
1/4 in. male pipe connection (1/4"-18 NPT, external thread) (for retrofit, use 1/4" pipe nipple)	Z



File E12158
CCN NKPZ

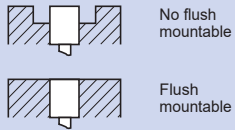


File LR 25490



XS Inductive proximity sensors

Cylindrical metal



	Flush standard and increased range			
	M8		M12	
Nominal sensing distance S_n	1,5 mm	2,5 mm	2 mm	4 mm
Usable sensing distance S (mm) flush mountable / No flush mountable	0 ... 1,2	0 ... 2	0...1,6	0 ... 3,2
Temperature range (°C)	- 25 ... + 70			
Product certification	CE, UL, CSA, CCC, C-TICK, E2 (2)			
Degree of protection (conforming to IEC 60529)	IP67		Pre-cabled: IP 69K conforming to DIN 40050, IP 68	

Sensors for DC applications

Output function			NO		A		A		A		A			
			NC		B		B		B		B			
Dimensions (mm) Ø x L Cable / Connector					M8 x 33 / M8 x 42					M12 x 35 / M12 x 50				
3-wires	PNP	Cable (2 m)	XS508B1P	A L2	XS108B3P	A L2	XS512B1P	A L2	XS112B3P	A L2				
		Connector M8 / M12	XS508B1P	A M8	XS108B3P	A M8	XS512B1P	A M12	XS112B3P	A M12				
	NPN	Cable (2m)	XS508B1N	A L2	XS108B3N	A L2	XS512B1N	A L2	XS112B3N	A L2				
		Connector M8 / M12	XS508B1N	A M8	XS108B3N	A M8	XS512B1N	A M12	XS112B3N	A M12				
2-wires	No polarised (1)	Cable (2 m)	XS508BSC	A L2	XS608B3C	A L2	XS512BSD	A L2	XS612B3D	A L2				
		Connector M12	XS508BSC	A L01M12	XS608B3C	A L01M12	XS512BSD	A M12	XS612B3D	A M12				
Supply voltage limits, min./max. (V) including ripple			10...36		10...36		10...36		10...36					
Switching capacity, max. (mA) 3-wires / 2-wires			200 / 100		200 / 100		200 / 100		200 / 100					
Overload and short-circuit protection (★) / LED output state indicator (⊗)			★ / ⊗		★ / ⊗		★ / ⊗		★ / ⊗					
Residual current, open state (mA)			≤ 0,5		≤ 0,5		≤ 0,5		≤ 0,5					
Voltage drop, closed state (V) at I nominal 3-wires / 2-wires			≤ 2 / ≤ 4		≤ 2 / ≤ 4		≤ 2 / ≤ 4		≤ 2 / ≤ 4					
Switching frequency (Hz) 3-wires / 2-wires			5000 / 4000		2500 / 3000		5000 / 4000		2500 / 2000					
Dimensions (mm) Ø x L Pre-cabled / Connector					M8 x 51 / M8 x 62					M12 x 53 / M12 x 62				
3-wires	PNP	Cable (2 m)	XS508BLP	A L2	XS608B1P	A L2	XS512BLP	A L2	XS612B1P	A L2				
		Connector M12	XS508BLP	A M12	XS608B1P	A M12	XS512BLP	A M12	XS612B1P	A M12				
	NPN	Cable (2 m)	XS508BLN	A L2	XS608B1N	A L2	XS512BLN	A L2	XS612B1N	A L2				
		Connector M12	XS508BLN	A M12	XS608B1N	A M12	XS512BLN	A M12	XS612B1N	A M12				
2-wires	No polarised	Cable (2 m)	XS508B1D	A L2	XS608B1D	A L2	XS512B1D	A L2	XS612B1D	A L2				
		Connector M12	XS508B1D	A M12	XS608B1D	A M12	XS512B1D	A M12	XS612B1D	A M12				
Supply voltage limits, min./max. (V) including ripple			10...58		10...58		10...58		10...58					
Switching capacity, max. (mA) 3-wires / 2-wires			200 / 100		200 / 100		200 / 100		200 / 100					
Overload and short-circuit protection (★) / LED output state indicator (⊗)			★ / ⊗		★ / ⊗		★ / ⊗		★ / ⊗					
Residual current, open state (mA) 2-wires			≤ 0,5		≤ 0,5		≤ 0,5		≤ 0,5					
Voltage drop, closed state (V) at I nominal 3-wires / 2-wires			≤ 2 / ≤ 4		≤ 2 / ≤ 4		≤ 2 / ≤ 4		≤ 2 / ≤ 4					
Switching frequency (Hz) 3-wires / 2-wires			5000 / 4000		2500 / 3000		5000 / 4000		2500 / 2000					

Multi-current/multi-voltage sensors for AC/DC applications

Dimensions (mm) Ø x L Cable / Connector		—	—	M12 x 53 / M12 x 62	
2-wires	Cable (2 m)	—	—	XS512B1M AL2	XS612B1M AL2
	Connector 1/2"-20 UNF	—	—	XS512B1M AU20	XS612B1M AU20
Supply voltage limits, min./max. (V) including ripple		—	—	20...264	20...264
Switching capacity, max (mA)		—	—	200	200
LED output state indicator (⊗)		—	—	⊗	⊗
Residual current, open state (mA)		—	—	≤ 0,8	≤ 0,8
Voltage drop, closed state (V) at I nominal		—	—	≤ 5,5	≤ 5,5
Switching frequency (Hz)		—	—	25 AC / 1000 DC	25 AC / 1000 DC

(1) polarised for M8 short

(2) E2 E2 depending on the version, more details on [tesensors.com](https://www.tesensors.com)

Accessories

Fixing for cylindrical sensors

Fixing clamp with indexing pin for cylindrical sensors



M8	XSZB108
M12	XSZB112
M18	XSZB118
M30	XSZB130

Suitable female plug-in connectors

M8	Straight	Elbowed
Metal ring	XZCC8FDM30S	XZCC8FCM30S
M12 (4-pins)		
Metal ring	XZCC12FDM40B	XZCC12FCM40B
Plastic ring	XZCC12FDP40B	XZCC12FCP40B



M18				No flush increased range		
M18		M30		M12	M18	M30
5 mm	8 mm	10 mm	15 mm	7/8 mm	12/15 mm	22/30 mm
0...4	0...6,4	0...8	0...12	0...5.6/0...6.4	0...9.6/0...12	0...17.6 / 0...24
- 25...+ 70				- 25...+ 70		
(with connector: IP67)				CE, UL , CSA , CCC, C-TICK, E2 (2) Pre-cabled: IP 69K conforming to DIN 40050, IP 68 (with connector: IP67)		

A		A		A		A		A	
B		B		B		B		B	
	M18 x 39 / M18 x 50		M30 x 43 / M30 x 55		M12 x 37 / M12 x 51		M18 x 41 / M18 x 51		
	XS518B1PAL2	XS118B3PAL2	XS530B1PAL2	XS130B3PAL2	XS212B4PAL2	XS218B4PAL2			
	XS518B1PAM12	XS118B3PAM12	XS530B1PAM12	XS130B3PAM12	XS212B4PAM12	XS218B4PAM12			
	XS518B1NAL2	XS118B3NAL2	XS530B1NAL2	XS130B3NAL2	XS212B4NAL2	XS218B4PAL2			
	XS518B1NAM12	XS118B3NAM12	XS530B1NAM12	XS130B3NAM12	XS212B4NAM12	XS218B4PAM12			
	XS518BSDAL2	XS618B3DAL2	XS530BSDAL2	XS630B3DAL2					
	XS518BSDAM12	XS618B3DAM12	XS530BSDAM12	XS630B3DAM12					
	10...36	10...36	10...36	10...36	10...36	10...36			
	200 / 100	200 / 100	200 / 100	200 / 100	200	200			
	★ / ☉	★ / ☉	★ / ☉	★ / ☉	★ / ☉	★ / ☉			
	≤ 0,5	≤ 0,5	≤ 0,5	≤ 0,5	≤ 0.5	≤ 0.5			
	≤ 2 / ≤ 4	≤ 2 / ≤ 4	≤ 2 / ≤ 4	≤ 2 / ≤ 4	≤ 2	≤ 2			
	2000 / 3000	1000 / 1000	1000 / 2000	500 / 500	2500	1000			
	M18 x 62 / M18 x 74		M30 x 62		M12 x 55 / M12 x 65		M18 x 62 / M18 x 74		M30 x 66 / M30 x 74
	XS518BLPAL2	XS618B1PAL2	XS530BLPAL2	XS630B1PAL2	XS612B4PAL2	XS618B4PAL2	XS630B5PAL2		
	XS518BLPAM12	XS618B1PAM12	XS530BLPAM12	XS630B1PAM12	XS612B4PAM12	XS618B4PAM12	XS630B5PAM12		
	XS518BLNAL2	XS618B1NAL2	XS530BLNAL2	XS630B1NAL2	XS612B4NAL2	XS618B4NAL2	XS630B5NAL2		
	XS518BLNAM12	XS618B1NAM12	XS530BLNAM12	XS630B1NAM12	XS612B4NAM12	XS618B4NAM12	XS630B5NAM12		
	XS518B1DAL2	XS618B1DAL2	XS530B1DAL2	XS630B1DAL2	–	–	–		
	XS518B1DAM12	XS618B1DAM12	XS530B1DAM12	XS630B1DAM12	–	–	–		
	10...58	10...58	10...58	10...58	10...58	10...58	10...58		
	200 / 100	200 / 100	200 / 100	200 / 100	200 / –	200 / –	200 / –		
	★ / ☉	★ / ☉	★ / ☉	★ / ☉	★ / ☉	★ / ☉	★ / ☉		
	≤ 0,5	≤ 0,5	≤ 0,5	≤ 0,5	–	–	–		
	≤ 2 / ≤ 4	≤ 2 / ≤ 4	≤ 2 / ≤ 4	≤ 2 / ≤ 4	≤ 2 / –	≤ 2 / –	≤ 2 / –		
	2000 / 3000	1000 / 1000	1000 / 2000	500 / 500	2500 / –	1000 / –	500 / –		

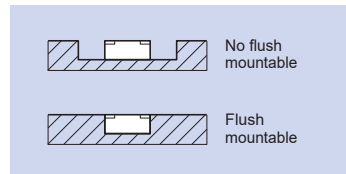
	M18 x 62 / M18 x 73		M30 x 62 / M30 x 73		—	M18 x 60 / M18 x 72	M30 x 63 / M30 x 74
	XS518B1M AL2	XS618B1M AL2	XS530B1M AL2	XS630B1M AL2	—	XS618B4M AL2	XS630B4M AL2
	XS518B1M AU20	XS618B1M AU20	XS530B1M AU20	XS630B1M AU20	—	XS618B4M AU20	XS630B4M AU20
	20...264	20...264	20...264	20...264	—	20...264	20...264
	300 AC / 200 DC	300 AC / 200 DC	300 AC / 200 DC	300 AC / 200 DC	—	300 AC / 200 DC	300 AC / 200 DC
	⊗	⊗	⊗	⊗	—	⊗	⊗
	≤ 0,8	≤ 0,8	≤ 0,8	≤ 0,8	—	≤ 0,8	≤ 0,8
	≤ 5,5	≤ 5,5	≤ 5,5	≤ 5,5	—	≤ 5,5	≤ 5,5
	25 AC / 1000 DC	25 AC / 1000 DC	25 AC / 500 DC	25 AC / 500 DC	—	25 AC / 1000 DC	25 AC / 300 DC

PUR pre-wired connectors (1)		M8 (3-pins)		1/2"		M12 (4-pins)			
 Straight Elbowed			Straight	Elbowed		Straight	Elbowed	Elbowed PNP LED	
		2 m	XZCP0566L2	XZCP0666L2	2 m	XZCP1865L2	XZCP1965L2	2 m	XZCP1141L2
		5 m	XZCP0566L5	XZCP0666L5	5 m	XZCP1865L5	XZCP1965L5	5 m	XZCP1141L5
		10 m	XZCP0566L10	XZCP0666L10	10 m	XZCP1865L10	XZCP1965L10	10 m	XZCP1141L10

(1) For PVC cable see page 65

XS Inductive proximity sensors

Rectangulars plastic



	Ø 8 x 22 x 8	Ø 15 x 32 x 8	Ø 26 x 26 x 13	Ø 40 x 40 x 15	Ø 80 x 80 x 26	
Nominal sensing distance Sn	2.5 mm	5 mm	10 mm	15 mm	40 mm	
Operating zone (mm)	0...2	0...4	0...8	0...12	0...32	
Fine adjustment zone (mm) flush mountable / No flush mountable	–	–	–	–	–	
Suitability for flush mounting(metal environment)	flush mountable	flush mountable	flush mountable	flush mountable	flush mountable	
Temperature range (°C)	- 25...+ 70	- 25...+ 70	- 25...+ 70	- 25...+ 70	- 25...+ 70	
Product certification	CE	CE, UL, CSA, C-TICK				
Degree of protection (conforming to IEC 60529)	pre-cabled : IP68 (with connector : IP67)					

Sensors for DC applications

Connection				Pre-cabled PvR (2 m)				
2-wires (No polarised)		NO or NC	programmable	–	–	–	–	–
2-wires	No polarised	NO function		XS7J1A1DAL2	XS7F1A1DAL2	XS7E1A1DAL2 (3)	XS7C1A1DAL2 (3)	XS7D1A1DAL2 (3)
		NC function		XS7J1A1DBL2	XS7F1A1DBL2	XS7E1A1DBL2 (3)	XS7C1A1DBL2 (3)	XS7D1A1DBL2 (3)
4-wires	PNP	NO + NC	complementary outputs	–	–	–	–	–
	NPN	NO + NC	complementary outputs	–	–	–	–	–
3-wires	PNP	NO function		XS7J1A1PAL2	XS7F1A1PAL2	XS7E1A1PAL2 (3)	XS7C1A1PAL2 (3)	XS7D1A1PAL2 (3)
		NC function		XS7J1A1PBL2	XS7F1A1PBL2	XS7E1A1PBL2 (3)	XS7C1A1PBL2 (3)	XS7D1A1PBL2 (3)
	NPN	NO function		XS7J1A1NAL2	XS7F1A1NAL2	XS7E1A1NAL2 (3)	XS7C1A1NAL2 (3)	XS7D1A1NAL2 (3)
		NC function		XS7J1A1NBL2	XS7F1A1NBL2	XS7E1A1NBL2 (3)	XS7C1A1NBL2 (3)	XS7D1A1NBL2 (3)
Connection				M8				M12
2-wires	No polarised	NO function		XS7J1A1DAL01M8 (1)	XS7F1A1DAL01M8 (1)	XS7E1A1DAM8 (3)	XS7C1A1DAM8 (3)	XS7D1A1DAM12 (3)
		NC function		XS7J1A1DBL01M8 (1)	XS7F1A1DBL01M8 (1)	XS7E1A1DBM8 (3)	XS7C1A1DBM8 (3)	XS7D1A1DBM12 (3)
3-wires	PNP	NO function		XS7J1A1PAL01M8 (1)	XS7F1A1PAL01M8 (1)	XS7E1A1PAM8 (3)	XS7C1A1PAM8 (3)	XS7D1A1PAM12 (3)
		NC function		XS7J1A1PBL01M8 (1)	XS7F1A1PBL01M8 (1)	XS7E1A1PBM8 (3)	XS7C1A1PBM8 (3)	XS7D1A1PBM12 (3)
	NPN	NO function		XS7J1A1NAL01M8 (1)	XS7F1A1NAL01M8 (1)	XS7E1A1NAM8 (3)	XS7C1A1NAM8 (3)	XS7D1A1NAM12 (3)
		NC function		XS7J1A1NBL01M8 (1)	XS7F1A1NBL01M8 (1)	XS7E1A1NBM8 (3)	XS7C1A1NBM8 (3)	XS7D1A1NBM12 (3)
Supply voltage limits, min./max. (V) including ripple				10...36	10...36	10...36	10...36	10...36
Switching capacity, max (mA)				100	100	100	100	100
Short-circuit protect. (★) / Output state LED (⊗) / Power on LED (⊗)				★ / ⊗ / –	★ / ⊗ / –	★ / ⊗ / –	★ / ⊗ / –	★ / ⊗ / –
Voltage drop, closed state (V) at I nominal cable / Connector				≤ 4 / ≤ 2	≤ 4 / ≤ 2	≤ 2	≤ 2	≤ 2
Switching frequency (Hz) cable / Connector				4000 / 2000	5000 / 2000	1000	1000	100

Multi-current/multi-voltage sensors for AC/DC applications

Connection							
2-wires	AC/DC	NO function	–	–	–	–	–
		NC function	–	–	–	–	–
	AC	NO or NC programmable	–	–	–	–	–
	AC/DC	NO or NC programmable	–	–	–	–	–
Connection							
2-wires	AC/DC	NO function	–	–	–	–	–
		NC function	–	–	–	–	–
Supply voltage limits, min./max. (V) including ripple			–	–	–	–	–
Switching capacity, max (mA)			–	–	–	–	–
Short-circuit protect. (★) / Output state LED (⊗) / Power on LED (⊗)			–	–	–	–	–
Residual current, open state (mA)			–	–	–	–	–
Voltage drop, closed state (V) at I nominal			–	–	–	–	–
Switching frequency (Hz)			–	–	–	–	–

(1) M8 connector on flying lead L = 0,15m

Accessories

Fixing for flat sensors



Suitable female plug-in connectors

	flat	90°	M8	Straight	Elbowed
8x22x8	XSZBJ00	XSZBJ90	Metal ring	XZCC8FDM30S	XZCC8FCM30S
15x32x8	XSZBF00	XSZBF90	M12 (4-pins)		
26x26x13	XSZBE00	XSZBE90	Metal ring	XZCC12FDM40B	XZCC12FCM40B
40x40x15	XSZBC00	XSZBC90	Plastic ring	XZCC12FDP40B	XZCC12FCP40B



	Ø 40 x 40 x 70		Ø 40 x 40 x 117		Ø 26 x 26 x 13	Ø 40 x 40 x 15	Ø 80 x 80 x 26
	20 mm	40 mm	20 mm	40 mm	15 mm	25 mm	60 mm
	0...16	0...32	0...16	0...32	0...8 / 0...12	0...12 / 0...20	0...32 / 0...48
					5...10 / 5...15	8...15 / 8...25	20...40 / 20...60
	flush mountable	No flush mountable	flush mountable	No flush mountable	flush mountable or No flush mountable via teach mode		
	- 25...+ 70				- 25...+ 70		
	CE, UL, CSA, CCC, C-TICK, E2, for PNP versions: TUV Sil 2				CE, UL, CSA, CCC, C-TICK		
	IP67 and IP69K				pre-cabled : IP68 (with connector : IP67)		

M12		Screw terminals (2)		Pre-cabled (2m)		
-	-	XS8C4A1DPP20	XS8C4A4DPP20	-	-	-
XS8C2A1DAM12	XS8C2A4DAM12	-	-	-	-	-
XS8C2A1DBM12	XS8C2A4DBM12	-	-	-	-	-
XS8C2A1PCM12	XS8C2A4PCM12	XS8C4A1PCP20	XS8C4A4PCP20	-	-	-
XS8C2A1NCM12	XS8C2A4NCM12	XS8C4A1NCP20	XS8C4A4NCP20	-	-	-
-	-	-	-	XS8E1A1PAL2 (3)	XS8C1A1PAL2 (3)	XS8D1A1PAL2 (3)
-	-	-	-	XS8E1A1PBL2 (3)	XS8C1A1PBL2 (3)	XS8D1A1PBL2 (3)
-	-	-	-	XS8E1A1NAL2 (3)	XS8C1A1NAL2 (3)	XS8D1A1NAL2 (3)
-	-	-	-	XS8E1A1NBL2 (3)	XS8C1A1NBL2 (3)	XS8D1A1NBL2 (3)
				M8		M12
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	XS8E1A1PAM8 (3)	XS8C1A1PAM8 (3)	XS8D1A1PAM12 (3)
-	-	-	-	XS8E1A1PBM8 (3)	XS8C1A1PBM8 (3)	XS8D1A1PBM12 (3)
-	-	-	-	XS8E1A1NAM8 (3)	XS8C1A1NAM8 (3)	XS8D1A1NAM12 (3)
-	-	-	-	XS8E1A1NBM8 (3)	XS8C1A1NBM8 (3)	XS8D1A1NBM12 (3)
12...48				10...36	10...36	10...36
4-wires version = 200 - 2-wires version = 1.5...100				100	200	200
4-wires version = ★ / ⊗ / ⊗ - 2-wires version = ★ / ⊗ / -				★ / ⊗ / ⊗	★ / ⊗ / ⊗	★ / ⊗ / ⊗
4-wires version = ≤ 2 - 2-wires version = ≤ 4				≤ 2	≤ 2	≤ 2
flush mountable : 300 - No flush version : 200				2000	1000	150

1/2" - 20 UNF connector		Screw terminals (2)		Pre-cabled (2m)		
XS8C2A1MAU20	XS8C2A4MAU20	-	-	XS8E1A1MAL2	XS8C1A1MAL2	XS8D1A1MAL2
XS8C2A1MBU20	XS8C2A4MBU20	-	-	XS8E1A1MBL2	XS8C1A1MBL2	XS8D1A1MBL2
-	-	-	-	-	-	-
-	-	XS8C4A1MPP20	XS8C4A4MPP20	-	-	-
				1/2" - 20 UNF connector		
-	-	-	-	XS8E1A1MAL01U20 (3)	XS8C1A1MAL01U20 (3)	XS8D1A1MAU20 (3)
-	-	-	-	XS8E1A1MBL01U20 (3)	XS8C1A1MBL01U20 (3)	XS8D1A1MBU20 (3)
20...264				20...264	20...264	20...264
AC/DC version = 300 / 200				200 AC ou DC	300 AC / 200 DC	300 AC / 200 DC
- / ⊗ / -				- / ⊗ / ⊗	- / ⊗ / ⊗	- / ⊗ / ⊗
AC/DC version = ≤ 1.5				≤ 1.5	≤ 1.5	≤ 1.5
≤ 5.5				≤ 5.5	≤ 5.5	≤ 5.5
25 AC / 50 DC				2000	1000	150

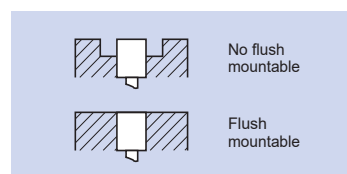
(2) Sensors supplied without cable gland. Suitable cable gland: M20. Also available in 13P, 1/2" NPT output and M12, 7/8" connectors. (3) ECOLAB certified

PUR pre-wired connectors (1)		M8 (3-pins)		1/2"		M12 (4-pins)					
 Straight	 Elbowed		Straight	Elbowed		Straight	Elbowed		Straight	Elbowed	Elbowed PNP LED
		2 m	XZCP0566L2	XZCP0666L2	2 m	XZCP1865L2	XZCP1965L2	2 m	XZCP1141L2	XZCP1241L2	XZCP1340L2
		5 m	XZCP0566L5	XZCP0666L5	5 m	XZCP1865L5	XZCP1965L5	5 m	XZCP1141L5	XZCP1241L5	XZCP1340L5
		10 m	XZCP0566L10	XZCP0666L10	10 m	XZCP1865L10	XZCP1965L10	10 m	XZCP1141L10	XZCP1241L10	XZCP1340L10

(1) For PVC cable see page 65

XS Inductive proximity sensors

Cylindrical Plastic



	M8	M12	M18	M30
Nominal sensing distance S_n	2,5 mm	4 mm	8 mm	15 mm
Operating zone (mm)	0...2	0...3,2	0...6,4	0...12
Suitability for flush mounting(metal environment)	Non flush mountable			
Temperature range (°C)	- 25...+ 70			
Product certification	CE, UL, CSA, CCC, C-TICK, ECOLAB			
Degree of protection (conforming to IEC 60529)	IP67	pre-cabled : IP68 (with connector : IP67)		

Sensors for DC applications

Connection			Pre-cabled PvR (2 m)			
Dimensions (mm) Ø x L			M8 x 33	M12 x 33	M18 x 33,5	M30 x 40,5
3-wires	PNP	NO function	XS4P08PA340	XS4P12PA340	XS4P18PA340	XS4P30PA340
		NC function	XS4P08PB340	XS4P12PB340	XS4P18PB340	XS4P30PB340
	NPN	NO function	XS4P08NA340	XS4P12NA340	XS4P18NA340	XS4P30NA340
		NC function	XS4P08NB340	XS4P12NB340	XS4P18NB340	XS4P30NB340
Connection			M8	M12		
Dimensions (mm) Ø x L			M8 x 42	M12 x 48	M18 x 48	M30 x 50
3-wires	PNP	NO function	XS4P08PA340S	XS4P12PA340D	XS4P18PA340D	XS4P30PA340D
		NC function	XS4P08PB340S	XS4P12PB340D	XS4P18PB340D	XS4P30PB340D
	NPN	NO function	XS4P08NA340S	XS4P12NA340D	XS4P18NA340D	XS4P30NA340D
		NC function	XS4P08NB340S	XS4P12NB340D	XS4P18NB340D	–
Supply voltage limits, min./max. (V) including ripple			10...38	10...38	10...38	10...38
Switching capacity, max (mA)			200	200	200	200
Short-circuit protect. (★) / LED output state indicator (⊗)			★ / ⊗	★ / ⊗	★ / ⊗	★ / ⊗
Voltage drop, closed state (V) at I nominal			≤ 2	≤ 2	≤ 2	≤ 2
Switching frequency (Hz)			5000	5000	2000	1000

Multi-current/multi-voltage sensors for AC/DC applications

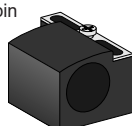
Connection			Pre-cabled PvR (2 m)			
Dimensions (mm) Ø x L			M8 x 50	M12 x 50	M18 x 60	M30 x 60
2-wires	AC/DC	NO function	XS4P08MA230	XS4P12MA230	XS4P18MA230	XS4P30MA230
not short-circuit protected (1)___		NC function	XS4P08MB230	XS4P12MB230	XS4P18MB230	XS4P30MB230
Connection			1/2"			
Dimensions (mm) Ø x L			M8 x 61	M12 x 61	M18 x 70	M30 x 70
2-wires	AC/DC	NO function	XS4P08MA230K	XS4P12MA230K	XS4P18MA230K	XS4P30MA230K
not short-circuit protected (1)		NC function	XS4P08MB230K	XS4P12MB230K	XS4P18MB230K	XS4P30MB230K
Supply voltage limits, min./max. (V) including ripple			20...264	20...264	20...264	20...264
Switching capacity, max (mA)			100	200	300 AC / 200 DC	300 AC / 200 DC
LED output state indicator (⊗)			⊗	⊗	⊗	⊗
Residual current, open state (mA)			≤ 0,6	≤ 0,6	≤ 0,6	≤ 0,6
Voltage drop, closed state (V) at I nominal			≤ 5,5	≤ 5,5	≤ 5,5	≤ 5,5
Switching frequency (Hz)			25 AC / 3000 DC	25 AC / 3000 DC	25 AC / 2000 DC	25 AC / 1000 DC

(1) For these sensors without short-circuit protection, it is essential to connect a 0.4 A quick-blow fuse in series with the load.

Accessories

Fixing for cylindrical sensors

Fixing clamp with indexing pin for cylindrical sensors



M4	XSZB104	M12	XSZB112
M5	XSZB105	M18	XSZB118
M6.5	XSZB165	M30	XSZB130
M8	XSZB108		

Suitable female plug-in connectors

M8	Straight	Elbowed
Metal ring	XZCC8FDM30S	XZCC8FCM30S
M12 (4-pins)		
Metal ring	XZCC12FDM40B	XZCC12FCM40B
Plastic ring	XZCC12FDP40B	XZCC12FCP40B

Miniature cylindrical metal (assembly)



	Ø 4	M5	Ø 6,5	
Nominal sensing distance S_n	1 mm	1 mm	1,5 mm	2,5 mm
Operating zone (mm)	0...0,8	0...0,8	0...1,2	0...2
Suitability for flush mounting(metal environment)	flush mountable			
Temperature range (°C)	- 25...+ 70			
Product certification	CE, UL, CSA, CCC, C-TICK			
Degree of protection (conforming to IEC 60529)	IP67			

Sensors for DC applications

Dimensions (mm) Ø x L			Ø 4 x 29	M5 x 29	Ø 6,5 x 33	
Connection			Pre-cabled PvR (2 m)			
3-wires	PNP	NO function	XS1L04PA310	XS1N05PA310	XS506B1PAL2	XS106B3PAL2
		NC function	–	–	XS506B1PBL2	XS106B3PBL2
	NPN	NO function	XS1L04NA310	XS1N05NA310	XS506B1NAL2	XS106B3NAL2
		NC function	–	–	XS506B1NBL2	XS106B3NBL2
2-wires (polarised)	NO function		–	–	XS506BSCAL2	XS606B3CAL2
	NC function		–	–	XS506BSCBL2	XS606B3CBL2
Dimensions (mm) Ø x L			Ø 4 x 41	M5 x 41	Ø 6,5 x 42	
Connection			M8			
3-wires	PNP	NO function	XS1L04PA310S	XS1N05PA311S (1)	XS506B1PAM8	XS106B3PAM8
		NC function	–	–	XS506B1PBM8	XS106B3PBM8
	NPN	NO function	XS1L04NA310S	XS1N05NA311S (1)	XS506B1NAM8	XS106B3NAM8
		NC function	–	–	XS506B1NBM8	XS106B3NBM8
Connection			M12			
2-wires (polarised)	NO function		–	–	XS506BSCAL01M12	XS606B3CAL01M12
Supply voltage limits, min./max. (V) including ripple			5...30	5...30	10...36	
Switching capacity, max. (mA) 3-wires / 2-wires			100 / –	100 / –	200 / 100	
Short-circuit protect. (★) / LED output state indicator (⊗)			★ / ⊗	★ / ⊗	★ / ⊗	
Voltage drop, closed state (V) at I nominal 3-wires / 2-wires			≤ 2 / –	≤ 2 / –	≤ 2 / ≤ 4	
Switching frequency (Hz) 3-wires / 2-wires			5000 / –	5000 / –	5000 / 4000	2500 / 3000

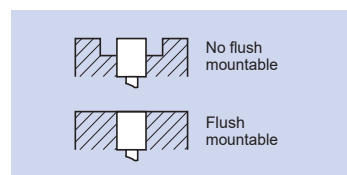
(1) Stainless steel sensors, $S_n = 0,8$ mm

PUR pre-wired connectors (1)		M8 (3-pins)		1/2"		M12 (4-pins)					
 Straight	 Elbowed		Straight	Elbowed		Straight	Elbowed		Straight	Elbowed	Elbowed PNP LED
		2 m	XZCP0566L2	XZCP0666L2	2 m	XZCP1865L2	XZCP1965L2	2 m	XZCP1141L2	XZCP1241L2	XZCP1340L2
		5 m	XZCP0566L5	XZCP0666L5	5 m	XZCP1865L5	XZCP1965L5	5 m	XZCP1141L5	XZCP1241L5	XZCP1340L5
		10 m	XZCP0566L10	XZCP0666L10	10 m	XZCP1865L10	XZCP1965L10	10 m	XZCP1141L10	XZCP1241L10	XZCP1340L10

(1) For PVC cable see page 65

XS Inductive proximity sensors

Multi-voltage with short-circuit protection



		M 12	M 18	M 30
Nominal sensing distance S_n	flush	2 mm	5 mm	10 mm
	No flush or increased flush	4 mm	8 mm	15 mm
Operating zone (mm)	flush	0...1,6	0...4	0...8
	No flush or increased flush	0...3,2	0...6,4	0...12
Suitability for flush mounting(metal environment)		Flush mountable ou No flush mountable depending on model		
Case M (metal) P (plastic)		M		
Temperature range (°C)		- 25...+ 70		
Degree of protection (conforming to IEC 60529)		IP68 (with connector : IP67)		
Product certification		CE, UL, CSA, CCC, C-TICK		
Dimensions (mm) Ø x L Cable (Connector)		M12 x 55 (M12 x 66)	M18 x 60 (M18 x 72)	M30 x 60 (M30 x 72)

Sensors for DC applications

Connection						
4-wires	PNP	NO + NC	Flush	–	–	–
			increased flush			
			No flush	–	–	–
	NPN	NO + NC	Flush	–	–	–
			No flush	–	–	–
	PNP+NPN NO/NC programmable		Flush (metal)	–	–	–
			No flush (metal)	–	–	–
			No flush (plastic)	–	–	–
Connection						
4-wires	PNP	NO + NC	Flush	–	–	–
			increased flush			
			No flush	–	–	–
	NPN	NO + NC	Flush	–	–	–
			No flush	–	–	–
	PNP+NPN NO/NC programmable		Flush (metal)	–	–	–
			No flush (metal)	–	–	–
			No flush (plastic)	–	–	–
Supply voltage limits, min./max. (V) including ripple				–	–	–
Switching capacity, max (mA)				–	–	–
Short-circuit protection (★) / LED output state indicator (⊗)				–	–	–
Voltage drop, closed state (V) at I nominal				–	–	–
Switching frequency (Hz)				–	–	–

Multi-current/multi-voltage sensors for AC/DC applications

Connection			Pre-cabled PvR (2 m)		
2-wires AC/DC	NO function	Flush	XS1M12MA250	XS1M18MA250	XS1M30MA250
		No flush	XS2M12MA250	XS2M18MA250	XS2M30MA250
	NC function	Flush	XS1M12MB250	XS1M18MB250	XS1M30MB250
		No flush	XS2M12MB250	XS2M18MB250	XS2M30MB250
Connection			1/2"-20UNF		
2-wires AC/DC	NO function	Flush	XS1M12MA250K	XS1M18MA250K	XS1M30MA250K
		No flush	XS2M12MA250K	XS2M18MA250K	XS2M30MA250K
	NC function	Flush	XS1M12MB250K	XS1M18MB250K	XS1M30MB250K
		No flush	–	XS2M18MB250K	XS2M30MB250K
Supply voltage limits, mini/maxi (V) 50-60 Hz			20...264		
Switching capacity, max (mA)			5...200	5...200 AC, 5...300 DC	
LED output state indicator (⊗) / Power on LED (⊗)			⊗ / ⊗		
Residual current, open state (mA)			≤ 1,5		
Voltage drop, closed state (V) at I nominal			≤ 5,5		
Switching frequency (Hz)			25 AC, 4000 DC	25 AC, 2000 DC	25 AC, 2000 DC (1)

(1) 25 AC, 1000 DC for non flush Ø 30 mm.

PNP or NPN
NO + NC Complementary outputs

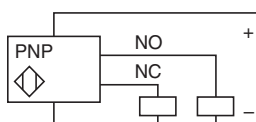
PNP + NPN outputs,
NO or NC programmable



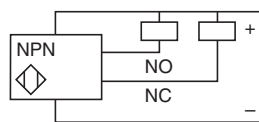
	M 8	M 12	M 18	M 30	M 12	M 18	M 30
	1,5 mm	2 mm	5 mm	10 mm	2 mm	5 mm	10 mm
	2,5 mm	4 mm	8 mm	15 mm	4 mm	8 mm	15 mm
	0...1,2	0...1,6	0...4	0...8	0...1,6	0...4	0...8
	0...2	0...3,2	0...6,4	0...12	0...3,2	0...6,4	0...12
	flush mountable or no flush mountable depending on model				flush mountable or no flush mountable depending on model		
	M				M ou P depending on model		
	- 25...+ 70				- 25...+ 70		
	IP67	IP68 (with connector : IP67)			IP68 (with connector : IP67)		
	CE, UL, CSA, CCC, C-TICK, E2 - for versions PNP : TÜV SIL2 (SIL2 only for M12, M18, M30)				CE, UL, CSA, CCC, C-TICK		
	M8 x 50 (M8 x 61)	M12 x 33 (M12 x 48)	M18 x 36.5 (M18 x 49)	M30 x 40.5 (M30 x 53)	M12 x 50 (M12 x 61)	M18 x 60 (M18 x 72)	M30 x 60 (M30 x 72)

Pre-cabled PvR (2 m)				Pre-cabled PvR (2 m)			
	XS1M08PC410	XS1N12PC410	XS1N18PC410	XS1N30PC410	–	–	–
	–	XS112B3PCL2	XS118B3PCL2	XS130B3PCL2			
	XS2M08PC410	–	–	–	–	–	–
	XS1M08NC410	XS1N12NC410	XS1N18NC410	XS1N30NC410	–	–	–
	XS2M08NC410	XS2N12NC410	XS2N18NC410	XS2N30NC410	–		
	–	–	–	–	XS1M12KP340	XS1M18KP340	XS1M30KP340
	–	–	–	–	XS2M12KP340	XS2M18KP340	XS2M30KP340
	–	–	–	–	XS4P12KP340	XS4P18KP340	XS4P30KP340
	M12				M12		
	XS1M08PC410D	XS1N12PC410D	XS1N18PC410D	XS1N30PC410D	–	–	–
	–	XS112B3PCM12	XS118B3PCM12	XS130B3PCM12			
	XS2M08PC410D	–	–	–	–	–	–
	XS1M08NC410D	XS1N12NC410D	XS1N18NC410D	XS1N30NC410D	–	–	–
	XS2M08NC410D	XS2N12NC410D	XS2N18NC410D	XS2N30NC410D	–	–	–
	–	–	–	–	XS1M12KP340D	XS1M18KP340D	XS1M30KP340D
	–	–	–	–	XS2M12KP340D	XS2M18KP340D	XS2M30KP340D
	–	–	–	–	XS4P12KP340D	XS4P18KP340D	XS4P30KP340D
	10...36	9...36 for PNP version			10...36		
	200				200		
	★ / ☉				★ / –		
	≤ 2				≤ 2,6		
	5000	5000	2000	1000	5000	2000	1000

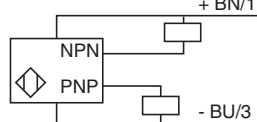
PNP



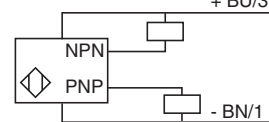
NPN



NO



NC



Accessories

Fixing clamps

With indexing pin for cylindrical sensors



M8	XSZB108
M12	XSZB112
M18	XSZB118
M30	XSZB130

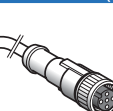
Suitable female plug-in connectors, including PUR pre-wired versions (1)

length 5 m
without LED

pre-wired
Elbowed



pre-wired
Straight



screw terminal



M8 (ou S)	XZCP0666L5
M12 (ou D)	XZCP1241L5
1/2" (ou K)	XZCP1965L5

XZCP0566L5
XZCP1141L5
XZCP1865L5

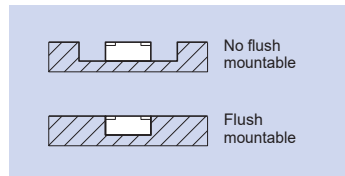
XZCC8FCM30S
XZCC12FCM40B
XZCC20FCM30B

(1) For PVC cable see page 65

XS Inductive proximity sensors - Application

Rotation control

Fixed sensing distance
(for ferrous or no ferrous materials)



	26 x 26 x 13	40 x 40 x 15	M30	M18	M30
Nominal sensing distance S_n	10 mm	15 mm	10 mm	5 mm	10 mm
Operating zone (mm)	0...8	0...12	0...8	0...4	0...8
Suitability for flush mounting(metal environment)	flush mountable			flush mountable	
Case M (metal) P (plastic)	P	P	M	M	M
Temperature range (°C)	- 25...+ 60			0...+ 50	
Degree of protection (conforming to IEC 60529)	IP67			pre-cabled : IP68 (with connector : IP67)	
Product certification	CE, UL, CSA, CCC, C-TICK			CE, UL, CSA, CCC, C-TICK	
Dimensions (mm) Ø x L or W x H x D Cable (Connector)	26 x 26 x 13	40 x 40 x 15	M30 x 81	M18 x 60 (M18 x 70)	M30 x 60
Maximum speed of passing object (impulses / min)	48000	48000	6000...48000 (1)	—	—
Adjustable frequency range (impulses / min)	6...6000	6...6000	6...150 / 120...3000 (1)	—	—

Sensors for DC applications

Connection				Pre-cabled PvR (2 m)				
4 wires	PNP/NPN NO/NC		programmable	—	—	—	XS1M18KPM40	XS1M30KPM40
3-wires	PNP	NC function	slow version	—	—	XSAV11373	—	—
			fast version	—	—	XSAV12373	—	—
	Output 0...10 V		plastic	—	—	—	—	—
	Output 4...20 mA	metal flush mountable	—	—	—	—	—	
		plastic flush mountable	—	—	—	—	—	
		plastic no flush mountable	—	—	—	—	—	
Connection par connector				M8 ou M12				
4 wire	PNP/NPN NO/NC		programmable	—	—	—	XS1M18KPM40D	XS1M30KPM40LD
3-wires	PNP	NC function		XS9E11RPBL01M12 (3)	XS9C11RPBL01M12 (3)	—	—	—
			Output 0...10 V	—	—	—	—	—
			Output 4...20 mA	—	—	—	—	—
Supply voltage limits, min./max. (V) including ripple				10...36	10...36	10...58	10...38	
Switching capacity, max (mA)				100	200	200	200	
Short-circuit protect. (★) / LED output state indicator (⊗) / Power on LED (⊗)				★ / ⊗ / ⊗	★ / ⊗ / ⊗	★ / ⊗ / —	★ / ⊗ / —	
Linearity error				—	—	—	—	
Voltage drop, closed state (V) at I nominal				≤ 2	≤ 2	≤ 2	≤ 2,6	
Switching frequency (Hz)				—	—	—	1000	
Operating frequency (Hz)				—	—	—	—	

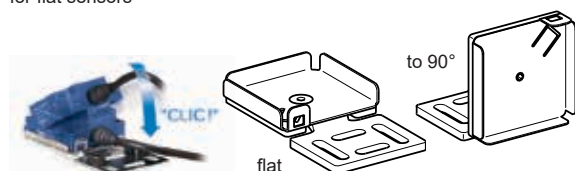
Multi-current/multi-voltage sensors for AC/DC applications

Connection				Pre-cabled PvR (2 m)				
2-wires	AC/DC	NC function		XS9E11RMBL01U20 (5)	XS9C11RMBL01U20 (5)	—	—	—
not short-circuit protected (2)	NC function	slow version	—	—	XSAV11801	—	—	
		fast version	—	—	XSAV12801	—	—	
Supply voltage limits, mini/maxi (V) 50–60 Hz				20...264	20...264	20...264	—	—
Switching capacity, max (mA)				100	300 AC / 200 DC	300 AC / 200 DC	—	—
LED output state indicator (⊗) / Power on LED (⊗)				⊗ / ⊗	⊗ / ⊗	⊗ / —	—	—
Residual current, open state (mA)				≤ 1,5	≤ 1,5	≤ 1,5	—	—
Voltage drop, closed state (V) at I nominal				≤ 5,5	≤ 5,5	≤ 5,7	—	—
Switching frequency (Hz)				—	—	—	—	—

Accessories

Fixings

for flat sensors



	flat	90°	substitution of block type sensors XSE / XSC / XSD
8x22x8	XSZBJ00	XSZBJ90	—
15x32x8	XSZBF00	XSZBF90	XSZBE10
26x26x13	XSZBE00	XSZBE90	XSZBC10
40x40x15	XSZBC00	XSZBC90	XSZBD10

Fixing clamp with indexing pin
for cylindrical sensors



M12	XSZB112
M18	XSZB118
M30	XSZB130

Analogue (Position control)



	8 x 32 x 8	26 x 26 x 13	40 x 40 x 15	80 x 80 x 26	M12	M18	M30
	5 mm	10 mm	15 mm	40 mm	M: 2 mm / P: 4 mm	M: 5 mm / P: 8 mm	M: 10 mm / P: 15 mm
	1...4	1...10	2...15	5...40	M : 0,2...2 / P : 0,4...4	M : 0,5...5 / P : 0,8...8	M : 1...10 / P : 1,5...15
	flush mountable	flush mountable	flush mountable	flush mountable	flush / No flush mountable	flush / No flush mountable	flush / No flush mountable
	P	P	P	P	M ou P	M ou P	M ou P
	- 25...+ 60	- 25...+ 70	- 25...+ 70	- 25...+ 70	- 25...+ 70	- 25...+ 70	- 25...+ 70
	Pre - cabled : IP68 (with connector: IP67)				IP67		
	CE, UL, CSA, CCC, C-TICK						
	15 x 32 x 8	26 x 26 x 13	40 x 40 x 15	80 x 80 x 26	Ø 12 x 50	Ø 18 x 50	Ø 30 x 52.5
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-

-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
XS9F111A1L2	XS9E111A1L2 (6)	XS9C111A1L2 (6)	XS9D111A1L2 (6)	XS4P12AB110	XS4P18AB110	XS4P30AB110
-	-	-	-	XS1M12AB120	XS1M18AB120	XS1M30AB120
XS9F111A2L2	XS9E111A2L2 (6)	XS9C111A2L2 (6)	XS9D111A2L2 (6)	-	-	-
-	-	-	-	XS4P12AB120	XS4P18AB120	XS4P30AB120
M8 ou M12						
-	-	-	-	-	-	-
-	-	-	-	-	-	-
XS9F111A1L01M8 (4)(6)	XS9E111A1L01M12 (4)(6)	XS9C111A1L01M12 (4)(6)	XS9D111A1M12 (6)	-	-	-
XS9F111A2L01M8 (4)(6)	XS9E111A2L01M12 (4)(6)	XS9C111A2L01M12 (4)(6)	XS9D111A2M12 (6)	-	-	-
15...36	15...36	15...36	15...36	10...36 for XS...AB110 / 15...58 for XS...AB120 (6)		
-	-	-	-	-	-	-
-	-	-	-	-	-	-
± 1 V for 0...10 V version / ± 2 mA for 4...20 mA version						
-	-	-	-	-	-	-
-	-	-	-	-	-	-
2000	1000	1000	100	1500	500	300

(1) 6...150 and 6000 impulses/min for XSAV11373 and XSAV11801 (slow version); 120...3000 and 48000 impulses/min for XSAV12373 and XSAV12801 (fast version).

(2) For these sensors without short-circuit protection, it is essential to connect a 0.4 A quick-blow fuse in series with the load.

(3) Flying lead (L = 0.15 m) with end mounted remote control incorporating M12 connector.

(4) Flying lead (L = 0.15 m) with end connector.

(5) Flying lead (L = 0.15 m) with end mounted remote control incorporating 1/2"-20 UNF connector.

(6) ECOLAB certified.

PUR pre-wired connectors (1)											
		M8 (3-pins)		1/2"		M12 (4-pins)					
 Straight	 Elbowed		Straight	Elbowed		Straight	Elbowed		Straight	Elbowed	Elbowed PNP LED
		2 m	XZCP0566L2	XZCP0666L2	2 m	XZCP1865L2	XZCP1965L2	2 m	XZCP1141L2	XZCP1241L2	XZCP1340L2
		5 m	XZCP0566L5	XZCP0666L5	5 m	XZCP1865L5	XZCP1965L5	5 m	XZCP1141L5	XZCP1241L5	XZCP1340L5
		10 m	XZCP0566L10	XZCP0666L10	10 m	XZCP1865L10	XZCP1965L10	10 m	XZCP1141L10	XZCP1241L10	XZCP1340L10

(1) For PVC cable see page 65

Suitable female plug-in connectors

M8		Straight		Elbowed	
Steel ring	XZCC8FDM30S				
M12 (4-pins)		Straight		Elbowed	
Steel ring	XZCC12FDM40B				
Plastic ring	XZCC12FDP40B				

XS Inductive proximity sensors - Application

Food and beverage processing



Type	M12	M18	Ø 18 plain	M30
Nominal sensing distance S_n	7 mm	12 mm	12 mm	22 mm
Operating zone (mm)	0 ... 5,6	0 ... 9,6	0 ... 9,6	0 ... 17,6
Suitability for flush mounting (metal environment)	No-flush mountable			
Case M (metal) (1)	M stainless steel 316 L			
Product certification	CE, UL, CSA, CCC, C-TICK			
Temperature range (°C)	- 25...+ 85°C			
Degree of protection (conforming to IEC 60529)	pre-cabled : IP68 (with connector : IP67) and IP69K conforming to DIN 40050			

Sensors for DC applications (solid-state output: transistor)

Connection			Pre-cabled, No poisonous PVC (2 m)			
Dimensions (mm)			M12 x 55	M18 x 60	Ø 18 x 60	M30 x 62
3-wires	PNP	NO function	XS212SAPAL2	XS218SAPAL2	XS2L2SAPAL2	XS230SAPAL2
	NPN	NO function	XS212SANAL2	XS218SANAL2	XS2L2SANAL2	XS230SANAL2
Connection			par connector M12			
Dimensions (mm)			M12 x 61	M18 x 70	Ø 18 x 70	M30 x 70
3-wires	PNP	NO function	XS212SAPAM12	XS218SAPAM12	XS2L2SAPAM12	XS230SAPAM12
	NPN	NO function	XS212SANAM12	XS218SANAM12	XS2L2SANAM12	XS230SANAM12
Supply voltage limits, min./max. (V) including ripple			10...36			
Switching capacity, max (mA)			≤ 200			
Switching frequency (Hz)			2500	1000	1000	500
Short-circuit protection (★) / LED output state indicator (⊗)			★ / ⊗	★ / ⊗	★ / ⊗	★ / ⊗
Voltage drop, closed state (V) at I nominal			≤ 2			

Multi-current/multi-voltage sensors for AC/DC applications

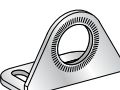
Connection			Pre-cabled, No poisonous (2 m)			
Dimensions (mm)			—	M18 x 60	—	M30 x 62
2-wires (2)	AC/DC	NO function	—	XS218SAMAL2	—	XS230SAMAL2
Connection			1/2"-20 UNF connector			
Dimensions (mm)			—	M18 x 72	—	M30 x 74
2-wires (2)	AC/DC	NO function	—	XS218SAMAU20	—	XS230SAMAU20
Supply voltage limits, min./max. (V) 50-60 HZ			—	20 ... 264	—	20 ... 264
Switching capacity, max (mA)			—	300 AC / 200 DC	—	300 AC / 200 DC
Switching frequency (Hz)			—	25 AC / 1000 DC	—	25 AC / 300 DC
LED output state indicator (⊗)			—	⊗	—	⊗
Voltage drop, closed state (V) at I nominal			—	≤ 5,5	—	≤ 5,5
Residual current, open state (mA)			—	≤ 0,8	—	≤ 0,8



(1) Plastic range available. M12, M18, M30 :
To order, replace the second letter S in the reference by A
(example: XS212SAPAL2 becomes **XS212AAPAL2**).

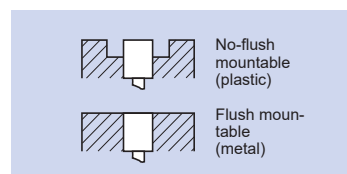
(2) For these sensors without short-circuit protection, it is essential to connect a 0.4 A quick-blow fuse in series with the load.

Accessories

Fixing clamps		M12 pre-wired connector		M12 jumper cable	
 Plastic fixing centres 24.1 mm, with locking screw	for sensor	female, 4-pin, stainless steel clamping ring		male, 3-pins, stainless steel clamping ring	
	Ø 18 plain	Straight connector	5 m XZCPA1141L5	Straight connector	5 m XZCRA151140A5
 Stainless steel	for sensor	Elbowed connector	5 m XZCPA1241L5	1/2" pre-wired connector	
	Ø 12			Straight	5 m XZCP1865L5
	Ø 18			Elbowed	5 m XZCP1965L5
	Ø 30				

XT Capacitive proximity sensors

Detection of insulating materials or
conductive materials



Suitability for flush mtg.		M12	M18	M30	Ø 32	40 x 40
Nominal sensing distance S_n	flush mountable	2 mm	5 mm	10 mm	15 mm	15 mm
	No flush mountable	—	8 mm	15 mm	20 mm	—
Operating zone S_a (mm) (2)	flush mountable	0...1,44	0...3,6	0...7,2	0...11	0...11
	No flush mountable	—	0...5,8	0...11	0...15	—
Case M (metal) P (plastic)	flush mountable	M	M	M	M	P
	No flush mountable	—	P	P	P	—
Product certification		CE, CRTLus				CE, UL, CSA
Temperature range (°C)		- 25...+ 70				
Degree of protection (conforming to IEC 60529)		IP67				
Dimensions (mm) Ø x L or H x W x D		M12 x 70	M18 x 80	M30 x 80	M32 x 80	40 x 40 x 117

Sensors for DC applications

Connection				Pre-cabled PVC (2 m)					
3-wires	PNP	NO function	Flush mountable	XT112S1PAL2	XT118B1PAL2	XT130B1PAL2	–	–	
			No flush mountable	–	XT218A1PAL2	XT230A1PAL2	–	–	
		Function NO+NC	Flush mountable	XT112S1PCL2	XT118B1PCL2	XT130B1PCL2	–	–	
			No flush mountable	–	–	–	–	–	
	NPN	NO function	Flush mountable	XT112S1NAL2	XT118B1NAL2	XT130B1NAL2	–	–	
			No flush mountable	–	XT218A1NAL2	XT230A1NAL2	–	–	
Connection				M12					par vis et étriers
3-wires	PNP	Function NO+NC	Flush mountable	XT112S1PCM12	XT118B1PCM12	XT130B1PCM12	–	XT7C40PC440 (3)	
			No flush mountable	–	XT218A1PCM12	XT230A1PCM12	–	–	
	NPN	Function NO+NC	Flush mountable	–	–	–	–	XT7C40NC440 (3)	
Supply voltage limits, min./max. (V) including ripple				10...38					
Switching capacity, max (mA)				200					
Short-circuit protection (★) / LED output state indicator (⊗)				★ / ⊗					
Voltage drop, closed state (V) at I nominal				≤ 2					
Switching frequency (Hz)				300	100 (XT2) / 200 (XT1)	100 (XT2) / 150 (XT1)	–	100	

Multi-current/multi-voltage sensors for AC applications

Connection			Pre-cabled PVC (2 m)				
2-wires AC (1)	NO function	Flush mountable	–	XT118B1FAL2	XT130B1FAL2	XT132B1FAL2	–
		No flush mountable	–	XT218A1FAL2	XT230A1FAL2	XT232A1FAL2	–
	NC function	Flush mountable	–	XT118B1FBL2	XT130B1FBL2	XT132B1FBL2	–
		No flush mountable	–	–	XT230A1FBL2	XT232A1FBL2	–
Connection			Screw terminals				
2-wires AC (1)	NO or NC programmable	Flush mountable	–	–	XT230A2MDB (4)	–	XT7C40FP262
Supply voltage limits, min./max.(V) 50-60 Hz			–	20...264	20...264	20...264	20...264
Switching capacity, max (mA)			–	300			350
LED output state indicator (⊗) / Power on LED (⊗)			⊗ / –				
Voltage drop, closed state (V) at I nominal			–	≤ 5,5	≤ 5,5	≤ 9	≤ 5,5
Switching frequency (Hz)			–	25	25	25	25

(1) For these sensors without short-circuit protection, it is essential to connect a 0.4 A quick-blow fuse in series with the load.

(2) The operating distance depends on the objet material.

(3) Only for detecting insulating materials.

(4) 24...240 VAC or 24 VDC supply (No flush mountable)

Accessories

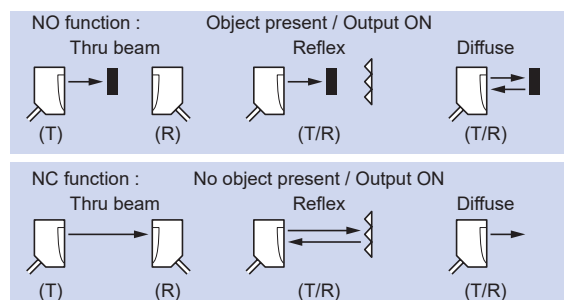
Suitable female plug-in connectors, including PUR pre-wired versions (1)

long. 5 m without DEL	pre-wired Elbowed	pre-wired Straight	screw terminal
M12	XZCP1241L5	XZCP1141L5	XZCC12FCM40B

(1) For PVC cable see page 65

XU Photo-electric sensors

General Purpose



				M18 Metal (1) cable		M12 connector	M18 Plastic cable		M12 connector
Output function	NO			A	A		A	A	
	NC			B	B		B	B	
Diffuse	Sensing distance			0,6 m (2) (3)			0,6 m (2) (3)		
Output type	DC3 NO	PNP		XUB5BP ANL2	XUB5BP ANM12		XUB5AP A NL2	XUB5AP ANM12	
		NPN		XUB5BN ANL2	XUB5BN ANM12		XUB5AN ANL2	XUB5AN ANM12	
	AC/DC 1C/O relay			–	–		–	–	
	Reflex Polarised	Sensing distance (4)			2 m			2 m	
Output type	DC3 NO	PNP		XUB9BP ANL2	XUB9BP ANM12		XUB9AP ANL2	XUB9AP ANM12	
		NPN		XUB9BN ANL2	XUB9BN ANM12		XUB9AN ANL2	XUB9AN ANM12	
	AC/DC 1C/O relay			–	–		–	–	
	Reflex	Sensing distance (4)			4 m			4 m	
Output type	DC3 NO	PNP		XUB1BP ANL2	XUB1BP ANM12		XUB1AP ANL2	XUB1AP ANM12	
		NPN		XUB1BN ANL2	XUB1BN ANM12		XUB1AN ANL2	XUB1AN ANM12	
	AC/DC 1C/O relay			–	–		–	–	
	Thru beam	Sensing distance			15 m			15 m	
Output type	DC3 NO	PNP		XUB2BP ANL2R	XUB2BP ANM12R		XUB2AP ANL2R	XUB2AP ANM12R	
		NPN		XUB2BN ANL2R	XUB2BN ANM12R		XUB2AN ANL2R	XUB2AN ANM12R	
	AC/DC 1C/O relay			–	–		–	–	
	Thru beam Transmitter	DC			XUB2BKSNL2T	XUB2BKSNM12T		XUB2AKSNL2T	XUB2AKSNM12T
AC/DC			–	–		–	–		
Multimode	Sensing distance			Background suppression: : 0,12 m - Diffuse: 0,3 m Reflex polarised: : 3 m - Thru beam : 20 m					
Output type	DC3 NO/NC	PNP		XUB0BPSNL2	XUB0BPSNM12		XUB0APSNL2	XUB0APSNM12	
		NPN		XUB0BNSNL2	XUB0BNSNM12		XUB0ANSNL2	XUB0ANSNM12	
		PNP/NPN		–	–		–	–	
	AC/DC 1C/O relay			–	–		–	–	
Thru beam Transmitter	DC			XUB0BKSNL2T	XUB0BKSNM12T		XUB0AKSNL2T	XUB0AKSNM12T	
AC/DC			–	–		–	–		

(1) Brass metal, available also in stainless steel, see page food/beverage processing series

(2) For a sensing distance 0,1 m without sensitivity adjustment, change digit 5 by 4 into the reference (ex: XUB5BPANL2 becomes **XUB4BPANL2**)

Fixing	M18 x1
Dimensions	pre-cabled / connectors M18 x 64 mm / M18 x 78 mm
Product certifications	CE, UL, CSA, C-TICK

DC common characteristics

Supply voltage limits, min./max. (V) including ripple	10...36	10...36
Switching frequency (Hz)	500	500
Common characteristics for DC versions	Switching capacity, max (mA) : 100 / Overload and short-circuit protection (★) / LED output state	

AC/DC common characteristics

Supply voltage limits, min./max. (V) including ripple	-	-
Switching frequency (Hz)	-	-
LED output state indicator (⊗) / power on LED (⊗)	-	-

Accessories

Reflectors





XUZC24

XUZC80

XUZC50

Reflectors (mm)	
Ø 21	XUZC21
24 x 21	XUZC24
11 x 33	XUZC08
Ø 39	XUZC39
Ø 80	XUZC80
50 x 50	XUZC50
100 x 100	XUZC100

3D fixings with ball joint



Bracket with ball joint for sensors and reflector XUZC50	
for	
XUB...	XUZB2003
XUM0...	XUZM2003
XUK...	XUZK2003
XUX...	XUZX2003

Protective housing with ball joint	
for	
XUK...	XUZK2004
XUX...	XUZK2004

M12 rod for ball joint
XUZ2001

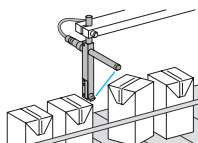
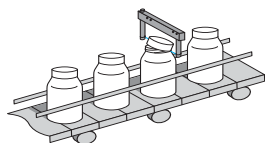


	Miniature Cable	M8 connector	Compact 50 x 50 mm Cable	M12 connector	Compact 92 x 71 mm Screw terminal	M12 connector
	NO ou NC	NO ou NC	A	A	A	A
			B	B	B	B
	1 m (3)		1 m (3)		2,1 m (3)	
	XUM5APCNL2	XUM5APCNM8	XUK5AP ANL2	XUK5AP ANM12	XUX5AP ANT16	XUX5AP ANM12
	XUM5ANCNL2	XUM5ANCNM8	XUK5AN ANL2	XUK5AN ANM12	XUX5AN ANT16	XUX5AN ANM12
	–	–	XUK5ARCNL2	–	XUX5ARCNT16	–
	5 m (3)		5 m		11 m (3)	
	XUM9APSBL2	XUM9APSBM8	XUK9AP ANL2	XUK9AP ANM12	XUX9AP ANT16	XUX9AP ANM12
	XUM9ANSBL2	XUM9ANSBM8	XUK9AN ANL2	XUK9AN ANM12	XUX9AN ANT16	XUX9AN ANM12
	–	–	XUK9ARCNL2	–	XUX9ARCNT16	–
	–		7 m		14 m (3)	
	–	–	XUK1AP ANL2	XUK1AP ANM12	XUX1AP ANT16	XUX1AP ANM12
	–	–	XUK1AN ANL2	XUK1AN ANM12	XUX1AN ANT16	XUX1AN ANM12
	–	–	XUK1ARCNL2	–	XUX1ARCNT16	–
	15 m (3)(5)		30 m		40 m (3)	
	XUM2APSBL2R	XUM2APSBM8R	XUK2AP ANL2R	XUK2AP ANM12R	XUX2AP ANT16R	XUX2AP ANM12R
	XUM2ANSBL2R	XUM2ANSBM8R	XUK2AN ANL2R	XUK2AN ANM12R	XUX2AN ANT16R	XUX2AN ANM12R
	–	–	XUK2ARCNL2R	–	XUX2ARCNT16R	–
	XUM2AKSBL2T	XUM2AKSBM8T	XUK2AKSNL2T	XUK2AKSNM12T	XUX0AKSAT16T	XUX0AKSAM12T
	–	–	XUK2ARCNL2T	–	XUX0ARCTT16T	–
	Background suppression: : 0,1 m - Diffuse: 0,4 m Reflex Polarised : 3 m - Thru beam : 10 m		Background suppression: : 0,28 m - Diffuse: 0,8 m Reflex Polarised : 4 m - Thru beam : 30 m		Background suppression: : 1,3 m - Diffuse: 2 m Reflex Polarised : 11 m - Thru beam : 40 m	
	XUM0APSAL2	XUM0APSAM8	–	–	–	–
	XUM0ANSAL2	XUM0ANSAM8	–	–	–	–
	–	–	XUK0AKSAL2	XUK0AKSAM12	XUX0AKSAT16	XUX0AKSAM12
	–	–	XUK0ARCTL2	–	XUX0ARCTT16	–
	XUM0AKSAL2T	XUM0AKSAM8T	XUK0AKSAL2T	XUK0AKSAM12T	XUX0AKSAT16T	XUX0AKSAM12T
	–	–	XUK0ARCTL2T	–	XUX0ARCTT16T	–
	(3) with sensitivity adjustment		(5) Some references are available with Transmitter and Receiver together (ex: XUM2APSBL2)			
	(4) with reflector XUZC50 to be ordered separatly					
	Direct fixing centres 25.5, M3 screws 12 x 34 x 20 CE, UL, CSA, C-TICK		Direct fixing centres 40 x 40, M4 screws 18 x 50 x 50 CE, UL, CSA, CCC, C-TICK		Direct fixing centres 30/38 to 40/50/74, M5 screws 30 x 92 x 71 CE, UL, CSA, CCC, C-TICK	
	10...30		10...30		10...36	
	1000		500		500	
	LED output state indicator (⊗) : Yes / power on LED (⊗) : yes					
	–		20...264		20...264	
	–		20		20	
	–		⊗ / ⊗		⊗ / ⊗	

Simple fixings				Suitable female plug-in connectors, including PUR pre-wired versions (1)			
Fixing support for M12 rod  XUZ2003	Single bracket						
	for	standard	with ball joint				
	XUB...	XUZA118 (stnls. steel)	XUZA218 (plastic)				
	XUM...	XUZAM02	-				
	XUK...	XUZA51	-				
				length. 5 m without LED	pre-wired Elbowed	pre-wired Straight	Screw terminal
				M8	XZCP1041L5	XZCP0941L5	XZCC8FCM40S
				M12	XZCP1241L5	XZCP1141L5	XZCC12FCM40B
				(1) For PVC cable see page 65			

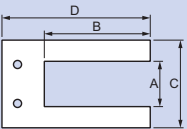
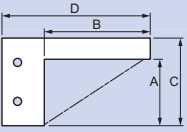
XU Photo-electric sensors

Optical forks without setting and frames



System		Thru-beam with modular red LED light source	
Output function	NO		A
	NC		B
Sensing distance		30...150 mm	
Minimum size of objet detected		0,8 mm	
Case M (metal)		M	
Temperature range (°C) / Degree of protection (conforming to IEC 60529)		- 10...+ 60 / IP65 and IP67	
Product certification		CE, cULus	

Sensors for DC applications (solid-state output: transistor)

Connection				M8 connector 3-pins					Pre-cabled L = 2 m.					
Dimensions (mm)					A	B	C	D		A	B	C	D	
 	Transmitter / Receiver	3-wires	NO function	PNP	XUVR0605P ANM8	50	60	74	77,5	XUVR0303PANL2	30	40	54	57,5
				NPN	XUVR0605N ANM8									
			NO function	PNP	XUVR0608P ANM8	80	60	104	77,5					
				NPN	XUVR0608N ANM8									
			NO function	PNP	XUVR1212P ANM8	120	120	144	142					
				NPN	XUVR1212N ANM8									
			NO function	PNP	XUVR1218P ANM8	180	120	204	142					
				NPN	XUVR1218N ANM8									
			NO function	PNP	XUVA0505P ANM8	44	44	71	71					
				NPN	XUVA0505N ANM8									
Supply voltage limits, min./max. (V) including ripple				10...30										
Switching capacity, max (mA) / Switching frequency (Hz)				100/4kHz										
Short-circuit protect. (★) / LED output state indicator (⊗)				★ / ⊗										



System		Thru-beam with infrared emission				
Passageway dimensions		30 x 30 mm	60 x 60 mm	200 x 120 mm	200 x 180 mm	200 x 250 mm
Connection		M8 (4-pins)		M12 (4-pins)		
Minimum size of object to be detected	Ø 2 mm	XUVF30M8	XUVF60M8	–	–	–
	Ø 4 mm	–	–	XUVF120M12	XUVF180M12	XUVF250M12
	Ø 10 mm	–	–	XUYFRS120S	XUYFRS180S	XUYFRS250S
Type et Output function		4-wires, PNP and NPN Output function ON or OFF on passage of object, programmable				
Function type		Dynamic (XUVF30M8, XUVF60M8), Dynamic or static (XUVF120M12, XUVF180M12, XUVF250M12)				
Supply voltage limits, min./max. (V) including ripple		18...30				
Switching capacity, max (mA) / Switching frequency (Hz)		≤ 100 / 500 Hz				
Short-circuit protect. (★) / LED output state indicator (⊗)		★ / ⊗				

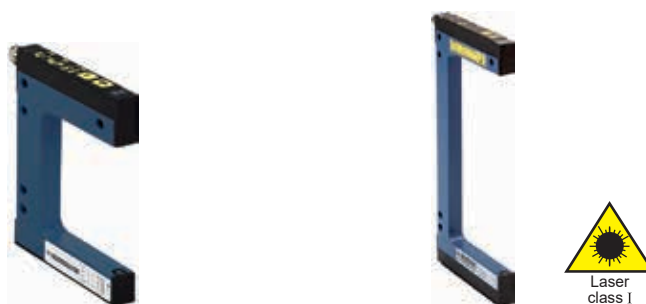
Accessories

Suitable female PUR pre-wired plug-in connectors (1)

		M8 (3-pins)		M8 (4-pins)		M12 (4-pins)	
	Straight Elbowed	For optical forks without setting		For optical forks and frame with setting		For frame with setting	
2 m	Straight Elbowed	XZCP0566L2	XZCP0666L2	XZCP0941L2	XZCP1041L2	XZCP1141L2	XZCP1241L2
		XZCP0566L5	XZCP0666L5	XZCP0941L5	XZCP1041L5	XZCP1141L5	XZCP1241L5

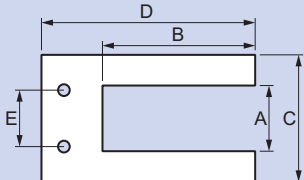
(1) For PVC cable see page 65

Forks with teach mode ⁽¹⁾



System, with teach mode	Thru beam	Thru beam laser
Sensing distance	2...120 mm	2...120 mm
Fixings (mm)	(see column E below)	
Minimum size of objet detected	0,2 mm	0,05 mm
Case M (metal) / Setting-up assistance LEDs ☉	M / ☉	
Temperature range (°C) / Degree of protection (conforming to IEC 60529)	-25...+60 / IP65	
Product certification	CE, cULus	

Sensors for DC applications (solid-state output: transistor)

Connection	M8 connector - 4-pins														
Output type	3-wires PNP/NPN programmable NO / NC														
Dimensions (mm)															
Transmitter / Receiver															
				A	B	C	D	E			A	B	C	D	E
	XUYFANEP40002	2	42	32	57	14			XUYFALNEP40002	2	42	41	57	14	
	XUYFANEP60002	2	59		77				XUYFALNEP60002	2	59		77		
	XUYFANEP100002	2	95		110				XUYFALNEP100002	2	95		110		
	XUYFANEP40005	5	42	35	57	14			XUYFALNEP40005	5	42	44	57	14	
	XUYFANEP60005	5	59		77				XUYFALNEP60005	5	59		77		
	XUYFANEP100005	5	95		110				XUYFALNEP100005	5	95		110		
	XUYFANEP40015	15	42	45	57	27			XUYFALNEP40015	15	42	54	57	27	
	XUYFANEP60015	15	59		77				XUYFALNEP60015	15	59		77		
	XUYFANEP100015	15	95		110				XUYFALNEP100015	15	95		110		
	XUYFANEP40030	30	42	60	57	42			XUYFALNEP40030	30	42	69	57	42	
	XUYFANEP60030	30	59		77				XUYFALNEP60030	30	59		77		
	XUYFANEP100030	30	95		110				XUYFALNEP100030	30	95		110		
	XUYFANEP40050	50	42	80	57	40			XUYFALNEP40050	50	42	89	57	40	
	XUYFANEP60050	50	59		77				XUYFALNEP60050	50	59		77		
	XUYFANEP100050	50	95		110				XUYFALNEP100050	50	95		110		
	XUYFANEP40080	80	42	110	57	70			XUYFALNEP40080	80	42	119	57	70	
	XUYFANEP60080	80	59		77				XUYFALNEP60080	80	59		77		
	XUYFANEP100080	80	95		110				XUYFALNEP100080	80	95		110		
	XUYFANEP40120	120	42	150	57	110			XUYFALNEP40120	120	42	159	57	110	
	XUYFANEP60120	120	59		77				XUYFALNEP60120	120	59		77		
	XUYFANEP100120	120	95		110				XUYFALNEP100120	120	95		110		
Supply voltage limits, min./max. (V) including ripple	10...30								10...30						
Switching capacity, max (mA) / Switching frequency (Hz)	100/10kHz								100/10kHz						
Short-circuit protect. (★) / LED output state indicator (☉)	★ / ☉								★ / ☉						

(1) To order a fork without teach mode, delete A of the reference. Ex: XUYFANEP40002 becomes **XUYFNEP40002**

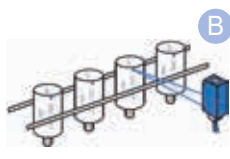


System	Thru beam Ultrason	Thru beam
	Special transparent labels	For all other opaque labels
Sensing distance 3 mm version	XUVU06M3PSNM8	XUVE04M3PSNM8
Switching frequency (Hz)	1500	10 000
Sensitivity adjustment	Numeric potentiometer (1)	Numeric potentiometer (1)
Connection	M8 (4-pins)	
Case M (metal) / Setting-up assistance LEDs ☉	M / ☉	
Temperature range (°C) / Degree of protection (conforming to IEC 60529)	+5...+55 / IP65	-20...+60 / IP65
Product certification	CE	CE, cULus

(1) remote adjustment available.

XU Photo-electric sensors - Application

Assembly series



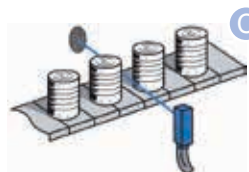
Application	Accurate detection or very long sensing distance		Robustness and compactness	
System	Thru beam	Diffuse	Reflex	Diffuse contrast
Sensing distance	100 m (1)	0,07 m	10...1000 mm (2)	40...150 mm
Fixings (mm)	M18 x 1	M8 x 1	Directe, 2 trous M3, entraxe 24 mm	
Sensitivity adjustment	Teach mode	–	Teach mode	
Case M (metal) P (plastic) / Setting-up assistance LEDs ☉	P / ☉	M / –	P	
Temperature range (°C)	- 10...+ 45°C	- 25...+ 55	- 20...+ 60°C	
Degree of protection (conforming to IEC 60529)	IP67	IP67	IP67	
Product certification	CE, UL, CSA	CE, cULus	CE, cULus	
Dimensions (mm) Ø x L or H x W x D	Ø 18 x 64	Ø8 x 40	20 x 35,8 x 12	

Sensors for DC applications (solid-state output: transistor)

Connection	Pre-cabled		PVR (2 m)	
Transmitter / Receiver	3-wires PNP	NO function	–	–
Connection	Connector		M 12	M 8 - 4-pins
Transmitter / Receiver	3-wires PNP	NO function	–	–
	3-wires PNP	programmable NO / NC	XUHLAPCNCM12	XUYBCO929LSP
	3-wires NPN	programmable NO / NC	XUHLANCNCM12	XUYPCCO929LSP
Supply voltage limits, min./max. (V) including ripple	10...30	10...30	10...30	10...30
Switching capacity, max (mA) / Switching frequency (Hz)	100 / 1500	100 / 700	100 / 1000	100 / 1000
Short-circuit protect. (★) / LED output state indicator (☉)	★ / ☉	★ / ☉	★ / ☉	★ / ☉

(1) or min. size of object: 0.2 mm

(2) With specific reflector XUY1111, format 50 x 50 mm. To be ordered separately.



Application						
System	Polarised prefix	Thru beam	Polarised prefix	Thru beam	Back ground suppression	Diffuse
Sensing distance	1...1.5 m (4)	4 m	12 m (7)	25 m	0.8 m	1.2 m
Sensitivity adjustment	potentiometer	potentiometer	Teach mode	Teach mode	potentiometer	Teach mode
P (plastic) / Setting-up assistance LEDs ☉	P / ☉					
Temperature range (°C) / Degree of protection (conforming to IEC 60529)	0...+ 50°C / IP65 and IP67		-20...+ 60°C / IP67 and IP69K			
Product certification	CE, cULus		CE, Ecolab			
Dimensions (mm) H x W x D	40 x 10 x 13.5		50 x 50 X 23			

Sensors for DC applications (solid-state output: transistor)

Connection	M8 connector (5) - 4-pins		M12 connector - 4-pins			
PNP	NO function	XUYBCO989SP	XUYRCO989SP	–	–	–
NPN	NO function	XUYBCO989SN	XUYRCO989SN	–	–	–
PNP/NPN	Programmable NO / NC			XUK9LAPSM12 (6)	XUK2LAPSM12R (6)	XUK8LAPNM12 (6)
Émetteur	–	XUYECO989	–	XUK2LAKSM12T (6)	–	–
Supply voltage limits, min./max. (V) including ripple	10...30	12...30				
Switching capacity, max (mA) / Switching frequency (Hz)	100 / 500	100 / ≤ 2000	100 / ≤ 3500	100 / ≤ 1000	100 / ≤ 600	
Short-circuit protect. (★) / LED output state indicator (☉)	★ / ☉					

(4) 50 x 50 reflector included.

(5) For 2 m pre-cabled version, delete CO from the reference. (Example: XUYBCO989SP becomes **XUYB989SP** or XUYRCO989SP becomes **XUYR989SP**).

(6) Fixing bracket: XUZA51S to be ordered separately

(7) With reflector XUZC50HP to be ordered separately

Materials handling series - Conveying Analogue output



E



High access gain for resistance to accumulation of dirt

Analogue output
Position control

E

E

Application					
System	Diffuse	Reflex	Diffuse	Diffuse	Thru beam
Sensing distance	0,1...5 m	0.3...70 m (1)	0.20...6 m (2)	0,05...0,40 m	50 m
Sensitivity adjustment	Teach mode			Potentiometer	
Case M (metal), P (plastic) / Setting-up assistance LEDs ☉	P / ☉			M / ☉	
Temperature range (°C) / Degree of protection (conforming to IEC 60529)	- 40...+ 50	- 10...+ 50	- 20...+ 50	- 25...+ 55	
Degree of protection (conforming to IEC 60529)	IP67 and IP69K		IP67	IP67	
Product certification	CE, cULus			CE, UL, CSA	CE, UL, CSA, C-TICK
Dimensions (mm) Ø x L or H x W x D	50 x 50 x 23		93 x 42 x 95	M18 x 95	

Sensors for DC applications

Connection	M12 - 5-pins	M12 - 8-pins	M12 - 5-pins	M12 - 4-pins	
Transmitter / Receiver	analogue 4-20 mA + 1 PNP/NPN	XUK8TAE2MM12 (4)	-		XU2M18AP20D (2)
	analogue 0 - 10 V + 1 PNP/NPN	XUK8TAE1MM12 (4)	-		-
	analogue 4-20mA + 2 PNP/NPN	-	XUK9TAH2MM12	XUE5AA2NM12 (3)	-
	analogue 4-20mA	-	-		XU5M18AB20D -
Supply voltage limits, min./max. (V) including ripple	18...30			10...30	
Switching capacity, max (mA) / Switching frequency (Hz)	100 / 500	100 / 100	100 / 38 (mode fast), 16 (mode lent)	20 / 20	100 / 30
Short-circuit protect. (★) / LED output state indicator (☉)	★ / ☉	★ / ☉			★ / ☉

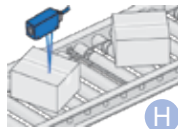
(1) with reflector XU2C250 to be ordered separately. (2) on white and grey object 0,2 ... 6m, on black object 0,2 ... 2,5m (3) 2 PNP outputs. (4) ECOLAB certified.



F



G



H



Laser
classe II



H

Application			
System	Diffuse, Analogue output 0-10 V		Diffuse
		4-20 mA	
Sensing distance	40...60 mm	80...300 mm	0...100 mm
Minimum size of object	1 mm	1,5 X 3,5 mm	85 mm
Sensitivity adjustment	potentiometer		No
Case P (plastic) / Setting-up assistance LEDs ☉	P / ☉		Aluminium tube / ☉
Temperature range (°C)	0...+ 45°		- 10...+ 55
Product certification	CE, cULus		CE, cCSAus
Dimensions (mm) H x l x L	50 x 17 x 50		Tube Ø 12 , variable length from 200 to 900 mm (example 474 mm)

Sensors for DC applications (solid-state output: transistor)

Connection	par connector M12	par connector M12	Remote M12 connector
Transmitter / Receiver 0...10 V	XUYPCO925L1ANSP	XUYPCO925L3ANSP	XUY474NB4H03M12
Supply voltage limits, min./max. (V) including ripple	18...28		18...30
Switching capacity, max	3 mA / Analogue output 0...10 V	3 mA / Analogue output 04...20 mA	100 mA
Switching frequency (Hz)	40		1000
Short-circuit protect. (★) / LED output state indicator (☉)	★ / ☉		★ / ☉

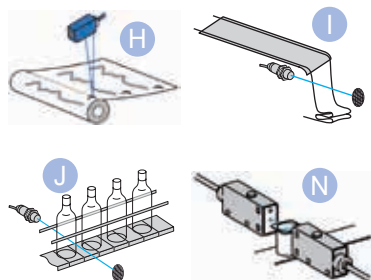
Accessories

Suitable female PUR pre-wired plug-in connectors (1)						Female connectors	Fixing for XUE
M8 Straight	M12 Straight	M8 Elbowed	M12 Elbowed	5-pins M12	8-pins M12	M12 (5-pins)	
2 m XZCP0941L2	XZCP1141L2	XZCP1041L2	XZCP1241L2	XZCPV11V12L2	XZCP29P12L2	Straight XZCC12FCM50B	For compact
5 m XZCP0941L5	XZCP1141L5	XZCP1041L5	XZCP1241L5	XZCPV11V12L5	XZCP29P12L5	Elbowed XZCC12FDM50B	XUZA618

(1) For PVC cable see page 65

XU Photo-electric sensors - Application

Packaging series



Application	H Contrast sensors		Colour sensors
System	Diffuse (with Teach mode)	Diffuse (with Teach mode)	Diffuse
Sensing distance	19 mm	9 mm (2)	0,02 m
Fixings (mm)	direct: fixing centres 40x40	direct : 21 x 28 vis M5	direct: fixing centres. 40x40
Sensitivity adjustment	Teach button		
Case M (metal) P (plastic) / Setting-up assistance LEDs ☉	P / ☉	M / ☉	P / ☉
Temperature range (°C) / Degree of protection (conforming to IEC 60529)	- 10...+ 55 / IP65	- 10...+ 55 / IP67	- 10...+ 55 / IP65
Product certification	CE, cULus	CE	CE, cULus
Dimensions (mm) Ø x L or H x W x D	50 x 50 x 15	96 x 64 x 31	50 x 50 x 25

Sensors for DC applications (solid-state output: transistor)

Connection			M12 connector		M12 connector - 8-pins
Transmitter / Receiver	3-wires PNP	NO function	XUKR1PSMM12	–	XUKC1PSMM12
	3-wires NPN	NO function	XUKR1NSMM12	–	XUKC1NSMM12
	3-wires PNP / NPN	programmable NO / NC	–	XURK1KSMM12	–
Supply voltage limits, min./max. (V) including ripple			10...30	10...30	10...30
Switching capacity, max (mA) / Switching frequency (Hz)			100 / 5000	200 / 10000	100 / 1500

(1) Nominal sensing distance 50 m. Use between 10 and 20 cm, depending on application.

(2) 7 mm with XURZ02; 18 mm with XURZ01.



Luminescence sensors



Detection of transparent materials



Application	Luminescence sensors		Detection of transparent materials	
System	Diffuse (manual)	Reflex (potentiometer)	Reflex (with teach mode) (50 x 50 reflector included)	
Sensing distance	0,02...0,08 m	0.1...2 m	0...1,4 m (4)	1,5 m
Fixings (mm)	M18x1	M3 holes, fixing centers 24	M18 x 1 (5)	direct: fixing ctrs. 40 x 40
Sensitivity adjustment	potentiometer	potentiometer	Teach button	
Case M (metal) P (plastic) / Setting-up assistance LEDs ☉	M / ☉	P / ☉	P / ☉	
Temperature range (°C) / Degree of protection (conforming to IEC 60529)	- 25...+ 55 / IP67	- 25...+ 55 / IP67	0...+ 55 / IP67	- 25...+ 55 / IP65
Product certification	CE, CSA, UL	CE, cURus	CE, UL, CSA, C-TICK	
Dimensions (mm) Ø x L ou H x l x L	Ø18 x 95	33 x 20 x 11	Ø18 x 64	50 x 50 x 18

Sensors for DC applications (solid-state output: transistor)

Connection			Pre-cabled PVC (2 m)			
Transmitter / Receiver	3-wires PNP	programmable NO / NC	–	XUMTAPCNL2	XUBTAPSNL2 (5)(6)	–
	3-wires NPN	programmable NO / NC	–	XUMTANCNL2	XUBTANSNL2 (5)(6)	–
	3-wires PNP / NPN	programmable NO / NC	–	–	–	XUKT1KSML2
Connection			M12 connector	M8 connector	M12 connector	M12 connector
Transmitter / Receiver	3-wires PNP	NO function	XU5M18U1D	–	–	–
	3-wires PNP	programmable NO / NC	–	XUMTAPCNM8 (3)	XUBTAPSNM12 (5)(6)	–
	3-wires NPN	programmable NO / NC	–	XUMTANCNM8	XUBTANSNM12 (5)(6)	–
	3-wires PNP / NPN	programmable NO / NC	–	–	–	XUKT1KSMM12
Supply voltage limits, min./max. (V) including ripple			10...30	10...30	10...32	10...30
Switching capacity, max (mA) / Switching frequency (Hz)			100 / 1000	100 / 1000	100 / 1000	100 / 1500

(3) also available with M12 remote connector with 0.3 m cable : replace M8 by L03M12.

(4) 0...0.8 m for versions with 90° head, to order replace the 8e digit N by W. Example XUBTAPSNL2 becomes **XUBTAPSWL2**

(5) Also available in stainless steel for food and beverage processing applications. To order, replace the letter A by S in the ref. Example: XUBTAPSNL2 becomes **XUBTSPSNL2**.

(6) ECOLAB certified.

Food/beverage processing series



Stainless steel version for resistance to harsh agents

System	Multimode (3)	Polarised reflex 50x50 mm reflector included (2)	Diffuse (2)	Thru beam (2)
Sensing distance	(4)	3 / 2 m	0,15 / 0,10 m	20 / 15 m
Fixings (mm)	M18 x 1	M18 x 1	M18 x 1	M18 x 1
Case M (metal)	M (stainless steel)	M (stainless steel)	M (stainless steel)	M (stainless steel)
Temperature range (°C) / Degree of protection (conforming to IEC 60529)		- 25...+ 55 / IP67	- 25...+ 55 / IP67	- 25...+ 55 / IP67
Product certification	CE, UL, CSA, C-TICK			
Dimensions (mm) Ø x L	Ø 18 x 64	Ø18 x 62	Ø18 x 62	Ø18 x 64

Sensors for DC applications (solid-state output: transistor)

Connection	Pre-cabled PvR (2 m)					
Transmitter / Receiver	3-wires PNP	programmable NO / NC	XUB0SPSNL2	XU9N18PP341	XU5N18PP341	XU2N18PP341
	3-wires NPN	programmable NO / NC	XUB0SNSNL2	XU9N18NP341	XU5N18NP341	XU2N18NP341
Connection	par connector M12					
Transmitter / Receiver	3-wires PNP	programmable NO / NC	XUB0SPSNM12	XU9N18PP341D	XU5N18PP341D	XU2N18PP341D
	3-wires NPN	programmable NO / NC	XUB0SNSNM12	XU9N18NP341D	XU5N18NP341D	XU2N18NP341D
Thru-beam transmitter accessory	pre-cabled (2 m)		XUB0SKSNL2T	–	–	–
	connector		XUB0SKSNM12T	–	–	–
Supply voltage limits, min./max. (V) including ripple	10...36		10...30	10...30	10...30	10...30
Switching capacity, max (mA) / Switching frequency (Hz)	100 / 250		100 / 500	100 / 500	100 / 500	100 / 500

(2) Also available with 90° head. To order, add the letter W after the numbers 341 in the reference. Example: XU9N18PP341 becomes **XU9N18PP341W** or **XU9N18PP341WD**.

(3) Also available with 90° head, to order replace the 8e digit N by W. Example XUB0SPSNL2 becomes **XUB0SPSWL2**

(4) Background suppression: 0.12 m - Diffuse: 0.3 m - Reflex polarised: 3 m - Thru beam: 20 m

Accessories

Suitable female plug-in connectors, including PUR pre-wired versions (1)				Lenses for colour mark	
L = 5 m, without LED	Wired, Elbowed	Wired, Straight	Screw terminal	Lens for 18 mm sensing distance	Lens for 7 mm sensing distance
M8 (ou S) 4-pins	XZCP0666L5	XZCP0566L5	XZCC8FCM30S		
M12 (ou D) 4-pins	XZCP1241L5	XZCP1141L5	XZCC12FCM40B		
M12 8-pins	–	XSZMCR03 (3 m)	–	XURZ01	XURZ02

(1) For PVC cable see page 65

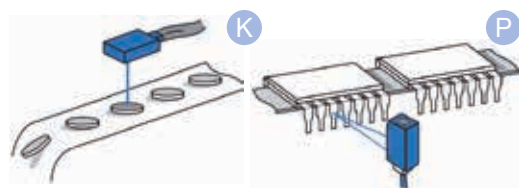
Accessories

Pre-wired connectors		Ecolab reflector 50x50 (2)		Stainless steel fixing bracket	
L = 5 m	Elbowed XZCPA1241L5	Straight XZCPA1141L5	XUZC50CR	XUZA118 (for M18)	XUZA51S (for compact)

(2) Sensing distance for XUK9S: 3m with XUZC50CR or 6m with **XUZC50**.

XU Photo-electric sensors

with background suppression



Application	K	P	K
System	Background suppression	Diffuse with Background suppression	Sensing distance 2
Sensing distance	1,5...80 mm	10...60 mm	30...110 mm
Minimum size of object	–	0,3 mm	0,7 mm
Fixing (mm)	2 x Ø 3 holes / fvg. ctrs. 14.5	direct: 2 M3 holes, fixing centres 24 mm	
Sensitivity adjustment	potentiometer	Teach mode	
Case P (plastic) / Setting-up assistance LEDs ☉	P / ☉	P / –	
Temperature range (°C) / Degree of protection (conforming to IEC 60529)	0...+50 / IP65 & IP67	– 20...+ 60°C / IP67	
Product certification	CE, cULus	CE, cULus	
Dimensions (mm) H x W x D	20 x 32 x 13	20 x 35,8 x 12	

Sensors for DC applications (solid-state output: transistor)

Connection	M8 connector (1) - 4-pins	M8 connector- 4-pins	M8 connector- 4-pins
Transmitter / Receiver	PNP NO function NPN NO function PNP Programmable NO / NC	XUYPSCO989SP XUYPSCO989SN –	– – XUYPSCO929L1SP XUYPSCO929L2SP
Supply voltage limits, min./max. (V) including ripple	10...30	10...30	10...30
Switching capacity, max (mA) / Switching frequency (Hz)	100 / 500	100 / 1000	100 / 1000
Short-circuit protect. (★) / LED output state indicator (☉)	★ / ☉	★ / ☉	★ / ☉

(1) For 2 m pre-cabled connection delete CO from the reference. Example: XUYPS 989SP becomes **XUYPS989SP**.



Application	M	L
System	Background suppression	Background suppression, 2 chnls.
Sensing distance	50...300 mm	50...600 mm
Minimum size of object	0,5 mm	–
Fixings (mm)	direct: 2 M4 holes, ctrs. 54 mm	2 x Ø 4 holes, fixing ctrs. 54
Sensitivity adjustment	potentiometer	potentiometer
Case P (plastic) / Setting-up assistance LEDs ☉	P / ☉	P / ☉
Temperature range (°C) / Degree of protection (conforming to IEC 60529)	0...+ 50°C / IP65	0...+60 / IP40
Product certification	CE, cULus	
Dimensions (mm) H x W x D	60 x 60 x 18	60 x 60 x 18

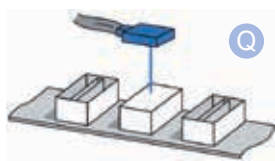
Sensors for DC applications (solid-state output: transistor) Sensors with overload and short-circuit protection

Connection	M8 connector
Transmitter / Receiver	3-wires PNP / NPN programmable NO / NC
Supply voltage limits, min./max. (V) including ripple	10...30
Switching capacity, max (mA) / Switching frequency (Hz)	100 / 5000

Accessories

PUR Pre-wired connectors (1)	M8 (4-pins)	M12 (4-pins)	7/8" (5-pins)
	Straight Elbowed	Straight Elbowed	Straight
	2 m XZCP0941L2 5 m XZCP0941L5	2 m XZCP1141L2 5 m XZCP1141L5	2 m XZCP1764L2 5 m XZCP1764L5

(1) For PVC cable see page 65



objects on conveyors



Application

System	Diffuse with adjustable background suppression			
Max. / usable sensing distance	20...300 mm	0...1 m	0...5 m	2 m
Fixing (mm)	Fixing : M3 holes, fixing centers 24 mm	Direct fixing centres 40 x 40, M4 screws	2 x Ø 4.3 holes / fixing centres 30	Direct: fixing ctrs. 30/38 to 40/50/74 M5 screw
Sensitivity adjustment	potentiometer	–	Teach mode	–
Case P (plastic) / Setting-up assistance LEDs ☉	P / ☉	P / ☉	P / ☉	P / ☉
Temperature range (°C) / Degree of protection (conforming to IEC 60529)	- 25...+ 55 / IP67	- 25...+ 55 / IP65	- 40...+ 60 / IP67 & IP69K	- 25...+ 55 / IP67
Product certification	CE, cURus	CE, UL, CSA	CE, cULus	CE, UL, CSA
Dimensions (mm) H x W x D	33 x 20 x 11	50 x 50 x 18	50 x 50 x 23	92 x 30,5 x 71

Sensors for DC applications (solid-state output: transistor). Sensors with overload and short-circuit protection

Connection	Pre-cabled		Pre-cabled PVC (2 m)		Screw terminals
Transmitter / Receiver	3-wires PNP / NPN	programmable NO / NC	–	XUK8AKSNL2	–
	PNP	programmable NO / NC	XUM8APCNL2	–	–
	NPN	programmable NO / NC	XUM8ANCNL2	–	–
Connection	M8 connector		M12 connector		
Transmitter / Receiver	3-wires PNP / NPN	programmable NO / NC	–	XUK8AKSNM12	XUK8TAKSMM12 (2)
	PNP	programmable NO / NC	XUM8APCNM8 (1)	–	–
	NPN	programmable NO / NC	XUM8ANCNM8	–	–
Supply voltage limits, min./max. (V) including ripple			10...36	18...30	10...36
Switching capacity, max (mA) / Switching frequency (Hz)			100 / 250	100 / 500	100 / 150

(1) also available with M12 remote connector with 0.3 m cable: replace M8 by L03M12.

(2) also existing with 2 independant outputs: XUK8TAKDMM12 (M12 - 5-pins).



System	Diffuse with adjustable background suppression		
Sensing distance	70...120 mm	10...750 mm	2 m
Fixing (mm)	M18 x 1	Direct fixing centres 40 x 40, M4 screws	Direct: fixing ctrs. 30/38 to 40/50/74 M5 screw
Sensitivity adjustment	potentiometer	Teach mode	–
Case M (metal) P (plastic) / Setting-up assistance LEDs ☉	M / ☉	P / ☉	P / ☉
Temperature range (°C) / Degree of protection (conforming to IEC 60529)	- 25...+ 55°C / IP67	- 25...+ 55°C / IP65	- 25...+ 55 / IP67
Product certification	CE, UL, CSA	CE, UL, CSA	CE, UL, CSA
Dimensions (mm) Ø x L or H x W x D	M18 x 82	50 x 18 x 50	92 x 30,5 x 71

Multi-current/multi-voltage sensors for AC/DC applications

Connection	Cable L = 2m		Cable	Screw terminals
Transmitter / Receiver	AC/DC	NO function	XU8M18MA230	–
		Programmable NO / NC	–	XUK8ARCTL2
Supply voltage limits, min./max. (V) including ripple	20...264		20...264	20...264
Switching capacity, max (mA) / Switching frequency (Hz)	200 / 25		3000 / 20	3000 / 20
Short-circuit protect. (★) / LED output state indicator (☉)	(1) / ☉		–	–

(1) Sensor not short-circuit protected. Therefore, it is essential to connect a 0.4 A quick-blow fuse in series with the load.

XU Photo-electric sensors, fibre optic Amplifier



	+/- potentiometer	Teach	Teach + Timer	Teach + Timer
Max. / usable sensing distance	Depending on fibre used, plastic only			
Fixing (mm)	DIN rail or direct: fixing centres 25, M3 screws			
Sensitivity adjustment	+/- numeric potentiometer	using teach mode	+/- numeric potentiometer	using teach mode
Case P (plastic) / Setting-up assistance LEDs ☉	P / ☉	P / ☉	P / ☉	P / ☉ and 4-digit display
Temperature range (°C) / Degree of protection (conforming to IEC 60529)	0...+60 / IP65	- 10...+ 55 / IP65 (1)	0...+60 / IP65	- 10...+ 55 / IP65 (1)
Product certification	CE, cULus	CE, cULus, cURus	CE, cULus	CE, cULus, cURus
Dimensions (mm) L x H x W	60 x 30 x 13	65 x 40 x 10	60 x 30 x 13	65 x 40 x 10

Sensors for DC applications (solid-state output: transistor)

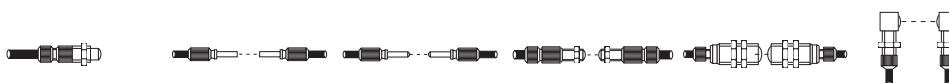
Connection				Pre-cabled PVC (2 m)			
References	3-wires PNP	programmable	NO / NC	—	XUDA1PSML2	—	XUDA2PSML2
Amplifier	3-wires NPN	programmable	NO / NC	—	XUDA1NSML2	—	XUDA2NSML2
Connection par connector				M8 connector - 4-pins			
References	3-wires PNP	programmable	NO / NC	—	XUDA1PSMM8	—	XUDA2PSMM8
Amplifier	3-wires NPN	programmable	NO / NC	—	XUDA1NSMM8	—	XUDA2NSMM8
	3-wires PNP/NPN programmable		NO / NC	XUYAFVCO966S (Glass)	—	XUYAFVCO946S (Glass)	—
				XUYAFPCO966S (Plastic)	—	XUYAFPCO946S (Plastic)	—
Supply voltage limits, min./max. (V) including ripple				10...30	10,8...26,4	10...30	10,8...26,4
Switching capacity, max (mA) / Switching frequency (Hz)				100 / 1000	100 / 1000	100 / 1000 time delayable	100 / 1000 time delayable
Short-circuit protect. (★) / LED output state indicator (⊗)				★ / ⊗	★ / ⊗	★ / ⊗	★ / ⊗

(1) IP65 with fibre Ø 1 / IP64 with fibre Ø 0,5

Ecofibre system, assemble your own plastic fibres



Fibre Ø 1 mm	Length = 10 m	Length = 20 m
References	XUFZ910	XUFZ920



End fittings	70	200	800	1200	4000	1200
Sensing distance (mm)	70	200	800	1200	4000	1200
Type	with threaded end fitting	with plain end fitting Ø 3, L = 9 mm	with plain end fitting Ø 3, L = 9 mm	with threaded end fitting	with threaded end fitting	90° mirror, with threaded end fitting
Thread	M8 x 1, L = 10 mm	—	—	M6 x 1, L = 10 mm	M12 x 1, L = 25 mm	M6 x 1, L = 3 to 10 mm
Lens	Yes	No	Yes	Yes	Yes	Yes
References	XUYA110	XUYA210	XUYA211	XUYA212	XUYA213	XUYA220

Accessories

For fibres plastic System Thru beam	For all system plastic fibre optics	Plug-in PUR pre-wired female connectors (1)
Lenses For increasing sensing distance (pair) XUFZ01 With 90° mirror (pair) XUFZ02 Fixing clamp with lens (set of 2) Front screw fixing for fibre optics XUF-Z920 XUFZ04	Fibre trimmer For trimming fibres to length (included with all fibre optics) XUFZ11 Protective metal tubing Length 1 m, for fibres with threaded end fittings For M4 thread XUFZ210 For M6 thread XUFZ310	Cable length 5 m, without LED pre-wired, elbowed XZCP1041L5 pre-wired, straight XZCP0941L5 (1) For PVC cable see page 65

Plastic fibre optic light guides (length 2 m)



	M4 / M2,6 (1)	M4/L = 90 mm	M3 / M2,6 (1)	Long range fibres with integrated lens M8 / L = 20 mm	Long range fibres M4 / M2,6 (1)	Flexible fibres M4 / M2,6 (1)
System	Thru beam					
Sensing distance (mm)	200 ou 1500 (2)	180	50 ou 1000 (2)	2500	300 ou 2000 (2)	100 ou 750 (2)
Fibre cross-section						
Fibre Ø (mm)	Ø 1	Ø 1	Ø 0,5	Ø 1	Ø 1,5	Ø 1
Sheath Ø (mm)	Ø 2,2	Ø 2,2	Ø 1	Ø 2,2	Ø 2,2	Ø 2,2
Temperature range (°C)	- 25...+ 60	- 25...+ 60	- 25...+ 60	- 25...+ 60	- 25...+ 60	- 25...+ 60
References	XUFN12301	XUFN12311	XUFN35301	XUFN2L01L2	XUFN2P01L2	XUFN2S01L2
Fixings	M4 x 0,7	M4 x 0,7	M3 x 0,5	M8 x 1,25	M2,6 x 0,45 / M4 x 0,7	M2,6 x 0,45 / M4 x 0,7

(1) Can be used with 90° mirror XUFZ02 (see preceding page).

(2) With lens accessory XUFZ01 (see preceding page).



M6



M4 / M6



M6/L = 90 mm



M4 / M2,6

System	Diffuse			
Sensing distance (mm)	70	60	60	15
Fibre cross-section				
Fibre Ø (mm)	Ø 1	Ø1+16 Ø 0,265	Ø 1	Ø 0,5 + 4 Ø 0,23
Sheath Ø (mm)	Ø 2,2 x 2	Ø 2,2 x 2	Ø 2,2 x 2	Ø 1 x 2
Temperature range (°C)	- 25...+ 60	- 25...+ 60	- 25...+ 60	- 25...+ 60
References	XUFN05321	XUFN05323	XUFN05331	XUFN02323
Fixings	M6 x 0,75	M6 x 0,75 / M4 x 0,7	M6 x 0,75	M4 x 0,7



M4/L = 90 mm



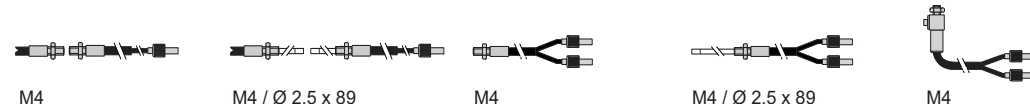
M4 / M2,6



Long range fibres
M6 / L = 15 mm

System	Diffuse		
Sensing distance (mm)	18	18	95
Fibre cross-section			
Fibre Ø (mm)	Ø 0,5	Ø 0,5	Ø 1,5
Sheath Ø (mm)	Ø 1 x 2	Ø 1 x 2	Ø 2,2 x 2
Temperature range (°C)	- 25...+ 60	- 25...+ 60	- 25...+ 60
References	XUFN01331	XUFN01321	XUFN5P01L2
Fixings	M4 x 0,7	M4 x 0,7	M6 x 0,75

Glass fibre optic light guides (length 0.6 m)



System		Thru beam		Diffuse		
Sensing distance (mm)		200		80		
Fibre cross-section						
End fitting		Straight	Adaptable	Straight	Adaptable	90°
Fibre Ø (mm)		1		1		
Sheath Ø (mm)		2,2		2,2		
Temperature range (°C)		PVC sheath : - 25...+ 60°C / Metal wound : - 25...+ 120°C / Flexible (stainless steel) : - 25...+ 200°C				
References	PVC sheath	XUYFVERSD61	–	XUYFVPSD61	XUYFVPSC61	XUYFVPSL61
	Metal wound	XUYFVERMD61	XUYFVERMC61	XUYFVPMD61	XUYFVPMC61	XUYFVPMML61
	Flexible stnl.steel	XUYFVERTD61	–	XUYFVPTD61	XUYFVPTC61	XUYFVPTL61

XX Ultrasonic sensors

Detection of any material



New

		M12	M18	M18 software-configurable
Nominal sensing distance Sn	Mode proximity or reflex	5 ou 10 cm depending on model	15 ou 50 cm depending on model	–
	Mode Thru beam	20 cm	61 ou 100 cm depending on model	–
	Window or proximity or reflex or pump	–	–	1m
Operating zone for proximity mode		0,64...5,1 cm (XX512A1...) 0,64...10,2 cm (XX512A2...)	1,9...15,2 cm (XX518A1...) 5,1...50,8 cm (XX518A3...)	0,105...1m
Sensitivity adjustment		Fixed	Adjustable using remote control for XX518 A3. Fixe for XX518A1, XXT18, XXR18	adjustable usign teach button or software
Case M (metal), P (plastic)		P	P	P or M
Product certification		CE, UL		CE, UL, ECOLAB, E2
Temperature range (°C)		- 20...+ 65	0...+ 50 (XX518A1...) / - 20...+ 65 (XX518A3...) / 0... 60 (XXT18, XXR18)	-25...+70
Degree of protection (conforming to IEC 60529)		IP67		
Dimensions (mm) Ø x L		M12 x 50	M18 x 65	M18 x 52

“Discrete” output for DC applications (24 V)

Connection			M8 connector	M12 connector	M12 connector
3-wires	PNP	NO function NO or NC	XX512A2PAM8 (10 cm)	XX518A3PAM12 (50 cm)	XX•18•1PM12 (4)
	NPN	NO function	XX512A2NAM8 (10 cm)	XX518A3NAM12 (50 cm)	–
4-wires	PNP/NPN	NO function	XX512A1KAM8 (5 cm)	XX518A1KAM12 (15 cm)	–

Application - monitoring levels

2 emptying levels	PNP NO function	–	XX218A3PHM12 (50 cm) (2)	–
2 filling levels	PNP NO function	–	XX218A3PFM12 (50 cm) (2)	–
Supply voltage limits, min./max. (V) including ripple		10...28		10...30
Switching capacity, max (mA)		<100		
Short-circuit protection (★)		★		
LED output state indicator (⊗)		⊗		
Voltage drop, closed state (V) at I nominal		<1		<2
Switching frequency (Hz)		125	40/80 (XX518A1...)	11
Transmission frequency (kHz)		500		200

(1) Reflex mode only for sensor with adjustable sensitivity. (2) 1 NO (3) Brass metal versions and SS316L are also available

(4) XX|A|18|P|1PM12 XXS** = straight version XX•30•P = plastic
XXA** = angled version XX•30•S = stainless steel
XX•30•B = brass

“Analogue” output for DC applications (24 V)

Connection			M12 connector		
4-wires	Analogue	0...10 V output	—	XX918A3F1M12 (50 cm)	XX•18•1VM12 (4)
		4...20 mA output	—	XX918A3C2M12 (50 cm)	XX•18•1AM12 (4)
Supply voltage limits, min./max. (V) including ripple			—	10...28	10...30 (4...20mA) 14...30 (0...10V)
Short-circuit protection (★)			—	★	★
LED output state indicator (⊗)			—	⊗	⊗
Transmission frequency (kHz)			—	300	200

Thru beam mode with “Discrete” output for DC applications (24 V)

Connection			M8 connector	M12 connector	M12 connector
4-wires	Receiver (NO/PNP + NO NPN)		XXR12A8KAM8	XXR18A3KAM12 (0,61 m) XXR18A4KAM12 (1 m)	–
	Receiver (NC/PNP + NC NPN)		XXR12A8KBM8	XXR18A3KBM12 (0,61 m) XXR18A4KBM12 (1 m)	–
	Transmitter		XXT12A8M8	XXT18A3M12 (0,61 m) XXT18A4M12 (1 m)	–

Accessories

See page 63 for programming and connectors, and page 64 for fixing

XX Ultrasonic sensors

Detection of any material

New



		M30 software-configurable			M30 Long range
Nominal sensing distance S_n	Mode proximity or reflex (1)	–	–	–	8m
	Window or proximity or reflex or pump	1m	2m	4m	
Operating zone for proximity mode		0,155...1m (M) 0,105...1m (P)	0,155...2m	0,420...4m	0,3...8 m
Sensitivity adjustment		using teach button or software			Integrated push button
Case M (metal), P (plastic)		M or P			P
Product certification		CE, UL, ECOLAB			CE, UL
Temperature range (°C)		-25...+70			-20...+60
Degree of protection (conforming to IEC 60529)		IP67			IP65 or IP67
Dimensions (mm) Ø x L		M30 x 88.25	M30 x 52 (1m plastic only)		M30 x 106

“Discrete” output for DC applications (24 V)

Connection			M12 connector			
3-wires	PNP	NO or NC	XX•30•1PM12 (2)	XX•30•2PM12 (2)	XXS30•4PM12 (2)	–
4-wires	PNP	NO function + NC	–	–	–	XX630A3PCM12
	NPN	NO function + NC	–	–	–	XX630A3NCM12
Supply voltage limits, min./max. (V) including ripple			10...30			10...28
Switching capacity, max (mA)			<100			
Short-circuit protection (★)			★			–
LED output state indicator (⊗)			⊗			–
Voltage drop, closed state (V) at I nominal			<2			
Switching frequency (Hz)			11	5.5	2.7	2
Transmission frequency (kHz)			120		80	75

(1) Reflex mode only for sensor with adjustable sensitivity.

Proximity mode with “Analogue” output for DC applications (24 V)

Connection						
4-wires	Analogue	Output 0...10 V	XX•30•1VM12 (2)	XX•30•2VM12 (2)	XXS30•4VM12 (2)	XX930A3A1M12
		Output 4...20 mA	XX•30•1AM12 (2)	XX•30•2AM12 (2)	XXS30•4AM12 (2)	XX930A3A2M12
Supply voltage limits, min./max. (V) including ripple		10...30 (4...20mA)	14...30 (0...10V)			15...24
Short-circuit protection (★)		★				
LED output state indicator (⊗)		⊗				
Transmission frequency (kHz)		120			80	75

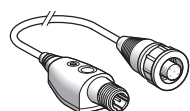
(2) XX[A]30[P]1PM12
[S] [S]
[B]
XXS** = straight version
XXA** = angled version
XX•30•P = plastic
XX•30•S = stainless steel
XX•30•B = brass

Accessories

Programming

Remote control

teach button for use with sensors
XX•18A3..., XX•V1..., XX•V...
XXS..., XXA...



XXZPB100

XX Software

XXZBOXO1 Configuration
interface
XXZKIT01 Configuration Kit



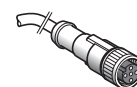
Suitable female plug-in connectors

PUR Pre-wired connectors (3)

Elbowed



Straight



Other connectors

Screw terminal



L = 5m (without LED)

M 8	for XX512A1...	XZCP1041L5	XZCP0941L5	XZCC8FCM40V
	for XX512A2...	XZCP0666L5	XZCP0566L5	XZCC8FCM30V
M 12	for all sensors except XX512...	XZCP1241L5	XZCP1141L5	XZCC12FCM40B

(3) For PVC cable see page 65

For fixing see page 64

XX Ultrasonic sensors

Detection of any material



		Mini flat	Flat	Combined multi-fixing	Flat 80 x 80
Nominal sensing distance Sn	Mode proximity or reflex (1)	10 cm	25 cm	50 cm	1 m
	Mode Thru beam	20 cm	61 ou 100 cm conforming to model	—	—
Operating zone for proximity mode		0,62...10,2 cm	5,1...25,4 cm	5,1...50,8 cm	0,1...1 m
		—	—	—	—
Sensitivity adjustment		Fixed		Adjustable using remote control	
Case	P (plastic)	P			
Product certification		CE, UL			
Temperature range (°C)		- 20...+ 65	0...+ 50	- 20...+ 65	0...+ 70
Degree of protection (conforming to IEC 60529)		IP67			
Dimensions (mm) Ø x L or H x W x D		33 x 19 x 7,6	74 x 30 x 16	M 18 / 18 x 33 x 60	80 x 80 x 34

Proximity or Reflex (1) mode with “Discrete” output for DC applications (24 V)

Connection		M12 on 0.15 m flying lead 0,15m	M12		
3-wires	PNP	NO function	XX7F1A2PAL01M12	XX7K1A2PAM12	XX7V1A1PAM12
	NPN	NO function	XX7F1A2NAL01M12	XX7K1A2NAM12	XX7V1A1NAM12
Supply voltage limits, min./max. (V) including ripple		10...28			
Switching capacity, max (mA)		<100			
Short-circuit protection (★)		★			
LED output state indicator (⊗)		⊗			
Voltage drop, closed state (V) at I nominal		<1			
Switching frequency (Hz)		100	80	40	70
Transmission frequency (kHz)		500	500	300	180

(1) Reflex mode only for sensor with adjustable sensitivity.

Proximity mode with “Analogue” output for DC applications (24 V)

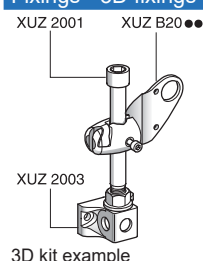
Connection by connector		—	M12	
4-wires	Analogue	0...10 V output	XX9V1A1F1M12	XX9D1A1F1M12
		4...20 m A output	XX9V1A1C2M12	XX9D1A1C2M12
Supply voltage limits, min./max. (V) including ripple		—	10...28	
Short-circuit protection (★)		—	★	
LED output state indicator (⊗)		—	⊗	
Transmission frequency (kHz)		—	300	180

Thru beam mode with “Discrete” output for DC applications (24 V)

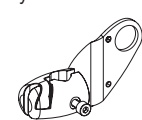
Connection by connector		—		
4-wires	Receiver (NO/PNP + NO/NPN)	XXRF1A8KAM12L	XXRK1A3KAM12 (0,61m) XXRK1A4KAM12 (1m)	—
	Receiver (NC/PNP + NC/NPN)	XXRF1A8KBM12L	XXRK1A3KBM12 (0,61m) XXRK1A4KBM12 (1m)	—
	Transmitter	XXTF1A8M12L	XXTK1A3M12 (0,61m) XXTK1A4M12 (1m)	—

Accessories

Fixings - 3D fixings with ball joint



Bracket with ball joint for cylindrical sensors



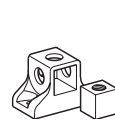
for	
Ø 12	XUZB2012
Ø 18	XUZB2003
Ø 30	XUZB2030

M12 rod for ball joint



XUZ2001

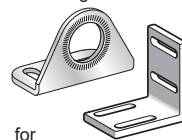
Fixing support for M12 rod



XUZ2003

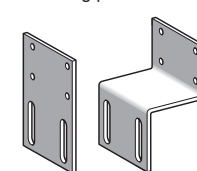
Simple fixings

90° fixing brackets



for	
Ø 12	XXZ12
Ø 18	XUZA118
Ø 30	XXZ30
XX7F	XXZ1933

Mounting plates for XX7K



flat	XXZ3074F
cranked	XXZ3074S

See page 63 for programming and connectors

XZ Cabling system

Pre-wired female connectors



PVC cable
M8 and M12 connector



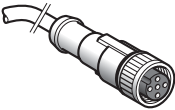
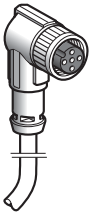
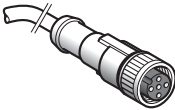
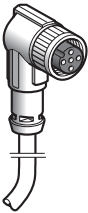
PVC cable
1/2" and 7/8" connector



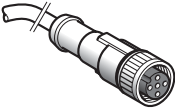
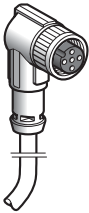
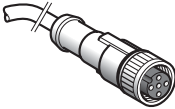
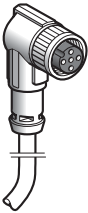
PUR cable halogen free
M8, M12, 1/2" and 7/8" connector



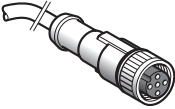
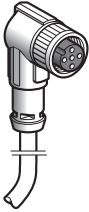
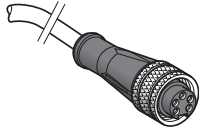
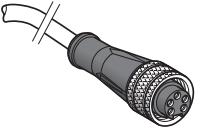
Reinforced PVC cable, stainless steel ring
M8, M12, 1/2" and 7/8" connector

Connector Size		M8 Straight 3-pins	Elbowed 3-pins	Straight 4-pins	Elbowed 4-pins
References	PVC cable	XZCPV0566Lp	XZCPV0666Lp	XZCPV0941Lp	XZCPV1041Lp
	PUR cable	XZCP0566Lp	XZCP0666Lp	XZCP0941Lp	XZCP1041Lp
	PVC cable IP69K	XZCPA0566Lp	–	XZCPA0941Lp	–

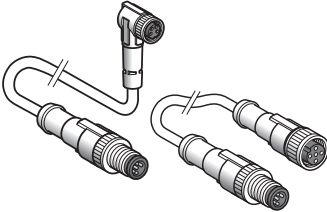
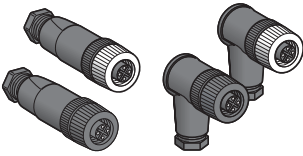
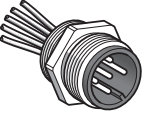





Connector Size		M12 Straight 4-pins	Elbowed 4-pins	Straight 5-pins	Elbowed 5-pins
References	PVC cable	XZCPV1141Lp	XZCPV1241Lp	XZCPV1164Lp	XZCPV1264Lp
	PUR cable	XZCP1141Lp	XZCP1241Lp	XZCP1164Lp	XZCP1264Lp
	PVC cable IP69K	XZCPA1141Lp	XZCPA1241Lp	XZCPA1164Lp	–

Connector Size		1/2" Straight 3-pins	Elbowed 3-pins	7/8" Straight 3-pins	Straight 5-pins
References	PVC cable	XZCPV1865Lp	XZCPV1965Lp	XZCPV1670Lp	–
	PUR cable	XZCP1865Lp	XZCP1965Lp	XZCP1670Lp	XZCP1764Lp
	PVC cable IP69K	XZCPA1865Lp	XZCPA1965Lp	–	–

Complete each reference by adding the length of cable, as 2 for 2 m, 5 for 5 m and 10 for 10 m,
 Eg: XZCPV1141L2 is pre-wired connector M12 connectors with 4 contacts and 2 m PVC cable

Other accessories		Jumpers	Connector	Receptacle
References		XZCR...	XZCC...	XZCE...

XG Radio frequency identification

13.56 MHz RFID



Presentation

XG RFID is open to the majority of ISO 18000-3, ISO 15693 and ISO 14443 electronic tags.

XG RFID integrates Modbus RTU, Uni-Telway, Modbus TCP/IP (using Ethernet box XGSZ33ETH) and Profibus DP (with box XGSZ33PDP) protocols.

The XG RFID offer comprises:

- 3 models of 13.56 MHz smart antenna (read/write)
- 12 models of 13.56 MHz electronic tags
- 1 portable RFID diagnostics terminal
- 3 models of network connection boxes plus connection and mounting accessories.

Setting-up

XG RFID smart antenna are simple to set-up:

- Integrated RFID and network Function
- No programming
- Automatic detection of the RFID electronic tags (read or write)
- Automatic setting of the communication parameters (speed, format, parity, protocol, etc.)
- Configuration of the network address (1 to 15) using badge included with the smart antenna
- Low sensitivity to metal environments.

Installation

The XG smart antenna easily integrate in flexible manufacturing production lines:

- quick connection using M12 connector
- screw fixing or clip-on mounting.



Smart antenna, 13,56 MHz		Flat form 40	Flat form 80
Dimensions (mm), W x H x D		40 x 40 x 15	80 x 80 x 26
Nominal sensing distance depending on tag (mm)		18 to 70	20 to 100
Type of associated tag		ISO 15693 and ISO 14443 standard tags. Automatic detection of the type of tag.	
Display		dual colour LED for the communication network, dual colour LED for the RFID communication	
Conformity to standards		CE, EN 301489-1, EN 301489-3, ETS 300330-1 and ETS 300330-2, FCC part 15 - UL	
Degree of protection conforming to IEC 60529		IP67	
Serial link	Type	RS 485	Ethernet (dual port)
	Protocol	Modbus et Uni-Telway	MODBUS TCP/IP et EtherNet/IP
	Speed (Bauds)	9600...115 200 (automatic detection)	10/100MB
Ambient air temperature (°C)		For fonctionnement : - 25...+ 70 °C, for stockage : - 40...+ 85 °C	
Nominal Supply voltage		24 VDC TBTP (Protective Extra Low Voltage)	
Connection		M12, 5-pins male, shielded connector on flying lead. Only for connection to the communication network and the supply	M12 (Ethernet) - M8 4-pins (Supply voltage)
References		XGCS4901201	XGCS8901201 XGCS850C201



Electronic tags		Format flat 40		Badge ISO (1)	Disque (3)	Format flat 26	Cylindrical
Dimensions (mm), W x H x D		40 x 40 x 15		54 x 85,5 x 0,8	Ø 30 x 3	26 x 26 x 13	M18 x 1 x 12
Type of memory		EEPROM	FRAM	EEPROM			
Memory capacity (bytes)		3 408	32 768	256	112	256	256
Nominal sensing distance (Read/Write)	With station XGCS49.	33	25	70	48	40	18
	With station XGCS89.	48	39	100	65	55	20
Time (ms)	Read	9,25 + 0,375 x n (2)	6 + 0,25 x n (2)	12 + 0,825 x n (2)			
	Write	13 + 0,8 x n (2)	6 + 0,25 x n (2)	20 + 11,8 x n (2)	12 + 5,6 x n (2)	20 + 11,8 x n (2)	19 + 4,1 x n (2)
Degree of protection conforming to IEC 60529		IP68		IP65		IP68	
Standard supported		ISO 14443		ISO 15693			
Mounting on metal support		Yes		No		Yes	No
References		XGHB444345	XGHB443245	XGHB90E340	XGHB320345	XGHB221346	XGHB211345

(1) Customised versions on request. (2) n = number of 16-bit words. (3) Also exists in diameter 50.



Connection boxes	Ethernet Modbus TCP/IP box	Profibus box	EtherNet/IP box
Dimensions (mm), W x H x D	130 x 80 x 51	130 x 80 x 51	130 x 80 x 51
Protocols	Modbus TCP/IP	Profibus DP	EtherNet/IP
Supply voltage	24 VDC PELV. M12, 4-pins male, A coding, connector		
Conformity to standards	CE, UL	CE	CE
Station connection	M12, 5-pins female, A coding, connector		
Degree of protection conforming to IEC 60529	IP65		
References	XGSZ33ETH	XGSZ33PDP	XGSZ33EIP



Terminal	Portable 13.56 MHz RFID diagnostics terminal	
Dimensions (mm), W x H x P	78 x 153 x 27	
Function	Read/Write operations on electronic tags	
Operating system	Proprietary OS	
Conformity to standards	CE, FCC classe A, Part 15	
Display	53 x 95 mm colour OLED touchscreen 272 x 480 pixels resolution	
Degree of protection conforming to IEC 60529	IP 40	
Memory	RAM	256 Mb
	Storage	internal 2 GB + USB socket for memory stick
Reference	XGST2422 (battery, battery charger, 2 GB USB memory stick, and carrying case included with terminal). RFID reader to be ordered separately: XGCS4901201 (integrated reader) or XGW4F111 (remote reader)	



Connection accessories						
	for Modbus network		for Ethernet	Pre-wired connector		"T" connector
Description	Modbus connecting cable M12 connectors Male / Female	Pre-wired connector M12 male / Bare wires	Ethernet connecting cable M12 male / RJ 45	Pre-wired supply connector M8 female	Pre-wired supply connector M12 female	Network M12 "T" connector 1 male / 2 female
Application	RS485 connection between a smart antenna and a connection box or between 2 Modbus boxes	Connection between a Modbus box and a Modbus / Uni-Telway network	Connection between an Ethernet box and the Ethernet network	24 VDC supply to Ethernet smart antenna XGCS850C201	24 VDC supply to connection boxes	For chaining of smart antennas on RS485 network
L = 2 m	TCSMCN1M1F2	TCSMCN1F2	XGSZ12E4503 (1)	XZCP0941L5 (3)	XGSZ09L2	TCSCN011M11F
L = 5 m	TCSMCN1M1F5	TCSMCN1F5	XGSZ12E4510 (2)	XZCP0941L2 (4)	XGSZ09L5	

(1) L = 3 m

(2) L = 10 m

(3) L = 5 m

(4) L = 2 m

Field expander

To be associated with a smart antenna XGCS4901201 for conveying and handling applications



50 x 400 mm
XGFEC540



250 x 250 mm
XGFEC2525

RS232/RS485 converter

For connecting a PC to an XG RFID smart antenna



XGSZ24

XG Radio frequency identification

RFID 13,56 MHz, Fixing Ø 22 mm



RFID Stations 13,56 MHz, Fixing Ø 22 mm		Compact station for panel fixing (1)	Compact station for panel fixing with indicator light (1)	Standalone compact station for panel fixing (2)
Dimensions (mm) W x H x D		40 x 40 x 40		
Nominal sensing distance depending on tag (mm)		20 to 70		
Type of associated tag		ISO 15693 to ISO 14443 standard tags. Automatic detection of the type tag.		
Interface	Physical interface	RS485		PNP discrete output 300 mA protected against short-circuits and overloads
	Protocol	Modbus RTU		-
Display	For informing the operator	2 LEDs (7 selectable colors) driven by Modbus requests		
	For the communication	1 dual color LED (Modbus network activity)		1 dual color LED (output/status)
Conformity to standards		EN 301489-1, EN 301489-3, EN 300330-1 et EN 300330-2		
Degree of protection conforming to IEC 60529		IP 65		IP 65
Ambient air temperature (°C)		For function : - 25...+ 70 °C, for storage : - 40...+ 85 °C		For function : - 40...+ 70 °C, for storage : - 40...+ 85 °C
Nominal Supply voltage		24 TBTP (Protective Extra Low Voltage)		
Connection		1 connector M12 male, 5-pins		
References		XGCS490B201	XGCS491B201	XGCS491B201

(1) Delivered with a fixing nut and a configuration badge for the network address.

(2) Delivered with a fixing nut - Configuration kit of badges for access control setup ref. **XGSZCNFAC** to order separately



Electronic tags		EEPROM type memory tag	ISO RFID card	ISO RFID card
Dimensions (mm) W x H x D		40 x 31 x 4,8	54 x 85.5 x 1	
Type of memory		EEPROM		
Memory capacity (bytes)		736	256	736
Nominal sensing distance (Read/Write)	With compact stations, Fixing Ø 22 mm	30 mm	70 mm	30 mm
Degree of protection		IP67	IP65	IP65
Supported standard		ISO 14443	ISO 15693	ISO 14443
Order by multiples of		10		25
Reference		XGHBPB3345	XGHB90E340	XGHB90E341

XIOT Cloud Connected Sensors

New

The groundbreaking Cloud-Connected Sensor technology from Telemecanique Sensors enables real-time remote monitoring from anywhere you can receive a signal!

1. The XIOT captures the event information at your remote locations

Whether you are monitoring the pressure threshold of an irrigation system, the emergency stop trigger on a long distance conveyor chain, or the opening of a lock on a secure gate or other industrial application, the information about the event is captured by the XIOT Cloud Connected Sensor.

2. Data and alerts are sent to the internet cloud

The information recorded by the sensor is sent to the internet cloud. This "smart alert" can then be immediately forwarded to any mobile device or platform anywhere you can receive a signal!

3. You receive the information on your computer or phone

In real time, from the convenience of your phone or other mobile device, you can get an overview of all your connected sensors and get alerts if there are any status changes on your installed base. These real time alarms, historical data, and data analytics about your connected assets are all available to multiple users through a secure, Cloud-Connected Sensor Application. The immediate information and data analysis provided by the Cloud Connected Sensors app help reduce operational downtime!

It's smart information at your fingertips!



Three options to choose from

Description	Transmitter only XIOT11SE0MRCL	Prepaid 5-year access to cloud XIOT11SE5MRCL	Subscription services (1) XIOT11SERMRCL
1 standalone transmitter Activation magnet Instruction sheet	✓	✓	✓
5-year subscription to Sigfox LPWAN (2)	-	✓	-
Web interface to configure and display data	-	✓	✓
Smartphone apps for alert notifications (IOS and Android)	-	✓	✓
Connection to Telemecanique Sensors secure servers via external SCADA system for data processing	-	-	✓

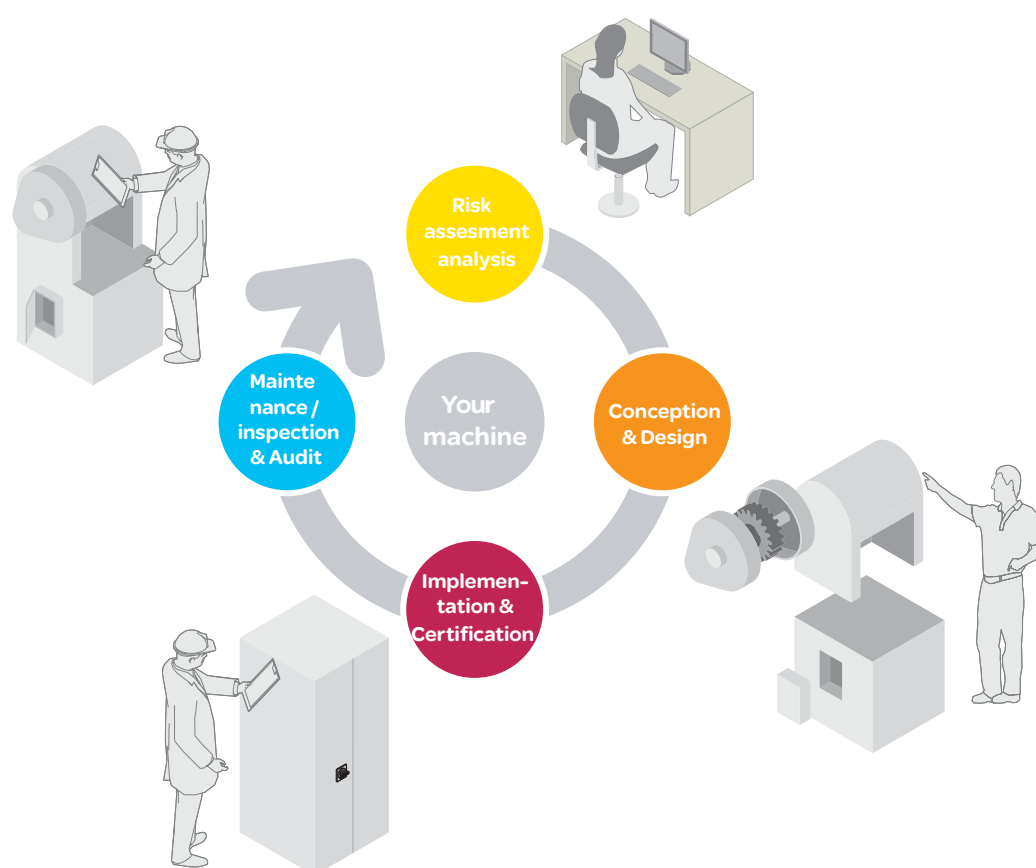
(1) Pricing and terms and conditions available on the online payment site: <https://godigital.schneider-electric.com/smp/home/home-page>

(2) LPWAN: Low power wide area network

Telemecanique Sensors safety products for your machine's entire life cycle

The Telemecanique Sensors range of safety products enhances safety throughout a machine's entire life cycle from design, manufacture, installation, adjustment, operation and servicing right through to decommissioning.

In addition to moral obligation and economic consequences, the law requires that machinery is safe in regard to accident prevention. Telemecanique Sensors offers an extensive range of safety products, compliant with international standards, designed to provide the most comprehensive protection for personnel and equipment.



> New machines - the Machinery Directive

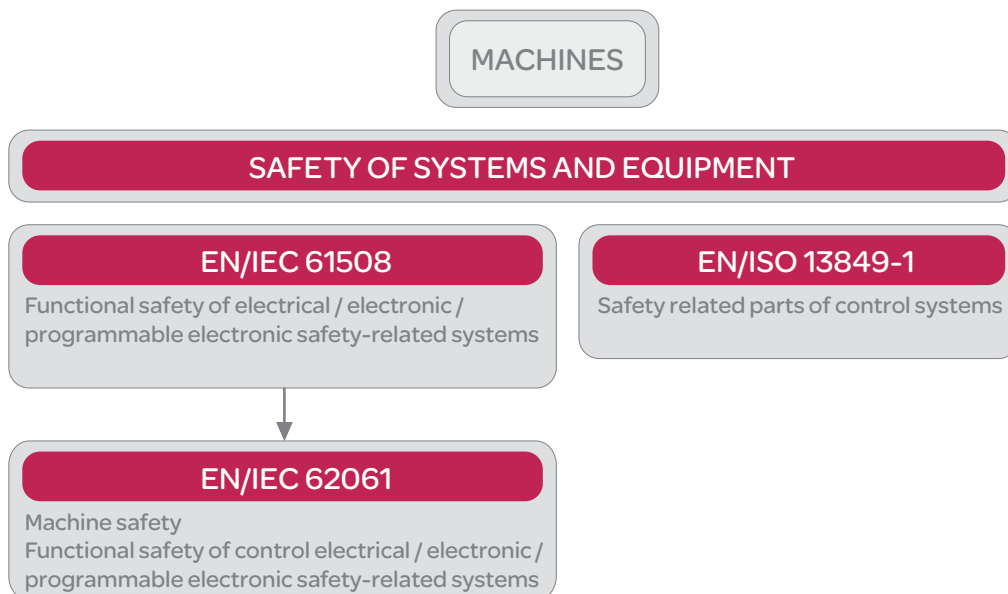
The previous Machinery Directive 98/37/EC was elaborated to help manufacturers ensuring a minimum safety level for machinery and equipment sold within the EU (European Union).

From 29 December 2009 on, the new European Machinery Directive 2006/42/EC is effective. Machines must comply with the Essential Health and Safety Requirements (EHSRs) listed in Annex I of the Directive, thus setting a common minimum level of protection across the EEA (European Economic Area).

Machine manufacturers, or their authorised representatives within the EU, must ensure that the machine is compliant with all requirements from this Directive. This technical file is available to reinforce authorities requests as well as the CE marking must be affixed and a Declaration of Conformity has been signed before the machine may be placed on the market within the EU.

Functional safety :

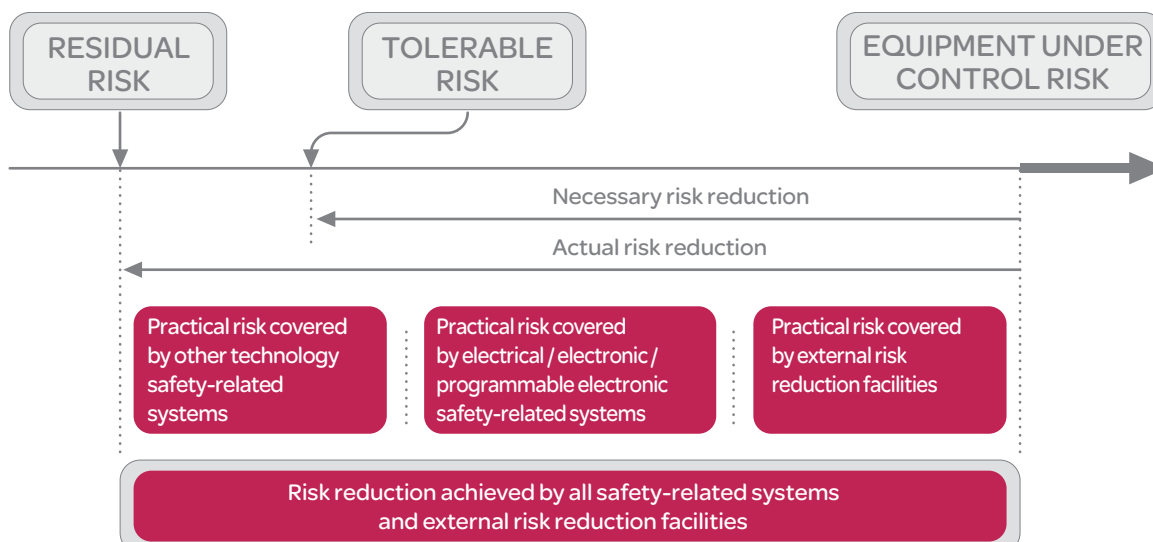
> Safety integrity level (SIL), Performance level (PL)



Risk reduction according to EN/IEC 61508 and EN/ISO 13849-1

- **Safety** is achieved by risk reduction (for those hazards that cannot be designed-out).
- **Residual risk** is the risk remaining after protective measures have been taken.
- **Protective measures** realised by E/E/PE* safety related systems contribute to risk reduction.

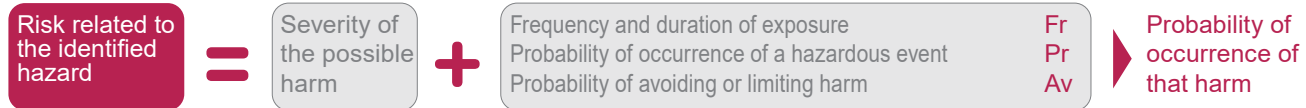
* Electric / Electronic / Programmable electronic



Functional safety of machinery

> Approach according to EN/IEC 62061

Risk estimation for SIL assignment



Example of SIL assignment

This assignment should be carried by determining the risk parameters that are shown below in an example.

Consequences		Severity (Se)
Irreversible: death, losing an eye or arm		4
Irreversible: broken limb(s), losing a finger(s)		3
Reversible: requiring attention from a medical practitioner		2
Reversible: requiring first aid		1

Frequency and duration of exposure (Fr)		Probability of occurrence	Probability (Pr)
Frequency of exposure		Very high	5
1 h		Likely	4
> 1 h to 1 day		Possible	3
> 1 day to 2 weeks		Rarely	2
> 2 weeks to 1 year		Negligible	1
> 1 year			

Probability of avoiding or limiting harm (Av)	
Impossible	5
Rarely	3
Probable	1

Serial no.	Hazard	Se	Fr	Pr	Av	Cl
1	Hazard X	4	5	+	4	+
2						

Consequences	(Se)	Classe Cl					Frequency and duration		Probability of hzd. Event		Avoidance	
		3-4	5-7	8-10	11-13	14-15	Fr	Pr	Av			
Death, losing an eye or arm	4	SIL 2	SIL 2	SIL 2	SIL 3	SIL 3	<= 1 hour	5	Common	5		
Permanent, losing fingers	3		OM	SIL 1	SIL 2	SIL 3	> 1 h to <= 1 day	5	Likely	4		
Reversible, medical attention	2			OM	SIL 1	SIL 2	> 1 day to <= 2 wks	4	Possible	3	Impossible	5
Reversible, first aid	1				OM	SIL 1	2 wks to <= 1 year	3	Rarely	2	Possible	3
							> 1 year	2	Negligible	1	Likely	1

In this example the SIL 3 must be achieved by the safety-related control function intended to reduce the risk related to the identified hazard.

Determination of the SIL level achieved by the Safety-related control function (SRCF)

According to standard EN/IEC 62061 for each safety related control function, the SIL level is linked to:

- a target failure value for the probability of dangerous failure by hour of the SRCF: PFH_D
- architectural constraints (hardware fault tolerance, diagnosis)
- a set of requirements related to the lifecycle of the safety related electrical control system

Safety integrity level (SIL)	Probability of a dangerous Failure per Hour PFH _D
3	>10 ⁻⁸ to <10 ⁻⁷
2	>10 ⁻⁷ to <10 ⁻⁶
1	>10 ⁻⁶ to <10 ⁻⁵

λ_s = rate of safe failures,
 λ_{dd} = rate of detected dangerous failures,
 λ_{du} = rate of undetected dangerous failures
 $\lambda_d = \lambda_{dd} + \lambda_{du}$

In practice, detected dangerous failure are dealt with by fault

- The rate of failures λ can be expressed as follows: $\lambda = \lambda_s + \lambda_{dd} + \lambda_{du}$
- The calculation of the PFH_D for a system or subsystem depends on several parameters:
 - the dangerous failure rate (λ_d) of the subsystem elements
 - the fault tolerance (e.g. redundancy) of the system
 - the diagnostic test interval (T2)
 - the proof test interval (T1) or lifetime whichever is smaller
 - the susceptibility to common cause failures (β)
- For each of the four different logical architectures A to D there is a different formula to calculate the PFH_D. (see EN/IEC 62061)
- For a simple system without redundancy and without diagnostic: $PFH_D = \lambda_d \times 1/h$

> Approach according to EN/ISO 13849-1

Determination of the Performance Level requested (PLr)

Done using the risk graphic opposite

S = Severity of injury

S1 = Slight (normally reversible injury)

S2 = Serious (normally irreversible) injury including death

F = Frequency and/or exposure time to the hazard

F1 = Seldom to less often and/or the exposure time is short

F2 = Frequent to continuous and/or the exposure time is long

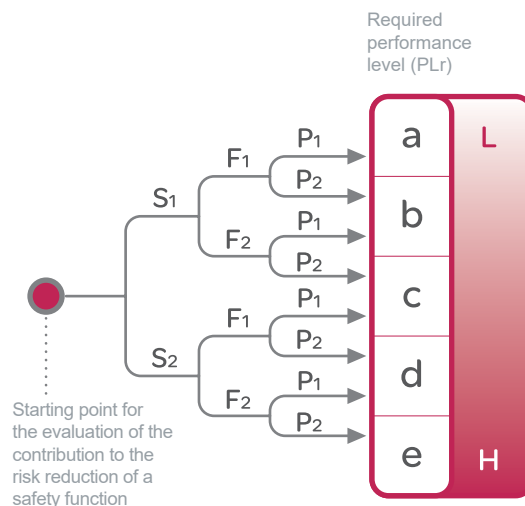
P = Possibility of avoiding the hazard or limiting the harm

P1 = Possible under specific conditions

P2 = Scarcely possible

L = Low contribution to risk reduction

H = High contribution to risk reduction



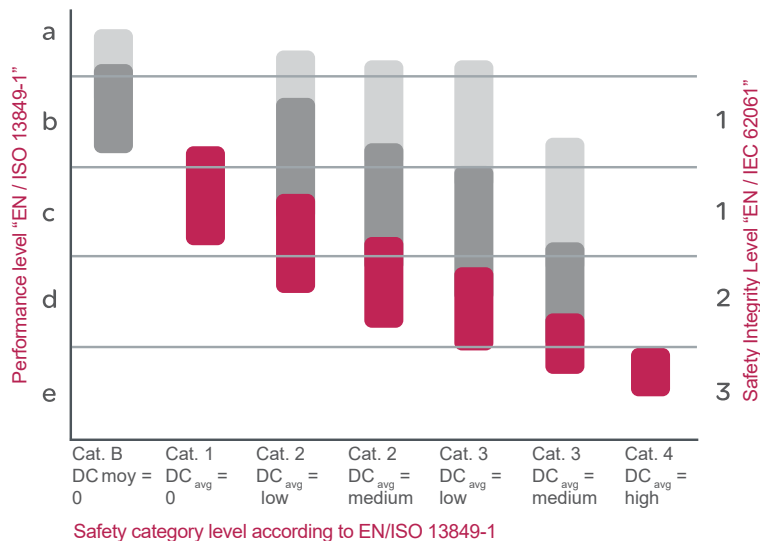
Determination of the PL achieved by the Safety-related parts of control systems (SRP/CS)

According to standard EN/ISO 13849-1, the Performance level (PL) is linked to a target failure value of probability of dangerous failure per hour for each safety related control function.

Performance level (PL)	Probability of a dangerous Failure per Hour
a	$\geq 10^{-5} \dots < 10^{-4}$
b	$\geq 3 \times 10^{-6} \dots < 10^{-5}$
c	$\geq 10^{-6} \dots < 3 \times 10^{-6}$
d	$\geq 10^{-7} \dots < 10^{-6}$
e	$\geq 10^{-8} \dots < 10^{-7}$

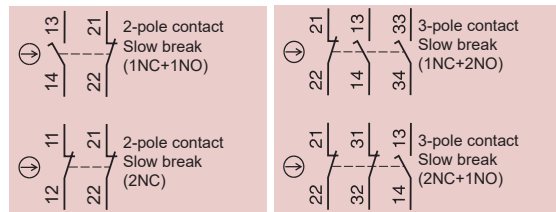
For a SRP/CS (or a combination of SRP/CS) designed according the requirements of the article 6, the PL could be estimated with the figure beside after estimation of several factors such as system structure (categorys), mechanism of failures detection [Diagnosis Coverage (DC)], components reliability [mean time to dangerous failure (MTTFd), Common Cause Failure (CCF)]...

- MTTF_d of each channel = low
- MTTF_d of each channel = medium
- MTTF_d of each channel = high



Key-operated safety switches without solenoid and actuators

Illustration of contacts with the actuator inserted in the head of the switch



Without locking

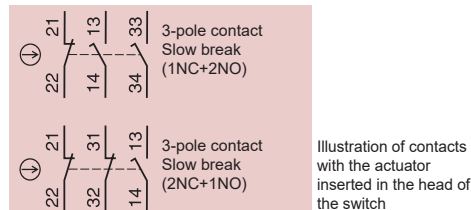


Plastic, double insulated switches			Type XCSMP	Type XCSPA		Type XCSTA
Maximum safety level (3)			PL=e, category 4 conforming to EN/ISO 13849-1 et SIL CL3 conforming to EN/IEC 62061			
Actuation speed (min>max)			0,05m/s --> 1,5m/s	0,1m/s --> 0,5m/s		0,1m/s --> 0,5m/s
Rated operational characteristics (conforming to EN/IEC 60947-5-1)			AC 15, C 300 / DC 13, Q 300			
Degree of protection conforming to IEC 60529			IP67			
Reliability data B _{10d}			5 000 000 value given for a service life of 20 years, limited by mechanical or contact wear			
Body + Head dimensions (mm) W x D x H			30 x 15 x 87 mm	30 x 30 x 93,5 mm		52 x 30 x 114,5 mm
Resistance to forcible withdrawal of actuator			8 N	10 N (1)		10 N (1)
Connection			pre-cabled, L = 2m	1 x ISO M16 entry.	1 x PG11 entry (5)	2 x ISO M16 entries. (5) (2)
Safety contacts	1NC+1NO	break before make, slow break	XCSMP59L2 ➞	XCSPA592 ➞	XCSPA591 ➞	–
	2NC	slow break	XCSMP79L2 ➞	XCSPA792 ➞	XCSPA791 ➞	–
	1NC+2NO	break before make, slow break	–	XCSPA892 ➞	XCSPA891 ➞	XCSTA592 ➞
	2NC+1NO	break before make, slow break	XCSMP70L2 ➞	XCSPA992 ➞	XCSPA991 ➞	XCSTA792 ➞
	2NC+1NO	snap action	–	XCSPA492 ➞	XCSPA491 ➞	–
	3NC	slow break	XCSMP80L2 ➞	–	–	XCSTA892 ➞

(1) In order to increase the resistance to 50 N, you must add the accessory XCSZ21 to the key actuators XCSZ12

(2) With entry for Pg 11 cable gland, replace the last digit in the reference by 1 (example: XCSTA592 becomes **XCSTA591**). Some PG11 references may not be available.

(5) To order a switch with 1 or 2 cable entries for 1/2" NPT conduit (one Pg11 tapped entry fitted with metal adapter DE9RA1012), replace the last number (2) by 3 in the selected reference. Example: XCSTA592 becomes **XCSTA593**. Some 1/2" NPT references may not be available.



Without locking

Without locking



With interlocking, manual unlocking
By button



By key lock

Interrupteurs metal to double isolation			Type XCSA		Type XCSB	Type XCSC
Maximum safety level (3)			PL=e, category 4 conforming to EN/ISO 13849-1 and SIL CL3 conforming to EN/IEC 62061			
Actuation speed (min>max)			0,01m/s --> 0,5m/s		0,01m/s --> 0,5m/s	
Rated operational characteristics (conforming to EN/IEC 60947-5-1)			AC 15, A 300 / DC 13, Q 300			
Degree of protection conforming to IEC 60529			IP67			
Reliability data B _{10d}			XCSA: 5 000 000 XCSB/C: 3 000 000 values given for a service life of 20 years, limited by mechanical or contact wear			
Body + Head dimensions (mm) W x D x H			40 x 44 x 113,5 mm		52 x 44 x 113,5 mm	
Resistance to forcible withdrawal of actuator			20 N		F1 _{max} = 1500N ; F _{2h} = 1150N (when locked)	
Connection (6)			1 x ISO M20 entry	1 x PG13,5 entry	1 x ISO M20	1 x PG13,5 entry
Safety contacts	1NC+2NO	break before make, slow break	XCSA502 ➞	XCSA501 ➞	XCSB502 ➞	XCSC501 ➞
	2NC+1NO	break before make, slow break	XCSA702 ➞	XCSA701 ➞	XCSB702 ➞	XCSC701 ➞
	3NC	slow break	XCSA802 ➞	XCSA801 ➞	—	XCSC801 ➞

(6) To order a switch with a 1/2" NPT cable entry, replace the last number (2) by 3 in the selected reference. Example: XCSA502 becomes **XCSA503**. Some 1/2" NPT references may not be available.

(3) Using an appropriate and correctly connected safety control unit.

Accessories



Straight actuator



Right-angled actuator



Pivoting actuator, RH door



Pivoting actuator, LH door

For safety switches XCSMP		Actuators			
References		XCSZ81	XCSZ84	XCSZ83	XCSZ85



Straight actuator



Wide actuator L=40 mm (4)



Right-angled actuator



Pivoting actuator



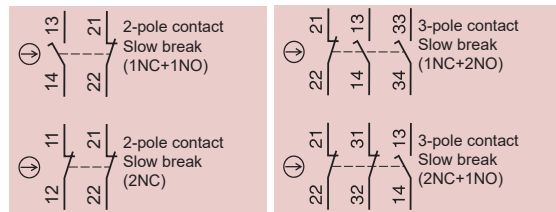
Guard/door retainer

For safety switches XCSPA/TA		Actuators				Retaining device
References		XCSZ11	XCSZ12	XCSZ14	XCSZ13	XCSZ21

(4) For L = 29 mm, reference = XCSZ15.

Key-operated safety switches with solenoid and actuators

Illustration of the main contacts with the actuator inserted in the head of the switch



Safety interlock switches			Type XCSLF, metal		Type XCSLE, plastic	
Standard version and Connector version						
Maximum safety level (3)			PL=e, category 4 conforming to EN/ISO 13849-1 and SIL CL3 conforming to EN/IEC 62061			
Degree of protection conforming to IEC 60529			IP66 and IP67	IP65	IP66 and IP67	IP65
Reliability data B _{10d}			5 500 000 value given for a service life of 20 years, limited by mechanical or contact wear			
Body + Head dimensions (mm) W x D x H			43,5 x 51 x 205 mm		43,5 x 51 x 205 mm	
Resistance to forcible withdrawal of actuator (Locked)			F _{1max} = 3000 N, f _{zh} = 2300 N		F _{1max} = 1400 N, f _{zh} = 1100 N	
Locking			on de-energization (1)		on de-energization (1)	
Supply voltage for the solenoid and the LEDs			24VAC/DC			
Material case			Zamak		Polyamide	
Wiring Connection (2)			3 x ISO M20	Connector M23 (4)	3 x ISO M20	Connector M23 (4)
Main and auxiliary contacts. (Main contacts actuated by the key. Auxiliary contacts actuated by the solenoid.)	1NC+1NO	break before make, slow break	XCSLF2525312 ➞	–	XCSLE2525312 ➞	–
	2NC	simultaneous, slow break	XCSLF2727312 ➞	–	XCSLE2727312 ➞	–
	1NC+2NO	break before make, slow break	XCSLF3535312 ➞	XCSLF353531M3 ➞	XCSLE3535312 ➞	XCSLE353531M3 ➞
	2NC+1NO	break before make, slow break	XCSLF3737312 ➞	XCSLF373731M3 ➞	XCSLE3737312 ➞	XCSLE373731M3 ➞
	3NC	simultaneous, slow break	XCSLF3838312 ➞	XCSLF383831M3 ➞	XCSLE3838312 ➞	–

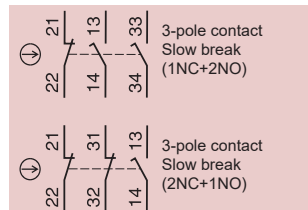


Illustration of the main contacts with the actuator inserted in the head of the switch



Safety interlock switches.		Type XCSLF, metal		
Push button version and Push button with connector version				
Maximum safety level (3)		PL=e, category 4 conforming to EN/ISO 13849-1 et SIL CL3 conforming to EN/IEC 62061		
Degree of protection conforming to IEC 60529		IP66	IP65	IP66
Reliability data B _{10d}		5 500 000 value given for a service life of 20 years, limited by mechanical or contact wear		
Body + Head dimensions (mm) W x D x H		43,5 x 51 x 205 mm		
Resistance to forcible withdrawal of actuator		3 000 N		
Locking		on de-energization (1)		on de-energization (1)
Push button with or without key no. 455 to release		Without		With
Supply voltage for the solenoid and the LEDs (5)		24VAC/DC		
Material case		Zamak		
Connection (2)		3 x ISO M20	Connector M23 (4)	3 x ISO M20
Safety contacts	1NC+2NO break before make, slow break	XCSLF3535412 →	XCSLF353541M3 →	XCSLF3535612 →
	2NC+1NO break before make, slow break	XCSLF3737412 →	XCSLF373741M3 →	XCSLF3737612 →

(1) For locking on energisation of solenoid, please refer to www.tesensors.com

(2) To order a switch with 3 1/2" NPT cable entries, replace the last number in the reference by 3. Example: XCSLF3535312 becomes **XCSLF3535313**. Some 1/2" NPT references may not be available.

(3) Using an appropriate and correctly connected safety control unit.

(4) Connector M23, 19 pins

(5) For 120V~ and 240V~ solenoid supply voltages, please refer to www.tesensors.com

Accessories



Straight actuator



Wide actuator



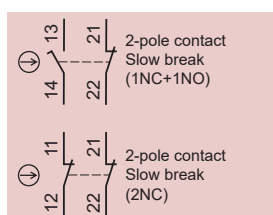
Pivoting actuator



For safety switches XCSA/B/C/LE/LF	Actuators			Door lock
References	XCSZ01	XCSZ02	XCSZ03	XCSZ05

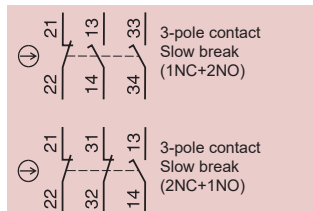
Safety switches

with rotary lever or spindle

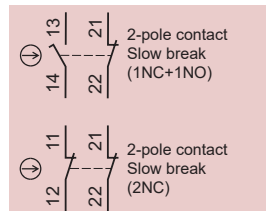


Stainless steel, elbowed (flush with rear of switch) lever Stainless steel straight lever

Plastic switches (lever-operated)		XCSP				
		1 x ISO M16 cable entry (1) (2) (4)				
Maximum safety level (3)		PL=e, category 4 conforming to EN/ISO 13849-1 and SIL CL3 conforming to EN/IEC 62061				
Minimum torque (actuation / positive opening)		0,1 / 0,25 N.m				
Degree of protection		IP67				
Rated operational characteristics (conforming to EN/IEC 60947-5-1)		AC 15, A 300 / DC 13, Q 300				
Dimensions (body + head) W x D x H		30 x 30 x 160 mm				
Lever position		Lever to left	Lever centred	Lever to right	Lever to left or right	Lever centred
Tripping angle		5°				
Reliability data B _{10d}		5 000 000 (value given for a service life of 20 years, limited by mechanical or contact wear)				
Complete switch	1NC+1NO break before make, slow break	XCSP592 →	XCSP582 →	XCSP572 →	XCSP562 →	XCSP552 →
	2NC slow break	XCSP792 →	XCSP782 →	XCSP772 →	XCSP762 →	XCSP752 →
	1NC+2NO slow break	—	—	—	XCSP862 →	—
	2NC+1NO slow break	—	—	—	XCSP962 →	—



Stainless steel spindle
30 mm length



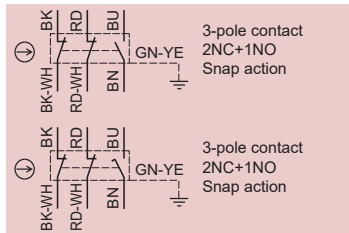
Stainless steel spindle
30 mm length

Plastic switches (spindle-operated)		XCSTR		XCSPR	
		2 x ISO M16 cable entries (1) (2) (4)			
Maximum safety level (3)		PL=e, category 4 conforming to EN/ISO 13849-1 and SIL CL3 conforming to EN/IEC 62061			
Minimum torque (actuation / positive opening)		0,1 / 0,45 N.m		0,1 / 0,25 N.m	
Degree of protection		IP67			
Rated operational characteristics (conforming to EN/IEC 60947-5-1)		AC 15, A 300 / DC 13, Q 300			
Dimensions (body + head) W x P x H		52 x 30 x 117 mm		30 x 30 x 96 mm	
Tripping angle		5°			
Reliability data B _{10d}		5 000 000 (value given for a service life of 20 years, limited by mechanical or contact wear)			
Complete switch	1NC+2NO break before make, slow break	XCSTR552 →		—	
	2NC+1NO break before make, slow break	XCSTR752 →		—	
	1NC+1NO break before make, slow break	—		XCSPR552 →	
	2NC slow break	—		XCSPR752 →	
	2NC+1NO slow break	—		XCSPR952 →	

- (1) With entry for Pg 11 cable gland, replace the last digit in the reference by 1 (Example: XCSP592 becomes **XCSP591**). Some Pg11 references may not be available.
 (2) For entry for ISO M20 cable gland, also order adaptor DE9RA1620 (sold in lots of 5).
 (3) Using an appropriate and correctly connected safety control unit.
 (4) With entry for 1/2" NPT conduit, replace the last digit in the reference by 3 (Example: XCSP592 becomes **XCSP593**). Some 1/2" NPT references may not be available.

Limit switches

Safety limit switches



Metal
end plunger

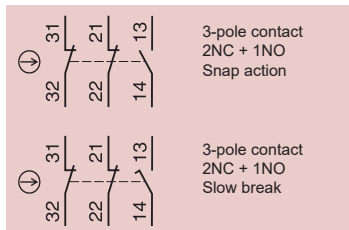


Roller plunger



Thermoplastic
roller lever

Miniatures switches		Type XCSM metal cable length = 1 m (1)		
Maximum safety level (2)		PL=e, category 4 conforming to EN/ISO 13849-1 and SIL CL3 conforming to EN/IEC 62061		
Maximum actuation speed		0,5 m/s	0,5 m/s	1,5 m/s
Minimum force or torque (actuation / positive opening)		8,5 N / 42,5 N	7 N / 35 N	0,5 N.m / 0,1 N.m
Degree of protection		IP66 + IP67 + IP68	IP66 + IP67 + IP68	IP66 + IP67 + IP68
Dimensions (body + head) W x D x H		30 x 16 x 60 mm	30 x 16 x 70,5 mm	30 x 32 x 92,5 mm
Reliability data B _{10d}		50 000 000 (value given for a service life of 20 years, limited by mechanical or contact wear)		
Complete switch	2NC+1NO snap action	XCSM3910L1 →	XCSM3902L1 →	XCSM3915L1 →
	2NC+1NO slow break	XCSM3710L1 →	XCSM3702L1 →	XCSM3715L1 →



Metal
plunger



Roller
plunger



Thermoplastic
roller lever



Metal
end plunger



Roller
plunger



Thermoplastic
roller lever

Compact switches		Type XCSD metal 1 x ISO M20 x 1.5 cable entry (3) (4)			Type XCSP, plastic 1 x ISO M20 x 1.5 cable entry (2) (3) (4)		
Maximum safety level (2)		PL=e, category 4 conforming to EN/ISO 13849-1 and SIL CL3 conforming to EN/IEC 62061					
Maximum actuation speed		0,5 m/s		1,5 m/s	0,5 m/s		1,5 m/s
Minimum force or torque (actuation / positive opening)		15 N / 45 N	12 N / 36 N	10 N.m / 0,1 N.m	15 N / 45 N	12 N / 36 N	10 N.m / 0,1 N.m
Degree of protection		IP66 + IP67			IP66 + IP67		
Dimensions (body + head) W x D x H (mm)		34 x 34,5 x 89	34 x 34,5 x 99,5	34 x 43 x 121,5	34 x 34,5 x 89	34 x 34,5 x 99,5	34 x 43 x 121,5
Reliability data B _{10d}		50 000 000 (value given for a service life of 20 years, limited by mechanical or contact wear)					
Complete switch	2NC+1NO snap action	XCSD3910P20	XCSD3902P20	XCSD3918P20	XCSP3910P20	XCSP3902P20	XCSP3918P20
	2NC+1NO slow break	XCSD3710P20	XCSD3702P20	XCSD3718P20	—	—	—

(1) For a 2 m long cable, replace the last digit of the reference by 2 (example: XCSD3910L1 becomes **XCSD3910L2**).

For a 5 m long cable, replace the last digit of the reference by 5 (example: XCSD3910L1 becomes **XCSD3910L5**).

(2) Using an appropriate and correctly connected safety control unit.

(3) To order a switch with 1/2" NPT cable entry, replace P20 with N12. Example: XCSD3910P20 becomes **XCSD3910N12**. Some 1/2" NPT references may not be available.

(4) To order a switch with Pg13.5 cable entry, replace P20 with G13. Example: XCSD3702P20 becomes **XCSD3702G13**. Some Pg 13.5 references may not be available.

RFID Technology

RFID Safety contact-less switch XCSR



New



Type	Standalone	For series connection (Daisy-chain) (2) (3)	For point-to-point connection (Single)
Maximum safety level	PL=e, category4 conforming to EN/ISO 13849-1 and SIL 3 conforming to EN/IEC 61508		
	Possible functioning without association with a safety control unit	Functioning in combination with a safety control unit PL=e/Cat4 - SIL 3	
Coding level (conforming to ISO 14119)	High level (Unique code) (for every model)		
Contactors monitoring (EDM) / Start-Restart	embedded	Safety control unit management	
Degree of protection	IP65, IP66, IP67 and IP69K - Ecolab		
Outputs Safety OSSDs - maximum current	400 mA	200 mA	
Rated operational characteristics	Ue=24Vdc - 20%...+1%, Ie=60mA		
Dimensions (mm) W x H x D (Transponder)	50 x 15 x 15 mm		
Dimensions L x P x H (Reader)	108,3 x 30 x 15 mm	118,6 x 30 x 15 mm	108,3 x 30 x 15 mm
Assured operating sensing distance (Sao) (4)	10 mm		
Assured release sensing distance (Sar) (4)	35 mm		
Reliability data (PFH ₀ /TM)	5.10 ⁻¹⁰ / 20 year		
Connection	Connector M12 male 8-pins	2 connectors M12 males 5-pins	Connector M12 male 5-pins
References			
Transponder + Reader matched in factory - Single matching - Start automatique + EDM	XCSRC11AM12 (1)		
Transponder + Reader matched in factory - Single matching - Start manual monitored + EDM	XCSRC11MM12 (1)		
Transponder + Reader matched in factory - Single matching		XCSRC12M12 (1)	XCSRC10M12 (1)

(1) For the versions allowing a new pairing (maximum 2 new pairings) of a blank transponder XCSRK2A3, replace the first reference digit '1' by '3'

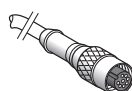
For example, reference XCSRC10M12 becomes **XCSRC30M12**

As soon as a blank transponder has been paired, the former transponder is no longer valid. A blank transponder can be matched only once

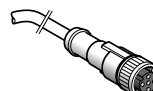
(2) The using of the serial diagnosis unit XCSR210MDB is optionnal but highly recommanded. This diagnosis unit provides and localizes the state of every XCSR sensors of the chain (open/close safe guard status, presence of errors, cabling issue, ...).

(3) The first sensor of serial connexion must be coupled with the loopback chain adaptator XCSRZE

(4) Sao: assured operating distance. Sar: assured release distance.



XZCP29P12Lpp



XZCP11V12Lp



XZCP12V12Lp

Type	Connection M12 - Pre-wired - for XCSR "Single" et "Daisy-chain" (1) XCSRC10M12 - XCSRC30M12 - XCSRC12M12 (1) and XCSRC32M12 (1)			
Pre-wired length (cable material : PUR)	2 m	5 m	10 m	20 m
Connector M12 5-pins Female	Straight - Pre-wired	XZCP11V12L2	XZCP11V12L5	XZCP11V12L10
	90° - Pre-wired	XZCP12V12L2	XZCP12V12L5	XZCP12V12L10
				XZCP12V12L20

Type	Connection M12 - Pre-wired - for XCSR "Standalone" XCSRC11AM12 - XCSRC31AM12 - XCSRC11MM12 and XCSRC31M12			
Pre-wired length (cable material : PUR)	2 m	5 m	10 m	20 m
Connector M12 8-pins Female	Straight - Pre-wired	XZCP29P12L2	XZCP29P12L5	XZCP29P12L10
	90° - Pre-wired	XZCP53P12L2	XZCP53P12L5	XZCP53P12L10
				XZCP53P12L20

Type	Connection 2xM12 - Jumpers for XCSR "Daisy-chain" XCSRC12M12 - XCSRC32M12				
Pre-wired length (cable material : PUR)	0.3 m	3 m	5 m	10 m	25 m
2 connectors Straight female M12 5-pins	Pre-cabled for serial link directly between the sensors	XZCR1111064D03	XZCR1111064D3	XZCR1111064D5	XZCR1111064D10
					XZCR1111064D25

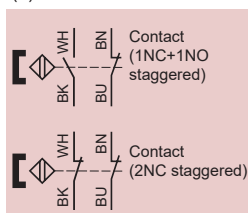
(1) For the connection of the last safety switch of the chain (XCSRC12M12 or XCSRC32M12) to the safety control unit

Coded magnetic technology

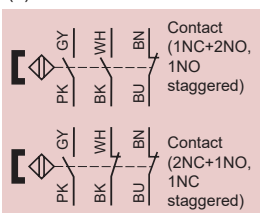
Plastic coded magnetic switches



(1)



(1)



Rectangular
Without LED (2)



Rectangular
Without LED (2)



Cylindrical
Without LED (2)



Rectangular
Without LED (2)



Rectangular
Without LED (2)



Cylindrical
Without LED (2)

Plastic switches		Type XCSDM coded magnetic			Pre-cabled L = 2 m			Connector on flying lead, L = 15 cm (3)		
Maximum safety level (5)		PL=e, category4 conforming to EN/ISO 13849-1 et SIL 3 conforming to EN/IEC 61508								
Switches for actuation		face to face, face to side, side to side		face to face	face to face, face to side, side to side		face to face			
Degree of protection		IP66 + IP67 - Ecolab			IP66 + IP67 - Ecolab					
Type of contact		REED			REED					
Rated operational characteristics (conforming to EN/IEC 60947-5-1)		Ue = 24 VDC, Ie = 100 mA			Ue = 24 VDC, Ie = 100 mA					
Dimensions W x D x H		16 x 7 x 51 mm	25 x 13 x 88 mm	M30 x 38,5 mm	16 x 7 x 51 mm	25 x 13 x 88 mm	M30 x 38.5 mm			
Operating zone (4)		Sao = 5 / Sar = 15	Sao = 8 / Sar = 20		Sao = 5 / Sar = 15	Sao = 8 / Sar = 20				
Reliability data B _{10d}		50 000 000 (value given for a service life of 20 years, limited by mechanical or contact wear)								
Switch with coded magnet	1NC+1NO staggered	XCSDMC5902	XCSDMP5902	XCSDMR5902	XCSDMC590L01M8	XCSDMP590L01M12	XCSDMR590L01M12			
	2NC staggered	XCSDMC7902	XCSDMP7902	XCSDMR7902	XCSDMC790L01M8	XCSDMP790L01M12	XCSDMR790L01M12			
	1NC+2NO, 1NO staggered	—	XCSDMP5002	—	—	XCSDMP500L01M12	—			
	2NC+1NO, 1NC staggered	—	XCSDMP7002	—	—	XCSDMP700L01M12	—			

(1) Illustration of contacts with the magnet in front of the switch.

(2) For version with LED indicator, replace the last 0 in the reference by 1 (example: XCSDMC5902 becomes **XCSDMC5912**).

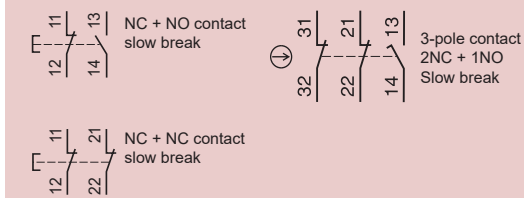
(3) For associated pre-wired female connectors, please refer to the "Safety switches - XCS range" catalogue.

(4) Sao: assured operating distance. Sar: assured release distance.

(5) Using an appropriate and correctly connected safety control unit

Emergency stops

Emergency stop rope pull switches



For operating cable length < 20 - 30m		Without indicator light		
		Pg 13.5 threaded cable entry		
Maximum safety level (2)		PL=e, category 4 conforming to EN/ISO 13849-1 and SIL3 conforming to EN/IEC 61508		
Mechanical life		100 000 cycles		
Shock / vibration resistance		50 gn / 10 gn		
Degree of protection		IP66 and IP67		
Conformity to standards		EN/IEC 60947-5-5, EN/ISO 13850, UL (NiSD) - CSA, CCC		
Dimensions W x D x H		200.9 x 40 x 64.2 mm		
Operating cable length		< 20 m		
Operating cable anchoring point		Straight		
Reliability data B _{10d}		500 000 (value given for a service life of 20 years, limited by mechanical or contact wear)		
Contact	1 NC + 1 NO slow break	XY2CJS15 (4)	XY2CJR15 (4)	XY2CJL15 (4)
	1 NC + 1 NC slow break	XY2CJS17 (4)	XY2CJR17 (4)	XY2CJL17 (4)
	2 NC + 1 NO slow break	XY2CJS19 (4) (5)	XY2CJR19 (4) (5)	XY2CJL19 (4) (5)

(2) Using an appropriate and correctly connected safety control unit. (4) For ISO M20 threaded cable entry version, add H29 to the end of the reference selected. Example: XY2CJS15 becomes **XY2CJS15H29**. (5) For 1/2" NPT threaded cable entry version, add H7 to the end of the reference selected. Example: XY2CJS19 becomes **XY2CJS19H7**.

Emergency stops

Emergency stop rope pull switches



Booted pushbutton reset



Key release pushbutton reset (key n° 421)



For operating cable length ≤ 30 m		Simple anchor, without indicator light 3 entries of pre-cabled Pg13.5 (4)(5)		with indicator light
Maximum safety level (2)		PL=e, category 4 conforming to EN/ISO 13849-1 and SIL 3 conforming to EN/IEC 61508		
Mechanical life		800 000 cycles		
Shock / vibration resistance		50 gn / 10 gn		
Degree of protection		IP65		
Conformity to standards		EN/IEC 60947-5-5, EN/ISO 13850, UL NISD and CSA C 22-2 n° 14 (with suffix H7)		
Dimensions W x D x H		201 x 71 x 68 mm		
Operating cable length		≤ 30 m		
Operating cable anchoring point		To right or to left		
Reliability data B _{10d}		4 000 000 (value given for a service life of 20 years, limited by mechanical or contact wear)		
Contact	1 NC + 1 NO slow break	XY2CH13250 (4) (5)	XY2CH13450 (4) (5)	XY2CH13253 (4)
	1 NC + 1 NC slow break	XY2CH13270 (4) (5)	XY2CH13470 (4) (5)	XY2CH13273
	2 NC + 1 NO slow break	XY2CH13290 (4) (5)	–	XY2CH13293 (4)



Booted pushbutton reset



Key release pushbutton reset (key n° 421)

For operating cable length ≤ 70 m		Simple anchor, without indicator light 3 plain holes with Pg13,5 or ISO M20 cable entries (3)(5)			
Maximum safety level (2)		PL=e, category 4 conforming to EN/ISO 13849-1 and SIL 3 conforming to EN/IEC 61508			
Mechanical life		60 000 cycles			
Shock / vibration resistance		50 gn / 10 gn			
Degree of protection		IP66			
Conformity to standards		EN/IEC 60947-5-5, EN/ISO 13850, UL NISD and CSA C 22-2 n° 14 (with suffix H7)			
Dimensions W x D x H		229 x 82 x 142 mm			
Pre-cabled length		≤ 70 m			
Operating cable anchoring point		To left	To right	To left	To right
Reliability data B _{10d}		300 000 (value given for a service life of 20 years, limited by mechanical or contact wear)			
Contact	1 NC + 1 NO slow break	XY2CE2A250 (5)	XY2CE1A250 (5)	XY2CE2A450 (5)	XY2CE1A450
	1 NC + 1 NC slow break	XY2CE2A270 (5)	XY2CE1A270 (5)	XY2CE2A470	XY2CE1A470
	2 NC + 2 NO slow break	XY2CE2A290 (3) (5)	XY2CE1A290 (3) (5)	XY2CE2A490 (3)	XY2CE1A490 (3)



Booted pushbutton reset



Key release pushbutton reset (key n° 455)

For pre-cabled length ≤ 2X100 m		Double latching, without indicator lights 3 entries of pre-cabled ISO M20 or cable gland 13 (Pg13,5) (3) (5)			
Maximum safety level (2)		PL=e, category 4 conforming to EN/ISO 13849-1 and SIL 3 conforming to EN/IEC 61508			
Mechanical life		60 000 cycles			
Shock / vibration resistance		50 gn / 10 gn			
Degree of protection		IP66			
Conformity to standards		EN/IEC 60947-5-5, EN/ISO 13850, UL NISD and CSA C 22-2 n° 14 (with suffix H7)			
Dimensions W x D x H		327.4 x 82 x 142 mm			
Pre-cabled length		≥ 2 x 35 m et ≤ 2 x 100 m			
Bellows matter		Nitrile	Silicone	Nitrile	Silicone
Reliability data B _{10d}		300 000 (value given for a service life of 20 years, limited by mechanical or contact wear)			
Contact	2 NC + 2 NO slow break	XY2CEDA290 (3) (5)	XY2CEDC290 (3)	XY2CEDA590 (3)	XY2CEDC590

(2) Use an appropriated and well connected control system

(3) With protected LED, supply voltage light 24 V or 130 V, add 6 at the end of the reference (Example: XY2CE1A290 becomes **XY2CE1A296**). / With DEL protected, Supply voltage indicator 230 V, add 7 at the end of the reference (Example: : XY2CE1A290 becomes **XY2CE1A297**)

(4) For the threaded entry cable version ISO M20, add H29 at the end of the reference. Example: : XY2CH13250 becomes **XY2CH13250H29**.

(5) For the threaded entry cable version 1/2" NPT, add H7 at the end of the reference. Example: : XY2CE2A250 becomes **XY2CE2A250H7**

Accessories

Mounting kits	XY2CJ	XY2CH	XY2CE	XY2CED
References	XY2CZ9425 (1)	XY2CZ9330 (2)	XY2CZ9570 (3)	XY2CZ96200 (4)

(1) Kit contents: 1 galvanised cable L:30.5 (Ø 3.2 mm), quick tensioner, cable supports, and end spring.

(2) Kit contents: 1 galvanised cable L: 30.5 m (Ø 3.2 mm) and end spring.

(3) Kit contents: 1 galvanised cable L: 70.5 m (Ø 5 mm), turnbuckle, cable supports, cable end protectors and end spring.

(4) Kit contents: 2 galvanised cables L: 100.5m (D 5mm) and quick tensioners.

Light curtains

Type 2 conforming to IEC 61496-1 & IEC 61496-2

Main features

- Automatic or Manual Start/Restart selectable by wiring
- External Device Monitoring (EDM) selectable by wiring
- Two maximum Sensing Distance selectable by wiring
- Test function (beam blocked state simulation)
- Led indicators for status and diagnosis
- Muting possible with dedicated Safety module XPSCMUT1160
- 2 outputs solid-state PNP OSSD (*)
(NO when the sensing area is occupied)

(*) Output Signal Switching Devices



Maximum safety level achieved by the solution EN ISO 13849-1 (3)		PLc/cat2	
Maximum safety level achieved by the solution IEC 61508/IEC 62061 (3)		SIL 1/SILCL1	
Type IEC 61496-1 & IEC 61496-2		Type 2 Multi-beam, infrared transmission	
Nominal sensing distance (Sn)		0...4 m or 0...12 m selectable	
Resolution (detection capability)		30 mm (Hand detection)	2-3 or 4 (Body Detection)
Number of safety outputs		2 solid-state PNP	
Response time (depending on model)		4.5...22.5 ms	3...3.5 ms
Operating temperature range		-30°C...+55°C	
Degree of protection (1)		IP65 - IP67	
Connection		M12 Connector	
Reliability data		PFHd = 2.04E-8 to 8.98E-8	PFHd = 1.71E-8 to 2.02E-8
Mission time		TM = 20 year	
Height protected (mm)	160	XUSL2E30H016N	—
	260	XUSL2E30H026N	—
	310	XUSL2E30H031N	—
	460	XUSL2E30H046N	—
	510 - 2 beams	—	XUSL2E2BB051N
	610	XUSL2E30H061N	—
	760	XUSL2E30H076N	—
	810 - 3 beams	—	XUSL2E3BB081N
	910	XUSL2E30H091N	—
	910 - 4 beams	—	XUSL2E4BB091N
	1060	XUSL2E30H106N	—
	1210	XUSL2E30H121N	—
	1360	XUSL2E30H136N	—
	1510	XUSL2E30H151N	—
	1660	XUSL2E30H166N	—
	1810	XUSL2E30H181N	—

Type 2 conforming to IEC 61496-1 and 2

Light curtain functions

- Auto/Manual
- Monitoring of external switching devices
(EDM: External Devices Monitoring),
- LED display of operating modes
- Integral muting function.



Maximum safety level achieved by the solution (EN/ISO 13849-1, EN/IEC 62061)		PLc/cat2, SILCL1 (For use with XPSCM1144* - See p70)	
Type		Single-beam with infrared emission	
Height protected (conforming to prEN 999)		up to 1200 mm (1 to 4 beams)	
Nominal sensing distance (Sn)		8 m	
Number of circuits	Safety	2"F"	
	Additional	4 solid-state	
Response time		< 25 ms	
Reliability data		PFHd = 4.6E -7 conforming to EN/IEC 61508 PFHd = 5.5E -7 conforming to EN/IEC 61508, with function "muting"	
Thru-beam pairs, axially aligned	Pre-cabled L = 5 m	PNP	XU2S18PP340L5 (2)
	M12 connector	PNP	XU2S18PP340D (2)

(1) Also exists in IP69k model, ECOLAB certified.

(2) For viewfindig to 90°, add W in the reference. Example XU2S18PP340L5 becomes **XU2S18PP340WL5**

(3) Achievable in standalone operation (without safety control unit).

Light curtains

Type 4 conforming to IEC 61496-1 & IEC 61496-2

Main features

- Automatic or Manual Start/Restart selectable by wiring
- External Device Monitoring (EDM) selectable by wiring
- Two maximum Sensing Distance selectable by wiring
- Test function (beam blocked state simulation)
- Led indicators for status and diagnosis
- Muting possible with dedicated Safety module XPSLCMUT1160
- Integrated muting function available on XUSL4M* range (see p68)
- 2 outputs solid-state PNP OSSD (*)
(NO when the sensing area is occupied)

(*) Output Signal Switching Devices



Maximum Safety level achieved by the solution EN ISO 13849-1 (2)		PLe/cat4		
Maximum Safety level achieved by the solution IEC 61508/IEC 62061 (2)		SIL3/SILCL3		
Type IEC 61496-1 & IEC 61496-2		Type 4 Multi-beam, infrared transmission		
Nominal sensing distance (Sn)		0...3 m or 1...6 m selectable	0...4 m or 0...12 m selectable	0...4 m or 0...12 m selectable
Resolution (detection capability)		14 mm (Finger detection)	30 mm (Hand detection)	2-3 or 4 beams (Body Detection)
Number of safety outputs		2 solid-state PNP		
Response time (depending on model)		4...23.5 ms	4...22 ms	2.5...3 ms
Operating temperature range		-20°C...+55°C	-30°C...+55°C	
Degree of protection (1)		IP65 - IP67		
Connection		M12 Connector		
Reliability data (depending on model) conforming to EN/IEC 61508		PFHd = 1.03E-8 to 3.71E-8	PFHd = 7.08E-9 to 2.02E-8	PFHd = 6.89E-9 to 8.21E-9
Mission time		TM = 20 years		
Height protected (mm)	160	XUSL4E14F016N	XUSL4E30H016N	—
	260	—	XUSL4E30H026N	—
	310	XUSL4E14F031N	XUSL4E30H031N	—
	460	XUSL4E14F046N	XUSL4E30H046N	—
	510 - 2 beams	—	—	XUSL4E2BB051N
	610	XUSL4E14F061N	XUSL4E30H061N	—
	760	XUSL4E14F076N	XUSL4E30H076N	—
	810 - 3 beams	—	—	XUSL4E3BB081N
	910	XUSL4E14F091N	XUSL4E30H091N	—
	910 - 4 beams	—	—	XUSL4E4BB091N
	1060	XUSL4E14F106N	XUSL4E30H106N	—
	1210	XUSL4E14F121N	XUSL4E30H121N	—
	1360	XUSL4E14F136N	XUSL4E30H136N	—
	1510	XUSL4E14F151N	XUSL4E30H151N	—
	1660	XUSL4E14F166N	XUSL4E30H166N	—
	1810	XUSL4E14F181N	XUSL4E30H181N	—

Type		Long Range models For hand and body protection	
Nominal sensing distance (Sn)		0...10 m or 3...20 m selectable	0...10 m or 3...20 m selectable
Operating temperature range		-20°C...+55°C	
Reliability data (depending on model) conforming to EN/IEC 61508		PFHd = 9.13E-9 to 2.29E-8	PFHd = 9.15E-9 to 1.08E-8
Mission time (conforming to modèle)		3...13 ms	2.5 ms
Height protected (mm)	160	XUSL4E30H016L	–
	310	XUSL4E30H031L	–
	460	XUSL4E30H046L	–
	510 - 2 beams	–	XUSL4E2BB051L
	610	XUSL4E30H061L	–
	760	XUSL4E30H076L	–
	810 - 3 beams	–	XUSL4E3BB081L
	910	XUSL4E30H091L	–
	910 - 4 beams	–	XUSL4E4BB091L
	1060	XUSL4E30H106L	–
	1210	XUSL4E30H121L	–
	1360	XUSL4E30H136L	–
	1510	XUSL4E30H151L	–
	1660	XUSL4E30H166L	–
	1810	XUSL4E30H181L	–

(1) Also exists in IP69K model, ECOLAB certified.

(2) Achievable in standalone operation (without safety control unit)

Light curtains

Type 4 conforming to IEC 61496-1 & IEC 61496-2

Main features

- Automatic or Manual Start/Restart selectable by wiring
- External Device Monitoring (EDM) selectable by wiring
- Two maximum Sensing Distance selectable by wiring
- Test function (beam blocked state simulation)
- Led indicators for status and diagnosis
- Muting possible with dedicated Safety module (XPSLCMUT1160)
- 2 outputs solid-state PNP OSSD (*)
(NO when the sensing area is occupied)

(*) Output Signal Switching Devices



Type		Cascadable models - Master Segments (2)		
Nominal sensing distance (Sn)		0...3 m or 1...6 m selectable	0...4 m or 0...12 m selectable	0...4 m or 0...12 m selectable
Resolution (detection capability)		14 mm (Finger detection)	30 mm (Hand detection)	2-3 or 4 beams (Body Detection)
Number of circuits Safety		2 solid-state PNP		
Response time		Depends on the number and the model of segments used. See the "User Manual" for the calculation		
Operating temperature range		-20°C...+55°C	-30°C...+55°C	
Degree of protection		IP65 - IP67		
Connection		2xM12 Connector		
Reliability data (depending on model) conforming to EN/IEC 61508		PFHd = 1.27E-8 to 2E-8	PFHd = 9.47E-9 to 1.43E-8	PFHd = 6.89E-9 to 8.21E-9
Mission time		TM = 20 years		
Height protected (mm) (1)	310	XUSL4E14F031NM	–	–
	460	XUSL4E14F046NM	XUSL4E30H046NM	–
	510 - 2 beams	–	–	XUSL4E2BB051NM
	610	XUSL4E14F061NM	XUSL4E30H061NM	–
	760	XUSL4E14F076NM	XUSL4E30H076NM	–
	810 - 3 beams	–	–	XUSL4E3BB081NM
	910	–	XUSL4E30H091NM	–
	910 - 4 beams	–	–	XUSL4E4BB091NM
	1060	–	XUSL4E30H106NM	–

Type		Cascadable models - Slave1 Segments (2)		
Reliability data (depending on model) conforming to EN/IEC 61508		PFHd = 1.27E-8 to 2E-8	PFHd = 9.47E-9 to 1.43E-8	PFHd = 6.89E-9 to 8.21E-9
Response time		Depends on the number and the models of segments used. See the "User Manual" for the calculation		
Connection		M12 Connector		
Height protected (mm) (1)	310	XUSL4E14F031NS1	–	–
	460	XUSL4E14F046NS1	XUSL4E30H046NS1	–
	510 - 2 beams	–	–	XUSL4E2BB051NS1
	610	XUSL4E14F061NS1	XUSL4E30H061NS1	–
	760	XUSL4E14F076NS1	XUSL4E30H076NS1	–
	810 - 3 beams	–	–	XUSL4E3BB081NS1
	910	–	XUSL4E30H091NS1	–
	910 - 4 beams	–	–	XUSL4E4BB091NS1
	1060	–	XUSL4E30H106NS1	–

Type		Cascadable models - Slave2 Segments (2)		
Reliability data (depending on model) conforming to EN/IEC 61508		PFHd = 1.52E-8 to 2E-8	PFHd = 9.47E-9 to 1.43E-8	PFHd = 6.89E-9 to 8.21E-9
Response time		Depends on the number and the models of segments used. See the "User Manual" for the calculation		
Connection		2xM12 Connector		
Height protected (mm) (1)	310	–	–	–
	460	XUSL4E14F046NS2	XUSL4E30H046NS2	–
	510 - 2 beams	–	–	XUSL4E2BB051NS2
	610	XUSL4E14F061NS2	XUSL4E30H061NS2	–
	760	XUSL4E14F076NS2	XUSL4E30H076NS2	–
	810 - 3 beams	–	–	XUSL4E3BB081NS2
	910	–	XUSL4E30H091NS2	–
	910 - 4 beams	–	–	XUSL4E4BB091NS2
	1060	–	XUSL4E30H106NS2	–

(1) Other heights available on request

(2) Cable sold separately, please refer to Page 65

Light curtains

Type 4 conforming to IEC 61496-1 & IEC 61496-2

Main features

- Integrated muting function
- Automatic or Manual Start/Restart selectable by wiring
- External Device Monitoring (EDM) selectable by wiring
- Two maximum Sensing Distance selectable by wiring
- Test function (beam blocked state simulation)
- Led indicators for status and diagnosis
- 2 outputs solid-state PNP OSSD (*)
(NO when the sensing area is occupied)
- (*) Output Signal Switching Devices

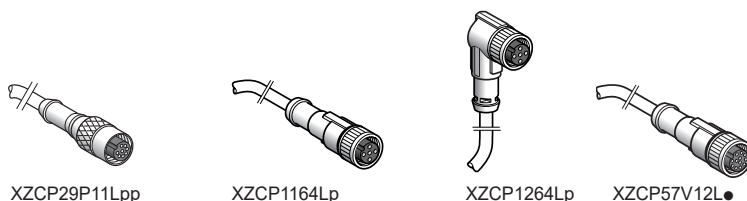


Type		Integrated muting models (1) For body protection (2)	
Nominal sensing distance (Sn)		0...4 m or 0...12 m selectable	
Operating temperature range		-30°C...+55°C	
Package contents		Hardware and software configuration (with SoMute software), partial muting and integrated muting lamp	Hardware configuration only
Height protected (mm)	510 - 2 beams	XUSL4MA2BB051N	XUSL4MB2BB051N
	810 - 3 beams	XUSL4MA3BB081N	XUSL4MB3BB081N
	910 - 4 beams	XUSL4MA4BB091N	XUSL4MB4BB091N

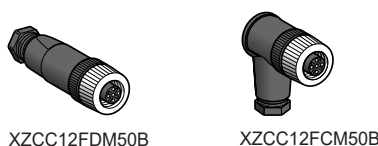
(1) Possible association with pre-built/pre-adjusted muting arms XUSZAS* (single beam muting sensors) and XUSZAM* (multi-beam muting sensors).

(2) For hand detection, some models are available in 30mm and 40mm resolutions, in different protected heights.

Cabling accessories



Type					M12 connector - Pre-wired				
PUR cable length					2 m	5 m	10 m	15 m	25 m
M12 connector 5-pins Female	XUSL2E* / 4E* / 4M*	Straight - Pre-wired	For transmitter		XZCP1164L2	XZCP1164L5	XZCP1164L10	XZCP1164L15	XZCP1164L25
					XZCP1264L2	XZCP1264L5	XZCP1264L10	XZCP1264L15	XZCP1264L25
M12 connector 8-pins Female	XUSL2E* / 4E*	Straight - Pre-wired	For Receiver		XZCP29P11L2	XZCP29P11L5	XZCP29P11L10	XZCP29P11L15	XZCP29P11L25
					XZCP53P11L2	XZCP53P11L5	XZCP53P11L10	XZCP53P11L15	XZCP53P11L25
M12 connector 12-pins Female	XUSL4M*	Straight - Pre-wired	For Receiver			XZCP57V12L5	XZCP57V12L10	XZCP57V12L15	

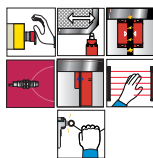


Type				M12 connector - with screw terminals	
Cable length				2 m	
M12 connector 5-pins Female	90° - 5 poles with screw terminals- cable gland	For transmitter		XZCC12FCM50B	
				XZCC12FDM50B	
M12 connector 8-pins Female	90° - 8 poles with screw terminals- cable gland	For Receiver		XZCC12FCM80B	
				XZCC12FDM80B	

Type		2xM12 connectors - Jumpers				
PUR cable length		0.3 m	3 m	5 m	10 m	25 m
2 straight M12 - Female/Female connectors - 5 poles	For Master/Slave cascable	XZCR1111064D03	XZCR1111064D3	XZCR1111064D5	XZCR1111064D10	XZCR1111064D25

Safety modules for monitoring

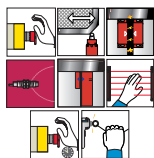
Universal safety relays XPSU



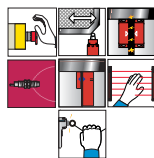
XPSUAF



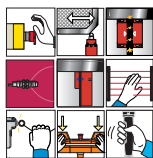
XPSUAK



XPSUAT



XPSUDN



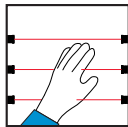
XPSUS

Maximum acheivable safety level	PL e / Category 4 conforming to ISO 13849-1 SILCL3 conforming to IEC 62061 SIL3 conforming to IEC61508				
Number of outputs	3 NO 1 solid state	2 NO 1 redundant NC, 1 solid state	3 NO immediate 3 NO delayed (selectable from 0.1 s to 15 min. by 10 steps of 0.1 s which can be multiplied by 1, 10, 100, and 1,000) or immediate + 1 NC	3 NO 1 redundant NC, 1 solid state	2 NO 1 solid state
Display	6 LEDS	6 LEDS	8 LEDS	16 LEDS	6 LEDS
Supply voltage	24 V AC/DC and 48-240 V AC/DC				
Synchronization time between inputs	Selectable				
Input channels	2	2	3	12	4
Start input	Automatic, manual & monitored start				
Control configurable pulsed outputs	3 ON/OFF		4 ON/OFF	7 ON/OFF	3 ON/OFF
Connection type (screw and spring terminal blocks)	16 removable	20 removable	27 removable	32 removable	16 removable
Module width	22.5 mm/0.886 in.		45 mm/1.77 in.	45 mm/1.77 in.	22.5 mm/0.886 in.

Complete references and other XPSU safety universal modules are available on www.schneider-electric.com

Safety relay for monitoring

XU2S single beam Type 2 photoelectric sensors

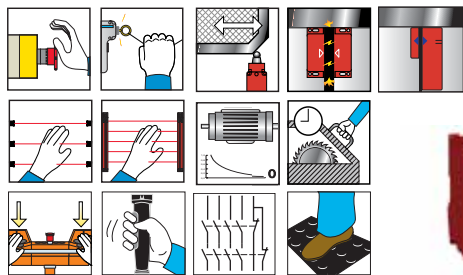


Maximum safety level of the solution attained (EN/ISO 13849-1, EN/IEC 62061)		PL c / Cat. 2, SILCL 1
Number of circuits	Safety	2"F"
	Additional	4 solid-state
Display (number of LEDs)	4	
Width of housing	45 mm	
Integral Muting function	Yes	
For utilisation with	XU2S18*	
Supply voltage	24 VDC	XPSCM1144P (1)

(1) For version with non removable terminal block, delete the letter P from the end of the reference (example: XPSCM1144P becomes **XPSCM1144**).

Modules for monitoring

Modular safety controller XPSMCM



Maximum safety level reached by the solution	PL e / Cat. 4, SILCL 3 5 (EN/ISO 13849-1, EN/IEC 62061)					Without safety level
Function	Central Unit (CPU) (standalone) (2)	Extension units input/output	Extension units Outputs Relay	Extension units speed control	Extension units Communication	Extension units communication bus
Case dimensions	22,5 x 99 x 114,5					
References	XPSMCMCP0802* (1)	XPSMCMMX*	XPSMCMER*	XPSMCMEN*	XPSMCMCO0000S*	XPSMCMCO0000*
Main characteristics	- 8 digitals inputs - 2 OSSD pairs 400 mA - 4 Test outputs - 2 Status outputs - 2 EDM inputs	- 8 digitals inputs - 2 OSSD pairs 400 mA - 4 Test outputs - 2 Status outputs - 2 EDM inputs XPSMCMCI* - 8 or 16 digitals inputs - 4 Test outputs XPSMCMDO* - 2 or 4 OSSD pairs 400 mA - 2 or 4 Status outputs - 2 or 4 EDM inputs	- 2 or 4 Safety relay outputs 2NO + 1NC (without connection to the extension bus) - 1 or 2 EDM inputs XPSMCMRO* - 4 modules Safety relay outputs 2NO + 1NC (with connection to the extension bus) - 4 Independent safety relay outputs and 4 EDM outputs corresponding - 0 or 8 Status outputs	- 1 or 2 Inputs for coder (TTL or HTL or Sin/Cos) or 1 or 2 Inputs for proximity sensors - 2 Outputs digitals configurables	- for connection XPSMCMCP0802* to remote modules (≤ 50 m) - creation to 6 islands, with full length of 250 m and maximum 50 m between 2 communication modules	- for data exchange and network systems diagnosis or field-bus - available interfaces (CAN open, Ethernet IP, Modbus RTU, Modbus TCP, Profibus DP et USB)

(1) Configuration, Programming, simulation and documentation by means of an intuitive software (SoSafe)

(2) Minimal configuration : 1 safety controller - maximal configuration : 1 XPSMCMCP0802* connected to 14 extension modules via the backplane extension connectors --> Max 128 inputs + 16 OSSD pairs + 32 Status outputs

More information on schneider-electric.com

Notes

Notes

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