
Inductive proximity sensors XS extensive range

Catalogue





Inductive proximity sensors

XS extensive range

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XS range

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Inductive proximity sensors
XS range
General purpose

Cylindrical type

Sensing distance Sn (mm)	
Diameter	
Short case	Supply
	3-wire  (PNP/NPN)
Long case	2-wire 
	Supply
	3-wire  (PNP/NPN)
	2-wire 
Function	NO
	NC
Connection	Pre-cabled (L = 2 m) (1)
	M8 connector, 3-pin (3-wire )
	M12 connector
	1/2"-20UNF connector
	Remote connector
Degree of protection	
Special temperatures	- 40 °C, + 70 °C
	- 25 °C, + 85 °C
Type reference	
Pages	

Standard range

Flush mountable



1.5	2	5	10	
Ø 6.5 plain and M8	M12	M18	M30	
Page 26				
Page 30				
Page 27				
Page 31				
—	Page 34			
•	•	•	•	
•	•	•	•	
•	•	•	•	
•	—	—	—	
•	•	•	•	
—	•	•	•	
Remote connectors available: M8, M12, M18, screw terminal, 7/8", DIN: please consult our Customer Care Centre				
IP 65 and IP 67, IP 68 for pre-cabled version, IP 69K for diameters 12 to 30 (2)				
Add the suffix TF to the end of the reference (3)				
Add the suffix TT to the end of the reference (3)				
XS506	XS508	XS512	XS518	XS530
26 to 35				

(1) Also available in lengths of 5 and 10 m, depending on model
(2) For M12 connector version
(3) Product availability depending on model: please consult our Customer Care Centre.

Increased range

Flush mountable

Non-flush mountable



2.5	4	8	15	4	7	8	12	16	22	30
Ø 6.5 plain and M8	M12	M18	M30	M8	M12		M18		M30	
Pages 36 and 37				–	–	Page 46	–	Page 46	–	–
Page 40				–	–	–	–	–	–	–
Page 38				Page 44	Page 44	–	Page 44	–	–	Page 44
Page 40				–	–	–	–	–	–	–
–	Page 42			–	–	–	Page 48	–	Page 48	–
●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●
●	–	–	–	●	–	–	–	–	–	–
●	●	●	●	–	●	●	●	●	●	●
–	●	●	●	–	–	–	●	–	●	–
Remote connectors available: M8, M12, M18, screw terminal, 7/8", DIN: please consult our Customer Care Centre										
IP 65 and IP 67, IP 68 for pre-cabled version, IP 69K for diameters 12 to 30 (2)				IP 65 and IP 67, IP 68 for pre-cabled version, IP 69K for diameters 12 to 30 (2)						
Add the suffix TF to the end of the reference (3)										
Add the suffix TT to the end of the reference (3)										
XS106 XS606 XS108 XS608	XS112 XS612	XS118 XS618	XS130 XS630	XS608	XS612	XS212	XS618	XS218	XS630	
36 to 43				44 to 49						

Inductive proximity sensors

XS range

General purpose

Block type (flat format) and cubic type

Standard range

Flush mountable



Sensing distance Sn (mm)			2.5	5	10	15	40
Dimensions (W x H x D)			8 x 22 x 8	15 x 32 x 8	26 x 26 x 13	40 x 40 x 15	80 x 80 x 26
Supply	3-wire  (PNP/NPN)		Page 50	Page 50	Page 52	Page 52	Page 52
	2-wire 		Page 50	Page 50	Page 52	Page 52	Page 52
			—	—	—	—	—
Function	NO						
	NC						
	NO + NC					—	—
	NO/NC					—	—
Connection	Pre-cabled (L = 2 m) (1)						
	M8 connector, 3-pin (3-wire )		—	—			—
	M12 connector		—			—	
	1/2"-20UNF connector		—			—	—
	Screw terminals		—			—	—
	Remote connector	M8				—	—
		M12	—	—			—
		1/2"-20 UNF	—	—	—	—	—
Other remote connectors available			M18, screw terminal, 7/8", DIN: please consult our Customer Care Centre				
Degree of protection			IP 67				
Special temperatures	- 40 °C, + 70 °C		IP 67 or IP 68, depending on model				
	- 25 °C, + 85 °C		Add the suffix TF to the end of the reference (2)				
Type reference			Add the suffix TT to the end of the reference (2)				
			XS7J	XS7F	XS7E	XS7C	XS7D
Pages			Page 50		Page 52		

(1) Also available in lengths of 5 and 10 m, depending on model.

(2) Product availability depending on model: please consult our Customer Care Centre.

Standard and increased ranges

Flush mountable

Non-flush mountable



15

20

40

40 x 40 x 70 and 40 x 40 x 117

Pages 56 and 58

Pages 56 and 58

Pages 56 and 58

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IP 65, IP 67 and IP 69K

Add the suffix TF to the end of the reference (2)

Add the suffix TT to the end of the reference (2)

XS7C2, XS7C4, XS8C2 and XS8C4

56 and 58

Inductive proximity sensors

XS range

General purpose

Sensor type: flush and non-flush mountable

Multivoltage sensors

With short-circuit protection



Sensors with 2 complementary outputs

Solid-state
PNP or NPN
NO + NC outputs



Solid-state PNP + NPN,
NO or NC programmable
outputs



Sensing distance S_n (mm)	Flush mountable Quasi flush mountable Non-flush mountable
Diameter	
Case material	
Supply	— ~ ~
Function	NO NC NO + NC NO/NC
Connection	Pre-cabled (L = 2 m) (1) M8 connector, 3-pin (3-wire —) M12 connector 1/2"-20UNF connector Remote connector
Degree of protection	
Special temperatures	- 40 °C, + 70 °C - 25 °C, + 85 °C
Type reference	
Pages	

2 ... 10	1.5 ... 15	2 ... 10
—	—	—
4 ... 15	2.5 ... 15	4 ... 15
Threaded: M12, M18, M30	Plain: Ø 6.5 Threaded: M8, M12, M18, M30	Threaded: M12, M18, M30
Nickel plated brass	Nickel plated brass or stainless steel or plastic	Nickel plated brass or plastic
—	•	•
—	—	—
•	—	—
•	—	—
•	—	—
—	•	—
—	—	• programmable
•	•	•
—	—	—
—	•	•
•	—	—
Remote connectors available: M8, M12, M18, screw terminal, 7/8", DIN: please consult our Customer Care Centre		
IP 67, IP 68 or IP 69K depending on model		
Add the suffix TF to the end of the reference (2)		
Add the suffix TT to the end of the reference (2)		
XS1M XS2M	XS1●●●●C410 XS4P●●●●C410 XS1●●B3PC●	XS1M●●KP340 XS2M●●KP340 XS4P●●KP340
60	62 and 66	68

(1) Also available in lengths of 5 and 10 m, depending on model.

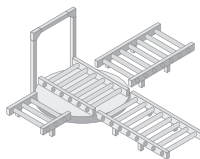
(2) Product availability depending on model: please consult our Customer Care Centre.

Plastic case sensors	Almost flush mountable sensors	Miniature sensors
For chemical processing, marine applications	For repetitive machines	For robotic, transfer machine, assembly line applications



—	—	—	—
—	—	0 ... 0.65	0 ... 1.21
2.5 ... 15	2.5 ... 20	—	—
Threaded: M8, M12, M18, M30	Threaded: M8, M12, M18, M30	XS●●4: Ø 4 Threaded: M5	
Plastic	Nickel plated brass	Stainless steel	
●	●	●	
—	—	—	
●	—	—	
—	●	●	
●	●	●	
—	—	—	
—	—	—	
●	●	●	
—	●	●	
—	●	—	
●	—	—	
Remote connectors available: M8, M12, M18, screw terminal, 7/8", DIN: please consult our Customer Care Centre			
IP 67 or IP 68 depending on model	IP 67 or IP 68 IP 69K depending on model	IP 67	
Add the suffix TF to the end of the reference (2)		—	
Add the suffix TT to the end of the reference (2)		—	
XS4P	XS1N●●349	XS504●●●●, XS505●●●●	XS604●●●●, XS605●●●●
70	72	76	

Applications



Conveying

Sensor type: flush and non-flush mountable

Adjustable range sensors

Developed in accordance with the needs expressed by our customers, these sensors provide a complete solution for specific application functions: rotation monitoring, selective detection, analogue control, etc.



Sensing dist.	Flush mountable
Sn (mm)	Non-flush mountable
Form	Cylindrical
	Block (W x H x D) dimensions in mm
Case material	
Supply	~ ~
Function	NO NC NO + NC NO/NC
Connection	Pre-cabled (L = 2 m) (2) M8 connector, 3-pin (--- 3-wire) M12 connector 1/2"-20UNF connector Remote connector Screw terminals
Degree of protection	
Special temperatures	- 40 °C, + 70 °C - 25 °C, + 85 °C
Type reference	
Pages	

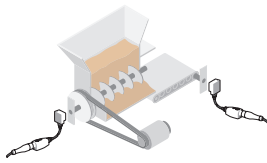
3...11 (1)	15	25	60
5...18 (1)	—	—	—
M12 x 54 M18 x 67 M30 x 71	—	—	—
—	26 x 26 x 13	40 x 40 x15	80 x 80 x 26
Nickel plated brass	PBT	PBT	PBT
●	●	●	●
—	—	—	—
—	●	●	●
●	●	●	●
●	●	●	●
—	—	—	—
—	—	—	—
—	●	●	●
—	●	●	—
—	—	—	●
—	—	—	●
●	●	●	●
—	—	—	—
IP 67	IP 67 or IP 68, depending on model.		
Add the suffix TF to the end of the reference (4)			
Add the suffix TT to the end of the reference (4)			
XS612B2 XS618 B2 XS630 B2	XS8E	XS8C	XS8D
88	54		

(1) Depending on model.

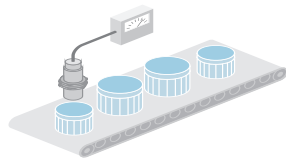
(2) Also available in lengths of 5 and 10 m, depending on model.

(3) For M12 connector version

(4) Product availability depending on model: please consult our Customer Care Centre.



Detection of underspeed, shaft overload



Position, displacement and deformation control/monitoring

Machine with stainless steel housing

Sensors for rotation monitoring

Sensors with analogue output
0 ... 10 V or 4 ... 20 mA

Sensors for food/beverage and pharmaceutical applications

Cylindrical, stainless steel 316 L

Cylindrical, plastic



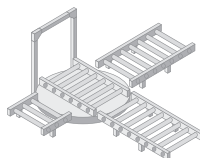
10	10...15 (1)	0.2...10 (1)	5...40 (1)	—	—	6,10 or 20 (1)	—	—
10	10...15 (1)	0.4...15 (1)	5...40 (1)	2...25	2...25	10, 20 or 40 (1)	7...22 (1)	7...22 (1)
M30 x 81	—	Threaded: M12, M18, M30	—	—	—	Threaded: M12, M18, M30	Plain: Ø 18 Threaded: M12, M18, M30	Threaded: M12, M18, M30
—	26 x 26 x 13 40 x 40 x 15	—	32 x 15 x 8 26 x 26 x 13 40 x 40 x 15 80 x 80 x 26	40 x 40 x 70	40 x 40 x 117	—	—	—
Metal	PBT	Metal or plastic	PBT	PBT	PBT	Stainless steel, 316 L	Stainless steel, 316 L	Plastic, PPS
•	•	•	•	•	•	•	•	•
—	—	—	—	—	—	—	—	—
•	•	—	—	—	—	—	•	•
—	—	—	—	—	—	•	•	•
•	•	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
•	—	•	•	—	—	—	•	•
—	—	—	—	—	—	—	—	—
—	—	—	•	•	—	•	•	•
—	—	—	—	—	—	—	•	•
—	•	—	•	—	—	—	—	—
—	—	—	—	—	•	—	—	—
IP 67	IP 67	IP 67	IP 67 or IP 68 (pre-cabled version)	IP 65, IP 67 IP 69K	IP 65, IP 67 IP 69K	IP 68, IP 69K	IP 68 (pre-cabled version), IP 69K conforming to DIN 40050 (3)	

Add the suffix TF to the end of the reference (4)

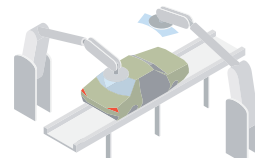
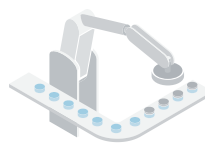
Add the suffix TT to the end of the reference (4)

XSAV	XS9•11R	XS1M•••AB1 XS4P••AB1	XS9••••A	XS9C2	XS9C4	XS9••S•	XS2••SA	XS2••AA
87	89	91	95 and 97	98	98	100	102 and 104	106 and 108

Applications



Conveying



Robotics

Sensor type: flush and non-flush mountable

Sensors for conveying and material handling applications

Sensors for welding machine applications

Cylindrical, stainless steel 303

80 x 80 x 40 format, increased range

Cylindrical, stainless steel 303

Developed in accordance with the needs expressed by our customers, these sensors provide a complete solution for specific application functions: rotation monitoring, selective detection, analogue control, etc.



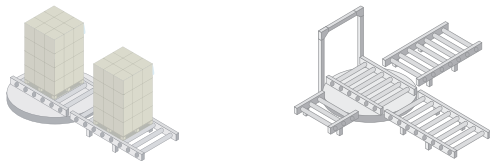
Sensing dist.	Flush mountable
Sn (mm)	Non-flush mountable
Form	Cylindrical
	Block (W x H x D) dimensions in mm
Case material	
Supply	~ ~
Function	NO NC NO + NC NO/NC
Connection	Pre-cabled (L = 2 m) (2) M8 connector, 3-pin (--- 3-wire) M12 connector 1/2"-20UNF connector Remote connector Screw terminals
Degree of protection	
Special temperatures	- 40 °C, + 70 °C - 25 °C, + 85 °C - 40 °C, + 85 °C (storage)
Type reference	
Pages	

3, 6, 10 or 20 (1)	50	6 or 10 (1)
6, 10, 20 or 40 (1)	42	—
Threaded: M8, M12, M18, M30	—	Threaded: M12, M18
—	80 x 80 x 40	—
Stainless steel 303	PBT	Stainless steel 303
•	•	•
—	—	—
—	—	—
•	•	•
—	—	—
—	—	—
—	—	—
—	—	—
—	—	—
—	—	—
—	—	—
—	—	—
IP 67 and IP 69K	IP 67	IP 68 and IP 69K
Add the suffix TF to the end of the reference (3)		
Add the suffix TT to the end of the reference (3)		
—		
XS9●●R●	XS7D	XS9●●RW
110	112	114

(1) Depending on model.

(2) Also available in lengths of 5 and 10 m, depending on model.

(3) Product availability depending on model: please consult our Customer Care Centre



Assembly machines, conveyor systems, material handling

Factor 1 (Fe/Nfe) sensors for ferrous and non ferrous materials			Selective detection sensors for ferrous materials only or non ferrous materials only	Fail Safe			
Cylindrical	Cubic	Rectangular	Cylindrical	Cylindrical	Cylindrical, increased range	Cubic	Rectangular



5, 10 or 15 ⁽¹⁾	20	20	5	2, 5 or 10 ⁽¹⁾	4, 8 or 15 ⁽¹⁾	20	20
—	—	—	—	—	—	40	40
Threaded: M18, M30	—	—	Threaded: M18	Threaded: M12, M18, M30	Threaded: M12, M18, M30	—	—
—	40 x 40 x 70	40 x 40 x 117	—	—	—	40 x 40 x 70	40 x 40 x 117
Metal	PBT	PBT	Metal	Nickel plated brass/PPS	Nickel plated brass	PBT	PBT
●	●	●	●	●	●	●	●
—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—
—	—	—	●	—	—	—	—
—	—	—	—	—	—	—	—
—	●	●	—	●	●	●	●
●	—	—	—	—	—	—	—
●	—	—	●	●	●	—	—
—	—	—	—	—	—	—	—
●	●	—	—	●	●	●	—
—	—	—	—	—	—	—	—
●	—	—	—	—	—	—	—
—	—	●	—	—	—	—	●
IP 68	IP 65, IP 67 and IP 69K		IP 68	IP 65, IP 67, and IP 69K for M12 IP 65 and IP 68 for pre-cabled		IP 65, IP 67, and IP 69K	
Add the suffix TT to the end of the reference ⁽³⁾				●	●	●	●
Add the suffix TT to the end of the reference ⁽³⁾							
—				●	●	●	●
XS1M●●●KP	XS9C2	XS9C4	XS1M18PA	XS5●●BSPD	XS1●●BSPD	XS8C2A●PD	XS8C4A●PD
114	116	116	118	120	122	124	126

Inductive proximity sensors
XS range
Basic sensors

Cylindrical, metal

Increased range (1)
Flush mountable



Sensing distance Sn (mm)	
Diameter	
Power supply	
Function	
Output	
Length (mm) for pre-cabled versions	
Connection	Pre-cabled (L = 2 m) (2)
	M8 connector, 3-pin
	M12 connector, 4-pin
Operating temperature	
Degree of protection	
Type reference	
Pages	

2.5	4	8	15
M8	M12	M18	M30
--- 3-wire, 12...24 V			
NO or NC			
PNP or NPN			
42	49	53	57
•	•	•	•
•	—	—	—
•	•	•	•
-25...+70 °C			
IP 65 and IP 67			
XS108BH●●●	XS112BH●●●	XS118BH●●●	XS130BH●●●
82			

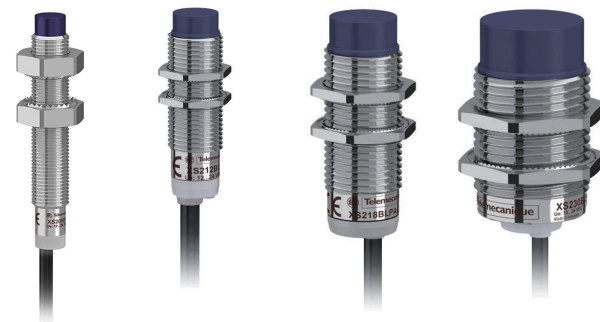
(1) Sensors with an increased range are sold individually or are available in bulk packs on request. Please contact our Customer Care Centre.
(2) Available in lengths of 3, 5 and 7 m, depending on model. Please contact our Customer Care Centre.

Standard range

Flush mountable



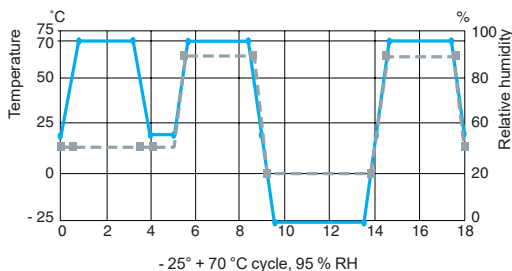
Non flush mountable



1.5	2	5	10	2.5	4	8	15
M8	M12	M18	M30	M8	M12	M18	M30
--- 3-wire, 12...24 V				--- 3-wire, 12...24 V			
NO or NC				NO or NC			
PNP or NPN				PNP or NPN			
42	44	53	57	42	44	53	57
•	•	•	•	•	•	•	•
•	—	—	—	•	—	—	—
•	•	•	•	•	•	•	•
-25...+70 °C				-25...+70 °C			
IP 65 and IP 67				IP 65 and IP 67			
XS108BL●●●	XS112BL●●●	XS118BL●●●	XS130BL●●●	XS208BL●●●	XS212BL●●●	XS218BL●●●	XS230BL●●●
78 and 79				78 and 79			

Standards and certifications

Parameters related to the environment



— Temperature °C
- - Humidity as %

Recommendations

The sensors detailed in this catalogue are designed for use in standard industrial applications relating to presence detection. These sensors do not incorporate the required redundant electrical circuit enabling their usage in safety applications.

For safety applications, please consult our website: www.telemecaniquesensors.com

Quality control

Our inductive proximity sensors are subject to special precautions in order to guarantee their reliability in the most arduous industrial environments.

■ Qualification

- The product characteristics stated in this catalogue are subject to a **qualification procedure** carried out in our laboratories.
- In particular, the products are subjected to **climatic cycle** tests for 3000 hours whilst powered-up to verify their ability to maintain their characteristics over time.

■ Production

- The electrical characteristics and sensing distances at both ambient temperature and extreme temperatures are 100% checked.
- Products are randomly selected during the course of production and subjected to **monitoring tests** relating to all their qualified characteristics.

■ Customer returns

If, in spite of all these precautions, defective products are returned to us, they are subject to **systematic analysis** and **corrective actions** are implemented to eliminate the risks of the fault recurring.

Conformity to standards

All Telemecanique Sensors brand inductive proximity sensors conform to and are tested in accordance with the recommendations of standard IEC 60947-5-2.

Mechanical shock resistance

The sensors are tested in accordance with standard IEC 60068-2-27, 50 gn, duration 11 ms.

Vibration resistance

The sensors are tested in accordance with standard IEC 60068-2-6, amplitude ± 2 mm, $f = 10 \dots 55$ Hz, 25 gn at 55 Hz.

Resistance to the environment

- Please refer to the characteristics pages for the various sensors.
- **IP 67:** protection against the effects of immersion.
Test conforming to IEC 60529: sensor immersed for 30 minutes in 1 m of water. No deterioration in either operating or insulation characteristics is permitted.
- **IP 68:** protection against prolonged immersion.
Sensor immersed for 336 hours in 40 metres of water at 50 °C. No deterioration in either operating or insulation characteristics is permitted. Telemecanique Sensors with an IP 68 degree of protection are ideal for use in the most arduous conditions, such as machine tools, automatic car washers.
- **IP 69K:** protection against the effects of high pressure cleaning. Adherence to standard DIN 40050 which stipulates that the product must withstand a water jet at a pressure of 90 bar and temperature of +80 °C for 3 minutes. No deterioration in either operating or insulation characteristics is permitted.

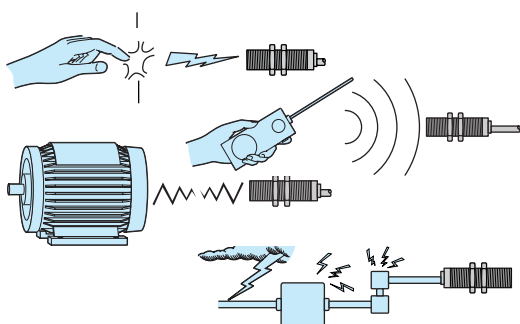
Resistance to electromagnetic interference

- Electrostatic discharges
~ and ~ versions: 4 kV CD/8 kV AD immunity.
IEC 61000-4-2
- Radiated electromagnetic fields (electromagnetic waves)
~, ~ and ~ versions: 3 V/m or 10 V/m immunity.
IEC 61000-4-3
- Fast transients (motor start/stop interference)
~ version: > 1 kV immunity
~ and ~ versions: 2 kV immunity except Ø 8 mm model. **IEC 61000-4-4**
- Conducted electromagnetic fields
~, ~, and ~ versions: > 3 kV immunity.
IEC 61000-4-6
- Emission ~, ~, and ~
class B

Resistance to chemicals in the environment

- Owing to the very wide range of chemicals encountered in industry, it is very difficult to give general guidelines common to all sensors.
- To ensure lasting efficient operation, it is essential that any chemicals coming into contact with the sensors will not affect their casing and, in doing so, prevent their reliable operation.
- Cylindrical and flat plastic case sensors offer excellent overall resistance to:
 - chemical products such as salts, aliphatic and aromatic oils, petroleum, acids and diluted bases. For alcohols, ketones and phenols, preliminary tests should be made relating to the nature and concentration of the liquid.
 - food and beverage industry products such as animal or vegetable based products (vegetable oils, animal fat, fruit juice, dairy proteins, etc.).

In all cases, the materials selected (see product characteristics) provide satisfactory compatibility in most industrial environments (for further information, please consult our Customer Care Centre).

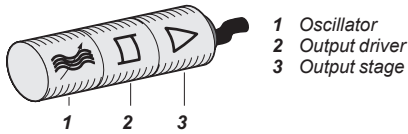


Insulation

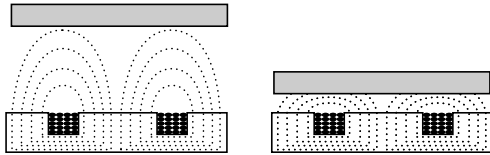
Class 2 devices

Electrical insulation conforming to standards IEC 61140 and NF C 20-030 relating to means of protection against electric shock.

Principle of inductive detection



Composition of an inductive proximity sensor



Detection of a metal object

Operating principle

■ An inductive proximity sensor is solely for the detection of metal objects. It basically comprises an oscillator whose windings constitute the sensing face. An alternating magnetic field is generated in front of these windings.

- When a metal object is placed within the magnetic field generated by the sensor, the resulting currents induced form an additional load and the oscillations cease. This causes the output driver to operate and, depending on the sensor type, a normally open (NO) or normally closed (NC) output signal is produced.

Inductive proximity detection

- Inductive proximity sensors enable the detection, without physical contact, of metal objects.
- Their range of applications is very extensive and includes:
 - monitoring the position of machine parts (cams, end stops, etc.),
 - counting the presence of metal objects, etc.

Advantages of inductive detection

- No physical contact with the object to be detected, thus avoiding wear and enabling detection of fragile objects, freshly painted objects, etc.
- High operating rates. Fast response.
- Excellent resistance to industrial environments (robust products, fully encapsulated in resin).
- Solid-state technology: no moving parts, therefore service life of sensor not related to number of operating cycles.

Flush mountable using teach mode sensors

- The flush mountable sensors using teach mode are suitable for all metal environments (flush mountable or non-flush mountable) since they ensure a maximum sensing distance, even if there is a metal background. Precise detection of the position of the object can be obtained using the teach mode. For further information, see page 24.

LED indicator

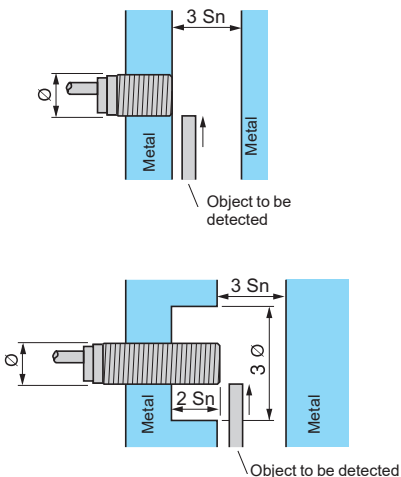
	NO output	NC output
No object present	LED Output state	LED Output state
Object present	LED Output state	LED Output state

Output LED

All Telemecanique Sensors inductive proximity sensors incorporate an output state LED indicator.

The flush mountable sensors using teach mode are fitted with a green LED that indicates "Power on" and also assists the user during setting-up (teach mode).

Mounting sensors on a metal support



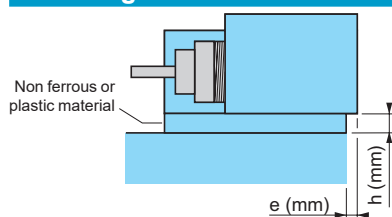
Flush mountable in metal

- No side clearance required.
- All flush mountable sensors using teach mode also enable detection of an object against a metal background. For further information, see pages 24 and 25.

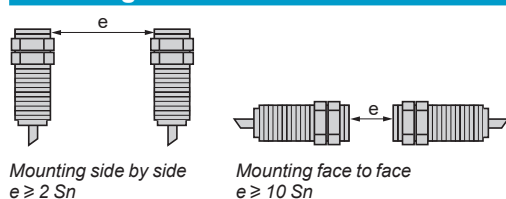
Sensors not suitable for flush mounting in metal

- Side clearance required.
- Sensing distance greater than that for a standard flush mountable model.
- Flush mountable sensors using teach mode eliminate the need for side clearance. For further information, see pages 24 and 25.

Mounting sensors on a metal support



Mounting distance between sensors



Mounting using fixing clamp

- Standard flush mountable models: $e = 0$, $h = 0$
- Standard non-flush mountable models
 - $\varnothing 6.5 / 8 / 12$ mm: $e = 0$, $h = 0$
 - $\varnothing 18$ mm: if $h = 0$, $e \geq 5$; $e = 0$, $h \geq 3$.
 - $\varnothing 30$ mm: if $h = 0$, $e \geq 8$; $e = 0$, $h \geq 4$.
- Flush mountable sensors using teach mode: $e = 0$, $h = 0$

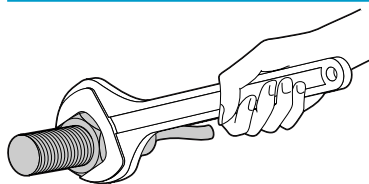
Standard sensors

If 2 standard sensors are mounted too close to each other they are likely to lock in the "detection state" due to interference between their respective oscillating frequencies. To avoid this condition, the minimum mounting distances stated for the sensors should be adhered to or, alternatively, sensors with staggered oscillating frequencies should be used.

Staggered frequency sensors

For applications where the minimum recommended mounting distances for standard sensors cannot be achieved, it is possible to overcome this restraint by using staggered frequency sensors. Please consult our Customer Care Centre. In this case, a staggered frequency sensor is mounted adjacent to or opposite each standard sensor.

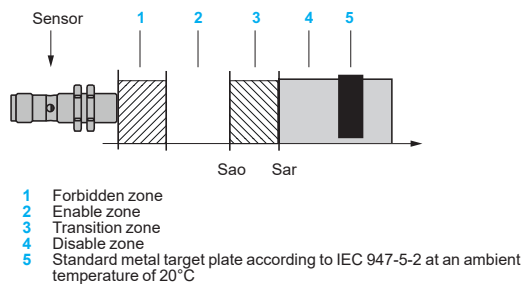
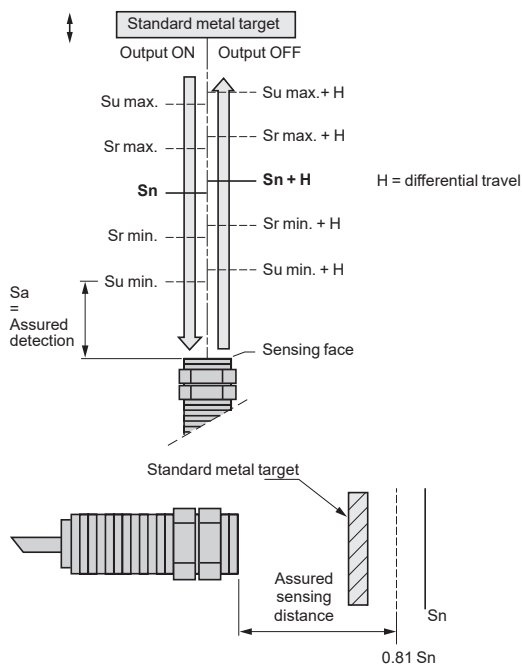
Tightening torque for cylindrical type sensors



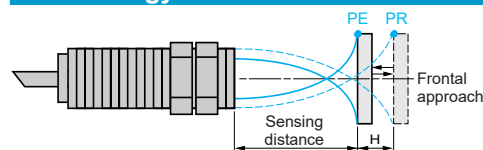
Maximum tightening torque for the various sensor case materials

	Metal		Stainless steel		Plastic	
	XS1●●B●		XS1●●S●		XS2●●AA●	
	XS2●●B●		XS2●●S●		XS4P●	
	XS5●●B●		XS9●●R●			
	XS6●●B●		XS9●●S●			
	XSAV●					
	XS1N●					
	XS1M●					
	XS2M●					
Diameter of sensor	Maximum tightening torque					
mm	N.m	lb-in	N.m	lb-in	N.m	lb-in
Ø 5	1.6	14.16	—	—	—	—
Ø 8	5	44.25	9	79.65	1	8.85
Ø 12	6	53.10	30	265.52	2	17.70
Ø 18	15	132.76	50	442.54	5	44.25
Ø 30	40	354.03	100	885.07	20	177.01

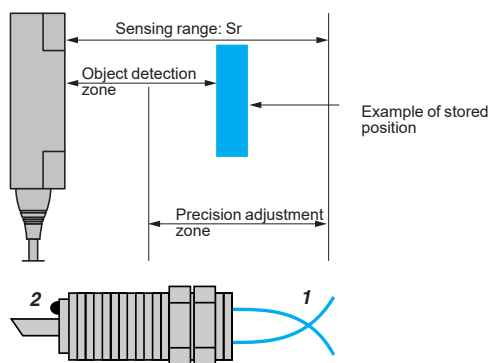
Sensing distance



Terminology



PE = pick-up point, the object is detected
PR = drop-out point, the object is no longer detected



- 1 Detection threshold curves
- 2 "Object detected" LED

Definitions

In order to ensure that customers can make reliable product comparisons and selection, the standard IEC 60947-5-2 defines various sensing distances, such as:

- **Nominal sensing distance (Sn)**
The rated operating distance for which the sensor is designed. It does not take into account any variations (manufacturing tolerances, temperature, voltage).
- **Effective sensing distance (Sr)**
The effective sensing distance is measured at the rated voltage (U_n) and the rated ambient temperature (T_n). It must be between 90% and 110% of the nominal sensing distance (S_n): $0.9 S_n \leq S_r \leq 1.1 S_n$.
- **Usable sensing distance (Su)**
The usable sensing distance is measured at the limits of the permissible variations in the ambient temperature (T_a) and the supply voltage (U_b). It must be between 90% and 110% of the effective sensing distance: $0.9 S_r \leq S_u \leq 1.1 S_r$.
- **Assured operating distance (Sa)**
This is the operating zone of the sensor. The assured sensing distance is between 0 and 81% of the nominal sensing distance (S_n): $0 \leq S_a \leq 0.9 \times 0.9 \times S_n$.

Standard metal target

The standard IEC 60947-5-2 defines the standard metal target as a square mild steel (Fe 360) plate, 1 mm thick.

The side dimension of the plate is either equal to the diameter of the circle engraved on the sensing face of the sensor or 3 times the nominal sensing distance (S_n).

Fail Safe

- **Forbidden zone (1)**
This zone ensures that it will not be possible to defeat the solution with simple elements or standard tools (ie: glue a coin on the front face). It is a minimum distance maintaining safe condition in all aspects. In this zone, both sensor outputs are opened.
- **Assured operating distance (Sao)**
When the target approaches the sensor, the contacts will change state no later than $S_{ao\ max}$ and remain in the same state as the target continues to approach the switch. At distances beyond the $S_{ao\ min}$, the contacts enter in the forbidden zone, not maintaining a closed condition in all aspects.
- **Assured release distance (Sar)**
Minimum distance from the sensor that the target must move to assure the reset of the sensor.
- **Standard metal target plate (5)**
According to IEC 947-5-2 at an ambient temperature of 20°C.

Differential travel

The differential travel (H), or hysteresis, is the distance between the operating point, as the standard metal target moves towards the sensor, and the release point, as it moves away. This hysteresis is essential for the stable operation of the sensor.

Repeat accuracy

The repeat accuracy (R) is the repeatability of the sensing distance between successive operations. Readings are taken over a period of time whilst the sensor is subjected to voltage and temperature variations: 8 hours, 10 to 30 °C, $U_n \pm 5\%$.

It is expressed as a percentage of the effective sensing distance S_r .
For all XS sensors, the repeat accuracy is 3 %.

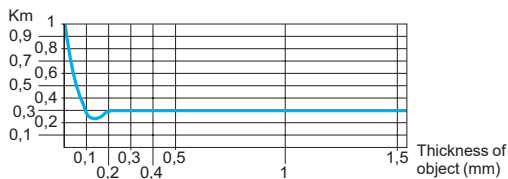
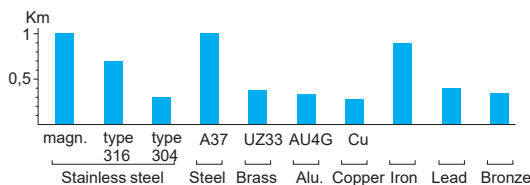
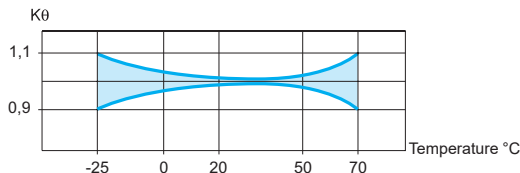
Detection zone and precision adjustment zone

- Flush mountable sensors using teach mode, due to adjustment of sensitivity whilst teaching, enable the position of an object to be detected as it approaches from the front or side. The teach mode can be used when the object is located in the zone known as the "precision adjustment zone". When the object approaches from the front, the detection zone of the object ranges from the stored position down to zero.

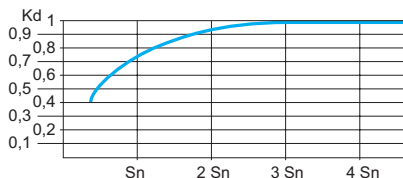
Operating zone

- The operating zone relates to the area in front of the sensing face in which the detection of a metal object is certain. The values stated in the characteristics relating to the various types of sensor are for steel objects of a size equal to the sensing face of the sensor. For objects of a different nature (smaller than the sensing face of the sensor, other metals, etc.), it is necessary to apply a correction coefficient.

Correction coefficients to apply to the assured operating distance



Typical curve for a **copper** object used with a Ø 18 mm cylindrical sensor



Typical curve for a **steel** object used with a cylindrical sensor

Assured operating distance of a sensor

In practice, most objects to be detected are generally made of steel and are of a size equal to, or greater, than the sensing face of the sensor.

For the calculation of the assured operating distance for different operating conditions, one must take into account the correction coefficients that influence it.

The curves indicated are purely representative of typical curves. They are only given as a guide to the approximate usable sensing distance of a proximity sensor for a given application.

Influence of ambient temperature

Apply a correction coefficient K_θ , determined from the curve shown opposite.

Material of object to be detected

Apply a correction coefficient K_m , determined from the diagram shown opposite.

The fixed sensing distance models for ferrous/non ferrous (Fe/NFe) materials enable the detection of different objects at a fixed distance, irrespective of the type of material.

Special case of a very thin object made of a non ferrous material.

Size of object to be detected

Apply a correction coefficient K_d , determined from the curve shown opposite. When calculating the sensing distance for the selection of a sensor, make the assumption that $K_d = 1$.

Variation of supply voltage

In all cases, apply the correction coefficient $K_t = 0.9$.

Correction of the sensing distance of a sensor

Sensor with nominal sensing distance $S_n = 15$ mm.

Ambient temperature variation 0 to + 20 °C.

Object material and size: steel, 30 x 30 x 1 mm thick.

The assured sensing distance S_a is determined using the formula:

$$S_a = S_n \times K_\theta \times K_m \times K_d \times K_t = 15 \times 0.98 \times 1 \times 0.95 \times 0.9$$

i.e. $S_a = 12.5$ mm.

Selecting a sensor for a given application

Application characteristics:

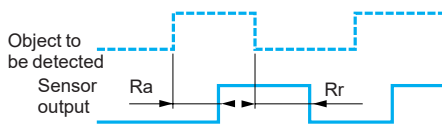
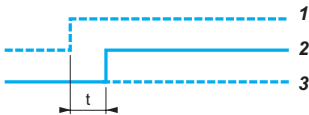
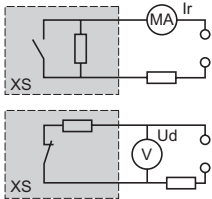
- object material and size: iron ($K_m = 0.9$), 30 x 30 mm,
- temperature: 0 to 20 °C ($K_\theta = 0.98$),
- object detection distance: 3 mm $\pm$ 1.5 mm, i.e. S_a max. = 4.5 mm,
- assume $K_d = 1$.

$$S_n \geq \frac{S_a}{K_\theta \times K_m \times K_d \times K_t} = \frac{4.5}{0.98 \times 0.9 \times 1 \times 0.9}$$

i.e. $S_n \geq 5.7$ mm

Calculation examples

Specific aspects of electronic sensors



Supply

Terminology

- Residual current (Ir)
 - The residual current (Ir) corresponds to the current flowing through the sensor when in the "open" state.
 - Characteristic of 2-wire type proximity sensors.
-
- Voltage drop (Ud)
 - The voltage drop (Ud) corresponds to the voltage drop at the sensor's terminals when in the "closed" state (value measured at nominal current rating of sensor).
-
- First-up delay
 - The first-up delay corresponds to the time (t) between the connection of the power supply to the sensor and its fully operational state.
 - 1 Supply voltage U on
 - 2 Sensor operational at state 1
 - 3 Sensor at state 0
-
- Response time
 - Response time (Ra): the time delay between the object to be detected entering the sensor's operating zone and the subsequent change of output state. This parameter limits the speed and size of the object.
 - Recovery time (Rr): the time delay between an object to be detected leaving the sensor's operating zone and the subsequent change of output state. This parameter limits the interval between successive objects.

Sensors for AC circuits (~ and ~ models)

Check that the voltage limits of the sensor are compatible with the nominal voltage of the AC supply used.

Sensors for DC circuits

- **DC source:** check that the voltage limits of the sensor and the acceptable level of ripple are compatible with the supply used.
- **AC source** (comprising transformer, rectifier, smoothing capacitor): the supply voltage must be within the operating limits specified for the sensor.

Where the voltage is derived from a single-phase AC supply, the voltage must be rectified and smoothed to ensure that:

- the peak voltage of the DC supply is lower than the maximum voltage rating of the sensor.

Peak voltage = nominal voltage $\times \sqrt{2}$

- the minimum voltage of the supply is greater than the minimum voltage rating of the sensor, given that :

$$\Delta V = (I \times t) / C$$

$$\Delta V = \text{max. ripple: } 10\% (V),$$

$$I = \text{anticipated load current (mA),}$$

$$t = \text{period of 1 cycle (10 ms full-wave rectified for a 50 Hz supply frequency),}$$

$$C = \text{capacitance (}\mu\text{F).}$$

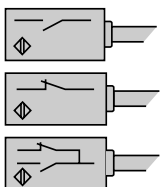
As a general rule, use a transformer with a lower secondary voltage (Ue) than the required DC voltage (U).

Example:

~ 18 V to obtain $\approx$ 24 V,

~ 36 V to obtain $\approx$ 48 V.

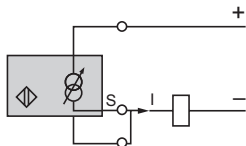
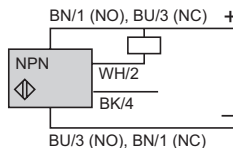
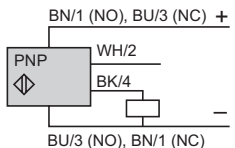
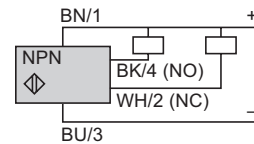
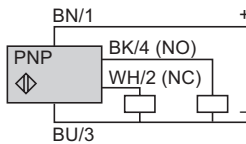
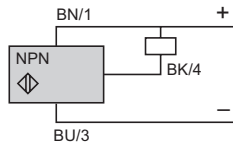
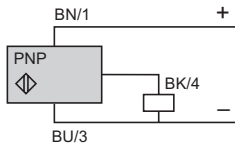
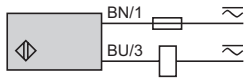
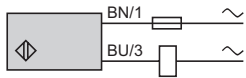
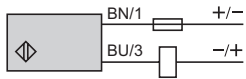
Outputs



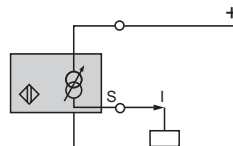
Output signal (contact logic)

- **Normally open (NO)**
Corresponds to a sensor whose output changes to the closed state when an object is present in the operating zone.
- **Normally closed (NC)**
Corresponds to a sensor whose output changes to the open state when an object is present in the operating zone.
- **Complementary outputs (NO + NC)**
Corresponds to a sensor with a normally closed output and a normally open output.

Outputs (continued)



2-wire connection



3-wire connection

2-wire type, non polarised NO or NC output

Specific aspects

These sensors are wired in series with the load to be switched.

As a consequence, they are subject to:

- a residual current in the open state (current flowing through the sensor in the "open" state),
- A voltage drop in the closed state (voltage drop across the sensor's terminals in the "closed" state).

Advantages

- Only 2 leads to be wired: these sensors can be wired in series in the same way as mechanical limit switches,
- They can be connected to either positive (PNP) or negative (NPN) logic PLC inputs,
- No risk of incorrect connections.

Operating precautions

- Check the possible effects of residual current and voltage drop on the actuator or input connected,
- For sensors that do not have overload and short-circuit protection (AC or AC/DC symbol), it is essential to connect a 0.4 A "quick-blow" fuse in series with the load.

3-wire type, NO or NC output, PNP or NPN

Specific aspects

These sensors comprise 2 wires for the DC supply and a 3rd wire for the output signal,

- PNP type: switching the positive side to the load,
- NPN type: switching the negative side to the load.

Advantages

- Protection against supply reverse polarity,
- Protection against overload and short-circuit,
- No residual current, low voltage drop.

4-wire type, complementary NO and NC outputs, PNP or NPN

Advantages

- Protection against supply reverse polarity (+/-).
- Protection against overload and short-circuit.

4-wire type, multifunction, programmable NO or NC output, PNP or NPN

Advantages

- Protection against supply reverse polarity (+/-).
- Protection against overload and short-circuit.

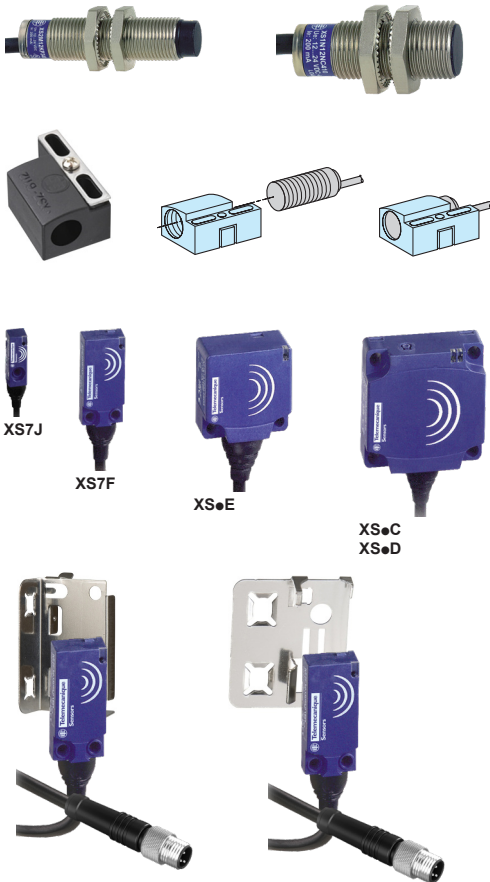
Specific output signals, analogue type

These sensors convert the approach of a metal object towards the sensing face into an output current variation which is proportional to the distance between the object and the sensing face.

Two models available:

- 0...10 V (0...10 mA) output for 3-wire connection,
- 4-20 mA output for 2-wire connection.

Features of the various models



Types of case

■ Cylindrical case

- Fast installation and setting-up.
- Short case and long case, 2-wire and 3-wire versions available.
- Pre-cabled (moulded cable) and various integral connector (M8, M12, 7/8", M18) and remote connector (on flying lead) versions available.
- Small size facilitates mounting in locations with restricted access.
- **Interchangeability**, provided by indexed **fixing clamp**: when assembled, becomes similar to a block type sensor.

■ Flat case

- Reduced size (sensor volume divided by 8).
- Fast installation by mounting on clip-on brackets.
- Precision detection with the flush mountable sensors using teach mode (see page 24).

Electrical connection



Connection methods

- 1 Pre-cabled:** factory fitted moulded cable, good protection against splashing liquids (IP 68). Example: machine tool.
- 2 Connector:** easy installation and maintenance (IP 67).
- 3 Remote connector:** easy installation and maintenance (IP 68 at sensor level and IP 67 at remote connector level).

Wiring advice

■ Length of cable

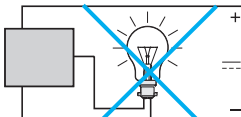
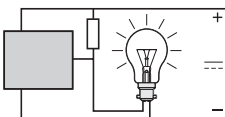
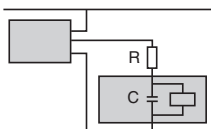
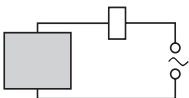
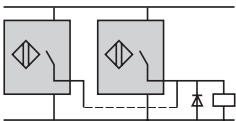
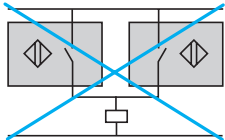
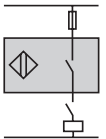
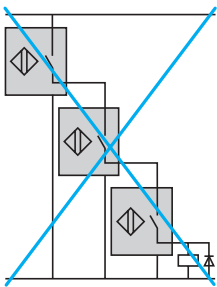
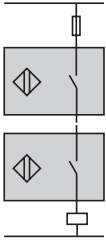
- No limitation up to 200 m or up to a line capacitance of < 100 nF (characteristics of sensor remain unaffected).
- In this case, it is important to take into account the voltage drop on the line.

■ Separation of control and power circuit wiring

- The sensors are immune to electrical interference encountered in normal industrial conditions.
- Where extreme conditions of electrical "noise" could occur (large motors, spot welders, etc.), it is advisable to protect against transients in the normal way:
 - suppress interference at source,
 - separate power and control wiring from each other,
 - smooth the supply,
 - limit the length of cable.

- **Connect the sensor with supply switched off.**

Setting-up precautions



Connection in series

2-wire type sensors

- The following points should be taken into account:
 - Series wiring is only possible using sensors with wide voltage limits.
 - Based on the assumption that each sensor has the same residual current value, each sensor, in the open state, will share the supply voltage, i.e.

$$U_{\text{sensor}} = \frac{U_{\text{supply}}}{n_{\text{sensors}}}$$

U_{sensor} and U_{supply} must remain within the sensor's voltage limits.

- If only one sensor in the circuit is in the open state, it will be supplied at a voltage almost equal to the supply voltage.
- When in the closed state, a small voltage drop is present across each sensor. The resultant loss of voltage at the load will be the sum of the individual voltage drops and therefore, the load voltage should be selected accordingly.

3-wire type sensors

This connection method is not recommended.

- Correct operation of the sensors cannot be assured and, if this method is used, tests should be made before installation.
- The following points should be taken into account:
 - Sensor 1 carries the load current in addition to the no-load current consumption values of the other sensors connected in series. For certain models, this connection method is not possible unless a current limiting resistor is used.
 - When in the closed state, a small voltage drop is present across each sensor. The load should therefore be selected accordingly.
 - As sensor 1 closes, sensor 2 does not operate until a certain time (t) has elapsed (corresponding to the first-up delay) and likewise for the following sensors in the sequence.
 - The use of "flywheel" diodes is recommended when an inductive load is being switched.

Sensors and devices in series with an external mechanical contact

2 and 3-wire type sensors

- The following points should be taken into account:
 - When the mechanical contact is open, the sensor is not supplied.
 - When the contact closes, the sensor does not operate until a certain time (t) has elapsed (corresponding to the first-up delay).

Connection in parallel

2-wire type sensors

This connection method is not recommended.

- Should one of the sensors be in the closed state, the sensor in parallel will be "shorted-out" and no longer supplied.
- As the first sensor passes into the open state, the second sensor will become energised and will be subject to its first-up delay.
- This configuration is only permissible where the sensors will be working alternately.
- This method of connection can lead to irreversible damage of the units.

3-wire type sensors

- No specific restrictions. The use of "flywheel" diodes is recommended when an inductive load (relay) is being switched.

AC supply

- **2-wire type sensors cannot be connected directly to an AC supply.**
 - This would result in immediate destruction of the sensor and considerable danger to the user.
 - An appropriate load (refer to the instruction sheet supplied with the sensor) must always be connected in series with the sensor.

Capacitive load ($C > 0.1 \mu\text{F}$)

- On power-up, it is necessary to limit (by resistor) the charging current of the capacitive load C.
- The voltage drop in the sensor can also be taken into account by subtracting it from the supply voltage for the calculation of R.

$$R = \frac{U_{\text{supply}}}{I_{\text{max. (sensor)}}$$

Load comprising an incandescent lamp

- If the load comprises an incandescent lamp, the cold state resistance can be 10 times lower than the hot state resistance. This can cause very high current levels on switching. Fit a pre-heat resistor in parallel with the sensor.

$$R = \frac{U^2}{P} \times 10, U = \text{supply voltage and } P = \text{lamp power}$$

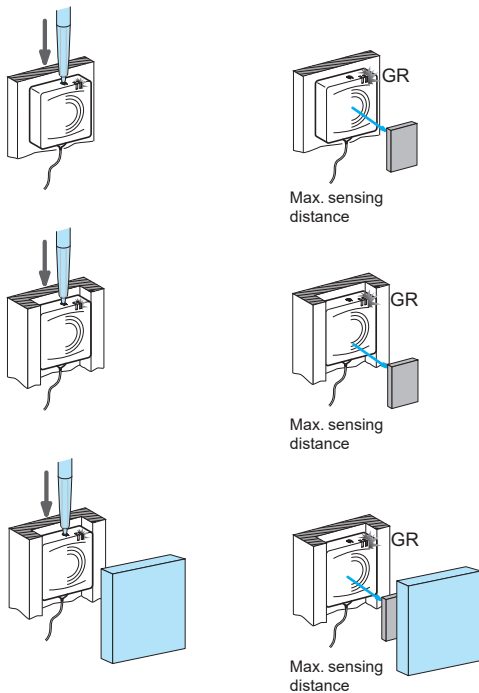
Fast trouble shooting guide

Problem	Possible causes	Remedy
The sensor's output will not change state when a metal object enters the detection zone	On a flush mountable sensor using teach mode: setting-up or programming error.	■ After a RESET, follow the environment teach mode procedure. Refer to instruction sheet supplied with sensor.
	Output stage faulty or complete failure of the sensor or the short-circuit protection has tripped.	■ Check that the sensor is compatible with the supply being used. ■ Check the load current characteristics: □ if load current $I \geq$ maximum switching capacity, an auxiliary relay, of the CAD N type for example, should be interposed between the sensor and the load, □ if $I \leq$ maximum switching capacity, check for wiring faults (short-circuit). ■ In all cases, a 0.4 A "quick-blow" fuse should be fitted in series with the sensor.
	Wiring error	■ Check that the wiring conforms to the wiring shown on the sensor label or instruction sheet.
	Supply fault	■ Check that the sensor is compatible with the supply ($\sim$ or ---). ■ Check that the supply voltage is within the voltage limits of the sensor. Remember that with a rectified, smoothed supply, $U_{\text{peak}} = U_{\text{nominal}} \times \sqrt{2}$ with a ripple voltage $\leq 10\%$.
False or erratic operation, with or without the presence of a metal object in the detection zone	On flush mountable sensor using teach mode: setting-up or programming error.	■ After a RESET, follow the environment teach mode procedure. Refer to instruction sheet supplied with sensor.
	Influence of background or metal environment	■ Refer to the instruction sheet supplied with the sensor. For sensors with adjustable sensitivity, reduce the sensing distance.
	Sensing distance poorly defined for the object to be detected	■ Apply the correction coefficients. ■ Realign the system or run the teach mode again.
	Influence of transient interference on the supply lines	■ Ensure that any DC supplies, when derived from rectified AC, are correctly smoothed ($C > 400 \mu\text{F}$). ■ Separate AC power cables from low-level DC cables (24 V low level). ■ Where very long distances are involved, use suitable cable: screened and twisted pairs of the correct cross-sectional area.
	Equipment prone to emitting electromagnetic interference	■ Position the sensors as far away as possible from any sources of interference.
	Response time of the sensor too slow for the particular object being detected	■ Check the suitability of the sensor for the position or size of the object to be detected. ■ If necessary, select a sensor with a higher switching frequency.
	Influence of high temperature	■ Eliminate sources of radiated heat or protect the sensor casing with a heat shield. ■ Realign, having adjusted the temperature around the fixing support.
No detection following a period of service	Vibration, shock	■ Realign the system. ■ Replace the support or protect the sensor.

Inductive proximity sensors

XS range

Flush mountability using teach mode:
simplicity through innovation



Operating principle

In proposing flush mountable sensors using teach mode, Telemecanique Sensors offers simplicity through innovation.

■ A single product enables flush mounting using teach mode and meets all the requirements for inductive detection of metal objects. By simply pressing the "Teach mode" button, the sensor automatically acquires optimum configuration for all detection, flush mountability and environment requirements.

■ Other advantages of flush mountable sensors using teach mode

□ Increased performance:

- sensing distance guaranteed and optimised irrespective of the mounting method, object, environment or background,
- suitable for all metal environments.

□ Simplified use provided by:

- the flush mountability using teach mode technology, associated with the availability of the flattest and most compact sensors on the market, ensures full integration in the machine and limits the risks of mechanical damage,
- mechanical adjustments no longer necessary due to teach mode.

□ Lower costs due to:

- the elimination of adjustment times and complex supports
- the elimination of flush mountable and non-flush mountable versions, which halves the number of references,
- much easier and much quicker product selection.

Precision position detection

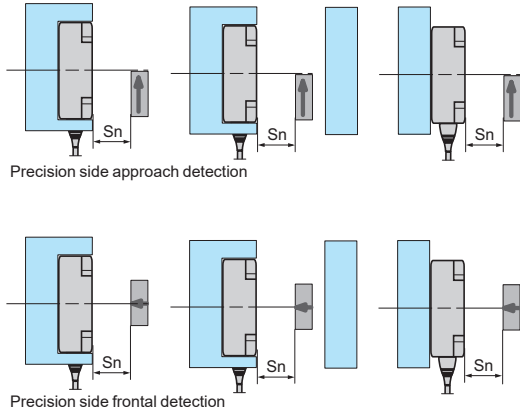
All flush mountable inductive proximity sensors using teach mode benefit from ultra precise adjustment, which is very quick irrespective of the metal environment.

■ Precision side approach detection makes it possible to accurately define the distance at which the object will be detected as it passes the sensor.

On the flush mountable sensors using teach mode, the desired detection position can be stored in memory by simply pressing the teach button.

■ Precision frontal approach detection makes it possible to accurately define the distance at which the object will be detected as it approaches the sensor.

On the flush mountable sensors using teach mode, the desired detection position can be stored in memory by simply pressing the teach button.

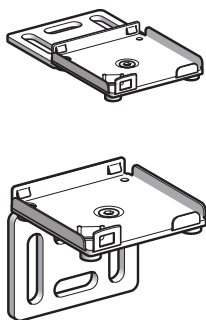


Mounting accessories

Telemecanique Sensors offers a complete, inexpensive range of mounting accessories (clamps, plates, brackets, etc.) that provide solutions for all installation problems.

■ Fixing kits for quick installation or replacement of sensors

■ No adjustment required. Simple clipping-in enables the sensor to be fixed in position and ready for operation.



Inductive proximity sensors

XS range

Flush mountability using teach mode:
simplicity through innovation



Cylindrical type

Dimensions (mm)	12	18	30
Sensing distance (mm)	Flush mounted use	0...3.4	0...6
	Non-flush mounted use	0...5	0...9
Sensor type	XS612B2	XS618B2	XS630B2
Page	84		

Block type

Dimensions (mm)	26 x 26 x 13	40 x 40 x 15	80 x 80 x 26
Sensing distance (mm)	Flush mounted use	0...10	0...15
	Non-flush mounted use	0...15	0...25
Sensor type	XS8E1A1	XS8C1A1	XS8D1A1
Page	54		

Inductive proximity sensors

XS range, general purpose

Cylindrical, standard range, flush mountable

Three-wire DC, solid-state output



XS506B1●●L2



XS508B1●●L2



XS512B1●●M12



XS518B1●●M12



XS518B1●●L2



XS530B1●●L2



XS530B1●●L2



XSZB1●●

Sensors, 3-wire 12...24 V, short case model

Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight (kg)
Ø 6.5, plain					
1.5	NO	PNP	Pre-cabled (L = 2 m) (1)	XS506B1PAL2	0.035
			M8 connector	XS506B1PAM8	0.025
			M12 connector	XS506B1PAM12	0.025
	NPN	PNP	Pre-cabled (L = 2 m) (1)	XS506B1NAL2	0.035
			M8 connector	XS506B1NAM8	0.025
	NC	PNP	Pre-cabled (L = 2 m) (1)	XS506B1PBL2	0.035
			M8 connector	XS506B1PBM8	0.025
			Pre-cabled (L = 2 m) (1)	XS506B1NBL2	0.035
			M8 connector	XS506B1NBM8	0.025

Ø 8, threaded M8 x 1

1.5	NO	PNP	Pre-cabled (L = 2 m) (1)	XS508B1PAL2	0.035
			M8 connector	XS508B1PAM8	0.025
			M12 connector	XS508B1PAM12	0.025
	NPN	PNP	Pre-cabled (L = 2 m) (1)	XS508B1NAL2	0.035
			M8 connector	XS508B1NAM8	0.025
	NC	PNP	Pre-cabled (L = 2 m) (1)	XS508B1PBL2	0.035
			M8 connector	XS508B1PBM8	0.025
			M12 connector	XS508B1PBM12	0.025

Ø 12, threaded M12 x 1

2	NO	PNP	Pre-cabled (L = 2 m) (1)	XS512B1PAL2	0.075
			M12 connector	XS512B1PAM12	0.035
			Pre-cabled (L = 2 m) (1)	XS512B1NAL2	0.075
	NPN	PNP	M12 connector	XS512B1NAM12	0.035
			Pre-cabled (L = 2 m) (1)	XS512B1PBL2	0.075
			M12 connector	XS512B1PBM12	0.035

Ø 18, threaded M18 x 1

5	NO	PNP	Pre-cabled (L = 2 m) (1)	XS518B1PAL2	0.120
			M12 connector	XS518B1PAM12	0.060
			Pre-cabled (L = 2 m) (1)	XS518B1NAL2	0.120
	NPN	PNP	M12 connector	XS518B1NAM12	0.060
			Pre-cabled (L = 2 m) (1)	XS518B1PBL2	0.120
			M12 connector	XS518B1PBM12	0.060

Ø 30, threaded M30 x 1.5

10	NO	PNP	Pre-cabled (L = 2 m) (1)	XS530B1PAL2	0.205
			M12 connector	XS530B1PAM12	0.145
			Pre-cabled (L = 2 m) (1)	XS530B1NAL2	0.205
	NPN	PNP	M12 connector	XS530B1NAM12	0.145
			Pre-cabled (L = 2 m) (1)	XS530B1PBL2	0.205
			M12 connector	XS530B1PBM12	0.145

Accessories (2)

Description	For use with sensors (mm)	Reference	Weight (kg)
Fixing clamps	Ø 6.5 (plain)	XSZB165	0.005
	Ø 8	XSZB108	0.006
	Ø 12	XSZB112	0.006
	Ø 18	XSZB118	0.010
	Ø 30	XSZB130	0.020

(1) For a 5 m cable replace L2 by L5; for a 10 m cable replace L2 by L10. Please consult our Customer Care Center for availability.

Example: XS508B1PAL2 becomes XS508B1PAL5 with a 5 m cable.

(2) For more information, see page 128.

Inductive proximity sensors

XS range, general purpose

Cylindrical, standard range, flush mountable

Three-wire DC, solid-state output



XS508BL●●L2



XS508BL●●M12



XS530BL●●L2



XSZB1●●

Sensors, 3-wire 12...24 V, long case model

Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight (kg)
Ø 8, threaded M8 x 1					
1.5	NO	PNP	Pre-cabled (L = 2 m) (1)	XS508BLPAL2	0.035
			M12 connector	XS508BLPAM12	0.025
	NC	PNP	M12 connector	XS508BLPBM12	0.025
		NPN	M12 connector	XS508BLNBM12	0.025

Sensors, 3-wire 12...48 V, long case model

Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight (kg)
Ø 12, threaded M12 x 1					
2	NO	PNP	Pre-cabled (L = 2 m) (1)	XS512BLPAL2	0.075
			M12 connector	XS512BLPAM12	0.035
	NC	PNP	Pre-cabled (L = 2 m) (1)	XS512BLPBL2	0.075
Ø 18, threaded M18 x 1					
5	NO	PNP	Pre-cabled (L = 2 m) (1)	XS518BLPAL2	0.120
			M12 connector	XS518BLPAM12	0.060
	NC	NPN	Pre-cabled (L = 2 m) (1)	XS518BLNAL2	0.120
		PNP	Pre-cabled (L = 2 m) (1)	XS518BLPBL2	0.120
			M12 connector	XS518BLPBM12	0.060
Ø 30, threaded M30 x 1.5					
10	NO	PNP	Pre-cabled (L = 2 m) (1)	XS530BLPAL2	0.205
			M12 connector	XS530BLPAM12	0.145
	NC	PNP	Pre-cabled (L = 2 m) (1)	XS530BLPBL2	0.205

Accessories (2)

Description	For use with sensors (mm)	Reference	Weight (kg)
Fixing clamps	Ø 6.5 (plain)	XSZB165	0.005
	Ø 8	XSZB108	0.006
	Ø 12	XSZB112	0.006
	Ø 18	XSZB118	0.010
	Ø 30	XSZB130	0.020

(1) For a 5 m cable replace L2 by L5; for a 10 m cable replace L2 by L10. Please consult our Customer Care Center for availability.

Example: **XS508BLPAL2** becomes **XS508BLPAL5** with a 5 m cable.

(2) For more information, see page 128.

Inductive proximity sensors

XS range, general purpose

Cylindrical, standard range, flush mountable

Three-wire DC, solid-state output

Characteristics				
Sensor type			XS5●●B1●●M8, XS5●●B1●●M12 XS5●●BL●●M8, XS5●●BL●●M12	XS5●●B1●●L2 XS5●●BL●●L2
Product certifications			cULus, CE, UKCA, E2	
Connection	Connector		M8 on Ø 6.5 and Ø 8, M12 on Ø 8, Ø 12, Ø 18 and Ø 30	–
	Pre-cabled		–	Length: 2 m
Operating zone	Ø 6.5 and Ø 8	mm	0...1.2	
	Ø 12	mm	0...1.6	
	Ø 18	mm	0...4	
	Ø 30	mm	0...8	
Differential travel		%	1...15 of effective sensing distance (Sr)	
Degree of protection	Conforming to IEC 60529		IP 65 and IP 67	IP 65 and IP 68 (except Ø 6.5 and Ø 8: IP 67)
	Conforming to DIN 40050		IP 69K for Ø 12 to Ø 30	–
Storage temperature		°C	-40...+85	
Operating temperature		°C	-25...+70	
Materials	Case		Nickel plated brass (except XS506 and XS508: stainless steel, grade 303)	
	Sensing face		PPS	
	Cable		–	PVC 3 x 0.34 mm² except XS506 and XS508 : 3 x 0.11 mm²
Vibration resistance	Conforming to IEC 60068-2-6		25 gn, amplitude ± 2 mm (f = 10 to 50 Hz)	
Shock resistance	Conforming to IEC 60068-2-27		50 gn, duration 11 ms	
Output state indication			Yellow LED: 4 viewing ports at 90°	Yellow LED: annular
Rated supply voltage		V	--- 12...48 for XS5●●BL (Ø 12, 18, and 30) --- 12...24 for XS5●●B1, XS508BL with protection against reverse polarity	
Voltage limits (including ripple)		V	--- 10...58 for XS5●●BL (Ø 12, 18, and 30) --- 10...36 for XS5●●B1, XS508BL	
Insulation class			M12:  M8: III	
Switching capacity		mA	≤ 200 with overload and short-circuit protection	
Voltage drop, closed state		V	≤ 2	
Current consumption, no-load		mA	≤ 10	
Maximum switching frequency	XS506, XS508, XS512	Hz	5000	
	XS518	Hz	2000	
	XS530	Hz	1000	
Delays	First-up	ms	≤ 10	
	Response	ms	≤ 0.1: XS506, XS508 and XS512 ≤ 0.15: XS518 ≤ 0.3: XS530	
	Recovery	ms	≤ 0.1: XS506, XS508 and XS512 ≤ 0.35: XS518 ≤ 0.7: XS530	

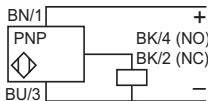
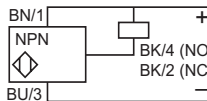
Inductive proximity sensors

XS range, general purpose

Cylindrical, standard range, flush mountable

Three-wire DC, solid-state output

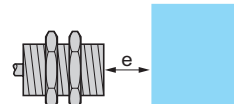
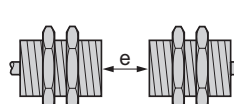
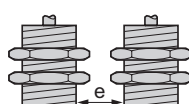
Wiring schemes

Connector	Pre-cabled	PNP	NPN
M8 	M12 	BU: Blue BN: Brown BK: Black 	

For M8 connector, NO and NC outputs on terminal 4

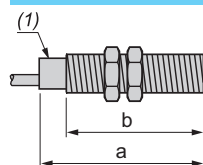
Setting-up

Minimum mounting distances (mm)



Flush mountable sensors	Side by side	Face to face	Facing a metal object
Ø 6.5	$e \geq 3$	$e \geq 18$	$e \geq 4.5$
Ø 8	$e \geq 3$	$e \geq 18$	$e \geq 4.5$
Ø 12	$e \geq 4$	$e \geq 24$	$e \geq 6$
Ø 18	$e \geq 10$	$e \geq 60$	$e \geq 15$
Ø 30	$e \geq 20$	$e \geq 120$	$e \geq 30$

Dimensions



(1) LED

Sensors		Pre-cabled (mm)		M8 connector (mm)		M12 connector (mm)	
Short case model		a	b	a	b	a	b
Ø 6.5	XS506B1	34	—	42	—	45	—
Ø 8	XS508B1	34	25	42	27	45	23
Ø 12	XS512B1	37	25	—	—	50	30
Ø 18	XS518B1	39	28	—	—	50	28
Ø 30	XS530B1	43	32	—	—	54	32
Sensors		Pre-cabled (mm)		M12 connector (mm)			
Long case model		a	b	a	b		
Ø 8	XS508BL	51	42	61	40		
Ø 12	XS512BL	53	42	61	42		
Ø 18	XS518BL	62	52	74	52		
Ø 30	XS530BL	62	52	74	52		

Inductive proximity sensors

XS range, general purpose
Cylindrical, standard range, flush mountable
Two-wire DC



Sensors, 2-wire 12...24 V, short case model				
Sensing distance (Sn) mm	Function	Connection	Reference	Weight (kg)
Ø 8, threaded M8 x 1				
1.5	NC	Pre-cabled (L = 2 m) (1)	XS508BSCBL2	0.035
Ø 12, threaded M12 x 1				
2	NO	M12 connector	XS512BSDAM12	0.035
Ø 18, threaded M18 x 1				
5	NO	M12 connector	XS518BSDAM12	0.060
Ø 30, threaded M30 x 1.5				
10	NO terminals 1 & 4 (2)	M12 connector	XS530BSCAM12	0.145

Accessories (3)			
Description	For use with sensors (mm)	Reference	Weight (kg)
Fixing clamps	Ø 8	XSZB108	0.006
	Ø 12	XSZB112	0.006
	Ø 18	XSZB118	0.010
	Ø 30	XSZB130	0.020

(1) For a 5 m cable replace L2 by L5; for a 10 m cable replace L2 by L10. Please consult our Customer Care Center for availability.
Example: XS508BSCBL2 becomes XS508BSCBL5 with a 5 m cable.

(2) The NO output is connected to terminals 1 and 4 of the M12 connector.

(3) For more information, see page 128.

Inductive proximity sensors

XS range, general purpose

Cylindrical, standard range, flush mountable

Two-wire DC



XS512BS●●L2



XS5●●BS●●M12



XS5●●B1●●L01C



XSZB1●●

Sensors, 2-wire 12...48 V, long case model

Sensing distance (Sn) mm	Function	Connection	Reference	Weight (kg)
Ø 8, threaded M8 x 1				
1.5	NO	Pre-cabled (L = 2 m) (1)	XS508B1DAL2	0.035
		M12 connector	XS508B1DAM12	0.025
	NO terminals 1 & 4 (2)	Remote M12 connector	XS508B1CAL08M12	0.050
Ø 12, threaded M12 x 1				
2	NO	Pre-cabled (L = 2 m) (1)	XS512B1DAL2	0.075
		M12 connector	XS512B1DAM12	0.035
	NO terminals 1 & 4 (2)	M12 connector	XS512B1CAM12	0.035
		Remote M12 connector	XS512B1CAL08M12	0.060
	NC	Pre-cabled (L = 2 m) (1)	XS512B1DBL2	0.075
Ø 18, threaded M18 x 1				
5	NO	Pre-cabled (L = 2 m) (1)	XS518B1DAL2	0.120
		Remote EN 175301-803-A connector	XS518B1DAL01C	0.085
		M12 connector	XS518B1DAM12	0.060
	NO terminals 1 & 4 (2)	M12 connector	XS518B1CAM12	0.060
		Remote M12 connector	XS518B1CAL08M12	0.085
	NC	Pre-cabled (L = 2 m) (1)	XS518B1DBL2	0.120
		M12 connector	XS518B1DBM12	0.060
Ø 30, threaded M30 x 1.5				
10	NO	Pre-cabled (L = 2 m) (1)	XS530B1DAL2	0.205
		M12 connector	XS530B1DAM12	0.145
	NO terminals 1 & 4 (2)	M12 connector	XS530B1CAM12	0.145
	NC	Pre-cabled (L = 2 m) (1)	XS530B1DBL2	0.205

Accessories (3)

Description	For use with sensors (mm)	Reference	Weight (kg)
Fixing clamps	Ø 8	XSZB108	0.006
	Ø 12	XSZB112	0.006
	Ø 18	XSZB118	0.010
	Ø 30	XSZB130	0.020

(1) For a 5 m cable replace L2 by L5; for a 10 m cable replace L2 by L10. Please consult our Customer Care Center for availability.

Example: XS508B1DAL2 becomes XS508B1DAL5 with a 5 m cable.

(2) The NO output is connected to terminals 1 and 4 of the M12 connector.

(3) For more information, see page 128.

Inductive proximity sensors

XS range, general purpose

Cylindrical, standard range, flush mountable

Two-wire DC

Characteristics				
Sensor type		XS5●●B1●●M12, XS5●●BS●●M12		XS5●●B1D●L2, XS5●●BS●●L2
Product certifications		cULus, CE, UKCA		
Connection	Connector		M12	–
	Pre-cabled		–	Length: 2 m
	Remote connector		M12 (L01M12), EN 175301-803-A (L01C) and M12 (L08M12) connectors on 0.80 m flying lead	
Operating zone	Ø 8	mm	0...1.2	
	Ø 12	mm	0...1.6	
	Ø 18	mm	0...4	
	Ø 30	mm	0...8	
Differential travel		%	1...15 of effective sensing distance (Sr)	
Degree of protection		Conforming to IEC 60529	IP 65 and IP 67	IP 65 and IP 68 (except Ø 8: IP 67)
Storage temperature		°C	-40...+85	
Operating temperature		°C	-25...+70; TF products: -40...+70	
Materials	Case		Nickel plated brass (except XS506 and XS508B1: stainless steel, grade 303)	
	Sensing face		PPS	
	Cable		–	PVC 2 x 0.34 mm ² (except XS508: 2 x 0.11 mm ²) PUR available (1)
Vibration resistance		Conforming to IEC 60068-2-6	25 gn, amplitude ± 2 mm (f = 10 to 55 Hz)	
Shock resistance		Conforming to IEC 60068-2-27	50 gn, duration 11 ms	
Output state indication			Yellow LED: 4 viewing ports at 90°	Yellow LED: annular
Rated supply voltage		V	--- 12...48 non polarised for XS5●●B1● --- 12...24 non polarised for XS5●●BS (except Ø 8 short: polarised) with protection against reverse polarity	
Voltage limits (including ripple)		V	--- 10...58 for XS5●●B1● --- 10...36 for XS5●●BS	
Insulation class			□	□
Switching capacity		mA	1.5...100 with overload and short-circuit protection	
Voltage drop, closed state		V	≤ 4.2	
Residual current, open state		mA	≤ 0.5	
Maximum switching frequency	XS508	Hz	1000 for XS5●●BS, 1400 for XS5●●B1●	
	XS512	Hz	1000	
	XS518	Hz	1200	
	XS530	Hz	1300	
Delays	First-up	ms	≤ 10	
	Response	ms	≤ 0.5: XS508 and XS512 ≤ 0.6: XS518 ≤ 0.6: XS530	
	Recovery	ms	≤ 0.2 (except XS530 ≤ 0.4)	

(1) For PUR cable, replace the letter L in the reference by P. Example: XS508BSCAL2 becomes XS508BSCAP2 with a PUR cable.

Inductive proximity sensors

XS range, general purpose

Cylindrical, standard range, flush mountable

Two-wire DC

Wiring schemes

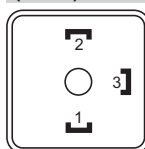
Connector	Pre-cabled	2-wire non polarised		
M12 	BU: Blue BN: Brown	NO output		NC output
		XS5●●BxDA●●●	XS5●●B1CA●●●	XS5●●BxDB●●●
2-wire polarised				
		NO output		NC output
		XS5●●BSCA●●●	XS5●●BSCB●●●	

Remote connectors L01B, L01C, L01G, U78

Screw terminal (L01B)

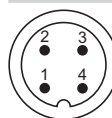
The terminal numbering differs according to the version (2-wire ---, 3-wire ---, 2-wire ~).

EN 175301-803-A (L01C)

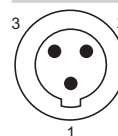


The NO or NC outputs are connected to terminal 2.

M18 (L01G)



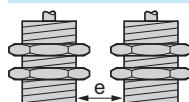
7/8" (U78)



Terminal 1: not connected
Terminal 2: +/-
Terminal 3: +/-

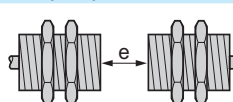
Setting-up

Minimum mounting distances (mm)



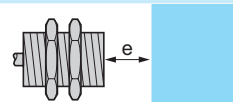
Side by side

Ø 8	$e \geq 3$
Ø 12	$e \geq 4$
Ø 18	$e \geq 10$
Ø 30	$e \geq 20$



Face to face

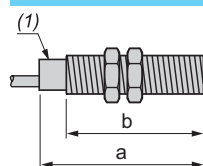
$e \geq 18$
$e \geq 24$
$e \geq 60$
$e \geq 120$



Facing a metal object

$e \geq 4.5$
$e \geq 6$
$e \geq 15$
$e \geq 30$

Dimensions



(1) LED

Sensors		Pre-cabled (mm)		M8 connector (mm)		M12 connector (mm)	
Short case model		a	b	a	b	a	b
Ø 8	XS508BS	33	25	42	26	45	24
Ø 12	XS512BS	35	25	—	—	50	30
Ø 18	XS518BS	40	28	—	—	50	28
Ø 30	XS530BS	44	32	—	—	55	32
Sensors		Pre-cabled (mm)		M12 connector (mm)			
Long case model		a	b	a	b		
Ø 8	XS508B1	51	42	62	40		
Ø 12	XS512B1	54	42	61	42		
Ø 18	XS518B1	56	44	64	44		
Ø 30	XS530B1	54	42	72	41		

Inductive proximity sensors

XS range, general purpose

Cylindrical, standard range, flush mountable

Two-wire AC or DC ⁽¹⁾



XS512B1MAL2



XS518B1MAU20



XS530B1MAL2



XSZB112

Sensors, 2-wire ~ 24-240 V, long case model

Ø 12, threaded M12 x 1

Sensing distance (Sn) mm	Function	Connection	Reference	Weight (kg)
2	NO	Pre-cabled (L = 2 m) (2)	XS512B1MAL2	0.075
		1/2"-20 UNF connector	XS512B1MAU20	0.025
	NC	Pre-cabled (L = 2 m) (2)	XS512B1MBL2	0.075
		1/2"-20 UNF connector	XS512B1MBU20	0.025

Ø 18, threaded M18 x 1

Sensing distance (Sn) mm	Function	Connection	Reference	Weight (kg)
5	NO	Pre-cabled (L = 2 m) (2)	XS518B1MAL2	0.100
		1/2"-20 UNF connector	XS518B1MAU20	0.060
	NC	Pre-cabled (L = 2 m) (2)	XS518B1MBL2	0.100
		1/2"-20 UNF connector	XS518B1MBU20	0.060

Ø 30, threaded M30 x 1.5

Sensing distance (Sn) mm	Function	Connection	Reference	Weight (kg)
10	NO	Pre-cabled (L = 2 m) (2)	XS530B1MAL2	0.205
		1/2"-20 UNF connector	XS530B1MAU20	0.145
	NC	Pre-cabled (L = 2 m) (2)	XS530B1MBL2	0.205

Accessories ⁽³⁾

Description	For use with sensors (mm)	Reference	Weight (kg)
Fixing clamps	Ø 12	XSZB112	0.006
	Ø 18	XSZB118	0.010
	Ø 30	XSZB130	0.020

(1) Ø8 plastic, double insulation version available (see page 70).

(2) For a 5 m cable replace L2 by L5; for a 10 m cable replace L2 by L10. Please consult our Customer Care Center for availability.

Example: **XS512B1MAL2** becomes **XS512B1MAL5** with a 5 m cable.

(3) For more information, see page 128.

Inductive proximity sensors

XS range, general purpose

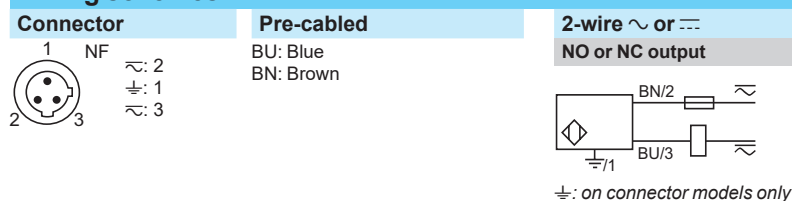
Cylindrical, standard range, flush mountable

Two-wire AC or DC

Characteristics				
Sensor type		XS5●●B1M●U20		XS5●●B1M●L2
Product certifications		cULus, CE, UKCA		
Connection	Connector		1/2"-20 UNF	—
	Pre-cabled		—	Length: 2 m
Operating zone	Ø 12	mm	0...1.6	
	Ø 18	mm	0...4	
	Ø 30	mm	0...8	
Differential travel		%	1...15 of effective sensing distance (Sr)	
Degree of protection	Conforming to IEC 60529		IP 65 and IP 67	IP 65 and IP 68
	Conforming to DIN 40050		IP 69K	—
Storage temperature		°C	-40...+85	
Operating temperature		°C	-25...+70	
Materials	Case	Nickel plated brass		
	Sensing face	PPS		
	Cable		—	PVC 2 x 0.34 mm ²
Vibration resistance	Conforming to IEC 60068-2-6	25 gn, amplitude ± 2 mm (f = 10 to 55 Hz)		
Shock resistance	Conforming to IEC 60068-2-27	50 gn, duration 11 ms		
Output state indication			Yellow LED: 4 viewing ports at 90°	Yellow LED: annular
Rated supply voltage		V	~ or --- 24...240 (~ 50/60 Hz)	
Voltage limits (including ripple)		V	~ or --- 20...264	
Insulation class			I	I
Switching capacity	XS512B1M●●●	mA	5...200 (1)	
	XS518B1M●●●, XS530B1M●●●	mA	~ 5...300 or --- 5...200 (1)	
Voltage drop, closed state		V	≤ 5.5	
Residual current, open state		mA	≤ 0.8	
Maximum switching frequency	XS512B1●●●, XS518B1M●●●	Hz	~ 25 or --- 1000	
	XS530B1M●●●	Hz	~ 25 or --- 500	
Delays	First-up	ms	≤ 20 XS512B1M●●● ≤ 25 XS518B1M●●● and XS530B1M●●●	
	Response	ms	≤ 0.5	
	Recovery	ms	≤ 0.2 XS512B1M●●● ≤ 0.5 XS518B1M●●● ≤ 2 XS518B1M●●●	

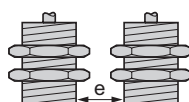
(1) It is essential to connect a 0.4 A "quick-blow" fuse in series with the load.

Wiring schemes



Setting-up

Minimum mounting distances (mm)

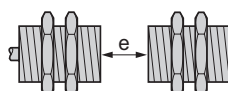


Sensor

Ø 12
Ø 18
Ø 30

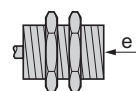
Side by side

e ≥ 8
e ≥ 16
e ≥ 30



Face to face

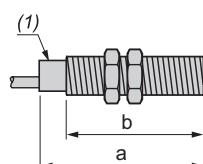
e ≥ 48
e ≥ 100
e ≥ 180



Facing a metal object

e ≥ 12
e ≥ 25
e ≥ 45

Dimensions



Sensor

XS512B1M
XS518B1M
XS530B1M

XS6

Pre-cabled (mm)

a	b
53	42
62	52
62	52

Connector (mm)

a	b
62	42
73	52
73	52

(1) LED

Inductive proximity sensors

XS range, general purpose

Cylindrical, increased range, flush mountable

Three-wire DC, solid-state output



XS106B1●●L2



XS108B3●●M8



XS112B3●●L2

Sensors, 3-wire 12...24 V, short case model

Sensing distance (Sn) mm	Function	Output	Connection	Sold in lots of	Unit reference	Weight (kg)
Ø 6.5, plain						
2.5	NO	PNP	Pre-cabled (L = 2 m) (1)	1	XS106B3PAL2	0.060
			M8 connector	1	XS106B3PAM8	0.030
			M12 connector	1	XS106B3PAM12	0.050
	NC	PNP	Pre-cabled (L = 2 m) (1)	1	XS106B3PBL2	0.060
			M8 connector	1	XS106B3PBM8	0.030
			Ø 8, threaded M8 x 1			
2.5	NO	PNP	Pre-cabled (L = 2 m) (1)	1	XS108B3PAL2	0.070
			M8 connector	1	XS108B3PAM8	0.030
			M12 connector	1	XS108B3PAM12	0.060
		NPN	Pre-cabled (L = 2 m) (1)	1	XS108B3NAL2	0.070
			M8 connector	1	XS108B3NAM8	0.030
			M12 connector	1	XS108B3NAM12	0.060
	NC	PNP	Pre-cabled (L = 2 m) (1)	1	XS108B3PBL2	0.070
			M8 connector	1	XS108B3PBM8	0.030
			M12 connector	1	XS108B3PBM12	0.060
		NPN	M8 connector	1	XS108B3NBM8	0.030
			Ø 12, threaded M12 x 1			
			4	NO	PNP	Pre-cabled (L = 2 m) (1)
M12 connector	1	XS112B3PAM12				0.030
NPN	Pre-cabled (L = 2 m) (1)	1			XS112B3NAL2	0.090
	M12 connector	1			XS112B3NAM12	0.030
NC	PNP	Pre-cabled (L = 2 m) (1)		1	XS112B3PBL2	0.090
		M12 connector		1	XS112B3PBM12	0.030

(1) For a 5 m long cable replace L2 by L5. Please consult our Customer Care Center for availability.
Example: XS106B3PAL2 becomes XS106B3PAL5 with a 5 m cable.

Inductive proximity sensors

XS range, general purpose

Cylindrical, increased range, flush mountable

Three-wire DC, solid-state output



XS118B3●●M12



XS118B3●●L2



XS130B3●●L2



XSZB1●●

Sensors, 3-wire 12...24 V, short case model (continued)

Sensing distance (Sn) mm	Function	Output	Connection	Sold in lots of	Unit reference	Weight (kg)
Ø 18, threaded M18 x 1						
8	NO	PNP	Pre-cabled (L = 2 m) (1)	1	XS118B3PAL2	0.110
			M12 connector	1	XS118B3PAM12	0.060
	NPN	PNP	Pre-cabled (L = 2 m) (1)	1	XS118B3NAL2	0.110
			M12 connector	1	XS118B3NAM12	0.060
	NC	PNP	Pre-cabled (L = 2 m) (1)	1	XS118B3PBL2	0.110
			M12 connector	1	XS118B3PBM12	0.060

Ø 30, threaded M30 x 1.5

15	NO	PNP	Pre-cabled (L = 2 m) (1)	1	XS130B3PAL2	0.180
			M12 connector	1	XS130B3PAM12	0.130
	NPN	PNP	Pre-cabled (L = 2 m) (1)	1	XS130B3NAL2	0.180
			M12 connector	1	XS130B3NAM12	0.130
	NC	PNP	Pre-cabled (L = 2 m) (1)	1	XS130B3PBL2	0.180
			M12 connector	1	XS130B3PBM12	0.130

Accessories (2)

Description	For use with sensors (mm)	Reference	Weight (kg)
Fixing clamps	Ø 6.5 (plain)	XSZB165	0.005
	Ø 8 (M8 x1)	XSZB108	0.006
	Ø 12 (M12 x1)	XSZB112	0.006
	Ø 18 (M18 x1)	XSZB118	0.010
	Ø 30 (M30 x 1.5)	XSZB130	0.020

(1) For a 5 m cable, replace L2 by L5. Please consult our Customer Care Center for availability.
Example: XS118B3PAL2 becomes XS118B3PAL5 with a 5 m cable.

(2) For more information, see page 128.

Inductive proximity sensors

XS range, general purpose

Cylindrical, increased range, flush mountable

Three-wire DC, solid-state output



XS608B1●●L2



XS6●●B1●●M12



XS6●●B1●●L01C

Sensors, 3-wire 12...24 V, long case model

Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight (kg)
Ø 8, threaded M8 x 1					
2.5	NO	PNP	Pre-cabled (L = 2 m) (1)	XS608B1PAL2	0.035
			M8 connector	XS608B1PAM8	0.015
			M12 connector	XS608B1PAM12	0.015
	NPN		Pre-cabled (L = 2 m) (1)	XS608B1NAL2	0.035
			M8 connector	XS608B1NAM8	0.015
			M12 connector	XS608B1NAM12	0.015
	NC	PNP	Pre-cabled (L = 2 m) (1)	XS608B1PBL2	0.035
			M8 connector	XS608B1PBM8	0.015
			M12 connector	XS608B1PBM12	0.015
		NPN	Pre-cabled (L = 2 m) (1)	XS608B1NBL2	0.035
			M8 connector	XS608B1NBM8	0.015

Sensors, 3-wire 12...48 V, long case model

Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight (kg)
Ø 12, threaded M12 x 1					
4	NO	PNP	Pre-cabled (L = 2 m) (1)	XS612B1PAL2	0.075
			M12 connector	XS612B1PAM12	0.020
		NPN	Pre-cabled (L = 2 m) (1)	XS612B1NAL2	0.075
			M12 connector	XS612B1NAM12	0.020
	NC	PNP	Pre-cabled (L = 2 m) (1)	XS612B1PBL2	0.075
			M12 connector	XS612B1PBM12	0.020
	NPN	Pre-cabled (L = 2 m) (1)	XS612B1NBL2	0.075	
		M12 connector	XS612B1NBM12	0.020	
Ø 18, threaded M18 x 1					
8	NO	PNP	Pre-cabled (L = 2 m) (1)	XS618B1PAL2	0.100
			M12 connector	XS618B1PAM12	0.040
			Remote EN 175301-803-A connector	XS618B1PAL01C	0.100
		NPN	Pre-cabled (L = 2 m) (1)	XS618B1NAL2	0.100
			M12 connector	XS618B1NAM12	0.040
	NC	PNP	Pre-cabled (L = 2 m) (1)	XS618B1PBL2	0.100
			M12 connector	XS618B1PBM12	0.040
	NPN	Pre-cabled (L = 2 m) (1)	XS618B1NBL2	0.100	
		M12 connector	XS618B1NBM12	0.040	
Ø 30, threaded M30 x 1.5					
15	NO	PNP	Pre-cabled (L = 2 m) (1)	XS630B1PAL2	0.205
			M12 connector	XS630B1PAM12	0.145
			Remote EN 175301-803-A connector	XS630B1PAL01C	0.205
		NPN	Pre-cabled (L = 2 m) (1)	XS630B1NAL2	0.205
			M12 connector	XS630B1NAM12	0.145
	NC	PNP	Pre-cabled (L = 2 m) (1)	XS630B1PBL2	0.205
			M12 connector	XS630B1PBM12	0.145
	NPN	Pre-cabled (L = 2 m) (1)	XS630B1NBL2	0.205	

Accessories (2)

Description	For use with sensors (mm)	Reference	Weight (kg)
Fixing clamps	Ø 8	XSZB108	0.006
	Ø 12	XSZB112	0.006
	Ø 18	XSZB118	0.010
	Ø 30	XSZB130	0.020

(1) For a 5 m long cable replace L2 by L5; for a 10 m long cable replace L2 by L10. Please consult our Customer Care Center for availability.

Example: XS608B1PAL2 becomes XS608B1PAL5 with a 5 m cable.

(2) For more information, see page 128.

Inductive proximity sensors

XS range, general purpose

Cylindrical, increased range, flush mountable

Three-wire DC, solid-state output

Characteristics				
Sensor type		XS1/XS6●●B●●●M8	XS1/XS6●●B●●●M12	XS1/XS6●●B●●●L2
Product certifications	Ø 6.5 and Ø 8	cULus, C€, UKCA		
	Ø 12, 18 and 30	cULus, C€, UKCA, E2		
Connection	Connector	M8	M12	–
	Pre-cabled	–	–	Length 2 m
	Remote connector	Screw terminal (L01B), EN 175301-803-A (L01C) and M18 (L01G) remote connectors on 0.15 m flying lead		
Operating zone (1)	Ø 6.5 and Ø 8	mm	0... 2	
	Ø 12	mm	0...3.2	
	Ø 18	mm	0...6.4	
	Ø 30	mm	0...12	
Differential travel		%	1...15 of effective sensing distance (Sr)	
Degree of protection	Conforming to IEC 60529		IP 65 and IP 67	IP 65 and IP 68 except Ø 6.5 and Ø 8: IP 67
	Conforming to DIN 40050		–	IP 69K
Storage temperature		°C	-40...+85	
Operating temperature		°C	-25...+70	
Materials	Case	Nickel plated brass (except Ø 6.5 and Ø 8: stainless steel, grade 303)		
	Sensing face	PPS		
	Cable	–		PVC 3 x 0.34 mm ² except Ø 6.5 and 8: 3 x 0.11 mm ²
Vibration resistance	Conforming to IEC 60068-2-6	25 gn, amplitude ± 2 mm (f = 10 to 55 Hz)		
Shock resistance	Conforming to IEC 60068-2-27	50 gn, duration 11 ms		
Output state indication		Yellow LED, 4 viewing ports at 90°		Yellow LED, annular
Rated supply voltage		V	XS1, XS608: ≡ 12...24 with protection against reverse polarity XS6: ≡ 12...48 with protection against reverse polarity (Ø 12, 18, 30)	
Voltage limits (including ripple)		V	XS1, XS608: ≡ 10...36; XS6: ≡ 10...58 (Ø 12, 18, 30)	
Insulation class		III	Ⓜ	Ⓜ
Switching capacity		mA	≤ 200 with overload and short-circuit protection	
Voltage drop, closed state		V	≤ 2	
Current consumption, no-load		mA	≤ 10	
Maximum switching frequency	Ø 6.5, Ø 8 and Ø 12	Hz	2500	
	Ø 18	Hz	1000	
	Ø 30	Hz	500	
Delays	First-up	ms	≤ 10	
	Response	ms	≤ 0.2 for Ø 6.5, Ø 8 and Ø 12, ≤ 0.3 for Ø 18, ≤ 0.6 for Ø 30	
	Recovery	ms	≤ 0.2 for Ø 6.5, Ø 8 and Ø 12, ≤ 0.7 for Ø 18, ≤ 1.4 for Ø 30	

(1) Detection curves, see page 136.

Wiring schemes

Connector (1)	Pre-cabled
	BU: Blue BN: Brown BK: Black
PNP 	NPN

For M8 connector, NO and NC outputs on terminal 4

(1) For pin arrangement of remote connectors L01B, L01C and L01G, see page 33.

Setting-up

Minimum mounting distances (mm)

Sensors	Side by side	Face to face	Facing a metal object
Ø 6.5	e ≥ 5	e ≥ 30	e ≥ 8
Ø 8	e ≥ 5	e ≥ 30	e ≥ 8
Ø 12	e ≥ 8	e ≥ 48	e ≥ 12
Ø 18	e ≥ 16	e ≥ 100	e ≥ 25
Ø 30	e ≥ 30	e ≥ 180	e ≥ 45

Dimensions

(1)	Sensors		Pre-cabled (mm)		M8 connector (mm)		M12 connector (mm)	
	Short case model		a	b	a	b	a	b
	Ø 6.5	XS106B3	34	—	42	—	45	—
	Ø 8	XS108B3	34	25	42	27	45	23
	Ø 12	XS112B3	35	25	—	—	50	30
	Ø 18	XS118B3	39	28	—	—	50	28
	Ø 30	XS130B3	43	32	—	—	55	32
(1) LED	Sensors		Pre-cabled (mm)		M8 connector (mm)		M12 connector (mm)	
	Long case model		a	b	a	b	a	b
	Ø 8	XS608B1	51	42	58	43	61	40
	Ø 12	XS612B1	53	42	—	—	61	42
	Ø 18	XS618B1	62	52	—	—	74	52
	Ø 30	XS630B1	62	52	—	—	74	52

Inductive proximity sensors

XS range, general purpose

Cylindrical, increased range, flush mountable

Two-wire DC, solid-state output



XS608B3●●L2



XS608B3●●L2



XS6●●B1●●L2



XS6●●B1●●M12



XSZB1●●

Sensors, 2-wire 12...24 V, short case model

Sensing distance (Sn) mm	Function	Connection	Reference	Weight (kg)
Ø 6.5, plain				
2.5	NO	Pre-cabled (L = 2 m) (1)	XS606B3CAL2	0.060
	NC	Pre-cabled (L = 2 m) (1)	XS606B3CBL2	0.060
Ø 8, threaded M8 x 1				
2.5	NO	Pre-cabled (L = 2 m) (1)	XS608B3CAL2	0.070
Ø 12, threaded M12 x 1				
4	NO	Pre-cabled (L = 2 m) (1)	XS612B3DAL2	0.090
		M12 connector	XS612B3DAM12	0.030
	NC	Pre-cabled (L = 2 m) (1)	XS612B3DBL2	0.090
		M12 connector	XS612B3DBM12	0.030
Ø 18, threaded M18 x 1				
8	NO	Pre-cabled (L = 2 m) (1)	XS618B3DAL2	0.110
		M12 connector	XS618B3DAM12	0.060
	NC	Pre-cabled (L = 2 m) (1)	XS618B3DBL2	0.110
		M12 connector	XS618B3DBM12	0.060
Ø 30, threaded M30 x 1.5				
15	NO	Pre-cabled (L = 2 m) (1)	XS630B3DAL2	0.180
		M12 connector	XS630B3DAM12	0.130

Sensors, 2-wire 12...48 V, long case model

Sensing distance (Sn) mm	Function	Connection	Reference	Weight (kg)
Ø 6.5, plain				
2.5	NC	Pre-cabled (L = 2 m) (1)	XS606B1DBL2	0.060
Ø 8, threaded M8 x 1				
2.5	NO	Pre-cabled (L = 2 m) (1)	XS608B1DAL2	0.035
		M12 connector	XS608B1DAM12	0.015
	NC	Pre-cabled (L = 2 m) (1)	XS608B1DBL2	0.035
Ø 12, threaded M12 x 1				
4	NO	Pre-cabled (L = 2 m) (1)	XS612B1DAL2	0.180
		M12 connector	XS612B1DAM12	0.020
	NC	M12 connector	XS612B1DBM12	0.020
Ø 18, threaded M18 x 1				
8	NO	Pre-cabled (L = 2 m) (1)	XS618B1DAL2	0.100
		M12 connector	XS618B1DAM12	0.040
	NC	Pre-cabled (L = 2 m) (1)	XS618B1DBL2	0.100
		M12 connector	XS618B1DBM12	0.040
Ø 30, threaded M30 x 1.5				
15	NO	Pre-cabled (L = 2 m) (1)	XS630B1DAL2	0.205
		M12 connector	XS630B1DAM12	0.145
	NC	M12 connector	XS630B1DBM12	0.145

Accessories (2)

Description	For use with sensors (mm)	Reference	Weight (kg)
Fixing clamps	Ø 6.5 (plain)	XSZB165	0.005
	Ø 8 (M8 x1)	XSZB108	0.006
	Ø 12 (M12 x1)	XSZB112	0.006
	Ø 18 (M18 x1)	XSZB118	0.010
	Ø 30 (M30 x 1.5)	XSZB130	0.020

(1) For a 5 m cable, replace L2 by L5. Please consult our Customer Care Center for availability.
Example: XS606B3CAL2 becomes XS606B3CAL5 with a 5 m cable.

(2) For more information, see page 128.

Inductive proximity sensors

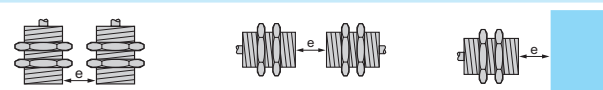
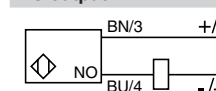
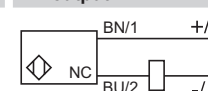
XS range, general purpose

Cylindrical, increased range, flush mountable

Two-wire DC, solid-state output

Characteristics			
Sensor type		XS6●●B3●●M12 XS6●●B1D●M12	XS6●●B3●●L2 XS6●●B1D●L2
Product certifications		cULus, CE, UKCA,	
Connection	Connector	M12 or remote M12 connector (L01M12) on 0.15 m flying lead	
	Pre-cabled	Length 2 m	
Operating zone (1)	Ø 6.5 and Ø 8	mm	0...2
	Ø 12	mm	0...3.2
	Ø 18	mm	0...6.4
	Ø 30	mm	0...12
Differential travel		%	1...15 of effective sensing distance (Sr)
Degree of protection	Conforming to IEC 60529	IP 65 and IP 67	IP 65 and IP 68 (except Ø 6.5 and Ø 8: IP 67)
	Conforming to DIN 40050	IP 69K	—
Storage temperature		°C	-40...+85
Operating temperature		°C	-25...+70
Materials	Case	Nickel plated brass (except XS606B1D or XS608B1D: stainless steel, grade 303)	
	Sensing face	PPS	
	Cable	PVC 2 x 0.34 mm ² except Ø 6.5 and Ø 8: 2 x 0.11 mm ²	
Vibration resistance	Conforming to IEC 60068-2-6	25 gn, amplitude ± 2 mm (f = 10 to 55 Hz)	
Shock resistance	Conforming to IEC 60068-2-27	50 gn, duration 11 ms	
Output state indication		Yellow LED, 4 viewing ports at 90°	
Rated supply voltage		V	— 12...48 non polarised for XS6●●B1D — 12...24 non polarised for XS6●●B3● (except Ø 6.5 short and Ø 8 short: polarised), with protection against reverse polarity
Voltage limits (including ripple)		V	— 10...58 for XS6●●B1D — 10...36 for XS6●●B3●
Insulation class		□	□
Switching capacity		mA	≤ 100 with overload and short-circuit protection
Voltage drop, closed state		V	≤ 4.2
Residual current, open state		mA	≤ 0.5 mA
Maximum switching frequency	Ø 6.5, Ø 8	Hz	1400 for XS6●●B1D, 1100 for XS6●●B3●
	Ø 12	Hz	1300
	Ø 18	Hz	1500
	Ø 30	Hz	800
Delays	First-up	ms	≤ 10
	Response	ms	≤ 0.5
	Recovery	ms	≤ 0.2 for Ø 6.5, Ø 8 and Ø 12; 0.3 for Ø 18; 0.6 for Ø 30

(1) Detection curves, see page 136.

Wiring schemes		Setting-up	
M12 connector		Pre-cabled	
		BU: Blue BN: Brown	
2-wire — non polarised		Minimum mounting distances (mm)	
NO output			
NC output		Sensors	Side by side
		Ø 6.5	e ≥ 5
		Ø 8	e ≥ 5
2-wire — polarised		Ø 12	e ≥ 8
XS6●●B3CA		Ø 18	e ≥ 16
		Ø 30	e ≥ 30
XS6●●B3CB		Face to face	Facing a metal object
		e ≥ 30	e ≥ 8
		e ≥ 30	e ≥ 8
		e ≥ 48	e ≥ 12
		e ≥ 100	e ≥ 25
		e ≥ 180	e ≥ 45

Dimensions

(1) LED

Sensors		Pre-cabled (mm)		M12 connector (mm)	
Short case model		a	b	a	b
Ø 6.5	XS606B3C	33	—	—	—
Ø 8	XS608B3C	33	25	—	24
Ø 12	XS612B3D	35	25	50	30
Ø 18	XS618B3D	40	28	50	28
Ø 30	XS630B3D	44	32	55	32
Long case model		a	b	a	b
Ø 6.5	XS606B1D	50	—	—	—
Ø 8	XS608B1D	51	42	62	40
Ø 12	XS612B1D	53	42	61	42
Ø 18	XS618B1D	62	52	74	52
Ø 30	XS630B1D	62	52	74	52

Inductive proximity sensors

XS range, general purpose

Cylindrical, increased range, flush mountable

Two-wire AC or DC ⁽¹⁾



XS61M L2



XS61B U20



XS61B L01B (3)



XS61B L01C



XS61B L01U78



XSZB112

Sensors, 2-wire $\approx$ 24-240 V, long case model

Sensing distance (Sn) mm	Function	Connection	Reference	Weight (kg)
Ø 12, threaded M12 x 1				
4	NO	Pre-cabled (L = 2 m) (2)	XS612B1MAL2	0.075
		1/2"-20 UNF connector	XS612B1MAU20	0.025
	NC	Pre-cabled (L = 2 m) (2)	XS612B1MBL2	0.075
		1/2"-20 UNF connector	XS612B1MBU20	0.025

Ø 18, threaded M18 x 1

8	NO	Pre-cabled (L = 2 m) (2)	XS618B1MAL2	0.100
		1/2"-20 UNF connector	XS618B1MAU20	0.060
		Remote screw terminal connector	XS618B1MAL01B (3)	0.100
		Remote EN 175301-803-A connector	XS618B1MAL01C	0.100
	NC	Remote 7/8" connector	XS618B1MAL01U78	0.100
		Pre-cabled (L = 2 m) (2)	XS618B1MBL2	0.100
		1/2"-20 UNF connector	XS618B1MBU20	0.060

Ø 30, threaded M30 x 1.5

15	NO	Pre-cabled (L = 2 m) (2)	XS630B1MAL2	0.205
		1/2"-20 UNF connector	XS630B1MAU20	0.145
		Remote screw terminal connector	XS630B1MAL01B (3)	0.205
		Remote EN 175301-803-A connector	XS630B1MAL01C	0.205
	NC	Remote 7/8" connector	XS630B1MAL01U78	0.205
		Pre-cabled (L = 2 m) (2)	XS630B1MBL2	0.205
		1/2"-20 UNF connector	XS630B1MBU20	0.145
		Remote screw terminal connector	XS630B1MBL01B (3)	0.205

Accessories ⁽⁴⁾

Description	For use with sensors (mm)	Reference	Weight (kg)
Fixing clamps	Ø 12	XSZB112	0.006
	Ø 18	XSZB118	0.010
	Ø 30	XSZB130	0.020

(1) Ø8 plastic, double insulation version available (see page 70).

(2) For a 5 m cable replace L2 by L5; for a 10 m cable replace L2 by L10. Please consult our Customer Care Center for availability.

Example: XS612B1MAL2 becomes XS612B1MAL5 with a 5 m cable.

(3) Protective cable gland included with sensor.

(4) For more information, see page 128.

Inductive proximity sensors

XS range, general purpose

Cylindrical, increased range, flush mountable

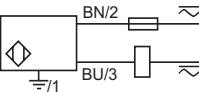
Two-wire AC or DC

Characteristics			
Sensor type		XS6...B1M●U20	
Product certifications		cULus, CE, UKCA	
Connection	Connector	1/2" - 20 UNF	
	Pre-cabled	—	
	Remote connector	Screw terminal (L01B), EN 175301-803-A (L01C) and M18 (L01G) remote connectors on 0.15 m flying lead	
Operating zone (1)	Ø 12	mm	0... 3.2
	Ø 18	mm	0... 6.4
	Ø 30	mm	0... 12
Differential travel		%	1... 15 of effective sensing distance (Sr)
Degree of protection	Conforming to IEC 60529	IP 65, IP 67	
	Conforming to DIN 40050	IP 69K	
Storage temperature		°C	-40...+85
Operating temperature		°C	-25...+70
Materials	Case	Nickel plated brass	
	Sensing face	PPS	
	Cable	PVC 2 x 0.34 mm ²	
Vibration resistance	Conforming to IEC 60068-2-6	25 gn, amplitude ± 2 mm (f = 10 to 55 Hz)	
Shock resistance	Conforming to IEC 60068-2-27	50 gn, duration 11 ms	
Output state indication		Yellow LED: annular on pre-cabled version Yellow LED with 4 viewing ports at 90° on connector version	
Rated supply voltage		V	~ 24...240 (~ 50/60 Hz)
Voltage limits (including ripple)		V	~ 20...264
Insulation class		I	I
Switching capacity	XS612B1M●●●	mA	5...200 (2)
	XS618B1M●●●	mA	~ 5...300 or ~ 5...200 (2)
	XS630B1M●●●	mA	~ 5...300 or ~ 5...200 (2)
Voltage drop, closed state		V	≤ 5.5
Residual current, open state		mA	≤ 0.8
Maximum switching frequency (DC/AC)	Ø 12	Hz	~ 1000 / ~ 25
	Ø 18	Hz	~ 1000 / ~ 25
	Ø 30	Hz	~ 500 / ~ 25
Delays	First-up	ms	≤ 25 for Ø 18 and Ø 30; ≤ 20 for Ø 12
	Response	ms	≤ 0.5
	Recovery	ms	≤ 0.2 for Ø 12; ≤ 0.5 for Ø 18; ≤ 2 for Ø 30

(1) Detection curves, see page 136.

(2) It is essential to connect a 0.4 A "quick-blow" fuse in series with the load.

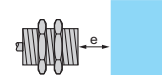
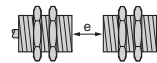
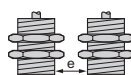
Wiring schemes

Connector (1)	Pre-cabled	2-wire ~ or —
1/2"-20 UNF	BU: Blue BN: Brown	NO or NC output
		
		±: on 1/2"-20UNF connector models only

(1) For pin arrangement of remote connectors L01B, L01C and L01G, see page 33.

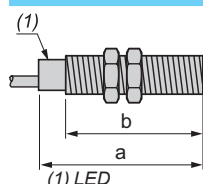
Setting-up

Minimum mounting distances (mm)



Sensors	Side by side	Face to face	Facing a metal object
Ø 12	e ≥ 8	e ≥ 48	e ≥ 12
Ø 18	e ≥ 16	e ≥ 100	e ≥ 25
Ø 30	e ≥ 30	e ≥ 180	e ≥ 45

Dimensions



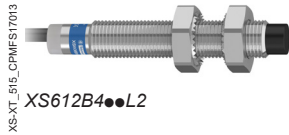
Sensors		Pre-cabled (mm)		Connector (mm)	
		a	b	a	b
Ø 12	XS612B1M●	53	42	61	42
Ø 18	XS618B1M●	62	52	73	52
Ø 30	XS630B1M●	62	52	73	52

Inductive proximity sensors

XS range, general purpose

Cylindrical, increased range, non-flush mountable

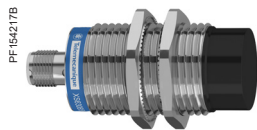
Three-wire DC, solid-state output



XS612B4●●L2



XS618B4●●M12



XS630B5●●M12



XSZB1●●

Sensors, 3-wire 12...24 V, long case model

Ø 8, threaded M8 x 1

Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight (kg)
4	NO	PNP	Pre-cabled (L = 2 m)	XS608B4PAL2	0.035
			M8 connector	XS608B4PAM8	0.015
			M12 connector	XS608B4PAM12	0.015
	NPN		Pre-cabled (L = 2 m)	XS608B4NAL2	0.035
			M8 connector	XS608B4NAM8	0.015
			M12 connector	XS608B4NAM12	0.015
	NC	PNP	Pre-cabled (L = 2 m)	XS608B4PBL2	0.035
			M8 connector	XS608B4PBM8	0.015
			M12 connector	XS608B4PBM12	0.015
		NPN	Pre-cabled (L = 2 m)	XS608B4NBL2	0.035
			M8 connector	XS608B4NBM8	0.015
			M12 connector	XS608B4NBM12	0.015

Sensors, 3-wire 12...48 V, long case model

Ø 12, threaded M12 x 1

Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight (kg)
7	NO	PNP	Pre-cabled (L = 2 m) (1)	XS612B4PAL2	0.075
			M12 connector	XS612B4PAM12	0.020
	NPN		Pre-cabled (L = 2 m) (1)	XS612B4NAL2	0.075
			M12 connector	XS612B4NAM12	0.020
	NC	PNP	Pre-cabled (L = 2 m) (1)	XS612B4PBL2	0.075
			M12 connector	XS612B4PBM12	0.020
	NPN		Pre-cabled (L = 2 m) (1)	XS612B4NBL2	0.075

Ø 18, threaded M18 x 1

Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight (kg)
12	NO	PNP	Pre-cabled (L = 2 m) (1)	XS618B4PAL2	0.100
			M12 connector	XS618B4PAM12	0.040
	NPN		Pre-cabled (L = 2 m) (1)	XS618B4NAL2	0.100
			M12 connector	XS618B4NAM12	0.040
	NC	PNP	Pre-cabled (L = 2 m) (1)	XS618B4PBL2	0.100
			M12 connector	XS618B4PBM12	0.040
	NPN		Pre-cabled (L = 2 m) (1)	XS618B4NBL2	0.100

Ø 30, threaded M30 x 1.5

Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight (kg)
30	NO	PNP	Pre-cabled (L = 2 m) (1)	XS630B5PAL2	0.205
			M12 connector	XS630B5PAM12	0.145
	NPN		Pre-cabled (L = 2 m) (1)	XS630B5NAL2	0.205
	NC	PNP	M12 connector	XS630B5PBM12	0.145

Accessories (2)

Description	For use with sensors (mm)	Reference	Weight (kg)
Fixing clamps	Ø 8	XSZB108	0.004
	Ø 12	XSZB112	0.006
	Ø 18	XSZB118	0.010
	Ø 30	XSZB130	0.020

(1) For a 5 m long cable replace L2 by L5; for a 10 m long cable replace L2 by L10. Please consult our Customer Care Center for availability.
Example: XS612B4PAL2 becomes **XS612B4PAL5** with a 5 m cable.

(2) For more information, see page 128.

Inductive proximity sensors

XS range, general purpose

Cylindrical, increased range, non-flush mountable

Three-wire DC, solid-state output

Characteristics			
Sensor type		XS6...B4...M8	XS6...B4...M12
Product certifications	Ø 8	cULus, CE, UKCA	
	Ø 12, 18 and 30	cULus, CE, UKCA, E2	
Connection	Connector	M8	M12
	Pre-cabled	—	Length: 2 m
Operating zone	Ø 8	mm	0...3.2
	Ø 12	mm	0...5.6
	Ø 18	mm	0...9.6
	Ø 30	mm	0...24
Differential travel		1...15 of effective sensing distance (Sr)	
Degree of protection	Conforming to IEC 60529	IP 65 and IP 67	
	Conforming to DIN 40050	—	IP 69K
Storage temperature		°C -40...+85	
Operating temperature		°C -25...+70	
Materials	Case	Nickel plated brass (except Ø 8: stainless steel, grade 303)	
	Sensing face	PPS	
	Cable	—	PVC 3 x 0.34 mm ² except for Ø 8: 3 x 0.11 mm ²
Vibration resistance		Conforming to IEC 60068-2-6 25 gn, amplitude ± 2 mm (f = 10 to 55 Hz)	
Shock resistance		Conforming to IEC 60068-2-27 50 gn, duration 11 ms	
Output state indication		Yellow LED: 4 viewing ports at 90°	Yellow LED: annular
Rated supply voltage		V — 12...24 with protection against reverse polarity (Ø 8) — 12...48 with protection against reverse polarity (Ø 12, 18, 30)	
Voltage limits (including ripple)		V — 10...36 (Ø 8) — 10...58 (Ø 12, 18, 30)	
Insulation class		III	III
Switching capacity		mA ≤ 200 with overload and short-circuit protection	
Voltage drop, closed state		V ≤ 2	
Current consumption, no-load		mA ≤ 10	
Maximum switching frequency	XS608B4... and XS612B4...	Hz	2500
	XS618B4...	Hz	1000
	XS630B5...	Hz	500
Delays	First-up	ms ≤ 10 for Ø 8, Ø 12 and Ø 18; ≤ 15 for Ø 30	
	Response	ms ≤ 0.2 for Ø 8 and Ø 12; ≤ 0.3 for Ø 18; ≤ 0.6 for Ø 30	
	Recovery	ms ≤ 0.2 for Ø 8 and Ø 12; ≤ 0.7 for Ø 18; ≤ 1.4 for Ø 30	

Wiring schemes

Connector	Pre-cabled	PNP	NPN
M8 	M12 	BU: Blue BN: Brown BK: Black 	

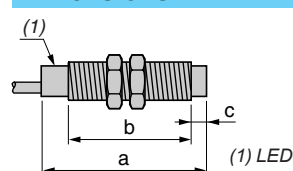
Setting-up

Minimum mounting distances (mm)

	Side by side	Face to face	Facing a metal object	Mounted in a metal support
Ø 8	e ≥ 24	e ≥ 40	e ≥ 12	d ≥ 24, h ≥ 8
Ø 12	e ≥ 48	e ≥ 84	e ≥ 21	d ≥ 36, h ≥ 12
Ø 18	e ≥ 72	e ≥ 144	e ≥ 36	d ≥ 54, h ≥ 18
Ø 30	e ≥ 300	e ≥ 300	e ≥ 90	d ≥ 90, h ≥ 35

Dimensions

	XS6	Pre-cabled (mm)			M8 Connector (mm)			M12 Connector (mm)		
		a	b	c	a	b	c	a	b	c
Ø 8		51	38	4	58	39	4	61	36	4
Ø 12		54	42	5	—	—	—	66	42	5
Ø 18		60	44	8	—	—	—	72	44	8
Ø 30		66	41	13	—	—	—	74	41	13

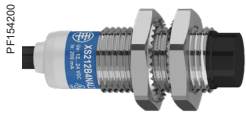


Inductive proximity sensors

XS range, general purpose

Cylindrical, increased range, non-flush mountable

Three-wire DC, solid-state output



XS212B4●●L●



XS218B4●●M12



XSZB1●●

Sensors, 3-wire 12-24 V, short case model

Ø 12, threaded M12 x 1

Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight (kg)
8	NO	PNP	Pre-cabled (L = 2 m)	XS212B4PAL2	0.086
			Pre-cabled (L = 5 m)	XS212B4PAL5	0.160
			M12 connector	XS212B4PAM12	0.032
	NPN		Pre-cabled (L = 2 m)	XS212B4NAL2	0.086
			M12 connector	XS212B4NAM12	0.032
	NC	PNP	Pre-cabled (L = 2 m)	XS212B4PBL2	0.086
			M12 connector	XS212B4PBM12	0.032
		NPN	Pre-cabled (L = 2 m)	XS212B4NBL2	0.086

Ø 18, threaded M18 x 1

Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight (kg)
16	NO	PNP	Pre-cabled (L = 2 m)	XS218B4PAL2	0.105
			M12 connector	XS218B4PAM12	0.052
	NPN		Pre-cabled (L = 2 m)	XS218B4NAL2	0.105
			M12 connector	XS218B4NAM12	0.052
	NC	PNP	Pre-cabled (L = 2 m)	XS218B4PBL2	0.105
			M12 connector	XS218B4PBM12	0.052

Accessories (1)

Description	For use with sensors (mm)	Reference	Weight (kg)
Fixing clamps	Ø 12	XSZB112	0.006
	Ø 18	XSZB118	0.010

(1) For further information, see page 120.

Characteristics			
Sensor type		XS21●B4●●M12	XS21●B4●●L●
Product certifications		cULus, CE, UKCA, E2	
Connection	Connector	M12	—
	Pre-cabled	—	Length: 2 or 5 m
Operating zone	Ø 12	mm	0...6.4
	Ø 18	mm	0...12.8
Differential travel		%	1...15 of effective sensing distance (Sr)
Degree of protection	Conforming to IEC 60529	IP 65 and IP 67	
	Conforming to DIN 40050	IP 69K	—
Storage temperature		°C	-40...+85
Operating temperature		°C	-25...+70
Materials	Case	Brass	
	Sensing face	PPS	
	Cable	—	PvR 3 x 0.34 mm ²
Vibration resistance	Conforming to IEC 60068-2-6	25 gn, amplitude ± 2 mm (f = 10 to 55 Hz)	
Shock resistance	Conforming to IEC 60068-2-27	50 gn, duration 11 ms	
Output state indication		Yellow LED, 4 viewing ports at 90°	Yellow LED, annular
Rated supply voltage		V	12...24 with protection against reverse polarity
Voltage limits (including ripple)		V	10...36
Insulation class		□	□
Switching capacity		mA	≤ 200 with overload and short-circuit protection
Voltage drop, closed state		V	≤ 2
Current consumption, no-load		mA	≤ 10
Maximum switching frequency	XS212B4●●●●	Hz	2000
	XS218B4●●●●	Hz	1000
Delays	First-up	ms	≤ 15
	Response	ms	≤ 0.2 for Ø 12 ≤ 0.3 for Ø 18
	Recovery	ms	≤ 0.2 for Ø 12 ≤ 0.7 for Ø 18

Wiring schemes

Connector	Pre-cabled	PNP	NPN
M12 	BU: Blue BN: Brown BK: Black		

Setting-up

Minimum mounting distances (mm)

Side by side	Face to face	Facing a metal object	Mounted in a metal support
Ø 12 Ø 18	e ≥ 100 e ≥ 120	e ≥ 120 e ≥ 200	e ≥ 24 e ≥ 48
			d ≥ 36, h ≥ 15 d ≥ 54, h ≥ 18

Dimensions

	Pre-cabled (mm)			M12 connector (mm)		
	a	b	c	a	b	c
Ø 12	37	20	5	51	26	5
Ø 18	41	21	8	51	21	8

(1) LED

Inductive proximity sensors

XS range, general purpose

Cylindrical, increased range, non flush mountable

Two-wire AC or DC

103189



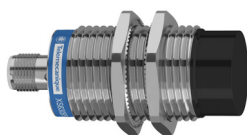
XS618B4MAL2

Sensors, 2-wire $\approx$ 24... 240 V, long case model

Ø 18, threaded M18 x 1

Sensing distance (Sn) mm	Function	Connection	Reference	Weight (kg)
12	NO	Pre-cabled (L = 2 m) (1)	XS618B4MAL2	0.120
		1/2"-20 UNF connector	XS618B4MAU20	0.060
	NC	Pre-cabled (L = 2 m) (1)	XS618B4MBL2	0.120
		1/2"-20 UNF connector	XS618B4MBU20	0.060

PF154217B



XS630B4MAL2

Ø 30, threaded M30 x 1.5

Sensing distance (Sn) mm	Function	Connection	Reference	Weight (kg)
22	NO	Pre-cabled (L = 2 m) (1)	XS630B4MAL2	0.205
		1/2"-20 UNF connector	XS630B4MAU20	0.145
	NC	Pre-cabled (L = 2 m) (1)	XS630B4MBL2	0.205

XS_5115_CPF.UR16004



XSZB118

Accessories (2)

Description	For use with sensors (mm)	Reference	Weight (kg)
Fixing clamps	Ø 18	XSZB118	0.010
	Ø 30	XSZB130	0.020

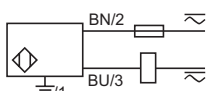
(1) For a 5 m cable replace L2 by L5; for a 10 m cable replace L2 by L10.
Example: XS618B4MAL2 becomes **XS618B4MAL5** with a 5 m cable.

(2) For more information, see page 120.

Characteristics			
Sensor type		XS6●●B4M●U20	XS6●●B4M●L2
Product certifications		cULus, CE, UKCA	
Connection	Connector	1/2"-20 UNF	—
	1/2"-20 UNF Pre-cabled	—	Length: 2 m
Operating zone	Ø 18	mm	0...9.6
	Ø 30	mm	0...17.6
Differential travel		%	1...15 of effective sensing distance (Sr)
Degree of protection		Conforming to IEC 60529	IP 65 and IP 67
Storage temperature		°C	-40...+85
Operating temperature		°C	-25...+70
Materials	Case	Nickel plated brass	
	Sensing face	PPS	
	Cable	—	PvR 2 x 0.34 mm ²
Vibration resistance		Conforming to IEC 60068-2-6	25 gn, amplitude ± 2 mm (f = 10 to 55 Hz)
Shock resistance		Conforming to IEC 60068-2-27	50 gn, duration 11 ms
Output state indication		Yellow LED: 4 viewing ports at 90°	Yellow LED: annular
Rated supply voltage		V	~ or --- 24...240 (~ 50/60 Hz)
Voltage limits (including ripple)		V	~ or --- 20...264
Insulation class		I	I
Switching capacity		mA	~ 5...300 or --- 5...200 (1)
Voltage drop, closed state		V	≤ 5.5
Residual current, open state		mA	≤ 0.8
Maximum switching frequency	XS618B4M●●●	Hz	~ 25 or --- 1000
	XS630B4M●●●	Hz	~ 25 or --- 300
Delays	First-up	ms	≤ 30 XS618B4M●●● and XS630B4M●●●
	Response	ms	≤ 0.5
	Recovery	ms	≤ 0.5 XS618B4M●●●, ≤ 2 XS630B4M●●●

(1) It is essential to connect a 0.4 A "quick-blow" fuse in series with the load.

Wiring schemes

Connector	Pre-cabled	2-wire ~ or ---
1/2"-20 UNF	BU: Blue BN: Brown	NO or NC output
		
⚡: on connector models only		

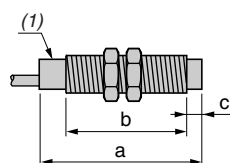
Setting-up

Minimum mounting distances (mm)

	Side by side	Face to face	Facing a metal object	Mounted in a metal support
Ø 18	e ≥ 72	e ≥ 144	e ≥ 36	d ≥ 54, h ≥ 18
Ø 30	e ≥ 120	e ≥ 264	e ≥ 66	d ≥ 90, h ≥ 30

Dimensions

	Pre-cabled (mm)			Connector (mm)		
	a	b	c	a	b	c
Ø 18	60	44	8	72	44	8
Ø 30	63	41	13	74	41	13



(1) LED

Inductive proximity sensors

XS range, general purpose, standard range

Flat format, flush mountable

Two-wire DC

Three-wire DC, solid-state output



XS7J1A1●●L2



XS7F1A1●●L2



XS7F1A1●●L01M8

Flat, 8 x 22 x 8 mm format ^{(1) (2)}

Three-wire ---

Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight (kg)
2.5	NO	PNP	Pre-cabled (L = 2 m) (3)	XS7J1A1PAL2	0.060
			Remote M8 connector on 0.15 m flying lead	XS7J1A1PAL01M8	0.040
	NPN	NPN	Pre-cabled (L = 2 m) (3)	XS7J1A1NAL2	0.060
			Remote M8 connector on 0.15 m flying lead	XS7J1A1NAL01M8	0.040
	NC	PNP	Pre-cabled (L = 2 m) (3)	XS7J1A1PBL2	0.060
			Remote M8 connector on 0.15 m flying lead	XS7J1A1PBL01M8	0.040
		NPN	Pre-cabled (L = 2 m) (3)	XS7J1A1NBL2	0.060

Two-wire ---

Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight (kg)
2.5	NO		Pre-cabled (L = 2 m) (3)	XS7J1A1DAL2	0.050

Flat, 15 x 32 x 8 mm format ⁽¹⁾

Three-wire ---

Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight (kg)
5	NO	PNP	Pre-cabled (L = 2 m) (3)	XS7F1A1PAL2	0.065
			Remote M8 connector on 0.15 m flying lead	XS7F1A1PAL01M8	0.045
	NPN	NPN	Pre-cabled (L = 2 m) (3)	XS7F1A1NAL2	0.065
			Remote M8 connector on 0.15 m flying lead	XS7F1A1NAL01M8	0.045
	NC	PNP	Pre-cabled (L = 2 m) (3)	XS7F1A1PBL2	0.065
			Remote M8 connector on 0.15 m flying lead	XS7F1A1PBL01M8	0.045
		NPN	Pre-cabled (L = 2 m) (3)	XS7F1A1NBL2	0.065

Two-wire ---

Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight (kg)
5	NO		Pre-cabled (L = 2 m) (3)	XS7F1A1DAL2	0.055
	NC		Pre-cabled (L = 2 m) (3)	XS7F1A1DBL2	0.055
			Remote M8 connector on 0.15 m flying lead	XS7F1A1DBL01M8	0.045

(1) For accessories, see page 120.

(2) Sensors **XS7J** include a fixing clamp with screw.

(3) For a 5 m long cable replace L2 by **L5**; for a 10 m long cable replace L2 by **L10**.

Example: **XS7J1A1PAL2** becomes **XS7J1A1PAL5** with a 5 m long cable.

Inductive proximity sensors

XS range, general purpose, standard range

Flat format, flush mountable

Two-wire DC

Three-wire DC, solid-state output

Characteristics			
Sensor type		XS7J●●●●●L01M8	XS7F●●●●●L01M8 XS7J●●●●●L2, XS7F●●●●●L2
Product certifications		CE	cULus, CE, UKCA
Connection	Connector	Remote M8 connector on 0.15 m flying lead	
	Pre-cabled	Length: 2 m	
Operating zone	XS7J	mm	0...2
	XS7F	mm	0...4
Differential travel		%	1...15 of effective sensing distance (Sr)
Degree of protection	Conforming to IEC 60529		IP 67 (XS7J), IP 68 (XS7F)
Storage temperature		°C	-40...+85
Operating temperature		°C	-25...+70
Materials	Case		PBT
	Cable		PvR 3 x 0.11 mm ² or 2 x 0.11 mm ² (XS7F: 2 or 3 x 0.34 mm ²)
Vibration resistance	Conforming to IEC 60068-2-6		25 gn, amplitude ± 2 mm (f = 10 to 55 Hz)
Shock resistance	Conforming to IEC 60068-2-27		50 gn, duration 11 ms
Output state indication			Yellow LED
Rated supply voltage		V	12...24 with protection against reverse polarity
Voltage limits (including ripple)		V	10...36
Insulation class			III III
Current consumption, no-load	3-wire	mA	≤ 10
Residual current, open state	2-wire	mA	≤ 0.5
Switching capacity	3-wire	mA	100 with overload and short-circuit protection
	2-wire	mA	1.5...100 with overload and short-circuit protection
Voltage drop, closed state	3-wire	V	≤ 2
	2-wire	V	≤ 4
Maximum switching frequency	3-wire	kHz	2
	2-wire	kHz	4 for XS7J, 5 for XS7F
Delays	First-up	ms	Three-wire: 5
		ms	Two-wire: 10 XS7J, 5 XS7F
		ms	Three-wire: 0, 1
	Response	ms	Two-wire: 0, 5 XS7J, 5 XS7F
		ms	Three-wire: 0, 1
		ms	Two-wire: 1 XS7J, 5 XS7F

Wiring schemes

Connector	Pre-cabled	PNP NO or NC	NPN NO or NC	2-wire NO	2-wire NC
M8 	BU: Blue BN: Brown BK: Black				

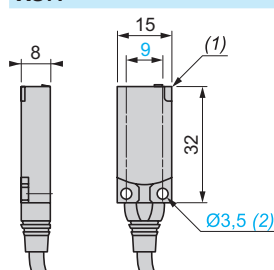
Setting-up

Minimum mounting distances (mm)

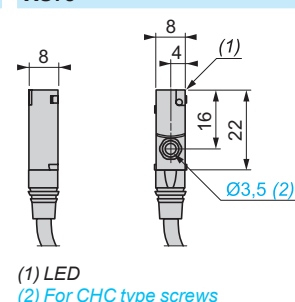
	Side by side	Face to face	Facing a metal object
XS7J	e ≥ 7.5	e ≥ 20	e ≥ 7.5
XS7F	e ≥ 15	e ≥ 40	e ≥ 15

Dimensions

XS7F



XS7J



Inductive proximity sensors

XS range, general purpose, standard range

Flat format, flush mountable

Two-wire DC

Three-wire DC, solid-state output



XS7E1A1●●L2



XS7E1A1●●M8



XS71A1●L0●M12



XS7C1A1●●L2



XS7C1A1●●M8



XS7D1A1●●L2



XS7D1A1●●M12



XS7D1A1●●L2DIN



XS7D1A1●●M12DIN

Sens. dist. (Sn) mm	Function	Output	Connection	Reference	Weight (kg)		
Flat, 26 x 26 x 13 mm format (1)							
Three-wire ---							
10	NO	PNP	Pre-cabled (L = 2 m) (3)	XS7E1A1PAL2	0.075		
			M8 connector	XS7E1A1PAM8	0.040		
			Remote M12 connector	XS7E1A1PAL01M12	0.040		
		NPN	Pre-cabled (L = 2 m) (3)	XS7E1A1NAL2	0.075		
			NC	PNP	Pre-cabled (L = 2 m) (3)	XS7E1A1PBL2	0.075
					M8 connector	XS7E1A1PBM8	0.040
	Remote M12 connector	XS7E1A1PBL01M12			0.040		
		NPN	Pre-cabled (L = 2 m) (3)	XS7E1A1NBL2	0.075		
Two-wire ---							
10	NO		Pre-cabled (L = 2 m) (3)	XS7E1A1DAL2	0.070		
			Remote M12 connector	XS7E1A1DAL01M12	0.040		
		NO terminals 1 and 4 (2)	Remote M12 connector	XS7E1A1CAL01M12	0.040		

Flat, 40 x 40 x 15 mm format (1)					
Three-wire ---					
15	NO	PNP	Pre-cabled (L = 2 m) (3)	XS7C1A1PAL2	0.095
			M8 connector	XS7C1A1PAM8	0.060
			Remote M12 connector	XS7C1A1PAL01M12	0.060
	NC	PNP	Pre-cabled (L = 2 m) (3)	XS7C1A1PBL2	0.095
			M8 connector	XS7C1A1PBM8	0.060
			NPN	Pre-cabled (L = 2 m) (3)	XS7C1A1NBL2
	M8 connector	XS7C1A1NBM8		0.060	
	Two-wire ---				
15	NO		Pre-cabled (L = 2 m) (3)	XS7C1A1DAL2	0.090
			M8 connector	XS7C1A1DAM8	0.060
	NC		Remote M12 connector	XS7C1A1DBL01M12	0.060

Flat, 80 x 80 x 26 mm format (1)					
Three-wire					
40	NO	PNP	Pre-cabled (L = 2 m) (3)	XS7D1A1PAL2 (4)	0.340
			M12 connector	XS7D1A1PAM12 (4)	0.290
	NPN	PNP	Pre-cabled (L = 2 m) (3)	XS7D1A1NAL2 (4)	0.340
			M12 connector	XS7D1A1PBM12 (4)	0.290
	NC	PNP	Pre-cabled (L = 2 m) (3)	XS7D1A1DAL2 (4)	0.340
			M12 connector	XS7D1A1DAM12 (4)	0.290
Two-wire					
40	NO	PNP	Pre-cabled (L = 2 m) (3)	XS7D1A1DAL2 (4)	0.340
			M12 connector	XS7D1A1DAM12 (4)	0.290
	NC	PNP	Pre-cabled (L = 2 m) (3)	XS7D1A1DBL2 (4)	0.340

(1) For accessories, see page 120.

(2) The NO output is connected to terminals 1 and 4 of the M12 connector.

(3) For a 5 m long cable replace L2 by L5; for a 10 m long cable replace L2 by L10.

 Example: **S7 J1A1PAL2** becomes **XS7 J1A1PAL5** with a 5 m long cable.

 (4) For clipping onto 35 mm omega rail or 80 x 80 x 40 mm format, add DIN to the end of the reference. Example: **XS7D1A1PAL2** becomes **XS7D1A1PAL2DIN**.

Inductive proximity sensors

XS range, general purpose, standard range

Flat format, flush mountable

Two-wire DC

Three-wire DC, solid-state output

Characteristics			
Sensor type		XS7E●●●●●M8, XS7C●●●●●M8, XS7D●●●●●M12	XS7E●●●●●L01M12, XS7C●●●●●L01M12
Product certifications		cULus, CE, UKCA, ECOLAB	XS7E●●●●●L2, XS7C●●●●●L2, XS7D●●●●●L2
Connection	Connector	M8 except M12 on XS7D●●●●●M12	M12 on 0.15 m flying lead for XS7●●●●●L01M12
	Pre-cabled	—	—
Operating zone	XS7E	mm	0...8
	XS7C	mm	0...12
	XS7D	mm	0...32
Differential travel		%	1...15 of effective sensing distance (Sr)
Degree of protection	Conforming to IEC 60529		IP 67
Storage temperature		°C	-40...+85
Operating temperature		°C	-25...+70
Materials	Case		PBT
	Cable		—
Vibration resistance	Conforming to IEC 60068-2-6		25 gn, amplitude ± 2 mm (f = 10 to 55 Hz)
Shock resistance	Conforming to IEC 60068-2-27		50 gn, duration 11 ms
Output state indication			Yellow LED
Rated supply voltage		V	12...24 with protection against reverse polarity
Voltage limits (including ripple)		V	10...36
Insulation class			M8 connector: III M12 connector: □
Current consumption, no-load	3-wire	mA	≤ 10
Residual current, open state	2-wire	mA	≤ 0.5
Switching capacity	3-wire	mA	≤ 100 with overload and short-circuit protection
	2-wire	mA	1.5...100 with overload and short-circuit protection
Voltage drop, closed state	3-wire	V	≤ 2
	2-wire	V	≤ 4
Maximum switching frequency	XS7E, XS7C	kHz	1
	XS7D	Hz	100
Delays	First-up	3-wire	ms
		2-wire	ms
	Response	3-wire	ms
		2-wire	ms
	Recovery	3-wire	ms
		2-wire	ms

Wiring schemes

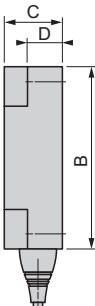
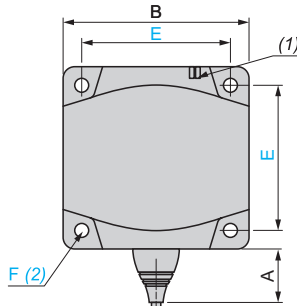
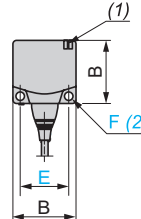
Connector	Pre-cabled	PNP (1)	2-wire NO/M12 or M8	2-wire NC/M12 or M8
M12 4 3 1 2	M8 4 3 1 2	BU/1 PNP BK/4 (NO) BK/2 (NC) BU/3	BN/3 NO BU/4 +/- -/+	BN/1 NC BU/2 (M12) BU/3 (M8) +/- -/+
	BU: Blue BN: Brown BK: Black	NPN (1)	2-wire NO/M12 XS7●●●●●CA●●●	
		BN/1 NPN BK/4 (NO) BK/2 (NC) BU/3	BN/1 NO BU/4 +/- -/+	

(1) For M8 connector, NO and NC outputs on terminal 4

Setting-up

Minimum mounting distances (mm)				
Side by side	e ≥	XS7E	XS7C	XS7D
		30	45	120
Face to face	e ≥	XS7E	XS7C	XS7D
		72	110	300
Facing a metal object	e ≥	XS7E	XS7C	XS7D
		30	45	120

Dimensions

XS7C/D/E		XS7C/D			XS7E		
							
Sensor	A (cable)	A (connector)	B	C	D	E	F
XS7E	14	11	26	13	8.8	20	3.5
XS7C	14	11	40	15	9.8	33	4.5
XS7D	23	18	80	26	16	65	5.5
XS7D●●DIN	23	18	80	40	30	65	5.1

(1) LED
(2) For CHC type screws

Inductive proximity sensors

XS range, general purpose with increased range

Flat, flush mountable using teach mode ⁽¹⁾

Two-wire AC or DC

Three-wire DC, solid-state output



XS8E1A1●●L2



XS8E1A1●●M8



XS8E1A1●●L01M12
XS8E1A1●●L01U20



XS8C1A1●●L2



XS8C1A1●●M8



XS8D1A1●●L2



XS8D1A1●●M12



XS8D1A1●●L2DIN



XS8D1A1●●M12DIN

Flat, 26 x 26 x 13 mm format ⁽²⁾

Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight (kg)
Three-wire --- with overload and short-circuit protection					
15	NO	PNP	Pre-cabled (L = 2 m) ⁽³⁾	XS8E1A1PAL2	0.075
			M8 connector	XS8E1A1PAM8	0.040
			Remote M12 connector	XS8E1A1PAL01M12	0.040
	NC	PNP	Pre-cabled (L = 2 m) ⁽³⁾	XS8E1A1NAL2	0.075
			M8 connector	XS8E1A1PBL2	0.075
			Remote M12 connector	XS8E1A1NBL2	0.075
	NPN	PNP	Pre-cabled (L = 2 m) ⁽³⁾	XS8E1A1NBL2	0.075
			M8 connector	XS8E1A1NBM8	0.040

Two-wire ~ or --- unprotected ⁽⁴⁾

15	NO	-	Pre-cabled (L = 2 m) ⁽³⁾	XS8E1A1MAL2	0.070
			Remote 1/2"-20UNF connector	XS8E1A1MAL01U20	0.040
	NC	-	Pre-cabled (L = 2 m) ⁽³⁾	XS8E1A1MBL2	0.070
			Remote 1/2"-20UNF connector	XS8E1A1MBL01U20	0.040

Flat, 40 x 40 x 15 mm format ⁽²⁾

Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight (kg)
Three-wire --- with overload and short-circuit protection					
25	NO	PNP	Pre-cabled (L = 2 m) ⁽³⁾	XS8C1A1PAL2	0.095
			M8 connector	XS8C1A1PAM8	0.060
			Remote M12 connector	XS8C1A1PAL01M12	0.060
	NC	PNP	Pre-cabled (L = 2 m) ⁽³⁾	XS8C1A1NAL2	0.095
			M8 connector	XS8C1A1PBL2	0.095
			Remote M12 connector	XS8C1A1PBM8	0.060

Two-wire ~ or --- unprotected ⁽⁴⁾

25	NO	-	Pre-cabled (L = 2 m) ⁽³⁾	XS8C1A1MAL2	0.090
			Remote 1/2"-20UNF connector	XS8C1A1MAL01U20	0.060
	NC	-	Pre-cabled (L = 2 m) ⁽³⁾	XS8C1A1MBL2	0.090
			Remote 1/2"-20UNF connector	XS8C1A1MBL01U20	0.060

Flat, 80 x 80 x 26 mm format ⁽²⁾

Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight (kg)
Three-wire --- with overload and short-circuit protection					
60	NO	PNP	Pre-cabled (L = 2 m) ⁽³⁾	XS8D1A1PAL2 ⁽⁵⁾	0.390
			M12 connector	XS8D1A1PAM12 ⁽⁵⁾	0.340
			Remote M12 connector	XS8D1A1PAL01M12 ⁽⁵⁾	0.340
	NC	PNP	Pre-cabled (L = 2 m) ⁽³⁾	XS8D1A1NAL2 ⁽⁵⁾	0.390
			M12 connector	XS8D1A1PBL2 ⁽⁵⁾	0.390
			Remote M12 connector	XS8D1A1NBL2 ⁽⁵⁾	0.340

Two-wire ~ or --- unprotected ⁽⁴⁾

60	NO	-	Pre-cabled (L = 2 m) ⁽³⁾	XS8D1A1MAL2 ⁽⁵⁾	0.390
			1/2"-20UNF connector	XS8D1A1MAU20 ⁽⁵⁾	0.340
	NC	-	Pre-cabled (L = 2 m) ⁽³⁾	XS8D1A1MBL2 ⁽⁵⁾	0.390
			1/2"-20UNF connector	XS8D1A1MBU20 ⁽⁵⁾	0.340

(1) For further information on flush or non-flush mountable sensors using teach mode, see page 22.

(2) For accessories, see page 120.

(3) For a 5 m long cable replace L2 by L5; for a 10 m long cable replace L2 by L10.

(4) It is essential to connect a 0.4 A "quick-blow" fuse in series with the load.

(5) For clipping onto 35 mm omega rail or 80 x 80 x 40 mm format, add DIN to the end of the reference. Example: **XS8D1A1PAL2DIN**.

Characteristics						
Sensor type			XS8E●●●●M8, XS8C●●●●M8, XS8D●●●●M12, XS8D●●●●U20	XS8E●●●●L01M12, XS8E●●●●L01U20, XS8C●●●●L01M12, XS8C●●●●L01U20	XS8E●●●●L2, XS8C●●●●L2, XS8D●●●●L2	
Product certifications			cULus, CE, UKCA, ECOLAB			
Connection	Connector			M8 except XS8●●●●M12: M12 XS8●●●●U20: 1/2"-20UNF	Remote on 0.15 m flying lead XS8●●●●L01M12: M12 XS8●●●●L01U20: 1/2"-20UNF	–
	Pre-cabled			–	–	Length: 2 m
Sensing distance and adjustment zone	XS8E	Nominal sensing dist. Sn	mm	0...15 not flush mounted / 0...10 flush mounted		
		Fine adjustment zone	mm	5...15 not flush mounted / 5...10 flush mounted		
	XS8C	Nominal sensing dist. Sn	mm	0...25 not flush mounted / 0...15 flush mounted		
		Fine adjustment zone	mm	8...25 not flush mounted / 8...15 flush mounted		
	XS8D	Nominal sensing dist. Sn	mm	0...60 not flush mounted / 0...40 flush mounted		
		Fine adjustment zone	mm	20...60 not flush mounted / 20...40 flush mounted		
Differential travel			%	1...15 of effective sensing distance (Sr)		
Degree of protection	Conforming to IEC 60529			IP 67		IP 68
Storage temperature			°C	- 40....+85		
Operating temperature			°C	- 25....+70		
Materials	Case			PBT		
	Cable			–	PvR 3 x 0.34 mm² ∴ and PvR 2 x 0.34 mm² ∽	
Vibration resistance	Conforming to IEC 60068-2-6			25 gn, amplitude ± 2 mm (f = 10 to 55 Hz)		
Shock resistance	Conforming to IEC 60068-2-27			50 gn, duration 11 ms		
Indicators	Output state			Yellow LED		
	Supply on and teach mode			Green LED		
Rated supply voltage	3-wire		V	12...24 with protection against reverse polarity		
	2-wire		V	∼ or ∴ 24...240 (∼ 50/60 Hz)		
Voltage limits (including ripple)	3-wire		V	10...36		
	2-wire		V	∼ or ∴ 20...264		
Insulation class				Ⓜ, except M8 connector: III		
Current consumption, no-load	3-wire		mA	≤ 10		
Residual current, open state	2-wire		mA	≤ 1.5		
Switching capacity	3-wire		mA	≤ 100 XS8E, ≤ 200 XS8C and XS8D, with overload and short-circuit protection		
	2-wire		mA	5...200 ∽ XS8E, 5...300 ∼ XS8C and XS8D, 5...200 ∴ XS8C and XS8D		
Voltage drop, closed state	3-wire		V	≤ 2		
	2-wire		V	≤ 5.5		
Maximum switching frequency			Hz	2000 XS8E, 1000 XS8C, 150 XS8D		
Delays	First-up		ms	≤ 10 XS8E, XS8C and XS8D (3-wire), ≤ 10 XS8E and XS8C, ≤ 15 XS8D (2-wire)		
	Response		ms	≤ 0.3		
	Recovery		ms	≤ 0.8 XS8E and XS8C, ≤ 6 XS8D		

Wiring schemes

Connector	Pre-cabled	PNP/M12 or M8	NPN/M12 or M8	2-wire 1/2"-20UNF
M8 M12 1/2"-20UNF	BU: Blue BN: Brown BK: Black			

For M8 connector, NO and NC outputs on terminal 4

Setting-up

Minimum mounting distances (mm)

Side by side	e ≥	XS8E	XS8C	XS8D
Flush mounted		40	60	200
Not flush mounted		150	125	600
Face to face	e ≥	XS8E	XS8C	XS8D
Flush mounted		80	120	400
Not flush mounted		300	250	not recommended
Facing a metal object	e ≥	XS8E	XS8C	XS8D
		10	15	40

Dimensions

XS8C/D/E

XS8C/D

XS8E

(1) LED

(2) Teach mode button

(3) For CHC type screws

Sensor	A (cable)	A (connector)	B	C	D	E	F	G	H
XS8E	14	11	26	13	8.8	20	3.5	6.8	6.6
XS8C	14	11	40	15	9.8	33	4.5	8.3	13.6
XS8D	23	18	80	26	16	65	5.5	8.5	37.8
XS8D●●DIN	23	18	80	40	30	65	5.1	22.5	37.8

Inductive proximity sensors

XS range, general purpose

Cubic case, 40 x 40 x 70 mm,

M12 or 1/2"-20UNF connector

5-position turret head

Sensor type	Flush mountable in metal	Non-flush mountable in metal
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Nominal sensing distance (Sn)	mm	15	20	40
-------------------------------	----	----	----	----

References

4-wire ---	PNP	NO+NC	—	XS8C2A1PCM12	XS8C2A4PCM12	—
	NPN	NO+NC	—	XS8C2A1NCM12	XS8C2A4NCM12	—
3-wire ---	PNP	NO	XS7C2A1PAM12	—	—	—
	NPN	NO	XS7C2A1NAM12	—	—	—
	PNP	NC	XS7C2A1PBM12	—	—	—
	NPN	NC	XS7C2A1NBM12	—	—	—
2-wire ---	NO	—	XS7C2A1DAM12	XS8C2A1DAM12	XS8C2A4DAM12	XS8C2A4CAM12 (3)
	NC	—	XS7C2A1DBM12	—	—	—
2-wire (~/---) unprotected (1)	NO	—	XS8C2A1MAU20	XS8C2A4MAU20	—	—
	NC	—	XS8C2A1MBU20	XS8C2A4MBU20	—	—
Weight	kg	0.149	0.149	0.149	0.149	0.149

Characteristics

Operating zone		mm	0...12	0...16	0...32
Product certifications			cULus, C€, UKCA, E2 (3-wire and 4-wire)		
Conformity to standards			IEC 60947-5-2		
Connection			M12 connector for --- versions 1/2 "-20UNF connector for ~/---- versions		
Differential travel		%	3...15 of Sr		
Degree of protection	Conforming to IEC 60529 and DIN 40050		IP 65, IP 67 and IP 69K		
Temperature	Storage	°C	- 40...+ 85		
	Operation (2)	°C	- 25...+ 70		
Material			Case: PBT		
Vibration resistance	Conforming to IEC 60068-2-6		25 gn, amplitude ± 2 mm (f = 10...55 Hz)		
Shock resistance	Conforming to IEC 60068-2-27		50 gn for 11 ms		
Indicators	Output state		Yellow LED		
	Power on		Green LED, for 4-wire ---, 3-wire --- and 2-wire ~/---- versions		
Rated supply voltage	4-wire ---	V	12...48 with protection against reverse polarity		
	3-wire ---	V	12...24 with protection against reverse polarity		
	2-wire ---	V	12...48 with protection against reverse polarity		
	2-wire ~/----	V	24...240 (~ 50/60 Hz)		
Voltage limits (including ripple)	4-wire ---	V	10...58		
	3-wire ---	V	10...36		
	2-wire ---	V	10...58		
	2-wire ~/----	V	20...264		
Insulation class	---		II		
	~/----		I		
Current consumption, no-load	3-wire and 4-wire ---	mA	< 15		
Residual current, open state	2-wire ---	mA	< 0.6		
	2-wire ~/----	mA	1.5		
Switching capacity	3-wire and 4-wire ---	mA	< 200 with overload and short-circuit protection		
	2-wire ---	mA	< 100 with overload and short-circuit protection		
	2-wire ~/----	mA	~: 5...300 (1) ---: 5...200 mA (1)		
Voltage drop, closed state	3-wire and 4-wire ---	V	< 2		
	2-wire ---	V	< 4.2		
	2-wire ---/~	V	< 5.5		
Maximum switching frequency		kHz	Flush mountable: --- 300, ~ 25 Non-flush mountable: --- 150, ~ 25		
Delays	First-up	ms	7 (3-wire and 4-wire ---), 20 (2-wire --- and 2-wire ---/~)		
	Response	ms	Flush mountable: ≤ 1.2. Non-flush mountable: ≤ 1.4		
	Recovery	ms	Flush mountable: ≤ 1.8. Non-flush mountable: ≤ 3.5		

(1) Sensor must be protected by a 0.4 A quick-blow fuse connected in series with the load.

(2) Sensors are available for very low temperatures (suffix TF: - 40°C, + 70°C) or very high temperatures (suffix TT: - 25°C, + 85°C). Please consult our Customer Care Centre.

(3) NO terminal 1 & 4 - the NO output is connected to terminal 1 and 4 of M12 connectors.

Inductive proximity sensors

XS range, general purpose

Cubic case, 40 x 40 x 70 mm,

M12 or 1/2"-20UNF connector

5-position turret head

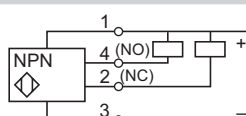
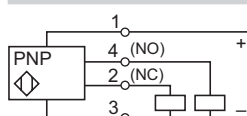
Setting-up precautions

Minimum mounting distances (mm)

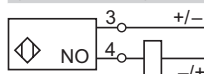
		Side by side	Face to face	Facing a metal object
Sensors flush mountable in metal	XS7C2A1●●	$e \geq 60$	$e \geq 120$	$e \geq 45$
	XS8C2A1●●	$e \geq 80$	$e \geq 160$	$e \geq 60$
Sensors non-flush mountable in metal	XS8C2A4●●	$e \geq 160$	$e \geq 320$	$e \geq 120$

Wiring schemes

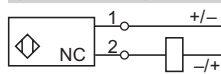
4-wire ---, NO + NC outputs



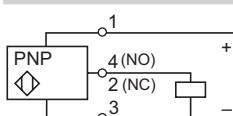
2-wire ---, NO output
(M12 connector)



2-wire ---, NC output
(M12 connector)



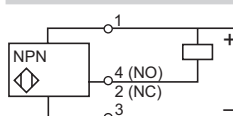
3-wire, PNP



M12 connector



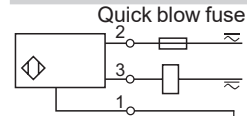
3-wire, NPN



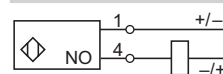
1/2"-20UNF connector



2-wire, 1/2"-20UNF



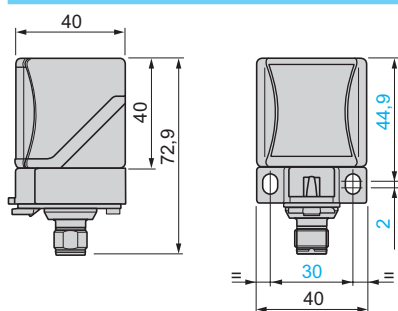
2-wire ---, NO output



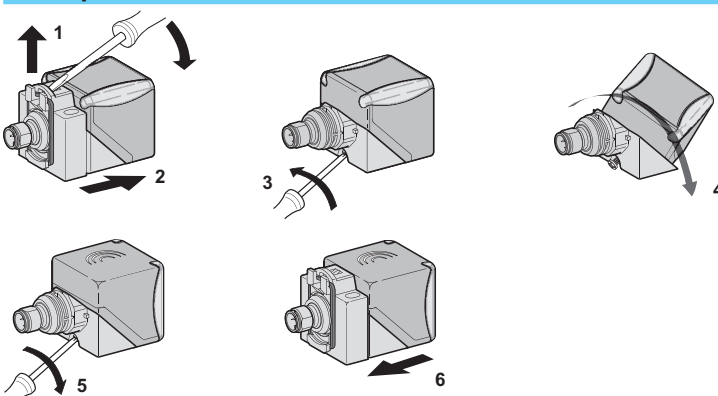
Accessory references

Description	Type	Length (m)	Reference	Weight (kg)
Pre-wired M12 connectors Female, 4-pin, zinc die-cast, nickel plated clamping ring	Straight	2	XZCP1141L2	0.090
		5	XZCP1141L5	0.190
		10	XZCP1141L10	0.370
	Elbowed	2	XZCP1241L2	0.090
		5	XZCP1241L5	0.190
		10	XZCP1241L10	0.370
Pre-wired 1/2"-20UNF connectors Female, 3-pin, zinc die-cast, nickel plated clamping ring	Straight	5	XZCP1865L5	0.180
		10	XZCP1865L10	0.350
		5	XZCP1965L5	0.180
	Elbowed	5	XZCP1965L5	0.180
		10	XZCP1965L10	0.350
		10	XZCP1965L10	0.350

Dimensions



Head positions



Inductive proximity sensors

XS range, general purpose

Plastic case, 40 x 40 x 117 mm, plug-in

5-position turret head

Sensor type	Flush mountable in metal	Non-flush mountable in metal
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Nominal sensing distance (Sn)	mm	15	20	40	
Connection type		—	—	Cable entry	M12 connector

References							
4-wire 	PNP	NO+NC		–	XS8C4A1PCP20	XS8C4A4PCP20	XS8C4A4PCM12
	NPN	NO+NC		–	XS8C4A1NCP20	XS8C4A4NCP20	
2-wire 	NO or NC programmable			XS7C4A1DPP20	XS8C4A1DPP20	XS8C4A4DPP20	
2-wire () unprotected (1)	NO or NC programmable			XS7C4A1MPP20	XS8C4A1MPP20	XS8C4A4MPP20	
Weight			kg	0.244	0.244	0.244	0.244
				Note: These sensors have an M20 cable entry. They can also be supplied with a PG 13.5 cable entry (e.g. XS8C4A4PCG13) or a 1/2" NPT cable entry (e.g. XS8C4A1MPN12). Please consult our Customer Care Centre			

Characteristics					
Operating zone		mm	0...12	0...16	0...32
Product certifications			cULus, CE, UKCA, E2 (4-wire)		
Conformity to standards			IEC 60947-5-2		
Connection			Screw terminals, clamping capacity: 2 or 4 x 1.5 mm ² / 2 or 4 x 16 AWG (2)		
Differential travel		%	3...15 of Sr		
Degree of protection	Conforming to IEC 60529 and DIN 40050		IP 65, IP 67 and IP 69K		
Temperature	Storage	°C	- 40...+ 85		
	Operation (3)	°C	- 25...+ 70		
Material			Case: PBT		
Vibration resistance	Conforming to IEC 60068-2-6		25 gn, amplitude ± 2 mm (f = 10...55 Hz)		
Shock resistance	Conforming to IEC 60068-2-27		50 gn for 11 ms		
Indicators	Output state		Yellow LED		
	Power on		Green LED, for 4-wire --- and 2-wire ~/- versions		
Rated supply voltage	4-wire ---	V	12...48 with protection against reverse polarity		
	2-wire ---	V	12...48 with protection against reverse polarity		
	2-wire ~/-	V	24...240 (~ 50/60 Hz)		
Voltage limits (including ripple)	4-wire ---	V	10...58		
	2-wire ---	V	10...58		
	2-wire ~/-	V	20...264		
Insulation class			---: □ ---/ ~: I		
Current consumption, no-load	4-wire ---	mA	< 15		
Residual current, open state	2-wire ---	mA	< 0.6		
	2-wire ~/-	mA	1.5		
Switching capacity	4-wire ---	mA	< 200 with overload and short-circuit protection		
	2-wire ---	mA	< 100 with overload and short-circuit protection		
	2-wire ~/-	mA	~: 5...300 (1) ---: 5...200 (1)		
Voltage drop, closed state	4-wire ---	V	< 2		
	2-wire ---	V	< 4.2		
	2-wire ---/~	V	< 5.5		
Maximum switching frequency		Hz	Flush mountable: --- 300, ~ 25 Non-flush mountable: --- 150, ~ 25		
Delays	First-up	Hz	7 ms (3-wire and 4-wire ---), 20 ms (2-wire --- and 2-wire ---/~)		
	Response	ms	Flush mountable: ≤ 1.2. Non-flush mountable: ≤ 1.4		
	Recovery	ms	Flush mountable: ≤ 1.8 ms. Non-flush mountable: ≤ 3.5		

(1) Sensor must be protected by a 0.4 A quick-blow fuse connected in series with the load.

(2) These sensors are supplied without a cable gland. An adaptable PG 13.5 cable gland is available (reference XSZPE13). Accessories are available for connection to an M12 or 7/8"-16UN connector which can be added to the PG 13.5 sensor. Please consult our Customer Care Centre.

(3) Sensors are available for very low temperatures (suffix TF: - 40°C, + 70°C) or very high temperatures (suffix TT: - 25°C, + 85°C). Please consult our Customer Care Centre.

Inductive proximity sensors

XS range, general purpose

Plastic case, 40 x 40 x 117 mm, plug-in

5-position turret head

Setting-up precautions

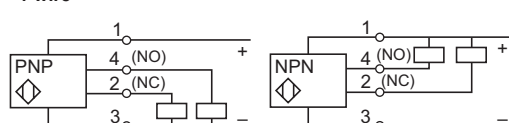
Minimum mounting distances (mm)

		Side by side	Face to face	Facing a metal object
Sensors flush mountable in metal	XS7C4A1●●	$e \geq 60$	$e \geq 120$	$e \geq 45$
	XS8C4A1●●	$e \geq 80$	$e \geq 160$	$e \geq 60$
Sensors non-flush mountable in metal	XS8C4A4●●	$e \geq 160$	$e \geq 320$	$e \geq 120$

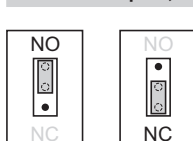
Wiring schemes

NO + NC outputs

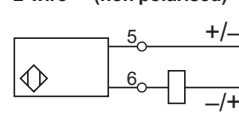
4-wire



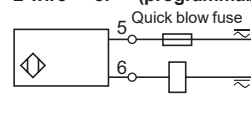
NO or NC outputs, depending on position of link



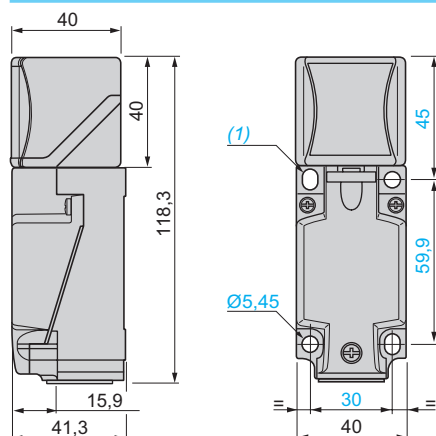
2-wire (non polarised)



2-wire ~ or (programmable)



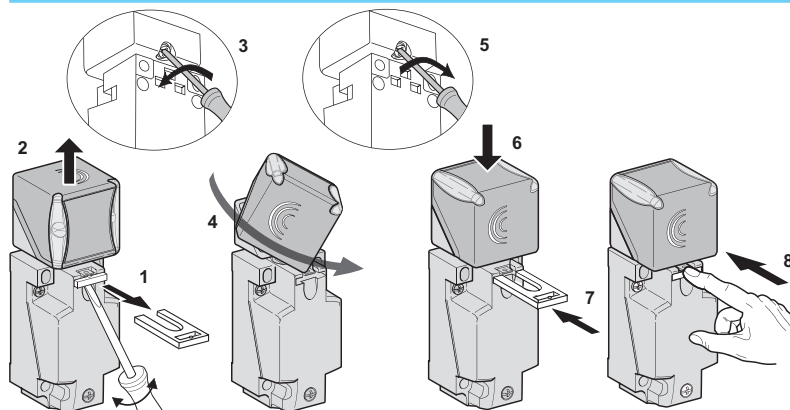
Dimensions



(1) 2 elongated holes Ø 5.3 x 7 cm.

Tightening torque of cover fixing screws and clamp screws: < 1.2 N.m / < 10.62 lb-in

Head positions



Inductive proximity sensors

XS range, general purpose

Multivoltage sensor, cylindrical,

Flush mountable and non-flush mountable

Two-wire AC or DC, short-circuit protection



XS1M●●●●250



XS2M●●●●250



XS1M●●●●250K



XS2M●●●●250K



XSZB1●●

Sensing distance (Sn) mm	Function	Connection	Reference	Weight (kg)
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Ø 18, threaded M18 x 1

Flush mountable

5	NO	Pre-cabled (L = 2 m) (1)	XS1M18MA250	0.120
		1/2"-20UNF connector	XS1M18MA250K	0.060
	NC	Pre-cabled (L = 2 m) (1)	XS1M18MB250	0.120
		1/2"-20UNF connector	XS1M18MB250K	0.060

Non flush mountable

8	NO	Pre-cabled (L = 2 m) (1)	XS2M18MA250	0.120
		1/2"-20UNF connector	XS2M18MA250K	0.060
	NC	Pre-cabled (L = 2 m) (1)	XS2M18MB250	0.120
		1/2"-20UNF connector	XS2M18MB250K	0.060

Ø 30, threaded M30 x 1.5

Flush mountable

10	NO	Pre-cabled (L = 2 m) (1)	XS1M30MA250	0.205
		1/2"-20UNF connector	XS1M30MA250K	0.145
	NC	Pre-cabled (L = 2 m) (1)	XS1M30MB250	0.205
		1/2"-20UNF connector	XS1M30MB250K	0.145

Non flush mountable

15	NO	Pre-cabled (L = 2 m) (1)	XS2M30MA250	0.205
		1/2"-20UNF connector	XS2M30MA250K	0.145
	NC	Pre-cabled (L = 2 m) (1)	XS2M30MB250	0.205
		1/2"-20UNF connector	XS2M30MB250K	0.145

Accessories (2)

Description	For use with sensors (mm)	Reference	Weight (kg)
Fixing clamps	Ø 18	XSZB118	0.010
	Ø 30	XSZB130	0.020

(1) For a 5 m long cable add L1 to the reference; for a 10 m long cable add L2 to the reference.

Example: XS1M18MA250 becomes XS1M18MA250L1 with a 5 m long cable.

(2) For further information, see page 120.

Inductive proximity sensors

XS range, general purpose

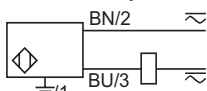
Multivoltage sensor, cylindrical,

Flush mountable and non-flush mountable

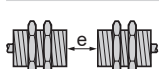
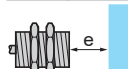
Two-wire AC or DC, short-circuit protection

Characteristics				
Sensor type		XS●M●●M●250K		XS●M●●M●250
Product certifications		cULus, CE, UKCA		
Connection		1/2"-20UNF connector		Pre-cabled, length: 2 m
Operating zone	Ø 18 flush mountable	mm	0...4	
	Ø 18 non-flush mountable	mm	0...6.4	
	Ø 30 flush mountable	mm	0...8	
	Ø 30 non-flush mountable	mm	0...12	
Differential travel		%	1...15 of effective sensing distance (Sr)	
Degree of protection		Conforming to IEC 60529	IP 67	IP 68
Storage temperature		°C	- 40...+ 85	
Operating temperature		°C	- 25...+ 70	
Materials	Case		Nickel plated brass	
	Cable		PvR 2 x 0.34 mm ²	
Vibration resistance		Conforming to IEC 60068-2-6	25 gn, amplitude ± 2 mm (f = 10 to 55 Hz)	
Shock resistance		Conforming to IEC 60068-2-27	50 gn, duration 11 ms	
Indicators	Output state		Yellow LED, 4 viewing ports at 90°	Yellow LED
	Supply on		—	Green LED
Rated supply voltage		V	~ 24...240 (50/60 Hz) or --- 24...210	
Voltage limits (including ripple)		V	~ or --- 20...264	
Insulation class			I	
Switching capacity		mA	~ 5...300 or --- 5...200 (except Ø 12: ~ or --- 5...200) with overload and short-circuit protection	
Voltage drop, closed state		V	≤ 5.5	
Current consumption, no-load		mA	—	
Residual current, open state		mA	≤ 1.5	
Maximum switching frequency	Ø 18	Hz	~ 25 or --- 2000	
	Ø 30 flush mountable	Hz	~ 25 or --- 2000	
	Ø 30 non-flush mountable	Hz	~ 25 or --- 1000	
		Hz	~ 25 or --- 1000	
Delays	First-up	ms	≤ 70	
	Response	ms	≤ 2 for Ø 18 and Ø 30	
	Recovery	ms	≤ 4 for Ø 18, ≤ 5 for Ø 30 flush mountable, ≤ 10 for Ø 30 non-flush mountable	
		ms	≤ 4 for Ø 18, ≤ 5 for Ø 30 flush mountable, ≤ 10 for Ø 30 non-flush mountable	

Wiring schemes

1/2"-20UNF connector	Pre-cabled	2-wire ~ or ---
	BU: Blue BN: Brown	NO or NC output 
±: on connector model only		

Setting-up

Sensor	Minimum mounting distance (mm)			
	Side by side	Face to face	Facing a metal object	Mounted in a metal support
Ø 18 flush mountable	 e ≥ 10	 e ≥ 60	 e ≥ 15	 d ≥ 18 h ≥ 0
Ø 18 non-flush mountable	e ≥ 16	e ≥ 96	e ≥ 24	d ≥ 54 h ≥ 16
Ø 30 flush mountable	e ≥ 20	e ≥ 120	e ≥ 30	d ≥ 30 ≥ 0
Ø 30 non-flush mountable	e ≥ 60	e ≥ 180	e ≥ 45	d ≥ 18 ≥ 0

Dimensions

	Sensor	Flush mountable in metal				XS1M	Non-flush mountable in metal				XS2M
		Pre-cabled		Connector			Pre-cabled		Connector		
		a	b	a	b	c	a	b	a	b	c
	Ø 18	60	51	72	51	8	60	44	72	44	8
	Ø 30	60	51	72	51	13	63	41	75	41	13

Inductive proximity sensors

XS range, general purpose

Cylindrical, metal and plastic,

Flush mountable and non-flush mountable

Four-wire DC, solid-state NO + NC output



XS1L06●C410



XS1N12●●●C410



XS2●●●●C410



XS4P●●●●C410D

Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight (kg)
Ø 6.5 plain					
Stainless steel case, flush mountable					
1.5	NO + NC	PNP	Pre-cabled (L = 2 m)	XS1L06PC410	0.025
Ø 8, threaded M8 x 1					
Stainless steel case, flush mountable					
1.5	NO + NC	PNP (3)	Pre-cabled (L = 2 m)	XS1M08PC410	0.035
			M12 connector	XS1M08PC410D	0.025
Stainless steel case, non-flush mountable					
2.5	NO + NC	PNP (3)	Pre-cabled (L = 2 m)	XS2M08PC410	0.035
			M12 connector	XS2M08PC410D	0.025
Plastic case, non-flush mountable					
2.5	NO + NC	PNP (3)	Pre-cabled (L = 2 m) (1)	XS4P08PC410	0.035
Ø 12, threaded M12 x 1					
Brass case, flush mountable					
2	NO + NC	PNP	Pre-cabled (L = 2 m) (1) (2)	XS1N12PC410	0.070
			M12 connector	XS1N12PC410D	0.020
		NPN	Pre-cabled (L = 2 m) (1)	XS1N12NC410	0.070
			M12 connector	XS1N12NC410D	0.020
Brass case, non-flush mountable					
4	NO + NC	PNP (3)	Pre-cabled (L = 2 m) (1)	XS2N12PC140	0.070
Plastic case, non-flush mountable					
4	NO + NC	PNP (3)	Pre-cabled (L = 2 m) (1)	XS4P12PC410	0.070
			M12 connector	XS4P12PC410D	0.020

(1) For a 5 m long cable add **L1** to the reference. Example: **XS1N12PC410** becomes **XS1N12PC410L1** with a 5 m long cable.

(2) For a 10 m long cable add **L2** to the reference. Example: **XS1N12PC410** becomes **XS1N12PC410L2** with a 10 m long cable.

(3) These sensors can be supplied in NPN versions. Please contact our Customer Care Centre.

Inductive proximity sensors

XS range, general purpose

Cylindrical, metal and plastic,

Flush mountable and non-flush mountable

Four-wire DC, solid-state NO + NC output



XS4P18PC410



XS2N30PC410D



XS1N30PC410



XSZB108

Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight (kg)
Ø 18, threaded M18 x 1					
Brass case, flush mountable					
5	NO + NC	PNP	Pre-cabled (L = 2 m) (1) (2)	XS1N18PC410	0.100
			M12 connector	XS1N18PC410D	0.040
Plastic case, non-flush mountable					
8	NO + NC	PNP (3)	Pre-cabled (L = 2 m)	XS4P18PC410	0.100
			M12 connector	XS4P18PC410D	0.040
Ø 30, threaded M30 x 1.5					
Brass case, flush mountable					
10	NO + NC	PNP	Pre-cabled (L = 2 m) (1) (2)	XS1N30PC410	0.160
			M12 connector	XS1N30PC410D	0.100
Plastic case, non-flush mountable					
15	NO + NC	PNP (3)	Pre-cabled (L = 2 m)	XS4P30PC410	0.160
			M12 connector	XS4P30PC410D	0.100

Accessories (4)

Description	For use with sensors (mm)	Reference	Weight (kg)
Fixing clamps	Ø 8	XSZB108	0.006
	Ø 12	XSZB112	0.006
	Ø 18	XSZB118	0.010
	Ø 30	XSZB130	0.020

(1) For a 5 m long cable add **L1** to the reference. Example: **XS1N18PC410** becomes **XS1N18PC410L1** with a 5 m long cable.

(2) For a 10 m long cable add **L2** to the reference. Example: **XS1N18PC410** becomes **XS1N18PC410L2** with a 10 m long cable.

(3) These sensors can be supplied in NPN versions. Please contact our Customer Care Centre.

(4) For further information, see page 120.

Inductive proximity sensors

XS range, general purpose

Cylindrical, metal and plastic

Flush mountable and non-flush mountable

Four-wire DC, solid-state NO + NC output

Characteristics							
Sensor type			XS●●●●PC410D	XS●●●●NC410D	XS●●●●PC410	XS●●●●NC410	
Product certifications			cULus, CE, UKCA, E2 (1)		cULus, CE, UKCA	cULus, CE, UKCA, E2	cULus, CE, UKCA
Connection			M12 connector			Pre-cabled, length: 2 m	
Operating zone	Ø 6.5 and Ø 8 flush mountable	mm	0...1.2				
	Ø 8 non-flush mountable	mm	0...2				
	Ø 12 flush mountable	mm	0...1.6				
	Ø 12 non-flush mountable	mm	0...3.2				
	Ø 18 flush mountable	mm	0...4				
	Ø 18 non-flush mountable	mm	0...6.4				
	Ø 30 flush mountable	mm	0...8				
	Ø 30 non-flush mountable	mm	0...12				
Differential travel		%	1...15 of effective sensing distance (Sr)				
Degree of protection	Conforming to IEC 60529		IP 65 and IP 67	IP 67	IP 67 (Ø 6.5 and Ø 8) IP 68 (Ø 12, Ø 18 and Ø 30)		
	Conforming to DIN 40050		IP 69K (Ø 12, Ø 18 and Ø 30)	–	–		
Storage temperature		°C	- 40...+ 85				
Operating temperature		°C	- 25...+ 70 (2)				
Materials	Case		Nickel plated brass for XS1N●●●. Stainless steel 303 for XS1M08●●● and XS2M08●●●. Plastic, PPS, for XS4P●●●.				
	Cable		–		PvR 4 x 0.08 mm² (Ø 6.5 and Ø 8) PvR 4 x 0.22 mm² (Ø 12, Ø 18 and Ø 30)		
Vibration resistance	Conforming to IEC 60068-2-6		25 gn, amplitude ± 2 mm (f = 10 to 55 Hz)				
Shock resistance	Conforming to IEC 60068-2-27		50 gn, duration 11 ms				
Output state indication			Yellow LED, 4 viewing ports at 90°			Yellow LED, annular	
Rated supply voltage		V	--- 12...24 with protection against reverse polarity				
Voltage limits (including ripple)		V	--- 9...36 (--- 10...36 for XS4P●●●)	--- 10...36	--- 9...36 (--- 10...36 for XS4P18●●●)	--- 10...36	
Insulation class			Ⓜ	Ⓜ	Ⓜ	Ⓜ	
Switching capacity		mA	≤ 200 with overload and short-circuit protection				
Voltage drop, closed state		V	≤ 2				
Current consumption, no-load		mA	≤ 10				
Maximum switching frequency	Ø 6.5, Ø 8 and Ø 12	Hz	5000				
	Ø 18	Hz	2000				
	Ø 30	Hz	1000				
Delays	First-up	ms	≤ 5				
	Response	ms	≤ 0.1 for Ø 8 and Ø 12, ≤ 0.15 for Ø 18, ≤ 0.3 for Ø 30				
	Recovery	ms	≤ 0.1 for Ø 8 and Ø 12, ≤ 0.35 for Ø 18, ≤ 0.7 for Ø 30				

(1) Except XS4P●●●: UL, CSA and CE.

(2) Sensors are available for very low temperatures (suffix TF: -40°C, + 70°C) or very high temperatures (suffix TT: - 25°C, + 85°C). Please consult our Customer Care Centre.

Inductive proximity sensors

XS range, general purpose

Cylindrical, metal and plastic

Flush mountable and non-flush mountable

Four-wire DC, solid-state NO + NC output

Wiring schemes

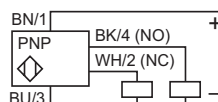
M12 connector



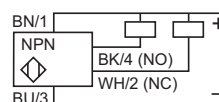
Pre-cabled

BU: Blue
BN: Brown
BK: Black
WH: White

PNP 4-wire



NPN 4-wire

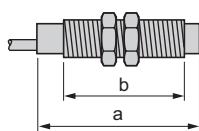


Setting-up

Minimum mounting distances (mm)

Sensor	Side by side	Face to face	Facing a metal object	Mounted in a metal support
Ø 6.5 flush mountable XS1L06	$e \geq 3$	$e \geq 18$	$e \geq 4.5$	$d \geq 6.5$ $h \geq 0$
Ø 8 flush mountable XS1M08	$e \geq 3$	$e \geq 18$	$e \geq 4.5$	$d \geq 8$ $h \geq 0$
Ø 8 non-flush mountable XS4P08	$e \geq 10$	$e \geq 30$	$e \geq 7.5$	$d \geq 24$ $h \geq 5$
Ø 12 flush mountable XS1N12	$e \geq 4$	$e \geq 24$	$e \geq 6$	$d \geq 12$ $h \geq 0$
Ø 12 non-flush mountable XS4P12	$e \geq 16$	$e \geq 48$	$e \geq 12$	$d \geq 36$ $h \geq 8$
Ø 18 flush mountable XS1N18	$e \geq 10$	$e \geq 60$	$e \geq 15$	$d \geq 18$ $h \geq 0$
Ø 18 non-flush mountable XS4P18	$e \geq 16$	$e \geq 96$	$e \geq 24$	$d \geq 54$ $h \geq 16$
Ø 30 flush mountable XS1N30	$e \geq 20$	$e \geq 120$	$e \geq 30$	$d \geq 30$ $h \geq 0$
Ø 30 non-flush mountable XS4P30	$e \geq 60$	$e \geq 180$	$e \geq 45$	$d \geq 90$ $h \geq 30$

Dimensions



Flush mountable in metal

Sensor	Pre-cabled (mm)		M12 connector (mm)	
	a	b	a	b
Ø 6.5 XS1L06 stainless steel	50	—	—	—
Ø 8 XS1M08 stainless steel	51	42	62	40
Ø 12 XS1N12 brass	37	25	50	31
Ø 18 XS1N18 brass	41	29	51	28
Ø 30 XS1N30 brass	45	33	54	33

Non-flush mountable in metal

Sensor	Pre-cabled (mm)		M12 connector (mm)	
	a	b	a	b
Ø 8 XS2M08 stainless steel	54	42	65	40
Ø 8 XS4P08 plastic	34	25	—	—
Ø 12 XS4P12 plastic	37	25	50	31
Ø 18 XS4P18 plastic	41	29	51	28
Ø 30 XS4P30 plastic	45	33	54	33

Inductive proximity sensors

XS range, general purpose

Cylindrical, metal, increased range, flush mountable

Four-wire DC, solid-state NO + NC output



XS100B3PCL2



XS112B3PCM12



XSZB100

Sensors, 4-wire 12...48 V, long case model

Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight (kg)
Ø 8, threaded M8 x 1					
2.5	NO + NC	PNP	Pre-cabled (L = 2 m)	XS608B1PCL2	0.035
			M12 connector	XS608B1PCM12	0.025

Sensors, 4-wire 12...24 V, long case model

Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight (kg)
Ø 12, threaded M12 x 1					
4	NO + NC	PNP	Pre-cabled (L = 2 m)	XS112B3PCL2	0.070
			M12 connector	XS112B3PCM12	0.020

Ø 18, threaded M18 x 1

8	NO + NC	PNP	Pre-cabled (L = 2 m)	XS118B3PCL2	0.100
			M12 connector	XS118B3PCM12	0.040

Ø 30, threaded M30 x 1.5

15	NO + NC	PNP	Pre-cabled (L = 2 m)	XS130B3PCL2	0.160
			M12 connector	XS130B3PCM12	0.100

Accessories (1)

Description	For use with sensors (mm)	Reference	Weight (kg)
Fixing clamps	Ø 8	XSZB108	0.006
	Ø 12	XSZB112	0.006
	Ø 18	XSZB118	0.010
	Ø 30	XSZB130	0.020

(1) For further information, see page 120.

Inductive proximity sensors

XS range, general purpose

Cylindrical, metal, increased range, flush mountable

Four-wire DC, solid-state NO + NC output

Characteristics			
Sensor type		XS1●●B3PCM12 / XS608B1PCM12	XS1●●B3PCL2 / XS608B1PCL2
Product certifications	Ø 8	cULus, CE, UKCA	
	Ø 12, 18 and 30	cULus, CE, UKCA, E2	
Connection	Connector	M12	—
	Pre-cabled	—	Length 2 m
Operating zone (1)	Ø 8	mm	0...2
	Ø 12	mm	0...3.2
	Ø 18	mm	0...6.4
	Ø 30	mm	0...12
Differential travel		%	
Degree of protection	Conforming to IEC 60529	IP 65 and IP 67	
	Conforming to DIN 40050	IP 69K	
Storage temperature		°C	
Operating temperature		°C	
Materials	Case	Nickel plated brass for Ø 12 to Ø 30, stainless steel grade 303 for Ø 8	
	Sensing face	PPS	
	Cable	—	PvR 4 x 0.22 mm ² except Ø 8: 4 x 0.08 mm ²
Vibration resistance	Conforming to IEC 60068-2-6	25 gn, amplitude ± 2 mm (f = 10 to 55 Hz)	
Shock resistance	Conforming to IEC 60068-2-27	50 gn, duration 11 ms	
Output state indication		Yellow LED, 4 viewing ports at 90°	Yellow LED, annular
Rated supply voltage		V	
Voltage limits (including ripple)		V	
Insulation class		□	
Switching capacity		mA	
Voltage drop, closed state		V	
Current consumption, no-load		mA	
Maximum switching frequency	Ø 8 and Ø 12	Hz	2500
	Ø 18	Hz	1000
	Ø 30	Hz	500
Delays	First-up	ms	≤ 10
	Response	ms	≤ 0.2 for Ø 8 and Ø 12, ≤ 0.3 for Ø 18, ≤ 0.6 for Ø 30
	Recovery	ms	≤ 0.2 for Ø 8 and Ø 12, ≤ 0.7 for Ø 18, ≤ 1.4 for Ø 30

Wiring schemes

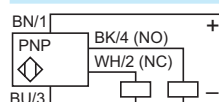
M12 connector



Pre-cabled

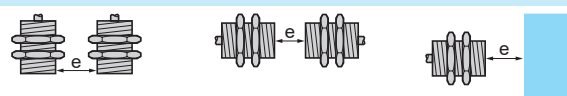
BU: Blue
BN: Brown
BK: Black
WH: White

PNP 4-wire



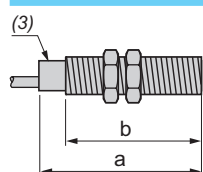
Setting-up

Minimum mounting distances (mm)



Sensors	Side by side	Face to face	Facing a metal object
Ø 8	e ≥ 5	e ≥ 30	e ≥ 8
Ø 12	e ≥ 8	e ≥ 50	e ≥ 12
Ø 18	e ≥ 16	e ≥ 100	e ≥ 25
Ø 30	e ≥ 30	e ≥ 180	e ≥ 45

Dimensions



Sensors	Pre-cabled (mm)		M12 connector (mm)	
	a	b	a	b
Ø 8	51	42	61	40
Ø 12	37	25	50	31
Ø 18	41	29	51	28
Ø 30	45	33	54	33

(1) Detection curves, see page 128.

(2) Sensors are available for very low temperatures (suffix **TF**: -40°C, +70°C) or very high temperatures (suffix **TT**: -25°C, +85°C). Please consult our Customer Care Centre.

(3) LED.

Inductive proximity sensors

XS range, general purpose

Cylindrical, metal and plastic, flush and non-flush mountable

Four-wire DC, solid-state PNP + NPN NO/NC
programmable output



XS1M12KP340



XS4P12KP340



XS2M18KP340



XS4P18KP340D



XS1M30KP340D



XS2M30KP340D



XSZB1004

Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight (kg)
Ø 12, threaded M12 x 1					
Metal case, flush mountable					
2	NO/NC programmable	PNP + NPN	Pre-cabled (L = 2 m) (1)	XS1M12KP340	0.075
			M12 connector	XS1M12KP340D	0.025
Metal case, non-flush mountable					
4	NO/NC programmable	PNP + NPN	Pre-cabled (L = 2 m) (1)	XS2M12KP340	0.075
			M12 connector	XS2M12KP340D	0.025
Plastic case, non-flush mountable					
4	NO/NC programmable	PNP + NPN	Pre-cabled (L = 2 m) (1)	XS4P12KP340	0.075
			M12 connector	XS4P12KP340D	0.025
Ø 18, threaded M18 x 1					
Metal case, flush mountable					
5	NO/NC programmable	PNP + NPN	Pre-cabled (L = 2 m) (1)	XS1M18KP340	0.120
			M12 connector	XS1M18KP340D	0.060
Metal case, non-flush mountable					
8	NO/NC programmable	PNP + NPN	Pre-cabled (L = 2 m) (1)	XS2M18KP340	0.120
			M12 connector	XS2M18KP340D	0.060
Plastic case, non-flush mountable					
8	NO/NC programmable	PNP + NPN	Pre-cabled (L = 2 m) (1)	XS4P18KP340	0.120
			M12 connector	XS4P18KP340D	0.060
Ø 30, threaded M30 x 1.5					
Metal case, flush mountable					
10	NO/NC programmable	PNP + NPN	Pre-cabled (L = 2 m) (1)	XS1M30KP340	0.205
			M12 connector	XS1M30KP340D	0.145
Metal case, non-flush mountable					
15	NO/NC programmable	PNP + NPN	Pre-cabled (L = 2 m) (1)	XS2M30KP340	0.205
			M12 connector	XS2M30KP340D	0.145
Plastic case, non-flush mountable					
15	NO/NC programmable	PNP + NPN	Pre-cabled (L = 2 m) (1)	XS4P30KP340	0.205
			M12 connector	XS4P30KP340D	0.145

Accessories (2)

Description	For use with sensors (mm)	Reference	Weight (kg)
Fixing clamps	Ø 12	XSZB112	0.006
	Ø 18	XSZB118	0.010
	Ø 30	XSZB130	0.020

(1) For a 5 m long cable add **L1** to the reference; for a 10 m long cable add **L2** to the reference.

Example: **XS1M12KP340** becomes **XS1M12KP340L1** with a 5 m long cable.

(2) For further information, see page 120.

Inductive proximity sensors

XS range, general purpose

Cylindrical, metal and plastic, flush and non-flush mountable

Four-wire DC, solid-state PNP + NPN NO/NC

programmable output

Characteristics								
Sensor type			XS●M●●KP340D		XS●M●●KP340			
Product certifications			cULus, CE, UKCA					
Connection			M12 connector		Pre-cabled, length: 2 m			
Operating zone	Ø 12 flush mountable	mm	0...1.6					
	Ø 12 non-flush mountable	mm	0...3.2					
	Ø 18 flush mountable	mm	0...4					
	Ø 18 non-flush mountable	mm	0...6.4					
	Ø 30 flush mountable	mm	0...8					
	Ø 30 non-flush mountable	mm	0...12					
Differential travel			%		1...15 of effective sensing distance (Sr)			
Degree of protection			Conforming to IEC 60529		IP 67		IP 68	
Storage temperature			°C		- 40...+ 85			
Operating temperature			°C		- 25...+ 70			
Materials	Case	Nickel plated brass for XS1M and XS2M, PPS for XS4P						
	Cable			—			PvR 4 x 0.34 mm²	
Vibration resistance			Conforming to IEC 60068-2-6		25 gn, amplitude ± 2 mm (f = 10 to 55 Hz)			
Shock resistance			Conforming to IEC 60068-2-27		50 gn, duration 11 ms			
Output state indication					Yellow LED, 4 viewing ports at 90°		Yellow LED, annular	
Rated supply voltage			V		— 12...24 with protection against reverse polarity			
Voltage limits (including ripple)			V		— 10...36			
Insulation class					Ⓜ		Ⓜ	
Switching capacity			mA		≤ 200 with overload and short-circuit protection			
Voltage drop, closed state			V		≤ 2.6			
Current consumption, no-load			mA		≤ 10			
Maximum switching frequency	Ø 12	Hz	5000					
	Ø 18	Hz	2000					
	Ø 30 flush mountable	Hz	1000					
	Ø 30 non-flush mountable	Hz	1000					
Delays	First-up	ms	≤ 5					
	Response	ms	≤ 0.1 for Ø 12, ≤ 0.15 for Ø 18, ≤ 0.3 for Ø 30					
	Recovery	ms	≤ 0.1 for Ø 12, ≤ 0.35 for Ø 18, ≤ 0.7 for Ø 30					

Wiring schemes

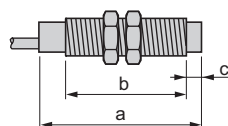
M12 connector	Pre-cabled	PNP + NPN	
	BU: Blue BN: Brown BK: Black WH: White	4-wire programmable, NO or NC output	
		PNP 	NPN

Setting-up

Sensor	Minimum mounting distances (mm)			
	Side by side	Face to face	Facing a metal object	Mounted in a metal support
Ø 12 flush mountable XS1M12	e ≥ 4	e ≥ 24	e ≥ 6	d ≥ 12 h ≥ 0
Ø 12 non-flush mountable XS2M12 and XS4P12	e ≥ 16	e ≥ 48	e ≥ 12	d ≥ 36 h ≥ 8
Ø 18 flush mountable XS1M18	e ≥ 10	e ≥ 60	e ≥ 15	d ≥ 18 h ≥ 0
Ø 18 non-flush mountable XS2M18 and XS4P18	e ≥ 16	e ≥ 96	e ≥ 24	d ≥ 54 h ≥ 16
Ø 30 flush mountable XS1M30	e ≥ 20	e ≥ 120	e ≥ 30	d ≥ 30 h ≥ 0
Ø 30 non-flush mountable XS2M30 and XS4P30	e ≥ 60	e ≥ 180	e ≥ 45	d ≥ 90 h ≥ 30

Dimensions

Sensor	Flush mountable in metal				Non-flush mountable in metal				
	Pre-cabled		Connector		Pre-cabled		Connector		c
	a	b	a	b	a	b	a	b	
Ø 12 metal	54	42	61	42	55	42	66	42	5
Ø 12 plastic	—	—	—	—	54	42	61	43	0
Ø 18 metal	60	51	72	51	60	44	72	44	8
Ø 18 plastic	—	—	—	—	60	51	70	51	0
Ø 30 metal	60	51	72	51	63	41	75	41	13
Ø 30 plastic	—	—	—	—	60	51	70	51	0



Inductive proximity sensors

XS range, general purpose

Plastic, cylindrical, non-flush mountable

Two-wire AC or DC

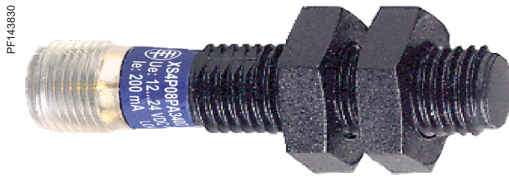
Three-wire DC, solid-state output



XS4P●●●●340
XS4P●●●●370
XS4P●●●●230



XS4P08●●340S



XS4P●●●●340D
XS4P●●●●370D
XS4P●●●●230K

Sensing dist. (Sn) mm	Function	Output	Connection	Reference	Weight (kg)
Ø 8, threaded M8 x 1					
Three-wire --- 12-24 V					
2.5	NO	PNP	Pre-cabled (L = 2 m) (1) (2)	XS4P08PA340	0.025
		NPN	Pre-cabled (L = 2 m) (1) (2)	XS4P08NA340	0.025
	NC	PNP	Pre-cabled (L = 2 m) (1) (2)	XS4P08PB340	0.025
		NPN	Pre-cabled (L = 2 m) (1) (2)	XS4P08NB340	0.025
Two-wire ~ or --- 24-240 V					
2.5	NO		Pre-cabled (L = 2 m) (1)	XS4P08MA230	0.030
	NC		Pre-cabled (L = 2 m) (1)	XS4P08MB230	0.030
Ø 12, threaded M12 x 1					
Three-wire --- 12-24 V					
4	NO	PNP	Pre-cabled (L = 2 m) (1) (3)	XS4P12PA340	0.060
		NPN	Pre-cabled (L = 2 m) (1) (3)	XS4P12NA340	0.060
	NC	PNP	Pre-cabled (L = 2 m) (1) (3)	XS4P12PB340	0.060
		NPN	Pre-cabled (L = 2 m) (1) (3)	XS4P12NB340	0.060
Three-wire --- 12-48 V					
4	NO	PNP	Pre-cabled (L = 2 m) (1) (3)	XS4P12PA370	0.065
		NPN	Pre-cabled (L = 2 m) (1) (3)	XS4P12NA370	0.065
	NC	PNP	Pre-cabled (L = 2 m) (1) (3)	XS4P12PB370	0.065
Two-wire ~ or --- 24-240 V					
4	NO		Pre-cabled (L = 2 m) (1)	XS4P12MA230	0.065
			1/2"-20UNF connector	XS4P12MA230K	0.030
	NC		Pre-cabled (L = 2 m) (1)	XS4P12MB230	0.065
Ø 18, threaded M18 x 1					
Three-wire --- 12-24 V					
8	NO	PNP	Pre-cabled (L = 2 m) (1) (3)	XS4P18PA340	0.090
		NPN	Pre-cabled (L = 2 m) (1) (3)	XS4P18NA340	0.090
	NC	PNP	Pre-cabled (L = 2 m) (1) (3)	XS4P18PB340	0.090
Three-wire --- 12-48 V					
8	NO	PNP	Pre-cabled (L = 2 m) (1) (3)	XS4P18PA370	0.100
		NPN	Pre-cabled (L = 2 m) (1) (3)	XS4P18NA370	0.100
	NC	PNP	Pre-cabled (L = 2 m) (1) (3)	XS4P18PB370	0.100
Two-wire ~ or --- 24-240 V					
8	NO		Pre-cabled (L = 2 m) (1)	XS4P18MA230	0.100
			1/2"-20UNF connector	XS4P18MA230K	0.040
	NC		Pre-cabled (L = 2 m) (1)	XS4P18MB230	0.100
			1/2"-20UNF connector	XS4P18MB230K	0.040
Ø 30, threaded M30 x 1.5					
Three-wire --- 12-24 V					
15	NO	PNP	Pre-cabled (L = 2 m) (1) (3)	XS4P30PA340	0.120
		NPN	Pre-cabled (L = 2 m) (1) (3)	XS4P30NA340	0.120
	NC	PNP	Pre-cabled (L = 2 m) (1) (3)	XS4P30PB340	0.120
Three-wire --- 12-48 V					
15	NO	PNP	Pre-cabled (L = 2 m) (1) (3)	XS4P30PA370	0.140
	NC	PNP	Pre-cabled (L = 2 m) (3)	XS4P30PB370	0.140
Two-wire ~ or ---					
15	NO		Pre-cabled (L = 2 m) (1)	XS4P30MA230	0.140
			1/2"-20UNF connector	XS4P30MA230K	0.080
	NC		Pre-cabled (L = 2 m) (1)	XS4P30MB230	0.140
			1/2"-20UNF connector	XS4P30MB230K	0.080

(1) For a 5 m long cable add L1 to the reference; for a 10 m long cable add L2 to the reference. Example: **XS4P08PA340** becomes **XS4P08PA340L1** with a 5 m long cable.
 (2) For an M8 connector, add S to the reference. Example: **XS4P08PA340** becomes **XS4P08PA340S** with an M8 connector.
 (3) For an M12 connector, add D to the reference. Example: **XS4P12PA370** becomes **XS4P12PA370D** with an M12 connector.

Inductive proximity sensors

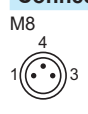
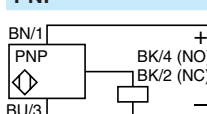
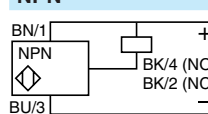
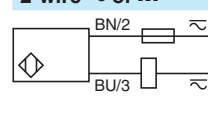
XS range, general purpose

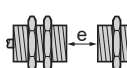
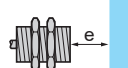
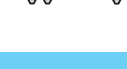
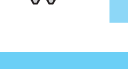
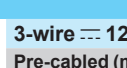
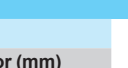
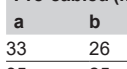
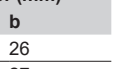
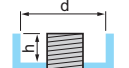
Plastic, cylindrical, non-flush mountable

Two-wire AC or DC

Three-wire DC, solid-state output

Characteristics			
Sensor type		XS4P●●●●340●	XS4P●●●●370●
Product certifications		cULus, CE, UKCA, ECOLAB	
Connection	Pre-cabled	Length: 2 m	
	Connector	M8 on Ø 8 M12 on Ø 12, Ø 18 and Ø 30	1/2"-20UNF
Operating zone	Ø 8	mm	0...2
	Ø 12	mm	0...3.2
	Ø 18	mm	0...6.4
	Ø 30	mm	0...12
Differential travel		%	1...15 of effective sensing distance (Sr)
Degree of protection		Conforming to IEC 60529	IP 68 for pre-cabled version (except Ø 8: IP 67) IP 67 for connector version
Storage temperature		°C	- 40...+ 85
Operating temperature		°C	- 25...+ 70
Materials	Case	PPS	
	Cable	PvR 3 x 0.34 mm ² except Ø 8: 3 x 0.11 mm ²	PvR 2 x 0.34 mm ² except Ø 8: 2 x 0.11 mm ²
Vibration resistance		Conforming to IEC 60068-2-6	25 gn, amplitude ± 2 mm (f = 10 to 55 Hz)
Shock resistance		Conforming to IEC 60068-2-27	50 gn, duration 11 ms
Output state indication		Yellow LED: annular on pre-cabled version Yellow LED: 4 viewing ports at 90° on connector version	
Rated supply voltage		V	--- 12...24 with protection against reverse polarity
Voltage limits (including ripple)		V	--- 10...36
Insulation class			I
Switching capacity	Ø 8	mA	≤ 200 with overload and short-circuit protection
	Ø 12		5...200
	Ø 18 and Ø 30		5...200 --- and 5...300 ~
Voltage drop, closed state		V	≤ 2
Residual current, open state		mA	—
Current consumption, no-load		mA	≤ 10
Maximum switching frequency	Ø 8 and Ø 12	Hz	5000
	Ø 18	Hz	2000
	Ø 30	Hz	1000
			--- 1000, ~ 25
Delays	First-up	ms	≤ 10
	Response	ms	≤ 0.1 for Ø 8 and Ø 12, ≤ 0.15 for Ø 18, ≤ 0.3 for Ø 30
	Recovery	ms	≤ 0.1 for Ø 8 and Ø 12, ≤ 0.35 for Ø 18, ≤ 0.7 for Ø 30
			≤ 0.2 for Ø 8, Ø 12 and Ø 18, ≤ 0.4 for Ø 30

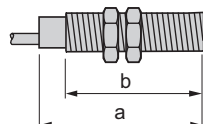
Wiring schemes			
Connector	Pre-cabled	PNP	NPN
  	BU: Blue BN: Brown BK: Black		
		For M8 connector, NO and NC outputs on terminal 4	
			

Setting-up			
Minimum mounting distances (mm)			
	Side by side	Face to face	Facing a metal object
Ø 8	 e ≥ 10	 e ≥ 30	 e ≥ 7.5
Ø 12	 e ≥ 16	 e ≥ 48	 e ≥ 12
Ø 18	 e ≥ 16	 e ≥ 96	 e ≥ 24
Ø 30	 e ≥ 60	 e ≥ 180	 e ≥ 45
			 d ≥ 24 h ≥ 5 d ≥ 36 h ≥ 8 d ≥ 54 h ≥ 16 d ≥ 90 h ≥ 30

Dimensions

Technical drawing of a cable connector. It shows a cross-section of a cable with a central conductor and two outer conductors. The dimensions are labeled: 'a' is the total length of the cable, and 'b' is the length of the central conductor.

XS4P	3-wire --- 12-24 V				3-wire --- 12-48 V or 2-wire ~ / --- 24-240 V			
	Pre-cabled (mm)		Connector (mm)		Pre-cabled (mm)		Connector (mm)	
	a	b	a	b	a	b	a	b
Ø 8	33	26	42	26	50	42	61	40
Ø 12	35	25	48	27	54	42	61	42
Ø 18	36	25	48	29	62	52	70	52
Ø 30	43	32	50	34	62	52	70	52



Inductive proximity sensors

XS range, general purpose

Cylindrical, quasi-flush mountable, increased range

Three-wire DC, solid-state output



XS1N●●●●349



XS1N●●●●349D



XSZB1●●

References

Sensing distance (Sn) (mm)	Function	Output	Connection	Reference	Weight (kg)
Ø 12, threaded M12 x 1					
4	NO	PNP	Pre-cabled (L = 2 m)	XS1N12PA349	0.070
			M12 connector	XS1N12PA349D	0.020
		NPN	Pre-cabled (L = 2 m)	XS1N12NA349	0.070
			M12 connector	XS1N12NA349D	0.020
	NC	PNP	Pre-cabled (L = 2 m)	XS1N12PB349	0.070
			M12 connector	XS1N12PB349D	0.020
Ø 18, threaded M18 x 1					
10	NO	PNP	Pre-cabled (L = 2 m)	XS1N18PA349	0.100
			M12 connector	XS1N18PA349D	0.040
		NPN	Pre-cabled (L = 2 m)	XS1N18NA349	0.100
			M12 connector	XS1N18NA349D	0.040
	NC	PNP	Pre-cabled (L = 2 m)	XS1N18PB349	0.100
			M12 connector	XS1N18PB349D	0.040
Ø 30, threaded M30 x 1.5					
20	NO	PNP	Pre-cabled (L = 2 m)	XS1N30PA349	0.160
			M12 connector	XS1N30PA349D	0.100
		NPN	Pre-cabled (L = 2 m)	XS1N30NA349	0.160
			M12 connector	XS1N30NA349D	0.100
	NC	PNP	Pre-cabled (L = 2 m)	XS1N30PB349	0.160
			M12 connector	XS1N30PB349D	0.100

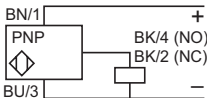
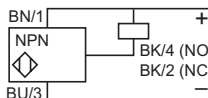
Accessories (1)

Description	For use with sensors (mm)	Reference	Weight (kg)
Fixing clamps	Ø 12	XSZB112	0.006
	Ø 18	XSZB118	0.010
	Ø 30	XSZB130	0.020

(1) For further information, see page 120.

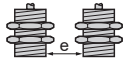
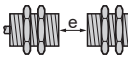
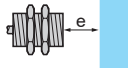
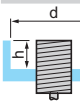
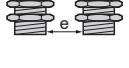
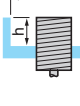
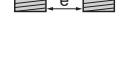
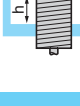
Characteristics				
Sensor type		XS1.....349D		XS1.....349
Product certifications		cULus, CE, UKCA		
Connection		M12 connector		Pre-cabled, length: 2 m
Operating zone	Ø 8	mm	0...2	
	Ø 12	mm	0...3.2	
	Ø 18	mm	0...8	
	Ø 30	mm	0...16	
Differential travel		%	1...15 of effective sensing distance (Sr)	
Degree of protection	Conforming to IEC 60529		IP 67	IP 68 (except Ø 8: IP 67)
	Conforming to DIN 40050		IP 69K for Ø 12 to Ø 30	
Storage temperature		°C	- 40...+ 85	
Operating temperature		°C	- 25...+ 70	
Materials	Case		Nickel plated brass	
	Cable		–	PvR 3 x 0.34 mm ² except Ø 8: 3 x 0.11 mm ²
Vibration resistance			25 gn, amplitude ± 2 mm (f = 10 to 55 Hz)	
Shock resistance			50 gn, duration 11 ms	
Output state indication			Yellow LED, 4 viewing ports at 90°	Yellow LED, annular
Rated supply voltage		V	12...24 with protection against reverse polarity	
Voltage limits (including ripple)		V	10...36	
Insulation class			II	II
Switching capacity		mA	≤ 200 with overload and short-circuit protection	
Voltage drop, closed state		V	≤ 2	
Current consumption, no-load		mA	≤ 10	
Maximum switching frequency	Ø 8 and Ø 12	Hz	2500	
	Ø 18	Hz	1000	
	Ø 30	Hz	500	
Delays	First-up	ms	≤ 5	
	Response	ms	≤ 0.2 for Ø 8 and Ø 12, ≤ 0.3 for Ø 18, ≤ 0.6 for Ø 30	
	Recovery	ms	≤ 0.2 for Ø 8 and Ø 12, ≤ 0.7 for Ø 18, ≤ 1.4 for Ø 30	

Wiring schemes

Connector	Pre-cabled	PNP 3-wire	NPN 3-wire
M8 	M12 	BU: Blue BN: Brown BK: Black 	

For M8 connector, NO and NC outputs on terminal 4

Setting-up precautions

Sensor	Minimum mounting distances (mm)			
	Side by side	Face to face	Facing a metal object	Mounted in a metal support
Ø 8	 e ≥ 5	 e ≥ 30	 e ≥ 7.5	 d ≥ 10 h ≥ 1.6
Ø 12	 e ≥ 8	 e ≥ 48	 e ≥ 12	 d ≥ 14 h ≥ 2.4
Ø 18	 e ≥ 20	 e ≥ 96	 e ≥ 30	 d ≥ 28 h ≥ 3.6
Ø 30	 e ≥ 40	 e ≥ 240	 e ≥ 60	 d ≥ 50 h ≥ 6

Dimensions

Sensor	Flush mountable in metal					
	Pre-cabled		M8 connector		M12 connector	
	a	b	a	b	a	b
Ø 8	33	25	42	26	45	23
Ø 12	35	25	–	–	50	30
Ø 18	39	28	–	–	50	28
Ø 30	43	32	–	–	55	32



Inductive proximity sensors

XS range, general purpose

Miniature, cylindrical, quasi-flush mountable

Three-wire DC, solid-state output



XS604R1PAL2



XS504R1NAM08



XS604R1NBL2



XS505R1PAM08

Ø 4 plain

Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight (kg)
Stainless steel case, quasi-flush mountable					
1,5	NO	PNP	Pre-cabled (L = 2 m)	XS604R1PAL2	0.030
			M8 connector	XS604R1PAM08	0.004
	NPN	NPN	Pre-cabled (L = 2 m)	XS604R1NAL2	0.030
			M8 connector	XS604R1NAM08	0.004
	NC	PNP	Pre-cabled (L = 2 m)	XS604R1PBL2	0.030
			M8 connector	XS604R1PBM08	0.004
0,8	NO	PNP	Pre-cabled (L = 2 m)	XS504R1PAL2	0.030
			M8 connector	XS504R1PAM08	0.004
	NPN	NPN	Pre-cabled (L = 2 m)	XS504R1NAL2	0.030
			M8 connector	XS504R1NAM08	0.004
	NC	PNP	Pre-cabled (L = 2 m)	XS504R1PBL2	0.030
			M8 connector	XS504R1PBM08	0.004
	NPN	NPN	Pre-cabled (L = 2 m)	XS504R1NBL2	0.030
			M8 connector	XS504R1NBM08	0.004

Ø 5, threaded M5 x 0.5

Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight (kg)
Stainless steel case, quasi-flush mountable					
1,5	NO	PNP	Pre-cabled (L = 2 m)	XS605R1PAL2	0.030
			Pre-cabled (L = 5 m)	XS605R1PAL5	0.030
			M8 connector	XS605R1PAM08	0.004
	NPN	NPN	Pre-cabled (L = 2 m)	XS605R1NAL2	0.030
			M8 connector	XS605R1NAM08	0.004
	NC	PNP	Pre-cabled (L = 2 m)	XS605R1PBL2	0.030
			M8 connector	XS605R1PBM08	0.004
		NPN	Pre-cabled (L = 2 m)	XS605R1NBL2	0.030
M8 connector			XS605R1NBM08	0.004	
0.8	NO	PNP	Pre-cabled (L = 2 m)	XS505R1PAL2	0.030
			M8 connector	XS505R1PAM08	0.004
			NPN	Pre-cabled (L = 2 m)	XS505R1NAL2
	M8 connector	XS505R1NAM08		0.004	
	NC	PNP	Pre-cabled (L = 2 m)	XS505R1PBL2	0.030
			M8 connector	XS505R1PBM08	0.004
		NPN	Pre-cabled (L = 2 m)	XS505R1NBL2	0.030
			M8 connector	XS505R1NBM08	0.004

Inductive proximity sensors

XS range, general purpose

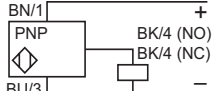
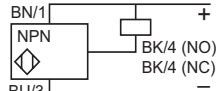
Miniature, cylindrical, quasi-flush mountable

Three-wire DC, solid-state output

Characteristics				
Sensor type		XS040000M08 XS050000M08		XS040000L2 XS050000L2
Product certifications		cULus, CE, UKCA		UL, CE, UKCA
Connection (1)	Connector	M8		–
	Pre-cabled Length	m	–	2 for XS000000L2 5 for XS605000L5
Operating zone	XS504	mm	0...0.65	
	XS505	mm	0...0.65	
	XS604	mm	0...1.21	
	XS605	mm	0...1.21	
Degree of protection	Conforming to IEC 60529		IP 67	
Storage temperature		°C	- 40...+ 85	
Operating temperature		°C	- 25...+ 70	
Materials	Case		Stainless steel 303	
	Cable		PVC 3x0.149 mm ²	
Vibration resistance			Conforming to IEC 60947-5-2	
Shock resistance			Conforming to IEC 60947-5-2	
Output state indication	LED		Yellow LED	
	Visibility		4 viewing ports at 90°	1 viewing port
Rated supply voltage		V	12...24	
Voltage limits (including ripple)		V	10...30	
Insulation class			III	
Current consumption, no-load		mA	≤ 10	
Switching capacity	3-wire PNP/NPN	mA	≤ 100 with overload and short-circuit protection	
Voltage drop, closed state		V	≤ 1.5	
Maximum switching frequency		kHz	5	
Delays	First-up	ms	50	

(1) Detection curves, see page 128

Wiring schemes

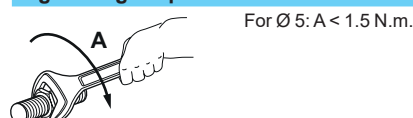
Connector	Pre-cabled	PNP 3-wire	NPN 3-wire
M8 	BU: Blue BN: Brown BK: Black		

Setting-up

Minimum mounting distances (mm)						
Sensor	d4	d1	d2	d3	d4	d3
Ø 4 XS504 steel	≥ 2 (1)	≥ 3 (2)	≥ 0 (3)	≥ 4	≥ 8	≥ 2.4
Ø 4 XS604 steel	≥ 3 (1)	≥ 4 (2)	≥ 0 (3)	≥ 4	≥ 8	≥ 4.5
Ø 5 XS505 steel	≥ 0 (1)	≥ 1 (2)	≥ 0 (3)	≥ 5	≥ 5	≥ 2.4
Ø 5 XS605 steel	≥ 1 (1)	≥ 2 (2)	≥ 0 (3)	≥ 5	≥ 10	≥ 4.5

(1) If mounting environment is ferro-magnetic metal, such as iron, cobalt, nickel, gadolinium, neodymium, etc.
 (2) If mounting environment is non ferro-magnetic metal, such as aluminium, copper, brass, gold, silver, titanium, etc.
 (3) If mounting environment is non-metal, such as plastic, wood, etc.

Tightening torque



Dimensions

Sensor	Pre-cabled		M8 connector	
	a	b	a	b
Ø 4 XS04	30.2	–	38.4	–
Ø 5 XS05	30.2	26.5	38.4	22.1

Inductive proximity sensors

XS range, general purpose

Miniature, cylindrical, flush mountable

Three-wire DC, solid-state output



XS1L04●●310



XS1L04●●310S



XS1N05●●311S



XS1N05●●310

Ø 4 plain

Sensing distance (Sn) mm	Function	Output	Connection (1)	Reference	Weight (kg)
Brass case, flush mountable					
1	NO	PNP	Pre-cabled (L = 2 m)	XS1L04PA310	0,025
			M8 connector	XS1L04PA310S	0.010
	NPN	PNP	Pre-cabled (L = 2 m)	XS1L04NA310	0.025
			M8 connector	XS1L04NA310S	0.010
	NC	PNP	Pre-cabled (L = 2 m)	XS1L04PB310	0.025
			M8 connector	XS1L04PB310S	0.010
		NPN	Pre-cabled (L = 2 m)	XS1L04NB310	0.025
			M8 connector	XS1L04NB310S	0.010

Stainless steel case, flush mountable

0,8	NO	PNP	Pre-cabled (L = 2 m)	XS1L04PA311	0,025
			M8 connector	XS1L04PA311S	0.010
	NPN	PNP	Pre-cabled (L = 2 m)	XS1L04NA311	0.025
			M8 connector	XS1L04NA311S	0.010
	NC	PNP	Pre-cabled (L = 2 m)	XS1L04PB311	0.025
			M8 connector	XS1L04PB311S	0.010
		NPN	Pre-cabled (L = 2 m)	XS1L04NB311	0.025
			M8 connector	XS1L04NB311S	0.010

Ø 5, threaded M5 x 0.5

Sensing distance (Sn) mm	Function	Output	Connection (1)	Reference	Weight (kg)
Brass case, flush mountable					
1	NO	PNP	Pre-cabled (L = 2 m)	XS1N05PA310	0,030
		NPN	Pre-cabled (L = 2 m)	XS1N05NA310	0,030
	NC	PNP	Pre-cabled (L = 2 m)	XS1N05PB310	0,030
		NPN	Pre-cabled (L = 2 m)	XS1N05NB310	0,030

Stainless steel case, flush mountable

0.8	NO	PNP	Pre-cabled (L = 2 m)	XS1N05PA311	0.030
			M8 connector	XS1N05PA311S	0.015
		NPN	Pre-cabled (L = 2 m)	XS1N05NA311	0.030
			M8 connector	XS1N05NA311S	0.015
	NC	PNP	Pre-cabled (L = 2 m)	XS1N05PB311	0.030
			M8 connector	XS1N05PB311S	0.004
		NPN	Pre-cabled (L = 2 m)	XS1N05NB311	0.004
			M8 connector	XS1N05NB311S	0.015

(1) For a 5 m long cable add **L1** to the reference; for a 10 m long cable add **L2** to the reference.

Example: **XS1L04PA310** becomes **XS1L04PA310L1** with a 5 m long cable.

Inductive proximity sensors

XS range, general purpose

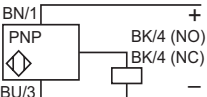
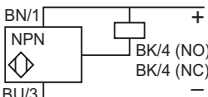
Miniature, cylindrical, flush mountable

Three-wire DC, solid-state output

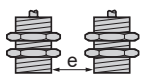
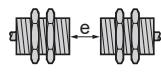
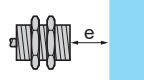
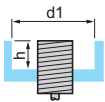
Characteristics			
Sensor type		XS1L04●●●●●●S, XS1N05●●●●●●S	XS1L04●●●●●●, XS1N05●●●●●●
Product certifications		cULus, CE, UKCA	
Connection (1)	Connector	M8	–
	Pre-cabled Length	m	2
Operating zone	Ø 4 brass	mm	0...0.8
	Ø 4 stainless steel	mm	0...0.6
	Ø 5 brass	mm	0...0.8
	Ø 5 stainless steel	mm	0...0.6
Degree of protection	Conforming to IEC 60529	IP 67	
Storage temperature		°C	- 40...+ 85
Operating temperature		°C	- 25...+ 70
Materials	Case	Nickel plated brass or stainless steel 303	
	Cable	PvR 3 x 0.11 mm ²	
Vibration resistance	Conforming to IEC 60068-2-6	25 gn, amplitude ± 2 mm (f = 10 to 55 Hz)	
Shock resistance	Conforming to IEC 60068-2-27	50 gn, duration 11 ms	
Output state indication	LED	Yellow LED	
	Visibility	1 viewing port	
Rated supply voltage		V	— 5...24
Voltage limits (including ripple)		V	— 5...30
Insulation class			II
Current consumption, no-load		mA	≤ 10
Switching capacity	3-wire PNP/NPN	mA	≤ 100 with overload and short-circuit protection
Voltage drop, closed state		V	≤ 2
Maximum switching frequency		kHz	5
Delays	First-up	ms	≤ 5
	Response	ms	≤ 0.1
	Recovery	ms	≤ 0.1

(1) Detection curves, see page 128

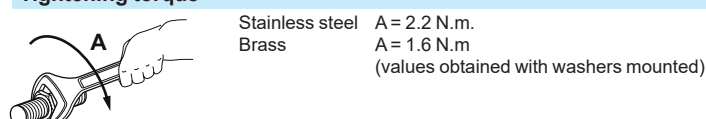
Wiring schemes

Connector	Pre-cabled	PNP 3-wire	NPN 3-wire
M8 	BU: Blue BN: Brown BK: Black		

Setting-up

Minimum mounting distances (mm)				
Sensor	Side by side	Face to face	Facing a metal object	
				
Ø 4 XS1L04●●●●●●	$e \geq 2$	$e \geq 12$	$e \geq 3$	$d1 \geq 4, h \geq 0$
Ø 5 XS1N05●●●●●●	$e \geq 2$	$e \geq 12$	$e \geq 3$	$d1 \geq 5, h \geq 0$

Tightening torque



Dimensions

Sensor	Pre-cabled		M8 connector	
	a	b	a	b
Ø 4 XS1L04●●●●●●	28	–	43	–
Ø 5 XS1N05●●●●●●	28	24	43	24

Inductive proximity sensors

XS range, basic sensors

Cylindrical, standard range, flush and non flush mountable

Three-wire DC, solid-state output



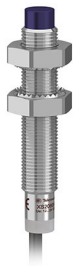
XS108BL●●L●



XS108BL●●M8



XS108BL●●M12



XS208BL●●L●



XS208BL●●M8



XS208BL●●M12



XS112BL●●L●



XS112BL●●M12



XS212BL●●L●



XS212BL●●M12

Sensing distance (Sn)	Function	Output	Connection	Reference	Weight
mm					(kg)
Ø 8, threaded M8 x 1					
Three-wire 12-24 V, flush mountable					
1.5	NO	PNP	Pre-cabled (L = 2 m)	XS108BLPAL2	0.035
			Pre-cabled (L = 5 m)	XS108BLPAL5	0.105
			M8 connector	XS108BLPAM8	0.008
			M12 connector	XS108BLPAM12	0.015
	NPN	Pre-cabled (L = 2 m)	XS108BLNAL2	0.035	
		M12 connector	XS108BLNAM12	0.015	
Three-wire 12-24 V, non flush mountable					
2.5	NO	PNP	Pre-cabled (L = 2 m)	XS208BLPAL2	0.035
			Pre-cabled (L = 5 m)	XS208BLPAL5	0.105
			M8 connector	XS208BLPAM8	0.008
			M12 connector	XS208BLPAM12	0.015
	NPN	Pre-cabled (L = 2 m)	XS208BLNAL2	0.035	
	Ø 12, threaded M12 x 1				
Three-wire 12-24 V, flush mountable					
2	NO	PNP	Pre-cabled (L = 2 m)	XS112BLPAL2	0.070
			Pre-cabled (L = 5 m)	XS112BLPAL5	0.140
			M12 connector	XS112BLPAM12	0.015
	NPN	Pre-cabled (L = 2 m)	XS112BLNAL2	0.070	
		M12 connector	XS112BLNAM12	0.015	
	NC	PNP	Pre-cabled (L = 2 m)	XS112BLPBL2	0.070
			M12 connector	XS112BLPBM12	0.015
		Three-wire 12-24 V, non flush mountable			
4	NO	PNP	Pre-cabled (L = 2 m)	XS212BLPAL2	0.070
			Pre-cabled (L = 5 m)	XS212BLPAL5	0.140
			M12 connector	XS212BLPAM12	0.015
	NPN	Pre-cabled (L = 2 m)	XS212BLNAL2	0.070	
		Pre-cabled (L = 7 m)	XS212BLNAL7	0.185	
		M12 connector	XS212BLNAM12	0.015	
	NC	PNP	Pre-cabled (L = 2 m)	XS212BLPBL2	0.070
			Pre-cabled (L = 5 m)	XS212BLPBL5	0.140
		NPN	Pre-cabled (L = 2 m)	XS212BLNBL2	0.070

Inductive proximity sensors

XS range, basic sensors

Cylindrical, standard range, flush and non flush mountable

Three-wire DC, solid-state output, accessories



XS118BL●●L●



XS118BL●●M12



XS218BL●●L●



XS218BL●●M12



XS130BL●●L●



XS130BL●●M12



XS230BL●●L●



XS230BL●●M12



XSZB1●●



XZCPV1141L●

Sensing distance (Sn)	Function	Output	Connection	Reference	Masse		
mm					(kg)		
Ø 18, threaded M18 x 1							
Three-wire 12-24 V, flush mountable							
5	NO	PNP	Pre-cabled (L = 2 m)	XS118BLPAL2	0.105		
			Pre-cabled (L = 5 m)	XS118BLPAL5	0.175		
			M12 connector	XS118BLPAM12	0.035		
		NPN	Pre-cabled (L = 2 m)	XS118BLNAL2	0.105		
			Pre-cabled (L = 5 m)	XS118BLNAL5	0.175		
			M12 connector	XS118BLNAM12	0.035		
		NC	PNP	Pre-cabled (L = 2 m)	XS118BLPBL2	0.105	
				M12 connector	XS118BLPBM12	0.035	
Three-wire 12-24 V, non flush mountable							
8	NO	PNP	Pre-cabled (L = 2 m)	XS218BLPAL2	0.105		
			Pre-cabled (L = 5 m)	XS218BLPAL5	0.175		
			M12 connector	XS218BLPAM12	0.035		
		NPN	Pre-cabled (L = 2 m)	XS218BLNAL2	0.105		
			M12 connector	XS218BLNAM12	0.035		
		NC	PNP	Pre-cabled (L = 2 m)	XS218BLPBL2	0.105	
				NPN	Pre-cabled (L = 2 m)	XS218BLNBL2	0.105
				Ø 30, threaded M30 x 1.5			
Three-wire 12-24 V, flush mountable							
10	NO	PNP	Pre-cabled (L = 2 m)	XS130BLPAL2	0.165		
			M12 connector	XS130BLPAM12	0.075		
			NPN	Pre-cabled (L = 2 m)	XS130BLNAL2	0.165	
		NC	PNP	Pre-cabled (L = 2 m)	XS130BLPBL2	0.165	
				M12 connector	XS130BLPBM12	0.075	
	Three-wire 12-24 V, non flush mountable						
15	NO	PNP	Pre-cabled (L = 2 m)	XS230BLPAL2	0.155		
			Pre-cabled (L = 5 m)	XS230BLPAL5	0.225		
			M12 connector	XS230BLPAM12	0.085		
		NPN	Pre-cabled (L = 2 m)	XS230BLNAL2	0.155		
			M12 connector	XS230BLNAM12	0.085		
		NC	PNP	Pre-cabled (L = 2 m)	XS230BLPBL2	0.155	

Fixing accessories (1)

Description	For use with sensors	Reference	Weight kg
Fixing clamps	Ø 8	XSZB108	0.006
	Ø 12	XSZB112	0.006
	Ø 18	XSZB118	0.010
	Ø 30	XSZB130	0.020

Cabling accessories (2)

Description	Length of cable (m)	Reference	Weight kg
Pre-wired, straight, female connectors	5	XZCPV1141L5	0.210
	10	XZCPV1141L10	0.390
re-wired, straight, female connectors	5	XZCPV0566L5	0.210
	10	XZCPV0566L10	0.390

(1) See dimensions on page 83.

(2) For other connection accessories, visit our website: www.telemecaniquesensors.com

Inductive proximity sensors

XS range, basic sensors

Cylindrical, standard range, flush and non flush mountable

Three-wire DC, solid-state output

Characteristics							
Sensor type			XS1●●BLP●L● XS1●●BLN●L●	XS1●●BLP●M● XS1●●BLN●M●	XS2●●BLP●L XS2●●BLN●L	XS2●●BLP●M● XS2●●BLN●M●	
Product certifications			cULus, UKCA, CE				
Connection	Pre-cabled		Length 2, 3 or 5 m, depending on model	–	Length 2, 5 or 7 m, depending on model	–	
	Connector		–	M8 on Ø 8 M12 on Ø 8, Ø 12, Ø 18 and Ø 30	–	M8 on Ø 8 M12 on Ø 8, Ø 12, Ø 18 and Ø 30	
Operating zone (1)	Ø 8	mm	0...1.2		0...2		
	Ø 12	mm	0...1.6		0...3.2		
	Ø 18	mm	0...4		0...6.4		
	Ø 30	mm	0...8		0...12		
Differential travel		%	1...15 of effective sensing distance (Sr)				
Degree of protection		Conforming to IEC 60529	IP 65 and IP 67				
Storage temperature		°C	- 40...+ 85				
Operating temperature		°C	- 25...+ 70				
Materials	Case		Nickel plated brass				
	Cable		PVC 3 x 0.14 mm² except Ø 8: 3 x 0.11 mm²	–	PVC 3 x 0.14 mm² except Ø 8: 3 x 0.11 mm²	–	
Vibration resistance		Conforming to IEC 60068-2-6	25 gn, amplitude ± 2 mm (f = 10 to 55 Hz)				
Shock resistance		Conforming to IEC 60068-2-27	50 gn, duration 11 ms				
Output state indication			Yellow LED, on rear	Yellow LED: 2 viewing ports at 180°	Yellow LED, on rear	Yellow LED: 2 viewing ports at 180°	
Rated supply voltage		V	12...24 with protection against reverse polarity				
Voltage limits (including ripple)		V	10...36				
Switching capacity		mA	≤ 200 with overload and short-circuit protection				
Voltage drop, closed state		V	≤ 2				
Current consumption, no-load		mA	≤ 10				
Residual current, open state		mA	–				
Maximum switching frequency	Ø 8	Hz	2500		2500		
	Ø 12	Hz	2500		1200		
	Ø 18	Hz	1200		500		
	Ø 30	Hz	500		300		
Delays	First-up	ms	≤ 15		≤ 15		
	Response	Ø 8	ms	≤ 0.3		≤ 0.3	
		Ø 12	ms	≤ 0.1		≤ 0.1	
		Ø 18	ms	≤ 0.1		≤ 0.1	
		Ø 30	ms	≤ 0.1		≤ 0.2	
		Recovery	Ø 8	ms	≤ 0.3		≤ 0.3
	Ø 12	ms	≤ 0.15		≤ 0.4		
	Ø 18	ms	≤ 0.3		≤ 1		
	Ø 30	ms	≤ 1		≤ 1.4		

Wiring schemes

Connector		Pre-cabled	PNP	NPN
M8	M12	BU: Blue BN: Brown BK: Black		

For M8 connectors, NO and NC outputs on terminal 4

(1) Detection curves, see page 141.

Inductive proximity sensors

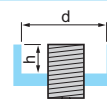
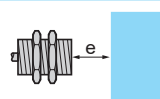
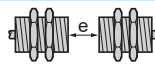
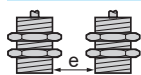
XS range, basic sensors

Cylindrical, standard range, flush and non flush mountable

Three-wire DC, solid-state output

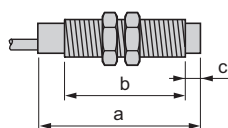
Setting-up

Minimum mounting distances (mm)



Sensors		Side by side	Face to face	Facing a metal object	Mounted in a metal support
Ø 8 flush mountable	XS108BL	$e \geq 3$	$e \geq 18$	$e \geq 4,5$	$d \geq 8$ $h \geq 0$
Ø 8 non flush mountable	XS208BL	$e \geq 10$	$e \geq 30$	$e \geq 7,5$	$d \geq 24$ $h \geq 5$
Ø 12 flush mountable	XS112BL	$e \geq 4$	$e \geq 24$	$e \geq 6$	$d \geq 12$ $h \geq 0$
Ø 12 non flush mountable	XS212BL	$e \geq 16$	$e \geq 48$	$e \geq 12$	$d \geq 36$ $h \geq 8$
Ø 18 flush mountable	XS118BL	$e \geq 10$	$e \geq 60$	$e \geq 15$	$d \geq 18$ $h \geq 0$
Ø 18 non flush mountable	XS218BL	$e \geq 16$	$e \geq 96$	$e \geq 24$	$d \geq 54$ $h \geq 16$
Ø 30 flush mountable	XS130BL	$e \geq 20$	$e \geq 120$	$e \geq 30$	$d \geq 30$ $h \geq 0$
Ø 30 non flush mountable	XS230BL	$e \geq 60$	$e \geq 180$	$e \geq 45$	$d \geq 90$ $h \geq 30$

Dimensions



Flush mountable in metal

Sensors		Pre-cabled (mm)		M8 connector (mm)		M12 connector (mm)	
		a	b	a	b	a	b
Ø 8	XS108BL	42	33	50	34	61	40
Ø 12	XS112BL	44	31	—	—	55	34
Ø 18	XS118BL	53	41	—	—	64	43
Ø 30	XS130BL	57	44	—	—	68	47

Non flush mountable in metal

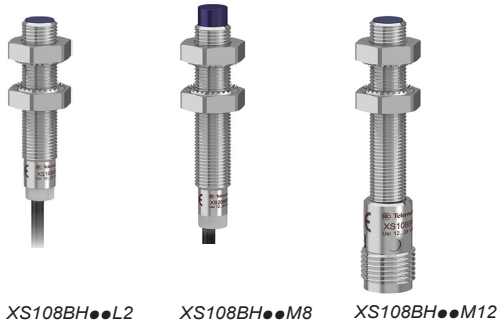
Sensors		Pre-cabled (mm)			M8 connector (mm)			M12 connector (mm)		
		a	b	c	a	b	c	a	b	c
Ø 8	XS208BL	42	29	4	50	32	4	61	36	4
Ø 12	XS212BL	44	26	5	—	—	—	55	29	5
Ø 18	XS218BL	53	33	8	—	—	—	64	35	8
Ø 30	XS230BL	57	32	13	—	—	—	68	34	13

Inductive proximity sensors

XS range, basic sensors

Cylindrical, increased range, flush mountable

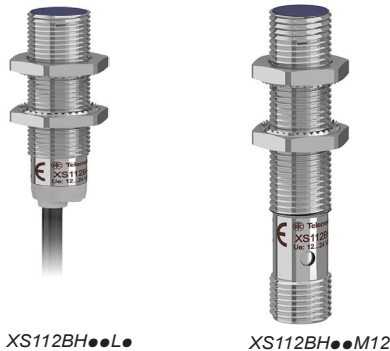
Three-wire DC, solid-state output



XS108BH●●L2

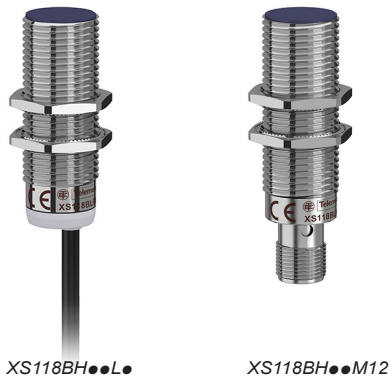
XS108BH●●M8

XS108BH●●M12



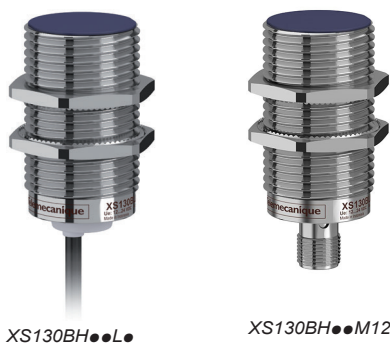
XS112BH●●L●

XS112BH●●M12



XS118BH●●L●

XS118BH●●M12



XS130BH●●L●

XS130BH●●M12



XSZB1●●

XZCPV●●

Sensors, 3-wire $\overline{\text{DC}}$ 12...24 V

Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight (kg)
Ø 8, threaded M8 x 1					
2.5	NO	PNP	Pre-cabled (L = 2 m)	XS108BHPAL2	0.070
			M8 connector	XS108BHPAM8	0.030
			M12 connector	XS108BHPAM12	0.050
	NPN	PNP	Pre-cabled (L = 2 m)	XS108BHNAL2	0.070
			M8 connector	XS108BHNAM8	0.030
			N/C	PNP	Pre-cabled (L = 2 m)
	M8 connector	XS108BHPBM8			0.030
	M12 connector	XS108BHPBM12			0.050
	Ø 12, threaded M12 x 1				
4	NO	PNP	Pre-cabled (L = 2 m)	XS112BHPAL2	0.080
			Pre-cabled (L = 5 m)	XS112BHPAL5	0.150
			M12 connector	XS112BHPAM12	0.025
	NPN	PNP	Pre-cabled (L = 2 m)	XS112BHNAL2	0.080
			M12 connector	XS112BHNAM12	0.025
			N/C	PNP	Pre-cabled (L = 2 m)
	M12 connector	XS112BHPBM12			0.025
	NPN	Pre-cabled (L = 2 m)			XS112BHNBL2
	M12 connector	XS112BHNBM12	0.025		
Ø 18, threaded M18 x 1					
8	NO	PNP	Pre-cabled (L = 2 m)	XS118BHPAL2	0.105
			Pre-cabled (L = 5 m)	XS118BHPAL5	0.175
			M12 connector	XS118BHPAM12	0.035
	NPN	PNP	Pre-cabled (L = 2 m)	XS118BHNAL2	0.105
			M12 connector	XS118BHNAM12	0.035
			N/C	PNP	Pre-cabled (L = 2 m)
	M12 connector	XS118BHPBM12			0.035
	NPN	Pre-cabled (L = 2 m)			XS118BHNBL2
	M12 connector	XS118BHNBM12	0.035		
Ø 30, threaded M30 x 1.5					
15	NO	PNP	Pre-cabled (L = 2 m)	XS130BHPAL2	0.165
			Pre-cabled (L = 5 m)	XS130BHPAL5	0.235
			M12 connector	XS130BHPAM12	0.075
	NPN	PNP	Pre-cabled (L = 2 m)	XS130BHNAL2	0.165
			M12 connector	XS130BHNAM12	0.075
			N/C	PNP	Pre-cabled (L = 2 m)
	M12 connector	XS130BHPBM12			0.075
	NPN	Pre-cabled (L = 2 m)			XS130BHNBL2
	M12 connector	XS130BHNBM12	0.075		

Fixing accessories

Description	For use with sensors	Reference	Weight (kg)
Fixing clamps	Ø 8	XSZB108	0.006
	Ø 12	XSZB112	0.006
	Ø 18	XSZB118	0.010
	Ø 30	XSZB130	0.020

Connection accessories (1)

Description	Cable length m	Reference	Weight (kg)
Pre-wired, straight, female connectors M12 connectors 4-pin, PVC cable	5	XZCPV1141L5	0.210
	10	XZCPV1141L10	0.390
Pre-wired, straight, female connectors M8 connectors 3-pin, PVC cable	5	XZCPV0566L5	0.210
	10	XZCPV0566L10	0.390

(1) For other connection accessories, visit our website: www.telemecaniquesensors.com

Inductive proximity sensors

XS range, basic sensors

Cylindrical, increased range, flush mountable

Three-wire DC, solid-state output

Characteristics			
Sensor type		XS1●●BHP●L● XS1●●BHN●L●	XS1●●BHP●M● XS1●●BHN●M●
Product certifications		cULus, UKCA, CÉ	
Connection	Pre-cabled	Cable length: 2 or 5 m, depending on model	
	Connector	M8 or M12 connector, depending on model	
Operating zone (1)	Ø 8	mm	0...2
	Ø 12	mm	0...3.2
	Ø 18	mm	0...6.4
	Ø 30	mm	0...12
Differential travel		%	1...15 of effective sensing distance (Sr)
Degree of protection	Conforming to IEC 60529		IP 65 and IP 67
Storage temperature		°C	-40...+85
Operating temperature		°C	-25...+70
Materials	Case	Nickel plated brass	
	Cable	PVC (number and c.s.a. of wires: 3 x 0.14 mm ²)	
Vibration resistance	Conforming to IEC 60068-2-6	25 gn, amplitude ± 2 mm (f = 10 to 55 Hz)	
Shock resistance	Conforming to IEC 60068-2-27	50 gn, duration 11 ms	
Output state indication		Yellow LED, on rear	Yellow LED, 2 viewing ports at 180°
Rated supply voltage		V	12...24 with protection against reverse polarity
Voltage limits (including ripple)		V	10...36
Switching capacity		mA	≤ 200 with overload and short-circuit protection
Voltage drop, closed state		V	≤ 2
Current consumption, no-load		mA	≤ 10
Maximum switching frequency	Ø 8	Hz	2500
	Ø 12	Hz	950
	Ø 18	Hz	700
	Ø 30	Hz	200
Delays	First-up	ms	≤ 15
	Response	ms	≤ 0.3
	Recovery	ms	≤ 0.3

Connections			
Connector	Pre-cabled	PNP	NPN
M8 	M12 	BU: Blue BN: Brown BK: Black 	

For M8 connectors, NO and NC outputs on terminal 4

Setting-up precautions					
Minimum mounting distances (mm)					
Sensors	Side by side	Face to face	Facing a metal object	Mounted in a metal support	
Ø 8 XS108BH	e ≥ 5	e ≥ 30	e ≥ 8	—	
Ø 12 XS112BH	e ≥ 8	e ≥ 50	e ≥ 12	—	
Ø 18 XS118BH	e ≥ 16	e ≥ 100	e ≥ 25	—	
Ø 30 XS130BH	e ≥ 30	e ≥ 180	e ≥ 30	h ≥ 2	

(1) See detection curves on page 139.

Sensor dimensions XS1●●BH●●							
		Pre-cabled (mm)		M8 connector (mm)		M12 connector (mm)	
		a	b	a	b	a	b
Ø 8 XS108BH●●	(1) LED	42	33	51	34	61	40
Ø 12 XS112BH●●		49	36	—	—	61	39
Ø 18 XS118BH●●		53	41	—	—	64	43
Ø 30 XS130BH●●		57	44	—	—	68	47

Fixing clamp dimensions XSZB108, XSZBB112, XSZBB118 and XSZBB130							
		a	a1	b	b1	b2	Ø
Ø 8 XSZB108	(1) LED	19.9	14.5	14	12.5	7.5	8
Ø 12 XSZB112		21.9	14.5	16	15.5	8.5	12
Ø 18 XSZB118		26	15.7	22.3	20.1	11.5	18
Ø 30 XSZB130		39	21.7	35.5	31	18.5	30

(1) 2 elongated holes Ø 4 x 8 mm

Inductive proximity sensors

XS range application

Adjustable range sensors

Cylindrical, flush mountable using teach mode ⁽¹⁾

Three-wire DC, solid-state output

103854



XS612B2PAL01M12

Ø 12, threaded M12 x 1					
Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight (kg)
5	NO	PNP	Remote M12 connector on 0.15 m flying lead	XS612B2PAL01M12	0.100
	NC	PNP	Remote M12 connector on 0.15 m flying lead	XS612B2PBL01M12	0.100

Ø 18, threaded M18 x 1					
Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight (kg)
9	NO	PNP	Remote M12 connector on 0.15 m flying lead	XS618B2PAL01M12	0.140
	NC	PNP	Remote M12 connector on 0.15 m flying lead	XS618B2PBL01M12	0.140

Ø 30, threaded M30 x 1.5					
Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight (kg)
18	NO	PNP	Remote M12 connector on 0.15 m flying lead	XS630B2PAL01M12	0.220

XS_515_CPF-JR16004



XSZB112

Accessories ⁽²⁾			
Description	For use with sensors (mm)	Reference	Weight (kg)
Fixing clamps	Ø 12	XSZB112	0.006
	Ø 18	XSZB118	0.010
	Ø 30	XSZB130	0.020

⁽¹⁾ For further information on flush or non-flush mountable sensors using teach mode, see page 22.

⁽²⁾ For further information, see page 120.

Inductive proximity sensors

XS range application

Adjustable range sensors

Cylindrical, flush mountable using teach mode

Three-wire DC, solid-state output

Characteristics				
Sensor type		XS6●●B2●●L01M12		
Product certifications		cULus, CE, UKCA		
Connection	Connector	Remote M12 connector on 0.15 m flying lead		
Sensing distance and adjustment zone	Ø 12	Nominal sensing distance (Sn)	mm	0...5 non-flush mounted / 0...3.4 flush mounted
		Precision adjustment zone	mm	1.7...5 non-flush mounted / 1.7...3.4 flush mounted
	Ø 18	Nominal sensing distance (Sn)	mm	0...9 non-flush mounted / 0...6 flush mounted
		Precision adjustment zone	mm	3...9 non-flush mounted / 3...6 flush mounted
	Ø 30	Nominal sensing distance (Sn)	mm	0...18 non-flush mounted / 0...11 flush mounted
		Precision adjustment zone	mm	6...18 non-flush mounted / 6...11 flush mounted
Differential travel		%	1...15 of effective sensing distance (Sr)	
Degree of protection		Conforming to IEC 60529		IP 67
Storage temperature		°C	- 40...+ 85	
Operating temperature		°C	- 25...+ 70	
Materials	Case	Nickel plated brass		
	Remote control	PBT		
	Cable	PvR - Ø 4.2 mm		
Vibration resistance		Conforming to IEC 60068-2-6		25 gn, amplitude ± 2 mm (f = 10 to 55 Hz)
Shock resistance		Conforming to IEC 60068-2-27		50 gn, duration 11 ms
Indicators	Output state	Yellow LED		
	Supply on and teach mode	Green LED		
Rated supply voltage		V	--- 12...24 with protection against reverse polarity	
Voltage limits (including ripple)		V	--- 10...36	
Insulation class		□		
Switching capacity		mA	≤ 100 with overload and short-circuit protection	
Voltage drop, closed state		V	≤ 2	
Current consumption, no-load		mA	≤ 10	
Maximum switching frequency		Hz	1000	
Delays	First-up	ms	≤ 10	
	Response	ms	≤ 0.3	
	Recovery	ms	≤ 0.7	

Wiring schemes	
Connector	
M12	
PNP	
NPN	

Setting-up			
Minimum mounting distances (mm)			
	Side by side flush mounted		not flush mounted
	Ø 12	e ≥ 14	50
	Ø 18	e ≥ 28	100
	Ø 30	e ≥ 48	180
	Face to face flush mounted		not flush mounted
	Ø 12	e ≥ 50	100
	Ø 18	e ≥ 100	200
	Ø 30	e ≥ 180	360
Facing a metal object			
		e ≥ 3.4	
		e ≥ 6	
		e ≥ 11	

Dimensions			
XS6			
(1) Teach mode button (2) LED			
Connector (mm)			
	a	b	c
Ø 12	59	42	5
Ø 18	64	44	8
Ø 30	62.6	41	13

Inductive proximity sensors

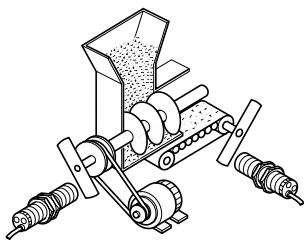
XS range application

Sensors for rotation monitoring, slip detection,
shaft overload detection

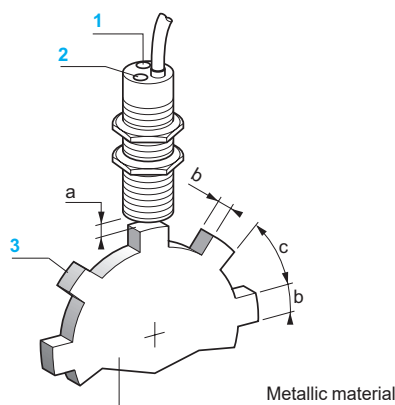
Cylindrical form

Example:
Coupling breakage monitoring

822138



DF602242



Functions

These self-contained rotation speed monitoring sensors have the special feature of incorporating, in the same case, the pulse sensing and processing electronics as well as the output switching amplifier that are required to establish an integrated rotation monitoring device.

The unit provides an economical solution for detecting slip, belt breakage, drive shaft shear and overloading, etc., in the following applications: conveyor belts, bucket elevators, Archimedian screws, grinders, crushers, pumps, centrifugal driers, mixers, etc.

Operating principle

The output signal of this type of sensor is processed by an impulse comparator incorporated in the sensor. The impulse frequency F_c generated by the moving part to be monitored is compared to the frequency F_r preset on the sensor. The output switching circuit of the sensor is in the closed state for $F_c > F_r$ and the open state for $F_c < F_r$.

Sensors XSAV are particularly suitable for the detection of underspeed: when the speed of the moving part F_c falls below a preset threshold F_r , this causes the output circuit of the sensor to switch off.

Note: Following power-up, the operational status of the sensor is subject to a delay of 9 seconds in order for the moving part being monitored to run-up to its nominal speed. During this time, the output of the sensor remains in the closed state.

Adjustment of frequency threshold

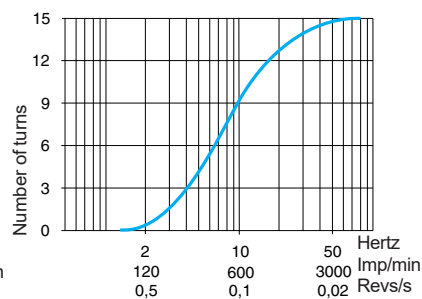
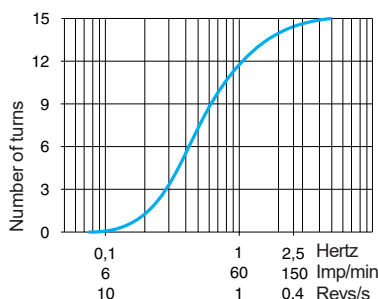
- Adjustment of sensor's frequency threshold: using potentiometer, 15 turns approximately.
- To increase the frequency threshold: turn the adjustment screw clockwise (+).
- To decrease the frequency threshold: turn the adjustment screw anti-clockwise (-).

1: Potentiometer	Diameter of sensor		
2: LED	a	b	c
3: Metal target	M30	4...6 mm	30 mm
			60 mm

Potentiometer adjustment curves (for XSAV1●801, 2-wire ~ or --- sensors)

Low speed version (6...150 impulses/minute)

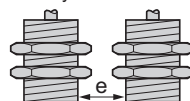
High speed version (120...3000 impulses/minute)



Setting-up

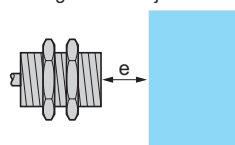
Minimum distances (mm)

Side by side



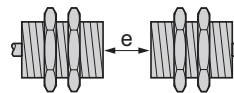
$e \geq 20$

Facing a metal object



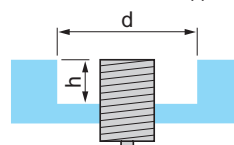
$e \geq 30$

Face to face



$e \geq 120$

Mounted in a metal support



$d \geq 30, h \geq 0$

Fixing nut tightening torque: $< 50 \text{ N.m} / 442.53 \text{ lb-in}$

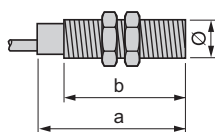
Inductive proximity sensors

XS range application

Sensors for rotation monitoring, slip detection,
shaft overload detection

Cylindrical form

Flush mountable in metal



Lengths (mm):

a = Overall

b = Threaded section

a = 81

b = 67

Ø = M30

	DC	DC	AC/DC	AC/DC
Nominal sensing distance (Sn)	10 mm	10 mm	10 mm	10 mm
Adjustable frequency range	6...150 impulses/min	120...3000 impulses/min	6...150 impulses/min	120...3000 impulses/min

References

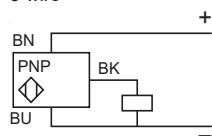
3-wire	PNP / NC	XSAV11373	XSAV12373	—	—
2-wire	— or ~ / NC	—	—	XSAV11801	XSAV12801
Weight (kg)		0.300			

Characteristics

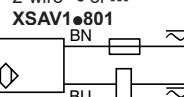
Product certifications		cULus, CCC, CE, UKCA	
Connection		Pre-cabled, 3 x 0.34 mm ² , length 2 m (1)	Pre-cabled, 2 x 0.34 mm ² , length 2 m (1)
Degree of protection conforming to IEC 60529		IP 67	
Operating zone	mm	0...8	
Repeat accuracy	%	3 of Sr	
Differential travel	%	3...15 of Fr	
Operating temperature	°C	-25...+70	
Output state indication		Red LED	
Rated supply voltage	V	— 12...48 with protection against reverse polarity	~ 24...240 (50/60 Hz) or — 24...210
Voltage limits (including ripple)	V	— 10...58	~ or — 20...264
Insulation class		II	
Switching capacity	mA	≤ 200 with overload and short-circuit protection	~ 5...350 or — 5...200 (2)
Voltage drop, closed state	V	≤ 1.8	≤ 5.7
Residual current, open state	mA	—	≤ 1.5
Current consumption, no-load	mA	≤ 15	—
Maximum switching frequency		6000 impulses/min (for XSAV11●●●); 48,000 impulses/min (for XSAV12●●●)	
“Run-up” delay following power-up		9 seconds ± 20 % + 1/Fr (3)	

Wiring schemes

3-wire —



2-wire ~ or —



(1) For a 5 m long cable add L05 to the reference, for a 10 m long cable add L10 to the reference.

Example: XSAV11373 becomes **XSAV11373L05** with a 5 m long cable.

(2) These sensors do not incorporate overload or short-circuit protection and therefore, it is essential to connect a 0.4 A “quick-blow” fuse in series with the load, see page 120.

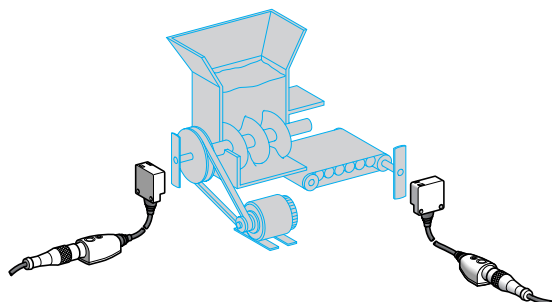
(3) For a sensor without a “run-up” delay following power-up, replace XSAV1 in the reference by XSAV0. Example: XSAV11801 becomes **XSAV01801** without a “run-up” delay. For a reduced “run-up” delay of 3 s, replace XSAV1 in the reference by XSAV3.

Inductive proximity sensors

XS range application

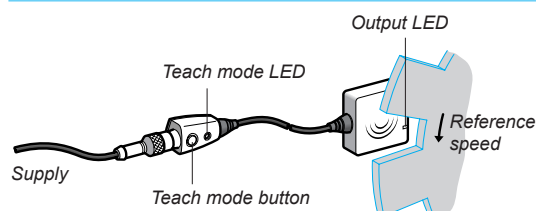
Sensors for rotation monitoring, slip detection and shaft overload detection, with teach mode

Operating principle and applications



- These inductive proximity sensors are designed for monitoring rotational speed or the speed of the flow of objects to be protected or monitored. They operate on the principle of comparing a speed threshold preset by the operator against the instantaneous measurement of the speed of the moving object to be protected.
- They provide a simple, economical solution for detecting slip, belt breakage, coupling breakage and overload, etc.
- They are widely used in grinder/crusher, mixer, pump, centrifugal driver, conveyor belt, bucket elevator, Archimedeian screw, etc. type applications.

Installation and setting-up



Setting-up and positioning the sensor

- In the positioning phase, the XS9 sensor can operate as a standard inductive sensor (Schneider Electric patent). Operation in inductive mode enables validation of reliable detection of all the moving objects to be monitored.
- Using this system, the positioning is therefore made 100 % reliable and can be checked at any time without altering the settings of the sensor.

Speed adjustment in teach mode

- The normal or reference speed of the moving object (1) to be monitored is adjusted by simply pressing the teach mode button (2) and is then validated by the display LED.
- If in doubt, the sensor can be reset at any time to the factory settings.
- (1) To allow the moving object to reach its normal speed (machine inertia), the sensor holds its output closed for 9 seconds.
- (2) The sensor's default drop-out underspeed corresponds to the preset speed - 30 %.

Example: If the preset speed is 1000 rpm, the sensor drops out on underspeed when the speed of the moving object drops below $1000 - (1000 \times 0.3) = 700$ rpm.

- 20 %, - 11 % and - 6 % thresholds can be obtained by pressing the teach mode button.

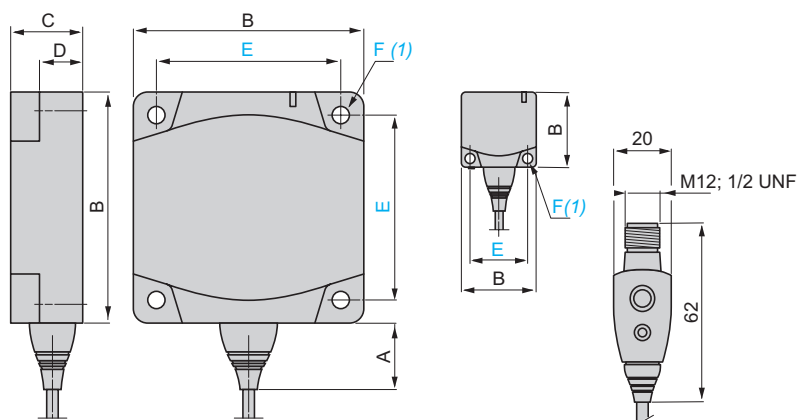
Setting-up

Minimum mounting distances (mm)

Type	Side by side	Face to face
XS9E	$e \geq 40$	$e \geq 80$
XS9C	$e \geq 60$	$e \geq 120$

Dimensions

XS9E, XS9C



(1) For CHC type screws

Type	A	B	C	D	E	F
XS9E	14	26	13	8.8	20	3.5
XS9C	14	40	15	9.8	33	4.5

Inductive proximity sensors

XS range application

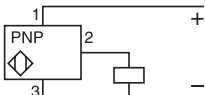
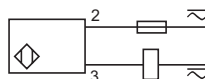
Sensors for rotation monitoring, slip detection and shaft overload detection, with teach mode

Sensor type		Flush mountable in metal PBT case		
				
Nominal sensing distance (Sn)		10 mm		15 mm
Adjustable frequency range		6...6000 impulses/min		
References				
3-wire	PNP / NC	XS9E11RPBL01M12	–	–
2-wire	– or ~ / NC	–	XS9E11RMBL01U20	XS9C11RMBL01U20
Weight (kg)		0.040	0.040	0.060
Characteristics				
Product certifications		cULus, CE, UKCA		
Connection		Remote M12 connector on 0.15 m flying lead		Remote 1/2"-20UNF connector on 0.15 m flying lead
Operating zone		mm	0...8	0...12
Degree of protection		Conforming to IEC 60529 IP 67		
Storage temperature		°C	- 40...+ 85	
Operating temperature		°C	- 25...+ 70	
Vibration resistance		Conforming to IEC 60068-2-6 25 gn, amplitude ± 2 mm (f = 10 to 55 Hz)		
Shock resistance		Conforming to IEC 60068-2-27 50 gn, duration 11 ms		
Indicators		Output state Yellow LED		
		Supply on Green LED		
Rated supply voltage		V	– 12...24	~ or – 24...240 (50/60 Hz)
Voltage limits (including ripple)		V	– 10...36	~ or – 20...264
Insulation class		I		
Switching capacity		mA	≤ 100 (1)	~ or – 5...100 (2) – 5...200, ~ 5...300(2)
Voltage drop, closed state		V	≤ 2	≤ 5.5
Residual current, open state		mA	≤ 100	≤ 1.5
Current consumption, no-load		mA	≤ 10	–
Maximum switching frequency		48,000 impulses/min		
“Run-up” delay following power-up		9 seconds + 1/Fr		

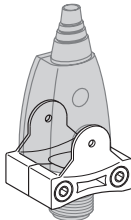
(1) With overload and short-circuit protection.

(2) It is essential to connect a 0.4 A "quick-blow" fuse in series with the load.

Wiring schemes

Connector		3-wire –	2-wire ~ or –
M12	1/2"-20UNF	XS9•11RPBL01M12	XS9•11RMBL01U20
			

Accessory (1)

	Description	Reference	Weight (kg)
	Remote control fixing clamp	XSZBPM12	0.015

XSZBPM12

(1) For accessories, see page 120.

Inductive proximity sensors

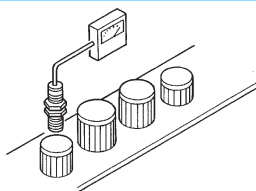
XS range application

Sensors with analogue output signal 0...10 V ⁽¹⁾
or 4...20 mA

For position, displacement and deformation control/monitoring

Functions

Example:
Sorting parts



These analogue output proximity sensors are solid-state sensors designed for monitoring displacement. They are not measuring sensors. They are suitable for use in many sectors, particularly for applications involving:

- deformation and displacement monitoring,
- vibration amplitude and frequency monitoring,
- control of dimensional tolerances,
- position control,
- concentricity or eccentricity monitoring.

Operating principle

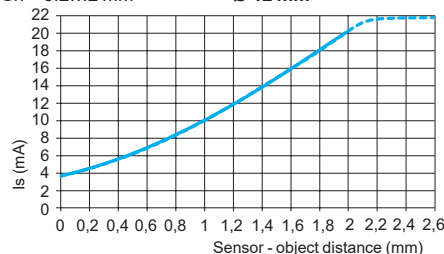
The operating principle of the sensor is that of a damped oscillator. The degree of damping will depend on the distance of an object from the sensing face. The sensor will sense the distance and produce an output current with a value directly proportional to this distance.

Output curves 4...0.20 mA, 2-wire connection

XS1M12AB120

Sn = 0.2...2 mm

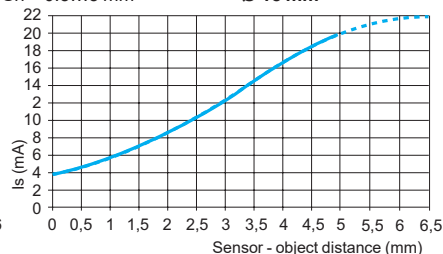
Ø 12 mm



XS1M18AB120

Sn = 0.5...5 mm

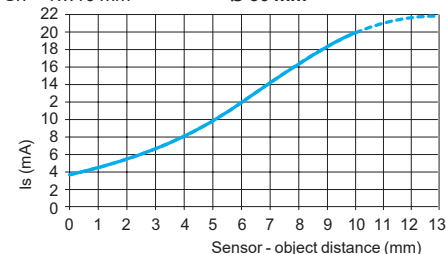
Ø 18 mm



XS1M30AB120

Sn = 1...10 mm

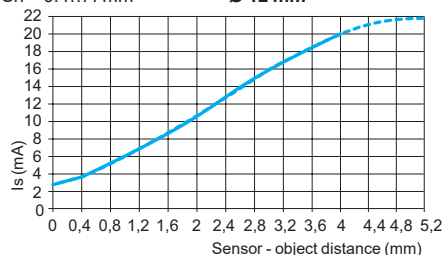
Ø 30 mm



XS4P12AB120

Sn = 0.4...4 mm

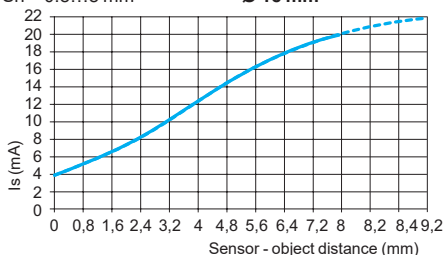
Ø 12 mm



XS4P18AB120

Sn = 0.8...8 mm

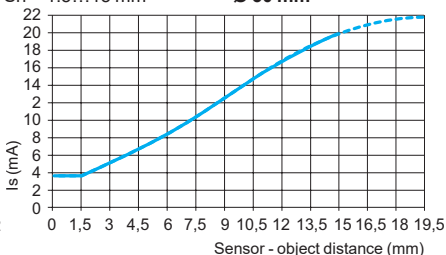
Ø 18 mm



XS4P30AB120

Sn = 1.5...15 mm

Ø 30 mm

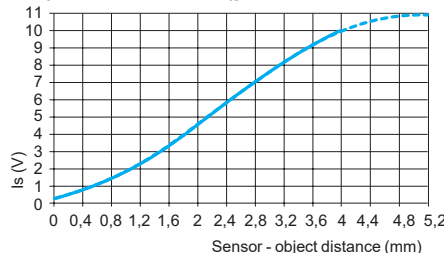


Output curves 0...10 V, 3-wire connection

XS4P12AB110

Sn = 0.4...4 mm

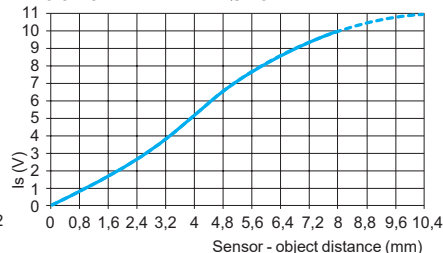
Ø 12 mm



XS4P18AB110

Sn = 0.8...8 mm

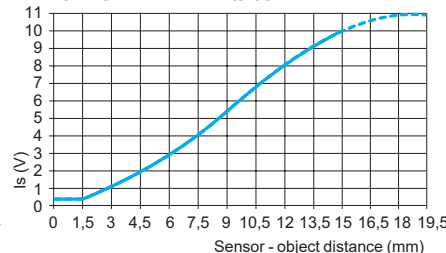
Ø 18 mm



XS4P30AB110

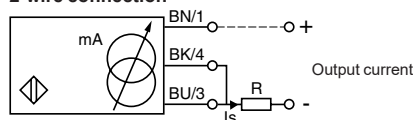
Sn = 1.5...15 mm

Ø 30 mm



Wiring schemes

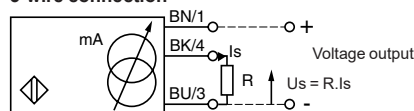
2-wire connection



	Output current	Load impedance value
12 V	4...20 mA	$R \leq 8.2 \Omega$
24 V	4...20 mA	$R \leq 470 \Omega$

Ensure a minimum of 10 V between the + and the - (terminal 3) of the sensor.

3-wire connection



	Output current	Load impedance value	Output voltage	Load impedance value
24 V	0...10 mA	$R \leq 1500 \Omega$	0...10 V	$R = 1000 \Omega$
48 V	0...10 mA	$R \leq 3300 \Omega$	0...10 V	$R = 1000 \Omega$

Ensure a minimum of 5 V between the + and the sensor output (terminal 4).

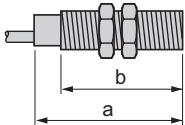
⁽¹⁾ Voltage range only obtained with a load impedance of 1000 Ω .

Inductive proximity sensors

XS range application

Sensors with analogue output signal 0...10 V ⁽¹⁾
or 4...20 mA

For position, displacement and deformation control/monitoring

Sensor type	Flush mountable in metal		Non-flush mountable in metal	
				
Lengths: a = Overall b = Threaded section	mm	a = 50 b = 42	a = 50 b = 42	a = 54 b = 42
		Metal case	Plastic case	Plastic case
Nominal sensing distance (S _n)	mm	2	4	4
References				
3-wire --- Output 0...10 V ⁽²⁾		–	–	XS4P12AB110 ⁽⁴⁾
2-wire --- Output 4...20 mA ⁽²⁾		XS1M12AB120 ⁽³⁾ ⁽⁴⁾	XS4P12AB120 ⁽⁴⁾	–
Weight	kg	0.075	0.065	0.065
Characteristics				
Product certifications		cULus, CE, UKCA		
Connection		Pre-cabled, PvR 3 x 0.34 mm ² , length 2 m		
Degree of protection Conforming to IEC 60529		IP 67		
Operating zone	mm	0.2...2	0.4...4	0.4...4
Repeat accuracy	%	± 3		
Linearity error	mA	± 2		± 1 V
Ambient air temperature	°C	For operation: - 25...+ 70		
Rated supply voltage	V	--- 12...24	--- 12...24	--- 24...48
Voltage limits (including ripple)	V	--- 10...36	--- 10...36	--- 15...58
Insulation class		□	□	□
Output current drift	%	≤ 10 (ambient temperature: - 25...+ 70 °C)		
Current consumption, no-load	mA	4		
Maximum operating rate	Hz	1500		

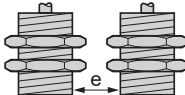
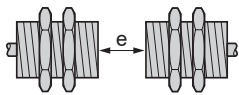
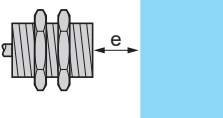
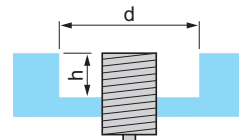
⁽¹⁾ Voltage range only obtained with a load impedance of 1000 Ω.

⁽²⁾ Output current range I_s, see page 82.

⁽³⁾ Add D at the end of reference for M12 connector version

⁽⁴⁾ For 5 m cable, add L1 at the end of the reference

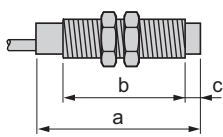
Setting-up

Minimum mounting distances (mm)	Side by side	Face to face	Facing a metal object	Mounted in a metal support
				
XS1M12AB120 flush mountable	e ≥ 4	e ≥ 24	e ≥ 6	d ≥ 12, h ≥ 0
XS4P12AB110 non-flush mountable	e ≥ 16	e ≥ 48	e ≥ 12	d ≥ 36, h ≥ 8
XS4P12AB120 non-flush mountable	e ≥ 16	e ≥ 48	e ≥ 12	d ≥ 36, h ≥ 8
Fixing nut tightening torque	< 6 N.m (metal case), < 2 N.m (plastic case)			
Other versions	Please consult our Customer Care Centre.			

Inductive proximity sensors

XS range application

Sensors with analogue output signal 0...10 V ⁽¹⁾
or 4...20 mA

Sensor type	Flush mountable in metal		Non-flush mountable in metal	
				
Lengths (mm): a = Overall b = Threaded section c = For non-flush mountable sensors	mm	a = 53 b = 44 c = 0	a = 41 b = 26 c = 8	a = 41 b = 26 c = 8
		Metal case	Plastic case	Plastic case
Nominal sensing distance (S _n)	mm	5	8	8

References				
3-wire 	Output 0...10 V ⁽²⁾	—	—	XS4P18AB110 ⁽⁴⁾
2-wire 	Output 4...20 mA ⁽²⁾	XS1M18AB120 ⁽³⁾ ⁽⁴⁾	XS4P18AB120 ⁽⁴⁾	—
Weight	kg	0.120	0.080	0.080

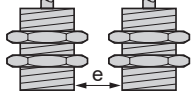
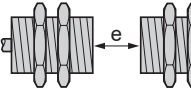
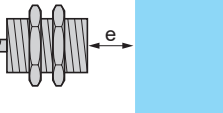
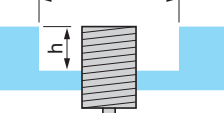
Characteristics				
Product certifications		cULus, CE, UKCA		
Connection		Pre-cabled, PvR 3 x 0.34 mm ² , length 2 m		
Degree of protection Conforming to IEC 60529		IP 67		
Operating zone	mm	0.5...5	0.8...8	0.8...8
Repeat accuracy	%	± 3		
Linearity error	mA	± 2		± 1 V
Ambient air temperature	°C	For operation: - 25...+ 70		
Rated supply voltage	V	12...24	12...24	24...48
Voltage limits (including ripple)	V	10...36	10...36	15...58
Insulation class				
Output current drift	%	≤ 10 (ambient temperature: - 25...+ 70 °C)		
Current consumption, no-load	mA	4		
Maximum operating rate	Hz	500		

⁽¹⁾ Voltage range only obtained with a load impedance of 1000 Ω.

⁽²⁾ Output current range I_s, see page 82.

⁽³⁾ Add D at the end of reference for M12 connector version

⁽⁴⁾ For 5 m cable, add L1 at the end of the reference

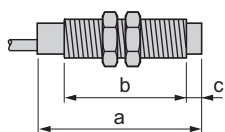
Setting-up				
Minimum mounting distances (mm)	Side by side	Face to face	Facing a metal object	Mounted in a metal support
				
XS1M18AB120 flush mountable	e ≥ 10	e ≥ 60	e ≥ 15	d ≥ 18, h ≥ 0
XS4P18AB110 non-flush mountable	e ≥ 32	e ≥ 96	e ≥ 24	d ≥ 54, h ≥ 16
XS4P18AB120 non-flush mountable	e ≥ 32	e ≥ 96	e ≥ 24	d ≥ 54, h ≥ 16
Fixing nut tightening torque	< 15 N.m (metal case), < 5 N.m (plastic case)			
Other versions	Please consult our Customer Care Centre.			

Inductive proximity sensors

XS range application

Sensors with analogue output signal 0...10 V ⁽¹⁾
or 4...20 mA

Sensor type	Flush mountable in metal	Non-flush mountable in metal
-------------	--------------------------	------------------------------



Lengths:

a = Overall

b = Threaded section

c = For non-flush mountable sensors

mm

a = 50
b = 42
c = 0

a = 53
b = 32
c = 13

a = 53
b = 32
c = 13

Metal case

Plastic case

Plastic case

Nominal sensing distance (Sn)

mm

10

15

15

References

3-wire ---	Output 0...10 V (2)	—	—	XS4P30AB110
2-wire ---	Output 4...20 mA (2)	XS1M30AB120 (3)	XS4P30AB120	—
Weight	kg	0.200	0.100	0.100

Characteristics

Product certifications		cULus, CE, UKCA		
Connection		Pre-cabled, PvR 3 x 0.34 mm ² , length 2 m		
Degree of protection Conforming to IEC 60529		IP 67		
Operating zone	mm	1...10	1.5...15	1.5...15
Repeat accuracy	%	± 3		
Linearity error	mA	± 2		
Ambient air temperature	°C	For operation: - 25...+ 70		
Rated supply voltage	V	--- 12...24	--- 12...24	--- 24...48
Voltage limits (including ripple)	V	--- 10...36	--- 10...36	--- 15...58
Insulation class		□	□	□
Output current drift Ambient temperature: - 25...+ 70 °C	%	≤ 10		
Current consumption, no-load	mA	4		
Maximum operating rate	Hz	300		

(1) Voltage range only obtained with a load impedance of 1000 Ω.

(2) Output current range Is, see page 82.

(3) Add D at the end of reference for M12 connector version

Setting-up

Minimum mounting distances (mm)	Side by side	Face to face	Facing a metal object	Mounted in a metal support

XS1M30AB120 flush mountable	e ≥ 20	e ≥ 120	e ≥ 30	d ≥ 30, h ≥ 0
XS4P30AB110 non-flush mountable	e ≥ 60	e ≥ 180	e ≥ 45	d ≥ 90, h ≥ 30
XS4P30AB120 non-flush mountable	e ≥ 60	e ≥ 180	e ≥ 45	d ≥ 90, h ≥ 30

Fixing nut tightening torque < 40 N.m (metal case), < 20 N.m (plastic case)

Other versions Please consult our Customer Care Centre.

Inductive proximity sensors

XS range application

Sensors with analogue output signal 0...10 V ⁽¹⁾

For position, displacement and deformation control/monitoring

Functions

These analogue output proximity sensors are solid-state sensors designed for monitoring displacement. They are not measuring sensors.

They are suitable for use in many sectors, particularly for applications involving:

- ☐ deformation and displacement monitoring,
- ☐ vibration amplitude and frequency monitoring,
- ☐ control of dimensional tolerances,
- ☐ position control,
- ☐ concentricity or eccentricity monitoring.

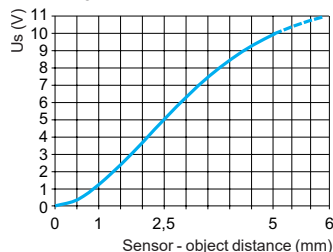
Operating principle

The operating principle of the sensor is that of a damped oscillator. The degree of damping will depend on the distance of an object from the sensing face. The sensor will sense the distance and produce an output current with a value directly proportional to this distance.

Output curves 0...10 V, 3-wire connection

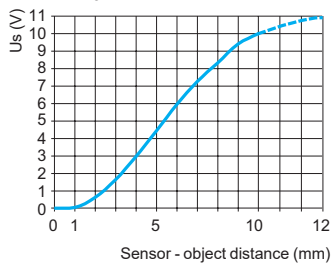
XS9F

$S_n = 1 \dots 5 \text{ mm}$



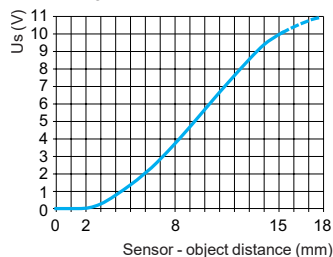
XS9E

$S_n = 1 \dots 10 \text{ mm}$



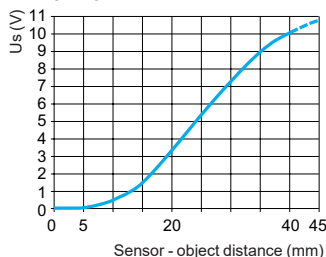
XS9C

$S_n = 2 \dots 15 \text{ mm}$



XS9D

$S_n = 5 \dots 40 \text{ mm}$



Wiring schemes

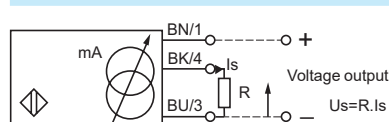
Connector



Pre-cabled

BN: Brown
BU: Blue
BK: Black

3-wire connection



	Output current	Load impedance value	Output voltage	Load impedance value
24 V	0...10 mA	$R \leq 1400 \Omega$	0...10 V	$R = 1000 \Omega$

Note: Ensure a minimum of 5 V between the + (terminal 1) and the sensor output (terminal 4).

⁽¹⁾ Voltage range only obtained with a load impedance of 1000 Ω .

Inductive proximity sensors

XS range application

Sensors with analogue output signal 0...10 V ⁽¹⁾

For position, displacement and deformation
control/monitoring

Flush mountable in metal



PBT case



Nominal sensing distance (S _n)	mm	10	15
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References

3-wire $\overline{\text{---}}$ 0...10 V	Pre-cabled (L = 2 m) (2)	XS9E111A1L2	XS9C111A1L2
Weight	kg	0.075	0.095

Characteristics

Product certifications		cULus, CE, UKCA, ECOLAB
Connection	Pre-cabled	PvR 3 x 0.34 mm ² , length 2 m for XS9●111A●L2
Operating zone	mm	1...10 2...15
Degree of protection Conforming to IEC 60529	Pre-cabled	IP 68
Storage temperature	°C	- 40...+ 85
Operating temperature	°C	- 25...+ 70
Materials		PBT case
Vibration resistance	Conforming to IEC 60068-2-6	25 gn, amplitude $\pm$ 2 mm (f = 10 to 55 Hz)
Shock resistance	Conforming to IEC 60068-2-27	50 gn, duration 11 ms
Output state indication		No
Rated supply voltage	V	$\overline{\text{---}}$ 24
Voltage limits (including ripple)		$\overline{\text{---}}$ 15...36
Insulation class		□
Repeat accuracy	%	$\pm$ 3
Linearity error	V	$\pm$ 1
Current consumption, no-load	mA	$\leq$ 4 with overload and short-circuit protection
Maximum operating frequency	Hz	1000
Output current drift	%	$\leq$ 10 (throughout the operating temperature range)

Dimensions

	XS9E/C			XS9C			XS9E	
Type	A (L2)	B	C	D	E	F		
XS9E	14	26	13	8.8	20	3.5		
XS9C	14	40	15	9.8	33	4.5		

(3) For CHC type screws

Setting-up (Minimum mounting distances (mm))

Type	Side by side	Face to face	Facing a metal object
XS9E			
XS9C			

(1) Voltage range only obtained with a load impedance of 1000 Ω .

(2) For a 5 m long cable replace L2 by L5, for a 10 m long cable replace L2 by L10.

Example: XS9C111A1L2 becomes XS9C111A1L5 with a 5 m long cable.

Inductive proximity sensors

XS range application

Sensors with analogue output signal 4...20 mA

For position, displacement and deformation control/monitoring

Functions

These analogue output proximity sensors are solid-state sensors designed for monitoring displacement. They are not measuring sensors.

They are suitable for use in many sectors, particularly for applications involving:

- ☐ deformation and displacement monitoring,
- ☐ vibration amplitude and frequency monitoring,
- ☐ control of dimensional tolerances,
- ☐ position control,
- ☐ concentricity or eccentricity monitoring.

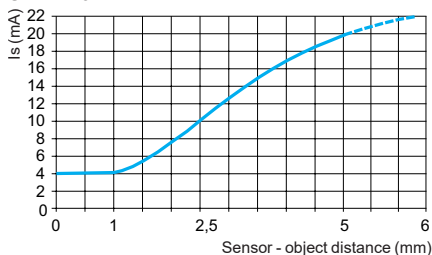
Operating principle

The operating principle of the sensor is that of a damped oscillator. The degree of damping will depend on the distance of an object from the sensing face. The sensor will sense the distance and produce an output current with a value directly proportional to this distance.

Output curves 4...20 mA, 2-wire connection

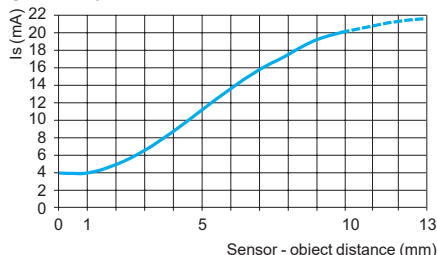
XS9F

Sn = 1...5 mm



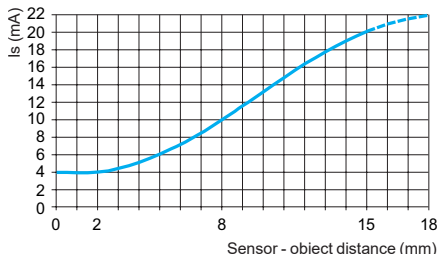
XS9E

Sn = 1...10 mm



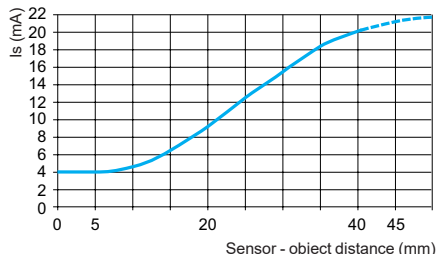
XS9C

Sn = 2...15 mm



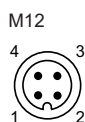
XS9D

Sn = 5...40 mm



Wiring schemes

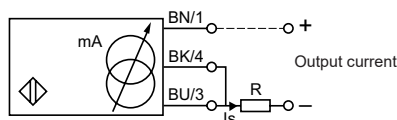
Connector



Pre-cabled

BN: Brown
BU: Blue
BK: Black

2-wire connection



	Output current	Load impedance value
12 V	4...20 mA	$R \leq 8.2 \Omega$
24 V	4...20 mA	$R \leq 470 \Omega$

Note: Ensure a minimum of 10 V between the + (terminal 1) and - (terminal 3) of the sensor.

Inductive proximity sensors

XS range application

Sensors with analogue output signal 4...20 mA

For position, displacement and deformation
control/monitoring

Sensor type	Flush mountable in metal
	PBT case



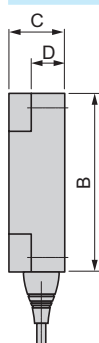
Nominal sensing distance (Sn)	mm	10	15	40
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References					
2-wire ---	Pre-cabled (L = 2 m) (1)		XS9E111A2L2	XS9C111A2L2	XS9D111A2L2
4...20 mA	Connector		—	—	XS9D111A2M12
Weight	Pre-cabled (L = 2 m)	kg	0.075	0.095	0.340
	Connector	kg	—	—	0.320

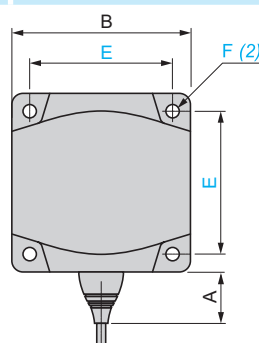
Characteristics					
Product certifications		cULus, CE, UKCA, ECOLAB			
Connection	Pre-cabled	PvR 3 x 0.34 mm ² , length 2 m			
	Connector	—			
Operating zone		mm	1...10	2...15	5...40
Degree of protection	Pre-cabled	IP 68			
	Connector	IP 67			
Storage temperature		°C	- 40...+ 85		
Operating temperature			- 25...+ 70		
Materials			PBT case		
Vibration resistance	Conforming to IEC 60068-2-6		25 gn, amplitude ± 2 mm (f = 10 to 55 Hz)		
Shock resistance	Conforming to IEC 60068-2-27		50 gn, duration 11 ms		
Output state indication			No		
Rated supply voltage		V	--- 12...24		
Voltage limits (including ripple)		V	--- 10...36		
Insulation class			□ □ □		
Repeat accuracy		%	± 3		
Linearity error		mA	± 2		
Current consumption, no-load		mA	≤ 4 with overload and short-circuit protection		
Maximum operating frequency		Hz	1000		
Output current drift		%	≤ 10 (throughout the operating temperature range)		

Dimensions

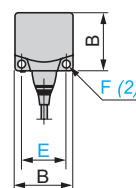
XS9E/C/D



XS9C/D



XS9E



(2) For CHC type screws

Type	A (L2)	A (M12)	B	C	D	E	F
XS9E	14	—	26	13	8.8	20	3.5
XS9C	14	—	40	15	9.8	33	4.5
XS9D	23	14	80	26	16	65	5.5

Setting-up (Minimum mounting distances (mm))

Type	Side by side	Face to face	Facing a metal object
XS9E			
XS9C	$e \geq 30$ $e \geq 45$	$e \geq 72$ $e \geq 110$ $e \geq 300$	$e \geq 30$ $e \geq 45$
XS9D	$e \geq 120$		$e \geq 120$

(1) For a 5 m long cable replace L2 by L5; for a 10 m long cable replace L2 by L10.
Example: XS9E111A2L2 becomes XS9E111A2L5 with a 5 m long cable.

Inductive proximity sensors

XS range application

Sensors with analogue output signal 0...10 V ⁽¹⁾
or 4...20 mA. Plastic case, 40 x 40 mm front face
5-position turret head

Sensor type	Non-flush mountable in metal		
Dimensions	mm	40 x 40 x 70	40 x 40 x 117



Nominal sensing distance (Sn)	mm	25
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References

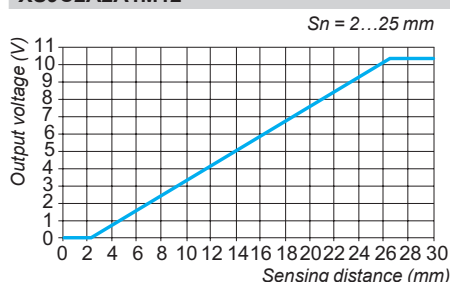
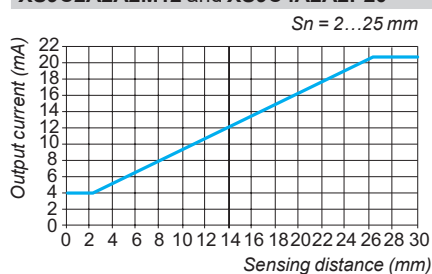
3-wire ---	0...10 V output ⁽¹⁾	XS9C2A2A1M12	—
2-wire ---	4...20 mA output	XS9C2A2A2M12	XS9C4A2A2P20 ⁽²⁾
XS9C4...P20 sensors are available with an ISO M20 cable entry and can be supplied with a PG 13.5 (e.g. XS9C4A2A1G13) or a 1/2" NPT (e.g. XS9C4A2A2N12) cable entry: please consult our Customer Care Centre for more information.			
Weight	kg	0.149	0.244

Characteristics

Product certifications		cULus, CE, UKCA
Conformity to standards		IEC 60947-5-2 and IEC 60947-5-7
Connection		M12 connector (4-pin) Screw terminals, clamping capacity 3 x 1.5 mm ² / 3 x 16 AWG
Operating zone	mm	2...27
Linearity error	%	< 3
Repeat accuracy	%	< 3
Output current drift	%	< 5
Degree of protection	Conforming to IEC 60529 and DIN 40050	IP 65, IP 67 and IP 69K
Temperature	Storage	°C - 40...+ 85
	Operation ⁽³⁾	°C - 25...+ 70
Material	Case	PBT
Vibration resistance	Conforming to IEC 60068-2-6	25 gn, amplitude ± 2 mm (f = 10...55 Hz)
Shock resistance	Conforming to IEC 60068-2-27	50 gn for 11 ms
Indicators	Output state (alignment aid)	Yellow LED
Rated supply voltage	4...20 mA	V --- 12...24 with protection against reverse polarity
	0...10 V	V --- 24 with protection against reverse polarity
Voltage limits (including ripple)	4...20 mA	V --- 12...36
	0...10 V	V --- 15...36
Insulation class		II
Current consumption, no-load	3-wire ---	mA < 4
Delays	First-up	ms < 7
	Response	ms < 6
	Recovery	ms < 6

Analogue outputs 4-20 mA and 0-10 V

XS9C2A2A2M12 and XS9C4A2A2P20	XS9C2A2A1M12
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⁽¹⁾ Voltage range only obtained with a load impedance of 1000 Ω.

⁽²⁾ These sensors are supplied without a cable gland. An adaptable PG 13.5 cable gland is available (reference XSZPE13).

⁽³⁾ Sensors are available for very low temperatures (suffix TF: - 40°C, + 70°C) or very high temperatures (suffix TT: - 25°C, + 85°C); please consult our Customer Care Centre.

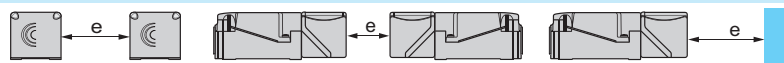
Inductive proximity sensors

XS range application

Sensors with analogue output signal 0...10 V ⁽¹⁾
or 4...20 mA. Plastic case, 40 x 40 mm front face
5-position turret head

Setting-up precautions

Minimum mounting distances (mm)



Side by side

Face to face

Facing a metal object

Sensors non-flush mountable in metal

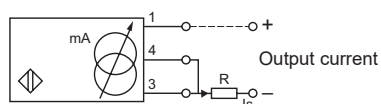
$e \geq 120$

$e \geq 240$

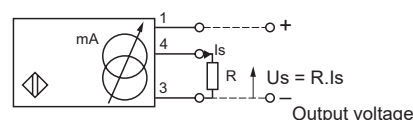
$e \geq 90$

Wiring schemes

2-wire



3-wire



	Output current	Load impedance value
12 V	4...20 mA	$R \leq 82 \Omega$
24 V	4...20 mA	$R \leq 560 \Omega$

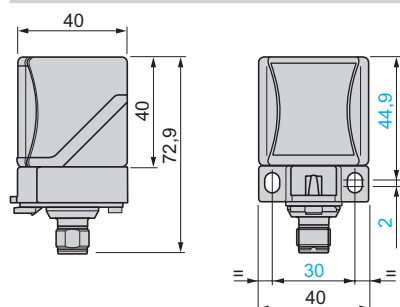
Ensure a minimum of 10 V between the + and the - (terminal 3) of the sensor.

	Output current	Load impedance value	Output voltage	Load impedance value
12 V	0...10 mA	$R \leq 630 \Omega$	—	—
24 V	0...10 mA	$R \leq 1500 \Omega$	0...10 V	$R = 1000 \Omega$

Ensure a minimum of 5 V between the + and the sensor output (terminal 4).

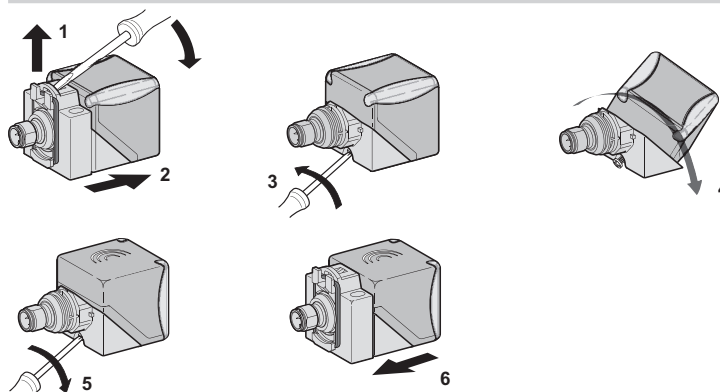
Dimensions

XS9C2A2A1M12 and XS9C2A2A2M12

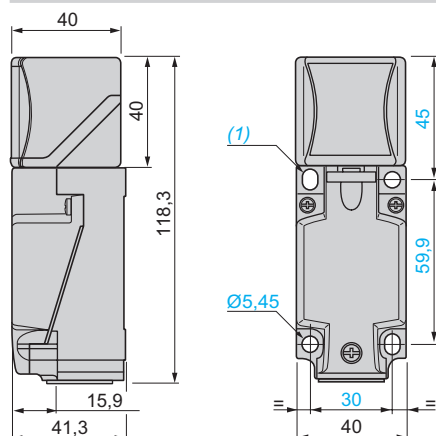


Head positions

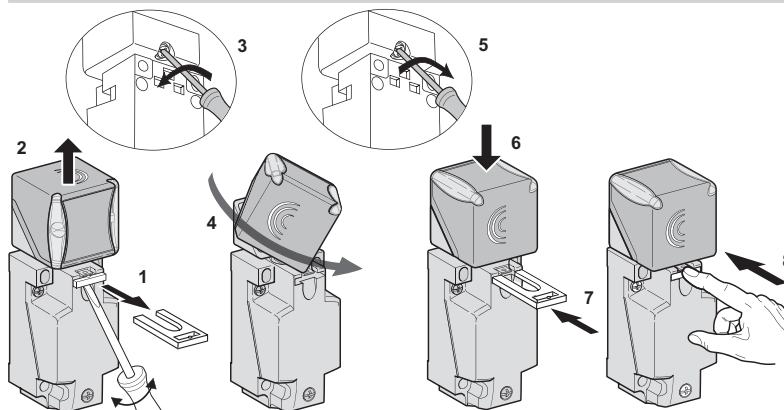
XS9C2A2A1M12 and XS9C2A2A2M12



XS9C4A2A2P20



XS9C4A2A2P20



(1) 2 elongated holes $\varnothing 5.3 \times 7$ mm.

Tightening torque of cover fixing screws and clamp screws: < 1.2 N.m / < 10.62 lb-in

(1) Voltage range only obtained with a load impedance of 1000 Ω .

Inductive proximity sensors

XS range application

Cylindrical, stainless steel 316L front face
for food and beverage applications and harsh industrial
environments. Three-wire DC, solid-state output



XS912●1PAM12



XS918●1PAM12



XS930●1PAM12



XSZBS30



XUZA118



XZCPA1241L●



XZCP1141L●

Ø 12 mm, threaded M12 x 1

Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight (kg)
Three-wire 12-24V ---, flush mountable					
6	NO	PNP	M12	XS912S1PAM12	0.024

Three-wire 12-24V ---, non-flush mountable

10	NO	PNP	M12	XS912S4PAM12	0.023
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Ø 18 mm, threaded M18 x 1

Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight (kg)
Three-wire 12-24V ---, flush mountable					
10	NO	PNP	M12	XS918S1PAM12	0.051

Three-wire 12-24V ---, non-flush mountable

20	NO	PNP	M12	XS918S4PAM12	0.051
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Ø 30 mm, threaded M30 x 1.5

Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight (kg)
Three-wire 12-24V ---, flush mountable					
20	NO	PNP	M12	XS930S1PAM12	0.140

Three-wire 12-24V ---, non-flush mountable

40	NO	PNP	M12	XS930S4PAM12	0.145
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Accessories

Description	For use with sensors (mm)	Reference	Weight (kg)
Fixing clamps	Ø 12	XSZBS12	0.090
	Ø 18	XUZA118	0.190
	Ø 30	XSZBS30	0.370

Connecting cables (PVC) (1)

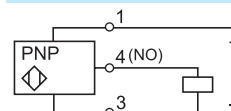
Description	Type	Length m	Reference	Weight (kg)
Pre-wired M12 connectors Female, 4-pin Stainless steel clamping ring	Straight	2	XZCPA1141L2	0.090
		5	XZCPA1141L5	0.190
		10	XZCPA1141L10	0.370
	Elbowed	2	XZCPA1241L2	0.090
		5	XZCPA1241L5	0.190
		10	XZCPA1241L10	0.370

Wiring schemes

M12 connector



PNP



(1) For further information, please consult our site www.telemecaniquesensors.com.

Inductive proximity sensors

XS range application

Cylindrical, stainless steel 316L front face
for food and beverage applications and harsh industrial
environments. Three-wire DC, solid-state output

Characteristics					
Sensor type	Flush	XS912S1PAM12		XS918S1PAM12	XS930S1PAM12
	Non-flush	XS912S4PAM12		XS918S4PAM12	XS930S4PAM12
Product certifications			cULus, CE, UKCA, ECOLAB		
Connection	Connector		M12		
Operating zone	Flush	mm	0...4.8	0...8	0...16
	Non-flush	mm	0...8	0...16	0...32
Differential travel		%	1...15 (real sensing distance Sr)		
Degree of protection	Conforming to IEC 60529		IP 68 (5 meters underwater for 1 month)		
	Conforming to DIN 40050		IP 69K		
Storage temperature		°C	-25...+ 85 (-13...185°F)		
Operating temperature		°C	-25...+ 85 (-13...185°F)		
Materials	Case		Stainless steel 316L		
Front face thickness		mm	0.4	0.6	1.0
Mechanical shock resistance	Conforming to IEC 62262		IK10		
Vibration resistance	Conforming to IEC 60068-2-6		25 gn, amplitude ± 1 mm (f = 10 to 55 Hz)		
Shock resistance	Conforming to IEC 60068-2-27		30 gn, duration 11 ms		
Output state indication			Yellow LED, 4 viewing points at 90° (blinking from 0.8 Sr and Sr)		
Rated supply voltage		V	12...24 with protection against reverse polarity		
Voltage limits (including ripple)		V	10...30		
Insulation class			II		
Switching capacity		mA	≤ 200 with overload and short-circuit protection		
Voltage drop, closed state		V	≤ 2		
Current consumption, no-load		mA	≤ 10		
Maximum switching frequency	Flush	Hz	600	300	100
	Non-flush	Hz	400	200	90
Delays	First set-up	ms	40		
	Response	µs	0.06		
	Recovery	µs	15		

Setting-up

Minimum mounting distances in mm, flush version

Side by side		Face to face		Facing a metal object		Mounted in a metal support	
Ø 12	e ≥ 38	e ≥ 30		e ≥ 20		d ≥ 24	
Ø 18	e ≥ 42	e ≥ 40		e ≥ 30		d ≥ 50	
Ø 30	e ≥ 80	e ≥ 70		e ≥ 60		d ≥ 90	

Minimum mounting distances in mm, non-flush version

Side by side		Face to face		Facing a metal object		Mounted in a metal support	
Ø 12	e ≥ 108	e ≥ 40		e ≥ 30		d ≥ 30 h ≥ 22	
Ø 18	e ≥ 182	e ≥ 70		e ≥ 60		d ≥ 60 h ≥ 34	
Ø 30	e ≥ 270	e ≥ 130		e ≥ 120		d ≥ 120 h ≥ 34	

Dimensions

	Flush sensor			Non-flush sensor		
	M12	M18	M30	M12	M18	M30
a (mm)	60	63.5	63.5	60	63.5	63.5
b (mm)	41	42	42	36	35	32
c (mm)	0	0	0	5	7	10

Reduction coefficient

Flush-non mounted		Flush sensor			Non-flush sensor		
		M12	M18	M30	M12	M18	M30
Steel		1	1	1	1	1	1
Aluminum		1	1	1	1	1	1
Brass		1.3	1.2	1.3	1.4	1.35	1.2
Copper		0.85	0.8	0.9	0.8	0.9	0.9
Stainless steel		0.5	0.5	0.35	(1)	0.3	(1)
Thickness 1 mm		0.9	0.9	0.7	0.66	0.6	0.25
Thickness 2 mm							
Flush mounted		M12	M18	M30	(1) No detection.		
Steel		0.7	0.75	0.9			
Aluminum		1.15	0.9	0.7			
Brass		1.05	0.75	0.6			
Stainless steel		0.8	0.8	1.3			

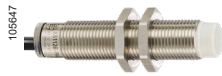
Inductive proximity sensors

XS range application

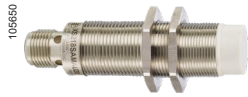
Food and beverage processing series

Cylindrical, stainless steel, non-flush mountable

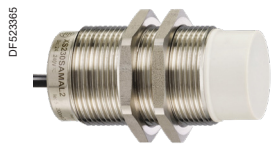
Three-wire DC, solid-state output



XS2●●SA●●L2



XS2●●SA●●M12



XS230SA●●L2



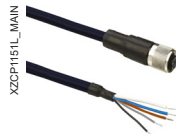
XSZBS●●



XUZA118



XZCPA1241L●



XZCP1141L●

Ø 12, threaded M12 x 1

Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight (kg)
7	NO	PNP	Pre-cabled (L = 2 m)	XS212SAPAL2	0.075
			M12 connector	XS212SAPAM12	0.035
		NPN	Pre-cabled (L = 2 m)	XS212SANAL2	0.075
			M12 connector	XS212SANAM12	0.035

Ø 18, threaded M18 x 1

Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight (kg)
12	NO	PNP	Pre-cabled (L = 2 m)	XS218SAPAL2	0.120
			M12 connector	XS218SAPAM12	0.060
		NPN	Pre-cabled (L = 2 m)	XS218SANAL2	0.120
			M12 connector	XS218SANAM12	0.060

Ø 30, threaded M30 x 1.5

Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight (kg)
22	NO	PNP	Pre-cabled (L = 2 m)	XS230SAPAL2	0.205
			M12 connector	XS230SAPAM12	0.145
		NPN	Pre-cabled (L = 2 m)	XS230SANAL2	0.205
			M12 connector	XS230SANAM12	0.145

Accessories (2)

Description	For use with sensor (mm)	Reference	Weight (kg)
Stainless steel fixing bracket	Ø 12	XSZBS12	0.060
	Ø 18	XUZA118	0.045
	Ø 30	XSZBS30	0.080

Connecting cables

Description	Type	Length m	Reference	Weight (kg)
Pre-wired M12 connectors Female, 4-pin, stainless steel clamping ring	Straight	2	XZCPA1141L2	0.090
		5	XZCPA1141L5	0.210
		10	XZCPA1141L10	0.410
	Elbowed	2	XZCPA1241L2	0.090
		5	XZCPA1241L5	0.210
		10	XZCPA1241L10	0.410
M12 jumper cable Male, 3-pin, stainless steel clamping ring	Straight	2	XZCRA151140A2	0.095
		5	XZCRA151140A5	0.200

(1) For a 5 m long cable replace L2 by L5; for a 10 m long cable replace L2 by L10.

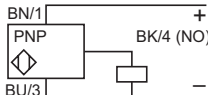
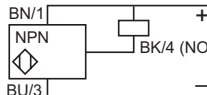
Example: XS212SAPAL2 becomes XS212SAPAL5 with a 5 m long cable.

(2) For further information, see page 120.

Characteristics		
Sensor type		XS2...SA...M12
Product certifications/approvals		cULus, CE, UKCA
Connection	Connector	M12
	Pre-cabled	Length: 2 m
Operating zone	Ø 12	mm 0...5.6
	Ø 18	mm 0...9.6
	Ø 30	mm 0...17.6
Differential travel		% 1...15 of effective sensing distance (Sr)
Degree of protection	Conforming to IEC 60529	IP 67
	DIN 40050	IP 69K
Storage temperature		°C - 40...+ 85 (1)
Operating temperature		°C - 25...+ 85
Materials	Case	Stainless steel 316 L
	Cable	Non-poisonous PVC, 3 x 0.34 mm ²
Vibration resistance	Conforming to IEC 60068-2-6	25 gn, amplitude ± 2 mm (f = 10 to 55 Hz)
Shock resistance	Conforming to IEC 60068-2-27	50 gn, duration 11 ms
Output state indication		Yellow LED: 4 viewing ports at 90°
Rated supply voltage		V --- 12...24 with protection against reverse polarity
Voltage limits (including ripple)		V --- 10...36
Insulation class		
Switching capacity		mA ≤ 200 with overload and short-circuit protection
Voltage drop, closed state		V ≤ 2
Current consumption, no-load		mA ≤ 10
Maximum switching frequency	XS212SA... and XS218SA... and XS230SA...	Hz 2500
		Hz 1000
		Hz 500
Delays	First-up	ms ≤ 10
	Response	ms ≤ 0.2 Ø 12, ≤ 0.3 Ø 18, ≤ 0.6 Ø 30
	Recovery	ms ≤ 0.2 Ø 12, ≤ 0.7 Ø 18, ≤ 1.4 Ø 30

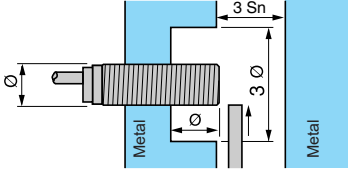
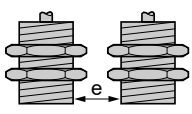
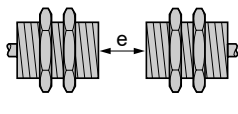
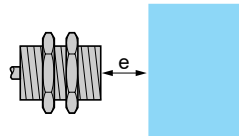
(1) + 100 °C for cleaning and sterilization phases whilst not in service.

Wiring schemes

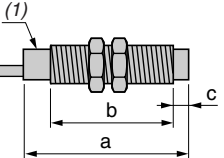
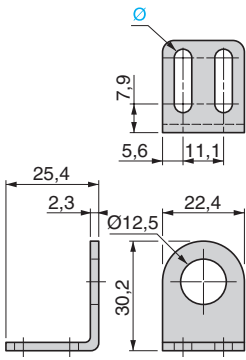
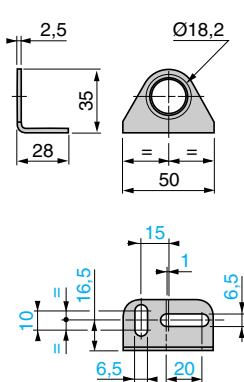
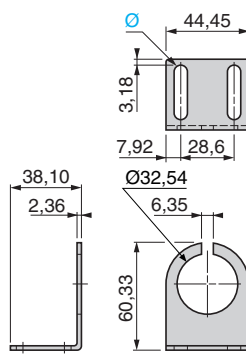
Connector	Pre-cabled	PNP	NPN
M12 4 	BU: Blue BN: Brown BK: Black		

Setting-up

Minimum mounting distances (mm)

 Object to be detected	 Side by side	 Face to face	 Facing a metal object
Ø 12	e ≥ 48	e ≥ 84	e ≥ 21
Ø 18	e ≥ 72	e ≥ 144	e ≥ 36
Ø 30	e ≥ 120	e ≥ 264	e ≥ 66

Dimensions

XS2	XSZBS12	XUZA118	XSZBS30
 (1) LED			
Pre-cabled (mm)			
Connector (mm)			
XS2			
Ø 12	a 54.5, b 38	a 61, b 37, c 5	
Ø 18	a 60, b 40	a 70, b 42, c 8	
Ø 30	a 62.5, b 41	a 70, b 36, c 13	

Ø: 2 elongated holes Ø 4.8 x 12.7

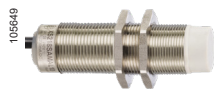
Inductive proximity sensors

XS range application

Food and beverage processing series

Cylindrical, stainless steel, non-flush mountable

Two-wire AC or DC



XS218SAM•L2



XS218SAMAU20



XS230SAM•L2



XS230SAM•U20

Ø 18, threaded M18 x 1

Sensing distance (Sn) mm	Function	Connection	Reference	Weight (kg)
12	NO	Pre-cabled (L = 2 m) (1)	XS218SAMAL2	0.120
		1/2"-20UNF connector	XS218SAMAU20	0.060

Ø 30, threaded M30 x 1.5

Sensing distance (Sn) mm	Function	Connection	Reference	Weight (kg)
22	NO	Pre-cabled (L = 2 m) (1)	XS230SAMAL2	0.205
		1/2"-20UNF connector	XS230SAMAU20	0.145

Connecting cables

Description	Type	Length m	Reference	Weight (kg)
Pre-wired connectors 1/2"-20UNF 3-pin female, stainless steel clamping ring	Straight	5	XZCPA1865L5	0.210
		10	XZCPA1865L10	0.410
	Elbowed	5	XZCPA1965L5	0.250
		10	XZCPA1965L10	0.485

Accessories

Description	For use with sensors (mm)	Reference	Weight (kg)
Stainless steel fixing brackets	Ø 18	XUZA118	0.045
	Ø 30	XSZBS30	0.080



XSZBS30



XUZA118

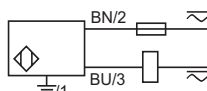
(1) For a 5 m long cable replace L2 by L5; for a 10 m long cable replace L2 by L10.
Example: **XS218SAMAL2** becomes **XS218SAMAL5** with a 5 m long cable.

Characteristics				
Sensor type			XS2●●SAM●U20	XS2●●SAM●L2
Product certifications/approvals			cULus, CE, UKCA	
Connection	Connector		1/2"-20UNF	—
	Pre-cabled		—	Length: 2 m
Operating zone	Ø 18	mm	0...9.6	
	Ø 30	mm	0...17.6	
Differential travel		%	1...15 of effective sensing distance (Sr)	
Degree of protection	Conforming to IEC 60529		IP 67	IP 68
	DIN 40050		IP 69K	
Storage temperature		°C	- 40...+ 85 (1)	
Operating temperature		°C	- 25...+ 85	
Materials	Case		Stainless steel 316 L	
	Cable		—	Non-poisonous PVC, 2 x 0.34 mm²
Vibration resistance		Conforming to IEC 60068-2-6	25 gn, amplitude ± 2 mm (f = 10 to 55 Hz)	
Shock resistance		Conforming to IEC 60068-2-27	50 gn, duration 11 ms	
Output state indication			Yellow LED: 4 viewing ports at 90°	Yellow LED: annular
Rated supply voltage		V	~ or --- 24...240 (~ 50/60 Hz)	
Voltage limits (including ripple)		V	~ or --- 20...264	
Insulation class			I	I
Switching capacity		mA	~ 5...300 or --- 5...200 (2)	
Voltage drop, closed state		V	≤ 5.5	
Residual current, open state		mA	≤ 0.8	
Maximum switching frequency	XS218SAM●●●	Hz	~ 25 or --- 1000	
	XS230SAM●●●	Hz	~ 25 or --- 300	
Delays	First-up	ms	≤ 30	
	Response	ms	≤ 0.5	
	Recovery	ms	≤ 0.5 XS218SAM●●●, ≤ 2 XS230SAM●●●	

(1) + 100 °C for cleaning and sterilization phases whilst not in service.

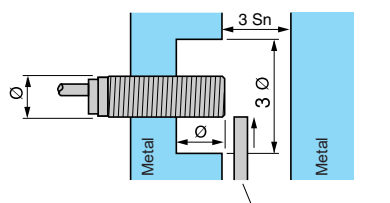
(2) It is essential to connect a 0.4 A "quick-blow" fuse in series with the load.

Wiring schemes

Connector	Pre-cabled	2-wire ~ or —
1/2"-20UNF	BU: Blue BN: Brown	NO output
 AC/DC: 2 ⊕ : 1 AC/DC: 3		 ⊕: on connector models only

Setting-up

Minimum mounting distances (mm)

		Side by side	Face to face	Facing a metal object
Ø 18		e ≥ 72	e ≥ 144	e ≥ 36
Ø 30		e ≥ 120	e ≥ 264	e ≥ 66

Dimensions

XS2

Technical drawing of the XS2 sensor. It shows a side view with dimensions: 'a' is the total length, 'b' is the length of the LED array, and 'c' is the length of the connector. A label '(1) LED' points to the LED array.

(1) LED

	Pre-cabled (mm)		Connector (mm)		
XS2	a	b	a	b	c
Ø 18	60	40	72	44	8
Ø 30	62.5	41	74	40	13

XSZA118

Technical drawing of the XSZA118 sensor. It shows a side view with dimensions: 2.5 (width of the base), 35 (height of the base), 28 (width of the mounting flange), 50 (width of the mounting flange), and Ø18.2 (diameter of the mounting hole).

Technical drawing of the XSZA118 sensor showing a top view. Dimensions include: 15 (width of the mounting flange), 1 (width of the LED array), 6.5 (width of the LED array), 16.5 (width of the mounting flange), 10 (height of the LED array), 6.5 (height of the LED array), and 20 (width of the mounting flange).

XSZBS30

Technical drawing of the XSZBS30 sensor. It shows a side view with dimensions: 3.18 (width of the base), 7.92 (width of the base), 28.6 (width of the mounting flange), 44.45 (width of the mounting flange), 38.10 (height of the base), 2.36 (height of the base), 6.35 (height of the mounting flange), Ø32.54 (diameter of the mounting hole), and 60.33 (height of the mounting flange).

Ø: 2 elongated holes Ø 7.14 x 29.36

Inductive proximity sensors

XS range application

Food and beverage processing series

Cylindrical, plastic, non-flush mountable

Three-wire DC, solid-state output



XS212AA●●L2



XS218AA●●M12



XS230AA●●L2



XSZB1●●



XZCPA1241L●



XZCP1141L●

Ø 12, threaded M12 x 1

Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight (kg)
7	NO	PNP	Pre-cabled (L = 2 m) (1)	XS212AAPAL2	0.065
			M12 connector	XS212AAPAM12	0.030
		NPN	Pre-cabled (L = 2 m) (1)	XS212AANAL2	0.065
			M12 connector	XS212AANAM12	0.030

Ø 18, threaded M18 x 1

Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight (kg)
12	NO	PNP	Pre-cabled (L = 2 m) (1)	XS218AAPAL2	0.100
			M12 connector	XS218AAPAM12	0.040
		NPN	Pre-cabled (L = 2 m) (1)	XS218AANAL2	0.100
			M12 connector	XS218AANAM12	0.040

Ø 30, threaded M30 x 1.5

Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight (kg)
22	NO	PNP	Pre-cabled (L = 2 m) (1)	XS230AAPAL2	0.140
			M12 connector	XS230AAPAM12	0.080
		NPN	Pre-cabled (L = 2 m) (1)	XS230AANAL2	0.140
			M12 connector	XS230AANAM12	0.080

Accessories (2)

Description	For use with sensors (mm)	Reference	Weight (kg)
Fixing clamps	Ø 12	XSZB112	0.006
	Ø 18	XSZB118	0.010
	Ø 30	XSZB130	0.020

Connecting cables

Description	Type	Length m	Reference	Weight (kg)
Pre-wired M12 connectors Female, 4-pin, stainless steel clamping ring	Straight	2	XZCPA1141L2	0.090
		5	XZCPA1141L5	0.190
		10	XZCPA1141L10	0.370
	Elbowed	2	XZCPA1241L2	0.090
		5	XZCPA1241L5	0.190
		10	XZCPA1241L10	0.370
M12 jumper cable Male, 3-pin, stainless steel clamping ring	Straight	2	XZCRA151140A2	0.090
		5	XZCRA151140A5	0.190

(1) For a 5 m long cable replace L2 by L5; for a 10 m long cable replace L2 by L10.
Example: XS212AAPAL2 becomes XS212AAPAL5 with a 5 m long cable.

(2) For further information, see page 120.

Inductive proximity sensors

XS range application

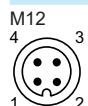
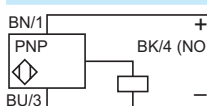
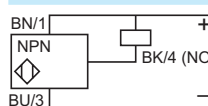
Food and beverage processing series

Cylindrical, plastic, non-flush mountable

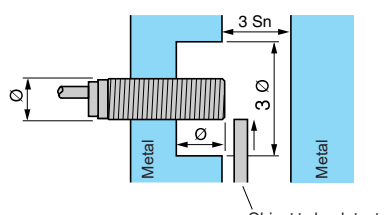
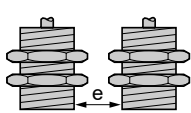
Three-wire DC, solid-state output

Characteristics			
Sensor type		XS2●●AA●●M12	XS2●●AA●●L2
Product certifications/approvals		cULus, CE, UKCA	
Connection	Connector	M12	—
	Pre-cabled	—	Length: 2 m
Operating zone	Ø 12	mm	0...5.6
	Ø 18	mm	0...9.6
	Ø 30	mm	0...17.6
Differential travel		%	1...15 of effective sensing distance (Sr)
Degree of protection	Conforming to IEC 60529	IP 67	IP 68
	DIN 40050	IP 69K	—
Storage temperature		°C	-40...+85
Operating temperature		°C	-25...+85
Materials	Case	PPS	
	Cable	—	PvR and 3 x 0.34 mm ²
Vibration resistance		Conforming to IEC 60068-2-6	25 gn, amplitude ± 2 mm (f = 10 to 55 Hz)
Shock resistance		Conforming to IEC 60068-2-27	50 gn, duration 11 ms
Output state indication		Yellow LED: annular	
Rated supply voltage		V	— 12...48 for T - 25...+85 °C
Voltage limits (including ripple)		V	— 10...58 for T - 25...+85 °C
Insulation class			□ □
Switching capacity		mA	≤ 200 with overload and short-circuit protection
Voltage drop, closed state		V	≤ 2
Current consumption, no-load		mA	≤ 10
Maximum switching frequency	XS212AA●●●●	Hz	2500
	XS218AA●●●●	Hz	1000
	XS230AA●●●●	Hz	500
Delays	First-up	ms	≤ 10
	Response	ms	≤ 0.2 Ø 12, ≤ 0.3 Ø 18, ≤ 0.6 Ø 30
	Recovery	ms	≤ 0.2 Ø 12, ≤ 0.7 Ø 18, ≤ 1.4 Ø 30

Wiring schemes

Connector	Pre-cabled	PNP	NPN
	BU: Blue BN: Brown BK: Black		

Setting-up

Minimum mounting distances (mm)			
	Side by side		Facing a metal object
	Ø 12	e ≥ 48	e ≥ 21
	Ø 18	e ≥ 72	e ≥ 36
	Ø 30	e ≥ 120	e ≥ 66

Dimensions

XS2			
	Pre-cabled (mm)		Connector (mm)
	a	b	b
Ø 12	50	42	61
Ø 18	60	51	70
Ø 30	60	51	70

Inductive proximity sensors

XS range application

Food and beverage processing series

Cylindrical, plastic, non-flush mountable

Two-wire AC or DC



XS218AAM●L2



XS230AAM●U20



XS230AAM●L2



XSZB118●●

Ø 18, threaded M18 x 1

Sensing distance (Sn) mm	Function	Connection	Reference	Weight (kg)
12	NO	Pre-cabled (L = 2 m) (1)	XS218AAMAL2	0.100
		1/2"-20UNF connector	XS218AAMAU20	0.040

Ø 30, threaded M30 x 1.5

Sensing distance (Sn) mm	Function	Connection	Reference	Weight (kg)
22	NO	Pre-cabled (L = 2 m) (1)	XS230AAMAL2	0.140
		1/2"-20UNF connector	XS230AAMAU20	0.080

Accessories (2)

Description	For use with sensors (mm)	Reference	Weight (kg)
Fixing clamps	Ø 18	XSZB118	0.010
	Ø 30	XSZB130	0.020

Connecting cables

Description	Type	Length m	Reference	Weight (kg)
Pre-wired connectors 1/2"-20UNF 3-pin female, stainless steel 316 L clamping ring	Straight	5	XZCPA1865L5	0.180
		10	XZCPA1865L10	0.350
	Elbowed	5	XZCPA1965L5	0.180
		10	XZCPA1965L10	0.350

(1) For a 5 m long cable replace L2 by L5; for a 10 m long cable replace L2 by L10.

Example: XS218AAMAL2 becomes XS218AAMAL5 with a 5 m long cable.

(2) For further information, see page 120.

Inductive proximity sensors

XS range application

Food and beverage processing series

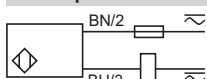
Cylindrical, plastic, non-flush mountable

Two-wire AC or DC

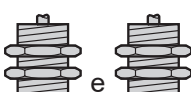
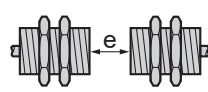
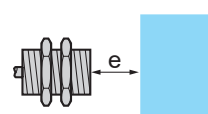
Characteristics			
Sensor type		XS2●●AAM●U20	XS2●●AAM●L2
Product certifications/approvals		cULus, CE, UKCA	
Connection	Connector	1/2"-20UNF	—
	Pre-cabled	—	Length: 2 m
Operating zone	Ø 18	mm	0...9.6
	Ø 30	mm	0...17.6
Differential travel		%	1...15 of effective sensing distance (Sr)
Degree of protection	Conforming to IEC 60529	IP 67	IP 68
	DIN 40050	IP 69K	
Storage temperature		°C	-40...+85
Operating temperature		°C	-25...+85
Materials	Case	PPS	
	Cable	—	PvR and 2 x 0.34 mm ²
Vibration resistance	Conforming to IEC 60068-2-6	25 gn, amplitude ± 2 mm (f = 10 to 55 Hz)	
Shock resistance	Conforming to IEC 60068-2-27	50 gn, duration 11 ms	
Output state indication		Yellow LED: annular	
Rated supply voltage		V	~ or — 24...240 (~ 50/60 Hz)
Voltage limits (including ripple)		V	~ or — 20...264
Insulation class		I	I
Switching capacity		mA	~ 5...300 or — 5...200 (1)
Voltage drop, closed state		V	≤ 5.5
Residual current, open state		mA	≤ 0.8
Maximum switching frequency	XS218AAM●●●	Hz	~ 25 or — 1000
	XS230AAM●●●	Hz	~ 25 or — 300
Delays	First-up	ms	≤ 30
	Response	ms	≤ 0.5
	Recovery	ms	≤ 0.5 XS218AAM●●●, ≤ 2 XS230AAM●●●

(1) It is essential to connect a 0.4 A "quick-blow" fuse in series with the load.

Wiring schemes

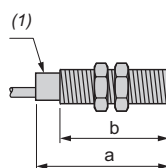
Connector	Pre-cabled	2-wire ~ or —
1/2"-20UNF	BU: Blue BN: Brown	NO output
		

Setting-up

Minimum mounting distances (mm)	
	Side by side
Ø 18	e ≥ 72
Ø 30	e ≥ 120
	Face to face
	e ≥ 144
	e ≥ 264
	Facing a metal object
	e ≥ 36
	e ≥ 66

Dimensions

XS2



(1) LED

XS2	Pre-cabled (mm)		Connector (mm)	
	a	b	a	b
Ø 18	60	51	70	52
Ø 30	60	51	70	52

Inductive proximity sensors

XS range application

Cylindrical, stainless steel 303 front face

for harsh industrial environments

Three-wire DC, solid-state output



Ø 8 mm, threaded M8 x 1

Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight (kg)
-----------------------------	----------	--------	------------	-----------	----------------

Three-wire 12-24V $\overline{\text{V}}$, flush mountable

3	NO	PNP	M12	XS908R1PAM12	0.018
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Three-wire 12-24V $\overline{\text{V}}$, non-flush mountable

6	NO	PNP	M12	XS908R4PAM12	0.018
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Ø 12 mm, threaded M12 x 1

Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight (kg)
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Three-wire 12-24V $\overline{\text{V}}$, flush mountable

6	NO	PNP	M12	XS912R1PAM12	0.024
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Three-wire 12-24V $\overline{\text{V}}$, non-flush mountable

10	NO	PNP	M12	XS912R4PAM12	0.023
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Ø 18 mm, threaded M18 x 1

Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight (kg)
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Three-wire 12-24V $\overline{\text{V}}$, flush mountable

10	NO	PNP	M12	XS918R1PAM12	0.044
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Three-wire 12-24V $\overline{\text{V}}$, non-flush mountable

20	NO	PNP	M12	XS918R4PAM12	0.051
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Ø 30 mm, threaded M30 x 1.5

Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight (kg)
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Three-wire 12-24V $\overline{\text{V}}$, flush mountable

20	NO	PNP	M12	XS930R1PAM12	0.140
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Three-wire 12-24V $\overline{\text{V}}$, non-flush mountable

40	NO	PNP	M12	XS930R4PAM12	0.144
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Connecting cables (PUR) (1)

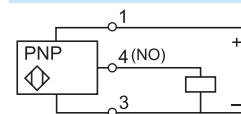
Description	Type	Length m	Reference	Weight (kg)
Pre-wired M12 connectors Female, 4-pin Metal clamping	Straight	2	XZCP1141L2	0.090
		5	XZCP1141L5	0.190
		10	XZCP1141L10	0.370
	Elbowed	2	XZCP1241L2	0.090
		5	XZCP1241L5	0.190
		10	XZCP1241L10	0.370

Wiring schemes

M12 connector



PNP



(1) For further information, please consult our site www.telemecaniquesensors.com.

Inductive proximity sensors

XS range application

Cylindrical, stainless steel 303 front face
for harsh industrial environments

Three-wire DC, solid-state output

Characteristics						
Sensor type	Flush	XS908R1PAM12	XS912R1PAM12	XS918R1PAM12	XS930R1PAM12	
	Non-flush	XS908R4PAM12	XS912R4PAM12	XS918R4PAM12	XS930R4PAM12	
Product certifications			cULus, CE, UKCA			
Connection	Connector		M12			
Operating zone	Flush	mm	0...2.4	0...4.8	0...8	0...16
	Non-flush	mm	0...4.8	0...8	0...16	0...32
Differential travel		%	1...15 (real sensing distance Sr)			
Degree of protection	Conforming to IEC 60529		IP 67	IP 68 (5 meters underwater for 1 month)		
	Conforming to DIN 40050		IP 69K			
Storage temperature		°C	-25...+ 70 (-13...158°F)			
Operating temperature		°C	-25...+ 70 (-13...158°F)			
Materials	Case		Stainless steel, 303 grade			
Front face thickness		mm	0.25	0.4	0.6	1.0
Mechanical shock resistance	Conforming to IEC 62262		IK10			
Vibration resistance	Conforming to IEC 60068-2-6		25 gn, amplitude ± 1 mm (f = 10 to 55 Hz)			
Shock resistance	Conforming to IEC 60068-2-27		30 gn, duration 11 ms			
Output state indication			Yellow LED, 4 viewing points at 90° (blinking from 0.8 Sr and Sr)			
Rated supply voltage		V	12...24 with protection against reverse polarity			
Voltage limits (including ripple)		V	10...30			
Insulation class			II	III	IV	V
Switching capacity		mA	≤ 200 with overload and short-circuit protection			
Voltage drop, closed state		V	≤ 2			
Current consumption, no-load		mA	≤ 10			
Maximum switching frequency	Flush	Hz	1000	600	300	100
	Non-flush	Hz	700	400	200	90
Delays	First set-up	ms	40			
	Response	µs	0.05	0.06		
	Recovery	µs	23	15		

Setting-up

Minimum mounting distances in mm, flush version

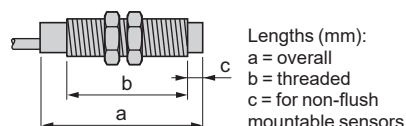
Side by side		Face to face		Facing a metal object		Mounted in a metal support	
Ø 8	e ≥ 14	e ≥ 15		e ≥ 10		d ≥ 12	
Ø 12	e ≥ 38	e ≥ 30		e ≥ 20		d ≥ 24	
Ø 18	e ≥ 42	e ≥ 40		e ≥ 30		d ≥ 50	
Ø 30	e ≥ 80	e ≥ 70		e ≥ 60		d ≥ 90	

Minimum mounting distances in mm, non-flush version

Side by side		Face to face		Facing a metal object		Mounted in a metal support	
Ø 8	e ≥ 52	e ≥ 25		e ≥ 20		d ≥ 20	h ≥ 15
Ø 12	e ≥ 108	e ≥ 40		e ≥ 30		d ≥ 30	h ≥ 22
Ø 18	e ≥ 182	e ≥ 70		e ≥ 60		d ≥ 60	h ≥ 34
Ø 30	e ≥ 270	e ≥ 130		e ≥ 120		d ≥ 120	h ≥ 34

Dimensions

	Flush sensor				Non-flush sensor			
	M8	M12	M18	M30	M8	M12	M18	M30
a (mm)	66	60	63.5	63.5	66	60	63.5	63.5
b (mm)	46	41	42	42	42	36	35	32
c (mm)	0	0	0	0	4	5	7	10



Reduction coefficient

Non-flush mounted		Flush sensor				Non-flush sensor			
		M8	M12	M18	M30	M8	M12	M18	M30
Steel		1	1	1	1	1	1	1	1
	Aluminum	1	1	1	1	1	1	1	1
	Brass	1.35	1.3	1.2	1.3	1.4	1.4	1.35	1.2
	Copper	0.9	0.85	0.8	0.9	0.85	0.8	0.9	0.9
	Stainless steel	0.3	0.5	0.5	0.35	0.3	(1)	0.3	(1)
Thickness 1 mm		0.6	0.9	0.9	0.7	0.9	0.66	0.6	0.25
Thickness 2 mm									
Flush mounted		M8	M12	M18	M30	(1) No detection.			
Steel		1	0.7	0.75	0.9				
	Aluminum	0.9	1.15	0.9	0.7				
	Brass	0.9	1.05	0.75	0.6				
	Stainless steel	1	0.8	0.8	1.3				

Inductive proximity sensors

XS range application

Flat sensor, flush mountable, increased range,

Switching capacity 300 mA

80 x 80 x 40 format, DIN rail mounting, solid-state output

Sensor type Flush mountable in metal



Dimensions	mm	80 x 80 x 40
Nominal sensing distance (Sn)	mm	50 (not flush mounted: 42)

Reference

2-wire --- (non polarised) NO		XS7D1A3CAM12DIN
Weight	kg	0.374

Characteristics

Product certifications		CE, UKCA
Degree of protection	Conforming to IEC 60529	IP 67
Temperature	Operating	°C - 25...+ 70
	Storage	°C - 40...+ 85
Vibration resistance	Conforming to IEC 60068-2-6	25 gn, amplitude ± 2 mm (f = 10 to 55 Hz)
Shock resistance	Conforming to IEC 60068-2-27	50 gn, duration 11 ms
Connection		M12 connector
Operating zone	mm	0...40 (not flush mounted: 0...35)
Repeat accuracy	%	3 of Sr
Differential travel	%	1...15 of Sr
Output state indication		Yellow LED
Rated supply voltage	V	--- 12...48 with protection against reverse polarity
Voltage limits (including ripple)	V	--- 10...58
Insulation class		II
Residual current, open state	mA	≤ 0.5
Switching capacity	mA	1.5...300 with overload and short-circuit protection
Voltage drop, closed state	V	≤ 4.5
Maximum switching frequency	Hz	100
Delays	First-up	ms ≤ 10
	Response	ms ≤ 2
	Recovery	ms ≤ 5

Inductive proximity sensors

XS range application

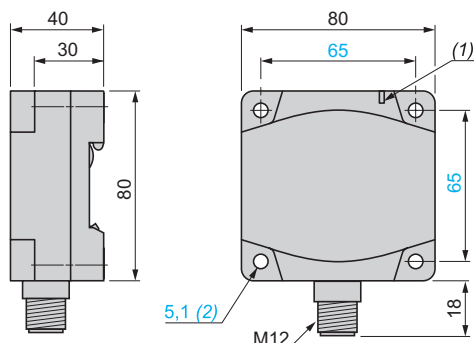
Flat sensor, flush mountable, increased range,

Switching capacity 300 mA

80 x 80 x 40 format, DIN rail mounting, solid-state output

Dimensions

XS7D1A3CAM12DIN



(1) Output LED

(2) For CHC type screws

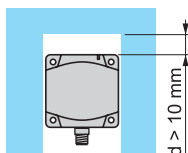
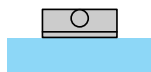
Setting-up

Minimum mounting distances (mm)

	Face to face	Side by side	Back to back	Facing a metal object
Flush mounted	450	140	90	150
Not flush mounted	450	180	180	150

Flush/non-flush conditions

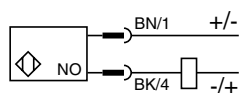
In A37 steel



Sn	Su	Sn	Su
42 mm	35 mm	50 mm	40 mm

Wiring schemes

2-wire NO/M12 XS7D1A3CAM12DIN



Inductive proximity sensors

XS range application

Cylindrical, stainless steel 303 front face, for welding environments

Three-wire DC, solid-state output



XS912RWPAM12

Ø 12 mm, threaded M12 x 1

Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight (kg)
Three-wire 12-24V $\overline{\text{DC}}$, flush mountable					
6	NO	PNP	M12	XS912RWPAM12	0.024



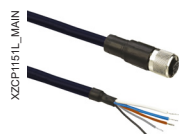
XS918RWPAM12

Ø 18 mm, threaded M18 x 1

Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight (kg)
Three-wire 12-24V $\overline{\text{DC}}$, flush mountable					
10	NO	PNP	M12	XS918RWPAM12	0.051



XZCPA1241L●



XZCP1141L●

Connecting cables (PUR) (1)

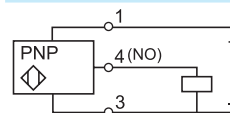
Description	Type	Length m	Reference	Weight (kg)
Pre-wired M12 connectors Female, 4-pin Metal clamping ring	Straight	2	XZCP1141L2	0.090
		5	XZCP1141L5	0.190
		10	XZCP1141L10	0.370
	Elbowed	2	XZCP1241L2	0.090
		5	XZCP1241L5	0.190
		10	XZCP1241L10	0.370

Wiring schemes

M12 connector



PNP



(1) For further information, please consult our site www.telemecaniquesensors.com.

Inductive proximity sensors

XS range application

Cylindrical, stainless steel 303 front face, for welding environments

Three-wire DC, solid-state output

Characteristics			
Sensor type	Flush	XS912RWPAM12	XS918RWPAM12
Product certifications		cULus, CE, UKCA	
Connection	Connector	M12	
Operating zone		mm	0...4.8
Differential travel		%	1...15 (real sensing distance Sr)
Degree of protection	Conforming to IEC 60529	IP 68 (5 meters underwater for 1 month)	
	Conforming to DIN 40050	IP 69K	
Storage temperature		°C	-25...+70 (-13...158°F)
Operating temperature		°C	-25...+70 (-13...158°F)
Materials	Case	Stainless steel, 303 grade	
Front face thickness		mm	0.4
Mechanical shock resistance	Conforming to IEC 62262	IK10	
Vibration resistance	Conforming to IEC 60068-2-6	25 gn, amplitude ± 1 mm (f = 10 to 55 Hz)	
Shock resistance	Conforming to IEC 60068-2-27	30 gn, duration 11 ms	
Output state indication		Yellow LED, 4 viewing points at 90° (blinking from 0.8 Sr and Sr)	
Rated supply voltage		V	12...24 with protection against reverse polarity
Voltage limits (including ripple)		V	10...30
Insulation class			II
Switching capacity		mA	≤ 200 with overload and short-circuit protection
Voltage drop, closed state		V	≤ 2
Current consumption, no-load		mA	≤ 10
Maximum switching frequency		Hz	15
Delays	First set-up	ms	80
	Response	µs	100
	Recovery	µs	15

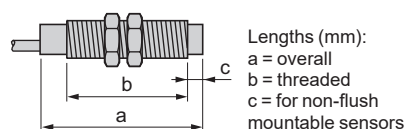
Setting-up

Minimum mounting distances in mm, flush version

Side by side		Face to face		Facing a metal object		Mounted in a metal support	
Ø 12	e ≥ 38	e ≥ 30		e ≥ 20		d ≥ 24	
Ø 18	e ≥ 42	e ≥ 40		e ≥ 30		d ≥ 50	

Dimensions

	Flush sensor	
	M12	M18
a (mm)	60	63.5
b (mm)	41	42
c (mm)	0	0



Reduction coefficient

Non-flush mounted		Flush sensor	
		M12	M18
Steel		1	1
Aluminum		1	1
Brass		1.3	1.2
Copper		0.85	0.8
Stainless steel		0.5	0.5
	Thickness 1 mm	0.5	0.5
	Thickness 2 mm	0.9	0.9

Flush mounted		M12	M18
Steel		0.7	0.75
Aluminum		1.15	0.9
Brass		1.05	0.75
Stainless steel		0.8	0.8

Inductive proximity sensors

XS range application

Factor 1 sensors for ferrous or non-ferrous material detection and welding applications. Plastic case, 40 x 40 mm front face. 5-position turret head

Sensor type	Flush mountable in metal
Dimensions	mm 40 x 40 x 70 40 x 40 x 117



Nominal sensing distance (Sn)	mm 20
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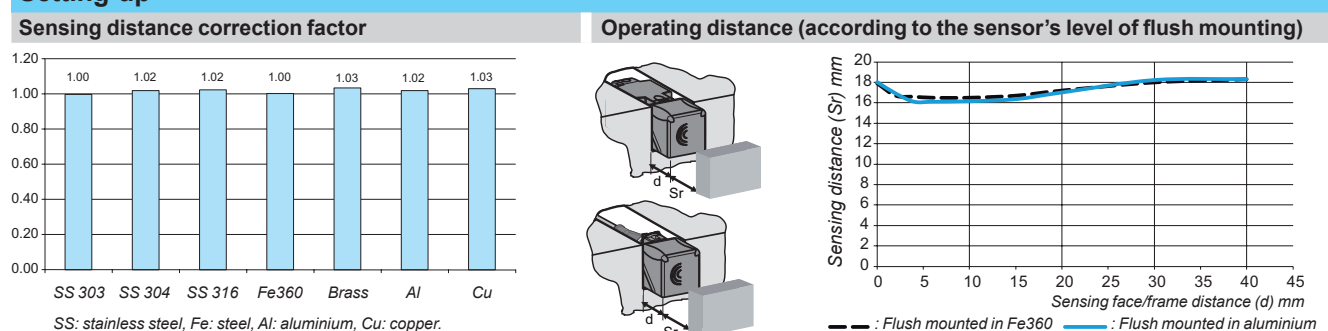
References

4-wire ---	PNP NO+NC	XS9C2A1PCM12	XS9C4A1PCP20 (1)
	NPN NO+NC	XS9C2A1NCM12	—
XS9C4...P20 sensors are available with an ISO M20 cable entry and can be supplied with a Pg 13.5 (e.g. XS9C4A1PCG13) or a 1/2" NPT (e.g. XS9C4A1PCN12) cable entry: please consult our Customer Care Centre for more information.			
Weight	kg	0.110	0.220

Characteristics

Product certifications		cULus, CE, UKCA
Conformity to standards		IEC 60947-5-2
Connection		M12 connector (4-pin) Screw terminals, clamping capacity 4 x 1.5 mm ² / 4 x 16 AWG
Operating zone	mm	0...16
Differential travel	%	3...15 of Sr
Repeat accuracy	%	< 3
Immunity to magnetic fields		< 250 mTesla
Degree of protection	Conforming to IEC 60529 and DIN 40050	IP 65, IP 67 and IP 69K
Temperature	Storage	°C - 40...+ 85
	Operation (2)	°C - 25...+ 70
Material		Case: PBT
Vibration resistance	Conforming to IEC 60068-2-6	25 gn, amplitude ± 2 mm (f = 10...55 Hz)
Shock resistance	Conforming to IEC 60068-2-27	50 gn for 11 ms
Indicators		Output state: yellow LED. Supply on: green LED
Rated supply voltage	4-wire ---	V --- 12...24 with protection against reverse polarity
Voltage limits (including ripple)	4-wire ---	V --- 10...36
Insulation class		□ □
Current consumption, no-load	4-wire ---	mA < 30
Switching capacity	4-wire ---	mA < 200 with protection against overload and short-circuit
Voltage drop, closed state	4-wire ---	V < 2
Maximum switching frequency	4-wire ---	Hz 250
Delays	First-up	ms < 15
	Response	ms < 2.5
	Recovery	ms < 2.5

Setting-up



(1) These sensors are supplied without a cable gland. A suitable Pg 13.5 cable gland is available (reference XSZPE13).

(2) Sensors are available for very low temperatures (suffix TF: - 40°C, + 70°C) or very high temperatures (suffix TT: - 25°C, + 85°C); please consult our Customer Care Centre.

Inductive proximity sensors

XS range application

Factor 1 sensors for ferrous or non-ferrous material detection and welding applications. Plastic case, 40 x 40 mm front face. 5 position turret head

Setting-up (continued)

Minimum mounting distances (mm)

	Side by side	Face to face	Facing a metal object
Sensors flush mountable in metal	$e \geq 80$	$e \geq 200$	$e \geq 60$

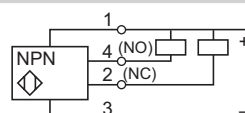
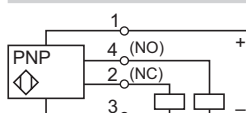
Wiring schemes

M12 connector



1: + V
2: NC Output
3: 0 V
4: NO Output

4-wire $\overline{NO}$, NO + NC outputs



Accessories

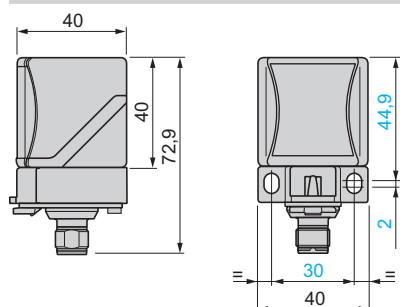


XSZPSC2

Description	Use for	Reference	Weight (kg)
Stainless steel rigid protective cover (only suitable for use when detecting from the top)	Welding	XSZPSC2	0.010

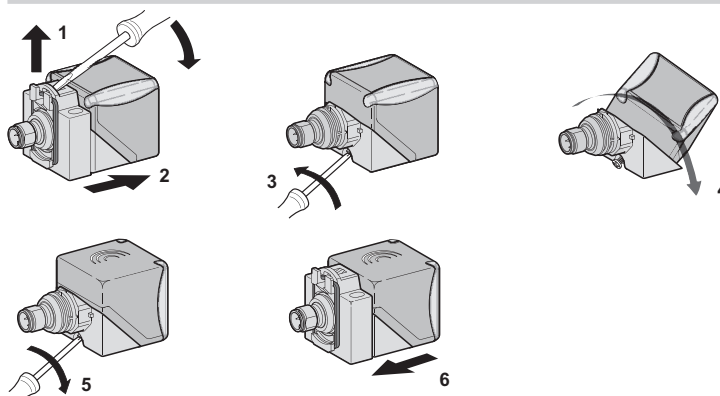
Dimensions

XS9C2A1PCM12 and XS9C2A1NCM12

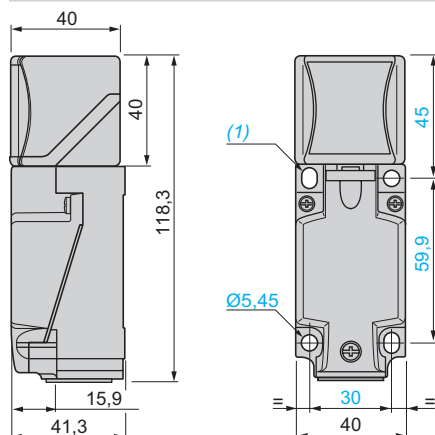


Head positions

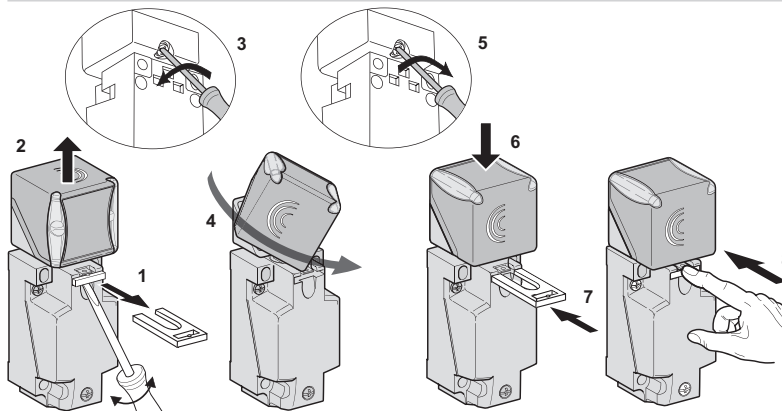
XS9C2A1PCM12 and XS9C2A1NCM12



XS9C4A1PCP20



XS9C4A1PCP20



(1) 2 elongated holes $\varnothing 5.3 \times 7$ mm.

Tightening torque of cover fixing screws and clamp screws: $< 1.2 \text{ N.m} / < 10.62 \text{ lb-in}$.

Inductive proximity sensors

XS range application

Selective detection of ferrous and non-ferrous materials

Cylindrical type, solid-state output

Sensor type	Flush mountable
	Stainless steel case



Nominal sensing distance (Sn)	mm	5
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References			
3-wire, ferrous version	PNP	NO	XS1M18PAS40D
Insensitive to non ferrous materials			
3-wire, non ferrous version	PNP	NO	XS1M18PAS20D
Insensitive to ferrous materials			
Weight	kg	0.060	

Characteristics			
Product certifications		cULus, CE, UKCA	
Connection		M12 connector	
Degree of protection conforming to IEC 60529		IP 67	
Operating zone	mm	0...4	
Operating temperature	°C	- 25...+ 70	
Output state indication		Yellow LED, 4 viewing ports at 90°	
Rated supply voltage	V	12...24 with protection against reverse polarity	
Voltage limits (including ripple)	V	10...38	
Insulation class		II	
Switching capacity		0...200 mA with overload and short-circuit protection	
Voltage drop, closed state	V	≤ 2.6	
Residual current, open state		—	
Current consumption, no-load	mA	≤ 15	
Maximum switching frequency	Hz	1000	
Delays	First-up	ms	≤ 10
	Response	ms	≤ 0.3
	Recovery	ms	≤ 0.7

Inductive proximity sensors

XS range application

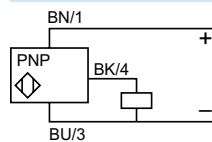
Selective detection of ferrous and non-ferrous materials

Cylindrical type, solid-state output

Wiring schemes

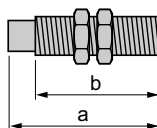
M12 connector

3-wire PNP



Dimensions

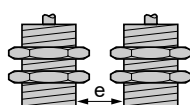
XS1M



a (mm)	b (mm)
70	51.5

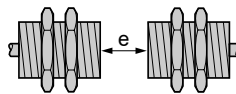
Setting-up

Minimum mounting distances (mm)



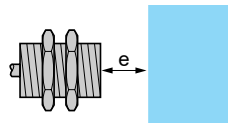
Side by side

$e \geq 10$



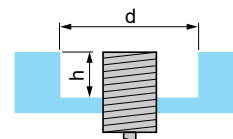
Face to face

$e \geq 60$



Facing a metal object

$e \geq 15$



Mounted in a metal support

$d \geq 18$, $h \geq 0$ (ferrous metal)
 $d \geq 18$, $h \geq 5$ (non ferrous metal)

Inductive proximity sensors

XS range, Fail Safe

Cylindrical, metal, flush mountable

Standard sensing distance

Four-wire DC, solid-state NO + NC output, SIL2, PLd, cat 2



XS512BSPD●●



XS518BSPD●●



XS530BSPD●●



XSZB1●●

Sensors, 4-wire, brass case, flush mountable					
Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight (kg)
Ø 12, threaded M12 x 1					
2	NO + NC	PNP	Pre-cabled (L = 2 m)	XS512BSPDL2	0.070
			M12 connector	XS512BSPDM12	0.020
Ø 18, threaded M18 x 1					
5	NO + NC	PNP	Pre-cabled (L = 2 m)	XS518BSPDL2	0.100
			M12 connector	XS518BSPDM12	0.040
Ø 30, threaded M30 x 1.5					
10	NO + NC	PNP	Pre-cabled (L = 2 m)	XS530BSPDL2	0.160
			M12 connector	XS530BSPDM12	0.100

Accessories			
Description	For use with sensors (mm)	Reference	Weight (kg)
Fixing clamps	Ø 12	XSZB112	0.006
	Ø 18	XSZB118	0.010
	Ø 30	XSZB130	0.020

Inductive proximity sensors

XS range, Fail Safe

Cylindrical, metal, flush mountable

Standard sensing distance

Four-wire DC, solid-state NO + NC output, SIL2, PLd, cat 2

Characteristics			
Sensor type		XS5...BSPDM12	XS5...BSPDL2
Product certifications		cULus, CE, UKCA, E2	cULus, CE, UKCA, E2
Conformity to safety standards		IEC 60947-5-2 IEC 60947-5-3 EN/IEC 61508: SIL 2 EN/ISO 13849-1: PL = d IEC 62061: SILcl2	
Reliability data		Ø 12, Ø 18 and Ø 30 MTTFd = 2422 years, PFHd = 47.1 10 ⁻⁹ 1/h, SFF > 98.9 %, DC > 96 % (with a safety controller)	
Connection		M12 connector	Pre-cabled, length: 2m
Operating zone (Sao/Sar)	Ø 12 flush mountable	mm	0.4...1.6/2.8
	Ø 18 flush mountable	mm	1.5...4/7
	Ø 30 flush mountable	mm	4.9...8.1/13.9
Differential travel		%	1...15 of effective sensing distance (Sr)
Degree of protection	Conforming to IEC 60529	IP 65 and IP 67	
	Conforming to DIN 40050	IP 69K	
Storage temperature		°C	- 40...+ 85
Operating temperature		°C	- 40...+ 70
Materials	Case/Sensing face	Nickel plated brass/PPS	
	Cable	PVC 4 x 0.22 mm ² (Ø 12, Ø 18 and Ø 30)	
Vibration resistance		Conforming to IEC 60068-2-6 25 gn, amplitude ± 2 mm (f = 10 to 55 Hz)	
Shock resistance		Conforming to IEC 60068-2-27 50 gn, duration 11 ms	
Output state indication		Yellow LED, 4 viewing ports at 90°	
Rated supply voltage		V	12...24 with protection against reverse polarity
Voltage limits (including ripple)		V	10...36
Insulation class			II
Switching capacity		mA	≤ 200 with overload and short-circuit protection
Voltage drop, closed state		V	≤ 2
Current consumption, no-load		mA	≤ 10
Maximum switching frequency	Ø 12	Hz	85
	Ø 18	Hz	85
	Ø 30	Hz	85
Delays	First-up	ms	≤ 10
	Response	ms	≤ 5.7
	Recovery	ms	≤ 5.7

Wiring schemes

M12 connector	Pre-cabled	PNP 4-wire
	BU: Blue BN: Brown BK: Black WH: White	

Setting-up

		Minimum mounting distances (mm)			
Sensor		Side by side	Face to face	Facing a metal object	Mounted in a metal support
Ø 12 flush mountable	XS512	e ≥ 4	e ≥ 24	e ≥ 6	d ≥ 12 h ≥ 0
Ø 18 flush mountable	XS518	e ≥ 10	e ≥ 60	e ≥ 15	d ≥ 18 h ≥ 0
Ø 30 flush mountable	XS530	e ≥ 20	e ≥ 120	e ≥ 30	d ≥ 30 h ≥ 0

Dimensions

		Flush mountable in metal			
Sensor		Pre-cabled (mm)		M12 connector (mm)	
		a	b	a	b
Ø 12 brass	XS512	37	25	50	31
Ø 18 brass	XS518	41	29	51	28
Ø 30 brass	XS530	45	33	54	33

Inductive proximity sensors

XS range, Fail Safe

Cylindrical, metal, flush mountable

Increased range

Four-wire DC, solid-state NO + NC output, SIL2, PLd, cat 2



XS112B3PD●●



XS118B3PD●●



XSZB1●●

Sensors, 4-wire 12...24 V, short case model					
Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight (kg)
Ø 12, threaded M12 x 1					
4	NO + NC	PNP	Pre-cabled (L = 2 m)	XS112B3PDL2	0.070
			M12 connector	XS112B3PDM12	0.020
Ø 18, threaded M18 x 1					
8	NO + NC	PNP	Pre-cabled (L = 2 m)	XS118B3PDL2	0.100
			M12 connector	XS118B3PDM12	0.040
Ø 30, threaded M30 x 1.5					
15	NO + NC	PNP	Pre-cabled (L = 2 m)	XS130B3PDL2	0.160
			M12 connector	XS130B3PDM12	0.100

Accessories (1)			
Description	For use with sensors (mm)	Reference	Weight (kg)
Fixing clamps	Ø 12	XSZB112	0.006
	Ø 18	XSZB118	0.010
	Ø 30	XSZB130	0.020

(1) For further information, see page 120.

Inductive proximity sensors

XS range, Fail Safe

Cylindrical, metal, flush mountable

Increased range

Four-wire DC, solid-state NO + NC output, SIL2, PLd, cat 2

Characteristics			
Sensor type		XS1●●B3PDM12	XS1●●B3PDL2
Product certifications	Ø 12, 18 and 30	cULus, CE, UKCA, E2	
Conformity to safety standards	Ø 12, Ø 18 and Ø 30	IEC 60947-5-2 IEC 60947-5-3 EN/IEC 61508: SIL 2 EN/ISO 13849-1: PL =d IEC 62061: SILcl2	
Reliability data	Ø 12, Ø 18 and Ø 30	MTTFd = 2422 years, PFHd = 47.1 10 ⁻⁹ 1/h, SFF > 98.9 %, DC > 96 % (with a safety controller)	
Connection		M12 connector	Pre-cabled, length 2 m
Operating zone (Sao/Sar)	Ø 12	mm	1.2...3.2/5.6
	Ø 18	mm	3...6.5/11.1
	Ø 30	mm	5.8...12.2/20.9
Differential travel		%	1...15 of effective sensing distance (Sr)
Degree of protection	Conforming to IEC 60529	IP 65 and IP 67	IP 65 and IP 68
	Conforming to DIN 40050	IP 69K	—
Storage temperature		°C	- 40...+ 85
Operating temperature		°C	- 40...+ 70
Materials	Case	Nickel plated brass	
	Sensing face	PPS	
	Cable	—	PVC 4 x 0.22 mm ²
Vibration resistance	Conforming to IEC 60068-2-6	25 gn, amplitude ± 2 mm (f = 10 to 55 Hz)	
Shock resistance	Conforming to IEC 60068-2-27	50 gn, duration 11 ms	
Output state indication		Yellow LED, 4 viewing ports at 90°	Yellow LED, annular
Rated supply voltage		V	— 12...24 with protection against reverse polarity
Voltage limits (including ripple)		V	— 9...36
Insulation class		III	□
Switching capacity		mA	≤ 200 with overload and short-circuit protection
Voltage drop, closed state		V	≤ 2
Current consumption, no-load		mA	≤ 10
Maximum switching frequency	Ø 12	Hz	85
	Ø 18	Hz	85
	Ø 30	Hz	85
Delays	First-up	ms	≤ 10
	Response	ms	≤ 5.7
	Recovery	ms	≤ 5.7

Wiring schemes

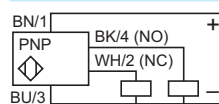
M12 connector



Pre-cabled

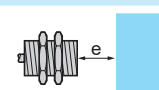
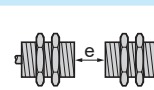
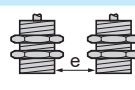
BU: Blue
BN: Brown
BK: Black
WH: White

PNP 4-wire



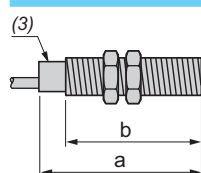
Setting-up

Minimum mounting distances (mm)



Sensors	Side by side	Face to face	Facing a metal object
Ø 12	e ≥ 8	e ≥ 50	e ≥ 12
Ø 18	e ≥ 16	e ≥ 100	e ≥ 25
Ø 30	e ≥ 30	e ≥ 180	e ≥ 45

Dimensions



Sensors	Pre-cabled (mm)		M12 connector (mm)	
	a	b	a	b
Ø 12	37	25	50	31
Ø 18	41	29	51	28
Ø 30	45	33	54	33

(3) LED.

Inductive proximity sensors

XS range, Fail Safe

Cubic case, 40 x 40 x 70 mm, M12 connector

5-position turret head

Four-wire DC, solid-state NO + NC output, SIL2, PLd, cat 2

Sensor type	Flush mountable in metal	Non-flush mountable in metal
-------------	--------------------------	------------------------------



Nominal sensing distance (Sn)	mm	20	40
References			
4-wire ---	PNP NO+NC	XS8C2A1PDM12	XS8C2A4PDM12
Weight	kg	0.149	0.149
Characteristics			
Operating zone (Sao/Sar)	mm	8.3...16.2/27.8	18.4...32.4/55.7
Product certifications		cULus, CE, UKCA, TÜV (4-wire), E2 (3-wire and 4-wire)	
Conformity to standards		IEC 60947-5-2 IEC 60947-5-3	
Conformity to safety standards (1)		EN 62061 (2005): SILcl2 EN 61508 (2010): SIL 2, EN ISO 13849 (2008): PL d	
Reliability data (1)		MTTFd = 2422 years, PFHd = 7.4 10 ⁻⁸ 1/h, SFF > 98.9 %, DC > 96 % (with a safety controller)	
Connection		M12 connector	
Differential travel	%	3...15 of Sr	
Degree of protection	Conforming to IEC 60529 and DIN 40050	IP 65, IP 67 and IP 69K	
Temperature	Storage	°C - 40...+ 85	
	Operation (3)	°C - 40...+ 70	
Material	Case	PBT	
Vibration resistance	Conforming to IEC 60068-2-6	25 gn, amplitude ± 2 mm (f = 10...55 Hz)	
Shock resistance	Conforming to IEC 60068-2-27	50 gn for 11 ms	
Indicators	Output state	Yellow LED	
	Power on	Green LED	
Rated supply voltage	4-wire ---	V	12...48 with protection against reverse polarity
Voltage limits (including ripple)	4-wire ---	V	10...58
Insulation class			II
Current consumption, no-load	4-wire ---	mA	< 15
Switching capacity	4-wire ---	mA	< 200 with overload and short-circuit protection
Voltage drop, closed state	4-wire ---	V	< 2
Maximum switching frequency	Flush mountable		--- 40
	Non-flush mountable	Hz	--- 30
Delays	First-up	ms	Flush mountable: ≤ 12. Non-flush mountable: ≤ 14
	Response	ms	Flush mountable: ≤ 10. Non-flush mountable: ≤ 12.5
	Recovery	ms	Flush mountable: ≤ 10. Non-flush mountable: ≤ 12.5

(1) SIL 2 protection can only be obtained by connecting both outputs to a safety PLC. Please consult our website: www.telemecaniquesensors.com.

Inductive proximity sensors

XS range, Fail Safe

Cubic case, 40 x 40 x 70 mm, M12 connector

5-position turret head

Four-wire DC, solid-state NO + NC output, SIL2, PLd, cat 2

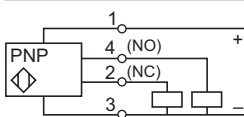
Setting-up precautions

Minimum mounting distances (mm)

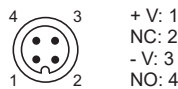
		Side by side	Face to face	Facing a metal object
Sensors flush mountable in metal	XS8C2A1●●	$e \geq 80$	$e \geq 160$	$e \geq 60$
Sensors non-flush mountable in metal	XS8C2A4●●	$e \geq 160$	$e \geq 320$	$e \geq 120$

Wiring schemes

4-wire $\square$, NO + NC outputs



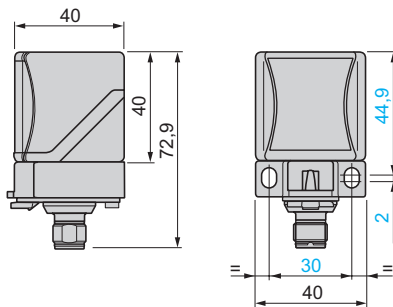
M12 connector



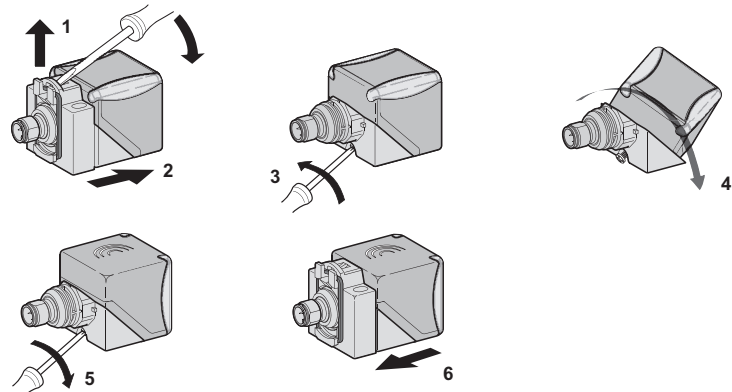
Accessory references

Description	Type	Length m	Reference	Weight (kg)
Pre-wired M12 connectors Female, 4-pin, zinc die-cast, nickel plated clamping ring	Straight	2	XZCP1141L2	0.090
		5	XZCP1141L5	0.190
		10	XZCP1141L10	0.370
	Elbowed	2	XZCP1241L2	0.090
		5	XZCP1241L5	0.190
		10	XZCP1241L10	0.370

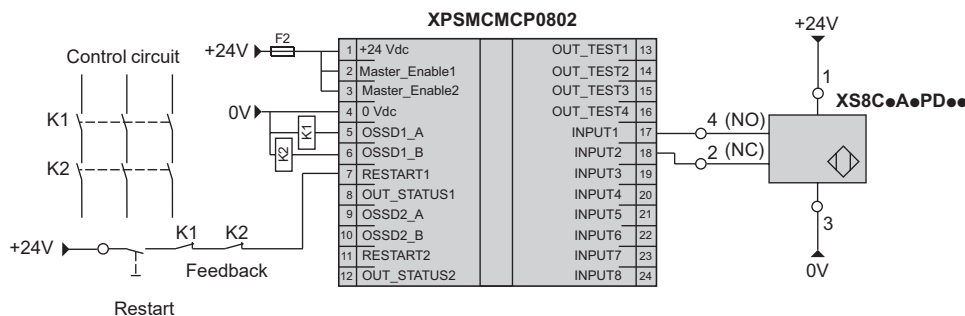
Dimensions



Head positions



Example SIL 2 wiring scheme (with XPSMC safety PLC)



SFF (Safe Failure Fraction): 98,9 %
DC (Diagnosis Coverage): 96 %

Inductive proximity sensors

XS range, Fail Safe

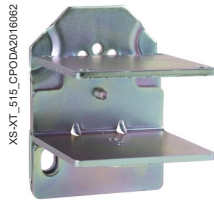
Plastic case, 40 x 40 x 117 mm, plug-in

Sensor type		Flush mountable in metal		Non-flush mountable in metal	
					
Nominal sensing distance (Sn)		mm	20		40
References					
4-wire ---	PNP NO+NC		XS8C4A1PDP20		XS8C4A4PDP20
Weight		kg	0.244		0.244
Note: These sensors have an M20 cable entry. They can also be supplied with a PG 13.5 cable entry (e.g. XS8C4A4PDG13) or a 1/2" NPT cable entry (e.g. XS8C4A1PDN12). Please consult our Customer Care Centre.					
Characteristics					
Operating zone (Sao/Sar)		mm	8.3...16.2/27.8		18.4...32.4/55.7
Product certifications			cULus, CE, UKCA, TÜV, E2		
Conformity to standards			IEC 60947-5-2 IEC 60947-5-3		
Conformity to safety standards (1)			EN 62061 (2005): SILcl2, EN 61508 (2010): SIL 2, EN ISO 13849 (2008): PL d		
Reliability data (1)			MTTFd = 2422 years, PFHd = 7.4 10 ⁻⁸ 1/h, SFF > 98.9 %, DC > 96 % (with a safety controller)		
Connection			Screw terminals, clamping capacity: 2 or 4 x 1.5 mm ² / 2 or 4 x 16 AWG (3)		
Differential travel		%	3...15 of Sr		
Degree of protection			IP 65, IP 67 and IP 69K		
Temperature	Storage	°C	- 40...+ 85		
	Operation	°C	- 40...+ 70		
Material			Case: PBT		
Vibration resistance			25 gn, amplitude ± 2 mm (f = 10...55 Hz)		
Shock resistance			50 gn for 11 ms		
Indicators	Output state		Yellow LED		
	Power on		Green LED		
Rated supply voltage		V	12...48 with protection against reverse polarity		
Voltage limits (including ripple)		V	10...58		
Insulation class					
Current consumption, no-load		mA	< 15		
Switching capacity		mA	< 200 mA with overload and short-circuit protection		
Voltage drop, closed state		V	< 2		
Maximum switching frequency		Hz	Flush mountable: --- 40 Non-flush mountable: --- 30		
Delays	First-up	ms	Flush mountable: ≤ 12. Non-flush mountable: ≤ 14.		
	Response	ms	Flush mountable: ≤ 10. Non-flush mountable: ≤ 12.5.		
	Recovery	ms	Flush mountable: ≤ 10. Non-flush mountable: ≤ 12.5.		

(1) SIL 2 protection can only be obtained by connecting both outputs to a safety PLC. Please consult our website www.telemecanique.com.



XSZBE10



XSZBC10



XSZBD10



XSZB100



XSCZ01



XSZP100

Mounting and fixing accessories

Description	For use with sensor		Unit reference	Weight (kg)
	Type	Diameter (mm)		
Replacement bracket	XS●E Replaces: XS7T2, XS8T2, XSE	–	XSZBE10	0.060
	XS●C Replaces: XS7T4, XS7C40, XS8T4, XS8C40 and XSC	–	XSZBC10	0.110
	XS●D (for XSD) (1)	–	XSZBD10	0.065
Fixing clamps	XS1, XS2, XS4, XS5, XS6	8 (M8 x 1)	XSZB108	0.006
	XS1, XS2, XS4, XS5, XS6	12 (M12 x 1)	XSZB112	0.006
		18 (M18 x 1)	XSZB118	0.010
		30 (M30 x 1.5)	XSZB130	0.020
Set of 2 metal fixing nuts, XS1, XS2, XS5, XS6 nickel plated		12 (M12 x 1)	XSZE112	0.015
		18 (M18 x 1)	XSZE118	0.020
		30 (M30 x 1.5)	XSZE130	0.050

Protection accessories

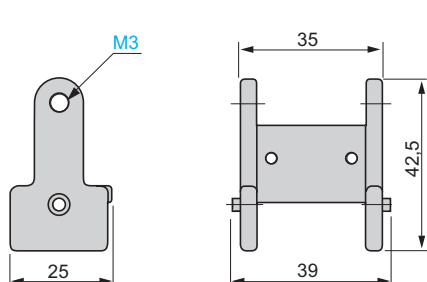
Description	For use with sensor		Unit reference	Weight (kg)
	Type	Diameter (mm)		
Cable sleeve adaptor (CNOMO type)	XS●, XT●	12 (M12 x 1)	XSZP112	0.005
		18 (M18 x 1)	XSZP118	0.005
		30 (M30 x 1.5)	XSZP130	0.010
Outer cover (IP 68)	XT7, XS7, XS8 and XS9 – (C format)		XSCZ01	0.100

Fuses (for unprotected 2-wire $\overline{\text{---}}/\sim$ sensors)

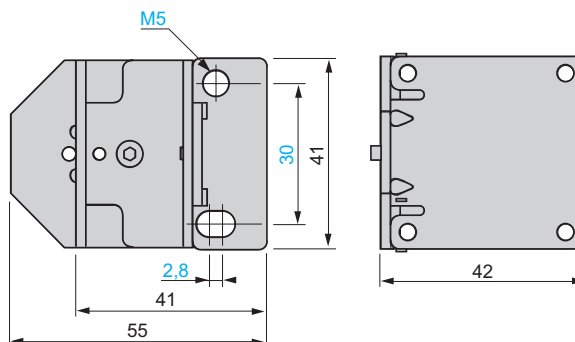
Description	Type	Sold in lots of	Unit reference	Weight (kg)
Cartridge fuses 5 x 20	0.4 A "quick-blow"	10	XUZE04	0.001
	0.63 A "quick-blow"	10	XUZE06	0.001
	0.8 A "quick-blow"	10	XUZE08	0.001

(1) Depth adjustment shim for converting 80 x 80 x 26 mm format to 80 x 80 x 40 mm format. Also enables clipping onto 35 mm omega rail.

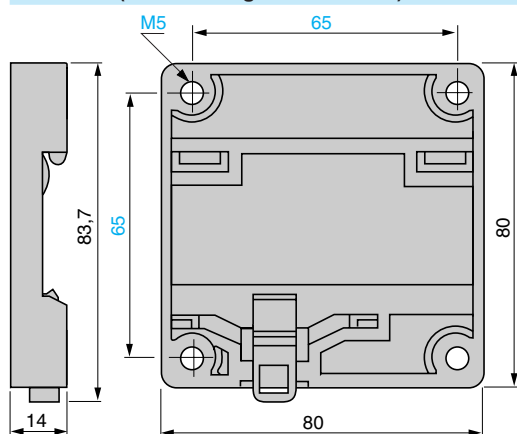
XSZBE10



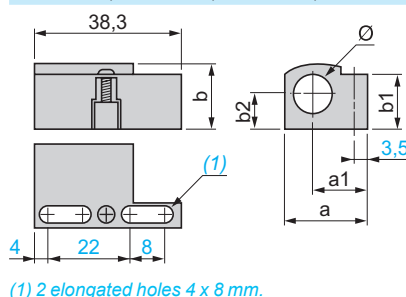
XSZBC10



XSZBD10 (for mounting on XS●D●●●●)

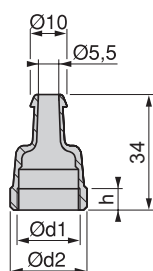


XSZB108, XSZB112, XSZB118, XSZB130, XSZB165



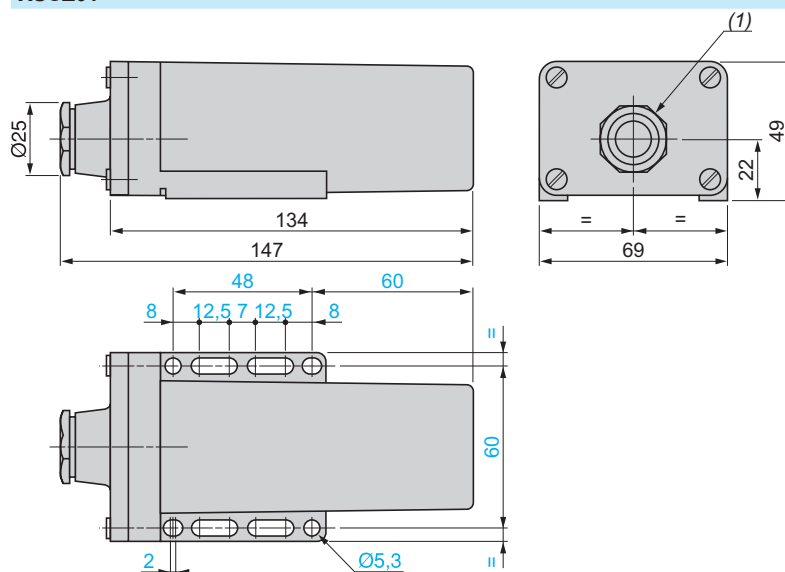
XSZ	a	a1	b	b1	b2	Ø
B112	21.9	14.5	16	15.5	8.5	12
B118	26	15.7	22.3	20.1	11.5	18
B130	39	21.7	35.5	31	18.5	30

XSZP112, XSZP118, XSZP130



XSZ	h	Ø d1	Ø d2
P112	7	12	16.8
P118	6.2	18	23
P130	6.2	30	34.4

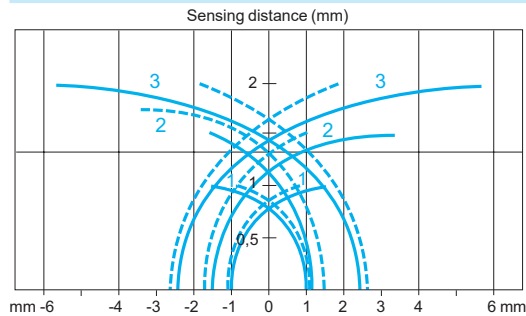
XSCZ01



(1) 13P cable gland

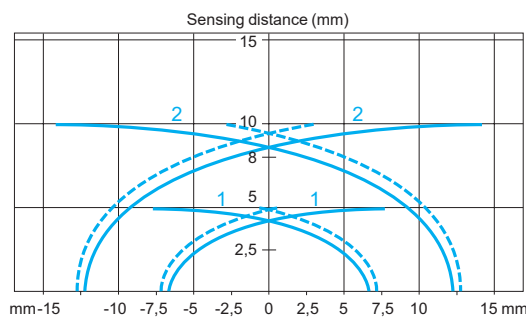
Cylindrical type sensors

Flush mountable in metal



Sensor (mm)	Standard steel target (mm)	Operating zone (mm)
Ø 4	5 x 5 x 1	0...0.8
Ø 5	5 x 5 x 1	0...0.8
Ø 6.5	8 x 8 x 1	0...1.2
Ø 8	8 x 8 x 1	0...1.2
Ø 12	12 x 12 x 1	0...1.6

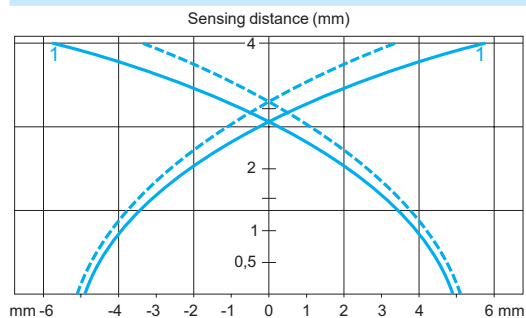
— pick-up points
 - - - drop-out points (object approaching from the side)
 1 Ø 4 (plain) XS1 and Ø 5 (M5 x 0.5) XS1
 2 Ø 6.5 (plain) XS1 and Ø 8 (M8 x 1) XS5
 3 Ø 12 (M12 x 1) XS5



Sensor (mm)	Standard steel target (mm)	Operating zone (mm)
Ø 18	18 x 18 x 1	0...4
Ø 30	30 x 30 x 1	0...8

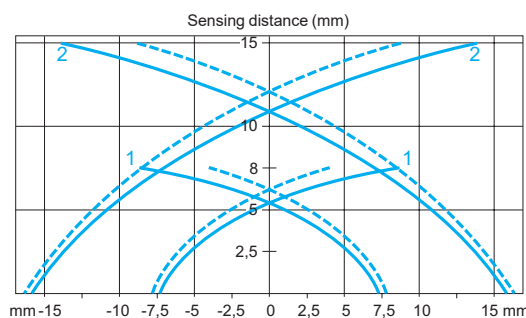
— pick-up points
 - - - drop-out points (object approaching from the side)
 1 Ø 18 (M18 x 1) XS5
 2 Ø 30 (M30 x 1.5) XS5

Non flush mountable in metal



Sensor (mm)	Standard steel target (mm)	Operating zone (mm)
Ø 12	12 x 12 x 1	0...3.2

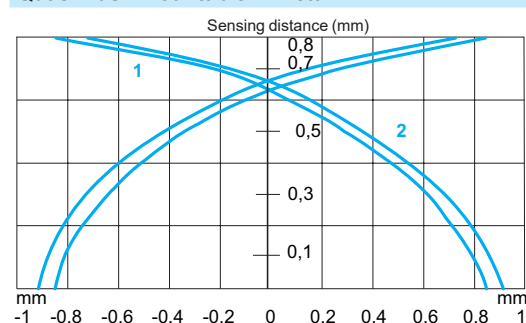
— pick-up points
 - - - drop-out points (object approaching from the side)
 1 Ø 12 (M12 x 1) XS4



Sensor (mm)	Standard steel target (mm)	Operating zone (mm)
Ø 18	24 x 24 x 1	0...6.4
Ø 30	45 x 45 x 1	0...12

— pick-up points
 - - - drop-out points (object approaching from the side)
 1 Ø 18 (M18 x 1) XS4
 2 Ø 30 (M30 x 1.5) XS4

Quasi-flush mountable in metal



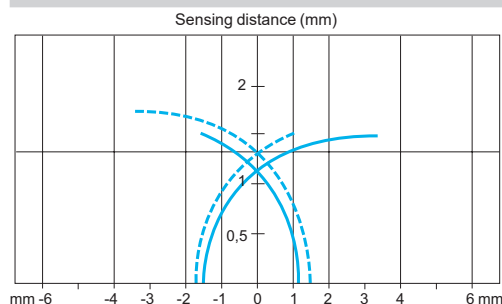
Sensor (mm)	Standard steel target (mm)	Operating zone (mm)
Ø 4	4 x 4 x 1	0...0.65
Ø 5	5 x 5 x 1	0...0.65

1 Ø 4
 2 Ø 5

Cylindrical type basic sensors

Ø 8 sensors

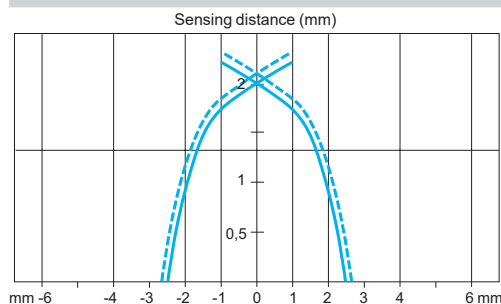
Flush mountable in metal



Standard steel target (mm): 8 x 8 x 1

Operating zone (mm): 0...1.2

Non flush mountable in metal

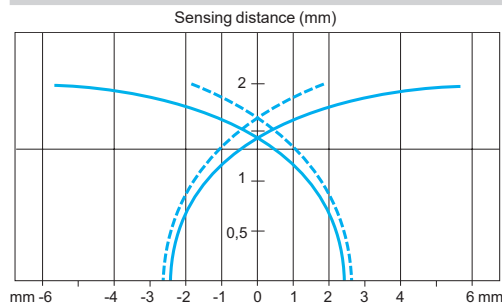


Standard steel target (mm): 8 x 8 x 1

Operating zone (mm): 0...2

Ø 12 sensors

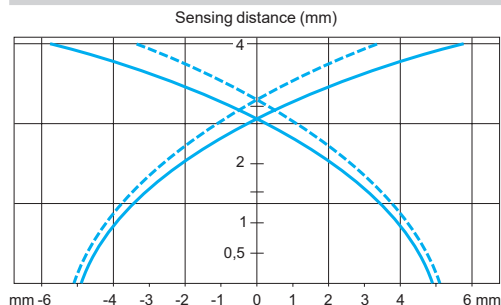
Flush mountable in metal



Standard steel target (mm): 12 x 12 x 1

Operating zone (mm): 0...1.6

Non flush mountable in metal

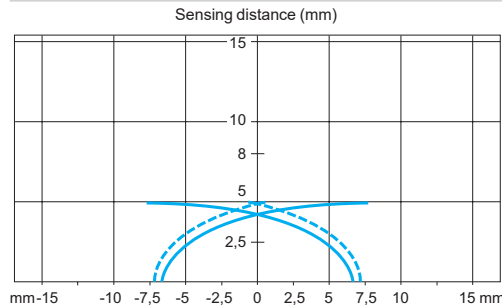


Standard steel target (mm): 12 x 12 x 1

Operating zone (mm): 0...3.2

Ø 18 sensors

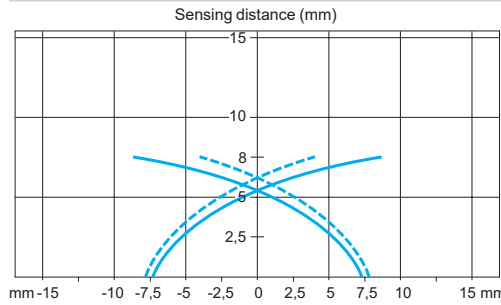
Flush mountable in metal



Standard steel target (mm): 18 x 18 x 1

Operating zone (mm): 0...4

Non flush mountable in metal

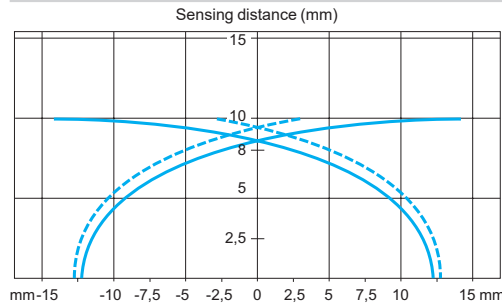


Standard steel target (mm): 24 x 24 x 1

Operating zone (mm): 0...6.4

Ø 30 sensors

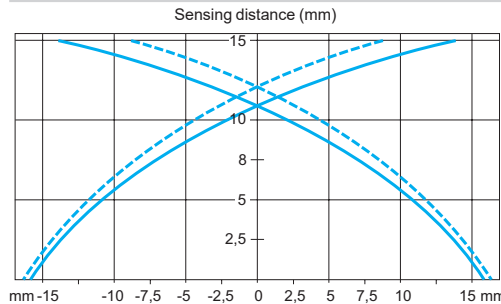
Flush mountable in metal



Standard steel target (mm): 30 x 30 x 1

Operating zone (mm): 0...8

Non flush mountable in metal



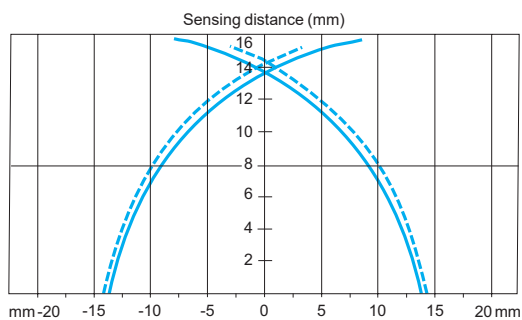
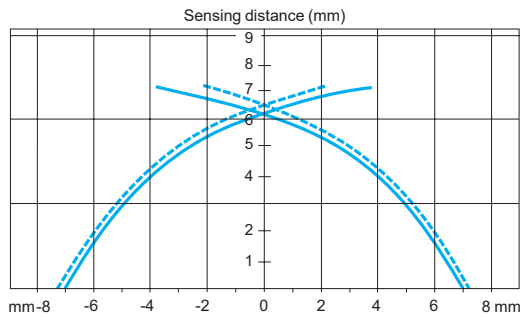
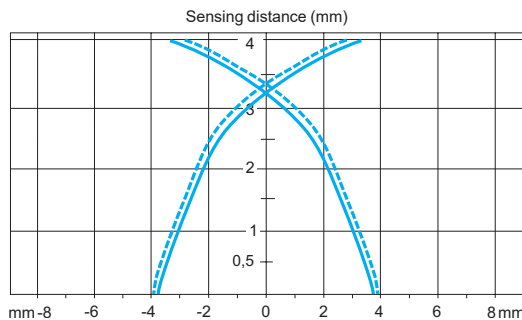
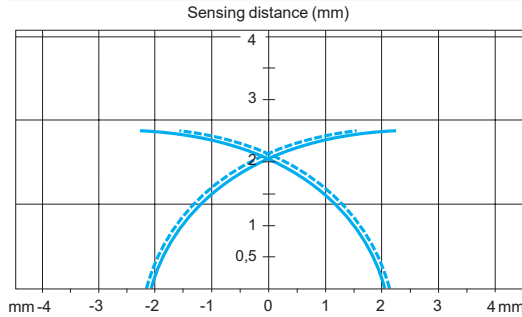
Standard steel target (mm): 45 x 45 x 1

Operating zone (mm): 0...12

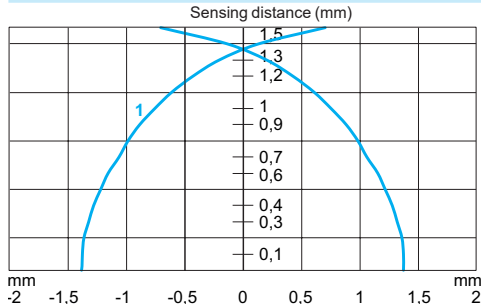
— pick-up points
- - - drop-out points (object approaching from the side)

Cylindrical type sensors, increased range

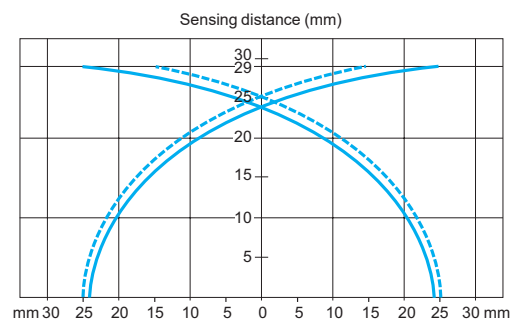
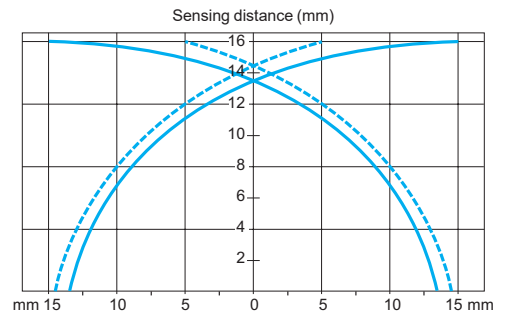
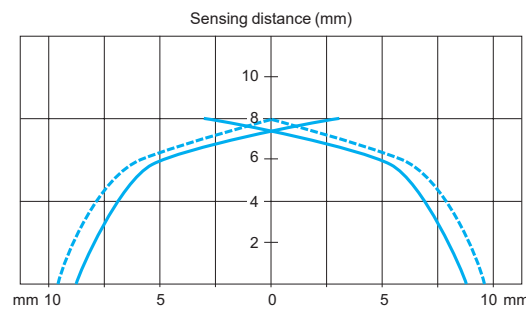
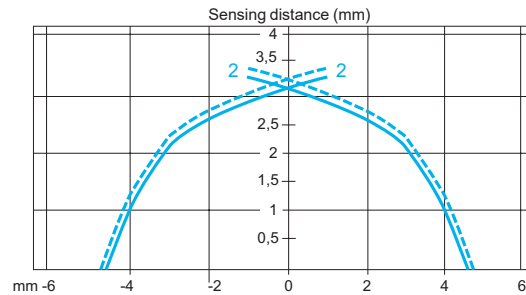
Flush mountable in metal



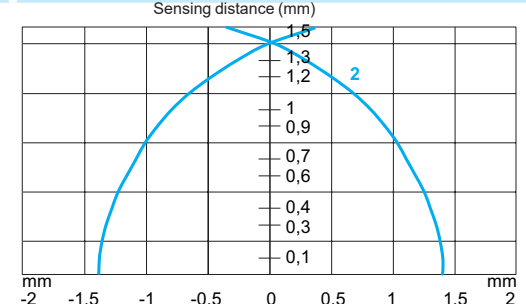
Quasi-flush mountable in metal, Ø 4



Non flush mountable in metal



Quasi-flush mountable in metal, Ø 5



Sensor (mm)

Ø 6.5 and Ø 8

Standard steel target (mm)

8 x 8 x 1

Operating zone (mm)

0...2 (flush mounted)
0...3.2 (not flush mounted)

1 Ø 6.5 (plain) XS106B3●●
and Ø 8 (M8 x 1) XS108B3
and XS608B1
2 XS608B4

Sensor (mm)

Ø 12

Standard steel target (mm)

12 x 12 x 1

Operating zone (mm)

0...3.2 (flush mounted)
0...6.4 (not flush mounted)

Sensor (mm)

Ø 18

Standard steel target (mm)

24 x 24 x 1

Operating zone (mm)

0...6.4 (flush mounted)
0...12.8 (not flush mounted)

Sensor (mm)

Ø 30

Standard steel target (mm)

45 x 45 x 1

Operating zone (mm)

0...12 (flush mounted)
0...24 (not flush mounted)

Sensor (mm)

Ø 4 (1) and Ø 5 (2)

Standard steel target (mm)

Ø 4: 4.5 x 4.5 x 1

Ø 5: 5 x 5 x 1

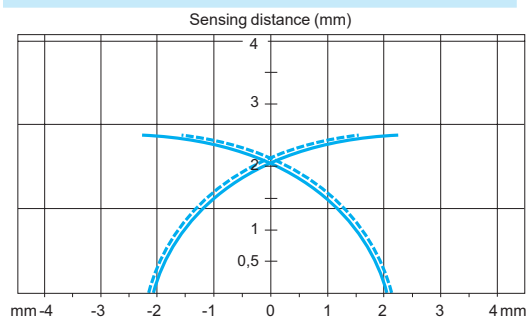
Operating zone (mm)

0...0.65

— pick-up points
- - - drop-out points (object approaching from the side)

Cylindrical type basic sensors, increased range

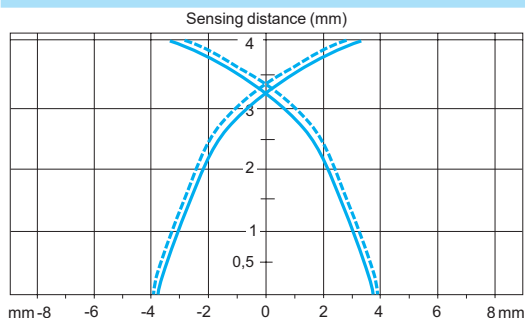
Sensors Ø 8



Standard metal target (mm): 8 x 8 x 1

Operating zone (mm): 0...2

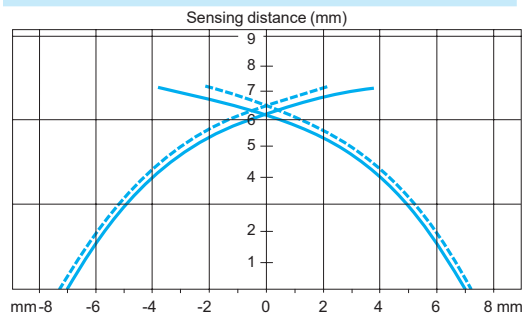
Sensors Ø 12



Standard metal target (mm): 12 x 12 x 1

Operating zone (mm): 0...3.2

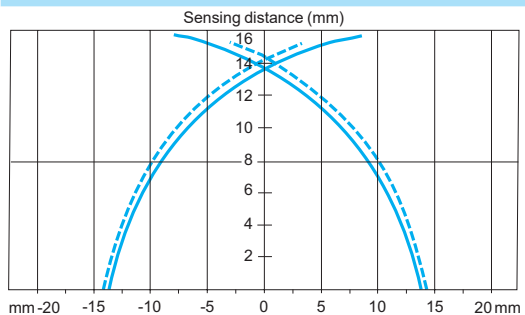
Sensors Ø 18



Standard metal target (mm): 24 x 24 x 1

Operating zone (mm): 0...6.4

Sensors Ø 30



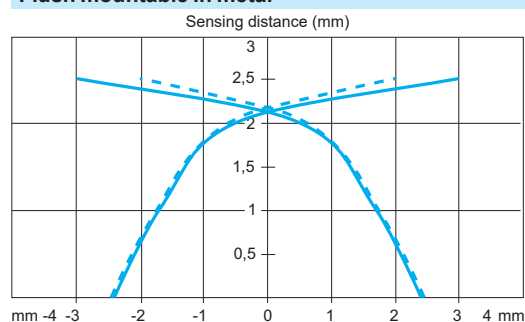
Standard metal target (mm): 45 x 45 x 1

Operating zone (mm): 0...12

— pick-up points
- - - drop-out points (object approaching from the side)

Cubic, flat or rectangular type sensors

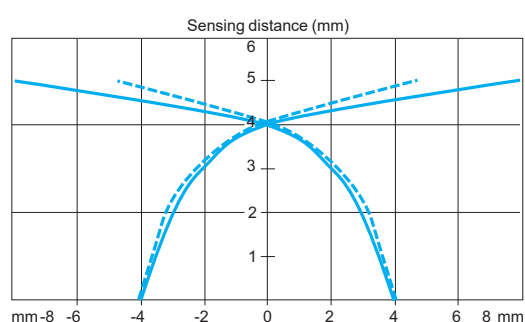
Flush mountable in metal



Sensor	Standard steel target (mm)	Operating zone (mm)
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XS7J1A1 5 x 5 x 1 0...2

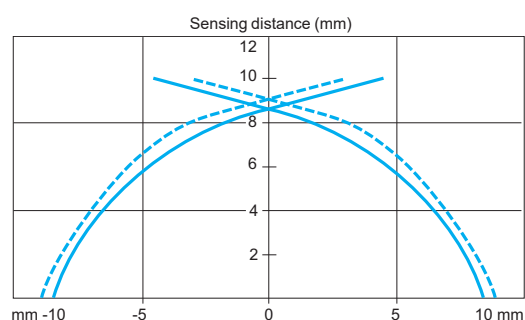
— pick-up points
- - - drop-out points (object approaching from the side)



Sensor	Standard steel target (mm)	Operating zone (mm)
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XS7F1A1 5 x 5 x 1 0...4

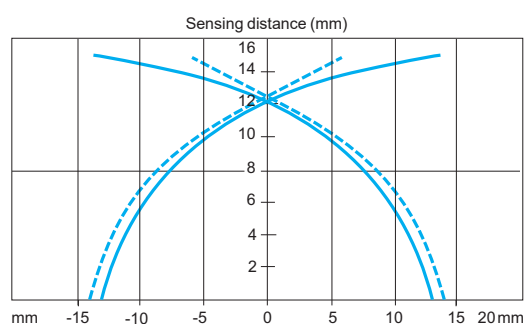
— pick-up points
- - - drop-out points (object approaching from the side)



Sensor	Standard steel target (mm)	Operating zone (mm)
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XS7E1A1 8 x 8 x 1 0...8

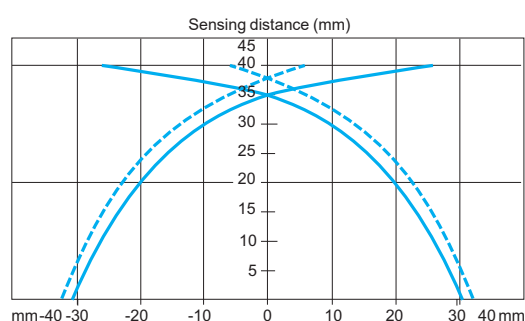
— pick-up points
- - - drop-out points (object approaching from the side)



Sensor	Standard steel target (mm)	Operating zone (mm)
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XS7C1A1 18 x 18 x 1 0...12

XS7C2A1
— pick-up points
- - - drop-out points (object approaching from the side)



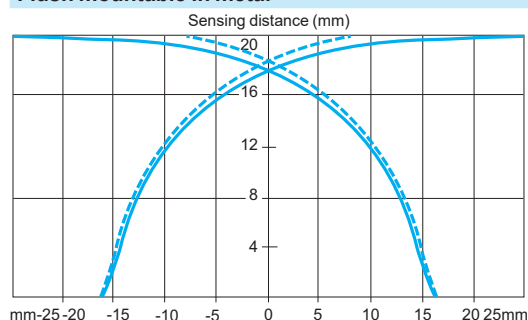
Sensor	Standard steel target (mm)	Operating zone (mm)
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XS7D1A1 30 x 30 x 1 0...32

— pick-up points
- - - drop-out points (object approaching from the side)

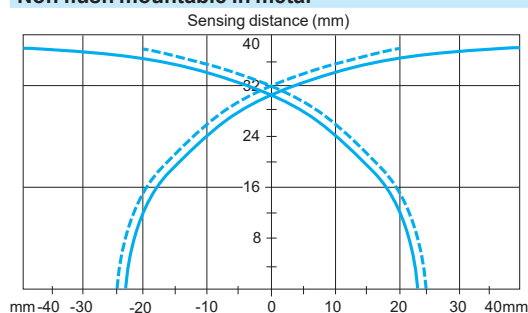
Cubic or rectangular type sensors, increased range

Flush mountable in metal



Sensor	Standard steel target (mm)	Operating zone (mm)
XS8C●A1●	30 x 30 x 1	0...16
<i>— pick-up points</i> <i>- - - drop-out points (object approaching from the side)</i>		

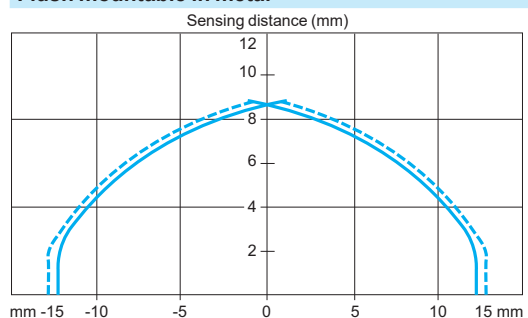
Non flush mountable in metal



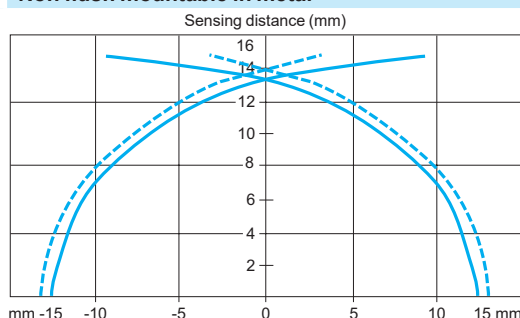
Sensor	Standard steel target (mm)	Operating zone (mm)
XS8C●A4●	45 x 45 x 1	0...32
<i>— pick-up points</i> <i>- - - drop-out points (object approaching from the side)</i>		

Flat type sensors, increased range

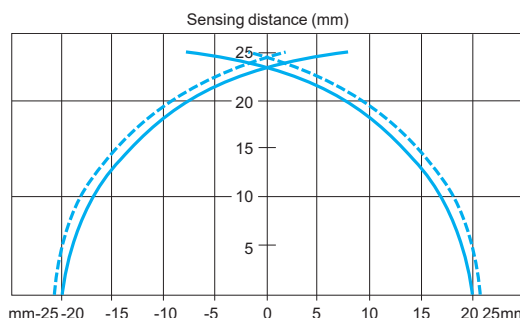
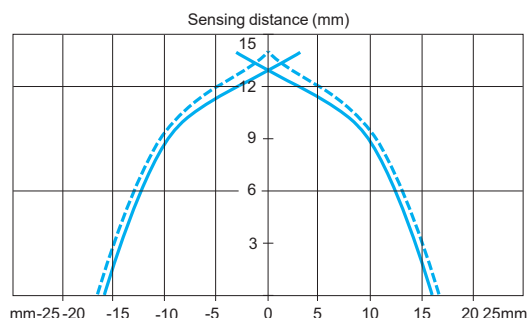
Flush mountable in metal



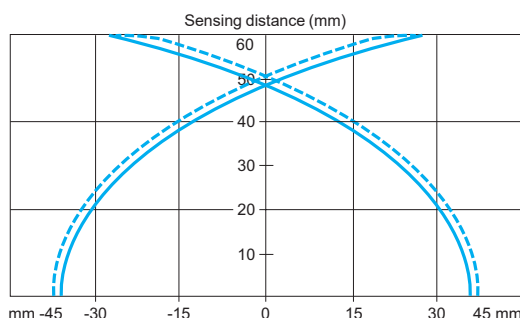
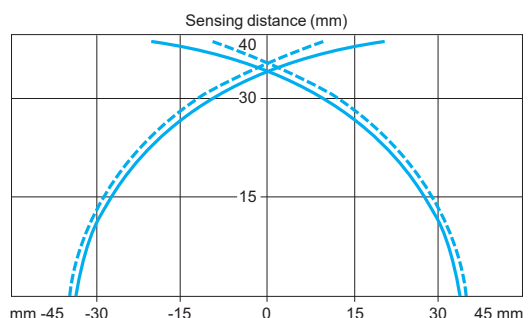
Non flush mountable in metal



Sensor
XS8E
Standard steel target (mm)
18 x 18 x 1
Operating zone (mm)
5...10 (flush mounted) 5...15 (not flush mounted)



Sensor
XS8C
Standard steel target (mm)
30 x 30 x 1
Operating zone (mm)
8...15 (flush mounted) 8...25 (not flush mounted)



Sensor
XS8D
Standard steel target (mm)
45 x 45 x 1
Operating zone (mm)
20...40 (flush mounted) 0...60 (not flush mounted)

— pick-up points
- - - drop-out points (object approaching from the side)

Substitution table

Sensors with the closest functionalities

Inductive proximity sensors

Old sensor	New XS sensor	Old sensor	New XS sensor	Old sensor	New XS sensor
Cylindrical type, DC					
Diameter 4 mm					
XS1					
XS1L04NA310	XS604R1NAL2	XS1L06NA340S	XS506B1NAM8	XS1M08NB370D	XS508BLNBM12
XS1L04NA310S	XS604R1NAM08	XS1L06NB340	XS506B1NBL2	XS1M08PA370	XS508BLPAL2
XS1L04NB310	XS604R1NBL2	XS1L06NB340S	XS506B1NBM8	XS1M08PA370D	XS508BLPAM12
XS1L04NB310S	XS604R1NBM08	XS1L06PA340	XS506B1PAL2	XS1M08PA370L1	XS508BLPAL5
XS1L04PA310	XS604R1PAL2	XS1L06PA340L1	XS506B1PAL5	XS1M08PA370L2	XS508BLPAL10
XS1L04PA310S	XS604R1PAM08	XS1L06PA340D	XS506B1PAM12	XS1M08PA370LD	XS508BLPAM12 (1)
XS1L04PB310	XS604R1PBL2	XS1L06PA340S	XS506B1PAM8	XS1M08PA370S	XS508BLPAM12 (2)
XS1L04PB310S	XS604R1PBL2	XS1L06PB340	XS506B1PBL2	XS1M08PB370	XS508BLPBL2
		XS1L06PB340L1	XS506B1PBL5	XS1M08PB370D	XS508BLPBM12
		XS1L 06PB340S	XS506B1PBM8	XS1M08PB370L1	XS508BLPBL5
				XS1M08PB370L2	XS508BLPBL10
XS1L04NA311	XS504R1NAL2	XS1L06NA349	XS106B3NAL2	XS1N08NA340	XS508B1NAL2
XS1L04NA311S	XS504R1NAM08	XS1L06NA349S	XS106B3NAM8	XS1N08NA340D	XS508B1NAM12
XS1L04NB311	XS504R1NBL2	XS1L06NB349	XS106B3NBL2	XS1N08NA340L1	XS508B1NAL5
XS1L04NB311S	XS504R1NBM08	XS1L06NB349S	XS106B3NBM8	XS1N08NA340L2	XS508B1NAL10
XS1L04PA311	XS504R1PAL2	XS1L06PA349	XS106B3PAL2	XS1N08NA340S	XS508B1NAM8
XS1L04PA311S	XS504R1PAM08	XS1L06PA349L1	XS106B3PAL5	XS1N08NB340	XS508B1NBL2
XS1L04PB311	XS504R1PBL2	XS1L06PA349D	XS106B3PAM12	XS1N08NB340D	XS508B1NBM12
XS1L04PB311S	XS504R1PBL2	XS1L06PA349S	XS106B3PAM8	XS1N08NB340S	XS508B1NBM8
		XS1L06PB349	XS106B3PBL2	XS1N08PA340	XS508B1PAL2
		XS1L06PB349L1	XS106B3PBL5	XS1N08PA340D	XS508B1PAM12
		XS1L06PB349S	XS106B3PBM8	XS1N08PA340L1	XS508B1PAL5
				XS1N08PA340L2	XS508B1PAL10
Diameter 5 mm		Diameter 8 mm		XS1N08PA340LD	XS508B1PAM12
XS1		XS1		XS1N08PA340S	XS508B1PAM8
XS1N05NA310	XS605R1NAL2	XS1D08NA140	XS108BLNAL2	XS1N08PB340	XS508B1PBL2
XS1N05NA310S	XS605R1NAM08	XS1D08NA140D	XS108BLNAM12	XS1N08PB340D	XS508B1PBM12
XS1N05NB310	XS605R1NBL2	XS1D08PA140	XS108BLPAL2	XS1N08PB340L1	XS508B1PBL5
XS1N05NB310S	XS605R1NBM08	XS1D08PA140D	XS108BLPAL2	XS1N08PB340L2	XS508B1PBL10
XS1N05PA310	XS605R1PAL2	XS1D08PA140L1	XS108BLPAL5	XS1N08PB340S	XS508B1PBM8
XS1N05PA310L1	XS605R1PAL5				
XS1N05PA310S	XS605R1PAM08	XS1M08DA210	XS508B1DAL2	XS1N08NA349	XS108B3NAL2
XS1N05PB310	XS605R1PBL2	XS1M08DA210D	XS508B1DAM12	XS1N08NA349L1	XS108B3NAL5
XS1N05PB310S	XS605R1PBM08	XS1M08DA210L1	XS508B1DAL5	XS1N08NA349D	XS108B3NAM12
		XS1M08DA210L2	XS508B1DAL10	XS1N08NA349S	XS108B3NAM8
XS1N05NA311	XS505R1NAL2	XS1M08DA210LD	XS508B1DAL08M12	XS1N08NB349	XS108B3NBL2
XS1N05NA311S	XS505R1NAM08	XS1M08DB210	XS508B1DBL2	XS1N08NB349L1	XS108B3NBL5
XS1N05NB311	XS505R1NBL2	XS1M08DB210D	XS508B1DBM12	XS1N08NB349D	XS108B3NBM12
XS1N05NB311S	XS505R1NBM08	XS1M08DB210L1	XS508B1DBM12	XS1N08NB349S	XS108B3NBM8
XS1N05PA311	XS505R1PAL2	XS1M08DB210LD	XS508B1DBL5	XS1N08PA349	XS108B3PAL2
XS1N05PA311S	XS505R1PAM08		XS508B1DBM12 (1)	XS1N08PA349L1	XS108B3PAL5
XS1N05PB311	XS505R1PBL2	XS1M08DA214D	XS508B1CAM12	XS1N08PA349D	XS108B3PAM12
XS1N05PB311S	XS505R1PBM08	XS1M08DA214LD	XS508B1CAL08M12	XS1N08PA349S	XS108B3PAM8
				XS1N08PB349	XS108B3PBL2
				XS1N08PB349L1	XS108B3PBL5
				XS1N08PB349D	XS108B3PBM12
				XS1N08PB349S	XS108B3PBM8
Diameter 6.5 mm		XS1M08NA370	XS508BLNAL2		
XS1		XS1M08NA370D	XS508BLNAM12		
XS1L06NA340	XS506B1NAL2	XS1M08NA370L1	XS508BLNAL5		
		XS1M08NB370	XS508BLNBL2		

(1) For the new sensor an integral M12 connector replaces the remote M12 connector on a 0.80 m flying lead.

(2) For the new sensor an M12 connector replaces the M8 connector.

(3) For the new sensor, the metal case replaces the plastic case.

Substitution table

Sensors with the closest functionalities

Inductive proximity sensors

Old sensor	New XS sensor	Old sensor	New XS sensor	Old sensor	New XS sensor
Cylindrical type, DC (continued)					
XS2					
XS2M08NA340	XS608B1NAL2	XS1M12NA370L1	XS512BLNAL5	XS2M12NA370D	XS612B1NAM12
XS2N08NA340	XS108B3NAL2	XS1M12NA370L2	XS512BLNAL10	XS2M12NA370L1	XS612B1NAL5
XS2N08NA340D	XS108B3NAM12	XS1M12NA370S	XS612B1NAM12 (2)	XS2M12NA370L2	XS612B1NAL10
XS2N08NA340L1	XS108B3NAL5	XS1M12NB370	XS512BLNBL2	XS2M12NB370	XS612B1NBL2
XS2N08NA340L2	XS108B3NAL10	XS1M12NB370D	XS512BLNBM12	XS2M12NB370D	XS612B1NBM12
XS2N08NA340S	XS108B3NAM8	XS1M12PA370	XS512BLPAL2	XS2M12PA370	XS612B1PAL2
XS2N08NB340	XS108B3NBL2	XS1M12PA370D	XS512BLPAM12	XS2M12PA370D	XS612B1PAM12
XS2N08NB340D	XS108B3NBM12	XS1M12PA370L1	XS512BLPAL5	XS2M12PA370L1	XS612B1PAL5
XS2N08NB340S	XS108B3NBM8	XS1M12PA370L2	XS512BLPAL10	XS2M12PA370L2	XS612B1PAL10
XS2N08PA340	XS108B3PAL2	XS1M12PA370LA	XS612B1PAL08U78	XS2M12PA370LA	XS612B1PAL08U78
XS2N08PA340D	XS108B3PAM12	XS1M12PA370LD	XS612B1PAL08M12	XS2M12PA370LD	XS612B1PAL08M12
XS2N08PA340L1	XS108B3PAL5	XS1M12PB370	XS512BLPBL2	XS2M12PB370	XS612B1PBL2
XS2N08PA340L2	XS108B3PAL10	XS1M12PB370D	XS512BLPBM12	XS2M12PB370D	XS612B1PBM12
XS2N08PB340	XS108B3PAM8	XS1M12PB370L1	XS512BLPBL5	XS2M12PB370L1	XS612B1PBL5
XS2N08PB340D	XS108B3PBL2	XS1M12PB370L2	XS512BLPBL10	XS2M12PB370S	XS612B1PBM12 (2)
XS2N08PB340S	XS108B3PBM12	XS1M12PB370LD	XS612B1PAM12 (1)		
	XS108B3PBM8			XS2N12NA340	XS112B3NAL2
		XS1N12NA340	XS512B1NAL2	XS2N12NA340D	XS112B3NAM12
		XS1N12NA340D	XS512B1NAM12	XS2N12NA340L1	XS112B3NAL5
		XS1N12NA340L1	XS512B1NAL5	XS2N12NA340L2	XS112B3NAL10
XS3		XS1N12NA340L2	XS512B1NAL10	XS2N12NB340	XS112B3NBL2
XS3P08NA340	XS508B1NAL2 (3)	XS1N12NB340	XS512B1NBL2	XS2N12NB340D	XS112B3NBM12
XS3P08NA340D	XS508B1NAM12 (3)	XS1N12NB340D	XS512B1NBM12	XS2N12NC410L1	XS2N12NC410D + XZCPV1141L5
XS3P08NA340L1	XS508B1NAL5 (3)	XS1N12NC410L2	XS1N12NC410D + XZCPV1141L10	XS2N12PA340	XS112B3PAL2
XS3P08PA340	XS508B1PAL2 (3)			XS2N12PA340D	XS112B3PAM12
XS3P08PA340D	XS508B1PAM12 (3)	XS1N12PA340	XS512B1PAL2	XS2N12PA340L1	XS112B3PAL5
XS3P08PA340L1	XS508B1PAL5 (3)	XS1N12PA340D	XS512B1PAM12	XS2N12PA340L2	XS112B3PAL10
		XS1N12PA340L1	XS512B1PAL5	XS2N12PC410	XS112B3PCL2
XS3P08NA370	XS508BLNAL2 (3)	XS1N12PA340L2	XS512B1PAL10	XS2N12PC410D	XS112B3PCM12
XS3P08NA370L1	XS508BLNAL5 (3)	XS1N12PA340LD	XS512B1PAM12 (1)	XS2N12PC410L1	XS112B3PCM12 + XZCPV1141L5
XS3P08PA370	XS508BLPAL2 (3)	XS1N12PA340S	XS512B1PAM12 (2)	XS2N12PC410L2	XS112B3PCM12 + XZCPV1141L10
XS3P08PA370L1	XS508BLPAL5 (3)	XS1N12PB340	XS512B1PBL2		
		XS1N12PB340D	XS512B1PBM12	XS2N12PB340	XS112B3PBL2
		XS1N12PB340L1	XS512B1PBL5	XS2N12PB340D	XS112B3PBM12
				XS2N12PB340L1	XS112B3PBL5
		XS1M12PA349D	XS612B1PAM12		
		XS1N12NA349	XS112B3NAL2	XS3	
		XS1N12NA349L1	XS112B3NAL5	XS3P12NA340	XS512B1NAL2 (3)
		XS1N12NA349D	XS112B3NAM12	XS3P12NA340D	XS512B1NAM12 (3)
		XS1N12NB349	XS112B3NBL2	XS3P12NA340L1	XS512B1NAL5 (3)
		XS1N12NB349L1	XS112B3NBL5	XS3P12PA340	XS512B1PAL2 (3)
		XS1N12NB349D	XS112B3NBM12	XS3P12PA340D	XS512B1PAM12 (3)
		XS1N12PA349	XS112B3PAL2	XS3P12PA340L1	XS512B1PAL5 (3)
		XS1N12PA349L1	XS112B3PAL5		
		XS1N12PA349D	XS112B3PAM12	XS3P12NA370	XS512BLNAL2 (3)
		XS1N12PB349	XS112B3PBL2	XS3P12NA370L1	XS512BLNAL5 (3)
		XS1N12PB349L1	XS112B3PBL5	XS3P12PA370	XS512BLPAL2 (3)
		XS1N12PB349D	XS112B3PBM12	XS3P12PA370L1	XS512BLPAL5 (3)
		XS2		XS4	
		XS2M12NA370	XS612B1NAL2	XS4P12PC410L2	XS4P12PC410D + XZCPV1141L10
Diameter 12 mm					
XS1					
XS1M12DA210	XS512B1DAL2				
XS1M12DA210D	XS512B1DAM12				
XS1M12DA210L1	XS512B1DAL5				
XS1M12DA210L2	XS512B1DAL10				
XS1M12DA210LA	XS512B1DAL08U78				
XS1M12DA210LD	XS512B1DAL08M12				
XS1M12DB210	XS512B1DBL2				
XS1M12DB210D	XS512B1DBM12				
XS1M12DB210L1	XS512B1DBL5				
XS1M12DB210L2	XS512B1DBL10				
XS1M12DB210LD	XS512B1DBL08M12				
XS1M12DA214D	XS512B1CAM12				
XS1M12DA214LD	XS512B1CAL08M12				
XS1M12NA370	XS512BLNAL2				
XS1M12NA370D	XS512BLNAM12				

(1) For the new sensor an integral M12 connector replaces the remote M12 connector on a 0.80 m flying lead.

(2) For the new sensor an M12 connector replaces the M8 connector.

(3) For the new sensor, the metal case replaces the plastic case.

Substitution table

Sensors with the closest functionalities

Inductive proximity sensors

Old sensor	New XS sensor	Old sensor	New XS sensor	Old sensor	New XS sensor
Cylindrical type, DC (continued)		XS1		XS2M18NB370	XS618B1NBL2
Diameter 18 mm		<i>XS1M18PB370D</i>	XS518BLPBM12		
XS1		<i>XS1M18PB370L1</i>	XS518BLPBL5	<i>XS2M18NB370B</i>	XS618B1NBL01B (4)
<i>XS1M18DA210</i>	XS518B1DAL2	<i>XS1M18PB370L2</i>	XS518BLPBL10	<i>XS2M18NB370C</i>	XS618B1NBL01C (4)
<i>XS1M18DA210B</i>	XS518B1DAL01B (4)	<i>XS1M18PB370C</i>	XS618B1PBL01C (4)	<i>XS2M18NB370D</i>	XS618B1NBM12
<i>XS1M18DA210C</i>	XS518B1DAL01C (4)			<i>XS2M18NB370L1</i>	XS618B1NBL5
<i>XS1M18DA210D</i>	XS518B1DAM12			<i>XS2M18NB370L2</i>	XS618B1NBL10
<i>XS1M18DA210G</i>	XS518B1DAL01G (4)	<i>XS1N18NA340</i>	XS518B1NAL2	<i>XS2M18PA370</i>	XS618B1PAL2
<i>XS1M18DA210L1</i>	XS518B1DAL5	<i>XS1N18NA340D</i>	XS518B1NAM12	<i>XS2M18PA370A</i>	XS618B1PAL01U78 (4)
<i>XS1M18DA210L2</i>	XS518B1DAL10	<i>XS1N18NA340L1</i>	XS518B1NAL5	<i>XS2M18PA370B</i>	XS618B1PAL01B (4)
<i>XS1M18DA210LD</i>	XS518B1DAL08M12	<i>XS1N18NA340L2</i>	XS518B1NAL10	<i>XS2M18PA370C</i>	XS618B1PAL01C (4)
<i>XS1M18DB210</i>	XS518B1DBL2	<i>XS1N18NB340</i>	XS518B1NBL2	<i>XS2M18PA370D</i>	XS618B1PAM12
<i>XS1M18DB210B</i>	XS518B1DBL01B (4)	<i>XS1N18NB340D</i>	XS518B1NBM12	<i>XS2M18PA370G</i>	XS618B1PAL01G (4)
<i>XS1M18DB210D</i>	XS518B1DBM12	<i>XS1N18NB340L2</i>	XS518B1NBL10	<i>XS2M18PA370LA</i>	XS618B1PAL08U78 (4)
<i>XS1M18DB210LD</i>	XS518B1DBL08M12	<i>XS1N18NC410L1</i>	XS1N18NC410D + XZCPV1141L5	<i>XS2M18PA370L1</i>	XS618B1PAL5
				<i>XS2M18PA370L2</i>	XS618B1PAL10
		<i>XS1N18PA340</i>	XS518B1PAL2	<i>XS2M18PB370</i>	XS618B1PBL2
<i>XS1M18DA214D</i>	XS518B1CAM12	<i>XS1N18PA340D</i>	XS518B1PAM12	<i>XS2M18PB370A</i>	XS618B1PBL01U78 (4)
<i>XS1M18DA214LD</i>	XS518B1CAL08M12	<i>XS1N18PA340L1</i>	XS518B1PAL5	<i>XS2M18PB370B</i>	XS618B1PBL01B (4)
		<i>XS1N18PA340L2</i>	XS518B1PAL10	<i>XS2M18PB370C</i>	XS618B1PBL01C (4)
		<i>XS1N18PB340</i>	XS518B1PBL2	<i>XS2M18PB370D</i>	XS618B1PBM12
<i>XS1M18NA370</i>	XS518BLNAL2	<i>XS1N18PB340D</i>	XS518B1PBM12	<i>XS2M18PB370L1</i>	XS618B1PBL5
<i>XS1M18NA370A</i>	XS618B1NAL01U78 (4)	<i>XS1N18PB340L2</i>	XS518B1PBL10	<i>XS2M18PB370L2</i>	XS618B1PBL10
<i>XS1M18NA370B</i>	XS618B1NAL01B (4)				
<i>XS1M18NA370C</i>	XS618B1NAL01C (4)	XS2		XS3	
<i>XS1M18NA370D</i>	XS518BLNAM12	<i>XS2N18NA340</i>	XS118B3NAL2	<i>XS3P18NA340</i>	XS518B1NAL2 (3)
<i>XS1M18NA370L1</i>	XS518BLNAL5	<i>XS2N18NA340D</i>	XS118B3NAM12	<i>XS3P18NA340D</i>	XS518B1NAM12 (3)
<i>XS1M18NA370L2</i>	XS518BLNAL10	<i>XS2N18NA340L1</i>	XS118B3NAL5	<i>XS3P18NA340L1</i>	XS518B1NAL5 (3)
<i>XS1M18NB370</i>	XS518BLNBL2	<i>XS2N18NA340L2</i>	XS118B3NAL10	<i>XS3P18PA340</i>	XS518B1PAL2 (3)
<i>XS1M18NB370B</i>	XS618B1NBL01B (4)	<i>XS2N18NB340</i>	XS118B3NBL2	<i>XS3P18PA340D</i>	XS518B1PAM12 (3)
<i>XS1M18NB370C</i>	XS618B1NBL01C (4)	<i>XS2N18NC410L2</i>	XS2N18NC410D + XZCPV1141L10	<i>XS3P18PA340L1</i>	XS518B1PAL5 (3)
<i>XS1M18NB370D</i>	XS518BLNBM12	<i>XS2N18PC410</i>	XS118B3PCL2	<i>XS3P18NA370</i>	XS518BLNAL2 (3)
<i>XS1M18NB370L1</i>	XS518BLNBL5	<i>XS2N18PC410D</i>	XS118B3PCM12	<i>XS3P18NA370L1</i>	XS518BLNAL5 (3)
<i>XS1M18NB370L2</i>	XS518BLNBL10	<i>XS2N18PC410L1</i>	XS118B3PCM12 + XZCPV1141L5	<i>XS3P18PA370</i>	XS518BLPAL2 (3)
<i>XS1M18PA370</i>	XS518BLPAL2	<i>XS2N18NB340D</i>	XS118B3NBM12	<i>XS3P18PA370L1</i>	XS518BLPAL5 (3)
<i>XS1M18PA370A</i>	XS618B1PAL01U78 (4)	<i>XS2N18PA340</i>	XS118B3PAL2	<i>XS3P18PA370L2</i>	XS518BLPAL10 (3)
<i>XS1M18PA370B</i>	XS618B1PAL01B (4)	<i>XS2N18PA340D</i>	XS118B3PAM12		
<i>XS1M18PA370C</i>	XS618B1PAL01C (4)	<i>XS2N18PA340L1</i>	XS118B3PAL5	XS4	
<i>XS1M18PA370D</i>	XS518BLPAM12	<i>XS2N18PA340L2</i>	XS118B3PAL10	<i>XS4P18NA370B</i>	XS4P18NA370L01B (4)
<i>XS1M18PA370G</i>	XS618B1PAL01G (4)	<i>XS2N18PB340</i>	XS118B3PBL2	<i>XS4P18NB370B</i>	XS4P18NB370L01B (4)
<i>XS1M18PA370DTQ</i>	XS518BLPAM12TQ	<i>XS2N18PB340D</i>	XS118B3PBM12	<i>XS4P18PA370B</i>	XS4P18PA370L01B (4)
<i>XS1M18PA370G</i>	XS618B1PAL01G (4)	<i>XS2M18NA370</i>	XS618B1NAL2	<i>XS4P18PB370B</i>	XS4P18PB370L01B (4)
<i>XS1M18PA370L1</i>	XS518BLPAL5	<i>XS2M18NA370A</i>	XS618B1NAL01U78 (4)	<i>XS4P18PC410L1</i>	XS4P18PC410D + XZCPV1141L5
<i>XS1M18PA370L2</i>	XS518BLPAL10	<i>XS2M18NA370B</i>	XS618B1NAL01B (4)		
<i>XS1M18PA370LA</i>	XS618B1PAL08U78	<i>XS2M18NA370C</i>	XS618B1NAL01C (4)		
<i>XS1M18PA370LD</i>	XS518BLPAM12 (1)	<i>XS2M18NA370D</i>	XS618B1NAM12		
<i>XS1M18PA370DTQ</i>	XS518BLPAM12TQ	<i>XS2M18NA370L1</i>	XS618B1NAL5		
<i>XS1M18PA370TF</i>	XS518BLPAL2TF	<i>XS2M18NA370L2</i>	XS618B1NAL10		
<i>XS1M18PB370</i>	XS518BLPBL2				
<i>XS1M18PB370A</i>	XS618B1PBL01U78 (4)				
<i>XS1M18PB370B</i>	XS618B1PBL01B (4)				

(1) For the new sensor an integral M12 connector replaces the remote M12 connector on a 0.80 m flying lead.
 (3) For the new sensor, the metal case replaces the plastic case.
 (4) For the new sensor, connectors A, B, C and G on 0.1 m flying lead replace integral connectors A, B, C and G.

Substitution table

Sensors with the closest functionalities

Inductive proximity sensors

Old sensor	New XS sensor	Old sensor	New XS sensor	Old sensor	New XS sensor
Cylindrical type, DC (continued)					
Diameter 30 mm					
XS1					
XS1M30DA210	XS530B1DAL2	XS1N30NA340	XS530B1NAL2	XS2M30PA370G	XS630B1PAL01G (4)
XS1M30DA210B	XS530B1DAL01B (4)	XS1N30NA340D	XS530B1NAM12	XS2M30PA370L1	XS630B1PAL5
XS1M30DA210C	XS530B1DAL01C (4)	XS1N30NA340L1	XS530B1NAL5	XS2M30PA370L2	XS630B1PAL10
XS1M30DA210D	XS530B1DAM12	XS1N30NA340L2	XS530B1NAL10	XS2M30PB370	XS630B1PBL2
XS1M30DA210G	XS530B1DAL01G (4)	XS1N30NB340	XS530B1NBL2	XS2M30PB370B	XS630B1PBL01B (4)
XS1M30DA210L1	XS530B1DAL5	XS1N30NB340D	XS530B1NBM12	XS2M30PB370C	XS630B1PBL01C (4)
XS1M30DA210L2	XS530B1DAL10	XS1N30PA340	XS530B1PAL2	XS2M30PB370D	XS630B1PBM12
XS1M30DA210LD	XS530B1DAL08M12	XS1N30PA340D	XS530B1PAM12	XS2M30PB370G	XS630B1PBL01G (4)
XS1M30DB210	XS530B1DBL2	XS1N30PA340L1	XS530B1PAL5	XS2M30PB370L1	XS630B1PBL5
XS1M30DB210B	XS530B1DBL01B (4)	XS1N30PA340L2	XS530B1PAL10	XS2M30PB370L2	XS630B1PBL10
XS1M30DB210D	XS530B1DBM12	XS1N30PB340	XS530B1PBL2		
XS1M30DB210LD	XS530B1DBM12 (1)	XS1N30PB340D	XS530B1PBM12		
		XS2			
		XS2N30NA340	XS130B3NAL2		
		XS2N30NA340D	XS130B3NAM12	XS3	
		XS2N30NA340L1	XS130B3NAL5	XS3P30NA340	XS530B1NAL2 (3)
XS1M30DA214D	XS530B1CAM12	XS2N30NA340L2	XS130B3NAL10	XS3P30NA340D	XS530B1NAM12 (3)
XS1M30DA214LD	XS530B1CAL08M12	XS2N30NB340	XS130B3NBL2	XS3P30NA340L1	XS530B1NAL5 (3)
		XS2N30NC410L1	XS2N30NC410D + XZCPV1141L5	XS3P30PA340	XS530B1PAL2 (3)
XS1M30PA349D	XS630B1PAM12 (5)	XS2N30PC410	XS130B3PCL2	XS3P30PA340D	XS530B1PAM12 (3)
		XS2N30PC410D	XS130B3PCM12	XS3P30PA340L1	XS530B1PAL5 (3)
		XS2N30PC410L1	XS130B3PCM12 + XZCPV1141L5	XS3P30PA340L2	XS530B1PAL10 (3)
XS1M30NA370	XS530BLNAL2	XS2N30NB340D	XS130B3NBM12	XS3P30PA370	XS530BLPAL2 (3)
XS1M30NA370B	XS630B1NAL01B (4)	XS2N30PA340	XS130B3PAL2	XS3P30PA370L1	XS530BLPAL5 (3)
XS1M30NA370C	XS630B1NAL01C (4)	XS2N30PA340D	XS130B3PAM12	XS3P30PA370L2	XS530BLPAL10 (3)
XS1M30NA370D	XS530BLNAM12	XS2N30PA340L1	XS130B3PAL5	XS3P30NA370	XS530BLNAL2 (3)
XS1M30NA370L1	XS530BLNAL5	XS2N30PA340L2	XS130B3PAL10	XS3P30NA370L1	XS530BLNAL5 (3)
XS1M30NA370L2	XS530BLNAL10	XS2N30PB340	XS130B3PBL2		
XS1M30NB370	XS530BLNBL2	XS2N30PB340D	XS130B3PBM12		
XS1M30NB370B	XS630B1NBL01B (4)				
XS1M30NB370C	XS630B1NBL01C (4)				
XS1M30NB370D	XS530BLNBM12				
XS1M30NB370L1	XS530BLNBL5	XS2M30NA370	XS630B1NAL2		
XS1M30NB370L2	XS530BLNBL10	XS2M30NA370B	XS630B1NAL01B (4)	XS4	
XS1M30PA370	XS530BLPAL2	XS2M30NA370C	XS630B1NAL01C (4)	XS4P30NA370B	XS4P30NA370L01B (4)
XS1M30PA370A	XS630B1PAL01U78 (4)	XS2M30NA370D	XS630B1NAM12	XS4P30NB370B	XS4P30NB370L01B (4)
XS1M30PA370B	XS630B1PAL01B (4)	XS2M30NA370L1	XS630B1NAL5	XS4P30NC410L2	XS4P30NC410D + XZCPV1141L10
XS1M30PA370C	XS630B1PAL01C (4)	XS2M30NA370L2	XS630B1NAL10	XS4P30PA370B	XS4P30PA370L01B (4)
XS1M30PA370D	XS530BLPAM12	XS2M30NB370	XS630B1NBL2	XS4P30PB370B	XS4P30PB370L01B (4)
XS1M30PA370G	XS630B1PAL01G (4)	XS2M30NB370B	XS630B1NBL01B (4)	XS4P30PC410L1	XS4P30PC410D + XZCPV1141L5
XS1M30PA370L1	XS530BLPAL5	XS2M30NB370C	XS630B1NBL01C (4)	XS4P30PC410L2	XS4P30PC410D + XZCPV1141L10
XS1M30PA370L2	XS530BLPAL10	XS2M30NB370D	XS630B1NBM12		
XS1M30PB370	XS530BLPBL2	XS2M30NB370L1	XS630B1NBL5		
XS1M30PB370B	XS630B1PBL01B (4)	XS2M30NB370L2	XS630B1NBL10		
XS1M30PB370C	XS630B1PBL01C (4)	XS2M30PA370	XS630B1PAL2		
XS1M30PB370D	XS530BLPBM12	XS2M30PA370A	XS630B1PAL01U78 (4)		
XS1M30PB370G	XS630B1PBL01G (4)	XS2M30PA370B	XS630B1PAL01B (4)		
XS1M30PB370L1	XS530BLPBL5	XS2M30PA370C	XS630B1PAL01C (4)		
XS1M30PB370L2	XS530BLPBL10	XS2M30PA370D	XS630B1PAM12		

(1) For the new sensor an integral M12 connector replaces the remote M12 connector on a 0.80 m flying lead.

(3) For the new sensor, the metal case replaces the plastic case.

(4) For the new sensor, connectors A, B, C and G on 0.1 m flying lead replace integral connectors A, B, C and G.

(5) For the new sensor, Sn = 15 mm instead of 20 mm.

Substitution table

Sensors with the closest functionalities

Inductive proximity sensors

Old sensor	New XS sensor	Old sensor	New XS sensor	Old sensor	New XS sensor
Cylindrical type, AC or DC		Diameter 18 mm (continued)		Diameter 30 mm (continued)	
Diameter 12 mm		XS1		XS1M30MB230C	
XS1		XS1M18MA239A		XS630B1MBL01C (4)	
XS1M12MA230	XS512B1MAL2	XS1M18MA239K	XS1M18MA239L01A (4)	XS1M30MB230G	XS630B1MBL01G (4)
XS1M12MA230K	XS512B1MAU20		XS618B1MAU20 (5)	XS1M30MB230K	XS530B1MBU20
XS1M12MA230L1	XS512B1MAL5	XS2		XS1M30MB230L1	XS530B1MBL5
XS1M12MA230L2	XS512B1MAL10	XS2M18MA230	XS618B1MAL2	XS1M30MB230L2	XS530B1MBL10
XS1M12MB230	XS512B1MBL2	XS2M18MA230A	XS618B1MAL01U78 (4)	XS1M30MA239	XS630B1MAL2 (5)
XS1M12MB230K	XS512B1MBU20	XS2M18MA230B	XS618B1MAL01B (4)	XS1M30MA239A	XS1M30MA239L01A (4)
XS1M12MB230L1	XS512B1MBL5	XS2M18MA230C	XS618B1MAL01C (4)		
XS1M12MB230L2	XS512B1MBL10	XS2M18MA230G	XS618B1MAL01G (4)		
		XS2M18MA230K	XS618B1MAU20	XS2	
XS1M12MA239	XS612B1MAL2	XS2M18MA230L1	XS618B1MAL5	XS2M30MA230	XS630B1MAL2
XS1M12MA239K	XS612B1MAU20	XS2M18MA230L2	XS618B1MAL10	XS2M30MA230A	XS630B1MAL01U78 (4)
		XS2M18MB230	XS618B1MBL2	XS2M30MA230B	XS630B1MAL01B (4)
XS2		XS2M18MB230A	XS618B1MBL01U78 (4)	XS2M30MA230C	XS630B1MAL01C (4)
XS2M12MA230	XS612B1MAL2	XS2M18MB230B	XS618B1MBL01B (4)	XS2M30MA230G	XS630B1MAL01G (4)
XS2M12MA230K	XS612B1MAU20	XS2M18MB230C	XS618B1MBL01C (4)	XS2M30MA230K	XS630B1MAU20
XS2M12MA230L1	XS612B1MAL5	XS2M18MB230G	XS618B1MBL01G (4)	XS2M30MA230L1	XS630B1MAL5
XS2M12MA230L2	XS612B1MAL10	XS2M18MB230K	XS618B1MBU20	XS2M30MA230L2	XS630B1MAL10
XS2M12MB230	XS612B1MBL2	XS2M18MB230L1	XS618B1MBL5	XS2M30MB230	XS630B1MBL2
XS2M12MB230K	XS612B1MBU20	XS2M18MB230L2	XS618B1MBL10	XS2M30MB230A	XS630B1MBL01U78 (4)
XS2M12MB230L1	XS612B1MBL5	XS3		XS2M30MB230B	XS630B1MBL01B (4)
XS2M12MB230L2	XS612B1MBL10	XS3P18MA230	XS618B1MAL2 (3)	XS2M30MB230C	XS630B1MBL01C (4)
XS3		XS3P18MA230K	XS618B1MAU20 (3)	XS2M30MB230G	XS630B1MBL01G (4)
XS3P12MA230	XS612B1MAL2 (3)	XS3P18MA230L1	XS618B1MAL5 (3)	XS2M30MB230K	XS630B1MBU20
XS3P12MA230K	XS612B1MAU20 (3)	XS3P18MA230L2	XS618B1MAL10 (3)	XS2M30MB230L1	XS630B1MBL5
XS3P12MA230L1	XS612B1MAL5 (3)	XS3P18MB230	XS618B1MBL2 (3)	XS2M30MB230L2	XS630B1MBL10
XS3P12MA230L2	XS612B1MAL10 (3)	XS3P18MB230A	XS618B1MBU20 (3)	XS3	
XS3P12MB230	XS612B1MBL2 (3)	XS3P18MB230K	XS618B1MBU20 (3)	XS3P30MA230	XS630B1MAL2 (3)
XS3P12MB230K	XS612B1MBU20 (3)	XS3P18MB230L1	XS618B1MBL5 (3)	XS3P30MA230K	XS630B1MAU20 (3)
XS3P12MB230L1	XS612B1MBL5 (3)	XS4		XS3P30MA230L1	XS630B1MAL5 (3)
		XS4P18MA230B	XS4P18MA230L01B (4)	XS3P30MA230L2	XS630B1MAL10 (3)
Diameter 18 mm		XS4P18MA230C	XS4P18MA230L01C (4)	XS3P30MB230	XS630B1MBL2 (3)
XS1		XS4P18MA230G	XS4P18MA230L01G (4)	XS3P30MB230K	XS630B1MBU20 (3)
XS1M18MA230	XS518B1MAL2	XS4P18MB230B	XS4P18MB230L01B (4)	XS3P30MB230L1	XS630B1MBL5 (3)
XS1M18MA230A	XS618B1MAL01U78 (4)	XS4P18MB230C	XS4P18MB230L01C (4)		
XS1M18MA230B	XS618B1MAL01B (4)	Diameter 30 mm		XS4	
XS1M18MA230C	XS618B1MAL01C (4)	XS1		XS4P30MA230B	XS4P30MA230L01B (4)
XS1M18MA230G	XS618B1MAL01G (4)	XS1M30MA230	XS530B1MAL2	XS4P30MA230C	XS4P30MA230L01C (4)
XS1M18MA230K	XS518B1MAU20	XS1M30MA230A	XS630B1MAL01U78 (4)	XS4P30MA230G	XS4P30MA230L01G (4)
XS1M18MA230L1	XS518B1MAL5	XS1M30MA230B	XS630B1MAL01B (4)	XS4P30MB230B	XS4P30MB230L01B (4)
XS1M18MA230L2	XS518B1MAL10	XS1M30MA230C	XS630B1MAL01C (4)	XS4P30MB230C	XS4P30MB230L01C (4)
XS1M18MB230	XS518B1MBL2	XS1M30MA230G	XS630B1MAL01G (4)		
XS1M18MB230A	XS618B1MBL01U78 (4)	XS1M30MA230K	XS530B1MAU20		
XS1M18MB230B	XS618B1MBL01B (4)	XS1M30MA230L1	XS530B1MAL5		
XS1M18MB230C	XS618B1MBL01C (4)	XS1M30MA230L2	XS530B1MAL10		
XS1M18MB230G	XS618B1MBL01G (4)	XS1M30MB230	XS530B1MBL2		
XS1M18MB230K	XS518B1MBU20	XS1M30MB230A	XS630B1MBL01U78 (4)		
XS1M18MB230L1	XS518B1MBL5	XS1M30MB230B	XS630B1MBL01B (4)		
XS1M18MB230L2	XS518B1MBL10	XS1M30MB230C			
XS1M18MA239	XS618B1MAL2 (5)				

Substitution table

Sensors with the closest functionalities

Inductive proximity sensors

Old sensor	New XS sensor
Block type	
40 x 40 x 70 mm and 40 x 40 x 117 mm	
XS7	
XS7C40DA210	XS7C4A1DPG13
XS7C40DA210A	XS7C4A1DPU78
XS7C40DA210D	XS7C4A1DPM12
XS7C40DA210H29	XS7C4A1DPP20
XS7C40DA210H7	XS7C4A1DPN12
XS7C40DA214D	XS7C4A1DPM12
XS7C40DP210	XS7C4A1DPG13
XS7C40DP210H29	XS7C4A1DPP20
XS7C40DP210H7	XS7C4A1DPN12
XS7C40FP260	XS7C4A1MPG13
XS7C40FP260A	XS7C4A1MPU78
XS7C40FP260H29	XS7C4A1MPP20
XS7C40FP260H7	XS7C4A1MPN12
XS7C40KPM40	XS9C4A1PCG13
XS7C40KPM40H29	XS9C4A1PCP20
XS7C40KPM40H7	XS9C4A1PCN12
XS7C40MP230	XS7C4A1MPG13
XS7C40MP230A	XS7C4A1MPU78
XS7C40MP230H29	XS7C4A1MPP20
XS7C40MP230H7	XS7C4A1MPN12
XS7C40NC440	XS8C4A1NCG13
XS7C40NC440D	XS8C4A1NCM12
XS7C40NC440H29	XS8C4A1NCP20
XS7C40NC440H7	XS8C4A1NCN12
XS7C40NC449	XS8C4A1NCG13
XS7C40NC449H29	XS8C4A1NCP20
XS7C40NC449H7	XS8C4A1NCN12
XS7C40PC440	XS8C4A1PCG13
XS7C40PC440D	XS8C4A1PCM12
XS7C40PC440H29	XS8C4A1PCP20
XS7C40PC440H7	XS8C4A1PCN12
XS7C40PC449	XS8C4A1PCG13
XS7C40PC449D	XS8C4A1PCM12
XS7C40PC449H29	XS8C4A1PCP20
XS7C40PC449H7	XS8C4A1PCN12
XS7T4DA210	XS7C2A1DAM12 + XZCP1141L2
XS7T4DA214LD	XS8C2A1CAM12
XS7T4DA214LD01	XS8C2A1CAM12
XS7T4DA214LD01W	XS8C2A1CAM12 + XSZPKC2
XS7T4DA214LDW	XS8C2A1CAM12 + XSZPKC2
XS7T4NC440	XS8C2A1NCM12 + XZCP1141L2
XS7T4NC440LD	XS8C2A1NCM12
XS7T4NC440LD01	XS8C2A1NCM12
XS7T4PC440	XS8C2A1PCM12 + XZCP1141L2
XS7T4PC440LD	XS8C2A1PCM12

Old sensor	New XS sensor
40 x 40 x 70 mm and 40 x 40 x 117 mm (continued)	
XS8	
XS8C40DA210	XS8C4A1DPG13
XS8C40DA210H29	XS8C4A1DPP20
XS8C40DA214D	XS8C4A1DPM12
XS8C40DP210	XS8C4A1DPG13
XS8C40DP210H29	XS8C4A1DPP20
XS8C40DP210H7	XS8C4A1DPN12
XS8C40FP260	XS8C4A1MPG13
XS8C40FP260H29	XS8C4A1MPP20
XS8C40FP260H7	XS8C4A1MPN12
XS8C40MP230	XS8C4A1MPG13
XS8C40MP230H29	XS8C4A1MPP20
XS8C40MP230H7	XS8C4A1MPN12
XS8C40NC440	XS8C4A1NCG13
XS8C40NC440H29	XS8C4A1NCP20
XS8C40NC449	XS8C4A4NCG13
XS8C40NC449H29	XS8C4A4NCP20
XS8C40NC449H7	XS8C4A4NCN12
XS8C40PC440	XS8C4A1PCG13
XS8C40PC440D	XS8C4A1PCM12
XS8C40PC440H29	XS8C4A1PCP20
XS8C40PC440H7	XS8C4A1PCN12
XS8C40PC449	XS8C4A4PCG13
XS8C40PC449D	XS8C4A4PCM12
XS8C40PC449H29	XS8C4A4PCP20
XS8C40PC449H7	XS8C4A4PCN12
XS8T4NC440	XS8C2A1NCM12 + XZCP1141L2
XS8T4NC440LD01	XS8C2A1NCM12
XS8T4PC440	XS8C2A1PCM12 + XZCP1141L2
XS8T4PC440L1	XS8C2A1PCM12 + XZCP1141L5
XS8T4PC440L2	XS8C2A1PCM12 + XZCP1141L10
XS8T4PC440LD	XS8C2A1PCM12
XS8T4PC440LD01	XS8C2A1PCM12
40 x 40 x 117 mm	
XSCH	
XSCH203629	XS9C4A2A2G13
XSCH203629H7	XS9C4A2A2N12
XSCH207629	XS9C4A2A1G13
XSCH207629H7	XS9C4A2A1N12

X					
XS1L04NA310	76	XS1N12PC410D	62	XS4P18KP340D	68
XS1L04NA310S	76	XS1N18NA349	72	XS4P18MA230	70
XS1L04NA311	76	XS1N18NA349D	72	XS4P18MA230K	70
XS1L04NA311S	76	XS1N18PA349	72	XS4P18MB230	70
XS1L04NB310	76	XS1N18PA349D	72	XS4P18MB230K	70
XS1L04NB310S	76	XS1N18PB349	72	XS4P18NA340	70
XS1L04NB311	76	XS1N18PB349D	72	XS4P18NA370	70
XS1L04NB311S	76	XS1N18PC410	63	XS4P18PA340	70
XS1L04NB311S	76	XS1N18PC410D	63	XS4P18PA370	70
XS1L04PA310	76	XS1N30NA349	72	XS4P18PB340	70
XS1L04PA310S	76	XS1N30NA349D	72	XS4P18PB370	70
XS1L04PA311	76	XS1N30PA349	72	XS4P18PC410	63
XS1L04PA311S	76	XS1N30PA349D	72	XS4P18PC410D	63
XS1L04PB310	76	XS1N30PB349	72	XS4P30AB110	93
XS1L04PB310S	76	XS1N30PB349D	72	XS4P30AB120	93
XS1L04PB311	76	XS1N30PC410	63	XS4P30KP340	68
XS1L04PB311S	76	XS1N30PC410D	63	XS4P30KP340D	68
XS1L06PC410	62	XS2M08PC410	62	XS4P30MA230	70
XS1M08PC410	62	XS2M08PC410D	62	XS4P30MA230K	70
XS1M08PC410D	62	XS2M12KP340	68	XS4P30MB230	70
XS1M12AB120	91	XS2M12KP340D	68	XS4P30MB230K	70
XS1M12KP340	68	XS2M18KP340	68	XS4P30NA340	70
XS1M12KP340D	68	XS2M18KP340D	68	XS4P30PA340	70
XS1M18AB120	92	XS2M18MA250	60	XS4P30PA370	70
XS1M18KP340	68	XS2M18MA250K	60	XS4P30PB340	70
XS1M18KP340D	68	XS2M18MB250	60	XS4P30PB370	70
XS1M18MA250	60	XS2M18MB250K	60	XS4P30PC410	63
XS1M18MA250K	60	XS2M30KP340	68	XS4P30PC410D	63
XS1M18MB250	60	XS2M30KP340D	68	XS7C1A1DAL2	52
XS1M18MB250K	60	XS2M30MA250	60	XS7C1A1DAM8	52
XS1M18PAS20D	118	XS2M30MA250K	60	XS7C1A1DBL01M12	52
XS1M18PAS40D	118	XS2M30MB250	60	XS7C1A1NBL2	52
XS1M30AB120	93	XS2M30MB250K	60	XS7C1A1NBM8	52
XS1M30KP340	68	XS2N12PC140	62	XS7C1A1PAL01M12	52
XS1M30KP340D	68	XS4P08MA230	70	XS7C1A1PAL2	52
XS1M30MA250	60	XS4P08MB230	70	XS7C1A1PAM8	52
XS1M30MA250K	60	XS4P08NA340	70	XS7C1A1PBL2	52
XS1M30MB250	60	XS4P08NB340	70	XS7C1A1PBM8	52
XS1M30MB250K	60	XS4P08PA340	70	XS7C2A1DAM12	56
XS1N05NA310	76	XS4P08PB340	70	XS7C2A1DBM12	56
XS1N05NA311	76	XS4P08PC410	62	XS7C2A1NAM12	56
XS1N05NA311S	76	XS4P12AB110	91	XS7C2A1NBM12	56
XS1N05NB310	76	XS4P12AB120	91	XS7C2A1PAM12	56
XS1N05NB311	76	XS4P12KP340	68	XS7C2A1PBM12	56
XS1N05NB311S	76	XS4P12KP340D	68	XS7C4A1DPP20	58
XS1N05PA310	76	XS4P12MA230	70	XS7C4A1MPP20	58
XS1N05PA311	76	XS4P12MA230K	70	XS7D1A1DAL2	52
XS1N05PA311S	76	XS4P12MB230	70	XS7D1A1DAM12	52
XS1N05PB310	76	XS4P12NA340	70	XS7D1A1DBL2	52
XS1N05PB311	76	XS4P12NA370	70	XS7D1A1NAL2	52
XS1N05PB311S	76	XS4P12NB340	70	XS7D1A1PAL2	52
XS1N12NA349	72	XS4P12PA340	70	XS7D1A1PAM12	52
XS1N12NA349D	72	XS4P12PA370	70	XS7D1A1PBM12	52
XS1N12NC410	62	XS4P12PB340	70	XS7D1A3CAM12DIN	112
XS1N12NC410D	62	XS4P12PB370	70	XS7E1A1CAL01M12	52
XS1N12PA349	72	XS4P12PC410	62	XS7E1A1DAL01M12	52
XS1N12PA349D	72	XS4P12PC410D	62	XS7E1A1DAL2	52
XS1N12PB349	72	XS4P18AB110	92	XS7E1A1NAL2	52
XS1N12PB349D	72	XS4P18AB120	92	XS7E1A1NBL2	52
XS1N12PC410	62	XS4P18KP340	68	XS7E1A1PAL01M12	52
				XS7E1A1PAL2	52
				XS7E1A1PAM8	52
				XS7E1A1PBL01M12	52
				XS7E1A1PBL2	52
				XS7E1A1PBM8	52
				XS7F1A1DAL2	50
				XS7F1A1DBL01M8	50
				XS7F1A1DBL2	50
				XS7F1A1NAL2	50
				XS7F1A1NBL2	50
				XS7F1A1PAL01M8	50
				XS7F1A1PAL2	50
				XS7F1A1PBL01M8	50
				XS7F1A1PBL2	50
				XS7J1A1DAL2	50
				XS7J1A1NAL01M8	50
				XS7J1A1NAL2	50
				XS7J1A1NBL2	50
				XS7J1A1PAL01M8	50
				XS7J1A1PAL2	50
				XS7J1A1PBL01M8	50
				XS7J1A1PBL2	50
				XS8C1A1MAL01U20	54
				XS8C1A1MAL2	54
				XS8C1A1MBL01U20	54
				XS8C1A1MBL2	54
				XS8C1A1NAL2	54
				XS8C1A1PAL01M12	54
				XS8C1A1PAL2	54
				XS8C1A1PAM8	54
				XS8C1A1PBL2	54
				XS8C1A1PBM8	54
				XS9C2A1NCM12	116
				XS9C2A1PCM12	116
				XS9C2A2A1M12	98
				XS9C2A2A2M12	98
				XS9C4A1PCP20	116
				XS9C4A2A2P20	98
				XS9C11RMBL01U20	89
				XS9C11A1L2	95
				XS9C11A2L2	97
				XS9D11A2L2	97
				XS9D11A2M12	97
				XS9E11RMBL01U20	89
				XS9E11RPBL01M12	89
				XS9E11A1L2	95
				XS9E11A2L2	97
				XS106B3PAL2	36
				XS106B3PAM8	36
				XS106B3PAM12	36
				XS106B3PBL2	36
				XS106B3PBM8	36
				XS108B3NAL2	36
				XS108B3NAM8	36
				XS108B3NAM12	36
				XS108B3NBM8	36
				XS108B3PAL2	36
				XS108B3PAM8	36
				XS108B3PAM12	36
				XS108B3PBL2	36
				XS108B3PBM8	36
				XS108B3PBM12	36
				XS108BHNAL2	82
				XS108BHNAM8	82
				XS108BHPAL2	82
				XS108BHPAM8	82
				XS108BHPAM12	82
				XS108BHPBL2	82
				XS108BHPBM8	82
				XS108BHPBM12	82
				XS108BLNAL2	78
				XS108BLNAM12	78
				XS108BLPAL2	78
				XS108BLPAL5	78
				XS108BLPAM8	78
				XS108BLPAM12	78

XS112B3NAL2	36	XS130B3PCM12	66	XS218BLNAM12	79	XS508B1PAL2	26	XS530B1DBL2	31
XS112B3NAM12	36	XS130B3PDL2	122	XS218BLNBL2	79	XS508B1PAM8	26	XS530B1MAL2	34
XS112B3PAL2	36	XS130B3PDM12	122	XS218BLPAL2	79	XS508B1PAM12	26	XS530B1MAU20	34
XS112B3PAM12	36	XS130BHNAL2	82	XS218BLPAL5	79	XS508B1PBL2	26	XS530B1MBL2	34
XS112B3PBL2	36	XS130BHNAM12	82	XS218BLPAM12	79	XS508B1PBM8	26	XS530B1NAL2	26
XS112B3PBM12	36	XS130BHNBL2	82	XS218BLPBL2	79	XS508B1PBM12	26	XS530B1NAM12	26
XS112B3PCL2	66	XS130BHNBM12	82	XS218SAMAL2	104	XS508BLNBM12	27	XS530B1PAL2	26
XS112B3PCM12	66	XS130BHPAL2	82	XS218SAMAU20	104	XS508BLPAL2	27	XS530B1PAM12	26
XS112B3PDL2	122	XS130BHPAL5	82	XS218SANAL2	102	XS508BLPAM12	27	XS530B1PBL2	26
XS112B3PDM12	122	XS130BHPAM12	82	XS218SANAM12	102	XS508BLPBM12	27	XS530B1PBM12	26
XS112BHNAL2	82	XS130BHPBL2	82	XS218SAPAL2	102	XS508BSCBL2	30	XS530BLPAL2	27
XS112BHNAM12	82	XS130BHPBM12	82	XS218SAPAM12	102	XS512B1CAL08M12	31	XS530BLPAM12	27
XS112BHNBL2	82	XS130BLNAL2	79	XS230AAMAL2	108	XS512B1CAM12	31	XS530BLPBL2	27
XS112BHNBM12	82	XS130BLPAL2	79	XS230AAMAU20	108	XS512B1DAL2	31	XS530BSCAM12	30
XS112BHPAL2	82	XS130BLPAM12	79	XS230AANAL2	106	XS512B1DAM12	31	XS530BSPDL2	120
XS112BHPAL5	82	XS130BLPBL2	79	XS230AANAM12	106	XS512B1DBL2	31	XS530BSPDM12	120
XS112BHPAM12	82	XS130BLPBM12	79	XS230AAPAL2	106	XS512B1MAL2	34	XS604R1NAL2	74
XS112BHPBL2	82	XS208BLNAL2	78	XS230AAPAM12	106	XS512B1MAU20	34	XS604R1NAM08	74
XS112BHPBM12	82	XS208BLPAL2	78	XS230BLNAL2	79	XS512B1MBL2	34	XS604R1NBL2	74
XS112BLNAL2	78	XS208BLPAL5	78	XS230BLNAM12	79	XS512B1MBU20	34	XS604R1NBM08	74
XS112BLNAM12	78	XS208BLPAM8	78	XS230BLPAL2	79	XS512B1NAL2	26	XS604R1PAL2	74
XS112BLPAL2	78	XS208BLPAM12	78	XS230BLPAL5	79	XS512B1NAM12	26	XS604R1PAM08	74
XS112BLPAL5	78	XS212AANAL2	106	XS230BLPAM12	79	XS512B1PAL2	26	XS604R1PBL2	74
XS112BLPAM12	78	XS212AANAM12	106	XS230BLPBL2	79	XS512B1PAM12	26	XS604R1PBM08	74
XS112BLPBL2	78	XS212AAPAL2	106	XS230SAMAL2	104	XS512B1PBL2	26	XS605R1NAL2	74
XS112BLPBM12	78	XS212AAPAM12	106	XS230SAMAU20	104	XS512B1PBM12	26	XS605R1NAM08	74
XS118B3NAL2	37	XS212B4NAL2	46	XS230SANAL2	102	XS512BLPAL2	27	XS605R1NBL2	74
XS118B3NAM12	37	XS212B4NAM12	46	XS230SANAM12	102	XS512BLPAM12	27	XS605R1NBM08	74
XS118B3PAL2	37	XS212B4NBL2	46	XS230SAPAL2	102	XS512BLPBL2	27	XS605R1PAL2	74
XS118B3PAM12	37	XS212B4PAL2	46	XS230SAPAM12	102	XS512BSDAM12	30	XS605R1PAL5	74
XS118B3PBL2	37	XS212B4PAL5	46	XS504R1NAL2	74	XS512BSPDL2	120	XS605R1PAM08	74
XS118B3PBM12	37	XS212B4PAM12	46	XS504R1NAM08	74	XS512BSPDM12	120	XS605R1PBL2	74
XS118B3PCL2	66	XS212B4PBL2	46	XS504R1NBL2	74	XS518B1CAL08M12	31	XS605R1PBM08	74
XS118B3PCM12	66	XS212B4PBM12	46	XS504R1NBM08	74	XS518B1CAM12	31	XS606B1DBL2	40
XS118B3PDL2	122	XS212BLNAL2	78	XS504R1PAL2	74	XS518B1DAL01C	31	XS606B3CAL2	40
XS118B3PDM12	122	XS212BLNAL7	78	XS504R1PAM08	74	XS518B1DAL2	31	XS606B3CBL2	40
XS118BHNAL2	82	XS212BLNAM12	78	XS504R1PBL2	74	XS518B1DAM12	31	XS608B1DAL2	40
XS118BHNAM12	82	XS212BLNBL2	78	XS504R1PBM08	74	XS518B1DBL2	31	XS608B1DAM12	40
XS118BHNBL2	82	XS212BLPAL2	78	XS505R1NAL2	74	XS518B1DBM12	31	XS608B1DBL2	40
XS118BHNBM12	82	XS212BLPAL5	78	XS505R1NAM08	74	XS518B1MAL2	34	XS608B1NAL2	38
XS118BHPAL2	82	XS212BLPAM12	78	XS505R1NBL2	74	XS518B1MAU20	34	XS608B1NAM8	38
XS118BHPAL5	82	XS212BLPBL2	78	XS505R1NBM08	74	XS518B1MBL2	34	XS608B1NAM12	38
XS118BHPAM12	82	XS212BLPBL5	78	XS505R1PAL2	74	XS518B1MBU20	34	XS608B1NBL2	38
XS118BHPBL2	82	XS212SANAL2	102	XS505R1PAM08	74	XS518B1NAL2	26	XS608B1NBM8	38
XS118BHPBM12	82	XS212SANAM12	102	XS505R1PBL2	74	XS518B1NAM12	26	XS608B1PAL2	38
XS118BLNAL2	79	XS212SAPAL2	102	XS505R1PBM08	74	XS518B1PAL2	26	XS608B1PAM8	38
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Inductive proximity sensors

XS range

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XS618B3DBM12	40		115		79	XZCP1241L10	125		
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