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Inductive proximity sensors

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2

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OsiSense® XS
Inductive proximity sensors
General Purpose

2

Cylindrical type			Standard range			
			Flush mountable			
						
Sensing distance Sn, mm (in.)			**1.5 (0.06)**	**2 (0.08)**	**5 (0.20)**	**10 (0.39)**
Diameter			Ø 6.5 plain and M8	M12	M18	M30
Short case	Supply					
	3-wire ⎓ (PNP/NPN)	Page	46			
	2-wire ⎓	Page	50			
Long case	Supply					
	3-wire ⎓ (PNP/NPN)	Page	47			
	2-wire ⎓	Page	–	51		
	2-wire ≂	Page	–	–	40	
Function	NO		●	●	●	●
	NC		●	●	●	●
Connection	Pre-cabled (L = 2 m) *(1)*		●	●	●	●
	M8 connector, 3-pin (3-wire ⎓)		●	–	–	–
	M12 connector		●	●	●	●
	Remote connector		Remote connectors available: M8, M12, M18, screw terminal, 7/8", DIN: consult the Sensor Competency Center			
Degree of protection			IP 65 and IP 67, IP 68 for pre-cabled version, IP 69K for diameters 12 to 30			
Special temperatures	- 40 °C, + 70 °C (-40 °F, +158 °F)		Add the suffix **TF** to the end of the catalog number *(2)*			
	- 25 °C, + 85 °C (-13 °F, +185 °F)		Add the suffix **TT** to the end of the catalog number *(2)*			
Catalog Number			**XS506**	**XS508**	**XS512**	**XS518**	**XS530**
Pages			40–52			

(1) Also available in lengths of 5 and 10 m, depending on model
(2) Product availability depends on model: consult the Sensor Competency Center

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OsiSense® XS
Inductive proximity sensors
General Purpose

Increased range							
Flush mountable					Non-flush mountable		
							
2.5 (0.10)		**4 (0.16)**	**8 (0.31)**	**15 (0.59)**	**7 (0.28)**	**12 (0.47)**	**22 (0.87)**
Ø 6.5 plain and M8		M12	M18	M30	M12	M18	M30
20 and 32					–		
34					–		
36					42		
34					–	44	
–		38			–		
•		•	•	•	•	•	•
•		•	•	•	•	•	•
•		•	•	•	•	•	•
•		–	–	–	–	–	–
•		•	•	•	•	•	•
–		•	•	•	–	•	•
Remote connectors available: M8, M12, M18, screw terminal, 7/8", DIN: consult the Sensor Competency Center							
IP 65 and IP 67, IP 68 for pre-cabled version, IP 69K for diameters 12 to 30					IP 65 and IP 67, IP 68 for pre-cabled version, IP 69K for diameters 12 to 30		
Add the suffix **TF** to the end of the catalog number *(2)*							
Add the suffix **TT** to the end of the catalog number *(2)*							
XS1•6, XS606	**XS108, XS608**	**XS112, XS612**	**XS118, XS618**	**XS130, XS630**	**XS612**	**XS618**	**XS630**
20, 34			21, 34		42		

(2) Product availability depends on model: consult the Sensor Competency Center

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OsiSense® XS
Inductive proximity sensors
General Purpose

Block type			Standard range		
			Flush mountable		
					
Sensing distance Sn, mm (in.)			**2.5 (0.10)**	**5 (0.20)**	**10 (0.39)**
Dimensions (mm) (W x H x D)			8 x 22 x 8	15 x 32 x 8	26 x 26 x 13
Supply	3-wire ⎓ (PNP/NPN)	Page	76		78
	2-wire ⎓	Page	76		78
	∿	Page	–	–	–
	⎓ ∿	Page	–	–	–
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"-20UNF	–	–	–
	Other remote connectors available		M18, screw terminal, 7/8", DIN: consult the Sensor Competency Center		
Degree of protection			IP 67	IP 67, double insulation ⧈ or IP 68, double insulation ⧈, depending on model	
Special temperatures	- 40 °C, + 70 °C (-40 °F, +158 °F)		Add the suffix **TF** to the end of the catalog number *(2)*		
	- 25 °C, + 85 °C (-13 °F, +185 °F)		Add the suffix **TT** to the end of the catalog number *(2)*		
Catalog Number			**XS7J**	**XS7F**	**XS7E**
Pages			76		78

(1) Also available in lengths of 5 and 10 m, depending on model
(2) Product availability depends on model: consult the Sensor Competency Center

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OsiSense® XS
Inductive proximity sensors
General Purpose

	Standard range			Increased range				
	Flush mountable		Non-flush mountable	Flush or non-flush mountable		Flush or non-flush mountable using teach mode		
								
	15 (0.59)	40 (1.57)	15 (0.59)	20 (0.79)	40 (1.57)	15 (0.59)	25 (0.98)	60 (2.36)
	40 x 40 x 15	80 x 80 x 26	Limit switch style			26 x 26 x 13	40 x 40 x 15	80 x 80 x 26
	78		82			74		
	78		82			74		
	–	–	●			–		
	–	–	84			74		
	●	●	●	●	●	●	●	●
	●	●	–	–	–	●	●	●
	–	–	●	●	●	–	–	–
	–	–	●	●	–	–	–	–
	●	●	–	–	–	●	●	●
	●	–	–	–	–	●	●	
	–	●	–	–	–	–	–	●
	–	–	–	–	–	–	–	●
	–	–	●	●	●	–	–	–
	–	–	–	–	–	–	–	–
	●	–	–	–	–	●	●	–
	–	–	–	–	–	●	●	–
	M18, screw terminal, 7/8", DIN: consult the Sensor Competency Center							
	IP 67, double insulation ⧈ or IP 68, double insulation ⧈, depending on model		IP 65 and IP 67			IP 67, double insulation ⧈ or IP 68, double insulation ⧈, depending on model		
	Add the suffix **TF** to the end of the catalog number *(2)*							
	Add the suffix **TT** to the end of the catalog number *(2)*							
	XS7C	**XS7D**	**XS7C40, XS8C40**			**XS8E**	**XS8C**	**XS8D**
	78		82			74		

(2) Product availability depends on model: consult the Sensor Competency Center

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OsiSense® XS
Inductive proximity sensors
General Purpose

2

Sensor type: flush and Non-flush mountable		Multi-voltage sensors	Sensors with two complementary outputs	
		With short-circuit protection	Solid-state PNP or NPN NO + NC outputs	Solid-state PNP + NPN, NO or NC programmable outputs
				
Sensing distance Sn mm (in.)	Flush mountable	**2–10 (0.08–0.39)**	**1.5–10 (0.06–0.39)**	**2–10 (0.08–0.39)**
	Non-flush mountable	**4–15 (0.16–0.59)**	**2.5 –15(0.10–0.59)**	**4–15 (0.016–0.59)**
Diameter		Threaded: M12, M18, M30	Plain: Ø 6.5 Threaded: M8, M12, M18, M30	Threaded: M12, M18, M30
Case material		Nickel-plated brass	Nickel-plated brass or stainless steel or plastic	Nickel-plated brass or plastic
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	Remote connectors available: M8, M12, M18, screw terminal, 7/8", DIN: consult the Sensor Competency Center		
Degree of protection		IP 67 or IP 68, depending on model		
Special temperatures	- 40 °C, + 70 °C (-40 °F, +158 °F)	Add the suffix **TF** to the end of the catalog number *(2)*		
	- 25 °C, + 85 °C (-13 °F, +185 °F)	Add the suffix **TT** to the end of the catalog number *(2)*		
Catalog Number		**XS1M** **XS2M**	**XS1●●●●C410** **XS2●●●●C410**	**XS1M●●KP340** **XS2M●●KP340** **XS4P●●KP340**
Pages		56	58	60

(1) Also available in lengths of 5 and 10 m, depending on model
(2) Product availability depends on model: consult the Sensor Competency Center
(3) Packed and sold in lots of 20.

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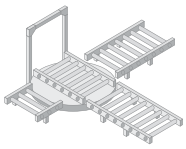
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OsiSense® XS
Inductive proximity sensors
General Purpose

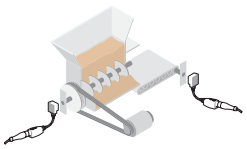
	Plastic case sensors	Basic sensors		Semi-flush mountable sensors	Miniature sensors
	For chemical processing, marine applications	For repetitive machines			For robotic, transfer machine, assembly line applications
					
	–	1.5–10 (0.06–0.39)	2.5–15 (0.10–0.59)	–	1–2.5 (0.04–0.10)
	2.5 –15 (0.10–0.59)	2.5 –15 (0.10–0.59)	–	2.5–20 (0.10–0.79)	–
	Threaded: M8, M12, M18, M30	Plain: Ø 6.5 Threaded: M8, M12, M18, M30	Plain: Ø 6.5 Threaded: M8, M12, M18, M30		Plain: Ø 4 Threaded: M5
	Plastic	Nickel-plated brass or plastic	Nickel-plated brass		Nickel-plated brass or stainless steel
	●	●	●	●	●
	–	●	–	–	–
	●	–	–	–	–
	–	●	●	●	●
	●	●	●	●	●
	–	–	–	–	–
	–	–	–	–	–
	●	●	●	●	●
	–	●	●	●	●
	–	●	●	●	●
	●	–	–	–	–
	Remote connectors available: M8, M12, M18, screw terminal, 7/8", DIN: consult the Sensor Competency Center				
	IP 67 or IP 68, depending on model	IP 67		IP 67 or IP 68	IP 67
	Add the suffix **TF** to the end of the catalog number *(2)*				
	Add the suffix **TT** to the end of the catalog number *(2)*				
	XS4P	**XS1●●BL●** **XS2●●AL●** **XS2●●BL●**	**XS1●●●B3●●●●TQ** *(3)*	**XS1N●●349**	**XS1L** **XS2L** **XS1N**
	30	22	20	54	32

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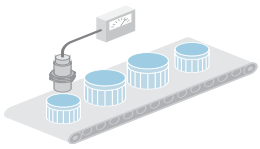
OsiSense® XS
Inductive proximity sensors
Applications



Conveying



Detection of underspeed, shaft overload



Position, displacement and deformation control/monitoring

Sensor type: flush and non-flush mountable		**Adjustable range sensors**	**Sensors for rotation monitoring**	**Sensors with analog output 0–10 V or 4–20 mA**	

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









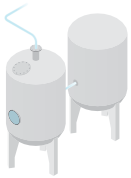
Sensing dist. Sn, mm (in.)	Flush mountable	**3–11 (0.12–0.43)***(1)*	**10 (0.39)**	**10–15 (0.39–0.59)** *(1)*	**0.2–10 (0.01–0.39)***(1)*	**5–40 (0.20–1.57)** *(1)*
	Non-flush mountable	**5–18 (0.20–0.71)***(1)*			**0.4–60 (0.02–2.36***(1)*	
Form	**Cylindrical**	M12 x 54 M18 x 67 M30 x 71	M30 x 81	–	Threaded: M12, M18, M30	–
	Block (W x H x D) dimensions (mm)	–	–	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
Case material		Nickel-plated brass	Metal	PBT	Metal or plastic	PBT
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		IP 67, double insulation ⧈	IP 67	IP 67, double insulation ⧈	IP 67	IP 67 or IP 68 (pre-cabled version)
Special temperatures	-40 °C, +70 °C (-40 °F, +158 °F)	Add the suffix **TF** to the end of the catalog number *(3)*				
	-25 °C, +85 °C (-13 °F, +185 °F)	Add the suffix **TT** to the end of the catalog number *(3)*				
Catalog Number		**XS612B2 XS618B2 XS630B2**	**XSAV**	**XS9●11R**	**XS1M●●●AB1 XS4P●●AB1**	**XS9●●●●A**
Pages		72	93	95	98	101

(1) Depending on model.
(2) Also available in lengths of 5 and 10 m, depending on model.
(3) Product availability depends on model: consult the Sensor Competency Center.

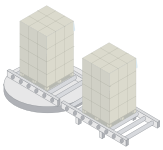
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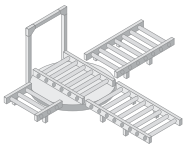
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OsiSense® XS
Inductive proximity sensors
Applications

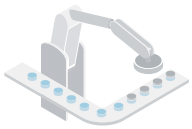


Machine with stainless steel housing





Assembly machines, conveyor systems, material handling





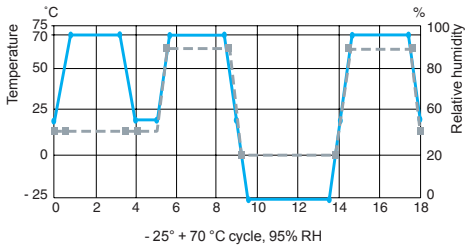
Robotics

	Sensors for food/beverage and pharmaceutical applications		Factor 1 (Fe/Nfe) sensors for ferrous and non-ferrous materials		Selective detection sensors for ferrous materials only or non-ferrous materials only	Sensors for conveying and material handling applications			Sensors for welding machine applications
	Cylindrical, stainless steel	Cylindrical, plastic				12 x 40 x 26 format	Cubic 40 form	80 x 80 x 40 format, increased range	
									
	–	–	5, 10 or 15 (0.20, 0.39 or 0.59) *(1)*		5, 6 or 10 (0.20, 0.24 or 0.39) *(1)*	2 (0.08)	15 (0.59)	50 (1.97)	2, 3, 5, 10 (0.08, 0.12, 0.20 or 0.39) *(1)*
	7–22 (0.28–0.87)*(1)*	7–22(0.28–0.87)*(1)*	–		–	4 (0.16)	20(0.79)	42 (1.65)	4–10 (0.16–0.39) *(1)*
	Plain: Ø 18 Threaded: M12, M18, M30	Threaded: M12, M18, M30	Threaded: M18, M30	–	Threaded: M18	–	–	–	Threaded: M12, M18, M30
	–	–	–	Limit switch style, form C, turret head	–	12 x 40 x 26	40 x 40 x 40	80 x 80 x 40	–
	Stainless steel, grade 316 L	Plastic, PPS	Metal	Plastic	Metal	Plastic	Plastic	Plastic	Plastic, PPS
	●	●	●	●	●	●	●	●	●
	–	–	–	–	–	–	–	–	–
	●	●	–	–	–	●	–	–	–
	●	●	–	–	●	●	●	●	●
	–	–	–	–	–	●	–	–	–
	–	–	–	–	–	●	●	–	–
	–	–	●	●	–	–	–	–	–
	●	●	●	–	●	●	●	–	–
	–	–	–	–	–	●	–	–	–
	●	●	●	–	–	–	–	●	●
	●	●	–	–	–	–	–	–	–
	–	–	●	–	–	–	●	–	●
	–	–	–	●	–	–	–	–	–
	IP 67 (connector version) IP 68 (pre-cabled version), double insulation ⧈ IP 69K conforming to DIN 40050		IP 68	IP 67	IP 67 or IP 68 *(1)*	IP 67	IP 67	IP 67, double insulation ⧈	IP 67
	Add the suffix **TF** to the end of the catalog number *(3)*								
	Add the suffix **TT** to the end of the catalog number *(3)*								
	XS2●●SA	**XS2●●AA**	**XS1M●●●KP**	**XS7C40**	**XS1M18PA**	**XS7G XS8G**	**XS7T XS8T**	**XS7D**	**XS●M XSLC**
	62	66	108	106	108	88	86	80	110

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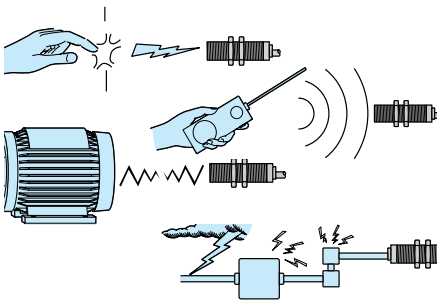
OsiSense® XS
Inductive proximity sensors

Standards and certifications
Parameters related to the environment



- 25° + 70 °C cycle, 95% RH

Temperature °C
Humidity as %



Insulation

Class 2 devices ⧈

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

Recommendations

The sensors detailed in this catalog 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, refer to the Preventa™ Machine Safety Products catalog

Quality control

A variety of precautions are taken in order to provide inductive proximity sensors suitable for harsh industrial environments.

- **Qualification**
  - The product specifications stated in this catalog are subject to a **qualification procedure** carried out in our laboratories.
  - In particular, the products are subjected to **climatic cycle** tests for 3,000 hours while powered up to verify their ability to maintain their specifications over time.
- **Production**
  - The electrical specifications 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 specifications.
- **Customer returns**

Products that are returned to us and claimed inoperative are subjected to systematic analysis and may result in corrective actions or continuous improvement.

Conformity to standards

All Schneider Electric brand inductive proximity sensors conform to and are tested in accordance with the recommendations of IEC standard 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, 10–55 Hz, 25 gn at 55 Hz.

Resistance to the environment

- Refer to the specifications 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 (39.37 in.) of water.
  No deterioration in either operating or insulation specifications is permitted.
- **IP 68**: protection against prolonged immersion.
  Sensor immersed for 336 hours in 40 meters (131.23 ft) of water at 50 °C (122 °F) .
  No deterioration in either operating or insulation specifications is permitted.
  Schneider Electric sensors with an IP 68 degree of protection are ideal for use in the most arduous conditions, such as machine tools and automatic car washes.
- **IP 69K**: protection against the effects of high pressure cleaning. Adherence to DIN 40050 which stipulates that the product must withstand a water jet at a pressure of 90 bar (1305 psi) and temperature of +80 °C (176 °F) for 3 minutes.
  No deterioration in either operating or insulation specifications is permitted.

Resistance to electromagnetic interference

■ Electrostatic discharges	∼ and ⎓ versions: level 4 immunity (15 kV). **IEC 61000-4-2**
■ Radiated electromagnetic fields (electromagnetic waves)	⎓, ∼ and ⎓ versions: level 2 (3 V/m) or level 3 (10 V/m) immunity. **IEC 61000-4-3**
■ Fast transients (motor start/stop interference)	⎓ version: level 3 immunity (1 kV). ∼ and ⎓ versions: level 4 immunity (2 kV) except Ø 8 mm model (level 2). **IEC 61000-4-4**
■ Impulse voltage	⎓, ∼ and ⎓ versions: level 3 immunity (2.5 kV) except Ø 8 mm and smaller models (level 1 kV). **IEC 60947-5-2**

Resistance to chemicals in the environment

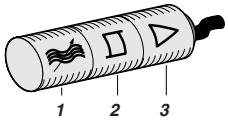
- Due to the very wide range of chemicals encountered in industry, it is very difficult to give general guidelines common to all sensors.
- End users should verify that the application does not subject sensors to chemicals that may damage them.
- Cylindrical and flat plastic-case sensors offer excellent 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.).

The materials selected (see product specifications) provide satisfactory compatibility in most industrial environments (for further information, consult our Customer Information Center).

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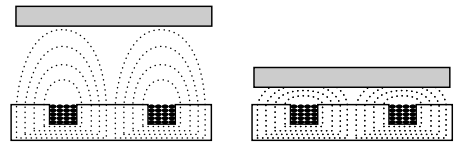
OsiSense® XS
Inductive proximity sensors

Principle of inductive detection



1 Oscillator
2 Output driver
3 Output stage

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 essentially 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 sensor's magnetic field, currents are induced. These currents form an additional load, causing the sensor's oscillations to cease. This cessation causes the output driver to operate: depending on the sensor type, a normally open (NO) or normally closed (NC) output signal is produced.

2

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 number of metal objects, etc.

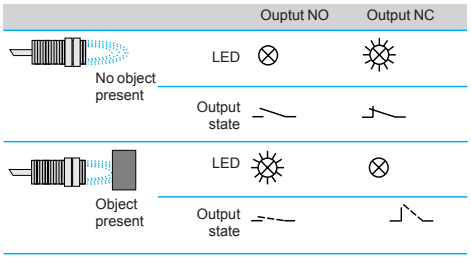
Advantages of inductive detection

■ 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 2/70.

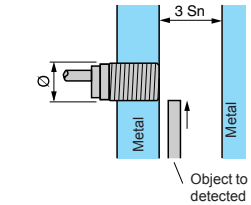
LED indicator

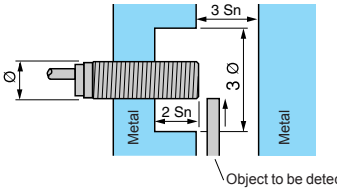


Output LED

All Schneider Electric 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 setup (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 page 2/70.

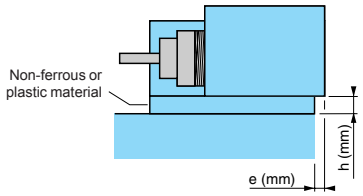
Sensors not suitable for flush mounting in metal

■ 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 page 2/70.

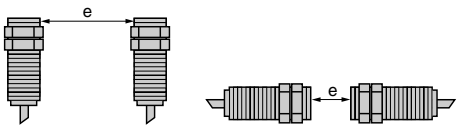
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Mounting sensors on a metal support



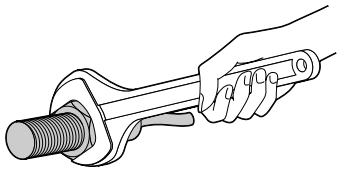
Mounting distance between sensors



Mounting side by side
e≥ 2 Sn (mm)

Mounting face to face
e ≥ 10 Sn (mm)

Tightening torque for cylindrical type sensors



Mounting using mounting clamp

- ■ Standard flush mountable models: e = 0, h = 0
- ■ Standard non-flush mountable models
- □ Ø 6.5 / 8 / 12 mm: e = 0, h = 0
- □ Ø 18 mm: if h = 0, e ⩾ 5; e = 0, h ⩾ 3.
- □ Ø 30 mm: if h = 0, e ⩾ 8; e = 0, h ⩾ 4.
- ■ Flush mountable sensors using teach mode: e = 0, h = 0

Standard sensors

If two 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

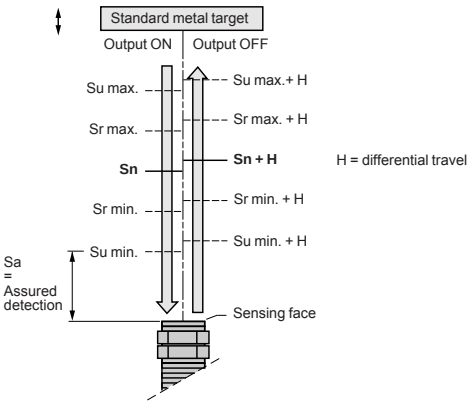
For applications where the minimum recommended mounting distances for standard sensors cannot be achieved, it is possible to overcome this restraint by using staggered frequency sensors. consult the Sensor Competency Center.
In this case, a staggered frequency sensor is mounted adjacent to or opposite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

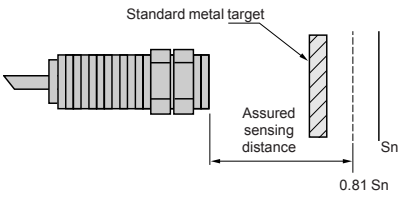
	Maximum tightening torque for the various sensor case materials, N•m (lb-in)			
	Brass	Brass	Stainless steel	Plastic
Diameter of sensor (mm)	Short case model	Long case model form A	Long case model form A	All models
	XS5●●B1	XS6●●B1 XS6●●B2 XSAV●	XS1●● XS2●●	XS4P●●
Ø 5	1.6 (14.16)	1.6 (14.16)	2 (17.70)	–
Ø 8	5 (44.25)	5 (44.25)	9 (79.66)	1 (8.85)
Ø 12	6 (53.10)	15 (132.76)	30 (265.52)	2 (17.70)
Ø 18	15 (132.76)	35 (309.78)	50 (442.54)	5 (44.25)
Ø 30	40 (354.03)	50 (442.54)	100 (885.07)	20 (177.01)

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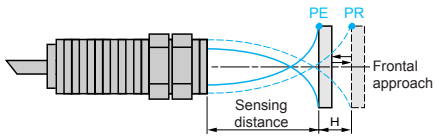
OsiSense® XS
Inductive proximity sensors

Sensing distance

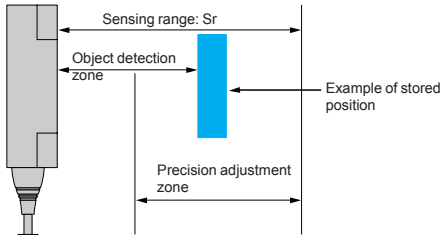


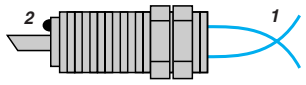


Terminology



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 allow customers to 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 (Un) and the rated ambient temperature (Tn).
  It must be between 90% and 110% of the nominal sensing distance (Sn):
  $0.9\ Sn \leq Sr \leq 1.1\ Sn$.
- **Usable sensing distance (Su)**
  The usable sensing distance is measured at the limits of the permissible variations in the ambient temperature (Ta) and the supply voltage (Ub). It must be between 90% and 110% of the effective sensing distance: $0.9\ Sr \leq Su \leq 1.1\ Sr$.
- **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 (Sn): $0 \leq Sa \leq 0.9 \times 0.9 \times Sn$

Standard metal target

The standard IEC 60947-5-2 defines the standard metal target as a square mild steel (Fe 360) plate, 1 mm (0.04 in.) 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 three times the nominal sensing distance (Sn).

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 while the sensor is subjected to voltage and temperature variations: 8 hours, 10 to 30 °C (50 to 86 °F), Un ± 5%.
It is expressed as a percentage of the effective sensing distance Sr.

Detection zone and precision adjustment zone

- Flush mountable sensors using teach mode, due to adjustment of sensitivity while 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.

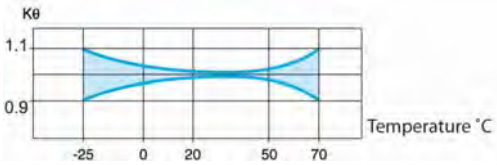
Operating zone

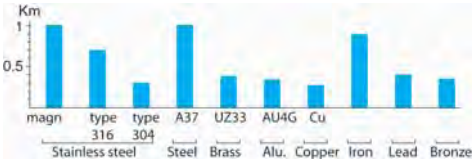
- The operating zone relates to the area in front of the sensing face in which the detection of a metal object is certain.
  The values stated in the specifications relating to the various types of sensor are for steel objects of a size equal to the sensing face of the sensor.
  For objects of a different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

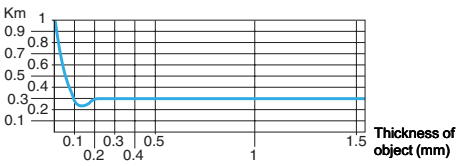
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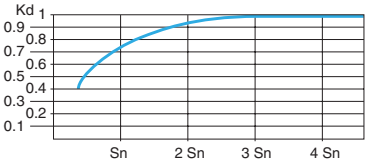
Correction coefficients to apply to the assured operating distance







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



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

Calculation examples

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, you must take into account the correction coefficients that influence it.

The curves indicated are purely representational 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 Kθ, determined from the curve shown opposite.

Material of object to be detected

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

Variation of supply voltage

In all cases, apply the correction coefficient Kt = 0.9.

Correction of the sensing distance of a sensor

Sensor with nominal sensing distance Sn = 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 Sa is determined using the formula:
Sa = Sn x Kq x Km x Kd x Kt = 15 x 0.98 x 1 x 0.95 x 0.9
i.e. Sa = 12.5 mm.

Selecting a sensor for a given application

Application specifications:
- object material and size: iron (Km = 0.9), 30 x 30 mm,
- temperature: 0 to 20 °C (Kθ = 0.98),
- object detection distance: 3 mm ± 1.5 mm, i.e. Sa max. = 4.5 mm,
- assume Kd = 1.

A sensor must be selected for which $\mathbf{Sn \geq \frac{Sa}{Kq \times Km \times Kd \times Kt} = \frac{4.5}{0.98 \times 0.9 \times 1 \times 0.9}}$

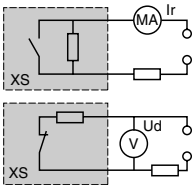
i.e. **Sn ≥ 5.7 mm**

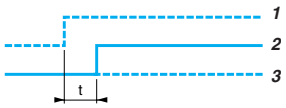
Schneider Electric

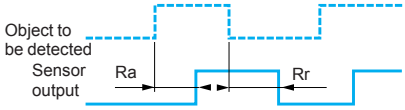
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Inductive proximity sensors

Specific aspects of electronic sensors







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.

Supply

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

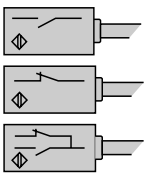
■ **DC source:** check that the voltage limits of the sensor and the acceptable level of ripple are compatible with the supply used.

■ **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 x $\sqrt{2}$
- the minimum voltage of the supply is greater than the minimum voltage rating of the sensor, given that :
$\Delta V = (I \times t) / C$
ΔV = max. ripple: 10% (V),
I = anticipated load current (mA),
t = period of 1 cycle (10 ms full-wave rectified for a 50 Hz supply frequency),
C = capacitance (µF).
As a general rule, use a transformer with a lower secondary voltage (Ue) than the required DC voltage (U).

Example:
∿ 18 V to obtain ⎓ 24 V,
∿ 36 V to obtain ⎓ 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.

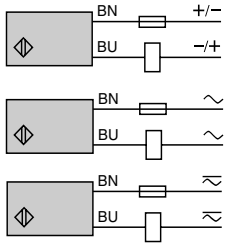
■ Normally closed (NC)
Corresponds to a sensor whose output changes to the open state when an object is present in the operating zone.

■ Complementary outputs (NO + NC)
Corresponds to a sensor with a normally closed output and a normally open output.

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Inductive proximity sensors

Outputs (continued)



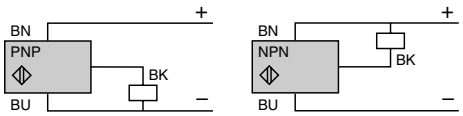
2-wire ⎓ type, non-polarized NO or NC output

■ **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 two 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-logic (PNP) or negative-logic (NPN) PLC inputs
- Simple, reversible connections

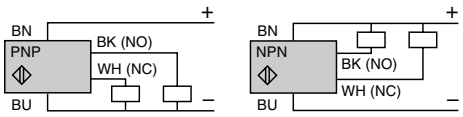
■ **Operating precautions**
- Check the possible effects of residual current and voltage drop on the actuator or input connected,
- For sensors that do not have overload and short-circuit protection (AC or AC/DC symbol), a 0.4 A fast-acting fuse must be connected in series with the load.



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

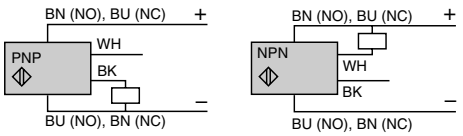
■ **Specific aspects**
- These sensors comprise two wires for the DC supply and a third wire for the output signal,
- PNP type: switching the positive side to the load
- NPN type: switching the negative side to the load

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



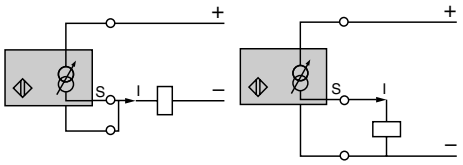
4-wire ⎓ type, complementary NO and NC outputs, PNP or NPN

■ **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



2-wire connection *3-wire connection*

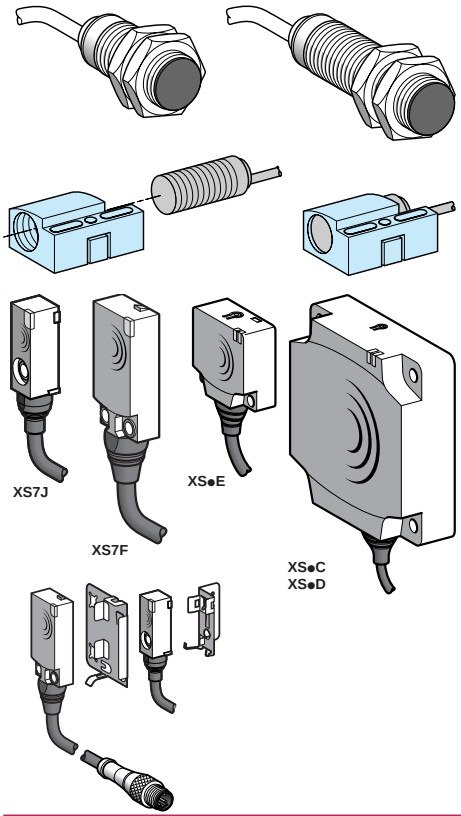
Specific output signals, analog type

■ 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

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OsiSense® XS
Inductive proximity sensors

Features of the various models

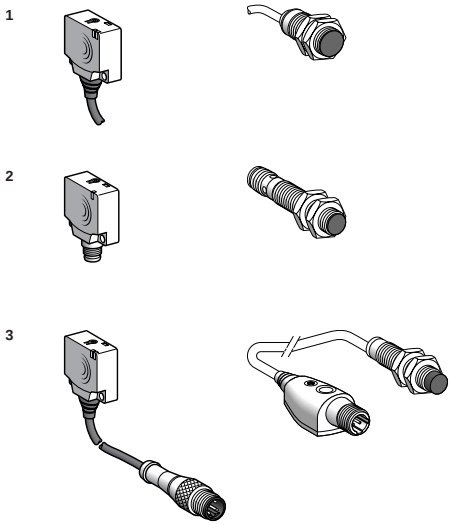


Types of case

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

■ **Flat case**
□ Reduced size (sensor volume divided by 8).
□ Fast installation by mounting using clip-on brackets.
□ Precision detection with the flush mountable sensors using teach mode
.

Electrical connection



Connection methods

1 Pre-cabled: factory-fitted molded 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

■ **Length of cable**
□ No limitation up to 200 m or up to a line capacitance of < 100 nF (specifications of sensor remain unaffected)
□ In this case, it is important to take into account the voltage drop on the line

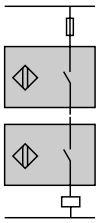
■ **Separation of control and power circuit wiring**
□ The sensors are immune to electrical interference encountered in normal industrial conditions
□ Where extreme conditions of electrical “noise” could occur (large motors, spot welders, etc.) it is advisable to protect against transients in the normal 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.**

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Setup



Connection in series

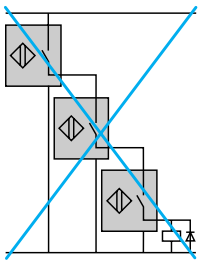
2-wire type sensors

- 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.

$$U\ sensor = \frac{U\ (supply)}{n\ sensors}$$

U sensor and U supply must remain within the sensor's voltage limits.

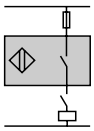
- If only one sensor in the circuit is in the open state, it will be supplied at a voltage almost equal to the supply voltage.
- When in the closed state, a small voltage drop is present across each sensor. The resulting loss of voltage at the load will be the sum of the individual voltage drops and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



3-wire type sensors

This connection method is not recommended.

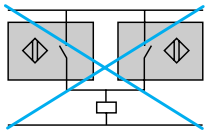
- Correct operation of the sensors cannot be assured and, if this method is used, tests should be made before installation.
  The following points should be taken into account:
- Sensor 1 carries the load current in addition to the no-load current consumption values of the other sensors connected in 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).

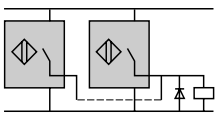


Connection in parallel

2-wire type sensors

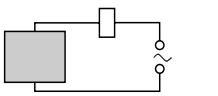
This connection method is not recommended.

- 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 energized 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 to the units.



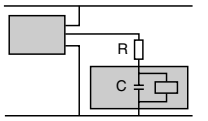
3-wire type sensors

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



AC supply

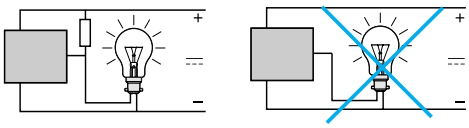
- **2-wire type sensors cannot be connected directly to an AC supply.**
- Improper installation can result in injury or sensor damage
- An appropriate load (refer to the instruction sheet supplied with the sensor) must always be connected in series with the sensor.



Capacitive load (C > 0.1 µF)

- 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.

$$R = \frac{U\ supply}{I\ max.\ (sensor)}$$



Load comprising an incandescent lamp

- If the load comprises an incandescent lamp, the hot state resistance can be 10 times higher than the cold 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 = supply voltage and P = lamp power

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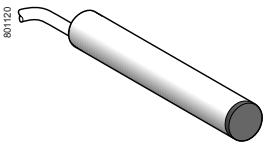
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Fast troubleshooting guide

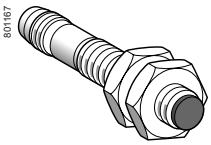
Problem	Possible causes	Remedy
The sensor's output will not change state when a metal object enters the detection zone	On a flush mountable sensor using teach mode: setup or programming error.	■ After a RESET, follow the environment teach mode procedure. Refer to instruction sheet supplied with sensor.
	Inoperative sensor or the short circuit protection has been opened	■ Check that the sensor is compatible with the supply being used. ■ Check the load current specifications: □ if load current I ≥ maximum switching capacity, an auxiliary relay, of the CADN type for example, should be interposed between the sensor and the load, □ if I ≤ maximum switching capacity, check for wiring issues (short-circuit). ■ In all cases, a 0.4 A fast-acting fuse should be connected in series with the sensor.
	Wiring error	■ Check that the wiring conforms to the wiring shown on the sensor label or instruction sheet.
	Improper power supply	■ Check that the sensor is compatible with the supply (∼ or ⎓). ■ Check that the supply voltage is within the voltage limits of the sensor. Remember that with a rectified, smoothed supply, U peak = U nominal x $\sqrt{2}$ with a ripple voltage ≤ 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: setup 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 µF). ■ 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 mounting support.
No detection following a period of service	Vibration, shock	■ Realign the system. ■ Replace the support or protect the sensor.

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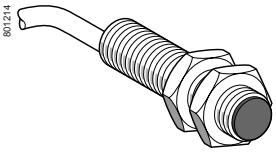
OsiSense® XS
Inductive proximity sensors
Basic, cylindrical, flush mountable, increased range
Three-wire DC, solid-state output



XS106B3●●L2



XS108B3●●M8



XS112B3●●L2

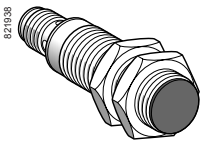
Sensing distance Sn, mm (in.)	Function	Output	Connection	Sold in lots of	Catalog Number	Weight kg	(lb)
Ø 6.5, plain							
Three-wire 12–24 V ⎓, flush mountable							
2 (0.07)	NO	PNP	Pre-cabled (L = 2 m) *(1)*	1	**XS106B3PAL2**	0.060	(0.13)
			M8 connector	1	**XS106B3PAM8**	0.030	(0.06)
			M12 connector	1	**XS106B3PAM12**	0.050	(0.11)
			Pre-cabled (L = 2 m)	20	**XS106B3PAL2TQ**	0.980	(2.16)
			M8 connector	20	**XS106B3PAM8TQ**	0.320	(0.70)
		NPN	Pre-cabled (L = 2 m)	1	**XS106B3NAL2**	0.060	(0.13)
			M8 connector	1	**XS106B3NAM8**	0.030	(0.06)
	NC	PNP	Pre-cabled (L = 2 m) *(1)*	1	**XS106B3PBL2**	0.060	(0.13)
			M8 connector	1	**XS106B3PBM8**	0.030	(0.06)
Ø 8, threaded M8 x 1							
Three-wire 12–24 V ⎓, flush mountable							
2 (0.07)	NO	PNP	Pre-cabled (L = 2 m) *(1)*	1	**XS108B3PAL2**	0.070	(0.15)
			M8 connector	1	**XS108B3PAM8**	0.030	(0.06)
			M12 connector	1	**XS108B3PAM12**	0.060	(0.13)
			Pre-cabled (L = 2 m)	20	**XS108B3PAL2TQ**	1.120	(2.46)
			M8 connector	20	**XS108B3PAM8TQ**	0.460	(1.01)
			M12 connector	20	**XS108B3PAM12TQ**	0.940	(2.07)
		NPN	Pre-cabled (L = 2 m) *(1)*	1	**XS108B3NAL2**	0.070	(0.15)
			M8 connector	1	**XS108B3NAM8**	0.030	(0.06)
			M12 connector	1	**XS108B3NAM12**	0.060	(0.13)
			Pre-cabled (L = 2 m)	20	**XS108B3NAL2TQ**	1.120	(2.46)
			M8 connector	20	**XS108B3NAM8TQ**	0.460	(1.01)
	NC	PNP	Pre-cabled (L = 2 m) *(1)*	1	**XS108B3PBL2**	0.070	(0.15)
			M8 connector	1	**XS108B3PBM8**	0.030	(0.06)
			M12 connector	1	**XS108B3PBM12**	0.060	(0.13)
		NPN	Pre-cabled (L = 2 m) *(1)*	1	**XS108B3NBL2**	0.070	(0.15)
			M8 connector	1	**XS108B3NBM8**	0.030	(0.06)
			M12 connector	1	**XS108B3NBM12**	0.060	(0.13)
Ø 12, threaded M12 x 1							
Three-wire 12–24 V ⎓, flush mountable							
4 (0.15)	NO	PNP	Pre-cabled (L = 2 m) *(1)*	1	**XS112B3PAL2**	0.090	(0.19)
			M12 connector	1	**XS112B3PAM12**	0.030	(0.06)
			Pre-cabled (L = 2 m)	20	**XS112B3PAL2TQ**	1.600	(3.52)
			M12 connector	20	**XS112B3PAM12TQ**	0.470	(1.03)
		NPN	Pre-cabled (L = 2 m) *(1)*	1	**XS112B3NAL2**	0.090	(0.19)
			M12 connector	1	**XS112B3NAM12**	0.030	(0.06)
			Pre-cabled (L = 2 m)	20	**XS112B3NAL2TQ**	1.600	(3.52)
			M12 connector	20	**XS112B3NAM12TQ**	0.470	(1.03)
	NC	PNP	Pre-cabled (L = 2 m) *(1)*	1	**XS112B3PBL2**	0.090	(0.19)
			M12 connector	1	**XS112B3PBM12**	0.030	(0.06)
			M12 connector	20	**XS112B3PBM12TQ**	0.470	(1.03)
		NPN	Pre-cabled (L = 2 m) *(1)*	1	**XS112B3NBL2**	0.090	(0.19)
			M12 connector	1	**XS112B3NBM12**	0.030	(0.06)

(1) For a 5 m cable replace L2 with L5.
*Example: XS106B3PAL2 becomes **XS106B3PAL5** with a 5 m cable.*

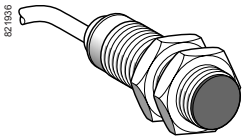
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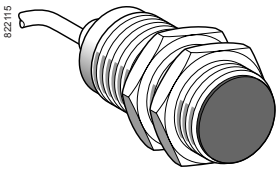
OsiSense® XS
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Three-wire DC, solid-state output



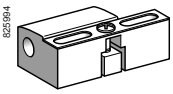
XS118B3●●M12



XS118B3●●●L2



XS130B3●●L2



XSZB1●●

Sensing distance Sn, mm (in.)	Function	Output	Connection	Sold in lots of	Catalog Number	Weight kg	(lb)
Ø 18, threaded M18 x 1							
Three-wire 12–24 V ⎓, flush mountable							
8 (0.31)	NO	PNP	Pre-cabled (L = 2 m) *(1)*	1	**XS118B3PAL2**	0.110	(0.24)
			M12 connector	1	**XS118B3PAM12**	0.060	(0.13)
			Pre-cabled (L = 2 m)	20	**XS118B3PAL2TQ**	2.000	(4.40)
			M12 connector	20	**XS118B3PAM12TQ**	1.140	(2.51)
		NPN	Pre-cabled (L = 2 m) *(1)*	1	**XS118B3NAL2**	0.110	(0.24)
			M12 connector	1	**XS118B3NAM12**	0.060	(0.13)
			Pre-cabled (L = 2 m)	20	**XS118B3NAL2TQ**	2.000	(4.40)
			M12 connector	20	**XS118B3NAM12TQ**	1.140	(2.51)
	NC	PNP	Pre-cabled (L = 2 m) *(1)*	1	**XS118B3PBL2**	0.110	(0.24)
			M12 connector	1	**XS118B3PBM12**	0.060	(0.13)
		NPN	Pre-cabled (L = 2 m) *(1)*	1	**XS118B3NBL2**	0.110	(0.24)
			M12 connector	1	**XS118B3NBM12**	0.060	(0.13)
Ø 30, threaded M30 x 1.5							
Three-wire 12–24 V ⎓, flush mountable							
15 (0.59)	NO	PNP	Pre-cabled (L = 2 m) *(1)*	1	**XS130B3PAL2**	0.180	(0.39)
			M12 connector	1	**XS130B3PAM12**	0.130	(0.28)
			Pre-cabled (L = 2 m)	20	**XS130B3PAL2TQ**	3.360	(7.40)
			M12 connector	20	**XS130B3PAM12TQ**	2.000	(4.40)
		NPN	Pre-cabled (L = 2 m) *(1)*	1	**XS130B3NAL2**	0.180	(0.39)
			M12 connector	1	**XS130B3NAM12**	0.130	(0.28)
			M12 connector	20	**XS130B3NAM12TQ**	2.000	(4.40)
	NC	PNP	Pre-cabled (L = 2 m) *(1)*	1	**XS130B3PBL2**	0.180	(0.39)
			M12 connector	1	**XS130B3PBM12**	0.130	(0.28)
		NPN	Pre-cabled (L = 2 m) *(1)*	1	**XS130B3NBL2**	0.180	(0.39)
			M12 connector	1	**XS130B3NBM12**	0.130	(0.28)

Accessories

Description	For use with sensors	Catalog Number	Weight kg	(lb)
Mounting clamps	Ø = 6.5 (plain)	**XSZB165**	0.005	(0.01)
	Ø 8 (M8 x 1)	**XSZB108**	0.006	(0.01)
	Ø 12 (M12 x 1)	**XSZB112**	0.006	(0.01)
	Ø 18 (M18 x 1)	**XSZB118**	0.010	(0.02)
	Ø 30 (M30 x 1.5)	**XSZB130**	0.020	(0.04)

(1) For a 5 m cable replace L2 with L5.
*Example: XS118B3PAL2 becomes **XS118B3PAL5** with a 5 m cable.*

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OsiSense® XS
Inductive proximity sensors
Basic, cylindrical, flush mountable, increased range
Three-wire DC, solid-state output

Specifications

Sensor type			XS1●●B3●●M8	XS1●●B3●●M12	XS1●●B3●●L2
Product certifications			UL, CSA, CE		
Connection	Connector		M8	M12	–
	Pre-cabled		–	–	Length 2 m
Operating zone	Ø 6.5 and Ø 8	mm	0–1.6 (0–0.06 in.)		
	Ø 12	mm	0–3.2 (0–0.12 in.)		
	Ø 18	mm	0–6.4 (0–0.25 in.)		
	Ø 30	mm	0–12 (0–0.47 in.)		
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 to +85 (-40 to +185 °F)		
Operating temperature		°C	-25 to +70 (-13 to +158 °F)		
Materials	Case		Nickel-plated brass		
	Cable		–		PvR 3 x 0.34 mm² (22 AWG) except Ø 6.5 and 8: 3 x 0.11 mm² (27 AWG)
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		
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 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 diagrams

Connector

M8



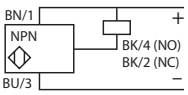
M12



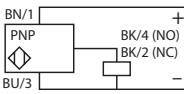
Pre-cabled

BU: Blue
BN: Brown
BK: Black

NPN



PNP



For the M8 connector, the NO and NC outputs are on terminal 4.

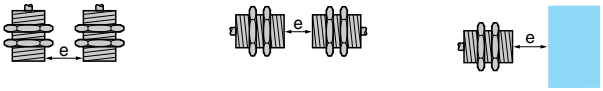
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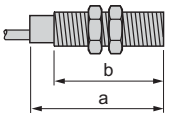
Setup

Minimum mounting distances (mm)



Sensors		Side by side	Face to face	Facing a metal object
Ø 6.5 flush mountable	**XS106B3**	e ≥ 4	e ≥ 24	e ≥ 6
Ø 8 flush mountable	**XS108B3**	e ≥ 4	e ≥ 24	e ≥ 6
Ø 12 flush mountable	**XS112B3**	e ≥ 8	e ≥ 50	e ≥ 12
Ø 18 flush mountable	**XS118B3**	e ≥ 16	e ≥ 100	e ≥ 25
Ø 30 flush mountable	**XS130B3**	e ≥ 30	e ≥ 180	e ≥ 45

Dimensions (mm)



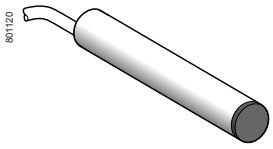
Flush mountable in metal

Sensors		Pre-cabled (mm)		M8 connector (mm)		M12 connector (mm)	
		a	**b**	**a**	**b**	**a**	**b**
Ø 6.5	**XS106B3**	33	30	42	34	45	24
Ø 8	**XS108B3**	33	25	42	26	45	23
Ø 12	**XS112B3**	35	25	–	–	50	29
Ø 18	**XS118B3**	38	28	–	–	50.3	28
Ø 30	**XS130B3**	42.3	32	–	–	54.5	32

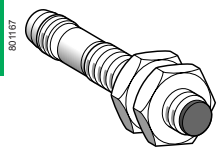
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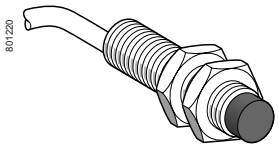
Basic, cylindrical, metal, flush and non-flush mountable
Two-wire, AC supply
Three-wire DC, solid-state output



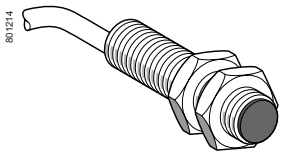
XS106BL●●L2



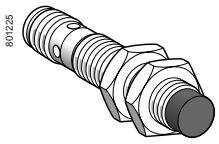
XS108BL●●M8



XS208BL●●L2



XS112BL●●L2



XS212BL●●M12

Sensing distance Sn, mm (in.)	Function	Output	Connection	Catalog Number	Weight kg	(lb)
Ø 6.5, plain						
Three-wire 12–24 V ⎓, flush mountable						
1.5 (0.05)	NO	PNP	Pre-cabled (L = 2 m) *(1)*	**XS106BLPAL2**	0.030	(0.06)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS106BLNAL2**	0.030	(0.06)
	NC	PNP	Pre-cabled (L = 2 m) *(1)*	**XS106BLPBL2**	0.030	(0.06)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS106BLNBL2**	0.030	(0.06)
Ø 8, threaded M8 x 1						
Three-wire 12–24 V ⎓, flush mountable						
1.5 (0.05	NO	PNP	Pre-cabled (L = 2 m) *(1)*	**XS108BLPAL2**	0.035	(0.07)
			M8 connector	**XS108BLPAM8**	0.008	(0.01)
			M12 connector	**XS108BLPAM12**	0.015	(0.03)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS108BLNAL2**	0.035	(0.07)
			M8 connector	**XS108BLNAM8**	0.008	(0.01)
			M12 connector	**XS108BLNAM12**	0.015	(0.03)
	NC	PNP	Pre-cabled (L = 2 m) *(1)*	**XS108BLPBL2**	0.035	(0.07)
			M8 connector	**XS108BLPBM8**	0.008	(0.01)
			M12 connector	**XS108BLPBM12**	0.015	(0.03)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS108BLNBL2**	0.035	(0.07)
			M8 connector	**XS108BLNBM8**	0.008	(0.01)
			M12 connector	**XS108BLNBM12**	0.015	(0.03)
Three-wire 12–24 V ⎓, non-flush mountable						
2.5 (0.09)	NO	PNP	Pre-cabled (L = 2 m) *(1)*	**XS208BLPAL2**	0.035	(0.07)
			M8 connector	**XS208BLPAM8**	0.008	(0.01)
			M12 connector	**XS208BLPAM12**	0.015	(0.03)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS208BLNAL2**	0.035	(0.07)
			M8 connector	**XS208BLNAM8**	0.008	(0.01)
			M12 connector	**XS208BLNAM12**	0.015	(0.03)
	NC	PNP	Pre-cabled (L = 2 m) *(1)*	**XS208BLPBL2**	0.035	(0.07)
			M8 connector	**XS208BLPBM8**	0.008	(0.01)
			M12 connector	**XS208BLPBM12**	0.015	(0.03)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS208BLNBL2**	0.035	(0.07)
			M8 connector	**XS208BLNBM8**	0.008	(0.01)
			M12 connector	**XS208BLNBM12**	0.015	(0.03)
Ø 12, threaded M12 x 1						
Three-wire 12–24 V ⎓, flush mountable						
2 (0.07)	NO	PNP	Pre-cabled (L = 2 m) *(2)*	**XS112BLPAL2**	0.070	(0.15)
			M12 connector	**XS112BLPAM12**	0.015	(0.03)
		NPN	Pre-cabled (L = 2 m) *(2)*	**XS112BLNAL2**	0.070	(0.15)
			M12 connector	**XS112BLNAM12**	0.015	(0.03)
	NC	PNP	Pre-cabled (L = 2 m) *(2)*	**XS112BLPBL2**	0.070	(0.15)
			M12 connector	**XS112BLPBM12**	0.015	(0.03)
		NPN	Pre-cabled (L = 2 m) *(2)*	**XS112BLNBL2**	0.070	(0.15)
			M12 connector	**XS112BLNBM12**	0.015	(0.03)
Two-wire 24–240 V ∿, flush mountable						
2 (0.07)	NO		Pre-cabled (L = 2 m) *(2)*	**XS112BLFAL2**	0.075	(0.16)
Three-wire 12–24 V ⎓, non-flush mountable						
4 (0.15)	NO	PNP	Pre-cabled (L = 2 m) *(2)*	**XS212BLPAL2**	0.070	(0.15)
			M12 connector	**XS212BLPAM12**	0.015	(0.03)
		NPN	Pre-cabled (L = 2 m) *(2)*	**XS212BLNAL2**	0.070	(0.15)
			M12 connector	**XS212BLNAM12**	0.015	(0.03)
	NC	PNP	Pre-cabled (L = 2 m) *(2)*	**XS212BLPBL2**	0.070	(0.15)
			M12 connector	**XS212BLPBM12**	0.015	(0.03)
		NPN	Pre-cabled (L = 2 m) *(2)*	**XS212BLNBL2**	0.070	(0.15)
			M12 connector	**XS212BLNBM12**	0.015	(0.03)

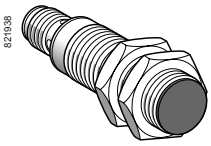
(1) For a 5 m cable replace L2 with L5.
*Example: XS106BLPAL2 becomes **XS106BLPAL5** with a 5 m cable.*
(2) For a 5 m cable replace L2 with L5; for a 10 m cable replace L2 with L10.
*Example: XS112BLPAL2 becomes **XS112BLPAL5** with a 5 m cable.*

Schneider Electric

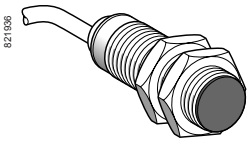
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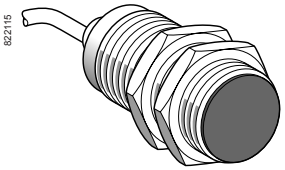
Basic, cylindrical, metal, flush and non-flush mountable
Two-wire, AC supply
Three-wire DC, solid-state output



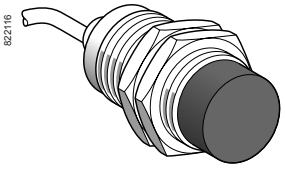
XS118BL●●M12



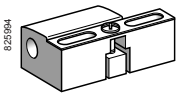
XS118BL●●●L2



XS130BL●●L2



XS230BL●●L2



XSZB1●●

Sensing distance Sn, mm (in.)	Function	Output	Connection	Catalog Number	Weight kg	(lb)
Ø 18, threaded M18 x 1						
Three-wire 12–24 V ⎓, flush mountable						
5 (0.19)	NO	PNP	Pre-cabled (L = 2 m) *(1)*	**XS118BLPAL2**	0.105	(0.23)
			M12 connector	**XS118BLPAM12**	0.035	(0.07)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS118BLNAL2**	0.105	(0.23)
			M12 connector	**XS118BLNAM12**	0.035	(0.07)
	NC	PNP	Pre-cabled (L = 2 m) *(1)*	**XS118BLPBL2**	0.105	(0.23)
			M12 connector	**XS118BLPBM12**	0.035	(0.07)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS118BLNBL2**	0.105	(0.23)
			M12 connector	**XS118BLNBM12**	0.035	(0.07)
Two-wire 24–240 V ∿, flush mountable						
5 (0.19)	NO		Pre-cabled (L = 2 m) *(1)*	**XS118BLFAL2**	0.120	(0.26)
Three-wire 12–24 V ⎓, non-flush mountable						
8 (0.31)	NO	PNP	Pre-cabled (L = 2 m) *(1)*	**XS218BLPAL2**	0.105	(0.23)
			M12 connector	**XS218BLPAM12**	0.035	(0.07)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS218BLNAL2**	0.105	(0.23)
			M12 connector	**XS218BLNAM12**	0.035	(0.07)
	NC	PNP	Pre-cabled (L = 2 m) *(1)*	**XS218BLPBL2**	0.105	(0.23)
			M12 connector	**XS218BLPBM12**	0.035	(0.07)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS218BLNBL2**	0.105	(0.23)
			M12 connector	**XS218BLNBM12**	0.035	(0.07)
Ø 30, threaded M30 x 1.5						
Three-wire 12–24 V ⎓, flush mountable						
10 (0.39)	NO	PNP	Pre-cabled (L = 2 m) *(1)*	**XS130BLPAL2**	0.165	(0.36)
			M12 connector	**XS130BLPAM12**	0.075	(0.16)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS130BLNAL2**	0.165	(0.36)
			M12 connector	**XS130BLNAM12**	0.075	(0.16)
	NC	PNP	Pre-cabled (L = 2 m) *(1)*	**XS130BLPBL2**	0.165	(0.36)
			M12 connector	**XS130BLPBM12**	0.075	(0.16)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS130BLNBL2**	0.165	(0.36)
			M12 connector	**XS130BLNBM12**	0.075	(0.16)
Two-wire 24–240 V ∿, flush mountable						
10 (0.39)	NO		Pre-cabled (L = 2 m) *(1)*	**XS130BLFAL2**	0.205	(0.45)
Three-wire 12–24 V ⎓, non-flush mountable						
15 (0.59)	NO	PNP	Pre-cabled (L = 2 m) *(1)*	**XS230BLPAL2**	0.155	(0.34)
			M12 connector	**XS230BLPAM12**	0.085	(0.18)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS230BLNAL2**	0.155	(0.34)
			M12 connector	**XS230BLNAM12**	0.085	(0.18)
	NC	PNP	Pre-cabled (L = 2 m) *(1)*	**XS230BLPBL2**	0.155	(0.34)
			M12 connector	**XS230BLPBM12**	0.085	(0.18)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS230BLNBL2**	0.155	(0.34)
			M12 connector	**XS230BLNBM12**	0.085	(0.18)

Accessories

Description		Catalog Number	Weight kg	(lb)
Mounting clamps	Ø 6.5	**XSZB165**	0.005	(0.01)
	Ø 8	**XSZB108**	0.006	(0.01)
	Ø 12	**XSZB112**	0.006	(0.01)
	Ø 18	**XSZB118**	0.010	(0.02)
	Ø 30	**XSZB130**	0.020	(0.04)

(1) For a 5 m cable replace L2 with L5; for a 10 m cable replace L2 with L10.
*Example: XS118BLPAL2 becomes **XS118BLPAL5** with a 5 m cable.*

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OsiSense® XS
Inductive proximity sensors

Basic, cylindrical, metal, flush and non-flush mountable
Two-wire, AC supply
Three-wire DC, solid-state output

Specifications

Sensor type			XS1●●BLP●L2 XS1●●BLN●L2	XS1●●BLP●M● XS1●●BLN●M●	XS2●●BLP●L2 XS2●●BLN●L2	XS2●●BLP●M● XS2●●BLN●M●	XS1●●BLFAL2
Product certifications			UL, CSA, CE				
Connection	Pre-cabled		Length 2 m	–	Length 2 m	–	Length 2 m
	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	Ø 6.5	**mm**	0–1.2 (0–0.04 in.)		–		–
	Ø 8	**mm**	0–1.2 (0–0.04 in.)		0–2 (0–0.07 in.)		–
	Ø 12	**mm**	0–1.6 (0–0.06 in.)		0–3.2 (0–0.12 in.)		0–1.6 (0–0.06 in.)
	Ø 18	**mm**	0–4 (0–0.15 in.)		0–6.4 (0–0.25 in.)		0–4 (0–0.15 in.)
	Ø 30	**mm**	0–8 (0–0.31 in.)		0–12 (0–0.47 in.)		0–8 (0–0.31 in.)
Differential travel		**%**	1–15 of real sensing distance (Sr)				
Degree of protection	Conforming to IEC 60529		IP 67				
Storage temperature		**°C**	- 40 to + 85 (-40 to +185 °F)				
Operating temperature		**°C**	- 25 to + 70 (-13 to +158 °F)				
Materials	Case		Nickel-plated brass				
	Cable		PVC 3 x 0.34 mm² (22 AWG) except Ø 6.5 and 8: 3 x 0.11 mm² (27 AWG)	–	PVC 3 x 0.34 mm² (22 AWG) except Ø 6.5 and 8: 3 x 0.11 mm² (27 AWG)	–	PVC 2 x 0.34 mm² (22 AWG)
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: 4 viewing ports at 90°	Yellow LED, on rear	Yellow LED: 4 viewing ports at 90°	Yellow LED, on rear
Rated supply voltage		**V**	⎓ 12–24 with protection against reverse polarity				∿ 24–240
Voltage limits (including ripple)		**V**	⎓ 10–36				∿ 20–264
Switching capacity		**mA**	⩽ 100 (except Ø 6.5 and 8: ⩽ 50) with overload and short-circuit protection				5–300 (5–200 for Ø 12) *(1)*
Voltage drop, closed state		**V**	⩽ 2				⩽ 4.5 (⩽ 7 for Ø 12)
Current consumption, no-load		**mA**	⩽ 10				–
Residual current, open state		**mA**	–				⩽ 1.5
Maximum switching frequency	Ø 6.5, Ø 8	**Hz**	3000				–
	Ø 12	**Hz**	2000		1000		25
	Ø 18	**Hz**	2000		250		25
	Ø 30	**Hz**	200		60		25
Delays	First-up	**ms**	⩽ 5 (except Ø 30 ⩽ 10)				⩽ 40
	Response	**ms**	⩽ 0.5 for Ø 8, Ø 12, ⩽ 1 for Ø 18, ⩽ 2 for Ø 30				⩽ 10
	Recovery	**ms**	⩽ 1 for Ø 8, ⩽ 0.5 for Ø 12, ⩽ 2 for Ø 18, ⩽ 6 for Ø 30				⩽ 15

(1) These sensors do not incorporate overload or short-circuit protection. A 0.4 A fast-acting fuse must be connected in series with the load.

Wiring diagrams

Connector

M8



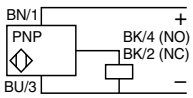
M12



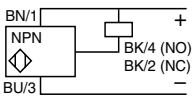
Pre-cabled

BU: Blue
BN: Brown
BK: Black

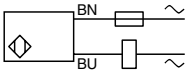
PNP



NPN



2-wire ∿



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OsiSense® XS
Inductive proximity sensors
Basic, cylindrical, metal, flush and non-flush mountable
Two-wire, AC supply
Three-wire DC, solid-state output

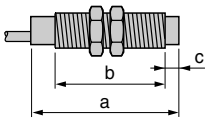
Setup

Minimum mounting distances (mm)



Sensors		Side by side	Face to face	Facing a metal object	Mounted in a metal support
Ø 6.5 flush mountable	XS106	e ≥ 3	e ≥ 18	e ≥ 4.5	d ≥ 6.5 h ≥ 0
Ø 8 flush mountable	XS108	e ≥ 3	e ≥ 18	e ≥ 4.5	d ≥ 8 h ≥ 0
Ø 8 non-flush mountable	XS208	e ≥ 10	e ≥ 30	e ≥ 7.5	d ≥ 24 h ≥ 5
Ø 12 flush mountable	XS112	e ≥ 4	e ≥ 24	e ≥ 6	d ≥ 12 h ≥ 0
Ø 12 non-flush mountable	XS212	e ≥ 16	e ≥ 48	e ≥ 12	d ≥ 36 h ≥ 8
Ø 18 flush mountable	XS118	e ≥ 10	e ≥ 60	e ≥ 15	d ≥ 18 h ≥ 0
Ø 18 non-flush mountable	XS218	e ≥ 16	e ≥ 96	e ≥ 24	d ≥ 54 h ≥ 16
Ø 30 flush mountable	XS130	e ≥ 20	e ≥ 120	e ≥ 30	d ≥ 30 h ≥ 0
Ø 30 non-flush mountable	XS230	e ≥ 60	e ≥ 180	e ≥ 45	d ≥ 90 h ≥ 30

Dimensions (mm)



Flush mountable in metal

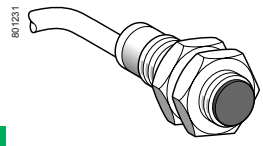
Sensors		Pre-cabled (mm)		M8 connector (mm)		M12 connector (mm)	
		a	b	a	b	a	b
Ø 6.5	XS106	42	–	–	–	–	–
Ø 8	XS108	42	39.4	52.2	41.3	61.4	39
Ø 12	XS112	41.3	38.7	–	–	53	39
Ø 18	XS118	51.3	48.4	–	–	64	48.5
Ø 30	XS130	51.3	48.4	–	–	64	48.5

Non-flush mountable in metal

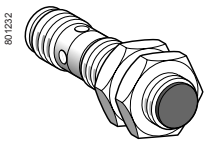
Sensors		Pre-cabled (mm)		M8 connector (mm)			M12 connector (mm)		
		a	b	a	b	c	a	b	c
Ø 8	XS208	42	35.8	52.2	37.7	4	61.4	35.4	4
Ø 12	XS212	41.3	34.1	–	–	–	52.6	34	5
Ø 18	XS218	50.6	40.4	–	–	–	63.4	40.5	8
Ø 30	XS230	50.6	35.4	–	–	–	63.4	35.5	13

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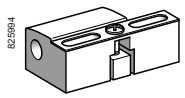
OsiSense® XS
Inductive proximity sensors
Basic, plastic, cylindrical, non-flush mountable
Three-wire DC, solid-state output



XS2●●AL●●L2



XS2●●AL●●M12



XSZB1●●

Sensing distance Sn, mm (in.)	Function	Output	Connection	Catalog Number	Weight kg	(lb)
Ø 8, threaded M8 x 1						
Three-wire ⎓ 12–24 V, non-flush mountable						
2.5 (0.09)	NO	PNP	Pre-cabled (L = 2 m) *(1)*	**XS208ALPAL2**	0.030	(0.06)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS208ALNAL2**	0.030	(0.06)
	NC	PNP	Pre-cabled (L = 2 m) *(1)*	**XS208ALPBL2**	0.003	(0.06)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS208ALNBL2**	0.030	(0.06)
Ø 12, threaded M12 x 1						
Three-wire 12–24 V ⎓, non-flush mountable						
4 (0.15)	NO	PNP	Pre-cabled (L = 2 m) *(2)*	**XS212ALPAL2**	0.065	(0.14)
			M12 connector	**XS212ALPAM12**	0.010	(0.02)
		NPN	Pre-cabled (L = 2 m) *(2)*	**XS212ALNAL2**	0.065	(0.14)
			M12 connector	**XS212ALNAM12**	0.010	(0.02)
	NC	PNP	Pre-cabled (L = 2 m) *(2)*	**XS212ALPBL2**	0.065	(0.14)
			M12 connector	**XS212ALPBM12**	0.010	(0.02)
		NPN	Pre-cabled (L = 2 m) *(2)*	**XS212ALNBL2**	0.065	(0.14)
			M12 connector	**XS212ALNBM12**	0.010	(0.02)
Ø 18, threaded M18 x 1						
Three-wire 12–24 V ⎓, non-flush mountable						
8 (0.31)	NO	PNP	Pre-cabled (L = 2 m) *(2)*	**XS218ALPAL2**	0.095	(0.20)
			M12 connector	**XS218ALPAM12**	0.025	(0.05)
		NPN	Pre-cabled (L = 2 m) *(2)*	**XS218ALNAL2**	0.095	(0.20)
			M12 connector	**XS218ALNAM12**	0.025	(0.05)
	NC	PNP	Pre-cabled (L = 2 m) *(2)*	**XS218ALPBL2**	0.095	(0.20)
			M12 connector	**XS218ALPBM12**	0.025	(0.05)
		NPN	Pre-cabled (L = 2 m) *(2)*	**XS218ALNBL2**	0.095	(0.20)
			M12 connector	**XS218ALNBM12**	0.025	(0.05)
Ø 30, threaded M30 x 1.5						
Three-wire 12–24 V ⎓, non-flush mountable						
15 (0.59)	NO	PNP	Pre-cabled (L = 2 m) *(2)*	**XS230ALPAL2**	0.135	(0.29)
			M12 connector	**XS230ALPAM12**	0.065	(0.14)
		NPN	Pre-cabled (L = 2 m) *(2)*	**XS230ALNAL2**	0.135	(0.29)
			M12 connector	**XS230ALNAM12**	0.065	(0.14)
	NC	PNP	Pre-cabled (L = 2 m) *(2)*	**XS230ALPBL2**	0.135	(0.29)
			M12 connector	**XS230ALPBM12**	0.065	(0.14)
		NPN	Pre-cabled (L = 2 m) *(2)*	**XS230ALNBL2**	0.135	(0.29)
			M12 connector	**XS230ALNBM12**	0.065	(0.14)

Accessories

Description		Catalog Number	Weight kg	(lb)
Mounting clamps	Ø 8	**XSZB108**	0.006	(0.01)
	Ø 12	**XSZB112**	0.006	(0.01)
	Ø 18	**XSZB118**	0.010	(0.02)
	Ø 30	**XSZB130**	0.020	(0.04)

(1) For a 5 m cable replace L2 with L5.
*Example: XS208ALPAL2 becomes **XS208ALPAL5** with a 5 m cable.*
(2) For a 5 m cable replace L2 with L5; for a 10 m cable replace L2 by L10.
*Example: XS218ALPAL2 becomes **XS218ALPAL5** with a 5 m cable.*

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OsiSense® XS
Inductive proximity sensors
Basic, plastic, cylindrical, non-flush mountable
Three-wire DC, solid-state output

Specifications

Sensor type			XS2●●ALP●L2 XS2●●ALN●L2	XS2●●ALP●M12 XS2●●ALN●M12
Product certifications			UL, CSA, CE	
Connection	Pre-cabled		Length: 2 m	–
	Connector		–	M12
Operating zone	Ø 8	**mm**	0–2 (0–0.07 in.)	
	Ø 12	**mm**	0–3.2 (0–0.12 in.)	
	Ø 18	**mm**	0–6.4 (0–0.25 in.)	
	Ø 30	**mm**	0–12 (0–0.47 in.)	
Differential travel		**%**	1–15 of real sensing distance (Sr)	
Degree of protection	Conforming to IEC 60529		IP 67	
Storage temperature		**°C**	-40 to +85 (-40 to +185 °F)	
Operating temperature		**°C**	-25 to +70 (-13 to +158 °F)	
Materials	Case		PPS	
	Cable		PVC 3 x 0.34 mm² (22 AWG) except Ø 8: 3 x 0.11 mm² (27 AWG)	–
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: 4 viewing ports at 90°
Rated supply voltage		**V**	⎓ 12–24 with protection against reverse polarity	
Voltage limits (including ripple)		**V**	⎓ 10–36	
Switching capacity		**mA**	≤ 100 (except Ø 8: ≤ 50) with overload and short-circuit protection	
Voltage drop, closed state		**V**	≤ 2	
Current consumption, no-load		**mA**	≤ 10	
Maximum switching frequency	Ø 8	**Hz**	3000	
	Ø 12	**Hz**	1000	
	Ø 18	**Hz**	250	
	Ø 30	**Hz**	60	
Delays	First-up	**ms**	≤ 5 (except Ø 30: ≤ 10)	
	Response	**ms**	≤ 0.5 for Ø 8, Ø 12, ≤ 1 for Ø 18, ≤ 2 for Ø 30	
	Recovery	**ms**	≤ 1 for Ø 8, ≤ 0.5 for Ø 12, ≤ 2 for Ø 18, ≤ 6 for Ø 30	

Wiring diagrams

Connector

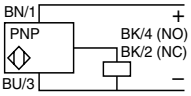
M12



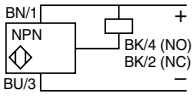
Pre-cabled

BU: Blue
BN: Brown
BK: Black

PNP

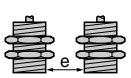


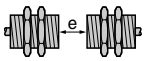
NPN

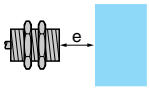


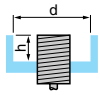
Setup

Minimum mounting distances (mm)



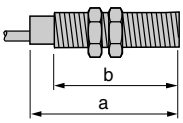






Sensors		Side by side	Face to face	Facing a metal object	Mounted in a metal support
Ø 8	**XS208AL**	e > 10	e > 30	e > 7.5	d > 24 h > 5
Ø 12	**XS212AL**	e > 16	e > 48	e > 12	d > 36 h > 8
Ø 18	**XS218AL**	e > 16	e > 96	e > 24	d > 54 h > 16
Ø 30	**XS230AL**	e > 60	e > 180	e > 45	d > 90 h > 30

Dimensions (mm)

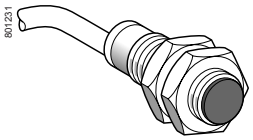


Non-flush mountable in metal

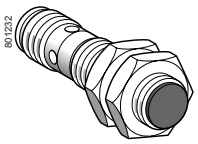
Sensors		Pre-cabled (mm)		Connector (mm)	
		a	**b**	**a**	**b**
Ø 8	XS208AL	49	40	–	–
Ø 12	XS212AL	49	42	61	42
Ø 18	XS218AL	58.8	51.5	70.3	51.5
Ø 30	XS230AL	58.8	51.5	70.3	51.5

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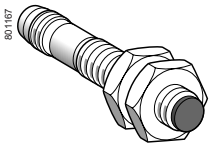
OsiSense® XS
Inductive proximity sensors
General purpose
Plastic, cylindrical, non-flush mountable
Two-wire AC or DC
Three-wire DC, solid-state output



XS4P●●●●340
XS4P●●●●370
XS4P●●●●230



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



XS4P08●●340S

Sensing dist. Sn, mm (in.)	Function	Output	Connection	Catalog Number	Weight kg	(lb)
Ø 8, threaded M8 x 1						
Three-wire ⎓ 12-24 V						
2.5 (0.10)	NO	PNP	Pre-cabled (L = 2 m) *(1) (2)*	**XS4P08PA340**	0.025	(0.06)
		NPN	Pre-cabled (L = 2 m) *(1) (2)*	**XS4P08NA340**	0.025	(0.06)
	NC	PNP	Pre-cabled (L = 2 m) *(1) (2)*	**XS4P08PB340**	0.025	(0.06)
		NPN	Pre-cabled (L = 2 m) *(1) (2)*	**XS4P08NB340**	0.025	(0.06)
Three-wire ⎓ 12-48 V						
2.5 (0.10)	NO	PNP	Pre-cabled (L = 2 m) *(1)*	**XS4P08PA370**	0.030	(0.07)
		NPN	Pre-cabled (L = 2 m)	**XS4P08NA370**	0.030	(0.07)
	NC	PNP	Pre-cabled (L = 2 m)	**XS4P08PB370**	0.030	(0.07)
		NPN	Pre-cabled (L = 2 m)	**XS4P08NB370**	0.030	(0.07)
Two-wire ∿ or ⎓ 24-240 V						
2.5 (0.10)	NO		Pre-cabled (L = 2 m) *(1)*	**XS4P08MA230**	0.030	(0.07)
			1/2"-20UNF connector	**XS4P08MA230K**	0.020	(0.04)
	NC		Pre-cabled (L = 2 m) *(1)*	**XS4P08MB230**	0.030	(0.07)
			1/2"-20UNF connector	**XS4P08MB230K**	0.020	(0.04)
Ø 12, threaded M12 x 1						
Three-wire ⎓ 12-24 V						
4 (0.16)	NO	PNP	Pre-cabled (L = 2 m) *(1) (3)*	**XS4P12PA340**	0.060	(0.13)
		NPN	Pre-cabled (L = 2 m) *(1) (3)*	**XS4P12NA340**	0.060	(0.13)
	NC	PNP	Pre-cabled (L = 2 m) *(1) (3)*	**XS4P12PB340**	0.060	(0.13)
		NPN	Pre-cabled (L = 2 m) *(1) (3)*	**XS4P12NB340**	0.060	(0.13)
Three-wire ⎓ 12-48 V						
4 (0.16)	NO	PNP	Pre-cabled (L = 2 m) *(1) (3)*	**XS4P12PA370**	0.065	(0.14)
		NPN	Pre-cabled (L = 2 m) *(1) (3)*	**XS4P12NA370**	0.065	(0.14)
	NC	PNP	Pre-cabled (L = 2 m) *(1) (3)*	**XS4P12PB370**	0.065	(0.14)
		NPN	Pre-cabled (L = 2 m) *(3)*	**XS4P12NB370**	0.065	(0.14)
Two-wire ∿ or ⎓ 24-240 V						
4 (0.16)	NO		Pre-cabled (L = 2 m) *(1)*	**XS4P12MA230**	0.065	(0.14)
			1/2"-20UNF connector	**XS4P12MA230K**	0.030	(0.07)
	NC		Pre-cabled (L = 2 m) *(1)*	**XS4P12MB230**	0.065	(0.14)
			1/2"-20UNF connector	**XS4P12MB230K**	0.030	(0.07)
Ø 18, threaded M18 x 1						
Three-wire ⎓ 12-24 V						
8 (0.31)	NO	PNP	Pre-cabled (L = 2 m) *(1) (3)*	**XS4P18PA340**	0.090	(0.20)
		NPN	Pre-cabled (L = 2 m) *(1) (3)*	**XS4P18NA340**	0.090	(0.20)
	NC	PNP	Pre-cabled (L = 2 m) *(1) (3)*	**XS4P18PB340**	0.090	(0.20)
		NPN	Pre-cabled (L = 2 m) *(1) (3)*	**XS4P18NB340**	0.090	(0.20)
Three-wire ⎓ 12-48 V						
8 (0.31)	NO	PNP	Pre-cabled (L = 2 m) *(1) (3)*	**XS4P18PA370**	0.100	(0.22)
		NPN	Pre-cabled (L = 2 m) *(1) (3)*	**XS4P18NA370**	0.100	(0.22)
	NC	PNP	Pre-cabled (L = 2 m) *(1) (3)*	**XS4P18PB370**	0.100	(0.22)
		NPN	Pre-cabled (L = 2 m) *(3)*	**XS4P18NB370**	0.100	(0.22)
Two-wire ∿ or ⎓ 24-240 V						
8 (0.31)	NO		Pre-cabled (L = 2 m) *(1)*	**XS4P18MA230**	0.100	(0.22)
			1/2"-20UNF connector	**XS4P18MA230K**	0.040	(0.88)
	NC		Pre-cabled (L = 2 m) *(1)*	**XS4P18MB230**	0.100	(0.22)
			1/2"-20UNF connector	**XS4P18MB230K**	0.040	(0.88)
Ø 30, threaded M30 x 1.5						
Three-wire ⎓ 12-24 V						
15 (0.59)	NO	PNP	Pre-cabled (L = 2 m) *(1) (3)*	**XS4P30PA340**	0.120	(0.26)
		NPN	Pre-cabled (L = 2 m) *(1) (3)*	**XS4P30NA340**	0.120	(0.26)
	NC	PNP	Pre-cabled (L = 2 m) *(1) (3)*	**XS4P30PB340**	0.120	(0.26)
		NPN	Pre-cabled (L = 2 m) *(1) (3)*	**XS4P30NB340**	0.120	(0.26)
Three-wire ⎓ 12-48 V						
15 (0.59)	NO	PNP	Pre-cabled (L = 2 m) *(1) (3)*	**XS4P30PA370**	0.140	(0.31)
		NPN	Pre-cabled (L = 2 m) *(1) (3)*	**XS4P30NA370**	0.140	(0.31)
	NC	PNP	Pre-cabled (L = 2 m) *(3)*	**XS4P30PB370**	0.140	(0.31)
		NPN	Pre-cabled (L = 2 m) *(3)*	**XS4P30NB370**	0.140	(0.31)
Two-wire ∿ or ⎓						
15 (0.59)	NO		Pre-cabled (L = 2 m) *(1)*	**XS4P30MA230**	0.140	(0.31)
			1/2"-20UNF connector	**XS4P30MA230K**	0.080	(0.18)
	NC		Pre-cabled (L = 2 m) *(1)*	**XS4P30MB230**	0.140	(0.31)
			1/2"-20UNF connector	**XS4P30MB230K**	0.080	(0.18)

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

Schneider Electric

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Specifications, Wiring Diagrams, Setup, dimensions

OsiSense® XS
Inductive proximity sensors
General purpose
Plastic, cylindrical, non-flush mountable
Two-wire AC or DC
Three-wire DC, solid-state output

Specifications

Sensor type			XS4P●●●●340p	XS4P●●●●370●	XS4P●●M●230●
Product certifications			UL, CSA, CE		
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 6.5 and Ø 8	mm	**0–2 (0–0.08 in.)**		
	Ø 12	mm	**0–3.2 (0–0.13 in.)**		
	Ø 18	mm	**0–6.4 (0–0.25 in.)**		
	Ø 30	mm	**0–12 (0–0.47 in.)**		
Differential travel		%	1–15 of effective sensing distance (Sr)		
Degree of protection	Conforming to IEC 60529		IP 68, double insulation for pre-cabled version (except Ø 8: IP 67) IP 67 for connector version		
Storage temperature		°C	-40 to +85 (-40 to +185 °F)		
Operating temperature		°C	-25 to +70 (-13 to +158 °F)		
Materials	Case		PPS		
	Cable		PvR 3 x 0.34 mm² (24 AWG) except Ø 6.5 and 8: 3 x 0.11 mm² (26 AWG)		PvR 2 x 0.34 mm² (24 AWG) except Ø 8: 2 x 0.11 mm² (26 AWG)
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	⎓ 12–48 with protection against reverse polarity	∿ or ⎓ 24–240 (50/60 Hz)
Voltage limits (including ripple)		V	⎓ 10–36	⎓ 10–58	∿ or ⎓ 20–264
Switching capacity		mA	≤ 200 with overload and short-circuit protection		5–100 for Ø 8, 5–200 for Ø 12, 5–200 ⎓ and 5–300 ∿ for Ø 18 and 30
Voltage drop, closed state		V	≤ 2		≤ 5.5
Residual current, open state		mA	–		≤ 0.6
Current consumption, no-load		mA	≤ 10		–
Maximum switching frequency	Ø 6.5, Ø 8 and Ø 12	Hz	5000		⎓ 3000, ∿ 25
	Ø 18	Hz	2000		⎓ 2000, ∿ 25
	Ø 30	Hz	1000		⎓ 1000, ∿ 25
Delays	First-up	ms	≤ 10		≤ 40
	Response	ms	≤ 0.1 for Ø 8 and Ø 12, ≤ 0.15 for Ø 18, ≤ 0.3 for Ø 30		≤ 0.2
	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 diagrams

Connector

M8



M12



1/2"-20UNF

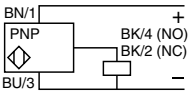


∿: 2
∿: 3

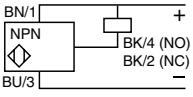
Pre-cabled

BU: Blue
BN: Brown
BK: Black

PNP

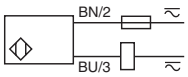


NPN



For M8 connector, NO and NC outputs are on terminal 4

2-wire ∿ or ⎓

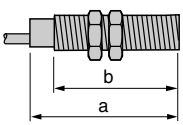


Setup

Minimum mounting distances (mm)

	Side by side	Face to face	Facing a metal object	Mounted in a metal support
Ø 8	e ≥ 10	e ≥ 30	e ≥ 7.5	d ≥ 24 h ≥ 5
Ø 12	e ≥ 16	e ≥ 48	e ≥ 12	d ≥ 36 h ≥ 8
Ø 18	e ≥ 16	e ≥ 96	e ≥ 24	d ≥ 54 h ≥ 16
Ø 30	e ≥ 60	e ≥ 180	e ≥ 45	d ≥ 90 h ≥ 30

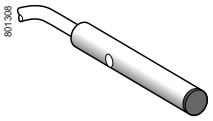
Dimensions (mm)



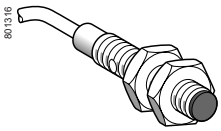
XS4P	3-wire ⎓ 12-24 V				3-wire ⎓ 12-48 V or 2-wire ∿/⎓ 24-240 V			
	Pre-cabled (mm)		Connector (mm)		Pre-cabled (mm)		Connector (mm)	
	a	b	a	b	a	b	a	b
Ø 8	33	26	42	26	50	40	61	40
Ø 12	35	24.6	48	27	52	41.6	61	42
Ø 18	35.3	24.6	48	29	61.8	51.1	70	51.5
Ø 30	42.3	31.6	50	34	61.8	51.1	70	51.5

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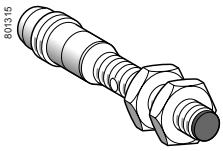
OsiSense® XS
Inductive proximity sensors
General purpose
Miniature, cylindrical, flush and non-flush mountable
Three-wire DC, solid-state output



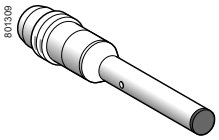
XS1L04●●310



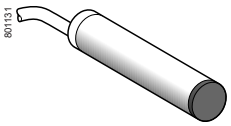
XS1N05●●310



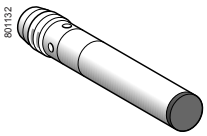
XS1N05●●311S



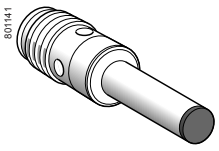
XS1L04●●310S



XS●L06●●340



XS●L06●●340S
XS●L06●●349S



XS●L06●●340D

Ø 4 plain

Sensing distance Sn, mm (in.)	Function	Output	Connection (1)	Catalog Number	Weight kg	(lb)
Brass case, flush mountable						
1 (0.04)	NO	PNP	Pre-cabled (L = 2 m)	**XS1L04PA310**	0.025	(0.06)
			M8 connector	**XS1L04PA310S**	0.010	(0.02)
		NPN	Pre-cabled (L = 2 m)	**XS1L04NA310**	0.025	(0.06)
			M8 connector	**XS1L04NA310S**	0.010	(0.02)
	NC	PNP	Pre-cabled (L = 2 m)	**XS1L04PB310**	0.025	(0.06)
			M8 connector	**XS1L04PB310S**	0.010	(0.02)
		NPN	Pre-cabled (L = 2 m)	**XS1L04NB310**	0.025	(0.06)
			M8 connector	**XS1L04NB310S**	0.010	(0.02)
Stainless steel case, flush mountable						
0.8 (0.03)	NO	PNP	Pre-cabled (L = 2 m)	**XS1L04PA311**	0.025	(0.06)
			M8 connector	**XS1L04PA311S**	0.010	(0.02)
		NPN	Pre-cabled (L = 2 m)	**XS1L04NA311**	0.025	(0.06)
			M8 connector	**XS1L04NA311S**	0.010	(0.02)
	NC	PNP	Pre-cabled (L = 2 m)	**XS1L04PB311**	0.025	(0.06)
			M8 connector	**XS1L04PB311S**	0.010	(0.02)
		NPN	Pre-cabled (L = 2 m)	**XS1L04NB311**	0.025	(0.06)
			M8 connector	**XS1L04NB311S**	0.010	(0.02)

Ø 5, threaded M5 x 0.5

Sensing distance Sn, mm (in.)	Function	Output	Connection (1)	Catalog Number	Weight kg	(lb)
Brass case, flush mountable						
1 (0.04)	NO	PNP	Pre-cabled (L = 2 m)	**XS1N05PA310**	0.030	(0.07)
		NPN	Pre-cabled (L = 2 m)	**XS1N05NA310**	0.030	(0.07)
	NC	PNP	Pre-cabled (L = 2 m)	**XS1N05PB310**	0.030	(0.07)
		NPN	Pre-cabled (L = 2 m)	**XS1N05NB310**	0.030	(0.07)
Stainless steel case, flush mountable						
0.8 (0.03)	NO	PNP	Pre-cabled (L = 2 m)	**XS1N05PA311**	0.030	(0.07)
			M8 connector	**XS1N05PA311S**	0.015	(0.03)
		NPN	Pre-cabled (L = 2 m)	**XS1N05NA311**	0.030	(0.07)
			M8 connector	**XS1N05NA311S**	0.015	(0.03)
	NC	PNP	Pre-cabled (L = 2 m)	**XS1N05PB311**	0.030	(0.07)
			M8 connector	**XS1N05PB311S**	0.015	(0.03)
		NPN	Pre-cabled (L = 2 m)	**XS1N05NB311**	0.030	(0.07)
			M8 connector	**XS1N05NB311S**	0.015	(0.03)

Ø 6.5 plain

Sensing distance Sn, mm (in.)	Function	Output	Connection (1)	Catalog Number	Weight kg	(lb)
Stainless steel case, non-flush mountable						
2.5 (0.10)	NO	PNP	Pre-cabled (L = 2 m)	**XS2L06PA340**	0.025	(0.06)
			M8 connector	**XS2L06PA340S**	0.010	(0.02)
			M12 connector	**XS2L06PA340D**	0.015	(0.03)
		NPN	Pre-cabled (L = 2 m)	**XS2L06NA340**	0.025	(0.06)
			M8 connector	**XS2L06NA340S**	0.010	(0.02)
			M12 connector	**XS2L06NA340D**	0.015	(0.03)
	NC	PNP	Pre-cabled (L = 2 m)	**XS2L06PB340**	0.025	(0.06)
			M8 connector	**XS2L06PB340S**	0.010	(0.02)
			M12 connector	**XS2L06PB340D**	0.015	(0.03)
		NPN	Pre-cabled (L = 2 m)	**XS2L06NB340**	0.025	(0.06)
			M8 connector	**XS2L06NB340S**	0.010	(0.02)
			M12 connector	**XS2L06NB340D**	0.015	(0.03)

(1) For a 5 m cable add L1 to the catalog number; for a 10 m cable add L2 .Example:
XS1L04PA310 *becomes* ***XS1L04PA310L1*** *with a 5 m cable.*

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OsiSense® XS
Inductive proximity sensors
General purpose
Miniature, cylindrical, flush and non-flush mountable
Three-wire DC, solid-state output

Specifications

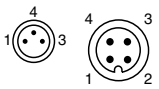
Sensor type			XS1●●●●●●●●S; XS1●●●●●●●●D; XS2L06●A340●	XS1●●●●●●●; XS2L06●A340
Product certifications			UL, CSA, CE	
Connection *(1)*	Connector		M8 on **XS1●●●●●●●●S** and M12 on **XS1●●●●●●●●D**	–
	Pre-cabled		–	Length: 2 m
Operating zone	Ø 4	**mm (in.)**	**0–0.8 (0–0.03) (brass) 0–0.6 (0–0.02) (stainless steel)**	
	Ø 5	**mm (in.)**	**0–0.8 (0–0.03) (brass), 0–0.6 (0–0.02) (stainless steel)**	
	Ø 6.5 non-flush mountable	**mm (in.)**	**0–2 (0.08) (stainless steel)**	
Degree of protection	Conforming to IEC 60529		IP 67	
Storage temperature		**°C (°F)**	-40 to +85 (-40 to +185)	
Operating temperature		**°C (°F)**	-25 to +70 (-13 to +158)	
Materials	Case		Nickel-plated brass or stainless steel, grade 303	
	Cable		PvR 3 x 0.11 mm² (26 AWG) or 4 x 0.08 mm² (20 AWG)	
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**	⎓ 5–24 for **XS1L04●●●●●●** and **XS1N05●●●●●●** ⎓ 12–24 for **XS●L06●●●●●●**	
Voltage limits (including ripple)		**V**	⎓ 5–30 for **XS1L04●●●●●●** and **XS1N05●●●●●●** ⎓ 10–38 for **XS●L06●●●●●●**	
Current consumption, no-load		**mA**	≤ 10	
Switching capacity	3-wire PNP/NPN	**mA**	≤ 100 with overload and short-circuit protection ≤ 200 for **XS●L06** 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 2/135.

Wiring diagrams

Connector

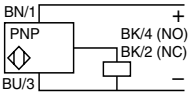
M8 M12



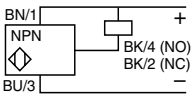
Pre-cabled

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

PNP 3-wire



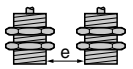
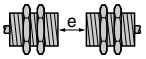
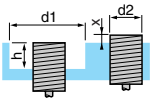
NPN 3-wire



For M8 connector, NO and NC outputs are on terminal 4.

Setup

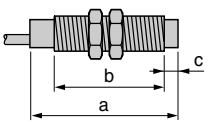
Minimum mounting distances (mm)

Sensor	Side by side		Face to face		Facing a metal object			
Ø 4		e ≥ 2		e ≥ 12		e ≥ 3		d1 ≥ 4, h ≥ 0 –
Ø 5		e ≥ 2		e ≥ 12		e ≥ 3		d1 ≥ 5, h ≥ 0 –
Ø 6.5		e ≥ 3		e ≥ 18		e ≥ 4.5		d1 ≥ 3, h ≥ 0 –
Ø 6.5, XS2L06●A340●		e ≥ 5		e ≥ 30		e ≥ 7.5		d1 ≥ 10, h ≥ 1.6 d2 ≥ 6.5, x ≥ 1.3

Tightening torque

Stainless steel: 2.2 N•m (19.47 lb-in)
Brass: 1.6 N•m (14.16 lb-in)

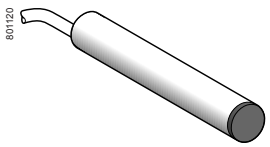
Dimensions (mm)



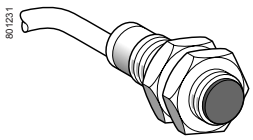
Sensor	Pre-cabled			M8 connector			M12 connector		
	a	b	c	a	b	c	a	b	c
Ø 4	29	29	–	41	24	–	–	–	–
Ø 5	29	29	–	41	24	–	–	–	–
Ø 6.5	33	30	–	42	34	–	45	24	–
Ø 6.5, XS2L06●A340●	33	27	3	46	35	3	49	25	3

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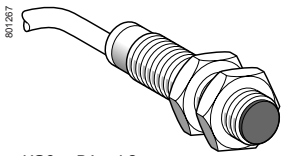
OsiSense® XS
Inductive proximity sensors
General purpose
Cylindrical, increased range, flush mountable
Two-wire DC, solid-state output



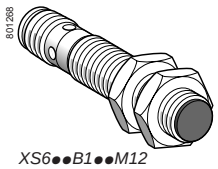
XS606B3●●L2



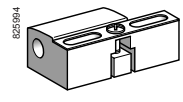
XS612B3●●L2



XS6●●B1●●L2



XS6●●B1●●M12



XSZB1●●

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

Sensing dist. Sn, mm (in.)	Function	Connection	Catalog Number	Weight kg	(lb)
Ø 6.5, plain					
2.5 (0.10)	NO	Pre-cabled (L = 2 m) *(1)*	**XS606B3CAL2**	0.060	(0.13)
		Remote M12 connector	**XS606B3CAL01M12**	0.070	(0.15)
	NC	Pre-cabled (L = 2 m) *(1)*	**XS606B3CBL2**	0.060	(0.13)
Ø 8, threaded M8 x 1					
2.5 (0.10)	NO	Pre-cabled (L = 2 m) *(1)*	**XS608B3CAL2**	0.070	(0.15)
		Remote M12 connector	**XS608B3CAL01M12**	0.070	(0.15)
	NC	Pre-cabled (L = 2 m) *(1)*	**XS608B3CBL2**	0.070	(0.15)
		Remote M12 connector	**XS608B3CBL01M12**	0.070	(0.15)
Ø 12, threaded M12 x 1					
4 (0.16)	NO	Pre-cabled (L = 2 m) *(1)*	**XS612B3DAL2**	0.090	(0.20)
		M12 connector	**XS612B3DAM12**	0.030	(0.07)
	NC	Pre-cabled (L = 2 m) *(1)*	**XS612B3DBL2**	0.090	(0.20)
		M12 connector	**XS612B3DBM12**	0.030	(0.07)
Ø 18, threaded M18 x 1					
8 (0.31)	NO	Pre-cabled (L = 2 m) *(1)*	**XS618B3DAL2**	0.110	(0.24)
		M12 connector	**XS618B3DAM12**	0.060	(0.13)
	NC	Pre-cabled (L = 2 m) *(1)*	**XS618B3DBL2**	0.110	(0.24)
		M12 connector	**XS618B3DBM12**	0.060	(0.13)
Ø 30, threaded M30 x 1.5					
15 (0.59)	NO	Pre-cabled (L = 2 m) *(1)*	**XS630B3DAL2**	0.180	(0.40)
		M12 connector	**XS630B3DAM12**	0.130	(0.29)
	NC	Pre-cabled (L = 2 m) *(1)*	**XS630B3DBL2**	0.180	(0.40)
		M12 connector	**XS630B3DBM12**	0.180	(0.40)

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

Sensing dist. Sn, mm (in.)	Function	Connection	Catalog Number	Weight kg	(lb)
Ø 6.5, plain					
2.5 (0.10)	NO	Pre-cabled (L = 2 m) *(1)*	**XS606B1DAL2**	0.060	(0.13)
	NC	Pre-cabled (L = 2 m) *(1)*	**XS606B1DBL2**	0.060	(0.13)
Ø 8, threaded M8 x 1					
2.5 (0.10)	NO	Pre-cabled (L = 2 m) *(1)*	**XS608B1DAL2**	0.035	(0.08)
		M12 connector	**XS608B1DAM12**	0.015	(0.03)
	NC	Pre-cabled (L = 2 m) *(1)*	**XS608B1DBL2**	0.035	(0.08)
		M12 connector	**XS608B1DBM12**	0.015	(0.03)
Ø 12, threaded M12 x 1					
4 (0.16)	NO	Pre-cabled (L = 2 m) *(1)*	**XS612B1DAL2**	0.180	(0.40)
		M12 connector	**XS612B1DAM12**	0.020	(0.44)
	NC	Pre-cabled (L = 2 m) *(1)*	**XS612B1DBL2**	0.075	(0.17)
		M12 connector	**XS612B1DBM12**	0.020	(0.44)
Ø 18, threaded M18 x 1					
8 (0.31)	NO	Pre-cabled (L = 2 m) *(1)*	**XS618B1DAL2**	0.100	(0.22)
		M12 connector	**XS618B1DAM12**	0.040	(0.09)
	NC	Pre-cabled (L = 2 m) *(1)*	**XS618B1DBL2**	0.100	(0.22)
		M12 connector	**XS618B1DBM12**	0.040	(0.09)
Ø 30, threaded M30 x 1.5					
15 (0.59)	NO	Pre-cabled (L = 2 m) *(1)*	**XS630B1DAL2**	0.205	(0.45)
		M12 connector	**XS630B1DAM12**	0.145	(0.32)
	NC	Pre-cabled (L = 2 m) *(1)*	**XS630B1DBL2**	0.205	(0.45)
		M12 connector	**XS630B1DBM12**	0.145	(0.32)

Accessories

Description	For use with sensors	Catalog Number	Weight kg	(lb)
Mounting clamps	Ø 6.5 (plain)	**XSZB165**	0.005	(0.01)
	Ø 8 (M8 x 1)	**XSZB108**	0.006	(0.01)
	Ø 12 (M12 x 1)	**XSZB112**	0.006	(0.01)
	Ø 18 (M18 x 1)	**XSZB118**	0.010	(0.02)
	Ø 30 (M30 x 1.5)	**XSZB130**	0.020	(0.04)

*(1) For a 5 m cable replace L2 with **L5**.*
*Example: XS606B3CAL2 becomes **XS606B3CAL5** with a 5 m cable.*

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OsiSense® XS
Inductive proximity sensors
General purpose
Cylindrical, increased range, flush mountable
Two-wire DC, solid-state output

Specifications

Sensor type			XS6●●B3D●M12, XS6●●B1D●M12	XS6●●B3D●L2, XS6●●B1D●L2
Product certifications			UL, CSA, CE	
Connection	Connector		M12 or remote M12 connector (L01M12) on 0.15 m pigtail connector	
	Pre-cabled		Length 2 m	
Operating zone	Ø 6.5 and Ø 8	mm	0–2 (0–0.08 in.)	
	Ø 12	mm	0–3.2 (0–0.13 in.)	
	Ø 18	mm	0–6.4 (0–0.25 in.)	
	Ø 30	mm	0–12 (0–0.47 in.)	
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 double isolation ⧈ (except Ø 6.5 and Ø 8: IP 67)
	Conforming to DIN 40050		IP 69K	
Storage temperature		°C	-40 to +85 (-40 to +185 °F)	
Operating temperature		°C	-25 to +70 (-13 to +158 °F)	
Materials	Case		Nickel-plated brass (except **XS606B1D** or **XS608B1D**: stainless steel, grade 303)	
	Sensing face		PPS	
	Cable		PvR 2 x 0.34 mm² (22 AWG) except Ø 6.5 and Ø 8: 2 x 0,11 mm² (27 AWG)	
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-polarized for XS6●●B1D, ⎓ 12–24 non-polarized for XS6●●B3D (except Ø 6.5 and Ø 8 short case models: polarized), with protection against reverse polarity	
Voltage limits (including ripple)		V	⎓ 10–58 for XS6●●B1D ⎓ 10–36 for XS6●●B3D	
Switching capacity		mA	≤ 100 with overload and short-circuit protection	
Voltage drop, closed state		V	4	
Current consumption, no-load		mA	≤ 0.5 mA	
Maximum switching frequency	Ø 6.5, Ø 8	Hz	3000	
	Ø 12	Hz	2000	
	Ø 18	Hz	1000	
	Ø 30	Hz	500	
Delays	First-up	ms	≤ 10	
	Response	ms	≤ 0.3	
	Recovery	ms	≤ 0.3	

Wiring diagrams

M12 connector

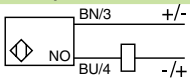


Pre-cabled

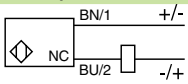
BU: Blue
BN: Brown

2-wire c non-polarized

NO output

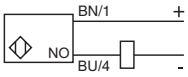


NC output

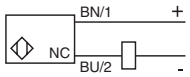


2-wire c polarized

XS6ppB3CA

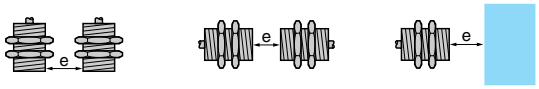


XS6ppB3CB



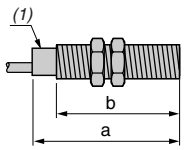
Setup

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 ≥ 50	e ≥ 12
Ø 18	e ≥ 16	e ≥ 100	e ≥ 25
Ø 30	e ≥ 30	e ≥ 180	e ≥ 45

Dimensions (mm)

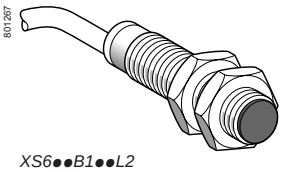


(1) LED

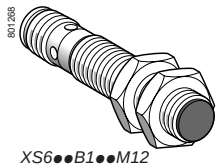
Sensors		Pre-cabled (mm)		M12 connector (mm)	
Short case model		**a**	**b**	**a**	**b**
Ø 6.5	**XS606B3D**	33	–	–	–
Ø 8	**XS608B3D**	33	25	–	24
Ø 12	**XS612B3D**	35	25	50	30
Ø 18	**XS618B3D**	39	28	50	28
Ø 30	**XS630B3D**	43	32	55	32
Long case model		**a**	**b**	**a**	**b**
Ø 6.5	**XS606B1D**	51	–	–	–
Ø 8	**XS608B1D**	51	42	62	40
Ø 12	**XS612B1D**	53	42	62	42
Ø 18	**XS618B1D**	62	52	74	52
Ø 30	**XS630B1D**	62	52	74	52

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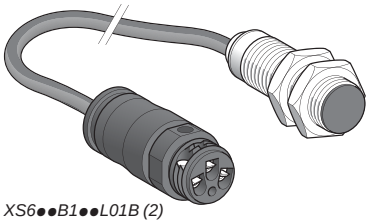
OsiSense® XS
Inductive proximity sensors
General purpose
Cylindrical, increased range, flush mountable
Three-wire DC, solid-state output

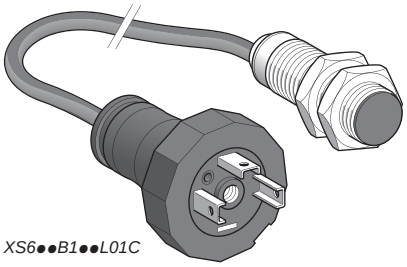


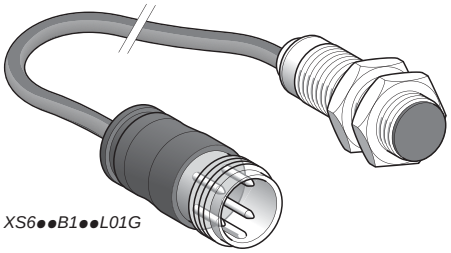
XS6●●B1●●L2

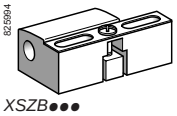


XS6●●B1●●M12


XS6●●B1●●L01B (2)


XS6●●B1●●L01C


XS6●●B1●●L01G



XSZB●●●

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

Sensing dist. Sn, mm (in.)	Function	Output	Connection	Catalog Number	Weight kg	(lb)
Ø 8, threaded M8 x 1						
2.5 (0.10)	NO	PNP	Pre-cabled (L = 2 m) *(1)*	**XS608B1PAL2**	0.035	(0.08)
			M12 connector	**XS608B1PAM12**	0.015	(0.03)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS608B1NAL2**	0.035	(0.08)
			M12 connector	**XS608B1NAM12**	0.015	(0.03)
	NC	PNP	Pre-cabled (L = 2 m) *(1)*	**XS608B1PBL2**	0.035	(0.08)
			M12 connector	**XS608B1PBM12**	0.015	(0.03)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS608B1NBL2**	0.035	(0.08)
			M12 connector	**XS608B1NBM12**	0.015	(0.03)
Ø 12, threaded M12 x 1						
4 (0.16)	NO	PNP	Pre-cabled (L = 2 m) *(1)*	**XS612B1PAL2**	0.075	(0.17)
			M12 connector	**XS612B1PAM12**	0.020	(0.04)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS612B1NAL2**	0.075	(0.17)
			M12 connector	**XS612B1NAM12**	0.020	(0.04)
	NC	PNP	Pre-cabled (L = 2 m) *(1)*	**XS612B1PBL2**	0.075	(0.17)
			M12 connector	**XS612B1PBM12**	0.020	(0.04)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS612B1NBL2**	0.075	(0.17)
			M12 connector	**XS612B1NBM12**	0.020	(0.04)
Ø 18, threaded M18 x 1						
8 (0.31)	NO	PNP	Pre-cabled (L = 2 m) *(1)*	**XS618B1PAL2**	0.100	(0.22)
			M12 connector	**XS618B1PAM12**	0.040	(0.09)
			Remote screw term. connector	**XS618B1PAL01B** *(2)*	0.100	(0.22)
			Remote DIN 43650 connector	**XS618B1PAL01C**	0.100	(0.22)
			Remote M18 connector	**XS618B1PAL01G**	0.100	(0.22)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS618B1NAL2**	0.100	(0.22)
			M12 connector	**XS618B1NAM12**	0.040	(0.09)
			Remote screw term. connector	**XS618B1NAL01B** *(2)*	0.100	(0.22)
			Remote DIN 43650 connector	**XS618B1NAL01C**	0.100	(0.22)
	NC	PNP	Pre-cabled (L = 2 m) *(1)*	**XS618B1PBL2**	0.100	(0.22)
			M12 connector	**XS618B1PBM12**	0.040	(0.09)
			Remote screw term. connector	**XS618B1PBL01B** *(2)*	0.100	(0.22)
			Remote DIN 43650 connector	**XS618B1PBL01C**	0.100	(0.22)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS618B1NBL2**	0.100	(0.22)
			M12 connector	**XS618B1NBM12**	0.040	(0.09)
			Remote screw term. connector	**XS618B1NBL01B** *(2)*	0.100	(0.22)
			Remote DIN 43650 connector	**XS618B1NBL01C**	0.100	(0.22)
Ø 30, threaded M30 x 1.5						
15 (0.59)	NO	PNP	Pre-cabled (L = 2 m) *(1)*	**XS630B1PAL2**	0.205	(0.45)
			M12 connector	**XS630B1PAM12**	0.145	(0.32)
			Remote screw term. connector	**XS630B1PAL01B** *(2)*	0.205	(0.45)
			Remote DIN 43650 connector	**XS630B1PAL01C**	0.205	(0.45)
			Remote M18 connector	**XS630B1PAL01G**	0.205	(0.45)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS630B1NAL2**	0.205	(0.45)
			M12 connector	**XS630B1NAM12**	0.145	(0.32)
			Remote screw term. connector	**XS630B1NAL01B** *(2)*	0.205	(0.45)
			Remote DIN 43650 connector	**XS630B1NAL01C**	0.205	(0.45)
	NC	PNP	Pre-cabled (L = 2 m) *(1)*	**XS630B1PBL2**	0.205	(0.45)
			M12 connector	**XS630B1PBM12**	0.145	(0.32)
			Remote screw term. connector	**XS630B1PBL01B** *(2)*	0.205	(0.45)
			Remote DIN 43650 connector	**XS630B1PBL01C**	0.205	(0.45)
			Remote M18 connector	**XS630B1PBL01G**	0.205	(0.45)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS630B1NBL2**	0.205	(0.45)
			M12 connector	**XS630B1NBM12**	0.145	(0.32)
			Remote screw term.connector	**XS630B1NBL01B** *(2)*	0.205	(0.45)
			Remote DIN 43650 connector	**XS630B1NBL01C**	0.205	(0.45)

Accessories

Description	For use with sensors	Catalog Number	Weight kg	(lb)
Mounting clamps	Ø 8	**XSZB108**	0.006	(0.01)
	Ø 12	**XSZB112**	0.006	(0.01)
	Ø 18	**XSZB118**	0.010	(0.02)
	Ø 30	**XSZB130**	0.020	(0.02)

*(1) For a 5 m cable replace L2 with **L5**; for a 10 m cable replace L2 with **L10**.*
*Example: XS608B1PAL2 becomes **XS608B1PAL5** with a 5 m cable.*
(2) Protective cable gland included with remote screw terminal connector.

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OsiSense® XS
Inductive proximity sensors
General purpose
Cylindrical, increased range, flush mountable
Three-wire DC, solid-state output

Specifications

Sensor type			XS1/XS6●●B●●●M8	XS1/XS6●●B●●●M12	XS1/XS6●●B●●●L2
Product certifications			UL, CSA, CE		
Connection	Connector		M8	M12	–
	Pre-cabled		–	–	Length 2 m
	Remote connector		Remote screw terminal (L01B), DIN 43650 (L01C) or M18 connector (L01G) on 0.15 m pigtail connector		
Operating zone	Ø 6.5 and Ø 8	mm	0–2 (0–0.08 in.)		
	Ø 12	mm	0–3.2 (0–0.13 in.)		
	Ø 18	mm	0–6.4 (0–0.25 in.)		
	Ø 30	mm	0–12 (0–0.47 in.)		
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, double insulation ⧈ except Ø 6.5 and Ø 8: IP 67
	Conforming to DIN 40050		IP 69K for Ø 12, 18 and 30 sensors		
Storage temperature		°C	-40 to +85 (-40 to +185 °F)		
Operating temperature		°C	-25 to +70 (-13 to +158 °F)		
Materials	Case		Nickel-plated brass (except **XS608**: stainless steel, grade 303)		
	Sensing face		PPS		
	Cable		–		PvR 3 x 0.34 mm² (22 AWG) except Ø 6.5 and 8: 3 x 0.11 mm (27 AWG)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** ⎓ 12–24 with protection against reverse polarity **XS6** ⎓ 12–48 with protection against reverse polarity		
Voltage limits (including ripple)		V	**XS1** ⎓ 10–36; **XS6** ⎓ 10–58		
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		

Wiring diagrams

Connector

M8



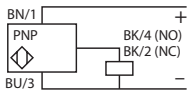
M12



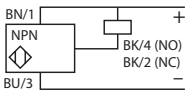
Pre-cabled

BU: Blue
BN: Brown
BK: Black

PNP



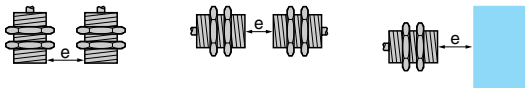
NPN



For M8 connector, NO and NC outputs are on terminal 4

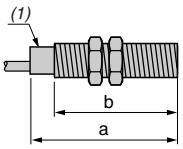
Setup

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 ≥ 50	e ≥ 12
Ø 18	e ≥ 16	e ≥ 100	e ≥ 24
Ø 30	e ≥ 30	e ≥ 180	e ≥ 45

Dimensions (mm)



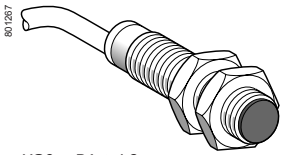
(1) LED

Sensors		Pre-cabled (mm)		M8 connector (mm)		M12 connector (mm)	
Short case model		**a**	**b**	**a**	**b**	**a**	**b**
Ø 6.5	**XS106B3**	33	–	42	–	45	–
Ø 8	**XS108B3**	33	25	42	26	45	24
Ø 12	**XS112B3**	35	25	–	–	50	30
Ø 18	**XS118B3**	39	28	–	–	50	28
Ø 30	**XS130B3**	43	32	–	–	55	32

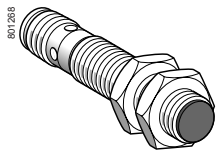
Sensors		Pre-cabled (mm)		M12 connector (mm)	
Long case model		**a**	**b**	**a**	**b**
Ø 8	**XS6 08B1**	51	42	62	40
Ø 12	**XS612B1**	53	42	62	42
Ø 18	**XS618B1**	62	52	74	52
Ø 30	**XS630B1**	62	52	74	52

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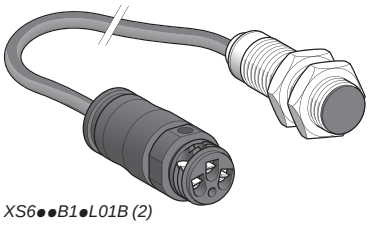
OsiSense® XS
Inductive proximity sensors
General purpose
Cylindrical, increased range, flush mountable
Two-wire AC or DC *(2)*



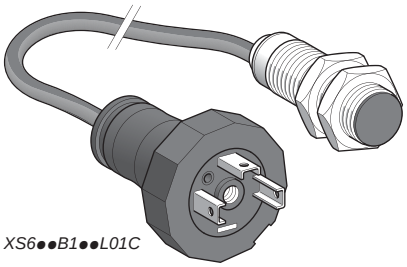
XS6●●B1M●L2



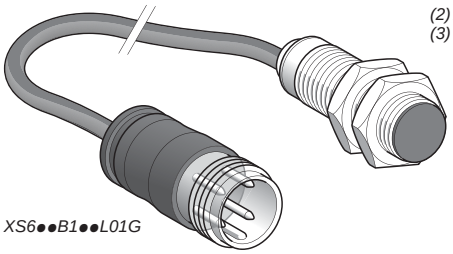
XS6●●B1●●U20



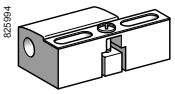
XS6●●B1●L01B (2)



XS6●●B1●●L01C



XS6●●B1●●L01G



XSZB1●●

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

Sensing distance Sn, mm (in.)	Function	Connection	Catalog Number	Weight kg	Weight (lb)
Ø 12, threaded M12 x 1					
4 (0.16)	NO	Pre-cabled (L = 2 m) *(1)*	**XS612B1MAL2**	0.075	(0.17)
		1/2"-20UNF connector	**XS612B1MAU20**	0.025	(0.06)
	NC	Pre-cabled (L = 2 m) *(1)*	**XS612B1MBL2**	0.075	(0.17)
		1/2"-20UNF connector	**XS612B1MBU20**	0.025	(0.06)
Ø 18, threaded M18 x 1					
8 (0.31)	NO	Pre-cabled (L = 2 m) *(1)*	**XS618B1MAL2**	0.100	(0.22)
		1/2"-20UNF connector	**XS618B1MAU20**	0.060	(0.13)
		Remote screw terminal connector	**XS618B1MAL01B** *(3)*	0.100	(0.22)
		Remote DIN 43650A connector	**XS618B1MAL01C**	0.100	(0.22)
		Remote M18 connector	**XS618B1MAL01G**	0.100	(0.22)
	NC	Pre-cabled (L = 2 m) *(1)*	**XS618B1MBL2**	0.100	(0.22)
		1/2"-20UNF connector	**XS618B1MBU20**	0.060	(0.13)
		Remote screw terminal connector	**XS618B1MBL01B** *(3)*	0.100	(0.22)
		Remote DIN 43650A connector	**XS618B1MBL01C**	0.100	(0.22)
		Remote M18 connector	**XS618B1MBL01G**	0.100	(0.22)
Ø 30, threaded M30 x 1.5					
15 (0.59)	NO	Pre-cabled (L = 2 m) *(2)*	**XS630B1MAL2**	0.205	(0.45)
		1/2"-20UNF connector	**XS630B1MAU20**	0.145	(0.32)
		Remote screw terminal connector	**XS630B1MAL01B** *(3)*	0.205	(0.45)
		Remote DIN 43650A connector	**XS630B1MAL01C**	0.205	(0.45)
		Remote M18 connector	**XS630B1MAL01G**	0.205	(0.45)
	NC	Pre-cabled (L = 2 m) *(2)*	**XS630B1MBL2**	0.205	(0.45)
		1/2"-20UNF connector	**XS630B1MBU20**	0.145	(0.32)
		Remote screw terminal connector	**XS6 30B1MBL01B** *(3)*	0.205	(0.45)
		Remote DIN 43650A connector	**XS6 30B1MBL01C**	0.205	(0.45)
		Remote M18 connector	**XS6 30B1MBL01G**	0.205	(0.45)

Accessories

Description	For use with sensors	Catalog Number	Weight kg	Weight (lb)
Mounting clamps	Ø 12	**XSZB112**	0.006	(0.01)
	Ø 18	**XSZB118**	0.010	(0.02)
	Ø 30	**XSZB130**	0.020	(0.04)

*(1) For a 5 m cable replace L2 with **L5**; for a 10 m cable replace L2 with **L10**.*
*Example: XS612B1MAL2 becomes **XS612B1MAL5** with a 5 m cable.*
(2) Available in ø8 plastic with double insulation, see page 2/30.
(3) Protective cable gland included with remote screw terminal connector.

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OsiSense® XS
Inductive proximity sensors
General purpose
Cylindrical, increased range, flush mountable
Two-wire AC or DC

Specifications

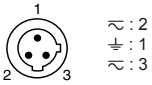
Sensor type			XS6●●B1M●U20	XS6●●B1M●L●
Product certifications			UL, CSA, CE	
Connection	Connector		1/2" - 20 UNF	–
	Pre-cabled		–	Length 2 m
	Remote connector		Remote screw terminal (L01B), DIN 43650A (L01C) or M18 connector (L01G) on 0.15 m pigtail connector	
Operating zone	Ø 12	mm	0–3.2 (0–0.13 in.)	
	Ø 18	mm	0–6.4 (0–0.25 in.)	
	Ø 30	mm	0–12 (0–0.47 in.)	
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 double isolation ⧈
	Conforming to DIN 40050		IP 69K	
Storage temperature		°C	-40 to +85 (-40 to +185 °F)	
Operating temperature		°C	-25 to +70 (-13 to +158 °F)	
Materials	Case		Nickel-plated brass	
	Sensing face		PPS	
	Cable		PvR 2 x 0.34 mm² (22 AWG)	
Vibration resistance	To IEC 60068-2-6		25 gn, amplitude ± 2 mm (f = 10 to 55 Hz)	
Shock resistance	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	
Switching capacity	**XS612B1M●●●**	mA	5–200 *(2)*	
	XS618B1M●●●, XS630B1M●●●	mA	∿ 5–300 or ⎓ 5–200 *(1)*	
Voltage drop, closed state		V	≤ 5.5	
Current consumption, no-load		mA	≤ 0.8	
Maximum switching frequency (a.c./d.c. supply)	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 sensors; ≤ 20 for Ø 12 sensors	
	Response	ms	≤ 0.5	
	Recovery	ms	≤ 0.2 for Ø 12 sensors; ≤ 0.5 for Ø 18 sensors; ≤ 2 for Ø 30 sensors	

(1) A 0.4 A fast-acting fuse must be connected in series with the load.

Wiring diagrams

Connector *(1)*

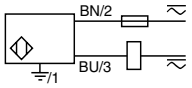
1/2"-20UNF



Pre-cabled

BU: Blue
BN: Brown

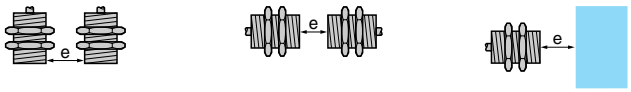
2-wire ∿ or ⎓
NO or NC output



⏚: *on connector models only*

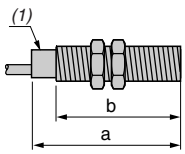
Setup

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 (mm)

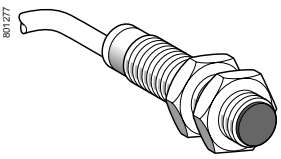


(1) LED

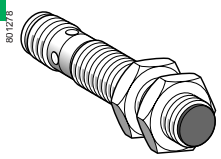
Sensors		Pre-cabled (mm)		Connector (mm)	
		a	b	a	b
Ø 12	**XS612B1M●**	53	42	62	42
Ø 18	**XS618B1M●**	62	52	73	52
Ø 30	**XS630B1M●**	62	52	73	52

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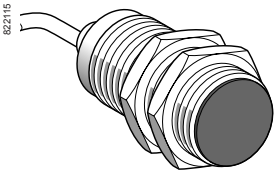
OsiSense® XS
Inductive proximity sensors
General purpose
Cylindrical, standard range, flush mountable
Two-wire AC or DC *(2)*



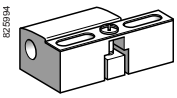
XS5●●B1M●L2



XS5●●B1M●U20



XS530B1●●L2



XSZB1●●

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

Ø 12, threaded M12 x 1

Sensing distance Sn, mm (in.)	Function	Connection	Catalog Number	Weight kg	(lb)
2 (0.08)	NO	Pre-cabled (L = 2 m) *(1)*	**XS512B1MAL2**	0.075	(0.17)
		1/2"-20UNF connector	**XS512B1MAU20**	0.025	(0.06)
	NC	Pre-cabled (L = 2 m) *(1)*	**XS512B1MBL2**	0.075	(0.17)
		1/2"-20UNF connector	**XS512B1MBU20**	0.025	(0.06)

Ø 18, threaded M18 x 1

Sensing distance Sn, mm (in.)	Function	Connection	Catalog Number	Weight kg	(lb)
5 (0.20)	NO	Pre-cabled (L = 2 m) *(1)*	**XS518B1MAL2**	0.100	(0.22)
		1/2"-20UNF connector	**XS518B1MAU20**	0.060	(0.13)
	NC	Pre-cabled (L = 2 m) *(1)*	**XS518B1MBL2**	0.100	(0.22)
		1/2"-20UNF connector	**XS518B1MBU20**	0.060	(0.13)

Ø 30, threaded M30 x 1.5

Sensing distance Sn, mm (in.)	Function	Connection	Catalog Number	Weight kg	(lb)
10 (0.39)	NO	Pre-cabled (L = 2 m) *(1)*	**XS530B1MAL2**	0.205	(0.45)
		1/2"-20UNF connector	**XS530B1MAU20**	0.145	(0.32)
	NC	Pre-cabled (L = 2 m) *(1)*	**XS530B1MBL2**	0.205	(0.45)
		1/2"-20UNF connector	**XS530B1MBU20**	0.145	(0.32)

Accessories

Description	For use with sensors	Catalog Number	Weight kg	(lb)
Mounting clamps	Ø 12	**XSZB112**	0.006	(0.01)
	Ø 18	**XSZB118**	0.010	(0.02)
	Ø 30	**XSZB130**	0.020	(0.04)

*(1) For a 5 m cable replace L2 with **L5**; for a 10 m cable replace L2 with **L10**.*
*Example: XS512B1MAL2 becomes **XS512B1MAL5** with a 5 m cable.*
(2) Available in ø8 plastic with double insulation, see page 2/30.

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OsiSense® XS
Inductive proximity sensors
General purpose
Cylindrical, standard range, flush mountable
Two-wire AC or DC

Specifications

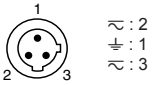
Sensor type			XS5●●B1M●U20	XS5●●B1M●L2
Product certifications			UL, CSA, CE	
Connection	Connector		1/2"-20UNF	–
	Pre-cabled		–	Length 2 m
Operating zone	Ø 12	**mm**	0–1.6 (0–0.05 in.)	
	Ø 18	**mm**	0–4 (0–0.16 in.)	
	Ø 30	**mm**	0–8 (0–0.31 in.)	
Differential travel		**%**	1–15 of effective sensing distance (Sr)	
Degree of protection	Conforming to IEC 60529		IP 65 and IP 67	IP 65 and IP 68, double insulation ⧈
	Conforming to DIN 40050		IP 69K	
Storage temperature		**°C**	-40 to + 85 (-40 to +185 °F)	
Operating temperature		**°C**	-25 to + 70 (-13 to +158 °F)	
Materials	Case		Nickel-plated brass	
	Sensing face		PPS	
	Cable		–	PvR 2 x 0.34 mm² (22 AWG)
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	
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 **XS530B1M●●●**	

(1) A 0.4 A fast-acting fuse must be connected in series with the load.

Wiring diagrams

Connector

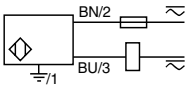
1/2"-20UNF



Pre-cabled

BU: Blue
BN: Brown

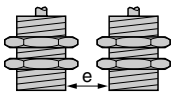
2-wire ∿ or ⎓
NO or NC output

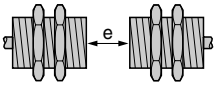


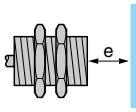
⏚: on connector models only

Setup

Minimum mounting distances (mm)

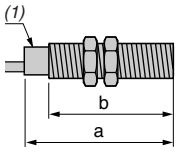






Sensor	Side by side	Face to face	Facing a metal object
Ø 12	e ≥ 8	e ≥ 48	e ≥ 12
Ø 18	e ≥ 16	e ≥ 100	e ≥ 25
Ø 30	e ≥ 30	e ≥ 180	e ≥ 45

Dimensions (mm)

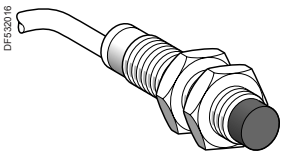


Sensor	Pre-cabled (mm)		Connector (mm)	
	a	b	a	b
XS512B1M	53	42	62	42
XS518B1M	62	52	73	52
XS530B1M	62	52	73	52

(1) LED

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OsiSense® XS
Inductive proximity sensors
General purpose
Cylindrical, increased range, non-flush mountable
Three-wire DC, solid-state output

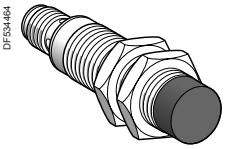


XS612B4●●L2

Sensors, 3-wire ⎓ 12–48 V, long case model

Ø 12, threaded M12 x 1

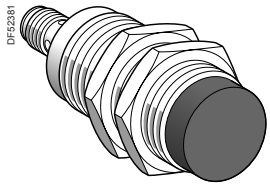
Sensing distance Sn, mm (in.)	Function	Output	Connection	Catalog Number	Weight kg	(lb)
7 (0.28)	NO	PNP	Pre-cabled (L = 2 m) *(1)*	**XS612B4PAL2**	0.075	(0.17)
			M12 connector	**XS612B4PAM12**	0.020	(0.04)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS612B4NAL2**	0.075	(0.17)
			M12 connector	**XS612B4NAM12**	0.020	(0.04)
	NC	PNP	Pre-cabled (L = 2 m) *(1)*	**XS612B4PBL2**	0.075	(0.17)
			M12 connector	**XS612B4PBM12**	0.020	(0.04)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS612B4NBL2**	0.075	(0.17)
			M12 connector	**XS612B4NBM12**	0.020	(0.04)



XS618B4●●M12

Ø 18, threaded M18 x 1

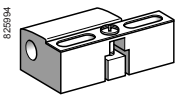
Sensing distance (Sn) mm	Function	Output	Connection	Catalog Number	Weight kg	(lb)
12 (0.47)	NO	PNP	Pre-cabled (L = 2 m) *(1)*	**XS618B4PAL2**	0.100	(0.22)
			M12 connector	**XS618B4PAM12**	0.040	(0.09)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS618B4NAL2**	0.100	(0.22)
			M12 connector	**XS618B4NAM12**	0.040	(0.09)
	NC	PNP	Pre-cabled (L = 2 m) *(1)*	**XS618B4PBL2**	0.100	(0.22)
			M12 connector	**XS618B4PBM12**	0.040	(0.09)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS618B4NBL2**	0.100	(0.22)
			M12 connector	**XS618B4NBM12**	0.040	(0.09)



XS630B4●●M12

Ø 30, threaded M30 x 1.5

Sensing distance (Sn) mm	Function	Output	Connection	Catalog Number	Weight kg	(lb)
22 (0.87)	NO	PNP	Pre-cabled (L = 2 m) *(1)*	**XS630B4PAL2**	0.205	(0.45)
			M12 connector	**XS630B4PAM12**	0.145	(0.32)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS630B4NAL2**	0.205	(0.45)
			M12 connector	**XS630B4NAM12**	0.145	(0.32)
	NC	PNP	Pre-cabled (L = 2 m) *(1)*	**XS630B4PBL2**	0.205	(0.45)
			M12 connector	**XS630B4PBM12**	0.145	(0.32)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS630B4NBL2**	0.205	(0.45)
			M12 connector	**XS630B4NBM12**	0.145	(0.32)



XSZB●●●

Accessories

Description	For use with sensors	Catalog Number	Weight kg	(lb)
Mounting clamps	Ø 12	**XSZB112**	0.006	(0.01)
	Ø 18	**XSZB118**	0.010	(0.02)
	Ø 30	**XSZB130**	0.020	(0.04)

*(1) For a 5 m cable replace L2 with **L5**; for a 10 m cable replace L2 with **L10**.*
*Example: XS612B4PAL2 becomes **XS612B4PAL5** with a 5 m cable.*

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OsiSense® XS
Inductive proximity sensors
General purpose
Cylindrical, increased range, non-flush mountable
Three-wire DC, solid-state output

Specifications

Sensor type			XS6●●B4●●M12	XS6●●B4●●L2
Product certifications			UL, CSA, CE	
Connection	Connector		M12	–
	Pre-cabled		–	Length 2 m
Operating zone	Ø 12	**mm**	0–5.6 (0–0.22 in.)	
	Ø 18	**mm**	0–9.6 (0–0.38 in.)	
	Ø 30	**mm**	0–17.6 (0–0.69 in.)	
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, double insulation ⧈
Storage temperature		**°C**	-40 to +85 (-40 to +185 °F)	
Operating temperature		**°C**	-25 to +70 (-13 to +158 °F)	
Materials	Case		Nickel-plated brass	
	Sensing face		PPS	
	Cable		–	PvR 3 x 0.34 mm² (22 AWG)
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 with protection against reverse polarity	
Voltage limits (including ripple)		**V**	⎓ 10–58	
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	**XS612B4●●●●**	**Hz**	2500	
	XS618B4●●●●	**Hz**	1000	
	XS630B4●●●●	**Hz**	500	
Delays	First-up	**ms**	≤ 10	
	Response	**ms**	≤ 0.2 for Ø 12, ≤ 0.3 for Ø 18, ≤ 0.6 for Ø 30	
	Recovery	**ms**	≤ 0.2 for Ø 12, ≤ 0.7 for Ø 18, ≤ 1.4 for Ø 30	

Wiring diagrams

Connector

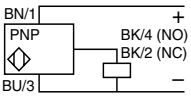
M12



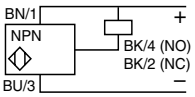
Pre-cabled

BU: Blue
BN: Brown
BK: Black

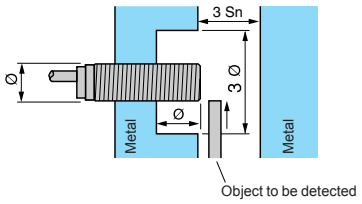
PNP



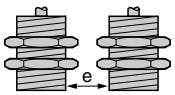
NPN

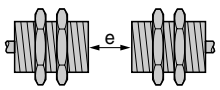


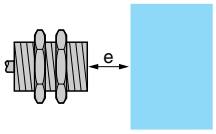
Setup



Minimum mounting distances (mm)

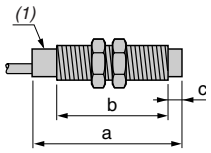






	Side by side	Face to face	Facing a metal object
Ø 12	e ≥ 48	e ≥ 84	e ≥ 21
Ø 18	e ≥ 72	e ≥ 144	e ≥ 36
Ø 30	e ≥ 120	e ≥ 264	e ≥ 66

Dimensions (mm)

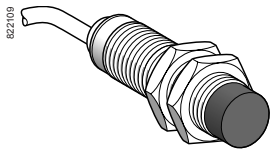


XS6	Pre-cabled (mm) a	Pre-cabled (mm) b	Connector (mm) a	Connector (mm) b	Connector (mm) c
Ø 12	55	42	66	42	5
Ø 18	60	44	72	44	8
Ø 30	63	41	74	41	13

(1) LED

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OsiSense® XS
Inductive proximity sensors
General purpose
Cylindrical, increased range, non-flush mountable
Two-wire AC or DC

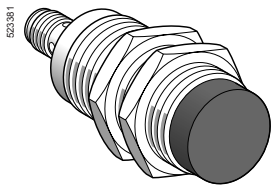


XS6●●B4M●L2

Sensors, 2-wire ≂ 24–240 V, long case model

Ø 18, threaded M18 x 1

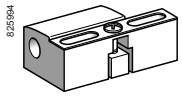
Sensing distance Sn, mm (in.)	Function	Connection	Catalog Number	Weight kg	(lb)
12 (0.47)	NO	Pre-cabled (L = 2 m) *(1)*	**XS618B4MAL2**	0.120	(0.26)
		1/2"-20UNF connector	**XS618B4MAU20**	0.060	(0.13)
	NC	Pre-cabled (L = 2 m) *(1)*	**XS618B4MBL2**	0.120	(0.26)
		1/2"-20UNF connector	**XS618B4MBU20**	0.060	(0.13)



XS6●●B4M●U20

Ø 30, threaded M30 x 1.5

Sensing distance Sn, mm (in.)	Function	Connection	Catalog Number	Weight kg	(lb)
22 (0.87)	NO	Pre-cabled (L = 2 m) *(1)*	**XS630B4MAL2**	0.205	(0.45)
		1/2"-20UNF connector	**XS630B4MAU20**	0.145	(0.32)
	NC	Pre-cabled (L = 2 m) *(1)*	**XS630B4MBL2**	0.205	(0.45)
		1/2"-20UNF connector	**XS630B4MBU20**	0.145	(0.32)



XSZB1●●

Accessories

Description	For use with sensors	Catalog Number	Weight kg	(lb)
Mounting clamps	Ø 18	**XSZB118**	0.010	(0.02)
	Ø 30	**XSZB130**	0.020	(0.04)

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

Schneider Electric

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OsiSense® XS
Inductive proximity sensors
General purpose
Cylindrical, increased range, non-flush mountable
Two-wire AC or DC

Specifications

Sensor type			XS6●●B4M●U20	XS6●●B4M●L2
Product certifications			UL, CSA, CE	
Connection	Connector		1/2"-20UNF	–
	Pre-cabled		–	Length 2 m
Operating zone	Ø 18	mm	0–9.6 (0–0.38 in.)	
	Ø 30	mm	0–17.6 (0–0.69 in.)	
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, double insulation ⧈
Storage temperature		°C	- 40 to + 85 (-40 to +185 °F)	
Operating temperature		°C	- 25 to + 70 (-13 to +158 °F)	
Materials	Case		Nickel-plated brass	
	Sensing face		PPS	
	Cable		–	PvR 2 x 0.34 mm² (22 AWG)
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	
Switching capacity		mA	∿ 50300 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) A 0.4 A fast-acting fuse must be connected in series with the load.

Wiring diagrams

Connector

1/2"-20UNF

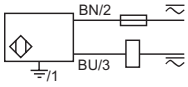


Pre-cabled

BU: Blue
BN: Brown

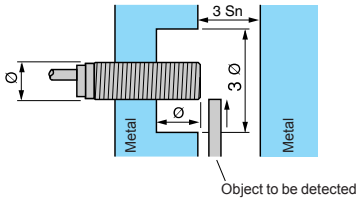
2-wire ∿ or ⎓

NO or NC output

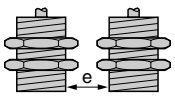


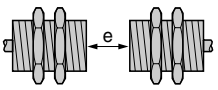
⏚: on connector models only

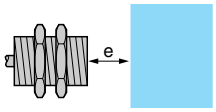
Setup



Minimum mounting distances (mm)

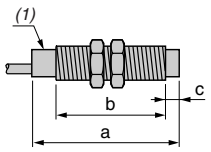






	Side by side	Face to face	Facing a metal object
Ø 18	e ≥ 72	e ≥ 144	e ≥ 36
Ø 30	e ≥ 120	e ≥ 264	e ≥ 66

Dimensions (mm)

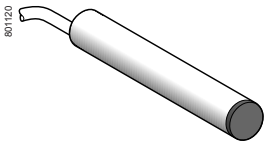


(1) LED

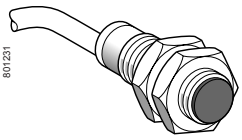
XS6	Pre-cabled (mm) a	Pre-cabled (mm) b	Connector (mm) a	Connector (mm) b	Connector (mm) c
Ø 18	60	44	72	44	8
Ø 30	63	41	74	41	13

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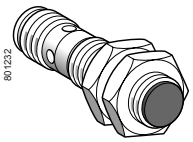
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Inductive proximity sensors
General purpose
Cylindrical, standard range, flush mountable
Three-wire DC, solid-state output



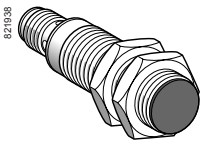
XS506B1●●L2



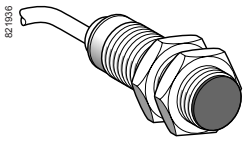
XS508B1●●L2



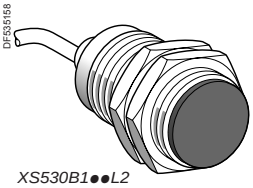
XS512B1●●M12



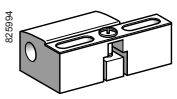
XS518B1●●M12



XS518B1●●●L2



XS530B1●●L2



XSZB1●●

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

Sensing dist. Sn, mm (in.)	Function	Output	Connection	Catalog Number	Weight kg	Weight (lb)
Ø 6.5, plain						
1.5 (0.06)	NO	PNP	Pre-cabled (L = 2 m) *(1)*	**XS506B1PAL2**	0.035	(0.08)
			M8 connector	**XS506B1PAM8**	0.025	(0.06)
			M12 connector	**XS506B1PAM12**	0.025	(0.06)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS506B1NAL2**	0.035	(0.08)
			M8 connector	**XS506B1NAM8**	0.025	(0.06)
	NC	PNP	Pre-cabled (L = 2 m) *(1)*	**XS506B1PBL2**	0.035	(0.08)
			M8 connector	**XS506B1PBM8**	0.025	(0.06)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS506B1NBL2**	0.035	(0.08)
			M8 connector	**XS506B1NBM8**	0.025	(0.06)
Ø 8, threaded M8 x 1						
1.5 (0.06)	NO	PNP	Pre-cabled (L = 2 m) *(1)*	**XS508B1PAL2**	0.035	(0.08)
			M8 connector	**XS508B1PAM8**	0.025	(0.06)
			M12 connector	**XS508B1PAM12**	0.025	(0.06)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS508B1NAL2**	0.035	(0.08)
			M8 connector	**XS508B1NAM8**	0.025	(0.06)
			M12 connector	**XS508B1NAM12**	0.025	(0.06)
	NC	PNP	Pre-cabled (L = 2 m) *(1)*	**XS508B1PBL2**	0.035	(0.08)
			M8 connector	**XS508B1PBM8**	0.025	(0.06)
			M12 connector	**XS508B1PBM12**	0.025	(0.06)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS508B1NBL2**	0.035	(0.08)
			M8 connector	**XS508B1NBM8**	0.025	(0.06)
			M12 connector	**XS508B1NBM12**	0.025	(0.06)
Ø 12, threaded M12 x 1						
2 (0.08)	NO	PNP	Pre-cabled (L = 2 m) *(1)*	**XS512B1PAL2**	0.075	(0.17)
			M12 connector	**XS512B1PAM12**	0.035	(0.08)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS512B1NAL2**	0.075	(0.17)
			M12 connector	**XS512B1NAM12**	0.035	(0.08)
	NC	PNP	Pre-cabled (L = 2 m) *(1)*	**XS512B1PBL2**	0.075	(0.17)
			M12 connector	**XS512B1PBM12**	0.035	(0.08)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS512B1NBL2**	0.075	(0.17)
			M12 connector	**XS512B1NBM12**	0.035	(0.08)
Ø 18, threaded M18 x 1						
5 (0.20)	NO	PNP	Pre-cabled (L = 2 m) *(1)*	**XS518B1PAL2**	0.120	(0.26)
			M12 connector	**XS518B1PAM12**	0.060	(0.13)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS518B1NAL2**	0.120	(0.26)
			M12 connector	**XS518B1NAM12**	0.060	(0.13)
	NC	PNP	Pre-cabled (L = 2 m) *(1)*	**XS518B1PBL2**	0.120	(0.26)
			M12 connector	**XS518B1PBM12**	0.060	(0.13)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS518B1NBL2**	0.120	(0.26)
			M12 connector	**XS518B1NBM12**	0.060	(0.13)
Ø 30, threaded M30 x 1.5						
10 (0.39)	NO	PNP	Pre-cabled (L = 2 m) *(1)*	**XS530B1PAL2**	0.205	(0.45)
			M12 connector	**XS530B1PAM12**	0.145	(0.32)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS530B1NAL2**	0.205	(0.45)
			M12 connector	**XS530B1NAM12**	0.145	(0.32)
	NC	PNP	Pre-cabled (L = 2 m) *(1)*	**XS530B1PBL2**	0.205	(0.45)
			M12 connector	**XS530B1PBM12**	0.145	(0.32)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS530B1NBL2**	0.205	(0.45)
			M12 connector	**XS530B1NBM12**	0.145	(0.32)

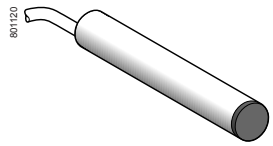
Accessories

Description	For use with sensors	Catalog Number	Weight kg	Weight (lb)
Mounting clamps	Ø 6.5 (plain)	**XSZB165**	0.005	(0.01)
	Ø 8	**XSZB108**	0.006	(0.01)
	Ø 12	**XSZB112**	0.006	(0.01)
	Ø 18	**XSZB118**	0.010	(0.02)
	Ø 30	**XSZB130**	0.020	(0.02)

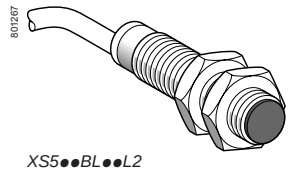
*(1) For a 5 m cable replace L2 with **L5**; for a 10 m cable replace L2 with **L10**.*
*Example: XS508B1PAL2 becomes **XS508B1PAL5** with a 5 m cable.*

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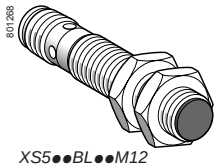
OsiSense® XS
Inductive proximity sensors
General purpose
Cylindrical, standard range, flush mountable
Three-wire DC, solid-state output



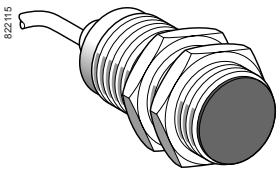
XS506BL●●L2



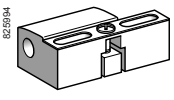
XS5●●BL●●L2



XS5●●BL●●M12



XS5 30BL●●L2



XSZB1●●

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

Sensing dist. Sn, mm (in.)	Function	Output	Connection	Catalog Number	Weight kg	(lb)
Ø 6.5, plain						
1.5 (0.06)	NO	PNP	Pre-cabled (L = 2 m) *(1)*	**XS506BLPAL2**	0.035	(0.08)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS506BLNAL2**	0.035	(0.08)
Ø 8, threaded M8 x 1						
1.5 (0.06)	NO	PNP	Pre-cabled (L = 2 m) *(1)*	**XS508BLPAL2**	0.035	(0.08)
			M12 connector	**XS508BLPAM12**	0.025	(0.06)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS508BLNAL2**	0.035	(0.08)
			M12 connector	**XS508BLNAM12**	0.025	(0.06)
	NC	PNP	Pre-cabled (L = 2 m) *(1)*	**XS508BLPBL2**	0.035	(0.08)
			M12 connector	**XS508BLPBM12**	0.025	(0.06)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS508BLNBL2**	0.035	(0.08)
			M12 connector	**XS508BLNBM12**	0.025	(0.06)
Ø 12, threaded M12 x 1						
2 (0.08)	NO	PNP	Pre-cabled (L = 2 m) *(1)*	**XS512BLPAL2**	0.075	(0.17)
			M12 connector	**XS512BLPAM12**	0.035	(0.08)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS512BLNAL2**	0.075	(0.17)
			M12 connector	**XS512BLNAM12**	0.035	(0.08)
	NC	PNP	Pre-cabled (L = 2 m) *(1)*	**XS512BLPBL2**	0.075	(0.17)
			M12 connector	**XS512BLPBM12**	0.035	(0.08)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS512BLNBL2**	0.075	(0.17)
			M12 connector	**XS512BLNBM12**	0.035	(0.08)
Ø 18, threaded M18 x 1						
5 (0.20)	NO	PNP	Pre-cabled (L = 2 m) *(1)*	**XS518BLPAL2**	0.120	(0.26)
			M12 connector	**XS518BLPAM12**	0.060	(0.13)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS518BLNAL2**	0.120	(0.26)
			M12 connector	**XS518BLNAM12**	0.060	(0.13)
	NC	PNP	Pre-cabled (L = 2 m) *(1)*	**XS518BLPBL2**	0.120	(0.26)
			M12 connector	**XS518BLPBM12**	0.060	(0.13)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS518BLNBL2**	0.120	(0.26)
			M12 connector	**XS518BLNBM12**	0.060	(0.13)
Ø 30, threaded M30 x 1.5						
10 (0.39)	NO	PNP	Pre-cabled (L = 2 m) *(1)*	**XS530BLPAL2**	0.205	(0.45)
			M12 connector	**XS530BLPAM12**	0.145	(0.32)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS530BLNAL2**	0.205	(0.45)
			M12 connector	**XS530BLNAM12**	0.145	(0.32)
	NC	PNP	Pre-cabled (L = 2 m) *(1)*	**XS530BLPBL2**	0.205	(0.45)
			M12 connector	**XS530BLPBM12**	0.145	(0.32)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS530BLNBL2**	0.205	(0.45)
			M12 connector	**XS530BLNBM12**	0.145	(0.32)

Accessories

Description	For use with sensors	Catalog Number	Weight kg	(lb)
Mounting clamps	Ø 6.5 (plain)	**XSZ B165**	0.005	(0.01)
	Ø 8	**XSZB108**	0.006	(0.01)
	Ø 12	**XSZB112**	0.006	(0.01)
	Ø 18	**XSZB118**	0.010	(0.02)
	Ø 30	**XSZB130**	0.020	(0.04)

*(1) For a 5 m cable replace L2 with **L5**; for a 10 m cable replace L2 with **L10**.*
*Example: XS508BLPAL2 becomes **XS508BLPAL5** with a 5 m cable.*

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OsiSense® XS
Inductive proximity sensors
General purpose
Cylindrical, standard range, flush mountable
Three-wire DC, solid-state output

Specifications

Sensor type			XS5●●B1●●M8, XS5●●B1●●M12 XS5●●BL●●M8, XS5●●BL●●M12	XS5●●B1●●L2 XS5●●BL●●L2
Product certifications			UL, CSA, CE	
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 (0–0.05 in.)	
	Ø 12	**mm**	0–1.6 (0–0.06 in.)	
	Ø 18	**mm**	0–4 (0–0.28 in.)	
	Ø 30	**mm**	0–8 (0–0.31 in.)	
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, double insulation ⧈ (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 to +85 (-40 to +185 °F)	
Operating temperature		**°C**	-25 to +70 (-13 to +158 °F)	
Materials	Case		Nickel-plated brass (except XS5 06 and XS5 08BL: stainless steel, grade 303)	
	Sensing face		PPS	
	Cable		–	PvR 3 x 0.34 mm² (22 AWG) except **XS506** and **XS508**: 3 x 0.11 mm² (27 AWG)
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, ⎓ 12–24 for XS5 ●●B1 with protection against reverse polarity	
Voltage limits (including ripple)		**V**	⎓ 10–58 for XS5●●BL, ⎓ 10–36 for XS5●●B1	
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**	

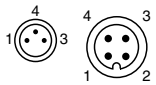
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Three-wire DC, solid-state output

Wiring diagrams

Connector

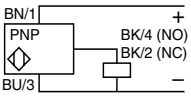
M8 M12



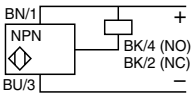
Pre-cabled

BU: Blue
BN: Brown
BK: Black

PNP



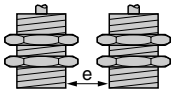
NPN

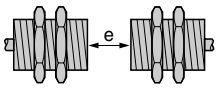


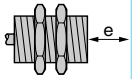
For M8 connector, NO and NC outputs are on terminal 4

Setup

Minimum mounting distances (mm)

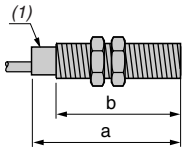






Sensors	Side by side	Face to face	Facing a metal object
Ø 6.5	e ≥ 3	e ≥ 18	e ≥ 4.5
Ø 8	e ≥ 3	e ≥ 18	e ≥ 4.5
Ø 12	e ≥ 4	e ≥ 24	e ≥ 6
Ø 18	e ≥ 10	e ≥ 60	e ≥ 15
Ø 30	e ≥ 20	e ≥ 120	e ≥ 30

Dimensions (mm)



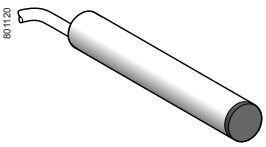
(1) LED

Sensors		Pre-cabled (mm)		M8 connector (mm)		M12 connector (mm)	
Short case model		**a**	**b**	**a**	**b**	**a**	**b**
Ø 6.5	**XS506B1**	33	–	42	–	45	–
Ø 8	**XS508B1**	33	25	42	26	45	24
Ø 12	**XS512B1**	35	25	–	–	50	30
Ø 18	**XS518B1**	39	28	–	–	50	28
Ø 30	**XS530B1**	43	32	–	–	55	32

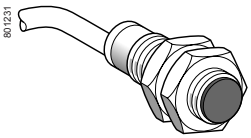
Sensors		Pre-cabled (mm)		M12 connector (mm)	
Long case model		**a**	**b**	**a**	**b**
Ø 6.5	**XS506BL**	51	–	–	–
Ø 8	**XS508BL**	51	42	62	40
Ø 12	**XS512BL**	53	42	62	42
Ø 18	**XS518BL**	62	52	74	52
Ø 30	**XS530BL**	62	52	74	52

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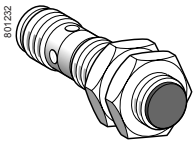
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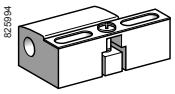
XS506BS●●L2



XS512BS●●L2



XS5●●BS●●M12



XSZB1●●

Sensors, 2-wire 12-24 V ⎓, short case model					
Sensing dist. Sn, mm (in.)	**Function**	**Connection**	**Catalog Number**	**Weight kg**	**(lb)**
Ø 6.5, plain					
1.5 (0.06)	NO terminals 1 & 4 *(2)*	Pre-cabled (L = 2 m) *(1)*	**XS506BSCAL2**	0.035	(0.08)
		Remote M12 connector	**XS506BSCAL01M12**	0.050	(0.11)
	NC	Pre-cabled (L = 2 m) *(1)*	**XS506BSCBL2**	0.035	(0.08)
Ø 8, threaded M8 x 1					
1.5 (0.06)	NO terminals 1 & 4 *(2)*	Pre-cabled (L = 2 m) *(1)*	**XS508BSCAL2**	0.035	(0.08)
		Remote M12 connector	**XS508BSCAL01M12**	0.050	(0.11)
		Remote M12 connector	**XS508BSCAL08M12**	0.050	(0.11)
	NC	Pre-cabled (L = 2 m) *(1)*	**XS508BSCBL2**	0.035	(0.08)
		Remote M12 connector	**XS508BSCBL01M12**	0.050	(0.11)
Ø 12, threaded M12 x 1					
2 (0.08)	NO	Pre-cabled (L = 2 m) *(1)*	**XS512BSDAL2**	0.075	(0.17)
		M12 connector	**XS512BSDAM12**	0.035	(0.08)
	NO terminals 1 & 4 *(2)*	M12 connector	**XS512BSCAM12**	0.035	(0.08)
		Remote M12 connector	**XS512BSCAL08M12**	0.060	(0.13)
	NC	Pre-cabled (L = 2 m) *(1)*	**XS512BSDBL2**	0.075	(0.17)
		M12 connector	**XS512BSDBM12**	0.035	(0.08)
Ø 18, threaded M18 x 1					
5 (0.20)	NO	Pre-cabled (L = 2 m) *(1)*	**XS518BSDAL2**	0.120	(0.26)
		M12 connector	**XS518BSDAM12**	0.060	(0.13)
	NO terminals 1 & 4 *(2)*	M12 connector	**XS518BSCAM12**	0.060	(0.13)
		Remote M12 connector	**XS518BSCAL08M12**	0.085	(0.19)
	NC	Pre-cabled (L = 2 m) *(1)*	**XS518BSDBL2**	0.120	(0.26)
		M12 connector	**XS518BSDBM12**	0.060	(0.13)
Ø 30, threaded M30 x 1.5					
10 (0.39)	NO	Pre-cabled (L = 2 m) *(1)*	**XS530BSDAL2**	0.205	(0.45)
		M12 connector	**XS530BSDAM12**	0.145	(0.32)
	NO terminals 1 & 4 *(2)*	M12 connector	**XS530BSCAM12**	0.145	(0.32)
		Remote M12 connector	**XS530BSCAL08M12**	0.170	(0.37)
	NC	Pre-cabled (L = 2 m) *(1)*	**XS530BSDBL2**	0.205	(0.45)
		M12 connector	**XS530BSDBM12**	0.145	(0.32)

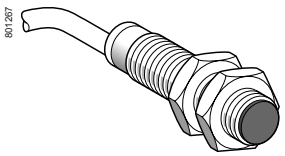
Accessories				
Description	**For use with sensors**	**Catalog Number**	**Weight kg**	**(lb)**
Mounting clamps	Ø 6.5 (plain)	**XSZ B165**	0.005	(0.01)
	Ø 8	**XSZB108**	0.006	(0.01)
	Ø 12	**XSZB112**	0.006	(0.01)
	Ø 18	**XSZB118**	0.010	(0.02)
	Ø 30	**XSZB130**	0.020	(0.04)

*(1) For a 5 m cable replace L2 with **h** L5; for a 10 m cable replace L2 with **L10**.*
*Example: XS508BSCAL2 becomes **XS508BSCAL5** with a 5 m cable.*
(2) The NO output is connected to terminals 1 and 4 of the M12 connector.

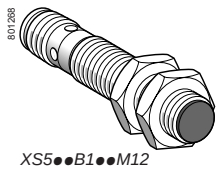
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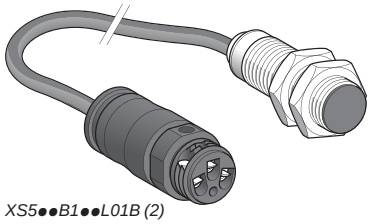
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Cylindrical, standard range, flush mountable
Two-wire DC



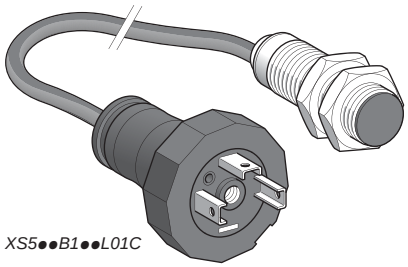
XS5●●B1●●L2



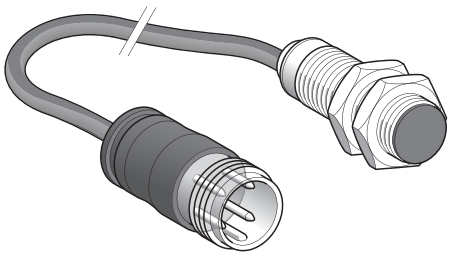
XS5●●B1●●M12



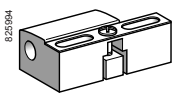
XS5●●B1●●L01B (2)



XS5●●B1●●L01C



XS5●●B1●●L01G



XSZB1●●

Sensors, 2-wire 12–48 V ⎓, long case model

Sensing distance Sn, mm (in.)	Function	Connection	Catalog Number	Weight kg	(lb)
Ø 8, threaded M8 x 1					
1.5 (0.06)	NO	Pre-cabled (L = 2 m) *(1)*	**XS508B1DAL2**	0.035	(0.08)
		Remote M12 connector	**XS508B1DAL08M12**	0.050	(0.11)
		M12 connector	**XS508B1DAM12**	0.025	(0.06)
	NO terminals 1 & 4 *(3)*	M12 connector	**XS508B1CAM12**	0.025	(0.06)
		Remote M12 connector	**XS508B1CAL08M12**	0.050	(0.11)
	NC	Pre-cabled (L = 2 m) *(1)*	**XS508B1DBL2**	0.035	(0.08)
		M12 connector	**XS508B1DBM12**	0.025	(0.06)
Ø 12, threaded M12 x 1					
2 (0.08)	NO	Pre-cabled (L = 2 m) *(1)*	**XS512B1DAL2**	0.075	(0.17)
		Remote 7/8" connector	**XS512B1DAL08U78**	0.050	(0.11)
		M12 connector	**XS512B1DAM12**	0.035	(0.08)
	NO terminals 1 & 4 *(3)*	M12 connector	**XS512B1CAM12**	0.035	(0.08)
		Remote M12 connector	**XS512B1CAL08M12**	0.060	(0.13)
	NC	Pre-cabled (L = 2 m) *(1)*	**XS512B1DBL2**	0.075	(0.17)
		M12 connector	**XS512B1DBM12**	0.035	(0.08)
		Remote M12 connector	**XS512B1DBL08M12**	0.060	(0.13)
Ø 18, threaded M18 x 1					
5 (0.20)	NO	Pre-cabled (L = 2 m) *(1)*	**XS518B1DAL2**	0.120	(0.26)
		Low temperature version (- 40 °C)	**XS518B1DAL2TF** *(4)*	0.120	(0.26)
		Remote screw terminal connector *(2)*	**XS518B1DAL01B**	0.085	(0.19)
		Remote DIN 43650A connector	**XS518B1DAL01C**	0.085	(0.19)
		Remote M18 connector	**XS518B1DAL01G**	0.085	(0.19)
		M12 connector	**XS518B1DAM12**	0.060	(0.13)
	NO terminals 1 & 4 *(3)*	M12 connector	**XS518B1CAM12**	0.060	(0.13)
		Remote M12 connector	**XS518B1CAL08M12**	0.085	(0.19)
	NC	Pre-cabled (L = 2 m) *(1)*	**XS518B1DBL2**	0.120	(0.26)
		M12 connector	**XS518B1DBM12**	0.060	(0.13)
		Remote M12 connector	**XS518B1DBL08M12**	0.085	(0.19)
		Remote screw terminal connector *(2)*	**XS518B1DBL01B**	0.120	(0.26)
Ø 30, threaded M30 x 1.5					
10 (0.39)	NO	Pre-cabled (L = 2 m) *(1)*	**XS530B1DAL2**	0.205	(0.45)
		Low temperature version (- 40 °C)	**XS530B1DAL2TF** *(4)*	0.120	(0.26)
		M12 connector	**XS530B1DAM12**	0.145	(0.32)
		Remote screw terminal connector *(2)*	**XS530B1DAL01B**	0.205	(0.45)
		Remote DIN 43650A connector	**XS530B1DAL01C**	0.205	(0.45)
		Remote M18 connector	**XS530B1DAL01G**	0.205	(0.45)
	NO terminals 1 & 4 *(3)*	M12 connector	**XS530B1CAM12**	0.145	(0.32)
		Remote M12 connector	**XS530B1CAL08M12**	0.170	(0.37)
	NC	Pre-cabled (L = 2 m) *(1)*	**XS530B1DBL2**	0.205	(0.45)
		M12 connector	**XS530B1DBM12**	0.145	(0.32)
		Remote screw terminal connector *(2)*	**XS530B1DBL01B**	0.205	(0.37)

Accessories

Description	For use with sensors	Catalog Number	Weight kg	(lb)
Mounting clamps	Ø 8	**XSZB108**	0.006	(0.01)
	Ø 12	**XSZB112**	0.006	(0.01)
	Ø 18	**XSZB118**	0.010	(0.02)
	Ø 30	**XSZB130**	0.020	(0.04)

*(1) For a 5 m cable replace L2 with **L5**; for a 10 m cable replace L2 with **L10**.*
*Example: XS508B1DAL2 becomes **XS508B1DAL5** with a 5 m cable.*
(2) Protective cable gland included with remote screw terminal connector.
(3) The NO output is connected to terminals 1 and 4 of the M12 connector.
*(4) For a 5 m cable replace L2 with **L5**.*
*Example: XS518B1DAL2TF becomes **XS518B1DAL5TF** with a 5 m cable.*
*For PUR cable, replace the letter L in the catalog number with **P**.*
*Example: XS518B1DAL2TF becomes **XS518B1DAP2TF** with PUR cable.*
*For a 5 m PUR cable replace P2 with **P5**.*
*Example: XS518B1DAP2TF becomes **XS518B1DAP5TF** with a 5 m PUR cable.*

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OsiSense® XS
Inductive proximity sensors
General purpose
Cylindrical, standard range, flush mountable
Two-wire DC

Specifications

Sensor type			XS5●●B1●●M12, XS5●●BS●●M12	XS5●●B1D●L2, XS5●●BSD●L2
Product certifications			UL, CSA, CE	
Connection	Connector		M12	–
	Pre-cabled		–	Length 2 m
	Remote connector		Remote M12 connector (L01M12), screw terminal (L01B), DIN 43650A (L01C) and remote M18 connector (L01G) on 0.15 m pigtail connector. Remote M12 (L08M12) or 7/8" (L08U78) connector on 0.80 m pigtail connector.	
Operating zone	Ø 6.5	**mm**	0–1.2 (0–0.05 in.)	
	Ø 8	**mm**	0–1.2 (0–0.05 in.)	
	Ø 12	**mm**	0–1.6 (0–0.06 in.)	
	Ø 18	**mm**	0–4 (0–0.16 in.)	
	Ø 30	**mm**	0–8 (0–0.31 in.)	
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, double insulation (except Ø 6.5 and Ø 8: IP 67)
Storage temperature		**°C**	-40 to +85 (-40 to +185 °F)	
Operating temperature		**°C**	-5 to +70 (-13 to +158 °F); TF products: - 40 to + 70 (-40 to +158°F)	
Materials	Case		Nickel-plated brass (except XS5 06 and XS5 08B1: stainless steel, grade 303)	
	Sensing face		PPS	
	Cable		–	PvR 2 x 0.34 mm² (22 AWG) (except XS5 06 and XS5 08: 2 x 0.11 mm² (27 AWG) 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-polarized for XS5●●B1D, ⎓ 12–24 non-polarized for XS5●●BS (except Ø 6.5 and Ø 8 short case models: polarized) with protection against reverse polarity	
Voltage limits (including ripple)		**V**	⎓ 10–58 for XS5●●B1D, ⎓ 10–36 for XS5●●BS	
Switching capacity		**mA**	1.5–100 with overload and short-circuit protection	
Voltage drop, closed state		**V**	≤ 4	
Residual current, open state		**mA**	≤ 0.5	
Maximum switching frequency	**XS506, XS508, XS512**	**Hz**	4000	
	XS518	**Hz**	3000	
	XS530	**Hz**	2000	
Delays	First-up	**ms**	≤ 10	
	Response	**ms**	≤ 0.2 : **XS506, XS508** and **XS512** ≤ 0.15 : **XS518** ≤ 0.3 : **XS530**	
	Recovery	**ms**	≤ 0.2 (except **XS530B1**: ≤ 0.3)	

*(1) For PUR cable, replace the letter L in the catalog number with **P**. Example: XS506BSDAL2 becomes **XS506BSDAP2** with PUR cable.*

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OsiSense® XS
Inductive proximity sensors
General purpose
Cylindrical, standard range, flush mountable
Two-wire DC

Wiring diagrams

Connector

M12



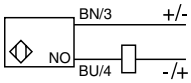
Pre-cabled

BU: Blue
BN: Brown

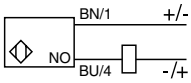
2-wire ⎓ non-polarized

NO output

XS5●●B1DA●●●

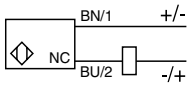


XS5●●B1CA●●●



NC output

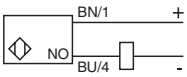
XS5●●●B1DB●●●



2-wire ⎓ polarized

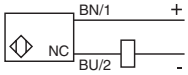
NO output

XS508BSCA●●●



NC output

XS508BSCB●●●

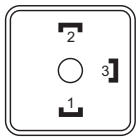


Remote connectors LO1B, LO1C, LO1G

Screw terminal (LO1B)

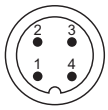
The terminal numbering differs according to the version (⎓ 2-wire, ⎓ 3-wire, ≂ 2-wire).

DIN 43650 A (LO1C)



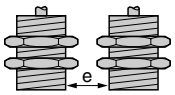
The NO or NC outputs are connected to terminal 2.

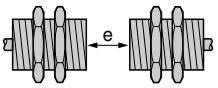
M18 (LO1G)

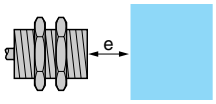


Setup

Minimum mounting distances (mm)

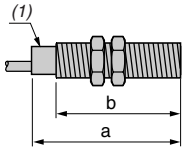






	Side by side	Face to face	Facing a metal object
Ø 6.5	e ≥ 3	e ≥ 18	e ≥ 4.5
Ø 8	e ≥ 3	e ≥ 18	e ≥ 4.5
Ø 12	e ≥ 4	e ≥ 24	e ≥ 6
Ø 18	e ≥ 10	e ≥ 60	e ≥ 15
Ø 30	e ≥ 20	e ≥ 120	e ≥ 30

Dimensions (mm)



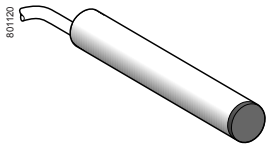
(1) LED

Sensors		Pre-cabled (mm)		M8 connector (mm)		M12 connector (mm)	
Short case model		**a**	**b**	**a**	**b**	**a**	**b**
Ø 6.5	**XS506BS**	33	–	42	–	45	–
Ø 8	**XS508BS**	33	25	42	26	45	24
Ø 12	**XS512BS**	35	25	–	–	50	30
Ø 18	**XS518BS**	39	28	–	–	50	28
Ø 30	**XS530BS**	43	32	–	–	55	32

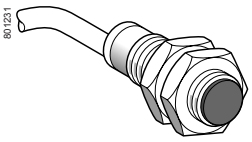
Sensors		Pre-cabled (mm)		M12 connector (mm)	
Long case model		**a**	**b**	**a**	**b**
Ø 8	**XS508B1**	51	42	62	40
Ø 12	**XS512B1**	53	42	62	42
Ø 18	**XS518B1**	62	52	74	52
Ø 30	**XS530B1**	62	52	74	52

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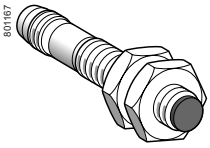
OsiSense® XS
Inductive proximity sensors
General purpose
Cylindrical, semi-flush mountable, increased range
Three-wire DC, solid-state output



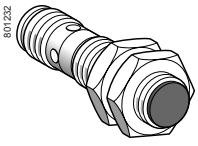
XS1L06●A349



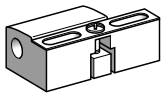
XS1N●●●●349



XS1N08●●349S



XS1N●●●●349D



XSZB1●●

Sensing distance Sn, mm (in.)	Function	Output	Connection	Catalog Number	Weight kg	(lb)
Ø 6.5, plain						
2.5 (0.10)	NO	PNP	Pre-cabled (L = 2 m)	**XS1L06PA349**	0.025	(0.06)
			M8 connector	**XS1L06PA349S**	0.010	(0.02)
			M12 connector	**XS1L06PA349D**	0.015	(0.03)
		NPN	Pre-cabled (L = 2 m)	**XS1L06NA349**	0.025	(0.06)
			M8 connector	**XS1L06NA349S**	0.010	(0.02)
			M12 connector	**XS1L06NA349D**	0.015	(0.03)
	NC	PNP	Pre-cabled (L = 2 m)	**XS1L06PB349**	0.025	(0.06)
			M8 connector	**XS1L06PB349S**	0.010	(0.02)
		NPN	Pre-cabled (L = 2 m)	**XS1L06NB349**	0.025	(0.06)
			M8 connector	**XS1L06NB349S**	0.010	(0.02)
Ø 8, threaded M8 x 1						
2.5 (0.10)	NO	PNP	Pre-cabled (L = 2 m)	**XS1N08PA349**	0.035	(0.08)
			M8 connector	**XS1N08PA349S**	0.015	(0.03)
			M12 connector	**XS1N08PA349D**	0.020	(0.04)
		NPN	Pre-cabled (L = 2 m)	**XS1N08NA349**	0.035	(0.08)
			M8 connector	**XS1N08NA349S**	0.015	(0.03)
			M12 connector	**XS1N08NA349D**	0.020	(0.04)
	NC	PNP	Pre-cabled (L = 2 m)	**XS1N08PB349**	0.035	(0.08)
			M8 connector	**XS1N08PB349S**	0.015	(0.03)
			M12 connector	**XS1N08PB349D**	0.020	(0.04)
		NPN	Pre-cabled (L = 2 m)	**XS1N08NB349**	0.035	(0.08)
			M8 connector	**XS1N08NB349S**	0.015	(0.03)
			M12 connector	**XS1N08NB349D**	0.020	(0.04)
Ø 12, threaded M12 x 1						
4 (0.16)	NO	PNP	Pre-cabled (L = 2 m)	**XS1N12PA349**	0.070	(0.15)
			M12 connector	**XS1N12PA349D**	0.020	(0.04)
		NPN	Pre-cabled (L = 2 m)	**XS1N12NA349**	0.070	(0.15)
			M12 connector	**XS1N12NA349D**	0.020	(0.04)
	NC	PNP	Pre-cabled (L = 2 m)	**XS1N12PB349**	0.070	(0.15)
			M12 connector	**XS1N12PB349D**	0.020	(0.04)
		NPN	Pre-cabled (L = 2 m)	**XS1N12NB349**	0.070	(0.15)
			M12 connector	**XS1N12NB349D**	0.020	(0.04)
Ø 18, threaded M18 x 1						
10 (0.39)	NO	PNP	Pre-cabled (L = 2 m)	**XS1N18PA349**	0.100	(0.22)
			M12 connector	**XS1N18PA349D**	0.040	(0.09)
		NPN	Pre-cabled (L = 2 m)	**XS1N18NA349**	0.100	(0.22)
			M12 connector	**XS1N18NA349D**	0.040	(0.09)
	NC	PNP	Pre-cabled (L = 2 m)	**XS1N18PB349**	0.100	(0.22)
			M12 connector	**XS1N18PB349D**	0.040	(0.09)
		NPN	Pre-cabled (L = 2 m)	**XS1N18NB349**	0.100	(0.22)
			M12 connector	**XS1N18NB349D**	0.040	(0.09)
Ø 30, threaded M30 x 1.5						
20 (0.79)	NO	PNP	Pre-cabled (L = 2 m)	**XS1N30PA349**	0.160	(0.35)
			M12 connector	**XS1N30PA349D**	0.100	(0.22)
		NPN	Pre-cabled (L = 2 m)	**XS1N30NA349**	0.160	(0.35)
			M12 connector	**XS1N30NA349D**	0.100	(0.22)
	NC	PNP	Pre-cabled (L = 2 m)	**XS1N30PB349**	0.160	(0.35)
			M12 connector	**XS1N30PB349D**	0.100	(0.22)
		NPN	Pre-cabled (L = 2 m)	**XS1N30NB349**	0.160	(0.35)
			M12 connector	**XS1N30NB349D**	0.100	(0.22)

Accessories

Description mm		Catalog Number	Weight kg	(lb)
Mounting clamps	Ø 6.5 (plain)	**XSZB165**	0.005	(0.01)
	Ø 8	**XSZB108**	0.006	(0.01)
	Ø 12	**XSZB112**	0.006	(0.01)
	Ø 18	**XSZB118**	0.010	(0.02)
	Ø 30	**XSZB130**	0.020	(0.04)

Schneider Electric

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OsiSense® XS
Inductive proximity sensors
General purpose
Cylindrical, semi-flush mountable, increased range
Three-wire DC, solid-state output

Specifications

Sensor type			XS1●●●●●349D	XS1●●●●●349S	XS1●●●●●349
Product certifications			UL, CSA, CE		
Connection			M12 connector	M8 connector	Pre-cabled, length: 2 m
Operating zone	Ø 6.5 and Ø 8	**mm**	**0–2 (0–0.08 in.)**		
	Ø 12	**mm**	**0–3.2 (0–0.13 in.)**		
	Ø 18	**mm**	**0–8 (0–0.31 in.)**		
	Ø 30	**mm**	**0–16 (0–0.63 in.)**		
Differential travel		**%**	1–15 of effective sensing distance (Sr)		
Degree of protection	Conforming to IEC 60529		IP 67		IP 68, double insulation (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 to +85 (-40 to +185 °F)		
Operating temperature		**°C**	-25 to +70 (-13 to +158 °F)		
Materials	Case		Nickel-plated brass		
	Cable		–		PvR 3 x 0.34 mm² (22 AWG) except Ø 6.5 and 8: 3 x 0.11 mm² (28 AWG)
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		
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**	≤ 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 diagrams

Connector

M8



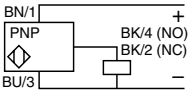
M12



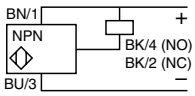
Pre-cabled

BU: Blue
BN: Brown
BK: Black

PNP 3-wire



NPN 3-wire

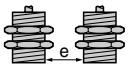


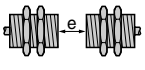
For M8 connector, NO and NC outputs are on terminal 4

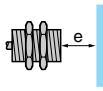
Setup

Minimum mounting distances (mm)

Sensor	Side by side	Face to face	Facing a metal object	Mounted in a metal support
Ø 6.5	e ≥ 5	e ≥ 30	e ≥ 7.5	d ≥ 10 h ≥ 1.6
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

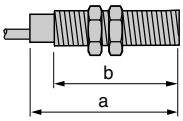








Dimensions (mm)

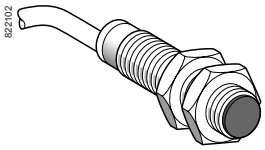


Flush mountable in metal

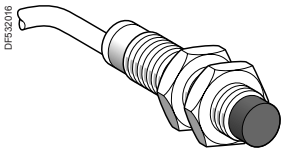
Sensor	Pre-cabled a	Pre-cabled b	M8 connector a	M8 connector b	M12 connector a	M12 connector b
Ø 6.5	33	30	42	34	45	24
Ø 8	33	25	42	26	45	23
Ø 12	35	24.6	–	–	50	30
Ø 18	38.5	27.5	–	–	50	27.5
Ø 30	42.6	31.6	–	–	54.3	31.6

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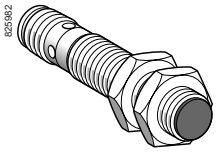
OsiSense® XS
Inductive proximity sensors
General purpose
Multi-voltage sensor, cylindrical, flush mountable and non-flush mountable
Two-wire AC or DC, short-circuit protection



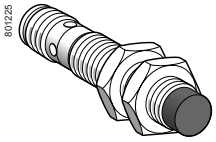
XS1M●●●●250



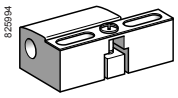
XS2M●●●●250



XS1M●●●●250K



XS2M●●●●250K



XSZB1●●

Sensing distance Sn, mm (in.)	Function	Connection	Catalog Number	Weight kg	(lb)
Ø 12, threaded M12 x 1					
Flush mountable					
2 (0.08)	NO	Pre-cabled (L = 2 m) *(1)*	**XS1M12MA250**	0.075	(0.17)
		1/2"-20UNF connector	**XS1M12MA250K**	0.025	(0.06)
	NC	Pre-cabled (L = 2 m) *(1)*	**XS1M12MB250**	0.075	(0.17)
		1/2"-20UNF connector	**XS1M12MB250K**	0.025	(0.06)
Non-flush mountable					
4 (0.16)	NO	Pre-cabled (L = 2 m) *(1)*	**XS2M12MA250**	0.075	(0.17)
		1/2"-20UNF connector	**XS2M12MA250K**	0.025	(0.06)
	NC	Pre-cabled (L = 2 m) *(1)*	**XS2M12MB250**	0.075	(0.17)
Ø 18, threaded M18 x 1					
Flush mountable					
5 (0.20)	NO	Pre-cabled (L = 2 m) *(1)*	**XS1M18MA250**	0.120	(0.26)
		1/2"-20UNF connector	**XS1M18MA250K**	0.060	(0.13)
	NC	Pre-cabled (L = 2 m) *(1)*	**XS1M18MB250**	0.120	(0.26)
		1/2"-20UNF connector	**XS1M18MB250K**	0.060	(0.13)
Non-flush mountable					
8 (0.31)	NO	Pre-cabled (L = 2 m) *(1)*	**XS2M18MA250**	0.120	(0.26)
		1/2"-20UNF connector	**XS2M18MA250K**	0.060	(0.13)
	NC	Pre-cabled (L = 2 m) *(1)*	**XS2M18MB250**	0.120	(0.26)
		1/2"-20UNF connector	**XS2M18MB250K**	0.060	(0.13)
Ø 30, threaded M30 x 1.5					
Flush mountable					
10 (0.39)	NO	Pre-cabled (L = 2 m) *(1)*	**XS1M30MA250**	0.205	(0.45)
		1/2"-20UNF connector	**XS1M30MA250K**	0.145	(0.32)
	NC	Pre-cabled (L = 2 m) *(1)*	**XS1M30MB250**	0.205	(0.45)
		1/2"-20UNF connector	**XS1M30MB250K**	0.145	(0.32)
Non-flush mountable					
15 (0.59)	NO	Pre-cabled (L = 2 m) *(1)*	**XS2M30MA250**	0.205	(0.45)
		1/2"-20UNF connector	**XS2M30MA250K**	0.145	(0.32)
	NC	Pre-cabled (L = 2 m) *(1)*	**XS2M30MB250**	0.205	(0.45)
		1/2"-20UNF connector	**XS2M30MB250K**	0.145	(0.32)

Accessories

Description mm		Catalog Number	Weight kg	(lb)
Mounting clamps	Ø 12	**XSZB112**	0.006	(0.01)
	Ø 18	**XSZB118**	0.010	(0.02)
	Ø 30	**XSZB130**	0.020	(0.04)

(1) For a 5 m cable add L1 to the catalog number; for a 10 m cable add L2. Example: ***XS1M18MA250*** *becomes* ***XS1M18MA250L1*** *with a 5 m cable.*

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OsiSense® XS
Inductive proximity sensors
General purpose
Multi-voltage sensor, cylindrical, flush mountable and non-flush mountable
Two-wire AC or DC, short-circuit protection

Specifications

Sensor type			XS●M●●M●250K	XS●M●●M●250
Product certifications			UL, CSA, CE	
Connection			1/2"-20UNF connector	Pre-cabled, length: 2 m
Operating zone	Ø 12 flush mountable	**mm**	**0–1.6 (0–0.06 in.)**	
	Ø 12 non-flush mountable	**mm**	**0–3.2 (0–0.13 in.)**	
	Ø 18 flush mountable	**mm**	**0–4 (0–0.16 in.)**	
	Ø 18 non-flush mountable	**mm**	**0–6.4 (0–0.25 in.)**	
	Ø 30 flush mountable	**mm**	**0–8 (0–0.31 in.)**	
	Ø 30 non-flush mountable	**mm**	**0–12 (0–0.47 in.)**	
Differential travel		**%**	1–15 of effective sensing distance (Sr)	
Degree of protection	Conforming to IEC 60529		IP 67	IP 68, double insulation
Storage temperature		**°C**	-40 to +85 (-40 to +185 °F)	
Operating temperature		**°C**	-25 to +70 (-13 to +158 °F)	
Materials	Case		Nickel-plated brass	
	Cable		–	PvR 2 x 0.34 mm² (22 AWG)
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 (only on Ø 18 and Ø 30)
Rated supply voltage		**V**	∼ 24–240 (50/60 Hz) or ⎓ 24–210	
Voltage limits (including ripple)		**V**	∼ or ⎓ 20–264	
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 12	**Hz**	∼ 25 or ⎓ 4000	
	Ø 18	**Hz**	∼ 25 or ⎓ 2000	
	Ø 30 flush mountable	**Hz**	∼ 25 or ⎓ 2000	
	Ø 30 non-flush mountable	**Hz**	∼ 25 or ⎓ 1000	
Delays	First-up	**ms**	≤ 70	
	Response	**ms**	≤ 0.2 for Ø 12, ≤ 2 for Ø 18 and Ø 30	
	Recovery	**ms**	≤ 0.2 for Ø 12, ≤ 4 for Ø 18, ≤ 5 for Ø 30 flush mountable, ≤ 10 for Ø 30 non-flush mountable	

Wiring diagrams

1/2"-20UNF connector

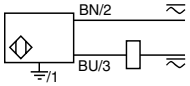


Pre-cabled

BU: Blue
BN: Brown

2-wire ∼ or ⎓

NO or NC output

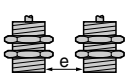


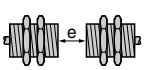
⏚ *: on connector models only.*

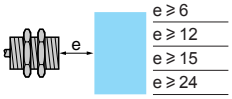
Setup

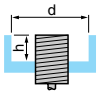
Minimum mounting distances (mm)

Sensor	Side by side	Face to face	Facing a metal object	Mounted in a metal support
Ø 12 flush mountable	e ≥ 4	e ≥ 24	e ≥ 6	d ≥ 12 h ≥ 0
Ø 12 non-flush mountable	e ≥ 16	e ≥ 48	e ≥ 12	d ≥ 36 h ≥ 8
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 h ≥ 0
Ø 30 non-flush mountable	e ≥ 60	e ≥ 180	e ≥ 45	d ≥ 90 h ≥ 30

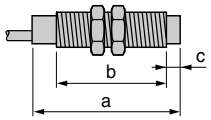








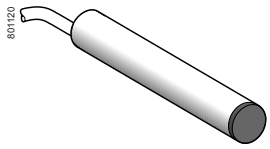
Dimensions (mm)



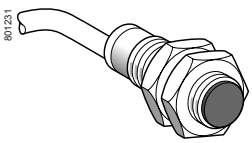
Sensor	Flush mountable in metal				Non-flush mountable in metal				
	Pre-cabled		Connector		Pre-cabled		Connector		
	a	b	a	b	a	b	a	b	c
Ø 12	55	47	66	48	54.6	42	65.6	42	5
Ø 18	60	51	72	51	60	44	72	44	8
Ø 30	60	51	72	51	62.6	41	74.7	41	13

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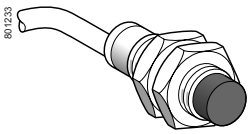
OsiSense® XS
Inductive proximity sensors
General purpose
Cylindrical, metal and plastic, flush mountable and non-flush mountable, 4-wire DC, solid-state NO + NC output



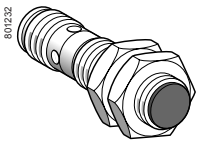
XS1L06●C410



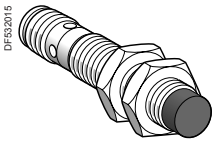
XS1●●●●C410



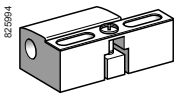
XS2●●●●C410



XS1N●●●C410D



XS2N●●●C410D



XSZB1●●

Sensing distance Sn, mm (in.)	Function	Output	Connection	Catalog Number	Weight kg	(lb)
Ø 6.5 plain						
Stainless steel case, flush mountable						
1.5 (0.06)	NO + NC	PNP	Pre-cabled (L = 2 m) *(1)*	**XS1L06PC410**	0.025	(0.06)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS1L06NC410**	0.025	(0.06)
Ø 8, threaded M8 x 1						
Stainless steel case, flush mountable						
1.5 (0.06)	NO + NC	PNP	Pre-cabled (L = 2 m)	**XS1M08PC410**	0.035	(0.08)
			M12 connector	**XS1M08PC410D**	0.025	(0.06)
		NPN	Pre-cabled (L = 2 m)	**XS1M08NC410**	0.035	(0.08)
			M12 connector	**XS1M08NC410D**	0.025	(0.06)
Stainless steel case, non-flush mountable						
2.5 (0.10)	NO + NC	PNP	Pre-cabled (L = 2 m)	**XS2M08PC410**	0.035	(0.08)
			M12 connector	**XS2M08PC410D**	0.025	(0.06)
		NPN	Pre-cabled (L = 2 m)	**XS2M08NC410**	0.035	(0.08)
			M12 connector	**XS2M08NC410D**	0.025	(0.06)
Ø 12, threaded M12 x 1						
Brass case, flush mountable						
2 (0.08)	NO + NC	PNP	Pre-cabled (L = 2 m) *(1)*	**XS1N12PC410**	0.070	(0.15)
			M12 connector	**XS1N12PC410D**	0.020	(0.04)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS1N12NC410**	0.070	(0.15)
			M12 connector	**XS1N12NC410D**	0.020	(0.04)
Brass case, non-flush mountable *(2)*						
4 (0.16)	NO + NC	PNP	Pre-cabled (L = 2 m) *(1)*	**XS2N12PC410**	0.070	(0.15)
			M12 connector	**XS2N12PC410D**	0.020	(0.04)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS2N12NC410**	0.070	(0.15)
			M12 connector	**XS2N12NC410D**	0.020	(0.04)
Ø 18, threaded M18 x 1						
Brass case, flush mountable						
5 (0.20)	NO + NC	PNP	Pre-cabled (L = 2 m) *(1)*	**XS1N18PC410**	0.100	(0.22)
			M12 connector	**XS1N18PC410D**	0.040	(0.09)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS1N18NC410**	0.100	(0.22)
			M12 connector	**XS1N18NC410D**	0.040	(0.09)
Brass case, non-flush mountable *(2)*						
8 (0.31)	NO + NC	PNP	Pre-cabled (L = 2 m) *(1)*	**XS2N18PC410**	0.100	(0.22)
			M12 connector	**XS2N18PC410D**	0.040	(0.09)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS2N18NC410**	0.100	(0.22)
			M12 connector	**XS2N18NC410D**	0.040	(0.09)
Ø 30, threaded M30 x 1.5						
Brass case, flush mountable						
10 (0.39)	NO + NC	PNP	Pre-cabled (L = 2 m) *(1)*	**XS1N30PC410**	0.160	(0.35)
			M12 connector	**XS1N30PC410D**	0.100	(0.22)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS1N30NC410**	0.160	(0.35)
			M12 connector	**XS1N30NC410D**	0.100	(0.22)
Brass case, non-flush mountable *(2)*						
15 (0.59)	NO + NC	PNP	Pre-cabled (L = 2 m) *(1)*	**XS2N30PC410**	0.160	(0.35)
			M12 connector	**XS2N30PC410D**	0.100	(0.22)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS2N30NC410**	0.160	(0.35)
			M12 connector	**XS2N30NC410D**	0.100	(0.22)

Accessories

Description mm		Catalog Number	Weight kg	(lb)
Mounting clamps	Ø 8	**XSZB108**	0.006	(0.01)
	Ø 12	**XSZB112**	0.006	(0.01)
	Ø 18	**XSZB118**	0.010	(0.02)
	Ø 30	**XSZB130**	0.020	(0.04)

*(1) For a 5 m cable add L1 to the catalog number; for a 10 m cable add L2. Example: **XS1N12PC410** becomes **XS1N12PC410L1** with a 5 m cable.*
*(2) For a non-flush mountable sensor with a plastic, case, replace 2N by 4P in the catalog number. Example: **XS2N12PC410** becomes **XS4P12PC410** with a plastic case.*

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Specifications,
Wiring Diagrams,
Setup,
Dimensions

OsiSense® XS
Inductive proximity sensors
General purpose
Cylindrical, metal and plastic, flush mountable and non-flush mountable, 4-wire DC, solid-state NO + NC output

Specifications

Sensor type			XS●●●●●C410D	XS●●●●●C410
Product certifications			UL, CSA, CE	
Connection			M12 connector	Pre-cabled, length: 2 m
Operating zone	Ø 6.5 and Ø 8 flush mtble	mm	**0–1.2 (0–0.05 in.)**	
	Ø 8 non-flush mountable	mm	**0–2 (0–0.08 in.)**	
	Ø 12 flush mountable	mm	**0–1.6 (0–0.06 in.)**	
	Ø 12 non-flush mountable	mm	**0–3.2 (0–0.13 in.)**	
	Ø 18 flush mountable	mm	**0–4 (0–0.16 in.)**	
	Ø 18 non-flush mountable	mm	**0–6.4 (0–0.25 in.)**	
	Ø 30 flush mountable	mm	**0–8 (0–0.31 in.)**	
	Ø 30 non-flush mountable	mm	**0–12 (0–0.47 in.)**	
Differential travel		%	1–15 of effective sensing distance (Sr)	
Degree of protection	Conforming to IEC 60529		IP 67	IP 68, double insulation (except Ø 6.5 and Ø 8: IP 67)
Storage temperature		°C	-40 to +85 (-40 to +185 °F)	
Operating temperature		°C	-25 to +70 (-13 to +158 °F)	
Materials	Case		Nickel-plated brass for XS1N and XS2N Stainless steel, grade 303, for XS1L06, XS1M08 and XS2M08 Plastic, PPS, for XS4 P	
	Cable		–	PvR 4 x 0.34 mm² (22 AWG) except Ø 6.5 and 8: 4 x 0.08 mm² (28 AWG)
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	
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	

Wiring diagrams

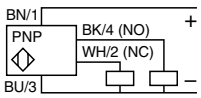
M12 connector



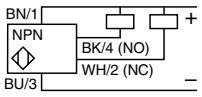
Pre-cabled

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

PNP 4-wire



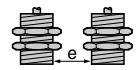
NPN 4-wire

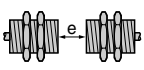


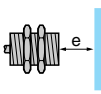
Setup

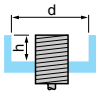
Minimum mounting distances (mm)

Sensor	Side by side	Face to face	Facing a metal object	Mounted in a metal support
Ø 6.5 flush mountable **XS1L06**	e ≥ 3	e ≥ 18	e ≥ 4.5	d ≥ 6.5 h ≥ 0
Ø 8 flush mountable **XS1M08**	e ≥ 3	e ≥ 18	e ≥ 4.5	d ≥ 8 h ≥ 0
Ø 8 non-flush mountable **XS2M08**	e ≥ 10	e ≥ 30	e ≥ 7.5	d ≥ 24 h ≥ 5
Ø 12 flush mountable **XS1N12**	e ≥ 4	e ≥ 24	e ≥ 6	d ≥ 12 h ≥ 0
Ø 12 non-flush mtble **XS1N12** or **XS4P12**	e ≥ 16	e ≥ 48	e ≥ 12	d ≥ 36 h ≥ 8
Ø 18 flush mountable **XS1N18**	e ≥ 10	e ≥ 60	e ≥ 15	d ≥ 18 h ≥ 0
Ø 18 non-flush mtble **XS2N18** or **XS4P18**	e ≥ 16	e ≥ 96	e ≥ 24	d ≥ 54 h ≥ 16
Ø 30 flush mountable **XS1N30**	e ≥ 20	e ≥ 120	e ≥ 30	d ≥ 30 h ≥ 0
Ø 30 non-flush mtble **XS2N30** or **XS4P30**	e ≥ 60	e ≥ 180	e ≥ 45	d ≥ 90 h ≥ 30

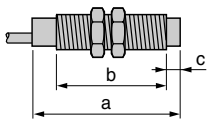








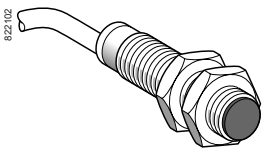
Dimensions (mm)



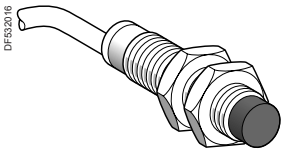
Sensor	Flush mountable in metal				Non-flush mountable in metal				
	Pre-cabled		Connector		Pre-cabled		Connector		
	a	b	a	b	a	b	a	b	c
Ø 6.5 metal	50	47	–	–	–	–	–	–	–
Ø 8 metal	50	42	61	42	50	36	61	36	4
Ø 12 metal	33	25	48	29	37.6	25	52.6	29	5
Ø 12 plastic	–	–	–	–	33	25	48	29	0
Ø 18 metal	36.5	28	48.6	28	36.5	20	48.6	20	8
Ø 18 plastic	–	–	–	–	33.5	26	48	29	0
Ø 30 metal	40.6	32	52.7	32	40.5	19	52.6	19	13
Ø 30 plastic	–	–	–	–	40.5	33	50	34	0

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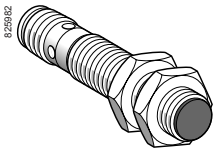
OsiSense® XS
Inductive proximity sensors
General purpose
Cylindrical, metal and plastic, flush and non-flush mountable, 4-wire DC, solid-state PNP + NPN NO/NC programmable output



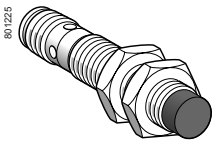
XS1M●●KP340
XS4P●●KP340



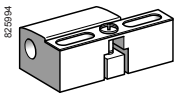
XS2M●●KP340



XS1M●●KP340D
XS4P●●KP340D



XS2M●●KP340D



XSZB1●●

Sensing distance Sn, mm (in.)	Function	Output	Connection	Catalog Number	Weight kg	(lb)
Ø 12, threaded M12 x 1						
Metal case, flush mountable						
2 (0.08)	NO/NC programmable	PNP + NPN	Pre-cabled (L = 2 m) *(1)*	**XS1M12KP340**	0.075	(0.17)
			M12 connector	**XS1M12KP340D**	0.025	(0.06)
Metal case, non-flush mountable						
4 (0.16)	NO/NC programmable	PNP + NPN	Pre-cabled (L = 2 m) *(1)*	**XS2M12KP340**	0.075	(0.17)
			M12 connector	**XS2M12KP340D**	0.025	(0.06)
Plastic case, non-flush mountable						
4 (0.16)	NO/NC programmable	PNP + NPN	Pre-cabled (L = 2 m) *(1)*	**XS4P12KP340**	0.075	(0.17)
			M12 connector	**XS4P12KP340D**	0.025	(0.06)
Ø 18, threaded M18 x 1						
Metal case, flush mountable						
5 (0.20)	NO/NC programmable	PNP + NPN	Pre-cabled (L = 2 m) *(1)*	**XS1M18KP340**	0.120	(0.12)
			M12 connector	**XS1M18KP340D**	0.060	(0.13)
Metal case, non-flush mountable						
8 (0.31)	NO/NC programmable	PNP + NPN	Pre-cabled (L = 2 m) *(1)*	**XS2M18KP340**	0.120	(0.12)
			M12 connector	**XS2M18KP340D**	0.060	(0.13)
Plastic case, non-flush mountable						
8 (0.31)	NO/NC programmable	PNP + NPN	Pre-cabled (L = 2 m) *(1)*	**XS4P18KP340**	0.120	(0.12)
			M12 connector	**XS4P18KP340D**	0.060	(0.13)
Ø 30, threaded M30 x 1.5						
Metal case, flush mountable						
10 (0.39)	NO/NC programmable	PNP + NPN	Pre-cabled (L = 2 m) *(1)*	**XS1M30KP340**	0.205	(0.45)
			M12 connector	**XS1M30KP340D**	0.145	(0.32)
Metal case, non-flush mountable						
15 (0.59)	NO/NC programmable	PNP + NPN	Pre-cabled (L = 2 m) *(1)*	**XS2M30KP340**	0.205	(0.45)
			M12 connector	**XS2M30KP340D**	0.145	(0.32)
Plastic case, non-flush mountable						
15 (0.59)	NO/NC programmable	PNP + NPN	Pre-cabled (L = 2 m) *(1)*	**XS4P30KP340**	0.205	(0.45)
			M12 connector	**XS4P30KP340D**	0.145	(0.32)

Accessories

Description		Catalog Number	Weight kg	(lb)
Mounting clamps	Ø 12 mm	**XSZB112**	0.006	(0.01)
	Ø 18 mm	**XSZB118**	0.010	(0.02)
	Ø 30 mm	**XSZB130**	0.020	(0.02)

(1) For a 5 m cable add L1 to the catalog number; for a 10 m cable add L2. Example:
***XS1M12KP340** becomes **XS1M12KP340L1** with a 5 m cable.*

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Specifications,
Wiring Diagrams,
Setup,
Dimensions

OsiSense® XS
Inductive proximity sensors
General purpose
Cylindrical, metal and plastic, flush and non-flush mountable, 4-wire DC, solid-state PNP + NPN NO/NC programmable output

Specifications

Sensor type			XS●M●●KP340D	XS●M●●KP340
Product certifications			UL, CSA, CE	
Connection			M12 connector	Pre-cabled, length: 2 m
Operating zone	Ø 12 flush mountable	mm	**0–1.6 (0–0.06 in.)**	
	Ø 12 non-flush mountable	mm	**0–3.2 (0–0.13 in.)**	
	Ø 18 flush mountable	mm	**0–4 (0–0.16 in.)**	
	Ø 18 non-flush mountable	mm	**0–6.4 (0–0.25 in.)**	
	Ø 30 flush mountable	mm	**0–8 (0–0.31 in.)**	
	Ø 30 non-flush mountable	mm	**0–12 (0–0.47 in.)**	
Differential travel		%	1–15 of effective sensing distance (Sr)	
Degree of protection	Conforming to IEC 60529		IP 67	IP 68, double insulation
Storage temperature		°C	-40 to +85 (-40 to +185 °F)	
Operating temperature		°C	-25 to +70 (-13 to +158 °F)	
Materials	Case		Nickel-plated brass for XS1M and XS2M, PPS for XS4P	
	Cable		–	PvR 4 x 0.34 mm² (22 AWG)
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	
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 diagrams

M12 connector

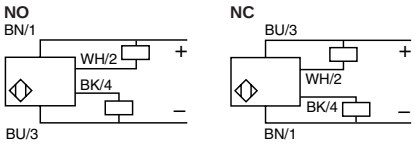


Pre-cabled

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

PNP + NPN

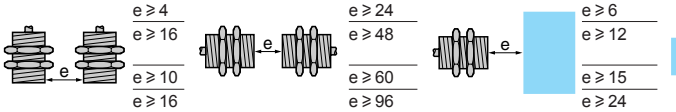
4-wire programmable, NO or NC output



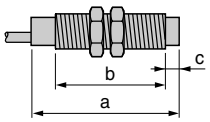
Setup

Minimum mounting distances (mm)

Sensor	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 (mm)

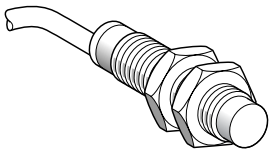


Sensor	Flush mountable in metal				Non-flush mountable in metal				
	Pre-cabled		Connector		Pre-cabled		Connector		
	a	b	a	b	a	b	a	b	c
Ø 12 metal	50	42	61	42	54.6	42	65.6	42	5
Ø 12 plastic	–	–	–	–	50	42	61	42	0
Ø 18 metal	60	51	72	51	60	44	72	44	8
Ø 18 plastic	–	–	–	–	60	51	70	51	0
Ø 30 metal	60	51	72	51	62.6	41	74.7	41	13
Ø 30 plastic	–	–	–	–	60	51	70	51	0

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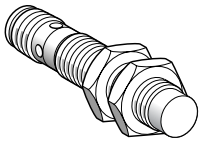
OsiSense® XS
Inductive proximity sensors
Application, food and beverage processing series • Cylindrical, stainless steel, non-flush mountable, three-wire DC, solid-state output

DF532016



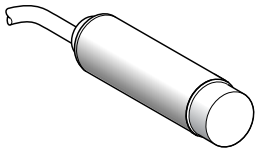
XS2●●SA●●L2

DF532015



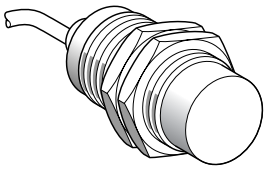
XS2●●SA●●M12

534440



XS2L2SA●●L2

822116



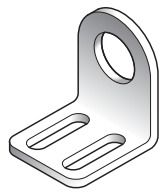
XS230SA●●L2

509863



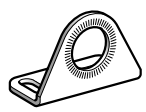
XUZB2005

523363



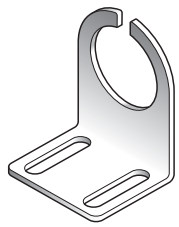
XSZBS12

805817



XUZA118

523364



XSZBS30

Ø 12, threaded M12 x 1

Sensing distance Sn, mm (in.)	Function	Output	Connection	Catalog Number	Weight kg	(lb)
7 (0.28)	NO	PNP	Pre-cabled (L = 2 m) *(1)*	**XS212SAPAL2**	0.075	(0.17)
			M12 connector	**XS212SAPAM12**	0.035	(0.08)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS212SANAL2**	0.075	(0.17)
			M12 connector	**XS212SANAM12**	0.035	(0.08)

Ø 18, threaded M18 x 1

Sensing distance Sn, mm (in.)	Function	Output	Connection	Catalog Number	Weight kg	(lb)
12 (0.47)	NO	PNP	Pre-cabled (L = 2 m) *(1)*	**XS218SAPAL2**	0.120	(0.26)
			M12 connector	**XS218SAPAM12**	0.060	(0.13)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS218SANAL2**	0.120	(0.26)
			M12 connector	**XS218SANAM12**	0.060	(0.13)

Ø 18, plain

Sensing distance Sn, mm (in.)	Function	Output	Connection	Catalog Number	Weight kg	(lb)
12 (0.47)	NO	PNP	Pre-cabled (L = 2 m) *(1)*	**XS2L2SAPAL2**	0.120	(0.26)
			M12 connector	**XS2L2SAPAM12**	0.060	(0.13)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS2L2SANAL2**	0.120	(0.26)
			M12 connector	**XS2L2SANAM12**	0.060	(0.13)

Ø 30, threaded M30 x 1.5

Sensing distance Sn, mm (in.)	Function	Output	Connection	Catalog Number	Weight kg	(lb)
22 (0.87)	NO	PNP	Pre-cabled (L = 2 m) *(1)*	**XS230SAPAL2**	0.205	(0.45)
			M12 connector	**XS230SAPAM12**	0.145	(0.32)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS230SANAL2**	0.205	(0.45)
			M12 connector	**XS230SANAM12**	0.145	(0.32)

Accessories

Description	For use with	Catalog Number	Weight kg	(lb)
Plastic mounting clamp, 24.1 mm centers, with locking screw	Ø 18 sensor, plain case	**XUZB2005**	0.007	(0.02)
Stainless steel mounting bracket	Ø 12 sensor	**XSZBS12**	0.060	(0.13)
	Ø 18 sensor	**XUZA118**	0.045	(0.10)
	Ø 30 sensor	**XSZBS30**	0.080	(0.18)

Connecting cables *(2)*

Description	Type	Length m	Catalog Number	Weight kg	(lb)
Pre-wired M12 connectors Female, 4-pin, stainless steel clamping ring	Straight	2	**XZCPA1141L2**	0.090	(0.20)
		5	**XZCPA1141L5**	0.210	(0.46)
		10	**XZCPA1141L10**	0.410	(0.90)
	Elbowed	2	**XZCPA1241L2**	0.090	(0.20)
		5	**XZCPA1241L5**	0.210	(0.46)
		10	**XZCPA1241L10**	0.410	(0.90)
M12 jumper cable Male, 3-pin, stainless steel clamping ring	Straight	2	**XZCRA151140A2**	0.095	(0.21)
		5	**XZCRA151140A5**	0.200	(0.44)

*(1) For a 5 m cable replace L2 with L5; for a 10 m cable replace L2 by **L10**.*
*Example: **XS212SAPAL2** becomes **XS212SAPAL5** with a 5 m cable.*
(2) For further information, see Machine Cabling section.

Schneider Electric

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OsiSense® XS
Inductive proximity sensors
Application, food and beverage processing series • Cylindrical, stainless steel, non-flush mountable, three-wire DC, solid-state output

Specifications

Sensor type			XS2●●SA●●M12	XS2●●SA●●L2
Product certifications/approvals			UL, CSA, CE	
Connection	Connector		M12	–
	Pre-cabled		–	Length: 2 m
Operating zone	Ø 12	**mm**	**0–5.6 (0–0.22 in.)**	
	Ø 18	**mm**	**0–9.6 (0– 0.38 in.)**	
	Ø 30	**mm**	**0–17.6 (0–0.69 in.)**	
Differential travel		**%**	1–15 of effective sensing distance (Sr)	
Degree of protection	Conforming to IEC 60529		IP 67	IP 68, double insulation ⧈
	DIN 40050		IP 69K	
Storage temperature		**°C**	-40 to +85 (-40 to +185 °F)*(1)*	
Operating temperature		**°C**	-25 to +85 (-13 to +185 °F)	
Materials	Case		Stainless steel, grade 316 L	
	Cable		–	Non-poisonous PVC, 3 x 0.34 mm² (22 AWG)
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	
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●●●●**	**Hz**	2500	
	XS218SA●●●● and **XS2L2●●●●**	**Hz**	1000	
	XS230SA●●●●	**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 (+212 °F) for cleaning and sterilization phases while not in service.

Wiring diagrams

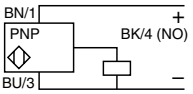
Connector

M12 

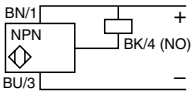
Pre-cabled

BU: Blue
BN: Brown
BK: Black

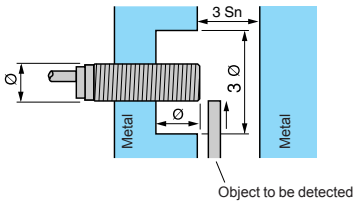
PNP



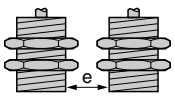
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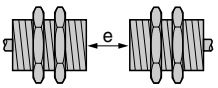


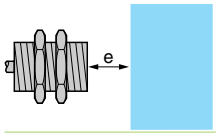
Setup



Minimum mounting distances (mm)



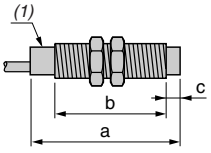




	Side by side	Face to face	Facing a metal object
Ø 12	e ≥ 48	e ≥ 84	e ≥ 21
Ø 18	e ≥ 72	e ≥ 144	e ≥ 36
Ø 30	e ≥ 120	e ≥ 264	e ≥ 66

Dimensions (mm)

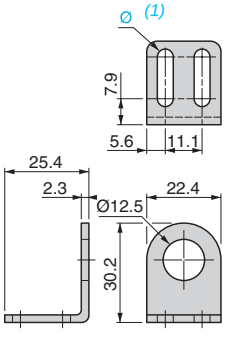
XS2



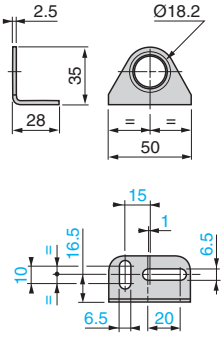
(1) LED

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

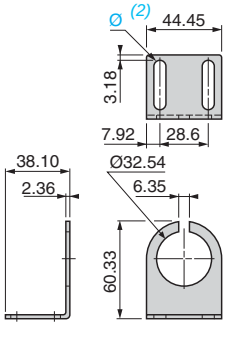
XSZBS12



XUZA118



XSZBS30

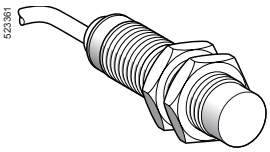


(1) Ø: 2 elongated holes Ø 4.8 x 12.7

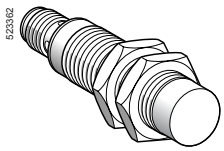
(2) Ø: 2 elongated holes Ø 7.14 x 29.36

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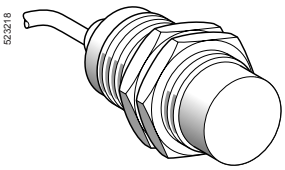
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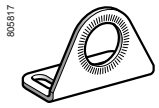
XS218SAM●L2



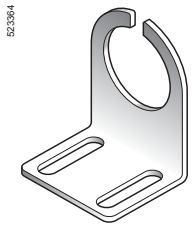
XS218SAM●U20



XS230SAM●L2



XUZA118



XSZBS30

Ø 18, threaded M18 x 1

Sensing distance Sn, mm (in.)	Function	Connection	Catalog Number	Weight kg	(lb)
12 (0.47)	NO	Pre-cabled (L = 2 m) *(1)*	**XS218SAMAL2**	0.120	(0.26)
		1/2"-20UNF connector	**XS218SAMAU20**	0.060	(0.13)

Ø 30, threaded M30 x 1.5

Sensing distance Sn, mm (in.)	Function	Connection	Catalog Number	Weight kg	(lb)
22 (0.87)	NO	Pre-cabled (L = 2 m) *(1)*	**XS230SAMAL2**	0.205	(0.45)
		1/2"-20UNF connector	**XS230SAMAU20**	0.145	(0.32)

Connecting cables *(2)*

Description	Type	Length m	Catalog Number	Weight kg	(lb)
Pre-wired connectors 1/2"-20UNF 3-pin female, stainless steel clamping ring	Straight	5	**XZCPA1865L5**	0.210	(0.46)
		10	**XZCPA1865L10**	0.410	(0.90)
	Elbowed	5	**XZCPA1965L5**	0.250	(0.55)
		10	**XZCPA1965L10**	0.485	(1.07)

Accessories

Description	For use with	Catalog Number	Weight kg	(lb)
Stainless steel mounting bracket	Ø 18 sensor	**XUZA118**	0.045	(0.10)
	Ø 30 sensor	**XSZBS30**	0.080	(0.18)

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

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OsiSense® XS
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Specifications

Sensor type			XS2●●SAM●U20	XS2●●SAM●L2
Product certifications/approvals			UL, CSA, CE	
Connection	Connector		1/2"-20UNF	–
	Pre-cabled		–	Length: 2 m
Operating zone	Ø 18	**mm**	**0–9.6 (0–0.38)**	
	Ø 30	**mm**	**0–17.6 (0–0.69)**	
Differential travel		**%**	1–15 of effective sensing distance (Sr)	
Degree of protection	Conforming to IEC 60529		IP 67	IP 68, double insulation ⧈
	DIN 40050		IP 69K	
Storage temperature		**°C**	-40 to +85 (-40 to +185 °F) *(1)*	
Operating temperature		**°C**	-25 to +85 (-13 to +185 °F)	
Materials	Case		Stainless steel, grade 316 L	
	Cable		–	Non-poisonous PVC, 2 x 0.34 mm² (22 AWG)
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	
Switching capacity		**mA**	∿ 50–300 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 (+212 °F) for cleaning and sterilization processes while not in service.
(2) A 0.4 A fast-acting fuse must be connected in series with the load.

Wiring diagrams

Connector

1/2"-20UNF



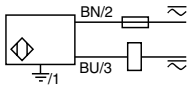
AC/DC: 2
⏚ : 1
AC/DC: 3

Pre-cabled

BU: Blue
BN: Brown

2-wire ∿ or ⎓

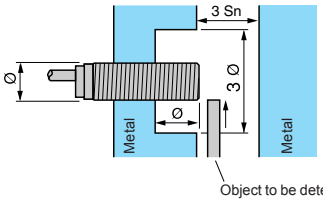
NO output

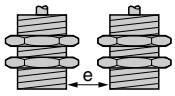


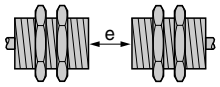
⏚: *on connector models only*

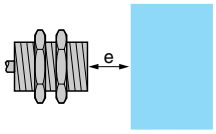
Setup

Minimum mounting distances (mm)





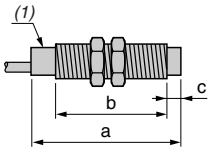




	Side by side	Face to face	Facing a metal object
Ø 18	e ≥ 72	e ≥ 144	e ≥ 36
Ø 30	e ≥ 120	e ≥ 264	e ≥ 66

Dimensions (mm)

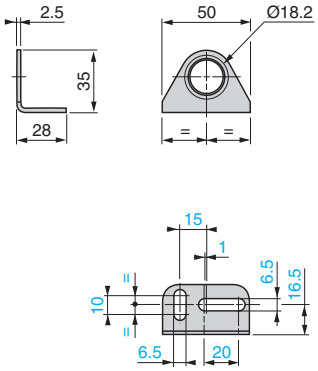
XS2



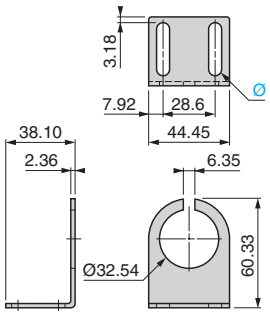
(1) LED

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

XSZA118



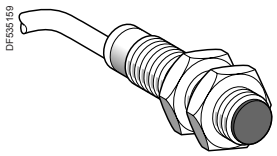
XSZBS30



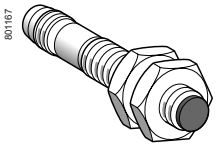
Ø: 2 elongated holes Ø 7.14 x 29.36

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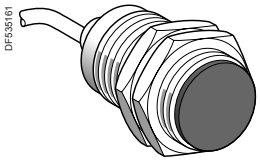
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Three-wire DC, solid-state output



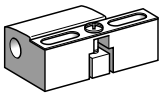
XS2●●AA●●L2



XS2●●AA●●M12



XS230AA●●L2



XSZB●●●

Ø 12, threaded M12 x 1

Sensing distance Sn, mm (in.)	Function	Output	Connection	Catalog Number	Weight kg	(lb)
7 (0.28)	NO	PNP	Pre-cabled (L = 2 m) *(1)*	**XS212AAPAL2**	0.065	(0.14)
			M12 connector	**XS212AAPAM12**	0.030	(0.07)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS212AANAL2**	0.065	(0.14)
			M12 connector	**XS212AANAM12**	0.030	(0.07)

Ø 18, threaded M18 x 1

Sensing distance Sn, mm (in.)	Function	Output	Connection	Catalog Number	Weight kg	(lb)
12 (0.47)	NO	PNP	Pre-cabled (L = 2 m) *(1)*	**XS218AAPAL2**	0.100	(0.22)
			M12 connector	**XS218AAPAM12**	0.040	(0.09)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS218AANAL2**	0.100	(0.22)
			M12 connector	**XS218AANAM12**	0.040	(0.09)

Ø 30, threaded M30 x 1.5

Sensing distance Sn, mm (in.)	Function	Output	Connection	Catalog Number	Weight kg	(lb)
22 (0.87)	NO	PNP	Pre-cabled (L = 2 m) *(1)*	**XS230AAPAL2**	0.140	(0.31)
			M12 connector	**XS230AAPAM12**	0.080	(1.76)
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS230AANAL2**	0.140	(0.31)
			M12 connector	**XS230AANAM12**	0.080	(1.76)

Accessories

Description		Catalog Number	Weight kg	(lb)
Mounting clamps	Ø 12	**XSZB112**	0.006	(0.01)
	Ø 18	**XSZB118**	0.010	(0.02)
	Ø 30	**XSZB130**	0.020	(0.04)

Connecting cables

Description	Type	Length m	Catalog Number	Weight kg	(lb)
Pre-wired M12 connectors Female, 4-pin, stainless steel clamping ring	Straight	2	**XZCPA1141L2**	0.090	(0.20)
		5	**XZCPA1141L5**	0.190	(0.42)
		10	**XZCPA1141L10**	0.370	(0.82)
	Elbowed	2	**XZCPA1241L2**	0.090	(0.20)
		5	**XZCPA1241L5**	0.190	(0.42)
		10	**XZCPA1241L10**	0.370	(0.82)
M12 jumper cable Male, 3-pin, stainless steel clamping ring	Straight	2	**XZCRA151140A2**	0.090	(0.20)
		5	**XZCRA151140A5**	0.190	(0.42)

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

Schneider Electric

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Specification, Wiring Diagrams, Setup, Dimensions

OsiSense® XS
Inductive proximity sensors
Application, food and beverage processing
series • Cylindrical, plastic, non-flush mountable
Three-wire DC, solid-state output

Specifications

Sensor type			XS2●●AA●●M12	XS2●●AA●●L2
Product certifications/approvals			UL, CSA, CE	
Connection	Connector		M12	–
	Pre-cabled		–	Length: 2 m
Operating zone	Ø 12	**mm**	**0–5.6 (0–0.22 in.)**	
	Ø 18	**mm**	**0–9.6 (0–0.38 in.)**	
	Ø 30	**mm**	**0–17.6 (0–0.69 in.)**	
Differential travel		**%**	1–15 of effective sensing distance (Sr)	
Degree of protection	Conforming to IEC 60529		IP 67	IP 68, double insulation ⧈
	DIN 40050		IP 69K	
Storage temperature		**°C**	-40 to +85 (-40 to +185 °F)	
Operating temperature		**°C**	-25 to +85 (-13 to + 185 °F)	
Materials	Case		PPS	
	Cable		–	PvR and 3 x 0.34 mm² (24 AWG)
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		**Vdc**	12–48 for T - 25 to + 85 °C (-13 to + 185 °F)	
Voltage limits (including ripple)		**Vdc**	10–58 for T - 25 to + 85 °C (-13 to +185 °F)	
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 diagrams

Connector

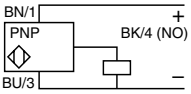
M12



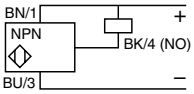
Pre-cabled

BU: Blue
BN: Brown
BK: Black

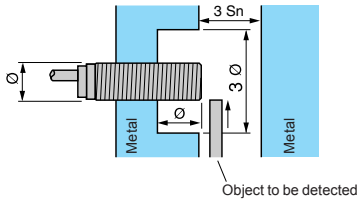
PNP



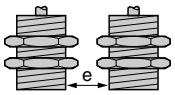
NPN

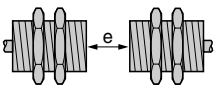


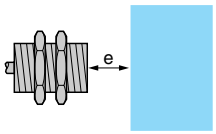
Setup



Minimum mounting distances (mm)

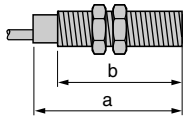






	Side by side	Face to face	Facing a metal object
Ø 12	e ⩾ 48	e ⩾ 84	e ⩾ 21
Ø 18	e ⩾ 72	e ⩾ 144	e ⩾ 36
Ø 30	e ⩾ 120	e ⩾ 264	e ⩾ 66

Dimensions (mm)



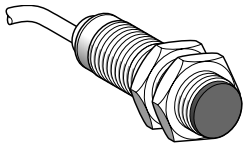
XS2

	Pre-cabled (mm)		Connector (mm)	
XS2	a	b	a	b
Ø 12	50	42	61	43
Ø 18	60	51	70	52
Ø 30	60	51	70	52

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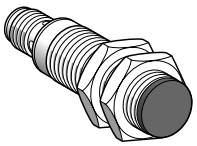
OsiSense® XS
Inductive proximity sensors
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series • Cylindrical, plastic, non-flush mountable
Two-wire AC or DC

535156



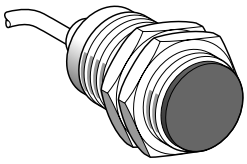
XS2●●AAM●L2

523382



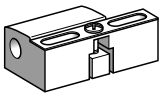
XS2●●AAM●U20

535158



XS230AAM●L2

825994



XSZB1●●

Ø 18, threaded M18 x 1

Sensing distance Sn, mm (in.)	Function	Connection	Catalog Number	Weight kg	(lb)
12 (0.47)	NO	Pre-cabled (L = 2 m) *(1)*	**XS218AAMAL2**	0.100	(0.22)
		1/2"-20UNF connector	**XS218AAMAU20**	0.040	(0.09)

Ø 30, threaded M30 x 1.5

Sensing distance Sn, mm (in.)	Function	Connection	Catalog Number	Weight kg	(lb)
22 (0.87)	NO	Pre-cabled (L = 2 m) *(1)*	**XS230AAMAL2**	0.140	(0.31)
		1/2"-20UNF connector	**XS230AAMAU20**	0.080	(0.18)

Accessories

Description		Catalog Number	Weight kg	(lb)
Mounting clamps	Ø 18	**XSZB118**	0.010	(0.02)
	Ø 30	**XSZB130**	0.020	(0.04)

Connecting cables

Description	Type	Length m	Catalog Number	Weight kg	(lb)
Pre-wired connectors 1/2"-20UNF 3-pin female, stainless steel 316 L clamping ring	Straight	5	**XZCPA1865L5**	0.180	(0.40)
		10	**XZCPA1865L10**	0.350	(0.77)
	Elbowed	5	**XZCPA1965L5**	0.180	(0.40)
		10	**XZCPA1965L10**	0.350	(0.77)

*(1) For a 5 m cable replace L2 wi**th** L5; for a 10 m cable replace L2 by **L10**.*
*Example: **XS218AAMAL2** becomes **XS218AAMAL5** with a 5 m cable..*

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OsiSense® XS
Inductive proximity sensors
XS Application, food and beverage processing series • Cylindrical, plastic, non-flush mountable
Two-wire AC or DC

Specifications

Sensor type			XS2●●AAM●U20	XS2●●AAM●L2
Product certifications/approvals			UL, CSA, CE	
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, double insulation ⧈
	DIN 40050		IP 69K	
Storage temperature		**°C**	-40 to +85 (-40 to 185 °F)	
Operating temperature		**°C**	-25 to +85 (-13 to 185 °F)	
Materials	Case		PPS	
	Cable		–	PvR and 2 x 0.34 mm² (24 AWG)
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 ⎓ 200264	
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) A 0.4 A fast-acting fuse must be connected in series with the load.

Wiring diagrams

Connector

1/2"-20UNF



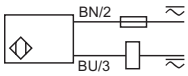
∿: 2
∿: 3

Pre-cabled

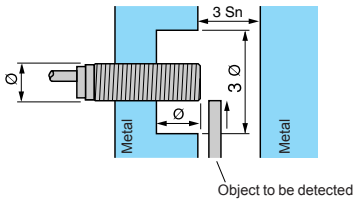
BU: Blue
BN: Brown

2-wire ∿ or ⎓

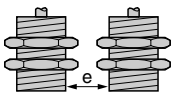
NO output

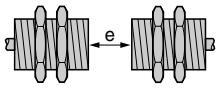


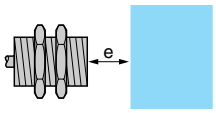
Setup



Minimum mounting distances (mm)



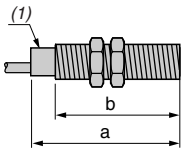




	Side by side	Face to face	Facing a metal object
Ø 18	e ≥ 72	e ≥ 144	e ≥ 36
Ø 30	e ≥ 120	e ≥ 264	e ≥ 66

Dimensions (mm)

XS2

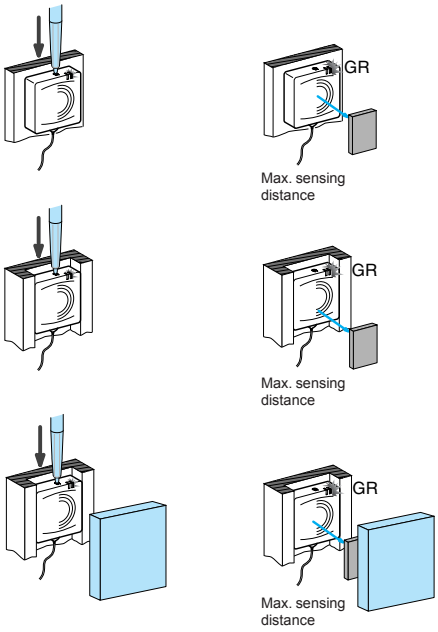


(1) LED

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

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OsiSense® XS
Inductive proximity sensors
Flush mountable using teach mode



Operating principle

Schneider Electric's flush mountable sensors using teach mode offer simplicity through innovation.

■ A single product enables flush mounting using teach mode and meets all the requirements for inductive sensing of metal objects.
Simply press the "Teach mode" button, and the sensor automatically acquires optimum configuration for all sensing, flush mounting and environment requirements.

■ Other advantages of flush mountable sensors using teach mode
□ Increased performance:
- sensing distance optimized regardless 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, simplifies integration in the machine and limits the risks of mechanical damage,
- mechanical adjustments no longer necessary due to teach mode.

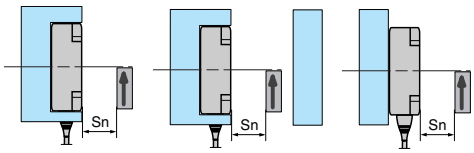
□ Lower costs due to:
- the elimination of adjustment times and complex supports
- the elimination of flush mountable and non-flush mountable versions, which decreases the number of catalog numbers,
- much easier and much quicker product selection.

Precision position detection

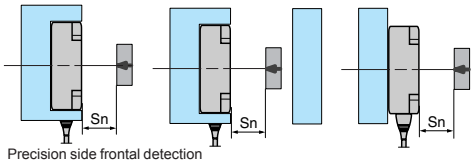
All flush mountable inductive proximity sensors using teach mode benefit from ultra-precise adjustment, which is very quick regardless of the metal environment.

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



Precision side approach detection



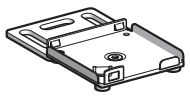
Precision side frontal detection

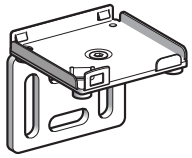
Mounting accessories

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

■ Mounting kits for quick installation or replacement of sensors

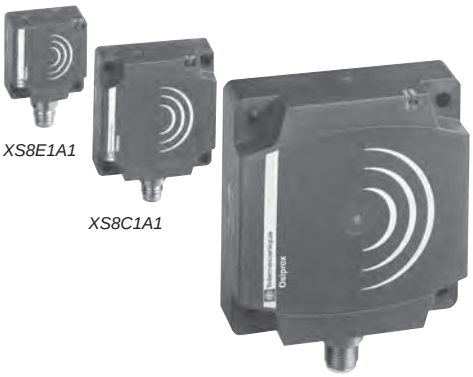
■ No adjustment is required. Simple clip-in enables the sensor to be mounted into position and ready for operation.





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OsiSense® XS
Inductive proximity sensors
Flush mountable using teach mode



XS8E1A1

XS8C1A1

XS8D1A1



XS612B2

XS618B2

XS630B2

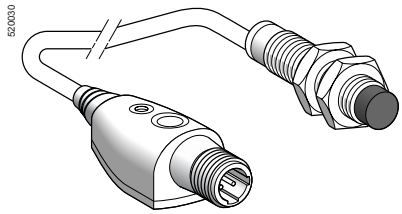
Block type				
Dimensions (mm)		26 x 26 x 13	40 x 40 x 15	80 x 80 x 26
Sensing distance mm (in.)	Flush mounted use	0–10 (0–0.39)	0–15 (0–0.59)	0–40 (0–1.57)
	Non-flush mounted use	0–15 (0–059)	0–25 (0–0.98)	0–60 (0–2.36)
Sensor type		**XS8E1A1**	**XS8C1A1**	**XS8D1A1**
Page		76		

Cylindrical type				
Dimensions (mm)		ø12	ø18	ø30
Sensing distance (mm)	Flush mounted use	0–3.4 (0–0.13)	0–6 (0–0.24)	0–11 (0–0.43)
	Non-flush mounted use	0–5 (0–0.20)	0–9 (0–0.35)	0–18 (0–0.71)
Sensor type		**XS612B2**	**XS618B2**	**XS630B2**
Page		74		

2

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OsiSense® XS
Inductive proximity sensors
Application
Adjustable range sensors
Cylindrical, flush mountable and non-flush mountable
Three-wire DC, solid-state output



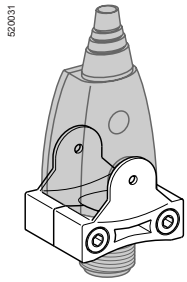
XS6●●B2●●L01M12

Ø 12, threaded M12 x 1

Sensing distance Sn, mm (in.)	Function	Output	Connection	Catalog Number	Weight kg	(lb)
5 (0.20)	NO	PNP	Remote M12 connector on 0.15 m pigtail connector	**XS612B2PAL01M12**	0.100	(0.22)
		NPN	Remote M12 connector on 0.15 m pigtail connector	**XS612B2NAL01M12**	0.100	(0.22)
	NC	PNP	Remote M12 connector on 0.15 m pigtail connector	**XS612B2PBL01M12**	0.100	(0.22)
		NPN	Remote M12 connector on 0.15 m pigtail connector	**XS612B2NBL01M12**	0.100	(0.22)

Ø 18, threaded M18 x 1

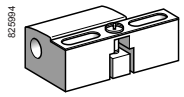
Sensing distance Sn, mm (in.)	Function	Output	Connection	Catalog Number	Weight kg	(lb)
9 (0.35)	NO	PNP	Remote M12 connector on 0.15 m pigtail connector	**XS618B2PAL01M12**	0.140	(0.31)
		NPN	Remote M12 connector on 0.15 m pigtail connector	**XS618B2NAL01M12**	0.140	(0.31)
	NC	PNP	Remote M12 connector on 0.15 m pigtail connector	**XS618B2PBL01M12**	0.140	(0.31)
		NPN	Remote M12 connector on 0.15 m pigtail connector	**XS618B2NBL01M12**	0.140	(0.31)



XSZBPM12

Ø 30, threaded M30 x 1.5

Sensing distance Sn, mm (in.)	Function	Output	Connection	Catalog Number	Weight kg	(lb)
18 (0.71)	NO	PNP	Remote M12 connector on 0.15 m pigtail connector	**XS630B2PAL01M12**	0.220	(0.49)
		NPN	Remote M12 connector on 0.15 m pigtail connector	**XS630B2NAL01M12**	0.220	(0.49)
	NC	PNP	Remote M12 connector on 0.15 m pigtail connector	**XS630B2PBL01M12**	0.220	(0.49)
		NPN	Remote M12 connector on 0.15 m pigtail connector	**XS630B2NBL01M12**	0.220	(0.49)



XSZB●●●

Accessories

Description		Catalog Number	Weight kg	(lb)
Remote control mounting clamp		**XSZBPM12**	0.015	(0.03)
Sensor mounting clamps	Ø 12	**XSZB112**	0.006	(0.01)
	Ø 18	**XSZB118**	0.010	(0.02)
	Ø 30	**XSZB130**	0.020	(0.04)

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OsiSense® XS
Inductive proximity sensors
Application
Adjustable range sensors
Cylindrical, flush mountable and non-flush mountable
Three-wire DC, solid-state output

Specifications

Sensor type				XS6●●B2●●L01M12
Product certifications				UL, CSA, CE
Connection	Connector			Remote M12 connector on 0.15 m pigtail connector
Sensing distance and adjustment zone	Ø 12	Nominal sensing distance (Sn)	**mm (in.)**	**0–5** (0–0.20) non-flush mounted / **0–3.4** (0–0.13) flush mounted
		Precision adjustment zone	**mm (in.)**	**1.7–5** (0.07–0.20) non-flush mounted / **1.7–3.4** (0.07–0.20) flush mounted
	Ø 18	Nominal sensing distance (Sn)	**mm (in.)**	**0–9** (0–0.35) non-flush mounted / **0–6** (0–0.24) flush mounted
		Precision adjustment zone	**mm (in.)**	**3–9** (0.12–0.35) non-flush mounted / **3–6** (0.12–0.24) flush mounted
	Ø 30	Nominal sensing distance (Sn)	**mm (in.)**	**0–18** (0–0.71) non-flush mounted / **0–11** (0–0.43) flush mounted
		Precision adjustment zone	**mm (in.)**	**6–18** (0.24–0.71) non-flush mounted / **6–11** (0.24–0.43) flush mounted
Differential travel			**%**	**1–15** of effective sensing distance (Sr)
Degree of protection	Conforming to IEC 60529			IP 67, ⧈
Storage temperature			**°C (°F)**	-40 to +85 (-40 to +185)
Operating temperature			**°C (°F)**	-25 to +70 (-13 to +158)
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
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

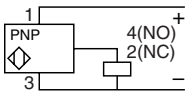
Wiring diagrams

Connector

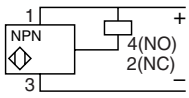
M12



PNP

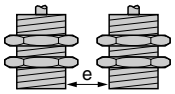


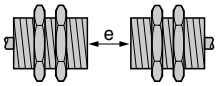
NPN

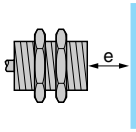


Setup

Minimum mounting distances (mm)



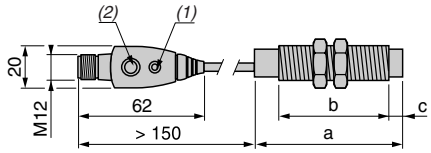




	Side by side		Face to face		Facing a metal object
	flush mounted	non-flush mounted	flush mounted	non-flush mounted	
Ø 12	e ≥ 14	50	e ≥ 50	100	e ≥ 3.4
Ø 18	e ≥ 28	100	e ≥ 100	200	e ≥ 6
Ø 30	e ≥ 48	180	e ≥ 180	360	e ≥ 11

Dimensions (mm)

XS6

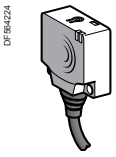


(1) LED
(2) Teach mode button

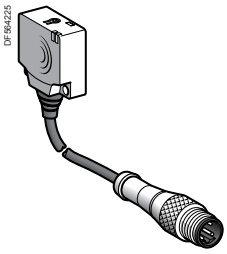
	Connector (mm)		
	a	b	c
Ø 12	54.6	42	5
Ø 18	60	44	8
Ø 30	62.6	41	13

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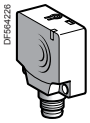
OsiSense® XS
Inductive proximity sensors
General Purpose with increased range
Flat, flush mountable/non-flush mountable + teach mode *(1)*
Two-wire AC or DC
Three-wire DC, solid-state output



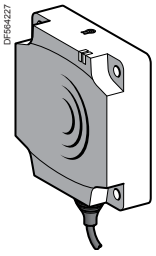
XS8E1A1●●L2



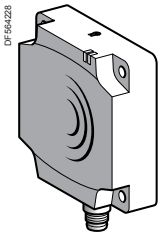
XS8p1A1●●L01M12
XS8p1A1●●L01U20



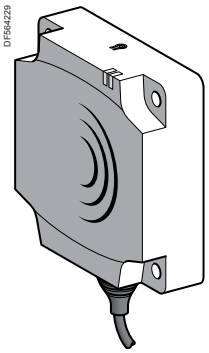
XS8E1A1●●M8



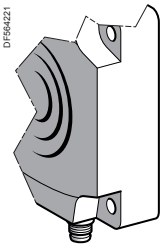
XS8C1A1●●L2



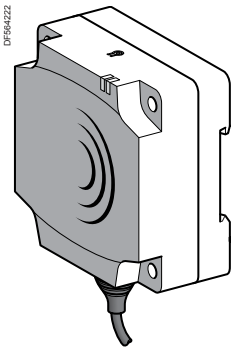
XS8C1A1●●M8



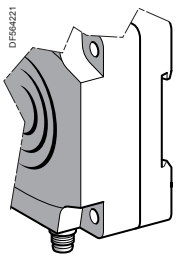
XS8D1A1●●L2



XS8D1A1●●M12



XS8D1A1●●L2DIN



XS8D1A1●●M12DIN

Flat, 26 x 26 x 13 mm format

Sensing distance Sn, mm (in.)	Function	Output	Connection	Catalog Number	Weight kg	(lb)
Three-wire ⎓ with overload and short-circuit protection						
15 (0.59)	NO	PNP	Pre-cabled (L = 2 m) *(2)*	**XS8E1A1PAL2**	0.075	(0.17)
			M8 connector	**XS8E1A1PAM8**	0.040	(0.09)
			Remote M12 connector	**XS8E1A1PAL01M12**	0.040	(0.09)
		NPN	Pre-cabled (L = 2 m) *(2)*	**XS8E1A1NAL2**	0.075	(0.17)
			M8 connector	**XS8E1A1NAM8**	0.040	(0.09)
			Remote M12 connector	**XS8E1A1NAL01M12**	0.040	(0.09)
	NC	PNP	Pre-cabled (L = 2 m) *(2)*	**XS8E1A1PBL2**	0.075	(0.17)
			M8 connector	**XS8E1A1PBM8**	0.040	(0.09)
			Remote M12 connector	**XS8E1A1PBL01M12**	0.040	(0.09)
		NPN	Pre-cabled (L = 2 m) *(2)*	**XS8E1A1NBL2**	0.075	(0.17)
			M8 connector	**XS8E1A1NBM8**	0.040	(0.09)
			Remote M12 connector	**XS8E1A1NBL01M12**	0.040	(0.09)
Two-wire ∿ or ⎓ unprotected *(3)*						
15 (0.59)	NO	–	Pre-cabled (L = 2 m) *(2)*	**XS8E1A1MAL2**	0.070	(0.15)
			Remote 1/2"-20UNF connector	**XS8E1A1MAL01U20**	0.040	(0.09)
	NC	–	Pre-cabled (L = 2 m) *(2)*	**XS8E1A1MBL2**	0.070	(0.15)
			Remote 1/2"-20UNF connector	**XS8E1A1MBL01U20**	0.040	(0.09)

Flat, 40 x 40 x 15 mm format

Sensing distance Sn, mm (in.)	Function	Output	Connection	Catalog Number	Weight kg	(lb)
Three-wire ⎓ with overload and short-circuit protection						
25 (0.98)	NO	PNP	Pre-cabled (L = 2 m) *(3)*	**XS8C1A1PAL2**	0.095	(0.21)
			M8 connector	**XS8C1A1PAM8**	0.060	(0.13)
			Remote M12 connector	**XS8C1A1PAL01M12**	0.060	(0.13)
		NPN	Pre-cabled (L = 2 m) *(3)*	**XS8C1A1NAL2**	0.095	(0.21)
			M8 connector	**XS8C1A1NAM8**	0.060	(0.13)
			Remote M12 connector	**XS8C1A1NAL01M12**	0.060	(0.13)
	NC	PNP	Pre-cabled (L = 2 m) *(3)*	**XS8C1A1PBL2**	0.095	(0.21)
			M8 connector	**XS8C1A1PBM8**	0.060	(0.13)
			Remote M12 connector	**XS8C1A1PBL01M12**	0.060	(0.13)
		NPN	Pre-cabled (L = 2 m) *(3)*	**XS8C1A1NBL2**	0.095	(0.21)
			M8 connector	**XS8C1A1NBM8**	0.060	(0.13)
			Remote M12 connector	**XS8C1A1NBL01M12**	0.060	(0.13)
Two-wire ∿ or ⎓ unprotected *(4)*						
25 (0.98)	NO	–	Pre-cabled (L = 2 m) *(3)*	**XS8C1A1MAL2**	0.090	(0.20)
			Remote 1/2"-20UNF connector	**XS8C1A1MAL01U20**	0.060	(0.13)
	NC	–	Pre-cabled (L = 2 m) *(3)*	**XS8C1A1MBL2**	0.090	(0.20)
			Remote 1/2"-20UNF connector	**XS8C1A1MBL01U20**	0.060	(0.13)

Flat, 80 x 80 x 26 mm format

Sensing distance Sn, mm (in.)	Function	Output	Connection	Catalog Number	Weight kg	(lb)
Three-wire ⎓ with overload and short-circuit protection						
60 (2.36)	NO	PNP	Pre-cabled (L = 2 m) *(2)*	**XS8D1A1PAL2** *(4)*	0.390	(0.86)
			M12 connector	**XS8D1A1PAM12** *(4)*	0.340	(0.75)
		NPN	Pre-cabled (L = 2 m) *(2)*	**XS8D1A1NAL2** *(4)*	0.390	(0.86)
			M12 connector	**XS8D1A1NAM12** *(4)*	0.340	(0.75)
	NC	PNP	Pre-cabled (L = 2 m) *(2)*	**XS8D1A1PBL2** *(4)*	0.390	(0.86)
			M12 connector	**XS8D1A1PBM12** *(4)*	0.340	(0.75)
		NPN	Pre-cabled (L = 2 m) *(2)*	**XS8D1A1NBL2** *(4)*	0.390	(0.86)
			M12 connector	**XS8D1A1NBM12** *(4)*	0.340	(0.75)
Two-wire ∿ or ⎓ unprotected *(4)*						
60 (2.36)	NO	–	Pre-cabled (L = 2 m) *(2)*	**XS8D1A1MAL2** *(4)*	0.390	(0.86)
			1/2"-20UNF connector	**XS8D1A1MAU20** *(4)*	0.340	(0.75)
	NC	–	Pre-cabled (L = 2 m) *(2)*	**XS8D1A1MBL2** *(4)*	0.390	(0.86)
			1/2"-20UNF connector	**XS8D1A1MBU20** *(4)*	0.340	(0.75)

(1) For further information on flush or non-flush mountable sensors using teach mode, see page 2/70.
*(2) For a 5 m cable replace L2 with **h** L5; for a 10 m cable replace L2 by **L10**.*
(3) A 0.4 A fast-acting fuse must be connected in series with the load.
*(4) For clipping onto 35 mm omega rail or 80 x 80 x 40 mm format, add DIN to the end of the catalog number. Example: **XS8D1A1PAL2DIN**.*

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Specifications,
Wiring Diagrams,
Setup,
Dimensions

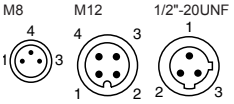
OsiSense® XS
Inductive proximity sensors
General Purpose with increased range
Flat, flush mountable/non-flush mountable + teach mode *(1)*
Two-wire AC or DC
Three-wire DC, solid-state output

Specifications

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				UL, CSA, CE		
Connection	Connector			M8 except XS8●●●●●●M12: M12 XS8●●●●●●U20: 1/2"-20UNF	Remote on 0.15 m pigtail connector XS8●●●●●●L01M12: M12 XS8●●●●●●L01U20: 1/2"-20UNF	–
	Pre-cabled			–	–	Length: 2 m
Sensing distance and adjustment zone	XS8E	Nominal sensing dist. Sn	mm (in.)	**0–15** (0–0.59) non-flush mounted / **0–10** (0–0.39) flush mounted		
		Fine adjustment zone	mm (in.)	**5–15** (0.20–0.59) non-flush mounted / **5–10** (0.20–0.39) flush mounted		
	XS8C	Nominal sensing dist. Sn	mm (in.)	**0–25** (0–0.98) non-flush mounted / **0–15** (0–0.59) flush mounted		
		Fine adjustment zone	mm (in.)	**8–25** (0.31–0.98) non-flush mounted / **8–15** (0.31–0.59) flush mounted		
	XS8D	Nominal sensing dist. Sn	mm (in.)	**0–60** (0–2.36) non-flush mounted / **0–40** (0–1.57) flush mounted		
		Fine adjustment zone	mm (in.)	**0–60** (0–2.36) non-flush mounted / **20–40** (0.79–1.57) flush mounted		
Differential travel			%	**1–15** of effective sensing distance (Sr)		
Degree of protection	Conforming to IEC 60529			IP 67, double insulation ⧈ (except M8 connector: IP 67)		IP 68, ⧈
Storage temperature			°C (°F)	-40 to +85 (-40 to +185)		
Operating temperature			°C (°F)	-25 to +70 (-13 to +158)		
Materials	Case			PBT		
	Cable			–	PvR 3 x 0.34 mm² (24 AWG) ⎓ and PvR 2 x 0.34 mm² (24 AWG) ∿	
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		
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	2,000 **XS8E**, 1,000 **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 diagrams

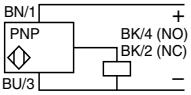
Connector



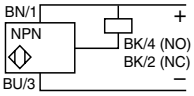
Pre-cabled

BU: Blue
BN: Brown
BK: Black

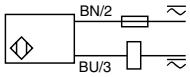
PNP/M12 or M8



NPN/M12 or M8



2-wire 1/2"-20UNF

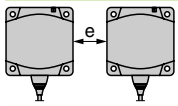


For M8 connector, NO and NC outputs are on terminal 4

Setup

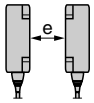
Minimum mounting distances (mm)

Side by side



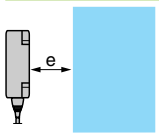
e ⩾	XS8E	XS8C	XS8D
Flush mounted	40	60	200
Non-flush mounted	150	125	600

Face to face



e ⩾	XS8E	XS8C	XS8D
Flush mounted	80	120	400
Non-flush mounted	300	250	–

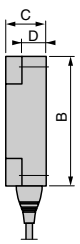
Facing a metal object



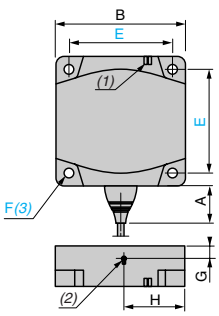
e ⩾	XS8E	XS8 C	XS8D
	10	15	40

Dimensions (mm)

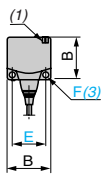
XS8C/D/E



XS8C/D



XS8E

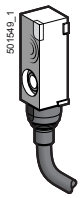


(1) LED
(2) Teach mode button
(3) For CHC type screws

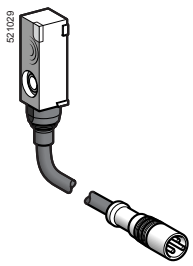
Sensor	A (cable)	A (connector)	B	C	D	E	F	G	H
XS8E	14	11	26	13	8.8	20	3.5	6.8	6.6
XS8C	14	11	40	15	9.8	33	4.5	8.3	13.6
XS8D	23	18	80	26	16	65	5.5	8.5	37.8
XS8D●●DIN	23	18	80	40	30	65	5.1	22.5	37.8

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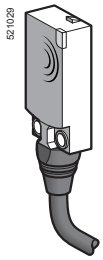
OsiSense® XS
Inductive proximity sensors
General Purpose, standard range
Flat format, flush mountable
Two-wire DC
Three-wire DC, solid-state output



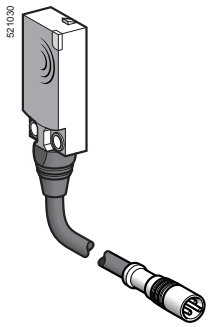
XS7J1A1●●L2



XS7J1A1●●L01M8



XS7F1A1●●L2



XS7F1A1●●L01M8

Flat, 8 x 22 x 8 mm format *(1)*

Three-wire ⎓

Sensing distance Sn, mm (in.)	Function	Output	Connection	Catalog Number	Weight kg	(lb)
2.5 (0.10)	NO	PNP	Pre-cabled (L = 2 m) *(2)*	**XS7J1A1PAL2**	0.060	(0.13)
			Remote M8 connector on 0.15 m pigtail connector	**XS7J1A1PAL01M8**	0.040	(0.09)
		NPN	Pre-cabled (L = 2 m) *(2)*	**XS7J1A1NAL2**	0.060	(0.13)
			Remote M8 connector on 0.15 m pigtail connector	**XS7J1A1NAL01M8**	0.040	(0.09)
	NC	PNP	Pre-cabled (L = 2 m) *(2)*	**XS7J1A1PBL2**	0.060	(0.13)
			Remote M8 connector on 0.15 m pigtail connector	**XS7J1A1PBL01M8**	0.040	(0.09)
		NPN	Pre-cabled (L = 2 m) *(2)*	**XS7J1A1NBL2**	0.060	(0.13)
			Remote M8 connector on 0.15 m pigtail connector	**XS7J1A1NBL01M8**	0.040	(0.09)

Two-wire ⎓

Sensing distance Sn, mm (in.)	Function	Connection	Catalog Number	Weight kg	(lb)
2.5 (0.10)	NO	Pre-cabled (L = 2 m) *(2)*	**XS7J1A1DAL2**	0.050	(0.11)
		Remote M8 connector on 0.15 m pigtail connector	**XS7J1A1DAL01M8**	0.035	(0.08)
	NC	Pre-cabled (L = 2 m) *(2)*	**XS7J1A1DBL2**	0.050	(0.11)
		Remote M8 connector on 0.15 m pigtail connector	**XS7J1A1DBL01M8**	0.035	(0.08)

Flat, 15 x 32 x 8 mm format

Three-wire ⎓

Sensing distance Sn, mm (in.)	Function	Output	Connection	Catalog Number	Weight kg	(lb)
5 (0.20)	NO	PNP	Pre-cabled (L = 2 m) *(2)*	**XS7F1A1PAL2**	0.065	(0.14)
			Remote M8 connector on 0.15 m pigtail connector	**XS7F1A1PAL01M8**	0.045	(0.10)
		NPN	Pre-cabled (L = 2 m) *(2)*	**XS7F1A1NAL2**	0.065	(0.14)
			Remote M8 connector on 0.15 m pigtail connector	**XS7F1A1NAL01M8**	0.045	(0.10)
	NC	PNP	Pre-cabled (L = 2 m) *(2)*	**XS7F1A1PBL2**	0.065	(0.14)
			Remote M8 connector on 0.15 m pigtail connector	**XS7F1A1PBL01M8**	0.045	(0.10)
		NPN	Pre-cabled (L = 2 m) *(2)*	**XS7F1A1NBL2**	0.065	(0.14)
			Remote M8 connector on 0.15 m pigtail connector	**XS7F1A1NBL01M8**	0.045	(0.10)

Two-wire ⎓

Sensing distance Sn, mm (in.)	Function	Connection	Catalog Number	Weight kg	(lb)
5 (0.20)	NO	Pre-cabled (L = 2 m) *(2)*	**XS7F1A1DAL2**	0.055	(0.12)
		Remote M8 connector on 0.15 m pigtail connector	**XS7F1A1DAL01M8**	0.045	(0.10)
	NC	Pre-cabled (L = 2 m) *(2)*	**XS7F1A1DBL2**	0.055	(0.12)
		Remote M8 connector on 0.15 m pigtail connector	**XS7F1A1DBL01M8**	0.045	(0.10)

*(1) Sensors **XS7J** include a mounting clamp with screw.*
*(2) For a 5 m cable replace L2 with **h** L5; for a 10 m cable replace L2 by **L10**.*
*Example: **XS7J1A1PAL2** becomes **XS7J1A1PAL5** with a 5 m cable.*

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Specifications,
Wiring Diagrams,
Setup,
Dimensions

OsiSense® XS
Inductive proximity sensors
General Purpose, standard range
Flat format, flush mountable
Two-wire DC
Three-wire DC, solid-state output

Specifications

Sensor type			XS7J●●●●●L01M8	XS7F●●●●●L01M8	XS7J●●●●●L2, XS7F●●●●●L2
Product certifications			CE	UL, CSA, CE	
Connection	Connector		Remote M8 connector on 0.15 m pigtail connector		–
	Pre-cabled		–		Length: 2 m
Operating zone	**XS7J**	**mm**	**0–2 (0–0.08 in.)**		
	XS7F	**mm**	**0–4 (0–0.16 in.)**		
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 to +85 (-40 to +185 °F)		
Operating temperature		**°C**	-25 to +70 (-13 to +158 °F)		
Materials	Case		PBT		
	Cable		PvR 3 x 0.11 mm² (26 AWG) or 2 x 0.11 mm² (26 AWG) (XS7 F: 2 or 3 x 0.34 mm² [24 AWG])		
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		
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 **XSF**		
Delays	First-up	**ms**	3-wire: 5		
		ms	2-wire: 10 **XS7J**, 5 **XS7F**		
	Response	**ms**	3-wire: 0.1		
		ms	2-wire: 0.5 **XS7J**, 5 **XS7F**		
	Recovery	**ms**	3-wire: 0.1		
		ms	2-wire: 1 **XS7J**, 5 **XS7F**		

Wiring diagrams

Connector

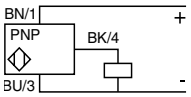
M8



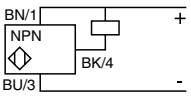
Pre-cabled

BU: Blue
BN: Brown
BK: Black

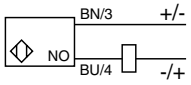
PNP NO or NC



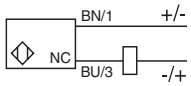
NPN NO or NC



2-wire NO

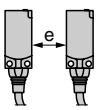


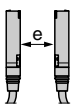
2-wire NC

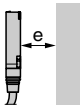


Setup

Minimum mounting distances (mm)



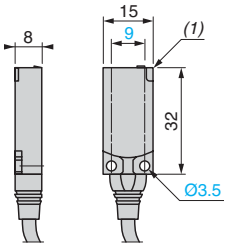




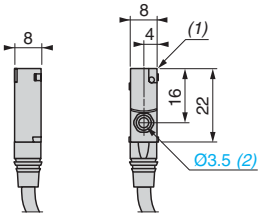
	Side by side	Face to face	Facing a metal object
XS7J	e ≥ 1	e ≥ 6	e ≥ 7.5
XS7F	e ≥ 1	e ≥ 12	e ≥ 15

Dimensions (mm)

XS7F



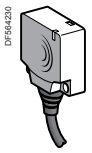
XS7J

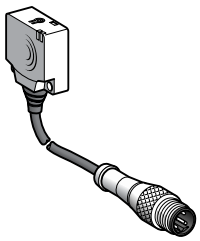


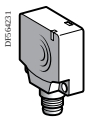
(1) LED
(2) For CHC type screws

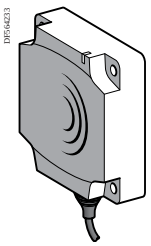
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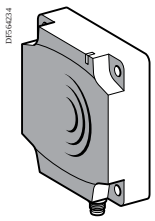
OsiSense® XS
Inductive proximity sensors
General Purpose, standard range
Flat format, flush mountable
Two-wire DC
Three-wire DC, solid-state output

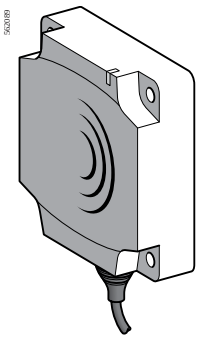

XS7E1A1●●L2

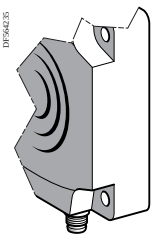

XS7●1A1●L0●M12

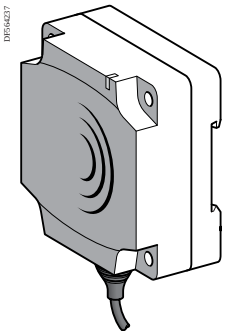

XS7E1A1●●M8

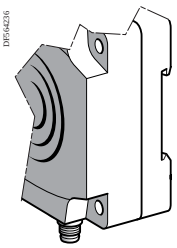

XS7C1A1●●L2


XS7C1A1●●M8


XS7D1A1●●L2


XS7D1A1●●M12


XS7D1A1●●L2DIN


XS7D1A1●●M12DIN

Sens. dist. Sn, mm (in.)	Function	Output	Connection	Catalog Number	Weight kg	(lb)
Flat, 26 x 26 x 13 mm format						
Three-wire ⎓						
10 (0.39)	NO	PNP	Pre-cabled (L = 2 m) *(3)*	**XS7E1A1PAL2**	0.075	(0.17)
			M8 connector	**XS7E1A1PAM8**	0.040	(0.09)
			Remote M12 connector	**XS7E1A1PAL01M12**	0.040	(0.09)
		NPN	Pre-cabled (L = 2 m) *(3)*	**XS7E1A1NAL2**	0.075	(0.17)
			M8 connector	**XS7E1A1NAM8**	0.075	(0.17)
			Remote M12 connector	**XS7E1A1NAL01M12**	0.040	(0.09)
	NC	PNP	Pre-cabled (L = 2 m) *(3)*	**XS7E1A1PBL2**	0.075	(0.17)
			M8 connector	**XS7E1A1PBM8**	0.040	(0.09)
			Remote M12 connector	**XS7E1A1PBL01M12**	0.040	(0.09)
		NPN	Pre-cabled (L = 2 m) *(3)*	**XS7E1A1NBL2**	0.075	(0.17)
			M8 connector	**XS7E1A1NBM8**	0.040	(0.09)
			Remote M12 connector	**XS7E1A1NBL01M12**	0.040	(0.09)
Two-wire ⎓						
10 (0.39)	NO		Pre-cabled (L = 2 m) *(3)*	**XS7E1A1DAL2**	0.070	(0.15)
			M8 connector	**XS7E1A1DAM8**	0.040	(0.09)
			Remote M12 connector	**XS7E1A1DAL01M12**	0.040	(0.09)
	NO terminals 1 and 4 *(1)*		Remote M12 connector	**XS7E1A1CAL01M12**	0.040	(0.09)
			Remote M12 connector *(2)*	**XS7E1A1CAL08M12**	0.065	(0.14)
	NC		Pre-cabled (L = 2 m) *(3)*	**XS7E1A1DBL2**	0.070	(0.15)
			M8 connector	**XS7E1A1DBM8**	0.040	(0.09)
			Remote M12 connector	**XS7E1A1DBL01M12**	0.040	(0.09)
Flat, 40 x 40 x 15 mm format						
Three-wire ⎓						
15 (0.59)	NO	PNP	Pre-cabled (L = 2 m) *(3)*	**XS7C1A1PAL2**	0.095	(0.21)
			M8 connector	**XS7C1A1PAM8**	0.060	(0.13)
			Remote M12 connector	**XS7C1A1PAL01M12**	0.060	(0.13)
		NPN	Pre-cabled (L = 2 m) *(3)*	**XS7C1A1NAL2**	0.095	(0.21)
			M8 connector	**XS7C1A1NAM8**	0.060	(0.13)
			Remote M12 connector	**XS7C1A1NAL01M12**	0.060	(0.13)
	NC	PNP	Pre-cabled (L = 2 m) *(3)*	**XS7C1A1PBL2**	0.095	(0.21)
			M8 connector	**XS7C1A1PBM8**	0.060	(0.13)
			Remote M12 connector	**XS7C1A1PBL01M12**	0.060	(0.13)
		NPN	Pre-cabled (L = 2 m) *(3)*	**XS7C1A1NBL2**	0.095	(0.21)
			M8 connector	**XS7C1A1NBM8**	0.060	(0.13)
			Remote M12 connector	**XS7C1A1NBL01M12**	0.060	(0.13)
Two-wire ⎓						
15 (0.59)	NO		Pre-cabled (L = 2 m) *(3)*	**XS7C1A1DAL2**	0.090	(0.20)
			M8 connector	**XS7C1A1DAM8**	0.060	(0.13)
			Remote M12 connector	**XS7C1A1DAL01M12**	0.060	(0.13)
	NO terminals 1 and 4 *(1)*		Remote M12 connector	**XS7C1A1CAL01M12**	0.060	(0.13)
			Remote M12 connector *(2)*	**XS7C1A1CAL08M12**	0.090	(0.20)
	NC		Pre-cabled (L = 2 m) *(3)*	**XS7C1A1DBL2**	0.090	(0.20)
			M8 connector	**XS7C1A1DBM8**	0.060	(0.13)
			Remote M12 connector	**XS7C1A1DBL01M12**	0.060	(0.13)
Flat, 80 x 80 x 26 mm format						
Three-wire ⎓						
40 (1.57)	NO	PNP	Pre-cabled (L = 2 m) *(3)*	**XS7D1A1PAL2** *(4)*	0.340	(0.75)
			M12 connector	**XS7D1A1PAM12** *(4)*	0.290	(0.64)
		NPN	Pre-cabled (L = 2 m) *(3)*	**XS7D1A1NAL2** *(4)*	0.340	(0.75)
			M12 connector	**XS7D1A1NAM12** *(4)*	0.290	(0.64)
	NC	PNP	Pre-cabled (L = 2 m) *(3)*	**XS7D1A1PBL2** *(4)*	0.340	(0.75)
			M12 connector	**XS7D1A1PBM12** *(4)*	0.290	(0.64)
		NPN	Pre-cabled (L = 2 m) *(3)*	**XS7D1A1NBL2** *(4)*	0.340	(0.75)
			M12 connector	**XS7D1A1NBM12** *(4)*	0.290	(0.64)
Two-wire ⎓						
40 (1.57)	NO		Pre-cabled (L = 2 m) *(3)*	**XS7D1A1DAL2** *(4)*	0.340	(0.75)
			M12 connector	**XS7D1A1DAM12** *(4)*	0.290	(0.64)
	NO terminals 1 and 4 *(1)*		M12 connector	**XS7D1A1CAM12** *(4)*	0.290	(0.64)
	NC		Pre-cabled (L = 2 m) *(3)*	**XS7D1A1DBL2** *(4)*	0.340	(0.75)
			M12 connector	**XS7D1A1DBM12** *(4)*	0.290	(0.64)

(1) The NO output is connected to terminals 1 and 4 of the M12 connector.
(2) Remote connector on 0.8 m pigtail connector.
*(3) For a 5 m cable replace L2 with L5; for a 10 m cable replace L2 by **L10**. Example:**XS7J1A1PAL2** becomes **XS7J1A1PAL5** with a 5 m cable.*
*(4) For clipping onto 35 mm omega rail or 80 x 80 x 40 mm format, add DIN to the end of the catalog number. Example: **XS7D1A1PAL2** becomes **XS7D1A1PAL2DIN**.*

Schneider Electric

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OsiSense® XS
Inductive proximity sensors
General Purpose, standard range
Flat format, flush mountable
Two-wire DC
Three-wire DC, solid-state output

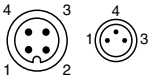
Specifications

Sensor type			XS7E●●●●●M8, XS7C●●●●●M8, XS7D●●●●●M12	XS7E●●●●●L01M12, XS7C●●●●●L01M12	XS7E●●●●●L2, XS7C●●●●●L2, XS7D●●●●●L2
Product certifications			UL, CSA, CE		
Connection	Connector		M8 except M12 on **XS7D●●●●●M12**	M12 on 0.15 m pigtail connector for **XS7●●●●●L01M12**	–
	Pre-cabled		–	–	Length: 2 m
Operating zone	**XS7E**	**mm**	**0–8 (0–0.31 in.)**		
	XS7C	**mm**	**0–12 (0–0.47 in.)**		
	XS7D	**mm**	**0–32 (0–1.26)**		
Differential travel		**%**	1–15 of effective sensing distance (Sr)		
Degree of protection	Conforming to IEC 60529		IP 67, double insulation ⧈ (except for M8 connector: IP 67)		IP 68, ⧈
Storage temperature		**°C**	-40 to +85 (-40 to +185 °F)		
Operating temperature		**°C**	-25 to +70 (-13 to +158 °F)		
Materials	Case		PBT		
	Cable		–	PvR 3 x 0.34 mm² (24 AWG) or 2 x 0.34 mm² (24 AWG)	
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		
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**	10 **XS7E** and **XS7C**, 30 **XS7D**		
	First-up 2-wire	**ms**	5 **XS7E** and **XS7D**, 10 **XS7D**		
	Response 3-wire	**ms**	2 **XS7E** and **XS7C**, 5 **XS7D**		
	Response 2-wire	**ms**	0.3 **XS7E** and **XS7 D**, 10 **XS7D**		
	Recovery 3-wire	**ms**	6 **XS7E**, 5 **XS7C**, 35 **XS7D**		
	Recovery 2-wire	**ms**	0.7 **XS7E** and **XS7D**, 10 **XS7D**		

Wiring diagrams

Connector

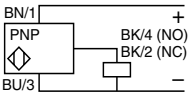
M12 M8



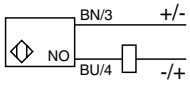
Pre-cabled

BU: Blue
BN: Brown
BK: Black

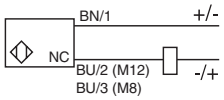
PNP/M12 or M8



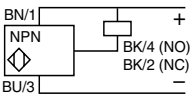
2-wire NO/M12 or M8



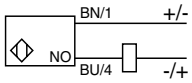
2-wire NC/M12 or M8



NPN/M12 or M8



2-wire NO/M12 XS7●●●●CA●●●

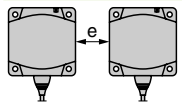


For M8 connector, NO and NC outputs are on terminal 4

Setup

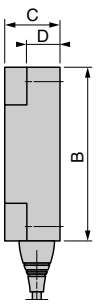
Minimum mounting distances (mm)

	e ≥	XS7E	XS7C	XS7D
Side by side		4	5	40
Face to face		72	110	300
Facing a metal object		30	45	120

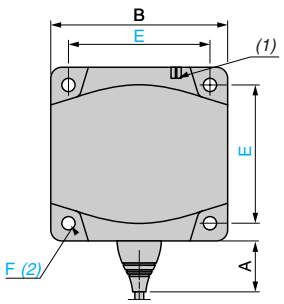


Dimensions (mm)

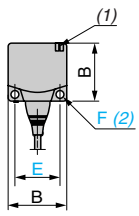
XS7C/D/E



XS7C/D



XS7E



(1) LED
(1) For CHC type screws

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**

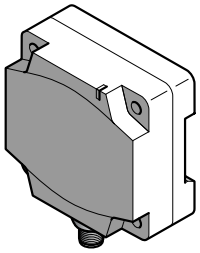
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OsiSense® XS
Inductive proximity sensors

Application

Flat sensor, flush mountable, increased range, switching capacity 300 mA
80 x 80 x 40 format, DIN rail mounting, solid-state output

Sensor	**Flush mountable in metal**



Dimensions (mm)		80 x 80 x 40
Nominal sensing distance Sn, mm (in.**)**		50 (1.97) (non-flush mounted: 42 [1.65])
Catalog Numbers		
2-wire ⎓ (non-polarized)	NO	**XS7D1A3CAM12DIN**
Weight, kg (lb)		0.374 (0.82)
Specifications		
Product certifications		CE; CSA, UL: pending
Degree of protection	Conforming to IEC 60529	IP 67, double insulation ⧈
Temperature	Operating	-25 to + 70 °C (-13 to +158 °F)
	Storage	- 40 to + 85 °C (-40 to +185 °F)
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 (in.)		0–40 (0–1.57) (non-flush mounted: 0–35 [0–1.35])
Repeat accuracy		3% of Sr
Differential travel		1–15% of Sr
Output state indication		Yellow LED
Rated supply voltage		⎓ 12–48 V with protection against reverse polarity
Voltage limits (including ripple)		⎓ 10–58 V
Residual current, open state		≤ 0.5 mA
Switching capacity		1.5–300 mA with overload and short-circuit protection
Voltage drop, closed state		≤ 4.5 V
Maximum switching frequency		100 Hz
Delays	First-up	≤ 10 ms
	Response	≤ 2 ms
	Recovery	≤ 5 ms

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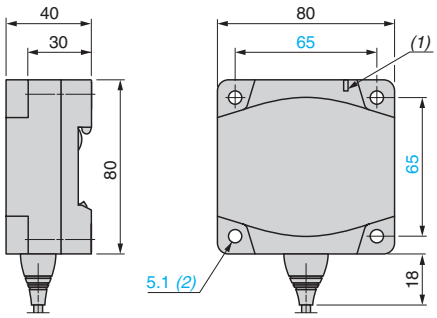
OsiSense® XS
Inductive proximity sensors

Application

Flat sensor, flush mountable, increased range, switching capacity 300 mA
80 x 80 x 40 format, DIN rail mounting, solid-state output

Dimensions (mm)

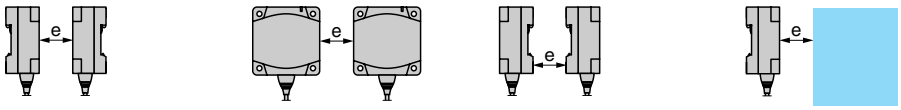
XS7D1A3CAM12DIN



(1) Output LED
(2) For CHC type screws

Setup

Minimum mounting distances (mm)



	Face to face	Side by side	Back to back	Facing a metal object
Flush mounted	450	140	90	150
Non-flush mounted	450	180	180	150

Flush/non-flush conditions

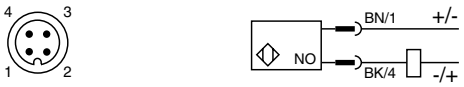
In A37 steel



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

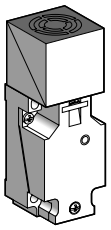
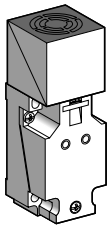
Wiring diagrams

2-wire NO/M12 XS7D1A3CAM12DIN



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OsiSense® XS
Inductive proximity sensors
General Purpose
Plastic case, limit switch style
5-position turret head. DC supply

Sensor			Flush mountable in metal			Non-flush mountable in metal		
								
Nominal sensing distance Sn, mm (in.)			15 (0.59)	Increased range 20 (0.79)	15 (0.59)	20 (0.79)	Increased range 40 (1.57)	20 (0.79)
Catalog Numbers								
4-wire ⎓ (complementary outputs)	PNP	NO + NC	**XS7C40PC440H7**	**XS7C40PC449H7**	–	**XS8C40PC440H7**	**XS8C40PC449H7**	–
	NPN	NO + NC	**XS7C40NC440H7**	**XS7C40NC449H7**	–	**XS8C40NC440H7**	**XS8C40NC449H7**	–
2-wire ⎓ (non-polarized)	NO		–	–	**XS7C40DA210H7**	–	–	**XS8C40DA210H7**
	NO or NC programmable		–	–	**XS7C40DP210H7**	–	–	**XS8C40DP210H7**
Weight, kg (lb)			0.220 (0.49)	0.220 (0.49)	0.220 (0.49)	0.220 (0.49)	0.220 (0.49)	0.220 (0.49)
Specifications								
Product certifications			UL, CSA, CE					
Degree of protection conforming to IEC 60529			IP 67					
Operating temperature			-25 to +70 °C (-13 to +158 °F)					
Connection (1)			Screw terminals, clamping capacity: 2 or 4 x 1.5 mm² (16 AWG) *(2)*					
Operating zone, mm (in.)			**0–12 (0–0.47)**	**0–16 (0–0.63)**	**0–12 (0–0.47)**	**0–16 (0–0.63)**	**0–32 (0–1.26)**	**0–16 (0–0.63)**
Repeat accuracy			≤ 3% of effective sensing distance (Sr)					
Differential travel			3–20% of effective sensing distance (Sr)					
Status indication	Output		Yellow LED		Yellow LED	Yellow LED		Yellow LED
	Supply on		Green LED		–	Green LED		–
Rated supply voltage			⎓ 12–48 V with protection against reverse polarity					
Voltage limits (including ripple)			⎓ 10–58 V					
Current consumption, no-load			≤ 10 mA		–	≤ 10 mA		–
Switching capacity			0–200 mA		1.5–100 mA	0–200 mA		1.5–100 mA
			With overload and short-circuit protection					
Residual current, open state			–		≤ 0.5 mA	–		≤ 0.5 mA
Voltage drop, closed state			≤ 2 V		≤ 4 V	≤ 2 V		≤ 4 V
Maximum switching frequency			1000 Hz		1500 Hz	1000 Hz	500 Hz	800 Hz
Delays	First-up		≤ 5 ms		≤ 5 ms	≤ 5 ms	≤ 5 ms	≤ 5 ms
	Response		≤ 0.3 ms		≤ 2 ms	≤ 0.3 ms	< 1 ms	≤ 2 ms
	Recovery		≤ 0.7 ms		≤ 5 ms	≤ 0.7 ms	< 1 ms	≤ 7 ms

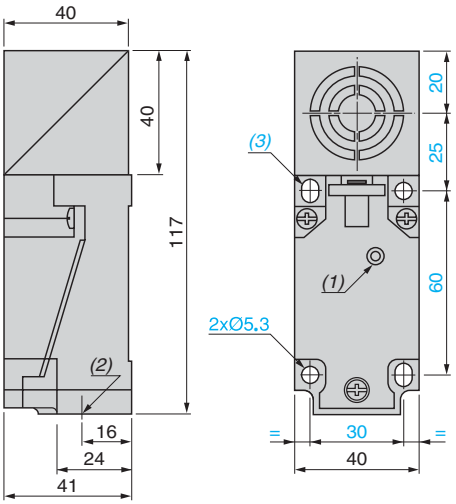
(1) Delete "H7" suffix for PG13 conduit entry.
(2) Cable gland not included with sensor. For suitable metric version PG13 cable gland (XSZPE13), see page 2/131.

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OsiSense® XS
Inductive proximity sensors
General Purpose
Plastic case, limit switch style,5-position turret head, DC supply

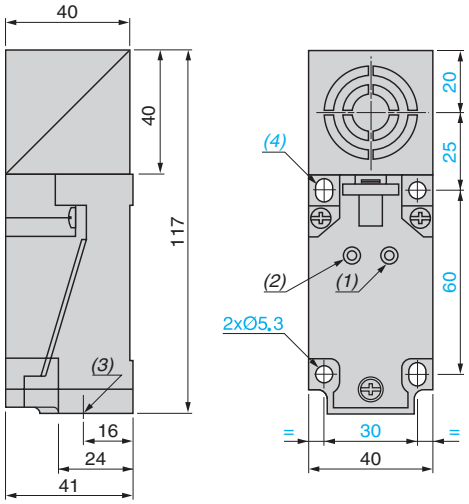
Dimensions (mm)

XS7C40D●210, XS8C40D●210



(1) Output LED.
(2) 1 tapped entry for 1/2" NPT conduit entry.
(3) 2 elongated holes Ø 5.3 x 7.

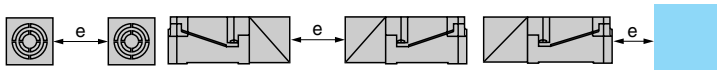
XS7C40●C44●, XS8C40●C44●



(1) Output LED.
(2) Supply LED.
(3) 1 tapped entry for 1/2" NPT conduit entry.
(4) 2 elongated holes Ø 5.3 x 7.

Setup

Minimum mounting distances (mm)

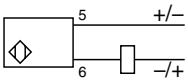


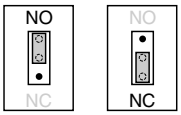
		Side by side	Face to face	Facing a metal object
Sensors flush mountable in metal	**XS7**	e ≥ 40	e ≥ 120	e ≥ 45
	XS7 increased range model	e ≥ 80	e ≥ 240	e ≥ 60
Sensors non-flush mountable in metal	**XS8**	e ≥ 80	e ≥ 160	e ≥ 60
	XS8 increased range model	e ≥ 160	e ≥ 320	e ≥ 120

Tightening torque of cover mounting screws and clamp screws: < 1.2 N•m (10.62 lb-in)

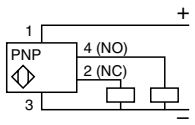
Wiring diagrams

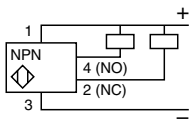
2-wire ⎓ (non-polarized), NO or NC output depending on position of link





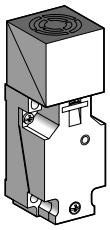
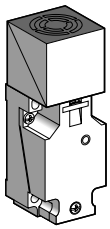
4-wire ⎓, NO + NC output





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OsiSense® XS
Inductive proximity sensors
General Purpose
Plastic case, limit switch style, plug-in
5-position turret head, AC or DC supply

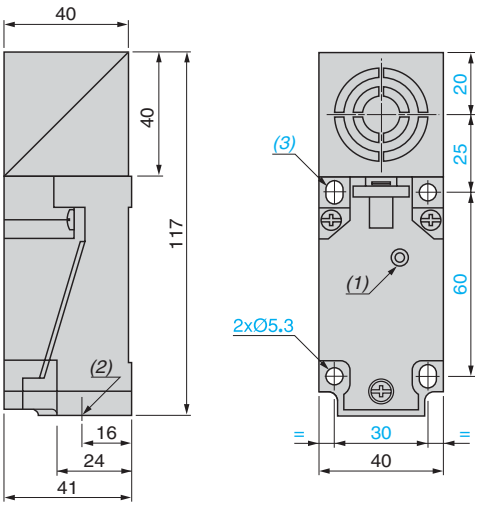
Sensor		Flush mountable in metal		Non-flush mountable in metal	
					
		AC	AC/DC	AC	AC/DC
Nominal sensing distance Sn, mm (in.)		15 (0.59)		20 (0.79)	
Catalog Numbers					
2-wire ∼	NO or NC programmable	**XS7C40FP260H7**	–	**XS8C40FP260H7**	–
2-wire ∼ or ⎓ universal model	NO or NC programmable	–	**XS7C40MP230H7**	–	**XS8C40MP230H7**
Weight, kg (lb)		0.220 (0.49)	0.220 (0.49)	0.220 (0.49)	0.220 (0.49)
Specifications					
Product certifications		UL, CSA, CE			
Degree of protection conforming to IEC 60529		IP 67			
Operating temperature		-25 to +70 °C (-13 to +158 °F)			
Connection		Screw terminals, clamping capacity 2 x 1.5 mm² (16 AWG) *(1) (2)*			
Operating zone, mm (in.)		**0–12 (0–0.47)**		**0–16 (0–0.63)**	
Repeat accuracy		≤ 3% of effective sensing distance (Sr)			
Differential travel		3–20% of effective sensing distance (Sr)			
Output state indication		Yellow LED			
Rated supply voltage with protection against reverse polarity		∼ 24–240 V, 50/60 Hz	∼ 24–240 V, 50/60 Hz or ⎓ 24–210 V	∼ 24–240 V, 50/60 Hz	∼ 24–240 V, 50/60 Hz or ⎓ 24–210 V
Voltage limits (including ripple)		∼ 20–264 V	∼ or ⎓ 20–264 V	∼ 20–264 V	∼ or ⎓ 20–264 V
Current consumption, no-load		–			
Switching capacity (3)		5–500 mA *(2)* (2 A inrush)	∼ 5–300 mA or ⎓ *5–200 mA (2)*	5–500 mA *(2)* (2 A inrush)	∼ 5–300 mA or ⎓ *5–200 mA (2)*
Residual current, open state		≤ 1.5 mA	0.8 mA on 24 V 1.5 mA on 120 V	≤ 1.5 mA	0.8 mA on 24 V 1.5 mA on 120 V
Voltage drop, closed state		≤ 5.5 V			
Maximum switching frequency		25 Hz	∼ 25 Hz, ⎓ 50 Hz	25 Hz	∼ 25 Hz, ⎓ 50 Hz
Delays	First-up	≤ 120 ms			
	Response	≤ 30 ms			
	Recovery	≤ 20 ms			

(1) Delete H7 suffix for PG13 conduit entrance
(2) Cable gland not included with sensor. For suitable metric version PG13 cable gland (XSZPE13), see page 2/131.
(3) These sensors do not incorporate overload or short-circuit protection. A fast-acting fuse must be connected in series with the load.

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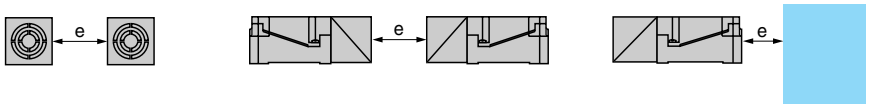
OsiSense® XS
Inductive proximity sensors
General Purpose
Plastic case, limit switch style, plug-in
5-position turret head, AC or DC supply

Dimensions (mm)
XS7C40FP260H7, XS7C40MP230H7, XS8C40FP260H7, XS8C40MP230H7



(1) Output LED.
(2) 1 tapped entry for 1/2" NPT conduit entry.
(3) 2 elongated holes Ø 5.3 x 7.

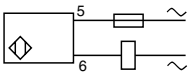
Setup
Minimum mounting distances (mm)

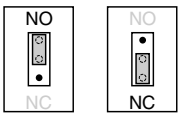


	Side by side	Face to face	Facing a metal object
XS7 flush mountable	e ≥ 40	e ≥ 120	e ≥ 45
XS8 non-flush mountable	e ≥ 80	e ≥ 160	e ≥ 60

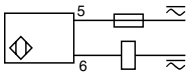
Tightening torque of cover mounting screws and clamp screws: < 1.2 N•m (10.62 lb-in)

Wiring diagrams
2-wire a programmable, NO or NC output depending on position of link



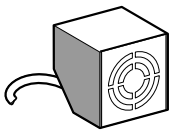
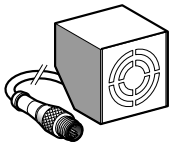
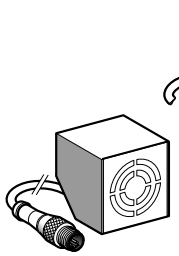
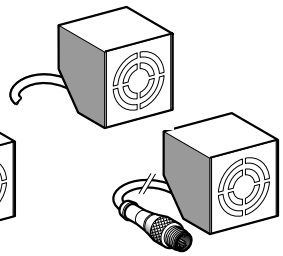


2-wire ∿ or ⎓ programmable, NO or NC output depending on position of link



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OsiSense® XS
Inductive proximity sensors
Application
For conveying and material handling applications
Plastic case, cubic 40 form, multi-position, DC supply

Sensor		Flush mountable in metal					Non-flush mountable in metal	
								
Nominal sensing distance Sn, mm (in.)		15 (0.59)					20 (0.79)	
Catalog Numbers								
2-wire ⎓ (non-polarized)	NO	**XS7T4DA210**	–	**XS7T4DA214LD**	–	**XS7T4DA214LD01**	–	–
4-wire ⎓ (complementary outputs)	PNP NO + NC	–	**XS7T4PC440**	–	**XS7T4PC440LD**	–	**XS8T4PC440**	**XS8T4PC440LD**
	NPN NO + NC	–	**XS7T4NC440**	–	**XS7T4NC440LD**	–	**XS8T4NC440**	**XS8T4NC440LD**
Weight, kg (lb)		0.265 (0.01)	0.265 (0.01)	0.220 (0.01)	0.220 (0.01)	0.200 (0.01)	0.265 (0.01)	0.220 (0.01)
Specifications								
Product certifications		UL, CSA, CE						
Degree of protection Conforming to IEC 60529		IP 67						
Operating temperature		- 25 to + 70 °C (-13 to 158 °F)						
Connection	Pre-cabled	2 x 0.5 mm² (22 AWG) length 2 m *(1)*	4 x 0.34 mm² (22 AWG) length 2 m *(1)*	–			4 x 0.34 mm² (22 AWG) length 2 m *(1)*	–
	Connector Remote M12	–		0.8 m pigtail connector		0.15 m pigtail connector	–	0.8 m pigtail connector
Operating zone, mm (in.)		**0–12 (0–0.47)**					**0–16 (0–0.63)**	
Repeat accuracy		≤ 3% of Sr (effective sensing distance)						
Differential travel		3–20% of Sr (effective sensing distance)						
Output state indication		Yellow LED, on rear						
Rated supply voltage		⎓ 12–48 V with protection against reverse polarity						
Voltage limits (including ripple)		⎓ 10–58 V						
Current consumption, no-load		–	≤ 10 mA	–	≤ 10 mA	–	≤ 10 mA	
Switching capacity		1.5–100 mA	0–200 mA	1.5–100 mA	0–200 mA	1.5–100 mA	0–200 mA	
		With overload and short-circuit protection						
Residual current, open state		≤ 0.7 mA	≤ 0.1 mA	≤ 0.7 mA	≤ 0.1 mA	≤ 0.7 mA	≤ 0.1 mA	
Voltage drop, closed state		≤ 5.2 V	≤ 2 V	≤ 5.2 V	≤ 2 V	≤ 5.2 V	≤ 2 V	
Maximum switching frequency		150 Hz	1000 Hz	150 Hz	1000 Hz	150 Hz	1000 Hz	
Delays	First-up	≤ 5 ms	≤ 7 ms	≤ 5 ms	≤ 7 ms	≤ 5 ms	≤ 7 ms	
	Response	≤ 2 ms	≤ 0.3 ms	≤ 2 ms	≤ 0.3 ms	≤ 2 ms	≤ 0.3 ms	
	Recovery	≤ 5 ms	≤ 0.7 ms	≤ 5 ms	≤ 0.7 ms	≤ 5 ms	≤ 0.7 ms	

(1) Sensors available with other cable lengths:

Length of cable	Suffix to be added to catalog numbers stated above for 2 m pre-cabled sensors	Weight increase, kg (lb)
5 m	**L1**	0.120 (0.01)
10 m	**L2**	0.320 (0.01)

Example: sensor **XS7T4DA210** with 5 m cable becomes **XS7T4DA210L1**

Other versions Sensors specifically designed for other operating temperatures. consult the Sensor Competency Center.

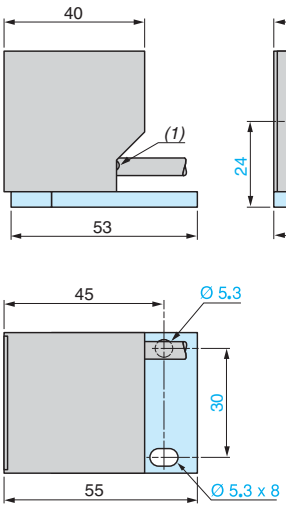
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OsiSense® XS
Inductive proximity sensors
Application
For conveying and material handling applications
Plastic case, cubic 40 form, multi-position, DC supply

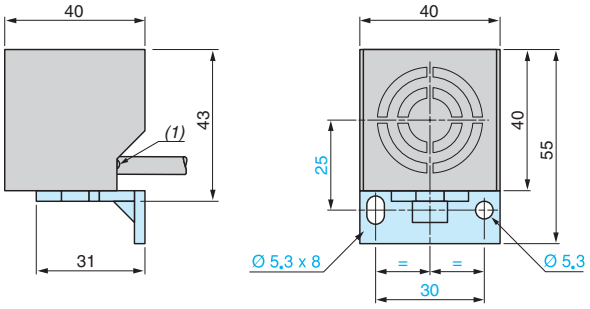
Dimensions (mm)

XS●T4●●●●●, XS●T4●●●●●LD, XS7T4●●●●●LD01

Plate mounted

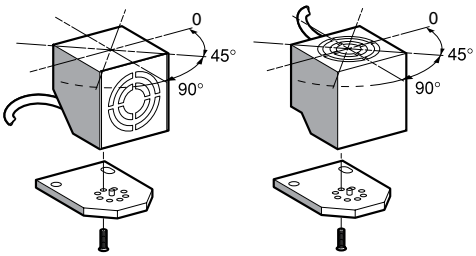


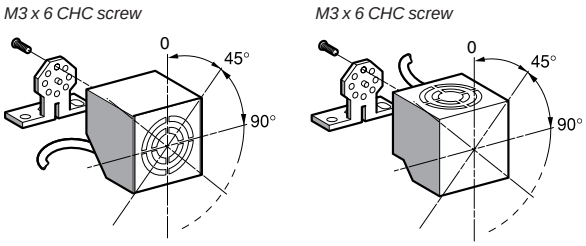
Bracket mounted



(1) LED.

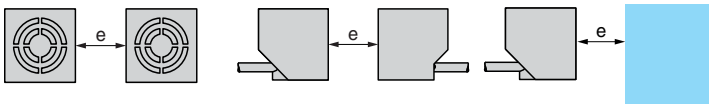
Alternative positions of head





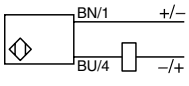
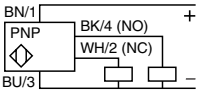
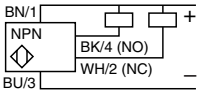
Setup

Minimum mounting distances (mm)



		Side by side	Face to face	Facing a metal object
Sensors flush mountable in metal	**XS7T, 2-wire**	e ≥ 40	e ≥ 120	e ≥ 45
	XS7T, 4-wire	e ≥ 40	e ≥ 120	e ≥ 45
Sensors non-flush mountable in metal	**XS8T, 4-wire**	e ≥ 60	e ≥ 160	e ≥ 60

Wiring diagrams

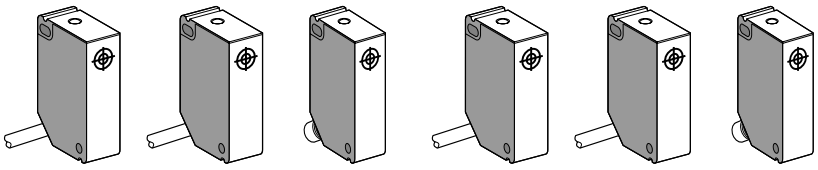
Connector	Pre-cabled	2-wire ⎓, NO output	4-wire ⎓, NO + NC output
	BU: Blue BN: Brown BK: Black WH: White		 

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OsiSense® XS
Inductive proximity sensors

Application
For assembly, packaging and light material handling
Plastic case, 12 x 26 x 40 mm
DC supply, solid-state output

Sensor		Flush mountable in metal			Non-flush mountable in metal		
							
Nominal sensing distance Sn, mm (in.)		2 (0.08)			4 (0.16)		
Catalog Numbers							
3-wire ⎓	PNP NO	**XS7G12PA140**	–	**XS7G12PA140S**	**XS8G12PA140**	–	**XS8G12PA140S**
	NPN NO	**XS7G12NA140**	–	**XS7G12NA140S**	**XS8G12NA140**	–	**XS8G12NA140S**
4-wire ⎓	PNP NO + NC	–	**XS7G12PC440**	–	–	**XS8G12PC440**	–
	NPN NO + NC	–	**XS7G12NC440**	–	–	**XS8G12NC440**	–
Weight, kg (lb)		0.100 (0.22)	0.100 (0.22)	0.030 (0.07)	0.100 (0.22)	0.100 (0.22)	0.030 (0.07)
Specifications							
Product certifications		CSA, UL, CE					
Connection	Pre-cabled	3 x 0.34 mm² (24 AWG), length 2 m *(1)*	4 x 0.34 mm² (24 AWG), length 2 m *(1)*	–	3 x 0.34 mm² (24 AWG), length 2 m *(1)*	4 x 0.34 mm² (24 AWG), length 2 m *(1)*	–
	Connector	–	–	M8	–	–	M8
Operating zone, mm (in.)		**0–1.6 (0–0.06)**			**0–3.2 (0–0.13)**		
Repeat accuracy		≤ 10% of Sr					
Differential travel		3–20% of Sr					
Degree of protection		IP 67					
Storage temperature		-40 to + 85 °C (-40 to +185 °F)					
Operating temperature		-25 to +70 °C(-13 to +158 °F)					
Materials		Case: PBT, cable: PVC					
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 top of case)					
Rated supply voltage		⎓ 12–24 V	⎓ 12–48 V	⎓ 12–24 V	⎓ 12–24 V	⎓ 12–48 V	⎓ 12–24 V
Voltage limits (including ripple)		⎓ 10–30 V	⎓ 10–58 V	⎓ 10–30 V	⎓ 10–30 V	⎓ 10–58 V	⎓ 10–30 V
Current consumption, no-load		≤ 10 mA					
Switching capacity		0–100 mA *(2)*	0–200 mA *(2)*	0–100 mA *(2)*	0–100 mA *(2)*	0–200 mA *(2)*	0–100 mA *(2)*
Voltage drop, closed state		≤ 1.8 V	≤ 2.6 V	≤ 1.8 V	≤ 1.8 V	≤ 2.6 V	≤ 1.8 mA
Maximum switching frequency		≤ 2 kHz			≤ 1 kHz		
Delays	First-up	≤ 4 ms					
	Response	≤ 0.5 ms					
	Recovery	≤ 1 ms					

(1) Sensors available with other cable lengths:

Length of cable	Suffix to be added to catalog numbers stated above for 2 m pre-cabled sensors	Weight increase
5 m	**L1**	0.120 kg (0.26 lb)
10 m	**L2**	0.320 kg (0.71 lb)

Example: sensor **XS7G12PA140** with 5 m cable becomes **XS7G12PA140L1.**

(2) With overload and short-circuit protection

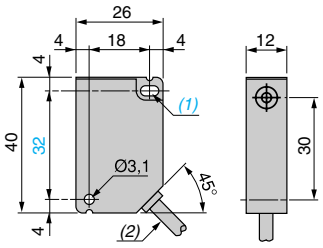
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Inductive proximity sensors

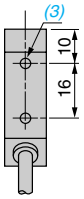
Application
For assembly, packaging and light material handling
Plastic case, 12 x 26 x 40 mm
DC supply, solid-state output

Dimensions (mm)

XS●G12●A140, XS●G12●C440



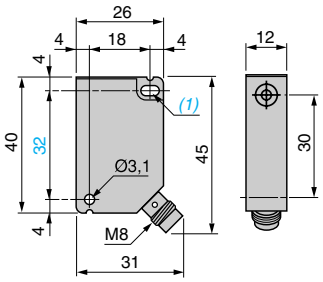
Rear view

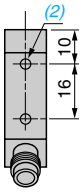


(1) 1 elongated hole Ø 3.1 x 5.1.
(2) Cable L = 2 m.
(3) 2 holes M3 x 5.

XS●G12●A140S

Rear view

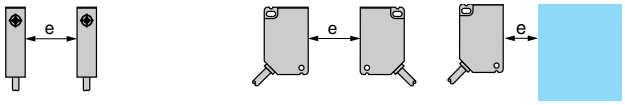




(1) 1 elongated hole Ø 3.1 x 5.1.
(2) 2 holes M3 x 5.

Setup

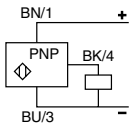
Minimum mounting distances (mm)

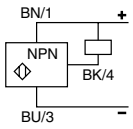


	Side by side	Face to face	Facing a metal object and mounted in a metal support
XS7G flush mountable	e ≥ 0	e ≥ 15	e ≥ 6
XS8G non-flush mountable	e ≥ 10	e ≥ 60	e ≥ 12

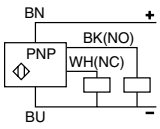
Wiring diagrams

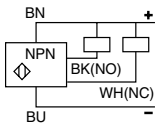
3-wire ⎓, NO output





4-wire ⎓, NO + NC output





Connector

M8

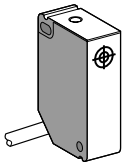
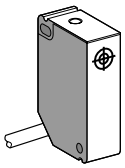


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OsiSense® XS
Inductive proximity sensors

Application

For assembly, packaging and light material handling
Plastic case, 12 x 26 x 40 mm
AC or DC supply

Sensor		Flush mountable in metal	Non-flush mountable in metal
			
Nominal sensing distance Sn, mm (in.)		2 (0.04)	4 (0.08)
Catalog Numbers			
2-wire ⎓ or ∿	NO	**XS7G12MA230**	**XS8G12MA230**
	NC	**XS7G12MB230**	**XS8G12MB230**
Weight, kg (lb)		0.100 (0.22)	0.100 (0.22)
Specifications			
Product certifications		CSA, UL, CE	
Connection		Pre-cabled, 2 x 0.34 mm² (24 AWG), length 2 m *(1)*	
Operating zone, mm (in.)		**0–1.6 (0–0.06)**	**0–3.2 (0–0.13)**
Repeat accuracy		≤ 10% of Sr	
Differential travel		3–20% of Sr	
Degree of protection		IP 67	
Storage temperature		-40 to +85 °C (-40 to +185 °F)	
Operating temperature		-25 to +70 °C (-13 to +158 °F)	
Materials		Case: PBT, cable: PVC	
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 top of case)	
Rated supply voltage		∿ 24–240 V (50/60 Hz) or ⎓ 24–210 V	
Voltage limits (including ripple)		∿ or ⎓ 20–264 V	
Switching capacity		5–200 mA (2)	
Voltage drop, closed state		≤ 5.5 V	
Residual current, open state		≤ 0.8 mA/24 V, 1.5 mA/120 V	
Maximum switching frequency		∿ 25 Hz or ⎓ 250 Hz	
Delays	First-up	≤ 40 ms	
	Response	≤ 1 ms	
	Recovery	≤ 2 ms	

(1) Sensors available with other cable lengths:

Length of cable	Suffix to be added to catalog numbers stated above for 2 m pre-cabled sensors	Weight increase
5 m	**L1**	0.120 kg (0.26 lb)
10 m	**L2**	0.320 kg (0.71 lb)

Example: sensor **XS7G12MA230** with 5 m cable becomes **XS7G12MA230L1.**

(2) These sensors do not incorporate overload or short-circuit protection and therefore, a 0.4 A fast-acting fuse must be connected in series with the load.

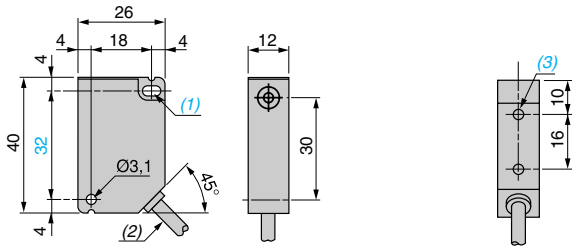
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OsiSense® XS
Inductive proximity sensors

Application
For assembly, packaging and light material handling
Plastic case, 12 x 26 x 40 mm
AC or DC supply

Dimensions (mm)

XS●G12M●230

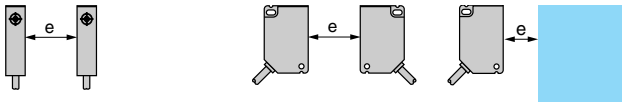


Rear view

(1) 1 elongated hole Ø 3.1 x 5.1.
(2) Cable L = 2 m

Setup

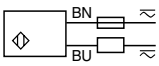
Minimum mounting distances (mm)



	Side by side	Face to face	Facing a metal object and mounted in a metal support
XS7G flush mountable	e ≥ 0	e ≥ 15	e ≥ 6
XS8G non-flush mountable	e ≥ 10	e ≥ 60	e ≥ 12

Wiring diagrams

2-wire ∿ or ⎓, NO or NC output



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OsiSense® XS
Inductive proximity sensors
Application
Sensors for rotation monitoring, slip detection, shaft overload detection, Cylindrical form

Example:
Coupling breakage monitoring

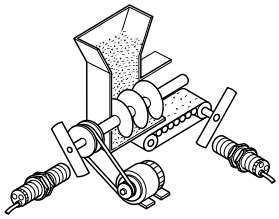
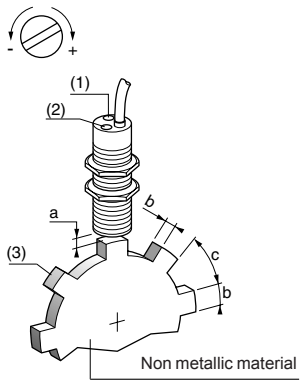


Figure 1



Functions
As a special feature, these self-contained rotation speed monitoring sensors incorporate, in the same case, the pulse sensing and processing electronics with the output switching amplifier, which 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, Archemedian screws, grinders, crushers, pumps, centrifugal driers, mixers, etc.

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

Sensors XSA-V are particularly suitable for the detection of underspeed: when the speed of the moving part Fc falls below a preset threshold Fr, 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 so the moving part being monitored and run up to its nominal speed. During this time, the output of the sensor remains in the closed state.*

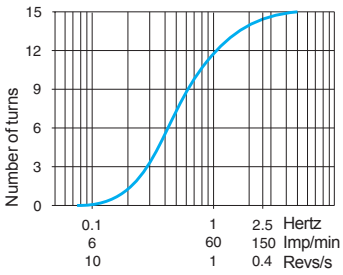
Adjustment of frequency threshold

- 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 counter clockwise (–).

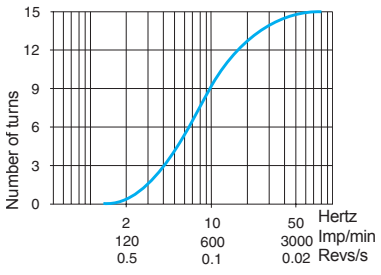
Figure 1	**Diameter of sensor: ø30 mm**			
1. Potentiometer	Distance	a	b	c
2. LED	mm (in.)	4–6 (0.16–0.24)	30 (1.18)	60 (2.36)
3. Metal target				

Potentiometer adjustment curves (for **XSAV1●801**, 2-wire ∿ or ⎓ sensors)

Low speed version (6–150 impulses/minute)

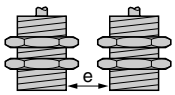


High speed version (120–3000 impulses/minute)



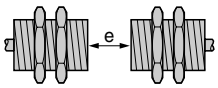
Setup
Minimum distances (mm)

Side by side



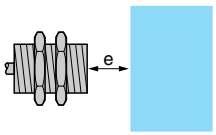
e ≥ 20

Face to face



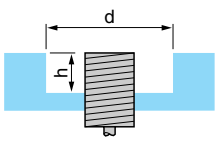
e ≥ 120

Facing a metal object



e ≥ 30

Mounted in a metal support



d ≥ 30, h ≥ 0

Mounting nut tightening torque: < 50 N•m (442.54 lb-in)

Schneider Electric

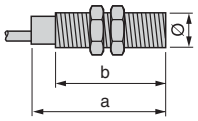
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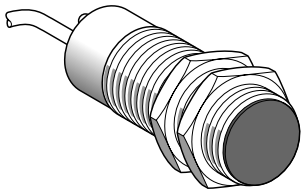
OsiSense® XS
Inductive proximity sensors

Application

Sensors for rotation monitoring, slip detection, shaft overload detection, Cylindrical form

Flush mountable in metal





Lengths (mm):
a = Overall
b = Threaded section

	DC	DC	AC/DC	AC/DC
Nominal sensing distance (Sn)	10 mm (0.39 in.)	10 mm (0.39 in.)	10 mm (0.39 in.)	10 mm (0.39 in.)
Adjustable frequency range	6–150 impulses/min	120–3000 impulses/min	6–150 impulses/min	120–3000 impulses/min

Catalog Numbers

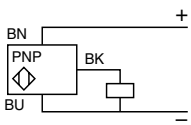
3-wire ⎓	**PNP / NC**	**XSAV11373**	**XSAV12373**	–	–
2-wire	**⎓ or ∿ / NC**	–	–	**XSAV11801**	**XSAV12801**
Weight, kg (lb)		0.300 (0.66)			

Specifications

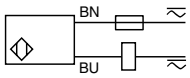
Connection	**Pre-cabled, 3 x 0.34 mm² (22 AWG), length 2 m** *(1)*	**Pre-cabled, 2 x 0.34 mm² (22 AWG), length 2 m** *(1)*
Degree of protection conforming to IEC 60529	IP 67	
Operating zone, mm (in.)	0–8 mm (0–0.31)	
Repeat accuracy	3% of Sr	
Differential travel	3–15% of Fr	
Operating temperature	-25 to +70 °C (-13 to +158 °F)	
Output state indication	Red LED	
Rated supply voltage	**⎓ 12–48 V with protection against reverse polarity**	**∿ 24–240 V (50/60 Hz) or ⎓ 24–210 V**
Voltage limits (including ripple)	⎓ 10–58 V	∿ or ⎓ 20–264 V
Switching capacity	**≤ 200 mA with overload and short-circuit protection**	**∿ 5–350 mA or ⎓ 5–200 mA** *(2)*
Voltage drop, closed state	≤ 1.8 V	≤ 5.7 V
Residual current, open state		≤ 1.5 mA
Current consumption, no-load	≤ 15 mA	–
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 diagrams

3-wire ⎓
XSAV1●**373**



2-wire ∿ or ⎓
XSAV1●801

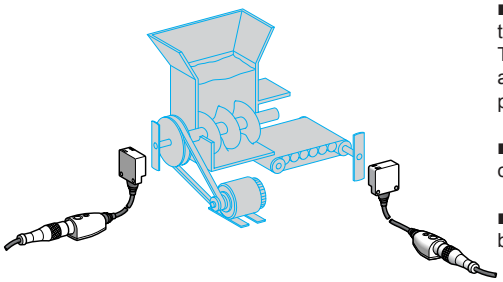


(1) For a 5 m cable add L05 to the catalog number, for a 10 m cable add L10.
*Example: XSA V11373 becomes **XSAV11373L05** with a 5 m cable.*
(2) These sensors do not incorporate overload or short-circuit protection and therefore, it is essential to connect a 0.4 A fast-acting fuse in series with the load, see page 2/131.
*(3) For a sensor without a run-up delay following power-up, replace XSA V1 in the catalog number by XSAV0. Example: XSA V11801 becomes **XSAV01801** without a run-up delay. For a reduced run-up delay of 3 s, replace XSAV1 in the catalog number with XSAV3.*

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OsiSense® XS
Inductive proximity sensors
Application
Sensors for rotation monitoring, slip detection and shaft overload detection, with teach mode

Operating principle and applications

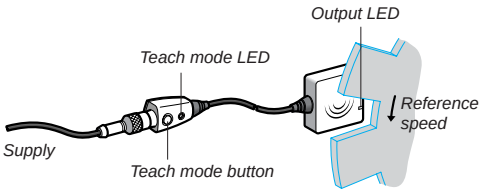


■ These inductive proximity sensors are designed for monitoring rotational speed or the speed of the flow of objects to be protected or monitored.
They operate on the principle of comparing a speed threshold preset by the operator against the instantaneous measurement of the speed of the moving object 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, Archimedean screw, etc. type applications.

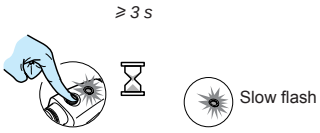
Installation and setup

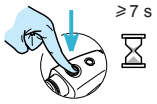


Setup and positioning the sensor

■ In the positioning phase, the XS9 sensor can operate as a standard inductive sensor (Schneider Electric patent pending).
Operation in inductive mode enables validation of reliable detection of all the moving objects to be monitored.

■ Using this system, the positioning is reliable and can be checked at any time without altering the settings of the sensor.



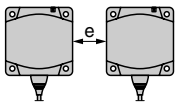


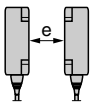
Speed adjustment in teach mode

■ 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 700 rpm [1000 – (1000 x 0.3)].
- 20%, - 11% and - 6% thresholds can be obtained by pressing the teach mode button.

Setup

Minimum mounting distances (mm)

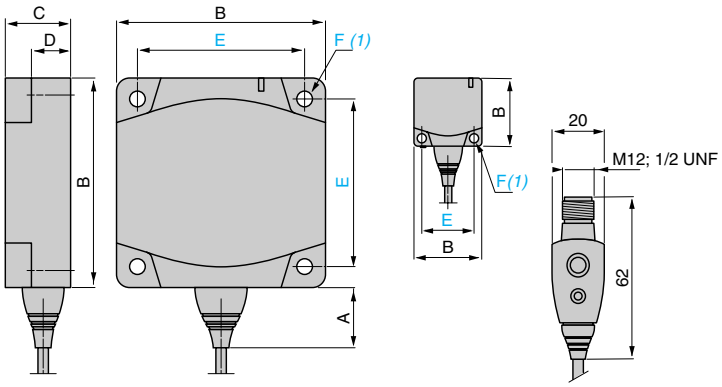




Type	Side by side	Face to face
XS9E	e ≥ 40	e ≥ 80
XS9C	e ≥ 60	e ≥ 120

Dimensions (mm)

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

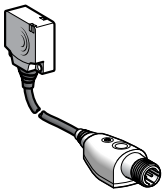
Schneider Electric

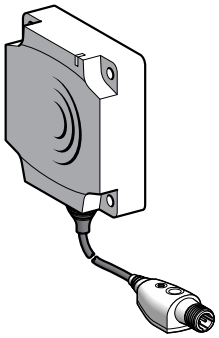
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OsiSense® XS
Inductive proximity sensors
Application
Sensors for rotation monitoring, slip detection and shaft overload detection, with teach mode

Flush mountable in metal

PBT case





Nominal sensing distance Sn, mm (in.)		**10 (0.39)**	**15 (0.59)**	**10 (0.39)**	**15 (0.59)**
Adjustable frequency range		6 to 6000 impulses/min			
Catalog Numbers					
3-wire	PNP / NC	**XS9E11RPBL01M12**	**XS9C11RPBL01M12**	–	–
2-wire	⎓ or ∿ / NC	–	–	**XS9E11RMBL01U20**	**XS9C11RMBL01U20**
Weight, kg (lb)		0.040 (0.09)	0.060 (0.13)	0.040 (0.09)	0.060 (0.13)
Specifications					
Product certifications		UL, CSA, CE			
Connection		Remote M12 connector on 0.15 m pigtail connector		Remote 1/2"-20UNF connector on 0.15 m pigtail connector	
Operating zone, mm (in.)		**0–8 (0–0.31)**	**0–12 (0–0.47)**	**0–8 (0–0.31)**	**0–12 (0–0.47)**
Degree of protection	Conforming to IEC 60529	IP 67, double insulation ⧈			
Storage temperature		- 40 to + 85 °C (-40 to +185 °F)			
Operating temperature		- 25 to + 70 °C (-13 to +158 °F)			
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		⎓ 12–24 V		∿ or ⎓ 24–240 V (50/60 Hz)	
Voltage limits (including ripple)		⎓ 10–36 V		∿ or ⎓ 20–264 V	
Switching capacity		⩽ 100 mA *(1)*	⩽ 200 mA *(1)*	∿ or ⎓ 5–100 mA *(2)*	⎓ 5–200 mA, ∿ 5–300 mA*(2)*
Voltage drop, closed state		⩽ 2 V		⩽ 5.5 V	
Residual current, open state		⩽ 100 mA		⩽ 1.5 mA	
Current consumption, no-load		⩽ 10 mA		–	
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) A 0.4 A fast-acting fuse must be connected in series with the load.

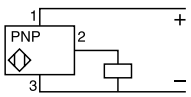
Wiring diagrams

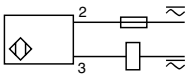
Connector

M12	**1/2"-20UNF**	**3-wire ⎓**	**2-wire ∿ or ⎓**
		XS9●11RPBL01M12	**XS9●11RMBL01U20**

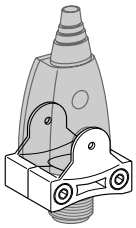








Accessory



XSZBPM12

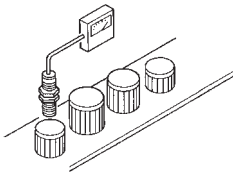
Description	Catalog Number	Weight kg
Remote control mounting clamp	**XSZBPM12**	0.015

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OsiSense® XS
Inductive proximity sensors
Application
Sensors with analog output signal 0–10 V *(1)*
or 4–20 mA
For position, displacement and deformation control/monitoring

Functions

Example:
Sorting parts



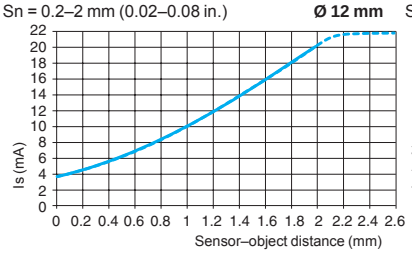
These analog output proximity sensors are solid-state sensors designed for monitoring displacement. They are not measuring sensors. They are suitable for use in many sectors, particularly for applications involving:
- deformation and displacement monitoring,
- vibration amplitude and frequency monitoring,
- control of dimensional tolerances,
- position control,
- concentricity or eccentricity monitoring.

Operating principle

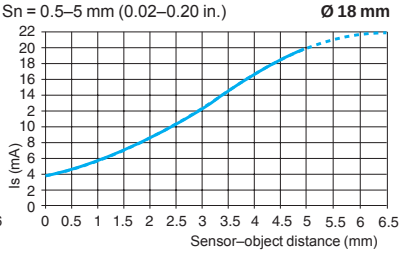
The operating principle of the sensor is that of a damped oscillator. The degree of damping will depend on the distance of an object from the sensing face. The sensor will sense the distance and produce an output current with a value directly proportional to this distance.

Operating curves 4–20 mA, 2-wire connection

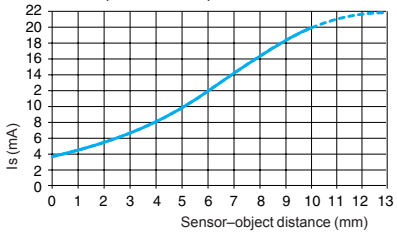
XS1M12AB120
Sn = 0.2–2 mm (0.02–0.08 in.) **Ø 12 mm**



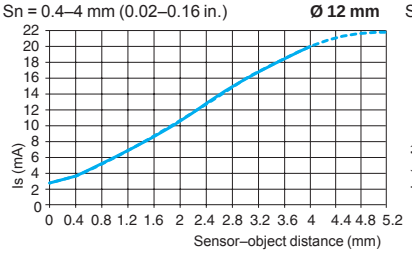
XS1M18AB120
Sn = 0.5–5 mm (0.02–0.20 in.) **Ø 18 mm**



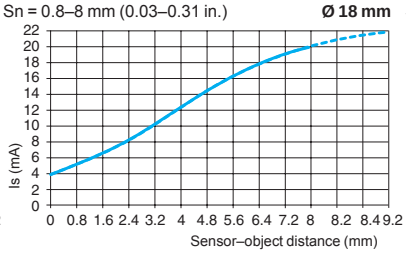
XS1M30AB120
Sn = 1–10 mm (0.04–0.39 in.) **Ø 30 mm**



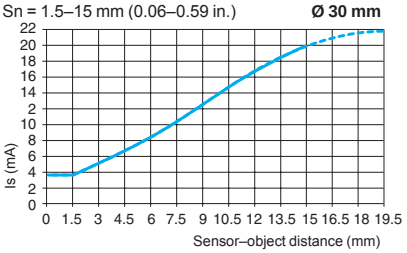
XS4P12AB120
Sn = 0.4–4 mm (0.02–0.16 in.) **Ø 12 mm**



XS4P18AB120
Sn = 0.8–8 mm (0.03–0.31 in.) **Ø 18 mm**

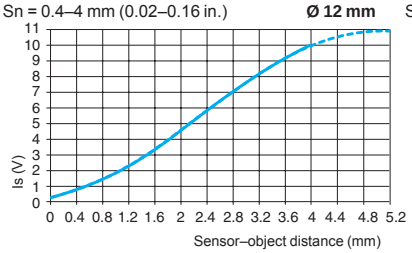


XS4P30AB120
Sn = 1.5–15 mm (0.06–0.59 in.) **Ø 30 mm**

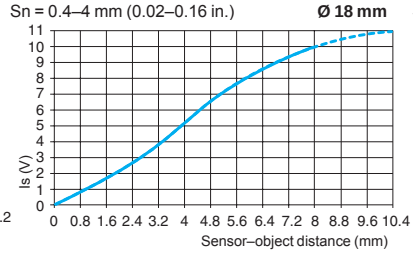


Operating curves 0–10 V, 3-wire connection

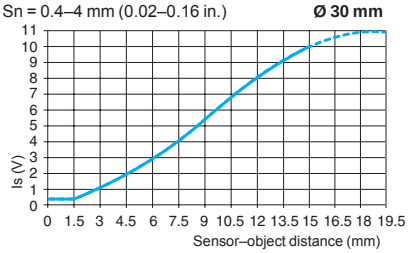
XS4P12AB110
Sn = 0.4–4 mm (0.02–0.16 in.) **Ø 12 mm**



XS4P18AB110
Sn = 0.4–4 mm (0.02–0.16 in.) **Ø 18 mm**

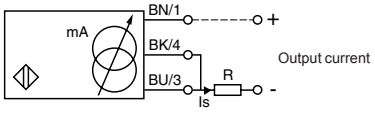


XS4P30AB110
Sn = 0.4–4 mm (0.02–0.16 in.) **Ø 30 mm**

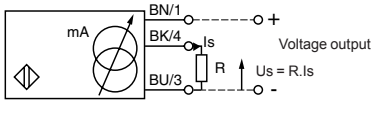


Wiring diagrams

2-wire connection



3-wire connection



	Output current	Load impedance value
12 V	4–20 mA	R ≤ 8.2 Ω
24 V	4–20 mA	R ≤ 470 Ω

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

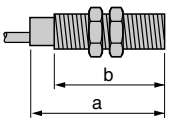
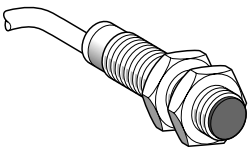
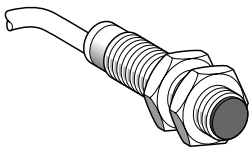
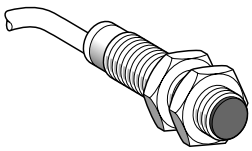
	Output current	Load impedance value	Output voltage	Load impedance value
24 V	0–10 mA	R ≤ 1500 Ω	0–10 V	R = 1000 Ω
48 V	0–10 mA	R ≤ 3300 Ω	0–10 V	R = 1000 Ω

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.

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OsiSense® XS
Inductive proximity sensors
Application
Sensors with analog output signal 0–10 V *(1)*
or 4–20 mA
For position, displacement and deformation control/monitoring

Sensor	Flush mountable in metal	Non-flush mountable in metal	
			
Lengths (mm): a = Overall b = Threaded section	a = 50 b = 42	a = 50 b = 42	a = 50 b = 42
	Metal case	**Plastic case**	**Plastic case**
Nominal sensing distance Sn, mm (in.)	2 (0.08)	4 (0.16)	4 (0.16)

Catalog Numbers

3-wire ⎓	Output 0–10 V *(2)*	–	–	**XS4P12AB110**
2-wire ⎓	Output 4–20 mA *(2)*	**XS1M12AB120**	**XS4P12AB120**	–
Weight, kg (lb)		0.075 (0.17)	0.065 (0.14)	0.065 (0.14)

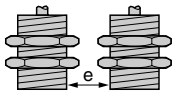
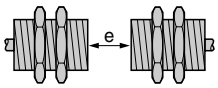
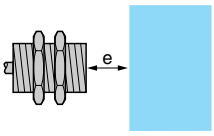
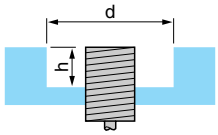
Specifications

Product certifications	CE, UL, CSA		
Connection	**Pre-cabled, PvR 3 x 0.34 mm² (24 AWG), length 2 m**		
Degree of protection Conforming to IEC 60529	IP 67		
Operating zone, mm (in.)	**0.2–2 (0.01–0.08)**	**0.4–4 (0.02–0.16)**	**0.4–4 (0.02–0.16)**
Repeat accuracy	± 3%		
Linearity error	± 2 mA		± 1 V
Ambient air temperature	For operation: -25 to +70 °C (-13 to +158 °F)		
Rated supply voltage	⎓ **12–24 V**	⎓ **12–24 V**	⎓ **24–48 V**
Voltage limits (including ripple)	⎓ 10–36 V	⎓ 10–36 V	⎓ 15–58 V
Output current drift Ambient temperature: -25 to+70 °C (-13 to +158 °F)	≤ 10%		
Current consumption, no-load	4 mA		
Maximum operating rate	1500 Hz		

(1) Voltage range only obtained with a load impedance of 1000 Ω.
(2) Output current range (Is)

Setup

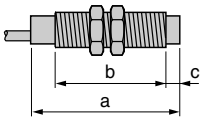
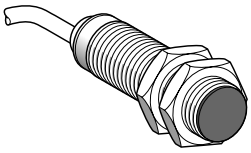
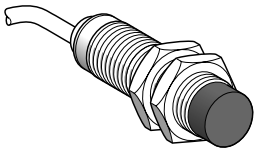
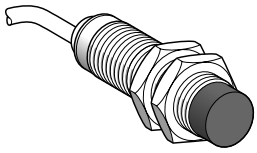
Minimum mounting distances (mm)

	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

Mounting nut tightening torque	< 6 N•m (53.10 lb-in) (metal case), < 2 N•m (17.70 lb-in) (plastic case)
Other versions	Consult the Sensor Competency Center.

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OsiSense® XS
Inductive proximity sensors
Application
Sensors with analog output signal 0–10 V *(1)* or 4–20 mA

Sensor	Flush mountable in metal	Non-flush mountable in metal	
			
Lengths (mm): a = Overall b = Threaded section c = For non-flush mountable sensors	a = 52.5 b = 44 c = 0	a = 40.6 b = 26 c = 8	a = 40.6 b = 26 c = 8
	Metal case	**Plastic case**	**Plastic case**
Nominal sensing distance Sn, mm (in.)	5 (0.20)	8 (0.31)	8 (0.31)

Catalog Numbers

3-wire ⎓	Output 0–10 V *(2)*	–	–	**XS4P18AB110**
2-wire ⎓	Output 4–20 mA *(2)*	**XS1M18AB120**	**XS4P18AB120**	–
Weight (kg)		0.120 (0.26)	0.080 (0.18)	0.080 (0.18)

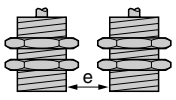
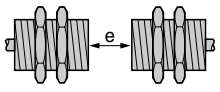
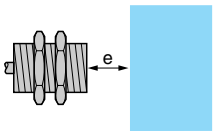
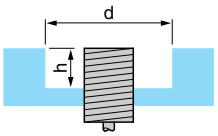
Specifications

Product certifications	CE, UL, CSA		
Connection	**Pre-cabled, PvR 3 x 0.34 mm² (24 AWG), length 2 m**		
Degree of protection Conforming to IEC 60529	IP 67		
Operating zone, mm (in.)	**0.5–5 (0.02–0.20)**	**0.8–8 (0.03–0.31)**	**0.8–8 (0.03–0.31)**
Repeat accuracy	± 3%		
Linearity error	± 2 mA		± 1 V
Ambient air temperature	For operation: - 25 to + 70 °C (-13 to +158 °F)		
Rated supply voltage	⎓ **12–24 V**	⎓ **12–24 V**	⎓ **24–48 V**
Voltage limits (including ripple)	⎓ 10–36 V	⎓ 10–36 V	⎓ 15–58 V
Output current drift Ambient temperature: - 25 to + 70 °C (-13 to +158 °F)	≤ 10%		
Current consumption, no-load	4 mA		
Maximum operating rate	500 Hz		

(1) Voltage range only obtained with a load impedance of 1000 Ω.
(2) Output current range Is, see page 2/96.

Setup

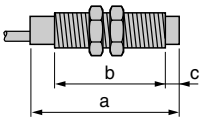
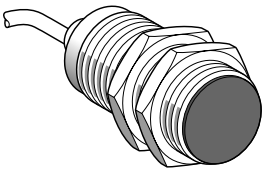
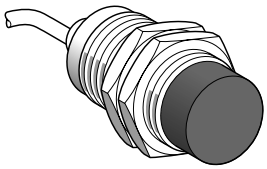
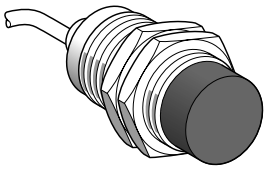
Minimum mounting distances (mm)

	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

Mounting nut tightening torque	< 15 N•m (132.76 lb-in) (metal case), < 5 N•m (44.25 lb-in) (plastic case)
Other versions	Consult the Sensor Competency Center.

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OsiSense® XS
Inductive proximity sensors
Application
Sensors with analog output signal 0–10 V *(1)* or 4–20 mA

Sensor	Flush mountable in metal	Non-flush mountable in metal	
			
Lengths (mm): a = Overall b = Threaded section c = For non-flush mountable sensors	a = 50 b = 42 c = 0	a = 52.6 b = 32 c = 13	a = 52.6 b = 32 c = 13
	Metal case	**Plastic case**	**Plastic case**
Nominal sensing distance Sn, mm (in.)	10 (0.39)	15 (0.59)	15 (0.59)

Catalog Numbers

3-wire ⎓	Output 0–10 V *(2)*	–	–	**XS4P30AB110**
2-wire ⎓	Output 4–20 mA *(2)*	**XS1M30AB120**	**XS4P30AB120**	–
Weight, kg (lb)		0.200 (0.44)	0.100 (0.22)	0.100 (0.22)

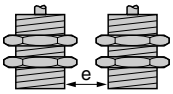
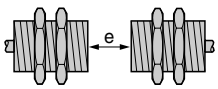
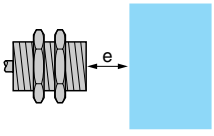
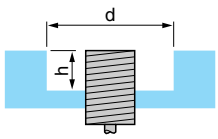
Specifications

Product certifications	CE, UL, CSA		
Connection	**Pre-cabled, PvR 3 x 0.34 mm² (22 AWG), length 2 m**		
Degree of protection Conforming to IEC 60529	IP 67		
Operating zone, mm (in.)	**1–10 (0.04–0.39)**	**1.5–15 (0.06–0.59)**	**1.5–5 (0.06–0.20)**
Repeat accuracy	± 3%		
Linearity error	± 2 mA		± 1 V
Ambient air temperature	For operation: - 25 to + 70 °C (-13 to +158 °F)		
Rated supply voltage	⎓ **12–24 V**	⎓ **12–24 V**	⎓ **24–48 V**
Voltage limits (including ripple)	⎓ 10–36 V	⎓ 10–36 V	⎓ 15–58 V
Output current drift Ambient temperature: - 25 to + 70 °C (-13 to +158 °F)	≤ 10%		
Current consumption, no-load	4 mA		
Maximum operating rate	300 Hz		

(1) Voltage range only obtained with a load impedance of 1000 Ω.
(2) Output current range Is, see page 2/96.

Setup

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

Mounting nut tightening torque	< 40 N•m (354.03 lb-in) (metal case) , < 20 N•m (177.01 lb-in) (plastic case)
Other versions	Consult the Sensor Competency Center.

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OsiSense® XS
Inductive proximity sensors
Application
Sensors with analog output signal 0–10 V (1)
For position, displacement and deformation control/monitoring

Functions

These analog 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.

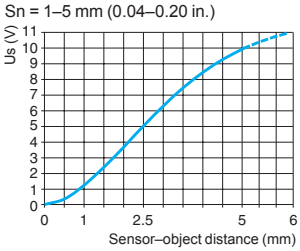
Operating principle

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.

Operating curves 0–10 V, 3-wire connection

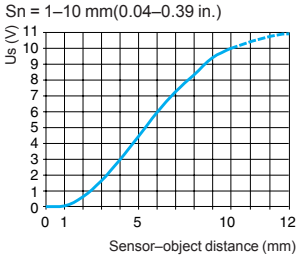
XS9F

Sn = 1–5 mm (0.04–0.20 in.)



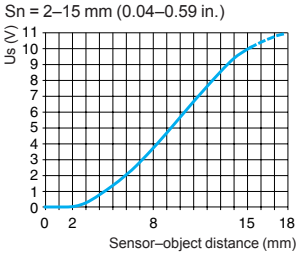
XS9E

Sn = 1–10 mm(0.04–0.39 in.)



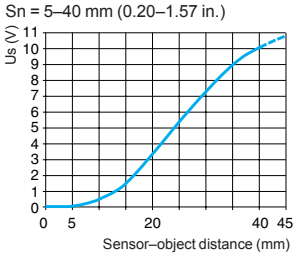
XS9C

Sn = 2–15 mm (0.04–0.59 in.)



XS9D

Sn = 5–40 mm (0.20–1.57 in.)



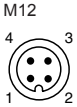
Wiring diagrams

Connector

M8



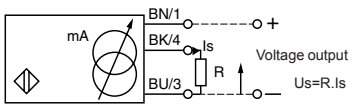
M12



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 ⩽ 1400 Ω	0–10 V	R = 1000 Ω

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

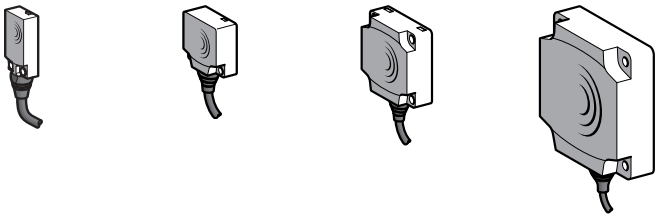
(1) Voltage range only obtained with a load impedance of 1000 Ω.

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OsiSense® XS
Inductive proximity sensors
Application
Sensors with analog output signal 0–10 V (1)
For position, displacement and deformation control/monitoring

Flush mountable in metal

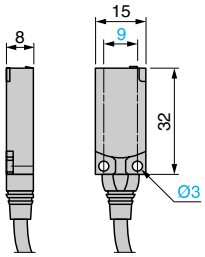
PBT case



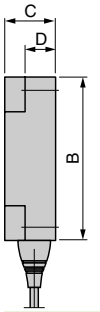
Nominal sensing distance Sn, mm (in.)		**5 (0.20)**	**10 (0.39)**	**15(0.59)**	**40 (1.57)**
Catalog Numbers					
3-wire ⎓ 0–10 V	Pre-cabled (L = 2 m) *(2)*	**XS9F111A1L2**	**XS9E111A1L2**	**XS9C111A1L2**	**XS9D111A1L2**
	Connector	**XS9F111A1L01M8**	**XS9E111A1L01M12**	**XS9C111A1L01M12**	**XS9D111A1M12**
Weight, kg (lb)	Pre-cabled (L = 2 m) *(2)*	0.060 (0.13)	0.075 (0.17)	0.095 (0.21)	0.340 (0.75)
	Connector	0.040 (0.09)	0.055 (0.12)	0.075 (0.17)	0.320 (0.71)
Specifications					
Product certifications		UL, CSA, CE			
Connection	Pre-cabled	PvR 3 x 0.34 mm² (22 AWG), length 2 m for **XS9●111A●L2**			
	Connector	0.15 m pigtail connector with M8 connector	0.15 m pigtail connector with M12 connector		M12
Operating zone, mm (in.)		**1–5 (0.04–0.20)**	**1–10 (0.04–0.39)**	**2–15 (0.08–0.59)**	**5–40 (0.20–1.57)**
Degree of protection Conforming to IEC 60529	Pre-cabled	IP 68	IP 68, double insulation ⧈		
	Connector	IP 67	IP 67, double insulation ⧈		
Storage temperature		-40 to +85 °C (-40 to +185 °F)			
Operating temperature		-25 to +70 °C (-13 to +158 °F)			
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		⎓ 24 V			
Voltage limits (including ripple)		⎓ 15–36 V			
Repeat accuracy		± 3%			
Linearity error		± 1 V			
Current consumption, no-load		≤ 4 mA with overload and short-circuit protection			
Maximum operating frequency		2000 Hz	1000 Hz		100 Hz
Output current drift		≤ 10% (throughout the operating temperature range)			

Dimensions (mm)

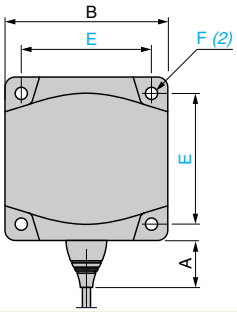
XS9F



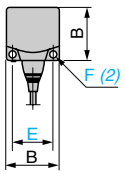
XS9E/C/D



XS9C/D



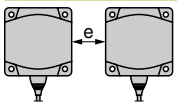
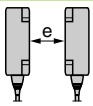
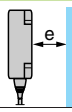
XS9E



(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

Setup (Minimum mounting distances (mm)

Type	Side by side		Face to face		Facing a metal object	
XS9F		e ≥ 15		e ≥ 36		e ≥ 15
XS9E		e ≥ 30		e ≥ 72		e ≥ 30
XS9C		e ≥ 45		e ≥ 110		e ≥ 45
XS9D		e ≥ 120		e ≥ 300		e ≥ 120

(1) Voltage range only obtained with a load impedance of 1000 Ω.
(2) For a 5 m cable replace L2 by L5, for a 10 m cable replace L2 by L10.
*Example: XS9C111A1L2 becomes **XS9C111A1L5** with a 5 m cable.*

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OsiSense® XS
Inductive proximity sensors
Application
Sensors with analog output signal 4–20 mA
For position, displacement and deformation control/monitoring

Functions

These analog 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.

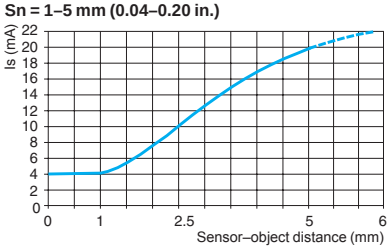
Operating principle

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.

Operating curves 4–20 mA, 2-wire connection

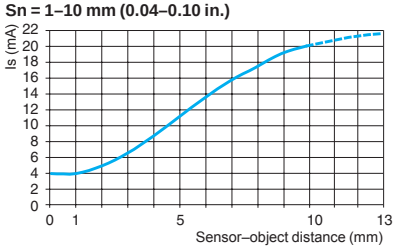
XS9F

Sn = 1–5 mm (0.04–0.20 in.)



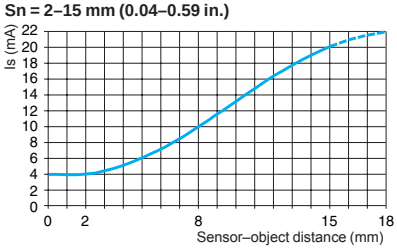
XS9E

Sn = 1–10 mm (0.04–0.10 in.)



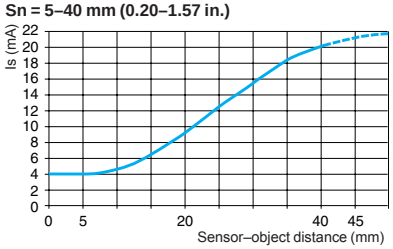
XS9C

Sn = 2–15 mm (0.04–0.59 in.)



XS9D

Sn = 5–40 mm (0.20–1.57 in.)



Wiring diagrams

Connector

M8



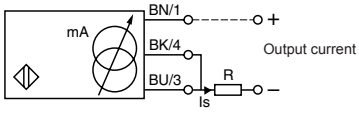
M12



Pre-cabled

BN: Brown
BU: Blue
BK: Black

2-wire connection



	Output current	Load impedance value
12 V	4–20 mA	R ≤ 8.2 Ω
24 V	4–20 mA	R ≤ 470 Ω

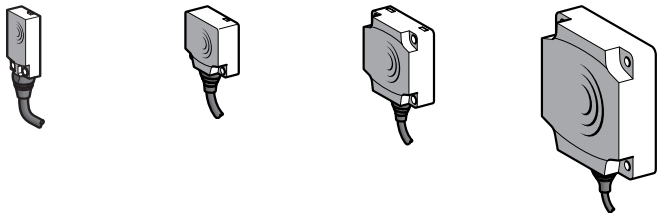
Note: *Ensure a minimum of 10 V between the + (terminal 1) and - (terminal 3) of the sensor.*

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OsiSense® XS
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Application
Sensors with analog output signal 4–20 mA
For position, displacement and deformation control/monitoring

Flush mountable in metal

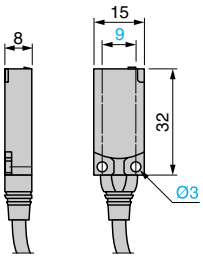
PBT case



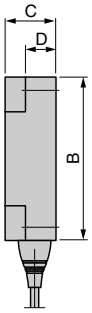
Nominal sensing distance Sn, mm (in.)		**5 (0.20)**	**10 (0.39)**	**15 (0.59)**	**40 (1.57)**
Catalog Numbers					
2-wire ⎓ 4–20 mA	Pre-cabled (L = 2 m) *(1)*	**XS9F111A2L2**	**XS9E111A2L2**	**XS9C111A2L2**	**XS9D111A2L2**
	Connector	**XS9F111A2L01M8**	**XS9E111A2L01M12**	**XS9C111A2L01M12**	**XS9D111A2M12**
Weight, kg (lb)	Pre-cabled (L = 2 m)	0.060 (0.13)	0.075 (0.17)	0.095 (0.21)	0.340 (0.75)
	Connector	0.040 (0.09)	0.055 (0.12)	0.075 (0.17)	0.320 (0.71)
Specifications					
Product certifications		UL, CSA, CE			
Connection	Pre-cabled	PvR 3 x 0.34 mm² (22 AWG), length 2 m for **XS9●111A●L2**			
	Connector	0.15 m pigtail connector with M8 connector	0.15 m pigtail connector with M12 connector		M12
Operating zone, mm (in.)		**1–5 (0.04–0.20)**	**1–10 (0.04–0.39)**	**2–15 (0.08–0.59)**	**5–40 (0.20–1.57)**
Degree of protection Conforming to IEC 60529	Pre-cabled	IP 68	IP 68, double insulation ⧈		
	Connector	IP 67	IP 67, double insulation ⧈		
Storage temperature		-40 to +85 °C (-40 to +185 °F)			
Operating temperature		-25 to +70 °C (-13 to +158 °F)			
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		⎓ 12–24 V			
Voltage limits (including ripple)		⎓ 10–36 V			
Repeat accuracy		± 3%			
Linearity error		± 2 mA			
Current consumption, no-load		≤ 4 mA with overload and short-circuit protection			
Maximum operating frequency		2000 Hz	1000 Hz		100 Hz
Output current drift		≤ 10% (throughout the operating temperature range)			

Dimensions (mm)

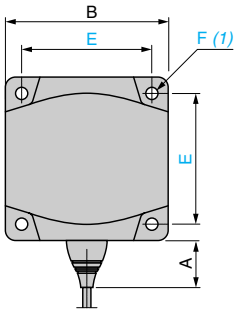
XS9F



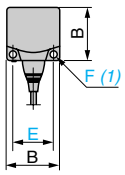
XS9E/C/D



XS9C/D



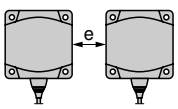
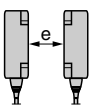
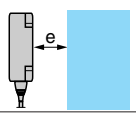
XS9E



(1) 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

Setup (Minimum mounting distances (mm)

Type	**Side by side**		**Face to face**		**Facing a metal object**	
XS9F		e ≥ 15		e ≥ 36		e ≥ 15
XS9E		e ≥ 30		e ≥ 72		e ≥ 30
XS9C		e ≥ 45		e ≥ 110		e ≥ 45
XS9D		e ≥ 120		e ≥ 300		e ≥ 120

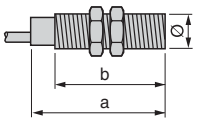
(1) For a 5 m cable replace L2 with L5; for a 10 m cable replace L2 by L10.
*Example: XS9F111A2L2 becomes **XS9F111A2L5** with a 5 m cable.*

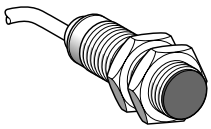
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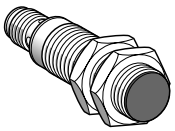
OsiSense® XS
Inductive proximity sensors

Detection at fixed sensing distance. factor 1 (Fe/Nfe) sensors *(1)* for ferrous and non-ferrous materials
Solid-state output

Flush mountable in metal

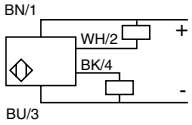
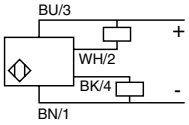






Lengths (mm): a = Overall b = Threaded section		a = 60 b = 51.5 Ø = M18 x 1	a = 70 b = 51.5 Ø = M18 x 1
		Brass case	**Brass case**
Nominal sensing distance Sn, mm (in.)		**5 (0.20)**	**5 (0.20)**
Catalog Numbers			
4-wire ⎓	PNP/PNP programmable NO/NC	**XS1M18KPM40**	**XS1M18KPM40D**
Weight, kg (lb)		0.120 (0.26)	0.060 (0.13)
Specifications			
Product certifications		CE, UL, CSA	
Connection		**Pre-cabled, PvR 4 x 0.34 mm² (22 AWG), length 2 m** *(2)*	**M12 connector**
Degree of protection	Conforming to IEC 60529	IP 68	IP 67
Operating zone, mm (in.)		**0–4 (0–0.16)**	
Repeat accuracy		3% of Sr	
Differential travel		1–15% of Sr	
Operating temperature		0 to +50 °C (32 to +122 °F)	
Output state indication		Yellow LED, annular	Yellow LED, 4 viewing ports at 90°
Rated supply voltage		**⎓ 12–24 V with protection against reverse polarity**	
Voltage limits (including ripple)		⎓ 10–38 V	
Switching capacity		**0–200 mA with overload and short-circuit protection**	
Voltage drop, closed state		≤ 2.6 V	
Current consumption, no-load		≤ 15 mA	
Maximum switching frequency		1000 Hz	
Delays	First-up	≤ 10 ms	
	Response	≤ 0.3 ms	
	Recovery	≤ 0.7 ms	

Wiring diagrams

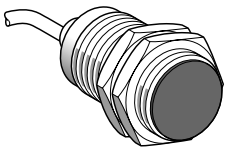
M12 connector	**Pre-cabled**	**4-wire ⎓, PNP/NPN, NO or NC output**	
		NO	**NC**
	BN: brown BU: blue BK: black WH: white		

(1) The variation in sensing distance between ferrous and non-ferrous materials is typically less than 5%.
(2) Sensors available with other cable lengths: consult the Sensor Competency Center.

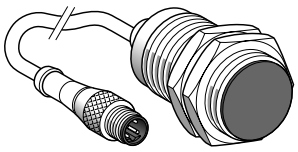
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Detection at fixed sensing distance. factor 1 (Fe/Nfe) sensors *(1)* for ferrous and non-ferrous materials
Solid-state output



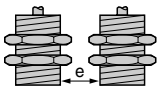
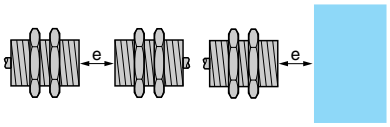
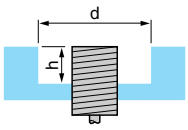
a = 60
b = 51.5
Ø = M30 x 1.5



a = 70
b = 51.5
Ø = M12 x 1

Stainless steel case	**Stainless steel case**
10 (0.39)	**10 (0.39)**
XS1M30KPM40	**XS1M30KPM40LD**
0.205 (0.45)	0.145 (0.32)
CE, UL, CSA	
Pre-cabled, PvR 4 x 0.34 mm² (22 AWG), length 2 m *(2)*	**M12 connector on 0.8 m pigtail connector**
IP 68	IP 67
0–8 (0–0.31)	
3% of Sr	
1–15% of Sr	
0 to + 50 °C (32 to +122 °F)	
Yellow LED, annular	
⎓ **12–24 V with protection against reverse polarity**	
⎓ 10–38 V	
0–200 mA with overload and short-circuit protection	
≤ 2.6 V	
≤ 15 mA	
1000 Hz	
≤ 5 ms	
≤ 0.3 ms	
≤ 0.7 ms	

Setup

Minimum mounting distances (mm)	**Side by side**	**Face to face**	**Facing a metal object**	**Mounted in a metal support**
				
XS1M18 flush mountable	e ≥ 10	e ≥ 60	e ≥ 15	d ≥ 18, h ≥ 0
XS1M30 flush mountable	e ≥ 20	e ≥ 120	e ≥ 30	d ≥ 30, h ≥ 0

Mounting nut tightening torque: XS1M18*: < 35 N•m (309.78 lb-in),* ***XS1M30****: < 100 N•m (885.07 lb-in)*

(1) The variation in sensing distance between ferrous and non-ferrous materials is typically less than 5%.
(2) Sensors available with other cable lengths: consult the Sensor Competency Center.

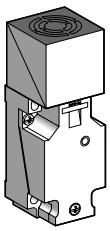
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OsiSense®
XS Inductive proximity sensors

Application

Fixed sensing distance detection, Factor 1 (Fe/Nfe) sensors *(1)* for ferrous and non-ferrous materials
Solid-state output

Sensor	**Flush mountable in metal**



Nominal sensing distance Sn, mm (in.)		15 (0.59)
Catalog Numbers		
4-wire ⎓	PNP/NPN/NO/NC programmable	**XS7C40KPM40H7**
Weight, kg (lb)		0.220 (0.49)
Specifications		
Product certifications		CE, CSA, UL
Degree of protection	Conforming to IEC 60529	IP 67
Operating temperature		0 to +50 °C (+32 to +122 °F)
Connection		Screw terminals, clamping capacity 4 x 0.34 mm^2 (24 AWG) *(2)*
Operating zone, mm (in.)		**0–12 (0.47)**
Repeat accuracy		3% of Sr
Differential travel		1–15% of Sr
Output state indication		Yellow LED
Rated supply voltage		⎓ 12–24 V with protection against reverse polarity
Voltage limits (including ripple)		⎓ 10–38 V
Current consumption, no-load		≤ 15 mA
Switching capacity		0–200 mA with overload and short-circuit protection
Voltage drop, closed state		≤ 2.6 V
Maximum switching frequency		1000 Hz
Delays	First-up	≤ 5 ms
	Response	≤ 0.3 ms
	Recovery	≤ 0.7 ms

(1) The variation in sensing distance between ferrous and non-ferrous materials is typically less than 5%.
(2) Cable gland not included with sensor. For suitable Pg 13 cable gland (XSZPE13), see page 2/131.

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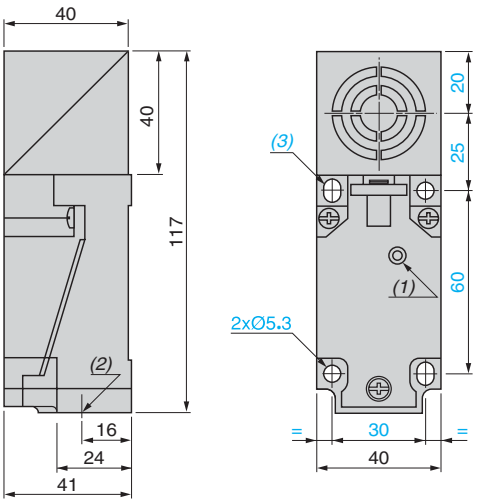
OsiSense® XS
Inductive proximity sensors

Application

Fixed sensing distance detection, Factor 1 (Fe/Nfe) sensors *(1)* for ferrous and non-ferrous materials
Solid-state output

Dimensions (mm)

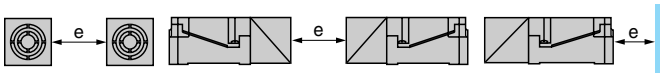
XS7C40KPM40



(1) Output LED.
(2) 1 tapped entry for Pg 13 cable gland.
(3) 2 elongated holes Ø 5.3 x 7.

Setup

Minimum mounting distances (mm)



		Side by side	Face to face	Facing a metal object
Sensor flush mountable in metal	**XS7C40KPM40**	e ≥ 40	e ≥ 120	e ≥ 45

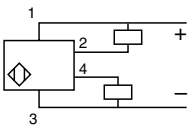
Tightening torque of cover mounting screws and clamp screws: < 1.2 N•m (10.62 lb-in)

Wiring diagrams

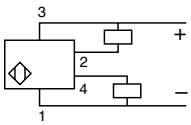
PNP/NPN

4-wire c programmable, NO or NC output

NO output



NC output



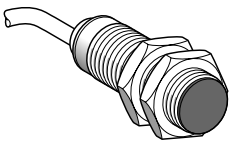
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OsiSense® XS
Inductive proximity sensors

Application
Selective detection of ferrous materials
Selective detection of non-ferrous materials
Cylindrical type, solid-state output

Flush mountable

Stainless steel case



Nominal sensing distance (Sn)	5 mm

Catalog Numbers

3-wire, ferrous version Insensitive to non-ferrous materials	PNP	NO	**XS1M18PAS40**
3-wire, non-ferrous version Insensitive to ferrous materials	PNP	NO	**XS1M18PAS20**
Weight, kg (lb)			0.120 (0.26)

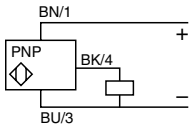
Specifications

Product certifications		UL, CSA, CE
Connection		**Pre-cabled, PvR,** 3 x 0.34 mm² (24 AWG), length 2 m *(1)*
Operating zone, mm (in.)		**0–4 (0–0.16)**
Degree of protection conforming to IEC 60529		IP 68
Operating temperature		-25 to +70 °C (-13 to +158 °F)
Output state indication		Yellow LED, annular
Rated supply voltage		⎓ 12–24 V with protection against reverse polarity
Voltage limits (including ripple)		⎓ 10–38 V
Switching capacity		0–200 mA with overload and short-circuit protection
Voltage drop, closed state		≤ 2.6 V
Residual current, open state		–
Current consumption, no-load		≤ 15 mA
Maximum switching frequency		1000 Hz
Delays	First-up	≤ 10 ms
	Response	≤ 0.3 ms
	Recovery	≤ 0.7 ms

(1) Sensors available with other cable lengths: consult the Sensor Competency Center.

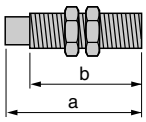
Wiring diagrams

3-wire ⎓ PNP



Dimensions (mm)

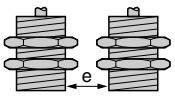
XS1M

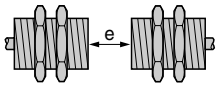


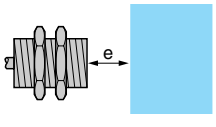
a (mm)	b (mm)
60	51.5

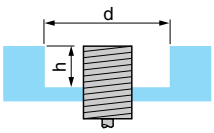
Setup

Minimum mounting distances (mm)









	Side by side	Face to face	Facing a metal object	Mounted in a metal support
XS1M18	e ≥ 10	e ≥ 60	e ≥ 15	d ≥ 18, h ≥ 0 (ferrous metal) d ≥ 18, h ≥ 5 (non-ferrous metal)

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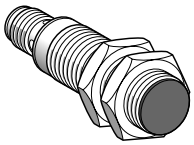
OsiSense® XS
Inductive proximity sensors

Application

Selective detection of ferrous materials
Selective detection of non-ferrous materials
Cylindrical type, solid-state output

Flush mountable

Stainless steel case



Nominal sensing distance Sn, mm (in.)	5 (0.20)

Catalog Numbers

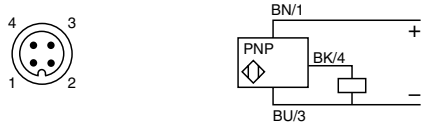
3-wire, ferrous version Insensitive to non-ferrous materials	PNP	NO	**XS1M18PAS40D**
3-wire, non-ferrous version Insensitive to ferrous materials	PNP	NO	**XS1M18PAS20D**
Weight, kg (lb)			0.060 (0.13)

Specifications

Product certifications		UL, CSA, CE
Connection		M12 connector
Degree of protection conforming to IEC 60529		IP 67
Operating zone, mm (in.)		**0–4 (0–0.08)**
Operating temperature		-25 to +70 °C (-13 to +158 °F)
Output state indication		Yellow LED, 4 viewing ports at 90°
Rated supply voltage		⎓ 12–24 V with protection against reverse polarity
Voltage limits (including ripple)		⎓ 10–38 V
Switching capacity		0–200 mA with overload and short-circuit protection
Voltage drop, closed state		≤ 2.6 V
Residual current, open state		–
Current consumption, no-load		≤ 15 mA
Maximum switching frequency		1000 Hz
Delays	First-up	≤ 10 ms
	Response	≤ 0.3 ms
	Recovery	≤ 0.7 ms

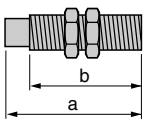
Wiring diagrams

M12 connector — **3-wire ⎓ PNP**



Dimensions (mm)

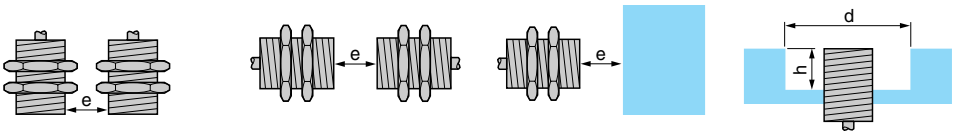
XS1M



a (mm)	b (mm)
70	51.5

Setup

Minimum mounting distances (mm)



	Side by side	Face to face	Facing a metal object	Mounted in a metal support
XS1M18	e ≥ 10	e ≥ 60	e ≥ 15	d ≥ 18, h ≥ 0 (ferrous metal) d ≥ 18, h ≥ 5 (non-ferrous metal)

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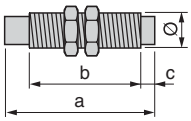
OsiSense® XS
Inductive proximity sensors

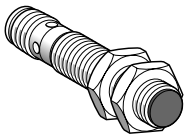
Application

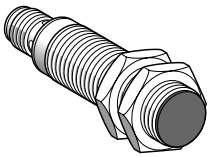
Sensors for welding machine applications *(1)*

Cylindrical type. metal case, Teflon® coated steel, threaded

Sensors flush mountable in metal







Lengths (mm):
a = Overall
b = Threaded section
c = For non-flush mountable sensors

a = 60
b = 40
Ø = M12 x 1

a = 60
b = 40
Ø = M18 x 1

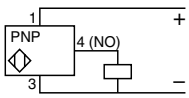
		Teflon front face	Teflon front face
Nominal sensing distance Sn, mm (in.)		**2 (0.08)**	**5 (0.20)**
Catalog Numbers			
3-wire ⎓	PNP, NO	**XS1M12PAW01D**	**XS1M18PAW01D**
Weight, kg (lb)		0.025 (0.06)	0.060 (0.13)
Specifications			
Product certifications		CE, UL, CSA	
Connection		**M12 connector**	
Degree of protection	Conforming to IEC 60529	IP 67	
Operating zone, mm (in.)		**0–1.6 (0–0.06)**	**0–4 (0–0.16)**
Repeat accuracy		3% of Sr	
Differential travel		1–20% of Sr	
Operating temperature		-25 to +70 °C (-13 to +158 °F)	
Output state indication		Yellow LED, 4 viewing ports at 90°	
Rated supply voltage		⎓ **12–24 V with protection against reverse polarity**	
Voltage limits (including ripple)		⎓ 10–36 V	
Switching capacity		**0–250 mA with overload and short-circuit protection**	
Voltage drop, closed state		≤ 2.5 V	
Current consumption, no-load		≤ 15 mA	
Immunity to electromagnetic fields		≤ 140 mT	
Maximum switching frequency		1000 Hz	500 Hz
Delays	First-up	≤ 10 ms	≤ 10 ms
	Response	≤ 0.1 ms	≤ 0.2 ms
	Recovery	≤ 0.4 ms	≤ 0.6 ms

Wiring diagrams

M12 connector



3-wire ⎓, PNP, NO output

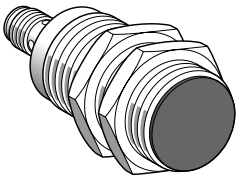
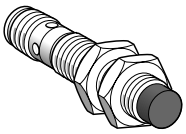


(1) Sensors particularly resistant to welding machine electromagnetic fields.

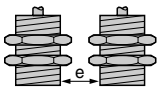
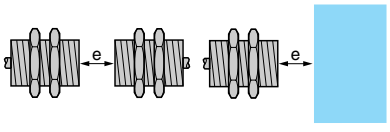
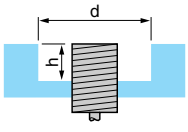
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OsiSense® XS
Inductive proximity sensors
Application
Sensors for welding machine applications *(1)*

Cylindrical type. metal case, Teflon® coated steel, threaded

	Sensors non-flush mountable in metal
	
a = 60 b = 40 Ø = M30 x 1.5	a = 60 b = 36 c = 4 Ø = M12 x 1
Teflon front face	**Teflon front face**
10 (0.39)	**4 (0.16)**
XS1M30PAW01D	**XS2M12PAW01D**
0.145 (0.32)	0.025 (0.06)
ℂ€, UL, CSA	
M12 connector	
IP 67	
0–8 (0–0.31)	**0–3.2 (0–0.13)**
3% of Sr	
1–20% of Sr	
-25 to +70 °C (-13 to +158 °C)	
Yellow LED, 4 viewing ports at 90°	
⎓ **12–24 V with protection against reverse polarity**	
⎓ 10–36 V	
0–250 mA with overload and short-circuit protection	
⩽ 2.5 V	
⩽ 15 mA	
⩽ 140 mT	
250 Hz	1000 Hz
⩽ 10 ms	⩽ 10 ms
⩽ 0.7 ms	⩽ 0.2 ms
⩽ 5 ms	⩽ 0.4 ms

Setup

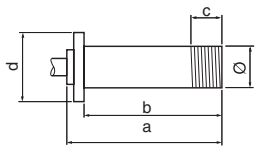
Minimum mounting distances (mm)	Side by side	Face to face	Facing a metal object	Mounted in a metal support
				
XS1M12 flush mountable	e ⩾ 0	e ⩾ 7	e ⩾ 6	d ⩾ 12, h ⩾ 0
XS1M18 flush mountable	e ⩾ 0	e ⩾ 16	e ⩾ 9	d ⩾ 18, h ⩾ 0
XS1M30 flush mountable	e ⩾ 0	e ⩾ 20	e ⩾ 20	d ⩾ 30, h ⩾ 0
XS2M12 non-flush mountable	e ⩾ 15	e ⩾ 9	e ⩾ 11	d ⩾ 36, h ⩾ 8

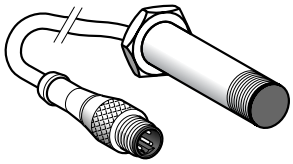
***Mounting nut tightening torque: XS1M12, XS2M12**: < 15 N•m (13.28 lb-in), **XS1M18**: < 35 N•m (309.78 lb-in), **XS1M30**: < 50 N•m (442.54 lb-in)*

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OsiSense® XS
Inductive proximity sensors
Application
For welding machine applications
Cylindrical type. metal case, plain, with shoulder

Flush mountable in metal





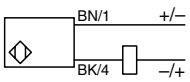
Lengths (mm):
a = Overall
b = To shoulder
c = Removal
d = Shoulder

Ø = 12
a = 55
b = 50
c = 9 (threaded end)
d = 15 hexagonal

Nominal sensing distance Sn, mm (in.)			**3 (0.12)**	**3 (0.12)**	**3 (0.12)**
Catalog Numbers					
2-wire ⎓ (non-polarized) Terminal connections	1-4	NO	**XSLC1401393L1**	**XSLC1401393L3**	**XSLC1401393L4**
Weight, kg (lb)			0.050 (0.11)	0.065 (0.14)	0.050 (0.11)
Specifications					
Connection			Remote M12 connector on 1.2 m pigtail connector	Remote M12 connector on 0.8 m pigtail connector	Remote M12 connector on 0.15 m pigtail connector
Degree of protection conforming to IEC 60529			IP 67		
Operating zone, mm (in.)			0–2.4 (0–0.09)		
Repeat accuracy			≤ 3% of Sr		
Differential travel			1–15% of Sr		
Operating temperature			-25 to +80 °C (-13 to +176 °F)		
Output state indication			Yellow LED, annular		
Rated supply voltage			⎓ 12–48 V		
Voltage limits (including ripple)			⎓ 10–58 V		
Switching capacity			1.5–100 mA with overload and short-circuit protection		
Voltage drop, closed state			≤ 4 V		
Residual current, open state			≤ 0.5 mA		
Current consumption, no-load			–		
Maximum switching frequency			800 Hz		
Delays			First-up: ≤ 5 ms; response: ≤ 05 ms; recovery: ≤ 0.5 ms		

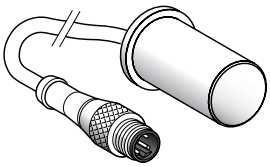
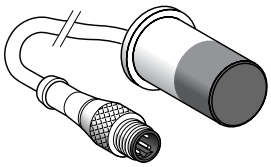
Wiring diagrams

2-wire ⎓ , non-polarized, NO output



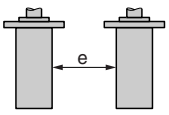
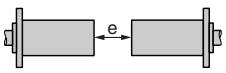
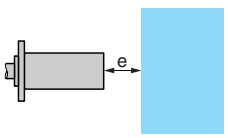
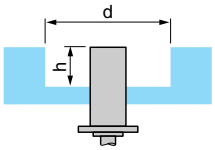
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OsiSense® XS
Inductive proximity sensors
Application
For welding machine applications
Cylindrical type. metal case, plain, with shoulder

Flush mountable in metal	Non-flush mountable in metal	
		
Ø = 18 a = 40 b = 35 c = 0 (PPS front face) d = Ø 22	Ø = 18 a = 45 b = 35 c = 20 (Teflon front face and case) d = Ø 22	
6.3 mm (0.25)	**10 (0.39)**	**10 (0.39)**
XSLC1401392L1	**XSLC1401405L3**	**XSLC1401405L4**
0.100 (0.22)	0.065 (0.14)	0.050 (0.11)
Remote M12 connector on 1.2 m pigtail connector	Remote M12 connector on 0.8 m pigtail connector	Remote M12 connector on 0.15 m pigtail connector
IP 67		
0–5 (0–0.20)	0–8 (0–0.31)	
3% of Sr		
1–15% of Sr		
-25 to +70 °C (-13 to +158 °F)		
Yellow LED, annular		
⎓ 12–48 V		
⎓ 10–58 V		
1.5–100 mA with overload and short-circuit protection		
≤ 4 V		
≤ 0.5 mA		
–		
100 Hz		
First-up: ≤ 10 ms; response: ≤ 10 ms; recovery: ≤ 2 ms		

Setup

Minimum mounting distances (mm)

		Side by side	Face to face	Facing a metal object	Mounted in a metal support
					
XSLC	**Ø 12 (flush mountable)**	e ≥ 10	e ≥ 60	e ≥ 15	d = 12, h = 0
	Ø 18 (non-flush mountable)	e ≥ 16	e ≥ 96	e ≥ 24	d = 54, h = 16

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OsiSense® XS
Inductive proximity sensors
SG magnet actuated sensors
Surface mounted style



Surface-mounted, magnet-actuated sensors for industrial applications

- Sensing is independent of magnet polarity.
- Typical applications: security systems (gate interlocks), high-speed rotational counting, identification of metal bins with magnet-coded labels, sensing through non-magnetic walls.

Features

- Housing: aluminum except SG08168 and SG28195 are plastic (PBT)
- Completely encapsulated in epoxy
- Very fast response time (reed output only)
- PLC-compatible AC models (triac output)
- High transients protection (AC models)
- No bouncing

Magnet-actuated proximity sensors

Circuit Type	AC ratings			DC ratings			Leakage (mA)	Dim. Figure	Wiring Figure	Catalog Number
	VA (max.)	Voltage (4)	Current (max.)	VA (max.)	Voltage (max.)	Current (max.)				
Reed output—DC only										
N.O.	—	—	—	10	200	0.5 A	0	1	A	**SGA8016**
N.O.	—	—	—	10	200	0.5 A	0	2	A	**SGA8031**
Reed output—DC only—Built-in resistor protection										
N.O.	—	—	—	10	200	0.5 A	0	1	A	**SGA8182**
Reed output—DC only—High temperature -40 to 300 °F										
N.O.	—	—	—	10	200	0.5 A	0	1	A	**SGA8053**
Reed output—AC and DC—Built-in RC protection										
N.C.	3	130	0.25 A	3	100	0.25 A	6 (1) (3)	2	B	**SGB8175**
N.O.	10	130	0.5 A	10	200	0.5 A	6 (1) (3)	2	A	**SGA8176**
N.O.	10	130	0.5 A	10	200	0.5 A	6 (1) (3)	1	A	**SGA8177**
Triac output—AC only (inductive PLC)										
N.O.	240	120	2.0 A	—	—	—	1.7 (1) (2)	3	A	**SG08168** (5)
N.O./N.C.	50	240	0.5 A	—	—	—	1.7 (1) (2)	3	C	**SG28195** (5)
N.O.	50	130	0.5 A	—	—	—	1.7 (1) (2)	1	A	**SG08239**

(1) PLC applications:
(2) PLC compatible.
(4) Bleeder resistor required.
(3) For reed output: maximum voltage. For triac output: nominal voltage.
(5) UL Recognized

Magnet actuators

Description		Sensing distance		Catalog Number
		All (6)	SG2 8195	
Tubular		33 mm 1.3 in. ()	25.4 mm (1 in.)	**7046**
Flat bracket, center	South pole	17.7 mm (0.7 in.)	10 mm (0.4 in.)	**7093**
Flat bracket, side	South pole	12.7 mm (0.5 in.)	5 mm (0.2 in.)	**7063**
90° bracket	South pole	12.7 mm (0.5 in.)	5 mm (0.2 in.)	**7062**
Block type		12.7 mm (0.5 in.)	5 mm (0.2 in.)	**7099**
Flexible tape, 1 ft (305 mm) long		7.6 mm (0.3 in.)	5 mm (0.2 in.)	**7096**

(6) All block sensors except SG28195.

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OsiSense® XS
Inductive proximity sensors
SG magnet actuated sensors
Surface mounted style

Wiring

Figure A (N/O)

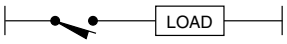


Figure B (N/C)

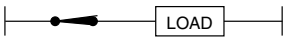
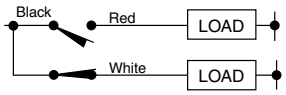


Figure C (N/O or N/C)



Mechanical Specifications

Standard temperature range	-40 to +60 °C (-40 to +140 °F); to 149 °C (300 °F) for SGA8053
Enclosure ratings	NEMA Types 1, 4, 13
Vibration resistance	20 G (10 to 2,000 Hz)
Shock resistance	50 G for 11 ms
Differential	Maximum 75%
Repeatability	0.08 mm (0.003 in.)

Electrical Specifications	**AC (triac)**	**DC**
Voltage drop (across switch)	2 V	0 V (IR for SGA8182) (1)
Minimum load current	15 mA	—
On delay (ms)	1 ms	0.75 ms
Off delay (ms)	8 ms	0.75 ms
Cable, 3 ft (0.9 m)	0.31 mm² (22 AWG) vinyl, except: 1.2 mm² (16 AWG) SJTO for **SGO8168;** 2 individual fluorinated hydrocarbon coated 1.2 mm² (22 AWG) for **SGA8053**	
Agency listings	E 42259 CCN NKCR2 (SGO8168 and SG28195 only)	

(1) Voltage drop = IR, where I= load current, R = 150 Ω

Options

Description	Cable Type	Suffix
2 m (6.6 ft) of individual wires	Fluorinated hydrocarbon coated GA8053)	**L02**
5 m (16.4 ft) of individual wires	Fluorinated hydrocarbon coated (SGA8053)	**L05**
5 m (16.4 ft) of cable	Vinyl	**L05**
	SJTO (SGO8168)	**L05**
10 m (32.8 ft) of cable for triac and models with built-in resistor	Vinyl	**L10**
	SJTO (SGO8168)	**L10**

Ex: SGO8168L05

Dimensions

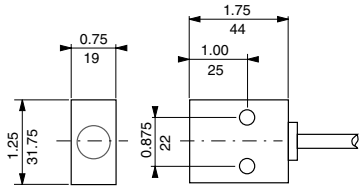


Figure 1
SGA8016
SGA8177
SGA8182
SGA8053
SGO8239

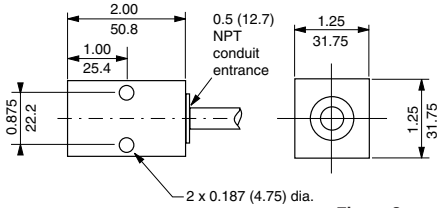


Figure 2
SGA8031
SGA8175
SGA8176

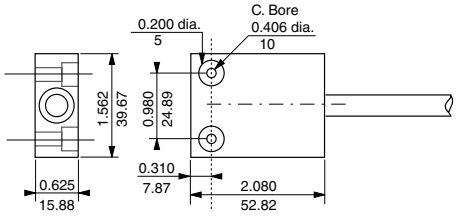


Figure 3
SGO8168
SG28195

in.
(mm)

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OsiSense® XS
Inductive proximity sensors
SG magnet actuated sensors
Limit switch style



Non-plug-in

Limit-switch style, magnet-actuated proximity sensors for heavy-duty industrial applications

- Sensing independent of magnet polarity
- Typical applications: security systems (gate interlocks), high-speed rotational countings, identification

Features

- Diecast zinc housing
- Completely encapsulated in epoxy
- Plug-in models for fast replacement
- Very fast response time (reed output only)
- PLC-compatible AC models
- High transient protection
- Overload and short protection (transistor models)
- No bouncing
- 12.7 mm (0.5 in.) NPT conduit entrance
- UL recognized (except where indicated)

Circuit Type	AC ratings (inductive or resistive)			VA (max.)	DC ratings (resistive only)		Leakage (mA)	Dim. Figure	Wiring Figure	Catalog Number
	VA (max.)	Voltage (nom.)	Current (max.)		Voltage (max.)	Current (max.)				
AC triac output, non-plug-in										
N.O.	360	120	3.0 A	—	—	—	1.7 (1)	1	A	**SG08003**
N.C.	360	120	3.0 A	—	—	—	1.7 (1)	1	B	**SG18004**
Non-plug-in with light indicator										
N.O.	360	120	3.0 A	—	—	—	1.7 (1)	1	A	**SG0L8003**
N.C.	360	120	3.0 A	—	—	—	1.7 (1)	1	B	**SG1L8004**
DC, transistor output, non-plug-in										
N.O.	—	—	—	7.5	30	0.25 A	0	1	D	**SG08079**
N.C.	—	—	—	7.5	30	0.25 A	0	1	E	**SG18056**
Reed output, non-plug-in (AC model has built-in surge RC protection)										
N.O.	—	—	—	10	200	0.5 A	0	1	A	**SGA8005**
N.O.	15	120	1.0 A	15	250	1.0 A	6 (1) (2)	1	A	**SGA8040**
N.O./N.C.	—	—	—	3	200	0.25 A	0	1	C	**SGC8027**
N.O./N.C.	—	—	—	20	500	1.5 A	0	3	C	**SGC8025**

(1) PLC compatible. (2) Bleeder resistor required for PLC compatibility.

Magnet actuators, mm (in.)

Description		Sensing distance					Catalog Number
		8079	8040	8027	8025	All others	
Tubular		30.5 (1.2)	20.3 (0.8)	23 (0.9)	25.4 (1.0)	33 (1.3)	**7046**
Flat bracket, center	South pole	12.7 (0.5)	10.0 (0.4)	10.0 (0.4)	10.0 (0.4)	17.7 (0.7)	**7093**
Flat bracket, side	South pole	10.0 (0.4)	5.1 (0.2)	5.1 (0.2)	5.1 (0.2)	12.7 (0.5)	**7063**
90° bracket	South pole	10.0 (0.4)	5.1 (0.2)	5.1 (0.2)	5.1 (0.2)	12.7 (0.5)	**7062**
Block type		5.1 (0.2)	5.1 (0.2)	7.6 (0.3)	5.1 (0.2)	12.7 (0.5)	**7099**
Flexible type—305 mm (1 ft) long		2.5 (0.1)	—	5.1 (0.2)	0.1 (2.5)	7.6 (0.3)	**7096**

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OsiSense® XS
Inductive proximity sensors
SG magnet actuated sensors
Limit switch style

Wiring

Figure A

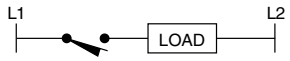


Figure B

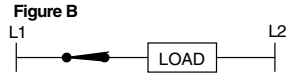
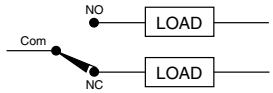
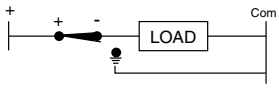


Figure C



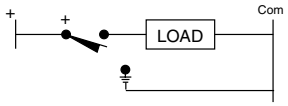
Terminal strip marked: NO-COM-NC

Figure D



SG18056 is normally closed. Connect the red terminal (+) to the power source. Connect the minus terminal (-) to the load. The housing must be connected to minus.

Figure E



Specifications

General specifications						
Temperature range	-40 to 60 °C (-40 to 140 °F) -40 to 52 °C (-40 to 125 °F) for transistor models					
Enclosure ratings	NEMA Types 1, 4, 13					
Vibration resistance	20 G (10 to 2,000 Hz)					
Shock resistance	50 G for 11 ms					
Differential	Maximum 75%					
Repeatability	0.08 mm (0.003 in.)					
	AC triac	**Transistor**	**Reed**			
Voltage drop (across switch)	2 V	—	—			
Minimum load current (maximum)	15 mA	—	—			
			SGA8005	**SGA8040**	**SGS8027**	**SGC8025**
On delay (maximum)	1 ms	0.75 ms	0.75	2 ms	1 ms N.O./ 1.5 ms N.C.	2 ms N.O./ 4 ms N.C.
Off delay (maximum)	—	0.75 ms	0.75	2 ms	11 ms N.O./ 1.5 ms N.C.	2 msN.O./ 4 ms N.C.
Cable—screw terminals	1.5 mm² (16 AWG)	—				
Agency listings except where noted	E 42259 CCN NKCR2					

Options—triac models only

Description	Figure	Suffix adder
3 ft (0.9 m) 16-3 SJTO vinyl cable, epoxy sealed	A, B	**320**
3 ft (0.9 m) 16-3 SJTO vinyl cable, cord connector	A, B	**321**
3 ft (0.9 m) 16-4 SJTO vinyl cable, epoxy sealed	C, D, E	**420**
3-pin mini-style receptacle	—	**347**

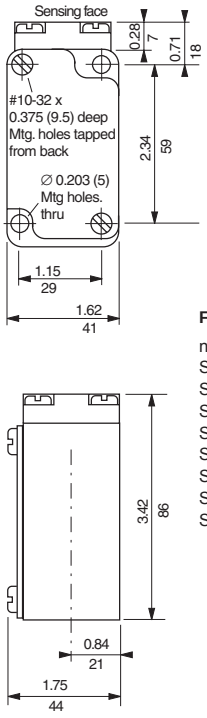


Figure 1
non-plug-in
SGA8005
SGO8003
SGC8027
SGI8056
SGO8056
SGI8004
SGO8040
SGO8079

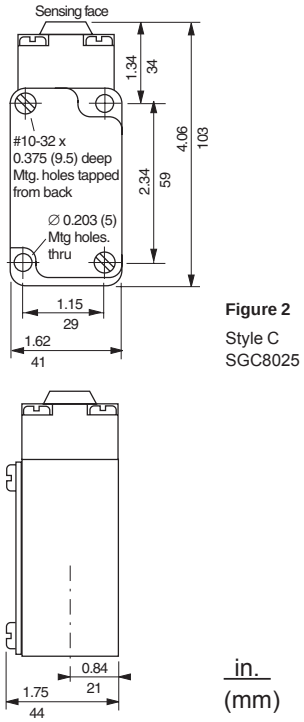


Figure 2
Style C
SGC8025

in.
(mm)

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OsiSense® XS
Inductive proximity sensors
SG magnet actuated sensors
Tubular style

Dimensions

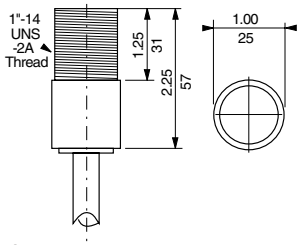


Figure 1

SGA8057
(Aluminum)
SGC8058 (PVC)
SGA8072 (PVC)
SGA8189 (Brass)

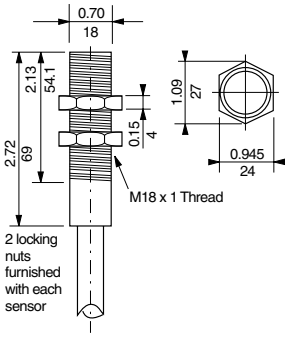


Figure 2

SGA8179
SGA8180
SGC8181

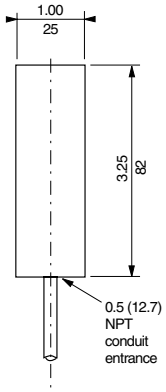


Figure 3

SGA8038

in.
(mm)

Tubular, magnet-actuated proximity sensors for heavy-duty applications such as:

- High-speed rotational counting
- Identification of metal bins with magnet-coded labels
- Sensing through non-magnetic walls

Sensing is independent of magnet polarity.

Features

- Housings: aluminum for SGA8057; plastic (PVC) for SGC8058, SGA8072, SGA8039; polymide for SGA8179, SGA8180, SGA8181
- Completely encapsulated in epoxy
- High transient protection
- Threaded and smooth housings
- High voltage versions
- SPST and SPDT models
- No bouncing
- UL recognized (except where noted with #).

Circuit type	AC ratings (inductive or resistive)			DC ratings (resistive only)			Leakage (mA)	Dim. Figure	Wiring Figure	Catalog Number
	VA (max.)	Voltage nominal	Current (max.)	VA (max.)	Voltage (max.)	Current (max.)				
Reed output AC and DC switching (built-in RC protection), threaded										
N.O.	15	120	1.0 A	12	48	0.25 A	6 (1)	1	A	**SGA8057**
N.O./N.C.	15	120	1.0 A	15	100	1.0 A	6 (1)	1	C	**SGC8058**
N.O.	15	120	1.0 A	15	250	1.0 A	6 (1)	1	A	**SGA8072**
N.O.	25	480	1.0 A	25	480	1.0 A	.16	2	A	**SGA8179 (3)**
Reed output—DC, threaded, resistor built-in for long cable runs (2)										
N.O.	—	—	—	10	200	0.5 A	0	2	A	**SGA8180 (3)**
N.O./N.C.	—	—	—	3	100	0.25 A	0	2	C	**SGC8181 (3)**
Reed output—AC and DC (built-in RC protection), smooth										
1 N.O.	15	120	1.0 A	15	250	1.0 A	6 (1)	3	A	**SGA8038(3)**

(1) Bleeder resistor required for PLC AC switching compatibility.
(2) 150 Ω for SGA8180 and 470 Ω for SGC8181.
(3) Not UL

Magnet actuators, mm (in.)

Description		Sensing distance SGA8180	Sensing distance All Others	Catalog Number
Tubular		33 (1.3)	20.3 (0.8)	**7046**
Flat bracket, center	South pole	17.8 (0.7)	10.0 (0.4)	**7093**
Flat bracket, side	South pole	5.1 (0.2)	5.1 (0.2)	**7063**
90° bracket	South pole	5.1 (0.2)	5.1 (0.2)	**7062**
Block type		5.1 (0.2)	5.1 (0.2)	**7099**
Flexible tape—1 ft (305 mm) long		2.5 (0.1)	2.5 (0.1)	**7096**

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OsiSense® XS
Inductive proximity sensors
SG magnet actuated sensors
Tubular style

Wiring

Figure A

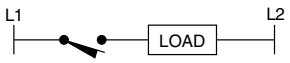
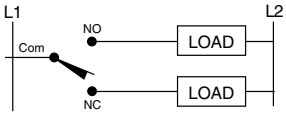


Figure C

SGC8058 and SGC8181
Black—Com
Blue—N.O.
Brown—N.C.



Specifications

General specifications			
Temperature range	-40 to 60 °C (-40 to 140 °F)		
Enclosure ratings	NEMA Types 1, 4, 13		
Vibration resistance	20 G (10 to 1000 Hz)		
Shock resistance	50 G for 11 ms		
Differential	Maximum 75% (except SGA8179 = 1.06 in. maximum)		
Repeatability	Maximum 0.08 mm (0.003 in.)		
	Reed AC and DC	**SGA8180 Built-in resistor (DC)**	**SGC8181 Built-in resistor (DC)**
Voltage drop (1)	25 mV	IR	IR
On delay (maximum)	2 ms	0.75 ms	2.5 ms N.O. 3.5 ms N.C.
Cable, 3 ft (0.9 m)	22-2 vinyl: SGA8038, 8180; 23-2 vinyl SGC 8181;		
	16-2 SJTO: SGA8057, 8072. SO cable for SGA8179		
Agency listings except where noted	E 42259 CCN NKCR2		

(1) Voltage drop = IR, where I is the load current and R the built-in resistor.

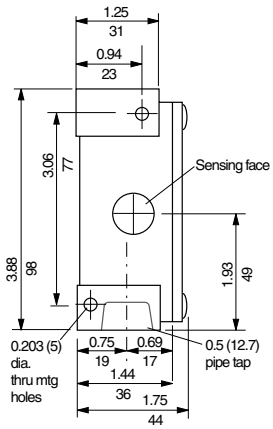
Options

Description		Suffix
5 m (16.4 ft) of cable	Vinyl	**L05**
	SJTO (8057, 8072, 8179)	**L05**
10 m (32.8 ft) of cable	Vinyl	**L10**
(for models with built-in resistor)	SJTO (8057, 8072, 8179)	**L10**

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OsiSense® XS
Inductive proximity sensors
SG magnet actuated sensors
Maintained contact

Dimensions



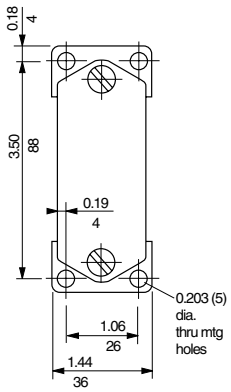


Figure 1

SGA8018
SGO8026
SGO8110
SGO8141

in.
(mm)

Maintained contact model—A highly reliable, magnet-actuated proximity limit switch designed to maintain contact for high-speed stacker cranes, slow-down, and memory applications. Eliminates the camming required for mechanically operated limit switches. **Maintains the information even if power is down.**

Features

- Diecast zinc housing
- PLC compatibility
- High transient protection
- No bouncing
- 12.7 mm (0.5 in.) NPT conduit entrance
- UL recognized

When the north or south pole of a magnet actuator moves past the blue-dot sensitive area within the specified range along the switch, the contact position changes from open to closed. Once latched, the movement of the same magnetic pole in the opposite direction—or the movement of the opposite magnetic pole in the same direction—unlatches the switch.

NOTE: If during this procedure the switch closes and then opens again (pulses), reverse the polarity of the magnet and repeat the above procedure. If the desired direction of operation is opposite to that established above, reverse the polarity of the magnet.

Circuit Type	AC ratings (inductive or resistive)			DC ratings (resistive only)			Leakage (mA)	Wiring Figure	Catalog Number
	VA (max.)	Voltage (nom.)	Current (max.)	VA (max.)	Voltage (max.)	Current (max.)			
Reed, DC									
1 N.O.	—	—	—	15	250	1.0 A	0	A	**SGA8018**
Triac, AC									
1 N.O.	360	120	3.0 A	—	—	—	1.7	A	**SGO8026**
Triac, AC low temperature: -34 to +29° C (-30 to 85° F)									
1 N.O.	360	120	3.0 A	—	—	—	1.7	B	**SGO8110**

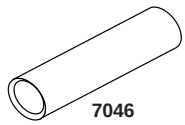
Magnet actuators, mm (in.)

Description		Sensing Distance, mm (in.)	Catalog Number
Tubular		33 (1.3)	**7046**
Flat bracket, center	South pole	25 (1.0)	**7093**
	North pole	25 (1.0)	**7547**
Flat bracket, side	South pole	18 (0.7)	**7063**
	North pole	18 (0.7)	**70631**
90° bracket	South pole	18 (0.7)	**7062**
	North pole	18 (0.7)	**70621**
Block type		13 (0.5)	**7099**
Flexible tape—305 mm (1 ft) long		13 (0.5)	**7096**

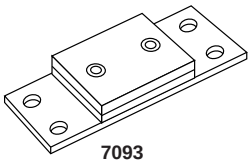
Schneider Electric

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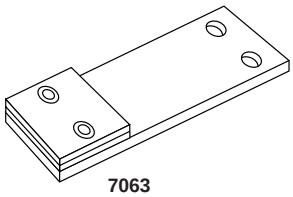
OsiSense® XS
Inductive proximity sensors
SG magnet actuated sensors
Magnet actuators



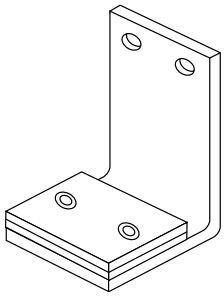
7046



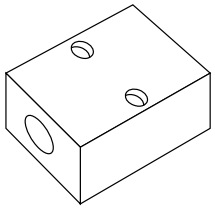
7093



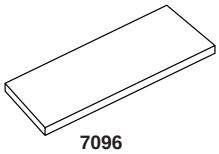
7063



7062



7099



7096

Features

- Industrial grade magnet is recommended for magnet-actuated proximity sensors.
- Alnico is used as magnet material for all rigid models.
- Aramid fiber is used for the flexible magnetic tape.
- The rigid models come mounted on one of several types of standard brackets for convenience (except the tubular high-power version).
- Both south and north poles are accessible and marked. The south pole version is the standard. North pole versions may be required in conjunction with the maintained magnetic switch.
- For comparison, an average magnetic strength rating is listed below. Measurements were made with a Gaussmeter at 3.3 mm (0.13 in.) from the sensing surface.

Description		Magnetic Strength	Catalog Number
Tubular		700 Gauss	**7046**
Flat bracket, center	South pole	330 Gauss	**7093**
	North pole	330 Gauss	**7547**
Flat bracket, side	South pole	240 Gauss	**7063**
	North pole	240 Gauss	**70631**
90° bracket	South pole	260 Gauss	**7062**
	North pole	260 Gauss	**70621**
Block type		340 Gauss	**7099**
Flexible tape	1 ft long	180 Gauss	**7096•** (1)

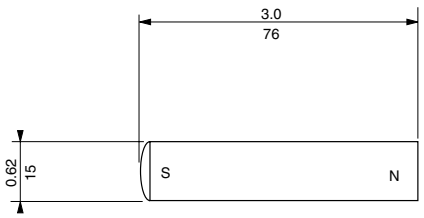
(1) For longer tape, specify the total length in feet. Example: 70966 = 6 ft.

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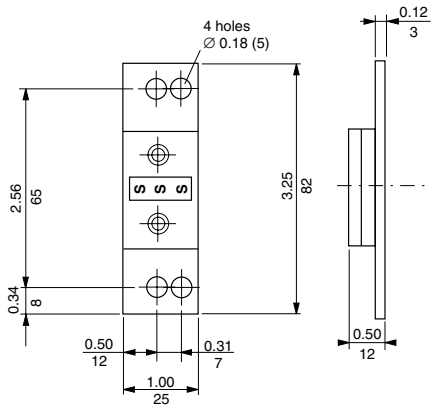
OsiSense® XS
Inductive proximity sensors
SG magnet actuated sensors
Magnet actuators

Magnet actuator dimensions, mm

Tubular magnet actuator 7046

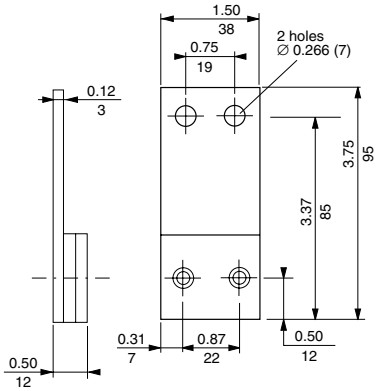


Magnet actuator 7093 (south pole)
Magnet actuator 7597 (north pole)

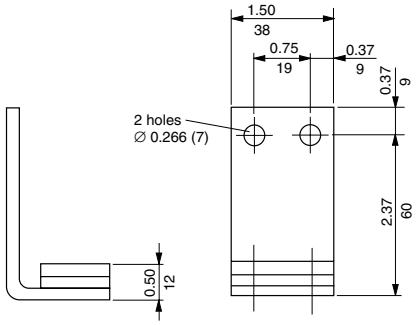


in.
(mm)

Magnetic actuator 7063 (south pole)
Magnet actuator 70631 (north pole)

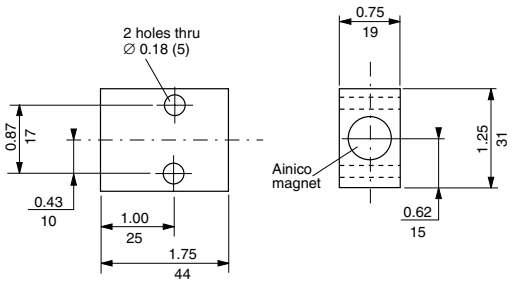


Magnet actuator 7062 (south pole)
Magnet actuator 70621 (north pole)

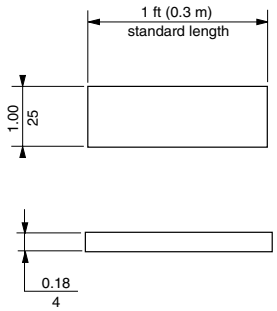


in.
(mm)

Block type magnet actuator 7099



Flexible magnetic tape 7096• (1 ft)



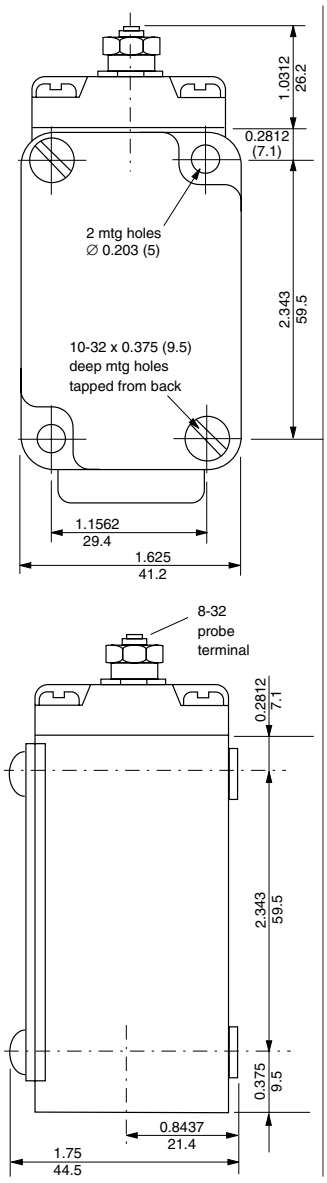
in.
(mm)

Schneider Electric

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OsiSense® XS
Inductive proximity sensors
ST grounded probe switch

Dimensions



in.
(mm)

The touch switch is a highly reliable AC solid-state presence sensor designed for precise conductivity sensing. Applications include high temperature, light conductive, aggressive mechanical, and chemical environments that target positive end-point sensing. All models have a visible neon pilot light to indicate operation of the switch.

Features

- Diecast zinc housing
- Solid state—no moving parts
- 115 Vac, completely self-contained
- Probes up to 10 ft (3 m) long
- High current output—no relay required for most applications
- Fast response—no warm-up time
- 12.7 mm (0.5 in.) NPT conduit entrance
- UL Recognized

Operation

The switch is actuated when a conductive path is established between the probe terminal and ground (1 M Ω or less). The electrical contact to ground operates the switching thyristor. Internal RC snubber and varistor provide effective protection from typical transients. Normal open models have a 10 ms (maximum) turn on time. Different off-delay times are offered to permit compensation for relay chatter when the probe is subjected to bounce from irregular contact with the grounded metal point of contact.

NOTE: For isolated circuits where the ground is not common, the ground terminal of the switch should be connected to the neutral. The metal target to be detected by the probe should also then be wired to the neutral.

Probe characteristics

The probe terminal is an 8-32 stud protruding from the center of the head.
Extensions may be any electrically conductive wire or material suitably insulated from grounded surface and limited in length to 3 m (10 ft) or less.

- Open voltage: 12 Vdc
- Peak current: 1 mA

Switch models

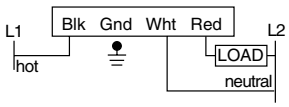
Circuit type	Voltage (nominal)	Current load (maximum)	Leakage current (maximum)	On delay	Off delay	Catalog Number
Terminal screws						
N.O.	120 Vac	3 A	1.7 mA	10 ms	100 ms	**STO8164**
N.C.	120 Vac	3 A	1.7 mA	100 ms	30 m s	**ST18165**
N.O.	120 Vac	3 A	1.7 mA	10 ms	400 ms	**STO8166**
N.O.	120 Vac	3 A	1.7 mA	10 ms	20 ms	**STO8167**
Pre-wired with 0.9 m (3 ft) of cable						
N.O.	120 Vac	3 A	1.7 mA	10 ms	100 ms	**STO8001**
N.C.	120 Vac	3 A	1.7 mA	100 ms	30 ms	**ST18002**
N.O.	120 Vac	3 A	1.7 mA	10 ms	400 ms	**STO8036**
N.O.	120 Vac	3 A	1.7 mA	10 ms	20 ms	**STO8042**

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OsiSense® XS
Inductive proximity sensors
ST grounded probe switch

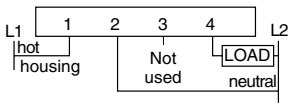
Wiring

Cable wiring



Target connected to ground

Terminal strip wiring



Target connected to ground. Housing must be grounded for proper operation.

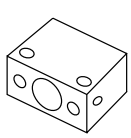
Model ST switches may be wired in series or parallel. Connect the red lead to the black lead of other switch (terminal 4 to terminal 1 of the other switch) for series operation. The voltage drop across each switch (in the closed state) does not exceed 2 Vac.

Specifications

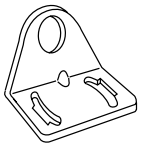
General characteristics	
Temperature range	-40 to 70 °C (-40 to 158 °F)
Enclosure ratings	NEMA Types 1, 4, 13
Voltage drop	2 V
Maximum inrush current	10 A
Minimum load current	15 mA
Power supply current (no load)	30 mA
Cable	0.9 m (3 ft) 16-4 SJTO or terminal screws 1.2 mm^2 (16 AWG)

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OsiSense® XS
Inductive proximity sensors
Mounting brackets



8316●●



9006PA●●

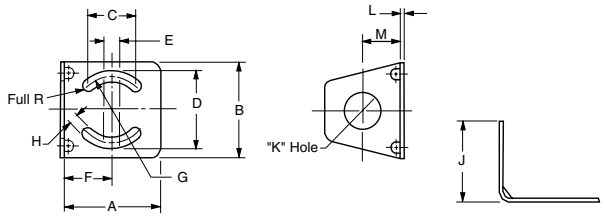
Mounting brackets

Description	Sensor Diameter	For use with	Catalog Number
Steel mounting bracket, 90° for tubular inductive proximity sensors	12 (M12 x 1)	XS1, XS2, XS4	**9006PA12**
	18 (M18 x 1)	XS1, XS2, XS4	**9006PA18**
	30 (M30 x 1.5)	XS1, XS2, XS4	**9006PA30**
Diecast zinc mounting bracket for tubular sensors, 4–12 mm dia.	4 mm	XS1L04	**831604**
	5 mm	XS1L05	**831605**
	6 mm	XS1L06, XS2L06	**831606**
	8 mm	XS1, XS2, XS4	**831608**
	12 mm	XS1, XS2, XS4	**831612**

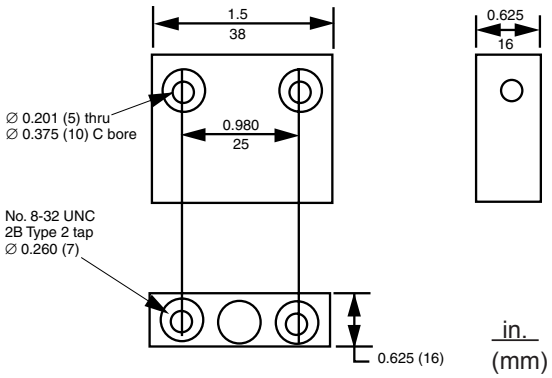
2

Approximate Dimensions

9006PA••



8316 Bracket



Type	A		B		C		D		E		F		G		H		J		K		L		M	
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
PA30	2.64	67	2.56	65	1.39	35	1.99	51	0.39	10	1.28	33	1.97	50	0.21	5	2.05	52	1.20	31	0.08	2	0.98	25
PA18	2.05	52	1.97	50	0.97	25	1.60	41	0.39	10	0.98	25	1.38	35	0.21	5	1.65	42	0.73	19	0.08	2	0.79	20
PA12	1.38	35	1.57	40	0.69	18	1.20	31	0.39	10	0.69	18	0.98	25	0.21	5	1.28	33	0.49	13	0.08	3	0.71	18

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OsiSense® XS
Inductive proximity sensors
Face caps for tubular proximity sensors

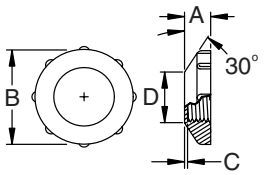


Features

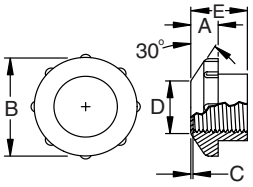
- Shielded and non-shielded caps available
- Different versions available (beveled or non-beveled)
- Helps to provide sensor face protection with no effect on operation

Description

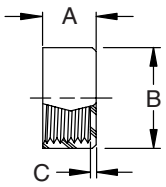
Protection in harsh applications, helps to prevent abrasions, cracks, and other possible damage to the sensor face. Available in several different materials: Ceramic, acetal resin, and Fluorinated hydrocarbon coated material. Helps provide the sensor with protection and a longer life without the additional charge of a stainless steel face option.



XSZEN●●



XSZENN●●



XSZSC●●●●

Beveled caps (30° chamfer), mm (in.)

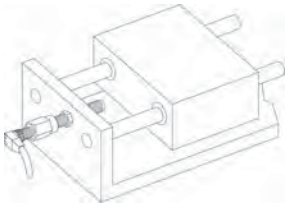
A mm (in.)	B mm (in.)	C mm (in.)	D mm (in.)	E mm (in.)	Catalog Number
8 mm diameter shielded					
5.1 (0.20)	15.1 (0.59)	0.38 (0.15)	7.00 (0.28)	—	**XSZEN08**
12 mm diameter shielded					
6.2 (0.26)	24.1 (0.95)	0.76 (0.03)	12.2 (0.48)	—	**XSZEN12**
18 mm diameter shielded					
8.2 (0.32)	31.2 (1.23)	0.76 (0.03)	17.0 (0.67)	—	**XSZEN18**
30 mm diameter shielded					
7.6 (0.30)	44.5 (1.75)	1.01 (0.04)	29.0 (1.19)	—	**XSZEN30**
8 mm diameter non-shielded					
5.1 (0.20)	14.1 (0.56)	0.38 (0.15)	7.00 (2.76)	9.60 (0.37)	**XSZENN08**
12 mm diameter non-shielded					
6.5 (0.26)	22.9 (0.90)	0.76 (0.03)	12.9 (0.51)	17.3 (0.68)	**XSZENN12**
18 mm diameter non-shielded					
8.2 (0.32)	34.0 (1.34)	0.76 (0.03)	16.6 (0.65)	17.8 (0.70)	**XSZENN18**
30 mm diameter non-shielded					
7.5 (0.30)	44.5 (1.75)	1.01 (0.04)	30.0 (1.18)	22.8 (0.90)	**XSZENN30**

Non-beveled caps, mm (in.)

A	B	C	Catalog Number
12 mm diameter shielded			
8.90 (0.35)	16.1 (0.63)	1.26 (0.05)	**XSZSC12C**
8.90 (0.35)	16.1 (0.63)	0.76 (0.03)	**XSZSC12D**
8.90 (0.35)	16.1 (0.63)	0.76 (0.03)	**XSZSC12T**
18 mm diameter shielded			
8.80 (0.35)	24.4 (0.96)	1.27 (0.05)	**XSZSC18D**
8.80 (0.35)	24.4 (0.96)	1.27 (0.05)	**XSZSC18T**
12 mm diameter non-shielded			
15.2 (0.60)	16.1 (0.63)	0.76 (0.03)	**XSZSC12ND**
15.2 (0.60)	16.1 (0.63)	0.76 (0.03)	**XSZSC12NT**
18 mm diameter non-shielded			
18.0 (0.59)	24.4 (0.96)	1.27 (0.05)	**XSZSC18ND**
18.0 (0.59)	24.4 (0.96)	1.27 (0.05)	**XSZSC18NT**

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OsiSense® XS
Inductive proximity sensors
Plunger screw adapters



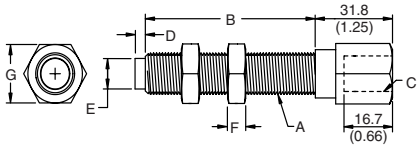
Features

- Accepts 8, 12, or 18 mm shielded sensor
- Heat-treated alloy steel construction
- Rugged stop with solid-state output

Description

Plunger screw adapters allow a shielded inductive proximity sensor to be used as a mechanical stop switch in applications requiring a precise end-of-travel signal or a hard stop. The spring requires a force of 252 g (9 oz) to actuate the sensor.

A	B mm (in.)	C	D mm (in.)	E (dia.) mm (in.)	F mm (in.)	G mm (in.)	Impact Force (Maximum)	Catalog Number
8 mm diameter shielded sensors								
M8x1	25 (1)	M8x1	3.16 (0.12)	5.84 (0.23)	6.26 (0.24)	11.0 (0.43)	2,000 N (450 lbf)	**XSZB0825**
M8x1	50 (2)	M8x1	3.16 (0.12)	5.84 (0.23)	6.26 (0.24)	11.0 (0.43)	2,000 N (450 lbf)	**XSZB0850**
12 mm diameter shielded sensors								
M12x1	25 (1)	M12x1	4.32 (0.17)	9.40 (0.37)	4.22 (0.17)	15.7 (0.62)	20,500 N (4,609 lbf)	**XSZB1225**
M12x1	50 (2)	M12x1	4.32 (0.17)	9.40 (0.37)	4.22 (0.17)	15.7 (0.62)	20,500 N (4,609 lbf)	**XSZB1250**
M12x1	75 (3)	M12x1	4.32 (0.17)	9.40 (0.37)	4.22 (0.17)	15.7 (0.62)	20,500 N (4,609 lbf)	**XSZB1275**
M12x1	100 (4)	M12x1	4.32 (0.17)	9.40 (0.37)	4.22 (0.17)	15.7 (0.62)	20,500 N (4,609 lbf)	**XSZB1210**
18 mm diameter shielded sensors								
M18x1	25 (1)	M18x1	4.32 (0.17)	14.2 (0.56)	4.22 (0.17)	22.1 (0.87)	45,000 N (10,116 lbf)	**XSZB1825**
M18x1	50 (2)	M18x1	4.32 (0.17)	14.2 (0.56)	4.22 (0.17)	22.1 (0.87)	45,000 N (10,116 lbf)	**XSZB1850**
M18x1	75 (3)	M18x1	4.32 (0.17)	14.2 (0.56)	4.22 (0.17)	22.1 (0.87)	45,000 N (10,116 lbf)	**XSZB1875**
M18x1	100 (4)	M18x1	4.32 (0.17)	14.2 (0.56)	4.22 (0.17)	22.1 (0.87)	45,000 N (10,116 lbf)	**XSZB1810**

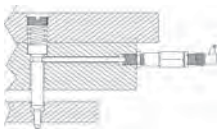


mm
in.

XSZB●●●●

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OsiSense® XS
Inductive proximity sensors
Proximity probe adapters, conduit adapters for tubular sensors



Features

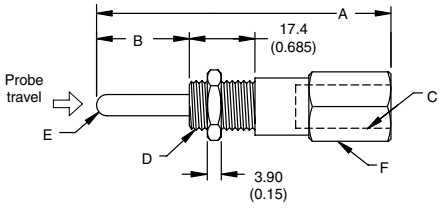
- Accepts any 8 or 12 mm shielded sensor
- Accurate and compact switching in confined areas
- Large variety of stand probe lengths and diameters

Description

Proximity probes are spring-loaded actuators designed to work with 8 mm or 12 mm tubular inductive proximity sensors. The probe and sensor combination offers increased flexibility in applications that require tight positioning.

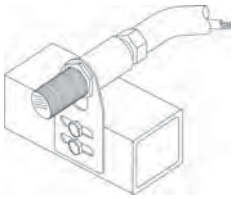
Dimensions: mm (in.)

A mm (in.)	B mm (in.)	C mm (in.)	D mm (in.)	E (Dia.) mm (in.)	F mm (in.)	Catalog Number
8 mm Diameter Shielded Sensor						
75.6 (2.98)	25.0 (1.00)	M8 x 1 to depth of 21.8 (0.86)	M8 x 1	3.18 (0.125)	11.1 (0.436)	**XSZPP0825**
99.6 (3.92)	50.0 (2.00)	M8 x 1 to depth of 21.8 (0.86)	M8 x 1	3.18 (0.125)	11.1 (0.436)	**XSZPP0850**
126 (4.96)	75.0 (3.00)	M8 x 1 to depth of 21.8 (0.86)	M8 x 1	3.18 (0.125)	11.1 (0.436)	**XSZPP0875**
150 (5.91)	100 (4.00)	M8 x 1 to depth of 21.8 (0.86)	M8 x 1	3.18 (0.125)	11.1 (0.436)	**XSZPP0810**
12 mm Diameter Shielded Sensor						
75.6 (2.98)	25.0(1.00)	M12 x 1 to depth of 18.0 (0.71)	M12 x 1	6.35 (0.25)	15.8 (0.623)	**XSZPP1225**
99.6 (3.92)	50.0 (2.00)	M12 x 1 to depth of 18.0 (0.71)	M12 x 1	6.35 (0.25)	15.8 (0.623)	**XSZPP1250**
126 (4.96)	75.0 (3.00)	M12 x 1 to depth of 18.0 (0.71)	M12 x 1	6.35 (0.25)	15.8 (0.623)	**XSZPP1275**
150 (5.91)	100 (4.00)	M12 x 1 to depth of 18.0 (0.71)	M12 x 1	6.35 (0.25)	15.8 (0.623)	**XSZPP1210**



XSZPP●●●●

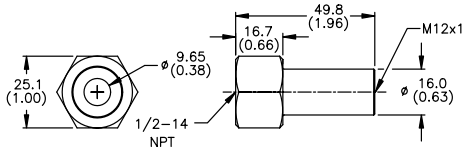
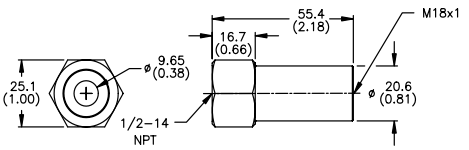
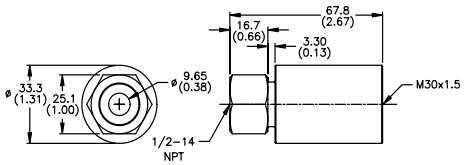
Conduit Adapters for Tubular Sensors



XSZCAR●●

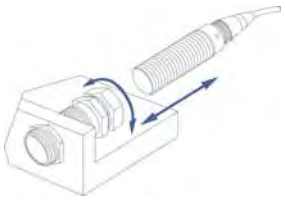
Features

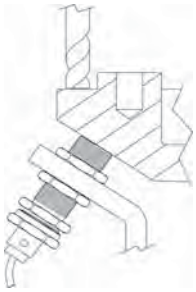
- Available for 12, 18, and 30 mm tubular sensors
- 1/2 in. NPT inside thread
- Nickel-plated brass

Tube Diameter	Tube Thread Size	Dimensions, mm (in.)	Catalog Number
12 mm (0.47 in.)	M12 x 1		**XSZCAR12**
18 mm (0.71 in.)	M18 x 1		**XSZCAR18**
30 mm (1.18)	M30 x 1.5		**XSZCAR30**

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OsiSense® XS
Inductive proximity sensors
Quick change mounting tube





Dimensions: mm (in.)

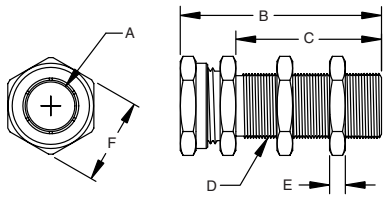
Features

- Quick change mounting available for 8, 12, 18, and 30 mm sensors
- Short and long barrel lengths available
- One-time adjustment simplifies sensor replacement
- Helps protect the sensor from impact and damage
- Fluorinated hydrocarbon coated caps available for quick change mounts (shown below)

Description

The quick change mounting tube reduces sensor maintenance and helps prevent downtime. An internal shoulder stop and collet-style locknut precisely hold the sensor in place—helping maintain a precise sensing distance and simplifying sensor installation.

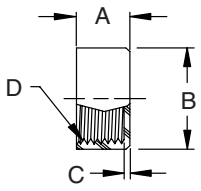
A	B	C	D	E mm (in.)	F mm (in.)	Catalog Number
8 mm diameter shielded sensors						
8.18 (0.32)	32.4 (1.28)	17.5 (0.69)	M12x1	3.85 (0.15)	16.9 (0.67)	**XSZQT08**
8.18 (0.32)	48.0 (1.90)	34.0 (1.34)	M12x1	3.85 (0.15)	16.9 (0.67)	**XSZQTL08**
12 mm diameter shielded sensors						
12.1 (0.48)	33.7 (1.34)	19.5 (0.77)	M16.5x1.5	4.01 (0.16)	21.8 (0.86)	**XSZQT12**
12.1 (0.48)	44.8 (1.76)	30.0 (1.18)	M16.5x1.5	4.01 (0.16)	21.8 (0.86)	**XSZQTL12**
18 mm diameter shielded sensor						
18.1 (0.71)	38.5 (1.52)	20.0 (0.79)	M24 x 1.5	4.95 (0.19)	30.0 (1.18)	**XSZQT18**
18.1 (0.71)	58.0 (2.28)	40.0 (1.57)	M24 x 1.5	4.95 (0.19)	30.0 (1.18)	**XSZQTL18**
30 mm diameter shielded sensors						
30.1 (1.19)	35.0 (1.50)	20.0 (0.79)	M36 x 1.5	6.13 (0.24)	41.0 (1.61)	**XSZQT30**
30.1 (1.19)	58.0 (2.28	40.0 (1.57)	M36 x 1.5	6.13 (0.24)	41.0 (1.61)	**XSZQTL30**



XSZQT●●●

Fluorinated hydrocarbon coated caps for quick change mounting tubes

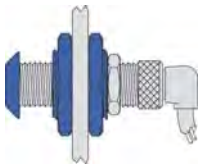
A mm (in.)	B mm (in.)	C mm (in.)	D mm (in.)	Catalog Number
8.84 (0.35)	14.8 (0.59)	0.76 (0.03)	M12x1	**XSZQTC08**
7.24 (0.29)	19.9 (0.75)	0.76 (0.03	M16x1	**XSZQTC12**
9.00 (0.35)	28.7 (1.13)	0.76 (0.03	M24x1.5	**XSZQTC18**
9.00 (0.35)	41.4 (1.63)	1.26 (0.05)	M36x1.5	**XSZQTC30**



XSZQTC●●

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OsiSense® XS
Inductive proximity sensors
Spring-loaded tubular sensor mount



Features

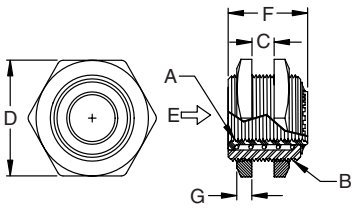
- Accepts 8, 12, 18, and 30 mm shielded or non-shielded sensors
- Shocked is absorbed so sensors can possibly be unaffected by accidental impact
- Shielded and non-shielded caps available (see page 2/126)

Description

Spring-loaded sensor mount for tubular body styles helps prevent impact damage to the sensor from target overtravel. The mount is designed to be threaded onto a tubular sensor and held in place with one of the mounting nuts provided with the sensor. Caps are available to help protect the face of the sensor from lateral and axial impacts (see page 2/126).

Dimensions: mm (in.)

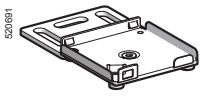
A Inside Thread	B Outside Thread	C Maximum mm (in.)	D Across Flats mm (in.)	E Maximum Overtravel	F mm (in.)	G mm (in.)	Catalog Number
8 mm Diameter Sensors							
M8 x 1	M16 x 1.5	12.2 (0.481)	22.2 (0.875)	9.22 (0.363)	22.0 (0.867)	3.10 (0.155)	**XSZSN08**
12 mm Diameter Sensors							
M12 x 1	M18 x 1	10.0 (0.394)	23.9 (0.943)	12.1 (0.476)	21.3 (0.840)	3.94 (0.156)	**XSZSN12LP**
M12 x 1	M22 x 1.5	11.5 (0.454)	28.4 (1.12)	10.5 (0.413)	22.1 (0.871)	3.88 (0.153)	**XSZSN12**
18 mm Diameter Sensors							
M18 x 1	M30 x 1.5	16.1 (0.634)	34.8 (1.37)	13.3 (0.523)	29.7 (1.17)	5.08 (0.20)	**XSZSN18**
30 mm Diameter Sensors							
M30 x 1.5	M47 x 1.5	24.6 (0.972)	50.8 (2.00)	15.6 (0.615)	37.0 (1.37)	4.98 (0.196)	**XSZSN30**

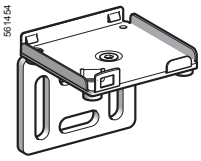


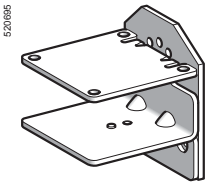
XSZSN●●

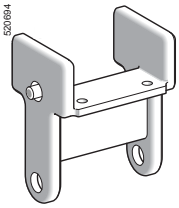
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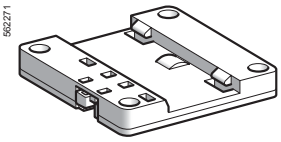
OsiSense® XS
Inductive proximity sensors
Accessories

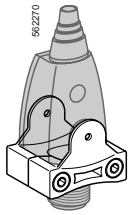

XSZB●00

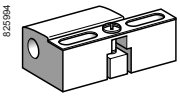

XSZB●90

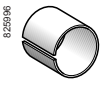

XSZBC10


XSZBE10

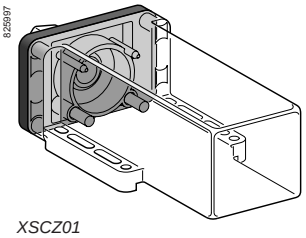

XSZBD10


XSZBPM12

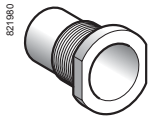

XSZB1●●


XSZA0●●


XSZP1●●


XSCZ01


XSZF10


XTAZ30

Mounting and mounting accessories

Description	For use with sensor Type	Diameter (mm)	Catalog Number	Weight kg	(lb)
Clip mounting plate Can be mounted without clip-on threaded holes	XS●J	–	**XSZBJ00**	0.003	(0.01)
	XS●F	–	**XSZBF00**	0.005	(0.01)
	XS●E	–	**XSZBE00**	0.025	(0.06)
	XS●C	–	**XSZBC00**	0.060	(0.13)
Clip 90° mounting bracket Can be mounted without clip-on threaded holes	XS●J	–	**XSZBJ90**	0.003	(0.01)
	XS●F	–	**XSZBF90**	0.005	(0.01)
	XS●E	–	**XSZBE90**	0.025	(0.06)
	XS●C	–	**XSZBC90**	0.060	(0.13)
Replacement bracket	XS●E Replaces: XS7 T2, XS8T2, XSE	–	**XSZBE10**	0.060	(0.13)
	XS●C Replaces: XS7 T4, XS7C40, XS8 T4, XS8C40 and XSC	–	**XSZBC10**	0.110	(0.24)
	XS●D (for XSD) *(1)*	–	**XSZBD10**	0.065	(0.14)
Mounting clamp for remote control	XS9, XS6●●●B2	–	**XSZBPM12**	0.015	(0.03)
Mounting clamps	XS1	4 (plain)	**XSZB104**	0.005	(0.01)
		5 (M5 x 0.5)	**XSZB105**	0.005	(0.01)
	XS1, XS2	6.5 (plain)	**XSZB165**	0.005	(0.01)
	XS1, XS2, XS4, XS5, XS6	8 (M8 x 1)	**XSZB108**	0.006	(0.01)
	XS1, XS2, XS4, XS5, XS6, XT1	12 (M12 x 1)	**XSZB112**	0.006	(0.01)
		18 (M18 x 1)	**XSZB118**	0.010	(0.02)
		30 (M30 x 1.5)	**XSZB130**	0.020	(0.04)
	XT1	32 (plain)	**XUZB32**	0.050	(0.11)
Set of 2 metal mounting nuts, nickel plated	XS1	5 (M5 x 0.5)	**XSZE105**	0.010	(0.02)
	XS1, XS2, XS5, XS6	8 (M8 x 1)	**XSZE108**	0.015	(0.03)
	XS1, XS2, XT1, XS5, XS6	12 (M12 x 1)	**XSZE112**	0.015	(0.03)
		18 (M18 x 1)	**XSZE118**	0.020	(0.04)
		30 (M30 x 1.5)	**XSZE130**	0.050	(0.11)
Set of 2 stainless steel mounting nuts	XS1, XS2, XS5, XS6	8 (M8 x 1)	**XSZE308**	0.015	(0.03)
	XS1, XS2, XT1, XS5, XS6	12 (M12 x 1)	**XSZE312**	0.015	(0.03)
		18 (M18 x 1)	**XSZE318**	0.020	(0.04)
		30 (M30 x 1.5)	**XSZE330**	0.050	(0.11)
Set of 2 plastic mounting nuts	XS4	8 (M8 x 1)	**XSZE208**	0.002	(0.01)
		12 (M12 x 1)	**XSZE212**	0.003	(0.01)
	XS4	18 (M18 x 1)	**XSZE218**	0.004	(0.01)
		30 (M30 x 1.5)	**XSZE230**	0.005	(0.01)
Adapter collar **Ø 20**	XS●, XT●	18 (M18 x 1)	**XSZA020**	0.005	(0.01)
Ø 34	XS●, XT●	30 (M30 x 1.5)	**XSZA034**	0.005	(0.01)

Protection accessories

Cable sleeve adapter (CNOMO type)	XS●, XT●	12 (M12 x 1)	**XSZP112**	0.005	(0.01)
		18 (M18 x 1)	**XSZP118**	0.005	(0.01)
		30 (M30 x 1.5)	**XSZP130**	0.010	(0.02)
Outer cover (IP 68)	XT7C	–	**XSCZ01**	0.100	(0.22)
Thread adapter	XS●, XT●	30 (M30 x 1.5)	**XTAZ30**	0.035	(0.08)
Pg 13 cable gland	Clamping capacity Ø 9 to 12 mm		**XSZPE13**	0.010	(0.02)
Protective cover Sold in lots of 50	M12 universal connectors		**XSZF10**	0.020	(0.04)

Mounting

Threaded inserts for rear mounting	XS● E	M3	**XSZVF03**	0.002	(0.01)
	XS● C	M4	**XSZVF04**	0.005	(0.01)
	XS● D	M5	**XSZVF05**	0.006	(0.01)

Fuses (for unprotected 2-wire ⎓/∿ sensors)

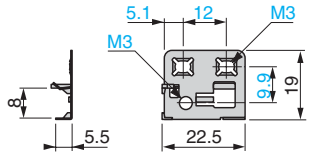
Description	Type	Sold in lots of	Catalog Number	Weight kg	(lb)
Cartridge fuses 5 x 20	0.4 A fast-acting	10	**XUZE04**	0.001	(0.01)
	0.63 A fast-acting	10	**XUZE06**	0.001	(0.01)
	0.8 A fast-acting	10	**XUZE08**	0.001	(0.01)
Fuse terminal block for XUZE0●		50	**AB1FU10135U**	0.040	(0.09)

(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.

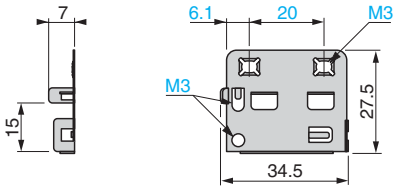
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OsiSense® XS
Inductive proximity sensors
Accessories

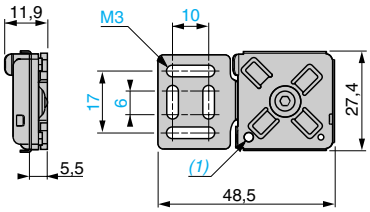
XSZBJ00



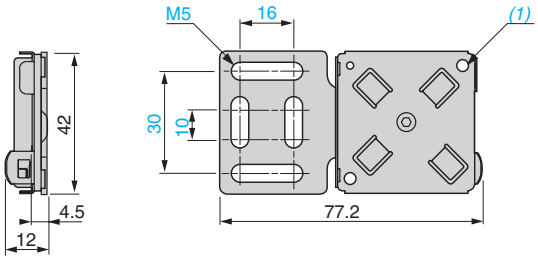
XSZBF00



XSZBE00



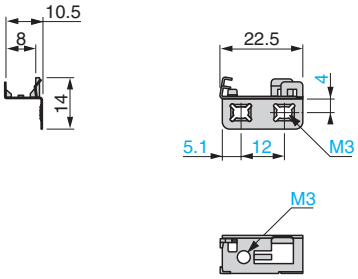
XSZBC00



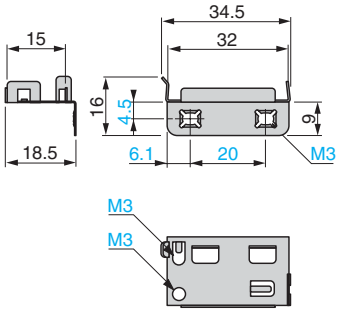
(1) 2 screws M3 x 12 (included).

(1) 4 screws M4 x 14 (included).

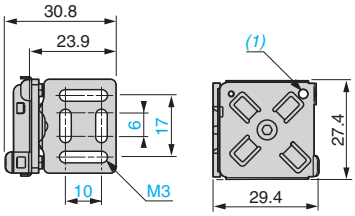
XSZBJ90



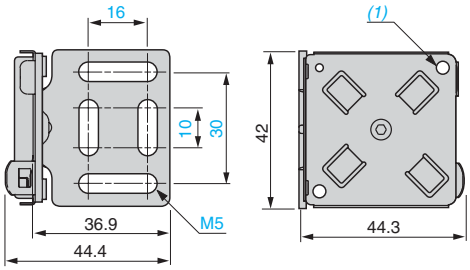
XSZBF90



XSZBE90



XSZBC90

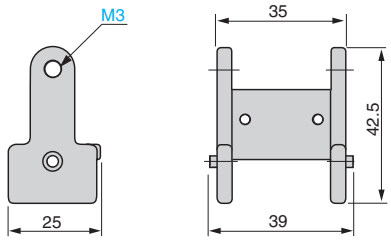


(1) 2 screws M3 x 12 (included).

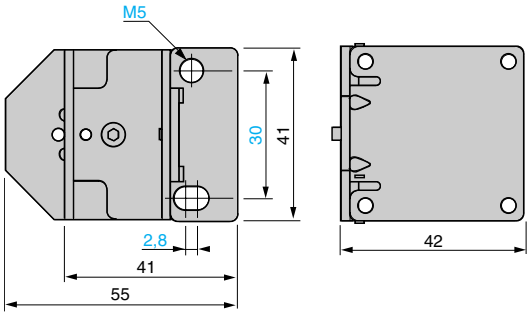
(1) 4 screws M4 x 14 (included).

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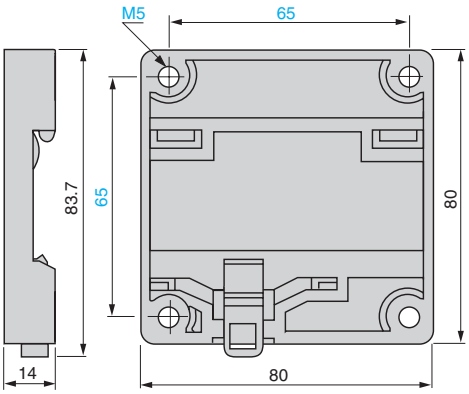
XSZBE10



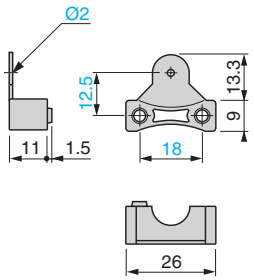
XSZBC10



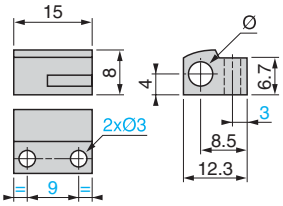
XSZBD10 (for mounting on XS●D●●●●)



XSZBPM12



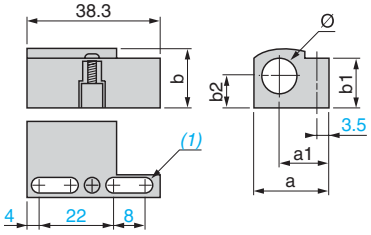
XSZB104, B105



XSZ	Ø
B104	4
B105	5

Note: *for mounting clamps XSZB118 and XSZB130, see mounting recommendations, page 13*

XSZB108, B112, B118, B130, B165



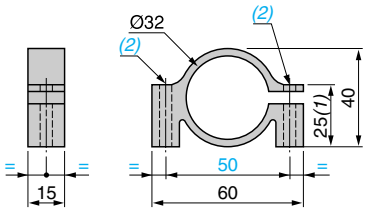
XSZ	a	a1	b	b1	b2	Ø
B108	19.9	14.5	14	12.5	7.5	8
B112	21.9	14.5	16	15.5	8.5	12
B118	26	15.7	22.3	20.1	11.5	18
B130	39	21.7	35.5	31	18.5	30
B165	19.9	14.5	14	12.5	7.5	6.5

(1) 2 elongated holes 4 x 8 mm.

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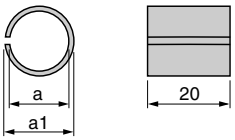
2

XUZB32



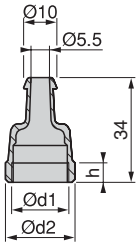
(1) Maximum value
(2) 2 holes Ø 5.5
2 x M5 screws, HM head, included with mounting clamp

XSZA0●●



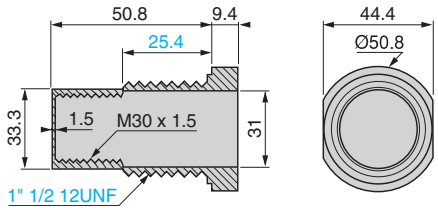
XSZ	a	a1
A020	Ø18	Ø20
A034	Ø30	Ø34

XSZP112, P118, P130

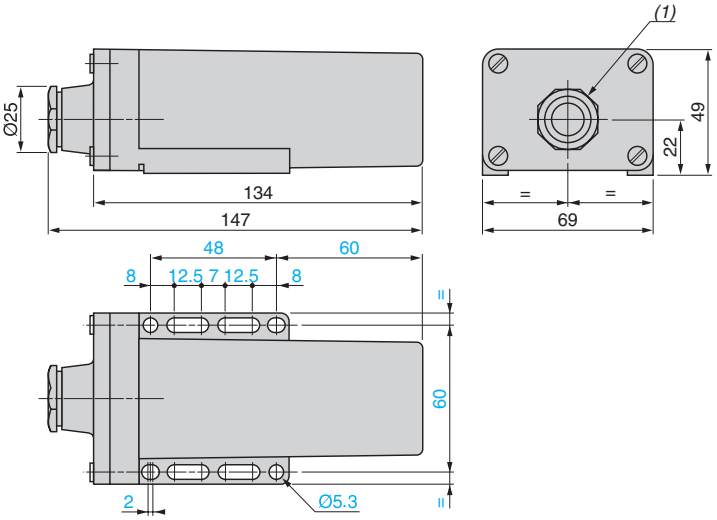


XSZ	h	Ø d1	Ø d2
P112	7	12	16.8
P118	6.2	18	23
P130	6.2	30	34.4

XTAZ30



XSCZ01



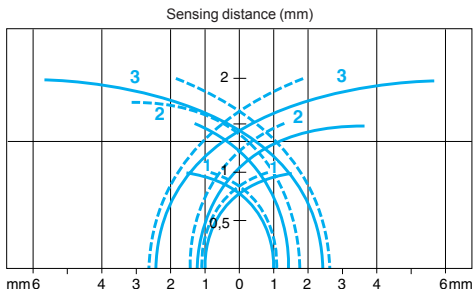
(1) Pg 13 cable gland

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OsiSense® XS
Inductive proximity sensors

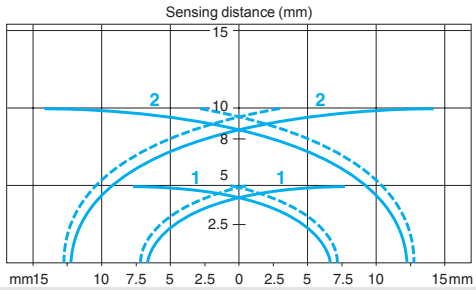
Cylindrical type sensors

Flush mountable in metal



Sensor (mm)	Standard steel target (mm)	Operating zone, mm (in.)
Ø 4	5 x 5 x 1	0–0.8 (0–0.03)
Ø 5	5 x 5 x 1	0–0.8 (0–0.03)
Ø 6.5	8 x 8 x 1	0–1.2 (0–0.05)
Ø 8	8 x 8 x 1	0–1.2 (0–0.05)
Ø 12	12 x 12 x 1	0–1.6 (0–0.06)

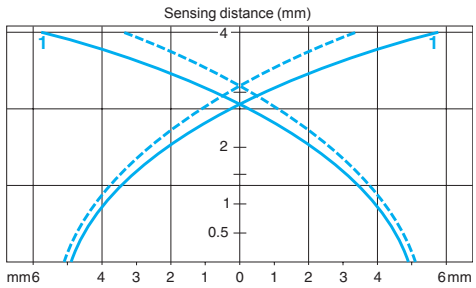
pick-up points
drop-out points (object approaching from the side)
1 Ø 4 (plain) XS1 and Ø 5 (M5 x 0.5) XS1
2 Ø 6.5 (plain) XS1 and Ø 8 (M8 x 1) XS5
3 Ø 12 (M12 x 1) XS5



Sensor (mm)	Standard steel target (mm)	Operating zone, mm (in.)
Ø 18	18 x 18 x 1	0–4 (0–0.16)
Ø 30	30 x 30 x 1	0–8 (0–0.31)

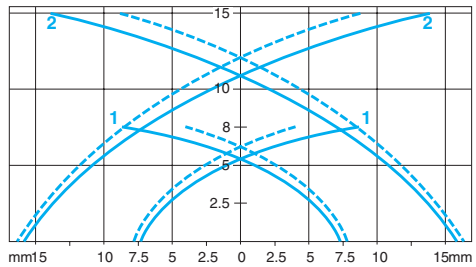
pick-up points
drop-out points (object approaching from the side)
1 Ø 18 (M18 x 1) XS5
2 Ø 30 (M30 x 1.5) XS5

Non-flush mountable in metal



Sensor (mm)	Standard steel target (mm)	Operating zone, mm (in.)
Ø 12	12 x 12 x 1	0–3.2 (0–0.13)

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

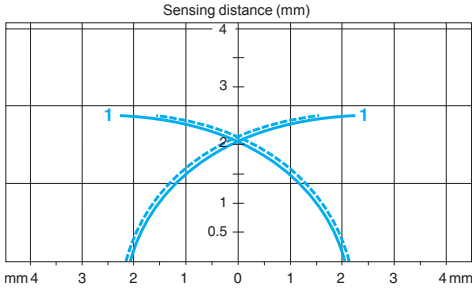


Sensor (mm)	Standard steel target (mm)	Operating zone, mm (in.)
Ø 18	24 x 24 x 1	0–6.4 (0–0.25)
Ø 30	45 x 45 x 1	0–12 (0–0.47)

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

Cylindrical type sensors, increased range

Flush mountable in metal



Sensor (mm)	Standard steel target (mm)	Operating zone, mm (in.)
Ø 6.5	8 x 8 x 1	0–2 (0–0.08)

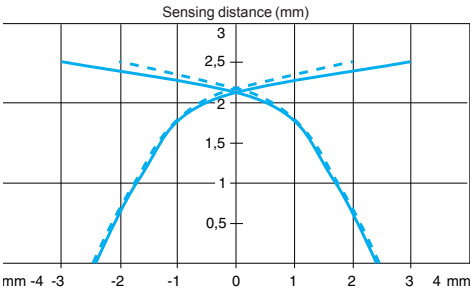
pick-up points
drop-out points (object approaching from the side)
1 Ø 6.5 (plain) XS1L06pp349

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2

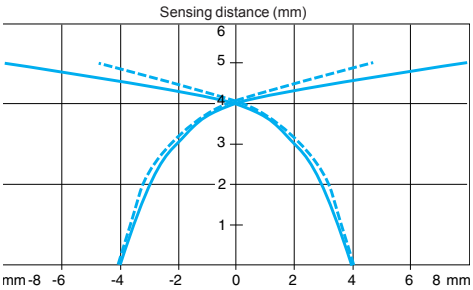
Flat type sensors

Flush mountable in metal



Sensor (mm)	Standard steel target (mm)	Operating zone, mm (in.)
XS7J1A1D	5 x 5 x 1	0–2 (0–0.08)

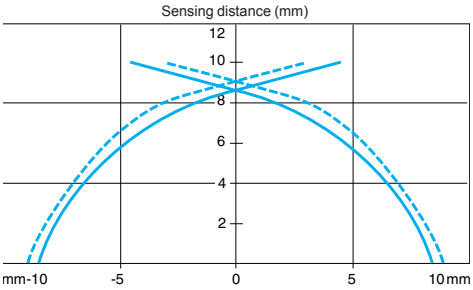
pick-up points
drop-out points (object approaching from the side)



Sensor (mm)	Standard steel target (mm)	Operating zone, mm (in.)
XS7F1A1D	5 x 5 x 1	0–4 (0–0.16)

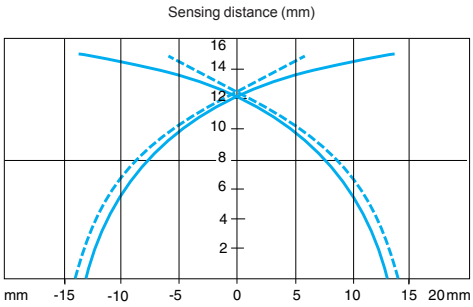
pick-up points
drop-out points (object approaching from the side)

Non-flush mountable in metal



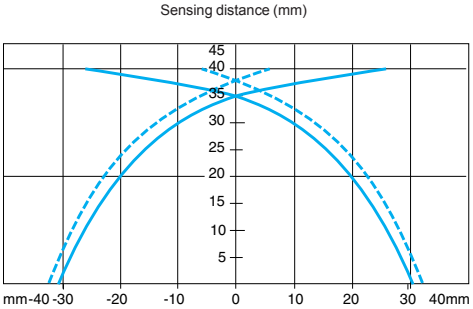
Sensor (mm)	Standard steel target (mm)	Operating zone, mm (in.)
XS7E1A1D	8 x 8 x 1	0–8 (0–0.31)
XS7E1A1C	8 x 8 x 1	0–8 (0–0.31)

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



Sensor (mm)	Standard steel target (mm)	Operating zone, mm (in.)
XS7C1A1D	18 x 18 x 1	0–12 (0–0.47)
XS7C1A1C	18 x 18 x 1	0–12 (0–0.47)

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



Sensor (mm)	Standard steel target (mm)	Operating zone, mm (in.)
XS7D1A1D	30 x 30 x 1	0–32 (0–1.26)
XS7D1A1C	30 x 30 x 1	0–32 (0–1.26)

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

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OsiSense® XS
Inductive proximity sensors

Old sensor	**New OsiSense® XS sensor**
Cylindrical type, DC	
Diameter 6.5 mm	
XS1	
XS1L06NA140	**XS106BLNAL2**
XS1L06PA140	**XS106BLPAL2**
XS1L06NA340	**XS506B1NAL2**
XS1L06NA340S	**XS506B1NAM8**
XS1L06NB340	**XS506B1NBL2**
XS1L06NB340S	**XS506B1NBM8**
XS1L06PA340	**XS506B1PAL2**
XS1L06PA340L1	**XS506B1PAL5**
XS1L06PA340D	**XS506B1PAM12**
XS1L06PA340S	**XS506B1PAM8**
XS1L06PB340	**XS506B1PBL2**
XS1L06PB340L1	**XS506B1PBL5**
XS1L06PB340S	**XS506B1PBM8**
XS1L06NA349	**XS106B3NAL2**
XS1L06NA349S	**XS106B3NAM8**
XS1L06NB349	**XS106B3NBL2**
XS1L06NB349S	**XS106B3NBM8**
XS1L06PA349	**XS106B3PAL2**
XS1L06PA349L1	**XS106B3PAL5**
XS1L06PA349D	**XS106B3PAM12**
XS1L06PA349S	**XS106B3PAM8**
XS1L06PB349	**XS106B3PBL2**
XS1L06PB349L1	**XS106B3PBL5**
XS1L06PB349S	**XS106B3PBM8**
Diameter 8 mm	
XS1	
XS1D08NA140	**XS108BLNAL2**
XS1D08NA140D	**XS108BLNAM12**
XS1D08PA140	**XS108BLPAL2**
XS1D08PA140D	**XS108BLPAM12**
XS1D08PA140L1	**XS108BLPAL5**
XS1M08DA210	**XS508B1DAL2**
XS1M08DA210D	**XS508B1DAM12**
XS1M08DA210L1	**XS508B1DAL5**
XS1M08DA210L2	**XS508B1DAL10**
XS1M08DA210LD	**XS508B1DAL08M12**
XS1M08DB210	**XS508B1DBL2**
XS1M08DB210D	**XS508B1DBM12**
XS1M08DB210L1	**XS508B1DBL5**
XS1M08DB210LD	**XS508B1DBM12** *(1)*

Old sensor	**New OsiSense® XS sensor**
XS1M08DA214D	**XS508B1CAM12**
XS1M08DA214LD	**XS508B1CAL08M12**
XS1M08NA370	**XS508BLNAL2**
XS1M08NA370D	**XS508BLNAM12**
XS1M08NA370L1	**XS508BLNAL5**
XS1M08NB370	**XS508BLNBL2**
XS1M08NB370D	**XS508BLNBM12**
XS1M08PA370	**XS508BLPAL2**
XS1M08PA370D	**XS508BLPAM12**
XS1M08PA370L1	**XS508BLPAL5**
XS1M08PA370L2	**XS508BLPAL10**
XS1M08PA370LD	**XS508BLPAM12** *(1)*
XS1M08PA370S	**XS508BLPAM12** *(2)*
XS1M08PB370	**XS508BLPBL2**
XS1M08PB370D	**XS508BLPBM12**
XS1M08PB370L1	**XS508BLPBL5**
XS1M08PB370L2	**XS508BLPBL10**
XS1N08NA340	**XS508B1NAL2**
XS1N08NA340D	**XS508B1NAM12**
XS1N08NA340L1	**XS508B1NAL5**
XS1N08NA340L2	**XS508B1NAL10**
XS1N08NA340S	**XS508B1NAM8**
XS1N08NB340	**XS508B1NBL2**
XS1N08NB340D	**XS508B1NBM12**
XS1N08NB340S	**XS508B1NBM8**
XS1N08PA340	**XS508B1PAL2**
XS1N08PA340D	**XS508B1PAM12**
XS1N08PA340L1	**XS508B1PAL5**
XS1N08PA340L2	**XS508B1PAL10**
XS1N08PA340LD	**XS508B1PAM12**
XS1N08PA340S	**XS508B1PAM8**
XS1N08PB340	**XS508B1PBL2**
XS1N08PB340D	**XS508B1PBM12**
XS1N08PB340L1	**XS508B1PBL5**
XS1N08PB340L2	**XS508B1PBL10**
XS1N08PB340S	**XS508B1PBM8**
XS1N08NA349	**XS108B3NAL2**
XS1N08NA349L1	**XS108B3NAL5**
XS1N08NA349D	**XS108B3NAM12**
XS1N08NA349S	**XS108B3NAM8**
XS1N08NB349	**XS108B3NBL2**
XS1N08NB349L1	**XS108B3NBL5**
XS1N08NB349D	**XS108B3NBM12**
XS1N08NB349S	**XS108B3NBM8**
XS1N08PA349	**XS108B3PAL2**
XS1N08PA349L1	**XS108B3PAL5**
XS1N08PA349D	**XS108B3PAM12**

Old sensor	**New OsiSense® XS sensor**
XS1N08PA349S	**XS108B3PAM8**
XS1N08PB349	**XS108B3PBL2**
XS1N08PB349L1	**XS108B3PBL5**
XS1N08PB349D	**XS108B3PBM12**
XS1N08PB349S	**XS108B3PBM8**
XS2	
XS2M08NA340	**XS608B1NAL2**
XS2N08NA340	**XS108B3NAL2**
XS2N08NA340D	**XS108B3NAM12**
XS2N08NA340L1	**XS108B3NAL5**
XS2N08NA340L2	**XS108B3NAL10**
XS2N08NA340S	**XS108B3NAM8**
XS2N08NB340	**XS108B3NBL2**
XS2N08NB340D	**XS108B3NBM12**
XS2N08NB340S	**XS108B3NBM8**
XS2N08PA340	**XS108B3PAL2**
XS2N08PA340D	**XS108B3PAM12**
XS2N08PA340L1	**XS108B3PAL5**
XS2N08PA340L2	**XS108B3PAL10**
XS2N08PA340S	**XS108B3PAM8**
XS2N08PB340	**XS108B3PBL2**
XS2N08PB340D	**XS108B3PBM12**
XS2N08PB340S	**XS108B3PBM8**
XS3	
XS3P08NA340	**XS508B1NAL2** *(3)*
XS3P08NA340D	**XS508B1NAM12** *(3)*
XS3P08NA340L1	**XS508B1NAL5** *(3)*
XS3P08PA340	**XS508B1PAL2** *(3)*
XS3P08PA340D	**XS508B1PAM12** *(3)*
XS3P08PA340L1	**XS508B1PAL5** *(3)*
XS3P08NA370	**XS508BLNAL2** *(3)*
XS3P08NA370L1	**XS508BLNAL5** *(3)*
XS3P08PA370	**XS508BLPAL2** *(3)*
XS3P08PA370L1	**XS508BLPAL5** *(3)*

(1) For the new sensor an integral M12 connector replaces the remote M12 connector on a 0.80 m pigtail connector.
(2) For the new sensor an M12 connector replaces the M8 connector.
(3) For the new OsiSense XS sensor, the metal case replaces the plastic case.

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OsiSense® XS
Inductive proximity sensors

Old sensor	New OsiSense® XS sensor
Cylindrical type, DC *(continued)*	
Diameter 12 mm	
XS1	
XS1D12NA140	**XS112BLNAL2**
XS1D12NA140D	**XS112BLNAM12**
XS1D12PA140	**XS112BLPAL2**
XS1D12PA140D	**XS112BLPAM12**
XS1D12PA140L1	**XS112BLPAL5**
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**
XS1M12NA370L1	**XS512BLNAL5**
XS1M12NA370L2	**XS512BLNAL10**
XS1M12NA370S	**XS612B1NAM12** *(2)*
XS1M12NB370	**XS512BLNBL2**
XS1M12NB370D	**XS512BLNBM12**
XS1M12PA370	**XS512BLPAL2**
XS1M12PA370D	**XS512BLPAM12**
XS1M12PA370L1	**XS512BLPAL5**
XS1M12PA370L2	**XS512BLPAL10**
XS1M12PA370LA	**XS612B1PAL08U78**
XS1M12PA370LD	**XS612B1PAL08M12**
XS1M12PB370	**XS512BLPBL2**
XS1M12PB370D	**XS512BLPBM12**
XS1M12PB370L1	**XS512BLPBL5**
XS1M12PB370L2	**XS512BLPBL10**
XS1M12PB370LD	**XS612B1PAM12** *(1)*
XS1N12NA340	**XS512B1NAL2**
XS1N12NA340D	**XS512B1NAM12**
XS1N12NA340L1	**XS512B1NAL5**
XS1N12NA340L2	**XS512B1NAL10**
XS1N12NB340	**XS512B1NBL2**

Old sensor	New OsiSense® XS sensor
XS1N12NB340D	**XS512B1NBM12**
XS1N12PA340	**XS512B1PAL2**
XS1N12PA340D	**XS512B1PAM12**
XS1N12PA340L1	**XS512B1PAL5**
XS1N12PA340L2	**XS512B1PAL10**
XS1N12PA340LD	**XS512B1PAM12** *(1)*
XS1N12PA340S	**XS512B1PAM12** *(2)*
XS1N12PB340	**XS512B1PBL2**
XS1N12PB340D	**XS512B1PBM12**
XS1N12PB340L1	**XS512B1PBL5**
XS1M12PA349D	**XS612B1PAM12**
XS1N12NA349	**XS112B3NAL2**
XS1N12NA349L1	**XS112B3NAL5**
XS1N12NA349D	**XS112B3NAM12**
XS1N12NB349	**XS112B3NBL2**
XS1N12NB349L1	**XS112B3NBL5**
XS1N12NB349D	**XS112B3NBM12**
XS1N12PA349	**XS112B3PAL2**
XS1N12PA349L1	**XS112B3PAL5**
XS1N12PA349D	**XS112B3PAM12**
XS1N12PB349	**XS112B3PBL2**
XS1N12PB349L1	**XS112B3PBL5**
XS1N12PB349D	**XS112B3PBM12**
XS2	
XS2D12NA140	**XS212BLNAL2**
XS2D12NA140D	**XS212BLNAM12**
XS2D12NA140L1	**XS212BLNAL5**
XS2D12PA140	**XS212BLPAL2**
XS2D12PA140D	**XS212BLPAM12**
XS2D12PA140L1	**XS212BLPAL5**
XS2M12NA370	**XS612B1NAL2**
XS2M12NA370D	**XS612B1NAM12**
XS2M12NA370L1	**XS612B1NAL5**
XS2M12NA370L2	**XS612B1NAL10**
XS2M12NB370	**XS612B1NBL2**
XS2M12NB370D	**XS612B1NBM12**
XS2M12PA370	**XS612B1PAL2**
XS2M12PA370D	**XS612B1PAM12**
XS2M12PA370L1	**XS612B1PAL5**
XS2M12PA370L2	**XS612B1PAL10**
XS2M12PA370LA	**XS612B1PAL08U78**
XS2M12PA370LD	**XS612B1PAL08M12**
XS2M12PB370	**XS612B1PBL2**
XS2M12PB370D	**XS612B1PBM12**
XS2M12PB370L1	**XS612B1PBL5**
XS2M12PB370S	**XS612B1PBM12** *(2)*

Old sensor	New OsiSense® XS sensor
XS2N12NA340	**XS112B3NAL2**
XS2N12NA340D	**XS112B3NAM12**
XS2N12NA340L1	**XS112B3NAL5**
XS2N12NA340L2	**XS112B3NAL10**
XS2N12NB340	**XS112B3NBL2**
XS2N12NB340D	**XS112B3NBM12**
XS2N12PA340	**XS112B3PAL2**
XS2N12PA340D	**XS112B3PAM12**
XS2N12PA340L1	**XS112B3PAL5**
XS2N12PA340L2	**XS112B3PAL10**
XS2N12PB340	**XS112B3PBL2**
XS2N12PB340D	**XS112B3PBM12**
XS2N12PB340L1	**XS112B3PBL5**
XS3	
XS3P12NA340	**XS512B1NAL2** *(3)*
XS3P12NA340D	**XS512B1NAM12** *(3)*
XS3P12NA340L1	**XS512B1NAL5** *(3)*
XS3P12PA340	**XS512B1PAL2** *(3)*
XS3P12PA340D	**XS512B1PAM12** *(3)*
XS3P12PA340L1	**XS512B1PAL5** *(3)*
XS3P12NA370	**XS512BLNAL2** *(3)*
XS3P12NA370L1	**XS512BLNAL5** *(3)*
XS3P12PA370	**XS512BLPAL2** *(3)*
XS3P12PA370L1	**XS512BLPAL5** *(3)*

(1) For the new sensor an integral M12 connector replaces the remote M12 connector on a 0.80 m pigtail connector.
(2) For the new sensor an M12 connector replaces the M8 connector.
(3) For the new OsiSense XS sensor, the metal case replaces the plastic case.

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OsiSense® XS
Inductive proximity sensors

Old sensor	New OsiSense® XS sensor
Cylindrical type, DC *(continued)*	
Diameter 18 mm	
XS1	
XS1D18NA140	**XS118BLNAL2**
XS1D18NA140D	**XS118BLNAM12**
XS1D18NA140L1	**XS118BLNAL5**
XS1D18PA140	**XS118BLPAL2**
XS1D18PA140D	**XS118BLPAM12**
XS1D18PA140L1	**XS118BLPAL5**
XS1M18DA210	**XS518B1DAL2**
XS1M18DA210B	**XS518B1DAL01B** *(4)*
XS1M18DA210C	**XS518B1DAL01C** *(4)*
XS1M18DA210D	**XS518B1DAM12**
XS1M18DA210G	**XS518B1DAL01G** *(4)*
XS1M18DA210L1	**XS518B1DAL5**
XS1M18DA210L2	**XS518B1DAL10**
XS1M18DA210LD	**XS518B1DAL08M12**
XS1M18DB210	**XS518B1DBL2**
XS1M18DB210B	**XS518B1DBL01B** *(4)*
XS1M18DB210D	**XS518B1DBM12**
XS1M18DB210LD	**XS518B1DBL08M12**
XS1M18DA214D	**XS518B1CAM12**
XS1M18DA214LD	**XS518B1CAL08M12**
XS1M18NA370	**XS518BLNAL2**
XS1M18NA370A	**XS618B1NAL01U78** *(4)*
XS1M18NA370B	**XS618B1NAL01B** *(4)*
XS1M18NA370C	**XS618B1NAL01C** *(4)*
XS1M18NA370D	**XS518BLNAM12**
XS1M18NA370L1	**XS518BLNAL5**
XS1M18NA370L2	**XS518BLNAL10**
XS1M18NB370	**XS518BLNBL2**
XS1M18NB370B	**XS618B1NBL01B** *(4)*
XS1M18NB370C	**XS618B1NBL01C** *(4)*
XS1M18NB370D	**XS518BLNBM12**
XS1M18NB370L1	**XS518BLNBL5**
XS1M18NB370L2	**XS518BLNBL10**
XS1M18PA370	**XS518BLPAL2**
XS1M18PA370A	**XS618B1PAL01U78** *(4)*
XS1M18PA370B	**XS618B1PAL01B** *(4)*
XS1M18PA370C	**XS618B1PAL01C** *(4)*
XS1M18PA370D	**XS518BLPAM12**
XS1M18PA370G	**XS618B1PAL01G** *(4)*
XS1M18PA370DTQ	**XS518BLPAM12TQ**
XS1M18PA370G	**XS618B1PAL01G** *(4)*
XS1M18PA370L1	**XS518BLPAL5**
XS1M18PA370L2	**XS518BLPAL10**

Old sensor	New OsiSense® XS sensor
XS1M18PA370LA	**XS618B1PAL08U78**
XS1M18PA370LD	**XS518BLPAM12** *(1)*
XS1M18PA370DTQ	**XS518BLPAM12TQ**
XS1M18PA370TF	**XS518BLPAL2TF**
XS1M18PB370	**XS518BLPBL2**
XS1M18PB370A	**XS618B1PBL01U78** *(4)*
XS1M18PB370B	**XS618B1PBL01B** *(4)*
XS1	
XS1M18PB370D	**XS518BLPBM12**
XS1M18PB370L1	**XS518BLPBL5**
XS1M18PB370L2	**XS518BLPBL10**
XS1M18PB370C	**XS618B1PBL01C** *(4)*
XS1N18NA340	**XS518B1NAL2**
XS1N18NA340D	**XS518B1NAM12**
XS1N18NA340L1	**XS518B1NAL5**
XS1N18NA340L2	**XS518B1NAL10**
XS1N18NB340	**XS518B1NBL2**
XS1N18NB340D	**XS518B1NBM12**
XS1N18NB340L2	**XS518B1NBL10**
XS1N18PA340	**XS518B1PAL2**
XS1N18PA340D	**XS518B1PAM12**
XS1N18PA340L1	**XS518B1PAL5**
XS1N18PA340L2	**XS518B1PAL10**
XS1N18PB340	**XS518B1PBL2**
XS1N18PB340D	**XS518B1PBM12**
XS1N18PB340L2	**XS518B1PBL10**
XS2	
XS2D18NA140	**XS218BLNAL2**
XS2D18NA140D	**XS218BLNAM12**
XS2D18PA140	**XS218BLPAL2**
XS2D18PA140D	**XS218BLPAM12**
XS2D18PA140L1	**XS218BLPAL5**
XS2N18NA340	**XS118B3NAL2**
XS2N18NA340D	**XS118B3NAM12**
XS2N18NA340L1	**XS118B3NAL5**
XS2N18NA340L2	**XS118B3NAL10**
XS2N18NB340	**XS118B3NBL2**
XS2N18NB340D	**XS118B3NBM12**
XS2N18PA340	**XS118B3PAL2**
XS2N18PA340D	**XS118B3PAM12**
XS2N18PA340L1	**XS118B3PAL5**
XS2N18PA340L2	**XS118B3PAL10**
XS2N18PB340	**XS118B3PBL2**
XS2N18PB340D	**XS118B3PBM12**

Old sensor	New OsiSense® XS sensor
XS2M18NA370	**XS618B1NAL2**
XS2M18NA370A	**XS618B1NAL01U78** *(4)*
XS2M18NA370B	**XS618B1NAL01B** *(4)*
XS2M18NA370C	**XS618B1NAL01C** *(4)*
XS2M18NA370D	**XS618B1NAM12**
XS2M18NA370L1	**XS618B1NAL5**
XS2M18NA370L2	**XS618B1NAL10**
XS2M18NB370	**XS618B1NBL2**
XS2M18NB370B	**XS618B1NBL01B** *(4)*
XS2M18NB370C	**XS618B1NBL01C** *(4)*
XS2M18NB370D	**XS618B1NBM12**
XS2M18NB370L1	**XS618B1NBL5**
XS2M18NB370L2	**XS618B1NBL10**
XS2M18PA370	**XS618B1PAL2**
XS2M18PA370A	**XS618B1PAL01U78** *(4)*
XS2M18PA370B	**XS618B1PAL01B** *(4)*
XS2M18PA370C	**XS618B1PAL01C** *(4)*
XS2M18PA370D	**XS618B1PAM12**
XS2M18PA370G	**XS618B1PAL01G** *(4)*
XS2M18PA370LA	**XS618B1PAL08U78** *(4)*
XS2M18PA370L1	**XS618B1PAL5**
XS2M18PA370L2	**XS618B1PAL10**
XS2M18PB370	**XS618B1PBL2**
XS2M18PB370A	**XS618B1PBL01U78** *(4)*
XS2M18PB370B	**XS618B1PBL01B** *(4)*
XS2M18PB370C	**XS618B1PBL01C** *(4)*
XS2M18PB370D	**XS618B1PBM12**
XS2M18PB370L1	**XS618B1PBL5**
XS2M18PB370L2	**XS618B1PBL10**
XS3	
XS3P18NA340	**XS518B1NAL2** *(3)*
XS3P18NA340D	**XS518B1NAM12** *(3)*
XS3P18NA340L1	**XS518B1NAL5** *(3)*
XS3P18PA340	**XS518B1PAL2** *(3)*
XS3P18PA340D	**XS518B1PAM12** *(3)*
XS3P18PA340L1	**XS518B1PAL5** *(3)*
XS3P18NA370	**XS518BLNAL2** *(3)*
XS3P18NA370L1	**XS518BLNAL5** *(3)*
XS3P18PA370	**XS518BLPAL2** *(3)*
XS3P18PA370L1	**XS518BLPAL5** *(3)*
XS3P18PA370L2	**XS518BLPAL10** *(3)*
XS4	
XS4P18NA370B	**XS4P18NA370L01B** *(4)*
XS4P18NB370B	**XS4P18NB370L01B** *(4)*
XS4P18PA370B	**XS4P18PA370L01B** *(4)*
XS4P18PB370B	**XS4P18PB370L01B** *(4)*

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

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OsiSense® XS
Inductive proximity sensors

Old sensor	New OsiSense® XS sensor
Cylindrical type, DC *(continued)*	
Diameter 30 mm	
XS1	
XS1D30NA140	**XS130BLNAL2**
XS1D30NA140D	**XS130BLNAM12**
XS1D30PA140	**XS130BLPAL2**
XS1D30PA140D	**XS130BLPAM12**
XS1D30PA140L1	**XS130BLPAL5**
XS2D30NA140	**XS230BLNAL2**
XS2D30NA140D	**XS230BLNAM12**
XS2D30PA140	**XS230BLPAL2**
XS2D30PA140D	**XS230BLPAM12**
XS1M30DA210	**XS530B1DAL2**
XS1M30DA210B	**XS530B1DAL01B** *(4)*
XS1M30DA210C	**XS530B1DAL01C** *(4)*
XS1M30DA210D	**XS530B1DAM12**
XS1M30DA210G	**XS530B1DAL01G** *(4)*
XS1M30DA210L1	**XS530B1DAL5**
XS1M30DA210L2	**XS530B1DAL10**
XS1M30DA210LD	**XS530B1DAL08M12**
XS1M30DB210	**XS530B1DBL2**
XS1M30DB210B	**XS530B1DBL01B** *(4)*
XS1M30DB210D	**XS530B1DBM12**
XS1M30DB210LD	**XS530B1DBM12** *(1)*
XS1M30DA214D	**XS530B1CAM12**
XS1M30DA214LD	**XS530B1CAL08M12**
XS1M30PA349D	**XS630B1PAM12** *(5)*
XS1M30NA370	**XS530BLNAL2**
XS1M30NA370B	**XS630B1NAL01B** *(4)*
XS1M30NA370C	**XS630B1NAL01C** *(4)*
XS1M30NA370D	**XS530BLNAM12**
XS1M30NA370L1	**XS530BLNAL5**
XS1M30NA370L2	**XS530BLNAL10**
XS1M30NB370	**XS530BLNBL2**
XS1M30NB370B	**XS630B1NBL01B** *(4)*
XS1M30NB370C	**XS630B1NBL01C** *(4)*
XS1M30NB370D	**XS530BLNBM12**
XS1M30NB370L1	**XS530BLNBL5**
XS1M30NB370L2	**XS530BLNBL10**
XS1M30PA370	**XS530BLPAL2**
XS1M30PA370A	**XS630B1PAL01U78** *(4)*
XS1M30PA370B	**XS630B1PAL01B** *(4)*
XS1M30PA370C	**XS630B1PAL01C** *(4)*
XS1M30PA370D	**XS530BLPAM12**
XS1M30PA370G	**XS630B1PAL01G** *(4)*
XS1M30PA370L1	**XS530BLPAL5**
XS1M30PA370L2	**XS530BLPAL10**
XS1M30PB370	**XS530BLPBL2**
XS1M30PB370B	**XS630B1PBL01B** *(4)*
XS1M30PB370C	**XS630B1PBL01C** *(4)*
XS1M30PB370D	**XS530BLPBM12**
XS1M30PB370G	**XS630B1PBL01G** *(4)*
XS1M30PB370L1	**XS530BLPBL5**
XS1M30PB370L2	**XS530BLPBL10**
XS1N30NA340	**XS530B1NAL2**
XS1N30NA340D	**XS530B1NAM12**
XS1N30NA340L1	**XS530B1NAL5**
XS1N30NA340L2	**XS530B1NAL10**
XS1N30NB340	**XS530B1NBL2**
XS1N30NB340D	**XS530B1NBM12**
XS1N30PA340	**XS530B1PAL2**
XS1N30PA340D	**XS530B1PAM12**
XS1N30PA340L1	**XS530B1PAL5**
XS1N30PA340L2	**XS530B1PAL10**
XS1N30PB340	**XS530B1PBL2**
XS1N30PB340D	**XS530B1PBM12**
XS2	
XS2N30NA340	**XS130B3NAL2**
XS2N30NA340D	**XS130B3NAM12**
XS2N30NA340L1	**XS130B3NAL5**
XS2N30NA340L2	**XS130B3NAL10**
XS2N30NB340	**XS130B3NBL2**
XS2N30NB340D	**XS130B3NBM12**
XS2N30PA340	**XS130B3PAL2**
XS2N30PA340D	**XS130B3PAM12**
XS2N30PA340L1	**XS130B3PAL5**
XS2N30PA340L2	**XS130B3PAL10**
XS2N30PB340	**XS130B3PBL2**
XS2N30PB340D	**XS130B3PBM12**
XS2M30NA370	**XS630B1NAL2**
XS2M30NA370B	**XS630B1NAL01B** *(4)*
XS2M30NA370C	**XS630B1NAL01C** *(4)*
XS2M30NA370D	**XS630B1NAM12**
XS2M30NA370L1	**XS630B1NAL5**
XS2M30NA370L2	**XS630B1NAL10**
XS2M30NB370	**XS630B1NBL2**
XS2M30NB370B	**XS630B1NBL01B** *(4)*
XS2M30NB370C	**XS630B1NBL01C** *(4)*
XS2M30NB370D	**XS630B1NBM12**
XS2M30NB370L1	**XS630B1NBL5**
XS2M30NB370L2	**XS630B1NBL10**
XS2M30PA370	**XS630B1PAL2**
XS2M30PA370A	**XS630B1PAL01U78** *(4)*
XS2M30PA370B	**XS630B1PAL01B** *(4)*
XS2M30PA370C	**XS630B1PAL01C** *(4)*
XS2M30PA370D	**XS630B1PAM12**
XS2M30PA370G	**XS630B1PAL01G** *(4)*
XS2M30PA370L1	**XS630B1PAL5**
XS2M30PA370L2	**XS630B1PAL10**
XS2M30PB370	**XS630B1PBL2**
XS2M30PB370B	**XS630B1PBL01B** *(4)*
XS2M30PB370C	**XS630B1PBL01C** *(4)*
XS2M30PB370D	**XS630B1PBM12**
XS2M30PB370G	**XS630B1PBL01G** *(4)*
XS2M30PB370L1	**XS630B1PBL5**
XS2M30PB370L2	**XS630B1PBL10**
XS3	
XS3P30NA340	**XS530B1NAL2** *(3)*
XS3P30NA340D	**XS530B1NAM12** *(3)*
XS3P30NA340L1	**XS530B1NAL5** *(3)*
XS3P30PA340	**XS530B1PAL2** *(3)*
XS3P30PA340D	**XS530B1PAM12** *(3)*
XS3P30PA340L1	**XS530B1PAL5** *(3)*
XS3P30PA340L2	**XS530B1PAL10** *(3)*
XS3P30PA370	**XS530BLPAL2** *(3)*
XS3P30PA370L1	**XS530BLPAL5** *(3)*
XS3P30PA370L2	**XS530BLPAL10** *(3)*
XS3P30NA370	**XS530BLNAL2** *(3)*
XS3P30NA370L1	**XS530BLNAL5** *(3)*
XS4	
XS4P30NA370B	**XS4P30NA370L01B** *(4)*
XS4P30NB370B	**XS4P30NB370L01B** *(4)*
XS4P30PA370B	**XS4P30PA370L01B** *(4)*
XS4P30PB370B	**XS4P30PB370L01B** *(4)*

(1) For the new sensor an integral M12 connector replaces the remote M12 connector on a 0.80 m pigtail connector.
(3) For the new OsiSense XS sensor, the metal case replaces the plastic case.
(4) For the new sensor, connectors A, B, C and G on 0.1 m pigtail connector replace integral connectors A, B, C and G.
(5) For the new sensor, Sn = 15 mm (0.59 in.) instead of 20 mm (0.79 in.)

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OsiSense® XS
Inductive proximity sensors

Old sensor	**New OsiSense® XS sensor**
Cylindrical type, AC or DC	
Diameter 12 mm	
XS1	
XS1M12FA264	**XS112BLFAL2**
XS1M12FA264L2	**XS112BLFAL10**
XS1M12MA230	**XS512B1MAL2**
XS1M12MA230K	**XS512B1MAU20**
XS1M12MA230L1	**XS512B1MAL5**
XS1M12MA230L2	**XS512B1MAL10**
XS1M12MB230	**XS512B1MBL2**
XS1M12MB230K	**XS512B1MBU20**
XS1M12MB230L1	**XS512B1MBL5**
XS1M12MB230L2	**XS512B1MBL10**
XS1M12MA239	**XS612B1MAL2**
XS1M12MA239K	**XS612B1MAU20**
XS2	
XS2M12MA230	**XS612B1MAL2**
XS2M12MA230K	**XS612B1MAU20**
XS2M12MA230L1	**XS612B1MAL5**
XS2M12MA230L2	**XS612B1MAL10**
XS2M12MB230	**XS612B1MBL2**
XS2M12MB230K	**XS612B1MBU20**
XS2M12MB230L1	**XS612B1MBL5**
XS2M12MB230L2	**XS612B1MBL10**
XS3	
XS3P12MA230	**XS612B1MAL2** *(3)*
XS3P12MA230K	**XS612B1MAU20** *(3)*
XS3P12MA230L1	**XS612B1MAL5** *(3)*
XS3P12MA230L2	**XS612B1MAL10** *(3)*
XS3P12MB230	**XS612B1MBL2** *(3)*
XS3P12MB230K	**XS612B1MBU20** *(3)*
XS3P12MB230L1	**XS612B1MBL5** *(3)*

Old sensor	**New OsiSense® XS sensor**
Diameter 18 mm	
XS1	
XS1M18FA264	**XS118BLFAL2**
XS1M18MA230	**XS518B1MAL2**
XS1M18MA230A	**XS618B1MAL01U78** *(4)*
XS1M18MA230B	**XS618B1MAL01B** *(4)*
XS1M18MA230C	**XS618B1MAL01C** *(4)*
XS1M18MA230G	**XS618B1MAL01G** *(4)*
XS1M18MA230K	**XS518B1MAU20**
XS1M18MA230L1	**XS518B1MAL5**
XS1M18MA230L2	**XS518B1MAL10**
XS1M18MB230	**XS518B1MBL2**
XS1M18MB230A	**XS618B1MBL01U78** *(4)*
XS1M18MB230B	**XS618B1MBL01B** *(4)*
XS1M18MB230C	**XS618B1MBL01C** *(4)*
XS1M18MB230G	**XS618B1MBL01G** *(4)*
XS1M18MB230K	**XS518B1MBU20**
XS1M18MB230L1	**XS518B1MBL5**
XS1M18MB230L2	**XS518B1MBL10**
XS1M18MA239	**XS618B1MAL2** *(5)*
XS1M18MA239A	**XS1M18MA239L01A** *(4)*
XS1M18MA239K	**XS618B1MAU20** *(5)*
XS2	
XS2M18MA230	**XS618B1MAL2**
XS2M18MA230A	**XS618B1MAL01U78** *(4)*
XS2M18MA230B	**XS618B1MAL01B** *(4)*
XS2M18MA230C	**XS618B1MAL01C** *(4)*
XS2M18MA230G	**XS618B1MAL01G** *(4)*
XS2M18MA230K	**XS618B1MAU20**
XS2M18MA230L1	**XS618B1MAL5**
XS2M18MA230L2	**XS618B1MAL10**
XS2M18MB230	**XS618B1MBL2**
XS2M18MB230A	**XS618B1MBL01U78** *(4)*
XS2M18MB230B	**XS618B1MBL01B** *(4)*
XS2M18MB230C	**XS618B1MBL01C** *(4)*
XS2M18MB230G	**XS618B1MBL01G** *(4)*
XS2M18MB230K	**XS618B1MBU20**
XS2M18MB230L1	**XS618B1MBL5**
XS2M18MB230L2	**XS618B1MBL10**

Old sensor	**New OsiSense® XS sensor**
XS3	
XS3P18MA230	**XS618B1MAL2** *(3)*
XS3P18MA230K	**XS618B1MAU20** *(3)*
XS3P18MA230L1	**XS618B1MAL5** *(3)*
XS3P18MA230L2	**XS618B1MAL10** *(3)*
XS3P18MB230	**XS618B1MBL2** *(3)*
XS3P18MB230A	**XS618B1MBU20** *(3)*
XS3P18MB230K	**XS618B1MBU20** *(3)*
XS3P18MB230L1	**XS618B1MBL5** *(3)*
XS4	
XS4P18MA230B	**XS4P18MA230L01B** *(4)*
XS4P18MA230C	**XS4P18MA230L01C** *(4)*
XS4P18MA230G	**XS4P18MA230L01G** *(4)*
XS4P18MB230B	**XS4P18MB230L01B** *(4)*
XS4P18MB230C	**XS4P18MB230L01C** *(4)*

(3) For the new OsiSense XS sensor, the metal case replaces the plastic case.
(4) For the new sensor, connectors A, B, C and G on 0.1 m pigtail connector replace integral connectors A, B, C and G.
(5) For the new sensor, Sn = 8 mm (0.31 in.) instead of 10 mm (0.39 in.).

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OsiSense® XS
Inductive proximity sensors

Old sensor	**New OsiSense® XS sensor**
Cylindrical type, AC or DC *(continued)*	
Diameter 30 mm	
XS1	
XS1M30FA264	**XS130BLFAL2**
XS1M30MA230	**XS530B1MAL2**
XS1M30MA230A	**XS630B1MAL01U78** *(4)*
XS1M30MA230B	**XS630B1MAL01B** *(4)*
XS1M30MA230C	**XS630B1MAL01C** *(4)*
XS1M30MA230G	**XS630B1MAL01G** *(4)*
XS1M30MA230K	**XS530B1MAU20**
XS1M30MA230L1	**XS530B1MAL5**
XS1M30MA230L2	**XS530B1MAL10**
XS1M30MB230	**XS530B1MBL2**
XS1M30MB230A	**XS630B1MBL01U78** *(4)*
XS1M30MB230B	**XS630B1MBL01B** *(4)*
XS1M30MB230C	**XS630B1MBL01C** *(4)*
XS1M30MB230G	**XS630B1MBL01G** *(4)*
XS1M30MB230K	**XS530B1MBU20**
XS1M30MB230L1	**XS530B1MBL5**
XS1M30MB230L2	**XS530B1MBL10**
XS1M30MA239	**XS630B1MAL2** *(5)*
XS1M30MA239A	**XS1M30MA239L01A** *(4)*
XS2	
XS2M30MA230	**XS630B1MAL2**
XS2M30MA230A	**XS630B1MAL01U78** *(4)*
XS2M30MA230B	**XS630B1MAL01B** *(4)*
XS2M30MA230C	**XS630B1MAL01C** *(4)*
XS2M30MA230G	**XS630B1MAL01G** *(4)*
XS2M30MA230K	**XS630B1MAU20**
XS2M30MA230L1	**XS630B1MAL5**
XS2M30MA230L2	**XS630B1MAL10**
XS2M30MB230	**XS630B1MBL2**
XS2M30MB230A	**XS630B1MBL01U78** *(4)*
XS2M30MB230B	**XS630B1MBL01B** *(4)*
XS2M30MB230C	**XS630B1MBL01C** *(4)*
XS2M30MB230G	**XS630B1MBL01G** *(4)*
XS2M30MB230K	**XS630B1MBU20**
XS2M30MB230L1	**XS630B1MBL5**
XS2M30MB230L2	**XS630B1MBL10**

Old sensor	**New OsiSense® XS sensor**
XS3	
XS3P30MA230	**XS630B1MAL2** *(3)*
XS3P30MA230K	**XS630B1MAU20** *(3)*
XS3P30MA230L1	**XS630B1MAL5** *(3)*
XS3P30MA230L2	**XS630B1MAL10** *(3)*
XS3P30MB230	**XS630B1MBL2** *(3)*
XS3P30MB230K	**XS630B1MBU20** *(3)*
XS3P30MB230L1	**XS630B1MBL5** *(3)*
XS4	
XS4P30MA230B	**XS4P30MA230L01B** *(4)*
XS4P30MA230C	**XS4P30MA230L01C** *(4)*
XS4P30MA230G	**XS4P30MA230L01G** *(4)*
XS4P30MB230B	**XS4P30MB230L01B** *(4)*
XS4P30MB230C	**XS4P30MB230L01C** *(4)*

(3) For the new OsiSense XS sensor, the metal case replaces the plastic case.
(4) For the new sensor, connectors A, B, C and G on 0.1 m pigtail connector replace integral connectors A, B, C and G.
(5) For the new sensor, Sn = 15 mm (0.59 in.) instead of 20 mm (0.79 in.).

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