Inductive proximity sensors

Osiprox® Technology

Cylindrical, metal and plastic, flush and non flush mountable
Four-wire, d.c. supply, solid-state PNP + NPN
NO/NC programmable output

Characteristics

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**	
	Ø 12 non flush mountable	**mm**	**0…3.2**	
	Ø 18 flush mountable	**mm**	**0…4**	
	Ø 18 non flush mountable	**mm**	**0…6.4**	
	Ø 30 flush mountable	**mm**	**0…8**	
	Ø 30 non flush mountable	**mm**	**0…12**	
Differential travel		**%**	1...15 of real sensing distance (Sr)	
Degree of protection	Conforming to IEC 60529		IP 67	IP 68, double insulation
Storage temperature		**°C**	- 40…+ 85	
Operating temperature		**°C**	- 25…+ 70	
Materials	Case		Nickel plated brass for XS1 M and XS2 M, PPS for XS4 P	
	Cable		–	PvR 4 x 0.34 mm²
Vibration resistance	Conforming to IEC 60068-2-6		25 gn, amplitude ± 2 mm (f = 10 to 55 Hz)	
Shock resistance	Conforming to IEC 60068-2-27		50 gn, duration 11 ms	
Output state indication			Yellow LED, 4 viewing ports at 90°	Yellow LED, annular
Rated supply voltage		**V**	⎓ 12…24 with protection against reverse polarity	
Voltage limits (including ripple)		**V**	⎓ 10…36	
Switching capacity		**mA**	≤ 200 with overload and short-circuit protection	
Voltage drop, closed state		**V**	≤ 2.6	
Current consumption, no-load		**mA**	≤ 10	
Maximum switching frequency	Ø 12	**Hz**	5000	
	Ø 18	**Hz**	2000	
	Ø 30 flush mountable	**Hz**	1000	
	Ø 30 non flush mountable	**Hz**	1000	
Delays	First-up	**ms**	≤ 5	
	Response	**ms**	≤ 0.1 for Ø 12, ≤ 0.15 for Ø 18, ≤ 0.3 for Ø 30	
	Recovery	**ms**	≤ 0.1 for Ø 12, ≤ 0.35 for Ø 18, ≤ 0.7 for Ø 30	

Wiring schemes

M12 connector

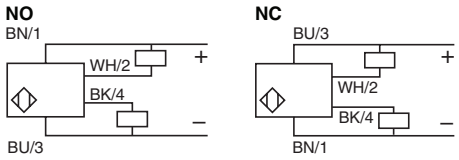
See connection on page 9/45.

Pre-cabled

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

PNP + NPN

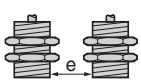
4-wire programmable, NO or NC output

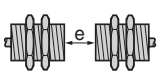


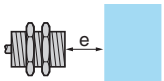
Setting-up

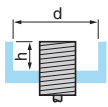
Minimum mounting distances (mm)

Sensor	Side by side	Face to face	Facing a metal object	Mounted in a metal support
Ø 12 flush mountable **XS1 M12**	e ≥ 4	e ≥ 24	e ≥ 6	d ≥ 12 h ≥ 0
Ø 12 non flush mountable **XS2 M12** and **XS4 P12**	e ≥ 16	e ≥ 48	e ≥ 12	d ≥ 36 h ≥ 8
Ø 18 flush mountable **XS1 M18**	e ≥ 10	e ≥ 60	e ≥ 15	d ≥ 18 h ≥ 0
Ø 18 non flush mountable **XS2 M18** and **XS4 P18**	e ≥ 16	e ≥ 96	e ≥ 24	d ≥ 54 h ≥ 16
Ø 30 flush mountable **XS1 M30**	e ≥ 20	e ≥ 120	e ≥ 30	d ≥ 30 h ≥ 0
Ø 30 non flush mountable **XS2 M30** and **XS4 P30**	e ≥ 60	e ≥ 180	e ≥ 45	d ≥ 90 h ≥ 30

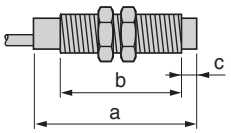








Dimensions



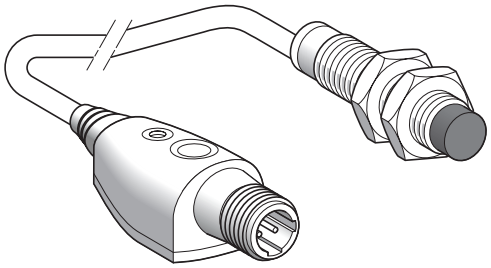
Sensor	Flush mountable in metal				Non flush mountable in metal				
	Pre-cabled		Connector		Pre-cabled		Connector		
	a	b	a	b	a	b	a	b	c
Ø 12 metal	50	42	61	42	54.6	42	65.6	42	5
Ø 12 plastic	–	–	–	–	50	42	61	42	0
Ø 18 metal	60	51	72	51	60	44	72	44	8
Ø 18 plastic	–	–	–	–	60	51	70	51	0
Ø 30 metal	60	51	72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

Inductive proximity sensors

Osiprox® Universal, **Osi**concept® *(1)*

Cylindrical, flush mountable or non flush mountable
Three-wire, d.c. supply, solid-state output

520030

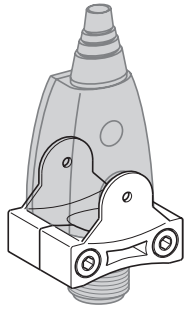


XS6 ●●B2●●L01M12

Ø 12, threaded M12 x 1

Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight kg
5	NO	PNP	0.15 m flying lead with M12 connector	**XS6 12B2PAL01M12**	0.100
		NPN	0.15 m flying lead with M12 connector	**XS6 12B2NAL01M12**	0.100
	NC	PNP	0.15 m flying lead with M12 connector	**XS6 12B2PBL01M12**	0.100
		NPN	0.15 m flying lead with M12 connector	**XS6 12B2NBL01M12**	0.100

520031

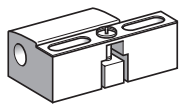


XSZ BPM12

Ø 18, threaded M18 x 1

Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight kg
9	NO	PNP	0.15 m flying lead with M12 connector	**XS6 18B2PAL01M12**	0.140
		NPN	0.15 m flying lead with M12 connector	**XS6 18B2NAL01M12**	0.140
	NC	PNP	0.15 m flying lead with M12 connector	**XS6 18B2PBL01M12**	0.140
		NPN	0.15 m flying lead with M12 connector	**XS6 18B2NBL01M12**	0.140

825994



XSZ B●●●

Ø 30, threaded M30 x 1.5

Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight kg
18	NO	PNP	0.15 m flying lead with M12 connector	**XS6 30B2PAL01M12**	0.220
		NPN	0.15 m flying lead with M12 connector	**XS6 30B2NAL01M12**	0.220
	NC	PNP	0.15 m flying lead with M12 connector	**XS6 30B2PBL01M12**	0.220
		NPN	0.15 m flying lead with M12 connector	**XS6 30B2NBL01M12**	0.220

Accessories (2)

Description		Reference	Weight kg
Remote control fixing clamp		**XSZ BPM12**	0.015
Sensor fixing clamps	Ø 12	**XSZ B112**	0.006
	Ø 18	**XSZ B118**	0.010
	Ø 30	**XSZ B130**	0.020

*(1) For further information on **Osi**concept®, see page 2/20.*
(2) For further information, see page 2/106.

Inductive proximity sensors

Osiprox® Universal, **Osi**concept® (1)
Cylindrical, flush mountable or non flush mountable
Three-wire, d.c. supply, solid-state output

Characteristics

Sensor type				XS6 ●●B2●●L01M12
Product certifications				UL, CSA, CE
Connection	Connector			0.15 m flying lead with M12 connector
Sensing distance and adjustment zone	Ø 12	Nominal sensing distance Sn	**mm**	**0…5** non flush mounted configuration / **0…3.4** flush mounted configuration
		Fine adjustment zone	**mm**	**1.7…5** non flush mounted configuration / **1.7…3.4** flush mounted configuration
	Ø 18	Nominal sensing distance Sn	**mm**	**0…9** non flush mounted configuration / **0…6** flush mounted configuration
		Fine adjustment zone	**mm**	**3…9** non flush mounted configuration / **3…6** flush mounted configuration
	Ø 30	Nominal sensing distance Sn	**mm**	**0…18** non flush mounted configuration / **0…11** flush mounted configuration
		Fine adjustment zone	**mm**	**6…18** non flush mounted configuration / **6…11** flush mounted configuration
Differential travel			**%**	1…15 of real sensing distance (Sr)
Degree of protection	Conforming to IEC 60529			IP 67 ⧈
Storage temperature range			**°C**	- 40…+ 85
Operating temperature range			**°C**	- 25…+ 70
Materials	Case			Nickel plated brass
	Remote control			PBT
	Pre-cabled			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
Indicator	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

*(1) For further information on **Osi**concept®, see page 2/20.*

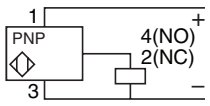
Wiring scheme

Connector

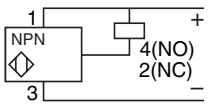
M12

See connection on page 9/45.

PNP

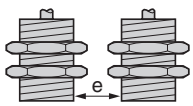


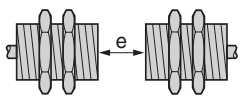
NPN

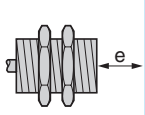


Setting-up

Minimum mounting distances (mm)



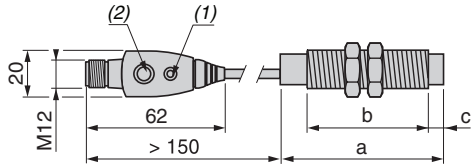




	Side by side flush mounted	Side by side non flush mounted	Face to face flush mounted	Face to face non flush mounted	Facing a metal object
Ø 12	e ≥ 14	50	e ≥ 50	100	e ≥ 3.4
Ø 18	e ≥ 28	100	e ≥ 100	200	e ≥ 6
Ø 30	e ≥ 48	180	e ≥ 180	360	e ≥ 11

Dimensions

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

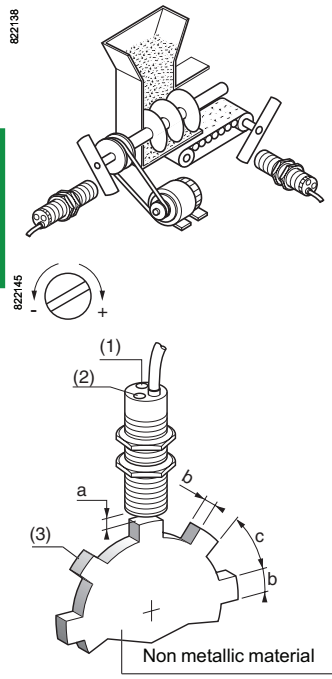
Inductive proximity sensors

Osiprox® Application

Sensors for rotation monitoring, slip detection, shaft overload detection

Cylindrical type

Example:
Coupling breakage monitoring



Functions

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

The unit provides an economical solution for detecting slip, belt breakage, drive shaft shear and overloading, etc., in the following applications: conveyor belts, bucket elevators, 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 incorporated 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 in order for the moving part being monitored to run-up to its nominal speed. During this time, the output of the sensor remains in the closed state.*

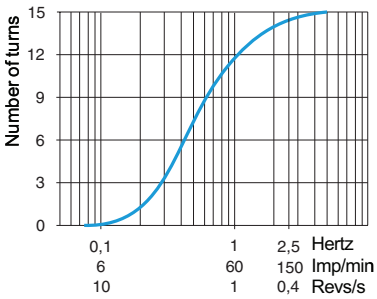
Adjustment of frequency threshold

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

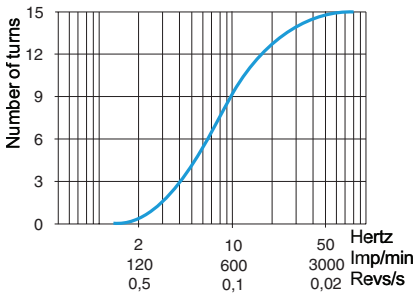
Potentiometer	Diameter of sensor		
LED	a	b	c
Metal target	M30	4…6 mm	30 mm	60 mm

Potentiometer adjustment curves (for **XSA V1●801**, 2-wire ∿ or ⎓ sensors)

Low speed version (6…150 impulses/minute)



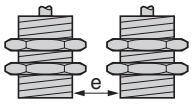
High speed version (120…3000 impulses/minute)



Setting-up

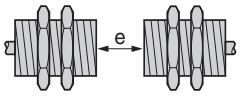
Minimum mounting distances (mm)

Side by side



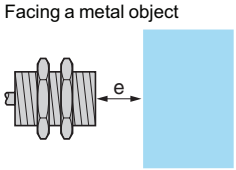
e ≥ 20

Face to face



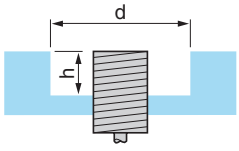
e ≥ 120

Facing a metal object



e ≥ 30

Mounted in a metal support



d ≥ 30, h ≥ 0

Fixing nut tightening torque: < 50 N.m

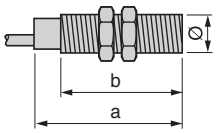
Inductive proximity sensors

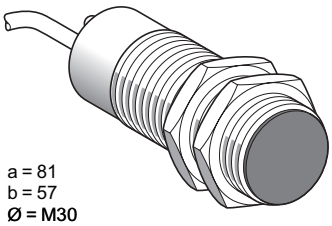
Osiprox® Application

Sensors for rotation monitoring, slip detection, shaft overload detection

Cylindrical type

Flush mountable in metal





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

a = 81
b = 57
Ø = M30

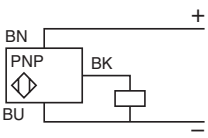
		DC	DC	AC/DC	AC/DC
Nominal sensing distance (Sn)		10 mm	10 mm	10 mm	10 mm
Adjustable frequency range		6…150 impulses/min	120…3000 impulses/min	6…150 impulses/min	120…3000 impulses/min
References					
3-wire ⎓	**PNP / NC**	**XSA V11373**	**XSA V12373**	–	–
2-wire	**⎓ or ∿ / NC**	–	–	**XSA V11801**	**XSA V12801**
Weight (kg)		0.300			

Characteristics

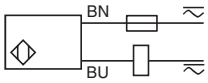
Connection	Pre-cabled, 3 x 0.34 mm², length 2 m *(1)*	Pre-cabled, 2 x 0.34 mm², length 2 m *(1)*
Degree of protection conforming to IEC 60529	IP 67	
Operating zone	0…8 mm	
Repeat accuracy	3% of Sr	
Differential travel	3…15% of Fr	
Operating temperature	- 25…+ 70 °C	
Output state indication	Red LED	
Rated 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	6 000 impulses/min (for **XSA V11●●●**); 48 000 impulses/min (for **XSA V12●●●**)	
"Run-up" delay following power-up	9 seconds ± 20% + 1/Fr (3)	

Wiring schemes

3-wire ⎓
XSA V1●**373**



2-wire ∿ or ⎓
XSA V1●801



(1) For a 5 m long cable add L05 to the reference, for a 10 m long cable add L10 to the reference.
*Example: XSA V11373 becomes **XSA V11373L05** with a 5 m long cable.*
(2) These sensors do not incorporate overload or short-circuit protection and therefore, it is essential to connect a 0.4 A "quick-blow" fuse in series with the load, see page 2/106.
(3) For a sensor without a "run-up" delay following power-up, replace XSA V1 in the reference by XSA V0.
*Example: XSA V11801 becomes **XSA V01801** without a "run-up" delay. For a reduced "run-up" delay of 3 s, replace XSA V1 in the reference by XSA V3.*

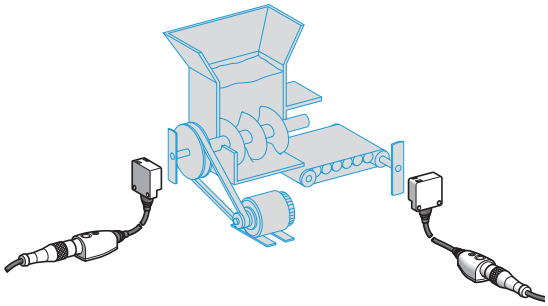
Accessories:
page 2/106

Inductive proximity sensors

Osiprox® Application

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

Operating principle and applications

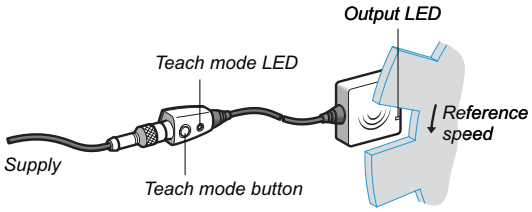


■ These inductive proximity sensors are designed for monitoring rotational speed or the speed of the flow of objects to be monitored or protected.
They operate on the principle of comparing a speed threshold preset by the operator against the instantaneous measurement of the speed of the moving object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

■ They provide a simple, economical solution to the problems of detecting slip, belt breakage, coupling and overloading, etc.

■ They are commonly used in grinder/crusher, mixer, pump, centrifugal driver, conveyor belt, bucket elevator, Archimedian screw, etc. type applications.

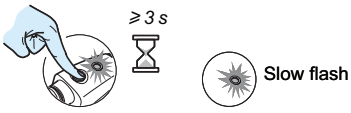
Installation and setting-up

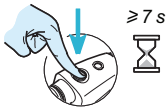


Setting-up and positioning the sensor

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

■ Through this system, the positioning is thus made 100 % reliable and able to be checked at any time without modifying the sensor's adjustment.





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.

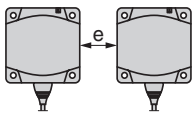
□ If in doubt, the sensor can be reset at any time to the factory settings.

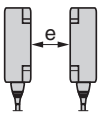
(1) To allow the moving object to reach its normal speed (machine inertia), the sensor holds its output closed for 9 seconds.

(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 at underspeed when the speed of the moving object drops below 1000 - (1000 x 0.3) = 700 rpm.
- 20 %, - 11 % and - 6 % threshold can be obtained by pressing the teach mode button.

Setting-up

Minimum mounting distances (mm)

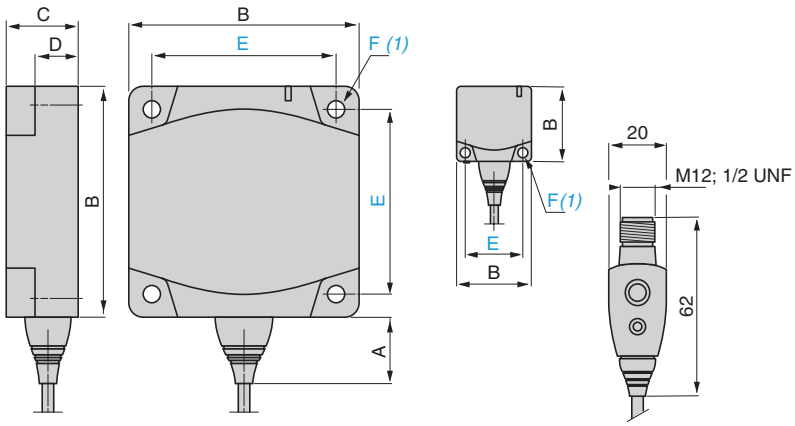




Type	Side by side	Face to face
XS9 E	e ≥ 40	e ≥ 80
XS9 C	e ≥ 60	e ≥ 120

Dimensions

XS9 E, XS9 C



(1) For CHC type screws

Type	A	B	C	D	E	F
XS9 E	14	26	13	8.8	20	3.5
XS9 C	14	40	15	9.8	33	4.5

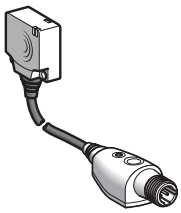
Inductive proximity sensors

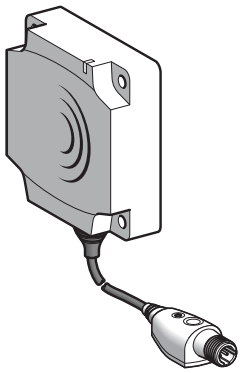
Osiprox® Application

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

Flush mountable in metal

PBT case



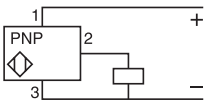


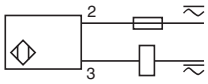
Nominal sensing distance (Sn)		**10 mm**	**15 mm**	**10 mm**	**15 mm**
Adjustable frequency range		6…6000 impulses/min			
References					
3-wire	PNP / NC	**XS9 E11RPBL01M12**	**XS9 C11RPBL01M12**	–	–
2-wire	⎓ or ∿ / NC	–	–	**XS9 E11RMBL01U20**	**XS9 C11RMBL01U20**
Weight (kg)		0.040	0.060	0.040	0.060
Characteristics					
Product certifications		UL, CSA, CE			
Connection		0.15 m flying lead with M12 connector		0.15 m flying lead with 1/2" - 20 UNF connector	
Operating zone		**0…8 mm**	**0…12 mm**	**0…8 mm**	**0…12 mm**
Degree of protection	Conforming to IEC 60529	IP 67 double insulation ⧈			
Storage temperature range		- 40…+ 85 °C			
Operating temperature range		- 25…+ 70 °C			
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			
Indicator	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			
Power on "run-up" delay		9 seconds + 1/Fr			

(1) With overload and short-circuit protection.
(2) It is essential to connect a 0.4 A quick-blow fuse in series with the load.

Wiring scheme

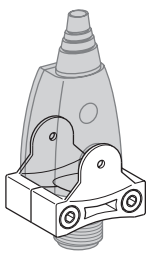
Connector		**3-wire ⎓**	**2-wire ∿ or ⎓**
M12	**1/2" UNF**	**XS9 ●11RPBL01M12**	**XS9 ●11RMBL01U20**





See connection on page 9/45.

Accessory *(1)*



XSZ BPM12

Description	**Reference**	**Weight kg**
Remote control fixing clamp	**XSZ BPM12**	0.015

(1) For accessories, see page 2/106.

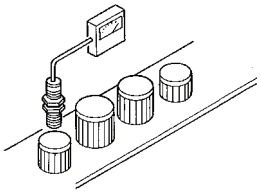
Inductive proximity sensors

Osiprox® Application

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

Functions

Example:
Sorting parts



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

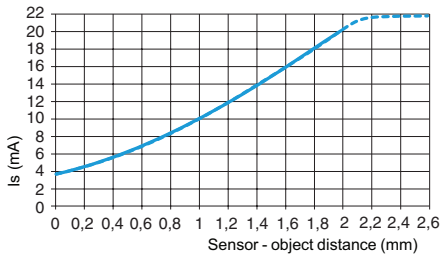
- deformation and displacement monitoring,
- vibration amplitude and frequency monitoring,
- control of dimensional tolerances,
- position control,
- concentricity or eccentricity monitoring.

Operating principle

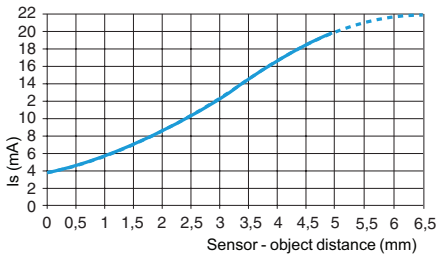
The operating principle of the sensor is that of a damped oscillator. The degree of damping will depend on the distance of an object from the sensing face. The sensor will sense the distance and produce an output current with a value directly proportional to this distance.

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

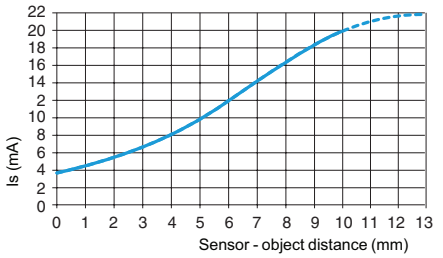
XS1 M12AB120
Sn = 0.2…2 mm **Ø 12 mm**



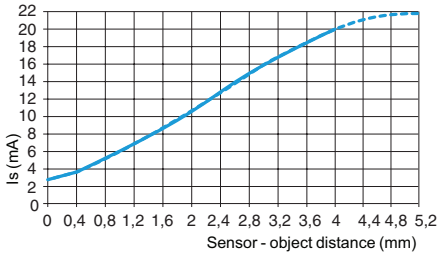
XS1 M18AB120
Sn = 0.5…5 mm **Ø 18 mm**



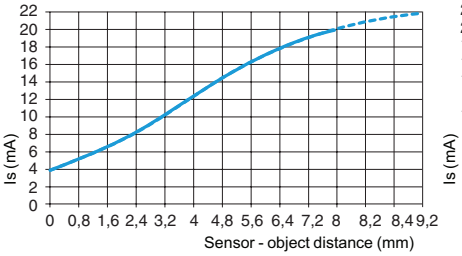
XS1 M30AB120
Sn = 1…10 mm **Ø 30 mm**



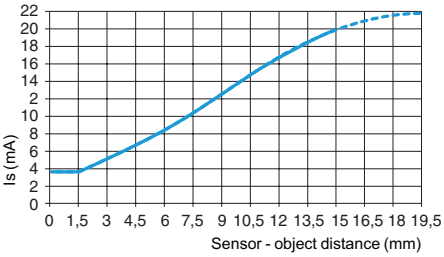
XS4 P12AB120
Sn = 0.4…4 mm **Ø 12 mm**



XS4 P18AB120
Sn = 0.8…8 mm **Ø 18 mm**

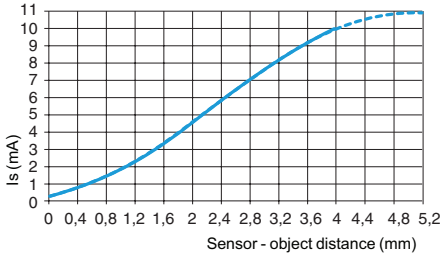


XS4 P30AB120
Sn = 1.5…15 mm **Ø 30 mm**

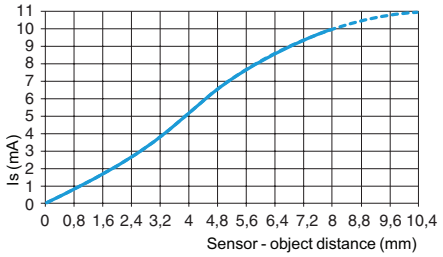


Output curves 0...10 V, 3-wire connection

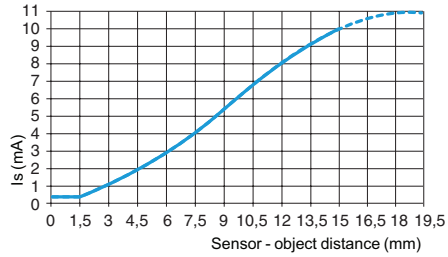
XS4 P12AB110
Sn = 0.4…4 mm **Ø 12 mm**



XS4 P18AB110
Sn = 0.4…4 mm **Ø 18 mm**

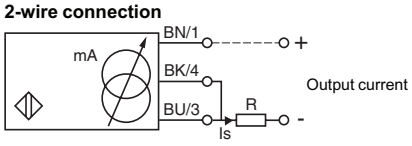


XS4 P30AB110
Sn = 0.4…4 mm **Ø 30 mm**



Wiring schemes

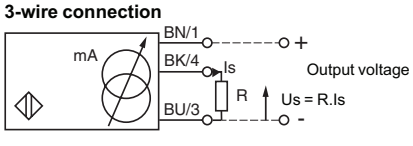
2-wire connection



	Output current	Load impedance value
12 V	4…20 mA	R ⩽ 8.2 Ω
24 V	4…20 mA	R ⩽ 470 Ω

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

3-wire connection



	Output current	Load impedance value	Output voltage	Load impedance value
24 V	0…10 mA	R ⩽ 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.

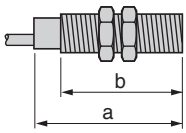
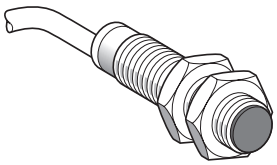
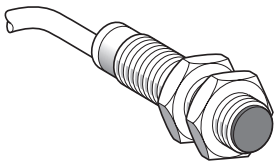
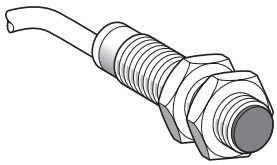
References:
pages 2/69 to 2/71

Characteristics:
pages 2/69 to 2/71

Inductive proximity sensors

Osiprox® Application

Sensors with analogue 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	a = 50 b = 42	a = 50 b = 42	a = 50 b = 42
	Metal case	**Plastic case**	**Plastic case**
Nominal sensing distance (Sn)	2 mm	4 mm	4 mm

References

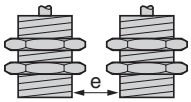
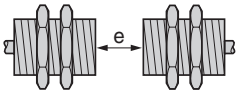
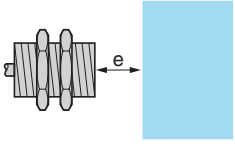
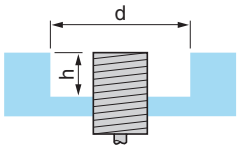
3-wire ⎓	Output 0…10 V *(2)*	–	–	**XS4 P12AB110**
2-wire ⎓	Output 4…20 mA *(2)*	**XS1 M12AB120**	**XS4 P12AB120**	–
Weight (kg)		0.075	0.065	0.065

Characteristics

Product certifications	CE, UL, CSA		
Connection	**Pre-cabled, PvR, 3 x 0.34 mm², length 2 m**		
Degree of protection conforming to IEC 60529	IP 67		
Operating zone	**0.2…2 mm**	**0.4…4 mm**	**0.4…4 mm**
Repeat accuracy	± 3%		
Linearity error	± 2 mA		± 1 V
Ambient air temperature	For operation: - 25…+ 70 °C		
Rated supply voltage	⎓ **12...24 V**	⎓ **12...24 V**	⎓ **24…48 V**
Voltage limits (including ripple)	⎓ 10…38 V	⎓ 10…38 V	⎓ 15…58 V
Output current drift Ambient temperature: - 25…+ 70 °C	≤ 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, see page 2/68.

Setting-up

Minimum mounting distances (mm)	Side by side	Face to face	Facing a metal object	Mounted in a metal support
				
XS1 M12AB120 flush mountable	e ≥ 4	e ≥ 24	e ≥ 6	d ≥ 12, h ≥ 0
XS4 P12AB110 non flush mountable	e ≥ 16	e ≥ 48	e ≥ 12	d ≥ 36, h ≥ 8
XS4 P12AB120 non flush mountable	e ≥ 16	e ≥ 48	e ≥ 12	d ≥ 36, h ≥ 8

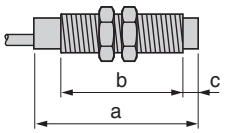
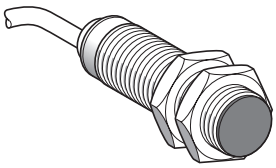
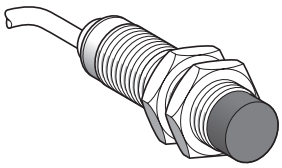
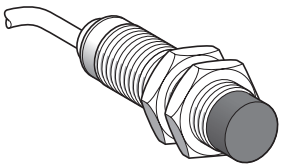
Fixing nut tightening torque	< 6 N.m (metal case), < 2 N.m (plastic case)
Other versions	Please consult your Regional Sales office.

Accessories: page 2/106
Schemes: page 2/68

Inductive proximity sensors

Osiprox® Application

Sensors with analogue 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)	5 mm	8 mm	8 mm

References

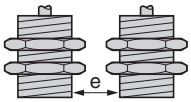
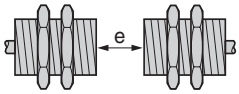
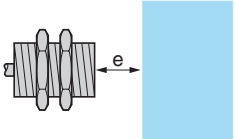
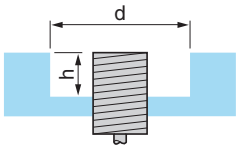
3-wire ⎓	Output 0…10 V *(2)*	–	–	**XS4 P18AB110**
2-wire ⎓	Output 4…20 mA *(2)*	**XS1 M18AB120**	**XS4 P18AB120**	–
Weight (kg)		0.120	0.080	0.080

Characteristics

Product certifications	CE, UL, CSA		
Connection	**Pre-cabled, PvR, 3 x 0.34 mm², length 2 m**		
Degree of protection conforming to IEC 60529	IP 67		
Operating zone	**0.5…5 mm**	**0.8…8 mm**	**0.8…8 mm**
Repeat accuracy	± 3%		
Linearity error	± 2 mA		± 1 V
Ambient air temperature	For operation: - 25…+ 70 °C		
Rated supply voltage	⎓ **12...24 V**	⎓ **12...24 V**	⎓ **24…48 V**
Voltage limits (including ripple)	⎓ 10…38 V	⎓ 10…38 V	⎓ 15…58 V
Output current drift Ambient temperature: - 25…+ 70 °C	≤ 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 2/68.

Setting-up

Minimum mounting distances (mm)	Side by side	Face to face	Facing a metal object	Mounted in a metal support
				
XS1 M18AB120 flush mountable	e ≥ 10	e ≥ 60	e ≥ 15	d ≥ 18, h ≥ 0
XS4 P18AB110 non flush mountable	e ≥ 32	e ≥ 96	e ≥ 24	d ≥ 54, h ≥ 16
XS4 P18AB120 non flush mountable	e ≥ 32	e ≥ 96	e ≥ 24	d ≥ 54, h ≥ 16

Fixing nut tightening torque	< 15 N.m (metal case), < 5 N.m (plastic case)
Other versions	Please consult your Regional Sales office.

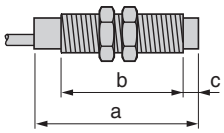
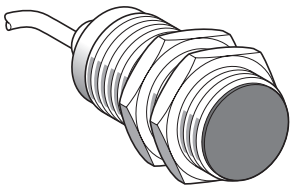
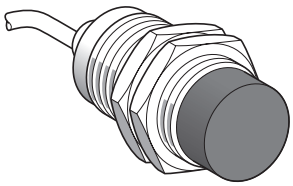
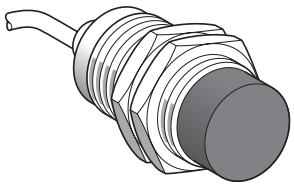
Accessories: page 2/106
Schemes: page 2/68

Schneider Electric

Inductive proximity sensors

Osiprox® Application

Sensors with analogue 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)	10 mm	15 mm	15 mm

References

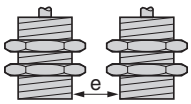
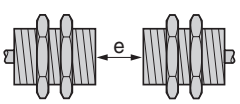
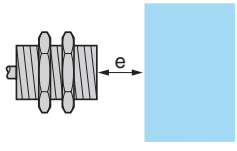
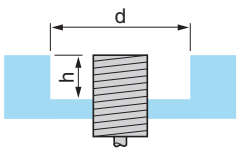
3-wire ⎓	Output 0…10 V *(2)*	–	–	**XS4 P30AB110**
2-wire ⎓	Output 4…20 mA *(2)*	**XS1 M30AB120**	**XS4 P30AB120**	–
Weight (kg)		0.200	0.100	0.100

Characteristics

Product certifications	CE, UL, CSA		
Connection	**Pre-cabled, PvR, 3 x 0.34 mm², length 2 m**		
Degree of protection conforming to IEC 60529	IP 67		
Operating zone	**1…10 mm**	**1.5…15 mm**	**1.5…15 mm**
Repeat accuracy	± 3%		
Linearity error	± 2 mA		± 1 V
Ambient air temperature	For operation: - 25…+ 70 °C		
Rated supply voltage	⎓ **12...24 V**	⎓ **12...24 V**	⎓ **24…48 V**
Voltage limits (including ripple)	⎓ 10…38 V	⎓ 10…38 V	⎓ 15…58 V
Output current drift Ambient temperature: - 25…+ 70 °C	≤ 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 2/68.

Setting-up

Minimum mounting distances (mm)	Side by side	Face to face	Facing a metal object	Mounted in a metal support
				
XS1 M30AB120 flush mountable	e ≥ 20	e ≥ 120	e ≥ 30	d ≥ 30, h ≥ 0
XS4 P30AB110 non flush mountable	e ≥ 60	e ≥ 180	e ≥ 45	d ≥ 90, h ≥ 30
XS4 P30AB120 non flush mountable	e ≥ 60	e ≥ 180	e ≥ 45	d ≥ 90, h ≥ 30

Fixing nut tightening torque	< 40 N.m (metal case), < 20 N.m (plastic case)
Other versions	Please consult your Regional Sales office.

Accessories: page 2/106
Schemes: page 2/68

Inductive proximity sensors
Osiprox® Application
Sensors with analogue output signal 0…10 V *(1)*

Functions

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

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

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

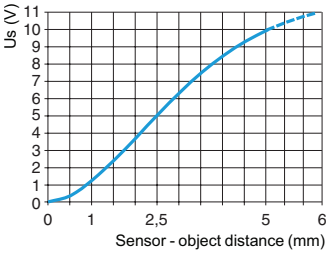
Operating principle

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

Output curves 0…10 V, 3-wire connection

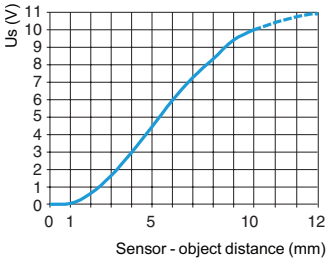
XS9 F

Sn = 1…5 mm



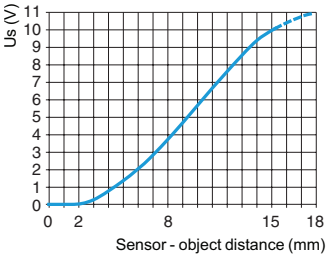
XS9 E

Sn = 1…10 mm



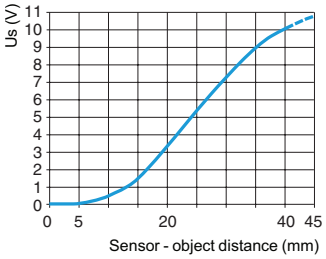
XS9 C

Sn = 2…15 mm



XS9 D

Sn = 5…40 mm



Wiring schemes

Connector

M8

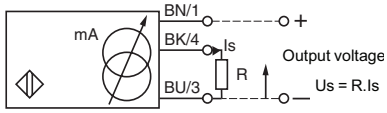
M12

See connection on page 9/45.

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

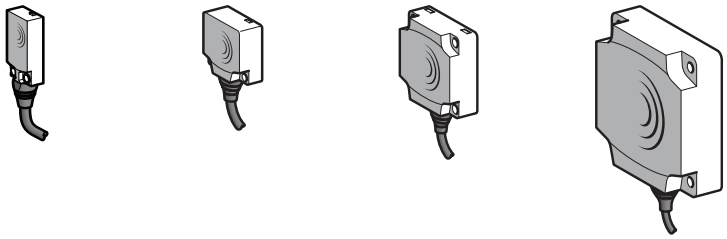
Note: *ensure a minimum of 5 V between the + (terminal 1) and the sensor output (terminal 4).*

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

Inductive proximity sensors
Osiprox® Application
Sensors with analogue output signal 0…10 V *(1)*

Flush mountable in metal

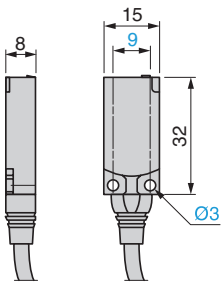
PBT case



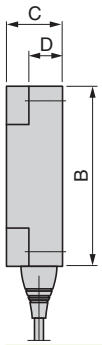
Nominal sensing distance (Sn)		**5 mm**	**10 mm**	**15 mm**	**40 mm**
References					
3-wire ⎓ 0…10 V	Pre-cabled (L = 2 m) *(2)*	**XS9 F111A1L2**	**XS9 E111A1L2**	**XS9 C111A1L2**	**XS9 D111A1L2**
	Connector	**XS9 F111A1L01M8**	**XS9 E111A1L01M12**	**XS9 C111A1L01M12**	**XS9 D111A1M12**
Weight (kg)	Pre-cabled (L = 2 m) *(2)*	0.060	0.075	0.095	0.340
	Connector	0.040	0.055	0.075	0.320
Characteristics					
Product certifications		UL, CSA, CE			
Connection	Pre-cabled	PvR, 3 x 0.34 mm², length 2 m for **XS9 ●111A●L2**			
	Connector	0.15 m flying lead with M8 connector	0.15 m flying lead with M12 connector		M12
Operating zone		**1…5 mm**	**1…10 mm**	**2…15 mm**	**5…40 mm**
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…+ 85 °C			
Operating temperature		- 25…+ 70 °C			
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

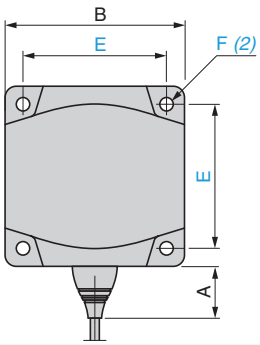
XS9 F



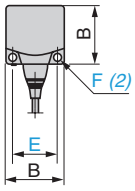
XS9 E/C/D



XS9 C/D



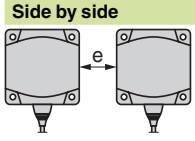
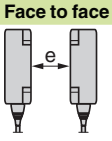
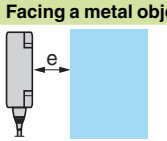
XS9 E



(2) For CHC type screws

Type	A (L2)	A (M12)	B	C	D	E	F
XS9 E	14	–	26	13	8.8	20	3.5
XS9 C	14	–	40	15	9.8	33	4.5
XS9 D	23	14	80	26	16	65	5.5

Setting-up (Minimum mounting distances (mm))

Type	Side by side		Face to face		Facing a metal object	
XS9 F		e ≥ 15		e ≥ 36		e ≥ 15
XS9 E		e ≥ 30		e ≥ 72		e ≥ 30
XS9 C		e ≥ 45		e ≥ 110		e ≥ 45
XS9 D		e ≥ 120		e ≥ 300		e ≥ 120

(1) Voltage range only obtained with a load impedance of 1000 Ω.
(2) For a 5 m long cable replace L2 by L5, for a 10 m long cable replace L2 by L10.
*Example: XS9 C111A1L2 becomes **XS9 C111A1L5** with a 5 m long cable.*

Accessories:
page 2/106

Inductive proximity sensors
Osiprox® Application
Sensors with analogue output signal 4…20 mA

Functions

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

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

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

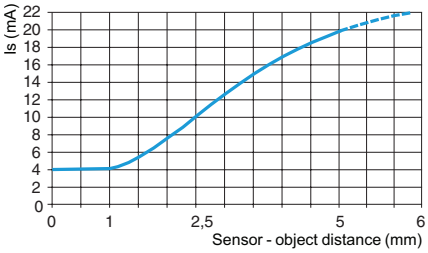
Operating principle

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

Output curves 4…20 mA, 2-wire connection

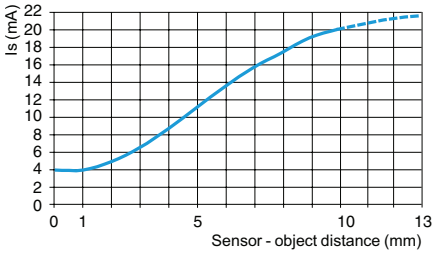
XS9 F

Sn = 1…5 mm



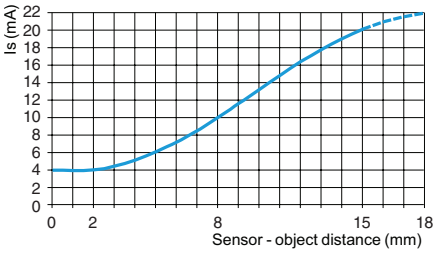
XS9 E

Sn = 1…10 mm



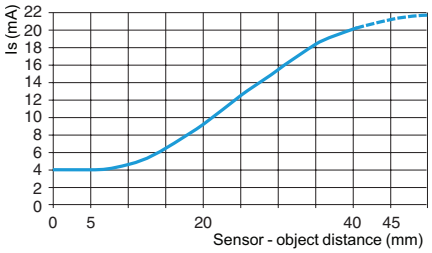
XS9 C

Sn = 2…15 mm



XS9 D

Sn = 5…40 mm



Wiring schemes

Connector

M8

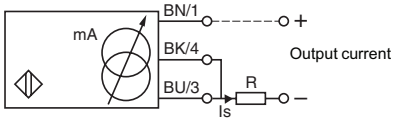
M12

See connection on page 9/45.

Pre-cabled

BN: Brown
BU: Blue
BK: Black

2-wire connection



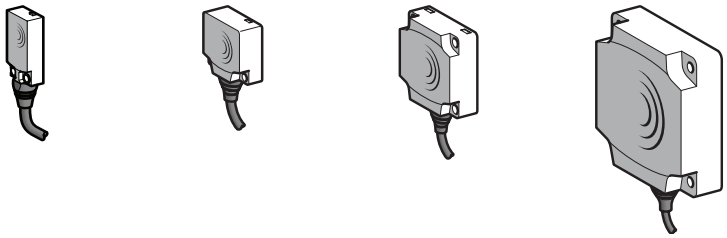
	Output current	Load impedance value
12 V	4…20 mA	R ⩽ 8.2 Ω
24 V	4…20 mA	R ⩽ 470 Ω

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

Inductive proximity sensors
Osiprox® Application
Sensors with analogue output signal 4…20 mA

Flush mountable in metal

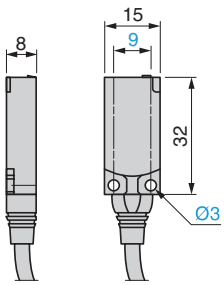
PBT case



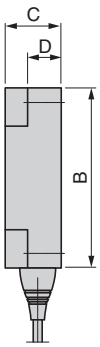
Nominal sensing distance (Sn)		**5 mm**	**10 mm**	**15 mm**	**40 mm**
References					
2-wire ⎓ 4…20 mA	Pre-cabled (L = 2 m) *(1)*	**XS9 F111A2L2**	**XS9 E111A2L2**	**XS9 C111A2L2**	**XS9 D111A2L2**
	Connector	**XS9 F111A2L01M8**	**XS9 E111A2L01M12**	**XS9 C111A2L01M12**	**XS9 D111A2M12**
Weight (kg)	Pre-cabled (L = 2 m)	0.060	0.075	0.095	0.340
	Connector	0.040	0.055	0.075	0.320
Characteristics					
Product certifications		UL, CSA, CE			
Connection	Pre-cabled	PvR, 3 x 0.34 mm², length 2 m for **XS9 ●111A●L2**			
	Connector	0.15 m flying lead with M8 connector	0.15 m flying lead with M12 connector		M12
Operating zone		**1…5 mm**	**1…10 mm**	**2…15 mm**	**5…40 mm**
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…+ 85 °C			
Operating temperature		- 25…+ 70 °C			
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

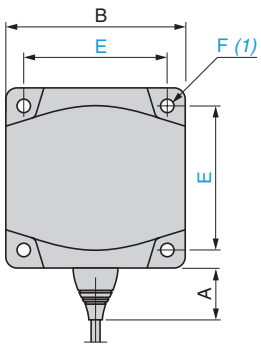
XS9 F



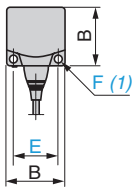
XS9 E/C/D



XS9 C/D



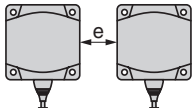
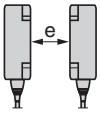
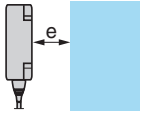
XS9 E



(1) For CHC type screws

Type	A (L2)	A (M12)	B	C	D	E	F
XS9 E	14	–	26	13	8.8	20	3.5
XS9 C	14	–	40	15	9.8	33	4.5
XS9 D	23	14	80	26	16	65	5.5

Setting-up (Minimum mounting distances (mm))

Type	Side by side		Face to face		Facing a metal object	
XS9 F		e ≥ 15		e ≥ 36		e ≥ 15
XS9 E		e ≥ 30		e ≥ 72		e ≥ 30
XS9 C		e ≥ 45		e ≥ 110		e ≥ 45
XS9 D		e ≥ 120		e ≥ 300		e ≥ 120

(1) For a 5 m long cable replace L2 by L5, for a 10 m long cable replace L2 by L10.
*Example: XS9 F111A2L2 becomes **XS9 F111A2L5** with a 5 m long cable.*

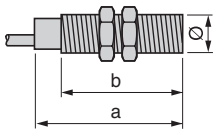
Accessories:
page 2/106

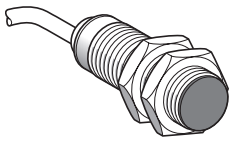
Inductive proximity sensors

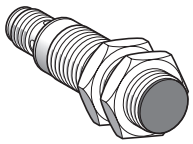
Osiprox® Application

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

Sensors 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

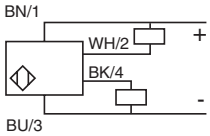
		Brass case	Brass case
Nominal sensing distance (Sn)		**5 mm**	**5 mm**
References			
4-wire ⎓	PNP/PNP programmable NO/NC	**XS1 M18KPM40**	**XS1 M18KPM40D**
Weight (kg)		0.120	0.060
Characteristics			
Product certifications		CE, UL, CSA	
Connection		**Pre-cabled, PvR 4 x 0.34 mm², length 2 m** *(2)*	**M12 connector**
Degree of protection	Conforming to IEC 60529	IP 68	IP 67
Operating zone		**0…4 mm**	
Repeat accuracy		3% of Sr	
Differential travel		1…15% of Sr	
Operating temperature		0…+ 50 °C	
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 schemes

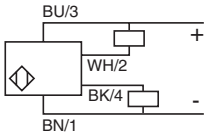
M12 connector — **Pre-cabled** — **4-wire ⎓, PNP/NPN programmable, NO or NC output**

BN: brown
BU: blue
BK: black
WH: white

NO



NC



See connection on page 9/45.

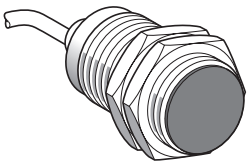
(1) The variation in sensing distance between ferrous and non ferrous materials is typically less than 5%.
(2) Sensors available with other cable lengths: please consult your Regional Sales office.

Accessories:
page 2/106

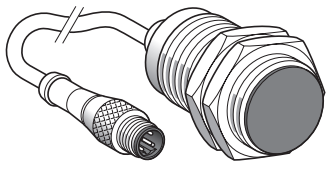
Inductive proximity sensors

Osiprox® Application

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



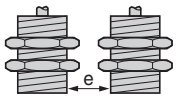
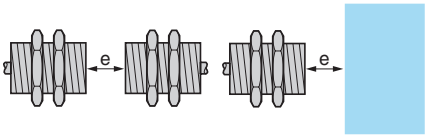
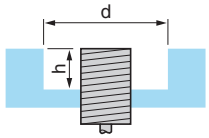
a = 60
b = 51.5
Ø = M30 x 1.5



a = 70
b = 51.5
Ø = M12 x 1

Stainless steel case	**Stainless steel case**
10 mm	**10 mm**
XS1 M30KPM40	**XS1 M30KPM40LD**
0.205	0.145
CE, UL, CSA	
Pre-cabled, PvR 4 x 0.34 mm², length 2 m *(2)*	**M12 connector on 0.8 m flying lead**
IP 68	IP 67
0…8 mm	
3% of Sr	
1…15% of Sr	
0…+ 50 °C	
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	

Setting-up

Minimum mounting distances (mm)	**Side by side**	**Face to face**	**Facing a metal object**	**Mounted in a metal support**
				
XS1 M18 flush mountable	e ≥ 10	e ≥ 60	e ≥ 15	d ≥ 18, h ≥ 0
XS1 M30 flush mountable	e ≥ 20	e ≥ 120	e ≥ 30	d ≥ 30, h ≥ 0

***Fixing nut tightening torque: XS1 M18**: < 35 N.m, **XS1 M30**: < 100 N.m*

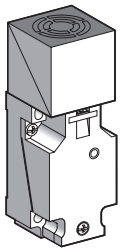
(1) The variation in sensing distance between ferrous and non ferrous materials is typically less than 5%.
(2) Sensors available with other cable lengths: please consult your Regional Sales office.

Inductive proximity sensors

Osiprox® 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)		15 mm
References		
4-wire ⎓	PNP/NPN/NO/NC programmable	**XS7 C40KPM40**
Weight (kg)		0.220
Characteristics		
Product certifications		CE, CSA, UL
Degree of protection	Conforming to IEC 60529	IP 67
Operating temperature		0…+ 50 °C
Connection		Screw terminals, clamping capacity: 4 x 0.34 mm^2 *(2)*
Operating zone		**0…12 mm**
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 13P cable gland (XSZ PE13), see page 2/106.

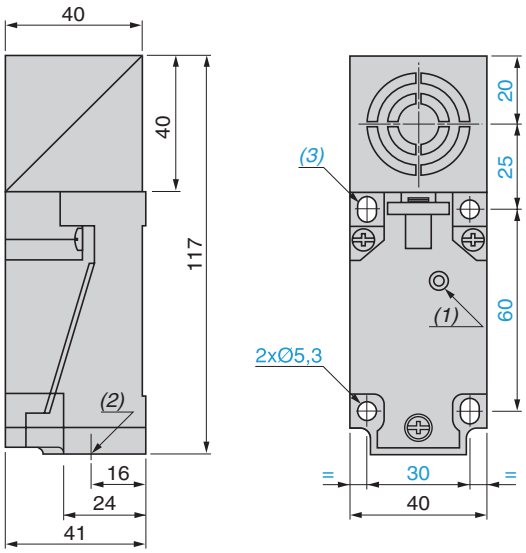
Inductive proximity sensors

Osiprox® Application

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

Dimensions

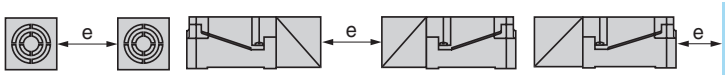
XS7 C40KPM40



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

Setting-up

Minimum mounting distances (mm)



		Side by side	Face to face	Facing a metal object
Sensor flush mountable in metal	**XS7 C40KPM40**	e ≥ 40	e ≥ 120	e ≥ 45

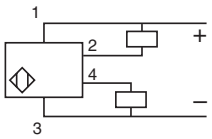
Tightening torque of cover fixing screws and clamp screws: < 1.2 N.m

Wiring schemes

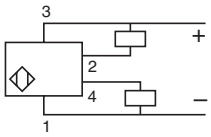
PNP/NPN

4-wire ⎓ programmable, NO or NC output

NO output



NC output

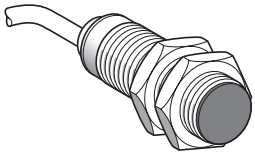


Inductive proximity sensors

Osiprox® 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

References

3-wire, ferrous version Insensitive to non ferrous materials	PNP	NO	**XS1 M18PAS40**
3-wire, non ferrous version Insensitive to ferrous materials	PNP	NO	**XS1 M18PAS20**
Weight (kg)			0.120

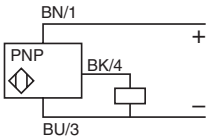
Characteristics

Product certifications		UL, CSA, CE
Connection		**Pre-cabled (PvR)** 3 x 0.34 mm², length 2 m *(1)*
Operating zone		**0…4 mm**
Degree of protection conforming to IEC 60529		IP 68
Operating temperature range		- 25…+ 70 °C
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 pre-cabled with other cable lengths: please consult your Regional Sales Office

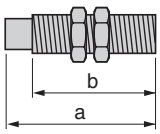
Wiring scheme

3-wire ⎓ PNP



Dimensions

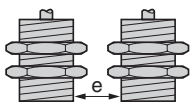
XS1 M

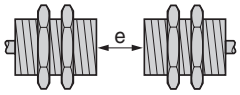


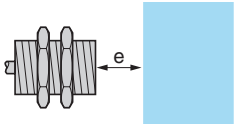
a (mm)	b (mm)
60	51.5

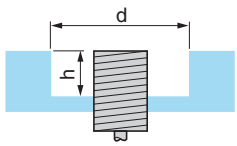
Setting-up

Minimum mounting distances (mm)









	Side by side	Face to face	Facing a metal object	Mounted in a metal support
XS1 M18	e ≥ 10	e ≥ 60	e ≥ 15	d ≥ 18, h ≥ 0 (ferrous metal) d ≥ 18, h ≥ 5 (non ferrous metal)

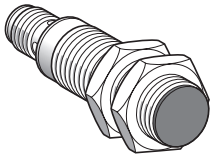
Accessories:
pages 2/106

Inductive proximity sensors

Osiprox® 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

References

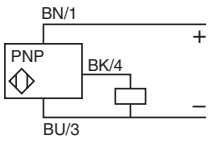
3-wire, ferrous version Insensitive to non ferrous materials	PNP	NO	**XS1 M18PAS40D**
3-wire, non ferrous version Insensitive to ferrous materials	PNP	NO	**XS1 M18PAS20D**
Weight (kg)			0.060

Characteristics

Product certifications		UL, CSA, CE
Connection		**M12 connector**
Degree of protection conforming to IEC 60529		IP 67
Operating zone		**0…4 mm**
Operating temperature range		- 25…+ 70 °C
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 scheme

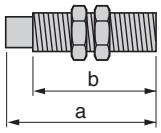
M12 connector — **3-wire ⎓ PNP**



See connection on page 9/45.

Dimensions

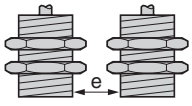
XS1 M

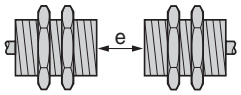


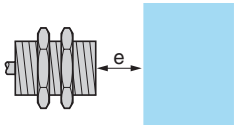
a (mm)	b (mm)
70	51.5

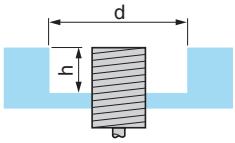
Setting-up

Minimum mounting distances (mm)









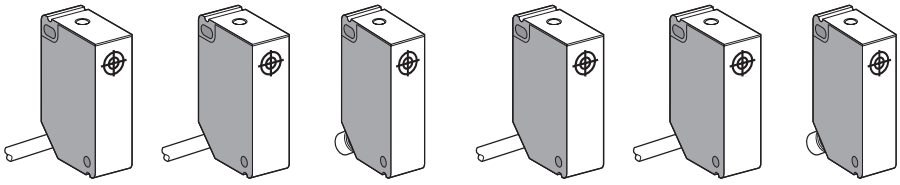
	Side by side	Face to face	Facing a metal object	Mounted in a metal support
XS1 M18	e ≥ 10	e ≥ 60	e ≥ 15	d ≥ 18, h ≥ 0 (ferrous metal) d ≥ 18, h ≥ 5 (non ferrous metal)

Accessories:
pages 2/106

Inductive proximity sensors

Osiprox® Application

For assembly, packaging and light 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)			2 mm			4 mm		
References								
3-wire ⎓	PNP	NO	**XS7 G12PA140**	–	**XS7 G12PA140S**	**XS8 G12PA140**	–	**XS8 G12PA140S**
	NPN	NO	**XS7 G12NA140**	–	**XS7 G12NA140S**	**XS8 G12NA140**	–	**XS8 G12NA140S**
4-wire ⎓ (complementary outputs)	PNP	NO + NC	–	**XS7 G12PC440**	–	–	**XS8 G12PC440**	–
	NPN	NO + NC	–	**XS7 G12NC440**	–	–	**XS8 G12NC440**	–
Weight (kg)			0.100	0.100	0.030	0.100	0.100	0.030
Characteristics								
Product certifications			CSA, UL, CE					
Connection	Pre-cabled		3 x 0.34 mm², length 2 m *(1)*	4 x 0.34 mm², length 2 m *(1)*	–	3 x 0.34 mm², length 2 m *(1)*	4 x 0.34 mm², length 2 m *(1)*	–
	Connector		–	–	M8	–	–	M8
Operating zone			**0…1.6 mm**			**0…3.2 mm**		
Repeat accuracy			≤ 10 % of Sr					
Differential travel			3...20 % of Sr					
Degree of protection			IP 67					
Storage temperature range			-40…+85 °C					
Operating temperature range			-25…+70 °C					
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 pre-cabled with other cable lengths:

Length of cable	Suffix to be added to references stated above for 2 m pre-cabled sensors	Weight increase
5 m	**L1**	0.120 kg
10 m	**L2**	0.320 kg

Example: sensor **XS7 G12PA**140 with 5 m cable becomes **XS7 G12PA140L1.**

(2) With overload and short-circuit protection

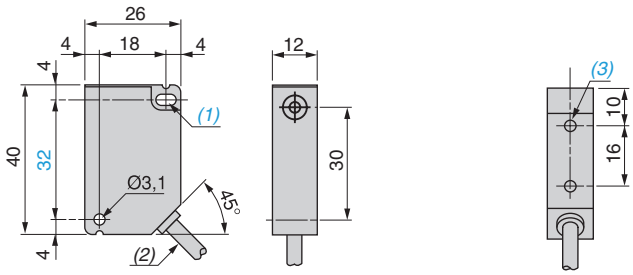
Inductive proximity sensors

Osiprox® Application
For assembly, packaging and light handling
Plastic case: 12 x 26 x 40 mm
dc supply, solid-state output

Dimensions

XS● G12●A140, XS● G12●C440

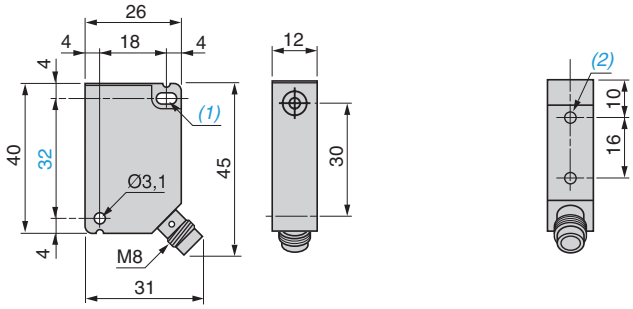
Rear view



(1) 1 elongated hole 3.1 x 5.1.
(2) Pre-cabled L = 2 m.
(3) 2 holes M3 x 5.

XS● G12●A140S

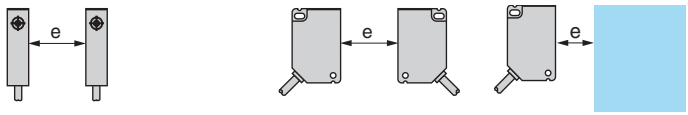
Rear view



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

Setting-up

Minimum mounting distances (mm)

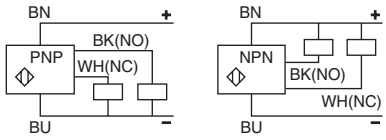


	Side by side	Face to face	Facing a metal object and mounting in a metal support
XS7 G flush mountable	e ≥ 0	e ≥ 15	e ≥ 6
XS8 G non flush mountable	e ≥ 10	e ≥ 60	e ≥ 12

Wiring scheme

3-wire ⎓, NO output

4-wire ⎓, NO + NC output



Connector

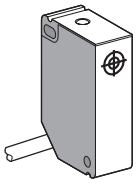
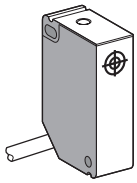
M8

See connection on page 9/45.

Inductive proximity sensors

Osiprox® Application

For assembly, packaging and light handling
Plastic case: 12 x 26 x 40 mm
a.c. or d.c. supply

Sensor		Flush mountable in metal	Non flush mountable in metal
			
Nominal sensing distance (Sn)		2 mm	4 mm
References			
2-wire ⎓ or ∿	NO	**XS7 G12MA230**	**XS8 G12MA230**
	NC	**XS7 G12MB230**	**XS8 G12MB230**
Weight (kg)		0.100	0.100
Characteristics			
Product certifications		CSA, UL, CE	
Connection		Pre-cabled 2 x 0.34 mm², length 2 m *(1)*	
Operating zone		**0…1.6 mm**	**0…3.2 mm**
Repeat accuracy		≤ 10 % of Sr	
Differential travel		3...20 % of Sr	
Degree of protection		IP 67	
Storage temperature range		- 40…+ 85 °C	
Operating temperature range		- 25…+ 70 °C	
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 pre-cabled with other cable lengths:

Length of cable	Suffix to be added to references stated above for 2 m pre-cabled sensors	Weight increase
5 m	**L1**	0.120 kg
10 m	**L2**	0.320 kg

Example: sensor **XS7 G12MA230** with 5 m cable becomes **XS7 G12MA230L1**.

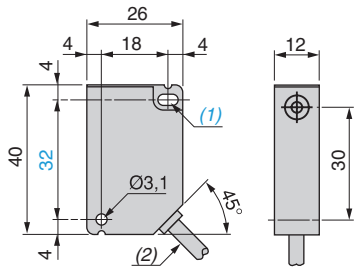
(2) As these sensors do not incorporate overload or short-circuit protection, it is essential to connect a 0.4 A quick-blow fuse in series with the load.

Inductive proximity sensors

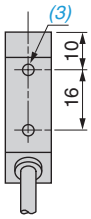
Osiprox® Application
For assembly, packaging and light handling
Plastic case: 12 x 26 x 40 mm
a.c. or d.c. supply

Dimensions

XS● G12M●230



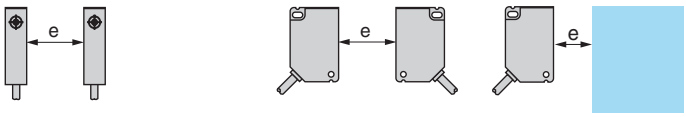
Rear view



(1) 1 elongated hole 3.1 x 5.1.
(2) Pre-cabled L = 2 m.
(3) 2 holes M3 x 5.

Setting-up

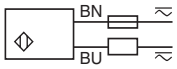
Minimum mounting distances (mm)



	Side by side	Face to face	Facing a metal object and mounting in a metal support
XS7 G flush mountable	e ≥ 0	e ≥ 15	e ≥ 6
XS8 G non flush mountable	e ≥ 10	e ≥ 60	e ≥ 12

Wiring scheme

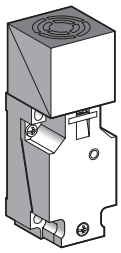
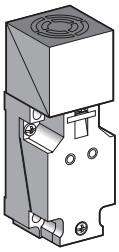
2-wire ∿ or ⎓ , NO or NC output



Inductive proximity sensors

Osiprox® Application

Plastic case, form C, plug-in
5 position turret head
d.c. supply

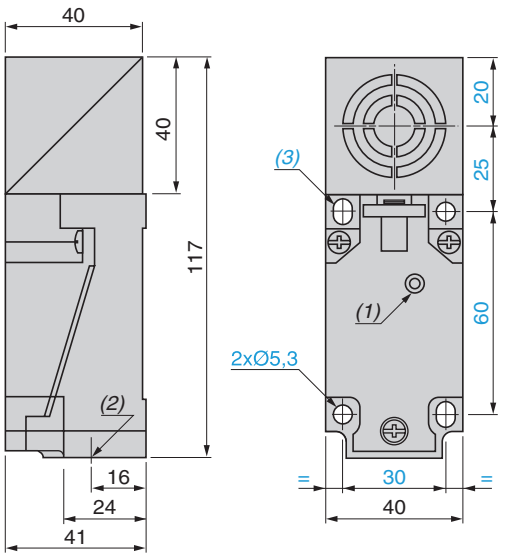
Sensor			Flush mountable in metal			Non flush mountable in metal		
								
Nominal sensing distance (Sn)			15 mm	Increased range model 20 mm	15 mm	20 mm	Increased range model 40 mm	20 mm
References								
4-wire ⎓ (complementary outputs)	PNP	NO + NC	**XS7 C40PC440**	**XS7 C40PC449**	–	**XS8 C40PC440**	**XS8 C40PC449**	–
	NPN	NO + NC	**XS7 C40NC440**	**XS7 C40NC449**	–	**XS8 C40NC440**	**XS8 C40NC449**	–
2-wire ⎓ (non polarised)	NO		–	–	**XS7 C40DA210**	–	–	**XS8 C40DA210**
	NO or NC programmable		–	–	**XS7 C40DP210**	–	–	**XS8 C40DP210**
Weight (kg)			0.220	0.220	0.220	0.220	0.220	0.220
Characteristics								
Product certifications			UL, CSA, CE					
Degree of protection conforming to IEC 60529			IP 67					
Operating temperature			- 25…+ 70 °C					
Connection			Screw terminals, clamping capacity: 2 or 4 x 1.5 mm² *(1)*					
Operating zone			**0…12 mm**	**0…16 mm**	**0…12 mm**	**0…16 mm**	**0…32 mm**	**0…16 mm**
Repeat accuracy			≤ 3% of real sensing distance (Sr)					
Differential travel			3…20% of real 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) Cable gland not included with sensor. For suitable 13P cable gland (XSZ PE13), see page 2/106.

Inductive proximity sensors
Osiprox® Application
Plastic case, form C, plug-in
5 position turret head
d.c. supply

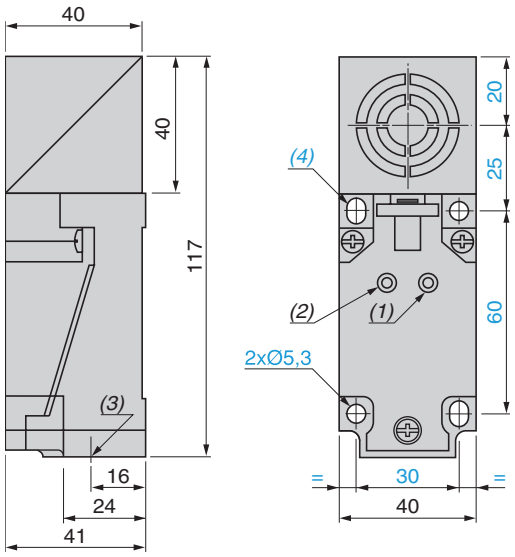
Dimensions

XS7 C40D●210, XS8 C40D●210



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

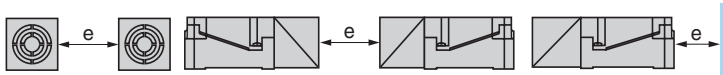
XS7 C40●C44●, XS8 C40●C44●



(1) Output LED.
(2) Supply LED.
(3) 1 tapped entry for 13P cable gland.
(4) 2 elongated holes Ø 5.3 x 7.

Setting-up

Minimum mounting distances (mm)

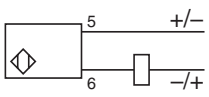


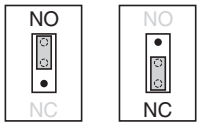
		Side by side	Face to face	Facing a metal object
Sensors flush mountable in metal	**XS7**	e ≥ 40	e ≥ 120	e ≥ 45
	XS7 increased range model	e ≥ 80	e ≥ 240	e ≥ 60
Sensors non flush mountable in metal	**XS8**	e ≥ 80	e ≥ 160	e ≥ 60
	XS8 increased range model	e ≥ 160	e ≥ 320	e ≥ 120

Tightening torque of cover fixing screws and clamp screws: < 1.2 N.m

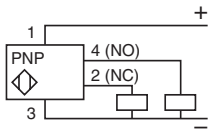
Wiring schemes

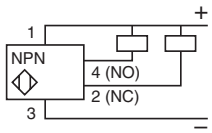
2-wire ⎓ (non polarised), NO or NC output depending on position of link



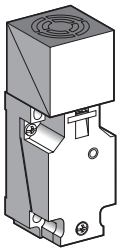
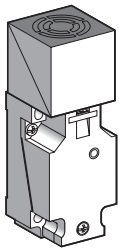


4-wire ⎓, NO + NC output





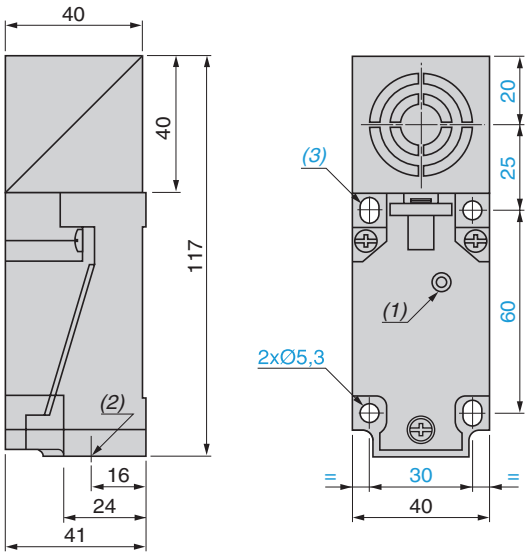
Inductive proximity sensors
Osiprox® Application
Plastic case, form C, plug-in
5 position turret head
a.c. or d.c. supply

Sensor		Flush mountable in metal		Non flush mountable in metal	
					
		AC	AC/DC	AC	AC/DC
Nominal sensing distance (Sn)		15 mm		20 mm	
References					
2-wire ∿	NO or NC programmable	**XS7 C40FP260**	–	**XS8 C40FP260**	–
2-wire ∿ or ⎓ universal model	NO or NC programmable	–	**XS7 C40MP230**	–	**XS8 C40MP230**
Weight (kg)		0.220	0.220	0.220	0.220
Characteristics					
Product certifications		UL, CSA, CE			
Degree of protection conforming to IEC 60529		IP 67			
Operating temperature		- 25…+ 70 °C			
Connection		Screw terminals, clamping capacity: 2 x 1.5 mm² *(1)*			
Operating zone		**0…12 mm**		**0…16 mm**	
Repeat accuracy		≤ 3% of real sensing distance (Sr)			
Differential travel		3...20% of real 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		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) Cable gland not included with sensor. For suitable 13P cable gland (XSZ PE13), see page 2/106.
(2) These sensors do not incorporate overload or short-circuit protection and therefore, it is essential to connect a "quick-blow" fuse in series with the load, see page 2/106.

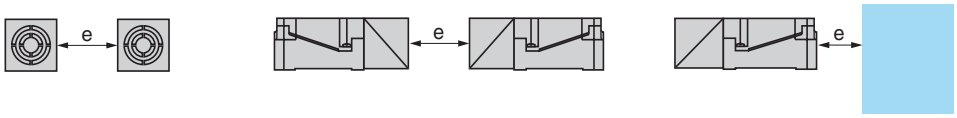
Inductive proximity sensors
Osiprox® Application
Plastic case, form C, plug-in
5 position turret head
a.c. or d.c. supply

Dimensions
XS7 C40FP260, XS7 C40MP230, XS8 C40FP260, XS8 C40MP230



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

Setting-up
Minimum mounting distances (mm)

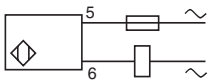


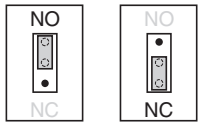
	Side by side	Face to face	Facing a metal object
XS7 flush mountable	e ≥ 40	e ≥ 120	e ≥ 45
XS8 non flush mountable	e ≥ 80	e ≥ 160	e ≥ 60

Tightening torque of cover fixing screws and clamp screws: < 1.2 N.m

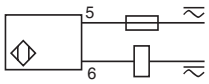
Wiring schemes

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





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

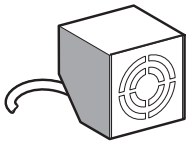
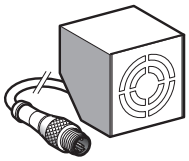
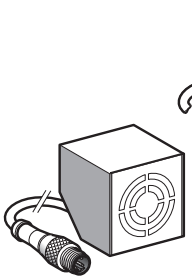
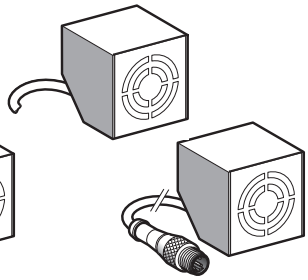


Inductive proximity sensors

Osiprox® Application

Plastic case, form C, cubic 40, multi-position

d.c. supply

Sensor		Flush mountable in metal					Non flush mountable in metal	
								
Nominal sensing distance (Sn)		15 mm					20 mm	
References								
2-wire ⎓ (non polarised)	NO	**XS7 T4DA210**	–	**XS7 T4DA214LD**	–	**XS7 T4DA214LD01**	–	–
4-wire ⎓ (complementary outputs)	PNP NO + NC	–	**XS7 T4PC440**	–	**XS7 T4PC440LD**	–	**XS8 T4PC440**	**XS8 T4PC440LD**
	NPN NO + NC	–	**XS7 T4NC440**	–	**XS7 T4NC440LD**	–	**XS8 T4NC440**	**XS8 T4NC440LD**
Weight (kg)		0.265	0.265	0.220	0.220	0.200	0.265	0.220
Characteristics								
Product certifications		UL, CSA, CE						
Degree of protection Conforming to IEC 60529		IP 67						
Operating temperature		- 25…+ 70 °C						
Connection	Pre-cabled	2 x 0.5 mm² length 2 m *(1)*	4 x 0.34 mm² length 2 m *(1)*	–			4 x 0.34 mm² length 2 m *(1)*	–
	Remote M12 connector	–		Cable: length 0.8 m		Cable: length 0.15 m	–	Cable: length 0.8 m
Operating zone		**0…12 mm**					**0…16 mm**	
Repeat accuracy		≤ 3 % of real sensing distance (Sr)						
Differential travel		3…20 % of real sensing distance (Sr)						
Supply/output state indication		Yellow LED, rear mounted						
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 pre-cabled with other cable lengths :

Length of cable	Suffix to be added to references stated above for 2 m pre-cabled sensors	Weight increase
5 m	**L1**	0.120 kg
10 m	**L2**	0.320 kg

Example: sensor **XS7 T4DA210** with 5 m cable becomes **XS7 T4DA210L1**

Other versions Inductive proximity sensors specifically designed for other operating temperatures. Please consult your Regional Sales Office.

Inductive proximity sensors

Osiprox® Application

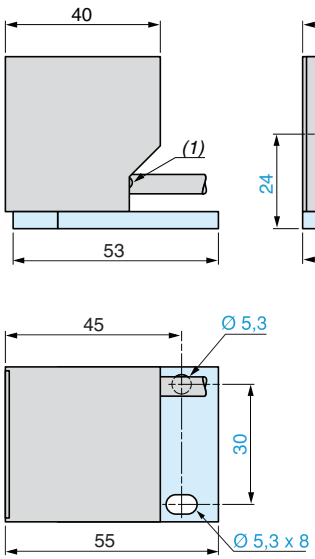
Plastic case, form C, cubic 40, multi-position

d.c. supply

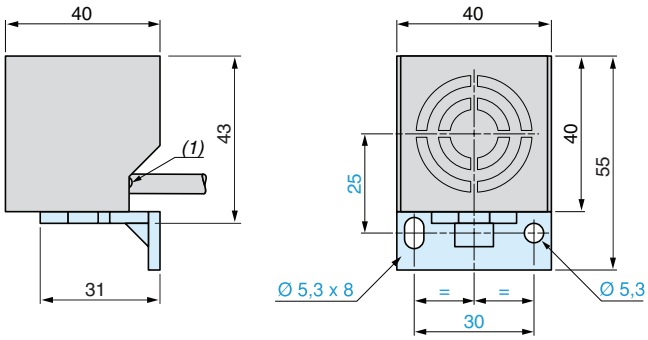
Dimensions

XS● T4●●●●●, XS● T4●●●●●LD, XS7 T4●●●●●LD01

Plate mounted

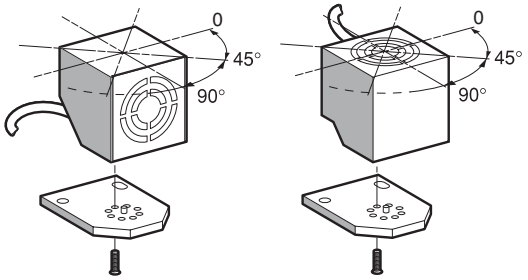


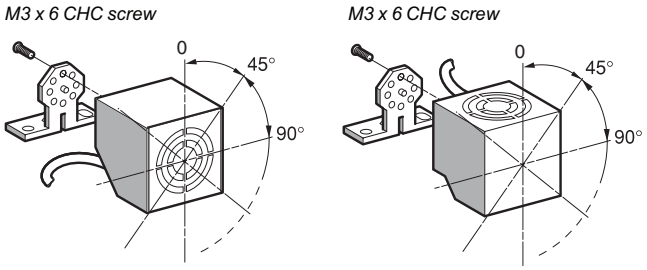
Bracket mounted



(1) LED.

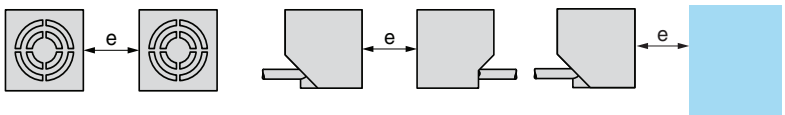
Alternative positions of head





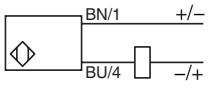
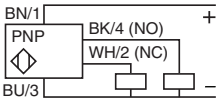
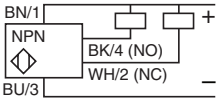
Setting-up

Minimum mounting distances (mm)



		Side by side	Face to face	Facing a metal object
Flush mountable in metal	**XS7 T, 2-wire**	e ≥ 40	e ≥ 120	e ≥ 45
	XS7 T, 4-wire	e ≥ 40	e ≥ 120	e ≥ 45
Non flush mountable in metal	**XS8 T, 4-wire**	e ≥ 60	e ≥ 160	e ≥ 60

Wiring schemes

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

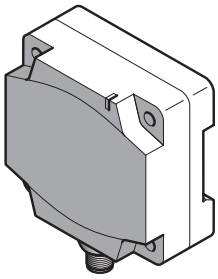
See connection on page 9/45.

Inductive proximity sensors

Osiprox® Application

Flat sensor, flush mountable, increased range, 300 mA switching capacity
Form D, DIN rail mounting, solid-state output

Sensor		**Flush mountable in metal**



Dimensions (mm)		80 x 80 x 40
Nominal sensing distance (Sn)		50 mm (not flush mounted: 42 mm)
References		
2-wire ⎓ (non polarised)	NO	**XS7 D1A3CAM12DIN**
Weight (kg)		0.374
Characteristics		
Product certifications		CE, CSA, UL: pending
Degree of protection	Conforming to IEC 60529	IP 67 double insulation ⧈
Temperature	Operation	- 25…+ 70 °C
	Storage	- 40…+ 85 °C
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		**0…40 mm (not flush mounted: 0…35 mm)**
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

Inductive proximity sensors

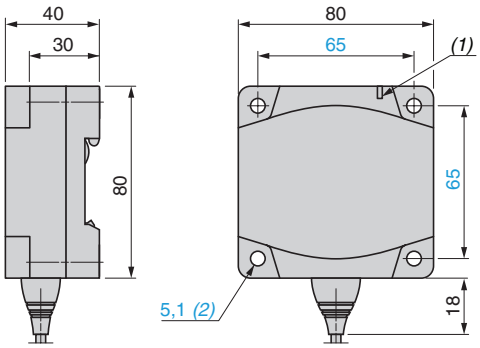
Osiprox® Application

Flat sensor, flush mountable, increased range, 300 mA switching capacity

Form D, DIN rail mounting, solid-state output

Dimensions

XS7 D1A3CAM12DIN

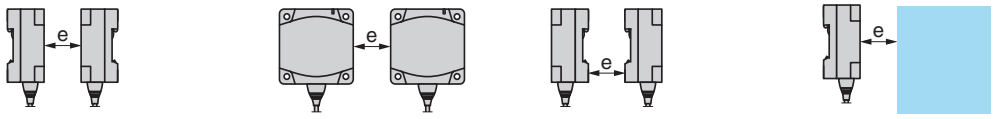


(1) Output LED

(2) For CHC type screws

Setting-up

Minimum mounting distances (mm)



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

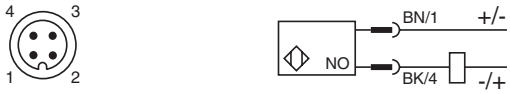
Flush/non flush conditions

In A37 steel

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

Wiring schemes

2-wire NO/M12 XS7 D1A3CAM12DIN



See connection on page 9/45.

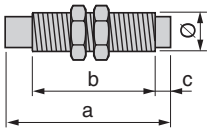
Inductive proximity sensors

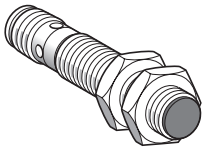
Osiprox® Application

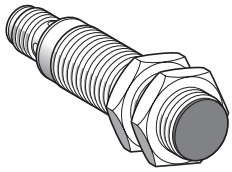
Sensors for welding machine applications *(1)*

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

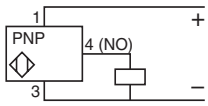
a = 60
b = 40
Ø = M18 x 1

		Teflon front face	Teflon front face
Nominal sensing distance (Sn)		**2 mm**	**5 mm**
References			
3-wire ⎓	PNP, NO	**XS1 M12PAW01D**	**XS1 M18PAW01D**
Weight (kg)		0.025	0.060
Characteristics			
Product certifications		CE, UL, CSA	
Connection		**M12 connector**	
Degree of protection	Conforming to IEC 60529	IP 67	
Operating zone		**0…1.6 mm**	**0…4 mm**
Repeat accuracy		3% of Sr	
Differential travel		1…20% of Sr	
Operating temperature		- 25…+ 70 °C	
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 schemes

M12 connector

3-wire ⎓, PNP, NO output

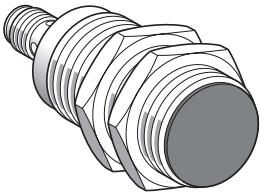
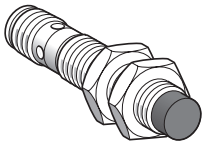


See connection on page 9/45.

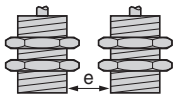
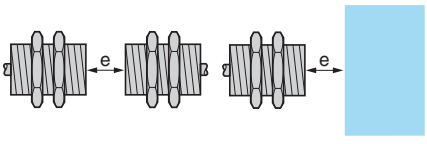
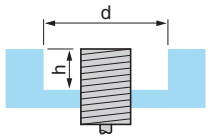
(1) Sensors particularly resistant to welding machine electromagnetic fields.

Accessories:
page 2/106

Inductive proximity sensors
Osiprox® 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 mm	**4 mm**
XS1 M30PAW01D	**XS2 M12PAW01D**
0.145	0.025
Ce, UL, CSA	
M12 connector	
IP 67	
0…8 mm	**0…3.2 mm**
3% of Sr	
1…20% of Sr	
- 25…+ 70 °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

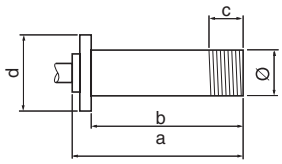
Setting-up

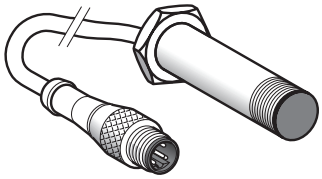
Minimum mounting distances (mm)	Side by side	Face to face	Facing a metal object	Mounted in a metal support
				
XS1 M12 flush mountable	e ≥ 0	e ≥ 7	e ≥ 6	d ≥ 12, h ≥ 0
XS1 M18 flush mountable	e ≥ 0	e ≥ 16	e ≥ 9	d ≥ 18, h ≥ 0
XS1 M30 flush mountable	e ≥ 0	e ≥ 20	e ≥ 20	d ≥ 30, h ≥ 0
XS2 M12 non flush mountable	e ≥ 15	e ≥ 9	e ≥ 11	d ≥ 36, h ≥ 8

***Fixing nut tightening torque: XS1 M12, XS2 M12**: < 15 N.m, **XS1 M18**: < 35 N.m, **XS1 M30**: < 50 N.m*

Inductive proximity sensors
Application series
Sensors 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 = Ø shoulder

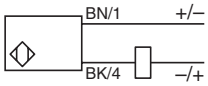
Ø = 12
a = 55
b = 50
c = 9 (threaded)
d = 15 hexagonal

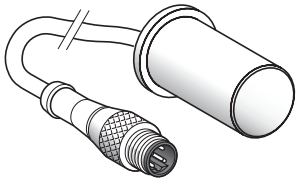
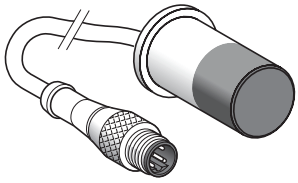
Nominal sensing distance (Sn)			**3 mm**	**3 mm**	**3 mm**
References					
2-wire ⎓ (non polarised) Supply to terminals	1-4	NO	**XSL C1401393L1**	**XSL C1401393L3**	**XSL C1401393L4**
Weight (kg)			0.050	0.065	0.050

Characteristics			
Connection	Remote M12 connector, length of cable: 1.2 m	Remote M12 connector, length of cable: 0.8 m	Remote M12 connector, length of cable: 0.15 m
Degree of protection conforming to IEC 60529	IP 67		
Operating zone	0…2.4 mm		
Repeat accuracy	≤ 3 % of Sr		
Differential travel	1…15 % of Sr		
Operating temperature	- 25…+ 80 °C		
Output state indication	LED (yellow), 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 : 0.5 ms ; recovery : ≤ 0.5 ms		

Wiring schemes

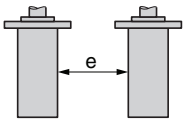
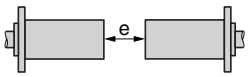
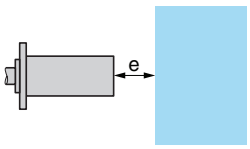
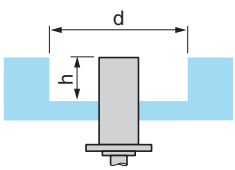
2-wire ⎓ , non polarised, NO output



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	**10 mm**	**10 mm**
XSL C1401392L1	**XSL C1401405L3**	**XSL C1401405L4**
0.100	0.065	0.050
Remote M12 connector, length of cable: 1.2 m	Remote M12 connector, length of cable: 0.8 m	Remote M12 connector, length of cable: 0.15 m
IP 67		
0…5 mm	0…8 mm	
3 % of Sr		
1…15 % of Sr		
- 25…+ 70 °C		
LED (yellow), 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		

Setting up

Minimum mounting distances (mm)

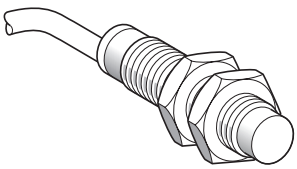
		Side by side	Face to face	Facing a metal object	Mounted in a metal support
					
XSL C	**Ø 12 (flush mountable)**	e ≥ 10	e ≥ 60	e ≥ 15	d = 12, h = 0
	Ø 18 (non flush mountable)	e ≥ 16	e ≥ 96	e ≥ 24	d = 54, h = 16

Inductive proximity sensors

Osiprox® Application, food and beverage processing series

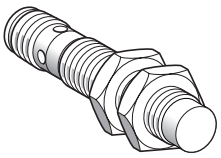
Cylindrical, stainless steel, non flush mountable
Three-wire, d.c. supply, solid-state output

DF532016



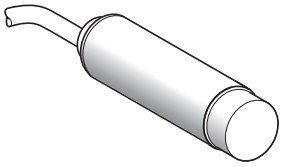
XS2 ●●SA●●L2

DF532015



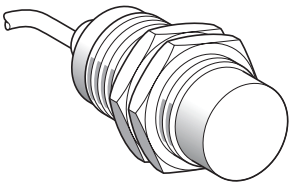
XS2 ●●SA●●M12

534440



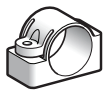
XS2 L2SA●●L2

822116



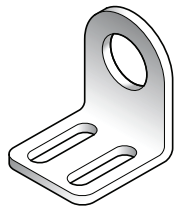
XS2 30SA●●L2

503663



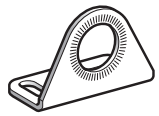
XUZ B2005

523963



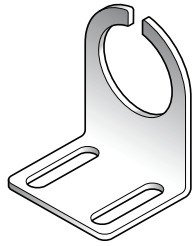
XSZ BS12

805817



XUZ A118

503663



XSZ BS30

Ø 12, threaded M12 x 1

Sensing dist. (Sn) mm	Function	Output	Connection	Reference	Weight kg
7	NO	PNP	Pre-cabled (L = 2 m) *(1)*	**XS2 12SAPAL2**	0.075
			M12 connector	**XS2 12SAPAM12**	0.035
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS2 12SANAL2**	0.075
			M12 connector	**XS2 12SANAM12**	0.035

Ø 18, threaded M18 x 1

Sensing dist. (Sn) mm	Function	Output	Connection	Reference	Weight kg
12	NO	PNP	Pre-cabled (L = 2 m) *(1)*	**XS2 18SAPAL2**	0.120
			M12 connector	**XS2 18SAPAM12**	0.060
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS2 18SANAL2**	0.120
			M12 connector	**XS2 18SANAM12**	0.060

Ø 18, plain

Sensing dist. (Sn) mm	Function	Output	Connection	Reference	Weight kg
12	NO	PNP	Pre-cabled (L = 2 m) *(1)*	**XS2 L2SAPAL2**	0.120
			M12 connector	**XS2 L2SAPAM12**	0.060
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS2 L2SANAL2**	0.120
			M12 connector	**XS2 L2SANAM12**	0.060

Ø 30, threaded M30 x 1.5

Sensing dist. (Sn) mm	Function	Output	Connection	Reference	Weight kg
22	NO	PNP	Pre-cabled (L = 2 m) *(1)*	**XS2 30SAPAL2**	0.205
			M12 connector	**XS2 30SAPAM12**	0.145
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS2 30SANAL2**	0.205
			M12 connector	**XS2 30SANAM12**	0.145

Accessories *(2)*

Description	For use with	Reference	Weight kg
Plastic fixing clamp, 24.1 mm centres, with locking screw	Ø 18 sensor, plain case	**XUZ B2005**	0.007
Stainless steel fixing bracket	Ø 12 sensor	**XSZ BS12**	0.060
	Ø 18 sensor	**XUZ A118**	0.045
	Ø 30 sensor	**XSZ BS30**	0.080

Connecting cables

Description	Type	Cable length m	Reference	Weight kg
Pre-wired M12 connectors Female, 4-pin, stainless steel clamping ring	Straight	2	**XZC PA1141L2**	0.090
		5	**XZC PA1141L5**	0.210
		10	**XZC PA1141L10**	0.410
	Elbowed	2	**XZC PA1241L2**	0.090
		5	**XZC PA1241L5**	0.210
		10	**XZC PA1241L10**	0.410
M12 jumper cable Male, 3-pin, stainless steel clamping ring	Straight	2	**XZC RA151140A2**	0.095
		5	**XZC RA151140A5**	0.200

*(1) For a 5 m long cable replace L2 by **L5**; for a 10 m long cable replace L2 by **L10**.*
*Example: **XS2 12SAPAL2** becomes **XS2 12SAPAL5** with a 5 m long cable.*
(2) For further information, see page 2/106.

Inductive proximity sensors

Osiprox® Application, food and beverage processing series

Cylindrical, stainless steel, non flush mountable

Three-wire, d.c. supply, solid-state output

Characteristics

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**	
	Ø 18	**mm**	**0…9.6**	
	Ø 30	**mm**	**0…17.6**	
Differential travel		**%**	1...15 of real sensing distance (Sr)	
Degree of protection	Conforming to IEC 60529		IP 67	IP 68, double insulation ⧈
	DIN 40050		IP 69 K	
Storage temperature		**°C**	- 40…+ 85 *(1)*	
Operating temperature		**°C**	- 25…+ 85	
Materials	Case		Stainless steel, grade 316 L	
	Cable		–	Non-poisonous PVC, 3 x 0.34 mm²
Vibration resistance	Conforming to IEC 60068-2-6		25 gn, amplitude ± 2 mm (f = 10 to 55 Hz)	
Shock resistance	Conforming to IEC 60068-2-27		50 gn, duration 11 ms	
Output state indication			Yellow LED: 4 viewing ports at 90°	Yellow LED: annular
Rated supply voltage		**V**	⎓ 12…24 with protection against reverse polarity	
Voltage limits (including ripple)		**V**	⎓ 10…36	
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	**XS2 12SA●●●●**	**Hz**	2500	
	XS2 18SA●●●● and **XS2 L2●●●●**	**Hz**	1000	
	XS2 30SA●●●●	**Hz**	500	
Delays	First-up	**ms**	⩽ 10	
	Response	**ms**	⩽ 0.2 Ø12, ⩽ 0.3 Ø18, ⩽ 0.6 Ø30	
	Recovery	**ms**	⩽ 0.2 Ø12, ⩽ 0.7 Ø18, ⩽ 1.4 Ø30	

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

Wiring schemes

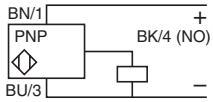
Connector

M12

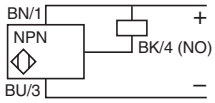
Pre-cabled

BU: Blue
BN: Brown
BK: Black

PNP

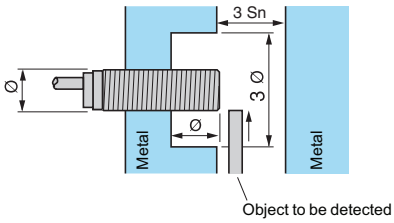


NPN

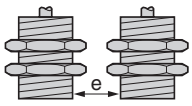


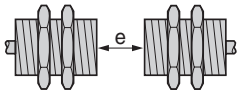
See connection on page 9/45.

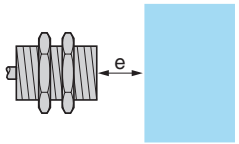
Setting-up



Minimum mounting distances (mm)



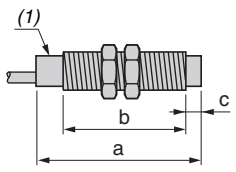




	Side by side	Face to face	Facing a metal object
Ø 12	e ⩾ 48	e ⩾ 84	e ⩾ 21
Ø 18	e ⩾ 72	e ⩾ 144	e ⩾ 36
Ø 30	e ⩾ 120	e ⩾ 264	e ⩾ 66

Dimensions

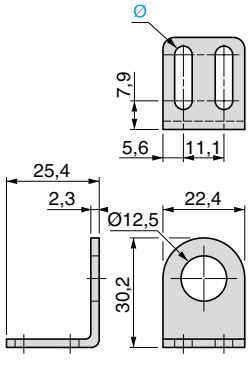
XS2



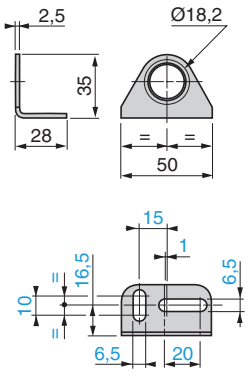
(1) LED

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

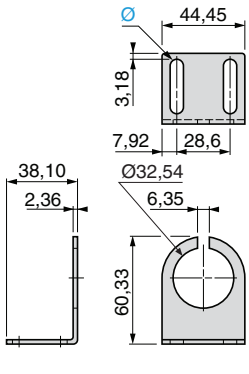
XSZ BS12



XUZ A118



XSZ BS30



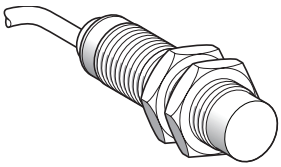
Ø : 2 elongated holes Ø 7.14 x 29.36

Inductive proximity sensors

Osiprox® Application, food and beverage processing series

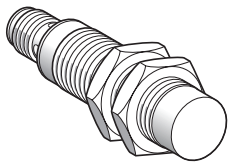
Cylindrical, stainless steel, non flush mountable
Two-wire, a.c. or d.c. supply

523361



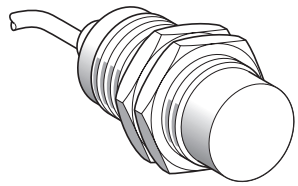
XS2 18SAM●L2

523362



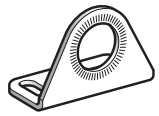
XS2 18SAM●U20

523218



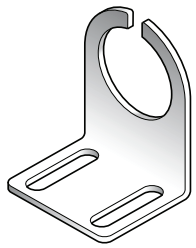
XS2 30SAM●L2

808817



XUZ A118

523364



XSZ BS30

Ø 18, threaded M18 x 1

Sensing distance (Sn) mm	Function	Connection	Reference	Weight kg
12	NO	Pre-cabled (L = 2 m) *(1)*	**XS2 18SAMAL2**	0.120
		1/2" - 20UNF connector	**XS2 18SAMAU20**	0.060

Ø 30, threaded M30 x 1.5

Sensing distance (Sn) mm	Function	Connection	Reference	Weight kg
22	NO	Pre-cabled (L = 2 m) *(1)*	**XS2 30SAMAL2**	0.205
		1/2" - 20UNF connector	**XS2 30SAMAU20**	0.145

Connecting cables *(2)*

Description	Type	Cable length m	Reference	Weight kg
Pre-wired connectors 1/2" - 20UNF 3-pin female, stainless steel clamping ring	Straight	5	**XZC PA1865L5**	0.210
		10	**XZC PA1865L10**	0.410
	Elbowed	5	**XZC PA1965L5**	0.250
		10	**XZC PA1965L10**	0.485

Accessories

Description	For use with	Reference	Weight kg
Stainless steel fixing bracket	Ø 18 sensor	**XUZ A118**	0.045
	Ø 30 sensor	**XSZ BS30**	0.080

*(1) For a 5 m long cable replace L2 by **L5**; for a 10 m long cable replace L2 by **L10**.*
*Example: **XS2 18SAMAL2** becomes **XS2 18SAMAL5** with a 5 m long cable.*
(2) For further information, see page 2/106.

Inductive proximity sensors

Osiprox® Application, food and beverage processing series

Cylindrical, stainless steel, non flush mountable
Two-wire, a.c. or d.c. supply

Characteristics

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**	
	Ø 30	**mm**	**0...17.6**	
Differential travel		**%**	1...15 of real sensing distance (Sr)	
Degree of protection	Conforming to IEC 60529		IP 67	IP 68, double insulation ⧈
	DIN 40050		IP 69 K	
Storage temperature		**°C**	- 40…+ 85 *(1)*	
Operating temperature		**°C**	- 25…+ 85	
Materials	Case		Stainless steel, grade 316 L	
	Cable		–	Non-poisonous PVC, 2 x 0.34 mm²
Vibration resistance	Conforming to IEC 60068-2-6		25 gn, amplitude ± 2 mm (f = 10 to 55 Hz)	
Shock resistance	Conforming to IEC 60068-2-27		50 gn, duration 11 ms	
Output state indication			Yellow LED: 4 viewing ports at 90°	Yellow LED: annular
Rated supply voltage		**V**	∼ or ⎓ 24…240 (∼ 50/60 Hz)	
Voltage limits (including ripple)		**V**	∼ or ⎓ 20…264	
Switching capacity		**mA**	∼ 5…300 or ⎓ 5…200 *(2)*	
Voltage drop, closed state		**V**	≤ 5.5	
Residual current, open state		**mA**	≤ 0.8	
Maximum switching frequency	**XS2 18SAM●●●**	**Hz**	∼ 25 or ⎓ 1000	
	XS2 30SAM●●●	**Hz**	∼ 25 or ⎓ 300	
Delays	First-up	**ms**	≤ 30	
	Response	**ms**	≤ 0.5	
	Recovery	**ms**	≤ 0.5 **XS2 18SAM●●●**, ≤ 2 **XS2 30SAM●●●**	

(1) + 100 °C for cleaning and sterilization phases whilst not in service.
(2) It is essential to connect a 0.4 A "quick-blow" fuse in series with the load.

Wiring schemes

Connector

1/2" - 20UNF

AC/DC : 2
⏚ : 1
AC/DC : 3

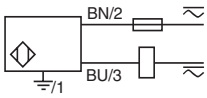
See connection on page 9/45.

Pre-cabled

BU: Blue
BN: Brown

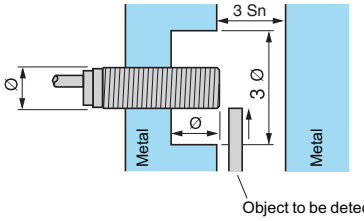
2-wire ∼ or ⎓

NO output

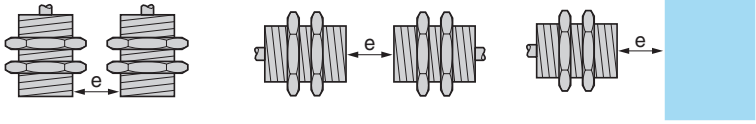


⏚: on connector models only

Setting-up



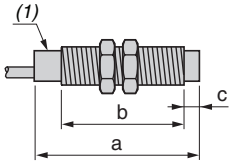
Minimum mounting distances (mm)



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

Dimensions

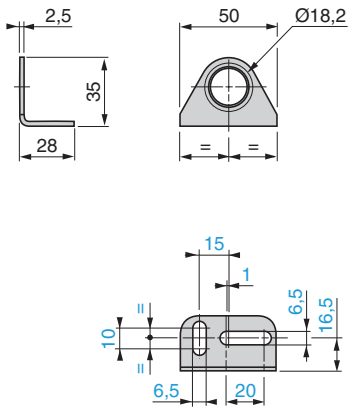
XS2



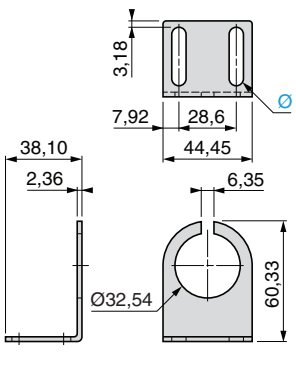
(1) LED

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

XSZ A118



XSZ BS30



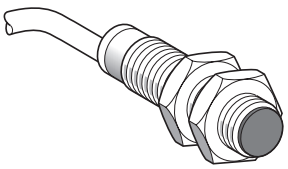
Ø: 2 elongated holes Ø 7.14 x 29.36

Inductive proximity sensors

Osiprox® Application, food and beverage processing series

Cylindrical, plastic, non flush mountable
Three-wire, d.c. supply, solid-state output

DF535159

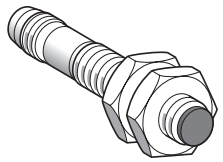


XS2 ●●AA●●L2

Ø 12, threaded M12 x 1

Sensing dist. (Sn) mm	Function	Output	Connection	Reference	Weight kg
7	NO	PNP	Pre-cabled (L = 2 m) *(1)*	**XS2 12AAPAL2**	0.065
			M12 connector	**XS2 12AAPAM12**	0.030
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS2 12AANAL2**	0.065
			M12 connector	**XS2 12AANAM12**	0.030

801167

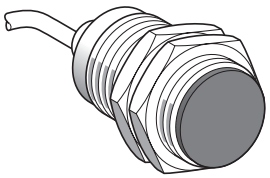


XS2 ●●AA●●M12

Ø 18, threaded M18 x 1

Sensing dist. (Sn) mm	Function	Output	Connection	Reference	Weight kg
12	NO	PNP	Pre-cabled (L = 2 m) *(1)*	**XS2 18AAPAL2**	0.100
			M12 connector	**XS2 18AAPAM12**	0.040
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS2 18AANAL2**	0.100
			M12 connector	**XS2 18AANAM12**	0.040

DF535161

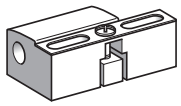


XS2 30AA●●L2

Ø 30, threaded M30 x 1.5

Sensing dist. (Sn) mm	Function	Output	Connection	Reference	Weight kg
22	NO	PNP	Pre-cabled (L = 2 m) *(1)*	**XS2 30AAPAL2**	0.140
			M12 connector	**XS2 30AAPAM12**	0.080
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS2 30AANAL2**	0.140
			M12 connector	**XS2 30AANAM12**	0.080

825994



XSZ B●●●

Accessories *(2)*

Description		Reference	Weight kg
Fixing clamps	Ø 12	**XSZ B112**	0.006
	Ø 18	**XSZ B118**	0.010
	Ø 30	**XSZ B130**	0.020

Connecting cables

Description	Type	Cable length m	Reference	Weight kg
Pre-wired M12 connectors Female, 4-pin, stainless steel clamping ring	Straight	2	**XZC PA1141L2**	0.090
		5	**XZC PA1141L5**	0.190
		10	**XZC PA1141L10**	0.370
	Elbowed	2	**XZC PA1241L2**	0.090
		5	**XZC PA1241L5**	0.190
		10	**XZC PA1241L10**	0.370
M12 jumper cable Male, 3-pin, stainless steel clamping ring	Straight	2	**XZC RA151140A2**	0.090
		5	**XZC RA151140A5**	0.190

*(1) For a 5 m long cable replace L2 by **L5**; for a 10 m long cable replace L2 by **L10**.*
*Example: **XS2 12AAPAL2** becomes **XS2 12AAPAL5** with a 5 m long cable.*
(2) For further information, see page 2/106.

Inductive proximity sensors

Osiprox® Application, food and beverage processing series

Cylindrical, plastic, non flush mountable
Three-wire, d.c. supply, solid-state output

Characteristics

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**	
	Ø 18	**mm**	**0…9.6**	
	Ø 30	**mm**	**0…17.6**	
Differential travel		**%**	1...15 of real sensing distance (Sr)	
Degree of protection	Conforming to IEC 60529		IP 67	IP 68, double insulation ⧈
	DIN 40050		IP 69 K	
Storage temperature		**°C**	- 40…+ 85	
Operating temperature		**°C**	- 25…+ 85	
Materials	Case		PPS	
	Cable		–	PvR and 3 x 0.34 mm²
Vibration resistance	Conforming to IEC 60068-2-6		25 gn, amplitude ± 2 mm (f = 10 to 55 Hz)	
Shock resistance	Conforming to IEC 60068-2-27		50 gn, duration 11 ms	
Output state indication			Yellow LED: annular	
Rated supply voltage		**V**	⎓ 12…48 for T - 25…+ 85 °C	
Voltage limits (including ripple)		**V**	⎓ 10…58 for T - 25…+ 85 °C	
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	**XS2 12AA●●●●**	**Hz**	2500	
	XS2 18AA●●●●	**Hz**	1000	
	XS2 30AA●●●●	**Hz**	500	
Delays	First-up	**ms**	⩽ 10	
	Response	**ms**	⩽ 0.2 Ø12, ⩽ 0.3 Ø18, ⩽ 0.6 Ø30	
	Recovery	**ms**	⩽ 0.2 Ø12, ⩽ 0.7 Ø18, ⩽ 1.4 Ø30	

Wiring schemes

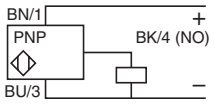
Connector

M12

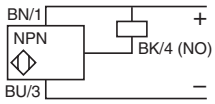
Pre-cabled

BU: Blue
BN: Brown
BK: Black

PNP

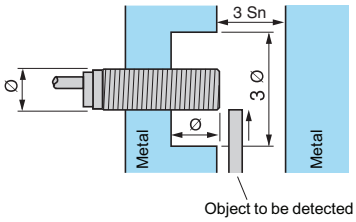


NPN

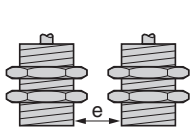


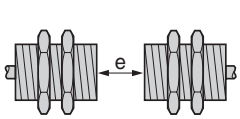
See connection on page 9/45.

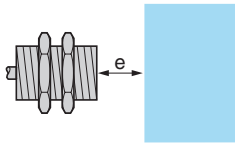
Setting-up



Minimum mounting distances (mm)

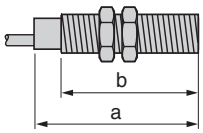






	Side by side	Face to face	Facing a metal object
Ø 12	e ⩾ 48	e ⩾ 84	e ⩾ 21
Ø 18	e ⩾ 72	e ⩾ 144	e ⩾ 36
Ø 30	e ⩾ 120	e ⩾ 264	e ⩾ 66

Dimensions



XS2

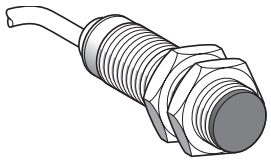
XS2	Pre-cabled (mm) a	Pre-cabled (mm) b	Connector (mm) a	Connector (mm) b
Ø 12	50	42	61	43
Ø 18	60	51	70	52
Ø 30	60	51	70	52

Inductive proximity sensors

Osiprox® Application, food and beverage processing series

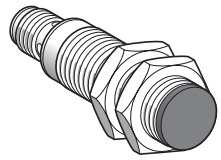
Cylindrical, plastic, non flush mountable
Two-wire, a.c. or d.c. supply

535156



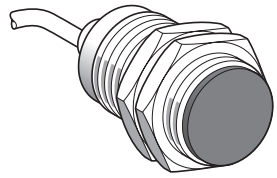
XS2 ●●AAM●L2

523382



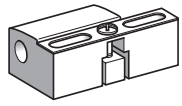
XS2 ●●AAM●U20

535158



XS2 30AAM●L2

825994



XSZ B1●●

Ø 18, threaded M18 x 1

Sensing distance (Sn) mm	Function	Connection	Reference	Weight kg
12	NO	Pre-cabled (L = 2 m) *(1)*	**XS2 18AAMAL2**	0.100
		1/2" - 20UNF connector	**XS2 18AAMAU20**	0.040

Ø 30, threaded M30 x 1.5

Sensing distance (Sn) mm	Function	Connection	Reference	Weight kg
22	NO	Pre-cabled (L = 2 m) *(1)*	**XS2 30AAMAL2**	0.140
		1/2" - 20UNF connector	**XS2 30AAMAU20**	0.080

Accessories *(2)*

Description		Reference	Weight kg
Fixing clamps	Ø 18	**XSZ B118**	0.010
	Ø 30	**XSZ B130**	0.020

Connecting cables

Description	Type	Cable length m	Reference	Weight kg
Pre-wired connectors 1/2" - 20UNF 3-pin female, stainless steel 316 L clamping ring	Straight	5	**XZC PA1865L5**	0.180
		10	**XZC PA1865L10**	0.350
	Elbowed	5	**XZC PA1965L5**	0.180
		10	**XZC PA1965L10**	0.350

*(1) For a 5 m long cable replace L2 by **L5**; for a 10 m long cable replace L2 by **L10**.*
*Example: **XS2 18AAMAL2** becomes **XS2 18AAMAL5** with a 5 m long cable.*
(2) For further information, see page 2/106.

Inductive proximity sensors

Osiprox® Application, food and beverage processing series

Cylindrical, plastic case, non flush mountable
Two-wire, a.c. or d.c. supply

Characteristics

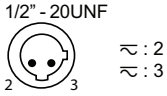
Sensor type			XS2 ●●AAM●U20	XS2 ●●AAM●L2
Product certifications/approvals			UL, CSA, CE	
Connection	Connector		1/2" - 20UNF	–
	Pre-cabled		–	Length: 2 m
Operating zone	Ø 18	**mm**	**0…9.6**	
	Ø 30	**mm**	**0...17.6**	
Differential travel		**%**	1...15 of real sensing distance (Sr)	
Degree of protection	Conforming to IEC 60529		IP 67	IP 68, double insulation ⧈
	DIN 40050		IP 69K	
Storage temperature		**°C**	- 40…+ 85	
Operating temperature		**°C**	- 25…+ 85	
Materials	Case		PPS	
	Cable		–	PvR and 2 x 0.34 mm²
Vibration resistance	Conforming to IEC 60068-2-6		25 gn, amplitude ± 2 mm (f = 10 to 55 Hz)	
Shock resistance	Conforming to IEC 60068-2-27		50 gn, duration 11 ms	
Output state indication			Yellow LED: annular	
Rated supply voltage		**V**	∼ or ⎓ 24…240 (∼ 50/60 Hz)	
Voltage limits (including ripple)		**V**	∼ or ⎓ 20…264	
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	**XS2 18AAM●●●**	**Hz**	∼ 25 or ⎓ 1000	
	XS2 30AAM●●●	**Hz**	∼ 25 or ⎓ 300	
Delays	First-up	**ms**	≤ 30	
	Response	**ms**	≤ 0.5	
	Recovery	**ms**	≤ 0.5 **XS2 18AAM●●●**, ≤ 2 **XS2 30AAM●●●**	

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

Wiring schemes

Connector

1/2" - 20UNF

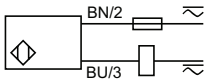


⎓ : 2
⎓ : 3

Pre-cabled

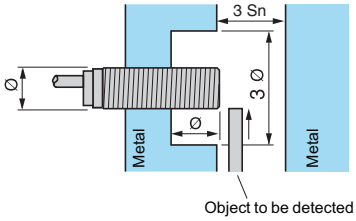
BU: Blue
BN: Brown

2-wire ∼ or ⎓
NO output

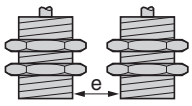


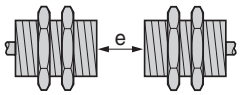
See connection on page 9/45.

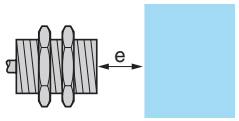
Setting-up



Minimum mounting distances (mm)



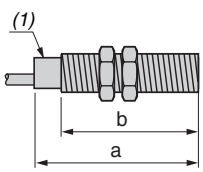




	Side by side	Face to face	Facing a metal object
Ø 18	e ≥ 72	e ≥ 144	e ≥ 36
Ø 30	e ≥ 120	e ≥ 264	e ≥ 66

Dimensions

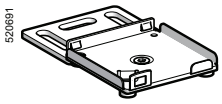
XS2

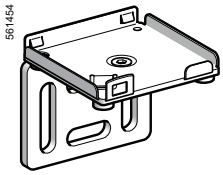


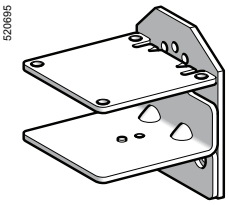
(1) LED

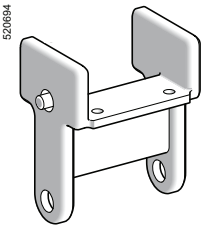
XS2	Pre-cabled (mm) a	Pre-cabled (mm) b	Connector (mm) a	Connector (mm) b
Ø 18	60	51	70	52
Ø 30	60	51	70	52

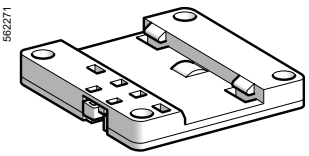
Inductive proximity sensors
Osiprox®
Accessories

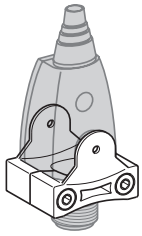

XSZ B●00

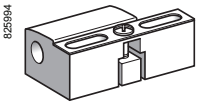

XSZ B●90

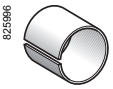

XSZ BC10


XSZ BE10

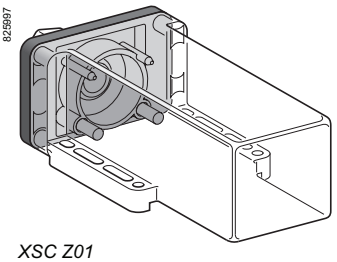

XSZ BD10


XSZ BPM12

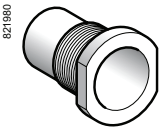

XSZ B1●●


XSZ A0●●


XSZ P1●●


XSC Z01


XSZ F10


XTA Z30

Mounting and fixing accessories

Description	For use with sensors		Unit reference	Weight kg
	Type	Diameter (mm)		
"Clip" mounting plate Mounting possible without "clip" on tapped holes	XS● J	–	**XSZ BJ00**	0.003
	XS● F	–	**XSZ BF00**	0.005
	XS● E	–	**XSZ BE00**	0.025
	XS● C	–	**XSZ BC00**	0.060
"Clip" 90° mounting bracket Mounting possible without "clip" on tapped holes	XS● J	–	**XSZ BJ90**	0.003
	XS● F	–	**XSZ BF90**	0.005
	XS● E	–	**XSZ BE90**	0.025
	XS● C	–	**XSZ BC90**	0.060
Replacement bracket	XS● E Replaced: XS7 T2, XS8 T2, XSE	–	**XSZ BE10**	0.060
	XS● C Replaced: XS7 T4, XS7 C40, XS8 T4, XS8 C40 and XSC	–	**XSZ BC10**	0.110
	XS● D (for XSD) *(1)*	–	**XSZ BD10**	0.065
Fixing clamp for remote control	XS9, XS6●●●B2	–	**XSZ BPM12**	0.015
Fixing clamps	XS1	4 (smooth)	**XSZ B104**	0.005
		5 (M5 x 0.5)	**XSZ B105**	0.005
	XS1, XS2	6.5 (smooth)	**XSZ B165**	0.005
	XS1, XS2, XS4, XS5, XS6	8 (M8 x 1)	**XSZ B108**	0.006
	XS1, XS2, XS4, XS5, XS6, XT1, XT4	12 (M12 x 1)	**XSZ B112**	0.006
		18 (M18 x 1)	**XSZ B118**	0.010
		30 (M30 x 1.5)	**XSZ B130**	0.020
	XT1, XT4	32 (smooth)	**XUZ B32**	0.050
Set of 2 fixing nuts, metal nickel chromed	XS1	5 (M5 x 0.5)	**XSZ E105**	0.010
	XS1, XS2, XS5, XS6	8 (M8 x 1)	**XSZ E108**	0.015
	XS1, XS2, XT1, XS5, XS6	12 (M12 x 1)	**XSZ E112**	0.015
		18 (M18 x 1)	**XSZ E118**	0.020
		30 (M30 x 1.5)	**XSZ E130**	0.050
Set of 2 fixing nuts, stainless steel	XS1, XS2, XS5, XS6	8 (M8 x 1)	**XSZ E308**	0.015
	XS1, XS2, XT1, XS5, XS6	12 (M12 x 1)	**XSZ E312**	0.015
		18 (M18 x 1)	**XSZ E318**	0.020
		30 (M30 x 1.5)	**XSZ E330**	0.050
Set of 2 fixing nuts, plastic	XS4	8 (M8 x 1)	**XSZ E208**	0.002
		12 (M12 x 1)	**XSZ E212**	0.003
	XS4, XT4	18 (M18 x 1)	**XSZ E218**	0.004
		30 (M30 x 1.5)	**XSZ E230**	0.005
Adaptor collar **Ø 20**	XS●, XT●	18 (M18 x 1)	**XSZ A020**	0.005
Ø 34	XS●, XT●	30 (M30 x 1.5)	**XSZ A034**	0.005

Protection accessories

Cable sleeve adaptor (CNOMO type)	XS●, XT●	12 (M12 x 1)	**XSZ P112**	0.005
		18 (M18 x 1)	**XSZ P118**	0.005
		30 (M30 x 1.5)	**XSZ P130**	0.010
Outer cover (IP 68)	XT7 C	–	**XSC Z01**	0.100
Thread adaptor	XS●, XT●	30 (M30 x 1.5)	**XTA Z30**	0.035
No. 13 plastic cable gland	Clamping capacity Ø 9 to 12 mm		**XSZ PE13**	0.010
Protective cover Sold in lots of 50	M12 universal connectors		**XSZ F10**	0.020

Mounting parts

Thread inserts for rear fixing	XS●E	M3	**XSZ VF03**	0.002
	XS●C	M4	**XSZ VF04**	0.005
	XS●D	M5	**XSZ VF05**	0.006

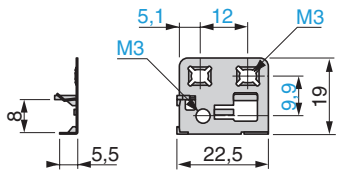
Fuses (for unprotected 2-wire ⎓/∿ sensors)

Description	Type	Sold in lots of	Unit reference	Weight kg
Cartridge fuses 5 x 20	0.4 A "quick-blow"	10	**XUZ E04**	0.001
	0.63 A "quick-blow"	10	**XUZ E06**	0.001
	0.8 A "quick-blow"	10	**XUZ E08**	0.001
Fuse terminal block for XUZ E0●		50	**AB1 FU10135U**	0.040

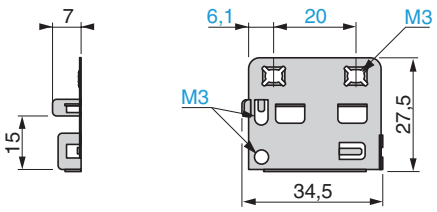
(1) Depth adjustment block for converting from 80 x 80 x 26 mm format to 80 x 80 x 40 mm format. Also enables clipping onto 35 mm "omega" rail.

Inductive proximity sensors
Osiprox®
Accessories

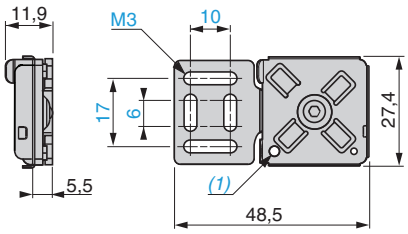
XSZ BJ00



XSZ BF00

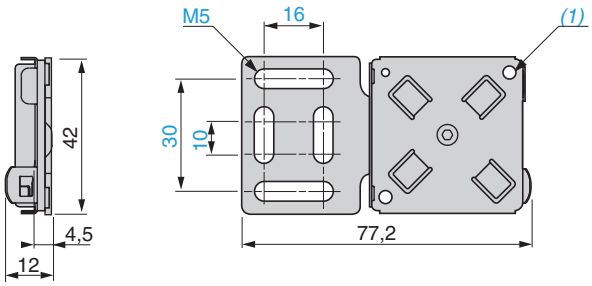


XSZ BE00



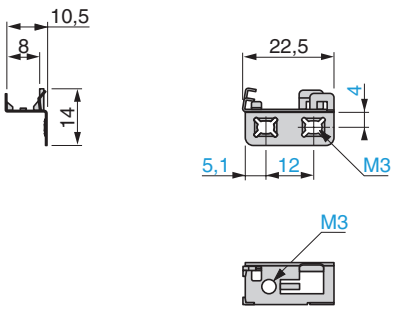
(1) 2 M3 x 12 screws supplied.

XSZ BC00

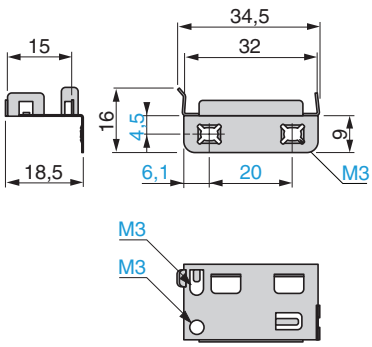


(1) 4 M4 x 14 screws supplied.

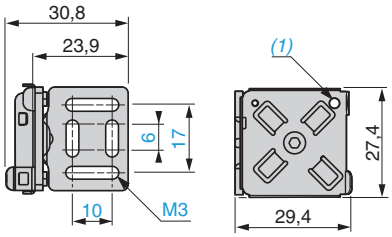
XSZ BJ90



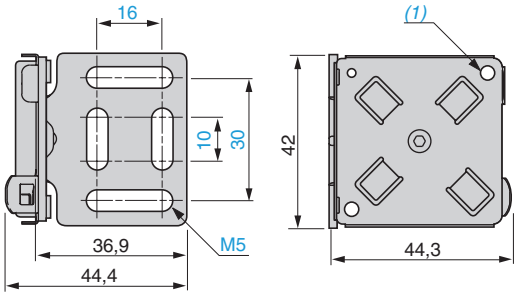
XSZ BF90



XSZ BE90



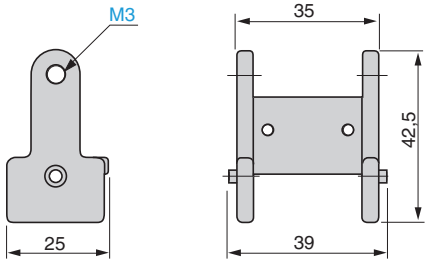
XSZ BC90



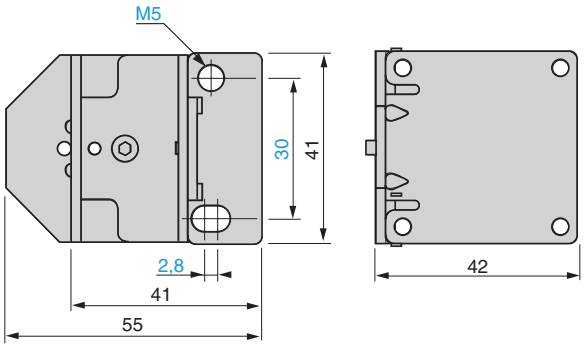
(1) 4 M4 x 14 screws supplied.

2

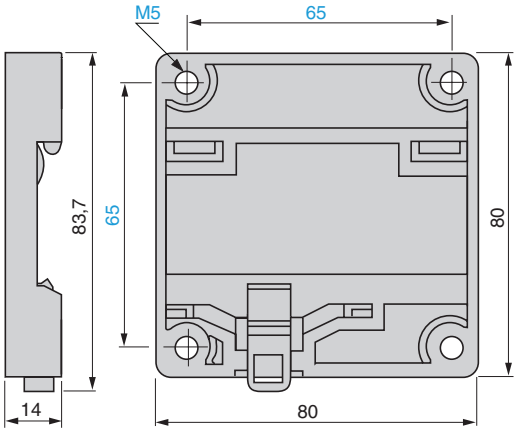
XSZ BE10



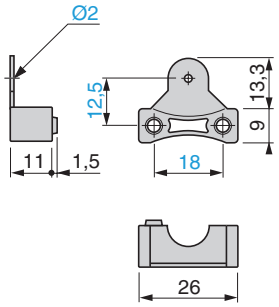
XSZ BC10



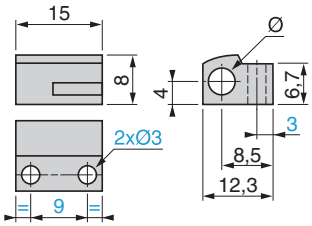
XSZ BD10 (for mounting on XS● D●●●●)



XSZ BPM12



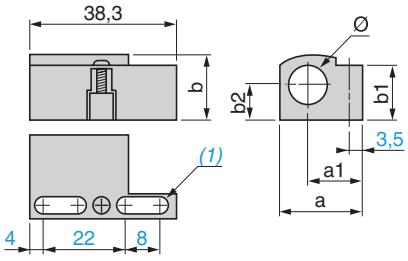
XSZ-B104, B105



XSZ	Ø
B104	4
B105	5

Note: *for saddle clamps XSZ B118 and XSZ B130, see setting-up recommendations page 2/17.*

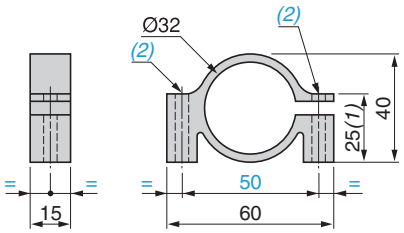
XSZ-B108, B112, B118, B130, B165



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

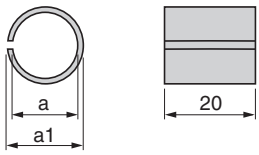
(1) 2 elongated holes Ø 4 x 8 mm.

XUZ B32



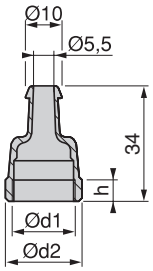
(1) Maximum value
(2) 2 holes Ø 5.5
Clamp supplied with two M5 screws, HM head

XSZ A0●●



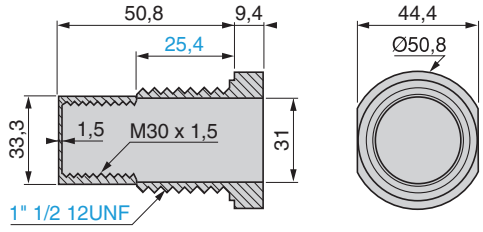
XSZ	a	a1
A020	Ø18	Ø20
A034	Ø30	Ø34

XSZ P112, P118, P130

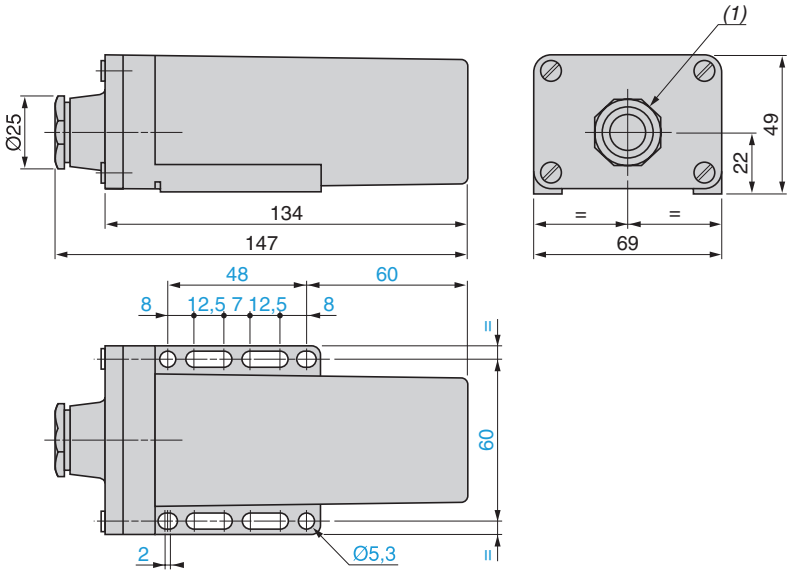


XSZ	h	Ø d1	Ø d2
P112	7	12	16.8
P118	6.2	18	23
P130	6.2	30	34.4

XTA Z30



XSC Z01

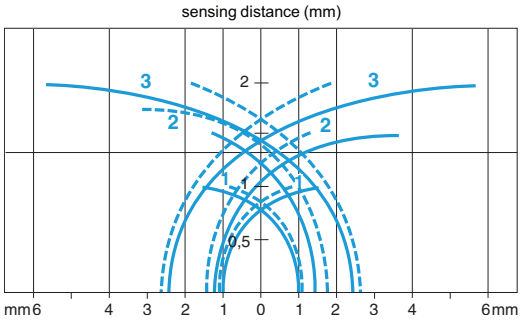


(1) No. 13 plastic cable gland

2

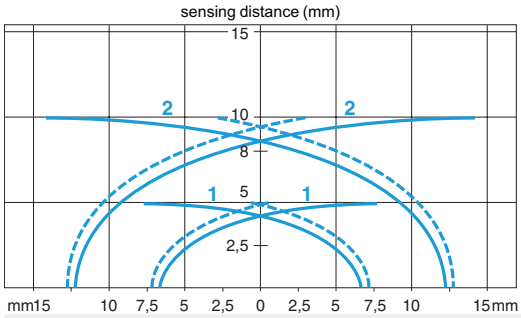
Cylindrical type proximity sensors

Flush mountable in metal



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

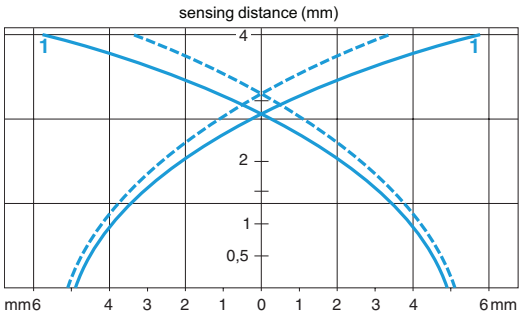
pick-up points
drop-out points (object approaching from the side)
1 Ø 4 (plain) XS1 and Ø 5 (M5 x 0.5) XS1
2 Ø 6.5 (plain) XS1 and Ø 8 (M8 x 1) XS5
3 Ø 12 (M12 x 1) XS5



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

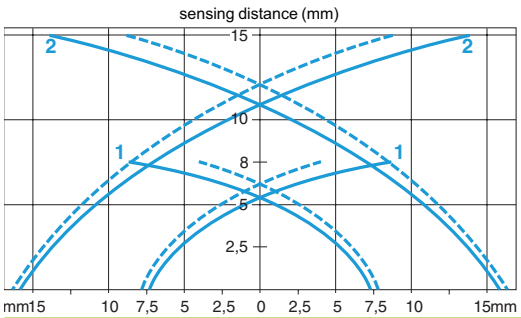
pick-up points
drop-out points (object approaching from the side)
1 Ø 18 (M18 x 1) XS5
2 Ø 30 (M30 x 1.5) XS5

Non flush mountable in metal



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

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

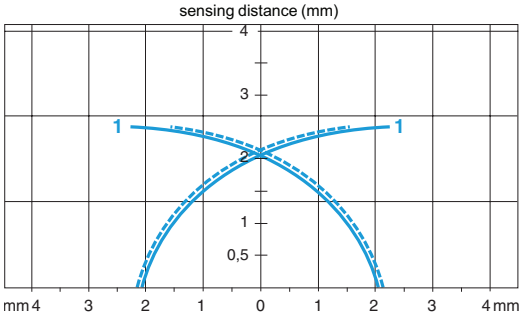


Sensor (mm)	Standard steel target (mm)	Operating zone (mm)
Ø 18	24 x 24 x 1	0…6.4
Ø 30	45 x 45 x 1	0…12

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

Cylindrical type proximity sensors with increased sensing range

Flush mountable in metal

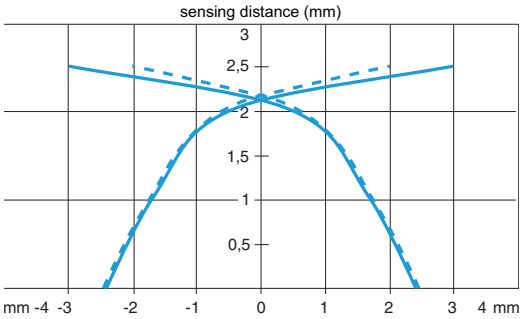


Sensor (mm)	Standard steel target (mm)	Operating zone (mm)
Ø 6.5	8 x 8 x 1	0…2

pick-up points
drop-out points (object approaching from the side)
1 Ø 6.5 (plain) XS1 L06●●349

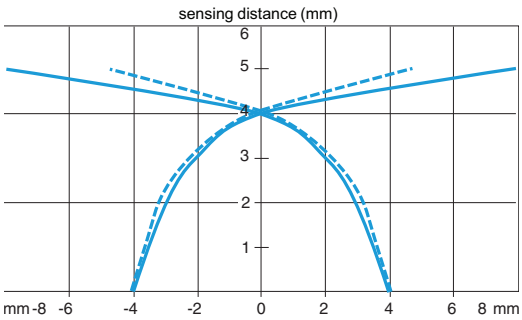
Flat type proximity sensors

Flush mountable in metal



Sensor (mm)	Standard steel target (mm)	Operating zone (mm)
XS7 J1A1D	5 x 5 x 1	0...2

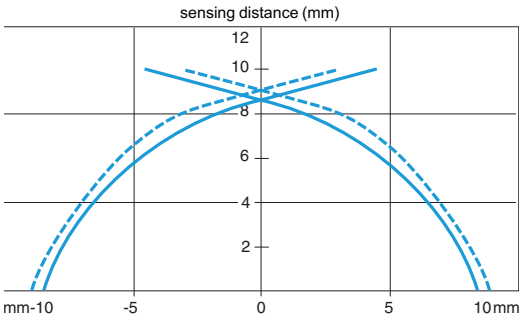
pick-up points
drop-out points (object approaching from the side)



Sensor (mm)	Standard steel target (mm)	Operating zone (mm)
XS7 F1A1D	5 x 5 x 1	0...4

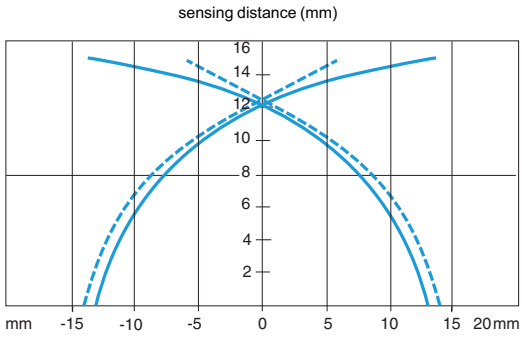
pick-up points
drop-out points (object approaching from the side)

Non flush mountable in metal



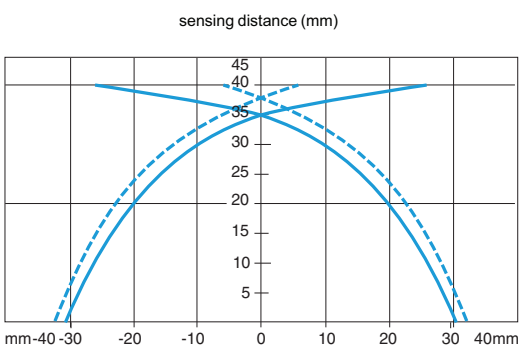
Sensor (mm)	Standard steel target (mm)	Operating zone (mm)
XS7 E1A1D	8 x 8 x 1	0...8
XS7 E1A1C	8 x 8 x 1	0...8

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



Sensor (mm)	Standard steel target (mm)	Operating zone (mm)
XS7 C1A1D	18 x 18 x 1	0...12
XS7 C1A1C	18 x 18 x 1	0...12

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



Sensor (mm)	Standard steel target (mm)	Operating zone (mm)
XS7 D1A1D	30 x 30 x 1	0...32
XS7 D1A1C	30 x 30 x 1	0...32

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

Substitution table
Sensors with closest functionalities

Inductive proximity sensors

Old sensor	New Osiprox sensor
Cylindrical type, d.c. supply	
Diameter 6.5 mm	
XS1L06NA140	**XS106BLNAL2**
XS1L06PA140	**XS106BLPAL2**
Diameter 8 mm	
XS1D08NA140	**XS108BLNAL2**
XS1D08NA140D	**XS108BLNAM12**
XS1D08PA140	**XS108BLPAL2**
XS1D08PA140D	**XS108BLPAM12**
XS1D08PA140L1	**XS108BLPAL5**
XS1M08DA210	**XS508B1DAL2**
XS1M08DA210D	**XS508B1DAM12**
XS1M08DA210L1	**XS508B1DAL5**
XS1M08DA210L2	**XS508B1DAL10**
XS1M08DA210LD	**XS508B1DAM12** *(1)*
XS1M08DA214D	**XS508B1CAM12**
XS1M08DA214LD	**XS508B1CAL08M12**
XS1M08DB210	**XS508B1DBL2**
XS1M08DB210D	**XS508B1DBM12**
XS1M08DB210L1	**XS508B1DBL5**
XS1M08DB210LD	**XS508B1DBM12** *(1)*
XS1M08NA370	**XS608B1NAL2**
XS1M08NA370D	**XS608B1NAM12**
XS1M08NA370L1	**XS608B1NAL5**
XS1M08NB370	**XS608B1NBL2**
XS1M08NB370D	**XS608B1NBM12**
XS1M08PA370	**XS608B1PAL2**
XS1M08PA370D	**XS608B1PAM12**
XS1M08PA370L1	**XS608B1PAL5**
XS1M08PA370L2	**XS608B1PAL10**
XS1M08PA370LD	**XS608B1PAM12** *(1)*
XS1M08PA370S	**XS608B1PAM12** *(2)*
XS1M08PB370	**XS608B1PBL2**
XS1M08PB370D	**XS608B1PBM12**
XS1M08PB370L1	**XS608B1PBL5**
XS1M08PB370L2	**XS608B1PBL10**
XS1N08NA340	**XS508B1NAL2**
XS1N08NA340D	**XS508B1NAM8** *(3)*
XS1N08NA340L1	**XS508B1NAL5**
XS1N08NA340L2	**XS508B1NAL10**
XS1N08NA340S	**XS508B1NAM8**
XS1N08NB340	**XS508B1NBL2**
XS1N08NB340D	**XS508B1NBM8** *(3)*
XS1N08NB340S	**XS508B1NBM8**
XS1N08PA340	**XS508B1PAL2**
XS1N08PA340D	**XS508B1PAM8** *(3)*
XS1N08PA340L1	**XS508B1PAL5**
XS1N08PA340L2	**XS508B1PAL10**
XS1N08PA340LD	**XS508B1PAM8** *(3)*
XS1N08PA340S	**XS508B1PAM8**
XS1N08PB340	**XS508B1PBL2**
XS1N08PB340D	**XS508B1PBM8** *(3)*
XS1N08PB340L1	**XS508B1PBL5**
XS1N08PB340L2	**XS508B1PBL10**
XS1N08PB340S	**XS508B1PBM8**
XS2M08NA340	**XS608B1NAL2**
XS2N08NA340	**XS1N08NA349**
XS2N08NA340D	**XS1N08NA349D**
XS2N08NA340L1	**XS1N08NA349L1**
XS2N08NA340L2	**XS1N08NA349L2**
XS2N08NA340S	**XS1N08NA349S**
XS2N08NB340	**XS1N08NB349**
XS2N08NB340D	**XS1N08NB349D**
XS2N08NB340S	**XS1N08NB349S**
XS2N08PA340	**XS1N08PA349**
XS2N08PA340D	**XS1N08PA349D**
XS2N08PA340L1	**XS1N08PA349L1**
XS2N08PA340L2	**XS1N08PA349L2**
XS2N08PA340S	**XS1N08PA349S**
XS2N08PB340	**XS1N08PB349**
XS2N08PB340D	**XS1N08PB349D**
XS2N08PB340S	**XS1N08PB349S**
XS3P08NA340	**XS508B1NAL2** *(4)*
XS3P08NA340D	**XS508B1NAM8** *(3)(4)*
XS3P08NA340L1	**XS508B1NAL5** *(4)*
XS3P08NA370	**XS608B1NAL2** *(4)*
XS3P08NA370L1	**XS608B1NAL5** *(4)*
XS3P08PA340	**XS508B1PAL2** *(4)*
XS3P08PA340D	**XS508B1PAM8** *(3)* *(4)*
XS3P08PA340L1	**XS508B1PAL5** *(4)*
XS3P08PA370	**XS608B1PAL2** *(4)*
XS3P08PA370L1	**XS608B1PAL5** *(4)*
Diameter 12 mm	
XS1D12NA140	**XS112BLNAL2**
XS1D12NA140D	**XS112BLNAM12**
XS1D12PA140	**XS112BLPAL2**
XS1D12PA140D	**XS112BLPAM12**
XS1D12PA140L1	**XS112BLPAL5**
XS2D12NA140	**XS212BLNAL2**
XS2D12NA140D	**XS212BLNAM12**
XS2D12NA140L1	**XS212BLNAL5**
XS2D12PA140	**XS212BLPAL2**
XS2D12PA140D	**XS212BLPAM12**
XS2D12PA140L1	**XS212BLPAL5**
XS1M12DA210	**XS512B1DAL2**
XS1M12DA210D	**XS512B1DAM12**
XS1M12DA210L1	**XS512B1DAL5**
XS1M12DA210L2	**XS512B1DAL10**
XS1M12DA210LD	**XS512B1DAM12** *(1)*
XS1M12DA214D	**XS512B1CAM12**
XS1M12DA214LD	**XS512B1CAL08M12**
XS1M12DB210	**XS512B1DBL2**
XS1M12DB210D	**XS512B1DBM12**
XS1M12DB210L1	**XS512B1DBL5**
XS1M12DB210L2	**XS512B1DBL10**
XS1M12DB210LD	**XS512B1DBM12** *(1)*
XS1M12NA370	**XS612B1NAL2**
XS1M12NA370D	**XS612B1NAM12**
XS1M12NA370L1	**XS612B1NAL5**
XS1M12NA370L2	**XS612B1NAL10**
XS1M12NA370S	**XS612B1NAM12** *(2)*
XS1M12NB370	**XS612B1NBL2**
XS1M12NB370D	**XS612B1NBM12**
XS1M12PA370	**XS612B1PAL2**
XS1M12PA370D	**XS612B1PAM12**
XS1M12PA370L1	**XS612B1PAL5**
XS1M12PA370L2	**XS612B1PAL10**
XS1M12PA370LD	**XS612B1PAM12** *(1)*
XS1M12PB370	**XS612B1PBL2**
XS1M12PB370D	**XS612B1PBM12**
XS1M12PB370L1	**XS612B1PBL5**
XS1M12PB370L2	**XS612B1PBL10**
XS1M12PB370LD	**XS612B1PAM12** *(1)*
XS1N12NA340	**XS512B1NAL2**
XS1N12NA340D	**XS512B1NAM12**
XS1N12NA340L1	**XS512B1NAL5**
XS1N12NA340L2	**XS512B1NAL10**
XS1N12NB340	**XS512B1NBL2**
XS1N12NB340D	**XS512B1NBM12**

(1) For the new sensor an integral M12 connector replaces the M12 connector on a 0.80 m flying lead.
(2) For the new sensor an M12 connector replaces the M8 connector.
(3) For the new sensor an M8 connector replaces the M12 connector.
(4) For the new Osiprox® sensor the metal case replaces the plastic case.

Old sensor	**New Osiprox sensor**
Cylindrical type, d.c. supply (continued)	
Diameter 12 mm	
XS1N12PA340	**XS512B1PAL2**
XS1N12PA340D	**XS512B1PAM12**
XS1N12PA340L1	**XS512B1PAL5**
XS1N12PA340L2	**XS512B1PAL10**
XS1N12PA340LD	**XS512B1PAM12** *(1)*
XS1N12PA340S	**XS512B1PAM12** *(2)*
XS1N12PB340	**XS512B1PBL2**
XS1N12PB340D	**XS512B1PBM12**
XS1N12PB340L1	**XS512B1PBL5**
XS2M12NA370	**XS612B1NAL2**
XS2M12NA370D	**XS612B1NAM12**
XS2M12NA370L1	**XS612B1NAL5**
XS2M12NA370L2	**XS612B1NAL10**
XS2M12NB370	**XS612B1NBL2**
XS2M12NB370D	**XS612B1NBM12**
XS2M12PA370	**XS612B1PAL2**
XS2M12PA370D	**XS612B1PAM12**
XS2M12PA370L1	**XS612B1PAL5**
XS2M12PA370L2	**XS612B1PAL10**
XS2M12PB370	**XS612B1PBL2**
XS2M12PB370D	**XS612B1PBM12**
XS2M12PB370L1	**XS612B1PBL5**
XS2M12PB370S	**XS612B1PBM12** *(2)*
XS2N12NA340	**XS1N12NA349**
XS2N12NA340D	**XS1N12NA349D**
XS2N12NA340L1	**XS1N12NA349L1**
XS2N12NA340L2	**XS1N12NA349L2**
XS2N12NB340	**XS1N12NB349**
XS2N12NB340D	**XS1N12NB349D**
XS2N12PA340	**XS1N12PA349**
XS2N12PA340D	**XS1N12PA349D**
XS2N12PA340L1	**XS1N12PA349L1**
XS2N12PA340L2	**XS1N12PA349L2**
XS2N12PB340	**XS1N12PB349**
XS2N12PB340D	**XS1N12PB349D**
XS2N12PB340L1	**XS1N12PB349L1**
XS3P12NA340	**XS512B1NAL2** *(4)*
XS3P12NA340D	**XS512B1NAM12** *(4)*
XS3P12NA340L1	**XS512B1NAL5** *(4)*
XS3P12NA370	**XS612B1NAL2** *(4)*
XS3P12NA370L1	**XS612B1NAL5** *(4)*
XS3P12PA340	**XS512B1PAL2** *(4)*
XS3P12PA340D	**XS512B1PAM12** *(4)*
XS3P12PA340L1	**XS512B1PAL5** *(4)*
XS3P12PA370	**XS612B1PAL2** *(4)*
XS3P12PA370L1	**XS612B1PAL5** *(4)*
Diameter 18 mm	
XS1D18NA140	**XS118BLNAL2**
XS1D18NA140D	**XS118BLNAM12**
XS1D18NA140L1	**XS118BLNAL5**
XS1D18PA140	**XS118BLPAL2**
XS1D18PA140D	**XS118BLPAM12**
XS1D18PA140L1	**XS118BLPAL5**
XS2D18NA140	**XS218BLNAL2**
XS2D18NA140D	**XS218BLNAM12**
XS2D18PA140	**XS218BLPAL2**
XS2D18PA140D	**XS218BLPAM12**
XS2D18PA140L1	**XS218BLPAL5**
XS1M18DA210	**XS518B1DAL2**
XS1M18DA210D	**XS518B1DAM12**
XS1M18DA210L1	**XS518B1DAL5**
XS1M18DA210L2	**XS518B1DAL10**
XS1M18DA210LD	**XS518B1DAM12** *(1)*
XS1M18DA214D	**XS518B1CAM12**
XS1M18DA214LD	**XS518B1CAL08M12**
XS1M18DB210	**XS518B1DBL2**
XS1M18DB210D	**XS518B1DBM12**
XS1M18DB210LD	**XS518B1DBM12** *(1)*
XS1M18NA370	**XS618B1NAL2**
XS1M18NA370D	**XS618B1NAM12**
XS1M18NA370L1	**XS618B1NAL5**
XS1M18NA370L2	**XS618B1NAL10**
XS1M18NB370	**XS618B1NBL2**
XS1M18NB370D	**XS618B1NBM12**
XS1M18NB370L1	**XS618B1NBL5**
XS1M18NB370L2	**XS618B1NBL10**
XS1M18PA370	**XS618B1PAL2**
XS1M18PA370D	**XS618B1PAM12**
XS1M18PA370L1	**XS618B1PAL5**
XS1M18PA370L2	**XS618B1PAL10**
XS1M18PA370LD	**XS618B1PAM12** *(1)*
XS1M18PB370	**XS618B1PBL2**
XS1M18PB370D	**XS618B1PBM12**
XS1M18PB370L1	**XS618B1PBL5**
XS1M18PB370L2	**XS618B1PBL10**
XS1N18NA340	**XS518B1NAL2**
XS1N18NA340D	**XS518B1NAM12**
XS1N18NA340L1	**XS518B1NAL5**
XS1N18NA340L2	**XS518B1NAL10** *(6)*
XS1N18NB340	**XS518B1NBL2**
XS1N18NB340D	**XS518B1NBM12**
XS1N18NB340L2	**XS518B1NBL10**
XS1N18PA340	**XS518B1PAL2**
XS1N18PA340D	**XS518B1PAM12**
XS1N18PA340L1	**XS518B1PAL5**
XS1N18PA340L2	**XS518B1PAL10**
XS1N18PB340	**XS518B1PBL2**
XS1N18PB340D	**XS518B1PBM12**
XS1N18PB340L2	**XS518B1PBL10**
XS2M18NA370	**XS618B1NAL2**
XS2M18NA370D	**XS618B1NAM12**
XS2M18NA370L1	**XS618B1NAL5**
XS2M18NA370L2	**XS618B1NAL10**
XS2M18NB370	**XS618B1NBL2**
XS2M18NB370D	**XS618B1NBM12**
XS2M18NB370L1	**XS618B1NBL5**
XS2M18NB370L2	**XS618B1NBL10**
XS2M18PA370	**XS618B1PAL2**
XS2M18PA370D	**XS618B1PAM12**
XS2M18PA370L1	**XS618B1PAL5**
XS2M18PA370L2	**XS618B1PAL10**
XS2M18PB370	**XS618B1PBL2**
XS2M18PB370D	**XS618B1PBM12**
XS2M18PB370L1	**XS618B1PBL5**
XS2M18PB370L2	**XS618B1PBL10**
XS2N18NA340	**XS1N18NA349** *(8)*
XS2N18NA340D	**XS1N18NA349D** *(8)*
XS2N18NA340L1	**XS1N18NA349L1** *(8)*
XS2N18NA340L2	**XS1N18NA349L2** *(8)*
XS2N18NB340	**XS1N18NB349** *(8)*
XS2N18NB340D	**XS1N18NB349D** *(8)*
XS2N18PA340	**XS1N18PA349** *(8)*
XS2N18PA340D	**XS1N18PA349D** *(8)*
XS2N18PA340L1	**XS1N18PA349L1** *(8)*
XS2N18PA340L2	**XS1N18PA349L2** *(8)*
XS2N18PB340	**XS1N18PB349** *(8)*
XS2N18PB340D	**XS1N18PB349D** *(8)*
XS3P18NA340	**XS518B1NAL2** *(4)*
XS3P18NA340D	**XS518B1NAM12** *(4)*
XS3P18NA340L1	**XS518B1NAL5** *(4)*
XS3P18NA370	**XS618B1NAL2** *(4)*
XS3P18NA370L1	**XS618B1NAL5** *(4)*

(1) For the new sensor an integral M12 connector replaces the M12 connector on a 0.80 m flying lead.
(2) For the new sensor an M12 connector replaces the M8 connector.
(4) For the new Osiprox® sensor the metal case replaces the plastic case.
(6) For the new Osiprox® sensor the length of the product is different.
(8) For the new sensor, Sn = 10 mm instead of 8 mm.

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Old sensor	New Osiprox sensor
Cylindrical type, d.c. supply (continued)	
Diameter 18 mm	
XS3P18PA340	**XS518B1PAL2** *(4)*
XS3P18PA340D	**XS518B1PAM12** *(4)*
XS3P18PA340L1	**XS518B1PAL5** *(4)*
XS3P18PA370	**XS618B1PAL2** *(4)*
XS3P18PA370L1	**XS618B1PAL5** *(4)*
XS3P18PA370L2	**XS618B1PAL10** *(4)*
Diameter 30 mm	
XS1D30NA140	**XS130BLNAL2**
XS1D30NA140D	**XS130BLNAM12**
XS1D30PA140	**XS130BLPAL2**
XS1D30PA140D	**XS130BLPAM12**
XS1D30PA140L1	**XS130BLPAL5**
XS2D30NA140	**XS230BLNAL2**
XS2D30NA140D	**XS230BLNAM12**
XS2D30PA140	**XS230BLPAL2**
XS2D30PA140D	**XS230BLPAM12**
XS1M30DA210	**XS530B1DAL2**
XS1M30DA210D	**XS530B1DAM12**
XS1M30DA210L1	**XS530B1DAL5**
XS1M30DA210L2	**XS530B1DAL10**
XS1M30DA210LD	**XS530B1DAM12** *(1)*
XS1M30DA214D	**XS530B1CAM12**
XS1M30DA214LD	**XS530B1CAL08M12**
XS1M30DB210	**XS530B1DBL2**
XS1M30DB210D	**XS530B1DBM12**
XS1M30DB210LD	**XS530B1DBM12** *(1)*
XS1M30NA370	**XS630B1NAL2**
XS1M30NA370D	**XS630B1NAM12**
XS1M30NA370L1	**XS630B1NAL5**
XS1M30NA370L2	**XS630B1NAL10**
XS1M30NB370	**XS630B1NBL2**
XS1M30NB370D	**XS630B1NBM12**
XS1M30NB370L1	**XS630B1NBL5**
XS1M30NB370L2	**XS630B1NBL10**
XS1M30PA349D	**XS630B1PAM12** *(5)*
XS1M30PA370	**XS630B1PAL2**
XS1M30PA370D	**XS630B1PAM12**
XS1M30PA370L1	**XS630B1PAL5**
XS1M30PA370L2	**XS630B1PAL10**
XS1M30PA370LD	**XS630B1PAM12** *(1)*
XS1M30PB370	**XS630B1PBL2**
XS1M30PB370D	**XS630B1PBM12**
XS1M30PB370L1	**XS630B1PBL5**
XS1M30PB370L2	**XS630B1PBL10**

Old sensor	New Osiprox sensor
XS1N30NA340	**XS530B1NAL2**
XS1N30NA340D	**XS530B1NAM12**
XS1N30NA340L1	**XS530B1NAL5**
XS1N30NA340L2	**XS530B1NAL10**
XS1N30NB340	**XS530B1NBL2**
XS1N30NB340D	**XS530B1NBM12**
XS1N30PA340	**XS530B1PAL2**
XS1N30PA340D	**XS530B1PAM12**
XS1N30PA340L1	**XS530B1PAL5**
XS1N30PA340L2	**XS530B1PAL10**
XS1N30PB340	**XS530B1PBL2**
XS1N30PB340D	**XS530B1PBM12**
XS2M30NA370	**XS630B1NAL2**
XS2M30NA370D	**XS630B1NAM12**
XS2M30NA370L1	**XS630B1NAL5**
XS2M30NA370L2	**XS630B1NAL10**
XS2M30NB370	**XS630B1NBL2**
XS2M30NB370D	**XS630B1NBM12**
XS2M30NB370L1	**XS630B1NBL5**
XS2M30NB370L2	**XS630B1NBL10**
XS2M30PA370	**XS630B1PAL2**
XS2M30PA370D	**XS630B1PAM12**
XS2M30PA370L1	**XS630B1PAL5**
XS2M30PA370L2	**XS630B1PAL10**
XS2M30PB370	**XS630B1PBL2**
XS2M30PB370D	**XS630B1PBM12**
XS2M30PB370L1	**XS630B1PBL5**
XS2M30PB370L2	**XS630B1PBL10**
XS2N30NA340	**XS1N30NA349** *(9)*
XS2N30NA340D	**XS1N30NA349D** *(9)*
XS2N30NA340L1	**XS1N30NA349L1** *(9)*
XS2N30NA340L2	**XS1N30NA349L2** *(9)*
XS2N30NB340	**XS1N30NB349** *(9)*
XS2N30NB340D	**XS1N30NB349D** *(9)*
XS2N30PA340	**XS1N30PA349** *(9)*
XS2N30PA340D	**XS1N30PA349D** *(9)*
XS2N30PA340L1	**XS1N30PA349L1** *(9)*
XS2N30PA340L2	**XS1N30PA349L2** *(9)*
XS2N30PB340	**XS1N30PB349** *(9)*
XS2N30PB340D	**XS1N30PB349D** *(9)*
XS3P30NA340	**XS530B1NAL2** *(4)*
XS3P30NA340D	**XS530B1NAM12** *(4)*
XS3P30NA340L1	**XS530B1NAL5** *(4)*

Old sensor	New Osiprox sensor
XS3P30NA370	**XS630B1NAL2** *(4)*
XS3P30NA370L1	**XS630B1NAL5** *(4)*
XS3P30PA340	**XS530B1PAL2** *(4)*
XS3P30PA340D	**XS530B1PAM12** *(4)*
XS3P30PA340L1	**XS530B1PAL5** *(4)*
XS3P30PA340L2	**XS530B1PAL10** *(4)*
XS3P30PA370	**XS630B1PAL2** *(4)*
XS3P30PA370L1	**XS630B1PAL5** *(4)*
XS3P30PA370L2	**XS630B1PAL10** *(4)*

(1) For the new sensor an integral M12 connector replaces the M12 connector on a 0.80 m flying lead.
(4) For the new Osiprox® sensor the metal case replaces the plastic case.
(5) For the new sensor, Sn = 15 mm instead of 20 mm.
(9) For the new sensor, Sn = 20 mm instead of 15 mm.

Old sensor	**New Osiprox sensor**
Cylindrical type, a.c. supply	
Diameter 12 mm	
XS1M12FA264	**XS112BLFAL2**
XS1M12FA264L2	**XS112BLFAL10**
XS1M12MA230	**XS612B1MAL2**
XS1M12MA230K	**XS612B1MAU20**
XS1M12MA230L1	**XS612B1MAL5**
XS1M12MA230L2	**XS612B1MAL10**
XS1M12MA239	**XS612B1MAL2**
XS1M12MA239K	**XS612B1MAU20**
XS1M12MB230	**XS612B1MBL2**
XS1M12MB230K	**XS612B1MBU20**
XS1M12MB230L1	**XS612B1MBL5**
XS1M12MB230L2	**XS612B1MBL10**
XS2M12MA230	**XS612B1MAL2**
XS2M12MA230K	**XS612B1MAU20**
XS2M12MA230L1	**XS612B1MAL5**
XS2M12MA230L2	**XS612B1MAL10**
XS2M12MB230	**XS612B1MBL2**
XS2M12MB230K	**XS612B1MBU20**
XS2M12MB230L1	**XS612B1MBL5**
XS2M12MB230L2	**XS612B1MBL10**
XS3P12MA230	**XS612B1MAL2** *(4)*
XS3P12MA230K	**XS612B1MAU20** *(4)*
XS3P12MA230L1	**XS612B1MAL5** *(4)*
XS3P12MA230L2	**XS612B1MAL10** *(4)*
XS3P12MB230	**XS612B1MBL2** *(4)*
XS3P12MB230K	**XS612B1MBU20** *(4)*
XS3P12MB230L1	**XS612B1MBL5** *(4)*

Old sensor	**New Osiprox sensor**
Diameter 18 mm	
XS1M18FA264	**XS118BLFAL2**
XS1M18MA230	**XS618B1MAL2**
XS1M18MA230K	**XS618B1MAU20**
XS1M18MA230L1	**XS618B1MAL5**
XS1M18MA230L2	**XS618B1MAL10**
XS1M18MA239	**XS618B1MAL2** *(7)*
XS1M18MA239K	**XS618B1MAU20** *(7)*
XS1M18MB230	**XS618B1MBL2**
XS1M18MB230K	**XS618B1MBU20**
XS1M18MB230L1	**XS618B1MBL5**
XS1M18MB230L2	**XS618B1MBL10**
XS2M18MA230	**XS618B1MAL2**
XS2M18MA230K	**XS618B1MAU20**
XS2M18MA230L1	**XS618B1MAL5**
XS2M18MA230L2	**XS618B1MAL10**
XS2M18MB230	**XS618B1MBL2**
XS2M18MB230K	**XS618B1MBU20**
XS2M18MB230L1	**XS618B1MBL5**
XS2M18MB230L2	**XS618B1MBL10**
XS3P18MA230	**XS618B1MAL2** *(4)*
XS3P18MA230K	**XS618B1MAU20** *(4)*
XS3P18MA230L1	**XS618B1MAL5** *(4)*
XS3P18MA230L2	**XS618B1MAL10** *(4)*
XS3P18MB230	**XS618B1MBL2** *(4)*
XS3P18MB230A	**XS618B1MBU20** *(4)*
XS3P18MB230K	**XS618B1MBU20** *(4)*
XS3P18MB230L1	**XS618B1MBL5** *(4)*

Old sensor	**New Osiprox sensor**
Diameter 30 mm	
XS1M30FA264	**XS130BLFAL2**
XS1M30MA230	**XS630B1MAL2**
XS1M30MA230K	**XS630B1MAU20**
XS1M30MA230L1	**XS630B1MAL5**
XS1M30MA230L2	**XS630B1MAL10**
XS1M30MA239	**XS630B1MAL2** *(5)*
XS1M30MB230	**XS630B1MBL2**
XS1M30MB230K	**XS630B1MBU20**
XS1M30MB230L1	**XS630B1MBL5**
XS1M30MB230L2	**XS630B1MBL10**
XS2M30MA230	**XS630B1MAL2**
XS2M30MA230K	**XS630B1MAU20**
XS2M30MA230L1	**XS630B1MAL5**
XS2M30MA230L2	**XS630B1MAL10**
XS2M30MB230	**XS630B1MBL2**
XS2M30MB230K	**XS630B1MBU20**
XS2M30MB230L1	**XS630B1MBL5**
XS2M30MB230L2	**XS630B1MBL10**
XS3P30MA230	**XS630B1MAL2** *(4)*
XS3P30MA230K	**XS630B1MAU20** *(4)*
XS3P30MA230L1	**XS630B1MAL5** *(4)*
XS3P30MA230L2	**XS630B1MAL10** *(4)*
XS3P30MB230	**XS630B1MBL2** *(4)*
XS3P30MB230K	**XS630B1MBU20** *(4)*
XS3P30MB230L1	**XS630B1MBL5** *(4)*

(4) For the new Osiprox® sensor the metal case replaces the plastic case.
(5) For the new sensor, Sn = 15 mm instead of 20 mm.
(7) For the new sensor, Sn = 8 mm instead of 10 mm.