

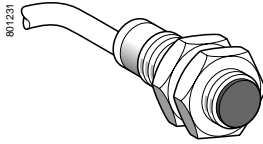
Inductive proximity sensors

Osiprox® Application

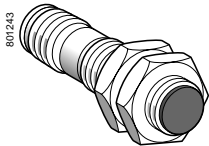
Plastic, cylindrical, non flush mountable

Two-wire, a.c. or d.c. supply

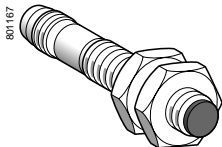
Three-wire, d.c. supply, solid-state output



XS4 P●●●●340
XS4 P●●●●230



XS4 P●●●●340D
XS4 P●●●●230K



XS4 P08●●340S

Sensing distance (Sn) (mm)	Function	Output	Connection	Reference	Weight kg
Ø 8 (1)					
Three-wire ≡					
2.5	NO	PNP	Pre-cabled (L = 2 m) (2)	XS4 P08PA340	0.025
			M8 connector	XS4 P08PA340S	0.010
	NPN	PNP	Pre-cabled (L = 2 m) (2)	XS4 P08NA340	0.025
			M8 connector	XS4 P08NA340S	0.010
	NC	PNP	Pre-cabled (L = 2 m) (2)	XS4 P08PB340	0.025
			M8 connector	XS4 P08PB340S	0.010
NPN	PNP	Pre-cabled (L = 2 m)	XS4 P08NB340	0.025	
		M8 connector	XS4 P08NB340S	0.010	
2-wire ~ or ≡					
2.5	NO		Pre-cabled (L = 2 m) (2)	XS4 P08MA230	0.030
			1/2" - 20 UNF connector	XS4 P08MA230K	0.020
	NC		Pre-cabled (L = 2 m) (2)	XS4 P08MB230	0.030
			1/2" - 20 UNF connector	XS4 P08MB230K	0.020
Ø 12 (1)					
Three-wire ≡					
4	NO	PNP	Pre-cabled (L = 2 m) (2)	XS4 P12PA340	0.060
			M12 connector	XS4 P12PA340D	0.020
	NPN	PNP	Pre-cabled (L = 2 m) (2)	XS4 P12NA340	0.060
			M12 connector	XS4 P12NA340D	0.020
	NC	PNP	Pre-cabled (L = 2 m) (2)	XS4 P12PB340	0.060
			M12 connector	XS4 P12PB340D	0.020
NPN	PNP	Pre-cabled (L = 2 m) (2)	XS4 P12NB340	0.060	
		M12 connector	XS4 P12NB340D	0.020	
2-wire ~ or ≡					
4	NO		Pre-cabled (L = 2 m) (2)	XS4 P12MA230	0.065
			1/2" - 20 UNF connector	XS4 P12MA230K	0.030
	NC		Pre-cabled (L = 2 m) (2)	XS4 P12MB230	0.065
			1/2" - 20 UNF connector	XS4 P12MB230K	0.030
Ø 18 (1)					
Three-wire ≡					
8	NO	PNP	Pre-cabled (L = 2 m) (2)	XS4 P18PA340	0.090
			M12 connector	XS4 P18PA340D	0.030
	NPN	PNP	Pre-cabled (L = 2 m) (2)	XS4 P18NA340	0.090
			M12 connector	XS4 P18NA340D	0.030
	NC	PNP	Pre-cabled (L = 2 m) (2)	XS4 P18PB340	0.090
			M12 connector	XS4 P18PB340D	0.030
NPN	PNP	Pre-cabled (L = 2 m) (2)	XS4 P18NB340	0.090	
		M12 connector	XS4 P18NB340D	0.030	
2-wire ~ or ≡					
8	NO		Pre-cabled (L = 2 m) (2)	XS4 P18MA230	0.100
			M12 connector	XS4 P18MA230K	0.040
	NC		Pre-cabled (L = 2 m) (2)	XS4 P18MB230	0.100
			M12 connector	XS4 P18MB230K	0.040
Ø 30 (1)					
Three-wire ≡					
15	NO	PNP	Pre-cabled (L = 2 m) (2)	XS4 P30PA340	0.120
			M12 connector	XS4 P30PA340D	0.060
	NPN	PNP	Pre-cabled (L = 2 m) (2)	XS4 P30NA340	0.120
			M12 connector	XS4 P30NA340D	0.060
	NC	PNP	Pre-cabled (L = 2 m) (2)	XS4 P30PB340	0.120
			M12 connector	XS4 P30PB340D	0.060
NPN	PNP	Pre-cabled (L = 2 m) (2)	XS4 P30NB340	0.120	
		M12 connector	XS4 P30NB340D	0.060	
2-wire ~ or ≡					
15	NO		Pre-cabled (L = 2 m) (2)	XS4 P30MA230	0.140
			1/2" - 20 UNF connector	XS4 P30MA230K	0.080
	NC		Pre-cabled (L = 2 m) (2)	XS4 P30MB230	0.140
			1/2" - 20 UNF connector	XS4 P30MB230K	0.080

(1) For accessories, see page 37317/2.

(2) For a 5 m long cable, add L1 to the reference and for a 10 m long cable, add L2 to the reference.

Example: XS4 P08PA340 becomes XS4 P08PA340L1 with a 5 m long cable.

Inductive proximity sensors

Osiprox® Application

Plastic, cylindrical, non flush mountable

Two-wire, a.c. or d.c. supply

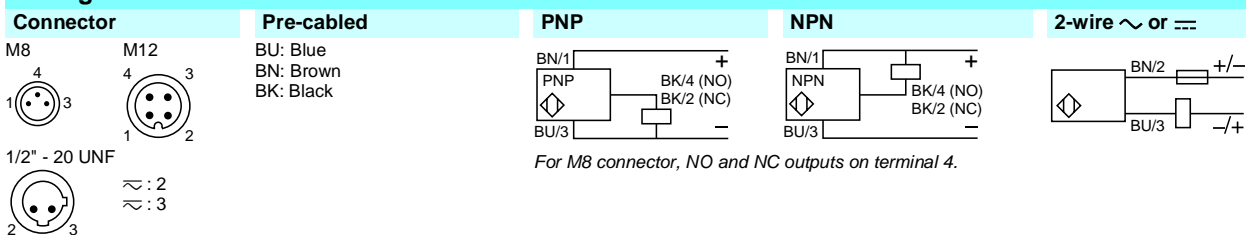
Three-wire, d.c. supply, solid-state output

Characteristics

Sensor type		XS4 P●●●●●●S, XS4 P●●●●●●K, XS4 P●●●●●●D	XS4 P●●●●●●	
Product certifications		UL, CSA, CE		
Connection	Connector	M8 on Ø 8 3-wire M12 on Ø 12 to Ø 30 3-wire 1/2" - 20 UNF on Ø 8 to Ø 30 2-wire	–	
	Pre-cabled	–	Length: 2 m	
Operating zone	Ø 8	mm	0...2	
	Ø 12	mm	0...3.2	
	Ø 18	mm	0...6.4	
	Ø 30	mm	0...12	
Degree of protection	Conforming to IEC 60529	IP 67	IP 68 (except Ø 8: IP 67)	
Storage temperature range		°C - 40...+ 85		
Operating temperature range		°C - 25...+ 80		
Materials	Case	PPS		
	Pre-cabled	PvR 3 x 0.34 mm ² ≡ and 2 x 0.34 mm ² ∼ (except Ø 8: 0.11 mm ²)		
Vibration resistance	Conforming to IEC 60068-2-6	25 gn, amplitude ± 2 mm (f = 10 to 55 Hz)		
Shock resistance	Conforming to IEC 60068-2-27	50 gn, duration 11 ms		
Output state indication		LED, annular		
Rated supply voltage	3-wire PNP/NPN	V	≡ 12...24 with protection against reverse polarity	
	2-wire	V	∼ or ≡ 24...240 (50/60 Hz)	
Voltage limits (including ripple)	3-wire PNP/NPN	V	≡ 10...38	
	2-wire	V	∼ or ≡ 20...264	
Current consumption, no-load	3-wire PNP/NPN	mA	≤ 10	
Residual current, open state	2-wire	mA	≤ 0.6	
Switching capacity	3-wire PNP/NPN	mA	0...200 with overload and short-circuit protection	
	2-wire (1)	mA	5...100 for Ø 8, 5...200 for Ø 12, 5...200 ≡ and 5...300 ∼ for Ø 18 and 30	
Voltage drop, closed state	3-wire PNP/NPN	V	≤ 2	
	2-wire	V	≤ 5.5	
Maximum switching frequency	3-wire ≡	kHz	5 for XS4 P08, XS4 P12, 2 for XS4 P18, 1 for XS4 P30	
	2-wire ≡	kHz	3 for XS4 P08, XS4 P12, 2 for XS4 P18, 1 for XS4 P30	
	2-wire ∼	Hz	25 for XS4 P08, XS4 P12, XS4 P18, XS4 P30	
Delays	First-up	3-wire	ms	< 10
		2-wire	ms	< 40
	Response	3-wire	ms	< 0.1 for XS4 P08, XS4 P12, < 0.15 for XS4 P18, < 0.3 for XS4 P30
		2-wire	ms	< 0.2
	Recovery	3-wire	ms	< 0.1 for XS4 P08, XS4 P12, < 0.35 for XS4 P18, < 0.7 for XS4 P30
		2-wire	ms	< 0.2 for XS4 P08, XS4 P12, XS4 P18, < 0.4 for XS4 P30

(1) 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

Wiring scheme



See connection on page 30210/3.

Setting-up

Minimum mounting distances (mm)

Ø	Side by side		Face to face		Facing a metal object	
	e	e	e	e	e	e
Ø 8	e ≥ 10	e ≥ 10	e ≥ 30	e ≥ 30	e ≥ 7.5	e ≥ 7.5
Ø 12	e ≥ 16	e ≥ 16	e ≥ 48	e ≥ 48	e ≥ 12	e ≥ 12
Ø 18	e ≥ 16	e ≥ 16	e ≥ 96	e ≥ 96	e ≥ 24	e ≥ 24
Ø 30	e ≥ 60	e ≥ 60	e ≥ 180	e ≥ 180	e ≥ 45	e ≥ 45

Dimensions

XS4	3-wire				2-wire			
	Pre-cabled (mm)		Connector (mm)		Pre-cabled (mm)		Connector (mm)	
	a	b	a	b	a	b	a	b
Ø 8	33	26	42	26	50	40	61	40
Ø 12	33	26	48	27	50	42	61	42
Ø 18	33.5	26	48	29	60	51.5	70	51.5
Ø 30	40.5	33	50	34	60	51.5	70	51.5

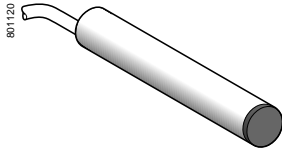
Inductive proximity sensors

Osiprox® Application

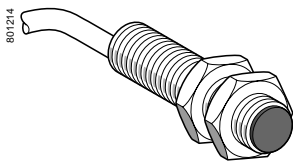
Basic, cylindrical, flush mountable and non flush mountable

Two-wire, a.c. supply

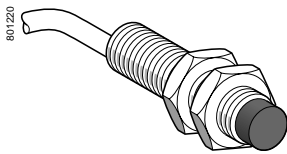
Three-wire, d.c. supply, solid-state output



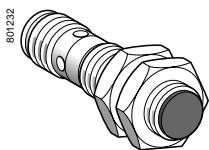
XS1 L06A140



XS1 D08A140
XS1 M08FA264



XS2 D12A140



XS1 D12A140D



XS2 D18A140

Ø 6 flush mountable (1)

Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight kg
1.5	NO	PNP	Pre-cabled (L = 2 m)	XS1 L06PA140	0.025
		NPN	Pre-cabled (L = 2 m)	XS1 L06NA140	0.025

Ø 8 flush mountable (1)

Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight kg
1.5	NO	PNP	Pre-cabled (L = 2 m)	XS1 D08PA140	0.035
			M12 connector	XS1 D08PA140D	0.025
		NPN	Pre-cabled (L = 2 m)	XS1 D08NA140	0.035
			M12 connector	XS1 D08NA140D	0.025

Ø 12 (1)

Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight kg
Three-wire ≡ flush mountable					
2	NO	PNP	Pre-cabled (L = 2 m)	XS1 D12PA140	0.075
			M12 connector	XS1 D12PA140D	0.025
		NPN	Pre-cabled (L = 2 m)	XS1 D12NA140	0.075
			M12 connector	XS1 D12NA140D	0.025
Two-wire ~ flush mountable					
2	NO		Pre-cabled (L = 2 m)	XS1 M12FA264	0.075

Ø 12 (1)

Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight kg
Three-wire ≡ non flush mountable					
4	NO	PNP	Pre-cabled (L = 2 m)	XS2 D12PA140	0.060
			M12 connector	XS2 D12PA140D	0.025
		NPN	Pre-cabled (L = 2 m)	XS2 D12NA140	0.060
			M12 connector	XS2 D12NA140D	0.025

Ø 18 (1)

Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight kg
Three-wire ≡ flush mountable					
5	NO	PNP	Pre-cabled (L = 2 m)	XS1 D18PA140	0.120
			M12 connector	XS1 D18PA140D	0.060
		NPN	Pre-cabled (L = 2 m)	XS1 D18NA140	0.120
			M12 connector	XS1 D18NA140D	0.060
Two-wire ~ flush mountable					
5	NO		Pre-cabled (L = 2 m)	XS1 M18FA264	0.120

Ø 18 (1)

Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight kg
Three-wire ≡ non flush mountable					
8	NO	PNP	Pre-cabled (L = 2 m)	XS2 D18PA140	0.120
			M12 connector	XS2 D18PA140D	0.060
		NPN	Pre-cabled (L = 2 m)	XS2 D18NA140	0.120
			M12 connector	XS2 D18NA140D	0.060

Ø 30 (1)

Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight kg
Three-wire ≡ flush mountable					
10	NO	PNP	Pre-cabled (L = 2 m)	XS1 D30PA140	0.205
			M12 connector	XS1 D30PA140D	0.100
		NPN	Pre-cabled (L = 2 m)	XS1 D30NA140	0.205
			M12 connector	XS1 D30NA140D	0.100
Two-wire ~ flush mountable					
10	NO		Pre-cabled (L = 2 m)	XS1 M30FA264	0.205

Ø 30 (1)

Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight kg
Three-wire ≡ non flush mountable					
15	NO	PNP	Pre-cabled (L = 2 m)	XS2 D30PA140	0.205
			M12 connector	XS2 D30PA140D	0.100
		NPN	Pre-cabled (L = 2 m)	XS2 D30NA140	0.205
			M12 connector	XS2 D30NA140D	0.100

(1) For accessories, see page 37317/2.

Inductive proximity sensors

Osiprox® Application

Basic, cylindrical, flush mountable and non flush mountable

Two-wire, a.c. supply

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


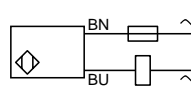
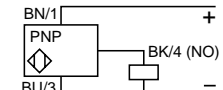
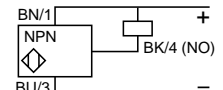
Characteristics

Sensor type		XS1 D●●●●●●D, XS2 D●●●●●●D	XS1 D●●●●●●, XS2 D●●●●●●
Product certifications		UL, CSA, CE	
Connection		M12 connector	Pre-cabled L: 2 m
Operating zone (1)	Ø 6 and Ø 8	mm	0...1.2
	Ø 12	mm	0...3.2 (products non flush mountable in metal)
	Ø 12	mm	0...1.6 (products flush mountable in metal)
	Ø 18	mm	0...6.4 (products non flush mountable in metal)
	Ø 18	mm	0...4 (products flush mountable in metal)
	Ø 30	mm	0...12 (products non flush mountable in metal)
	Ø 30	mm	0...8 (products flush mountable in metal)
Differential travel		%	1...15 of real sensing distance (Sr)
Degree of protection		Conforming to IEC 60529	IP 66
Storage temperature range		°C	- 40...+ 85
Operating temperature range		°C	- 25...+ 70
Materials		Case: nickel plated brass, cable: PVC 3 x 0.34 mm ² ~ and 2 x 0.34 mm ² ~ (except Ø 8: 3 x 0.11 mm ²)	
Vibration resistance		Conforming to IEC 60068-2-6	25 gn, amplitude ± 2 mm (f = 10 to 55 Hz)
Shock resistance		Conforming to IEC 60068-2-27	50 gn, duration 11 ms
Output state indication		LED, 4 viewing ports at 90° rear LED	
Rated supply voltage		3-wire	V --- 12...24 with protection against reverse polarity
		2-wire	V - ~ 24...240
Voltage limits (including ripple)		3-wire	V --- 10...30
		2-wire	V - ~ 20...264
Current consumption, no-load		3-wire	mA ≤ 10
Switching capacity		3-wire	mA ≤ 100 (≤ 50 for XS1 L06 and XS1 D08) with overload and short-circuit protection
		2-wire	mA - 5...300 (5...200 for XS1 M12) (2)
Voltage drop, closed state		3-wire	V ≤ 3
		2-wire	V - ≤ 4.5 (≤ 7 for XS1 M12)
Maximum switching frequency		2-wire	Hz 25
		Ø 6 and Ø 8	Hz 3000
		Ø 12	Hz 2000 XS1, 2000 XS2
		Ø 18	Hz 1000 XS1, 250 XS2
		Ø 30	Hz 200 XS1, 60 XS2
Delays	First-up	3-wire	ms ≤ 5 (≤ 10 XS1 D30 and XS2 D30)
		2-wire	ms - ≤ 40 ms
	Response	3-wire	ms ≤ 0.5 for XS1 L06, XS1 D08, XS1 D12, ≤ 1 for XS2 D12, XS1 D18, XS2 D18, ≤ 2 for XS1 D30, XS2 D30
		2-wire	ms - ≤ 10
	Recovery	3-wire	ms ≤ 0.5 for XS1 D12, ≤ 1 for XS1 L06, XS1 D08, ≤ 2 for XS2 D12, XS1 D18, XS2 D18, ≤ 6 for XS1 D30, XS2 D30
		2-wire	ms - ≤ 15


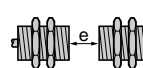
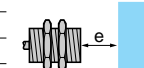
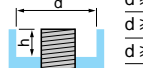
(1) Detection curves, see page 31170/2.

(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.

Wiring scheme

Connector	Pre-cabled	2-wire ~	PNP	NPN
 <p>M12 See connection on page 30210/3.</p>	<p>BU: Blue BN: Brown BK: Black</p>			

Setting-up (minimum mounting distances (mm))

Sensor	Side by side	Face to face	Facing a metal object	Mounted in a metal support
XS1 L06, XS1 D08	 e ≥ 3	 e ≥ 18	 e ≥ 4.5	 d ≥ 8 h ≥ 0
XS1 D12, XS1 M12	e ≥ 4	e ≥ 24	e ≥ 6	d ≥ 12 h ≥ 0
XS2 D12	e ≥ 16	e ≥ 48	e ≥ 12	d ≥ 36 h ≥ 8
XS1 D18, XS1 M18	e ≥ 10	e ≥ 60	e ≥ 15	d ≥ 18 h ≥ 0
XS2 D18	e ≥ 16	e ≥ 96	e ≥ 24	d ≥ 54 h ≥ 16
XS1 D30, XS1 M30	e ≥ 20	e ≥ 120	e ≥ 30	d ≥ 30 h ≥ 0
XS2 D30	e ≥ 60	e ≥ 180	e ≥ 45	d ≥ 90 h ≥ 30

Dimensions

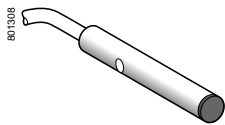
Sensor	Sensor	Flush mountable in metal				Non flush mountable in metal				
		Pre-cabled		Connector		Pre-cabled		Connector		c
		a	b	a	b	a	b	a	b	
	XS1 L06	Ø 6	42	-	-	-	-	-	-	-
	XS1 D08	Ø 8	42	40.6	61.5	39.6	-	-	-	-
	XS1 D12, XS2 D12	Ø 12	42.2	40	53	39.6	42	35.2	53	34.6
	XS1 D18, XS2 D18, XS1 M18	Ø 18	52.2	49.6	64	49.7	52.2	41.6	64	41.7
	XS1 D30, XS2 D30, XS1 M30	Ø 30	52.2	49.6	64	49.7	52.2	36.6	64	36.7
	XS1 M12, XS1 M18, XS1 M30	-	59	57.5	-	-	-	-	-	-

Inductive proximity sensors

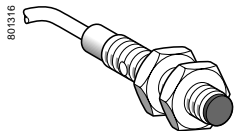
Osiprox® Application

Miniature, cylindrical, flush mountable and non flush mountable

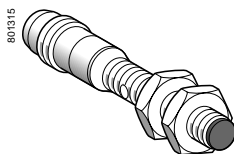
Three-wire or four-wire, d.c. supply, solid-state output



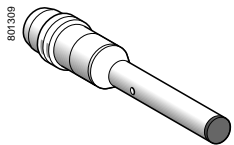
XS1 L04●●310



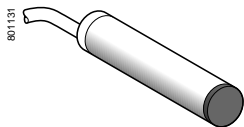
XS1 N05●●310



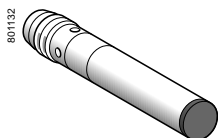
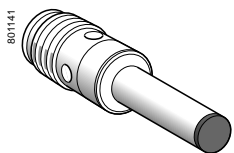
XS1 N05●●311S



XS1 L04●●310S



XS● L06●●340

XS● L06●●340S
XS● L06●●349S

XS● L06●●340D

Ø 4 plain (1)

Sensing distance (Sn) mm	Function	Output	Connection (2)	Reference	Weight kg
Brass case, flush mountable					
1	NO	PNP	Pre-cabled (L = 2 m)	XS1 L04PA310	0.025
			M8 connector	XS1 L04PA310S	0.010
	NPN	PNP	Pre-cabled (L = 2 m)	XS1 L04NA310	0.025
			M8 connector	XS1 L04NA310S	0.010
NC	PNP	Pre-cabled (L = 2 m)	XS1 L04PB310	0.025	
		M8 connector	XS1 L04PB310S	0.010	
	NPN	PNP	Pre-cabled (L = 2 m)	XS1 L04NB310	0.025
			M8 connector	XS1 L04NB310S	0.010

Stainless steel case, flush mountable

0.8	NO	PNP	Pre-cabled (L = 2 m)	XS1 L04PA311	0.025
			M8 connector	XS1 L04PA311S	0.010
	NPN	PNP	Pre-cabled (L = 2 m)	XS1 L04NA311	0.025
			M8 connector	XS1 L04NA311S	0.010

Ø 5 (1)

Sensing distance (Sn) mm	Function	Output	Connection (2)	Reference	Weight kg
Brass case, flush mountable					
1	NO	PNP	Pre-cabled (L = 2 m)	XS1 N05PA310	0.030
			M8 connector	XS1 N05NA310	0.030
	NPN	PNP	Pre-cabled (L = 2 m)	XS1 N05PB310	0.030
			M8 connector	XS1 N05NB310	0.030
Stainless steel case, flush mountable					
0.8	NO	PNP	Pre-cabled (L = 2 m)	XS1 N05PA311	0.030
			M8 connector	XS1 N05PA311S	0.015
	NPN	PNP	Pre-cabled (L = 2 m)	XS1 N05NA311	0.030
			M8 connector	XS1 N05NA311S	0.015

Ø 6.5 plain (1)

Sensing distance (Sn) mm	Function	Output	Connection (2)	Reference	Weight kg
Stainless steel case, flush mountable					
1.5	NO	PNP	Pre-cabled (L = 2 m)	XS1 L06PA340	0.025
			M8 connector	XS1 L06PA340S	0.010
			M12 connector	XS1 L06PA340D	0.015
		NPN	Pre-cabled (L = 2 m)	XS1 L06NA340	0.010
			M8 connector	XS1 L06NA340S	0.025
			M12 connector	XS1 L06NA340D	0.015
	NC	PNP	Pre-cabled (L = 2 m)	XS1 L06PB340	0.025
			M8 connector	XS1 L06PB340S	0.010
			M12 connector	XS1 L06PB340D	0.015
		NPN	Pre-cabled (L = 2 m)	XS1 L06NB340	0.025
			M8 connector	XS1 L06NB340S	0.010
			M12 connector	XS1 L06NB340D	0.015
NO+NC	PNP	Pre-cabled (L = 2 m)	XS1 L06PC410	0.025	
		M8 connector	XS1 L06NC410	0.025	

Brass case, flush mountable

2.5	NO	PNP	Pre-cabled (L = 2 m)	XS1 L06PA349	0.025
			M8 connector	XS1 L06PA349S	0.010
			M12 connector	XS1 L06PA349D	0.015
		NPN	Pre-cabled (L = 2 m)	XS1 L06NA349	0.025
			M8 connector	XS1 L06NA349S	0.010
			M12 connector	XS1 L06NA349D	0.015
	NC	PNP	Pre-cabled (L = 2 m)	XS1 L06PB349	0.025
			M8 connector	XS1 L06PB349S	0.010
			M12 connector	XS1 L06PB349D	0.015
		NPN	Pre-cabled (L = 2 m)	XS1 L06NB349	0.025
			M8 connector	XS1 L06NB349S	0.010
			M12 connector	XS1 L06NB349D	0.015

Stainless steel case, non flush mountable

2.5	NO	PNP	Pre-cabled (L = 2 m)	XS2 L06PA340	0.025
			M8 connector	XS2 L06PA340S	0.010
			M12 connector	XS2 L06PA340D	0.015
	NPN	PNP	Pre-cabled (L = 2 m)	XS2 L06NA340	0.025
			M8 connector	XS2 L06NA340S	0.010
			M12 connector	XS2 L06NA340D	0.015

(1) For accessories, see page 37317/2.

(2) For a 5 m long cable, add L1 to the reference, and for a 10 m long cable, add L2

Example: XS1 L04PA310 becomes XS1 L04PA310L1 with a 5 m long cable.

Inductive proximity sensors

Osiprox® Application

Miniature, cylindrical, flush mountable and non flush mountable

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

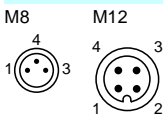
Characteristics

Sensor type		XS1 ●●●●●●S; XS1 ●●●●●●D; XS2 L06●A340●	XS1 ●●●●●●; XS2 L06●A340
Product certifications		UL, CSA, CE	
Connection (1)	Connector	M8 on XS1 ●●●●●●S and M12 on XS1 ●●●●●●D	–
	Pre-cabled	–	Length: 2 m
Operating zone	Ø 4	mm	0...0.8 (brass), 0...0.6 (stainless steel)
	Ø 5	mm	0...0.8 (brass), 0...0.6 (stainless steel)
	Ø 6.5 flush mountable	mm	0...2 (brass), 0...1.2 (stainless steel)
	Ø 6.5 non flush mountable	mm	0...2 (stainless steel)
Degree of protection		Conforming to IEC 60529	IP 67
Storage temperature range		°C	- 40...+ 85
Operating temperature range		°C	- 25...+ 70 (- 25...+ 55 for XS1 L06●●349)
Materials		Case	Nickel plated brass or stainless steel grade 303
		Pre-cabled	PvR 3 x 0.11 mm ² or 4 x 0.08 mm ²
Vibration resistance		Conforming to IEC 60068-2-6	25 gn, amplitude ± 2 mm (f = 10 to 55 Hz)
Shock resistance		Conforming to IEC 60068-2-27	50 gn, duration 11 ms
Output state indication			LED, 4 viewing ports at 90° LED, annular
Rated supply voltage		V	--- 5...24 for the XS1 L04●●●●●● and XS1 N05●●●●●● --- 12...24 for the XS● L06●●●●●●
Voltage limits (including ripple)		V	--- 5...30 for the XS1 L04●●●●●● and XS1 N05●●●●●● --- 10...38 for the XS● L06●●●●●●
Current consumption, no-load		mA	≤ 10
Switching capacity		3-wire PNP/NPN	mA ≤ 100 with overload and short-circuit protection ≤ 200 for XS● L06 with overload and short-circuit protection
Voltage drop, closed state		V	≤ 2
Maximum switching frequency		kHz	5 2.5 for XS1 L06●●349●
Delays	First-up	ms	≤ 5
	Response	ms	≤ 0.1, ≤ 0.2 for XS1 L06●●349●
	Recovery	ms	≤ 0.1, ≤ 0.2 for XS1 L06●●349●

(1) Detection curves, see page 31170/2.

Wiring scheme

Connector

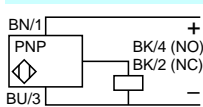


See connection on page 30210/3.

Pre-cabled

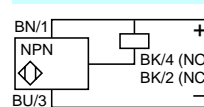
BU : Blue
BN : Brown
BK : Black
WH : White

PNP 3-wire

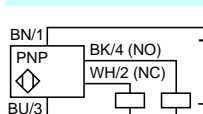


For M8 connector, NO and NC on terminal 4.

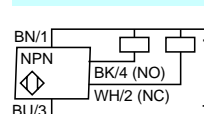
NPN 3-wire



PNP 4-wire



NPN 4-wire



Setting-up

Minimum mounting distances (mm)

Sensor	Side by side	Face to face	Facing a metal object
Ø 4	e ≥ 2	e ≥ 12	e ≥ 3
Ø 5	e ≥ 2	e ≥ 12	e ≥ 3
Ø 6.5	e ≥ 3	e ≥ 18	e ≥ 4.5
Ø 6.5, XS2 L06●A340●	e ≥ 5	e ≥ 30	e ≥ 7.5
Ø 6.5, XS1 L06●●349●	e ≥ 10	e ≥ 30	e ≥ 7.5

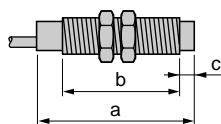
Tightening torque

Stainless steel: 2.2 N.m

Brass: 1.6 N.m

Dimensions

Sensor	Pre-cabled			M8 connector			M12 connector		
	a	b	c	a	b	c	a	b	c
Ø 4	29	29	–	41	24	–	–	–	–
Ø 5	29	29	–	41	24	–	–	–	–
Ø 6.5	33	30	–	42	34	–	45	24	–
Ø 6.5, XS2 L06●A340●	33	27	3	42	31	3	45	21	3
Ø 6.5, XS1 L06●●410	50	47	–	–	–	–	–	–	–

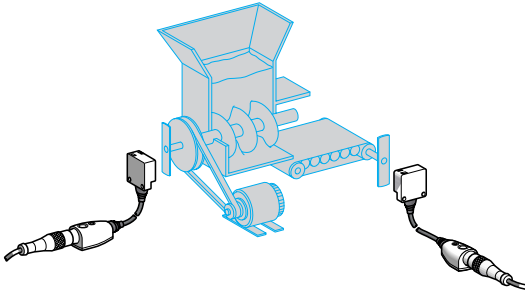


Inductive proximity sensors

Osiprox® Application

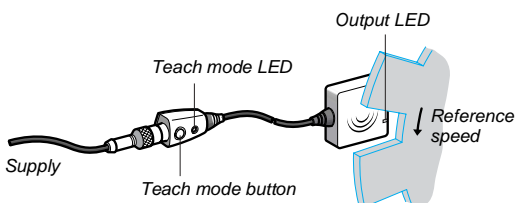
Sensors for rotation monitoring, slip detection, and shaft overload detection with teach mode

Operating principle and applications



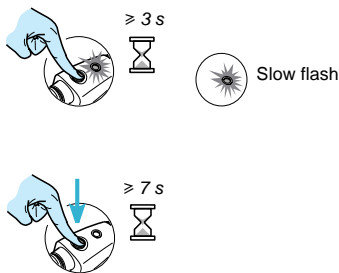
- These inductive proximity sensors are designed for monitoring rotational speed or the speed of the flow of objects to be monitored or protected. They operate on the principle of comparing a speed threshold preset by the operator against the instantaneous measurement of the speed of the moving object 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 (Telemecanique 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 $1000 - (1000 \times 0.3) = 700$ rpm.
- 20 %, - 11 % and - 6 % threshold can be obtained by pressing the teach mode button.

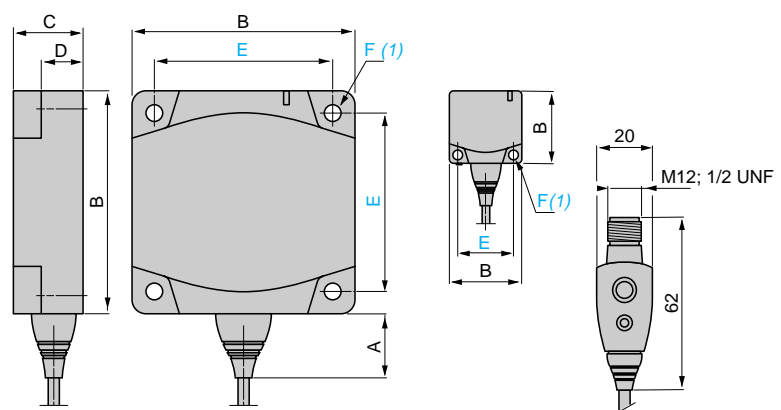
Setting-up

Minimum mounting distances (mm)

Type	Side by side	Face to face
XS9 E	$e \geq 40$	$e \geq 80$
XS9 C	$e \geq 60$	$e \geq 120$

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

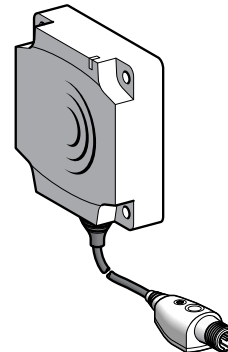
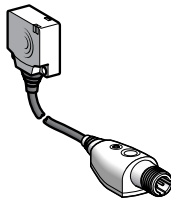
Inductive proximity sensors

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" - 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

M12

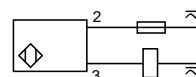
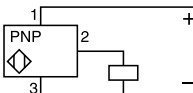
1/2" UNF

3-wire —

XS9 ●11RPBL01M12

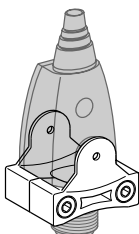
2-wire ~ or —

XS9 ●11RMBL01U20



See connection on page 30210/3.

Accessory (1)



XSZ BPM12

Description	Reference	Weight kg
Remote control fixing clamp	XSZ BPM12	0.015

(1) For accessories, see page 37317/2.

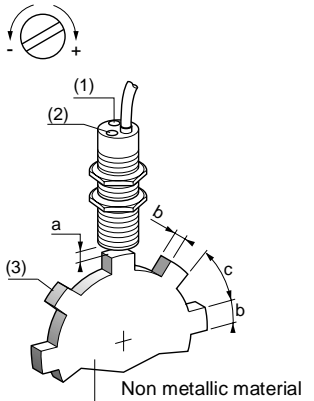
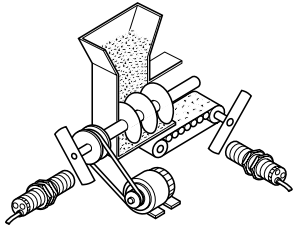
Inductive proximity sensors

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 make up an integrated rotation monitoring device.

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

Operating principle

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

XSA-V proximity sensors are particularly suitable for the detection of underspeed: when the speed of the moving part F_c falls below a preset threshold F_r , this causes the sensors output circuit to switch off.

Note : The normal operation of the sensor is automatically subjected to a delay of 9 seconds from energisation. This is to allow for the run-up period of the machine or installation being monitored.

Adjustment of the frequency threshold

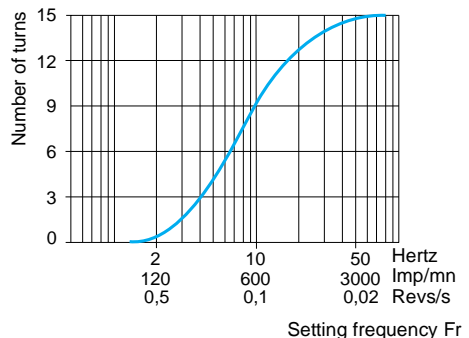
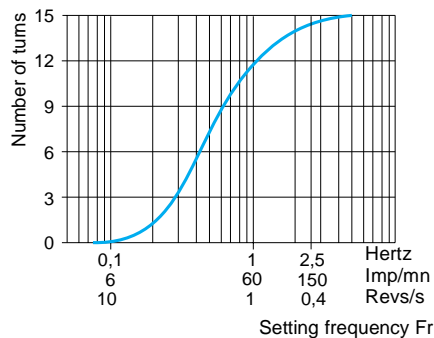
- Adjustment of sensors frequency threshold : using potentiometer, 15 turns approximately.
- Increasing the sensors frequency threshold : turn the adjustment screw clockwise (+).
- Decreasing the sensors frequency threshold : turn the adjustment screw anti-clockwise (-).

(1) Potentiometer	Diameter of sensor		
(2) LED	a	b	c
(3) Metal target	M30 x 1.5	4...6	30 60

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

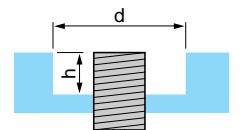
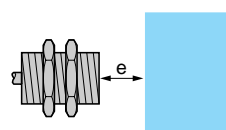
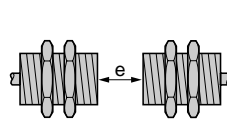
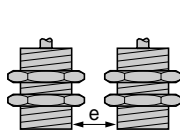
Minimum mounting distances (mm)

Side by side

Face to face

Facing a metal object

Mounted in a metal support



$e \geq 20$

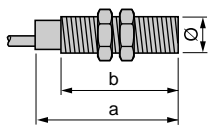
$e \geq 120$

$e \geq 30$

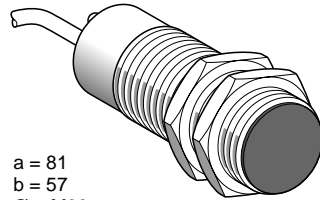
$d \geq 30, h \geq 0$

Fixing nut tightening torque : < 50 N.m

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

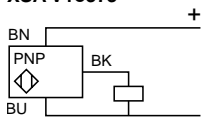
3-wire \equiv PNP	XSA V11373	XSA V12373	–	–
2-wire \sim or \equiv	–	–	XSA V11801	XSA V12801
Weight (kg)	0.300	0.300	0.300	0.300

Characteristics

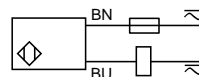
Connection	Pre-cabled, 3 x 0.34 mm ² , 2 m length	Pre-cabled, 2 x 0.5 mm ² , 2 m length
Degree of protection conforming to IEC 60529	IP 67	
Operating zone	0...8 mm	
Repeat accuracy	3 % of Sr	
Differential travel	3...15 % of Fr	
Operating temperature	- 25...+ 70 °C	
Output state indication	LED	
Rated supply voltage	\equiv 12...48 V with protection against reverse polarity	\sim 24...240 V, 50/60 Hz or \equiv 24...210 V
Voltage limits (including ripple on d.c.)	\equiv 10...58 V	\sim or \equiv 20...264 V, 50/60 Hz
Switching capacity	\leq 200 mA with overload and short-circuit protection	\sim 5...350 mA or \equiv 5...200 mA (1)
Voltage drop, closed state	\leq 1.8 V	\leq 5.7 V
Residual current, open state	–	\leq 1.5 mA
Current consumption, no-load	\leq 15 mA	–
Maximum switching frequency	6000 impulses/minute for XSA V11●●●, 48,000 impulses/minute for XSA V12●●●	
Power on “run-up” delay	9 seconds \pm 20 % + 1/Fr	

Wiring schemes

3-wire \equiv
XSA V1●373



2-wire \sim or \equiv
XSA V1●801



(1) These sensors do not incorporate overload or short-circuit protection and therefore, it is essential that a “quick-blow” fuse of 0.4 A be connected in series with the load. See page 37317/2.

Other versions

Sensors without initial “run-up” delay, or with reduced “run-up” delay on energisation of 3 seconds.
Sensors pre-cabled with other cable lengths.
SX2 DV units for monitoring overspeed or underspeed conditions, in the range 0 to 6000 impulses/min.
Please consult your Regional Sales Office.

Functions

These analogue output proximity sensors are solid-state sensors, designed for monitoring displacements.

They have a wide range of applications, but are particularly suited for:

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

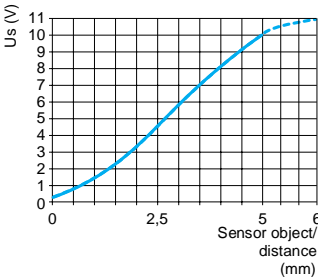
Operating principle

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 ⁽²⁾, 3-wire connection

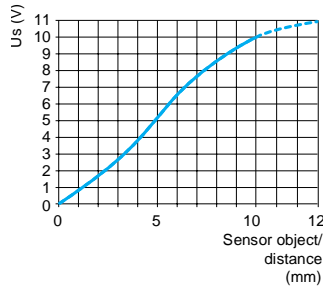
XS9 F

Sn = 1...5 mm



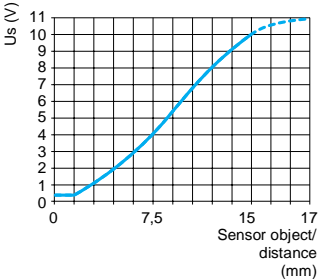
XS9 E

Sn = 1...10 mm



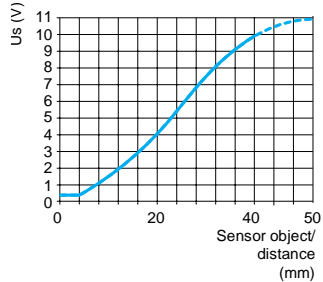
XS9 C

Sn = 2...15 mm



XS9 D

Sn = 5...40 mm



Wiring scheme

Connector

M8



M12

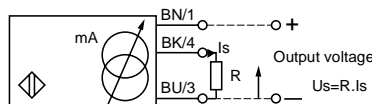


See connection on page 30210/3.

Pre-cabled

BN: Brown
BU: Blue
BK: Black

3-wire connection



Output current	Load impedance value	Output voltage	Load impedance value
12 V	0...10 mA	$R \leq 560 \Omega$	0...10 V (impossible)
24 V	0...10 mA	$R \leq 1500 \Omega$	0...10 V $R = 1000 \Omega$

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

⁽¹⁾ The technical information given on these pages relates to products in the course of development. The technical characteristics are therefore subject to change. Please consult your Regional Sales Office.

⁽²⁾ Voltage range only obtained with a load impedance of 1000 Ω .

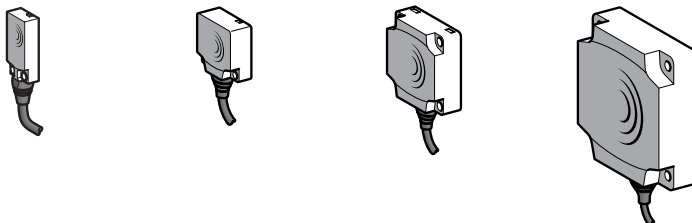
Inductive proximity sensors

Osiprox® Application

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

Flush mountable in metal

PBT case



Nominal sensing distance (S _n)	5 mm	10 mm	15 mm	40 mm
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References ⁽²⁾

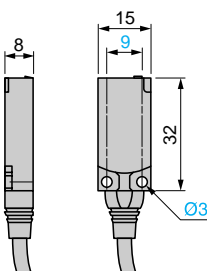
3-wire --- 0...10 V	Pre-cabled	XS9 F111A1L2 ▲	XS9 E111A1L2 ▲	XS9 C111A1L2 ▲	XS9 D111A1L2 ▲
	Connector	XS9 F111A1L01M8 ▲	XS9 E111A1L01M12 ▲	XS9 C111A1L01M12 ▲	XS9 D111A1M12 ▲
Weight (kg)	Pre-cabled	0.060	0.075	0.095	0.340
	Connector	0.040	0.055	0.075	0.320

Characteristics

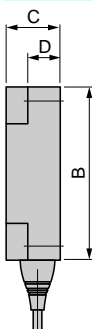
Product certifications	UL, CSA (pending), CÉ				
Connection	Pre-cabled	PvR 3 x 0.34 mm ² , length 2 m for XS9 ●111A●L2			
	Connector	0.15 m flying lead with M8 connector	0.15 m flying lead with M12 connector	M12	
Operating zone	1...5 mm		1...10 mm	2...15 mm	5...40 mm
Degree of protection	Pre-cabled	IP 68		IP 68 double insulation □	
Conforming to IEC 60529	Connector	IP 67		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			
Output state indication	No				
Rated supply voltage	--- 12...24 V				
Voltage limits (including ripple)	--- 10...36 V				
Repeat accuracy	± 3 %				
Linearity error	± 10 %				
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

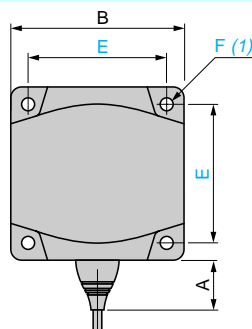
XS9 F



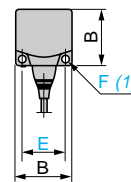
XS9 E/C/D



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			
XS9 E	e ≥ 0	e ≥ 36	e ≥ 15
XS9 C	e ≥ 4	e ≥ 72	e ≥ 30
XS9 D	e ≥ 5	e ≥ 110	e ≥ 45
	e ≥ 40	e ≥ 300	e ≥ 120

(1) The technical information given on these pages relates to products in the course of development. The technical characteristics are therefore subject to change. Please consult your Regional Sales Office.

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

▲ Available 2nd half 2003

Accessories:
page 37317/2

Functions

These analogue output proximity sensors are solid-state sensors, designed for monitoring displacements.

They have a wide range of applications, but are particularly suited for:

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

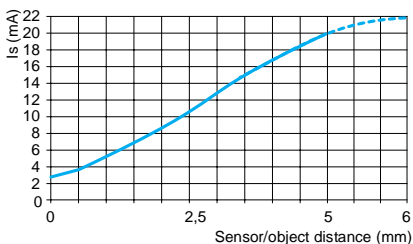
Operating principle

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

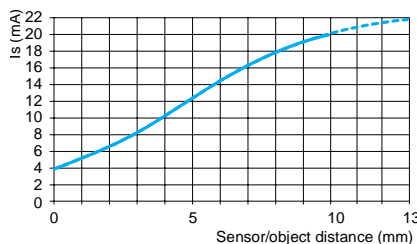
XS9 F

Sn = 1...5 mm



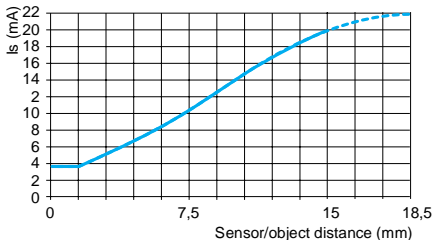
XS9 E

Sn = 1...10 mm



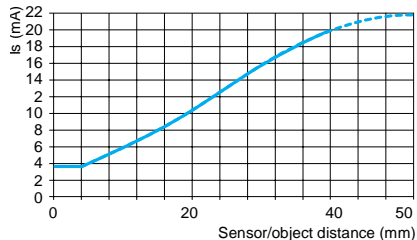
XS9 C

Sn = 2...15 mm



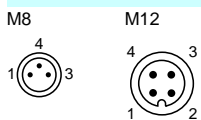
XS9 D

Sn = 5...40 mm



Wiring scheme

Connector

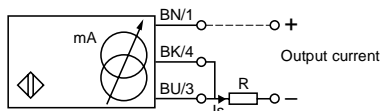


See connection on page 30210/3.

Pre-cabled

BN: Brown
BU: Blue
BK: Black

2-wire connection



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

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

⁽¹⁾ The technical information given on these pages relates to products in the course of development. The technical characteristics are therefore subject to change. Please consult your Regional Sales Office.

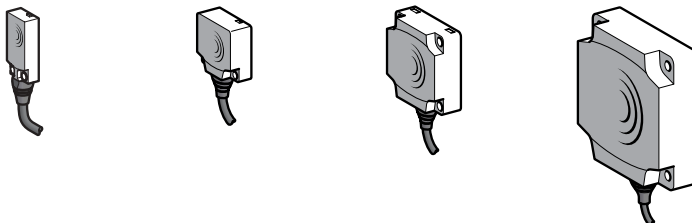
Inductive proximity sensors

Osiprox® Application

Sensors with analogue output signal 4...20 mA ⁽¹⁾

Flush mountable in metal

PBT case



Nominal sensing distance (Sn)	5 mm	10 mm	15 mm	40 mm
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References

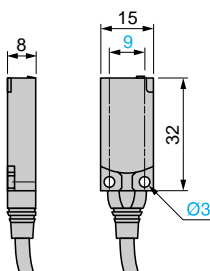
2-wire --- 4...20 mA	Pre-cabled	XS9 F111A2L2 ▲	XS9 E111A2L2 ▲	XS9 C111A2L2 ▲	XS9 D111A2L2 ▲
	Connector	XS9 F111A2L01M8 ▲	XS9 E111A2L01M12 ▲	XS9 C111A2L01M12 ▲	XS9 D111A2M12 ▲
Weight (kg)	Pre-cabled	0.060	0.075	0.095	0.340
	Connector	0.040	0.055	0.075	0.320

Characteristics

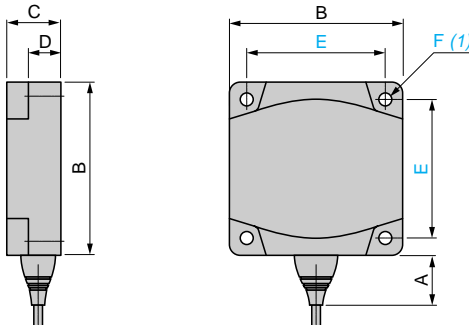
Product certifications	UL, CSA (pending), CE				
Connection	Pre-cabled	PvR 3 x 0.34 mm ² , length 2 m for XS9 ●111A●L2			
	Connector	0.15 m flying lead with M8 connector	0.15 m flying lead with M12 connector		M12
Sensing distance adjustment zone		1...5 mm	1...10 mm	2...15 mm	5...40 mm
Degree of protection	Pre-cabled	IP 68			
	Connector	IP 67		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			
Output state indication	No				
Rated supply voltage	--- 12...24 V				
Voltage limits (including ripple)	--- 10...36 V				
Repeat accuracy	± 3 %				
Linearity error	± 10 %				
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

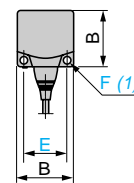
XS9 F



XS9 E/C/D



XS9 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			
XS9 E	$e \geq 0$	$e \geq 36$	$e \geq 15$
XS9 C	$e \geq 4$	$e \geq 72$	$e \geq 30$
XS9 D	$e \geq 5$	$e \geq 110$	$e \geq 45$
	$e \geq 40$	$e \geq 300$	$e \geq 120$

(1) The technical information given on these pages relates to products in the course of development. The technical characteristics are therefore subject to change. Please consult your Regional Sales Office..

▲ Available 2nd half 2003

Accessories:
page 37317/2

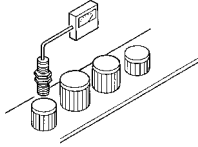
Inductive proximity sensors

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 displacements. They have a wide range of applications, but are particularly suited for:

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

Operating principle

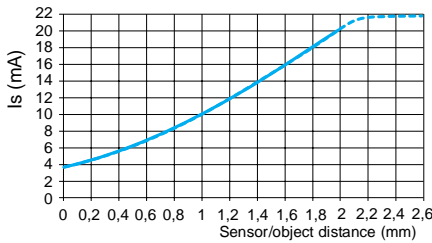
The operating principle of the sensor is that of a damped oscillator. The degree of damping will depend on the distance of an object from the sensing face. The sensor will sense the distance and produce an output current with a value directly proportional to this distance.

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

XS1 M12AB120

Sn = 0.2...2 mm

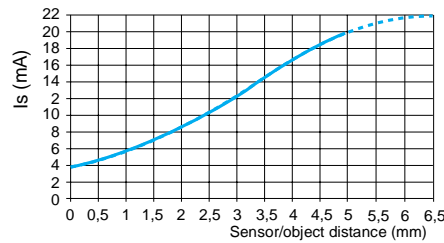
Ø 12 mm



XS1 M18AB120

Sn = 0.5...5 mm

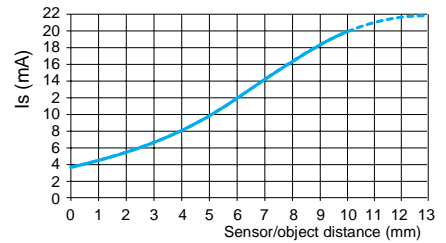
Ø 18 mm



XS1 M30AB120

Sn = 1...10 mm

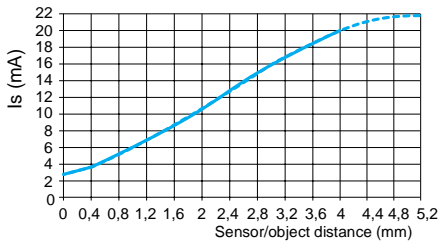
Ø 30 mm



XS4 P12AB120

Sn = 0.4...4 mm

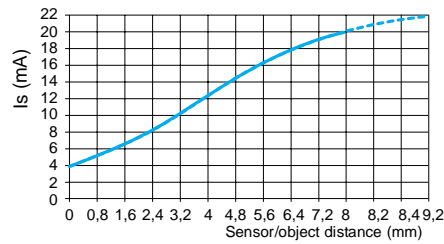
Ø 12 mm



XS4 P18AB120

Sn = 0.8...8 mm

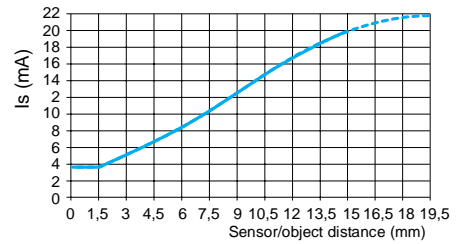
Ø 18 mm



XS4 P30AB120

Sn = 1.5...15 mm

Ø 30 mm

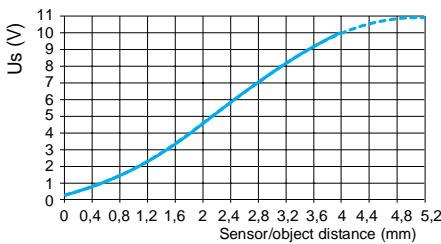


Output curves 0...10 V, 3-wire connection

XS4 P12AB110

Sn = 0.4...4 mm

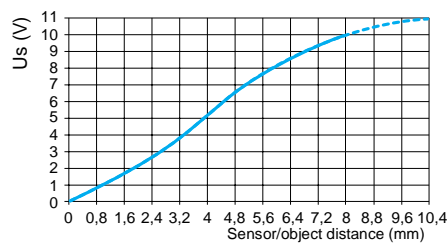
Ø 12 mm



XS4 P18AB110

Sn = 0.8...8 mm

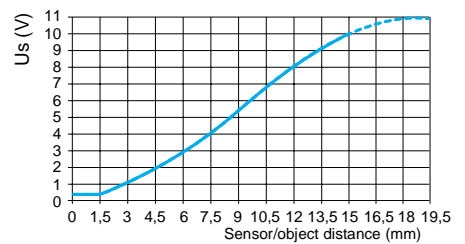
Ø 18 mm



XS4 P30AB110

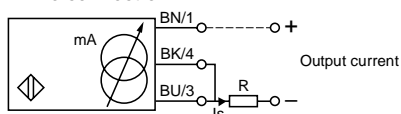
Sn = 1.5...15 mm

Ø 30 mm



Wiring scheme

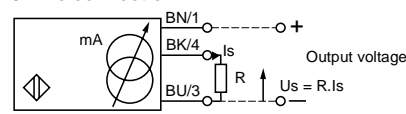
2-wire connection



Output current Load impedance value

12 V	4...20 mA	$R \leq 82 \Omega$
24 V	4...20 mA	$R \leq 450 \Omega$

3-wire connection



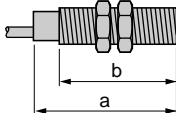
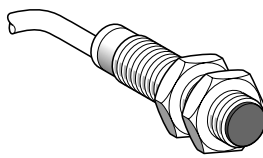
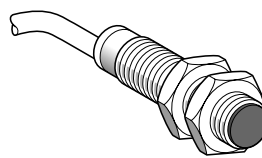
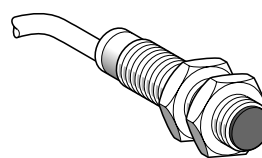
Output current Load impedance value Output voltage Load impedance value

12 V	0...10 mA	$R \leq 560 \Omega$	0...10 V	(impossible)
24 V	0...10 mA	$R \leq 1500 \Omega$	0...10 V	$R = 1000 \Omega$
48 V	0...10 mA	$R \leq 3300 \Omega$	0...10 V	$R = 1000 \Omega$

Ensure a minimum of 10 V between the + and the - (3) terminal of the sensor (1) Voltage range only obtained with a load impedance of 1000 Ω .

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

References: [pages 37320/3 to 37320/5](#) Characteristics: [pages 37320/3 to 37320/5](#)

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)	0.2...2 mm	0.4...4 mm	0.4...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

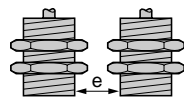
Connection	Pre-cabled PvR 3 x 0.34 mm², length 2 m		
Degree of protection	IP 67		
Operating zone	0.2...2 mm	0.4...4 mm	0.4...4 mm
Repeat accuracy	± 3%		
Linearity error	± 10 %		
Ambient air temperature	Operation: - 25...+ 70 °C		
Rated supply voltage	--- 12...24 V	--- 12...24 V	--- 12...48 V
Voltage limits (including ripple)	--- 10...38 V	--- 10...38 V	--- 10...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 37320/2.

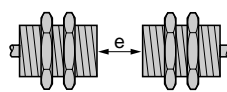
Setting-up

Minimum mounting distances (mm)

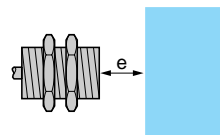
Side by side



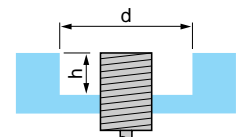
Face to face



Facing a metal object



Mounted in a metal support



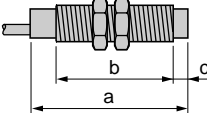
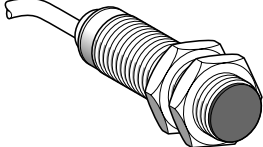
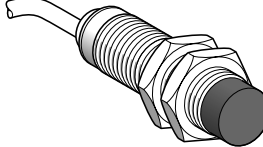
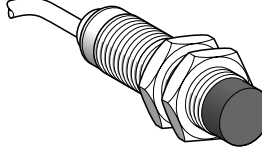
XS1 M12AB120 flush mountable	e ≥ 4	e ≥ 24	e ≥ 6	d ≥ 12, h ≥ 0
XS4 P12AB110 non flush mountable	e ≥ 16	e ≥ 48	e ≥ 12	d ≥ 36, h ≥ 8
XS4 P12AB120 non flush mountable	e ≥ 16	e ≥ 48	e ≥ 12	d ≥ 36, h ≥ 8

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

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 Metal case	a = 40.6 b = 26 c = 8 Plastic case	a = 40.6 b = 26 c = 8 Plastic case
Nominal sensing distance (Sn)	0.5...5 mm	0.8...8 mm	0.8...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

Connection	Pre-cabled PvR 3 x 0.34 mm², length 2 m		
Degree of protection	IP 67		
Operating zone	0.5...5 mm	0.8...8 mm	0.8...8 mm
Repeat accuracy	± 3 %		
Linearity error	± 10 %		
Ambient air temperature	Operation: - 25...+ 70 °C		
Rated supply voltage	--- 12...24 V	--- 12...24 V	--- 12...48 V
Voltage limits (including ripple)	--- 10...38 V	--- 10...38 V	--- 10...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 37320/2.

Setting-up

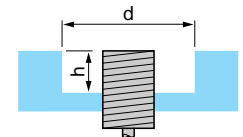
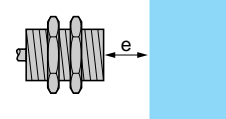
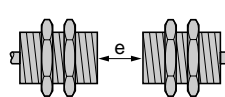
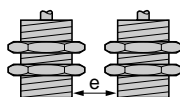
Minimum mounting distances (mm)

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 P12AB110 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 products Please consult your Regional Sales Office.

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 Metal case	a = 52.6 b = 32 c = 13 Plastic case	a = 52.6 b = 32 c = 13 Plastic case

Nominal sensing distance (Sn)	1...10 mm	1.5...15 mm	1.5...15 mm
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References

3-wire \equiv Output 0...10 V (2)	–	–	XS4 P30AB110
2-wire \equiv Output 4...20 mA (2)	XS1 M30AB120	XS4 P30AB120	–
Weight (kg)	0.200	0.100	0.100

Characteristics

Connection	Pre-cabled PvR 3 x 0.34 mm², length 2 m		
Degree of protection	IP 67		
Operating zone	1...10 mm	1.5...15 mm	1.5...15 mm
Repeat accuracy	± 3 %		
Linearity error	± 10%		
Ambient air temperature	Operation: -25...+70 °C		
Rated supply voltage	\equiv 12...24 V	\equiv 12...24 V	\equiv 12...48 V
Voltage limits (including ripple)	\equiv 10...38 V	\equiv 10...38 V	\equiv 10...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 37320/2.

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)
-------------------------------------	--

Inductive proximity sensors

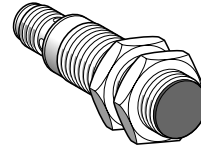
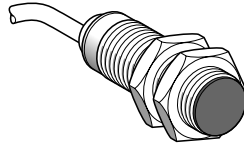
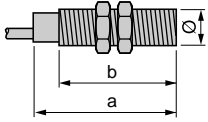
Osiprox® Application

Detection at fixed sensing distance (1)

For ferrous and non ferrous materials

Solid-state output

Flush mountable in metal



Lengths (mm):

a = Overall

b = Threaded

a = 60

b = 51.5

Ø = M18 x 1

Brass case

a = 70

b = 51.5

Ø = M18 x 1

Brass case

Nominal sensing distance (Sn)

5 mm

5 mm

References

4-wire ---	PNP/NPN programmable NO/NC	XS1 M18KPM40	XS1 M18KPM40D
Weight (kg)		0.120	0.060

Characteristics

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 range	0...+ 50 °C		
Output state indication	LED, annular	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 scheme

M12 connector



See connection on page 30210/3.

Pre-cabled

BN: brown

BU: blue

BK: black

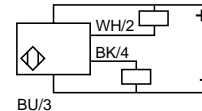
WH: white

PNP / NPN

4-wire --- programmable, N/O or N/C output

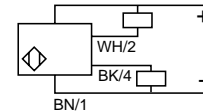
NO

BN/1



NC

BU/3

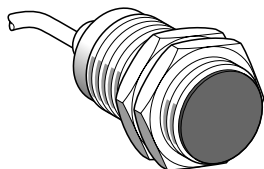


(1) The variation in sensing distance between ferrous and non ferrous materials is less than 5 %.

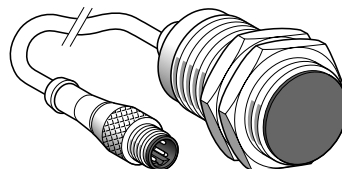
(2) Sensors available pre-cabled with other cable lengths: please consult your Regional Sales Office.

Inductive proximity sensors

Osiprox® Application
Detection at fixed sensing distance (1)
For ferrous and non ferrous materials
Solid-state output



a = 60
b = 51.5
Ø = M30 x 1.5
Stainless steel case



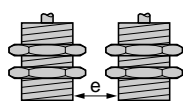
a = 70
b = 51.5
Ø = M30 x 1.5
Stainless steel case

10 mm	10 mm
XS1 M30KPM40	XS1 M30KPM40LD
0.205	0.145
Pre-cabled 4 x 0.34 mm², length 2 m (2)	0.8 m flying lead with remote connector
IP 68	IP 67
0...8 mm	
3 % of Sr	
1...15 % of Sr	
0...+ 50 °C	
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	

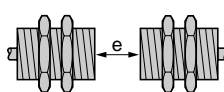
Setting-up

Minimum mounting distances (mm)

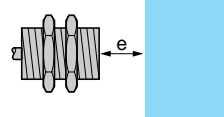
Side by side



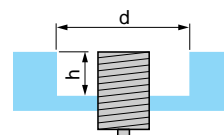
Face to face



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	< 35 N.m (Ø 18 mm), 100 N.m (Ø 30 mm)			

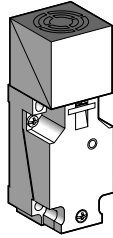
(1) The variation in sensing distance between ferrous and non ferrous materials is less than 5 %.

(2) Sensors available pre-cabled with other cable lengths: please consult your Regional Sales Office.

Inductive proximity sensors

Osiprox® Application
Fixed sensing distance detection (1)
For ferrous and non ferrous materials
Solid-state output

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

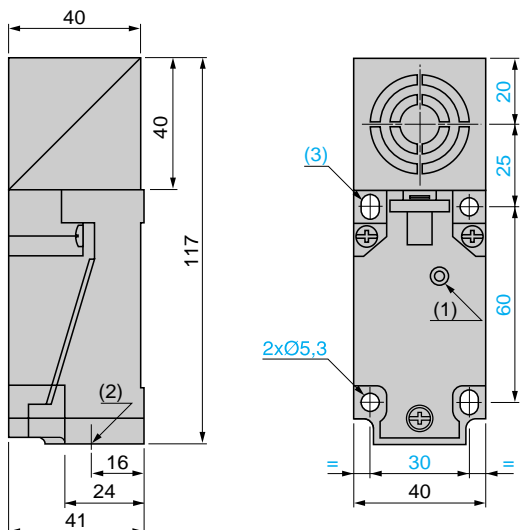
Connection	Screw terminals, capacity : 4 x 0.34 mm² (2)	
Degree of protection conforming to IEC 60529	IP 67	
Operating zone	0...12 mm	
Repeat accuracy	3 % of Sr	
Differential travel	1...15 % of Sr	
Operating temperature	0...+ 50 °C	
Output state indication	LED (yellow)	
Rated supply voltage	--- 12...24 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	≤ 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 n° 13 plastic cable gland (XSZ-PE13), see page 37317/2.

Dimensions

XS7-C40KPM40



(1) Output LED

(2) 1 tapped entry for n° 13 plastic cable gland

(3) 2 elongated holes 5.3 x 7

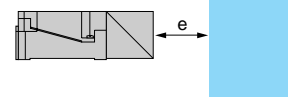
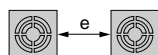
Setting-up

Minimum mounting
distances (mm)

Side by side

Face to face

Facing a metal object



XS7-C40KPM40 flush mountable

$e \geq 40$

$e \geq 120$

$e \geq 45$

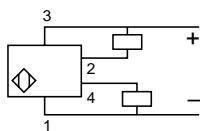
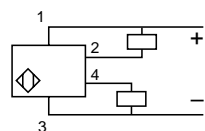
Wiring schemes

PNP / NPN

4-wire programmable, NO or NC output

NO

NC



Inductive proximity sensors

Osiprox® Application

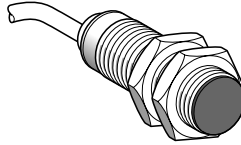
Selective detection of ferrous materials

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

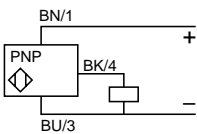
Characteristics

Product certifications	UL, CSA, CE
Connection	Pre-cabled (PvR) 3 x 0.34 mm ² , 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	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

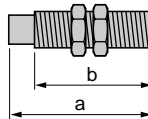
Wiring scheme

3-wire PNP



Dimensions

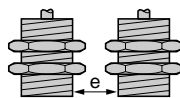
XS1 M



a (mm)	b (mm)
60	51.5

Setting-up

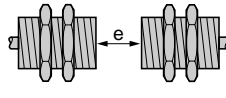
Minimum mounting distances (mm)



Side by side

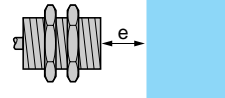
XS1 M18

$e \geq 10$



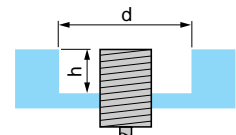
Face to face

$e \geq 60$



Facing a metal object

$e \geq 15$



Mounted in a metal support

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

Inductive proximity sensors

Osiprox® Application

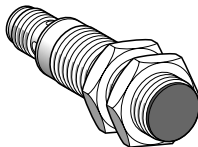
Selective detection of ferrous materials

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

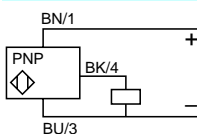
Characteristics

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	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

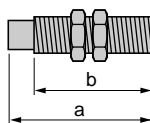
3-wire PNP



See connection on page 30210/3.

Dimensions

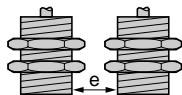
XS1 M



a (mm)	b (mm)
70	51.5

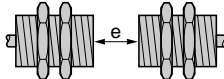
Setting-up

Minimum mounting distances (mm)



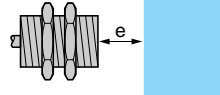
Side by side

$e \geq 10$



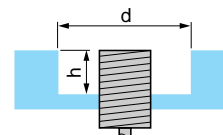
Face to face

$e \geq 60$



Facing a metal object

$e \geq 15$



Mounted in a metal support

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

XS1 M18

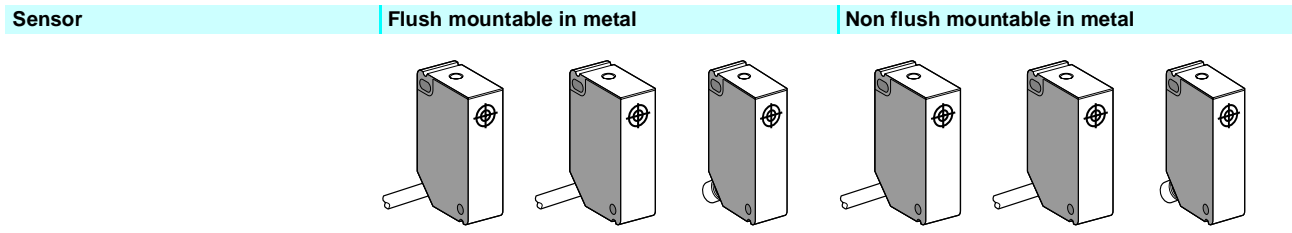
Inductive proximity sensors

Osiprox® Application

For assembly, packaging and light handling

Plastic case: 12 x 26 x 40 mm

dc supply, solid-state output



Nominal sensing distance (Sn)	2 mm	4 mm
-------------------------------	------	------

References							
3-wire \equiv	PNP NO	XS7 G12PA140	–	XS7 G12PA140S	XS8 G12PA140	–	XS8 G12PA140S
	NPN NO	XS7 G12NA140	–	XS7 G12NA140S	XS8 G12NA140	–	XS8 G12NA140S
4-wire \equiv (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, C€						
Connection	Pre-cabled	3 x 0.34 mm ² , length 2 m (1)	4 x 0.34 mm ² , length 2 m (1)	–	3 x 0.34 mm ² , length 2 m (1)	4 x 0.34 mm ² , 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	25 gn, amplitude ± 2 mm (f = 10 to 55 Hz)						
Conforming to IEC 60068-2-6							
Shock resistance	50 gn, duration 11 ms						
Conforming to IEC 60068-2-27							
Output state indication	LED, on top of case						
Rated supply voltage	\equiv 12...24 V	\equiv 12...48 V	\equiv 12...24 V	\equiv 12...24 V	\equiv 12...48 V	\equiv 12...24 V	
Voltage limits (including ripple)	\equiv 10...30 V	\equiv 10...58 V	\equiv 10...30 V	\equiv 10...30 V	\equiv 10...58 V	\equiv 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 V	
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 G12PA140 with 5 m cable becomes XS7 G12PA140L1.

(2) With overload and short-circuit protection

Inductive proximity sensors

Osiprox® Application

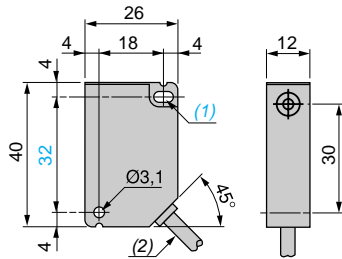
For assembly, packaging and light handling

Plastic case: 12 x 26 x 40 mm

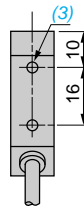
dc supply, solid-state output

Dimensions

XS● G12●A140, XS● G12●C440

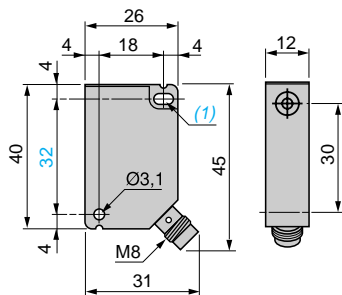


Rear view

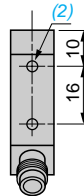


- (1) 1 elongated hole 3.1 x 5.1.
- (2) Pre-cabled L = 2 m.
- (3) 2 holes M3 x 5.

XS● G12●A140S



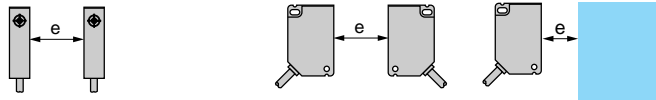
Rear view



- (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

$e \geq 0$

$e \geq 15$

$e \geq 6$

XS8 G non flush mountable

$e \geq 10$

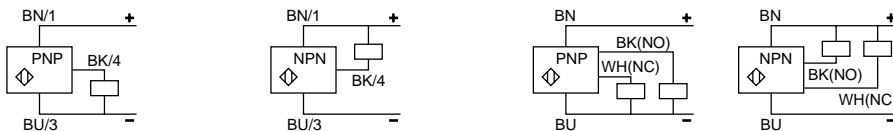
$e \geq 60$

$e \geq 12$

Wiring scheme

3-wire ---, NO output

4-wire ---, NO + NC output



Connector

M8



See connection on page 302 10/3.

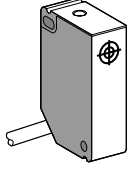
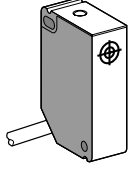
Inductive proximity sensors

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 $\overline{\text{---}}$ or \sim	NO	XS7 G12MA230	XS8 G12MA230
	NC	XS7 G12MB230	XS8 G12MB230
Weight (kg)		0.100	0.100
Characteristics			
Product certifications		CSA, UL, c€	
Connection		Pre-cabled 2 x 0.34 mm ² , 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		LED, on top of case	
Rated supply voltage		\sim 24...240 V (50/60 Hz) or $\overline{\text{---}}$ 24...210 V	
Voltage limits (including ripple)		\sim or $\overline{\text{---}}$ 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		\sim 50 Hz or $\overline{\text{---}}$ 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

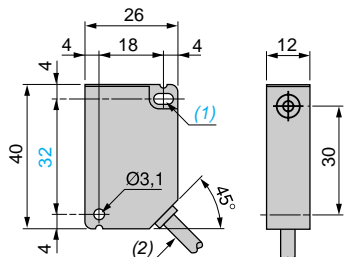
For assembly, packaging and light handling

Plastic case: 12 x 26 x 40 mm

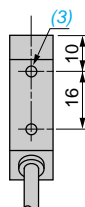
a.c. or d.c. supply

Dimensions

XS G12M 230



Rear view



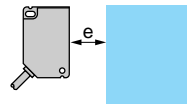
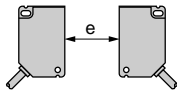
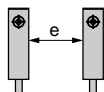
(1) 1 elongated hole 3.1 x 5.1.

(2) Pre-cabled L = 2 m.

(3) 2 holes M3 x 5.

Setting-up

Minimum mounting distances (mm)



XS7 G flush mountable

Side by side

$e \geq 0$

Face to face

$e \geq 15$

Facing a metal object and mounting in a metal support

$e \geq 6$

XS8 G non flush mountable

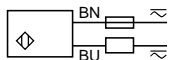
$e \geq 10$

$e \geq 60$

$e \geq 12$

Wiring scheme

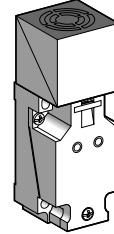
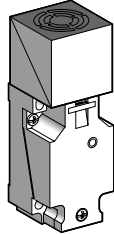
2-wire \sim or --- , NO or NC output



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		
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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 \equiv (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 \equiv (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, capacity : 2 OR 4 x 1,5 mm ² (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)					
Supply/output state indication	Output LED + Supply LED		Output LED	Output LED + Supply LED		Output LED
Rated supply voltage	\equiv 12...48 V with protection against reverse polarity					
Voltage limits (including ripple)	\equiv 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
	Response	≤ 0,3 ms		≤ 2 ms	≤ 0,3 ms	< 1 ms
	Recovery	≤ 0,7 ms		≤ 5 ms	≤ 0,7 ms	< 1 ms

(1) Sensor supplied without cable gland. For suitable n° 13 plastic cable gland (XSZ PE13), see page 37317/2.

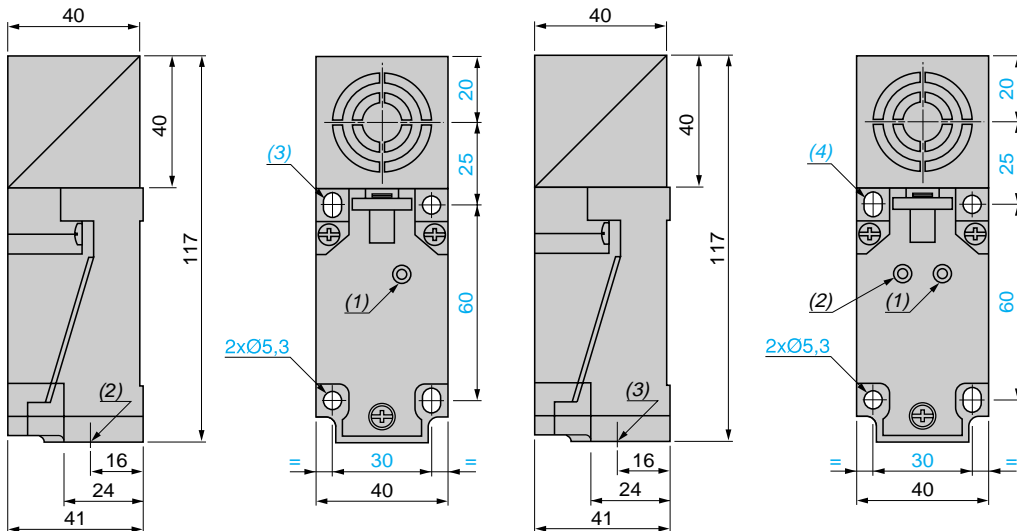
Inductive proximity sensors

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

Dimensions

XS7 C40D●210, XS8 C40D●210

XS7 C40●C44●, XS8 C40●C44●

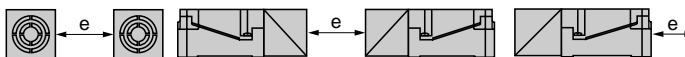


(1) Output LED.
(2) 1 tapped entry for n° 13 plastic cable gland.
(3) 2 elongated holes Ø 5.3 x 7.

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

Setting-up

Minimum mounting distances (mm)

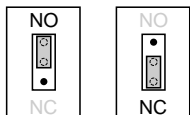
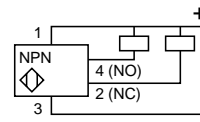
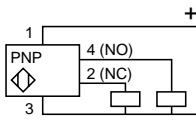
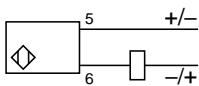


		Side by side	Face to face	Facing a metal object
Flush mountable in metal	XS7	$e \geq 40$	$e \geq 120$	$e \geq 45$
	XS7 Increased range model	$e \geq 80$	$e \geq 240$	$e \geq 60$
Non flush mountable in metal	XS8	$e \geq 80$	$e \geq 160$	$e \geq 60$
	XS8 Increased range model	$e \geq 160$	$e \geq 320$	$e \geq 120$

Wiring schemes

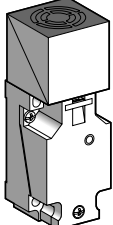
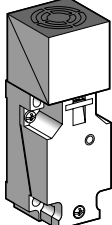
2-wire $\overline{\text{---}}$ (non polarised) NO or NC output depending on position of link

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



Inductive proximity sensors

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

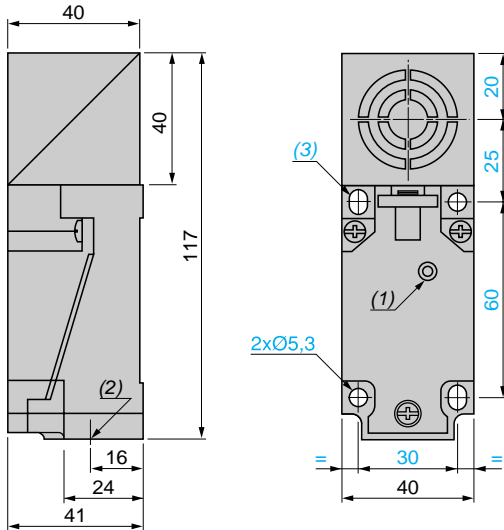
Sensor		Flush mountable in metal		Non flush mountable in metal	
					
		AC	AC/DC	AC	AC/DC
Nominal sensing distance (Sn)		15 mm		20 mm	
References					
2-wire ~	NO or NC programmable	XS7 C40FP260	–	XS8 C40FP260	–
2-wire ~ or ≡ universal model	NO or NC programmable	–	XS7 C40MP230	–	XS8 C40MP230
Weight (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, capacity : 2 x 1.5 2 x 1,5 mm ² (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)			
Supply/output state indication		Output 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 ou ≡ 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 at 24 V 1,5 mA at 120 V	≤ 1,5 mA	0,8 mA at 24 V 1,5 mA at 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) Sensor supplied without cable gland. For suitable n° 13 plastic cable gland (XSZ-PE13), see page 37317/2.

(2) These sensors do not incorporate overload or short-circuit protection and therefore, it is essential that a "quick-blow" fuse be connected in series with the load. See page 37317/2.

Dimensions

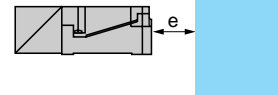
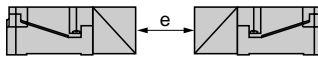
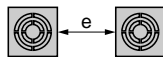
XS7 C40FP260, XS7 C40MP230, XS8 C40FP260, XS8 C40MP230



- (1) Output LED.
(2) 1 tapped entry for n° 13 plastic cable gland.
(3) 2 elongated holes \varnothing 5.3 x 7.

Setting-up

Minimum mounting distances (mm)



Side by side

Face to face

Facing a metal object

XS7 flush mountable in metal

$e \geq 40$

$e \geq 120$

$e \geq 45$

XS8 non flush mountable in metal

$e \geq 80$

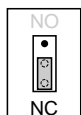
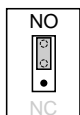
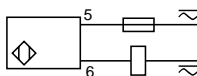
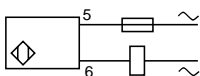
$e \geq 160$

$e \geq 60$

Wiring schemes

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

2-wire \sim or \equiv programmable, NO or NC output depending on position of link

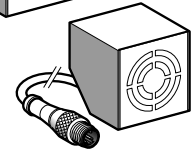
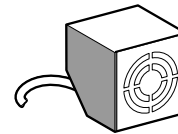
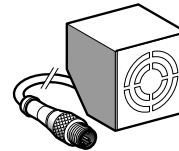
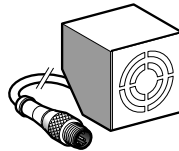
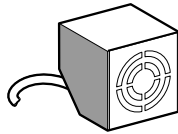


Inductive proximity sensors

Osiprox® Application

Plastic case, form C, cubic 40, multi-position
d.c. supply

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

References

2-wire $\overline{\text{---}}$ (non polarised)	NO	XS7 T4DA210	–	XS7 T4DA214LD	–	XS7 T4DA214LD01	–	–
4-wire $\overline{\text{---}}$ (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 mm ² length 2 m (1)	4 x 0.34 mm ² length 2 m (1)	–	–	4 x 0.34 mm ² length 2 m (1)	–
	Remote M12 connector	–	–	Cable: length 0.8 m	–	Cable: length 0.15 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)						
Output state indication	LED, rear mounted						
Rated supply voltage	$\overline{\text{---}}$ 12...48 V with protection against reverse polarity						
Voltage limits (including ripple)	$\overline{\text{---}}$ 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**

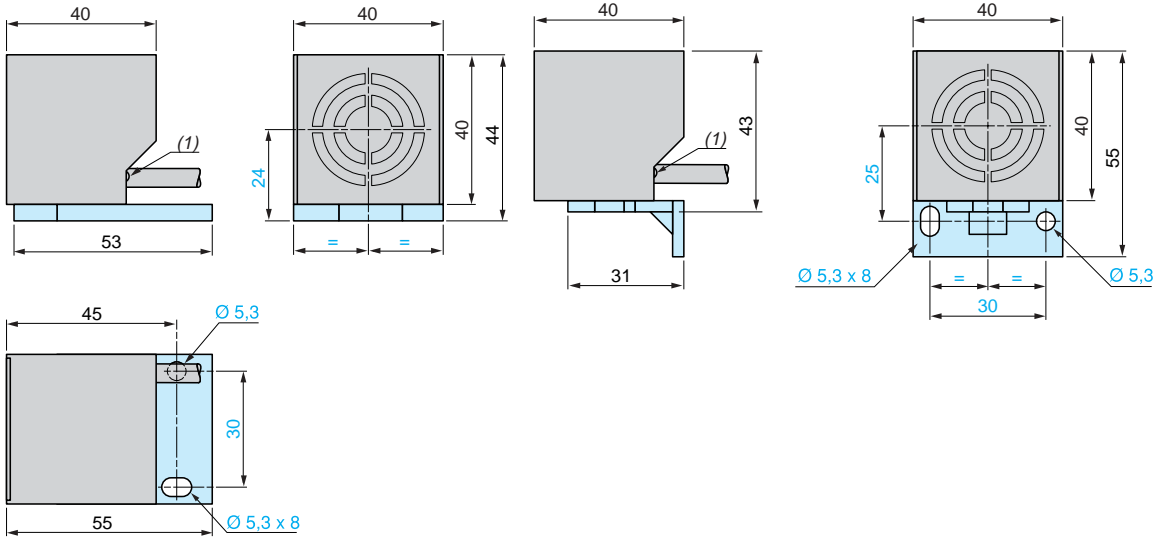
Other versions Inductive proximity sensors specifically designed for other operating temperatures. Please consult your Regional Sales Office.

Dimensions

XS T4, XS T4LD, XS7 T4, XS7 T4LD01

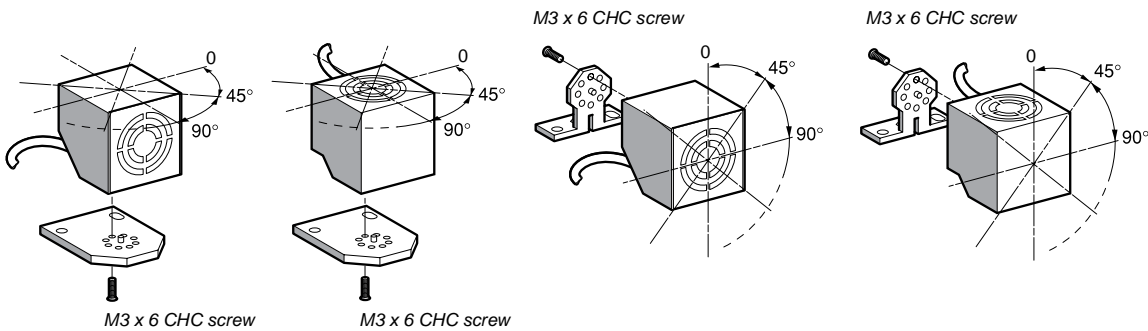
Plate mounted

Bracket mounted



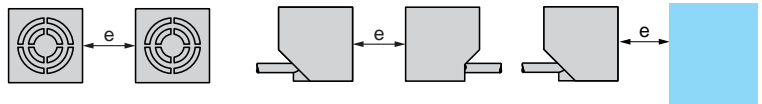
(1) LED.

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	$e \geq 40$	$e \geq 120$	$e \geq 45$
	XS7 T, 4-wire	$e \geq 40$	$e \geq 120$	$e \geq 45$
Non flush mountable in metal	XS8 T, 4-wire	$e \geq 60$	$e \geq 160$	$e \geq 60$

Wiring schemes

Connector

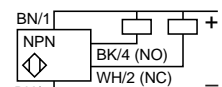
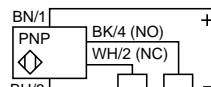
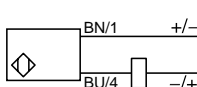
Pre-cabled

2-wire ---, NO output

4-wire ---, NO + NC output



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

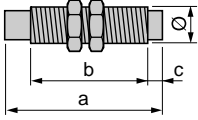


See connection on page 30210/3.

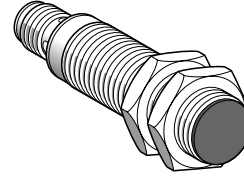
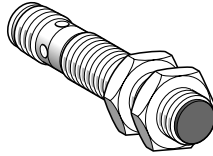
Inductive proximity sensors

Osiprox® Application
Sensors for welding machine applications (1)
Cylindrical type. Metal case, Teflon coated steel, threaded

Flush mountable in metal



Lengths (mm) :
a = Overall
b = Threaded section
c = For non flush mounting 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

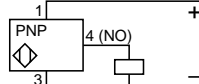
Connection	M12 connector	
Degree of protection conforming to IEC 60529	IP 67	
Operating zone	0...1.6 mm	0...4 mm
Repeat accuracy	3 % of Sr	
Differential travel	1...20 % of Sr	
Operating temperature	- 25...+ 70 °C	
Output state indication	LED, 4 viewing ports at 90°	
Rated supply voltage	--- 12...24 V 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
	Response	≤ 0.1 ms
	Recovery	≤ 0.4 ms

Wiring schemes

M12 connector



3-wire ---, PNP, NO output



Depending on connector page 30210/3.

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

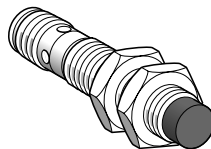
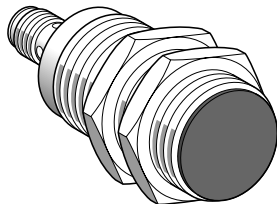
Inductive proximity sensors

Osiprox® Application

Sensors for welding machine applications (1)

Cylindrical type. Metal case, Teflon coated steel, threaded

Non flush mountable in metal



a = 60

b = 40

Ø = M30 x 1,5

Teflon front face

10 mm

a = 60

b = 36

c = 4

Ø = M12 x 1

Teflon front face

4 mm

XS1 M30PAW01D

0.145

XS2 M12PAW01D

0.025

M12 connector

IP 67

0...8 mm

0...3.2 mm

3 % of Sr

1...20 % of Sr

- 25...+ 70 °C

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

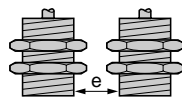
≤ 5 ms

≤ 0.4 ms

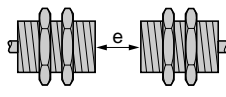
Setting-up

Minimum mounting
distances (mm)

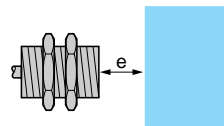
Side by side



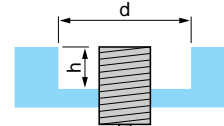
Face to face



Facing a metal object



Mounted in a metal support



XS1 M12 flush mountable

$e \geq 0$

$e \geq 7$

$e \geq 6$

$d \geq 12, h \geq 0$

XS1 M18 flush mountable

$e \geq 0$

$e \geq 16$

$e \geq 9$

$d \geq 18, h \geq 0$

XS1 M30 flush mountable

$e \geq 0$

$e \geq 20$

$e \geq 20$

$d \geq 30, h \geq 0$

XS2 M12 non flush
mountable

$e \geq 15$

$e \geq 9$

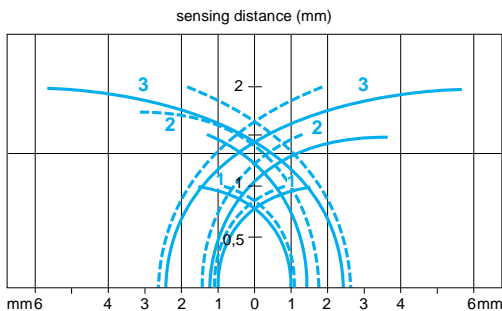
$e \geq 11$

$d \geq 36, h \geq 8$

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

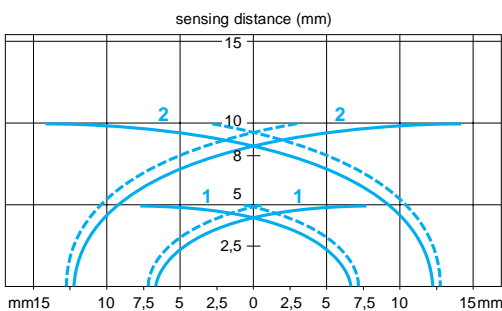
Cylindrical type proximity sensors

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

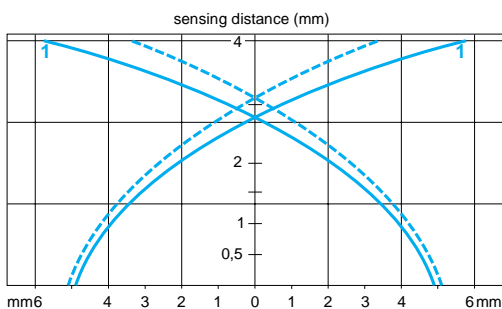
- pick-up points
- - - drop-out points (object approaching from the side)
- 1 Ø 4 (plain) XS1 and Ø 5 (M5 x 0.5) XS1
- 2 Ø 6.5 (plain) XS1 and Ø 8 (M8 x 1) XS5
- 3 Ø 12 (M12 x 1) XS5



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

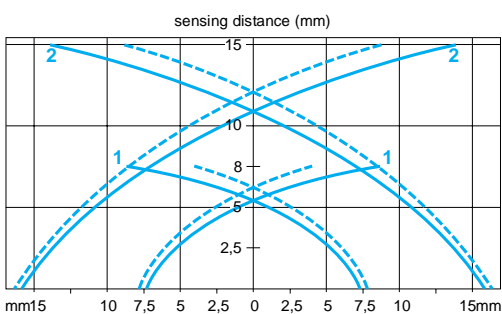
- pick-up points
- - - drop-out points (object approaching from the side)
- 1 Ø 18 (M18 x 1) XS5
- 2 Ø 30 (M30 x 1.5) XS5

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

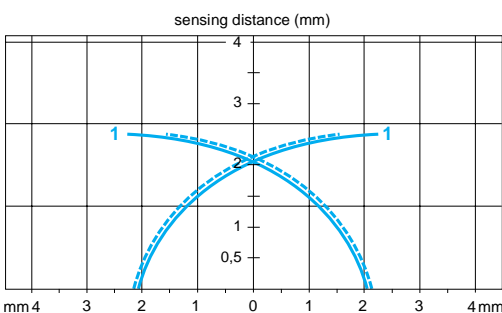


Sensor (mm)	Standard steel target (mm)	Operating zone (mm)
Ø 18	24 x 24 x 1	0...6.4
Ø 30	45 x 45 x 1	0...12

- 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

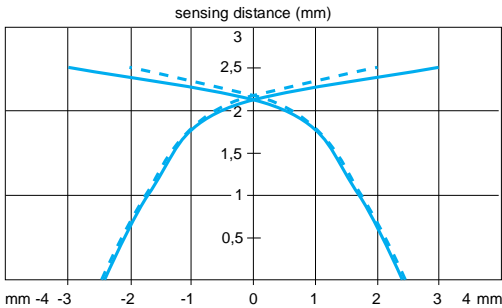


Sensor (mm)	Standard steel target (mm)	Operating zone (mm)
Ø 6.5	8 x 8 x 1	0...2

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

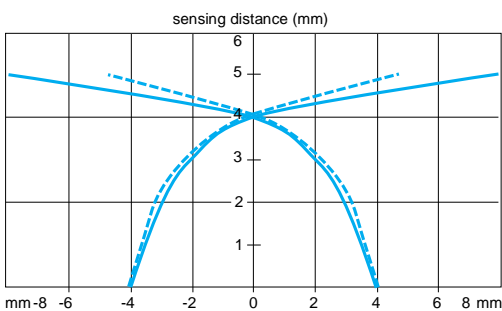
Flat type proximity sensors

Flush mountable in metal



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

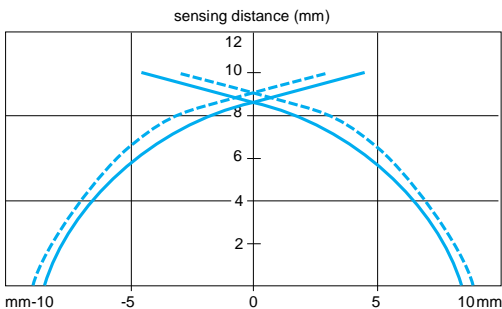
— pick-up points
- - - drop-out points (object approaching from the side)



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

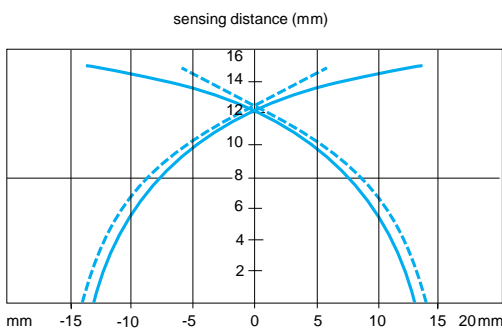
— pick-up points
- - - drop-out points (object approaching from the side)

Non flush mountable in metal



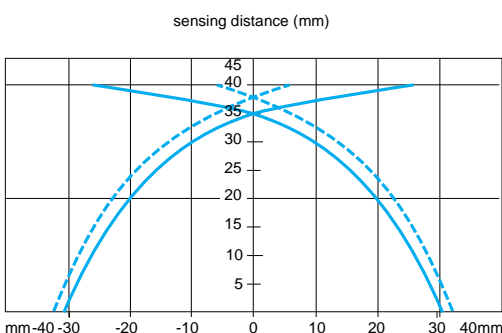
Sensor (mm)	Standard steel target (mm)	Operating zone (mm)
XS7 E1A1D	8 x 8 x 1	0...8
XS7 E1A1C	8 x 8 x 1	0...8

— 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)