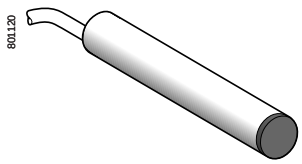
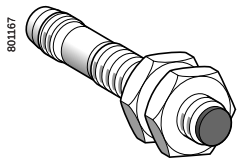
Inductive proximity sensors

Osiprox® Technology

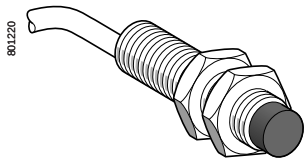
Basic, cylindrical, metal, flush and non flush mountable
Two-wire, a.c. supply
Three-wire, d.c. supply, solid-state output



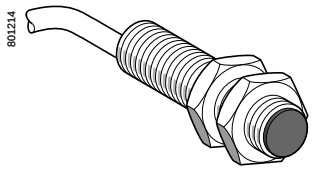
XS1 06BL●●L2



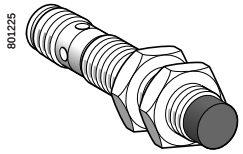
XS1 08BL●●M8



XS2 08BL●●L2



XS1 12BL●●L2



XS2 12BL●●M12

Sensing distance Sn (mm)	Function	Output	Connection	Reference	Weight kg
Ø 6.5, plain					
Three-wire ⎓ 12-24 V, flush mountable					
1.5	NO	PNP	Pre-cabled (L = 2 m) *(1)*	**XS1 06BLPAL2**	0.030
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS1 06BLNAL2**	0.030
	NC	PNP	Pre-cabled (L = 2 m) *(1)*	**XS1 06BLPBL2**	0.030
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS1 06BLNBL2**	0.030
Ø 8, threaded M8 x 1					
Three-wire ⎓ 12-24 V, flush mountable					
1.5	NO	PNP	Pre-cabled (L = 2 m) *(1)*	**XS1 08BLPAL2**	0.035
			M8 connector	**XS1 08BLPAM8**	0.008
			M12 connector	**XS1 08BLPAM12**	0.015
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS1 08BLNAL2**	0.035
			M8 connector	**XS1 08BLNAM8**	0.008
			M12 connector	**XS1 08BLNAM12**	0.015
	NC	PNP	Pre-cabled (L = 2 m) *(1)*	**XS1 08BLPBL2**	0.035
			M8 connector	**XS1 08BLPBM8**	0.008
			M12 connector	**XS1 08BLPBM12**	0.015
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS1 08BLNBL2**	0.035
			M8 connector	**XS1 08BLNBM8**	0.008
			M12 connector	**XS1 08BLNBM12**	0.015
Three-wire ⎓ 12-24 V, non flush mountable					
2.5	NO	PNP	Pre-cabled (L = 2 m) *(1)*	**XS2 08BLPAL2**	0.035
			M8 connector	**XS2 08BLPAM8**	0.008
			M12 connector	**XS2 08BLPAM12**	0.015
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS2 08BLNAL2**	0.035
			M8 connector	**XS2 08BLNAM8**	0.008
			M12 connector	**XS2 08BLNAM12**	0.015
	NC	PNP	Pre-cabled (L = 2 m) *(1)*	**XS2 08BLPBL2**	0.035
			M8 connector	**XS2 08BLPBM8**	0.008
			M12 connector	**XS2 08BLPBM12**	0.015
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS2 08BLNBL2**	0.035
			M8 connector	**XS2 08BLNBM8**	0.008
			M12 connector	**XS2 08BLNBM12**	0.015
Ø 12, threaded M12 x 1					
Three-wire ⎓ 12-24 V, flush mountable					
2	NO	PNP	Pre-cabled (L = 2 m) *(2)*	**XS1 12BLPAL2**	0.070
			M12 connector	**XS1 12BLPAM12**	0.015
		NPN	Pre-cabled (L = 2 m) *(2)*	**XS1 12BLNAL2**	0.070
			M12 connector	**XS1 12BLNAM12**	0.015
	NC	PNP	Pre-cabled (L = 2 m) *(2)*	**XS1 12BLPBL2**	0.070
			M12 connector	**XS1 12BLPBM12**	0.015
		NPN	Pre-cabled (L = 2 m) *(2)*	**XS1 12BLNBL2**	0.070
			M12 connector	**XS1 12BLNBM12**	0.015
Two-wire ∿ 24-240 V, flush mountable					
2	NO		Pre-cabled (L = 2 m) *(2)*	**XS1 12BLFAL2**	0.075
Three-wire ⎓ 12-24 V, non flush mountable					
4	NO	PNP	Pre-cabled (L = 2 m) *(2)*	**XS2 12BLPAL2**	0.070
			M12 connector	**XS2 12BLPAM12**	0.015
		NPN	Pre-cabled (L = 2 m) *(2)*	**XS2 12BLNAL2**	0.070
			M12 connector	**XS2 12BLNAM12**	0.015
	NC	PNP	Pre-cabled (L = 2 m) *(2)*	**XS2 12BLPBL2**	0.070
			M12 connector	**XS2 12BLPBM12**	0.015
		NPN	Pre-cabled (L = 2 m) *(2)*	**XS2 12BLNBL2**	0.070
			M12 connector	**XS2 12BLNBM12**	0.015

(1) For a 5 m long cable replace L2 by L5.
*Example: XS1 06BLPAL2 becomes **XS1 06BLPAL5** with a 5 m long cable.*
(2) For a 5 m long cable replace L2 by L5; for a 10 m long cable replace L2 by L10.
*Example: XS1 12BLPAL2 becomes **XS1 12BLPAL5** with a 5 m long cable.*

Characteristics: page 37326/4
Schemes: page 37326/4
Dimensions: page 37326/5

Inductive proximity sensors

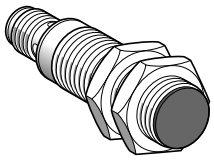
Osiprox® Technology

Basic, cylindrical, metal, flush and non flush mountable

Two-wire, a.c. supply

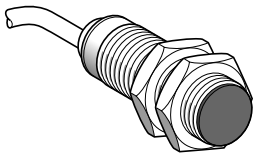
Three-wire, d.c. supply, solid-state output

821938



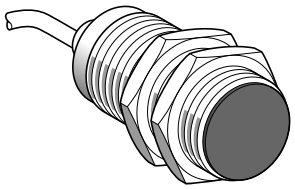
XS1 18BL●●M12

821936



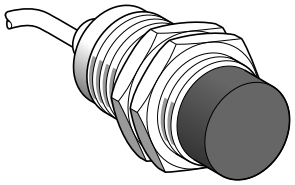
XS1 18BL●●●L2

822115



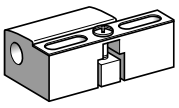
XS1 30BL●●L2

822116



XS2 30BL●●L2

825994



XSZ B1●●

Sensing distance Sn (mm)	Function	Output	Connection	Reference	Weight kg
Ø 18, threaded M18 x 1					
Three-wire ⎓ 12-24 V, flush mountable					
5	NO	PNP	Pre-cabled (L = 2 m) *(1)*	**XS1 18BLPAL2**	0.105
			M12 connector	**XS1 18BLPAM12**	0.035
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS1 18BLNAL2**	0.105
			M12 connector	**XS1 18BLNAM12**	0.035
	NC	PNP	Pre-cabled (L = 2 m) *(1)*	**XS1 18BLPBL2**	0.105
			M12 connector	**XS1 18BLPBM12**	0.035
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS1 18BLNBL2**	0.105
			M12 connector	**XS1 18BLNBM12**	0.035
Two-wire ∿ 24-240 V, flush mountable					
5	NO		Pre-cabled (L = 2 m) *(1)*	**XS1 18BLFAL2**	0.120
Three-wire ⎓ 12-24 V, non flush mountable					
8	NO	PNP	Pre-cabled (L = 2 m) *(1)*	**XS2 18BLPAL2**	0.105
			M12 connector	**XS2 18BLPAM12**	0.035
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS2 18BLNAL2**	0.105
			M12 connector	**XS2 18BLNAM12**	0.035
	NC	PNP	Pre-cabled (L = 2 m) *(1)*	**XS2 18BLPBL2**	0.105
			M12 connector	**XS2 18BLPBM12**	0.035
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS2 18BLNBL2**	0.105
			M12 connector	**XS2 18BLNBM12**	0.035
Ø 30, threaded M30 x 1.5					
Three-wire ⎓ 12-24 V, flush mountable					
10	NO	PNP	Pre-cabled (L = 2 m) *(1)*	**XS1 30BLPAL2**	0.165
			M12 connector	**XS1 30BLPAM12**	0.075
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS1 30BLNAL2**	0.165
			M12 connector	**XS1 30BLNAM12**	0.075
	NC	PNP	Pre-cabled (L = 2 m) *(1)*	**XS1 30BLPBL2**	0.165
			M12 connector	**XS1 30BLPBM12**	0.075
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS1 30BLNBL2**	0.165
			M12 connector	**XS1 30BLNBM12**	0.075
Two-wire ∿ 24-240 V, flush mountable					
10	NO		Pre-cabled (L = 2 m) *(1)*	**XS1 30BLFAL2**	0.205
Three-wire ⎓ 12-24 V, non flush mountable					
15	NO	PNP	Pre-cabled (L = 2 m) *(1)*	**XS2 30BLPAL2**	0.155
			M12 connector	**XS2 30BLPAM12**	0.085
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS2 30BLNAL2**	0.155
			M12 connector	**XS2 30BLNAM12**	0.085
	NC	PNP	Pre-cabled (L = 2 m) *(1)*	**XS2 30BLPBL2**	0.155
			M12 connector	**XS2 30BLPBM12**	0.085
		NPN	Pre-cabled (L = 2 m) *(1)*	**XS2 30BLNBL2**	0.155
			M12 connector	**XS2 30BLNBM12**	0.085

Accessories *(2)*			
Description		**Reference**	**Weight kg**
Fixing clamps	Ø 6.5	**XSZ B165**	0.005
	Ø 8	**XSZ B108**	0.006
	Ø 12	**XSZ B112**	0.006
	Ø 18	**XSZ B118**	0.010
	Ø 30	**XSZ B130**	0.020

(1) For a 5 m long cable replace L2 by L5; for a 10 m long cable replace L2 by L10.
*Example: XS1 18BLPAL2 becomes **XS1 18BLPAL5** with a 5 m long cable.*
(2) For further information, see page 37317/2.

Characteristics: page 37326/4 Schemes: page 37326/4 Dimensions: page 37326/5

Inductive proximity sensors

Osiprox® Technology

Basic, cylindrical, metal, flush and non flush mountable

Two-wire, a.c. supply

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

Characteristics

Sensor type			XS1 ●●BLP●L2 XS1 ●●BLN●L2	XS1 ●●BLP●M● XS1 ●●BLN●M●	XS2 ●●BLP●L2 XS2 ●●BLN●L2	XS2 ●●BLP●M● XS2 ●●BLN●M●	XS1 ●●BLFAL2
Product certifications			UL, CSA, CE				
Connection	Pre-cabled		Length 2 m	–	Length 2 m	–	Length 2 m
	Connector		–	M8 on Ø 8 M12 on Ø 8, Ø 12, Ø 18 and Ø 30	–	M8 on Ø 8 M12 on Ø 8, Ø 12, Ø 18 and Ø 30	–
Operating zone *(1)*	Ø 6.5	**mm**	**0…1.2**		–		–
	Ø 8	**mm**	**0…1.2**		**0…2**		–
	Ø 12	**mm**	**0…1.6**		**0…3.2**		**0…1.6**
	Ø 18	**mm**	**0…4**		**0…6.4**		**0…4**
	Ø 30	**mm**	**0…8**		**0…12**		**0…8**
Differential travel		**%**	1...15 of real sensing distance (Sr)				
Degree of protection	Conforming to IEC 60529		IP 67				
Storage temperature		**°C**	- 40…+ 85				
Operating temperature		**°C**	- 25…+ 70				
Materials	Case		Nickel plated brass				
	Cable		PVC 3 x 0.34 mm² except Ø 6.5 and 8: 3 x 0.11 mm²	–	PVC 3 x 0.34 mm² except Ø 6.5 and 8: 3 x 0.11 mm²	–	PVC 2 x 0.34 mm²
Vibration resistance	Conforming to IEC 60068-2-6		25 gn, amplitude ± 2 mm (f = 10 to 55 Hz)				
Shock resistance	Conforming to IEC 60068-2-27		50 gn, duration 11 ms				
Output state indication			Yellow LED, on rear	Yellow LED: 4 viewing ports at 90°	Yellow LED, on rear	Yellow LED: 4 viewing ports at 90°	Yellow LED, on rear
Rated supply voltage		**V**	⎓ 12…24 with protection against reverse polarity				∿ 24…240
Voltage limits (including ripple)		**V**	⎓ 10…36				∿ 20…264
Switching capacity		**mA**	⩽ 100 (except Ø 6.5 and 8: ⩽ 50) with overload and short-circuit protection				5…300 (5…200 for Ø 12) *(2)*
Voltage drop, closed state		**V**	⩽ 2				⩽ 4.5 (⩽ 7 for Ø 12)
Current consumption, no-load		**mA**	⩽ 10				–
Residual current, open state		**mA**	–				⩽ 1.5
Maximum switching frequency	Ø 6.5, Ø 8	**Hz**	3000				–
	Ø 12	**Hz**	2000		1000		25
	Ø 18	**Hz**	2000		250		25
	Ø 30	**Hz**	200		60		25
Delays	First-up	**ms**	⩽ 5 (except Ø 30 ⩽ 10)				⩽ 40
	Response	**ms**	⩽ 0.5 for Ø 8, Ø 12, ⩽ 1 for Ø 18, ⩽ 2 for Ø 30				⩽ 10
	Recovery	**ms**	⩽ 1 for Ø 8, ⩽ 0.5 for Ø 12, ⩽ 2 for Ø 18, ⩽ 6 for Ø 30				⩽ 15

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

(2) These sensors do not incorporate overload or short-circuit protection and therefore, it is essential to connect a 0.4 A "quick-blow" fuse in series with the load, see page 37317/2.

Wiring schemes

Connector

M8



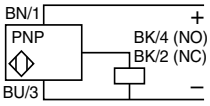
M12



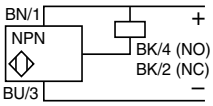
Pre-cabled

BU: Blue
BN: Brown
BK: Black

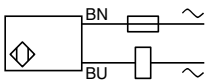
PNP



NPN



2-wire ∿



See connection on page 30210/3.

References:
pages 37326/2 and 37326/3

Dimensions:
page 37326/5

Inductive proximity sensors

Osiprox® Technology

Basic, cylindrical, metal, flush and non flush mountable

Two-wire, a.c. supply

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

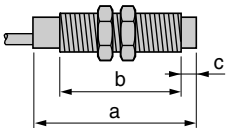
Setting-up

Minimum mounting distances (mm)



Sensors		Side by side	Face to face	Facing a metal object	Mounted in a metal support
Ø 6.5 flush mountable	**XS1 06**	e ≥ 3	e ≥ 18	e ≥ 4.5	d ≥ 6,5 h ≥ 0
Ø 8 flush mountable	**XS1 08**	e ≥ 3	e ≥ 18	e ≥ 4.5	d ≥ 8 h ≥ 0
Ø 8 non flush mountable	**XS2 08**	e ≥ 10	e ≥ 30	e ≥ 7.5	d ≥ 24 h ≥ 5
Ø 12 flush mountable	**XS1 12**	e ≥ 4	e ≥ 24	e ≥ 6	d ≥ 12 h ≥ 0
Ø 12 non flush mountable	**XS2 12**	e ≥ 16	e ≥ 48	e ≥ 12	d ≥ 36 h ≥ 8
Ø 18 flush mountable	**XS1 18**	e ≥ 10	e ≥ 60	e ≥ 15	d ≥ 18 h ≥ 0
Ø 18 non flush mountable	**XS2 18**	e ≥ 16	e ≥ 96	e ≥ 24	d ≥ 54 h ≥ 16
Ø 30 flush mountable	**XS1 30**	e ≥ 20	e ≥ 120	e ≥ 30	d ≥ 30 h ≥ 0
Ø 30 non flush mountable	**XS2 30**	e ≥ 60	e ≥ 180	e ≥ 45	d ≥ 90 h ≥ 30

Dimensions



Flush mountable in metal

Sensors		Pre-cabled (mm)		M8 connector (mm)		M12 connector (mm)	
		a	b	a	b	a	b
Ø 6.5	**XS1 06**	42	–	–	–	–	–
Ø 8	**XS1 08**	42	39.4	52.2	41.3	61.4	39
Ø 12	**XS1 12**	41.3	38.7	–	–	53	39
Ø 18	**XS1 18**	51.3	48.4	–	–	64	48.5
Ø 30	**XS1 30**	51.3	48.4	–	–	64	48.5

Non flush mountable in metal

Sensors		Pre-cabled (mm)		M8 connector (mm)			M12 connector (mm)		
		a	b	a	b	c	a	b	c
Ø 8	**XS2 08**	42	35.8	52.2	37.7	4	61.4	35.4	4
Ø 12	**XS2 12**	41.3	34.1	–	–	–	52.6	34	5
Ø 18	**XS2 18**	50.6	40.4	–	–	–	63.4	40.5	8
Ø 30	**XS2 30**	50.6	35.4	–	–	–	63.4	35.5	13

References: pages 37326/2 and 37326/3
Characteristics: page 37326/4
Schemes: page 37326/4