

# Inductive proximity sensors

OsiSense XS, general purpose, standard range

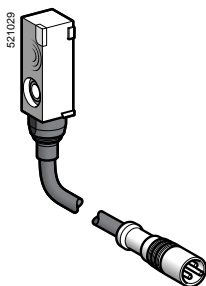
Flat format, flush mountable

Two-wire DC

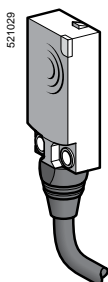
Three-wire DC, solid-state output



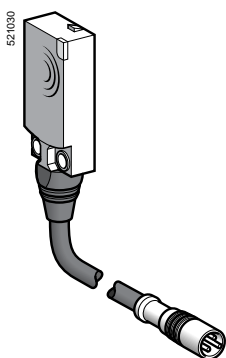
XS7J1A1●●L2



XS7J1A1●●L01M8



XS7F1A1●●L2



XS7F1A1●●L01M8

## Flat, 8 x 22 x 8 mm format <sup>(1) (2)</sup>

### Three-wire ---

Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight kg
2.5	NO	PNP	Pre-cabled (L = 2 m) <sup>(3)</sup>	<b>XS7J1A1PAL2</b>	0.060
			Remote M8 connector on 0.15 m flying lead	<b>XS7J1A1PAL01M8</b>	0.040
	NPN	PNP	Pre-cabled (L = 2 m) <sup>(3)</sup>	<b>XS7J1A1NAL2</b>	0.060
			Remote M8 connector on 0.15 m flying lead	<b>XS7J1A1NAL01M8</b>	0.040
	NC	PNP	Pre-cabled (L = 2 m) <sup>(3)</sup>	<b>XS7J1A1PBL2</b>	0.060
			Remote M8 connector on 0.15 m flying lead	<b>XS7J1A1PBL01M8</b>	0.040
NPN	PNP	Pre-cabled (L = 2 m) <sup>(3)</sup>	<b>XS7J1A1NBL2</b>	0.060	
		Remote M8 connector on 0.15 m flying lead	<b>XS7J1A1NBL01M8</b>	0.040	

### Two-wire ---

Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight kg
2.5	NO	NC	Pre-cabled (L = 2 m) <sup>(3)</sup>	<b>XS7J1A1DAL2</b>	0.050
			Remote M8 connector on 0.15 m flying lead	<b>XS7J1A1DAL01M8</b>	0.035
NC	NC	NC	Pre-cabled (L = 2 m) <sup>(3)</sup>	<b>XS7J1A1DBL2</b>	0.050
			Remote M8 connector on 0.15 m flying lead	<b>XS7J1A1DBL01M8</b>	0.035

## Flat, 15 x 32 x 8 mm format <sup>(1)</sup>

### Three-wire ---

Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight kg
5	NO	PNP	Pre-cabled (L = 2 m) <sup>(3)</sup>	<b>XS7F1A1PAL2</b>	0.065
			Remote M8 connector on 0.15 m flying lead	<b>XS7F1A1PAL01M8</b>	0.045
	NPN	PNP	Pre-cabled (L = 2 m) <sup>(3)</sup>	<b>XS7F1A1NAL2</b>	0.065
			Remote M8 connector on 0.15 m flying lead	<b>XS7F1A1NAL01M8</b>	0.045
	NC	PNP	Pre-cabled (L = 2 m) <sup>(3)</sup>	<b>XS7F1A1PBL2</b>	0.065
			Remote M8 connector on 0.15 m flying lead	<b>XS7F1A1PBL01M8</b>	0.045
NPN	PNP	Pre-cabled (L = 2 m) <sup>(3)</sup>	<b>XS7F1A1NBL2</b>	0.065	
		Remote M8 connector on 0.15 m flying lead	<b>XS7F1A1NBL01M8</b>	0.045	

### Two-wire ---

Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight kg
5	NO	NC	Pre-cabled (L = 2 m) <sup>(3)</sup>	<b>XS7F1A1DAL2</b>	0.055
			Remote M8 connector on 0.15 m flying lead	<b>XS7F1A1DAL01M8</b>	0.045
NC	NC	NC	Pre-cabled (L = 2 m) <sup>(3)</sup>	<b>XS7F1A1DBL2</b>	0.055
			Remote M8 connector on 0.15 m flying lead	<b>XS7F1A1DBL01M8</b>	0.045

(1) For accessories, see page 122.

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

(3) For a 5 m long cable replace L2 by L5; for a 10 m long cable replace L2 by L10.  
Example: **XS7J1A1PAL2** becomes **XS7J1A1PAL5** with a 5 m long cable.

# Inductive proximity sensors

OsiSense XS, general purpose, standard range

Flat format, flush mountable


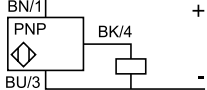
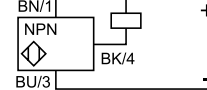
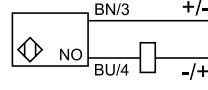
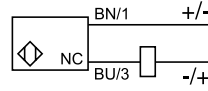
Two-wire DC

Three-wire DC, solid-state output

## Characteristics

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

## Wiring schemes

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

See connection on page ???30210/3.

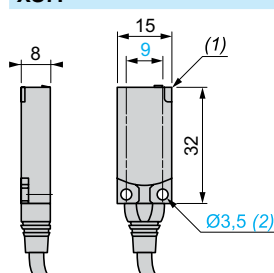
## Setting-up

### Minimum mounting distances (mm)

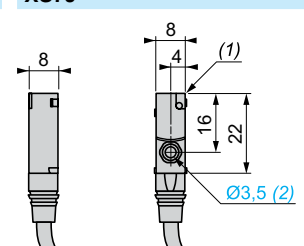
	Side by side	Face to face	Facing a metal object
XS7J	e ≥ 7.5	e ≥ 20	e ≥ 7.5
XS7F	e ≥ 15	e ≥ 40	e ≥ 15

## Dimensions

### XS7F



### XS7J



(1) LED  
(2) For CHC type screws

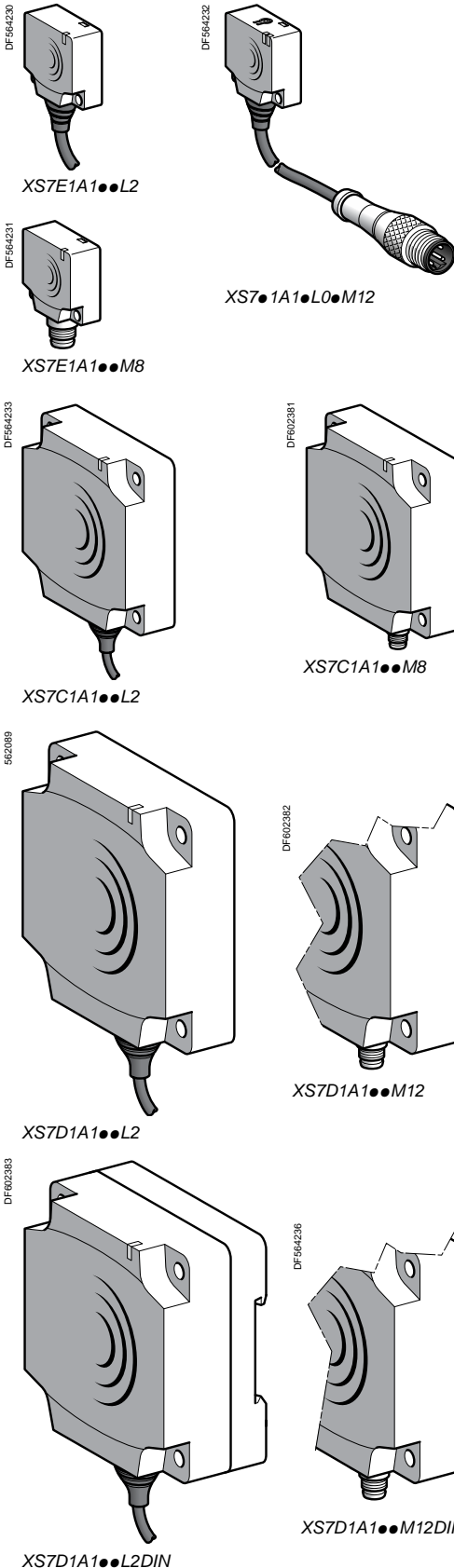
# Inductive proximity sensors

OsiSense XS, general purpose, standard range

Flat format, flush mountable

Two-wire DC

Three-wire DC, solid-state output



Sens. dist. (Sn) mm	Function	Output	Connection	Reference	Weight kg		
<b>Flat, 26 x 26 x 13 mm format (1)</b>							
<b>Three-wire ---</b>							
10	NO	PNP	Pre-cabled (L = 2 m) (4)	<b>XS7E1A1PAL2</b>	0.075		
			M8 connector	<b>XS7E1A1PAM8</b>	0.040		
			Remote M12 connector	<b>XS7E1A1PAL01M12</b>	0.040		
		NPN	Pre-cabled (L = 2 m) (4)	<b>XS7E1A1NAL2</b>	0.075		
			M8 connector	<b>XS7E1A1NAM8</b>	0.075		
			Remote M12 connector	<b>XS7E1A1NAL01M12</b>	0.040		
	NC	PNP	Pre-cabled (L = 2 m) (4)	<b>XS7E1A1PBL2</b>	0.075		
			M8 connector	<b>XS7E1A1PBM8</b>	0.040		
			Remote M12 connector	<b>XS7E1A1PBL01M12</b>	0.040		
		NPN	Pre-cabled (L = 2 m) (4)	<b>XS7E1A1NBL2</b>	0.075		
			M8 connector	<b>XS7E1A1NBM8</b>	0.040		
			Remote M12 connector	<b>XS7E1A1NBL01M12</b>	0.040		
<b>Two-wire ---</b>							
10	NO	PNP	Pre-cabled (L = 2 m) (4)	<b>XS7E1A1DAL2</b>	0.070		
			M8 connector	<b>XS7E1A1DAM8</b>	0.040		
			Remote M12 connector	<b>XS7E1A1DAL01M12</b>	0.040		
		NO terminals 1 and 4 (2)	Remote M12 connector	<b>XS7E1A1CAL01M12</b>	0.040		
			Remote M12 connector (3)	<b>XS7E1A1CAL08M12</b>	0.065		
			NC	PNP	Pre-cabled (L = 2 m) (4)	<b>XS7E1A1DBL2</b>	0.070
	M8 connector	<b>XS7E1A1DBM8</b>			0.040		
	Remote M12 connector	<b>XS7E1A1DBL01M12</b>			0.040		
	<b>Flat, 40 x 40 x 15 mm format (1)</b>						
	<b>Three-wire ---</b>						
	15	NO		PNP	Pre-cabled (L = 2 m) (4)	<b>XS7C1A1PAL2</b>	0.095
			M8 connector		<b>XS7C1A1PAM8</b>	0.060	
Remote M12 connector			<b>XS7C1A1PAL01M12</b>		0.060		
NPN			Pre-cabled (L = 2 m) (4)		<b>XS7C1A1NAL2</b>	0.095	
			M8 connector		<b>XS7C1A1NAM8</b>	0.060	
			Remote M12 connector		<b>XS7C1A1NAL01M12</b>	0.060	
NC			PNP	Pre-cabled (L = 2 m) (4)	<b>XS7C1A1PBL2</b>	0.095	
				M8 connector	<b>XS7C1A1PBM8</b>	0.060	
				Remote M12 connector	<b>XS7C1A1PBL01M12</b>	0.060	
			NPN	Pre-cabled (L = 2 m) (4)	<b>XS7C1A1NBL2</b>	0.095	
				M8 connector	<b>XS7C1A1NBM8</b>	0.060	
				Remote M12 connector	<b>XS7C1A1NBL01M12</b>	0.060	
<b>Two-wire ---</b>							
15		NO	PNP	Pre-cabled (L = 2 m) (4)	<b>XS7C1A1DAL2</b>	0.090	
				M8 connector	<b>XS7C1A1DAM8</b>	0.060	
				Remote M12 connector	<b>XS7C1A1DAL01M12</b>	0.060	
			NO terminals 1 and 4 (2)	Remote M12 connector	<b>XS7C1A1CAL01M12</b>	0.060	
				Remote M12 connector (3)	<b>XS7C1A1CAL08M12</b>	0.090	
	NC			PNP	Pre-cabled (L = 2 m) (4)	<b>XS7C1A1DBL2</b>	0.090
		M8 connector	<b>XS7C1A1DBM8</b>		0.060		
		Remote M12 connector	<b>XS7C1A1DBL01M12</b>		0.060		
		<b>Flat, 80 x 80 x 26 mm format (1)</b>					
		<b>Three-wire ---</b>					
		40	NO	PNP	Pre-cabled (L = 2 m) (4)	<b>XS7D1A1PAL2 (5)</b>	0.340
	M12 connector				<b>XS7D1A1PAM12 (5)</b>	0.290	
M12 connector	<b>XS7D1A1PAL12 (5)</b>				0.290		
NPN	Pre-cabled (L = 2 m) (4)			<b>XS7D1A1NAL2 (5)</b>	0.340		
	M12 connector			<b>XS7D1A1NAM12 (5)</b>	0.290		
	M12 connector			<b>XS7D1A1NAL12 (5)</b>	0.290		
NC	PNP		Pre-cabled (L = 2 m) (4)	<b>XS7D1A1PBL2 (5)</b>	0.340		
			M12 connector	<b>XS7D1A1PBM12 (5)</b>	0.290		
			M12 connector	<b>XS7D1A1PBL12 (5)</b>	0.290		
	NPN		Pre-cabled (L = 2 m) (4)	<b>XS7D1A1NBL2 (5)</b>	0.340		
			M12 connector	<b>XS7D1A1NBM12 (5)</b>	0.290		
			M12 connector	<b>XS7D1A1NBL12 (5)</b>	0.290		
<b>Two-wire ---</b>							
40	NO	PNP	Pre-cabled (L = 2 m) (4)	<b>XS7D1A1DAL2 (5)</b>	0.340		
			M12 connector	<b>XS7D1A1DAM12 (5)</b>	0.290		
			M12 connector	<b>XS7D1A1DAL12 (5)</b>	0.290		
	NO terminals 1 and 4 (2)	Remote M12 connector	<b>XS7D1A1CAM12 (5)</b>	0.290			
		Remote M12 connector (3)	<b>XS7D1A1CAL12 (5)</b>	0.340			
		NC	PNP	Pre-cabled (L = 2 m) (4)	<b>XS7D1A1DBL2 (5)</b>	0.340	
M12 connector	<b>XS7D1A1DBM12 (5)</b>			0.290			
M12 connector	<b>XS7D1A1DBL12 (5)</b>			0.290			

(1) For accessories, see page 122.

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

(3) Remote connector on 0.8 m flying lead.

(4) For a 5 m long cable replace L2 by L5; for a 10 m long cable replace L2 by L10. Example: **S7 J1A1PAL2** becomes **XS7J1A1PAL5** with a 5 m long cable.

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

# Inductive proximity sensors

OsiSense XS, general purpose, standard range

Flat format, flush mountable

Two-wire DC

Three-wire DC, solid-state output

Characteristics			XS7E●●●●●M8, XS7C●●●●●M8, XS7D●●●●●M12	XS7E●●●●●L01M12, XS7C●●●●●L01M12	XS7E●●●●●L2, XS7C●●●●●L2, XS7D●●●●●L2
Sensor type					
Product certifications			UL, CSA, CE, ECOLAB		
Connection	Connector		M8 except M12 on XS7D●●●●●M12	M12 on 0.15 m flying lead for XS7●●●●●L01M12	–
	Pre-cabled		–	–	Length: 2 m
Operating zone	XS7E	mm	0...8		
	XS7C	mm	0...12		
	XS7D	mm	0...32		
Differential travel		%	1...15 of effective sensing distance (Sr)		
Degree of protection	Conforming to IEC 60529		IP 67, double insulation □ (except for M8 connector: IP 67)		IP 68, □
Storage temperature		°C	- 40...+ 85		
Operating temperature		°C	- 25...+ 70		
Materials	Case		PBT		
	Cable		–	PvR 3 x 0.34 mm <sup>2</sup> or 2 x 0.34 mm <sup>2</sup>	
Vibration resistance		Conforming to IEC 60068-2-6	25 gn, amplitude ± 2 mm (f = 10 to 55 Hz)		
Shock resistance		Conforming to IEC 60068-2-27	50 gn, duration 11 ms		
Output state indication			Yellow LED		
Rated supply voltage		V	12...24 with protection against reverse polarity		
Voltage limits (including ripple)		V	10...36		
Current consumption, no-load	3-wire	mA	≤ 10		
Residual current, open state	2-wire	mA	≤ 0.5		
Switching capacity	3-wire	mA	≤ 100 with overload and short-circuit protection		
	2-wire	mA	1.5...100 with overload and short-circuit protection		
Voltage drop, closed state	3-wire	V	≤ 2		
	2-wire	V	≤ 4		
Maximum switching frequency	XS7E, XS7C	kHz	1		
	XS7D	Hz	100		
Delays	First-up	3-wire	ms 10 XS7E and XS7C, 30 XS7D		
		2-wire	ms 5 XS7E and XS7D, 10 XS7D		
	Response	3-wire	ms 2 XS7E and XS7C, 5 XS7D		
		2-wire	ms 0,3 XS7E and XS7D, 10 XS7D		
	Recovery	3-wire	ms 6 XS7E, 5 XS7C, 35 XS7D		
		2-wire	ms 0,7 XS7E and XS7D, 10 XS7D		

## Wiring schemes

**Connector** M12 M8

**Pre-cabled**  
BU: Blue  
BN: Brown  
BK: Black

**PNP/M12 or M8**

**2-wire NO/M12 or M8**

**2-wire NC/M12 or M8**

**NPN/M12 or M8**

**2-wire NO/M12 XS7●●●●●CA●●●**

For M8 connector, NO and NC outputs on terminal 4

## Setting-up

**Minimum mounting distances (mm)**

Side by side	e ≥	XS7E	XS7C	XS7D
		30	45	120

Face to face	e ≥	XS7E	XS7C	XS7D
		72	110	300

Facing a metal object	e ≥	XS7E	XS7C	XS7D
		30	45	120

## Dimensions

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

(1) LED  
(2) For CHC type screws



# Inductive proximity sensors

OsiSense XS, general purpose  
Cubic case, 40 x 40 x 70 mm, M12 or 1/2"-20UNF  
connector  
5 position turret head

Sensor	Flush mountable in metal	Non flush mountable in metal		
Nominal sensing distance (Sn)	15 mm	20 mm	40 mm	
<b>References</b>				
4-wire ---	PNP NO+NC	—	XS8C2A1PCM12	XS8C2A4PCM12
	NPN NO+NC	—	XS8C2A1NCM12	XS8C2A4NCM12
3-wire ---	PNP NO	XS7C2A1PAM12	—	—
	NPN NO	XS7C2A1NAM12	—	—
	PNP NC	XS7C2A1PBM12	—	—
	NPN NC	XS7C2A1NBM12	—	—
2-wire ---	NO	XS7C2A1DAM12	XS8C2A1DAM12	XS8C2A4DAM12
	NC	XS7C2A1DBM12	XS8C2A1DBM12	XS8C2A4DBM12
2-wire (~/---) unprotected (1)	NO	XS7C2A1MAU20	XS8C2A1MAU20	XS8C2A4MAU20
	NC	XS7C2A1MBU20	XS8C2A1MBU20	XS8C2A4MBU20
Weight (kg)	0.149	0.149	0.149	
<b>Characteristics</b>				
Operating zone	0...12 mm	0...16 mm	0...32 mm	
Product certifications	UL, CSA, CE, TÜV (4-wire), E2 (3-wire and 4-wire)			
Conformity to standards	IEC 60947-5-2			
Conformity to safety standards (2)	For XS8C2A●PCM12	EN 62061 (2005): SILcl2 EN 61508 (2010): SIL 2, EN ISO 13849 (2008): PL d		
Reliability data (2)	For XS8C2A●PCM12	MTTFd = 1546 years PFHd = 7.4 10 <sup>-8</sup> 1/h		
Connection	M12 connector for --- versions 1/2"-20UNF connector for ~/--- versions			
Differential travel	3...15% of Sr			
Degree of protection	Conforming to IEC 60529 and DIN 40050	IP 65, IP 67 and IP 69K		
Temperature	Storage	- 40...+ 85°C		
	Operation (3)	- 25...+ 70°C		
Material	Case: PBT			
Vibration resistance	Conforming to IEC 60068-2-6	25 gn, amplitude ± 2 mm (f = 10...55 Hz)		
Shock resistance	Conforming to IEC 60068-2-27	50 gn for 11 ms		
Indicators	Output state	Yellow LED		
	Power on	Green LED, for 4-wire ---, 3-wire --- and 2-wire ~/--- versions		
Rated supply voltage	4-wire ---	12...48 V with protection against reverse polarity		
	3-wire ---	12...24 V with protection against reverse polarity		
	2-wire ---	12...48 V with protection against reverse polarity		
	2-wire ~/---	24...240 V (~ 50/60 Hz)		
Voltage limits (including ripple)	4-wire ---	10...58 V		
	3-wire ---	10...36 V		
	2-wire ---	10...58 V		
	2-wire ~/---	20...264 V		
Current consumption, no-load	3-wire and 4-wire ---	< 15 mA		
Residual current, open state	2-wire ---	< 0.6 mA		
	2-wire ~/---	1.5 mA		
Switching capacity	3-wire and 4-wire ---	< 200 mA with overload and short-circuit protection		
	2-wire ---	< 100 mA with overload and short-circuit protection		
	2-wire ~/---	~: 5...300 mA (1) ---: 5...200 mA (1)		
Voltage drop, closed state	3-wire and 4-wire ---	< 2 V		
	2-wire ---	< 4.2 V		
	2-wire ---/~	< 5.5 V		
Maximum switching frequency	Flush mountable: --- 300 Hz, ~ 25 Hz Non flush mountable: --- 150 Hz, ~ 25 Hz			
Delays	First-up	7 ms (3-wire and 4-wire ---), 20 ms (2-wire --- and 2-wire ---/~)		
	Response	Flush mountable: ≤ 1.2 ms. Non flush mountable: ≤ 1.4 ms		
	Recovery	Flush mountable: ≤ 1.8 ms. Non flush mountable: ≤ 3.5 ms		

(1) Sensor must be protected by a 0.4 A quick-blow fuse (reference **XUZE04**) connected in series with the load.

(2) SIL 2 protection can only be obtained by connecting both outputs to a safety PLC. Please refer to the "Safety solutions using Preventa" catalogue.

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

# Inductive proximity sensors

## OsiSense XS, general purpose

Cubic case, 40 x 40 x 70 mm, M12 or 1/2"-20UNF connector  
5 position turret head

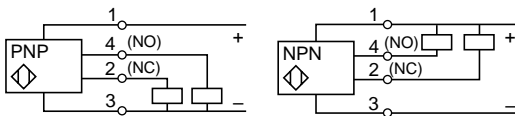
### Setting-up precautions

#### Minimum mounting distances (mm)

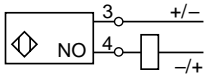
		Side by side	Face to face	Facing a metal object
Sensors flush mountable in metal	<b>XS7C2A1●●</b>	$e \geq 60$	$e \geq 120$	$e \geq 45$
	<b>XS8C2A1●●</b>	$e \geq 80$	$e \geq 160$	$e \geq 60$
Sensors non flush mountable in metal	<b>XS8C2A4●●</b>	$e \geq 160$	$e \geq 320$	$e \geq 120$

### Wiring schemes

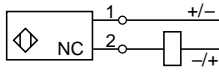
#### 4-wire ---, NO + NC outputs



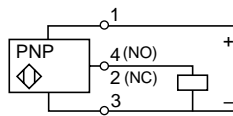
#### 2-wire ---, NO output (M12 connector)



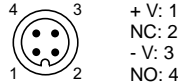
#### 2-wire ---, NC output (M12 connector)



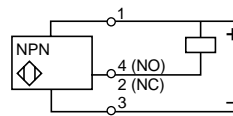
#### 3-wire, PNP



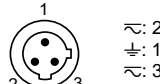
#### M12 connector



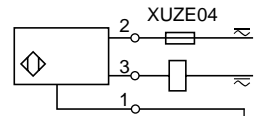
#### 3-wire, NPN



#### 1/2"-20UNF connector



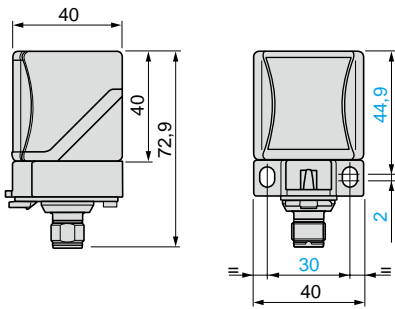
#### 2-wire, 1/2"-20UNF



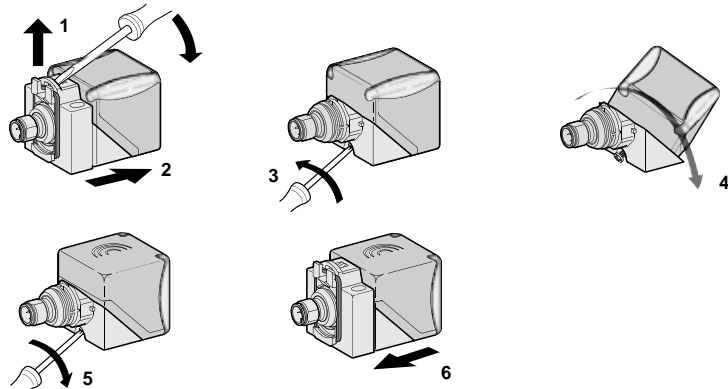
### Accessory references

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

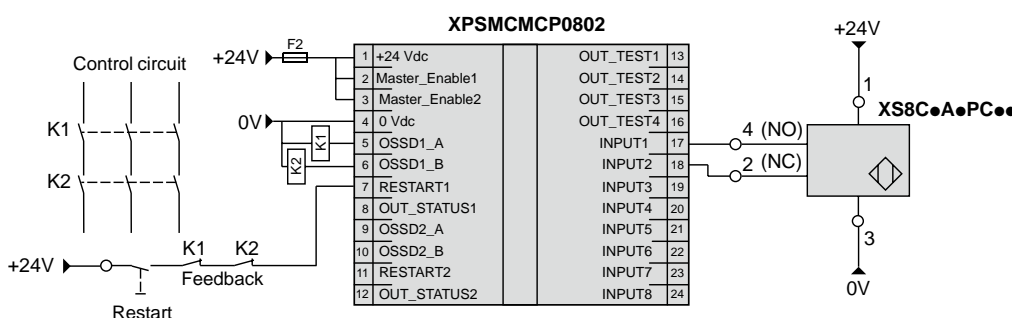
### Dimensions



### Head positions



### Example SIL 2 wiring scheme (with Preventa XPSMCMCP0802 safety PLC)

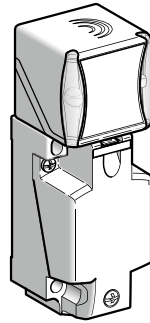


SFF (Safe Failure Fraction): 92,68 %  
DC (Diagnosis Coverage): 75,8 %

# Inductive proximity sensors

OsiSense XS, general purpose  
Plastic case, 40 x 40 x 117 mm, plug-in  
5 position turret head

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

4-wire $\text{---}$	PNP NO+NC	–	<b>XS8C4A1PCP20</b>	<b>XS8C4A4PCP20</b>
	NPN NO+NC	–	<b>XS8C4A1NCP20</b>	<b>XS8C4A4NCP20</b>
2-wire $\text{---}$	NO or NC programmable	<b>XS7C4A1DPP20</b>	<b>XS8C4A1DPP20</b>	<b>XS8C4A4DPP20</b>
2-wire ( $\sim\text{---}$ ) unprotected (1)	NO or NC programmable	<b>XS7C4A1MPP20</b>	<b>XS8C4A1MPP20</b>	<b>XS8C4A4MPP20</b>
Weight (kg)		0.244	0.244	0.244

**Note:** These sensors have an M20 cable entry. They can also be supplied with a PG 13.5 cable entry (e.g. **XS8C4A4PCG13**) or a 1/2" NPT cable entry (e.g. **XS8C4A1MPN12**). Please consult our Customer Care Centre.

## Characteristics

Operating zone		0...12 mm	0...16 mm	0...32 mm
Product certifications		UL, CSA, CE, TÜV (4-wire), E2 (4-wire)		
Conformity to standards		IEC 60947-5-2		
Conformity to safety standards (2)	For XS8C4A●PCP20	EN 62061 (2005): SILcl2, EN 61508 (2010): SIL 2, EN ISO 13849 (2008): PL d		
Reliability data (2)	For XS8C4A●PCP20	MTTFd = 1546 years PFHd = 7.4 10 <sup>-8</sup> 1/h		
Connection		Screw terminals, clamping capacity: 2 or 4 x 1.5 mm <sup>2</sup> / 2 or 4 x 16 AWG (3)		
Differential travel		3...15% of Sr		
Degree of protection	Conforming to IEC 60529 and DIN 40050	IP 65, IP 67 and IP 69K		
Temperature	Storage	- 40...+ 85°C		
	Operation (4)	- 25...+ 70°C		
Material		Case: PBT		
Vibration resistance	Conforming to IEC 60068-2-6	25 gn, amplitude ± 2 mm (f = 10...55 Hz)		
Shock resistance	Conforming to IEC 60068-2-27	50 gn for 11 ms		
Indicators	Output state	Yellow LED		
	Power on	Green LED, for 4-wire $\text{---}$ and 2-wire $\sim\text{---}$ versions		
Rated supply voltage	4-wire $\text{---}$	12...48 V with protection against reverse polarity		
	2-wire $\text{---}$	12...48 V with protection against reverse polarity		
	2-wire $\sim\text{---}$	24...240 V ( $\sim$ 50/60 Hz)		
Voltage limits (including ripple)	4-wire $\text{---}$	10...58 V		
	2-wire $\text{---}$	10...58 V		
	2-wire $\sim\text{---}$	20...264 V		
Current consumption, no-load	4-wire $\text{---}$	< 15 mA		
Residual current, open state	2-wire $\text{---}$	< 0.6 mA		
	2-wire $\sim\text{---}$	1.5 mA		
Switching capacity	4-wire $\text{---}$	< 200 mA with overload and short-circuit protection		
	2-wire $\text{---}$	< 100 mA with overload and short-circuit protection		
	2-wire $\sim\text{---}$	$\sim$ : 5...300 mA (1) $\text{---}$ : 5...200 mA (1)		
Voltage drop, closed state	4-wire $\text{---}$	< 2 V		
	2-wire $\text{---}$	< 4.2 V		
	2-wire $\text{---}/\sim$	< 5.5 V		
Maximum switching frequency		Flush mountable: $\text{---}$ 300 Hz, $\sim$ 25 Hz Non flush mountable: $\text{---}$ 150 Hz, $\sim$ 25 Hz		
Delays	First-up	7 ms (3-wire and 4-wire $\text{---}$ ), 20 ms (2-wire $\text{---}$ and 2-wire $\text{---}/\sim$ )		
	Response	Flush mountable: ≤ 1.2 ms. Non flush mountable: ≤ 1.4 ms		
	Recovery	Flush mountable: ≤ 1.8 ms. Non flush mountable: ≤ 3.5 ms		

(1) Sensor must be protected by a 0.4 A quick-blow fuse (reference **XUZE04**) connected in series with the load.

(2) SIL 2 protection can only be obtained by connecting both outputs to a safety PLC. Please refer to the "Safety solutions using Preventa" catalogue.

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

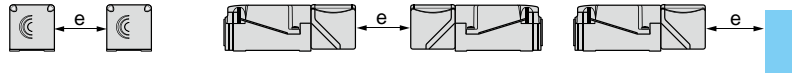
(4) Sensors are available for very low temperatures (suffix **TF**: - 40°C, + 70°C) or very high temperatures (suffix **TT**: - 25°C, + 85°C). Please consult our Customer Care Centre.

# Inductive proximity sensors

OsiSense XS, general purpose  
Plastic case, 40 x 40 x 117 mm, plug-in  
5 position turret head

## Setting-up precautions

### Minimum mounting distances (mm)

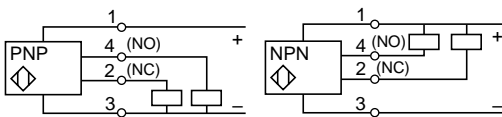


		Side by side	Face to face	Facing a metal object
Sensors flush mountable in metal	XS7C4A1●●	$e \geq 60$	$e \geq 120$	$e \geq 45$
	XS8C4A1●●	$e \geq 80$	$e \geq 160$	$e \geq 60$
Sensors non flush mountable in metal	XS8C4A4●●	$e \geq 160$	$e \geq 320$	$e \geq 120$

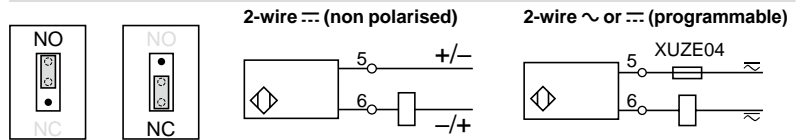
## Wiring schemes

### NO + NC outputs

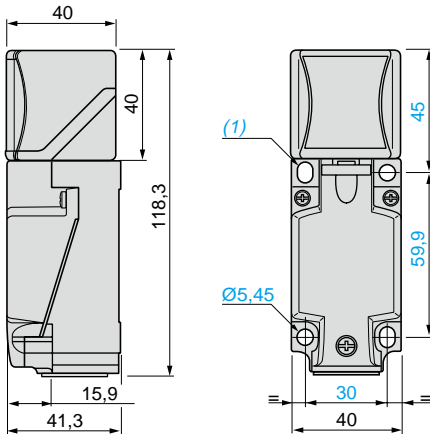
4-wire ...



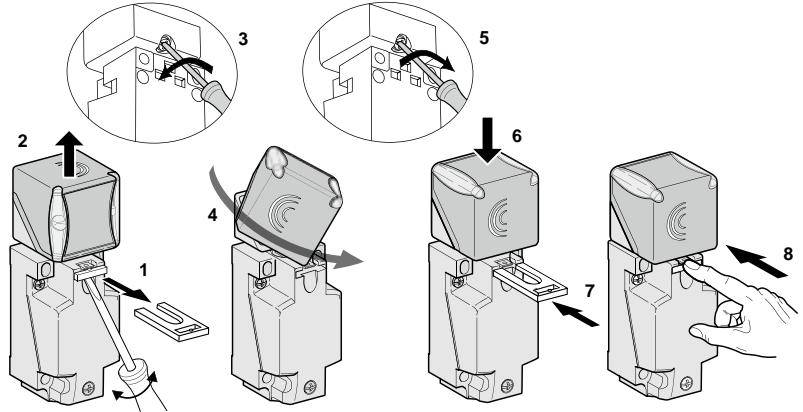
### NO or NC outputs, depending on position of link



## Dimensions



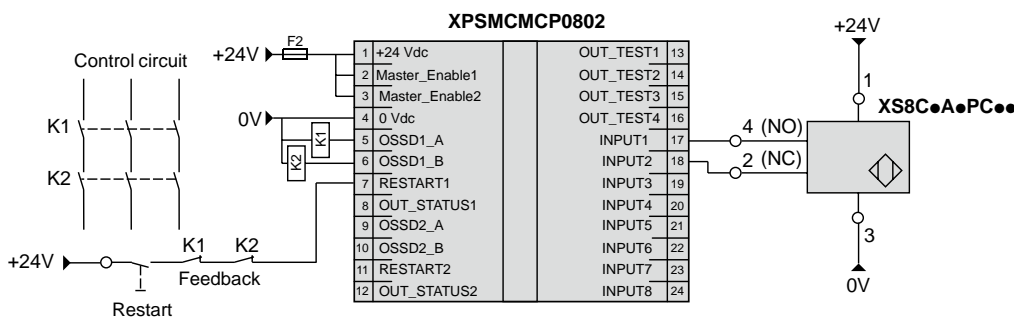
## Head positions



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

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

## Example SIL 2 wiring scheme (with Preventa XPSMCMCP0802 safety PLC)



SFF (Safe Failure Fraction): 92,68 %  
DC (Diagnosis Coverage): 75,8 %

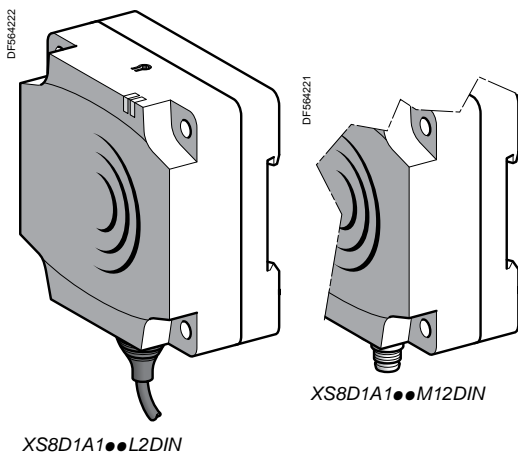
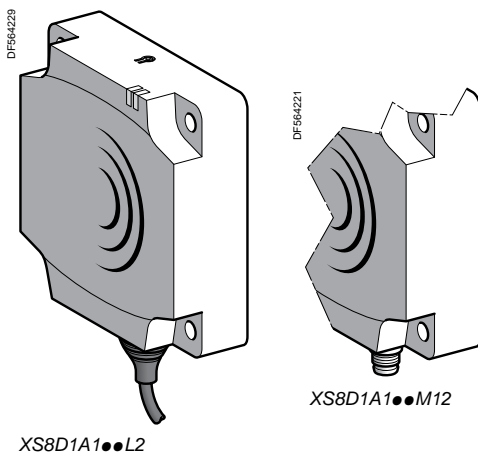
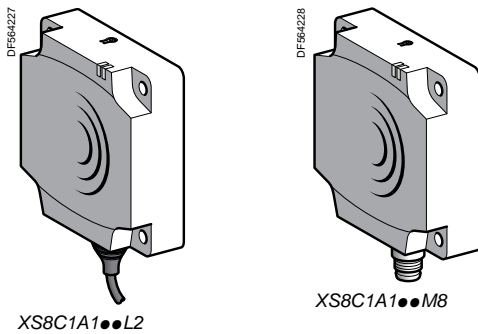
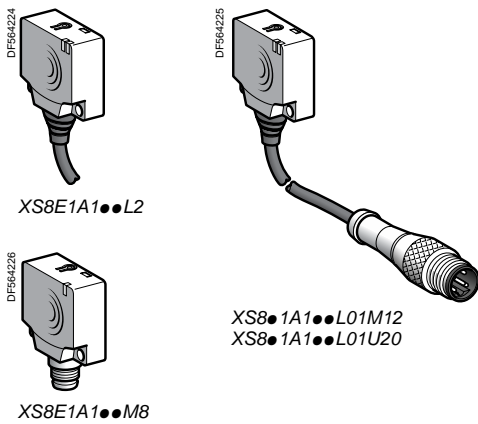
# Inductive proximity sensors

OsiSense XS, general purpose with increased range

Flat, flush mountable/non flush mountable + teach mode (1)

Two-wire AC or DC

Three-wire DC, solid-state output



## Flat, 26 x 26 x 13 mm format (2)

Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight kg
<b>Three-wire --- with overload and short-circuit protection</b>					
15	NO	PNP	Pre-cabled (L = 2 m) (3)	XS8E1A1PAL2	0.075
			M8 connector	XS8E1A1PAM8	0.040
			Remote M12 connector	XS8E1A1PAL01M12	0.040
	NPN	PNP	Pre-cabled (L = 2 m) (3)	XS8E1A1NAL2	0.075
			M8 connector	XS8E1A1NAM8	0.040
			Remote M12 connector	XS8E1A1NAL01M12	0.040
NC	PNP	Pre-cabled (L = 2 m) (3)	XS8E1A1PBL2	0.075	
		M8 connector	XS8E1A1PBM8	0.040	
		Remote M12 connector	XS8E1A1PBL01M12	0.040	
	NPN	PNP	Pre-cabled (L = 2 m) (3)	XS8E1A1NBL2	0.075
			M8 connector	XS8E1A1NBM8	0.040
			Remote M12 connector	XS8E1A1NBL01M12	0.040

## Two-wire ~ or --- unprotected (4)

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

## Flat, 40 x 40 x 15 mm format (2)

Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight kg
<b>Three-wire --- with overload and short-circuit protection</b>					
25	NO	PNP	Pre-cabled (L = 2 m) (3)	XS8C1A1PAL2	0.095
			M8 connector	XS8C1A1PAM8	0.060
			Remote M12 connector	XS8C1A1PAL01M12	0.060
			Pre-cabled (L = 2 m) (3)	XS8C1A1NAL2	0.095
			M8 connector	XS8C1A1NAM8	0.060
			Remote M12 connector	XS8C1A1NAL01M12	0.060
	NC	PNP	Pre-cabled (L = 2 m) (3)	XS8C1A1PBL2	0.095
			M8 connector	XS8C1A1PBM8	0.060
			Remote M12 connector	XS8C1A1PBL01M12	0.060
			Pre-cabled (L = 2 m) (3)	XS8C1A1NBL2	0.095
			M8 connector	XS8C1A1NBM8	0.060
			Remote M12 connector	XS8C1A1NBL01M12	0.060

## Two-wire ~ or --- unprotected (4)

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

## Flat, 80 x 80 x 26 mm format (2)

Sensing distance (Sn) mm	Function	Output	Connection	Reference	Weight kg
<b>Three-wire --- with overload and short-circuit protection</b>					
60	NO	PNP	Pre-cabled (L = 2 m) (3)	XS8D1A1PAL2 (5)	0.390
			M12 connector	XS8D1A1PAM12 (5)	0.340
			Pre-cabled (L = 2 m) (3)	XS8D1A1NAL2 (5)	0.390
			M12 connector	XS8D1A1NAM12 (5)	0.340
			Pre-cabled (L = 2 m) (3)	XS8D1A1PBL2 (5)	0.390
			M12 connector	XS8D1A1PBM12 (5)	0.340
	NC	PNP	Pre-cabled (L = 2 m) (3)	XS8D1A1NBL2 (5)	0.390
			M12 connector	XS8D1A1NBM12 (5)	0.340
			Pre-cabled (L = 2 m) (3)	XS8D1A1NBL2 (5)	0.390
			M12 connector	XS8D1A1NBM12 (5)	0.340

## Two-wire ~ or --- unprotected (4)

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

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

(2) For accessories, see page 122.

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

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

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

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

## Wiring schemes

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

For M8 connector, NO and NC outputs on terminal 4

## Setting-up

### Minimum mounting distances (mm)

Side by side	e ≥	XS8E	XS8C	XS8D
Flush mounted		40	60	200
Not flush mounted		150	125	600

Face to face	e ≥	XS8E	XS8C	XS8D
Flush mounted		80	120	400
Not flush mounted		300	250	not recommended

Facing a metal object	e ≥	XS8E	XS8C	XS8D
		10	15	40

## Dimensions

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

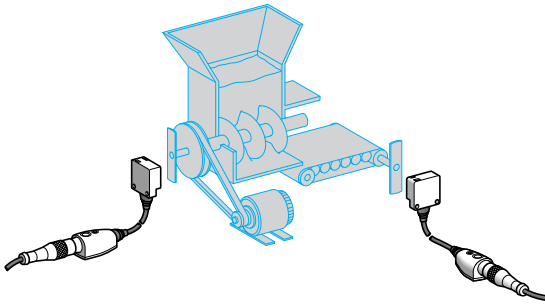


# Inductive proximity sensors

## OsiSense XS Application

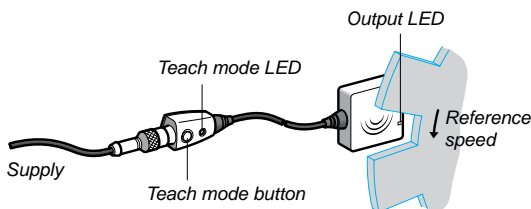
Sensors for rotation monitoring, slip detection and shaft overload detection, with teach mode

### Operating principle and applications



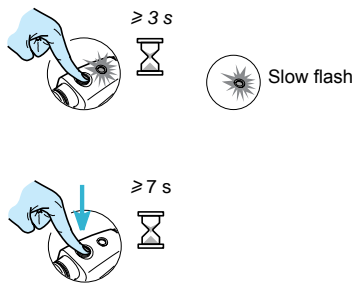
- These inductive proximity sensors are designed for monitoring rotational speed or the speed of the flow of objects to be protected or monitored. They operate on the principle of comparing a speed threshold preset by the operator against the instantaneous measurement of the speed of the moving object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

### Installation and setting-up



#### Setting-up and positioning the sensor

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



#### Speed adjustment in teach mode

- The normal or reference speed of the moving object (1) to be monitored is adjusted by simply pressing the teach mode button (2) and is then validated by the display LED.
  - If in doubt, the sensor can be reset at any time to the factory settings.
  - (1) To allow the moving object to reach its normal speed (machine inertia), the sensor holds its output closed for 9 seconds.
  - (2) The sensor's default drop-out underspeed corresponds to the preset speed - 30 %.
- Example: If the preset speed is 1000 rpm, the sensor drops out on underspeed when the speed of the moving object drops below  $1000 - (1000 \times 0.3) = 700$  rpm.
- 20 %, - 11 % and - 6 % thresholds can be obtained by pressing the teach mode button.

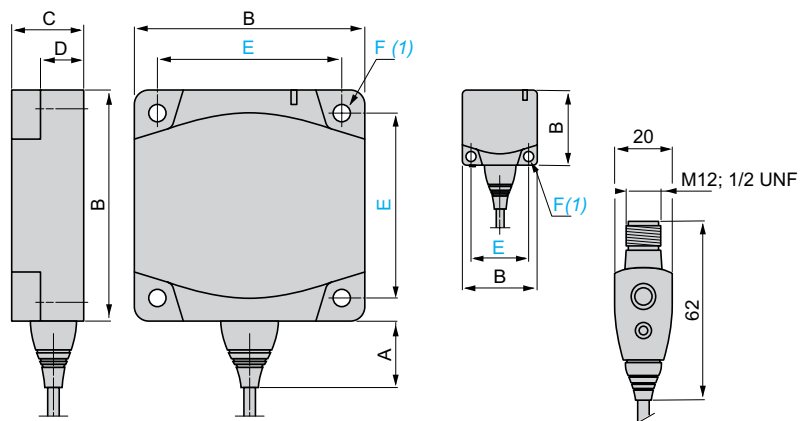
### Setting-up

#### Minimum mounting distances (mm)

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

### Dimensions

#### XS9E, XS9C



(1) For CHC type screws

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

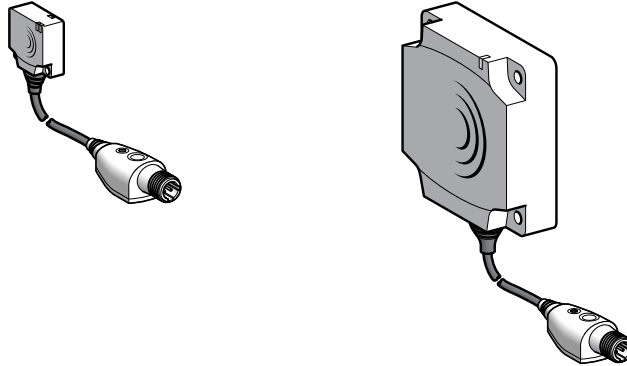
# Inductive proximity sensors

## OsiSense XS 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	XS9E11RPBL01M12	XS9C11RPBL01M12	–	–
2-wire	~ or ~ / NC	–	–	XS9E11RMBL01U20	XS9C11RMBL01U20
Weight (kg)		0.040	0.060	0.040	0.060

### Characteristics

Product certifications	UL, CSA, CE			
Connection	Remote M12 connector on 0.15 m flying lead		Remote 1/2"-20UNF connector on 0.15 m flying lead	
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	- 40...+ 85 °C			
Operating temperature	- 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			
Indicators	Output state Supply on			
Rated supply voltage	~ 12...24 V		~ or ~ 24...240 V (50/60 Hz)	
Voltage limits (including ripple)	~ 10...36 V		~ or ~ 20...264 V	
Switching capacity	≤ 100 mA (1)	≤ 200 mA (1)	~ or ~ 5...100 mA (2)	~ 5...200 mA, ~ 5...300 mA(2)
Voltage drop, closed state	≤ 2 V		≤ 5.5 V	
Residual current, open state	≤ 100 mA		≤ 1.5 mA	
Current consumption, no-load	≤ 10 mA		–	
Maximum switching frequency	48,000 impulses/min			
"Run-up" delay following power-up	9 seconds + 1/Fr			

(1) With overload and short-circuit protection.

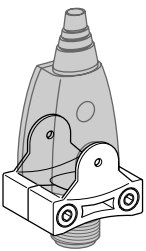
(2) It is essential to connect a 0.4 A "quick-blow" fuse in series with the load.

### Wiring schemes

Connector		3-wire ~	2-wire ~ or ~
M12	1/2"-20UNF	XS9E11RPBL01M12	XS9E11RMBL01U20

### Accessory (1)

Description	Reference	Weight kg
Remote control fixing clamp	XSZBPM12	0.015



XSZBPM12

(1) For accessories, see page 122.

# Inductive proximity sensors

## OsiSense XS Application

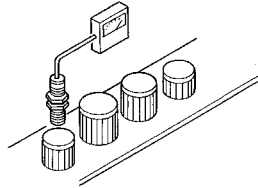
Sensors with analogue output signal 0...10 V <sup>(1)</sup>

or 4...20 mA

For position, displacement and deformation control/monitoring

### Functions

Example:  
Sorting parts



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

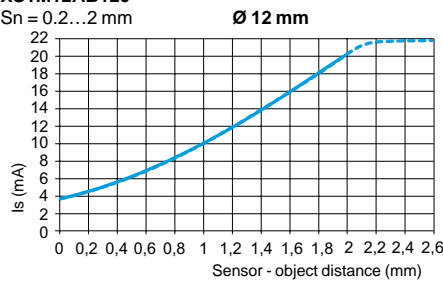
- deformation and displacement monitoring,
- vibration amplitude and frequency monitoring,
- control of dimensional tolerances,
- position control,
- concentricity or eccentricity monitoring.

### Operating principle

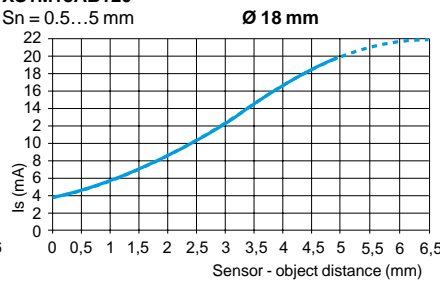
The operating principle of the sensor is that of a damped oscillator. The degree of damping will depend on the distance of an object from the sensing face. The sensor will sense the distance and produce an output current with a value directly proportional to this distance.

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

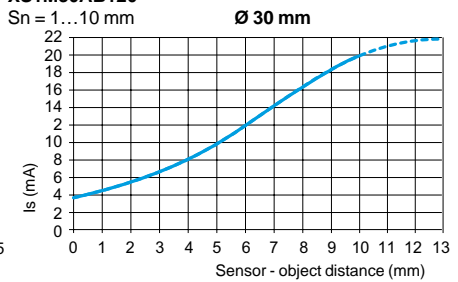
**XS1M12AB120**  
Sn = 0.2...2 mm



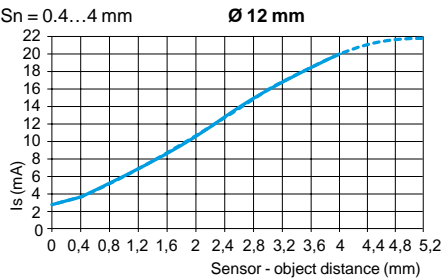
**XS1M18AB120**  
Sn = 0.5...5 mm



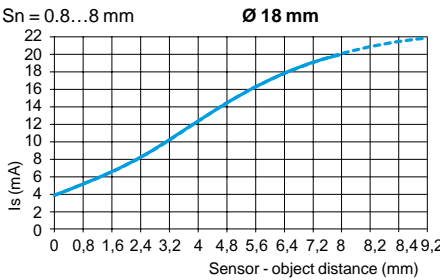
**XS1M30AB120**  
Sn = 1...10 mm



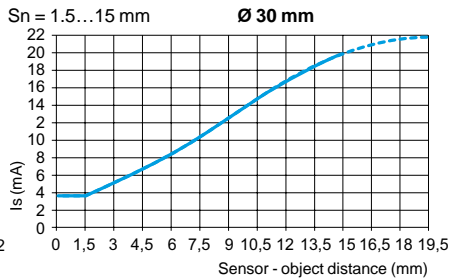
**XS4P12AB120**  
Sn = 0.4...4 mm



**XS4P18AB120**  
Sn = 0.8...8 mm

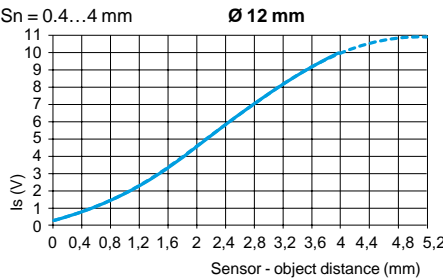


**XS4P30AB120**  
Sn = 1.5...15 mm

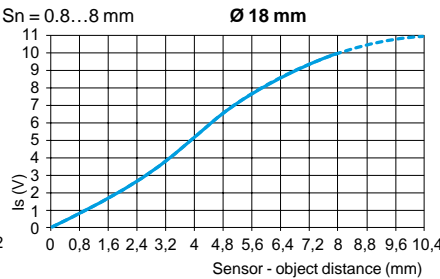


### Output curves 0...10 V, 3-wire connection

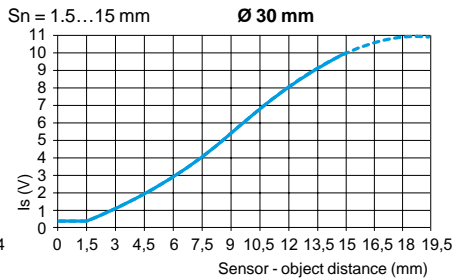
**XS4P12AB110**  
Sn = 0.4...4 mm



**XS4P18AB110**  
Sn = 0.8...8 mm

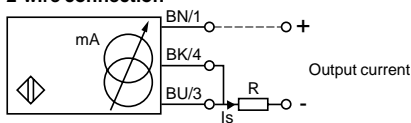


**XS4P30AB110**  
Sn = 1.5...15 mm

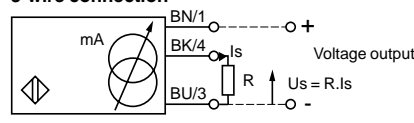


### Wiring schemes

#### 2-wire connection



#### 3-wire connection



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

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

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

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

<sup>(1)</sup> Voltage range only obtained with a load impedance of 1000  $\Omega$ .

# Inductive proximity sensors

## OsiSense XS Application

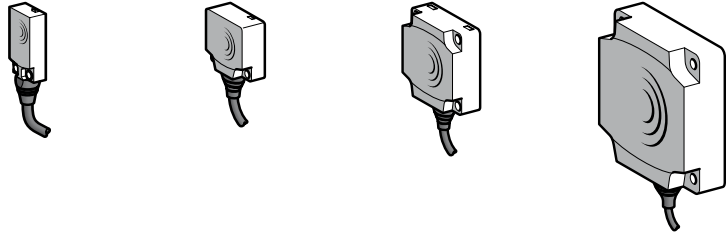
Sensors with analogue output signal 0...10 V <sup>(1)</sup>

For position, displacement and deformation control/monitoring

Flush mountable in metal



PBT case



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

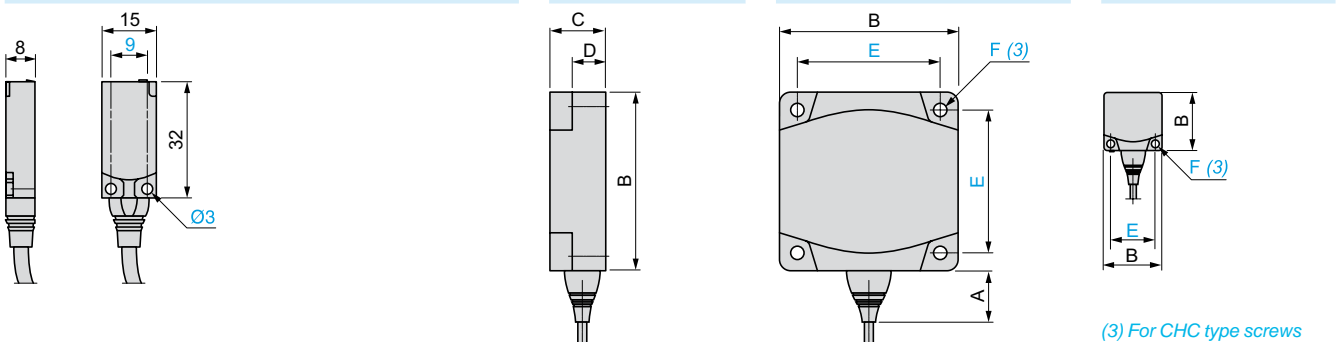
3-wire $\overline{\text{---}}$ 0...10 V	Pre-cabled (L = 2 m) (2)	<b>XS9F111A1L2</b>	<b>XS9E111A1L2</b>	<b>XS9C111A1L2</b>	<b>XS9D111A1L2</b>
	Connector	<b>XS9F111A1L01M8</b>	<b>XS9E111A1L01M12</b>	<b>XS9C111A1L01M12</b>	<b>XS9D111A1M12</b>
Weight (kg)	Pre-cabled (L = 2 m) (2)	0.060	0.075	0.095	0.340
	Connector	0.040	0.055	0.075	0.320

### Characteristics

Product certifications	UL, CSA, CE	UL, CSA, CE, ECOLAB			
Connection	Pre-cabled Connector	PvR 3 x 0.34 mm <sup>2</sup> , length 2 m for <b>XS9●111A●L2</b> 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 $\square$		
Conforming to IEC 60529	Connector	IP 67	IP 67, double insulation $\square$		
Storage temperature		- 40...+ 85 °C			
Operating temperature		- 25...+ 70 °C			
Materials		PBT case			
Vibration resistance	Conforming to IEC 60068-2-6	25 gn, amplitude $\pm$ 2 mm (f = 10 to 55 Hz)			
Shock resistance	Conforming to IEC 60068-2-27	50 gn, duration 11 ms			
Output state indication		No			
Rated supply voltage		$\overline{\text{---}}$ 24 V			
Voltage limits (including ripple)		$\overline{\text{---}}$ 15...36 V			
Repeat accuracy		$\pm$ 3 %			
Linearity error		$\pm$ 1 V			
Current consumption, no-load		$\leq$ 4 mA with overload and short-circuit protection			
Maximum operating frequency		2000 Hz	1000 Hz		100 Hz
Output current drift		$\leq$ 10 % (throughout the operating temperature range)			

### Dimensions

XS9F	XS9E/C/D	XS9C/D	XS9E
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Type	A (L2)	A (M12)	B	C	D	E	F
XS9E	14	—	26	13	8.8	20	3.5
XS9C	14	—	40	15	9.8	33	4.5
XS9D	23	14	80	26	16	65	5.5

(3) For CHC type screws

### Setting-up (Minimum mounting distances (mm))

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

(1) Voltage range only obtained with a load impedance of 1000  $\Omega$ .

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

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

# Inductive proximity sensors

## OsiSense XS Application

Sensors with analogue output signal 4...20 mA

For position, displacement and deformation control/monitoring

### Functions

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

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

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

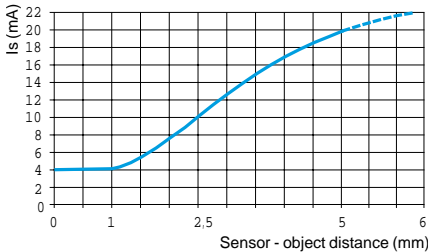
### Operating principle

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

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

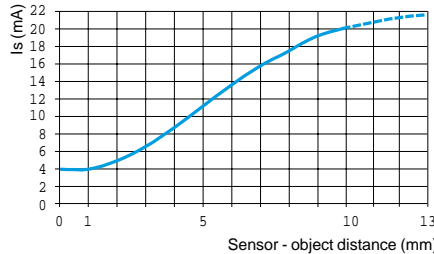
#### XS9F

Sn = 1...5 mm



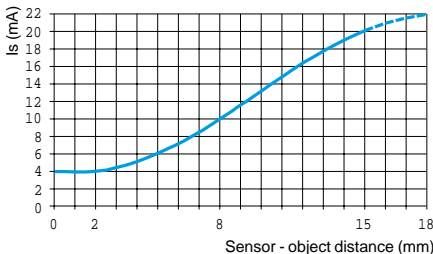
#### XS9E

Sn = 1...10 mm



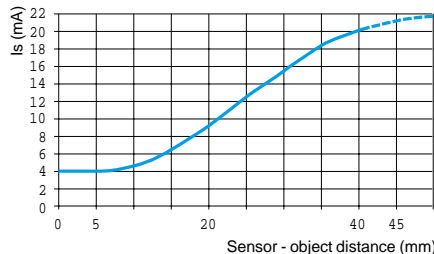
#### XS9C

Sn = 2...15 mm



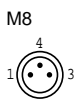
#### XS9D

Sn = 5...40 mm



### Wiring schemes

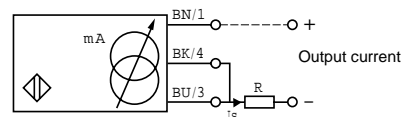
#### Connector



#### Pre-cabled

BN: Brown  
BU: Blue  
BK: Black

#### 2-wire connection



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

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

# Inductive proximity sensors

## OsiSense XS Application

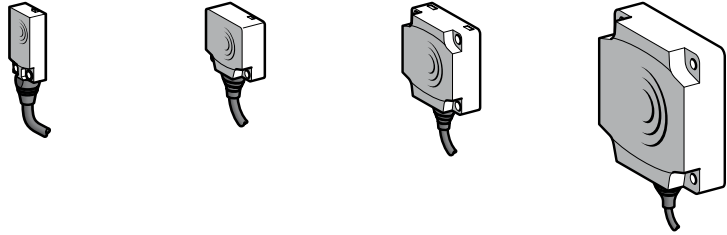
Sensors with analogue output signal 4...20 mA

For position, displacement and deformation control/monitoring

Flush mountable in metal



PBT case



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

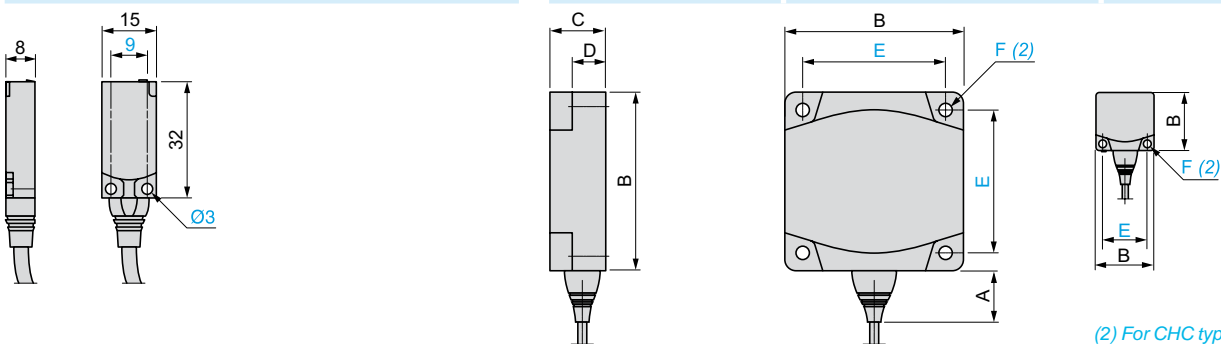
2-wire $\overline{\text{---}}$ 4...20 mA	Pre-cabled (L = 2 m) (1)	<b>XS9F111A2L2</b>	<b>XS9E111A2L2</b>	<b>XS9C111A2L2</b>	<b>XS9D111A2L2</b>
	Connector	<b>XS9F111A2L01M8</b>	<b>XS9E111A2L01M12</b>	<b>XS9C111A2L01M12</b>	<b>XS9D111A2M12</b>
Weight (kg)	Pre-cabled (L = 2 m)	0.060	0.075	0.095	0.340
	Connector	0.040	0.055	0.075	0.320

### Characteristics

Product certifications	UL, CSA, CE	UL, CSA, CE, ECOLAB			
Connection	Pre-cabled Connector	PvR 3 x 0.34 mm <sup>2</sup> , length 2 m for <b>XS9●111A●L2</b>			
		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 $\square$		
Conforming to IEC 60529	Connector	IP 67	IP 67, double insulation $\square$		
Storage temperature		- 40...+ 85 °C			
Operating temperature		- 25...+ 60 °C		- 25...+ 70 °C	
Materials		PBT case			
Vibration resistance	Conforming to IEC 60068-2-6	25 gn, amplitude $\pm$ 2 mm (f = 10 to 55 Hz)			
Shock resistance	Conforming to IEC 60068-2-27	50 gn, duration 11 ms			
Output state indication		No			
Rated supply voltage		$\overline{\text{---}}$ 12...24 V			
Voltage limits (including ripple)		$\overline{\text{---}}$ 10...36 V			
Repeat accuracy		$\pm$ 3 %			
Linearity error		$\pm$ 2 mA			
Current consumption, no-load		$\leq$ 4 mA with overload and short-circuit protection			
Maximum operating frequency		2000 Hz	1000 Hz	100 Hz	
Output current drift		$\leq$ 10 % (throughout the operating temperature range)			

### Dimensions

XS9F	XS9E/C/D	XS9C/D	XS9E
------	----------	--------	------



(2) For CHC type screws

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

### Setting-up (Minimum mounting distances (mm))

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

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

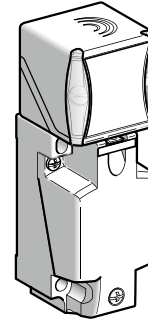
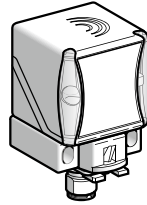


# Inductive proximity sensors

## OsiSense XS Application

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

<b>Sensor</b>	<b>Non flush mountable in metal</b>	
<b>Dimensions</b>	<b>40 x 40 x 70 mm</b>	<b>40 x 40 x 117 mm</b>



<b>Nominal sensing distance (Sn)</b>	25 mm
--------------------------------------	-------

### References

<b>3-wire</b> $\text{---}$	0...10 V output <sup>(1)</sup>	<b>XS9C2A2A1M12</b>	<b>XS9C4A2A1P20</b> <sup>(2)</sup>
<b>2-wire</b> $\text{---}$	4...20 mA output	<b>XS9C2A2A2M12</b>	<b>XS9C4A2A2P20</b> <sup>(2)</sup>

**XS9C4●●●P20** sensors are available with an ISO M20 cable entry and can be supplied with a PG 13.5 (e.g. **XS9C4A2A1G13**) or a 1/2" NPT (e.g. **XS9C4A2A2N12**) cable entry: please consult our Customer Care Centre for more information.

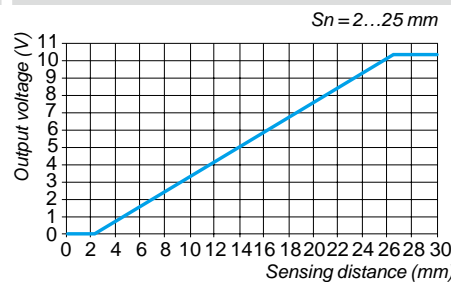
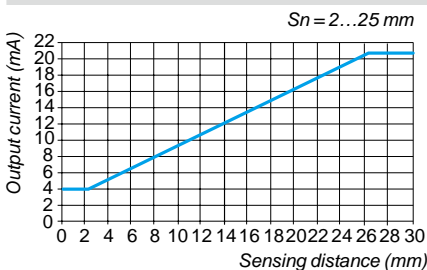
<b>Weight (kg)</b>	0.149	0.244
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### Characteristics

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

### Analogue outputs 4-20 mA and 0-10 V

<b>XS9C2A2A2M12 and XS9C4A2A2P20</b>	<b>XS9C2A2A1M12 and XS9C4A2A1P20</b>
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<sup>(1)</sup> Voltage range only obtained with a load impedance of 1000  $\Omega$ .

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

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

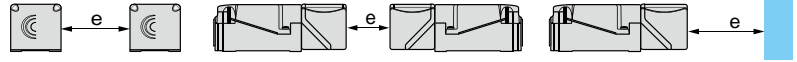
# Inductive proximity sensors

## OsiSense XS Application

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

### Setting-up precautions

#### Minimum mounting distances (mm)



Side by side

Face to face

Facing a metal object

Sensors non flush mountable in metal

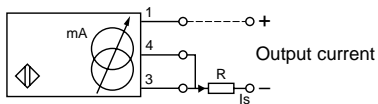
$e \geq 120$

$e \geq 240$

$e \geq 90$

### Wiring schemes

#### 2-wire



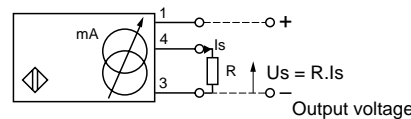
Output current

Load impedance value

12 V	4...20 mA	$R \leq 82 \Omega$
24 V	4...20 mA	$R \leq 560 \Omega$

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

#### 3-wire



Output current

Load impedance value

Output voltage

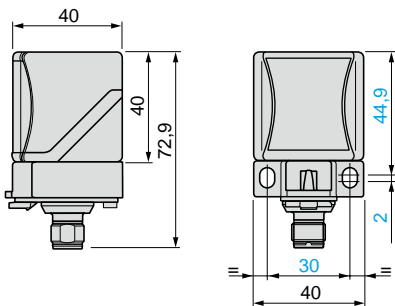
Load impedance value

12 V	0...10 mA	$R \leq 630 \Omega$	-	-
24 V	0...10 mA	$R \leq 1500 \Omega$	0...10 V	$R = 1000 \Omega$

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

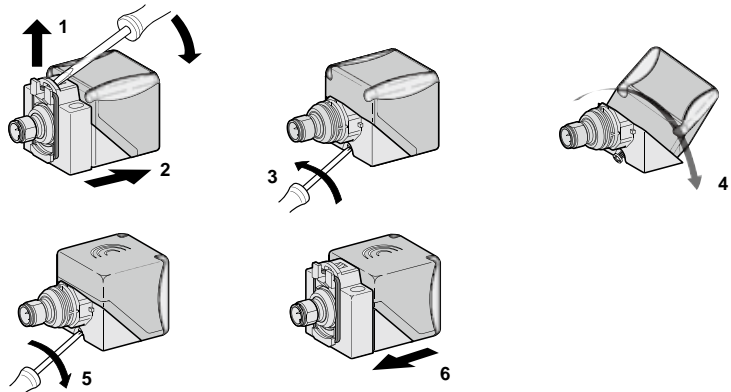
### Dimensions

#### XS9C2A2A1M12 and XS9C2A2A2M12

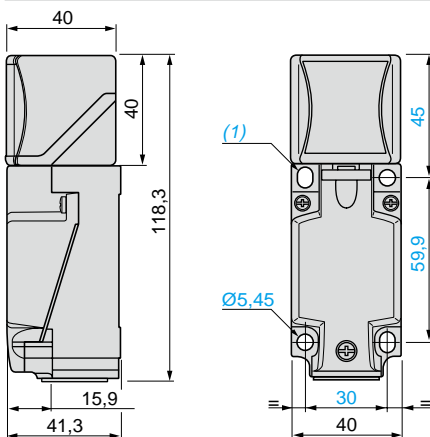


### Head positions

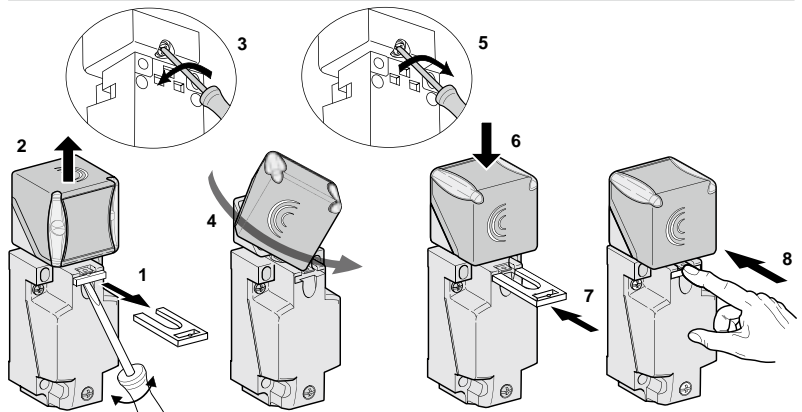
#### XS9C2A2A1M12 and XS9C2A2A2M12



#### XS9C4A2A1P20 and XS9C4A2A2P20



#### XS9C4A2A1P20 and XS9C4A2A2P20



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

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

(1) Voltage range only obtained with a load impedance of  $1000 \Omega$ .

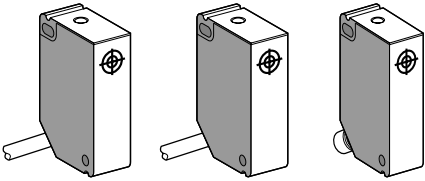
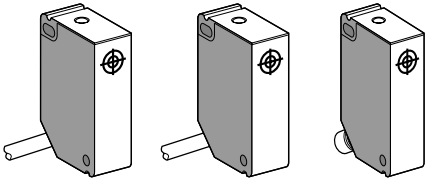
# Inductive proximity sensors

OsiSense XS Application

For assembly, packaging and light material handling

Plastic case, 12 x 26 x 40 mm

DC supply, solid-state output

Sensor	Flush mountable in metal	Non flush mountable in metal
		

Nominal sensing distance (Sn)	2 mm	4 mm
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References							
3-wire $\overline{\text{---}}$	PNP NO	<b>XS7G12PA140</b>	–	<b>XS7G12PA140S</b>	<b>XS8G12PA140</b>	–	<b>XS8G12PA140S</b>
	NPN NO	<b>XS7G12NA140</b>	–	<b>XS7G12NA140S</b>	<b>XS8G12NA140</b>	–	<b>XS8G12NA140S</b>
4-wire $\overline{\text{---}}$ (complementary outputs)	PNP NO + NC	–	<b>XS7G12PC440</b>	–	–	<b>XS8G12PC440</b>	–
	NPN NO + NC	–	<b>XS7G12NC440</b>	–	–	<b>XS8G12NC440</b>	–
Weight (kg)		0.100	0.100	0.030	0.100	0.100	0.030

Characteristics							
Product certifications	CSA, UL, CE						
Connection	Pre-cabled	3 x 0.34 mm <sup>2</sup> , length 2 m (1)	4 x 0.34 mm <sup>2</sup> , length 2 m (1)	–	3 x 0.34 mm <sup>2</sup> , length 2 m (1)	4 x 0.34 mm <sup>2</sup> , length 2 m (1)	–
	Connector	–	–	M8	–	–	M8
Operating zone	<b>0...1.6 mm</b>			<b>0...3.2 mm</b>			
Repeat accuracy	≤ 10 % of Sr						
Differential travel	3...20 % of Sr						
Degree of protection	IP 67						
Storage temperature	- 40...+ 85 °C						
Operating temperature	- 25...+ 70 °C						
Materials	Case: PBT, cable: PVC						
Vibration resistance Conforming to IEC 60068-2-6	25 gn, amplitude ± 2 mm (f = 10 to 55 Hz)						
Shock resistance Conforming to IEC 60068-2-27	50 gn, duration 11 ms						
Output state indication	Yellow LED (on top of case)						
Rated supply voltage	$\overline{\text{---}}$ 12...24 V	$\overline{\text{---}}$ 12...48 V	$\overline{\text{---}}$ 12...24 V	$\overline{\text{---}}$ 12...24 V	$\overline{\text{---}}$ 12...48 V	$\overline{\text{---}}$ 12...24 V	
Voltage limits (including ripple)	$\overline{\text{---}}$ 10...30 V	$\overline{\text{---}}$ 10...58 V	$\overline{\text{---}}$ 10...30 V	$\overline{\text{---}}$ 10...30 V	$\overline{\text{---}}$ 10...58 V	$\overline{\text{---}}$ 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 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	<b>L1</b>	0.120 kg
10 m	<b>L2</b>	0.320 kg

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

(2) With overload and short-circuit protection

# Inductive proximity sensors

OsiSense XS Application

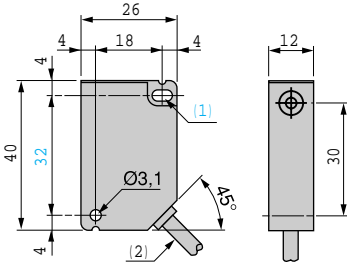
For assembly, packaging and light material handling

Plastic case, 12 x 26 x 40 mm

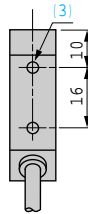
DC supply, solid-state output

## Dimensions

XS● G12●A140, XS● G12●C440

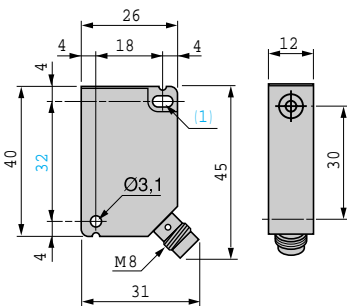


Rear view

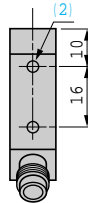


- (1) 1 elongated hole  $\varnothing 3.1 \times 5.1$ .
- (2) Cable  $L = 2 \text{ m}$ .
- (3) 2 holes  $M3 \times 5$ .

XS● G12●A140S



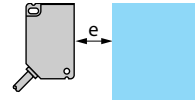
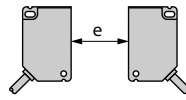
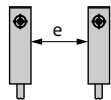
Rear view



- (1) 1 elongated hole  $\varnothing 3.1 \times 5.1$ .
- (2) 2 holes  $M3 \times 5$ .

## Setting-up

Minimum mounting distances (mm)



Side by side

Face to face

Facing a metal object and mounting in a metal support

XS7G flush mountable

$e \geq 0$

$e \geq 15$

$e \geq 6$

XS8G non flush mountable

$e \geq 10$

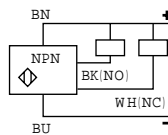
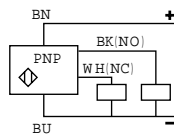
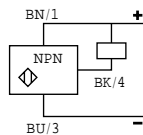
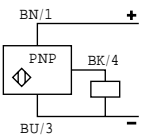
$e \geq 60$

$e \geq 12$

## Wiring schemes

3-wire  $\dots$ , NO output

4-wire  $\dots$ , NO + NC output



## Connector

M8



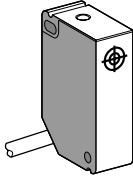
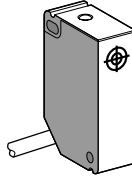
# Inductive proximity sensors

OsiSense XS Application

For assembly, packaging and light material handling

Plastic case, 12 x 26 x 40 mm

AC or DC supply

Sensor		Flush mountable in metal	Non flush mountable in metal
			
Nominal sensing distance (Sn)		2 mm	4 mm
<b>References</b>			
2-wire $\overline{\text{---}}$ or $\sim$	NO	<b>XS7G12MA230</b>	<b>XS8G12MA230</b>
	NC	<b>XS7G12MB230</b>	<b>XS8G12MB230</b>
Weight (kg)		0.100	0.100
<b>Characteristics</b>			
Product certifications		CSA, UL, CE	
Connection		Pre-cabled, 2 x 0.34 mm <sup>2</sup> , length 2 m (1)	
Operating zone		<b>0...1.6 mm</b>	<b>0...3.2 mm</b>
Repeat accuracy		≤ 10 % of Sr	
Differential travel		3...20 % of Sr	
Degree of protection		IP 67	
Storage temperature		- 40...+ 85 °C	
Operating temperature		- 25...+ 70 °C	
Materials		Case: PBT, cable: PVC	
Vibration resistance Conforming to IEC 60068-2-6		25 gn, amplitude ± 2 mm (f = 10 to 55 Hz)	
Shock resistance Conforming to IEC 60068-2-27		50 gn, duration 11 ms	
Output state indication		Yellow LED (on top of case)	
Rated supply voltage		$\sim$ 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		$\sim$ 25 Hz or $\overline{\text{---}}$ 250 Hz	
Delays	First-up	≤ 40 ms	
	Response	≤ 1 ms	
	Recovery	≤ 2 ms	

(1) Sensors available with other cable lengths:

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

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

(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.

# Inductive proximity sensors

OsiSense XS Application

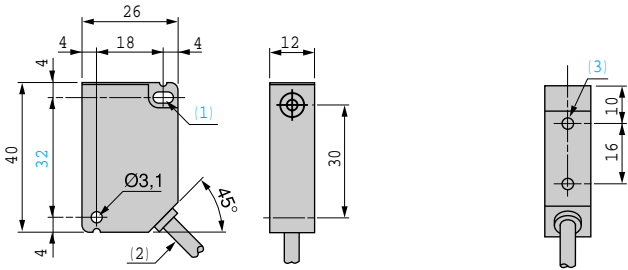
For assembly, packaging and light material handling

Plastic case, 12 x 26 x 40 mm

AC or DC supply

## Dimensions

XS●G12M●230



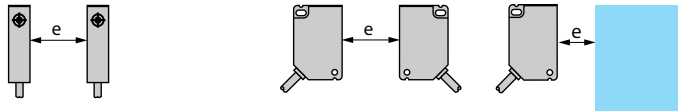
(1) 1 elongated hole  $\varnothing 3.1 \times 5.1$ .

(2) Cable  $L = 2$  m.

(3) 2 holes  $M3 \times 5$ .

## Setting-up

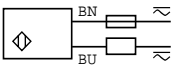
Minimum mounting distances (mm)



	Side by side	Face to face	Facing a metal object and mounting in a metal support
XS7G flush mountable	$e \geq 0$	$e \geq 15$	$e \geq 6$
XS8G non flush mountable	$e \geq 10$	$e \geq 60$	$e \geq 12$

## Wiring schemes

2-wire  $\sim$  or  $\text{---}$ , NO or NC output



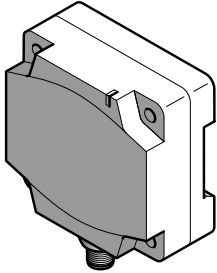






# Inductive proximity sensors

## OsiSense XS Application

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

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

<b>Sensor</b>		<b>Flush mountable in metal</b>
		
<b>Dimensions (mm)</b>		80 x 80 x 40
<b>Nominal sensing distance (Sn)</b>		50 mm (not flush mounted: 42 mm)
<b>Reference</b>		
<b>2-wire</b>  (non polarised)	NO	<b>XS7D1A3CAM12DIN</b>
<b>Weight (kg)</b>		0.374
<b>Characteristics</b>		
<b>Product certifications</b>		CE
<b>Degree of protection</b>	Conforming to IEC 60529	IP 67, double insulation 
<b>Temperature</b>	Operating	- 25...+ 70 °C
	Storage	- 40...+ 85 °C
<b>Vibration resistance</b>	Conforming to IEC 60068-2-6	25 gn, amplitude ± 2 mm (f = 10 to 55 Hz)
<b>Shock resistance</b>	Conforming to IEC 60068-2-27	50 gn, duration 11 ms
<b>Connection</b>		M12 connector
<b>Operating zone</b>		<b>0...40 mm (not flush mounted: 0...35 mm)</b>
<b>Repeat accuracy</b>		3 % of Sr
<b>Differential travel</b>		1...15 % of Sr
<b>Output state indication</b>		Yellow LED
<b>Rated supply voltage</b>		 <b>12...48 V with protection against reverse polarity</b>
<b>Voltage limits (including ripple)</b>		 10...58 V
<b>Residual current, open state</b>		≤ 0.5 mA
<b>Switching capacity</b>		<b>1.5...300 mA with overload and short-circuit protection</b>
<b>Voltage drop, closed state</b>		≤ 4.5 V
<b>Maximum switching frequency</b>		100 Hz
<b>Delays</b>	First-up	≤ 10 ms
	Response	≤ 2 ms
	Recovery	≤ 5 ms

# Inductive proximity sensors

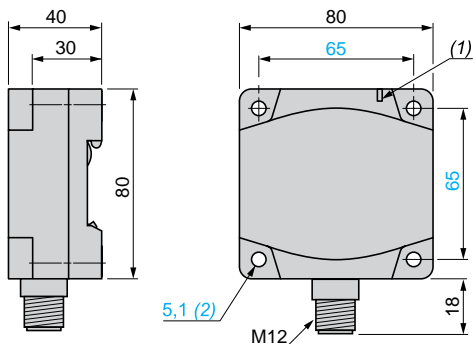
## OsiSense XS Application

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

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

### Dimensions

XS7D1A3CAM12DIN



(1) Output LED

(2) For CHC type screws

### Setting-up

Minimum mounting distances (mm)

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

### Flush/non flush conditions

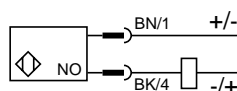
In A37 steel



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

### Wiring schemes

2-wire NO/M12 XS7D1A3CAM12DIN

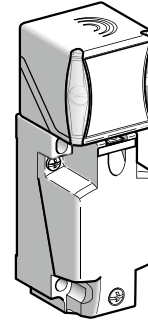
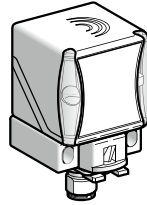


# Inductive proximity sensors

## OsiSense XS Application

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

<b>Sensor</b>	<b>Flush mountable in metal</b>	
<b>Dimensions</b>	<b>40 x 40 x 70 mm</b>	<b>40 x 40 x 117 mm</b>



<b>Nominal sensing distance (Sn)</b>	20 mm
--------------------------------------	-------

### References

4-wire ☐☐☐	PNP NO+NC	<b>XS9C2A1PCM12</b>	<b>XS9C4A1PCP20 (1)</b>
	NPN NO+NC	<b>XS9C2A1NCM12</b>	<b>XS9C4A1NCP20 (1)</b>

**XS9C4●●●P20** sensors are available with an ISO M20 cable entry and can be supplied with a Pg 13.5 (e.g. **XS9C4A1PCG13**) or a 1/2" NPT (e.g. **XS9C4A1PCN12**) cable entry: please consult our Customer Care Centre for more information.

<b>Weight (kg)</b>	0.110	0.220
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### Characteristics

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

### Setting-up

**Sensing distance correction factor**

SS: stainless steel, Fe: steel, Al: aluminium, Cu: copper.

**Operating distance (according to the sensor's level of flush mounting)**

--- : Flush mounted in Fe360    — : Flush mounted in aluminium

(1) These sensors are supplied without a cable gland. A suitable Pg 13.5 cable gland is available (reference **XSZPE13**).  
 (2) Sensors are available for very low temperatures (suffix **TF**: - 40°C, + 70°C) or very high temperatures (suffix **TT**: - 25°C, + 85°C); please consult our Customer Care Centre.

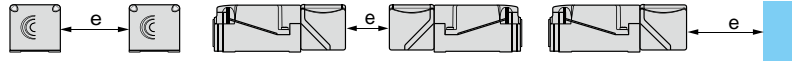
# Inductive proximity sensors

## OsiSense XS Application

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

### Setting-up (continued)

#### Minimum mounting distances (mm)



Side by side

Face to face

Facing a metal object

Sensors flush mountable in metal

$e \geq 80$

$e \geq 200$

$e \geq 60$

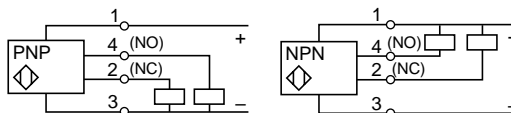
### Wiring schemes

#### M12 connector

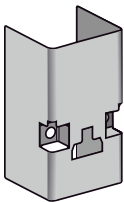


1: + V  
2: NC Output  
3: 0 V  
4: NO Output

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



### Accessories



XSZPSC2



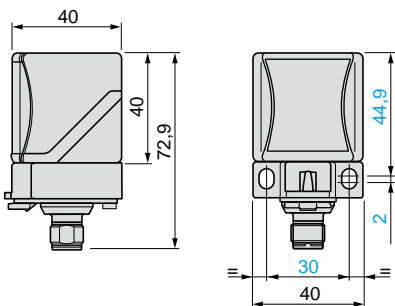
XSZPKC2

Description	Use for	Reference	Weight kg
<b>Stainless steel rigid protective cover</b> (only suitable for use when detecting from the top)	Welding	<b>XSZPSC2</b>	0.010
<b>Protective sheet</b> (for sensing face of sensor)	Welding	<b>XSZPKC2</b>	0.010

[Sold in lots of 5](#)

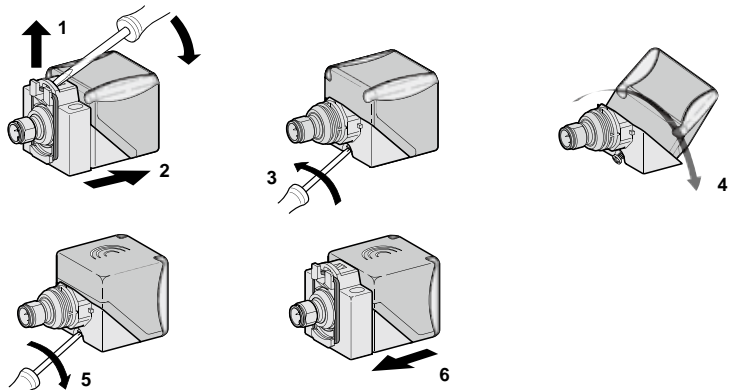
### Dimensions

#### XS9C2A1PCM12 and XS9C2A1NCM12

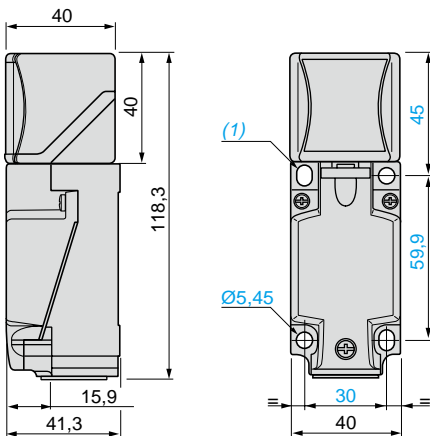


### Head positions

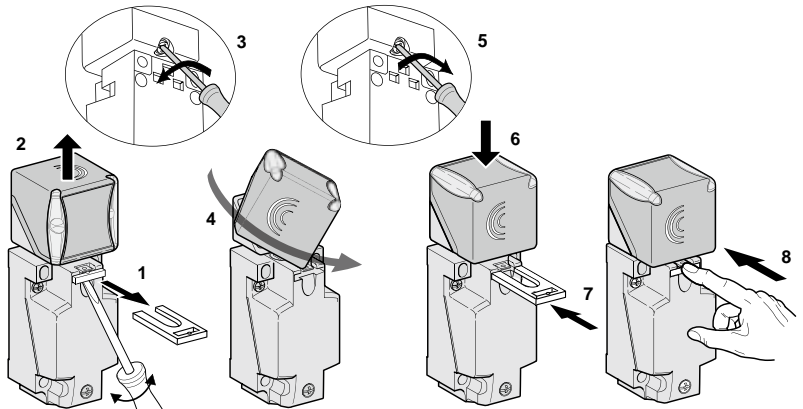
#### XS9C2A1PCM12 and XS9C2A1NCM12



#### XS9C4A1PCP20 and XS9C4A1NCP20



#### XS9C4A1PCP20 and XS9C4A1NCP20



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

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