

Proximity Sensors

XS Tubular, Inductive Sensors

12 mm Diameter, AC/DC; Universal Standard Length



Features

- Faster troubleshooting aided by high visibility 360° indicators
- Rugged metal or plastic cases designed for aggressive environments - cutting oils, grease, etc.
- Worry free replacement: standard length, extended temperature and supply voltage range, improved enclosure ratings (IP68), AC/DC power supply
- Significant replacement time savings using patented plastic mounting bracket (no gauging) or connectors
- Metal locking nuts for metal or plastic mounting nuts for plastic housings included
- Normally closed (N.C.) output available on versions marked ★
- UL Listed, CSA Certified and CE Mark

Nominal Sensing Distance	AC or AC/DC	Output Mode ★	Voltage Range		Operating Frequency		SCP	Indicator LED ①	Mating Connector Style (see p. 518)	Catalog Number
			AC	DC	AC	DC				

Nickel plated brass case

Shielded, 2 m (6.6') cable

2 mm	AC/DC	N.O. ★	24-240 V	24-210 V	25 Hz	4000 Hz	no	A	—	XS1M12MA230
2 mm	AC/DC	N.O. ★	24-240 V	24-210 V	25 Hz	4000 Hz	yes	A	—	XS1M12MA250

Shielded, connector - micro style AC

2 mm	AC/DC	N.O. ★	24-240 V	24-210 V	25 Hz	4000 Hz	no	B	17,18	XS1M12MA230K
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Non-shielded, 2 m (6.6') cable

4 mm	AC/DC	N.O. ★	24-240 V	24-210 V	25 Hz	3000 Hz	no	A	—	XS2M12MA230
4 mm	AC/DC	N.O. ★	24-240 V	24-210 V	25 Hz	3000 Hz	yes	A	—	XS2M12MA250

Non-shielded, connector - micro style AC

4 mm	AC/DC	N.O. ★	24-240 V	24-210 V	25 Hz	3000 Hz	no	B	17,18	XS2M12MA230K
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Plastic case

Non-shielded, 2 m (6.6') cable

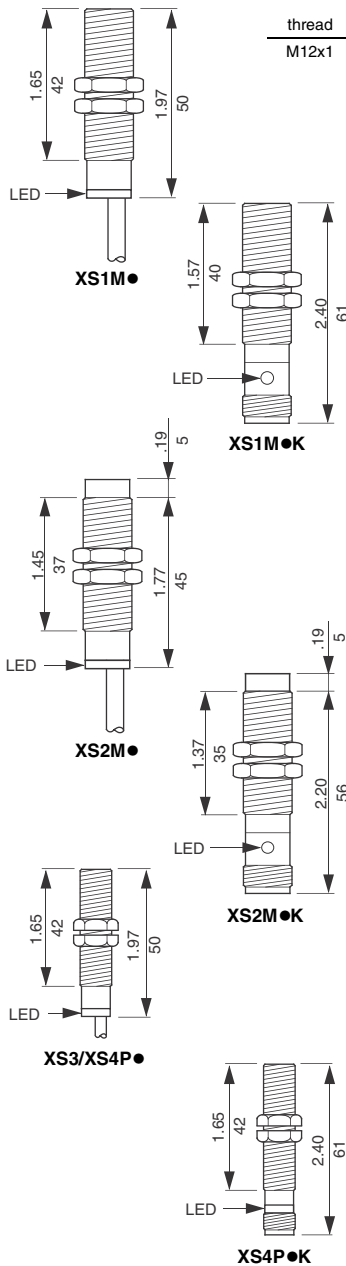
4 mm	AC/DC	N.O. ★	24-240 V	24-210 V	25 Hz	4000 Hz	no	A	—	XS4P12MA230
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Non-shielded, connector - micro style

4 mm	AC/DC	N.O. ★	24-240 V	24-210 V	25 Hz	3000 Hz	no	A	17,18	XS4P12MA230K
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★ To order a normally closed (N.C.) version change the A to B, example: XS1M12PA260 to XS1M12PB260.

① See next page under specifications for LED function.



Dual Dimensions $\frac{\text{inches}}{\text{mm}}$

Minimum Mounting Clearances (mm/inches)

Side by side	Face to face	Facing a metal object	Mounting in a metal support
XS1 Shielded XS2/XS4 Non-shielded			
e: 4/.16 e: 16/.63	e: 24/.94 e: 48/1.89	e: 6/.24 e: 12/.47	D: 12/.47, H: 0/0 D: 36/1.42, H: 8/.31

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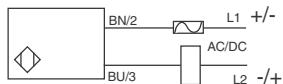
12 mm Diameter, AC/DC; Universal Standard Length

Wiring






Cable
Blue BU -
Brown BN +
Black BK Output

wire color/connector pin
2 wire, AC/DC for connector version only



Specifications

Mechanical		
Usable sensing range★	Shielded	0 to 1.6 mm
	Non-shielded	0 to 3.2 mm
Standard temperature range		-25° C to +80° C (-13° F to +176° F)
Enclosure rating - cable (for connector, see p. 518)	NEMA Type	3, 4X, 6P, 12, 13
	IEC Type	IP68
Enclosure material	Nickel plated brass case	Nickel plated Brass
	Sensing face	PBT
	Plastic case	PBT
Tightening torque (max.)	Nickel plated brass	15 N•m (11 lb-ft)
	Plastic	2 N•m (1.5 lb-ft)
Vibration resistance	(IEC 60068.2.6)	25 G, amplitude +/- 2 mm, f =10-55 Hz
Shock resistance	(IEC 60068.2.27)	50 G duration 11 ms
Standard target size (steel)		12 mm x 12 mm
Differential (% of Sr)		15%
Repeatability (% of Sr)		3%
LED indicator type	A	360° ring LED: Shows output status
	B	One LED visible from 4 quadrants: Shows output status
Cable	2 wire	22 AWG (0.34 mm ²), PvR
Electrical		
Voltage range		24 to 240 Vac (50/60 Hz), 24 to 210 Vdc
Voltage limit (including ripple)		20 to 264 Vac/Vdc
Maximum Voltage drop (across switch), closed state		5.5V
Inrush current (inductive @ 20ms)		2A
Minimum load current		5 mA
Maximum load current		200 mA 20 ≤ Vdc ≤ 58 IEC 60947-5-2 Utilization category DC-13 Vdc > 58 IEC 60947-5-2 Utilization category DC-12
Residual (leakage) current, open state		0.6 mA
On delay (max.)		0.2 ms
Off delay (max.)		0.2 ms
Power-up delay (max.)	Without SCP	40 ms
	With SCP	70 ms
Protective circuitry		
Short circuit protection		Optional▲
Overload		Yes
Radio frequency immunity (RFI)		IEC 61000-4-3 Level 3
Electrostatic; transients; impulse (L - level number)		IEC 61000-4-2 L4; IEC 61000-4-4 L4; 60947.5.2 L3
Agency Listings		 E164869 CCN NRKH  CR 44087 Class 3211 03 

Options

Description	Suffix	
Extended temperature range (cable type only)	Down to -40° C (-40° F)	TF
Extended cable length	16.4 ft. (5 meter) cable	L1
	32.8 ft. (10 meter) cable	L2

Accessories

Description	Catalog Number
Plastic mounting nuts	XSZE212
Metal mounting nuts and lock washers	XSZE112
Mounting bracket, 90° steel	9006PA12
Mounting bracket, plastic	XSZB112
Mounting bracket, diecast zinc	831612
0.5" NPT conduit adapter length 2" (50.8 mm)	Aluminum 74281

★ Refer to p. 351 for target material correction coefficient Km.

▲ For devices without SCP, see p. 298 for protective fuses.

Connector Cables (U20 or K suffix)

XSZCK101Y	Micro Conn., 3 pin, 2 m, straight
XSZCK111Y	Micro Conn., 3 pin, 2 m, 90°

For additional cable options and lengths see p. 518
Accessories page 298, 316