Proximity Sensors

File 9006

Merlin Gerin
Modicon
Square D
Telemecanique

Schneider Electric Brands

CONTENTS

Schneider Electric

Telemecanique

Proximity Sensors Example	X	S	8	C	1	A	1	P	A	L	2				
Inductive Sensor															
TYPE															
Cylindrical Optimum			5												
Cylindrical Universal			6												
Optimum Rectangular			7												
Universal Rectangular			8												
Application Specific			9												
FORMAT OR MODE															
Rectangular 8x8x20				J	1										
Rectangular 8x15x32				F	1										
Rectangular 13x26x26				E	1										
Rectangular 15x40x40				C	1										
Rectangular 26x80x80				D	1										
Cylindrical smooth 4mm				L	4										
Cylindrical 5mm				0	5										
Cylindrical smooth 6mm				L	6										
Cylindrical 8mm				0	8										
Cylindrical 12mm				1	2										
Cylindrical 18mm				1	8										
Cylindrical 30mm				3	0										
FAMILY TYPE OR MATERIAL															
Applications						1...9									
Plastic						A									
Metal						B									
Stainless Steel						S									
APPLICATION															
Operating Mode							1...9								
Food & Beverage							A								
Namur							E								
Ferrous only							F								
Light industry							L								
Ferrous/Non-ferrous							M								
Non-ferrous only							N								
Speed Control							R								
Serdac							S								
Weld Field Immune							W								
OUTPUTS															
DC 3 wire PNP								P							
DC 3 wire NPN								N							
DC 3 wire PNP/NPN								K							
DC 2 wire (3/4)								D							
DC 2 wire automobile (1/4)								C							
DC analog output								A							
AC 2 wire								F							
AC/DC 2 wire								M							
AC/DC 2 wire SCP protect								S							
AC/DC relay output								R							
BUS								B							
FUNCTION															
Analog 0. . .10mA									1						
Analog 4.20mA									2						
N.O.									A						
N.C.									B						
N.O. + N.C.									C						
Programmable/wiring									P						
Programmable									S						
CABLING OR CONNECTION															
M8X1 Nano (S)										M	8				
M12x1 Micro (D)										M	1	2			
7/8 16UN Mini (A)										U	7	8			
1/2 20 UNF Micro (K)										U	2	0			
Cable 0.1m										L	0	1			
Cable 2m										L	2				
Cable 5m										L	5				
Cable 10m										L	1	0			
M12 micro on0.1m pigtail										L	0	1	M	1	2
PG 16 cable gland										T	1	6			

NOTE: This table is intended to understand catalog number designations. It is NOT to be used to create numbers which may not exist. Consult your local field office

Rectangular Example

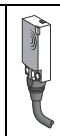
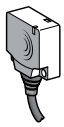
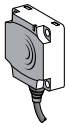
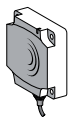
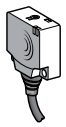
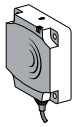
	X	S	7	C	4	0	P	C	4	4	0	R30	H*
SENSOR TYPE													
Self Contained	X												
Component	Z												
SENSING TECHNOLOGY													
Inductive Proximity		S											
Capacitive Proximity		T											
BODY STYLE													
Miniature			5										
Shielded			7										
Non-Shielded			8										
Block Style			D										
FAMILY TYPE													
Limit Switch Style - Plastic Body				C									
Compact Block				G									
Sub Compact Block				H									
Miniature				L									
Cubic				T									
MANUFACTURING CODES					•	•							
OUTPUT TYPE													
NPN							N	P					
PNP							P	P					
AC/DC Universal							M	A					
2 wire N.O./N.C.							D	P					
NPN N.O.+N.C.							N	C					
PNP N.O.+N.C.							P	C					
MANUFACTURING CODES									•	•	•		
SUFFIX													
2 Meter Cable or Conduit Opening												Blank	
Micro Connector -- DC												D	
Alternate Frequency												F	
Micro Connector -- AC/DC												K	
5 Meter Cable												L2	
10 Meter Cable												L10	
Mini Connector, Normally Open												R30	
Mini Connector, Normally Closed												R31	
Nano Connector -- DC												S	
Bulk Pack												TQ	

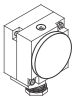
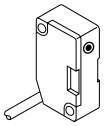
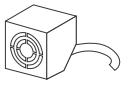
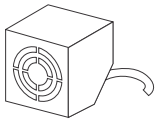
* H suffix, which MAY appear on device or carton label, is for manufacturing purposes only. It designates compliance with specific national standards. EX: H7 = UL and CSA approval, 0.5" conduit opening (where applicable). H suffixes should not be used when ordering (except when non US standards are required)

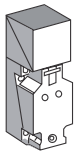
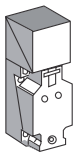
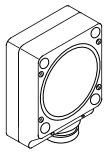
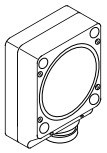
Tubular Example

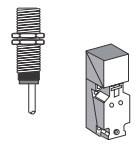
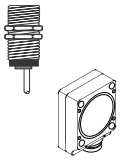
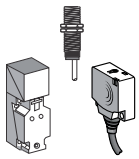
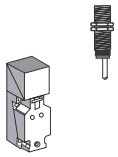
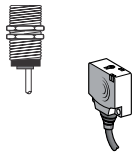
	X	S	1	M	1	8	P	A	3	7	0	D
SENSOR TYPE												
Self Contained	X											
SENSING TECHNOLOGY												
Inductive Proximity		S										
Capacitive Proximity		T										
BODY TYPE												
Shielded -- Metal Body			1									
Non-shielded -- Metal Body			2									
Non-shielded -- Plastic Body			4									
TYPE OF ENCLOSURE OR FAMILY												
Economy D				D								
Standard Length -- Threaded Metal CaseM				M								
Short Length -- Threaded Metal CaseN				N								
Unthreaded Metal CaseL				L								
Threaded Plastic CaseP				P								
BARREL DIAMETER												
4mm Diameter					0	4						
5mm Diameter					0	5						
6mm Diameter					0	6						
8mm Diameter					0	8						
12mm Diameter					1	2						
18mm Diameter					1	8						
30mm Diameter					3	0						
32mm Diameter					3	2						
MODEL TYPE												
Analog							AB					
DC PNP							P					
DC NPN							N					
DC PNP/NPN, N.O./N.C. (Selectable)							K					
DC 2 Wire							D					
AC/DC 2 Wire (Universal)							M					
OUTPUT MODE												
N.O. (Normally Open)								A				
N.C. (Normally Closed)								B				
N.O. + N.C. Complementary								C				
N.O. or N.C. Selectable								P				
MANUFACTURING CODES									•	•	•	
CONNECTORS												
Nano (M8) DC OnlyS												S
Micro DC OnlyD												D
Micro AC OnlyK												K
Mini AC or DCA												A
Micro DC PigtailLD												LD
Mini AC or DC PigtailLA												LA
EXTENDED CABLE LENGTH												
5 Meter CableL1												L1
10 Meter CableL2												L2

Telemecanique

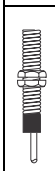
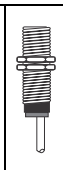
Description	Plastic Shielded Fixed and Adjustable sensing Range							
	Fixed Sensing Range					Auto Adaptable Adjustable Sensing Range		
	XS7					XS8		
								
Size / Dimensions H x W x D (mm)	J 22x8x8	F 32x15x8	E 26x26x13	C 40x40x15	D 80x80x26	E 26x26x13	C 40x40x15	D 80x80x26
Nominal Sensing Distance Sn (mm)	2.5	5	10	15	40	15	25	60
Supply (Voltage Limits)								
DC 3 wire	10 - 36 V	10 - 36 V	10 - 36 V	10 - 36 V	10 - 36 V	10 - 36 V	10 - 36 V	10 - 36 V
Maximum Load	100 mA	100 mA	100 mA	100 mA	100 mA	100 mA	200 mA	200 mA
DC 2 wire	10 - 36 V	10 - 36 V	10 - 36 V	10 - 36 V	10 - 36 V	–	–	–
Maximum Load	100 mA	100 mA	100 mA	100 mA	100 mA	–	–	–
AC/DC 2 wire	–	–	–	–	–	20 - 264 V	20 - 264 V	20 - 264 V
Maximum Load	–	–	–	–	–	200 mA	300 mA	300 mA
Enclosure Rating								
Cable Version	IP68	IP68	IP68	IP68	IP68	IP68	IP68	IP68
Connector Version	IP67	IP67	IP67	IP67	IP67	IP67	IP67	IP67
Connection								
Cable	2 m (6.6')	2 m (6.6')	2 m (6.6')	2 m (6.6')	2 m (6.6')	2 m (6.6')	2 m (6.6')	2 m (6.6')
Connector	M8	M8	M8/M12	M8/M12	M12	M8/M12/ U20	M8/M12/ U20	M12/U20
Temperature Rating	-13°F to +158°F (-25°C to +70°C)	-13°F to +158°F (-25°C to +70°C)	-13°F to +158°F (-25°C to +70°C)	-13°F to +158°F (-25°C to +70°C)	-13°F to +158°F (-25°C to +70°C)	-13°F to +158°F (-25°C to +70°C)	-13°F to +158°F (-25°C to +70°C)	-13°F to +158°F (-25°C to +70°C)
Page Number	208	208	208	208	208	206	206	206

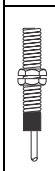
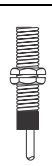
Description		Plastic Classic Rectangular Shielded & Non-shielded					
		Miniature	Compact				
		XS5L	XSB; XS7,8H; XS7,8G; XS7,8T				
							
Size (mm)		8x43	50x76	10x28	26x40	26x26	40x40
Nominal Sensing Distance Shielded Sn (mm)		1.5	–	2	2	10	15
Nominal Sensing Distance Non-shielded Sn (mm)		–	25	3	4	15	20
Supply (Voltage Limits)							
DC 3 wire		10 – 30 V	–	10 – 30 V	10 – 30 V	10 – 58 V	10 – 58 V
Maximum Load		100 mA	–	200 mA	200 mA	200 mA	200 mA
DC 2 wire		–	12 – 58 V	–	–	10 – 58 V	10 –58 V
Maximum Load		–	80 mA	–	–	100mA	100mA
DC 4 wire		–	–	–	10 –58 V	10 – 58 V	10 – 58 V
Maximum Load		–	–	–	200 mA	200 mA	200 mA
AC 2 wire		–	93 – 264 V	–	–	–	–
Maximum Load		–	150 mA	–	–	–	–
AC/DC 2 wire		–	–	–	20 –264 V	–	–
Maximum Load		–	–	–	200 mA	–	–
Dimension (mm)	Cable	43x8x8	–	28x10x16	40x12x26	26x26x26	40x40x40
	Connector	49x8x8	76x50x41	–	45x12x31	26x26x29	40x40x44
Enclosure Rating							
Cable Version		IP67	–	IP67	IP67	IP67	IP67
Connector Version		IP67	IP67	–	IP67	IP67	IP67
Connection							
Cable		2 m (6.6')	–	2 m (6.6')	2 m (6.6')	2 m (6.6')	2 m (6.6')
Connector		M8	U78	–	M8	M12	M12
Temperature Rating		-13°F to +158°F (-25°C to +70°C)	-13°F to +158°F (-25°C to +70°C)	-13°F to +158°F (-25°C to +70°C)	-13°F to +158°F (-25°C to +70°C)	-13°F to +158°F (-25°C to +70°C)	-13°F to +158°F (-25°C to +70°C)
Page Number		266	272	268	270	274	274

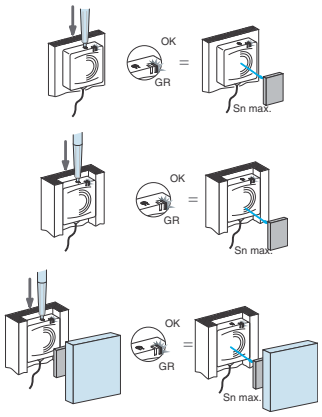
Description	Plastic Classic Rectangular Shielded & Unshielded			
	Limit switch style		Long Range Block	
	XS7/8C	**XS8 IQ Prox**	**XSD**	
				
Dimension (mm)	117x40x40	117x40x40	100x80x40	100x80x40
Nominal Sensing Distance Shielded Sn (mm)	15	25	40	–
Nominal Sensing Distance Non-shielded Sn (mm)	20	25	50	30 - 60
Supply (Voltage Limits)				
DC 3 wire	10 – 58 V	19 – 30 V	–	–
Maximum Load	200 mA	200 mA	–	–
DC 2 wire	10 – 58 V	–	10 – 58 V	10 – 58 V
Maximum Load	100 mA	–	100 mA	100 mA
DC 4 wire	10 – 58 V	–	10 – 58 V	10 – 58 V
Maximum Load	200 mA	–	200 mA	200 mA
AC 2 wire	20 – 264 V	–	20 – 264 V	20 – 264 V
Maximum Load	350 mA	–	500 mA	500 mA
AC/DC 2 wire	20 – 264 V	–	–	–
Maximum Load	200 mA	–	–	–
Enclosure Rating				
Conduit Version	IP67	IP67	IP67	IP67
Connection				
Conduit	1/2" NPT	1/2"NPT	1/2" NPT	1/2" NPT
Temperature Rating	-13°F to +158°F (-25°C to +70°C	-13°F to +158°F (-25°C to +70°C	-13°F to +158°F (-25°C to +70°C	-13°F to +158°F (-25°C to +70°C
Page Number	276	278	280	282

Description	Cylindrical, Rectangular Application Specific						
	Selective F,NF, N&NF	WFI	Namur	Analog	Capacitive	Magnet Actuated	Rotation Control
							
Size (mm)	18, 30mm Limit Switch	12, 18mm Compact Block Style	4, 5, 6.5, 8, 12, 18, 30mm Block Style	12, 18, 30mm, F,E,C,D Limit switch	12, 18, 30, 32mm, Limit switch	Compact Block Style Tubular Style	30mm E, C
Nominal Sensing Distance Shielded Sn (mm) Max. Sn shown	5 - 40	2 -10	0.8 - 40	2 - 60	2 - 15	–	10 -15
Supply (Voltage Limits)							
DC 3 wire	10 – 38 V	10 – 36 V	–	24 V / 48 V	10 – 38 V	–	10 – 58 V
Maximum Load	200 mA	250 mA	–	–	300 mA	–	200 mA
DC 4 wire	10 – 38 V	–	–	–	–	–	–
Maximum Load	200 mA	–	–	–	–	–	–
DC 2 wire	–	10 –58 V	7 –12 V	24 V /48 V	–	200 V	–
Maximum Load	–	100 mA	1.65 mA	–	–	0.5 A	–
AC 2 wire	–	93 –132 V	–	–	20 –264 V	120 –240 V	–
Maximum Load	–	150 mA	–	–	350 mA	0.5 A	–
AC/DC 2 wire	20 – 264 V	–	–	–	–	130 -200 V	20 –264 V
Maximum Load	300 mA	–	–	–	–	0.5 A	0.35 A
Enclosure Rating							
Cable Version	IP68	IP67	IP64/IP67	IP67	IP63/IP67	IP67	IP67
Connector Version	IP67	IP67	–	IP67	–	IP67	IP67
Conduit Entry	IP67	IP67	–	IP67	–	IP67	–
Temperature Rating	-13°F to +158°F (-25°C to +70°C)	-13°F to +158°F (-25°C to +70°C)	-13°F to +158°F (-25°C to +70°C)	-13°F to +158°F (-25°C to +70°C)	-13°F to +158°F (-25°C to +70°C)	-40°F to +140°F (-40°C to +60°C)	-13°F to +158°F (-25°C to +70°C)
Page Number	260	286	290	214, 292	294	302	216, 284

Proximity Sensors
Selection Guide
Cylindrical

Description		Metal Fully Shielded Fixed Sensing Range								Metal Fully Shielded/Non-Shielded		
		Standard Sensing Range				Extended Sensing Range				Auto Adaptable Adjustable Range		
		XS5				XS6				XS6		
												
Diameter (mm)		∅ 8	∅ 12	∅ 18	∅ 30	∅ 8	∅ 12	∅ 18	∅ 30	∅ 12	∅ 18	∅ 30
Nominal Sensing Distance Sn (mm)		1.5	2	5	10	2.5	4	8	15	4	8	15
Supply (Voltage Limits)												
DC 3 wire		10 - 36 V	10 - 36 V	10 - 36 V	10 - 36 V	10 - 58 V	10 - 58 V	10 – 58 V	10 - 58 V	10 – 36 V	10 – 36 V	10 – 36 V
Maximum Load		200 mA	200 mA	200 mA	200 mA	200 mA	200 mA	200 mA	200 mA	100 mA	100 mA	100 mA
Dimension (mm)	Cable	M8x33	M12x33	M18x36.5	M30x40.6	M8x50	M12x50	M18x60	M18x60	–	–	–
	Connector	M8x42	M12x48	M18x48.6	M30x50.7	M8x61	M12x61	M18x72.2	M30x72.2	M12x50	M18x60	M30x60
DC 2 wire		10 - 58 V	10 - 58 V	10 - 58 V	10 - 58 V	–	–	–	–	–	–	–
Maximum Load		100 mA	100 mA	100 mA	100 mA	–	–	–	–	–	–	–
Dimension (mm)	Cable	M8x50	M12x50	M18x52.5	M30x50	–	–	–	–	–	–	–
	Connector	M8x61	M12x61	M18x64.6	M30x64.2	–	–	–	–	–	–	–
DC 4 wire		–	–	–	–	–	–	–	–	–	–	–
Maximum Load		–	–	–	–	–	–	–	–	–	–	–
Dimension (mm)	Cable	–	–	–	–	–	–	–	–	–	–	–
	Connector	–	–	–	–	–	–	–	–	–	–	–
AC/DC 2 wire		–	–	–	–	–	20 - 264 V	20 - 264 V	20 - 264 V	–	–	–
Maximum Load		–	–	–	–	–	100 mA	100 mA	100 mA	–	–	–
Dimension (mm)	Cable	–	–	–	–	–	M12x50	M18x60	M30x60	–	–	–
	Connector	–	–	–	–	–	M12x61	M18x72.2	M30x72.2	–	–	–
Enclosure Rating												
Cable		IP67	IP68	IP68	IP68	IP67	IP68	IP68	IP68	–	–	–
Connector		IP67	IP67	IP67	IP67	IP67	IP67	IP67	IP67	IP67	IP67	IP67
Connection												
Cable Version		2 m (6.6')	2 m (6.6')	2 m (6.6')	2 m (6.6')	2 m (6.6')	2 m (6.6')	2 m (6.6')	2 m (6.6')	–	–	–
Connector Version		M8	M12	M12	M12	M8	M12/U20	M12/U20	M12/U20	–	–	–
Operating Temperature Rating		-13°F to +158°F (-25°C to +70°C)	-13°F to +158°F (-25°C to +70°C)	-13°F to +158°F (-25°C to +70°C)	-13°F to +158°F (-25°C to +70°C)	-13°F to +158°F (-25°C to +70°C)	-13°F to +158°F (-25°C to +70°C)	-13°F to +158°F (-25°C to +70°C)	-13°F to +158°F (-25°C to +70°C)	-13°F to +158°F (-25°C to +70°C)	-13°F to +158°F (-25°C to +70°C)	-13°F to +158°F (-25°C to +70°C)
Page Number		212	212	212	212	210	210	210	210	210	210	210

Description		**Plastic Unshielded**				**Metal Shielded/Non-Shielded Fixed Sensing Range**						
		Standard Sensing Range				Standard Sensing Range (Classic)				Nominal Range, Miniature		
		XS4.P				**XS1, 2M (N)**				**XS1, 2 L(N)**		
												
Diameter (mm)		∅ 8	∅ 12	∅ 18	∅ 30	∅ 8	∅ 12	∅ 18	∅ 30	∅ 4	∅ 5	∅ 6.5
Nominal Sensing Distance Shielded Sn (mm)		–	–	–	–	1.5	2	5	10	1	1	1.5
Nominal Sensing Distance Unshielded Sn (mm)		2.5	4	8	15	2.5	4	8	15	–	–	2.5
Supply (Voltage Limits)												
DC 3 wire		10 – 38 V	10 – 38 V	10 – 38 V	10 – 38 V	10 –58 V	10 –58 V	10 –58 V	10 –58 V	5 –30 V	5 – 30 V	10 – 38 V
Maximum Load		200 mA	200 mA	200 mA	200 mA	100 mA	200 mA	200 mA	200 mA	100 mA	100 mA	200 mA
Dimension (mm)	Cable	M8x33	M12x33	M18x33	M30x40	M8x50	M12x50	M18x60	M30x60	M4x29	M5x29	M6.5x33
	Connector	M8x45	M12x45	M18x45	M30x50	M8x61	M12x61	M18x70	M30x70	M4x41	M5x41	M6.5x45
DC 2 wire		–	–	–	–	10 –58 V	10 –58 V	10 –58 V	10 –58 V	–	–	–
Maximum Load		–	–	–	–	100 mA	100 mA	100 mA	100 mA	–	–	–
Dimension (mm)	Cable	–	–	–	–	–	–	–	–	–	–	–
	Connector	–	–	–	–	–	–	–	–	–	–	–
DC 4 wire		10 – 38 V	10 – 38 V	10 – 38 V	10 – 38 V	–	–	–	–	–	–	10 – 38 V
Maximum Load		200 mA	200 mA	200 mA	200 mA	–	–	–	–	–	–	200 mA
Dimension (mm)	Cable	M8x50	M12x50	M18x60	M30x60	–	–	–	–	–	–	M6.5x50
	Connector	M8x61	M12x61	M18x70	M30x70	–	–	–	–	–	–	–
AC/DC 2 wire		20 - 264 V	20 - 264 V	20 - 264 V	20 - 264 V	20 - 264 V	20 - 264 V	20 - 264 V	20 - 264 V	–	–	–
Maximum Load		100 mA	200 mA	200 mA	200 mA	100 mA	200 mA	200 mA	200 mA	–	–	–
Dimension (mm)	Cable	M8x50	M12x50	M18x60	M30x60	2 m(6.6')	2 m(6.6')	2 m(6.6')	2 m(6.6')	–	–	–
	Connector	M8x61	M12x61	M18x70	M30x70	U20	U20	U20/U78	U20/U78	–	–	–
Enclosure Rating												
Cable		IP67	IP68	IP68	IP68	IP67	IP68	IP68	IP68	IP67	IP67	IP67
Connector		IP67	IP67	IP67	IP67	IP67	IP67	IP67	IP67	IP67	IP67	IP67
Connection												
Cable		2 m (6.6')	2 m (6.6')	2 m (6.6')	2 m (6.6')	2 m (6.6')	2 m (6.6')	2 m (6.6')	2 m (6.6')	2 m (6.6')	2 m (6.6')	2 m (6.6')
Connector		M8 / U20	M12/U20	M12/U20	M12/U20	M12/U20	M12/U20	M12/U20	M12/U20	M8	M8	M8/M12
Operating Temperature Rating		-13°F to +158°F (-25°C to +70°C)	-13°F to +158°F (-25°C to +70°C)	-13°F to +158°F (-25°C to +70°C)	-13°F to +158°F (-25°C to +70°C)	-13°F to +176°F (-25°C to +80°C)	-13°F to +176°F (-25°C to +80°C)	-13°F to +176°F (-25°C to +80°C)	-13°F to +176°F (-25°C to +80°C)	-13°F to +158°F (-25°C to +70°C)	-13°F to +158°F (-25°C to +70°C)	-13°F to +158°F (-25°C to +70°C)
Page Number		226	236	240	248	224	232	240	248	218	220	222



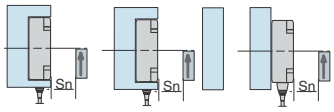
Principle of Operation

Osiconcept, Auto-Adaptable Technology is a patented innovation that offers simplified selection and installation.

Sensor can be flush mounted, non-flush mounted or recessed mounted. A metal background can be placed in immediate proximity of the sensor.

To set-up, activate adaptable technology by pressing button. When no target is present, the sensor will adapt to the environment, then pass the target in front of the sensor in the usual way. The green LED flashes when sensor is adapting to its environment or learning target location, then becomes steady when sensor is set. After the sensor is programmed it will recognize the target and provide output.

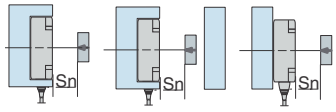
NOTE: Follow instruction bulletin provided with Osiconcept Auto-Adaptable product.



Fine Adjustment for Precise Positiong

Fine Adjustment for Precise Positioning

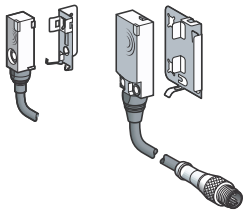
The simple process of pressing the self-teach button with the target located in the precise position (lateral movement) across the detector sensing face. This adjustment will only allow the sensor output to change state when the object reaches the precise position in the sensors field.



Fine Adjustment for Frontal Target Motion

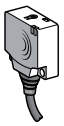
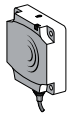
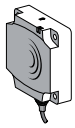
The simple process of pressing the self-teach button with the target located in the precise position (frontal distance) from the detector sensing face. This adjustment will only allow the sensor output to change state when the object reaches the precise position in the sensors field.

Installation

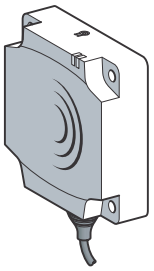


A full line of support brackets allows for simple and fast installation or maintenance. No tools are necessary, simple clips and the sensor is fixed in position and ready for operation. Brackets available for all sizes J, F, E, C, D in flat and 90°.

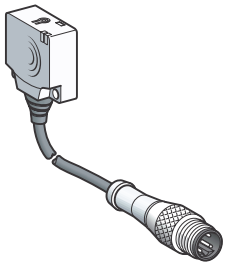
Brackets available for substitution to existing XS•E, XS•C, and XS•D, see page 300.

Flat			
Dimensions " (mm)	0.51 x 1.0 x 1.0 (13 x 26 x 26)	1.57 x 1.57 x 0.59 (40 x 40 x 15)	3.14 x 3.14 x 1.0 (80 x 80 x 26)
	Size E 	Size C 	Size D 
Applications	Machine Tooling, Molding, Welding Machinery, and Packaging		Material Handling, Conveyors
Sn - Flush Mounted " (mm)	0.2-0.39 (5-10)	0.31-0.59 (8-15)	0.78-1.57 (20-40)
Sn - Non-Flush Mounted " (mm)	0.2-0.59 (5-15)	0.31-0.98 (8-25)	0.78-2.36 (20-60)
Product Reference	XS8E1A1	XS8CE1A1	XS8D1A1
Pages	206	206	206
Cylindrical			
Dimensions " (mm)	0.47 (12)	0.7 (18)	1.18 (30)
			
Applications	Machining, Food Industry		
Sn - Flush Mounted " (mm)	0.07-0.13 (1.7-3.4)	6.14-0.27 (3.5-7)	0.24-0.47 (6-12)
Sn - Non-Flush Mounted " (mm)	0.07-0.20 (1.7-5)	0.14-0.40 (3.5-10)	0.24-0.71 (6-18)
Product Reference	XS612B●	XS618B●	XS630B●
Pages	210	210	210

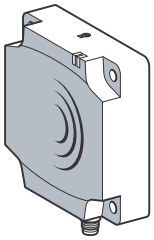
OSICONCEPT™ Proximity Sensors
XS8 Auto-Adaptable Inductive Sensor
Flat Rectangular, DC and AC/DC



XS8 •1A1••••L2



XS8 E1A1••M8



XS8 E1A1•••M8
XS8 C1A1•••M8

Features:

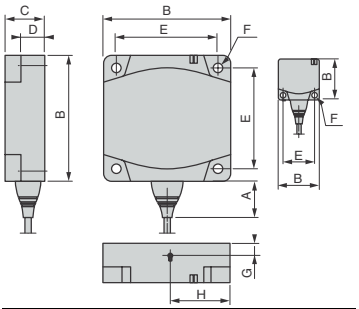
- Enhanced sensing distances
- Self-adapting to flush or non-flush mounted environments
- 3 wire DC and 2 wire AC/DC
- Self-teach

Nominal Sensing Distance	Circuit Type	Output Mode	Voltage Range	Load Current Maximum	Operating Frequency	Catalog Number
DC						
Size E (13x26x26 mm) 2 m (6.6") cable ▲						
15mm	PNP	N.O.*	12-24 Vdc	100 mA	1000 Hz	**XS8E1A1PAL2**
15mm	NPN	N.O.*	12-24 Vdc	100 mA	1000 Hz	**XS8E1A1NAL2**
Size E (13x26x26 mm) M8 connector						
15mm	PNP	N.O.*	12-24 Vdc	100 mA	1000 Hz	**XS8E1A1PAM8**
15mm	NPN	N.O.*	12-24 Vdc	100 mA	1000 Hz	**XS8E1A1NAM8**
Size E (13x26x26 mm) M12 pigtail, 0.1 m						
15mm	PNP	N.O.*	12-24 Vdc	100 mA	1000 Hz	**XS8E1A1PAL01M12**
15mm	NPN	N.O.*	12-24 Vdc	100 mA	1000 Hz	**XS8E1A1NAL01M12**
Size C (15x40x40 mm) 2 m (6.6') cable ▲						
25mm	PNP	N.O.*	12-24 Vdc	200 mA	1000 Hz	**XS8C1A1PAL2**
25mm	NPN	N.O.*	12-24 Vdc	200 mA	1000 Hz	**XS8C1A1NAL2**
Size C (15x40x40 mm) M8 connector						
25mm	PNP	N.O.*	12-24 Vdc	200 mA	1000 Hz	**XS8C1A1PAM8**
25mm	NPN	N.O.*	12-24 Vdc	200 mA	1000 Hz	**XS8C1A1NAM8**
Size C (15x40x40 mm) M12 pigtail, 0.1 m						
25mm	PNP	N.O.*	12-24 Vdc	200 mA	1000 Hz	**XS8C1A1PAL01M12**
25mm	NPN	N.O.*	12-24 Vdc	200 mA	1000 Hz	**XS8C1A1NAL01M12**
Size D (26x80x80 mm) 2 m (6.6') cable ▲						
60mm	PNP	N.O.*	12-24 Vdc	200 mA	100 Hz	**XS8D1A1PAL2**
60mm	NPN	N.O.*	12-24 Vdc	200 mA	100 Hz	**XS8D1A1NAL2**
Size D (26x80x80 mm) M12 connector						
60mm	PNP	N.O.*	12-24 Vdc	200 mA	100 Hz	**XS8D1A1PAM12**
60mm	NPN	N.O.*	12-24 Vdc	200 mA	100 Hz	**XS8D1A1NAM12**
AC						
Size E (13x26x26 mm) 2 m (6.6') cable ▲						
15mm	2 wire	N.O.*	24-240 Vac/24-210 Vdc	5 – 200 mA	1000/50 Hz	**XS8E1A1MAL2**
Size E (13x26x26 mm) U20 pigtail, 0.1 m						
15mm	2 wire	N.O.*	24-240 Vac/24-210 Vdc	5 – 200 mA	1000/50 Hz	**XS8E1A1MAL01U20**
Size C (15x40x40 mm) 2 m (6.6') cable ▲						
25mm	2 wire	N.O.*	24-240 Vac/24-210 Vdc	5 – 300 mA	1000/50 Hz	**XS8C1A1MAL2**
Size C (15x40x40 mm) U20 pigtail, 0.1 m						
25mm	2 wire	N.O.*	24-240 Vac/24-210 Vdc	5 – 300 mA	1000/50 Hz	**XS8C1A1MAL01U20**
Size D (26x80x80 mm) 2 m (6.6') cable ▲						
60mm	2 wire	N.O.*	24-240 Vac/24-210 Vdc	5 – 300 mA	100/50 Hz	**XS8D1A1MAL2**
Size D (26x80x80 mm) U20 connector						
60mm	2 wire	N.O.*	24-240 Vac/24-210 Vdc	5 – 300 mA	100/50 Hz	**XS8D1A1MAU20**

★ To order a normally closed (N.C.) version change the A to B, example: XS8C1A1P**A**L2 to XS8C1A1P**B**L2.
▲ 5m cable length available with L5 suffix / 10m cable length available with L10 suffix.

Dimensions

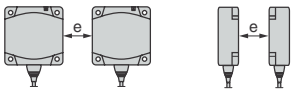
XS8 C/D **XS8E**



	A L2	A M12	B	C	D	E	F	G	H
E	0.55 (14)	0.4 (11)	1.0 (26)	0.5 (13)	0.3 (8.8)	0.8 (20)	0.1 (3.5)	0.26 (6.8)	0.25 (6.6)
C	0.55 (14)	0.4 (11)	1.6 (40)	0.6 (15)	0.4 (9.8)	1.3 (33)	0.1 (4.5)	0.32 (8.3)	0.53 (13.6)
D	0.9 (23)	0.5 (14)	3.1 (80)	1.0 (26)	0.6 (16)	2.5 (65)	0.2 (5.5)	0.33 (8.5)	1.5 (37.8)

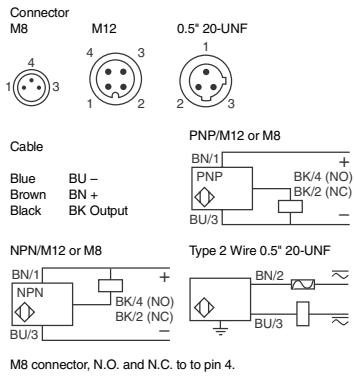
inches (mm)

Minimum Mounting Clearances (mm)



	Side by Side		Face to Face	
XS8E	e ≥ 1.6 (40)	e ≥ 5.9 (150)	e ≥ 3.1 (80)	e ≥ 11.8 (300)
XS8C	e ≥ 2.4 (60)	e ≥ 4.9 (125)	e ≥ 4.7 (120)	e ≥ 9.8 (250)
XS8D	e ≥ 7.9 (200)	e ≥ 23.6 (600)	e ≥ 15.7 (400)	

Wiring



M8 connector, N.O. and N.C. to to pin 4.

Specifications

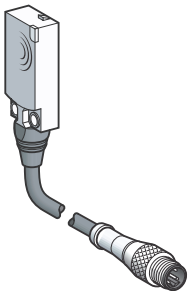
Mechanical		**Shielded**	**Non-shielded**
Fine Detection Zone	XS8E	5 – 10 mm	5 – 15 mm
	XS8C	8 – 15 mm	8 – 25 mm
	XS8D	20 – 40 mm	20 – 60 mm
Sn	XS8E	0 – 10 mm	0 – 15 mm
	XS8C	0 – 15 mm	0 – 25 mm
	XS8D	0 – 40 mm	0 – 60 mm
Temperature Range	Storage	-40 ° to +185 ° F (-40 ° to +85 ° C)	
	Operation	-13 ° to +158 ° F (-25 ° to +70 ° C)	
Enclosure Rating	NEMA Type	1, 4X,12	
	IEC Type	IP68 cable version / IP67 connector version	
Vibration		25 g, amplitude +/- 2mm (f=10-55 Hz)	
Shock Resistance		50 g duration 11ms	
Differential (%of Sr)		1 – 15%	
Repeatability (% of Sr)		2%	
LED Indicator	Output	Yellow	
	Power & Teach	Green	
Enclosure material		PBT	
Cable		PVR 3x0.34mm^2	
Connector		M8 Nano 3pin, M12 Micro 4pin, U20 Micro 3pin	
Electrical		**2 wire AC/DC**	**3 wire DC**
Voltage Range		24 – 240 Vac/24 - 210 V dc	12 – 24 Vdc
Voltage Limit (including ripple)		20 – 264 Vac/dc	10 – 36 Vdc
Voltage Drop		5.5 V	2 V
Load Current Maximum	XS8E	5. . .200 mA	100 mA
	XS8C	DC:5. . .300 mA/AC:5. . .260 mA	200 mA
	XS8D	DC:5. . .300 mA/AC:5. . .260 mA	200 mA
(max.) Leakage (Residual) Current-open state		1.5 mA	–
Current consumption		–	10 mA
Power up Delay (max.)	XS8E	10 ms	5 ms
	XS8C	10 ms	5 ms
	XS8D	15 ms	10 ms
On Delay (max.)	XS8E	0.3 ms	0.3 ms
	XS8C	0.3 ms	0.3 ms
	XS8D	0.3 ms	0.3 ms
Off Delay (max.)	XS8E	0.7 ms	0.7 ms
	XS8C	0.7 ms	0.7 ms
	XS8D	5 ms	5 ms
Protective Circuitry	Short Circuit Protection	No	Yes
	Overload Protection	No	Yes
Agency Listings			

Connector Cables (M8 or S suffix; M12 or D suffix; U20 or K suffix)

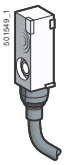
XSZCS101	Nano Conn., 3 pin, 2 m, straight
XSZCS111	Nano Conn., 3 pin, 2 m, 90°
XSZCD101Y	Micro Conn., 4 pin, 2 m, straight
XSZCD111Y	Micro Conn., 4 pin, 2 m, 90°
XSZCK101Y	Micro Conn., 3 pin, 2 m, straight
XSZCK111Y	Micro Conn., 3 pin, 2 m, 90°

For additional cable options and lengths see p. 518

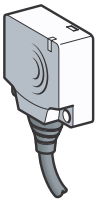
Proximity Sensors
XS7 Inductive Sensor
Flat Rectangular, DC



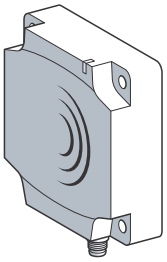
XS7 FA1••L01M8



XS7 J1A1••L2



XS7 1A1••L2



XS7 D1A1••M12

Features:
Entire range of flat proximity sensors dedicated to OEM's and their applications.

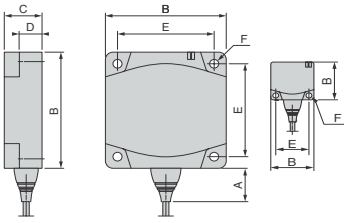
- Complete flat range offering.
- 2 and 3 wire DC
- Normally Open or Normally Closed outputs available
- Cable and connector versions
- PNP or NPN

Nominal Sensing Distance	Circuit Type	Output Mode	Voltage Range	Load Current Maximum	Operating Frequency	Catalog Number
Size J (8x8x22 mm) 2 m (6.6') cable ▲						
2.5 mm	2 wire	N.O.★	12-24 Vdc	1.5 – 100 mA	4000 Hz	**XS7J1A1DAL2**
2.5 mm	PNP	N.O.★	12-24 Vdc	100 mA	2000 Hz	**XS7J1A1PAL2**
2.5 mm	NPN	N.O.★	12-24 Vdc	100 mA	2000 Hz	**XS7J1A1NAL2**
Size J (8x8x22 mm) M8 pigtail, 0.1 m						
2.5 mm	2 wire	N.O.★	12-24 Vdc	1.5 – 100 mA	4000 Hz	**XS7J1A1DAL01M8**
2.5 mm	PNP	N.O.★	12-24 Vdc	100 mA	2000 Hz	**XS7J1A1PAL01M8**
2.5 mm	NPN	N.O.★	12-24 Vdc	100 mA	2000 Hz	**XS7J1A1NAL01M8**
Size F (8x15x32 mm) 2 m (6.6') cable ▲						
5 mm	2 wire	N.O.★	12-24 Vdc	1.5 – 100 mA	5000 Hz	**XS7F1A1DAL2**
5 mm	PNP	N.O.★	12-24 Vdc	100 mA	2000 Hz	**XS7F1A1PAL2**
5 mm	NPN	N.O.★	12-24 Vdc	100 mA	2000 Hz	**XS7F1A1NAL2**
Size F (8x15x32 mm) M8 pigtail, 0.1 m						
5 mm	2 wire	N.O.★	12-24 Vdc	1.5 – 100 mA	5000 Hz	**XS7F1A1DAL01M8**
5 mm	PNP	N.O.★	12-24 Vdc	100 mA	2000 Hz	**XS7F1A1PAL01M8**
5 mm	NPN	N.O.★	12-24 Vdc	100 mA	2000 Hz	**XS7F1A1NAL01M8**
Size E (13x26x26 mm) 2m (6.6') cable ▲						
10 mm	2 wire	N.O.★	12-24 Vdc	1.5 – 100 mA	1000 Hz	**XS7E1A1DAL2**
10 mm	PNP	N.O.★	12-24 Vdc	100 mA	1000 Hz	**XS7E1A1PAL2**
10 mm	NPN	N.O.★	12-24 Vdc	100 mA	1000 Hz	**XS7E1A1NAL2**
Size E (13x26x26 mm) M8 connector						
10 mm	2 wire	N.O.★	12-24 Vdc	1.5 – 100 mA	1000 Hz	**XS7E1A1DAM8**
10 mm	PNP	N.O.★	12-24 Vdc	100 mA	1000 Hz	**XS7E1A1PAM8**
10 mm	NPN	N.O.★	12-24 Vdc	100 mA	1000 Hz	**XS7E1A1NAM8**
Size E (13x26x26 mm) M12 pigtail, 0.1 m ◆						
10 mm	2 wire	N.O.★	12-24 Vdc	1.5 – 100 mA	1000 Hz	**XS7E1A1DAL01M12**
10 mm	PNP	N.O.★	12-24 Vdc	100 mA	1000 Hz	**XS7E1A1PAL01M12**
10 mm	NPN	N.O.★	12-24 Vdc	100 mA	1000 Hz	**XS7E1A1NAL01M12**
Size C (15x40x40 mm) 2 m (6.6') cable ▲						
15 mm	2 wire	N.O.★	12-24 Vdc	1.5 – 100 mA	1000 Hz	**XS7C1A1DAL2**
15 mm	PNP	N.O.★	12-24 Vdc	100 mA	1000 Hz	**XS7C1A1PAL2**
15 mm	NPN	N.O.★	12-24 Vdc	100 mA	1000 Hz	**XS7C1A1NAL2**
Size C (15x40x40 mm) M8 connector						
15 mm	2 wire	N.O.★	12-24 Vdc	1.5 – 100 mA	1000 Hz	**XS7C1A1DAM8**
15 mm	PNP	N.O.★	12-24 Vdc	100 mA	1000 Hz	**XS7C1A1PAM8**
15 mm	NPN	N.O.★	12-24 Vdc	100 mA	1000 Hz	**XS7C1A1NAM8**
Size C (15x40x40 mm) M12 pigtail, 0.1 m ◆						
15 mm	2 wire	N.O.★	12-24 Vdc	1.5 – 100 mA	1000 Hz	**XS7C1A1DAL01M12**
15 mm	PNP	N.O.★	12-24 Vdc	100 mA	1000 Hz	**XS7C1A1PAL01M12**
15 mm	NPN	N.O.★	12-24 Vdc	100 mA	1000 Hz	**XS7C1A1NAL01M12**
Size D (26x80x80 mm) 2 m (6.6') cable ▲						
40 mm	2 wire	N.O.★	12-24 Vdc	1.5 – 100 mA	100 Hz	**XS7D1A1DAL2**
40 mm	PNP	N.O.★	12-24 Vdc	100 mA	100 Hz	**XS7D1A1PAL2**
40 mm	NPN	N.O.★	12-24 Vdc	100 mA	100 Hz	**XS7D1A1NAL2**
Size D (26x80x80 mm) M12 connector						
40 mm	2 wire	N.O.★	12-24 Vdc	1.5 – 100 mA	100 Hz	**XS7D1A1CAM12**
40 mm	2 wire	N.O.★	12-24 Vdc	1.5 – 100 mA	100 Hz	**XS7D1A1DAM12**
40 mm	PNP	N.O.★	12-24 Vdc	100 mA	100 Hz	**XS7D1A1PAM12**
40 mm	NPN	N.O.★	12-24 Vdc	100 mA	100 Hz	**XS7D1A1NAM12**

★ To order a normally closed (N.C.) version change the A to B, example: XS718B1P**A**L2 to XS718B1P**B**L2.
◆ 0.8m and 0.15m pigtail length available on 2 wire E and C.
▲ 5m cable length available with L5 suffix / 10m cable length available with L10 suffix.

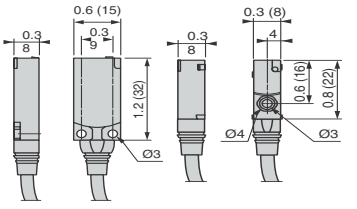
Dimensions

XS7 C/D **XS7E**



	A L2	A M12	B	C	D	E	F
XS7 E	0.55 (14)	0.4 (11)	1.0 (26)	0.5 (13)	0.3 (8.8)	0.8 (20)	0.1 (3.5)
XS7 C	0.55 (14)	0.4 (11)	1.6 (40)	0.6 (15)	0.4 (9.8)	1.3 (33)	0.1 (4.5)
XS7 D	0.9 (23)	0.5 (14)	3.1 (80)	1.0 (26)	0.6 (16)	2.5 (65)	0.2 (5.5)

XS7 F **XS7J**



inches (mm)

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

Wiring

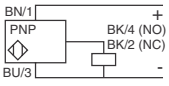
XS7E, XS7C, XS7D

Connector
M12 M8

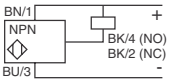
Cable

Blue BU –
Brown BN +
Black BK Output

PNP/M12 or M8

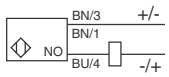


NPN/M12 or M8

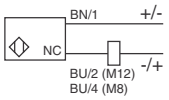


M8 connector, N.O. and N.C. to pin 4.

2 Wire N.O.



2 Wire N.C.



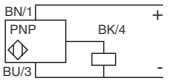
Connector M8

Cable

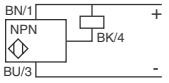
Blue BU –
Brown BN +
Black BK Output

XS7J, XS7F

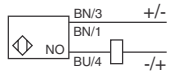
PNP N.O. or N.C.



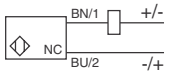
NPN N.O. or N.C.



2 Wire N.O.



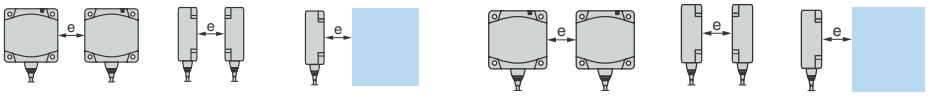
2 Wire N.C.



Specifications

Mechanical			
Usable Sensing Range	XS7J	0 – 2 mm	
	XS7F	0 – 4 mm	
	XS7E	0 – 8 mm	
	XS7C	0 – 12 mm	
	XS7D	0 – 32 mm	
Temperature Range	Storage	-40 ° to +185 ° F (-40 ° to +85 ° C)	
	Operational	-13 ° to +158 ° F (-25 ° to +70 ° C)	
Enclosure Rating	NEMA Type	1,4X,12	
	IEC Type	IP68 Cable version / IP67 Connector version	
Vibration		25 g, amplitude +/- 2mm (f=10-55 Hz)	
Shock Resistance		50 g duration 11ms	
Differential (%of Sr)		1-15%	
Repeatability (% of Sr)		2%	
LED Indicator		Yellow output	
Enclosure Material		PBT	
Cable		PVR, 3x0.34mm^2	
Connector		Nano conn. 3 pin M8 / Micro conn. 4 pin M12	
Electrical		**2 wire**	**3 wire**
Voltage Range		12 – 24 Vdc	12 – 24 Vdc
Voltage Limit (including ripple)		10 – 36 Vdc	10 – 36 Vdc
Voltage Drop		2 V	4 V
Current Limit Maximum		100 mA	100 mA
Current consumption		0.5 mA	10 mA
Power up Delay (max.)	XS7J	10 ms	5 ms
	XS7F	5 ms	5 ms
	XS7E	5 ms	10 ms
	XS7C	5 ms	5 ms
	XS7D	10 ms	30 ms
On Delay (max.)	XS7J	0.5 ms	0.1 ms
	XS7F	0.5ms	0.1 ms
	XS7E	0.3 ms	2 ms
	XS7C	0.3 ms	2 ms
	XS7D	10 ms	5 ms
Off Delay (max.)	XS7J	1 ms	0.1 ms
	XS7F	5 ms	0.1 ms
	XS7E	0.7 ms	6 ms
	XS7C	0.7 ms	5 ms
	XS7D	10 ms	15 ms
Protective Circuitry	Short Circuit Protection	Yes	Yes
	Overload Protection	Yes	Yes
Agency Listings	UL E164869 CCN NRKH	CSA	CE

Minimum Mounting Clearances (mm)



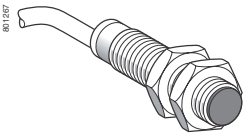
	Side by Side	Face to Face	Face to Metal Object		Side by Side	Face to Face	Face to Metal Object
XS7E	e ≥ 0.2 (4)	e ≥ 0.9 (24)	e ≥ 0.2 (6)	**XS7J**	e ≥ 0.03 (1)	e ≥ 0.2 (6)	e ≥ 0.08 (2)
XS7C	e ≥ 0.4 (10)	e ≥ 2.4 (60)	e ≥ 0.6 (15)	**XS7F**	e ≥ 0.8(020)	e ≥ 0.4(12)	e ≥ 0.12 (3)
XS7D	e ≥ 0.8 (20)	e ≥ 4.7 (120)	e ≥ 1.2 (30)				

Connector Cables
(M8 or S suffix; M12 or D suffix)

XSZCS101	Nano Conn., 3 pin, 2 m, straight
XSZCS111	Nano Conn., 3 pin, 2 m, 90°
XSZCD101Y	Micro Conn., 4 pin, 2 m, straight
XSZCD111Y	Micro Conn., 4 pin, 2 m, 90°

For additional cable options and lengths see p. 518

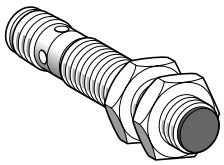
OSICONCEPT™ Proximity Sensors
XS6 Extended Range and Auto-Adaptable Inductive Sensor
Metal Tubular, DC and AC/DC



thread M8x1

thread M12x1

XS6 ••B1••L2

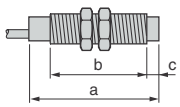


thread M18x1

thread M30x1.5

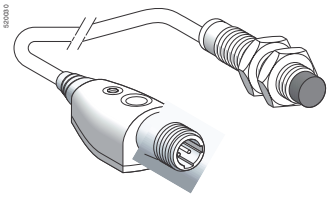
XS6 ••B1••M12

Dimensions



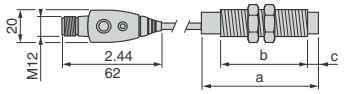
	Cable		Connector	
	a	b	a	b
∅ 8	1.9 (50)	1.6 (42)	2.4 (61)	1.6 (40)
∅ 12	1.9 (50)	1.6 (42)	2.4 (61)	1.6 (42)
∅ 18	2.3 (60)	0.09 (51)	2.8 (72.2)	2.0 (51)
∅ 30	2.3 (60)	0.09 (51)	2.8 (72.2)	2.0 (51)

inches (mm)



XS6••B2••L01M12

Dimensions



	Connector M12		
	a	b	c
∅ 12	1.9 (50)	1.4 (37)	0.2 (5)
∅ 18	2.3 (60)	1.5 (38.5)	0.31 (8)
∅ 30	29.9 (760)	1.5 (38.5)	0.5 (13)

inches (mm)

Dual Dimensions inches / mm

Features:
Entire range of fully shielded metal body cylindrical inductive proximity sensors.

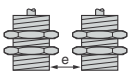
- Increased sensing range, fully shielded
- 2 wire AC/DC and 3 wire DC
- Normally Open or Normally Closed outputs available
- Cable and connector versions
- PNP or NPN, DC
- Self-Teach available on 12-30mm versions

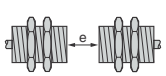
Nominal Sensing Distance	Circuit Type	Output Mode	Voltage Range	Load Current Max.	Operating Frequency DC	Operating Frequency AC	Catalog Number
8 mm Diameter, 2 m (6.6') cable ▲							
2.5 mm	PNP	N.O.★	12-48 Vdc	200 mA	5000 Hz	–	**XS608B1PAL2**
2.5 mm	NPN	N.O.★	12-48 Vdc	200 mA	5000 Hz	–	**XS608B1NAL2**
8 mm Diameter, M12 connector							
2.5 mm	PNP	N.O.★	12-48 Vdc	200 mA	5000 Hz	–	**XS608B1PAM12**
2.5 mm	NPN	N.O.★	12-48 Vdc	200 mA	5000 Hz	–	**XS608B1NAM12**
12 mm Diameter, 2 m (6.6') cable ▲							
4 mm	2 wire	N.O.★	12-48 Vdc	1.5-100 mA	4000 Hz	25 Hz	**XS612B1MAL2**
4 mm	PNP	N.O.★	12-48 Vdc	200 mA	5000 Hz	–	**XS612B1PAL2**
4 mm	NPN	N.O.★	12-48 Vdc	200 mA	5000 Hz	–	**XS612B1NAL2**
12 mm Diameter, M12 connector							
4 mm	2 wire	N.O.★	24-240 Vac/24-210 Vdc	1.5-100 mA	4000 Hz	25 Hz	**XS612B1MAU20**
4 mm	PNP	N.O.★	12-48 Vdc	200 mA	5000 Hz	–	**XS612B1PAM12**
4 mm	NPN	N.O.★	12-48 Vdc	200 mA	5000 Hz	–	**XS612B1NAM12**
18 mm Diameter, 2 m (6.6') cable ▲							
8 mm	2 wire	N.O.★	24-240 Vac/24-210 Vdc	1.5-100 mA	3000 Hz	25 Hz	**XS618B1MAL2**
8 mm	PNP	N.O.★	12-48 Vdc	200 mA	2000 Hz	–	**XS618B1PAL2**
8 mm	NPN	N.O.★	12-48 Vdc	200 mA	2000 Hz	–	**XS618B1NAL2**
18 mm Diameter, M12 connector							
8 mm	2 wire	N.O.★	24-240 Vac/24-210 Vdc	1.5-100 mA	3000 Hz	25 Hz	**XS618B1MAU20**
8 mm	PNP	N.O.★	12-48 Vdc	200 mA	2000 Hz	–	**XS618B1PAM12**
8 mm	NPN	N.O.★	12-48 Vdc	200 mA	2000 Hz	–	**XS618B1NAM12**
30 mm Diameter, 2m (6.6') cable ▲							
15 mm	2 wire	N.O.★	24-240 Vac/24-210 Vdc	1.5-100 mA	2000 Hz	25 Hz	**XS630B1MAL2**
15 mm	PNP	N.O.★	12-48 Vdc	200 mA	1000 Hz	–	**XS630B1PAL2**
15 mm	NPN	N.O.★	12-48 Vdc	200 mA	1000 Hz	–	**XS630B1NAL2**
30 mm Diameter, M12 connector							
15 mm	2 wire	N.O.★	24-240 Vac/24-210 Vdc	1.5-100 mA	2000 Hz	25 Hz	**XS630B1MAU20**
15 mm	PNP	N.O.★	12-48 Vdc	200 mA	1000 Hz	–	**XS630B1PAM12**
15 mm	NPN	N.O.★	12-48 Vdc	200 mA	1000 Hz	–	**XS630B1NAM12**
Self – Teach version◆ (Auto-Adaptable)							
12 mm Diameter, M12 connector pigtail 0.1m							
5 mm	PNP	N.O.★	12-24 Vdc	100 mA	1000 Hz	–	**XS612B2PAL01M12**
5 mm	NPN	N.O.★	12-24 Vdc	100 mA	1000 Hz	–	**XS612B2NAL01M12**
18 mm Diameter, M12 connector pigtail 0.1m							
9 mm	PNP	N.O.★	12-24 Vdc	100 mA	1000 Hz	–	**XS618B2PAL01M12**
9 mm	NPN	N.O.★	12-24 Vdc	100 mA	1000 Hz	–	**XS618B2NAL01M12**
30 mm Diameter, M12 connector pigtail 0.1m							
15 mm	PNP	N.O.★	12-24 Vdc	100 mA	1000 Hz	–	**XS630B2PAL01M12**
15 mm	NPN	N.O.★	12-24 Vdc	100 mA	1000 Hz	–	**XS630B2NAL01M12**

★ To order a normally closed (N.C.) version change the A to B, example: XS518B1P**A**L2 to XS518B1P**B**L2.
◆ Self-teach version only
▲ 5m cable length available with L5 suffix / 10m cable length available with L10 suffix.

Minimum Mounting Clearances " (mm)

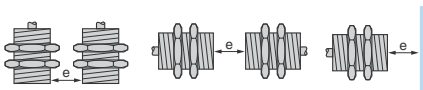
Auto-Adaptable





–	Side by Side		Face to Face	
	Flush	Not Flush	Flush	Not Flush
∅ 12	e ≥ 0.55 (14)	1.9 (50)	e ≥ 1.9 (50)	3.9 (100)
∅ 18	e ≥ 1.1 (28)	3.9 (100)	e ≥ 3.9 (100)	7.9 (200)
∅ 30	e ≥ 1.9 (48)	7.1 (180)	e ≥ 7.1 (180)	14.1 (360)

Extended Range



	Side by Side	Face to Face	Face to Metal Object
∅ 8	e ≥ 0.1 (3)	e ≥ 0.7 (18)	e ≥ 0.17 (4.5)
∅ 12	e ≥ 0.2 (4)	e ≥ 0.9 (24)	e ≥ 0.2 (6)
∅ 18	e ≥ 0.4 (10)	e ≥ 2.4 (60)	e ≥ 0.6 (15)
∅ 30	e ≥ 0.8 (20)	e ≥ 4.7 (120)	e ≥ 1.2 (30)

Wiring

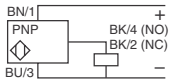
3 Wire Selectable

Connector M12

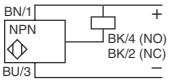
Cable

Blue BU –
Brown BN +
Black BK Output

PNP



NPN

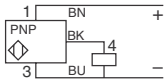


Connector M12

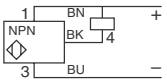
Cable

Blue BU –
Brown BN +
Black BK Output

PNP



NPN



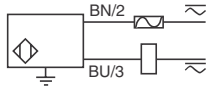
2 Wire AC/DC

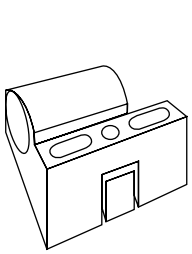
Connector U20

Cable

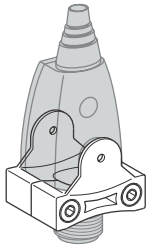
Blue BU –
Brown BN +
Black BK Output

2 Wire Non-Polarized





XSZB1●●



XSZBPM12

Connector Cables
(M12 or D suffix; U20 or K suffix)

XSZCD101Y	Micro Conn., 4 pin, 2 m, straight
XSZCD111Y	Micro Conn., 4 pin, 2 m, 90°
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

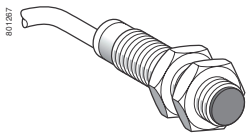
Specifications

Mechanical		**Extended Range**	**Auto-Adaptable**	
			Shielded	Non-shielded
Fine Detection Zone	08 mm	0 – 2 mm	–	–
	12 mm	0 – 3.2 mm	1.7 - 3.4 mm	1.7 - 5 mm
	18 mm	0 – 6.4 mm	3.5 – 6 mm	3.5 – 9 mm
	30 mm	0 – 12 mm	6 – 12 mm	6 – 18 mm
Sn	12 mm	–	0 - 3.4 mm	0 - 5 mm
	18 mm	–	0 – 6 mm	0 – 9 mm
	30 mm	–	0 – 12 mm	0 – 18 mm
Temperature Range	Storage	-40 ° to +185 ° F (-40 ° to +85 ° C)		
	Operation	-13 ° to +158 ° F (-25 ° to +70 ° C)		
Enclosure Rating	NEMA Type	3,4X,6P,12,13		
	IEC Type	IP68 cable versions (IP67 connector versions)		
Enclosure Material	Case	Nickel Plated Brass		
	Face	PBT		
Max. Tightening Torque	08 mm	9 N•m (6.7 lb-ft)		
	12 mm	15 N•m (11 lb-ft)		
	18 mm	35 N•m (26 lb-ft)		
	30 mm	50 N•m (37 lb-ft)		
Vibration		25 g, amplitude +/- 2mm (f=10-55 Hz)		
Shock Resistance		50 g duration 11ms		
Differential (%of Sr)		15%		
Repeatability (% of Sr)		3%		
LED Indicator	Power & Teach	–	Green	
	Output	Yellow		
Cable		PVR 3x0.34 mm 2/PVR2x0.5 mm^2	PVR – 4.2 mm O.D.	
Connector		M12 4 pin / U20 3 pin Micro conn.	M12 Micro conn. 4 pin	
Electrical		**2 wire AC/DC**	**3 wire DC**	**Auto-adaptable DC**
Voltage Range		24-240 Vac; 24-210 Vdc	12 – 48 Vdc	12 - 24 Vdc
Voltage Limit (including ripple)		20-264 Vac/dc	10 – 58 Vdc	10 – 36 Vdc
Voltage Drop		5.5 V	2 V	2 V
(max.) Leakage (Residual) Current-open state		0.8 mA	–	–
Current consumption		–	10 mA	10 mA
Maximum Current Limit		AC: 5. . .300 mA / DC: 5. . . 200 mA	200 mA	100 mA
Power up Delay (max.)		20 ms-12 mm / 25 ms-18/30 mm	5 ms	5ms
On Delay (max.)	08mm	–	0.2 ms	–
	12mm	0.5 ms	0.2 ms	0.3 ms
	18mm	0.5 ms	0.3 ms	0.3 ms
	30mm	0.5 ms	0.6 ms	0.3 ms
Off Delay (max.)	08mm	–	0.2 ms	–
	12mm	0.2 ms	0.2 ms	0.7 ms
	18mm	0.5 ms	0.7 ms	0.7 ms
	30mm	2 ms	1.4 ms	0.7 ms
Maximum Operating Frequency	08mm	–	2500 Hz	–
	12mm	AC: 25 Hz / DC: 1000 Hz	2500 Hz	1000 Hz
	18mm	AC: 25 Hz / DC: 1000 Hz	1000 Hz	1000 Hz
	30mm	AC: 25 Hz / DC: 500 Hz	500 Hz	1000 Hz
Protective Circuitry	Short Circuit Protection	No	Yes	Yes
	Overload Protection	Yes	Yes	Yes
	Reverse Polarity Protection	Yes	Yes	Yes
Agency Listings				

Accessories

Description	**Catalog Number**
Mounting bracket for teach connector	**XSZBPM12**
8mm tubular mounting bracket	**XSZB108**
12mm tubular mounting bracket	**XSZB112**
18mm tubular mounting bracket	**XSZB118**
30mm tubular mounting bracket	**XSZB130**

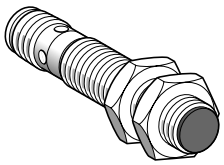
Proximity Sensors
XS5 Inductive Sensor
Metal Tubular, DC



thread M8x1

thread M12x1

XS5 ••B1••L2



thread M18x1

thread M30x1.5

XS5 ••B1••M12

Features:
Complete range of cylindrical proximity sensors dedicated to OEM's and their applications.

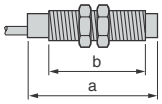
- Low cost shielded cylindrical inductive proximity sensors
- 2 and 3 wire DC
- Normally Open or Normally Closed outputs available
- Cable and connector versions
- PNP or NPN

Nominal Sensing Distance	Circuit Type	Output Mode	Voltage Range	Load Current Maximum	Operating Frequency	Catalog Number
8 mm Diameter, 2 m (6.6') cable ▲						
1.5 mm	2 wire	N.O.★	12-48 Vdc	1.5-100 mA	4000 Hz	**XS508B1DAL2**
1.5 mm	PNP	N.O.★	12-24 Vdc	200 mA	5000 Hz	**XS508B1PAL2**
1.5 mm	NPN	N.O.★	12-24 Vdc	200 mA	5000 Hz	**XS508B1NAL2**
8 mm Diameter, M12 connector						
1.5 mm	2 wire	N.O.★	12-48 Vdc	1.5-100 mA	4000 Hz	**XS508B1DAM12**
1.5 mm	PNP	N.O.★	12-24 Vdc	200 mA	5000 Hz	**XS508B1PAM12**
1.5 mm	NPN	N.O.★	12-24 Vdc	200 mA	5000 Hz	**XS508B1NAM12**
12 mm Diameter, 2 m (6.6') cable ▲						
2 mm	2 wire	N.O.★	12-48 Vdc	1.5-100 mA	4000 Hz	**XS512B1DAL2**
2 mm	PNP	N.O.★	12-24 Vdc	200 mA	5000 Hz	**XS512B1PAL2**
2 mm	NPN	N.O.★	12-24 Vdc	200 mA	5000 Hz	**XS512B1NAL2**
12 mm Diameter, M12 connector						
2 mm	2 wire	N.O.★	12-48 Vdc	1.5-100 mA	4000 Hz	**XS512B1DAM12**
2 mm	PNP	N.O.★	12-24 Vdc	200 mA	5000 Hz	**XS512B1PAM12**
2 mm	NPN	N.O.★	12-24 Vdc	200 mA	5000 Hz	**XS512B1NAM12**
18 mm Diameter, 2 m (6.6') cable ▲						
5 mm	2 wire	N.O.★	12-48 Vdc	1.5-100 mA	3000 Hz	**XS518B1DAL2**
5 mm	PNP	N.O.★	12-24 Vdc	200 mA	2000 Hz	**XS518B1PAL2**
5 mm	NPN	N.O.★	12-24 Vdc	200 mA	2000 Hz	**XS518B1NAL2**
18 mm Diameter, M12 connector						
5 mm	2 wire	N.O.★	12-48 Vdc	1.5-100 mA	3000 Hz	**XS518B1DAM12**
5 mm	PNP	N.O.★	12-24 Vdc	200 mA	2000 Hz	**XS518B1PAM12**
5 mm	NPN	N.O.★	12-24 Vdc	200 mA	2000 Hz	**XS518B1NAM12**
30 mm Diameter, 2 m (6.6') cable ▲						
10 mm	2 wire	N.O.★	12-48 Vdc	1.5-100 mA	2000 Hz	**XS530B1DAL2**
10 mm	PNP	N.O.★	12-24 Vdc	200 mA	1000 Hz	**XS530B1PAL2**
10 mm	NPN	N.O.★	12-24 Vdc	200 mA	1000 Hz	**XS530B1NAL2**
30 mm Diameter, M12 connector						
10 mm	2 wire	N.O.★	12-48 Vdc	1.5-100 mA	2000 Hz	**XS530B1DAM12**
10 mm	PNP	N.O.★	12-24 Vdc	200 mA	1000 Hz	**XS530B1PAM12**
10 mm	NPN	N.O.★	12-24 Vdc	200 mA	1000 Hz	**XS530B1NAM12**

★ To order a normally closed (N.C.) version change the A to B, example: XS518B1P**A**L2 to XS518B1P**B**L2.
▲ 5m cable length available with L5 suffix / 10m cable length available with L10 suffix.

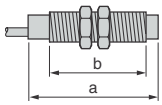
Dimensions

2 Wire



	Cable		Connector	
	a	b	a	b
∅ 8	1.9 (50)	1.6 (42)	2.4 (61)	1.6 (40)
∅ 12	1.9 (50)	1.6 (42)	2.4 (61)	1.6 (40)
∅ 18	2.0 (52.5)	1.7 (44)	2.5 (64.6)	1.7 (44)
∅ 30	1.9 (50)	1.6 (42)	2.5 (64.2)	1.6 (41)

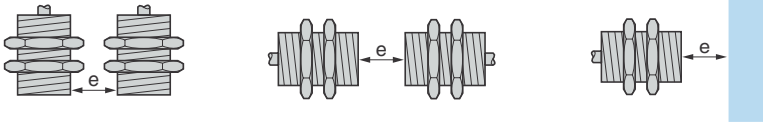
3 Wire



	Cable		Connector	
	a	b	a	b
∅ 8	1.3 (33)	1.0 (25)	1.6 (42)	1.0 (26)
∅ 12	1.3 (33)	1.0 (25)	1.9 (48)	1.1 (29)
∅ 18	1.4 (36.5)	1.1 (28)	1.9 (48.6)	1.1 (28)
∅ 30	1.6 (40.6)	1.2 (32)	2.0 (50.7)	1.3 (32)

inches (mm)

Minimum Mounting Clearances (mm)



	Side by Side	Face to Face	Facing a Metal Object
∅ 8	e ≥ 0.11 (3)	e ≥ 0.7 (18)	e ≥ 0.17 (4.5)
∅ 12	e ≥ 0.15 (4)	e ≥ 0.9 (24)	e ≥ 0.2 (6)
∅ 18	e ≥ 0.4 (10)	e ≥ 2.4 (60)	e ≥ 0.6 (15)
∅ 30	e ≥ 0.8 (20)	e ≥ 4.7 (120)	e ≥ 1.2 (30)

Dual Dimensions inches / mm

Wiring

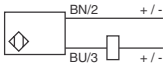
2 Wire

Connector M12

Cable

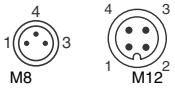
Blue BU –
Brown BN +

2 Wire Non Polarized



3 Wire

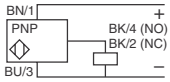
Connector



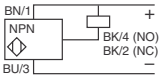
Cable

Blue BU –
Brown BN +
Black BK Output

PNP



NPN

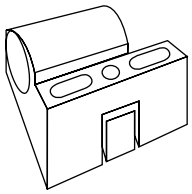


Specifications

Mechanical			
Usable Sensing Range	08mm	0 – 1.2 mm	
	12mm	0 – 1.6 mm	
	18mm	0 – 4 mm	
	30mm	0 – 8 mm	
Temperature Range	Storage	-40 ° to +185 ° F (-40 ° to +85 ° C)	
	Operation	-13 ° to +158 ° F (-25 ° to +70 ° C)	
Enclosure Rating	NEMA Type	3,4X,6P,12,13	
	IEC Type	IP68 cable version (except 8mm and connector version: IP67)	
Enclosure Material	Case	Nickel Plated Brass	
	Face	PBT	
Max. Tightening Torque	08mm	5 N•m (3.7 lb-ft)	
	12mm	6 N•m (4.4 lb-ft)	
	18mm	15 N•m (11 lb-ft)	
	30mm	40 N•m (29.5 lb-ft)	
Vibration		25 g, amplitude +/- 2 mm (f=10-50 Hz)	
Shock Resistance		50 g duration 11 ms	
Differential (%of Sr)		15%	
Repeatability (% of Sr)		3%	
LED Indicator		Output status	
Cable		PVR 2x0.5 mm^2	PVR 3x0.34 mm^2
Connector		M12 4pin	M8 3 pin / M12 4pin
Electrical		**2 wire**	**3 wire**
Voltage Range		12 – 48 Vdc	12 – 24 Vdc
Voltage Limit (including ripple)		10 – 58 Vdc	10 – 36 Vdc
Voltage Drop		4V	2V
Maximum Load Current		1.5 …100 mA	200 mA
(max.) Leakage (Residual) Current-open state		0.5mA	–
Current consumption		–	10 mA
Power up Delay (max.)		5 ms	5 ms
On Delay (max.)	08mm	0.2 ms	0.1 ms
	12mm	0.2 ms	0.1 ms
	18mm	0.2 ms	0.15 ms
	30mm	0.3 ms	0.2 ms
Off Delay (max.)	08mm	0.2 ms	0.1 ms
	12mm	0.2 ms	0.1 ms
	18mm	0.2 ms	0.35 ms
	30mm	0.3 ms	0.7 ms
Protective Circuitry	Short Circuit Protection	Yes	Yes
	Overload Protection	Yes	Yes
	Radio Frequency Immunity (RFI)	IEC 61000-4-3 Level 3	IEC 61000-4-3 Level 3
	Reverse Polarity Protection	Yes	Yes
Agency Listings	UL	CSA	CE

Accessories

Description	Catalog Numbers
8mm tubular mounting bracket	**XSZB108**
12mm tubular mounting bracket	**XSZB112**
18mm tubular mounting bracket	**XSZB118**
30mm tubular mounting bracket	**XSZB130**



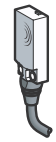
XSZB1••

Connector Cables
(M8 or S suffix; M12 or D suffix)

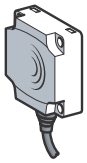
XSZCS101	Nano Conn., 3 pin, 2 m, straight
XSZCS111	Nano Conn., 3 pin, 2 m, 90°
XSZCD101Y	Micro Conn., 4 pin, 2 m, straight
XSZCD111Y	Micro Conn., 4 pin, 2 m, 90°

For additional cable options and lengths see p. 518

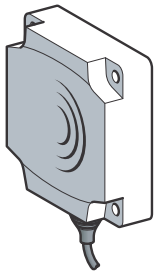
OSICONCEPT™ Proximity Sensors
XS9 Application Specific Inductive Sensor
Flat Rectangular Analog Output, DC



XS9F111●●●L2



XS9E111●●●L2



XS9D111●●●L2

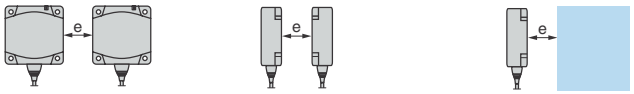
Features:

- DC output current is directly proportional to the target distance
- Four sizes: F (8x15x32); E (13x26x26); C (15x40x40); and D (26x80x80)
- Cable and connector versions

Nominal Sensing Distance	Circuit Type	Voltage Range	Output	Operating Frequency	Catalog Number
Size F (8x15x32) 2 m(6.6') cable ▲					
5 mm	3 wire	12-24 Vdc	1-10 V	2000 Hz	**XS9F111A1L2**
5 mm	3 wire	12-24 Vdc	4-20 mA	2000 Hz	**XS9F111A2L2**
Size F (8x15x32) M8 connector pigtail 0.1 m					
5 mm	3 wire	12-24 Vdc	1-10 V	2000 Hz	**XS9F111A1L01M8**
5 mm	3 wire	12-24 Vdc	4-20 mA	2000 Hz	**XS9F111A2L01M8**
Size E (13x26x26) 2m (6.6') cable ▲					
10 mm	3 wire	12-24 Vdc	1-10 V	1000 Hz	**XS9E111A1L2**
10 mm	3 wire	12-24 Vdc	4-20 mA	1000 Hz	**XS9E111A2L2**
Size E (13x26x26) M12 connector pigtail 0.1 m					
10 mm	3 wire	12-24 Vdc	1-10 V	1000 Hz	**XS9E111A1L01M12**
10 mm	3 wire	12-24 Vdc	4-20 mA	1000 Hz	**XS9E111A2L01M12**
Size C (15x40x40) 2 m (6.6') cable ▲					
15 mm	3 wire	12-24 Vdc	1-10 V	1000 Hz	**XS9C111A1L2**
15 mm	3 wire	12-24 Vdc	4-20 mA	1000 Hz	**XS9C111A2L2**
Size C (15x40x40) M12 connector pigtail 0.1 m					
15 mm	3 wire	12-24 Vdc	1-10 V	1000 Hz	**XS9C111A1L01M12**
15 mm	3 wire	12-24 Vdc	4-20 mA	1000 Hz	**XS9C111A2L01M12**
Size D (26x80x80) 2 m (6.6') cable ▲					
40 mm	3 wire	12-24 Vdc	1-10 V	100 Hz	**XS9D111A1L2**
40 mm	3 wire	12-24 Vdc	4-20 mA	100 Hz	**XS9D111A2L2**
Size D (26x80x80) M12 connector					
40 mm	3 wire	12-24 Vdc	1-10 V	100 Hz	**XS9D111A1M12**
40 mm	3 wire	12-24 Vdc	4-20 mA	100 Hz	**XS9D111A2M12**

▲ 5m cable length available with L5 suffix / 10m cable length available with L10 suffix.

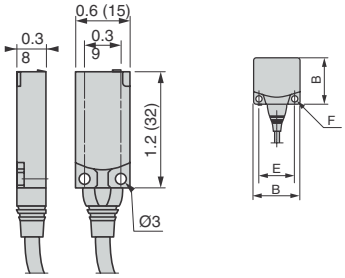
Minimum Mounting Clearances " (mm)



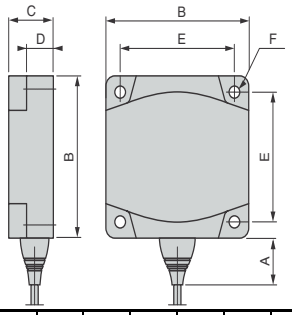
	Side by Side	Face to Face	Face to Metal Object
XS9F	e ≥ 0.08 (2)	e ≥ 0.47 (12)	e ≥ 0.12 (3)
XS9E	e ≥ 0.16 (4)	e ≥ 0.9 (24)	e ≥ 0.23 (6)
XS9C	e ≥ 0.40 (10)	e ≥ 2.3 (60)	e ≥ 0.6 (15)
XS9D	e ≥ 0.8 (20)	e ≥ 4.7 (120)	e ≥ 1.2 (30)

Dimensions

XS9 F **XS9E**



XS9C/D



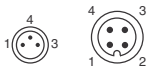
	A L2	A M12	B	C	D	E	F
E	0.55 (14)	–	1.0 (26)	0.5 (13)	0.3 (8.8)	0.8 (20)	0.1 (3.5)
C	0.55 (14)	–	1.6 (40)	0.6 (15)	0.4 (9.8)	1.3 (33)	0.1 (4.5)
D	0.9 (23)	0.5 (14)	3.1 (80)	1.0 (26)	0.6 (16)	2.5 (65)	0.2 (5.5)

inches (mm)

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

Wiring

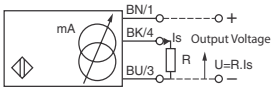
Connector
M8 M12



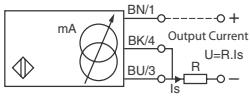
Cable

Blue	BU –
Brown	BN +
Black	BK Output

3 Wire (0 - 10 V)



2 Wire (4 - 20 mA)



Specifications

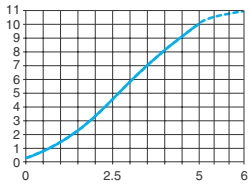
Mechanical		
Usable Sensing Range	XS9F	1…5 mm
	XS9E	1…10 mm
	XS9C	2…15 mm
	XS9D	5…40 mm
Temperature Range	Storage	-40 ° to +185 ° F (-40 ° to +85 ° C)
	Operation	-13 ° to +158 ° F (-25 ° to +70 ° C)
Enclosure Rating	NEMA Type	1, 4X (indoor only) 12
	IEC Type	IP68 cable version / IP67 connector version
Vibration		25 g, amplitude +/-2 mm (f=10 to 55 Hz)
Shock		50 g, duration 11 ms
Enclosure material		PBT
Cable		PVR 3x0.34 mm^2
Connector		M8 Nano conn. 3 pin / M12 Micro conn. 4 pin
Electrical		**2 wire DC**
Voltage Range		12 – 24 Vdc
Voltage Limit (including ripple)		10 – 36 Vdc
Max. output current drift with the rated operating temperature		<10%
Linearity error		+/- 5%
Protective Circuitry	Short Circuit Protection	Yes
	Overload Protection	Yes
Agency Listings		

Output Curves

0 to 10 V

XS9F11

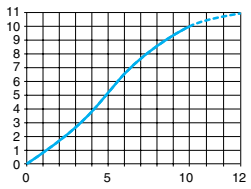
Sn = 1 . . . 5 mm



Distance in mm.

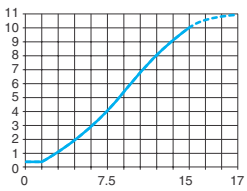
XS9E

Sn = 1 . . . 10 mm



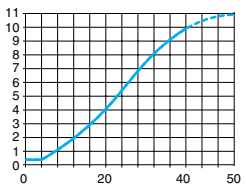
XS9C

Sn = 2 . . . 15 mm



XS9D

Sn = 5 . . . 40 mm



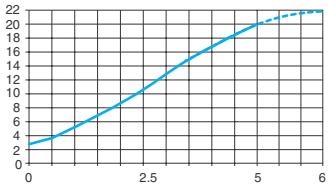
	Output Current	Resistance	Output Voltage	Resistance
12 V	0 ... 10 mA	R ≤ 560 Ω	0 - 10 V	Indeterminate
24 V	0 ... 10 mA	R ≤ 1500 Ω	0 - 10 V	R = 1000 Ω

Note: Ensure a minimum of 5 V between the (+) positive and the sensor output (terminal 3).

4 to 20 mA

XS9F11

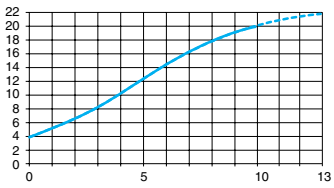
Sn = 1 . . . 5 mm



Distance in mm.

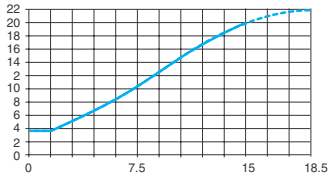
XS9E

Sn = 1 . . . 10 mm



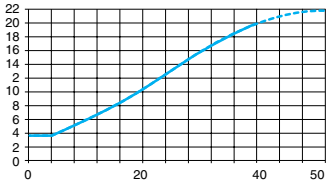
XS9C

Sn = 2 . . . 15 mm



XS9D

Sn = 5 . . . 40 mm



	Output Current	Resistance
12 V	4 ... 20 mA	R ≤ 82 Ω
24 V	4 ... 20 mA	R ≤ 560 Ω

Note: Ensure a minimum of 10 V between the (+) positive and the sensor output (terminal 3).

Connector Cables (M8 or S suffix; M12 or D suffix)

XSZCS101	Nano Conn., 3 pin, 2 m, straight
XSZCS111	Nano Conn., 3 pin, 2 m, 90°
XSZCD101Y	Micro Conn., 4 pin, 2 m, straight
XSZCD111Y	Micro Conn., 4 pin, 2 m, 90°

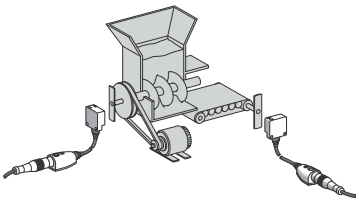
For additional cable options and lengths see p. 518

OSICONCEPT™ Proximity Sensors
XS9 Application Specific Inductive Sensor
Flat Rectangular Motion Detection, DC and AC/DC

Features:

- Universal AC/DC versions
- Linear speed threshold adjustment
- Built-in fixed start up delay to overcome start up inertia
- Reverse polarity protection on DC models
- Ease of mounting (flat body style)

Principle and Applications



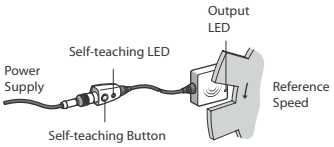
■ Inductive proximity sensors for monitoring rotation or rolling speed operate by comparing a speed threshold that has been preset by the operator with an instantaneous measurement of the speed of the moving part to be monitored or protected.

■ These devices provide a simple and economical solution for monitoring drift, belt breakage, couplings, overloads, etc.

■ They are commonly used for applications such as crushers and grinders, mixers and blenders, pumps, centrifuges and centrifugal separators, conveyor belts, bucket elevators, archimedean screws, etc.

Installation and Setup

Installing and Positioning the Sensor



■ The sensor must be properly positioned at the outset to ensure that all of the target points on the moving part to be monitored can be detected. The XS9 sensor facilitates this task with its ability to operate as a standard inductive sensor (Telemecanique patent pending).

■ Thanks to this system, positioning is 100% reliable and can be checked at any time without changing the product parameters.

Self-teaching Speed Setup

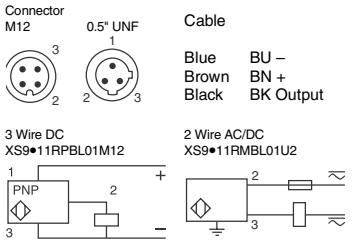
■ The normal or reference speed for the moving part (*1)* to be monitored can be set by simply pressing the self-teaching button (*2).* It is then confirmed with the display LED.

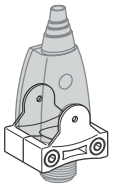
- In case of uncertainty, the product can be restarted at any time in order to return to the factory setting.

1. In order to ensure that the moving part can attain its normal speed (inertia), the product output remains closed for nine seconds.
2. By default, the sensor's underspeed trip speed is equivalent to the preset speed - 30%. Example: if the preset speed is 1000 rotations/min., underspeed tripping will occur when the speed of the moving part falls below 1000 - 1000 x 0.3 = 700 rotations/min. Thresholds of -20%, -11% and -6% can be obtained by pressing the self-teaching button.

Nominal Sensing Distance	Circuit Type	Threshold Range (Pulse/Min.)	Voltage Range	Load Current Maximum	Maximum Frequency (Pulse/Min.)	Start-up Delay	Catalog Number
Size E (13x26x26 mm) M12 pigtail, 0.1 m							
10 mm	PNP	6-6000	12-24 Vdc	100 mA	48000	9 sec.	**XS9E11RPB1L01M12**
Size E (13x26x26 mm) U20 pigtail, 0.1 m							
10 mm	2 wire	6-6000	24-240 Vac/ 24-210 Vdc	5…100 mA	48000	9 sec.	**XS9E11RMB3L01U20**
Size C (15x40x40 mm) M12 pigtail, 0.1 m							
15 mm	PNP	6-6000	12-24 Vdc	200 mA	48000	9 sec.	**XS9C11RPB1L01M12**
Size C (15x40x40 mm) U20 pigtail, 0.1 m							
15 mm	2 wire	6-6000	24-240 Vac/ 24-210 Vdc	5…200 mA AC 5…300 mA DC	48000	9 sec.	**XS9C11RMB3L01U20**

Wiring

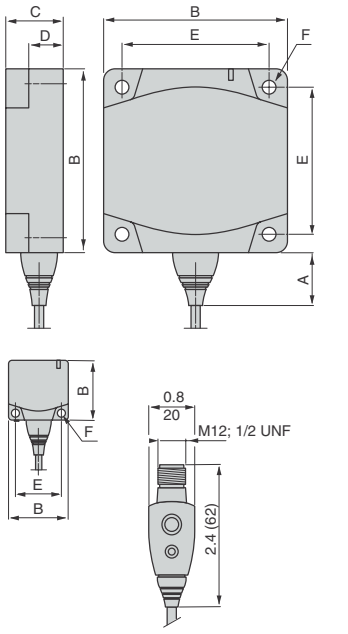




XSZBPM12

Dimensions

XS9 E/C



	A	B	C	D		
E	0.55 (14)	1.0 (26)	0.5 (13)	0.3 (8.8)	0.8 (20)	0.1 (3.5)
C	0.55 (14)	1.6 (40)	0.6 (15)	0.4 (9.8)	1.3 (33)	0.1 (4.5)

inches (mm)

Connector Cables
(M12 or D suffix; U20 or K suffix)

XSZCD101Y	Micro Conn., 4 pin, 2 m, straight
XSZCD111Y	Micro Conn., 4 pin, 2 m, 90°
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

Specifications

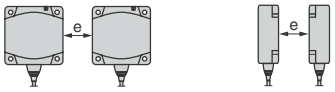
Mechanical			
Usable Sensing Range	XS9E	0 – 8 mm	
	XS9C	0 – 12 mm	
Temperature Range	Storage	-40 ° to +185 ° F (-40 ° to +85 ° C)	
	Operation	-13 ° to +158 ° F (-25 ° to +70 ° C)	
Enclosure Rating	NEMA Type	1, 4X,12	
	IEC Type	IP67	
Vibration		25 g, amplitude +/-2 mm (f=10 to 55 Hz)	
Shock Resistance		50 g, duration 11 ms	
LED Indicator	Output	Yellow	
	Power	Green	
Enclosure material		PBT	
Connector		DC: M12 4 pin; AC/DC: U20 3 pin	
Electrical		2 wire AC/DC	3 wire DC
Voltage Range		24 – 240 Vac/24-210 Vdc	12 – 24 Vdc
Voltage Limit (including ripple)		20 – 264 Vac/dc	10 – 36 Vdc
Voltage Drop		5.5 V	2 V
(max.) Leakage (Residual) Current-open state		1.5 mA	–
Current consumption		–	10 mA
Load Current Maximum	XS9E	100 mA	5…100 mA
	XS9C	200 mA	5…200 mA; DC 5…300 mA; AC
Max. Frequency (Pulse/Min.)		48000	
Start up delay (max.)	XS9E	9 seconds + 1/Fr ★	
	XS9C	9 seconds + 1/Fr ★	
Protection Circuitry	Overload Protection	–	Yes
	Short Circuit Protection	–	Yes
Agency Listings	UL	CSA	CE

★ 1/Fr in the start up delay formula is the actual preset frequency adjusted via potentiometer

Accessories

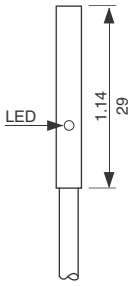
Description	Catalog Number
Teach connector mounting bracket	XSZBPM12

Minimum Mounting Clearances (mm)

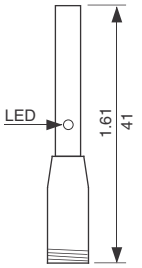


	Side by Side	Face to Face
XS9E	e ≥ 1.6 (40)	e ≥ 3.1 (80)
XS9C	e ≥ 2.4 (60)	e ≥ 4.7 (120)

Proximity Sensors
XS Tubular, Inductive Sensors
4 mm Diameter, DC



XS1L●



XS1L●S

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

Features

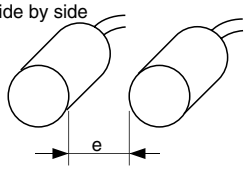
- Rugged case designed for the industrial environment
- Mounting space savings due to short length
- Significant replacement time savings by using the patented plastic mounting bracket (no gauging) or connectors
- Trouble-free operation ensured by extensive protective circuitry
- Works with 24 V secondary transformers
- Normally closed (N.C.) output available on versions marked ⋆
- UL Listed, CSA Certified and CE Mark

Nominal Sensing Distance	Circuit Type	Voltage Range	Output Mode	Operating Frequency	Mating Connector Style (See p. 518)	Catalog Number
Nickel plated brass case						
Shielded, 2 m (6.6') cable						
1 mm	PNP	5-24 V	N.O.⋆	5000 Hz	–	**XS1L04PA310**
1 mm	NPN	5-24 V	N.O.⋆	5000 Hz	–	**XS1L04NA310**
Shielded, connector - nano style						
1 mm	PNP	5-24 V	N.O.⋆	5000 Hz	1 thru 8	**XS1L04PA310S**
1 mm	NPN	5-24 V	N.O.⋆	5000 Hz	1 thru 8	**XS1L04NA310S**
Stainless steel case						
Shielded, 2 m (6.6') cable						
0.8 mm	PNP	5-24 V	N.O.	5000 Hz	–	**XS1L04PA311**
0.8 mm	NPN	5-24 V	N.O.	5000 Hz	–	**XS1L04NA311**
Shielded, connector - nano style						
0.8 mm	PNP	5-24 V	N.O.	5000 Hz	1 thru 8	**XS1L04PA311S**
0.8 mm	NPN	5-24 V	N.O.	5000 Hz	1 thru 8	**XS1L04NA311S**

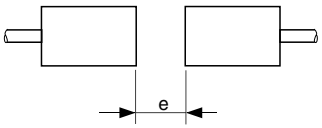
⋆ To order a normally closed (N.C.) version, change the **A** to **B**, example: XS1L04P**A**310 to XS1L04P**B**310.

Minimum Mounting Clearances (mm/inches)

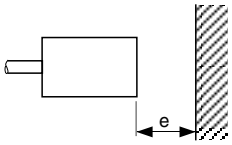
Side by side



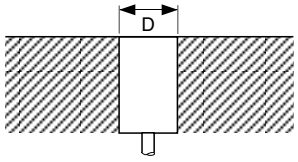
Face to face



Facing a metal object



Mounted in a metal support



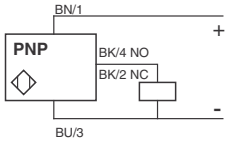
XS1 Shielded	e: 2/.08	e: 12/.47	e: 3/.12	D: 4/.16

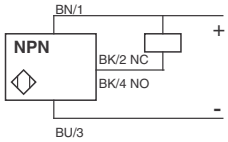
Wiring

Connector M8 | Cable

Blue	BU –
Brown	BN +
Black	BK Output

3 wire NO or NC
wire color/connector pin





Specifications

Mechanical		
Usable sensing range	Shielded Brass case	0 to 0.8 mm
	Stainless Steel Case	0 to 0.64 mm
Standard temperature range		-25° C to +70° C (-13° F to +158° F)
Enclosure rating - cable	NEMA Type	3, 4X, 6P, 12, 13
(for connector, see p. 518)	CENELEC Type	IP67
Enclosure material	Brass case	Nickel plated Brass
	Stainless steel case	Stainless steel
	Sensing face	PBT
Vibration resistance	(IEC 60068.2.6)	25 G, amplitude +/- 2mm, f =10-55Hz
Shock resistance	(IEC 60068.2.27)	50 G duration 11ms
Standard target size (steel)		4 mm x 4 mm
Differential (% of Sr)		15%
Repeatability (% of Sr)		3%
LED indicator type		Side mounted LED: Shows output status
Cable	3 wire	27 AWG (0.11mm^2), PvR
Electrical		
Voltage range – nominal		5 to 24 Vdc
Voltage limit (including ripple)		5 to 30 Vdc
Voltage drop (across switch), closed state		2 V
Maximum load current		100 mA
Current consumption (no load)		10 mA
On delay (max.)		0.1 ms
Off delay (max.)		0.1 ms
Power-up delay (max.)		5 ms
Protective circuitry	Short circuit protection	Yes
	Overload	Yes
	Radio frequency immunity (RFI)	IEC 61000-4-3 L3
	Electrostatic; transients; impulse	IEC 6100-4-2 L2; IEC 61000-4-4 L3; 60947.5.2 L3
	Reverse polarity protection	Yes
Agency Listings	E164869 CCN NRKH	CR 44087 Class 3211 03

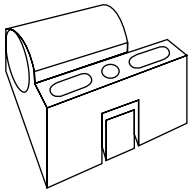
Options

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

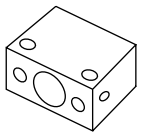
Accessories

Description	Catalog Number
Mounting bracket, plastic	**XSZB104**
Mounting bracket, diecast zinc	**8316 04**

Note: Refer to page 351, for target material correction coefficient Km.



XSZB1●●



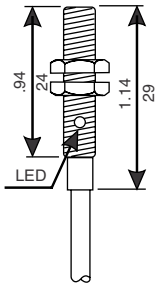
8316●●

Connector Cables (M8 or S suffix)

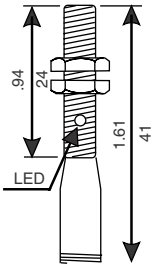
XSZCS101	Nano Conn., 3 pin, 2 m, straight
XSZCS111	Nano Conn., 3 pin, 2 m, 90°

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

Proximity Sensors
XS Tubular, Inductive Sensors
5 mm Diameter, DC; Economy Short Length



thread
M5x0.5



Dual Dimensions inches / mm

Features

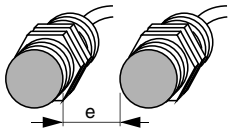
- Rugged case designed for the industrial environment
- Mounting space savings due to short length
- Significant replacement time savings by using the patented plastic mounting bracket (no gauging) or connectors
- Trouble-free operation ensured by extensive protective circuitry
- Works with 24 V secondary transformers
- Metal mounting nuts included, die cast zinc
- Normally closed (N.C.) output available on versions marked ⋆
- UL Listed, CSA Certified and CE Mark

Nominal Sensing Distance	Circuit Type	Voltage Range	Output Mode	Operating Frequency	Mating Connector Style (See p.518)	Catalog Number
Nickel plated brass case						
Shielded, 2 m (6.6') cable						
1 mm	PNP	5-24 V	N.O.★	5000 Hz	—	**XS1N05PA310**
1 mm	NPN	5-24 V	N.O.★	5000 Hz	—	**XS1N05NA310**
Stainless steel case						
Shielded, 2 m (6.6') cable						
0.8 mm	PNP	5-24 V	N.O.	5000 Hz	—	**XS1N05PA311**
0.8 mm	NPN	5-24 V	N.O.	5000 Hz	—	**XS1N05NA311**
Shielded, connector - nano style						
0.8 mm	PNP	5-24 V	N.O.	5000 Hz	1 thru 8	**XS1N05PA311S**
0.8 mm	NPN	5-24 V	N.O.	5000 Hz	1 thru 8	**XS1N05NA311S**

★ To order a normally closed (N.C.) version, change the **A** to **B**, example: XS1N05P**A**310 to XS1N05P**B**310

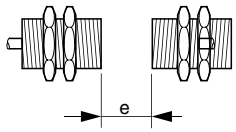
Minimum Mounting Clearances (mm/inches)

Side by side



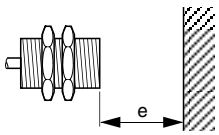
XS1 Shielded e: 2/.08

Face to face



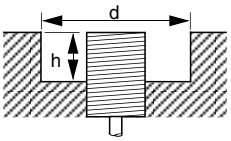
e: 12/.47

Facing a metal object



e: 3/.12

Mounting in a metal support



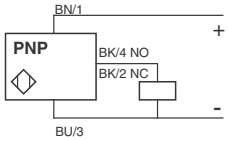
D: 5/.20

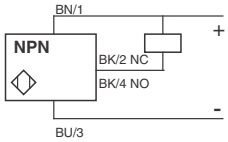
Wiring

Connector M8

Cable	
Blue	BU –
Brown	BN +
Black	BK Output

3 wire NO or NC
wire color/connector pin





Specifications

Mechanical		
Usable sensing range	Shielded Brass case	0 to 0.8 mm
	Stainless steel case	0 to 0.64 mm
Standard temperature range		-25° C to +70° C (-13° F to +158° F)
Enclosure rating - cable (for connector, see p. 518)	NEMA Type	3, 4X, 6P, 12, 13
	IEC Type	IP67
Enclosure material	Brass case	Nickel plated Brass
	Stainless steel case	Stainless steel
	Sensing face	PBT
Max. tightening torque	Brass	1.6 N•m (1.2 lb-ft)
	Stainless steel	2.2 N•m (1.75 lb-ft)
Vibration resistance Shock resistance	(IEC 60068.2.6)	25 G, amplitude +/- 2 mm, f =10-55 Hz
	(IEC 60068.2.27)	50 G duration 11ms
Standard target size (steel)		4 mm x 4 mm
Differential (% of Sr)		15%
Repeatability (% of Sr)		3%
LED indicator type		Side mounted LED: Shows output status
Cable	3 wire	27 AWG (0.11 mm^2), PvR
Electrical		
Voltage range – nominal		5 to 24 Vdc
Voltage limit (including ripple)		5 to 30 Vdc
Voltage drop (across switch), closed state		2 V
Maximum load current		100 mA
Current consumption (no load)		10 mA
On delay (max.)		0.1 ms
Off delay (max.)		0.1 ms
Power-up delay (max.)		5 ms
Protective Circuitry	Short circuit protection	Yes
	Overload	Yes
	Radio frequency immunity (RFI)	IEC 61000-4-3 L3
	Electrostatic; transients; impulse	IEC 61000-4-2 L2; IEC 61000-4-4 L3; 60947.5.2 L3
	Reverse polarity protection	Yes
Agency Listings	E164869 CCN NRKH; CR 44087 Class 3211 03; CE	

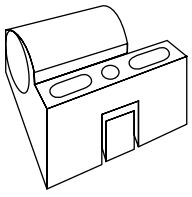
Options

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

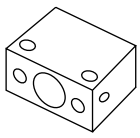
Accessories

Description	Catalog Number
Metal, die cast zinc mounting nuts and lock washer	**XSZE105**
Mounting bracket, plastic	**XSZB105**
Mounting bracket, diecast zinc	**831605**
Stainless steel mounting nuts and lock washer	**XSZE305**

Note: Refer to page 351, for target material correction coefficient Km.



XSZB1••

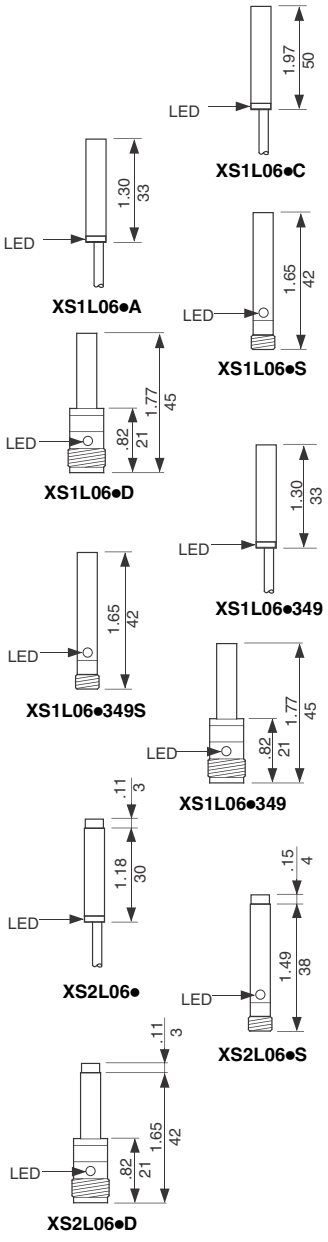


8316••

Connector Cables (M8 or S suffix)

XSZCS101	Nano Conn., 3 pin, 2 m, straight
XSZCS111	Nano Conn., 3 pin, 2 m, 90°

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



Dual Dimensions inches / mm

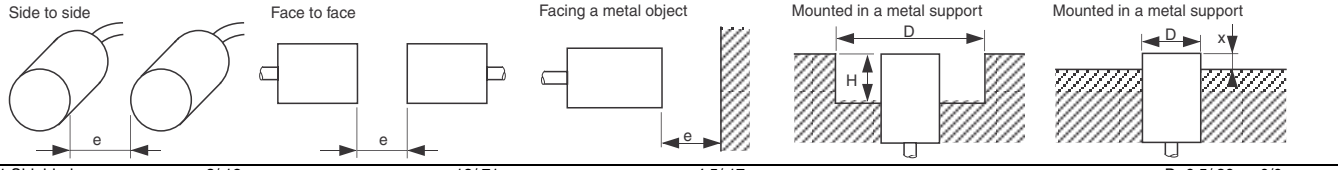
Features

- Faster troubleshooting aided by high visibility 360° indicators
- Economy of size offered by extended range model
- Reduction of relay or software logic using complementary N.O. + N.C. outputs
- Significant replacement time savings by using the patented plastic mounting bracket (no gauging) or connectors
- Trouble-free operation ensured by extensive protective circuitry
- Works with unregulated DC supply powered by 24 V secondary transformer
- Metal mounting nuts included
- Zinc diecast
- Normally closed (N.C.) output available on versions marked ★
- UL Listed, CSA Certified and CE Mark

Nominal Sensing Distance	Circuit Type	Voltage Range	Output Mode	Operating Frequency	Indicator LED (see next page)	Mating Connector (see p. 518)	Catalog Number
Stainless steel case							
Shielded, 2 m (6.6') cable							
1.5 mm	PNP	12-24 V	N.O.★	5000 Hz	A	—	**XS1L06PA340**
1.5 mm	NPN	12-24 V	N.O.★	5000 Hz	A	—	**XS1L06NA340**
1.5 mm	PNP	12-24 V	N.O.+N.C.	5000 Hz	A	—	**XS1L06PC410**
1.5 mm	NPN	12-24 V	N.O.+N.C.	5000 Hz	A	—	**XS1L06NC410**
Shielded, connector - nano style							
1.5 mm	PNP	12-24 V	N.O.★	5000 Hz	B	1 thru 8	**XS1L06PA340S**
1.5 mm	NPN	12-24 V	N.O.★	5000 Hz	B	1 thru 8	**XS1L06NA340S**
Shielded, connector - micro style							
1.5 mm	PNP	12-24 V	N.O.	5000 Hz	B	11,12,13,15,16	**XS1L06PA340D**
1.5 mm	NPN	12-24 V	N.O.	5000 Hz	B	11,12,14,15,16	**XS1L06NA340D**
Nickel plated brass case							
Shielded◆, EXTENDED RANGE 2m (6.6') cable							
2.5 mm	PNP	12-24 V	N.O.★	2500 Hz	A	—	**XS1L06PA349**
2.5 mm	NPN	12-24 V	N.O.★	2500 Hz	A	—	**XS1L06NA349**
Shielded◆, EXTENDED RANGE connector - nano style							
2.5 mm	PNP	12-24 V	N.O.	2500 Hz	B	1 thru 8	**XS1L06PA349S**
2.5 mm	NPN	12-24 V	N.O.	2500 Hz	B	1 thru 8	**XS1L06NA349S**
Shielded◆, EXTENDED RANGE connector - micro style							
2.5 mm	PNP	12-24 V	N.O.	2500 Hz	B	11,12,13,15,16	**XS1L06PA349D**
2.5 mm	NPN	12-24 V	N.O.	2500 Hz	B	11,12,14,15,16	**XS1L06NA349D**
Stainless steel case							
Non-shielded, 2 m (6.6') cable							
2.5 mm	PNP	12-24 V	N.O.	5000 Hz	A	—	**XS2L06PA340**
2.5 mm	NPN	12-24 V	N.O.	5000 Hz	A	—	**XS2L06NA340**
Non-shielded, connector - nano style							
2.5 mm	PNP	12-24 V	N.O.	5000 Hz	B	1 thru 8	**XS2L06PA340S**
2.5 mm	NPN	12-24 V	N.O.	5000 Hz	B	1 thru 8	**XS2L06NA340S**
Non-shielded, connector - micro style DC							
2.5 mm	PNP	12-24 V	N.O.	5000 Hz	B	11,12,13,15,16	**XS2L06PA340D**
2.5 mm	NPN	12-24 V	N.O.	5000 Hz	B	11,12,14,15,16	**XS2L06NA340D**
2.5 mm	PNP	12-24 V	N.O.+N.C.	5000 Hz	B	11,12,13,15,16	**XS2L06PC410D**
2.5 mm	NPN	12-24 V	N.O.+N.C.	5000 Hz	B	11,12,14,15,16	**XS2L06NC410D**

★ To order a normally closed (N.C.) version, change **A** to **B**, example; XS1L06P**A**340 to XS1L06P**B**340.
◆ See dimension x below.

Minimum Mounting Clearances (mm/inches)



	Side to side	Face to face	Facing a metal object	Mounted in a metal support	Mounted in a metal support
XS1 Shielded	e: 3/.12	e:18/.71	e:4.5/.17		D: 6.5/.26; x: 0/0
XS1 Extended range	e: 5/.20	e: 30/1.18	e: 7.5/.30		D: 10/.39; x: 1.6 /.06
XS2 Non-shielded	e:10/.39	e: 30/1.18	e: 7.5/.30	D: 19.5/.77, H: 5/.20	

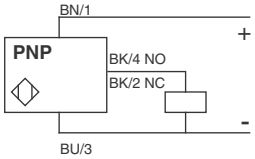
Wiring

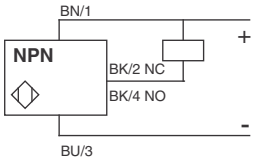
Connector
M8 M12

Cable

Blue	BU –
Brown	BN +
Black	BK Output

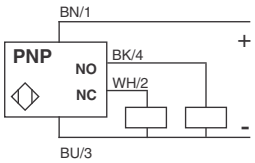
3 wire NO or NC
wire color/ connector pin

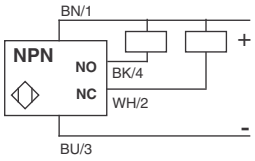


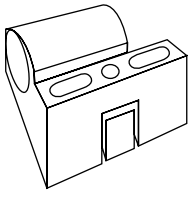


M8 connector, N.O. and N.C. to to pin 4.

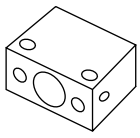
4 wire NO + NC







XSZB1●●



8316●●

Specifications

Mechanical			
Usable sensing range	Shielded	Standard Range	0 to 1.2 mm
		Extended Range	0 to 2 mm
	Non-shielded		0 to 2 mm
Standard temperature range		Standard Range	-25° C to +70° C (-13° F to +158° F)
		Extended Range	-25° C to 50° C (13° F to 122° F)
Enclosure rating - cable (for connector see p. 518)	NEMA Type		3, 4X, 6P, 12, 13
	IEC Type		IP67
Enclosure material	Case		Nickel plated Brass
	Sensing face		PBT
Vibration resistance	(IEC 60068.2.6)		25 G, amplitude +/- 2 mm, f =10-55Hz
Shock resistance	(IEC 60068.2.27)		50 G duration 11 ms
Standard target size (steel)			6.5 mm x 6.5 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	3 wire		27 AWG (0.11mm^2), PvR
	4 wire (N.O. + N.C.)		28 AWG (0.08mm^2), PvR
Electrical			
Voltage range – nominal			12 to 24 Vdc
Voltage limit (including ripple)			10 to 38 Vdc
Voltage drop (across switch), closed state			2V (2.6V extended range)
Maximum load current			200 mA
Current consumption (no load)			10 mA
On delay (max.)		Standard Range	0.1 ms
		Extended Range	.2 ms
Off delay (max.)		Standard Range	0.1 ms
		Extended Range	.2 ms
Power-up delay (max.)			5 ms
Protective circuitry	Short circuit protection		Yes
	Overload		Yes
	Radio frequency immunity (RFI)		IEC 61000-4-3 L3
	Electrostatic; transients; impulse		IEC 61000-4-2 L2; IEC 61000-4-4 L3; 60947.5.2 L3
	Reverse polarity protection		Yes
Agency Listings	E164869 CCN NRKH, CR 44087 Class 3211 03, CE		

Options

Description		Suffix
Extended temperature range (cable type and standard sensing distance 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

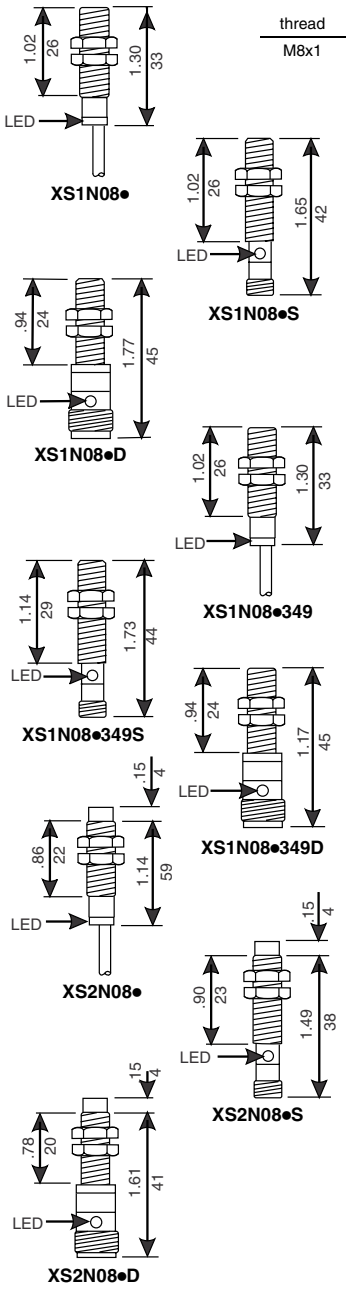
Description	Catalog Number
Mounting bracket, plastic	**XSZB165**
Mounting bracket, diecast zinc	**831606**

Note: Refer to p. 351, for target material correction coefficient Km.

Connector Cables
(M8 or S suffix; M12 or D suffix)

XSZCS101	Nano Conn., 3 pin, 2 m, straight
XSZCS111	Nano Conn., 3 pin, 2 m, 90°
XSZCD101Y	Micro Conn., 4 pin, 2 m, straight
XSZCD111Y	Micro Conn., 4 pin, 2 m, 90°

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



Dual Dimensions inches / mm

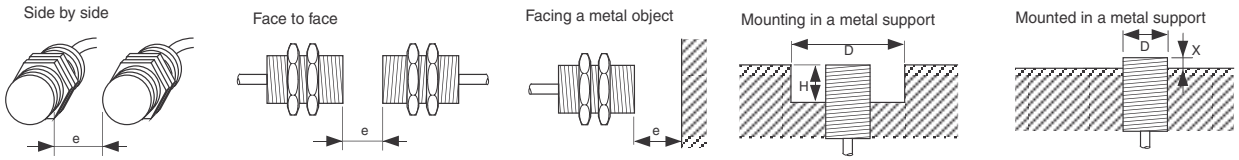
Features

- Faster troubleshooting aided by high visibility 360° indicators
- Economy of size offered by extended range model
- Significant replacement time savings by using the patented plastic mounting bracket (no gauging) or connectors
- Trouble-free operation ensured by extensive protective circuitry
- Works with unregulated DC supply powered by 24 V secondary transformer
- Metal mounting lock nuts included
- Normally closed (N.C.) output available on versions marked ★
- UL Listed, CSA Certified and CE Mark

Nominal Sensing Distance	Circuit Type	Voltage Range	Output Mode	Operating Frequency	Indicator LED (see next page)	Mating Connector Style (See p. 518)	Catalog Number
Nickel plated brass case							
Shielded, 2 m (6.6') cable							
1.5 mm	PNP	12-24 V	N.O.★	5000 Hz	A	—	**XS1N08PA340**
1.5 mm	NPN	12-24 V	N.O.★	5000 Hz	A	—	**XS1N08NA340**
Shielded, connector - nano style							
1.5 mm	PNP	12-24 V	N.O.★	5000 Hz	B	1 thru 8	**XS1N08PA340S**
1.5 mm	NPN	12-24 V	N.O.★	5000 Hz	B	1 thru 8	**XS1N08NA340S**
Shielded, connector - micro style							
1.5 mm	PNP	12-24 V	N.O.★	5000 Hz	B	11,12,13,15,16	**XS1N08PA340D**
1.5 mm	NPN	12-24 V	N.O.★	5000 Hz	B	11,12,14,15,16	**XS1N08NA340D**
Shielded, ◆ EXTENDED RANGE 2 m (6.6') cable							
2.5 mm	PNP	12-24 V	N.O.★	2500 Hz	A	—	**XS1N08PA349**
2.5 mm	NPN	12-24 V	N.O.★	2500 Hz	A	—	**XS1N08NA349**
Shielded, ◆ EXTENDED RANGE connector - nano style							
2.5 mm	PNP	12-24 V	N.O.★	2500 Hz	B	1 thru 8	**XS1N08PA349S**
2.5 mm	NPN	12-24 V	N.O.★	2500 Hz	B	1 thru 8	**XS1N08NA349S**
Shielded, ◆ EXTENDED RANGE connector - micro style DC							
2.5 mm	PNP	12-24 V	N.O.★	2500 Hz	B	11,12,13,15,16	**XS1N08PA349D**
2.5 mm	NPN	12-24 V	N.O.★	2500 Hz	B	11,12,14,15,16	**XS1N08NA349D**
Non-shielded, 2 m (6.6') cable							
2.5 mm	PNP	12-24 V	N.O.★	5000 Hz	A	—	**XS2N08PA340**
2.5 mm	NPN	12-24 V	N.O.★	5000 Hz	A	—	**XS2N08NA340**
Non-shielded, connector - nano style							
2.5 mm	PNP	12-24 V	N.O.	5000 Hz	B	1 thru 8	**XS2N08PA340S**
2.5 mm	NPN	12-24 V	N.O.	5000 Hz	B	1 thru 8	**XS2N08NA340S**
Non-shielded, connector - micro style							
2.5 mm	PNP	12-24 V	N.O.	5000 Hz	B	11,12,13,15,16	**XS2N08PA340D**
2.5 mm	NPN	12-24 V	N.O.	5000 Hz	B	11,12,14,15,16	**XS2N08NA340D**

★ To order a normally closed (N.C.) version, change **A** to **B**, example; XS1N08P**A**340 to XS1N08P**B**340.
◆ See dimension x below.

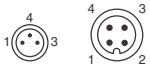
Minimum Mounting Clearances (mm/inches)



	Side by side	Face to face	Facing a metal object	Mounting in a metal support	Mounted in a metal support
XS1 Shielded	e: 3/.12	e: 18/.71	e: 4.5/.18	D: 8/.31, H: 0	x: 0/0
XS1 Extended range	e: 5/.20	e: 30/1.18	e: 7.5/.30	D: 10/.39, H: 1.6/.06	D: 8/.31, x: 1.6/.06
XS2 Non-shielded	e: 10/.39	e: 30/1.18	e: 7.5/.30	D: 24/.94, H: 5/.20	

Wiring

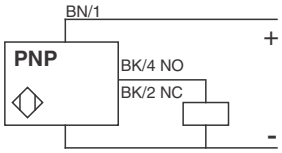
Connector
M8 M12

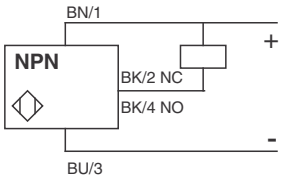


Cable

Blue	BU –
Brown	BN +
Black	BK Output

3 wire NO or NC
wire color/ connector pin





M8 connector, N.O. and N.C. to to pin 4.

Specifications

Mechanical			
Usable sensing range	Shielded	Standard Range	0 to 1.2 mm
		Extended Range	0 to 2 mm
	Non-shielded		0 to 2 mm
Standard temperature range		Standard Range	-25° C to +70° C (-13° F to +158° F)
		Extended Range	-25° C to 50° C (-13° F to 122° F)
Enclosure rating - cable (see page 518)	NEMA Type		3, 4X, 6P, 12, 13
	IEC Type		IP67
Enclosure material	Case		Nickel plated Brass
	Sensing face		PBT
Max. tightening torque			5 N•m (3.7 lb-ft)
Vibration resistance	(IEC 60068.2.6)		25 G, amplitude +/- 2 mm, f =10-55Hz
Shock resistance	(IEC 60068.2.27)		50 G duration 11 ms
Standard target size (steel)			8 mm x 8 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	3 wire		27 AWG (0.11mm^2), PvR
Electrical			
Voltage range – nominal			12 to 24 Vdc
Voltage limit (including ripple)			10 to 38 Vdc
Voltage drop (across switch), closed state			2 V (2.6 V extended range)
Maximum load current			200 mA
Current consumption (no load)			10 mA
On delay (max.)		Standard Range	0.1 ms
		Extended Range	.2 ms
Off delay (max.)		Standard Range	0.1 ms
		Extended Range	.2 ms
Power-up delay (max.)	Standard/Extended Range		5 ms
Protective circuitry	Short circuit protection		Yes
	Overload		Yes
	Radio frequency immunity (RFI)		IEC 61000-4-3 L3
	Electrostatic; transients; impulse		IEC 61000-4-2 L2; IEC 61000-4-4 L3; 60947.5.2 L3 Extended Range: IEC 61000-4-4 L3
	Reverse polarity protection		Yes
Agency Listings	UL E164869 CCN NRKH; CSA CR 44087 Class 3211 03; CE		

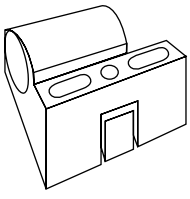
Options

Description		Suffix
Extended temperature range (cable type and standard sensing distance 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

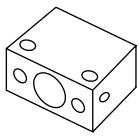
Accessories

Description	Catalog Number
Metal mounting lock nuts	**XSZE108**
Mounting bracket, plastic	**XSZB108**
Mounting bracket, diecast zinc	**8316 08**

Note: Refer to p. 351, for target material correction coefficient Km.



XSZB1●●



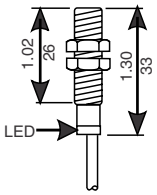
8316●●

Connector Cables
(M8 or S suffix; M12 or D suffix)

XSZCS101	Nano Conn., 3 pin, 2 m, straight
XSZCS111	Nano Conn., 3 pin, 2 m, 90°
XSZCD101Y	Micro Conn., 4 pin, 2 m, straight
XSZCD111Y	Micro Conn., 4 pin, 2 m, 90°

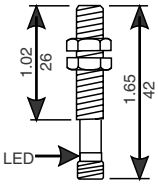
For additional cable options and lengths see p. 518
Accessories . . . . . page 298

Proximity Sensors
XS Tubular, Inductive Sensors
8 mm Diameter, DC; Economy Short Length, Non-corrosive

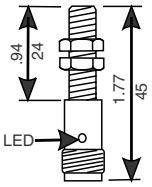


XS4P08●

thread
M8x1



XS4P08●D



XS4P08●D

Dual Dimensions inches / mm

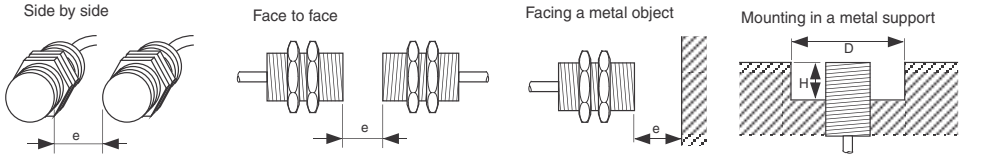
Features

- Faster troubleshooting aided by high visibility 360° indicators
- Designed for chemically aggressive environments – cutting oils, grease, washdown, etc.
- Significant replacement time savings using patented plastic mounting bracket (no gauging) or connectors
- Trouble-free operation ensured by extensive protective circuitry
- Works with unregulated DC supply powered by 24 V secondary transformer
- Plastic mounting nuts included
- UL Listed, CSA Certified and CE Mark

Nominal Sensing Distance	Circuit Type	Voltage Range	Output Mode	Operating Frequency	Indicator LED (see next page)	Mating Connector Style (See p. 518)	Catalog Number
Plastic							
Non-shielded, 2 m (6.6') cable							
2.5 mm	PNP	12-24 V	N.O. ★	5000 Hz	A	–	**XS4P08PA340**
2.5 mm	NPN	12-24 V	N.O. ★	5000 Hz	A	–	**XS4P08NA340**
Non-shielded, connector - nano style							
2.5 mm	PNP	12-24 V	N.O.	5000 Hz	A	1 thru 8	**XS4P08PA340S**
2.5 mm	NPN	12-24 V	N.O.	5000 Hz	A	1 thru 8	**XS4P08NA340S**
Non-shielded, connector - micro style							
2.5 mm	PNP	12-24 V	N.O.	5000 Hz	B	11,12,13,15,16	**XS4P08PA340D**
2.5 mm	NPN	12-24 V	N.O.	5000 Hz	B	11,12,13,15,16	**XS4P08NA340D**

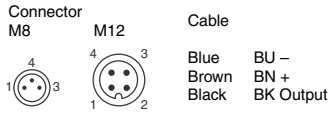
★ To order a normally closes (N.C.) version, change **A** to **B**, example XS3P08P**A**340 to XS3P08P**B**340

Minimum Mounting Clearances (mm/inches)

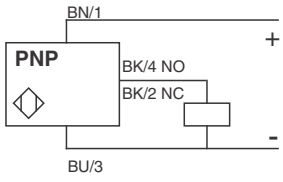


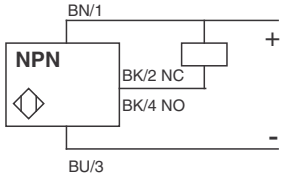
	Side by side	Face to face	Facing a metal object	Mounting in a metal support
XS4 Non-shielded	e: 10/.39	e: 30/1.18	e: 7.5/.30	D: 24/.94, H: 5/.20

Wiring

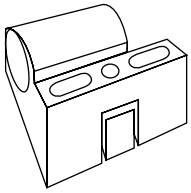


3 wire NO or NC
wire color/ connector pin





M8 connector, N.O. and N.C. to to pin 4.



XSZB1●●

Specifications

Mechanical		
Usable sensing range	Shielded	0 to 1.2 mm
	Non-shielded	0 to 2 mm
Standard temperature range		-25° C to +80° C (-13° F to +176° F)
Enclosure rating - cable (for connector, see page 518)	NEMA Type	3, 4X, 6P, 12, 13
	IEC Type	IP67
Enclosure material	Case	PBT
	Sensing face	PBT
Tightening torque (max.)		1 N•m (.74 lb-ft)
Vibration resistance	(IEC 60068.2.6)	25 G, amplitude +/- 2 mm, f =10-55Hz
Shock resistance	(IEC 60068.2.27)	50 G duration 11 ms
Standard target size (steel)		8 mm x 8 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	3 wire	27 AWG (0.11mm^2), PvR
Electrical		
Voltage range – nominal		12 to 24 Vdc
Voltage limit (including ripple)		10 to 38 Vdc
Voltage drop (across switch), closed state		2 V
Maximum load current		200 mA
Current consumption (no load)		10 mA
On delay (max.)		0.1 ms
Off delay (max.)		0.1 ms
Power-up delay (max.)		5 ms
Protective circuitry	Short circuit protection	Yes
	Overload	Yes
	Radio frequency immunity (RFI)	IEC 61000-4-3 L3
	Electrostatic; transients; impulse	IEC 61000-4-2 L3; IEC 61000-4-4 L3; 60947.5.2 L
	Reverse polarity protection	Yes
Agency Listings	UL E164869 CCN NRKH; CSA CR 44087 Class 3211 03; CE	

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	**XSZE208**
Mounting bracket, plastic	**XSZB108**

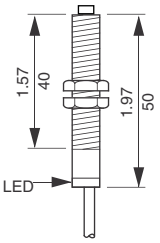
Note: Refer to page 351, for target material correction coefficient Km.

Connector Cables
(M8 or S suffix; M12 or D suffix)

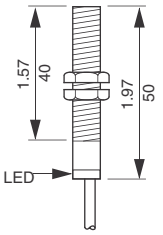
XSZCS101	Nano Conn., 3 pin, 2 m, straight
XSZCS111	Nano Conn., 3 pin, 2 m, 90°
XSZCD101Y	Micro Conn., 4 pin, 2 m, straight
XSZCD111Y	Micro Conn., 4 pin, 2 m, 90°

For additional cable options and lengths see p. 518
Accessories. . . . . page 298, 317

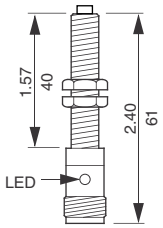
Telemecanique



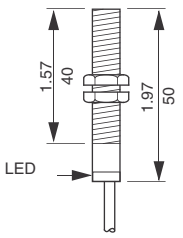
XS2M08PC410
XS2M08NC410



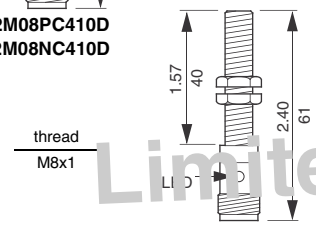
XS1M08••210/410



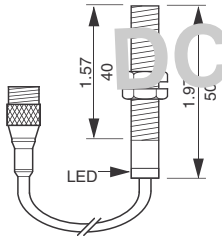
XS2M08PC410D
XS2M08NC410D



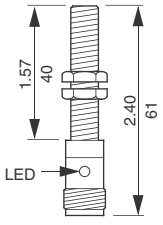
XS1M08•370



XS1M08••210D/410D



XSM08DA210LD



XS1M08•370D

Dual Dimensions inches / mm

Features

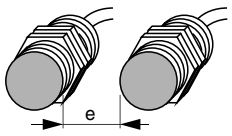
- Faster troubleshooting aided by high visibility 360° indicators
- 2-wire versions simplify wiring
- Rugged case designed for very aggressive environments – cutting oils, grease, etc.
- Pigtail connectors maintain the cutting oil enclosure rating while removing the connector from the aggressive environment
- Worry-free replacement: standard length, extended temperature and supply voltage range, improved enclosure rating
- Significant replacement time savings using patented plastic mounting bracket (no gauging) or connectors
- Trouble-free operation ensured by extensive protective circuitry
- Works with unfiltered rectified power supply
- Metal mounting lock nuts included
- Normally closed (N.C.) output available on versions marked ★
- UL Listed, CSA Certified and CE Mark

Nominal Sensing Distance	Circuit Type	Output Mode★	Voltage Range	Max. Load	Operating Frequency	Indicator LED①	Mating Connector Style (see p. 518)	Catalog Number
Stainless steel case								
Shielded, 2m (6.6') cable								
1.5 mm	2-wire	N.O.★	12-48 V	1.5-100 mA	4000 Hz			**XS1M08DA210**
1.5 mm	PNP	N.O.★	12-48 V	200 mA	5000 Hz			**XS1M08PA370**
1.5 mm	NPN	N.O.★	12-48 V	200 mA	5000 Hz	A	–	**XS1M08NA370**
1.5 mm	PNP	N.O.	12-48 V	200 mA	5000 Hz	A	–	**XS1M08PA371③**
Shielded, connector - micro style								
1.5 mm	2-wire	N.O.★	12-48 V	1.5-100 mA	4000 Hz	B	11,12,15,16	**XS1M08DA210D**
1.5 mm	2-wire	N.O.★	12-48 V	1.5-100 mA	4000 Hz	A	11,12,15,16	**XS1M08DA210LD②**
1.5 mm	PNP	N.O.★	12-48 V	200 mA	5000 Hz	B	11,12,15,16	**XS1M08PA370D**
1.5 mm	NPN	N.O.★	12-48 V	200 mA	5000 Hz	B	11,12,15,16	**XS1M08NA370D**
1.5 mm	2-wire	N.O.	12-48 V	1.5-100 mA	4000 Hz	A	11,12,15,16	**XS1M08DA214LD②**
Plastic case								
Non-shielded, 2m (6.6') cable								
2.5 mm	PNP	N.O.★	12-48 V	200 mA	5000 Hz	A	–	**XS4P08PA370**
2.5 mm	NPN	N.O.★	12-48 V	200 mA	5000 Hz	A	–	**XS4P08NA370**
2.5 mm	PNP	N.O.+N.C.★	12-24 V	200 mA	5000 Hz	A	–	**XS4P08PC410**
2.5 mm	NPN	N.O.+N.C.★	12-24 V	200 mA	5000 Hz	A	–	**XS4P08NC410**
Nickel plated brass case, complementary N.O.+N.C. outputs								
Shielded, 2m (6.6') cable								
1.5 mm	PNP	N.O.+N.C.	12-24 V	200 mA	5000 Hz	A	–	**XS1M08PC410**
1.5 mm	NPN	N.O.+N.C.	12-24 V	200 mA	5000 Hz	A	–	**XS1M08NC410**
Shielded, connector - micro style								
1.5 mm	PNP	N.O.+N.C.	12-24 V	200 mA	5000 Hz	B	11,12,15,16	**XS1M08PC410D**
1.5 mm	NPN	N.O.+N.C.	12-24 V	200 mA	5000 Hz	B	11,12,15,16	**XS1M08NC410D**
Non-shielded, 2m (6.6') cable								
2.5 mm	PNP	N.O.+N.C.	12-24 V	200 mA	5000 Hz	A	–	**XS2M08PC410**
2.5 mm	NPN	N.O.+N.C.	12-24 V	200 mA	5000 Hz	A	–	**XS2M08NC410**
Non-shielded, connector - micro style								
2.5 mm	PNP	N.O.+N.C.	12-24 V	200 mA	5000 Hz	B	11,12,15,16	**XS2M08PC410D**
2.5 mm	NPN	N.O.+N.C.	12-24 V	200 mA	5000 Hz	B	11,12,15,16	**XS2M08NC410D**

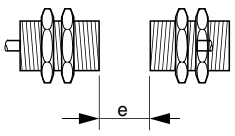
① See next page under specifications for LED function.
② Connector is attached to an 0.8 meter (2.6 foot) pigtail cable.
③ With stainless steel mounting nuts and washers.
★ To order a normally closed (N.C.) version, change **A** to **B**, example; XS1M08P**A**370 to XS1M08P**B**370.

Minimum Mounting Clearances (mm/inches)

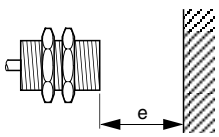
Side by side



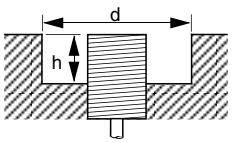
Face to face



Facing a metal object



Mounting in a metal support



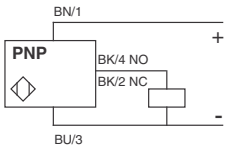
	Side by side	Face to face	Facing a metal object	Mounting in a metal support
XS1Shielded	e:3/.11	e:18/.71	e:4.5/.18	D:8/.31, H:0/0
XS2/XS4 Non-shielded	e:10/.39	e:30/1.18	e:7.5/.30	D:24/.94, H:5/.20

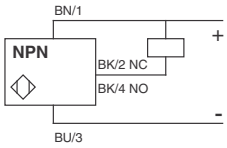
Wiring

Connector M12 / Cable

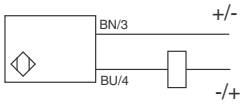
Blue	BU –
Brown	BN +
Black	BK Output

3 wire NO or NC
wire color/connector pin

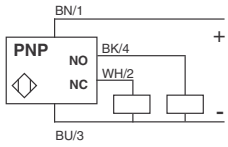


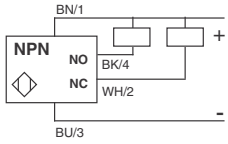


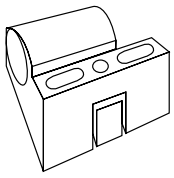
2 wire, non-polarized



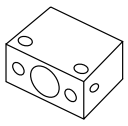
4 wire NO + NC







XSZB1●●



8316●●

Connector Cables (M12 or D suffix)

XSZCD101Y	Micro Conn., 4 pin, 2 m, straight
XSZCD111Y	Micro Conn., 4 pin, 2 m, 90°

For additional cable options and lengths see p. 518
Accessories . . . . . page 298, 317

Specifications

Mechanical		
Usable sensing range	Shielded	0 to 1.2 mm
	Non-shielded	0 to 2 mm
Standard temperature range		-25° C to +80° C (-13° F to +176° F)
Enclosure rating -cable (for connector, see page 518)	NEMA Type	3, 4X, 6P, 12, 13
	IEC Type	IP67
Enclosure material	Stainless Steel case	stainless steel
	Nickel plated Brass	Case: Nickel plated Brass Sensing face: PBT
	Plastic	PBT
Max. tightening torque	Stainless Steel	9 N•m (6.7 lb-ft)
	Plastic	1 N•m (.74 lb-ft)
	Nickel plated Brass	9 N•m
Vibration resistance	(IEC 60068.2.6)	25 G, amplitude +/- 2 mm, f = 10-55Hz
Shock resistance	(IEC 60068.2.27)	50 G duration 11 ms
Standard target size (steel)		8 mm x 8 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 or 3 wire	27AWG (0.11 mm^2), PvR
Electrical		
Voltage range – nominal		12 to 48 Vdc (12-24 complementary output)
Voltage limit (including ripple)		10 to 58 Vdc (10-38 complementary output)
Voltage drop (across switch),closed state	2 wire	4 V
	3 wire	2 V
Maximum load current	2 wire	1.5-100 mA
	3 wire	100 mA
	4 wire complementary output	200 mA
Current consumption (no load)	3 wire	10 mA
Residual (leakage) current, open state, 2 wire		0.6 mA
On delay (max.)	2 wire	0.2 ms
	3 wire	0.1 ms
Off delay (max.)	2 wire	0.2 ms
	3 wire	0.1 ms
Power-up delay (max.)	2 wire	5 ms
	3 wire	5 ms
Protective circuitry		
	Short circuit protection	Yes
	Overload	Yes
	Radio frequency immunity (RFI)	IEC 61000-4-3 L3
	Electrostatic; transients; impulse	2 wire IEC 61000-4-2 L3, IEC 61000-4-4 L4; 60947.5.2 L2 3 wire IEC 61000-4-2 L2, IEC 61000-4-4 L3; 60947.5.2 L2
	Reverse polarity protection	Yes
Agency Listings	UL E164869 CCN NRKH	CSA CR 44087 Class 3211 03 CE

Options

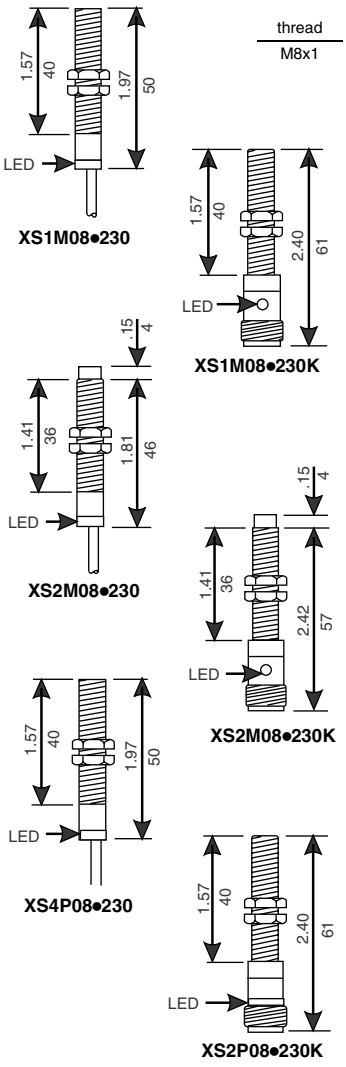
Description		Suffix
Extended temperature range (cable type only)	Down to -40° C (-40° F)	TF
Extended cable length	16.4 ft. (5 meter) cable	L1
	32.8 ft. (10 meter) cable	L2

Accessories

Description	Catalog Number
Plastic mounting nuts	**XSZE208**
Metal mounting nuts and lock washers	**XSZE108**
Mounting bracket, plastic	**XSZB108**
Mounting bracket, diecast zinc	**8316 08**
Stainless steel mounting nuts	**XSZE208**
Stainless steel lock washers	**XSZE908**

Note: Refer to page 351, for target material correction coefficient Km.

Proximity Sensors
XS Tubular, Inductive Sensors
8 mm Diameter, AC/DC; Universal Standard Length



Dual Dimensions inches / mm

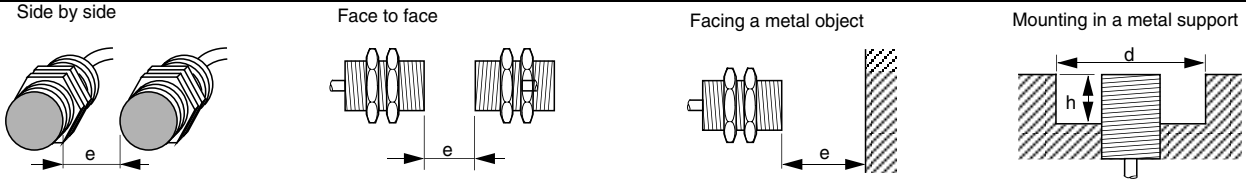
Features

- Faster troubleshooting aided by high visibility 360° indicator
- Rugged case designed for aggressive environments.
- Worry-free replacement: standard length, extended temperature range, AC or DC power supply
- Significant replacement time savings using patented plastic mounting bracket (no gauging) or connectors
- Trouble-free operation ensured by extensive protective circuitry
- Normally closed (N.C.) output available on versions marked★
- Plastic mounting nuts for plastic and lock nuts for metal housing included
- UL Listed, CSA Certified and CE Mark

Nominal Sensing Distance	Output Mode	Voltage Range		Operating Frequency		Indicator LED (see next page)	Mating Connector Style (see p. 518)	Catalog Number
		AC	DC	AC	DC			
Nickel plated brass case								
Shielded, 2m (6.6') cable								
1.5 mm	N.O.★	24-240 V	24-210 V	25 Hz	4000 Hz	A	–	**XS1M08MA230**
Shielded, connector - micro style AC								
1.5 mm	N.O.★	24-240 V	24-210 V	25 Hz	4000 Hz	B	17,18	**XS1M08MA230K**
Non-shielded, 2m (6.6') cable								
2.5 mm	N.O.★	24-240 V	24-210 V	25 Hz	3000 Hz	A	–	**XS2M08MA230**
Non-shielded, connector - micro style AC								
2.5 mm	N.O.★	24-240 V	24-210 V	25 Hz	3000 Hz	B	17,18	**XS2M08MA230K**
Plastic case								
Non-shielded, 2m (6.6') cable								
2.5 mm	N.O.★	24-240 V	24-210 V	25 Hz	3000 Hz	A	–	**XS4P08MA230**
Non-shielded, connector - micro style AC								
2.5 mm	N.O.★	24-240 V	24-210 V	25 Hz	3000 Hz	A	17,18	**XS4P08MA230K**

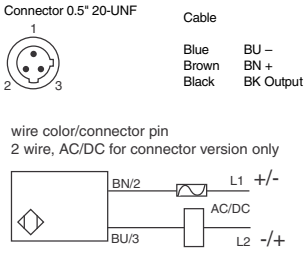
★ To order a normally closed (N.C.) version, change **A** to **B**, example; XS1M08M**A**230 to XS1M08M**B**230.

Minimum Mounting Clearances (mm/inches)



	Side by side	Face to face	Facing a metal object	Mounting in a metal support
XS1 Shielded	e:3/.12	e:18/.71	e:4.5/.18	D:8/.31, H:0/0
XS2/XS4 Non-shielded	e:10/.39	e:30/1.18	e:7.5/.30	D:24/.94, H:5/.20

Wiring



Specifications

Mechanical		
Usable sensing range	Shielded	0 to 1.2 mm
	Non-shielded	0 to 2 mm
Standard temperature range		-25° C to +80° C (-13° F to +176° F)
Enclosure rating - cable (for connector, see page 518)	NEMA Type	3, 4X, 6P, 12, 13
	IEC Type	IP67
Enclosure material	Nickel plated brass	Case: Nickel plated Brass Sensing face: PBT
	Plastic	PBT
Tightening torque (max.)	Nickel plated brass	9 N•m (79.6 lb-ft)
	Plastic	1 N•m (.74 lb-ft)
Vibration resistance	(IEC 60068.2.6)	25 G, amplitude +/- 2 mm, f =10-55 Hz
Shock resistance	(IEC60068.2.27)	50 G duration 11 ms
Standard target size (steel)		8 mm x 8 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	27 AWG (0.11 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		100 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	24 Vac/Vdc	0.8 mA
	120 Vac/Vdc	1.5 mA
On delay (max.)		.2 ms
Off delay (max.)		.2 ms
Power-up delay (max.)		40 ms
Protective circuitry	Short circuit protection	No★
	Radio frequency immunity (RFI)	IEC 61000-4-3 L3
	Electrostatic; transients; impulse	IEC 61000-4-2 L4; IEC 61000-4-4 L4; 60947.5.2 L3
Agency Listings	UL E164869 CCN NRKH	CSA CR 44087 Class 3211 03 CE

Options

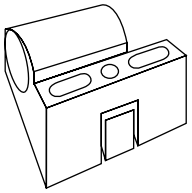
Description		Suffix
Extended temperature range (cable type only)	Down to -40° C (-40° F)	TF
Extended cable length	16.4 ft. (5 meter) cable	L1
	32.8 ft. (10 meter) cable	L2

Accessories

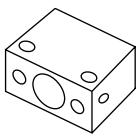
Description	Catalog Number
Plastic mounting nuts	**XSZE208**
Metal mounting lock nuts	**XSZE108**
Mounting bracket, plastic	**XSZB108**
Mounting bracket, diecast zinc	**831608**

Note: Refer to p. 351, for target material correction coefficient Km.

★ See p. 298 for protective fuses.



XSZB1••



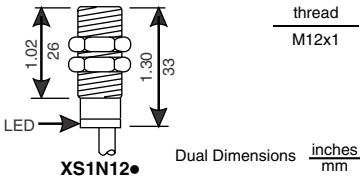
8316••

Connector Cables (U20 or K suffix)

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

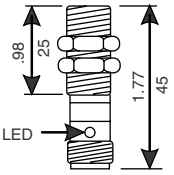
For additional cable options and lengths see p. 518
Accessories . . . . . page 298

Proximity Sensors
XS Tubular, Inductive Sensors
12 mm Diameter, DC; Economy Short Length

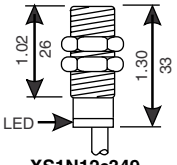


XS1N12•

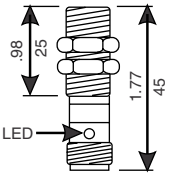
Dual Dimensions inches / mm



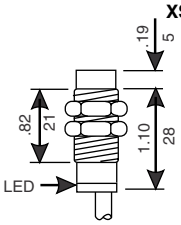
XS1N12•D



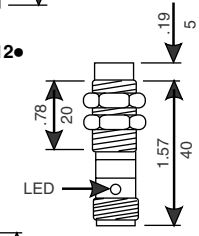
XS1N12•349



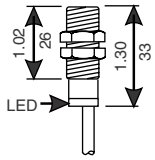
XS1N12•349D



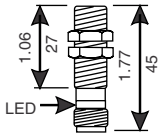
XS2N12•



XS2N12•D



XS4P12•



XS4P12•D

Features

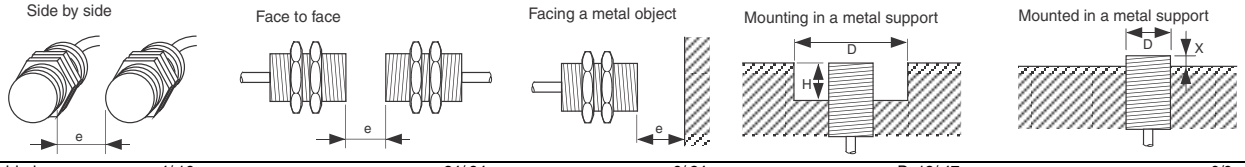
- 360° LED indicators
- Extended range models
- Complementary N.O. + N.C. models
- Rugged metal or plastic cases
- Patented plastic mounting bracket
- Connector options
- Extensive protective circuitry
- Works with unregulated DC supply powered by 24 V secondary transformer
- Metal lock nuts or plastic mounting nuts included
- Normally closed (N.C.) output available on versions marked ⋆
- UL Listed, CSA Certified and CE Mark

Nominal Sensing Distance	Circuit Type	Voltage Range	Output Mode	Operating Frequency	Indicator LED (see next page)	Mating Connector Style (see p. 518)	Catalog Number
Nickel plated brass case							
Shielded, 2 m (6.6') cable							
2 mm	PNP	12-24 V	N.O.⋆	5000 Hz	A	–	**XS1N12PA340**
2 mm	NPN	12-24 V	N.O.⋆	5000 Hz	A	–	**XS1N12NA340**
2 mm	PNP	12-24 V	N.O. + N.C.	5000 Hz	A	–	**XS1N12PC410**
2 mm	NPN	12-24 V	N.O. + N.C.	5000 Hz	A	–	**XS1N12NC410**
Shielded, connector - micro style							
2 mm	PNP	12-24 V	N.O.	5000 Hz	B	11,12,13,15,16	**XS1N12PA340D**
2 mm	NPN	12-24 V	N.O.	5000 Hz	B	11,12,14,15,16	**XS1N12NA340D**
2 mm	PNP	12-24 V	N.O. + N.C.	5000 Hz	B	11,12,13,15,16	**XS1N12PC410D**
2 mm	NPN	12-24 V	N.O. + N.C.	5000 Hz	B	11,12,14,15,16	**XS1N12NC410D**
Shielded◆, EXTENDED RANGE 2 m (6.6') cable							
4 mm	PNP	12-24 V	N.O.⋆	2500 Hz	A	–	**XS1N12PA349**
4 mm	NPN	12-24 V	N.O.⋆	2500 Hz	A	–	**XS1N12NA349**
Shielded◆, EXTENDED RANGE connector - micro style DC							
4 mm	PNP	12-24 V	N.O.⋆	2500 Hz	B	11,12,13,15,16	**XS1N12PA349D**
4 mm	NPN	12-24 V	N.O.⋆	2500 Hz	B	11,12,14,15,16	**XS1N12NA349D**
Non-shielded, 2 m (6.6') cable							
4 mm	PNP	12-24 V	N.O.	5000 Hz	A	–	**XS2N12PA340**
4 mm	NPN	12-24 V	N.O.	5000 Hz	A	–	**XS2N12NA340**
4 mm	PNP	12-24 V	N.O. + N.C.	5000 Hz	A	–	**XS2N12PC410**
4 mm	NPN	12-24 V	N.O. + N.C.	5000 Hz	A	–	**XS2N12NC410**
Non-shielded, connector - micro style DC							
4 mm	PNP	12-24 V	N.O.⋆	5000 Hz	B	11,12,13,15,16	**XS2N12PA340D**
4 mm	NPN	12-24 V	N.O.⋆	5000 Hz	B	11,12,14,15,16	**XS2N12NA340D**
4 mm	PNP	12-24 V	N.O. + N.C.	5000 Hz	B	11,12,13,15,16	**XS2N12PC410D**
4 mm	NPN	12-24 V	N.O. + N.C.	5000 Hz	B	11,12,14,15,16	**XS2N12NC410D**
Plastic case							
Non-shielded, 2 m (6.6') cable							
4 mm	PNP	12-24 V	N.O.⋆	5000 Hz	A	–	**XS4P12PA340**
4 mm	NPN	12-24 V	N.O.⋆	5000 Hz	A	–	**XS4P12NA340**
4 mm	PNP	12-24 V	N.O. + N.C.	5000 Hz	A	–	**XS4P12PC410**
4 mm	NPN	12-24 V	N.O. + N.C.	5000 Hz	A	–	**XS4P12NC410**
Non-shielded, connector - micro style DC							
4 mm	PNP	12-24 V	N.O.⋆	5000 Hz	A	11,12,13,15,16	**XS4P12PA340D**
4 mm	NPN	12-24 V	N.O.⋆	5000 Hz	A	11,12,14,15,16	**XS4P12NA340D**
4 mm	PNP	12-24 V	N.O. + N.C.	5000 Hz	A	11,12,13,15,16	**XS4P12PC410D**
4 mm	NPN	12-24 V	N.O. + N.C.	5000 Hz	A	11,12,14,15,16	**XS4P12NC410D**

◆ See X dimension below.

⋆ To order a normally closed (N.C.) version, change **A** to **B**, example; XS1M08M**A**230 to XS1M08M**B**230.

Minimum Mounting Clearances (mm/inches)



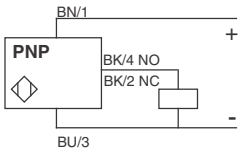
	Side by side	Face to face	Facing a metal object	Mounting in a metal support	Mounted in a metal support
XS1 Shielded	e: 4/.16	e: 24/.94	e: 6/.24	D: 12/.47	x: 0/0
XS1 Extended range	e: 8/.31	e: 48/1.89	e: 12/.47	D: 12/.47	D: 12/.47, x: 2.4/.09
XS2/XS4 Non-shielded	e: 16/.63	e: 48/1.89	e: 12/.47	D: 36/1.42, H: 8/.31	D: 12/.47, x: 2.4/.09

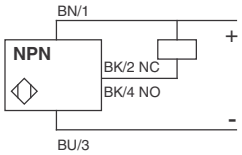
Wiring

Connector M12 / Cable

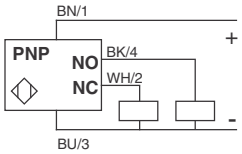
Blue	BU –
Brown	BN +
Black	BK Output

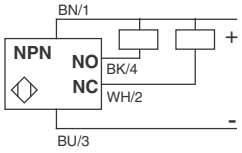
3 wire NO or NC
wire color/connector pin

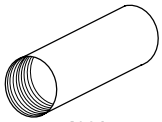




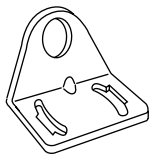
4 wire NO + NC



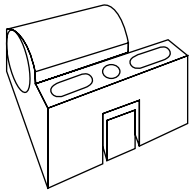




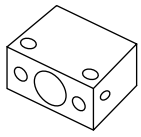
74281



9006PA●●



XSZB1●●



8316●●

Connector Cables (M12 or D suffix)

XSZCD101Y	Micro Conn., 4 pin, 2 m, straight
XSZCD111Y	Micro Conn., 4 pin, 2 m, 90°

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

Specifications

Mechanical			
Usable sensing range	Shielded	Standard Range	0 to 1.6 mm
		Extended Range	0 to 3.2 mm
	Non-shielded		0 to 3.2 mm
Standard temperature range	Ni plated brass		-25° C to +70° C (-13° F to +158° F)
	Plastic		-25° C to +80° C (-13° F to +176° F)
Extended range			-25° C to +50° C (-13° F to +122° F)
Enclosure rating - cable (for connector see page 518)	Nickel plated brass	NEMA Type	3, 4X, 6P, 12, 13
		IEC Type	IP67
	Plastic case	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		6 N•m (4.4 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	3 wire		22 AWG (0.34 mm^2), PvR
	4 wire (N.O. + N.C.)		21 AWG (0.22 mm^2), PvR
Electrical			
Voltage range – nominal			12 to 24 Vdc
Voltage limit (including ripple)			10 to 38 Vdc
Voltage drop (across switch), closed state			2V
Maximum load current			200 mA
Current consumption (no load)			10 mA
On delay (max.)		Standard Range	0.1 ms
		Extended Range	0.2 ms
Off delay (max.)		Standard Range	0.1 ms
		Extended Range	0.2 ms
Power-up delay (max.)	Standard/Extended Range		5 ms
Protective circuitry	Short circuit protection		Yes
	Overload		Yes
	Radio frequency immunity (RFI)		IEC 61000-4-3 L3
	Electrostatic; transients; impulse		IEC 61000-4-2 L2; IEC 61000-4-4 L3; 60947.5.2 L3
	Reverse polarity protection		Yes
Agency Listings	UL E164869 CCN NRKH; CSA CR 44087 Class 3211 03; CE		

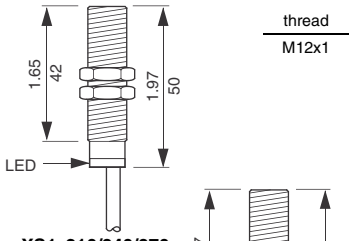
Options

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

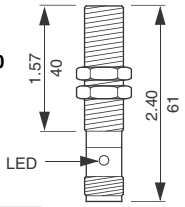
Accessories

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

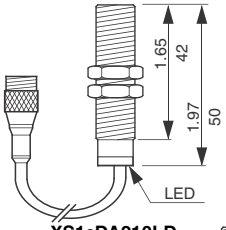
Note: Refer to p. 351 for target material correction coefficient Km.



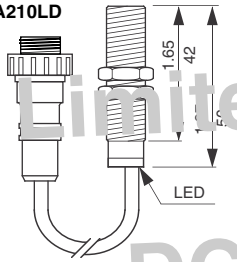
XS1●210/340/370



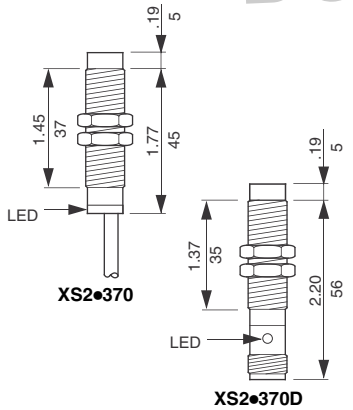
XS1●210/ 340/370D



XS1●DA210LD



XS1●DA2 0LA



XS2●370

XS2●370D

Dual Dimensions inches / mm

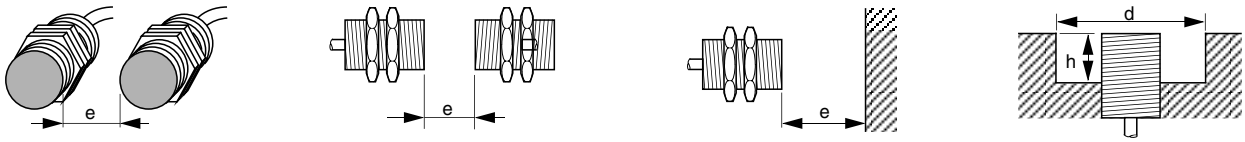
Features

- Faster troubleshooting aided by high visibility 360° indicators
- 2 wire versions simplify wiring
- Rugged case designed for aggressive environments
- Worry free replacement: standard length, extended temperature and supply voltage range, improved enclosure ratings (IP68), 3 wire complementary PNP + NPN with selectable N.O./ N.C. output circuit.
- Significant replacement time savings using patented plastic mounting bracket (no gauging) or connectors
- Pigtail connectors, version (0.8m/2.6' cable) provide cutting oil (IP68) rating and connection for aggressive environments
- Trouble free operation ensured by extensive protective circuitry
- Works with unfiltered rectified power supply
- Metal mounting lock nuts included
- Normally closed (N.C.) output available on versions (marked ★)
- UL Listed, CSA Certified and CE Mark

Nominal Sensing Distance	Circuit Type	Voltage Range	Output Mode	Max. Load	Operating Frequency	Indicator LED ①	Mating Connector Style (see p. 518)	Catalog Number
Nickel plated brass case								
Shielded, 2 m (6.6') cable								
2 mm	2-wire	12-48 V	N.O. ★	1.5-100 mA	4000 Hz	A	—	**XS1M12DA210**
2 mm	PNP	12-48 V	N.O.★	200 mA	5000 Hz	A	—	**XS1M12PA370**
2 mm	NPN	12-48 V	N.O.★	200 mA	5000 Hz	A	—	**XS1M12NA370**
2 mm	PNP/NPN	12-24	N.O./N.C.	200 mA	5000 Hz	A	—	**XS1M12KP340**
Shielded, connector - micro style DC								
2 mm	2-wire	12-48 V	N.O. ★	1.5-100 mA	4000 Hz	B	11,12,15,16	**XS1M12DA210D**
2 mm	PNP	12-48 V	N.O.★	200 mA	5000 Hz	B	11,12,14,15,16	**XS1M12PA370D**
2 mm	NPN	12-48 V	N.O.★	200 mA	5000 Hz	B	11,12,14,15,16	**XS1M12NA370D**
2 mm	PNP/NPN	12-24V	N.O./N.C.	200 mA	5000 Hz	B	11,12,15,16	**XS1M12KP340D**
Shielded, connector - micro style DC - 0.8 m (2.6 ft) pigtail								
2 mm	2-wire	12-48 V	N.O. ★	1.5-100 mA	4000 Hz	A	9,10,11,12,15,16	**XS1M12DA210LD**
Shielded, connector - mini style - 0.8 m (2.6 ft) pigtail								
2 mm	2-wire	12-48 V	N.O.★	1.5-100 mA	4000 Hz	A	21,22	**XS1M12DA210LA**
Non-shielded, 2 m (6.6') cable								
4 mm	PNP	12-48 V	N.O.★	200 mA	5000 Hz	A	—	**XS2M12PA370**
4 mm	NPN	12-48 V	N.O.★	200 mA	5000 Hz	A	—	**XS2M12NA370**
4 mm	PNP + NPN	12-24V	N.O./N.C.	200 mA	5000 Hz	A	—	**XS2M12KP340**
Non-shielded, connector - micro style D								
4 mm	PNP	12-48 V	N.O.★	200 mA	5000 Hz	B	11,12,13,15,16	**XS2M12PA370D**
4 mm	NPN	12-48 V	N.O.★	200 mA	5000 Hz	B	11,12,14,15,16	**XS2M12NA370D**
4 mm	PNP + NPN	12-24V	N.O./N.C.	200 mA	5000 Hz	B	11,12,15,16	**XS2M12KP340D**

★ To order a normally closed (N.C.) version change the **A** to **B**, example: XS1M12P**A**370 to XS1M12P**B**370.
① See next page under specifications for LED function.

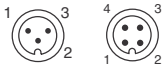
Minimum Mounting Clearances (mm/inches)



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

Wiring

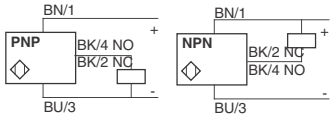
Connector



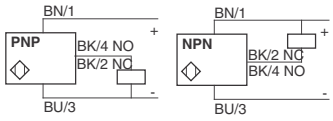
Cable

Blue	BU –
Brown	BN +
Black	BK Output

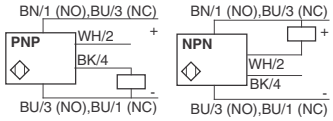
Wire color/connector pin
3 wire NO or NC



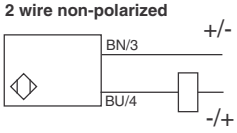
3 wire, selectable PNP/NPN, NO/NC

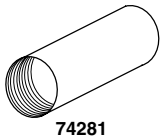


4 wire, programmable, NO or NC output

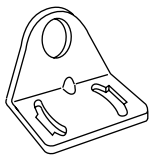


2 wire non-polarized

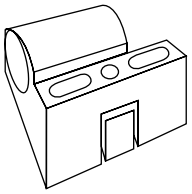




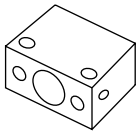
74281



9006PA●●



XSZB1●●



8316●●

Connector Cables
(M12 or D suffix; U78 or A suffix)

XSZCD101Y	Micro Conn., 4 pin, 2 m, straight
XSZCD111Y	Micro Conn., 4 pin, 2 m, 90°
XSZCA101Y	Micro Conn., 3 pin, 2 m, straight
XSZCA111Y	Micro Conn., 3 pin, 2 m, 90°

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

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 – cutting oil proof	
Enclosure material	Nickel plated brass	Case	Nickel plated Brass	
		Sensing face	PBT	
Tightening torque (max.)	Nickel plated brass		15 N•m (11 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 or 3 wire		22 AWG (0.34 mm^2), PvR	
Electrical			**Std**	**KP Models**
Voltage range – nominal			12 to 48 Vdc	12 to 24 Vdc
Voltage limit (including ripple)			10 to 58 Vdc	10 to 38 Vdc
Voltage drop (across switch), closed state	3 wire		2 V	2.6 V
	2 wire		4 V	
Minimum load current	2 wire		1.5 mA	
Maximum load current	2 wire		100 mA	
	3 wire		200 mA	
Current consumption (no load)	2 wire		–	
	3 wire		10 mA	
Residual (leakage) current, open state	2 wire		0.5 mA	
On delay (max.)	2 wire		0.2 ms	
	3 wire		0.1 ms	
Off delay (max.)	2 wire		0.2 ms	
	3 wire		0.1 ms	
Power-up delay (max.)	2 wire		5 ms	
	3 wire		5 ms	
Protective circuitry	Short circuit protection		Yes	
	Overload		Yes	
	Radio frequency immunity (RFI)		IEC 61000-4-3 Level 3	
	Electrostatic; transients; impulse (L - indicates level number)		2 wire: IEC 61000-4-2 L3; IEC 61000-4-4 L3;60947.5.2 L3	
			3 wire: IEC 61000-4-2 L2; IEC 61000-4-4 L3;60947.5.2 L3	
	Reverse polarity protection		Yes	
Agency Listings	E164869 CCN NRKH, CR 44087 Class 3211 03, CE			

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

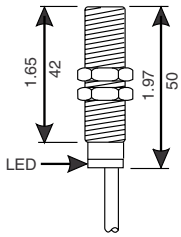
Accessories

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

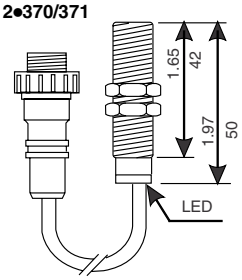
★ Refer to page 351 for target material correction coefficient Km.

Proximity Sensors

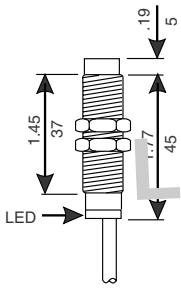
Telemecanique



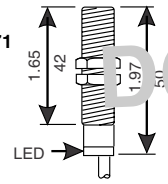
XS1M12•370/371



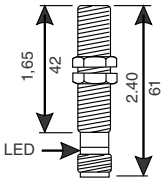
XS1M12DA211LA



XS2M12•370/371



XS1P12•370



XS4P12•370D

Features

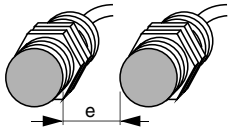
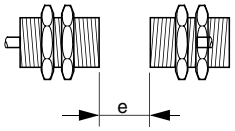
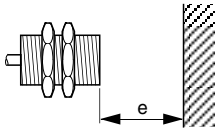
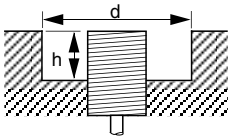
- Faster troubleshooting aided by high visibility 360° indicators
- 2 wire versions simplify wiring
- High impact stainless steel and plastic cases for aggressive environments - cutting oils, grease, solvents, etc.
- Worry free replacement: standard length, extended temperature and supply voltage range, improved enclosure ratings (IP68), 3 wire complementary PNP + NPN with selectable N.O./ N.C. output circuit
- Significant replacement time savings using patented plastic mounting bracket (no gauging) or connectors
- Pigtail connector version (0.8 m /2.6 ' cable) provides cutting oil (IP68) rating and connection for aggressive environments.
- Trouble free operation ensured by extensive protective circuitry
- Works with unfiltered rectified power supply
- Stainless steel lock 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	Circuit Type	Voltage Range	Output Mode	Max. Load	Operating Frequency	Indicator LED ①	Mating Connector Style (see p. 51)	Catalog Number
Stainless steel case								
Shielded, 2m (6.6') cable								
2 mm	2-wire	12-48 V	N.O.	1.5-100 mA	4000 Hz	A	—	**XS1M12DA211**
2 mm	PNP	12-48 V	N.O.	200 mA	5000 Hz	A	—	**XS1M12PA371**
2 mm	NPN	12-48 V	N.O.	200 mA	5000 Hz	A	—	**XS1M12NA371**
Shielded, connector - micro style - 0.8 m (2.6 ft) pigtail								
2 mm	2-wire	12-48 V	N.O.	1.5-100 mA	4000 Hz	A	2, 12	**XS1M12DA211LA**
Non-shielded, 2m (6.6') cable								
4 mm	PNP	12-48 V	N.O.	200 mA	5000 Hz	A	—	**XS2M12PA371**
4 mm	NPN	12-48 V	N.O.	200 mA	5000 Hz	A	—	**XS2M12NA371**
Plastic case								
Non-shielded, 2m (6.6') cable								
4 mm	PNP	12-48 V	N.O.★	200 mA	5000 Hz	A	—	**XS4P12PA370**
4 mm	NPN	12-48 V	N.O.★	200 mA	5000 Hz	A	—	**XS4P12NA370**
4 mm	PNP + NPN	12-24 V	N.O./N.C.	200 mA	5000 Hz	A	—	**XS4P12KP340**
Non-shielded, connector - micro style DC								
4 mm	PNP	12-48 V	N.O.★	200 mA	5000 Hz	A	11,12,13,15,16	**XS4P12PA370D**
4 mm	NPN	12-48 V	N.O.★	200 mA	5000 Hz	A	11,12,14,15,16	**XS4P12NA370D**
4 mm	PNP + NPN	12-24 V	N.O./N.C.	200 mA	5000 Hz	A	11,12,15,16	**XS4P12KP340D**

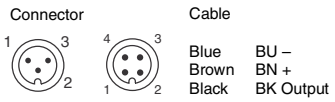
★ To order a normally closed (N.C.) version change the **A** to **B**, example: XS1M12P**A**371 to XS1M12P**B**371.
① See next page under specifications for LED function.

Dual Dimensions inches / mm

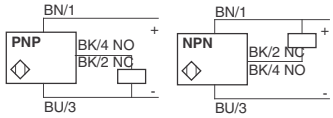
Minimum Mounting Clearances (mm/inches)

Side by side	Face to face	Facing a metal object	Mounting in a metal support
			
XS1 Shielded e: 4/.16 XS2/XS4 Non-shielded 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

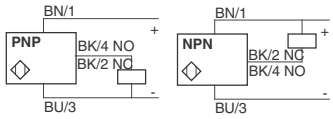
Wiring



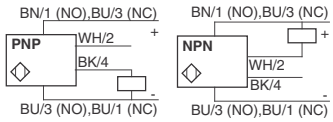
Wire color/connector pin
3 wire NO or NC



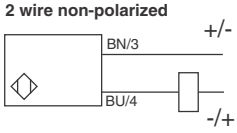
3 wire, selectable PNP/NPN, NO/NC

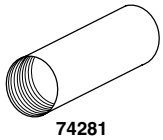


4 wire, programmable, NO or NC output



2 wire non-polarized





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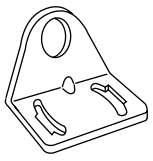
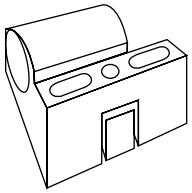
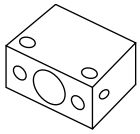


9006PA●●



XSZB1●●



8316●●

Connector Cables
(M12 or D suffix; U78 or A suffix)

XSZCD101Y	Micro Conn., 4 pin, 2 m, straight
XSZCD111Y	Micro Conn., 4 pin, 2 m, 90°
XSZCA101Y	Mini Conn., 3 pin, 2 m, straight
XSZCA111Y	Mini Conn., 3 pin, 2 m, 90°

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

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	NEMA Type	3, 4X, 6P, 12, 13	
(for connector, see p. 518)	IEC Type	IP68	
Enclosure material	Stainless steel case	#303 Stainless steel	
	Sensing face	PBT	
	Plastic	PBT	
Tightening torque (max.)	Stainless steel	30 N•m (22 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 11ms	
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	
Cable	2 or 3 wire	22 AWG (0.34 mm^2), PvR	
Electrical		**Standard**	**KP-Models**
Voltage range – nominal		12 to 48 Vdc	12 to 24 Vdc
Voltage limit (including ripple)		10 to 58 Vdc	10 to 38 Vdc
Voltage drop (across switch), closed state	3 wire	2 V	2.6V
	2 wire	4 V	
Minimum load current	2 wire	1.5 mA	
Maximum load current	2 wire	100 mA	
	3 wire	200 mA	
Current consumption (no load)	3 wire	10 mA	
Residual (leakage) current, open state	2 wire	0.6 mA	
On delay (max.)	2 wire	0.5 ms	
	3 wire	0.1 ms	
Off delay (max.)	2 wire	0.5 ms	
	3 wire	0.1 ms	
Power-up delay (max.)	2 wire	5 ms	
	3 wire	5 ms	
Protective circuitry	Short circuit protection	Yes	
	Overload	Yes	
	Radio frequency immunity (RFI)	IEC 61000-4-3 Level 3	
	Electrostatic; transients; impulse (L - indicates level number)	2 wire: IEC 61000-4-2 L3; IEC 61000-4-4 L3; 60947.5.2 L3 3 wire: IEC 61000-4-2 L2; IEC 61000-4-4 L3; 60947.5.2 L3	
	Reverse polarity protection	Yes	
Agency Listings	UL E164869 CCN NRKH	CSA CR 44087 Class 3211 03	CE

Options

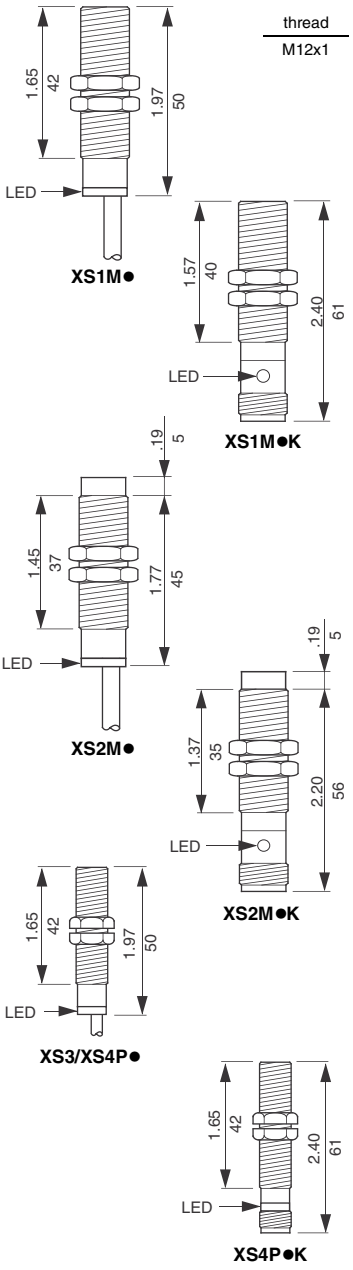
Description		**Suffix**
Extended temperature range (cable type only)	Down to -40° C (-40° F)	TF
Extended cable length	16.4 ft. (5 meter) cable	L1
	32.8 ft. (10 meter) cable	L2

Accessories

Description		**Catalog Number**
Plastic mounting nuts		**XSZE212**
Stainless steel mounting nuts		**XSZE312**
Locknut washers, stainless steel		**XSZE912**
Mounting bracket, 90° steel		**9006PA12**
Mounting bracket, plastic		**XSZB112**
Mounting bracket, diecast zinc		**831612**
0.5" NPT conduit adapter length 2" (50.8mm)	Aluminum	**74281**

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

Telemecanique



Features

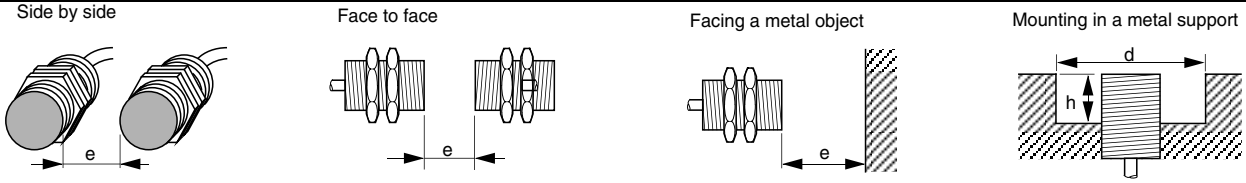
- Faster troubleshooting aided by high visibility 360° indicators
- Rugged metal or plastic cases designed for aggressive environments - cutting oils, grease, etc.
- Worry free replacement: standard length, extended temperature and supply voltage range, improved enclosure ratings (IP68), AC/DC power 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**
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**
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**
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**

★ To order a normally closed (N.C.) version change the **A** to **B**, example: XS1M12P**A**260 to XS1M12P**B**260.
① See next page under specifications for LED function.

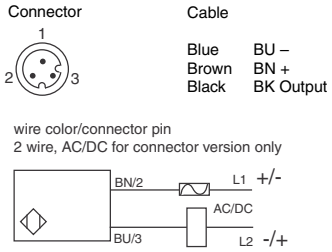
Dual Dimensions inches / mm

Minimum Mounting Clearances (mm/inches)



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

Wiring

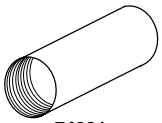


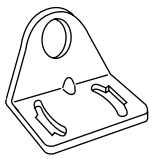
Specifications

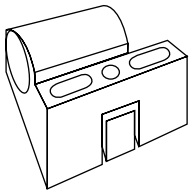
Mechanical		
Usable sensing range★	Shielded	0 to 1.6 mm
	Non-shielded	0 to 3.2 mm
Standard temperature range		-25° C to +80° C (-13° F to +176° F)
Enclosure rating - cable (for connector, see p. 518)	NEMA Type	3, 4X, 6P, 12, 13
	IEC Type	IP68
Enclosure material	Nickel plated brass case	Nickel plated 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 CE

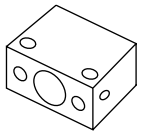
Options

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


74281


9006PA••


XSZB1••


8316••

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**

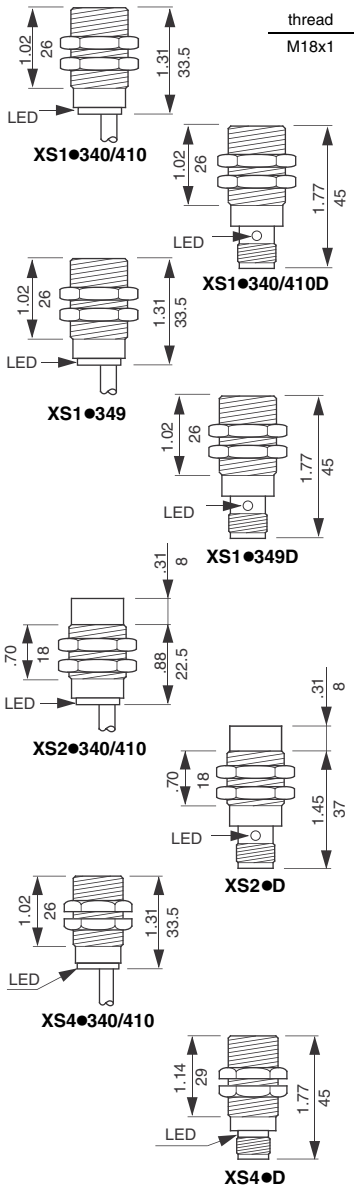
★ Refer to p. 351 for target material correction coefficient Km.
▲ For devices without SCP, see p. 298 for protective fuses.

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

Proximity Sensors
XS Tubular, Inductive Sensors
18 mm Diameter, DC; Economy Short Length



Dual Dimensions inches / mm

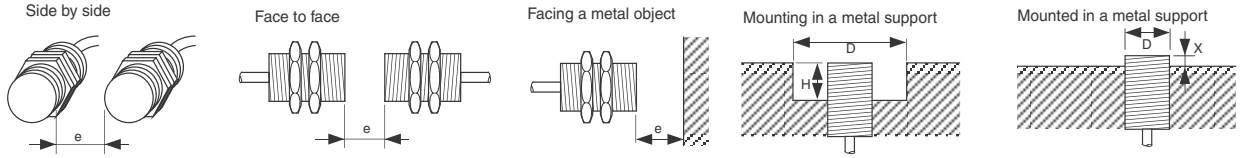
Features

- 360° LED indicators
- Extended range models
- Complementary N.O. + N.C. models
- Rugged metal or plastic cases
- Patented plastic mounting bracket
- Connector options
- Extensive protective circuitry
- Works with unregulated DC supply powered by 24 V secondary transformer
- Metal locknuts or plastic mounting nuts included
- Normally closed (N.C.) output available on versions marked★
- UL Listed, CSA Certified and CE Mark

Nominal Sensing Distance	Circuit Type	Voltage Range	Output Mode	Operating Frequency	Indicator LED ①	Mating Connector Style (see p. 518)	Catalog Number
Nickel plated brass case							
Shielded, 2 m (6.6') cable							
5 mm	PNP	10-38 V	N.O.★	2000 Hz	A	–	**XS1N18PA340**
5 mm	NPN	10-38 V	N.O.★	2000 Hz	A	–	**XS1N18NA340**
5 mm	PNP	10-38 V	N.O. + N.C.	2000 Hz	A	–	**XS1N18PC410**
5 mm	NPN	10-38 V	N.O. + N.C.	2000 Hz	A	–	**XS1N18NC410**
Shielded, connector - micro style DC							
5 mm	PNP	10-38 V	N.O.	2000 Hz	B	11,12,13,15,16	**XS1N18PA340D**
5 mm	NPN	10-38 V	N.O.	2000 Hz	B	11,12,14,15,16	**XS1N18NA340D**
5 mm	PNP	10-38 V	N.O. + N.C.	2000 Hz	B	11,12,13,15,16	**XS1N18PC410D**
5 mm	NPN	10-38 V	N.O. + N.C.	2000 Hz	B	11,12,14,15,16	**XS1N18NC410D**
Shielded◆, EXTENDED RANGE, 2 m (6.6') cable							
10 mm	PNP	10-38 V	N.O. ★	1000 Hz	A	–	**XS1N18PA349**
10 mm	NPN	10-38 V	N.O.★	1000 Hz	A	–	**XS1N18NA349**
Shielded◆, EXTENDED RANGE, connector - micro style							
10 mm	PNP	10-38 V	N.O.★	1000 Hz	B	11,12,13,15,16	**XS1N18PA349D**
10 mm	NPN	10-38 V	N.O.★	1000 Hz	B	11,12,14,15,16	**XS1N18NA349D**
Non-shielded, 2 m (6.6') cable							
8 mm	PNP	10-38 V	N.O.	2000 Hz	A	–	**XS2N18PA340**
8 mm	NPN	10-38 V	N.O.	2000 Hz	A	–	**XS2N18NA340**
8 mm	PNP	10-38 V	N.O. + N.C.	2000 Hz	A	–	**XS2N18PC410**
8 mm	NPN	10-38 V	N.O. + N.C.	2000 Hz	A	–	**XS2N18NC410**
Non-shielded, connector - micro style							
8 mm	PNP	10-38 V	N.O.	2000 Hz	B	11,12,13,15,16	**XS2N18PA340D**
8 mm	NPN	10-38 V	N.O.	2000 Hz	B	11,12,14,15,16	**XS2N18NA340D**
8 mm	PNP	10-38 V	N.O. + N.C.	2000 Hz	B	11,12,13,15,16	**XS2N18PC410D**
8 mm	NPN	10-38 V	N.O. + N.C.	2000 Hz	B	11,12,14,15,16	**XS2N18NC410D**
Plastic case							
Non-shielded, 2 m (6.6') cable							
8 mm	PNP	10-38 V	N.O.★	2000 Hz	A	–	**XS4P18PA340**
8 mm	NPN	10-38 V	N.O.★	2000 Hz	A	–	**XS4P18NA340**
8 mm	PNP	10-38 V	N.O. + N.C.	2000 Hz	A	–	**XS4P18PC410**
8 mm	NPN	10-38 V	N.O. + N.C.	2000 Hz	A	–	**XS4P18NC410**
Non-shielded, connector - micro style							
8 mm	PNP	10-38 V	N.O.★	2000 Hz	A	11,12,13,15,16	**XS4P18PA340D**
8 mm	NPN	10-38 V	N.O.★	2000 Hz	A	11,12,14,15,16	**XS4P18NA340D**
8 mm	PNP	10-38 V	N.O. + N.C.	2000 Hz	A	11,12,13,15,16	**XS4P18PC410D**
8 mm	NPN	10-38 V	N.O. + N.C.	2000 Hz	A	11,12,14,15,16	**XS4P18NC410D**

★ To order a normally closed (N.C.) version change the **A** to **B**, example: XS1N18P**A**340 to XS1N18P**B**340.
① See next page under specifications for LED function.
◆ See dimension X below.

Minimum Mounting Clearances (mm/inches)



XS1 Shielded	e: 10/.39	e: 60/2.36	e: 15/.59	D: 18/.71, H: 0/0	D: 18/.70
XS1 Extended range	e: 20/.79	e: 96/3.78	e: 24/.94		D: 18/.71, x: 3.6/.14
XS2/XS4 Non-shielded	e: 16/.63	e: 96/3.78	e: 24/.94	D: 54/2.13, H: 16/.63	

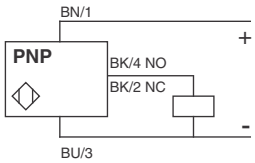
Wiring

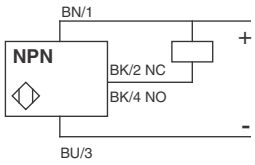
Connector

Cable

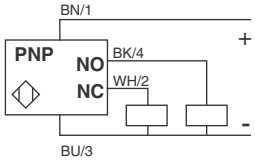
Blue	BU –
Brown	BN +
Black	BK Output

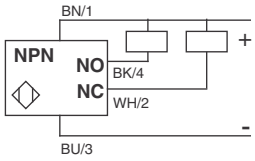
Wire color/connector pin
3 wire NO or NC

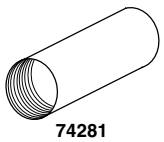




4 wire NO + NC







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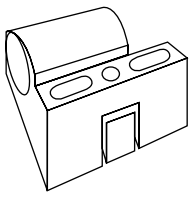
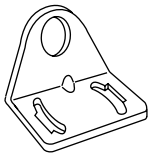


XSZB1●●



9006PA●●

Connector Cables (M12 or D suffix)

XSZCD101Y	Micro Conn., 4 pin, 2 m, straight
XSZCD111Y	Micro Conn., 4 pin, 2 m, 90°

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

Specifications

Mechanical			
Usable sensing range★	Shielded	Standard Range	0 to 4 mm
		Extended Range	0 to 8 mm
	Non-shielded		0 to 6.4 mm
Standard temperature range	Nickel plated brass		-25° C to +70° C (-13° F to +158° F)
	Plastic		-25° C to +80° C (-13° F to +176° F)
Extended range			-25° C to +50° C (-13° F to +122° F)
Enclosure rating - cable for connector, see p. 518	Nickel plated brass	NEMA Type	3, 4X, 6P, 12, 13
		IEC Type	IP67
	Plastic	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
		Sensing face	PBT
Tightening torque (max.)	Nickel plated brass		15 N•m (11 lb-ft)
	Plastic		5 N•m (3.7 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)	Shielded	Standard range	0.7" x 0.7" (18 mm x 18 mm)
		Extended range	1.18" x 1.18" (30 mm x 30 mm)
	Unshielded		0.94" x 0.94" (24 mm x 24 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	3 or 4 wire		22 AWG (0.34 mm^2), PvR
Electrical			
Voltage range – nominal			12 to 24 Vdc
Voltage limit (including ripple)			10 to 38 Vdc
Voltage drop (across switch), closed state			2 V
Maximum load current			200 mA
Current consumption (no load)			10 mA
On delay (max.)			0.15 ms
Off delay (max.)			0.35 ms
Power-up delay (max.)			5 ms
Protective circuitry	Short circuit protection		Yes
	Overload		Yes
	Radio frequency immunity (RFI)		IEC 61000-4-3 Level 3
	Electrostatic; transients; impulse		IEC 61000-4-2 L2; IEC 61000-4-4 L3; 60947.5.2 L3 Extended range: IEC 61000-4-4 L3
	Reverse polarity protection		Yes
Agency Listings	UL E 164869 CCN NRKH	CSA CR 44087 Class 3211 03	CE

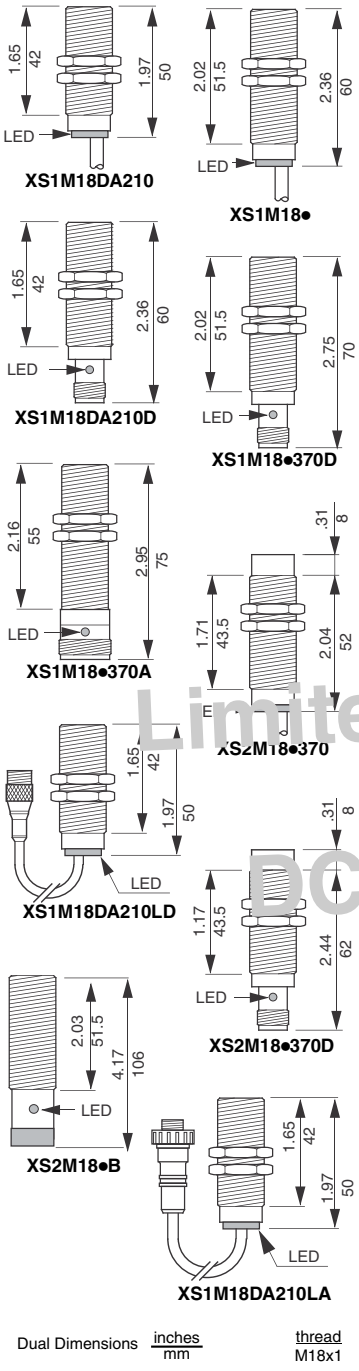
Options

Description		Suffix
Extended temperature range (cable type and standard sensing distance 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		**XSZE218**
Metal mounting nuts and lock washer		**XSZE118**
Mounting bracket 90° steel		**9006PA18**
Mounting bracket, plastic, long length		**XSZB118**
0.5" NPT conduit adapter length 2" (50.8 mm)	Aluminum	**7428**
	Stainless	**74282**

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



Dual Dimensions inches / mm thread M18x1

Features

- Faster troubleshooting aided by high visibility 360° indicators
- 2 wire versions simplify wiring
- Rugged case designed for aggressive industrial environments
- Worry free replacement: standard length, extended temperature and supply voltage range, improved enclosure ratings (IP68), 3 wire complementary PNP + NPN with selectable N.O./ N.C. output circuit
- Significant replacement time savings using patented plastic mounting bracket (no gauging) or connectors
- Trouble free operation ensured by extensive protective circuitry
- Works with unfiltered rectified power supply
- Pigtail connector version (0.8 m/2.6' cable) provides cutting oil (IP68) ratings and connection for aggressive environments. Screw terminals models for wiring special cables.
- Metal mounting lock nuts included
- Normally closed (N.C.) output available on versions marked ★
- UL Listed, CSA Certified and CE Mark

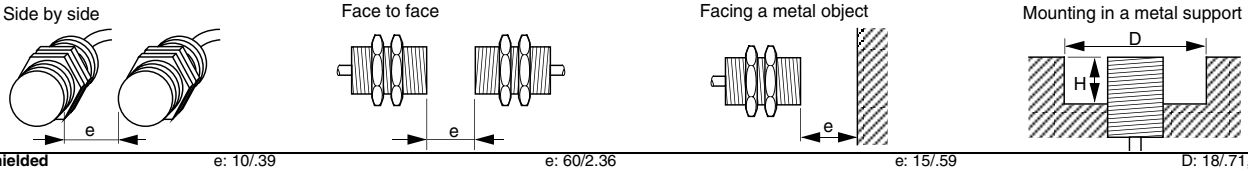
Nickel plated brass case

Nominal Sensing Distance	Circuit Type	Voltage Range	Output Mode	Max. Load	Operating Frequency	Indicator LED ①	Mating Connector Style (see p. 8/18)	Catalog Number
Shielded 2m (6.6') cable								
5 mm	2-wire	12-48 V	N.O.★	1.5-100 mA	3000 Hz	A	—	**XS1M18DA210**
5 mm	PNP	12-48 V	N.O.★	200 mA	2000 Hz	A	—	**XS1M18PA370**
5 mm	NPN	12-48 V	N.O.★	200 mA	2000 Hz	A	—	**XS1M18NA370**
5 mm	PNP + NPN	12-24 V	N.O./N.C.	200 mA	2000 Hz	A	—	**XS1M18KP340**
Shielded connector - micro style DC - 0.8 m (2.6 ft) pigtail								
5 mm	2-wire	12-48 V	N.O.★	1.5-100 mA	3000 Hz	A	11,12,15,16	**XS1M18DA210LD**
Shielded connector - micro style DC								
5 mm	2-wire	12-48 V	N.O.★	1.5-100 mA	3000 Hz	B	11,12,15,16	**XS1M18DA210D**
5 mm	PNP	12-48 V	N.O.★	200 mA	2000 Hz	B	11,12,13,15,16	**XS1M18PA370D**
5 mm	NPN	12-48 V	N.O.★	200 mA	2000 Hz	B	11,12,14,15,16	**XS1M18NA370D**
5 mm	PNP + NPN	12-24 V	N.O./N.C.	200 mA	2000 Hz	B	11,12,15,16	**XS1M18KP340D**
Shielded, connector - mini style - 0.8 m (2.6 ft) pigtail								
5 mm	2-wire	12-48 V	N.O.★	1.5-100 mA	3000 Hz	A	21,22	**XS1M18DA210LA**
Shielded, connector - mini style 3 PIN								
5 mm	PNP	12-48 V	N.O.★	200 mA	2000 Hz	B	21,22	**XS1M18PA370A**
5 mm	NPN	12-48 V	N.O.★	200 mA	2000 Hz	B	21,22	**XS1M18NA370A**
Shielded, screw terminal connection								
5 mm	2 wire	12-48 V	N.O.★	1.5-100mA	3000 Hz	B	—	**XS1M18DA210B**
5 mm	PNP	12-48 V	N.O.★	200 mA	2000 Hz	B	—	**XS1M18PA370B**
5 mm	NPN	12-48 V	N.O.★	200 mA	2000 Hz	B	—	**XS1M18NA370B**
Non-shielded, 2m (6.6') cable								
8 mm	PNP	12-48 V	N.O.★	200 mA	2000 Hz	A	—	**XS2M18PA370**
8 mm	NPN	12-48 V	N.O.★	200 mA	2000 Hz	A	—	**XS2M18NA370**
8 mm	PNP + NPN	12-24 V	N.O./N.C.	200 mA	2000 Hz	A	—	**XS2M18KP340**
Non-shielded, connector - micro style								
8 mm	PNP	12-48 V	N.O.★	200 mA	2000 Hz	B	11,12,13,15,16	**XS2M18PA370D**
8 mm	NPN	12-48 V	N.O.★	200 mA	2000 Hz	B	11,12,14,15,16	**XS2M18NA370D**
8 mm	PNP + NPN	12-24 V	N.O./N.C.	200 mA	2000 Hz	B	11,12,15,16	**XS2M18KP340D**

★ To order a normally closed (N.C.) version change the **A** to **B**, example: XS1M18P**A**370 to XS1M18P**B**370.

① See next page under specifications for LED function.

Minimum Mounting Clearances (mm/inches)



	Side by side	Face to face	Facing a metal object	Mounting in a metal support
XS1 Shielded	e: 10/.39	e: 60/2.36	e: 15/.59	D: 18/.71, H: 0/0
XS2 Non-shielded	e: 16/.63	e: 96/3.78	e: 24/.94	D: 54/2.13, H: 8/.31

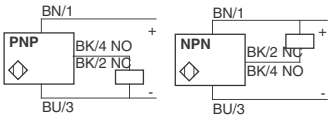
Wiring

Connector

Cable

Blue BU –
Brown BN +
Black BK Output

Wire color/connector pin
3 wire NO or NC

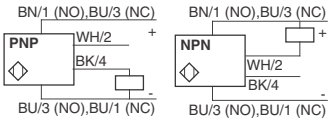


Connector

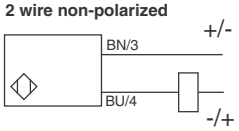
Cable

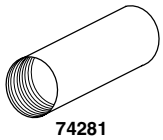
Blue BU –
Brown BN +
Black BK Output

4 wire, programmable, NO or NC output

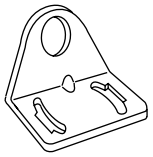


2 wire non-polarized

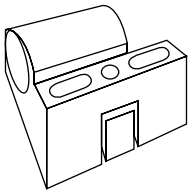




74281



9006PA●●



XSZB1●●

Connector Cables
(M12 or D suffix; U78 or A suffix)

XSZCD101Y	Micro Conn., 4 pin, 2 m, straight
XSZCD111Y	Micro Conn., 4 pin, 2 m, 90°
XSZCA101Y	Micro Conn., 3 pin, 2 m, straight
XSZCA111Y	Micro Conn., 3 pin, 2 m, 90°

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

Specifications

Mechanical			
Usable sensing range★	Shielded	0 to 4 mm	
	Non-shielded	0 to 6.4 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 – cutting oil proof; IP67 for B screw terminal	
Enclosure material	Nickel plated brass	Case: Nickel plated brass	
		Sensing face: PBT	
Tightening torque (max.)	Nickel plated brass	35 N•m 26 (26 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 11ms	
Standard target size (steel)	Shielded	0.7" x 0.7" (18 mm x 18 mm)	
	Non-shielded	0.94" x 0.94" (24 mm x 24 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	20 AWG (0.5 mm^2), PvR	
	3 wire	22 AWG (0.34 mm^2), PvR	
Electrical		Std.	KP-Models
Voltage range – nominal		12 - 48 Vdc	12 - 24 Vdc
Voltage limit (including ripple)		10 - 58 Vdc	10 - 38 Vdc
Voltage drop (across switch), closed state	3 wire	2 V	2.6 V
	2 wire	4 V	
Minimum load current	2 wire	1.5 mA	
Maximum load current	2 wire	100 mA	
	3 wire	200 mA	
Current consumption (no load)	3 wire	10 mA	
Residual (leakage) current, open state	2 wire	0.5 mA	
On delay (max.)	2 wire	0.2 ms	
	3 wire	0.15 ms	
Off delay (max.)	2 wire	0.2 ms	
	3 wire	0.35 ms	
Power-up delay (max.)		5 ms	
Protective circuitry	Short circuit protection	Yes	
	Overload	Yes	
	Radio frequency immunity (RFI)	IEC 61000-4-3 Level 3	
	Electrostatic; transients; impulse	2 wire: IEC 61000-4-2 L3; IEC 61000-4-4 L3; 60947.5.2 L3	
	(L - indicates level number)	3 wire: IEC 61000-4-2 L2; IEC 61000-4-4 L3; 60947.5.2 L3	
	Reverse polarity protection	Yes	
Agency Listings	UL E 164869 CCN NRKH	CSA CR 44087 Class 3211 03	CE

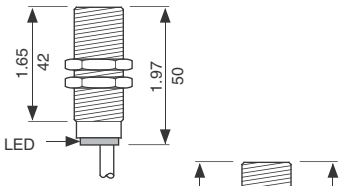
Options

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

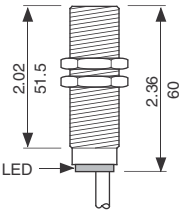
Accessories

Description		**Catalog Number**
Plastic mounting nuts		**XSZE218**
Metal mounting nuts and lock washers		**XSZE118**
Mounting bracket, 90° steel		**9006PA 18**
Mounting bracket, plastic		**XSZB118**
0.5" NPT conduit adapter length 2" (50.8 mm)	Aluminum	**7428**
	Stainless	**74282**

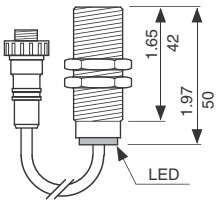
★ Refer to p. 351 for target material correction coefficient Km.



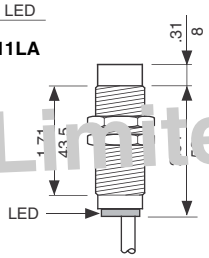
XS1M18DA211



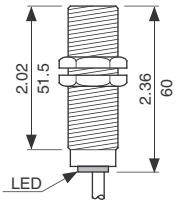
XS1M18●371



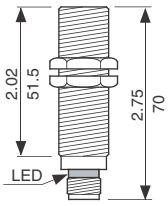
XS1M18DA211LA



XS2M18●371



XS4P18●370



XS4P18●370D

Dual Dimensions inches / mm

thread M18x1

Features

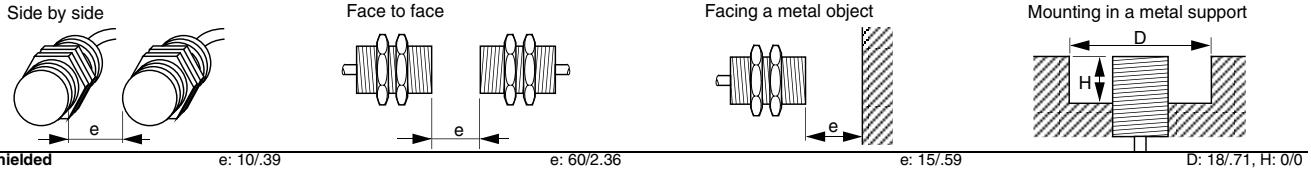
- Faster troubleshooting aided by high visibility 360° indicators
- 2 wire versions simplify wiring
- High impact stainless steel and plastic cases for aggressive environments - cutting oils, grease, solvents, etc.
- Worry free replacement: standard length, extended temperature and supply voltage range, improved enclosure ratings (IP68)
- Pigtail connector version (0.8 m /2.6' cable) provides cutting oil (IP68) ratings and connection for aggressive environments.
- Significant replacement time savings using patented plastic mounting bracket (no gauging) or connectors
- Trouble free operation ensured by extensive protective circuitry
- Works with unfiltered rectified power supply
- Stainless steel locknuts 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	Circuit Type	Voltage Range	Output Mode	Max. Load	Operating Frequency	Indicator LED ①	Mating Connector Style (see p. 518)	Catalog Number
Stainless steel case								
Shielded, 2 m (6.6') cable								
5 mm	2-wire	12-48 V	N.O.★	1.5-100 mA	3000 Hz	A	—	**XS1M18DA211**
5 mm	PNP	12-48 V	N.O.	200 mA	2000 Hz	A	—	**XS1M18PA371**
5 mm	NPN	12-48 V	N.O.	200 mA	2000 Hz	A	—	**XS1M18NA371**
Shielded, connector - mini style - 0.3 m (2.6 ft) pigtail								
5 mm	2-wire	12-48 V	N.O.★	1.5-100 mA	3000 Hz	A	21,22	**XS1M18DA211LA**
Non-shielded, 2 m (6.6') cable								
8 mm	NPN	12-48 V	N.O.	200 mA	2000 Hz	A	—	**XS2M18PA371**
8 mm	NPN	12-48 V	N.O.	200 mA	2000 Hz	A	—	**XS2M18NA371**
Plastic case								
Non-shielded, 2 m (6.6') cable								
8 mm	PNP	12-48 V	N.O.★	200 mA	2000 Hz	A	—	**XS4P18PA370**
8 mm	NPN	12-48 V	N.O.★	200 mA	2000 Hz	A	—	**XS4P18NA370**
8 mm	PNP + NPN	12-24 V	N.O./N.C.	200 mA	2000 Hz	A	—	**XS4P18KP340**
Non-shielded, connector - micro style								
8 mm	PNP	12-48 V	N.O.★	200 mA	2000 Hz	A	11,12,13,15,16	**XS4P18PA370D**
8 mm	NPN	12-48 V	N.O.★	200 mA	2000 Hz	A	11,12,14,15,16	**XS4P18NA370D**
8 mm	PNP + NPN	12-24 V	N.O./N.C.	200 mA	2000 Hz	A	11,12,15,16	**XS4P18KP340D**
Non-shielded, screw terminal connector								
8 mm	PNP	12-48 V	N.O.	200 mA	2000 Hz	A	—	**XS4P18PA370B**
8 mm	NPN	12-48 V	N.O.	200 mA	2000 Hz	A	—	**XS4P18NA370B**

★ To order a normally closed (N.C.) version change the **A** to **B**, example: XS1M12P**A**371 to XS1M12P**B**371.

① See next page under specifications for LED function.

Minimum Mounting Clearances (mm/inches)



	Side by side	Face to face	Facing a metal object	Mounting in a metal support
XS1 Shielded	e: 10/.39	e: 60/2.36	e: 15/.59	D: 18/.71, H: 0/0
XS2/XS4 Non-shielded	e: 16/.63	e: 96/3.78	e: 24/.94	D: 54/2.13, H: 8/.31

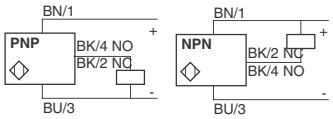
Wiring

Connector

Cable

Blue BU –
Brown BN +
Black BK Output

Wire color/connector pin
3 wire NO or NC

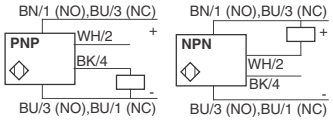


Connector

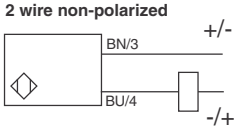
Cable

Blue BU –
Brown BN +
Black BK Output

4 wire, programmable, NO or NC output



2 wire non-polarized



Specifications

Mechanical				
Usable sensing range★	Shielded		0 to 4 mm	
	Non-shielded		0 to 6.4 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	Stainless steel	Case	#303 Stainless steel	
		Sensing face	PBT	
	Plastic		PBT	
Tightening torque (max.)	Stainless steel		50 N•m 37 (lb-ft)	
	Plastic		5 N•m 3.7 (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)	Shielded		0.7" x 0.7" (18 mm x 18 mm)	
	Non-shielded		0.94" x 0.94" (24 mm x 24 mm)	
Differential (% of Sr)			15%	
Repeatability (% of Sr)			3%	
LED indicator type	A		360° ring LED: Shows output status	
Cable	2 wire		20 AWG (0.5 mm^2), PvR	
	3 wire		22 AWG (0.34 mm^2), PvR	
Electrical			**Standard**	**KP-Models**
Voltage range			12 to 48 Vdc	12 to 24 Vdc
Voltage limit (including ripple)			10 to 58 Vdc	10 to 38 Vdc
Voltage drop (across switch), closed state	Nickel plated brass & Stainless	2 wire	4 V	-
		3 wire	2 V	-
		4 wire	-	2.6
	Plastic	3 wire	2 V	
Minimum load current	2 wire		1.5 mA	
Maximum load current	2 wire		100 mA	
	3 wire		200 mA	
Residual (leakage) current, open state	2 wire		0.6 mA	
On delay (max.)			0.15 ms	
Off delay (max.)			0.35 ms	
Power-up delay (max.)			5 ms	
Protective circuitry	Short circuit protection		Yes	
	Overload		Yes	
	Radio frequency immunity (RFI)		IEC 61000-4-3 Level 3	
	Electrostatic; transients; impulse (L - indicates level number)		2 wire: IEC 61000-4-2 L3; IEC 61000-4-4 L3; 60947.5.2 L3	
			3 wire: IEC 6000-4-2 L2; IEC 61000-4-4 L3; 60947.5.2 L3	
	Reverse polarity protection		Yes	
Agency Listings	E 164869 CCN NRKH, CR 44087 Class 3211 03, CE			

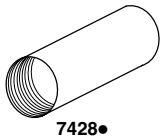
Options

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

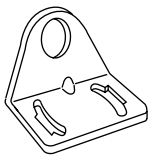
Accessories

Description		Catalog Number
Plastic mounting nuts		**XSZE218**
Stainless steel mounting nuts		**XSZE318**
Locknut washers, stainless steel		**XSZE918**
Mounting bracket, 90° steel		**9006PA18**
Mounting bracket, plastic		**XSZB118**
0.5" NPT conduit adapter length 2" (50.8mm)	Aluminum	**7428**
	Stainless	**74282**

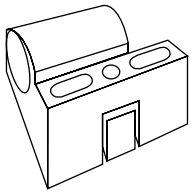
★ Refer to p. 351 for target material correction coefficient Km.



7428●



9006PA●●



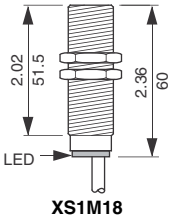
XSZB1●●

Connector Cables
(M12 or D suffix; U78 or A suffix)

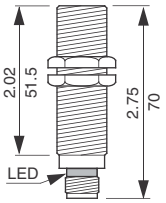
XSZCD101Y	Micro Conn., 4 pin, 2 m, straight
XSZCD111Y	Micro Conn., 4 pin, 2 m, 90°
XSZCA101Y	Micro Conn., 3 pin, 2 m, straight
XSZCA111Y	Micro Conn., 3 pin, 2 m, 90°

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

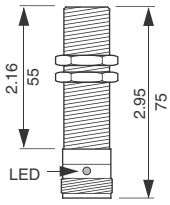
Telemecanique



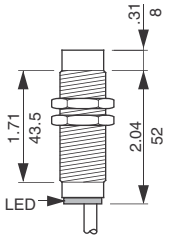
XS1M18



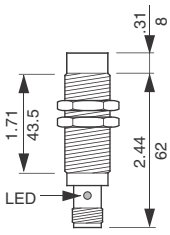
XS1M18•K



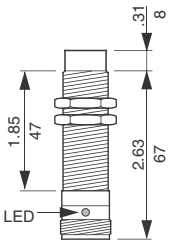
XS1M18•A



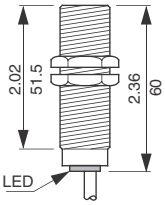
XS2M18•



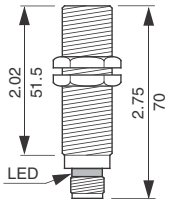
XS2M18•K



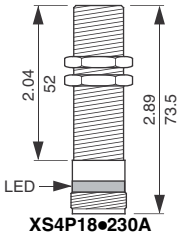
XS2M18•A



XS4P18•230



XS4P18•230K



XS4P18•230A

Dual Dimensions inches / mm

thread M18x1

Features

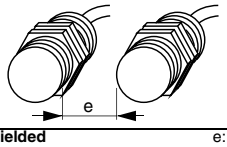
- 360° LED indicators
- Extended temperature range
- Extended supply voltage range
- IP68 AC/DC power supply
- Patented plastic mounting bracket
- Connector options
- Extensive protective circuitry
- Metal locknuts for metal or plastic mounting nuts for plastic housings included
- Normally closed (N.C.) output available on versions marked ★
- UL Listed, CSA Certified and CE Mark

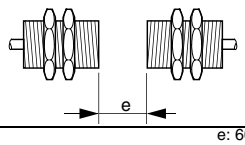
Nominal Sensing Distance	AC or AC/DC	Output Mode	Voltage Range		Operating Frequencies		SCP	Indicator LED ①	Mating Connector Style (see p. 518)	Catalog Number
			AC	DC	AC	DC				
Nickel brass case										
Shielded, 2 m (6.6') cable										
5 mm	AC/DC	N.O.★	24-240 V	24-210 V	25 Hz	3000 Hz	no	A	—	**XS1M18MA230**
5 mm	AC/DC	N.O.★	24-240 V	24-210 V	25 Hz	3000 Hz	yes	C	—	**XS1M18MA250**
Shielded, connector - micro style AC										
5 mm	AC/DC	N.O.★	24-240 V	24-210 V	25 Hz	3000 Hz	no	B	17,18	**XS1M18MA230K**
5 mm	AC/DC	N.O.★	24-240 V	24-210 V	25 Hz	3000 Hz	yes	B	17,18	**XS1M18MA250K**
Shielded, connector - mini style										
5 mm	AC/DC	N.O.★	24-240 V	24-210 V	25 Hz	3000 Hz	no	B	23,24	**XS1M18MA230A**
5 mm	AC/DC	N.O.★	24-240 V	24-210 V	25 Hz	3000 Hz	yes	C	23,24	**XS1M18MA250A**
Shielded, screw terminal connection										
5 mm	AC/DC	N.O.★	24-240 V	24-210 V	25 Hz	3000 Hz	no	B	—	**XS1M18MA230B**
Non-shielded, 2 m (6.6') cable										
8 mm	AC/DC	N.O.★	24-240 V	24-210 V	25 Hz	2000 Hz	no	A	—	**XS2M18MA230**
8 mm	AC/DC	N.O.★	24-240 V	24-210 V	25 Hz	2000 Hz	yes	C	—	**XS2M18MA250**
Non-shielded, connector - micro style AC										
8 mm	AC/DC	N.O.★	24-240 V	24-210 V	25 Hz	2000 Hz	no	B	23,24	**XS2M18MA230K**
8 mm	AC/DC	N.O.★	24-240 V	24-210 V	25 Hz	2000 Hz	yes	B	23,24	**XS2M18MA250K**
Non-shielded, connector - mini style										
8 mm	AC/DC	N.O.★	24-240 V	24-210 V	25 Hz	2000 Hz	no	B	18	**XS2M18MA230A**
8 mm	AC/DC	N.O.★	24-240 V	24-210 V	25 Hz	2000 Hz	yes	C	18	**XS2M18MA250A**
Plastic case										
Non-shielded, 2 m (6.6') cable										
8 mm	AC/DC	N.O.★	24-240 V	24-210 V	25 Hz	2000 Hz	no	A	—	**XS4P18MA230**
Non-shielded, connector - micro style										
8 mm	AC/DC	N.O.★	24-240 V	24-210 V	25 Hz	2000 Hz	no	A	17,18	**XS4P18MA230K**
Non-shielded, connector - mini style										
8 mm	AC/DC	N.O.★	24-240 V	24-210 V	25 Hz	2000 Hz	no	A	23,24	**XS4P18MA230A**
Shielded, screw terminal connection										
8 mm	AC/DC	N.O.★	24-240 V	24-210 V	25 Hz	2000 Hz	no	B	—	**XS4P18MA230B**

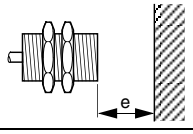
★ To order a normally closed (N.C.) version change the **A** to **B**, example: XS1M12P**A**260 to XS1M12P**B**260.

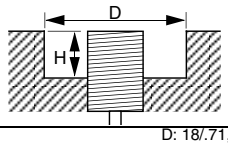
① See next page under specifications for LED function.

Minimum Mounting Clearances (mm/inches)



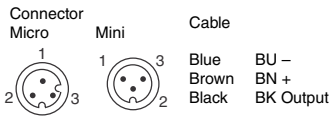




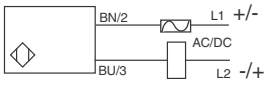


	Side by side	Face to face	Facing a metal object	Mounting in a metal support
XS1 Shielded	e: 10/.39	e: 60/2.36	e: 15/.59	D: 18/.71, H: 0/0
XS2/XS4 Non-shielded	e: 16/.63	e: 96/3.78	e: 24/.94	D: 54/2.13, H: 8/.31

Wiring



Wire color/connector pin
2 wire, AC/DC or AC



Specifications

Mechanical			
Usable sensing range★	Shielded		0 to 4 mm
	Non-shielded		0 to 6.4 mm
Standard temperature range			-25° C to +80° C (-13° F to +176° F)
Enclosure rating - cable (for connector, see p. 518)	NEMA Type		4X, 6P, 12, 13
	IEC Type		IP68
Enclosure material	Nickel plated brass	Case	Nickel plated brass
		Sensing face	PBT
	Plastic		PBT
Tightening torque (max.)	Nickel plated brass		35 N•m 26 (lb-ft)
	Plastic		5 N•m 3.7 (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)	Shielded		0.7" x 0.7" (18 mm x 18 mm)
	Non-shielded		0.94" x 0.94" (24 mm x 24 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
	C		2 LED indicators: Red shows output status Green shows normal operation (SCP only)
Cable	2 wire		20 AWG (0.5 mm^2), PvR
	3 wire		22 AWG (0.34 mm^2), PvR
Electrical			
Voltage range			24 to 240 Vac, 24-210 Vdc
Voltage limit (including ripple)			20 to 264 Vac/dc
Voltage drop (across switch), closed state (max)			5.5 V
Inrush current			2 A
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	without SCP		0.6 mA
	with SCP		1.5 mA
On delay (max)	without SCP		0.2 ms
	with SCP		2 ms
Off delay (max)	without SCP		0.2 ms
	with SCP		4 ms
Power-up delay (max.)	without SCP		40 ms
	with SCP		70 ms
Protective circuitry	Short circuit protection		Optional▲
	Radio frequency immunity (RFI)		IEC 61000-4-3 Level 3
	Electrostatic; transients; impulse		IEC 61000-4-2 L4; IEC 61000-4-4 L4; 60947.5.2 L3
Agency Listings	UL E 164869 CCN NRKH	CSA CR 44087 Class 3211 03	CE

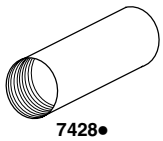
Options

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

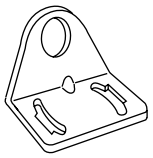
Accessories

Description		Catalog Number
Plastic mounting nuts		**XSZE218**
Metal mounting nuts and lock washers		**XSZE118**
Mounting bracket, 90° steel		**9006PA18**
Mounting bracket, plastic		**XSZB118**
0.5" NPT conduit adapter length 2" (50.8 mm)	Aluminum	**7428**
	Stainless	**74282**

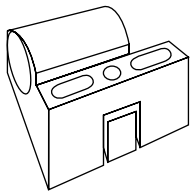
★ Refer to p. 351 for target material correction coefficient Km.
▲ For devices without SCP, see p. 298 for protective fuses.



7428●



9006PA●●



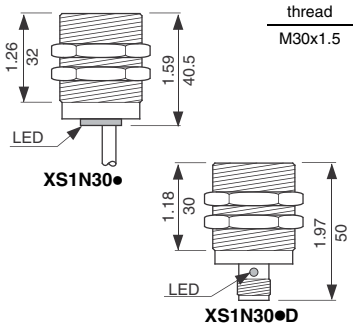
XSZB1●●

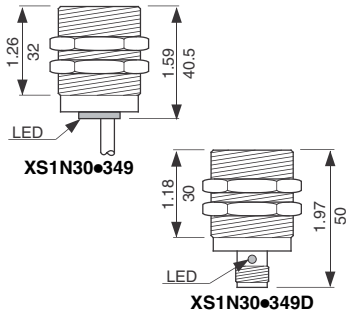
Connector Cables
(U20 or K suffix; U78 or A suffix)

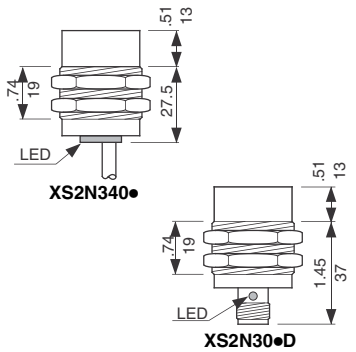
XSZCK101Y	Micro Conn., 3 pin, 2 m, straight
XSZCK111Y	Micro Conn., 3 pin, 2 m, 90°
XSZCA101Y	Micro Conn., 3 pin, 2 m, straight
XSZCA111Y	Micro Conn., 3 pin, 2 m, 90°

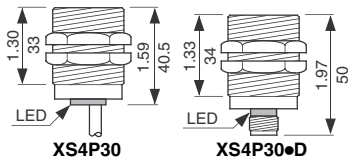
For additional cable options and lengths see p. 518
Accessories . . . . . page 298, 316

Proximity Sensors
XS Tubular Inductive Sensors
30 mm Diameter, DC; Economy Short Length









Dual Dimensions inches / mm

thread M30x1.5

Features

- 360° LED indicators
- Extended range models
- Complementary N.O. + N.C. models
- Rugged metal or plastic cases
- Patented plastic mounting bracket
- Connector options
- Extensive protective circuitry
- Works with unregulated DC supply powered by 24 V secondary transformer
- Metal locknuts for metal or plastic mounting nuts for plastic housing included
- Normally closed (N.C.) output available on versions mode marked ⋆
- UL Listed, CSA Certified and CE Mark

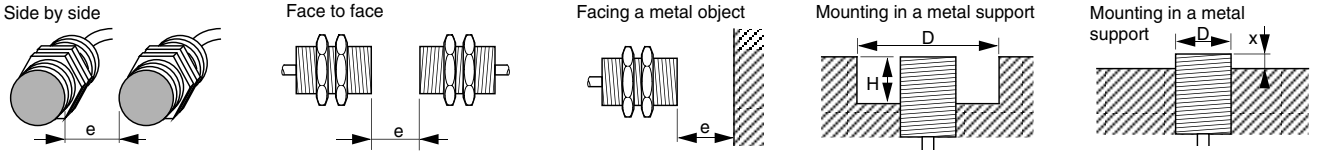
Nominal Sensing Distance	Circuit Type	Voltage Range	Output Mode	Operating Frequency	Indicator LED ①	Mating Connector Style (see p. 518)	Catalog Number
Nickel plated brass case							
Shielded, 2 m (6.6') cable							
10 mm	PNP	12-24 V	N.O.★	1000 Hz	A	—	**XS1N30PA340**
10 mm	NPN	12-24 V	N.O.★	1000 Hz	A	—	**XS1N30NA340**
10 mm	PNP	12-24 V	N.O. + N.C.	1000 Hz	A	—	**XS1N30PC410**
10 mm	NPN	12-24 V	N.O. + N.C.	1000 Hz	A	—	**XS1N30NC410**
Shielded◆, connector - micro style							
10 mm	PNP	12-24 V	N.O.★	1000 Hz	B	11,12,13,15,16	**XS1N30PA340D**
10 mm	NPN	12-24 V	N.O.★	1000 Hz	B	11,12,14,15,16	**XS1N30NA340D**
10 mm	PNP	12-24 V	N.O. + N.C.	1000 Hz	B	11,12,13,15,16	**XS1N30PC410D**
10 mm	NPN	12-24 V	N.O. + N.C.	1000 Hz	B	11,12,14,15,16	**XS1N30NC410D**
Shielded◆, EXTENDED RANGE, 2 m (6.6') cable							
20 mm	PNP	12-24 V	N.O.★	500 Hz	A	—	**XS1N30PA349**
20 mm	NPN	12-24 V	N.O.★	500 Hz	A	—	**XS1N30NA349**
Shielded, EXTENDED RANGE, connector - micro style							
20 mm	PNP	12-24 V	N.O.★	500 Hz	B	11,12,13,15,16	**XS1N30PA349D**
20 mm	NPN	12-24 V	N.O.★	500 Hz	B	11,12,14,15,16	**XS1N30NA349D**
Non-shielded, 2 m (6.6') cable							
15 mm	PNP	12-24 V	N.O.	1000 Hz	A	—	**XS2N30PA340**
15 mm	NPN	12-24 V	N.O.	1000 Hz	A	—	**XS2N30NA340**
15 mm	PNP	12-24 V	N.O. + N.C.	1000 Hz	A	—	**XS2N30PC410**
15 mm	NPN	12-24 V	N.O. + N.C.	1000 Hz	A	—	**XS2N30NC410**
Non-shielded, connector - micro style							
15 mm	PNP	12-24 V	N.O.	1000 Hz	B	11,12,13,15,16	**XS2N30PA340D**
15 mm	NPN	12-24 V	N.O.	1000 Hz	B	11,12,14,15,16	**XS2N30NA340D**
15 mm	PNP	12-24 V	N.O. + N.C.	1000 Hz	B	11,12,13,15,16	**XS2N30PC410D**
15 mm	NPN	12-24 V	N.O. + N.C.	1000 Hz	B	11,12,14,15,16	**XS2N30NC410D**
Plastic case							
Non-shielded, 2 m (6.6') cable							
15 mm	PNP	12-24 V	N.O.	1000 Hz	A	—	**XS4P30PA340**
15 mm	NPN	12-24 V	N.O.	1000 Hz	A	—	**XS4P30NA340**
15 mm	PNP	12-24 V	N.O. + N.C.	1000 Hz	A	—	**XS4P30PC410**
15 mm	NPN	12-24 V	N.O. + N.C.	1000 Hz	A	—	**XS4P30NC410**
Non-shielded, connector - micro style							
15 mm	PNP	12-24 V	N.O.	1000 Hz	A	11,12,13,15,16	**XS4P30PA340D**
15 mm	NPN	12-24 V	N.O.	1000 Hz	A	11,12,14,15,16	**XS4P30NA340D**
15 mm	PNP	12-24 V	N.O. + N.C.	1000 Hz	A	11,12,13,15,16	**XS4P30PC410D**
15 mm	NPN	12-24 V	N.O. + N.C.	1000 Hz	A	11,12,14,15,16	**XS4P30NC410D**

★ To order a normally closed (N.C.) version change the **A** to **B**, example: XS1N12P**A**340 to XS1N12P**B**340.

① See next page under specifications for LED function.

◆ See dimension X below.

Minimum Mounting Clearances (mm/inches)



	Side by side	Face to face	Facing a metal object	Mounting in a metal support	Mounting in a metal support
XS1 Shielded	e: 20/.79	e: 120/4.72	e: 30/1.18	D: 30/1.18, H: 0/0	x: 0/0
XS1 Extended range	e: 40/1.57	e: 240/9.45	e: 60/2.36		x: 6/.24
XS2/XS4 Non-shielded	e: 60/2.36	e: 180/7.09	e: 45/1.77	D: 90/3.54, H: 30/1.18	

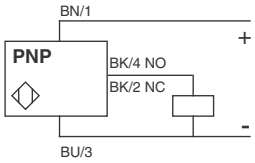
Wiring

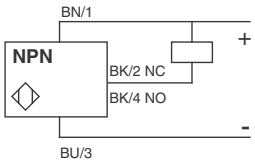
Connector

Cable

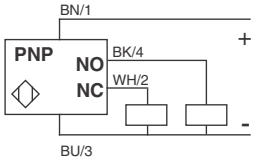
Blue	BU –
Brown	BN +
Black	BK Output

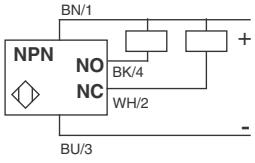
Wire color/connector pin
3 wire NO or NC

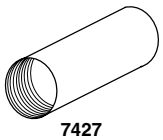




4 wire NO + NC







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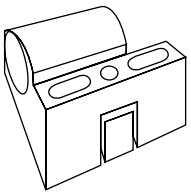
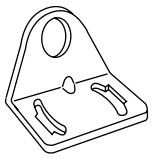


XSZB1●●



9006PA●●

Connector Cables (M12 or D suffix)

XSZCD101Y	Micro Conn., 4 pin, 2 m, straight
XSZCD111Y	Micro Conn., 4 pin, 2 m, 90°

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

Specifications

Mechanical			
Usable sensing range★	Shielded	Standard Range	0 to 8 mm
		Extended Range	0 to 16 mm
	Non-shielded		0 to 12 mm
Standard temperature range	Nickel plated brass		-25° C to +70° C (-13° F to +158° F)
	Plastic		-25° C to +80° C (-13° F to +176° F)
Extended range			-25° C to 50° C (-13° F to +122° F)
Enclosure rating - cable (for connector, see p. 518)	Nickel plated brass	NEMA Type	3, 4X, 6P, 12, 13
		IEC Type	IP67
	Plastic	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
		Sensing face	PBT
Tightening torque (max.)	Nickel plated brass		40 N•m 29.5 (lb-ft)
	Plastic		20 N•m 15 (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)	Shielded	Standard Range	1.18" x 1.18" (30 mm x 30 mm)
		Extended range	1.88" x 1.88" (48 mm x 48 mm)
	Unshielded		1.41" x 1.41" (36 mm x 36 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	3 or 4 wire		22 AWG (0.34 mm^2), PvR
Electrical			
Voltage range			12 to 24 Vdc
Voltage limit (including ripple)			10 to 38 Vdc
Voltage drop (across switch), closed state			2 V
Maximum load current			200 mA
Current consumption (no load)			10 mA
On delay (max.)	Shielded	Standard Range	0.3 ms
		Extended Range	0.6 ms
	Non-shielded		0.3 ms
Off delay (max.)	Shielded	Standard Range	0.7 ms
		Extended Range	1.4 ms
	Non-shielded		0.7 ms
Power up delay			5 ms
Protective circuitry	Short circuit protection		Yes
	Overload		Yes
	Radio frequency immunity (RFI)		IEC 61000-4-3 Level 3
	Electrostatic; transients; impulse (L – indicates level number)		2 wire: IEC 61000-4-2 L3; IEC 61000-4-4 L2; 60947.5.2 L3
			3 wire: IEC 61000-4-2 L3; IEC 61000-4-4L3; 60947.5.2 L3 Extended range: IEC 61000-4-4 L3
	Reverse polarity protection		Yes
Agency Listings	UL E 164869 CCN NRKH	CSA CR 44087 Class 3211 03	CE

Options

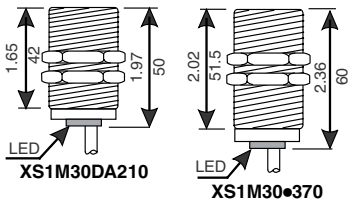
Description		Suffix
Extended temperature range (cable type and standard sensing distance only)	Down to -40° C (-40° F)	TF
Extended cable length	16.4 ft. (5 meter) cable	L1
	32.8 ft. (10 meter) cable	L2

Accessories

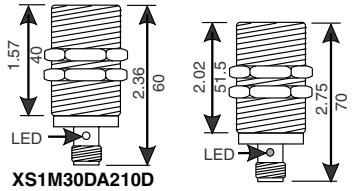
Description		Catalog Number
Plastic mounting nuts		**XSZE230**
Metal mounting nuts and lock nuts		**XSZE130**
Mounting bracket 90° steel		**9006PA30**
Mounting bracket, plastic, long length		**XSZB130**
0.5" NPT conduit adapter length 2" (50.8mm)	Aluminum	**7427**

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

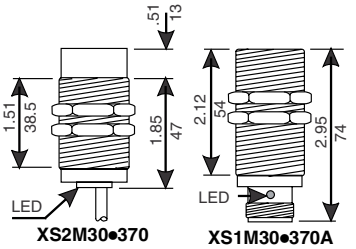
Telemecanique



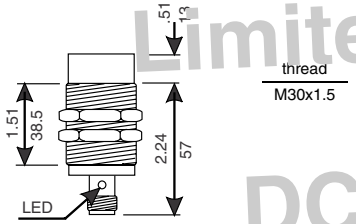
XS1M30DA210 XS1M30•370



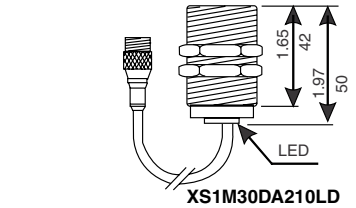
XS1M30DA210D XS1M30•370D



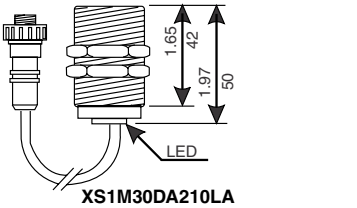
XS2M30•370 XS1M30•370A



XS2M30•370D



XS1M30DA210LD



XS1M30DA210LA

Dual Dimensions inches / mm thread M30x1.5

Features

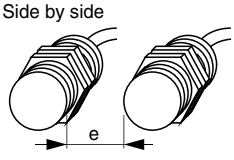
- Faster troubleshooting aided by high visibility 360° indicators
- 2 wire versions simplify wiring
- Rugged case designed for aggressive industrial environments
- Worry free replacement: standard length, extended temperature and supply voltage range, improved enclosure ratings (IP68), 3 wire complementary PNP + NPN with selectable N.O./ N.C. output circuit
- Pigtail connector version (0.8 m /2.6' cable) provides cutting oil (IP68) ratings and connection for aggressive environments.
- Significant replacement time savings using patented plastic mounting bracket (no gauging) or connectors
- Trouble free operation ensured by extensive protective circuitry
- Works with unfiltered rectified power supply
- Metal mounting lock nuts included
- Normally closed (N.C.) output available on versions marked ★
- UL Listed, CSA Certified and CE Mark

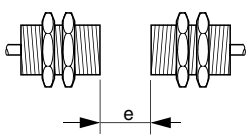
Nominal Sensing Distance	Circuit Type	Voltage Range	Output Mode	Max. Load	Operating Frequency	Indicator LED ①	Mating Connector Style (see p. 518)	Catalog Number
Nickel plated brass case								
Shielded, 2 m (6.6') cable								
10 mm	2-wire	24-48 V	N.O.★	1.5-100 mA	2000 Hz	A	—	XS1M30DA210
10 mm	PNP	12-48 V	N.O.★	200 mA	1000 Hz	A	—	XS1M30PA370
10 mm	NPN	12-48 V	N.O.★	200 mA	1000 Hz	A	—	XS1M30NA370
10 mm	PNP + NPN	12-24 V	N.O./N.C.	200 mA	1000 Hz	A	—	XS1M30KP340
Shielded, connector - micro style DC - 0.8 m (2.6 ft) pigtail								
10 mm	2-wire	12-48 V	N.O.★	1.5-100 mA	2000 Hz	A	11,12,15,16	XS1M30DA210LD
Shielded, connector - micro style DC								
10 mm	2 wire	12-48 V	N.O.★	1.5-100 mA	2000 Hz	B	11,12,15,16	XS1M30DA210D
10 mm	PNP	12-48 V	N.O.★	200 mA	1000 Hz	B	11,12,13,15,16	XS1M30PA370D
10 mm	NPN	12-48 V	N.O.★	200 mA	1000 Hz	B	11,12,14,15,16	XS1M30NA370D
10 mm	PNP + NPN	12-24 V	N.O./N.C.	200 mA	1000 Hz	B	11,12,15,16	XS1M30KP340D
Shielded, connector - mini style - 0.8 m (2.6 ft) pigtail								
10 mm	2-wire	12-48 V	N.O.★	1.5-100 mA	2000 Hz	A	21,22	XS1M30DA210LA
Shielded, connector - mini style								
10 mm	PNP	12-48 V	N.O.	200 mA	1000 Hz	B	21,22	XS1M30PA370A
10 mm	NPN	12-48 V	N.O.	200 mA	1000 Hz	B	21,22	XS1M30NA370A
Shielded, connector - screw terminal connection								
10 mm	2 wire	12-48 V	N.O.★	1.5-100 mA	2000 Hz	B	—	XS1M30DA210B
10 mm	PNP	12-48 V	N.O.★	200 mA	1000 Hz	B	—	XS1M30PA370B
10 mm	NPN	12-48 V	N.O.★	200 mA	1000 Hz	B	—	XS1M30NA370B
Non-shielded, 2 m (6.6') cable								
15 mm	PNP	12-48 V	N.O.★	200 mA	1000 Hz	A	—	XS2M30PA370
15 mm	NPN	12-48 V	N.O.★	200 mA	1000 Hz	A	—	XS2M30NA370
15 mm	PNP + NPN	12-24 V	N.O./N.C.	200 mA	1000 Hz	A	—	XS2M30KP340
Non-shielded, connector - micro style								
15 mm	PNP	12-48 V	N.O.★	200 mA	1000 Hz	B	11,12,13,15,16	XS2M30PA370D
15 mm	NPN	12-48 V	N.O.★	200 mA	1000 Hz	B	11,12,14,15,16	XS2M30NA370D
15 mm	PNP + NPN	12-24 V	N.O./N.C.	200 mA	1000 Hz	B	11,12,15,16	XS2M30KP340D

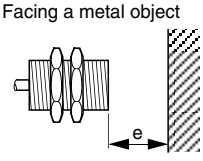
★ To order a normally closed (N.C.) version change the **A** to **B**, example: XS1M12P**A**370 to XS1M12P**B**370.

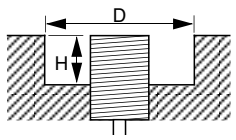
① See next page under specifications for LED function.

Minimum Mounting Clearances (mm/inches)









	Side by side	Face to face	Facing a metal object	Mounting in a metal support
XS1 Shielded	e: 20/.79	e: 120/4.72	e: 30/1.18	D: 30/1.18, H: 0/0
XS2 Non-shielded	e: 60/2.36	e: 180/7.09	e: 45/1.77	D: 90/3.54, H: 30/1.18

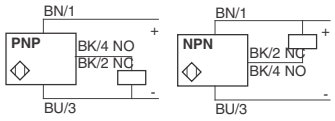
Wiring

Connector

Cable

Blue	BU –
Brown	BN +
Black	BK Output

Wire color/connector pin
3 wire NO or NC

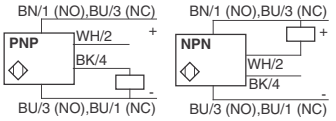


Connector

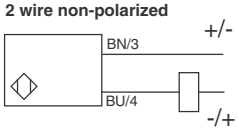
Cable

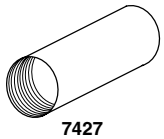
Blue	BU –
Brown	BN +
Black	BK Output

4 wire, programmable, NO or NC output

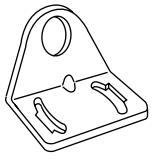


2 wire non-polarized

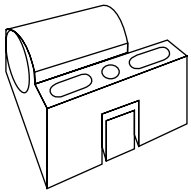




7427



9006PA●●



XSZB1●●

Connector Cables
(M12 or D suffix; U78 or A suffix)

XSZCD101Y	Micro Conn., 4 pin, 2 m, straight
XSZCD111Y	Micro Conn., 4 pin, 2 m, 90°
XSZCA101Y	Micro Conn., 3 pin, 2 m, straight
XSZCA111Y	Micro Conn., 3 pin, 2 m, 90°

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

Specifications

Mechanical			
Usable sensing range★	Shielded	0 to 8 mm	
	Non-shielded	0 to 12 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 – cutting oil proof, IP67 for B screw terminals	
Enclosure material	Nickel plated brass	Case: Nickel plated Brass	
		Sensing face: PBT	
Tightening torque (max.)	Nickel plated brass	50 N•m 37 (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)	Shielded	1.18" x 1.18" (30 mm x 30 mm)	
	Non-shielded	1.41" x 1.41" (36 mm x 36 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	20 AWG (0.5 mm^2), PvR	
	3 wire	22 AWG (0.34 mm^2), PvR	
Electrical		**Std.**	**KP-Models**
Voltage range – nominal		12-48 Vdc	12-24 Vdc
Voltage limit (including ripple)		10-58 Vdc	10-38 Vdc
Voltage drop (across switch), closed state	3 wire	2 V	2.6 V
	2 wire	4 V	
Minimum load current	2 wire	1.5 mA	
Maximum load current	2 wire	100 mA	
	3 wire	200 mA	
Current consumption (no load)	3 wire	10 mA	
Residual (leakage) current, open state	2 wire	0.5 mA	
On delay (max.)	2 wire	0.2 ms	
	3 wire	0.3 ms	
Off delay (max.)	2 wire	0.3 ms	
	3 wire	0.7 ms	
Power-up delay (max.)		5 ms	
Protective circuitry			
Short circuit protection		Yes	
Overload		Yes	
Radio frequency immunity (RFI)		IEC 61000-4-3 Level 3	
Electrostatic; transients; impulse (L - indicates level number)		2 wire IEC 61000-4-2 L3; IEC 61000-4-4 L3; 60947.5.2 L3	
		3 wire IEC 61000-4-2 L3; IEC 61000-4-4 L2; 60947.5.2 L3	
Reverse polarity protection		Yes	
Agency Listings	UL E 164869 CCN NRKH	CSA CR 44087 Class 3211 03	CE

Options

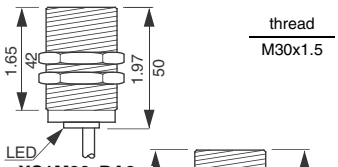
Description		**Suffix**
Extended temperature range (cable type only)	Down to -40°+ C (-40°+ F)	TF
Extended cable length	16.4 ft. (5 meter) cable	L1
	32.8 ft. (10 meter) cable	L2

Accessories

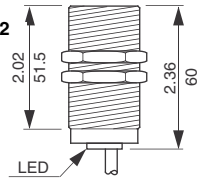
Description		**Catalog Number**
Metal mounting lock nuts		**XSZE130**
Mounting bracket, 90° steel and lock washers		**9006PA30**
Mounting bracket, plastic		**XSZB130**
0.5" NPT conduit adapter length 2" (50.8mm)	Aluminum	**7427**

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

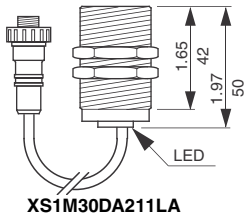
Telemecanique



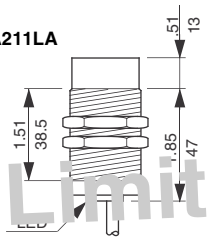
XS1M30•DA2



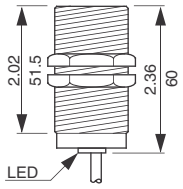
XS1M30•371



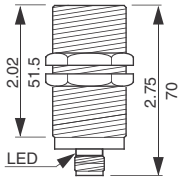
XS1M30DA211LA



XS2M30•371



XS4P30•370



XS4P30•370D

Dual Dimensions inches / mm

Features

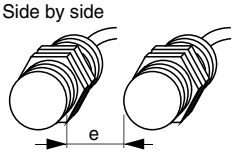
- Faster troubleshooting aided by high visibility 360° indicators
- 2 wire versions simplify wiring
- High impact stainless steel and plastic cases for aggressive environments - cutting oils, grease, solvents, etc.
- Worry free replacement: standard length, extended temperature and supply voltage range, improved enclosure ratings (IP68), 3 wire complementary PNP + NPN with selectable N.O./ N.C. output circuit
- Significant replacement time savings using patented plastic mounting bracket (no gauging) or connectors
- Pigtail connector version (0.8 m /2.6' cable) provides cutting oil (IP68) ratings and connection for aggressive environments.
- Trouble free operation ensured by extensive protective circuitry
- Works with unfiltered rectified power supply
- Stainless steel or plastic mounting nuts included
- Normally closed (N.C.) output available on versions marked★
- UL Listed, CSA Certified and CE Mark

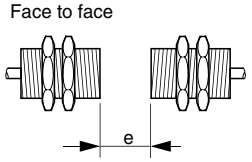
Nominal Sensing Distance	Circuit Type	Voltage Range	Output Mode	Max Load	Operating Frequency	Indicator LED ①	Mating Connector Style (See p. 21)	Catalog Number
Stainless steel case								
Shielded, 2 m (6.6') cable								
10 mm	2-wire	12-48 V	N.O.★	1.5-100 mA	2000 Hz	A	—	**XS1M30DA211**
10 mm	PNP	12-48 V	N.O.	200 mA	1000 Hz	A	—	**XS1M30PA371**
10 mm	NPN	12-48 V	N.O.	200 mA	1000 Hz	A	—	**XS1M30NA371**
Shielded, connector - micro style - 0.8 m (2.6 ft) pigtail								
10 mm	2-wire	12-48 V	N.O.★	1.5-100 mA	2000 Hz	A	11,12,15,16	**XS1M30DA211LD**
Shielded, connector - micro style - 0.8 m (2.6 ft), pigtail								
10mm	2-wire	12-48 V	N.O.★	1.5-100 mA	2000 Hz	A	21,22	**XS1M30DA211LA**
Non-shielded, 2 m (6.6') cable								
15 mm	PNP	12-48 V	N.O.	200 mA	1000 Hz	A	—	**XS2M30PA371**
15 mm	NPN	12-48 V	N.O.	200 mA	1000 Hz	A	—	**XS2M30NA371**
Plastic case								
Non-shielded, 2 m (6.6') cable								
15 mm	PNP	12-48 V	N.O.★	200 mA	1000 Hz	A	—	**XS4P30PA370**
15 mm	NPN	12-48 V	N.O.★	200 mA	1000 Hz	A	—	**XS4P30NA370**
15 mm	PNP/NPN	12-24 V	N.O./N.C.	200 mA	1000 Hz	A	—	**XS4P30KP340**
Non-shielded, connector - micro style DC								
15 mm	PNP	12-48 V	N.O.★	200 mA	1000 Hz	A	11,12,13,15,16	**XS4P30PA370D**
15 mm	NPN	12-48 V	N.O.★	200 mA	1000 Hz	A	11,12,14,15,16	**XS4P30NA370D**
15 mm	PNP/NPN	12-24 V	N.O/.N.C.	200 mA	1000 Hz	A	11,12,15,16	**XS4P30KP340D**

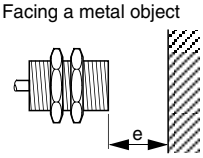
★ To order a normally closed (N.C.) version change the **A** to **B**, example: XS1M12P**A**371 to XS1M12P**B**371.

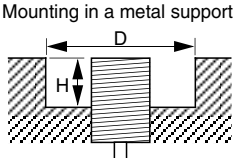
① See next page under specifications for LED function.

Minimum Mounting Clearances (mm/inches)









XS1 Shielded	e: 20/.79	e: 120/4.72	e: 30/1.18	D: 30/1.18, H: 0/0
XS2/XS4 Non-shielded	e: 60/2.36	e: 180/7.09	e: 45/1.77	D: 90/3.54, H: 30/1.18

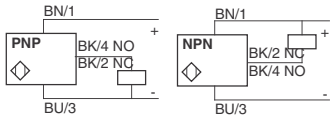
Wiring

Connector

Cable

Blue BU –
Brown BN +
Black BK Output

Wire color/connector pin
3 wire NO or NC

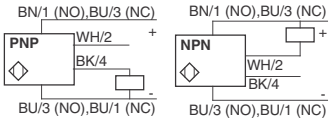


Connector

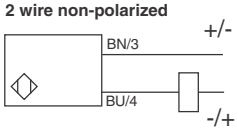
Cable

Blue BU –
Brown BN +
Black BK Output

4 wire, programmable, NO or NC output



2 wire non-polarized



Specifications

Mechanical				
Usable sensing range★	Shielded		0 to 8 mm	
	Non-shielded		0 to 12 mm	
Standard temperature range			-25° C to +80° C (-13° F to +176° F)	
Enclosure rating cable (for connector, see p. 517)	NEMA Type		3, 4X, 6P, 12, 13	
	IEC Type		IP68	
Enclosure material	Stainless steel	Case	#303 Stainless steel	
		Sensing face	PBT	
	Plastic		PBT	
Tightening torque (max.)	Stainless steel		100 N•m 74 (lb-ft)	
	Plastic		20 N•m 15 (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)	Shielded		1.18" x 1.18" (30 mm x 30 mm)	
	Non-shielded		1.41" x 1.41" (36 mm x 364 mm)	
Differential (% of Sr)			15%	
Repeatability (% of Sr)			3%	
LED indicator type	A		360° ring LED: Shows output status	
Cable	2 wire		20 AWG (0.5 mm^2), PvR	
	3 wire		22 AWG (0.34 mm^2), PvR	
Electrical			**Standard**	**KP-Models**
Voltage range – nominal			12 to 48 Vdc	12-24 Vdc
Voltage limit (including ripple)			10 to 58 Vdc	10-38 Vdc
Voltage drop (across switch), closed state		2 wire	4 V	
		3 wire	2 V	
		4 wire	–	2.6 V
Minimum load current	2 wire		1.5 mA	
Maximum load current	2 wire		100 mA	
	3 wire		200 mA	
Current consumption (on load)		3 wire	10 mA	
Residual (leakage) current, open state		2 wire	0.5 mA	
On delay (max.)		2 wire	0.2 ms	
		3 wire	0.3 ms	
Off delay (max.)		2 wire	0.3 ms	
		3 wire	0.7 ms	
Power-up delay (max.)			5 ms	
Protective circuitry	Short circuit protection		Yes	
	Overload		Yes	
	Radio frequency immunity (RFI)		IEC 61000-4-3 Level 3	
	Electrostatic; transients; impulse (L - indicates level number)		2 wire: IEC 61000-4-2 L3; IEC 61000-4-4 L3; 60947.5.2 L3	
			3 wire: IEC 61000-4-2 L2; IEC 61000-4-4 L3; 60947.5.2 L4	
	Reverse polarity protection		Yes	
Agency Listings	UL E 164869 CCN NRKH		CSA CR 44087 Class 3211 03	CE

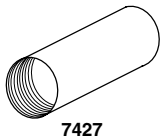
Options

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

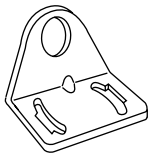
Accessories

Description		**Catalog Number**
Plastic mounting nuts		**XSZE230**
Stainless steel mounting nuts		**XSZE330**
Locknut washers, stainless steel		**XSZE930**
Mounting bracket, 90° steel		**9006PA30**
Mounting bracket, plastic		**XSZB130**
0.5" NPT conduit adapter length 2" (50.8mm)	Aluminum	**7427**

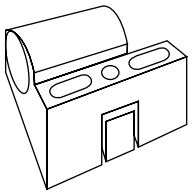
★ Refer to p. 351 for target material correction coefficient Km.



7427



9006PA••



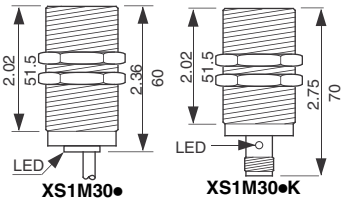
XSZB1••

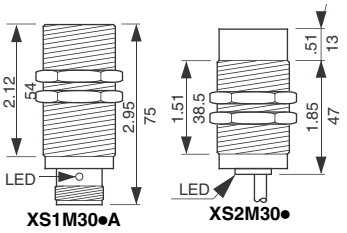
Connector Cables
(M12 or D suffix; U78 or A suffix)

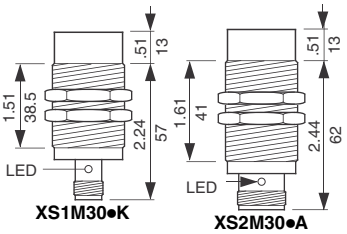
XSZCD101Y	Micro Conn., 4 pin, 2 m, straight
XSZCD111Y	Micro Conn., 4 pin, 2 m, 90°
XSZCA101Y	Micro Conn., 3 pin, 2 m, straight
XSZCA111Y	Micro Conn., 3 pin, 2 m, 90°

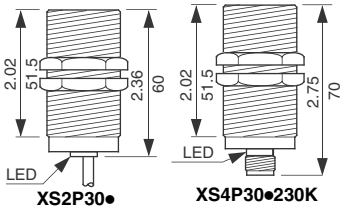
For additional cable options and lengths see p. 518
Accessories . . . . . page 298, 316

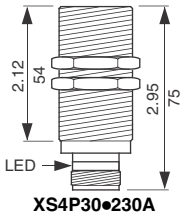
Proximity Sensors
XS Tubular Inductive Sensors
30 mm Diameter, AC/DC; Universal Standard Length











Dual Dimensions $\frac{\text{inches}}{\text{mm}}$ $\frac{\text{thread}}{\text{M30x1.5}}$

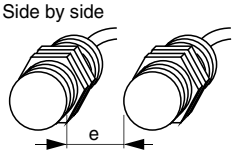
Features

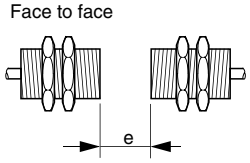
- 360° LED indicators
- Extended temperature range
- Extended supply voltage range
- IP68
- AC/DC power supply
- Patented plastic mounting bracket
- Connector options
- Extensive protective circuitry
- Metal lock nuts for metal or plastic mounting nuts for plastic housing and lock washers included
- Normally closed (N.C.) output available on versions marked ★
- UL Listed, CSA Certified and CE Mark

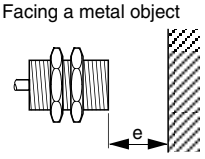
Nominal Sensing Distance	AC or AC/DC	Output Mode★	Voltage Range		Operating Frequency		SCP	Indicator LED ①	Mating Connector Style (see p. 518)	Catalog Number
			AC	DC	AC	DC				
Nickel plated brass case										
Shielded, 2 m (6.6') cable										
10 mm	AC/DC	N.O.★	24-240 V	24-210 V	25 Hz	2000 Hz	no	A	—	**XS1M30MA230**
10 mm	AC/DC	N.O.★	24-240 V	24-210 V	25 Hz	2000 Hz	yes	C	—	**XS1M30MA250**
Shielded, connector - micro style AC										
10 mm	AC/DC	N.O.★	24-240 V	24-210 V	25 Hz	2000 Hz	no	B	13,14	**XS1M30MA230K**
10 mm	AC/DC	N.O.★	24-240 V	24-210 V	25 Hz	2000 Hz	yes	B	13,14	**XS1M30MA250K**
Shielded, connector - mini style										
10 mm	AC/DC	N.O.★	24-240 V	24-210 V	25 Hz	2000 Hz	no	B	17,20	**XS1M30MA230A**
10 mm	AC/DC	N.O.★	24-240 V	24-210 V	25 Hz	2000 Hz	yes	C	18,20	**XS1M30MA250A**
Shielded, screw terminal connection										
10 mm	AC/DC	N.O.★	24-240 V	24-210 V	25 Hz	2000 Hz	no	B	—	**XS1M30MA230B**
Non-shielded, 2 m (6.6') cable										
15 mm	AC/DC	N.O.★	24-240 V	24-210 V	25 Hz	1000 Hz	no	A	—	**XS2M30MA230**
15 mm	AC/DC	N.O.★	24-240 V	24-210 V	25 Hz	1000 Hz	yes	C	—	**XS2M30MA250**
Non-shielded, connector - micro style AC										
15 mm	AC/DC	N.O.★	24-240 V	24-210 V	25 Hz	1000 Hz	no	B	13,14	**XS2M30MA230K**
15 mm	AC/DC	N.O.★	24-240 V	24-210 V	25 Hz	1000 Hz	yes	B	13,14	**XS2M30MA250K**
Non-shielded, connector - mini style										
15 mm	AC/DC	N.O.★	24-240 V	24-210 V	25 Hz	1000 Hz	no	B	18,19	**XS2M30MA230A**
15 mm	AC/DC	N.O.★	24-240 V	24-210 V	25 Hz	1000 Hz	yes	C	18,19	**XS2M30MA250A**
Plastic case										
Non-shielded, 2 m (6.6') cable										
15 mm	AC/DC	N.O.★	24-240 V	24-210 V	25 Hz	1000 Hz	no	A	—	**XS4P30MA230**
Non-shielded, connector - micro style										
15 mm	AC/DC	N.O.★	24-240 V	24-210 V	25 Hz	1000 Hz	no	A	13,14	**XS4P30MA230K**
Non-shielded, connector - mini style										
15 mm	AC/DC	N.O.★	24-240 V	24-210 V	25 Hz	1000 Hz	no	A	18,20	**XS4P30MA230A**
Non-shielded, screw terminal connector										
15 mm	AC/DC	N.O.★	24-240 V	24-210 V	25 Hz	1000 Hz	no	B	—	**XS4P30MA230B**

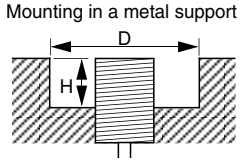
★ To order a normally closed (N.C.) version change the **A** to **B**, example: XS1M30P**A**260 to XS1M12P**B**260.
① See next page under specifications for LED function.

Minimum Mounting Clearances (mm/inches)



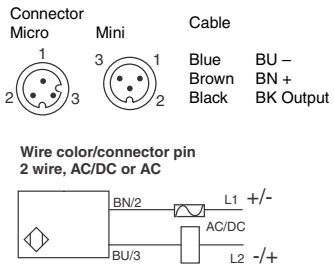






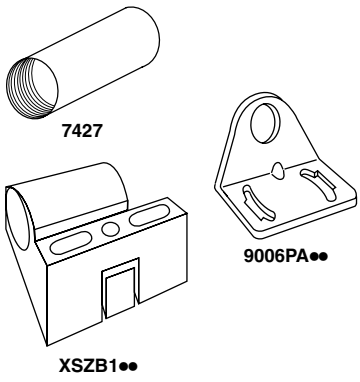
	Side by side	Face to face	Facing a metal object	Mounting in a metal support
XS1 Shielded	e: 20/.79	e: 120/4.72	e: 30/1.18	D: 30/1.18, H: 0/0
XS2/XS4 Non-shielded	e: 60/2.36	e: 180/7.09	e: 45/1.77	D: 90/3.54, H: 30/1.18

Wiring



Specifications

Mechanical			
Usable sensing range★	Shielded		0 to 8 mm
	Non-shielded		0 to 12 mm
Standard temperature range			-25° C to +80° C (-13° F to +176° F)
Enclosure rating - cable (connector, see p. 518)	NEMA Type		3, 4X, 6P, 12, 13
	IEC Type		IP68 – P67 for B screw terminals
Enclosure material	Nickel plated brass	Case	Nickel plated brass
		Sensing face	PBT
	Plastic		PBT
Tightening torque (max.)	Nickel plated brass		50 N•m 37 (lb-ft)
	Plastic		20 N•m 15 (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)	Shielded		1.18" x 1.18" (30 mm x 30 mm)
	Non-shielded		1.41" x 1.41" (36 mm x 36 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
	C		2 LED indicators: Red shows output status Green shows normal operation (SCP only)
Cable	2 wire		22 AWG (0.5 mm^2), PvR
Electrical			
Voltage range – nominal			24 to 240 Vac (50/60 Hz), 24 to 210 Vdc
Voltage limit (including ripple)			20 to 264 Vac/Vdc
Voltage drop (across switch), closed state			5.5 V
Inrush current			2 A
Minimum load current			5 mA
Maximum load current	AC		300 mA
	DC		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	Without SCP		0.6 mA
	With SCP		1.5 mA
On delay (max.)	Without SCP		0.2 ms
	With SCP		2 ms
Off delay (max.)	Without SCP		0.3 ms
	With SCP		5 ms
	Without SCP		40 ms
	With SCP		70ms
Power-up delay (max.)	Without SCP		40 ms
	With SCP		70 ms
Protective circuitry	Short circuit protection		Optional▲
	Radio frequency immunity (RFI)		IEC 61000-4-3 Level 3
	Electrostatic; transients; impulse		IEC 61000-4-2 L4; IEC 61000-4-4 L4; 60947.5.2 L3
Agency Listings	UL E 164869 CCN NRKH	CE	CSA 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

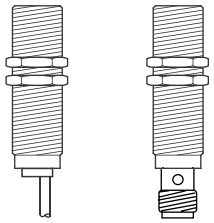
Description		Catalog Number
Plastic mounting nuts		**XSZE230**
Metal mounting nuts and lock washers		**XSZE130**
Mounting bracket, 90° steel		**9006PA30**
Mounting bracket, plastic		**XSZB130**
0.5" NPT conduit adapter length 2" (50.8 mm)	Aluminum	**7427**

★ 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; U78 or A suffix)

XSZCK101Y	Micro Conn., 3 pin, 2 m, straight
XSZCK111Y	Micro Conn., 3 pin, 2 m, 90°
XSZCA101Y	Mini Conn., 3 pin, 2 m, straight
XSZCA111Y	Mini Conn., 3 pin, 2 m, 90°

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



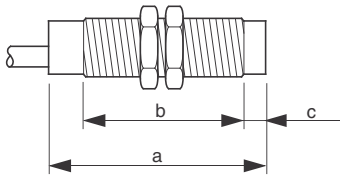
thread M8x1

thread M12x1

thread M18x1

thread M30x1.5

a = Overall Length (mm)
b = Threaded Section (mm)
c = for Non-shielded Sensors (mm)



Dimensions

		a		b		c	
		IN	mm	IN	mm	IN	mm
6.5 mm	Cable	1.65	42.0	–	–	–	–
	Connector	–	–	–	–	–	–
8 mm	Cable	1.65	42.0	1.60	40.6	–	–
	Connector	2.42	61.4	1.56	39.6	–	–
12 mm	Cable	1.66	42.2	1.57	40.0	.26	7
	Connector	2.09	53.0	1.56	39.6	–	–
18 mm	Cable	2.06	52.2	1.95	49.6	–	–
	Connector	2.52	64.0	1.96	49.7	–	–
30 mm	Cable	2.05	52.0	1.95	49.6	–	–
	Connector	–	–	–	–	–	–

Features

Entire family of proximity sensors dedicated to OEMs and "just enough" applications.

- DC tubular body style ranging from 6.5 mm to 30 mm diameter, in 3 wire, N.O. output
- AC tubular body style ranging from 12 mm to 30 mm diameter, in 2 wire, N.O. output
- Brass metal case with either 2 meter cable or connector options
- Shielded and non-shielded versions available
- Mounting nuts included
- Sold in multiples of 10 easy to open bags

Circuit Type	Output Mode	Voltage Range	Voltage Drop Maximum	Load Current Maximum	Operating Frequency Maximum	Catalog Number
6.5 mm, Shielded, DC–2 Meter (6') Cable–Nominal Sensing Distance–1.5 mm						
PNP	N.O.	12 to 24 Vdc	3 V	50 mA	3000 Hz	**XS1L06PA140**
NPN	N.O.	12 to 24 Vdc	3 V	50 mA	3000 Hz	**XS1L06NA140**
8 mm, Shielded, DC–2 Meter (6') Cable–Nominal Sensing Distance–1.5 mm						
PNP	N.O.	12 to 24 Vdc	3 V	50 mA	3000 Hz	**XS1D08PA140**
NPN	N.O.	12 to 24 Vdc	3 V	50 mA	3000 Hz	**XS1D08NA140**
8 mm, Shielded, DC–Micro Style Connector ★–Nominal Sensing Distance–1.5 mm						
PNP	N.O.	12 to 24 Vdc	3 V	50 mA	3000 Hz	**XS1D08PA140D**
NPN	N.O.	12 to 24 Vdc	3 V	50 mA	3000 Hz	**XS1D08NA140D**
12 mm, Shielded, DC–2 Meter (6') Cable–Nominal Sensing Distance–2 mm						
PNP	N.O.	12 to 24 Vdc	3 V	100 mA	2000 Hz	**XS1D12PA140**
NPN	N.O.	12 to 24 Vdc	3 V	100 mA	2000 Hz	**XS1D12NA140**
12 mm, Shielded, DC–Micro Style Connector ★–Nominal Sensing Distance–2 mm						
PNP	N.O.	12 to 24 Vdc	3 V	100 mA	2000 Hz	**XS1D12PA140D**
NPN	N.O.	12 to 24 Vdc	3 V	100 mA	2000 Hz	**XS1D12NA140D**
12 mm, Non-shielded, DC–2 Meter (6') Cable–Nominal Sensing Distance–4 mm						
PNP	N.O.	12 to 24 Vdc	3 V	100 mA	1000 Hz	**XS2D12PA140**
NPN	N.O.	12 to 24 Vdc	3 V	100 mA	1000 Hz	**XS2D12NA140**
12 mm, Non-shielded, DC–Micro Style Connector–Nominal Sensing Distance–4 mm						
PNP	N.O.	12 to 24 Vdc	3 V	100 mA	1000 Hz	**XS2D12PA140D**
NPN	N.O.	12 to 24 Vdc	3 V	100 mA	1000 Hz	**XS2D12NA140D**
12 mm, Shielded, AC–2 Meter (6') Cable–Nominal Sensing Distance–2 mm						
2 wire	N.O.	24 to 240 Vac	7V	200 mA	25 Hz	**XS1M12FA264**
18 mm, Shielded, DC–2 Meter (6') Cable–Nominal Sensing Distance–5 mm						
PNP	N.O.	12 to 24 Vdc	3 V	100 mA	1000 Hz	**XS1D18PA140**
NPN	N.O.	12 to 24 Vdc	3 V	100 mA	1000 Hz	**XS1D18NA140**
18 mm, Shielded, DC–Micro Style Connector ★–Nominal Sensing Distance–5 mm						
PNP	N.O.	12 to 24 Vdc	3 V	100 mA	1000 Hz	**XS1D18PA140D**
NPN	N.O.	12 to 24 Vdc	3 V	100 mA	1000 Hz	**XS1D18NA140D**
18 mm, Non-shielded, DC–2 Meter (6') Cable–Nominal Sensing Distance–8 mm						
PNP	N.O.	12 to 24 Vdc	3 V	100 mA	250 Hz	**XS2D18PA140**
NPN	N.O.	12 to 24 Vdc	3 V	100 mA	250 Hz	**XS2D18NA140**
18 mm, Non-shielded, DC–Micro Style Connector ★–Nominal Sensing Distance–8 mm						
PNP	N.O.	12 to 24 Vdc	3 V	100 mA	250 Hz	**XS2D18PA140D**
NPN	N.O.	12 to 24 Vdc	3 V	100 mA	250 Hz	**XS2D18NA140D**
18 mm, Shielded, AC–2 Meter (6') Cable–Nominal Sensing Distance–5 mm						
2 wire	N.O.	24 to 240 Vac	4.5 V	300 mA	25 Hz	**XS1M18FA264**
30 mm, Shielded, DC–2 Meter (6') Cable–Nominal Sensing Distance–10 mm						
PNP	N.O.	12 to 24 Vdc	3 V	100 mA	200 Hz	**XS1D30PA140**
NPN	N.O.	12 to 24 Vdc	3 V	100 mA	200 Hz	**XS1D30NA140**
30 mm, Shielded, DC–Micro Style Connector ★–Nominal Sensing Distance–10 mm						
PNP	N.O.	12 to 24 Vdc	3 V	100 mA	200 Hz	**XS1D30PA140D**
NPN	N.O.	12 to 24 Vdc	3 V	100 mA	200 Hz	**XS1D30NA140D**
30 mm, Non-shielded, DC–2 Meter (6') Cable–Nominal Sensing Distance–15 mm						
PNP	N.O.	12 to 24 Vdc	3 V	100 mA	60 Hz	**XS2D30PA140**
NPN	N.O.	12 to 24 Vdc	3 V	100 mA	60 Hz	**XS2D30NA140**
30 mm, Non-shielded, DC–Micro Style Connector ★–Nominal Sensing Distance–15 mm						
PNP	N.O.	12 to 24 Vdc	3 V	100 mA	60 Hz	**XS2D30PA140D**
NPN	N.O.	12 to 24 Vdc	3 V	100 mA	60 Hz	**XS2D30NA140D**
30 mm, Shielded, AC–2 Meter (6') Cable–Nominal Sensing Distance–10 mm						
2 wire	N.O.	24 to 240 Vac	4.5 V	300 mA	25 Hz	**XS1M30FA264**

★ See p. 517 for matching connector cables.

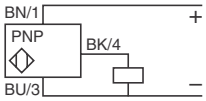
Wiring

Connector

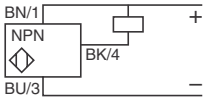
Cable

Blue	BU –
Brown	BN +
Black	BK Output

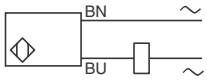
3 Wire, PNP, NO



3 Wire, NPN, NO



2 Wire, AC, NO



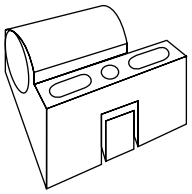
Specifications

Mechanical		DC					AC		
Diameter		0.25" (6.5 mm)	0.31" (8 mm)	0.47" (12 mm)	0.7" (18 mm)	1.18" (30 mm)	0.47" (12 mm)	0.7" (18 mm)	1.18" (30 mm)
Usable Sensing Range ★	Shielded	0.04" (1.2mm)	0.04" (1.2 mm)	0.06" (1.6 mm)	0.16" (4 mm)	0.31" (8 mm)	0.06" (1.6 mm)	0.16" (4 mm)	0.31" (8 mm)
	Non-shielded	–	–	0.12" (3.2 mm)	0.25" (6.4 mm)	0.47" (12 mm)	–	–	–
Temperature Range		-13° F to +158° F (-25° C to +70° C)							
Enclosure Rating	NEMA Type	1							
	CENELEC Type	IP66 (connector style is IP65)					IP67		
Vibration		25 G, amplitude =/- 2 mm, f = 10-55 Hz							
Shock Resistance		50 G, for 11 ms							
Maximum Differential (% of Sr)		15%							
Maximum Repeatability (% of Sr)		3%							
LED Indicator Type		One, mounted at rear (connector style is 4 viewing ports at 90 degrees)							
Enclosure Material		Brass							
Wiring		3 x 0.34 mm^2 (8 mm = 3 x 0.11 mm^2)					2 x 0.34 mm^2		
Electrical									
Voltage Range		12 to 24 Vdc					24 to 240 Vac		
Voltage Limit (Including Ripple)		10 to 30 Vdc					20 to 264 Vac		
Current Consumption (Maximum) (No Load)		10 mA					–		
Maximum Leakage (Residual) Current–open State		–					1.5 mA		
Voltage Drop (Closed State)		3 V					7 V	4.5 V	
Power-up Delay (Maximum)		5 ms	5 ms	5 ms	5 ms	10 ms	40 ms		
On Delay (Maximum)		0.5 ms	0.5 ms	0.5 ms	1 ms	2 ms	10 ms		
Off Delay (Maximum)		1 ms	1 ms	0.5 ms	2 ms	6 ms	15 ms		
Protective Circuitry	Short Circuit Protection	Yes					No		
	Overload Protection	Yes					No		
Agency Listings		E 164869 CCN NRKH			CR 44087 Class 3211 03		CE		

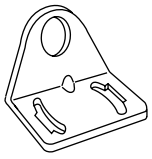
★ Refer to p. 351 for target material correction coefficient Km.

Accessories

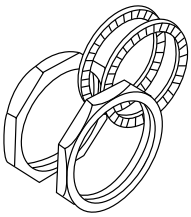
Description	For Sensor Diameter	Catalog Number
Mounting Brackets	0.25" (6.5 mm)	**XSZB165**
	0.31" (8 mm)	**XSZB108**
	0.47" (12 mm)	**XSZB112**
		9006PA12
	0.7" (18 mm)	**XSZB118**
		9006PA18
	1.18" (30 mm)	**XSZB130**
		9006PA30
Mounting Nuts	0.31" (8 mm)	**XSZE108**
	0.47" (12 mm)	**XSZE112**
	0.7" *18 mm)	**XSZE118**
	1.18" (30 mm)	**XSZE130**



XSZB1••

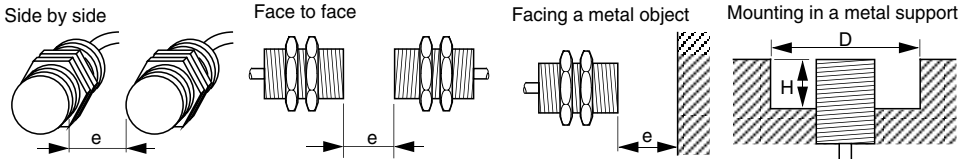


9006PA••



XSZE•••

Minimum Mounting Clearances (mm/inches)

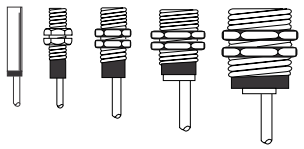


	e		e		e		d		h	
	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm
XS1L06	0.12	3	0.71	18	0.18	4.5	0.31	8	0	0
XS1D08	0.12	3	0.71	18	0.18	4.5	0.31	8	0	0
XS1D/M12	0.16	4	0.94	24	0.24	6.0	0.47	12	0	0
XS2D12	0.63	16	1.89	48	0.47	12.0	1.42	36	0.31	8
XS1D/M18	0.39	10	2.36	60	0.59	15.0	0.59	15	0	0
XS1D/M30	0.79	20	4.72	120	1.18	30.0	1.18	30	0	0

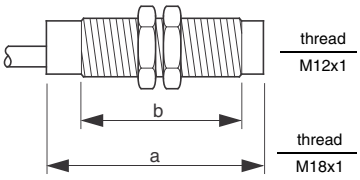
Connector Cables (M12 or D suffix)

XSZCD101Y	Micro Conn., 4 pin, 2 m, straight
XSZCD111Y	Micro Conn., 4 pin, 2 m, 90°

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



a = Overall Length (mm)
b = Threaded Section (mm)



a

		AC/DC		DC	
		mm	in.	mm	in.
6.5 mm	Cabled version	–	–	33	1.29
	Nano connector	–	–	42	1.65
	Micro connector	–	–	45	1.77
8 mm	Cabled version	–	–	33	1.29
	Nano connector	–	–	42	1.65
	Micro connector	–	–	45	1.77
12 mm	Cabled version	50	1.96	33	1.29
	Micro connector	61	2.4	48	1.88
18 mm	Cabled version	60	2.36	33.5	1.31
	Micro connector	70	2.75	48	1.88
	Mini connector	–	–	–	–
30 mm	Cabled version	60	2.36	40.5	1.59
	Micro connector	70	2.75	50	1.96

b ♦

		AC/DC		DC	
		mm	in.	mm	in.
6.5 mm	Cabled version	–	–	30	1.18
	Nano connector	–	–	34	1.33
	Micro connector	–	–	24	0.94
8 mm	Cabled version	–	–	26	1.02
	Nano connector	–	–	26	1.02
	Micro connector	–	–	24	0.94
12 mm	Cabled version	42	1.65	26	1.02
	Micro connector	40	1.57	25	0.98
18 mm	Cabled version	51.5	2.02	26	1.02
	Micro connector	51.5	2.02	26	1.02
	Mini connector	–	–	–	–
30 mm	Cabled version	51.5	2.02	32	1.25
	Micro connector	51.5	2.02	32	1.25

♦ For 6.5mm diameter, b = smooth length

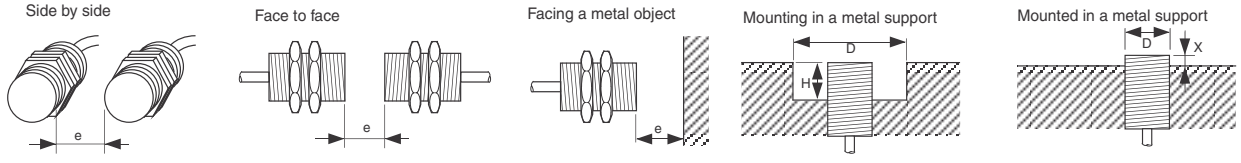
Features

- Extended range feature available in Universal AC/DC, or DC only sensors, where previously only available in DC
- AC/DC has same extended sensing range as in DC only sensors
- Available in moulded cable or connector versions
- rugged IP68 Nickel plated brass casing
- 360° LED for complete visibility
- Metal lock nuts included in carton

Circuit Type	Output Mode	Voltage Range	Voltage Drop Max.	Load Current Max.	Operating Frequency Max.	Connection ★	Catalog Number
6.5mm Diameter, DC, Shielded - Nominal Sensing Distance - 2mm							
PNP	N.O.	12- 24 Vdc	2.6 V	200 mA	2500 Hz	2 meter (6') cable	**XS1L06PA349**
NPN	N.O.	12- 24 Vdc	2.6 V	200 mA	2500 Hz	2 meter (6') cable	**XS1L06NA349**
PNP	N.O.	12- 24 Vdc	2.6 V	200 mA	2500 Hz	Nano Style Connector	**XS1L06PA349S**
NPN	N.O.	12- 24 Vdc	2.6 V	200 mA	2500 Hz	Nano Style Connector	**XS1L06NA349S**
PNP	N.O.	12- 24 Vdc	2.6 V	200 mA	2500 Hz	Micro Style Connector	**XS1L06PA349D**
NPN	N.O.	12- 24 Vdc	2.6 V	200 mA	2500 Hz	Micro Style Connector	**XS1L06NA349D**
8mm Diameter, DC, Shielded - Nominal Sensing Distance - 2.5mm							
PNP	N.O.	12- 24 Vdc	2.6 V	200 mA	2500 Hz	2 meter (6') cable	**XS1N08PA349**
NPN	N.O.	12- 24 Vdc	2.6 V	200 mA	2500 Hz	2 meter (6') cable	**XS1N08NA349**
PNP	N.O.	12- 24 Vdc	2.6 V	200 mA	2500 Hz	Nano Style Connector	**XS1N08PA349S**
NPN	N.O.	12- 24 Vdc	2.6 V	200 mA	2500 Hz	Nano Style Connector	**XS1N08NA349S**
PNP	N.O.	12- 24 Vdc	2.6 V	200 mA	2500 Hz	Micro Style Connector	**XS1N08PA349D**
NPN	N.O.	12- 24 Vdc	2.6 V	200 mA	2500 Hz	Micro Style Connector	**XS1N08NA349D**
12mm Diameter, DC, Shielded - Nominal Sensing Distance - 4mm							
PNP	N.O.	12- 24 Vdc	2 V	200 mA	2500 Hz	2 meter (6') cable	**XS1N12PA349**
NPN	N.O.	12- 24 Vdc	2 V	200 mA	2500 Hz	2 meter (6') cable	**XS1N12NA349**
PNP	N.O.	12- 24 Vdc	2 V	200 mA	2500 Hz	Micro Style Connector	**XS1N12PA349D**
NPN	N.O.	12- 24 Vdc	2 V	200 mA	2500 Hz	Micro Style Connector	**XS1N12NA349D**
12mm Diameter, Universal AC/DC, Shielded - Nominal Sensing Distance - 4mm							
2 wire	N.O.	12- 24 Vdc	5.5 V	200mA	25 Hz /1000 Hz	2 meter (6') cable	**XS1M12MA239**
2 wire	N.O.	12- 24 Vdc	5.5 V	200mA	25 Hz /1000 Hz	Micro Style Connector	**XS1M12MA239K**
18mm Diameter, DC, Shielded - Nominal Sensing Distance - 10mm							
PNP	N.O.	12- 24 Vdc	2 V	200 mA	1000 Hz	2 meter (6') cable	**XS1N18PA349**
NPN	N.O.	12- 24 Vdc	2 V	200 mA	1000 Hz	2 meter (6') cable	**XS1N182NA349**
PNP	N.O.	12- 24 Vdc	2 V	200 mA	1000 Hz	Micro Style Connector	**XS1N18PA349D**
NPN	N.O.	12- 24 Vdc	2 V	200 mA	1000 Hz	Micro Style Connector	**XS1N18NA349D**
18mm Diameter, Universal AC/DC, Shielded - Nominal Sensing Distance - 10mm							
2 wire	N.O.	12- 24 Vdc	5.5 V	200 mA	25 Hz /1000 Hz	2 meter (6') cable	**XS1M18MA239**
2 wire	N.O.	12- 24 Vdc	5.5 V	200 mA	25 Hz /1000 Hz	Micro Style Connector	**XS1M18MA239K**
2 wire	N.O.	12- 24 Vdc	5.5 V	200 mA	25 Hz /1000 Hz	Mini Style Connector	**XS1M18MA239A**
30mm Diameter, DC, Shielded - Nominal Sensing Distance - 20mm							
PNP	N.O.	12- 24 Vdc	2 V	200 mA	500 Hz	2 meter (6') cable	**XS1N30PA349**
NPN	N.O.	12- 24 Vdc	2 V	200 mA	500 Hz	2 meter (6') cable	**XS1N30NA349**
PNP	N.O.	12- 24 Vdc	2 V	200 mA	500 Hz	Micro Style Connector	**XS1N30PA349D**
NPN	N.O.	12 - 24 Vdc	2 V	200 mA	500 Hz	Micro Style Connector	**XS1N30NA349D**
30mm Diameter, Universal AC/DC, Shielded - Nominal Sensing Distance - 20mm							
2 wire	N.O.	24 to 240 V	5.5 V	200 mA	25 Hz /1000 Hz	2 meter (6') cable	**XS1M30MA239**
2 wire	N.O.	24 to 240 V	5.5 V	200 mA	25 Hz /1000 Hz	Mini Style Connector	**XS1M30MA239A**

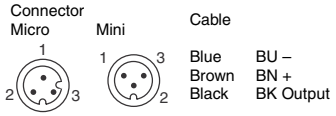
★ See p. 518 for matching connector cables.

Minimum Mounting Clearances (mm/inches)

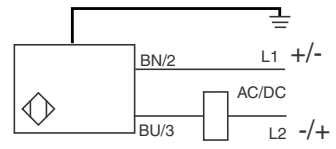


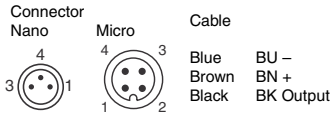
6.5 mm	5 mm (.196")	30 mm (1.18")	7.5 mm (.29")	d = 10 mm (.393")	h = 1.6 mm (.062")	d = 6.5 mm (.255")	x = 1.3 mm (.051")
8 mm	5 mm (.196")	30 mm (1.19")	7.5 mm (.29")	d = 10 mm (.393")	h = 1.6 mm (.062")	d = 8 mm (.314")	x = 1.6 mm (.062")
12 mm	8 mm (.314")	48 mm (1.88")	12 mm (.47")	d = 14 mm (.551")	h = 2.4 mm (.094")	d = 12 mm (.472")	x = 1.6 mm (.062")
12 mm (AC/DC)	8 mm (.314")	48 mm (1.88")	12 mm (.47")	d = 14 mm (.551")	h = 1.2 mm (.047")	d = 12 mm (.472")	x = 1.6 mm (.062")
18 mm	20 mm (.787")	96 mm (3.77")	30 mm (1.18")	d = 28 mm (1.10")	h = 3.6 mm (.141")	d = 18 mm (.708")	x = 3.6 mm (.141")
18 mm (AC/DC)	20 mm (.787")	96 mm (3.77")	30 mm (1.18")	d = 28 mm (1.10")	h = 1.8 mm (.070")	d = 18 mm (.708")	x = 1.8 mm (.070")
30 mm	40 mm (1.57")	240 mm (9.44")	60 mm (2.36")	d = 50 mm (1.96")	h = 6 mm (.236")	d = 30 mm (1.18")	x = 6 mm (.236")

Wiring

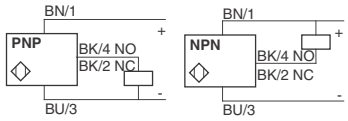


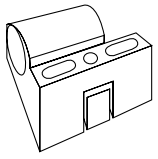
wire color/connector pin
2 wire, AC/DC for connector version only





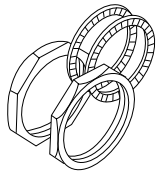
3 wire, DC, NO or NC





XSZB1●●

9006PA●●



XSZE●●●

Specifications

Mechanical		**6.5 mm**	**8 mm**	**12 mm**	**18 mm**	**30 mm**
Usable sensing range ★		0 to 0.08" (0 to 2 mm)	0 to 0.08" (0 to 2 mm)	0 to 0.12" (0 to 3.2 mm)	0 to 0.31" (0 to 8 mm)	0 to 0.62" (0 to 16 mm)
Temperature range		-13 F to + 25 F (-25 C to +70 C)				
Enclosure rating	NEMA Type	3, 4x, 6p, 12, 13				
	IEC Type	IP68 (except connectors)				
Max tightening torque		--	5 N•m 3.7 (lb-ft)	6 N•m 4.4 (lb-ft)	15 N•m 11 (lb-ft)	40 N•m 29.5 (lb-ft)
Vibration		25 G, amplitude +/- 2mm, f = 10 - 55 Hz				
Shock resistance		50 G, duration 11ms"				
Standard target size (steel) (mm)		6.5x6.5x1	8x8x1	12x12x1	18x18x1	30x30x1
Max Differential (% of Sr)		15%				
Max Repeatability (% of Sr)		3%				
LED indicator type	Cable	360° ring LED, visible from all quadrants				
	Connector	One LED, visible from 4 quadrants				
Enclosure material		Nickel plated brass				
Wiring		27 AWG	27 AWG	22 AWG	22 AWG	22 AWG
Cable material		PvR	PvR	PvR	PvR	PvR
Electrical						
				AC / DC	AC / DC	AC / DC
Voltage range		24 V to 240 Vac/dc, 12 V to 24 Vdc				
Voltage limit (including ripple)		20 V to 264 Vac/dc, 10 to 38 Vdc				
Voltage Drop (max.)		2.6 V	2.6 V	5.5 V / 2.6 V	5.5 V / 2 V	5.5 V / 2 V
Max. Leakage (Residual) Current -open state, AC		--	--	0.8 mA	0.8 mA	0.8 mA
Current Consumption (no load)		10 mA				
Power-up delay (max.)		5 ms	5 ms	20ms / 5 ms	25 ms / 5 ms	25 ms / 5 ms
On delay (max.)		0.2 ms	0.2 ms	0.5 ms / 0.2 ms	0.5 ms 0.3 ms	0.5 ms / 0.6 ms
Off delay (max.)		0.2 ms	0.2 ms	0.2 ms	0.5 ms / 0.7 ms	2 ms / 1.4 ms
Protective Circuitry	Short circuit protection	yes				
	Overload protection	yes				
	Reverse polarity protection	yes				
	Radio frequency immunity (RFI)	IEC 61000-4-3 Level 3				
	Electrostatic, Transients, Impulse	IEC 61000-4-2 Level 3; IEC 61000-4-4 Level 3; 60947.5.2 Level 3				
Agency Listings		UL		CE		

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

Options

Description	Suffix
16.4 ft. (5 meter) cable	L2
32.8 ft. (10 meter) cable	L5

Accessories

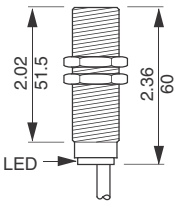
Description	For Sensor Diameter	Catalog Number
Mounting Brackets	0.25" (6.5 mm)	**XSZB165**
	0.31" (8 mm)	**XSZB108**
	0.47" (12 mm)	**XSZB112**
		9006PA12
	0.7' (18 mm)	**XSZB118**
		9006PA18
	1.18" (30 mm)	**XSZB130**
		9006PA30
Mounting Nuts	0.31" (8 mm)	**XSZE108**
	0.47" (12 mm)	**XSZE112**
		XSZE118
	0.7' (18 mm)	**XSZE130**

Connector Cables
(M8 or S suffix; M12 or D suffix; U20 or K suffix; U78 or A suffix)

XSZCS101	Nano Conn., 3 pin, 2 m, straight
XSZCS111	Nano Conn., 3 pin, 2 m, 90°
XSZCD101Y	Micro Conn., 4 pin, 2 m, straight
XSZCD111Y	Micro Conn., 4 pin, 2 m, 90°
XSZCK101Y	Micro Conn., 3 pin, 2 m, straight
XSZCK111Y	Micro Conn., 3 pin, 2 m, 90°
XSZCA901Y	Mini Conn., 3 pin, 2 m, straight
XSZCA911Y	Mini Conn., 3 pin, 2 m, 90°

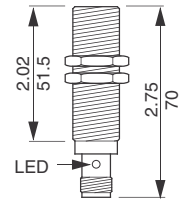
For additional cable options and lengths see p. 518
Accessories . . . . . page 298, 316

Proximity Sensors
XS Inductive Sensors
18 mm, Ferrous Only - DC



XS1M18PAS40

thread
M18x1



XS1M18PAS40D

Dual Dimensions inches / mm

Features:

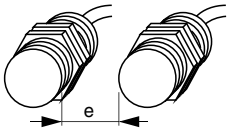
- Ideal for machining, sorting applications
- Responds only to ferrous metals, ignoring non ferrous metals such as Aluminum
- Stainless steel body
- Cable and micro-style connector versions offered ∗

Circuit Type	Output Mode	Voltage Range	Load Current Max.	Operating Frequency Max.	Catalog Number
Shielded - 2 meter (6.6') cable - Nominal Sensing Distance - 5 mm					
PNP	N.O.	12-24 Vdc	200 mA	1000 Hz	**XS1M18PAS40**
Shielded - micro-style connector ∗ - Nominal Sensing Distance - 5 mm					
PNP	N.O.	12-24 Vdc	200 mA	1000 Hz	**XS1M18PAS40D**

∗ See p. 518 for matching connector cables

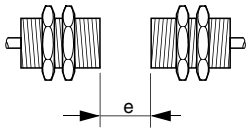
Minimum Mounting Clearances (mm/inches)

Side by side



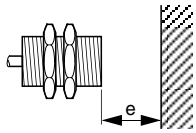
e: 10/.39

Face to face



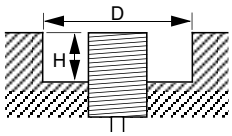
e: 60/2.36

Facing a metal object



e: 15/.59

Mounting in a metal support



D: 18/.71, H: 0/0

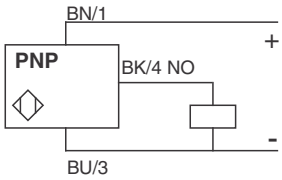
Wiring

Connector

Cable

Blue	BU –
Brown	BN +
Black	BK Output

3 Wire, PNP, NO



Specifications

Mechanical		
Usable sensing range ★		0 - 4 mm (.16")
Temperature range		-13° to 158° F (-25° to 70° C)
Enclosure rating	IEC Type	IP68 (except connector version)
Tightening torque (max.)		50 N•m 37 (lb-ft)
Standard target size (steel)		18 x 18 x 1
Differential (% of Sr)		15%
Repeatability (% of Sr)		3%
LED indicator type	Cable version	360° ring LED
	Connector version	4 LED windows at 90 degrees
Enclosure Material		Stainless steel
Wiring		22 AWG (0.34 mm^2), PvR cable
Electrical		
Voltage range		12 to 24 Vdc
Voltage limit (including ripple)		10 to 38 Vdc
Voltage drop (across switch, closed state)		2.6 V
Current Consumption (no load)		15 mA
Maximum Load Current		200 mA
Power-up delay (max.)		5 ms
On delay (max.)		0.3 ms
Off delay (max.)		0.7 ms
Protective Circuitry	Short circuit protection	Yes
	Overload protection	Yes
	Reverse polarity protection	Yes
	Radio frequency immunity (RFI)	Yes
	Electrostatic discharges	Yes
	Fast transients (motor start/stop interference)	Yes
	Impulse voltages (lightning, etc.)	Yes
Agency Listings	E 164869 CCN NRKH; CR 44087 Class 3211 03; CE	

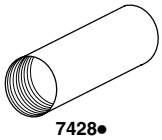
Options

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

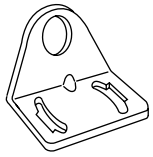
Accessories

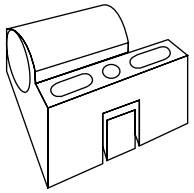
Description		Catalog Number
Stainless steel mounting nuts		**XSZE318**
Mounting bracket, 90° steel		**9006PA18**
Mounting bracket, plastic		**XSZB118**
0.5" NPT conduit adapter length 2" (50.8 mm)	Aluminum	**7428**
	Stainless	**74282**

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



7428●





9006PA●●

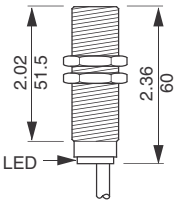
XSZB1●●

Connector Cables (M12 or D suffix)

XSZCD101Y	Micro Conn., 4 pin, 2 m, straight
XSZCD111Y	Micro Conn., 4 pin, 2 m, 90°

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

Proximity Sensors
XS Inductive Sensors
18 mm, Non Ferrous Only - DC

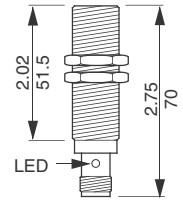


XS1M18PAS20

thread
M18x1

Features:

- Response to non ferrous metals only, such as Aluminum, ignoring ferrous material such as steel
- Ideal for mounting in areas where metal is close
- Stainless steel body
- Cable and micro-style connector versions offered ∗



XS1M18PAS20D

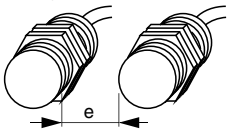
Dual Dimensions inches / mm

Circuit Type	Output Mode	Voltage Range	Load Current Max.	Operating Frequency Max.	Catalog Number
Shielded - 2 meter (6') cable - Nominal Sensing Distance - 5 mm					
PNP	N.O.	12-24 Vdc	200 mA	1000 Hz	**XS1M18PAS20**
Shielded - micro-style connector ∗ - Nominal Sensing Distance - 5mm					
PNP	N.O.	12-24 Vdc	200 mA	1000 Hz	**XS1M18PAS20D**

∗ See p.518 for matching connector cables

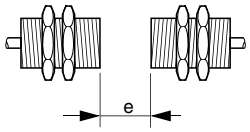
Minimum Mounting Clearances (mm/inches)

Side by side



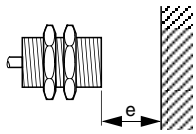
e: 10/.39

Face to face



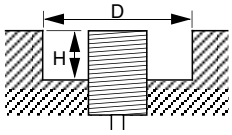
e: 60/2.36

Facing a metal object



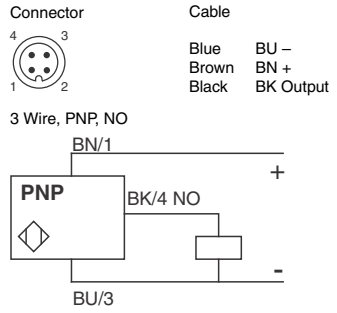
e: 15/.59

Mounting in a metal support



D: 18/.71, H: 0/0

Wiring



Specifications

Mechanical		
Usable sensing range ★		0 - 4 mm (.16")
Temperature range		-13° to 158° F (-25° to 70° C)
Enclosure rating	IEC Type	IP68 (except connector version)
Tightening torque (max.)		50 N•m 37 (lb-ft)
Standard target size (aluminum)		18 x 18 x 1
Differential (% of Sr)		15%
Repeatability (% of Sr)		3%
LED indicator type	Cable version	360° ring LED
	Connector version	4 LED windows at 90 degrees
Enclosure material		Metal
Wiring		22 AWG (0.34 mm^2), PvR cable
Electrical		
Voltage range		12 to 24 Vdc
Voltage limit (including ripple)		10 to 38 Vdc
Voltage drop (across switch, closed state)		2.6 V
Current Consumption (no load)		15 mA
Maximum Load Current		200 mA
Power-up delay (max.)		5 ms
On delay (max.)		0.3 ms
Off delay (max.)		0.7 ms
Protective Circuitry	Short circuit protection	Yes
	Overload protection	Yes
	Reverse polarity protection	Yes
	Radio frequency immunity (RFI)	Yes
	Electrostatic discharges	Yes
	Fast transients (motor start/stop interference)	Yes
	Impulse voltages (lightning, etc.)	Yes
Agency Listings	E 164869 CCN NRKH; CR 44087 Class 3211 03; CE	

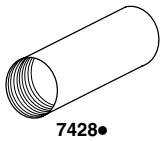
Options

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

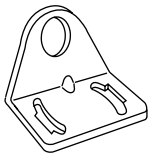
Accessories

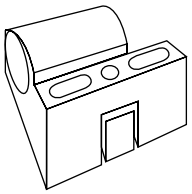
Description		Catalog Number
Stainless steel mounting nuts		**XSZE318**
Mounting bracket, 90° steel		**9006PA18**
Mounting bracket, plastic		**XSZB118**
0.5" NPT conduit adapter length 2" (50.8 mm)	Aluminum	**7428**
	Stainless	**74282**

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



7428●





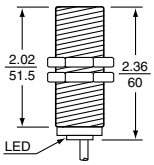
9006PA●●

XSZB1●●

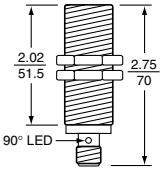
Connector Cables (M12 or D suffix)

XSZCD101Y	Micro Conn., 4 pin, 2 m, straight
XSZCD111Y	Micro Conn., 4 pin, 2 m, 90°

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

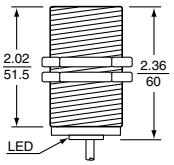


XS1M18KPM40



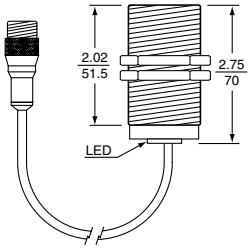
XS1M18KPM40D

thread
M18x1

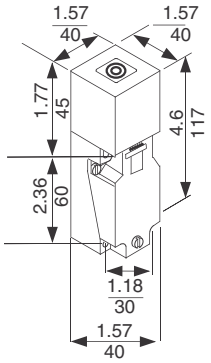


XS1M30KPM40

thread
M30x1.5



XS1M30KPM40LD



(1) Output LED (Yellow)
(2) 0.5" NPT conduit opening
(3) Oblong mounting hole:
0.21" x 0.28"
(5.3mm x 7mm)

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

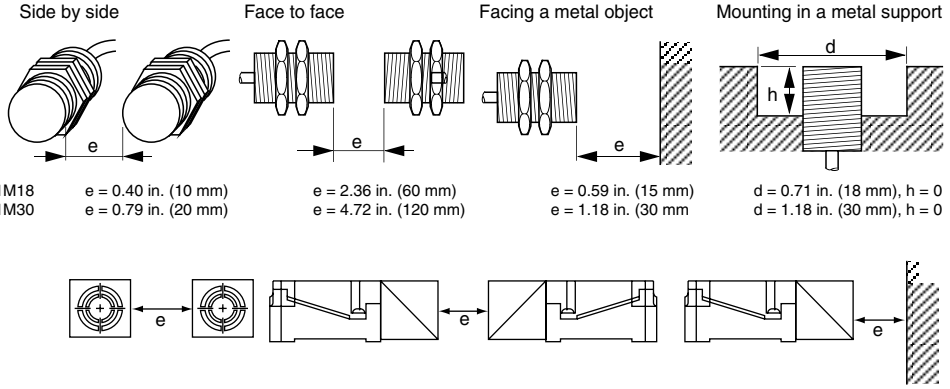
Features

- Detects all types of metals at the same sensing distance, whereas, metals such as aluminum and copper require standard sensor to be closer (see chart on next page).
- Body types include 18 mm nickel plated brass housing, 30 mm stainless steel housing, and limit switch style in plastic housing.
- All are suitable for flush mounting in metal.
- Ideal for “drop in” replacements for tubular and limit switch style standard sensors.
- Universal selectable output: PNP, NPN, N.O. and N.C.
- Available with 2 meter cable, micro style connector or 2.6' pigtail with micro connector for very aggressive chemical environments.
- Tubular bodies have 360° visibility LED (four LED windows at 90° for connector version).
- Metal mounting nuts included with tubular versions.
- UL Listed, CSA Certified and CE Mark.

Sensing Distance	Circuit Type	Output Mode	Voltage Range	Connection	Load Current Max	Operating Frequency	Catalog Number
Shielded, 18 mm Diameter							
5 mm	PNP/NPN	N.O./N.C.	12-24 Vdc	2 m (6.6') cable	200 mA	1000 Hz	**XS1M18KPM40**
5 mm	PNP/NPN	N.O./N.C.	12-24 Vdc	Micro Style DC Connector ∗	200 mA	1000 Hz	**XS1M18KPM40D**
Shielded, 30 mm Diameter							
10 mm	PNP/NPN	N.O./N.C.	12-24 Vdc	2 m (6.6') cable	200 mA	1000 Hz	**XS1M30KPM40**
10 mm	PNP/NPN	N.O./N.C.	12-24 Vdc	Micro Style DC Connector, 0.8 m (2.6') pigtail ∗	200 mA	1000 Hz	**XS1M30KPM40LD**
Shielded, Limit Switch Style Body							
15 mm	PNP/NPN	N.O./N.C.	12-24 Vdc	Screw Terminal	200 mA	1000 Hz	**XS7C40KPM40**

∗ See p. 518 for matching connector cables

Minimum Mounting Clearances (mm/inches)



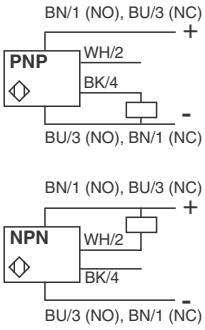
Wiring

Connector

Cable

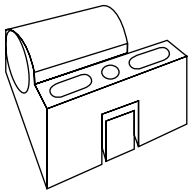
Blue	BU –
Brown	BN +
Black	BK Output

4 wire programmable
NO or NC selectable output

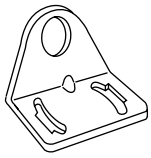


Specifications

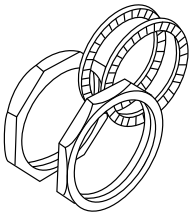
Mechanical		
Standard Temperature Range		32° to 122° F (0° to 50° C)
Enclosure Rating	NEMA Type	Tubular, cable3, 4X, 6P, 12,13 Tubular, connector See connector rating Limit switch body 4, 6P, 12 Tubular, cable IEC IP68
	IEC Type	Tubular, connectorSee connector rating Limit Switch BodyIEC IP67
Enclosure Material	Case	XS1M18 Nickel Plated Brass XS1M30 Stainless Steel XS7 ABS Plastic
Tightening torque (max.)		XS1M1835 N•m XS1M3050 N•m
Vibration resistance	(IEC 60068-2-6)	7 gn, amplitude ± 1mm (f = 10 Hz to 42 Hz)
Shock resistance	(IEC 60068-2-27)	30 gn, duration 11 ms
Standard Target Size	0.7" (18 mm) 1.18" (30 mm) Limit switch	0.7" x 0.7" (18 mm x 18 mm) 1.18" x 1.18" (30 mm x 30 mm) 1.77" x 1.77" (45 mm x 45 mm)
Differential (max)	(% of Sr.)	15%
Repeatability (max)	(% of Sr.)	3%
LED indicator type	Tubular, cable Tubular, connector Tubular, pigtail Limit switch body	360° ring LED 4 LED windows at 90° 360° ring LED LED power On
Connection	10.7" (8 mm) cable 0.7" (18 mm) connector 1.18" (30 mm) cable 1.18" (30 mm) pigtail Limit switch body	4 wire #22 AWG (0.34 mm^2), PvR 4 pin Micro Style DC 4 wire #22 AWG (0.34 mm^2), PvR 4 pin Micro Style DC, 0.8 m (2.6') pigtail, PvR #14 AWG Screw Terminals
Electrical		
Voltage Range Voltage Limit (including ripple)		12 - 24 Vdc 10 - 38 Vdc
Voltage Drop (across switch) closed state (max)		2.6 V
Current consumption (no load) (max)		15 mA
Load Current (max)		200 mA
Operating frequency (max)		1000 Hz.
On delay (max)		0.3 ms
Off delay (max)		0.7 ms
Power-up delay (max)		5 ms
Short circuit protection		Yes
Overload protection		Yes
Reverse polarity protection		Yes
Protective circuitry	Radio Frequency Immunity (RFI) Electrostatic, Transients, Impulse	IEC 60947-5-2 and NEMA ICS 5, Part 4
Agency Listings	UL E 164869 CCN NRKH	CSA CR 44087 Class 3211 03 CE



XSZB1••



9006PA••



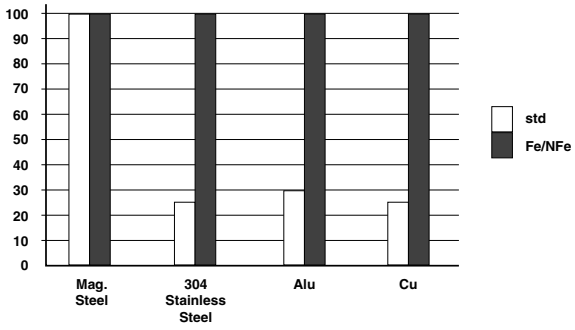
XSZE•••

Accessories

Size	Description	Catalog Number
18 mm	Metal mounting nuts	**XSZE118**
18 mm	Metal mounting bracket	**9006PA18**
18 mm	Plastic mounting bracket	**XSZB118**
30 mm	Stainless steel mounting nuts	**XSZE330**
30 mm	Metal mounting bracket	**9006PA30**
30 mm	Plastic mounting bracket	**XSZB130**

Standard sensor technology requires an adjustment of up to 70% of the sensing distance to detect various metals. Because the Ferrous/Non-Ferrous sensor detects all metals at the same distance, compensation is no longer needed. A smaller device can now perform at a range comparable to a larger sized or non-shielded device.

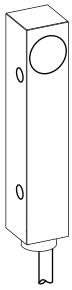
Standard vs. Fe/NonFe Prox Sensing Range (%)



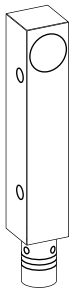
Connector Cables (M12 or D suffix)

XSZCD101Y	Micro Conn., 4 pin, 2 m, straight
XSZCD111Y	Micro Conn., 4 pin, 2 m, 90°

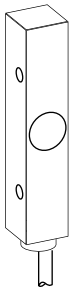
For additional cable options and lengths see p. 518
Accessories . . . . . page 298, 316



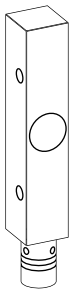
XS5L81



XS5L81•••S



XS5L82



XS5L82•••S

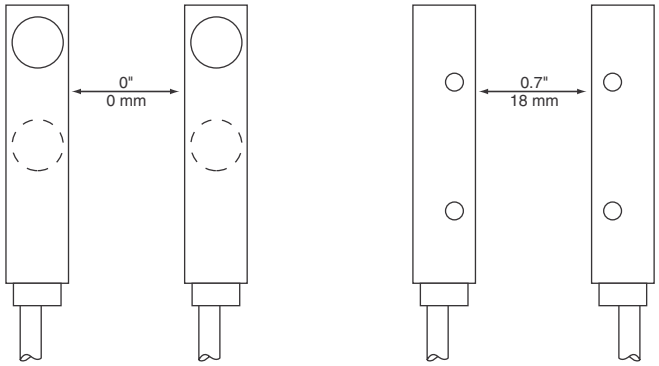
Features:

- 90 degree sensing, for mounting in restricted spaces with face at end or center
- PNP/NPN, N.O. Output
- 360° ring or LED indicator visible from 4 quadrants
- Small, 0.13" x 0.13" x 1.7" (8 mm x 8 mm x 43 mm) square metal housing
- Mount side by side with no interference
- UL Listed and CSA Certified

Sensing Face	Circuit Type	Output Mode	Voltage Range Max.	Load Current Max.	Operating Frequency Max.	Catalog Number
1.5 mm Nominal Sensing Distance, 2 M (6.6') cable						
Top	PNP	N.O.	10-30 Vdc	100 mA	2500 Hz	**XS5L81PA140**
Top	NPN	N.O.	10-30 Vdc	100 mA	2500 Hz	**XS5L81NA140**
1.5 mm Sensing Distance, Nano style Connector ∗						
Top	PNP	N.O.	10-30 Vdc	100 mA	2500 Hz	**XS5L81PA140S**
Top	NPN	N.O.	10-30 Vdc	100 mA	2500 Hz	**XS5L81NA140S**
1.5 mm Nominal Sensing Distance, 2 M (6.6') cable						
Center	PNP	N.O.	10-30 Vdc	100 mA	2500 Hz	**XS5L82PA140**
Center	NPN	N.O.	10-30 Vdc	100 mA	2500 Hz	**XS5L82NA140**
1.5 mm Sensing Distance, Nano style Connector ∗						
Center	PNP	N.O.	10-30 Vdc	100 mA	2500 Hz	**XS5L82PA140S**
Center	NPN	N.O.	10-30 Vdc	100 mA	2500 Hz	**XS5L82NA140S**

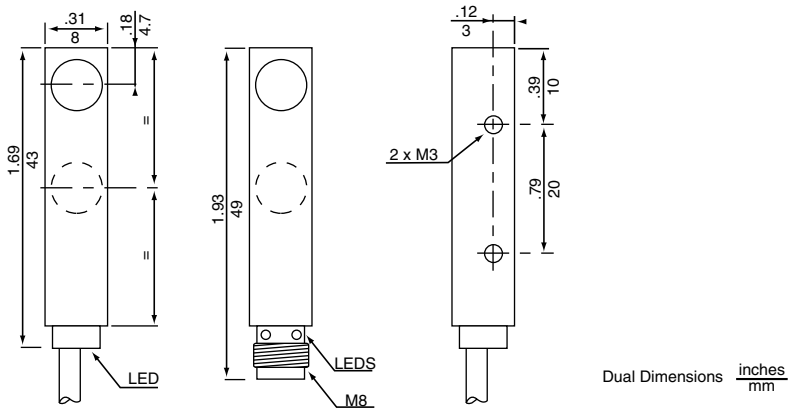
∗ See p. 518 for matching connector cables

Minimum Mounting Clearances



Dimensions

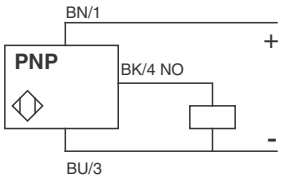
XS5L81/82 **XS5 L81/82•••**



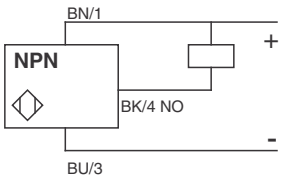
Wiring

Connector	Cable	
	Blue	BU –
	Brown	BN +
	Black	BK Output

3 Wire, PNP, NO



3 Wire, NPN, NO



Specifications

Mechanical		
Usable sensing range ★		1.2 mm
Temperature range		-13° to 158° F (-25° to 70° C)
Enclosure rating	IEC Type	IP67 (connector version depends on connector)
Differential (% of Sr)		20%
Repeatability (% of Sr)		3%
LED indicator	Cable Type	360° ring
	Connector type	90°, or visible from 4 quadrants
Enclosure material		Metal
Wiring		27 AWG (0.11 mm^2), PvR cable
Electrical		
Voltage range		12 to 24 Vdc
Voltage limit (including ripple)		10 to 30 Vdc
Voltage drop (across switch, closed state)		2.6 V
Maximum Load Current		100 mA
Current consumption (max.)(no load)		10 mA
Residual (leakage) current, open state		0.1 mA
Power-up delay (max.)		5 ms
On delay (max.)		0.5 ms
Off delay (max.)		1 ms
Physical Characteristics		
Protective Circuitry	Short circuit protection	yes
	Overload protection	yes
	Reverse polarity protection	yes
Agency Listings	E 164869 CCN NRKH; CR 44087 Class 3211 03; CE	

Options

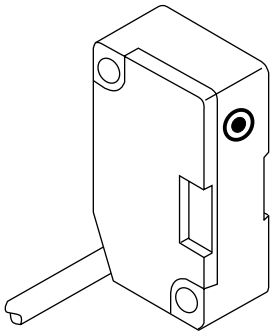
Description	Suffix
5 meter (16') Cable	L1
10 meter (33') Cable	L2

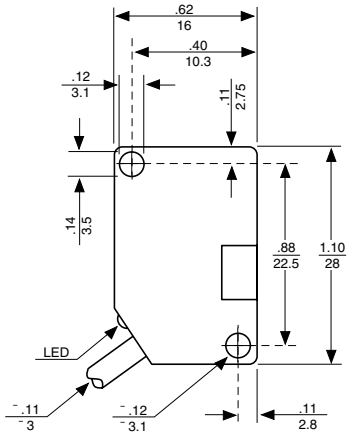
★ Refer to p. 351 for target material correction coefficient Km

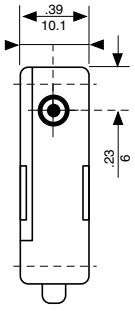
Connector Cables (M8 or S suffix)

XSZCS101	Nano Conn., 3 pin, 2 m, straight
XSZCS111	Nano Conn., 3 pin, 2 m, 90°

For additional cable options and lengths see p. 518







Front View

Dual Dimensions inches / mm

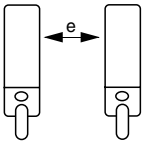
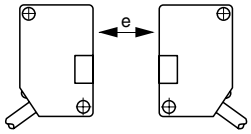
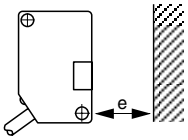
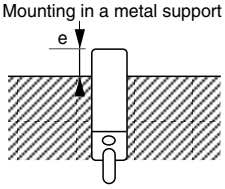
Miniature micro switch type inductive proximity sensor for industrial applications.

Features:

- Very fast response time
- Rugged plastic housing
- Extremely small for mounting in difficult to access locations
- Easy replacement of mechanical micro-switches with matching footprint (V3)
- Longer life and substantially faster speed than mechanical switches
- High levels of radio frequency immunity (RFI), electrostatic discharge, fast transients and impulse voltage protected
- UL Listed, CSA Certified and CE Mark

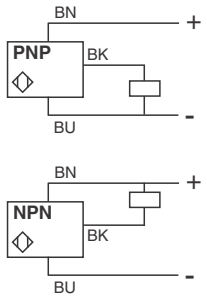
Circuit type	Output mode	Voltage range	Load current (max.)	Operating frequency	Catalog Number
2 mm (.078") sensing range – Shielded					
DC models, 3 wire 2 m (6.6') cable					
PNP	N.O.	10-30 Vdc	200 mA	5000 Hz	**XS7H10PA340**
NPN	N.O.	10-30 Vdc	200 mA	5000 Hz	**XS7H10NA340**
3 mm (.118") sensing range – Non-shielded					
DC models, 3 wire 2 m (6.6') cable					
PNP	N.O.	10-30 Vdc	200 mA	5000 Hz	**XS8H10PA340**
NPN	N.O.	10-30 Vdc	200 mA	5000 Hz	**XS8H10NA340**

Minimum Mounting Clearances (mm/inches)

	Side by side	Face to face	Facing a metal object	Mounting in a metal support
				
XS7 Shielded	e: 7/.27	e: 30/1.18	e: 7/.27	e: 0/0
XS8 Non-shielded	e: 10/.39	e: 40/1.57	e: 10/.39	e: 5/.19

Wiring

3 wire, N.O.



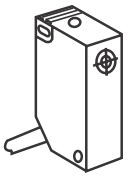
Specifications

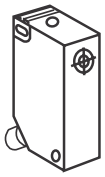
Mechanical		
Usable sensing range	Shielded	0-1.6 mm (0.06")
	Non-shielded	0-2.4 mm (0.19")
Standard temperature range	Shielded	-13° F to +158° F (-25° C to +70° C)
	Non-shielded	+14° F to +122° F (-10° C to +50° C)
Enclosure rating	IEC Type	IP67
Vibration resistance		25 G, Amplitude +/- 2 mm, f = 10-55 Hz
Standard target size (steel)	Shielded	0.08" x 0.08" x 0.04" (2 mm x 2 mm x 1 mm)
	Non-shielded	0.12" x 0.12" x 0.04" (3 mm x 3 mm x 1 mm)
Repeatability (% of Sr)		3%
Cable		22 AWG, PvR
Electrical		
Differential (% of Sr)		Maximum 15%
Voltage drop (across switch)		2 V
Current Consumption (no load)		10 mA
On and off delay (maximum)		.1 ms
Power-up delay		5 ms
Reverse polarity protection		Standard
Protective circuitry	Radio frequency immunity (RFI)	IEC 61000-4-3 Level 3
	Electrostatic: transients: impulse	IEC 61000-4-2 Level 2: IEC 61000-4-4 Level 4: IEC 60947.5.2
Agency Listings	UL E 164869 CCN NRKH, CSA CR 44087 Class 3211 03, CE	

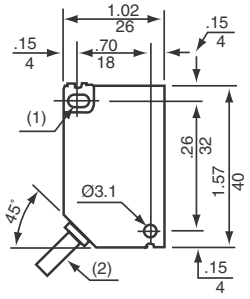
Note: Refer to page 351 for target material correction coefficient Km.

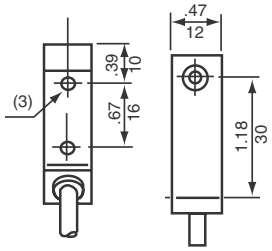
Options

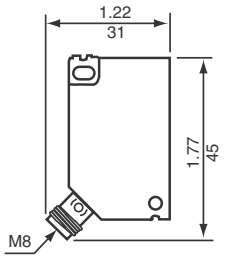
Description	Suffix
5 meter (16') Cable	L1
10 meter (33') Cable	L2











XS•G12•A140S
Side view

(1) 1 elongated hole 3.1 x 5.1mm (0.12" x 0.20")

(2) Cable, L= 2m (6.6')

(3) 2 holes M= 3 x 5mm (0.12" x 0.20")

Features:

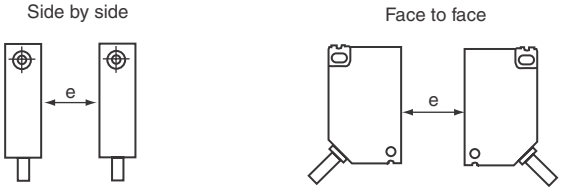
- Universal AC/DC and DC only models available
- Selectable PNP/NPN, N.O. and N.C. output
- Compact 0.47" x 1.02" x 1.57" (12 x 26 x 40 mm) body style, for tight mounting spaces
- PLC compatible
- Rugged plastic housing
- Very high Radio Frequency Immunity
- Cable or Nano Style Connector versions offered ∗
- UL Listed, CSA Certified and CE Mark

Circuit Type	Output Mode	Voltage Range Max.	Voltage Drop Max.	Load Current Max.	Operating Frequency Max.	Catalog Number
Universal AC/DC, Shielded - 2 meter (6.6') cable, Nominal Sensing Distance - 2 mm						
2 wire	N.O.	20 - 264 Vac/dc	5.5 V	5 to 200 mA ■	25 Hz AC/350 Hz DC	**XS7G12MA230**
2 wire	N.C.	20 - 264 Vac/dc	5.5 V	5 to 200 mA ■	25 Hz AC/350 Hz DC	**XS7G12MB230**
DC, Shielded - 2 meter (6.6') cable, Nominal Sensing Distance - 2 mm						
PNP	N.O.	10 - 30 Vdc	1.8 V	100 mA	2000 Hz	**XS7G12PA140**
NPN	N.O.	10 - 30 Vdc	1.8 V	100 mA	2000 Hz	**XS7G12NA140**
PNP	N.O.+N.C.	10 - 58 Vdc	2.6 V	200 mA	2000 Hz	**XS7G12PC440**
NPN	N.O.+N.C.	10 - 58 Vdc	2.6 V	200 mA	2000 Hz	**XS7G12NC440**
DC, Shielded - Nano Connector, Nominal Sensing Distance - 2 mm ∗						
PNP	N.O.	10 - 30 Vdc	1.8 V	100 mA	2000 Hz	**XS7G12PA140S**
NPN	N.O.	10 - 30 Vdc	1.8 V	100 mA	2000 Hz	**XS7G12NA140S**
Universal AC/DC, Non-shielded - 2 meter (6.6') cable, Nominal Sensing Distance - 4 mm						
2 wire	N.O.	20 - 264 Vac/dc	5.5 V	5 to 200 mA ■	25 Hz AC/350 Hz DC	**XS8G12MA230**
2 wire	N.C.	20 - 264 Vac/dc	5.5 V	5 to 200 mA ■	25 Hz AC/350 Hz DC	**XS8G12MB230**
DC, Non-shielded - 2 meter (6.6') cable, Nominal Sensing Distance - 4 mm						
PNP	N.O.	10 - 30 Vdc	1.8 V	100 mA	1000 Hz	**XS8G12PA140**
NPN	N.O.	10 - 30 Vdc	1.8 V	100 mA	1000 Hz	**XS8G12NA140**
PNP	N.O.+N.C.	10 - 58 Vdc	2.6 V	200 mA	1000 Hz	**XS8G12PC440**
NPN	N.O.+N.C.	10 - 58 Vdc	2.6 V	200 mA	1000 Hz	**XS8G12NC440**
DC, Shielded - Nano Connector, Nominal Sensing Distance - 4 mm ∗						
PNP	N.O.	10 - 30 Vdc	1.8 V	100 mA	1000 Hz	**XS8G12PA140S**
NPN	N.O.	10 - 30 Vdc	1.8 V	100 mA	1000 Hz	**XS8G12NA140S**

■ 0.6 Amp fuse is recommended for devices without short circuit protection. See accessories p. 298.

∗ See p. 518 for matching connector cables

Minimum Mounting Clearances



XS7G Shielded	e: 0mm (0")	e: 15 mm (.6")
XS8G Non-shielded	e: 10 mm (.4")	e: 60 mm (2.4")

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

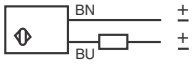
Wiring

Connector

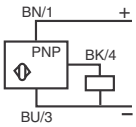
Cable

Blue	BU –
Brown	BN +
Black	BK Output

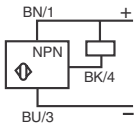
2-wire AC or DC NO or NC
XS•G12M•230



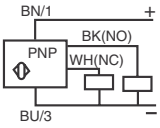
3-wire DC NO
XS•G12PA140
XS•G12PA140S



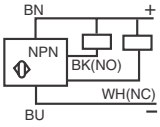
XS•G12NA140
XS•G12NA140S



4-wire DC NO + NC
XS•G12PC440



XS•G12NC440



Specifications

Mechanical			
Usable sensing range ★	Shielded	0 - 1.6 mm (.06")	
	Non-shielded	0 - 3.2 mm (.13")	
Temperature range		-13° to 158° F (-25° to 70° C)	
Enclosure rating	IEC Type	IP67 (except connector style)	
Vibration 9conforming to IED 68-2-6)		25 G, amplitude =/-2 mm, f = 10 - 55 Hz	
Shock resistance		50 G for 11 ms (conforming to IEC 60068-2-7)	
Standard target size (steel)		12 x 12 mm (0.47" x 0.47")	
Differential (% of Sr)		20%	
Repeatability (% of Sr)		10%	
LED indicator		Located on top of sensor	
Enclosure material		Plastic	
Wiring		22 AWG (0.34 mm^2), PvR cable	
Electrical		**AC/DC models**	**DC models**
Voltage range		24 to 240 Vac	12 to 24 Vdc
		24 to 210 Vdc	--
Voltage limit (including ripple)		20 to 264 Vac/dc	10 to 30 Vdc
Current consumption (max.)(no load)		--	10 mA
Max. Leakage (Residual) Current -open state		0.8 mA at 24 V, 1.5 mA at 120 V	0.1 mA
Power-up delay (max.)		40 ms	4 ms
On delay (max.)		1 ms	0.5 ms
Off delay (max.)		2 ms	1 ms
Protective Circuitry	Short circuit protection	No	Yes
	Overload protection	No	Yes
Agency Listings	E 164869 CCN NRKH	CR 44087 Class 3211 03	CE

Options

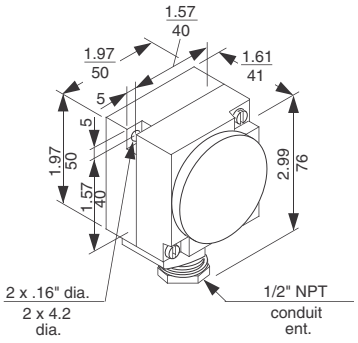
Description	Suffix
Extended temperature range	
to +185° F (+85° C)	TT
to -40° F (-40° C)	TF
5 meter (16') cable length	L1
10 meter (33') cable length	L2

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

Connector Cables (M8 or S suffix)

XSZCS101	Nano Conn., 3 pin, 2 m, straight
XSZCS111	Nano Conn., 3 pin, 2 m, 90°

For additional cable options and lengths see p. 518



Dual Dimensions inches / mm

Compact long range plug-in inductive proximity sensors for industrial applications.

Features:

- Housings: XSB - Plastic (thermoplastic polyester)
- Screw terminals or mini style receptacle
- Radio Frequency Immunity (RFI)
- Noise and transient protection
- Reverse polarity protection (DC models)
- Selected models are offered with short circuit protection (SCP) and overload protection
- UL Listed and CSA Certified. Factory Mutual approved for non incendive applications: NAMUR sensors approved for intrinsically safe applications. CE mark.

25mm (.984") sensing range, Plug-in, Non-shielded

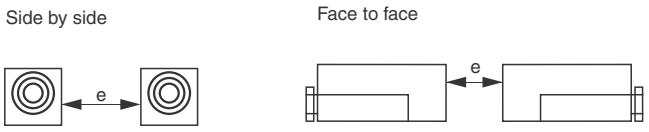
Output Mode	Voltage Range	Max. Load	Residual (leakage) Current	Operating Frequency Current	LED/SCP★	Catalog Number
NAMUR - DC, 2 wire, screw terminals for use with intrinsically safe relays						
1mA/3mA	7-12 V	-	-	250 Hz	No/Yes	**XSBN25122**
DC models, 2 wire, screw terminals						
N.O.	12-58 V	80 mA	1.2 mA	250 Hz	No/No	**XSBC25710**
AC models, 2 wire, screw terminals						
N.O.	93-132 V	150 mA	1.7 mA (P)②	40 Hz	Yes/Yes	**XSBA25513**
N.C.	93-132 V	150 mA	1.7 mA (P)②	40 Hz	Yes/Yes	**XSBA25523**
N.O.	20-132 V	150 mA	4.5 mA (P)②	40 Hz	Yes/No	**XSBA25811**
N.O.	20-132 V	270 mA	4.5 mA (P)②	40 Hz	Yes/No	**XSBA25821**
N.O.	93-264 V	150 mA	4.5 mA (P)②	40 Hz	Yes/No	**XSBA25911**
N.C.	93-264 V	150 mA	4.5 mA (P)②	40 Hz	Yes/No	**XSBA25921**
AC models, 2 wire, mini style connector ③						
N.O.	93-132 V	150 mA	1.7 mA (P)②	40 Hz	Yes/Yes	**XSBA25513R3**
N.C.	93-132 V	150 mA	1.7 mA (P)②	40 Hz	Yes/Yes	**XSBA25523R3**
N.O.	93-264 V	150 mA	4.5 mA (P)	40 Hz	Yes/No	**XSBA25911R3**
N.C.	93-264 V	150 mA	4.5 mA (P)②	40 Hz	Yes/No	**XSBA25921R3**

② PLC Applications:
P = PLC compatible.
R = Bleeder resistor needed for PLC application.

③ See p. 518 for matching connector cables.

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

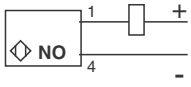
Minimum Mounting Clearances



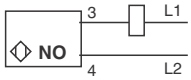
XSC.15	e: 38mm (1.5")	e: 97mm (3.8")
XSC.20	e: 80mm (3.1")	e: 160mm (6.3")

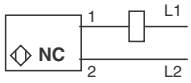
Wiring

2 wire DC



2 wire AC





Specifications

Mechanical			
Usable sensing range✱		0-20 mm (.78")	
Standard temperature range		-13° F to +158° F (-25° C to +70° C)	
Enclosure rating	• NEMA Type	3, 4, 6, 13	
	• IEC Type	IP67	
Vibration resistance		25 G, amplitude ± 2 mm, f = 10-55 Hz	
Shock resistance		50 G for 11 ms	
Standard target size (steel)		3" x 3" (75 x 75 mm)	
Differential		Max. 20%	
Repeatability		Max. 5%	
Radio Frequency Immunity (RFI)		Standard	
Cable		Screw terminals, #16AWG	
Electrical		**AC Models**	**DC Models**
Voltage drop (across switch)		9.5 V	7 V
Inrush current (inductive @ 20mS)		.9 A	–
Minimum load current		20 mA	1.5 mA
Power supply current (no load)		–	10 mA
On delay (max.)		10 ms	0.4 ms
Off delay (max.)		10 ms	1 ms
Power-up delay (max.)		150 ms	1.2 ms
Reverse polarity protection		–	Standard
Agency Listings	E 164353 ■ CCN NRKH	LR 44087 ★ Class 3211 03	FM: J.I. OROH9.AX (3610, 3611)

■ Except XSBN25122

★ Except XSBN2[illegible]L2 LR 59[illegible], Class [illegible]06

Options

Description	Suffix
Extended temperature range ▲	
to +185° F (+85° C)	TT
to -40° F (-[illegible]° C)	TF

Ex: XSB C[illegible] T[illegible]

▲ Not available for AC models with SCP.

Replacement modules

Description	Output Mode	Voltage Range	Leakage Current	Catalog Number
AC models				
Base receptacle	-	-	-	**ZSBZ21**
Switch body	N.O.	93-132 Vac	1.7 mA	**ZSBA25513**
Switch body	N.C.	93-132 Vac	1.7 mA	**ZSBA25523**
Switch body	N.O.	93-132 Vac	4.5 mA	**ZSBA25911**
Switch body	N.C.	93-132 Vac	4.5 mA	**ZSBA25921**
DC models				
Base receptacle	-	-	-	**ZSBZ22**
Switch body	N.O.	12-58 Vac	-	**ZSBC25710**

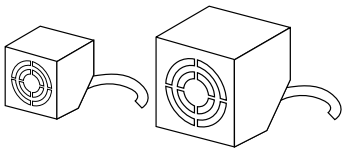
✱ Refer to p. 351 for target material correction coefficient Km.

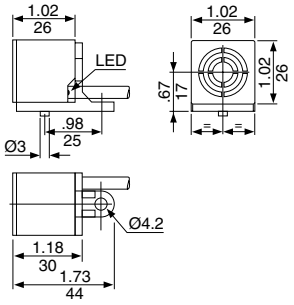
Connector Cables (A or R3 suffix)

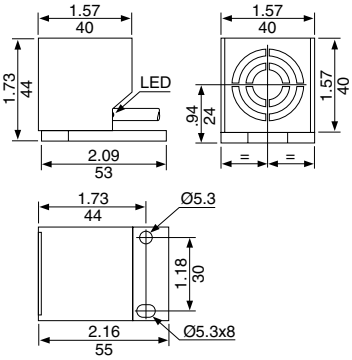
XSZCA901Y	Mini Conn., 3 pin, 2 m, straight
XSZCA911Y	Mini Conn., 3 pin, 2 m, 90°

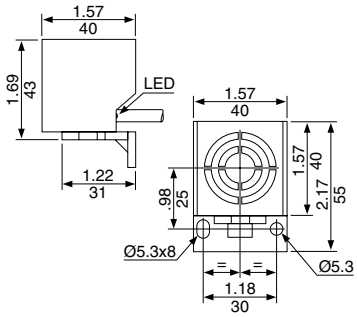
For additional cable options and lengths see p. 518

Proximity Sensors
XS Inductive Sensors
Cubic Block Style, 26 x 26 mm and 40 x 40 mm Square, DC









Dual Dimensions inches / mm

Features

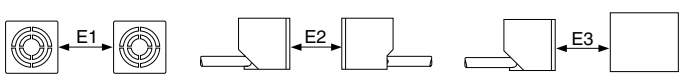
- Compact cubed body style in rugged PBT plastic
- Flush and Non-flush mountable
- Comparable sensing distance to Limit Switch style in half the body size
- Mounting bracket included with each sensor
- Elbow bracket provides interchangeability with Limit Switch style sensor, and enables multiple positioning of sensing face
- Molded cable or molded cable with Micro connector pigtail at 0.8 m or 0.15 m length

Description	Nominal Sensing Distance	Circuit Type	Output Mode	Voltage Range	Voltage Drop Max.	Load Current Max.	Operating Frequency Max.	Catalog Number
26 mm x 26 mm								
DC, Flush Mountable								
2 Meter (6') Cable ▲								
26 x 26	10 mm	2 wire	N.O.	12–48 Vdc	5.2 V	100 mA	100 Hz	**XS7T2DA210**
26 x 26	10 mm	PNP	N.O. + N.C.	12–48 Vdc	2 V	200 mA	1000 Hz	**XS7T2PC440**
26 x 26	10 mm	NPN	N.O. + N.C.	12–48 Vdc	2 V	200 mA	1000 Hz	**XS7T2NC440**
0.8 m (2.6 ft) Pigtail with 4 Pin Micro Connector ▲								
26 x 26	10 mm	2 wire	N.O.	12–48 Vdc	5.2 V	100 mA	100 Hz	**XS7T2DA214LD**
26 x 26	10 mm	PNP	N.O. + N.C.	12–48 Vdc	2 V	200 mA	1000 Hz	**XS7T2PC440LD**
26 x 26	10 mm	NPN	N.O. + N.C.	12–48 Vdc	2 V	200 mA	1000 Hz	**XS7T2NC440LD**
0.15 m (5.9 ft) Pigtail with 4 Pin Micro Connector ▲								
26 x 26	10 mm	2 wire	N.O.	12–48 Vdc	5.2 V	100 mA	100 Hz	**XS7T2DA214LD01**
DC, Non-Flush Mountable								
2 Meter (6') Cable ▲								
26 x 26	15 mm	PNP	N.O. + N.C.	12–48 Vdc	2 V	200 mA	500 Hz	**XS8T2PC440**
26 x 26	15 mm	NPN	N.O. + N.C.	12–48 Vdc	2 V	200 mA	500 Hz	**XS8T2NC440**
0.8 m (2.6 ft) Pigtail with 4 Pin Micro Connector ▲								
26 x 26	15 mm	PNP	N.O. + N.C.	12–48 Vdc	2 V	200 mA	500 Hz	**XS8T2PC440LD**
26 x 26	15 mm	NPN	N.O. + N.C.	12–48 Vdc	2 V	200 mA	500 Hz	**XS8T2NC440LD**
40 mm x 40 mm								
DC, Flush Mountable								
2 Meter (6') Cable ▲								
40 x 40	15 mm	2 wire	N.O.	12–48 Vdc	5.2 V	100 mA	150 Hz	**XS7T4DA210**
40 x 40	15 mm	PNP	N.O. + N.C.	12–48 Vdc	2 V	200 mA	1000 Hz	**XS7T4PC440**
40 x 40	15 mm	NPN	N.O. + N.C.	12–48 Vdc	2 V	200 mA	1000 Hz	**XS7T4NC440**
0.8 m (2.6 ft) Pigtail with 4 Pin Micro Connector ▲								
40 x 40	15 mm	2 wire	N.O.	12–48 Vdc	5.2 V	100 mA	150 Hz	**XS7T4DA214LD**
40 x 40	15 mm	PNP	N.O. + N.C.	12–48 Vdc	2 V	200 mA	1000 Hz	**XS7T4PC440LD**
40 x 40	15 mm	NPN	N.O. + N.C.	12–48 Vdc	2 V	200 mA	1000 Hz	**XS7T4NC440LD**
0.15 m (5.9 ft) Pigtail with 4 Pin Micro Connector ▲								
40 x 40	15 mm	2 wire	N.O.	12–48 Vdc	5.2 V	100 mA	150 Hz	**XS7T4DA214LD01**
DC, Non-Flush Mountable								
2 Meter (6') Cable ▲								
40 x 40	20 mm	PNP	N.O. + N.C.	12–48 Vdc	2 V	200 mA	1000 Hz	**XS8T4PC440**
40 x 40	20 mm	NPN	N.O. + N.C.	12–48 Vdc	2 V	200 mA	1000 Hz	**XS8T4NC440**
0.8 m (2.6 ft) Pigtail with 4 Pin Micro Connector ▲								
40 x 40	20 mm	PNP	N.O. + N.C.	12–48 Vdc	2 V	200 mA	1000 Hz	**XS8T4PC440LD**
40 x 40	20 mm	NPN	N.O. + N.C.	12–48 Vdc	2 V	200 mA	1000 Hz	**XS8T4NC440LD**

▲ See p. 518 for matching connector cables

Minimum Mounting Clearances

	E1		E2		E3		D1		H	
	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm
XS7T2 Shielded	0.98	25	4.32	110	1.18	30	1.02	26	0	0
XS7T4 Non-shielded	1.57	40	4.71	120	1.77	45	1.57	40	0	0
XS7T4 Shielded	1.49	38	4.72	120	1.77	45	3.07	78	1.02	26
XS8T4 Non-shielded	2.36	60	6.29	160	2.36	60	4.72	120	1.57	40



Side by Side | Face to Face | Facing a Metal Object | Mounted in a Metal Support

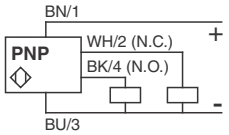
Wiring

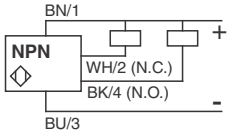
Connector

Cable

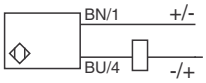
Blue	BU –
Brown	BN +
Black	BK Output

4 Wire





2 Wire



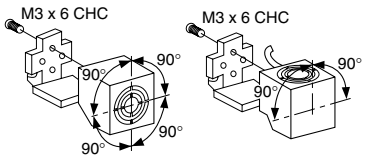
Specifications

Mechanical				
Usable Sensing Range ★	XS7T2	0–8 mm (.32")		
	XS8T2	0–12 mm (.47")		
Temperature Range		-13° to 158° F (-25° to 70° C)		
Enclosure Rating	NEMA Type	1, 4X, 12		
	IEC Type	IP67 (connector version depends on connector)		
Vibration		25 G, amplitude =/-2 mm, f = 10-55 Hz		
Shock Resistance		50 G for 11 ms		
Differential (% of Sr)		20%		
Repeatability (% of Sr)		3%		
LED Indicator Type		Yes, located at cable		
Enclosure Material		Plastic		
Wiring		20 AWG (0.5 mm^2), PvR cable		
Electrical		**2 wire**	**3 wire**	**4 wire**
Voltage Range		12–48 Vdc	12–48 Vdc	12–48 Vdc
Voltage Limit (Including Ripple)		10–58 Vdc	10–58 Vdc	10–58 Vdc
Voltage Drop		5.2 V	2 V	5.2 V
(max.) Leakage (Residual) Current–Open State		0.7 mA	0.1 mA	0.1 mA
Current Consumption		10 mA	10 mA	10 mA
Power-up Delay (max.)		5 ms	5 ms	7 ms
On Delay (max.)		2 ms	0.3 ms	0.3 ms
Off Delay (max.)		5 ms	0.7 ms	0.7 ms
Protective Circuitry	Short Circuit Protection	Yes	Yes	Yes
	Overload Protection	Yes	Yes	Yes
Agency Listings	UL E 164869 CCN NRKH	CSA CR 44087 Class 3211 03	CE	

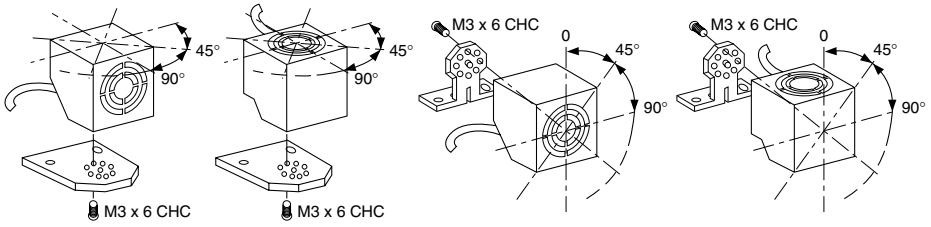
★ Refer to p. 351 for target material correction coefficient Km.

Mounting options

XS7/8T2



XS7/8T4



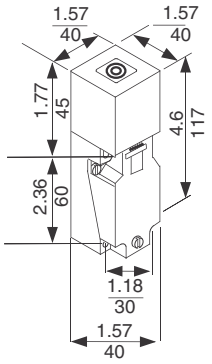
Connector Cables (M12 or D suffix)

XSZCD101Y	Micro Conn., 4 pin, 2 m, straight
XSZCD111Y	Micro Conn., 4 pin, 2 m, 90°

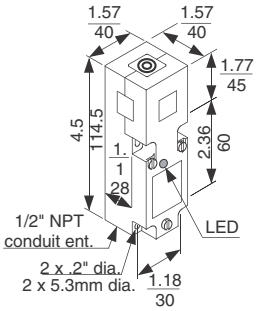
For additional cable options and lengths see p. 518

Proximity Sensors
XS7/8C Limit Switch Type, Inductive Sensors
5 Position Turret Head, Plastic AC/DC, DC or AC

Sensing head turns to accommodate 5 different sensing positions



XS7/8



XSCT

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

Standard limit switch housing inductive proximity sensors for industrial applications.

Features:

- PBT plastic body with stainless steel screws for corrosive environments.
- Plug-in design for ease in replacement.
- 5 position turret head for reduced inventory.
- 0.5" NPT conduit entrance with many wiring and connecting options.
- Radio Frequency Immunity (RFI) standard.
- PLC compatible.
- 2 LED system on selected models indicates ON/OFF, POWER ON.
- DC versions work with unfiltered power supply
- Noise and transient protection
- Reverse polarity protection (DC models)
- Excellent resistance to aggressive environments (dripping corrosive fluids, submersion in water).
- Universal AC/DC 2 wire
- Longest extended range using the standard dimensions
- UL listed, CSA certified and CE mark

Circuit Type	Output Mode	Voltage Range AC	Voltage Range DC	Maximum Load Current ■	Residual (leakage) current	Operating Frequency	LED/SCP★	Catalog Number
Shielded								
15mm (.59") sensing range universal, AC/DC								
2 wire	N.O./N.C.	24-240 V	24-210 V	300 mA/200 mA	0.5 mA at 24 V 1.5 mA at 120 V	25/50 Hz	Yes/No	**XS7C40MP230**
15mm (.59") sensing range, DC								
2 wire	N.O.	-	12-48 V	100 mA	0.5 mA	1500 Hz	Yes/Yes	**XS7C40DA210**
2 wire	N.O./N.C.	-	12-48 V	100 mA	0.5 mA	1500 Hz	Yes/Yes	**XS7C40DP210**
PNP	N.O. + N.C.	-	12-48 V	200 mA	-	1000 Hz	2/Yes	**XS7C40PC440**
NPN	N.O. + N.C.	-	12-48 V	200 mA	-	1000 Hz	2/Yes	**XS7C40NC440**
20mm (.79") extended range, DC 3 wire								
PNP	N.O. + N.C.	-	12-48 V	200 mA	-	1000 Hz	2/Yes	**XS7C40PC449**
NPN	N.O. + N.C.	-	12-48 V	200 mA	-	1000 Hz	2/Yes	**XS7C40NC449**
15mm (.59") sensing range, AC								
2 wire	N.O./N.C.	24-240 V	-	500 mA	1.5 mA	25 Hz	Yes/No	**XS7C40FP260**
Non-shielded								
20mm (.79") sensing range universal, AC/DC								
2 wire	N.O./N.C.	24-240 V	24-210 V	300 mA/200 mA	0.5 mA at 24 V 1.5 mA at 120 V	25/50 Hz	Yes/No	**XS8C40MP230**
20mm (.79") sensing range, DC								
2 wire	N.O.	-	12-48 V	100 mA	0.6mA	150 Hz	Yes/No	**XS8C40DA210**
2 wire	N.O./N.C.	-	12-48 V	100 mA	0.6mA	150 Hz	Yes/No	**XS8C40DP210**
PNP	N.O. + N.C.	-	12-48 V	200 mA	-	1000 Hz	2/Yes	**XS8C40PC440**
NPN	N.O. + N.C.	-	12-48 V	200 mA	-	1000 Hz	2/Yes	**XS8C40NC440**
40mm (1.6") extended range, DC 3 wire								
PNP	N.O. + N.C.	-	12-48 V	200 mA	-	500 Hz	2/Yes	**XS8C40PC449**
NPN	N.O. + N.C.	-	12-48 V	200 mA	-	500 Hz	2/Yes	**XS8C40NC449**
20mm (.79") sensing range, AC								
2 wire	N.O./N.C.	24-240 V	-	500 mA	1.5 mA	25 Hz	Yes/No	**XS8C40FP260**
20mm (.79") sensing range, AC Model with Timer (1-20s)								
2 wire	N.O./N.C.	24-240 V	-	350 mA	2.0 mA (R)	13 Hz	Yes/No	**XSCT023319**

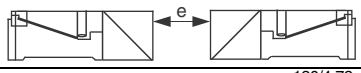
★ For devices without SCP, an 0.8A quick blow fuse wired in series is recommended, see p. 298 for protective fuses.
■ 20 ≤ Vdc 58 IEC 60947-5-2 Utilization category DC-13: Vdc > IEC 60947-5-2 Utilization category DC-12

Minimum Mounting Clearances (mm/inches)

Side by side

XS7 Shielded e: 40/1.57
XS8 Non-shielded e: 80/3.15

Face to Face



e: 120/4.72
e: 160/6.30

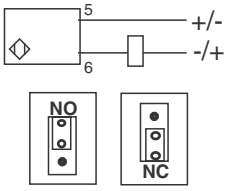
Wiring

Connector

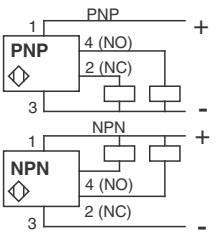
Cable

Blue BU –
Brown BN +
Black BK Output

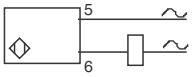
2 wire DC Non Polarized



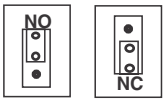
4 wire DC NO/NC



2 wire AC



NO/NC Selector Jumper



Specifications

Mechanical					
Usable sensing range ✱	Shielded	0-12 mm (.47")			
	Non-shielded	0-16 (63")			
Standard temperature range		-13° F to +158° F (-25° C to +70° C)			
Enclosure rating	NEMA Type	4, 6P, 12 (UL test pending)			
	CENELEC Type	IP67			
Enclosure material	Body & sensing face	PBT			
	Screws	Stainless Steel			
Vibration resistance	IEC 60068.2.6	25 G, amplitude at 55 Hz, f = 10-55 Hz			
Shock resistance	IEC 60068.2.27	50 G duration 11 ms			
Standard target size (steel)	Shielded	45 x 45 mm (1.8" x 1.8")			
	Non-shielded	60 x 60 mm (2.4" x 2.4")			
Differential		Max. 20%			
Repeatability		Max. 3%			
Radio Frequency Immunity (RFI)		Standard			
Cable		Screw terminals			

Electrical		AC Models	DC Models		AC/DC Models
			2 wire	4 wire	
Voltage range		24-240 V 50/60 Hz	12-48 V	12-48 V	24-240 Vac 50/60 Hz 24-210 Vdc
Voltage limit (including ripple)		20-264 V 50/60 Hz	10-58 V	10-58 V	20-264 Vac/dc
Voltage drop (across switch) closed state		5.5 V	4 V	2 V	5.5 V
Minimum load current		5 mA	1.5 mA	–	5 mA
Maximum load current		500 mA	100 mA	100 mA	300 mA/200 mA
Inrush		2A★	–	–	2 A★
Current consumption (no load)		–	–	10 mA	–
On delay (max.)		30 ms	2 ms	0.3 ms	30 ms
Off delay (max.)	Shielded	20 ms	5 ms	0.7 ms	20 ms
	Non-shielded	20 ms	7 ms	0.7 ms	20 ms
Power-up delay (max.)		120 ms	5 ms	5 ms	120 ms

Protective circuitry	
Short circuit protection	Optional ★
Overload protection	Yes
Radio frequency immunity (RFI)	IEC 61000-4-3 Level 3
Electrostatic; Transients; Impulse	IEC 61000-4-2 Level 4; IEC 61000-4-3 Level 3; IEC 60947.5.2 Level 3
Reverse polarity protection DC Versions	Yes
Agency Listings	UL E 164869 CCN NRKH; CSA CR 44087 Class 3211 03; CE

✱ See page 351 for target material corrective coefficient km.
★ Without overload or SCP, an 0.8 A quick blow fuse wired in series is recommended, see page 298 for protective fuses.

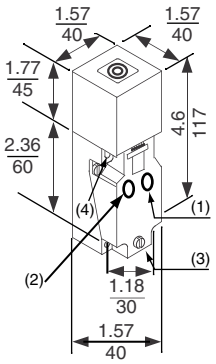
Options

Description		Suffix
Extended temperature range	+185° F (+85° C)	TT
Extended temperature range	-40° F (-40° C)	TF
3 pin mini style connector	Normally open	R30
3 pin mini style connector	Normally closed	R31
5 pin mini style connector		R5
3 pin micro stye connector	AC only, wired Normally open	K30
3 pin micro style connector	AC only, wired Normally closed	K31

Connector Cables (R3, R5 or K suffix)

XSZCK101Y	Micro Conn., 3 pin, 2 m, straight
XSZCK111Y	Micro Conn., 3 pin, 2 m, 90°
XSZCA901Y	Mini Conn., 3 pin, 2 m, straight
XSZCA911Y	Mini Conn., 3 pin, 2 m, 90°
XSZCA1501Y	Mini Conn., 5 pin, 2 m, straight
XSZCA1511Y	Mini Conn., 5 pin, 2 m, 90°

For additional cable options and lengths see p. 518



(1) Output LED (Yellow)
(2) Power/Teach LED (Green)
(3) 1/2" NPT conduit opening
(4) Two elongated mounting holes: 0.21" x 0.28" (5.3 mm x 7 mm)

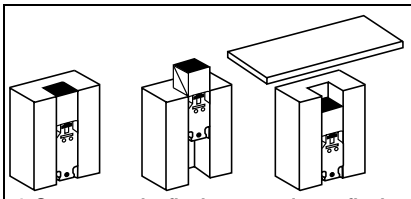
Dual Dimensions inches / mm

Features:

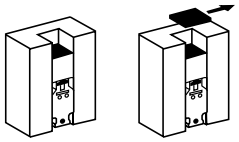
Microprocessor based, self-teaching Proximity Switch adjusts to its environment on command, suppressing any metal background, then detecting the target it was taught to identify. (*See Illustration*).

- Can be recessed mounted in metal without interference with sensing field
- Long range sensing 0.98" (25 mm)
- Plastic Limit Switch plug-in body style with 5 position turret head
- Two LEDs: (1) power supply and terminal mode (flashes in learning mode when sensor is learning its environment), (2) output
- 24 Vdc, complementary PNP and NPN type output
- UL Listed, CSA Certified, CE Mark

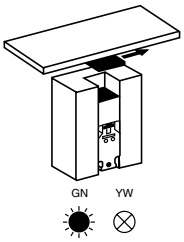
Illustrations:



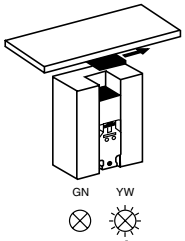
1. Sensor can be flush mounted, non-flush mounted or recessed mounted. A metal background can be placed in immediate proximity of the sensor.



2. To set up, activate "teach" mode. When no target is present, sensor will learn the environment. Then, pass target in front of the sensor in the usual way.



3. Green LED flashes when sensor is learning its environment and target, then becomes steady when sensor is set.

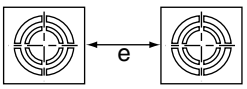


4. The newly programmed sensor will recognize the target and provide output.

Sensing Distance	Circuit Type	Output Mode	Connection	Catalog Number
25 mm	PNP	N.O.	Screw Terminal	XS8C40PAA40
25 mm	NPN	N.O.	Screw Terminal	XS8C40NAA40

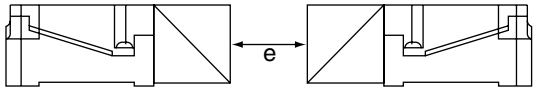
Minimum Mounting Clearances (mm/inches)

Side by side



XSC8C40●AA40 e: 80/3.15

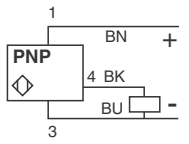
Face to face

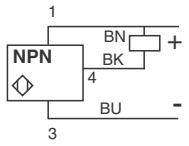


e: 9.45m/240

Wiring

3-wire DC, NO output





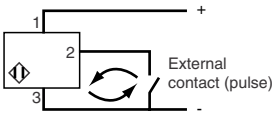
XS8C40●AA40

Specifications

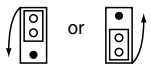
Mechanical		
Temperature Range	Operating Storage	-13 ° F to 158 ° F (-25 ° C to 70 ° C) -13 ° F to 158 ° F (-25 ° C to 70 ° C)
Enclosure Rating	NEMA Type	4, 4X, 6, 6P, 12,
	IEC Type	IEC IP67 per IEC 60529
Enclosure Material	Case	PBT
Vibration resistance	(IEC 60068-2-6)	25 G, amplitude at 55 Hz, f = 10 - 55 Hz
Shock resistance	(IEC 60068-2-27)	50 G, duration 11 ms
Differential (max.)	(% of Sr.)	15%
Repeatability (max.)	(% of Sr.)	3%
LED indicator type		Power/Teach (green)
		Output (yellow)
Connection		Screw Terminal
Electrical		
Voltage Limit (including ripple)		19 - 30 Vdc
Voltage Drop (across switch) closed state (max.)		2 V
Current consumption (no load) (max.)		20 mA
Load Current (max.)		200 mA
Operating frequency (max.)		600 Hz
On delay (max.)		1 ms
Off delay (max.)		1 ms
Power-up delay (max.)		250 ms
Short circuit protection		Yes
Overload protection		Yes
Reverse polarity protection		Yes
Agency Listings	E 164869 CCN NRKH	CR 44087 Class 3211 03

Activating self-teaching mode

Option 1
by external contact



Option 2
internally (repositioning of jumper)

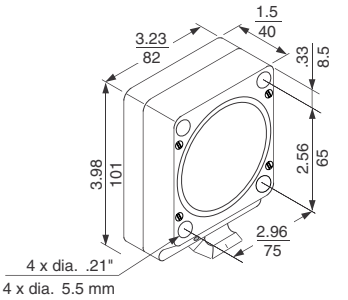


When in the self-teaching mode, the green LED (status) flashes rapidly.

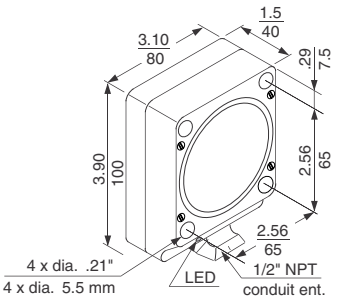
As objects pass through the detection zone, the sensor memorizes the two opposing thresholds in relation to its environment. When the self-teaching is complete, the green LED ceases to flash and maintains a steady light. The yellow LED indicates output.

Telemecanique

Shielded



Unshielded



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

Features

Rectangular low profile switch 3.5" square by 1·63" high (88.4 x 41.4 mm) designed for very demanding industrial applications.

- Housings: Plastic (thermoplastic polyester)
- LED indicators: target sensed, power on and short circuit (selected models)
- Timer model available for jamming applications
- Plug-in modular design
- Radio Frequency Immunity (RFI)
- Short circuit protection (SCP) (selected models)
- Alternate frequency models for side by side mounting (selected models)
- DC models: complementary outputs (PNP or NPN)
- AC models: selectable normally open (N.O.) or normally closed (N.C.)
- UL Listed, CSA Certified and CE marked

40 mm (1.57") Sensing Range, Shielded

Circuit Type	Output Mode	Voltage Range ▲	Max. Load	Residual (Leakage) Current	Operating Frequency Maximum	LED/SCP★	Catalog Number
DC Model, Screw Terminals							
2 wire	N.O.	12-48 V	100 mA	0.5 mA	180 Hz	Yes	**XSDC407138**

40 mm (1.57") Sensing Range, Non-shielded

DC Model, Screw Terminals							
2 wire	N.O.	12-48 V	100 mA	0.5 mA	180 Hz	Yes/Yes	**XSDC407139**
PNP	N.O. + N.C.	12-48 V	200 mA	–	50 Hz	Yes/Yes	**XSDH407339†**
NPN	N.O. + N.C.	12-48 V	200 mA	–	50 Hz	Yes/Yes	**XSDJ407339†**
AC Model, Screw Terminals							
2 wire	N.O.,N.C.	24-240 V	500 mA	1.5 mA (P) ■	10 Hz	Yes/No	**XSDA400519†**
2 wire	N.O.,N.C.	24-240 V	500 mA	1.5 mA (P) ■	10 Hz	3♦/Yes	**XSDA405539†**
AC Model Mini Style Connector, 3 Pins ◑							
2 wire	N.O.,N.C.	24-240 V	500 mA	1.5 mA (P) ■	10 Hz	Yes/No	**XSDA400519R3†**
2 wire	N.O.,N.C.	24-240 V	500 mA	1.5 mA (P) ■	10 Hz	3♦/Yes	**XSDA405539R3†**
AC Model with Timer							
2 wire	N.O.,N.C.	24-240 V	500 mA	3.5 mA (R) ■	10 Hz	Yes/No	**XSDT023319**

50 mm (2") Sensing Range, Shielded

AC/DC Model, Screw Terminals							
2 wire	N.O./N.C.	24-240 V	5-100 mA DC 5-500 mA AC	1.7mA at 120V 3 mA at 240V ●	10 Hz	3♦/Yes	**XSDM500538**

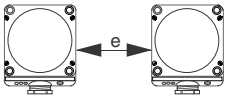
50 mm (2") Sensing Range, Non-shielded

DC Model, Screw Terminals							
2 wire	N.O.	12-48 V	100 mA	0.5 mA	180 Hz	Yes/Yes	**XSDC507139**
AC Model, Screw Terminals							
2 wire	N.O./N.C.	24-240 V	500 mA	1.5 mA	10 Hz	Yes/No	**XSDA500519**
2 wire	N.O./N.C.	24-240 V	500 mA	1.5 mA	10 Hz	3♦/Yes	**XSDA505539**
AC Model Mini Style Connector, 3 Pins ◑							
2 wire	N.O/.N.C.	24-240 V	500 mA	1.5 mA	10 Hz	Yes/No	**XSDA500519R†**
2 wire	N.O./N.C.	24-240 V	500 mA	1.5 mA	10 Hz	3♦/Yes	**XSDA505539R†**

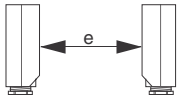
● 100 mA for DC.
■ PLC applications: P= PLC compatible. R= Bleeder resistor needed.
† Also available with alternate frequency. Add F to catalog number. No additional charge.
♦ 1 LED for power ON, 1 LED for output ON, 1 LED for SCP triggered.
◑ Mating connector see p. 518.
★ For devices without SCP, see p. 298 for protective fuses.

Minimum Mounting Clearances (Except XSDM500538) (mm/inches)

Side by side



Face to face



XSD 40 e: 200/7.9 e: 400/15.7
XSD 50 e: 250/10 e: 500/20

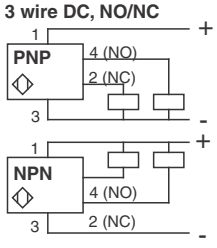
Wiring

Connector

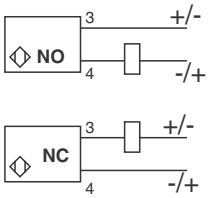
Cable

Blue	BU –
Brown	BN +
Black	BK Output

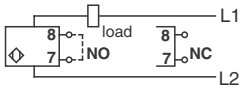
3 wire DC, NO/NC



2 wire DC, non polarized



2 wire AC and AC/DC, programmable NO/NC



Specifications

Mechanical				
Usable Sensing Range★		24-48 mm (0.94" - 1.89")		
Standard Temperature Range		-13° F to +158° F (-25° C to +70° C)		
Enclosure Rating	NEMA Type	3,4 X (indoor),12,13		
	IEC Type	IP67		
Vibration Resistance		25 G, amplitude ± 2 mm, f =10-55 Hz		
Shock Resistance		50 G for 11 ms		
Standard Target Size (Mild Steel)		120 x 120 mm (4.7" x 4.7")		
Differential		Maximum 20%		
Repeatability		Maximum 5%		
Cable, PVC		Screw Maximum, #16 AWG		
Electrical	**AC Models**	**DC Models**		**AC/DC Models**
		2 wire	**4 wire**	
Voltage range max. (including ripple)	20-264 V	10-58 V	10-58 V	20-264 V
Voltage Drop (Across Switch)	5.5 V★	4 V	1.8 V	6 V
Inrush Current (Inductive @ 20mS)	2 A	-	-	2 A
Minimum Load Current	5 mA	1.5 mA	-	5 mA
Current consumption (No Load)	-	-	10 mA	-
On Delay (max.)	30 ms	0.2 ms	10 ms	40 ms
Off Delay (max.)	20 ms	3 ms	10 ms	60 ms
Power-up Delay (max.)	120 ms	5 ms	10 ms	100 ms
Reverse Polarity Protection	-	Standard	Standard	-
Radio Frequency Immunity (RFI)	4 cm (1.6") Minimum from antenna			
Agency Listings	E 164353 ■ CCN NRKH	LR 44087 ★ Class 3211 03	FM: J.I. OROH9.AX (3610, 3611)	CE

★ Timer model voltage drop is 4.5 V.

Options

Description	**Suffix**
Extended Temperature Rangea	
to +185° F (85° C) (▼ Not Available on AC Models with SCP)	TT
to -40° F (-40° C)	TF

Ex: XSD605539 TTR3

Replacement Modules

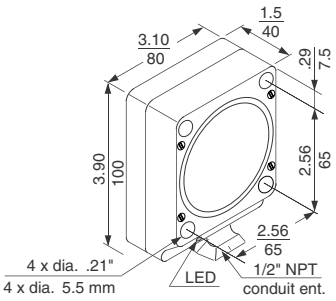
Description	**Catalog Number**
DC 2 Wire	
Base Receptacle, N.O. Contact	**ZSDZ03**
N.O. Contact Switch	**ZSDC607139**
Base Receptacle, N.O./N.C.	**ZSDZ02**
N.O./N.C. Contact Switch	**ZSDC607319**
DC 3 Wire	
Base Receptacle	**ZSDZ02**
PNP Switch	**ZSDH607339**
NPN Switch	**ZSDJ607339**
AC 2 Wire	
Base Receptacle	**ZSDZ01**
1 LED, N.O. SCP Switch	**ZSDA600519**
3 LED, SCP Switch	**ZSDA605539**
AC/DC	**ZSDM600539**

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

Connector Cables (A or R3 suffix)

XSZCA901Y	Mini Conn., 3 pin, 2 m, straight
XSZCA911Y	Mini Conn., 3 pin, 2 m, 90°

For additional cable options and lengths see p. 518



Dual Dimensions inches / mm

Features:

Rectangular low profile switch 3.5" square by 1·63" high (88.4 x 41.4 mm) designed for very demanding industrial applications. Especially recommended for long sensing range applications with metal in the background.

- Housings: Plastic (thermoplastic polyester)
- Adjustable sensing range (30 to 60mm); sensitivity can be decreased below the maximum usable sensing distance (48mm) to cancel the metal background influence (20 turn potentiometer under the front plastic cap). For fixed long sensing distance, see page 280.
- LED indicators: target sensed, power on and short circuit (selected models)
- Plug-in modular design
- AC/DC model available
- Radio Frequency Immunity (RFI)
- Short Circuit Protection (SCP) (selected models)
- 1/2" NPT conduit entrance
- Protected, captive saddle clamp terminals in ready-to-wire position
- DC models: complementary outputs PNP or NPN
- AC models: programmable output N.O./N.C.
- UL Listed and CSA Certified

NOTE: Sensors are delivered and adjusted from the factory for maximum sensing distance. ***Do not attempt to increase the sensing distance above the factory setting; sensor behavior becomes unpredictable.***

30-60 mm (2.36") sensing range, Non-shielded

Circuit Type	Output Mode	Voltage Range	Max. Load	Residual (leakage) Current Max	Operating Frequency Maximum	LED/SCP★	Catalog Number
DC model, 2 and 3 wire screw terminals							
2 wire	N.O.	12-48 V	100 mA	0.8 mA	20 Hz	Yes/Yes	XSDC607139
2 wire	N.O.,N.C.	12-48 V	100 mA	0.8 mA	20 Hz	Yes/No	XSDC607319
PNP	N.O.,N.C.	12-48 V	200 mA	–	50 Hz	Yes/Yes	XSDH607339
NPN	N.O.,N.C.	12-48 V	200 mA	–	50 Hz	Yes/Yes	XSDJ607339
AC model, screw terminals							
2 wire	N.O./N.C.	24-240 V	500 mA	1.7 mA ②	10 Hz	Yes/No	XSDA600519
2 wire	N.O./N.C.	43-132 V	500 mA	1.7 mA ②	10 Hz	3③/Yes	XSDA605539
AC and DC models, screw terminals							
2 wire	N.O./N.C.	24-240 Vac	500 mA	1.7 mA @ 120 V ② ■			
		24-210 Vdc	100 mA	115 V	10 Hz	3③/Yes	XSDM600539
AC and AC/DC models, mini style receptacle, 3 pins							
2 wire	N.O./N.C.	24-240 V	500 mA	1.7 mA ②	10 Hz	Yes/No	XSDA600519R3
2 wire	N.O./N.C.	93-132 V	500 mA	1.7 mA ②	10 Hz	3③/Yes	XSDA605539R3
2 wire	N.O./N.C.	24-240 Vac	500 mA	1.7 mA ②			
		24-210 Vdc	100 mA	1.7 mA @ 120 V ② ■	10 Hz	3③/Yes	XSDM600539R3

② PLC compatible.

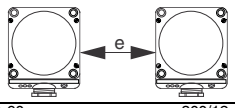
③ 1 LED for power OUT and 1 LED for output ON, 1 LED for SCP triggered.

■ < 1 mA @ 24 V, < 3 mA @ 240 V

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

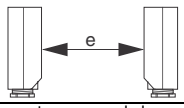
Minimum Mounting Clearances (mm/inches)

Side by side



XSD30-60 e: 300/12

Face to face



e: not recommended

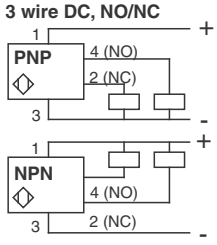
Wiring

Connector

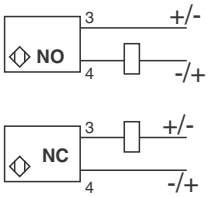
Cable

Blue	BU –
Brown	BN +
Black	BK Output

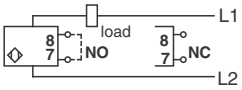
3 wire DC, NO/NC



2 wire DC, non polarized



2 wire AC, programmable NO/NC



Specifications

Mechanical					
Usable sensing range ★		24-48 mm (0.94" - 1.89")			
Standard temperature range		-13° F to +158° F (-25° C to +70° C)			
Enclosure rating	NEMA Type	3, 4, 6, 12, 13			
	IEC Type	IP67			
Vibration resistance		25 G, amplitude ± 2 mm, f = 10-55 Hz			
Shock resistance		50 G for 11 ms			
Standard target size (mild steel)		120 x 120mm (4.7" x 4.7")			
Differential		Max. 20%			
Repeatability		Max. 5%			
Cable, PVC		Screw terminals, #16 AWG			
Electrical	**AC Models**	**DC Models**			**AC/DC Models**
		2 wire, N.O.	**2 wire, N.O./N.C.**	**4 wire**	
Voltage range (including ripple)	20-264 V	10-58 V	10-58 V	10-58 V	20-264 V
Voltage drop (across switch)	4.5 V	4 V	7 V	1.8 V	6 V
Inrush current (inductive @ 20mS)	2 A	–	–	–	2 A
Minimum load current	5 mA	–	1.5 V	–	5 mA
Current consumption (no load)	–	10 mA	–	10 mA	–
On delay (max.)	30 ms	5 ms	5 ms	10 ms	40 ms
Off delay (max.)	20 ms	40 ms	25 ms	10 ms	60 ms
Power-up delay (max.)	120 ms	75 ms	30 ms	10 ms	100 ms
Reverse polarity protection	–	Standard	Standard	Standard	–
Radio Frequency Immunity (RFI)	4 cm (1.6") Minimum from antenna				
Agency Listings	E 164353 ■ CCN NRKH	LR 44087 ★ Class 3211 03	FM: J.I. OROH9.AX (3610, 3611)		CE

Options

Description	**Suffix**
Extended temperature range★	
to +185° F (85° C) (★ Not available on AC models with SCP)	TT
to -40° F (-40° C)	TF

Ex: XSD605539 TTR3

Replacement modules

Description	**Catalog Number**
DC 2 wire	
Base receptacle, N.O. contact	**ZSDZ03**
N.O. contact switch	**ZSDC607139**
Base receptacle, N.O./N.C.	**ZSDZ02**
N.O./N.C. contact switch	**ZSDC607319**
DC 3 wire	
Base receptacle	**ZSDZ02**
PNP switch	**ZSDH607339**
NPN switch	**ZSDJ607339**
AC 2 wire	
Base receptacle	**ZSDZ01**
1 LED, N.O. SCP switch	**ZSDA600519**
3 LED, SCP switch	**ZSDA605539**
AC/DC	**ZSDM600539**

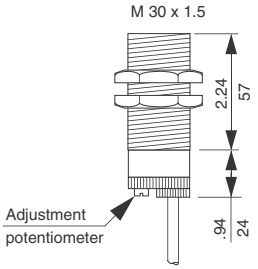
★ Refer to page 351 for target material correction coefficient Km.

Connector Cables (A or R3 suffix)

XSZCA901Y	Mini Conn., 3 pin, 2 m, straight
XSZCA911Y	Mini Conn., 3 pin, 2 m, 90°

For additional cable options and lengths see p. 518

Proximity Sensors
XSAV Tubular, Inductive Sensors
30mm Diameter, Motion Detection, DC or AC/DC



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

The XSAV is a self-contained device used to detect and send output alarms for machinery under speed or zero-speed conditions, as well as early jamming detection. The early detection of the under speed condition is useful in reducing downtime due to jamming or transmission failure. especially in the cases of medium and large motors.

The zero speed condition is used extensively for safety interlocking applications, including: conveyors, pumps, mixers, centrifugal separators, elevators, saws, and crushers.

As long as the speed (number of pulses/min.) is above the threshold level – adjustable via 25 turn potentiometer within the threshold range – the output circuit assumes its closed state. When the actual speed falls below the threshold level – the output circuit assumes its open state. To preserve the start up delay, the switch should be reset by removing and reapplying the power supply.

When the line voltage is initially applied, the output automatically assumes its closed state for the duration of the start-up delay. This allows the mechanical assembly to overcome inertia and reach its nominal speed, greatly simplifying the interlocking circuit. After the start-up delay, the switch will perform as described above.

Care should be taken not to exceed the maximum frequency rating above which the sensor cannot detect the target and therefore assumes “zero speed” condition.

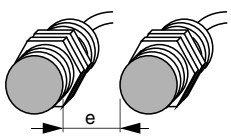
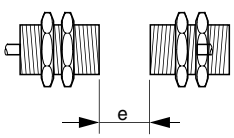
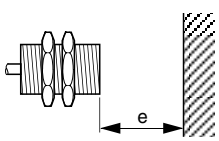
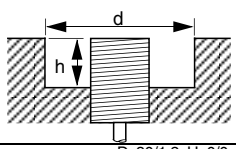
Features:

- Universal AC/DC versions
- AC/DC models are PLC compatible
- Linear speed threshold adjustment
- Two adjustment ranges: 6 - 150 pulses/min. for zero-speed, 120 - 3,000 pulses/min. for jamming detection
- Built-in fixed power-up delay to overcome start-up inertia
- Radio frequency immunity (RFI)
- Reverse polarity protection on DC models
- Noise and transient protection
- Overload and short circuit protection (SCP) on DC models
- LED indicators for switch in “closed” state
- 25-turn potentiometer provides fine adjustment of the under speed threshold

Circuit Type	Max. Load	Residual (Leakage)	Threshold Range (Pulse/Min.)	Max. Frequency (Pulse/Min.)	Start-up Delay ③	LED/SCP ▲	Catalog Number
30mm Diameter, 10mm sensing range, Shielded, 2m cable							
DC models, 10-58 Vdc (including ripple)							
PNP	200 mA	0	6-150	6000	9 sec.	Yes/Yes	**XSAV11373**
PNP	200 mA	0	6-150	6000	3 sec.	Yes/Yes	**XSAV31373**
PNP	200 mA	0	120-3000	48000	9 sec.	Yes/Yes	**XSAV12373**
PNP	200 mA	0	120-3000	48000	3 sec.	Yes/Yes	**XSAV32373**
AC/DC models, 20-264 Vac/dc							
2 wires	0.35 A Vac/0.2 A Vdc	1.5 mA (P)★	6-150	6000	9 sec.	Yes/No	**XSAV11801**
2 wires	0.35 A Vac/0.2 A Vdc	1.5 mA (P)★	6-150	6000	0 sec.	Yes/No	**XSAV01801**
2 wires	0.35 A Vac/0.2 A D Vdc	1.5 mA (P)★	120-3000	48000	9 sec.	Yes/No	**XSAV12801**
2 wires	0.35 A Vac/0.2 A Vdc	1.5 mA (P)★	120-3000	48000	0 sec.	Yes/No	**XSAV02801**

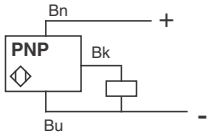
★ (P) – PLC Compatible, (R) – Bleeder resistor required for PLC applications
▲ For devices without SCP, see p. 298 for protective fuses.

Minimum Mounting Clearances (mm/inches)

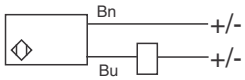
Side by side	Face to face	Facing a metal object	Mounting in a metal support
			
30 mm	e: 20/.79	e: 120/4.7	e: 30/1.2	D: 30/1.2, H: 0/0

Wiring

3 wire, DC



2 wire, AC/DC



Specifications

Mechanical			
Usable sensing range★	0.7" (18 mm)	0-0.15" (0-4 mm)	
	1.18" (30 mm)	0--.31" (0-8 mm)	
Standard temperature range		-13° F to +158° C (-25° F to +70° F)	
Enclosure rating	NEMA Type	1, 3, 4, 6, 12, 13	
	IEC Type	IP67	
Vibration resistance		25 G, amplitude ± 2 mm, f =10-55 Hz	
Shock resistance		50 G duration 11 ms	
Standard target size (steel)	0.7" (18mm) diameter	0.7" x 0.7" (18mm x 18mm)	
	1.18" (30mm) diameter	1.18" x 1.18" (30mm x 30mm)	
Repeatability (% of Sr)		3%	
Differential (hysteresis)		5-15% of pre-set frequency	
Cable	PvR	20 AWG	
Electrical		**AC/DC**	**DC**
Voltage drop (across switch) max.		5.7 V	1.8 Vdc
Inrush current (inductive @ 20 ms)		2 A	–
Minimum load current		5 mA	–
Current Consumption (no load)		–	15 mA
Start-up delay (max.)	XSAV1 models	9 sec. ±20% + 1/Fr ①	
	XSAV3 models	3 sec. ±20% + 1/Fr ①	
	XSAV0 models	0 sec.	
Agency Listings	CE		

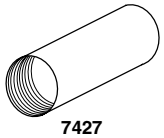
① 1/Fr in the start up delay formula is the actual preset frequency adjusted via potentiometer. (1/Fr is not significant if threshold is above 60 pulses/min.).

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

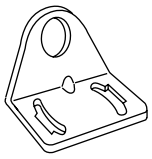
Options

Description		**Suffix**
Extended temperature range (only one option per device)	to +185° F (+85° C)	TT
	to -40° F (-40° C)	TF
5 meter cable length		L05
10 meter cable length		L10

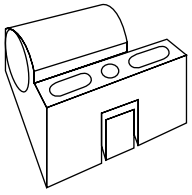
Ex: XSAV11373 TT L05



7427



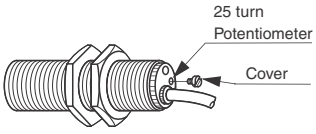
9006PA30



XSZB130

Accessories

Description	**Catalog Number**
Metal locknuts (1 pair included)	**XSZE130**
Mounting bracket, 90° steel	**9006PA30**
Mounting bracket, plastic	**XSZB130**
0.5" NPT conduit adapter	**7427**



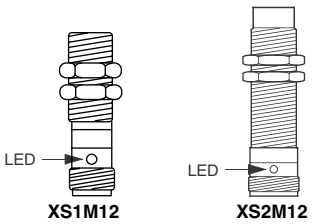
Application Notes:

The number of targets is determined knowing that the actual number of pulses per minute n, is n=mN where m is the number of targets and N the speed in rpm.
This number (n) should be within the operating frequency range given in the selection table. For reasons of mechanical balance, even numbers are recommended (2, 4, 6 etc.).

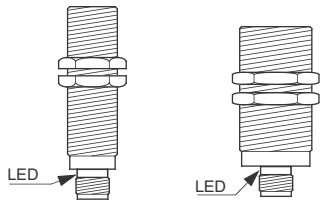
Frequency threshold adjustment:

As long as the speed (number of pulses/min.) is above the threshold level – adjustable via 25 turn potentiometer within the threshold range – the output circuit assumes its closed state. When the actual speed falls below the threshold level, the output circuit assumes its open state. To preserve the start-up delay, the switch should be reset by removing and reapplying the power supply.
When the line voltage is initially applied, the output automatically assumes its closed state for the duration of the start-up delay. This allows the mechanical assembly to overcome inertia and reach its nominal speed, greatly simplifying the interlocking circuit. After the start-up delay, the switch will perform as described above.
Care should be taken not to exceed the maximum frequency rating above which the sensor cannot detect the target, therefore, assuming zero speed condition.

Accessories. . . . . page 298



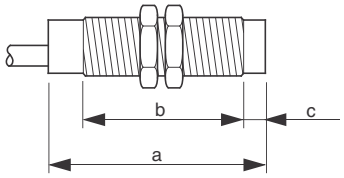
XS1M12 XS2M12



XS1M18 XS1M30

Dimensions

a = Overall Length (mm)
b = Threaded Section (mm)
c = for Non-shielded Sensors (mm)



	a	b	c
XS1M12	2.3" (60)	1.6" (40)	0
XS2M12	2.3" (60)	1.5" (38)	0.16" (4)
XS1M18	2.3" (60)	1.6" (40)	0
XS1M30	2.3" (60)	1.6" (40)	0

Features

Industrial welding processes create fields of electromagnetic “noise” which can interfere with the magnetic fields of inductive proximity sensors. Standard proximity sensors can be falsely triggered when near to these fields. WFI sensors allow uninterrupted performance when placed extremely close to the conductor carrying the welding current.

- The body styles are cylindrical in 0.47", 0.7" and 1.18" (12, 18 and 30 mm) diameters.
- Enclosure material is brass coated in Teflon® to prevent slag (molten bits of metal) from sticking to sensing face, reducing the possibility of false triggering.
- Available in Micro connector versions.★
- Mounting nuts included.

Circuit Type	Output Mode	Voltage Range	Voltage Drop Maximum	Load Current Maximum	Operating Frequency Maximum	Catalog Number
12 mm Shielded, DC with Micro Connector ★, Nominal Sensing Distance–2 mm						
PNP	N.O.	10 to 36 Vdc	2.5 V	250 mA	1000 Hz	**XS1M12PAW01D**
12 mm Non-shielded, DC with Micro Connector ★, Nominal Sensing Distance–4 mm						
PNP	N.O.	10 to 36 Vdc	2.5 V	250 mA	1000 Hz	**XS2M12PAW01D**
18 mm Shielded, DC with Micro Connector ★, Nominal Sensing Distance–5 mm						
PNP	N.O.	10 to 36 Vdc	2.5 V	250 mA	500 Hz	**XS1M18PAW01D**
30 mm Shielded, DC with Micro Connector ★, Nominal Sensing Distance–10 mm						
PNP	N.O.	10 to 36 Vdc	2.5 V	250 mA	250 Hz	**XS1M30PAW01D**

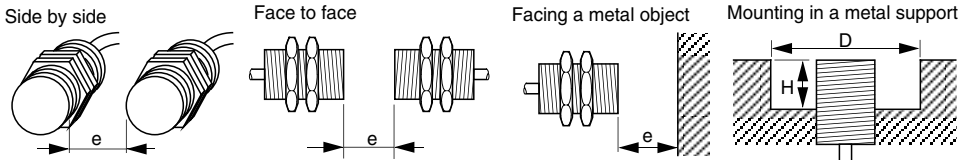
★ See p. 518 for matching connector cables.

The formula below shows the relationship between distance (r [mm]) and electromagnetic flux density (B[MT]).

$$B\,[mT] = \frac{0.2 \times I\,[A]}{r\,[mm]}$$

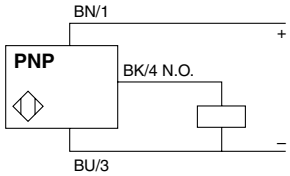
B [mT] = Electromagnetic Flux Density
I[A] = Welding Current
r [mm] = Distance

Minimum Mounting Clearances



	Side by Side		Face to Face		Facing a Metal Object		Mounted in Metal			
	e		e		e		d		h	
	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm
XS1M12	0	0	0.27	7	0.24	6	0.47	12	0	0
XS2M12	0.59	15	0.27	7	0.43	11	1.42	36	0.31	8
XS1M18	0	0	0.63	16	0.35	9	0.71	18	0	0
XS1M30	0	0	0.79	20	0.79	20	1.18	30	0	0

Wiring



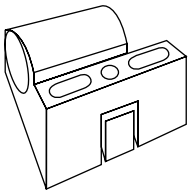
Specifications

Mechanical		XS1M12	XS2M12	XS1M18	XS1M30
Usable Sensing Range ★		1.6 mm	3.2 mm	4 mm	8 mm
Temperature Range		13° F to +158° F (-25° C to +70° C)			
Enclosure Rating	NEMA Type	3, 4, 6, 12, 13, 4X Indoor			
	IEC Type	IP67 (or depending on connector)			
Tightening torque (max.)		15 N•m 11.1 (lb-ft)	15 N•m 11.1 (lb-ft)	35 N•m 26 (lb-ft)	50 N•m 37 (lb-ft)
Vibration		25 G Amplitude +/-2 mm f = 10-55 Hz			
Shock Resistance		50 G for 11 ms			
Differential (% of Sr)		20%			
Repeatability (% of Sr)		3%			
LED Indicator Type		4 LED windows at 90 degrees			
Enclosure Material		Brass with Teflon coating			
Electrical					
Voltage Range		12 to 24 Vdc			
Voltage Limit (Including Ripple)		10 to 36 Vdc			
Current Consumption (max.) (No Load)		15 mA			
max. Leakage (Residual) Current–Open State		–			
Power-up Delay (max.)		10 ms	10 ms	10 ms	10 ms
On Delay (Maximum)		0.1 ms	0.2 ms	0.2 ms	0.7 ms
Off Delay (max.)		0.4 ms	0.4 ms	0.6 ms	5 ms
Protective Circuitry	Short Circuit Protection	Yes			
	Overload Protection	Yes			
	Reverse Polarity Protection	Yes			
Agency Listings	E 164869 CCN NRKH	LR 702985 Class 3211 03	CE		

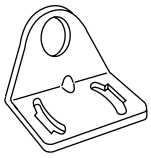
★ Refer to page 351 for target material correction coefficient Km.

Accessories

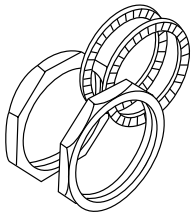
Description	For Sensor Diameter	Catalog Number
Mounting Brackets	0.47" (12 mm)	**XSZB112**
	0.47" (12 mm)	**9006PA12**
	0.7" (18 mm)	**XSZB118**
	0.7" (18 mm)	**9006PA18**
	1.18" (30 mm)	**XSZB130**
	1.18" (30 mm)	**9006PA30**
Mounting Nuts	0.47" (12 mm)	**XSZE112**
	0.7" (18 mm)	**XSZE118**
	1.18" (30 mm)	**XSZE130**



XSZB1



9006PA



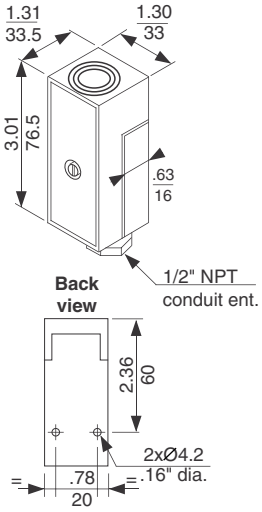
XSZE

Connector Cables (M12 or D suffix)

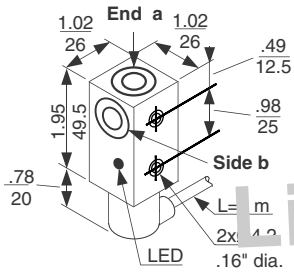
XSZCD101Y	Micro Conn., 4 pin, 2 m, straight
XSZCD111Y	Micro Conn., 4 pin, 2 m, 90°

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

Telemecanique



XSB



XSE

Dual Dimensions inches / mm

Features:
Compact rectangular inductive proximity sensors for demanding applications including welding and machine tools.

- **Housings - XSB: Plastic (thermoplastic polyester) • XSE: Plastic (fiber glass reinforced polyamide);** screw terminal models can be offered also in slag resistant thermoset plastic
- XSE models can be flush mounted in metal • Plug-in version for XSB • Screw terminals, PVC cable, mini style receptacle connections depending on the model • **Weld Field Immunity (WFI) on most models** • Radio Frequency Immunity (RFI)
- Noise and transient protection • Reverse polarity protection (DC models) • Selected models are offered with **short circuit protection (SCP)** and overload protection • **UL Recognized and CSA Certified • Factory Mutual approved for non- incendive application, NAMUR sensors approved for intrinsically safe applications.**

Output Mode/ Sensing Face (XSE)	Voltage Range	Max. Load Current	Residual (leakage) Current	Operating Frequency	Housing	LED/SCP★/ WFI	Catalog Number
XSB 13mm (.511") sensing range, Non-shielded							
AC, 2 wire, plug-in, screw terminals, end sensing							
N.O.	93-132 V	150 mA	4.5 mA (R) ①	10 Hz	Polyester	Yes/No/Yes	**XSBA105112**
N.C.	93-132 V	150 mA	4.5 mA (R) ①	10 Hz	Polyester	Yes/No/Yes	**XSBA105212**
AC, 2 wire, plug-in, mini style connector, end sensing							
N.O.	93-132 V	150 mA	4.5 mA (R) ①	10 Hz	Polyester	Yes/No/Yes	**XSBA105112A**
N.C.	93-132 V	150 mA	4.5 mA (R) ①	10 Hz	Polyester	Yes/No/Yes	**XSBA105212A**
AC, 2 wire, non plug-in, 2m(6') cable, end sensing *							
N.O.	93-132 V	150 mA	4.5 mA (R) ①	10 Hz	Polyester	Yes/No/Yes	**XSBA105112C**
N.C.	93-132 V	150 mA	4.5 mA (R) ①	10 Hz	Polyester	Yes/No/Yes	**XSBA105212C**
AC, 2 wire, non plug-in, mini style connector, end sensing *							
N.O.	93-132 V	150 mA	4.5 mA (R) ①	10 Hz	Polyester	Yes/No/Yes	**XSBA105112R**
N.C.	93-132 V	150 mA	4.5 mA (R) ①	10 Hz	Polyester	Yes/No/Yes	**XSBA105212R**
DC, 2 wire, plug-in, not WFI							
N.O.	12-48 V	80 mA	1.2 mA	250 Hz	Polyester	No/No/No	**XSBC10710**
XSE 10mm (.393") sensing range, Shielded, DC models, 2 wire, N.O.							
2m(6') cable							
End	12-48 V	100 mA	0.5 mA	1000 Hz	Polyamide	Yes/Yes/Yes	**XSEC1071300**
Side	12-48 V	100 mA	0.5 mA	1000 Hz	Polyamide	Yes/Yes/Yes	**XSEC1071330**
Screw terminals							
End	12-48 V	100 mA	0.5 mA	1000 Hz	Polyamide	Yes/Yes/Yes	**XSEC107130**
Side	12-48 V	100 mA	0.5 mA	1000 Hz	Polyamide	Yes/Yes/Yes	**XSEC107133**
Sealed cable (.8m - 2.6'), with pig-tailed mini style connector							
End	12-48 V	100 mA	0.5 mA	1000 Hz	Polyamide	Yes/Yes/Yes	**XSEC1071302**
Side	12-48 V	100 mA	0.5 mA	1000 Hz	Polyamide	Yes/Yes/Yes	**XSEC1071332**
End	12-48 V	100 mA	0.5 mA	1000 Hz	Polyamide	Yes/Yes/Yes	**XSEC1072301**
Side	12-48 V	100 mA	0.5 mA	1000 Hz	Polyamide	Yes/Yes/Yes	**XSEC1072331**
Sealed cable (.8m - 2.6'), with pig-tailed micro style connector							
End	12-48 V	100 mA	0.5 mA	1000 Hz	Polyamide	Yes/Yes/Yes	**XSEC1071301**
Side	12-48 V	100 mA	0.5 mA	1000 Hz	Polyamide	Yes/Yes/Yes	**XSEC1071331**

∗ For side sensing, change last numeric digit as follows; Front: 1; Right: 3; Left: 4. Ex: XSB A105114C for left sensing.
① PLC Applications:
R = Bleeder resistor needed.
P = PLC compatible.
★ For devices without SCP, see p. 298 for protective fuses.

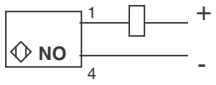
Wiring

Connector

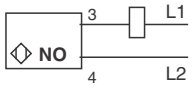
Cable

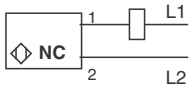
Blue	BU –
Brown	BN +
Black	BK Output

2 wire DC

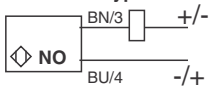


2 wire AC





XSE 2 wire type DC



Specifications

Mechanical			
Usable sensing range ✱		0-9 mm (.35") for XSB	
		0-8 mm (.31') for XSE	
Standard temperature range		-13° F to +158° F (-25° C to +70° C)	
Enclosure rating	NEMA Type	3, 4, 6, 12, 13	
	IEC Type	IP67	
Vibration resistance		25 G, amplitude ± 2 mm, f =10-55 Hz	
Shock resistance		50 G for 11 ms	
Standard target size (steel)		40 x 40 mm (1.6" x 1.6") for XSB	
		30 x 30 mm (1.18" x 1.18") for XSE	
Differential		Max. 20%	
Repeatability		Max. 5%	
Radio Frequency Immunity (RFI)		Standard	
Cable		Screw terminals, #16 AWG	
		PvR, #20 AWG	

Electrical	**AC Models**	**DC Models**	
		XSB	**XSE**
Voltage drop (across switch)	9.5 V	7 V	4 V
Inrush current (inductive @ 20 mS)	0.9 A	–	–
Minimum load current	30 mA	1.5 mA	1.5 mA
On delay (max.)	40 ms	.4 ms	12 ms
Off delay (max.)	30 ms	1 ms	3 ms
Power-up delay (max.)	80 ms	1.2 ms	16 ms
Reverse polarity protection	–	Standard	Standard
Weld field immunity	100 mT		
Agency Listings	E 164353 ■ CCN NRKH	LR 44087 Class 3211 03	FM: J.I. OROH9.AX (3610, 3611)

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

Options

Description	**Suffix**
Extended temperature range	
to +185° F(+85° C)	TT
to -40° F(-40° C)	TF
5 meter (16') cable length	L05

Accessories

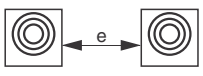
XSE mounting brackets	**Catalog Number**
Flat	**XSEZ01**
90°	**XSEZ02**

Plug-in models - replacement modules, AC models

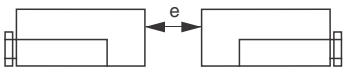
Base receptacle	AC	**ZSBZ11**
AC, N.O.	Plug in switch	**ZSBA105112**
AC, N.C.	Plug in switch	**ZSBA105212**
Base receptacle	DC	**ZSBZ12**
DC, N.O.	Plug in switch	**ZSBC10710**

Minimum Mounting Clearances (mm/inches)

Side by side



Face to face



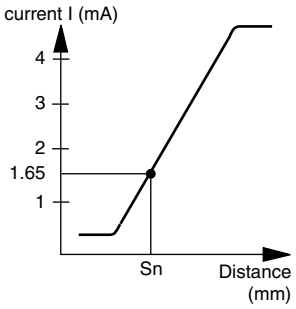
XSE.15	e: 38/1.5"	e: 97/3.8"
XSB.20	e: 80/3.1"	e: 160/6.3"

Connector Cables (A or R3 suffix)

XSZCA901Y	Mini Conn., 3 pin, 2 m, straight
XSZCA911Y	Mini Conn., 3 pin, 2 m, 90°

For additional cable options and lengths see p. 518

Proximity Sensors
Inductive Sensors; NAMUR, 2 Wire DC
For use with an intrinsically safe barrier relay when used in hazardous locations



Principle of operation
2 wire NAMUR proximity sensors are characterized by the fact that their current consumption is changed by the presence of a metal object within the sensing zone.

They differ from a standard sensor by the absence of an output circuit. All the processing is carried out by the associated amplifier or solid state system to which it is connected.

The mode of operation is analogous to an N.C. contact:

— no object present: sensor is in the conducting state

— object present: sensor is in the non-conducting state

Factory Mutual System
Approved for Div I, II hazardous location with NY2 safe barrier relay.

Cylindrical type

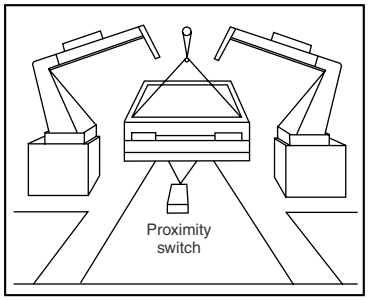
Barrel Diameter	Barrel Type	Nominal Sensing Distance ∗	Operating Zone	Operating Frequency	Catalog Number
Nickel plated brass case					
Shielded, 2 m (6.6') cable					
4 mm	smooth	0.03" (0.8 mm)	0-0.02" (0-0.6 mm)	1500 Hz	**XSLN08122**
5 mm	threaded	0.03" (0.8 mm)	0-0.02" (0-0.6 mm)	1500 Hz	**XSMN08122**
6.5 mm	smooth	0.04" (1 mm)	0-0.03" (0-0.8 mm)	1500 Hz	**XSLN01122**
8 mm	threaded	0.06" (1.5 mm)	0-0.03" (0-0.8 mm)	1500 Hz	**XSAN01122**
Plastic case					
Shielded, 2 m (6.6') cable					
8 mm	threaded	0.06" (1.5 mm)	0-0.05" (0-1.2 mm)	1000 Hz	**XSPN01122**
12 mm	threaded	0.08" (2 mm)	0-0.06" (0-1.6 mm)	800 Hz	**XSPN02122**
18 mm	threaded	0.2" (5 mm)(	0-0.16" (0-4.0 mm)	500 Hz	**XSPN05122**
30 mm	threaded	0.4" (10 mm)	0-0.31" (0-8.0 mm)	300 Hz	**XSPN10122**
Non-shielded, 2m (6.6') cable					
12 mm	threaded	0.16" (4 mm)	0-0.12" (0- 3.2 mm)	400 Hz	**XSPN04122**
18 mm	threaded	0.31" (8 mm)	0-0.25" (0- 6.4 mm)	300 Hz	**XSPN08122**
30 mm	threaded	0.6" (15 mm)	0-0.47" (0-12.0 mm)	200 Hz	**XSPN15122**

Plastic block type

Enclosure Style	Nominal Sensing Distance ∗	Operating Zone	Operating Frequency	Catalog Number
Shielded, terminal connections				
Limit switch style	0.6" (15 mm)	0-0.47" (0-12.0 mm)	100 Hz	**XSCN151229**
Non-shielded, terminal connections				
Compact rectangular	0.5" (13 mm)	0-0.35" (0- 9.0 mm)	250 Hz	**XSBN10122**
Block style	1.0" (25 mm)	0-0.8" (0-20.0 mm)	250 Hz	**XSBN25122**
Block style - extended range	1.6" (40 mm)	0-1.25" (0-32.0 mm)	25 Hz	**XSDN501229**

Applications
Intrinsically safe applications (hazardous area).

When used in these applications, it is imperative that (NAMUR) sensors be used only with an NY2 intrinsically safe relay/amplifier, or a suitably approved, compatible solid state system. Example: Painting line in car assembly plant.



∗ Refer to page 351 for target material correction coefficient Km.

Specifications

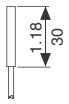
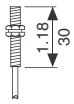
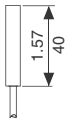
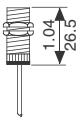
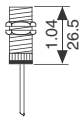
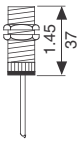
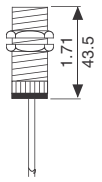
Mechanical			
Standard temperature range		operation	-25° C to +70° C (-13° F to +158° F)
		storage	-40° C to +80° C (-40° F to +176° F)
Enclosure rating	NEMA Type	4mm & 5mm	1, 3, 4, 13
		all others	3, 4, 6, 12, 13
	IEC Type	4mm & 5mm	IP64
		all others	IP67
Repeatability (% of Sr)			5% or less
Cable		2 wire	22 AWG (0.11 mm^2), PvR
Electrical			
Voltage range			7 to 12 Vdc
Current consumption from supply			Sensor activated (target present) = 1 mA or less;
8.2 V (internal resistance: about 1 KΩ)			Sensor not activated (target absent) = 3 mA or more; Switching point defined for usable sensing distance and standard metal target: 1.65 mA
Maximum line resistance			Between sensor and amplifier: 50 ohms
Apparent sensing capacitance ∗			280 nF maximum
Apparent sensing inductance ∗			220 micro H maximum
Agency Listings	CE	LR 15996 Class 3218 06	FM: J.I. OROH9.AX (3610, 3611)

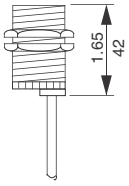
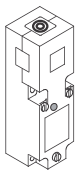
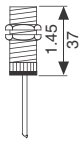
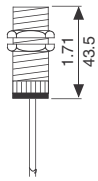
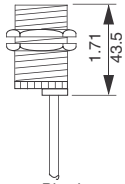
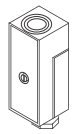
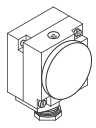
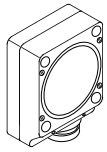
∗ Consider for intrinsically safe systems.

NAMUR Sensors

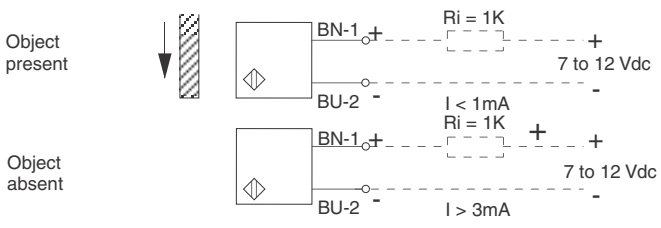
DC 2 wire, N.C.

M: Metal case - P: Plastic case.

4mm unthreaded	M5x0.5	6.5mm unthreaded	M8x1	M8x1	M12x1	M18x1
						
Metal	Metal	Metal	Metal	Plastic	Plastic	Plastic
XSLN08122	**XSMN08122**	**XSLN01122**	**XSAN01122**	**XSPN01122**	**XSPN02122**	**XSPN05122**

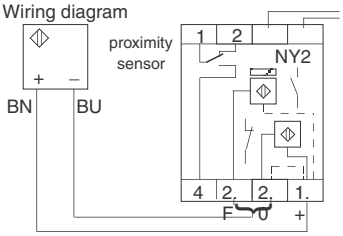
M30x1.5	Dimensions page 292	Sensors not suitable for flush mounting in metal					
		M12x1	M18x1	M30x1.5	Dimensions page 288	Dimensions page 272	Dimensions page 280
							
Plastic	Plastic	Plastic	Plastic	Plastic	Plastic	Plastic	Plastic
XSPN10122	**XSCN151229**	**XSPN04122**	**XSPN08122**	**XSPN15122**	**XSBN10122**	**XSBN25122**	**XSDN501229**

Non-intrinsically safe applications (normal safe zone).
connected to a solid state input (e.g.: TSX PLC input card, TSX DET 466)



Association with an NY2 power supply/relay amplifier unit

Wiring diagram

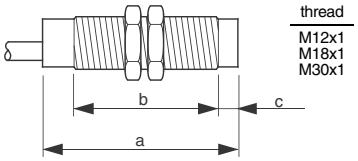


(110 to 240V AC, P=5VA, 50 Hz).

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

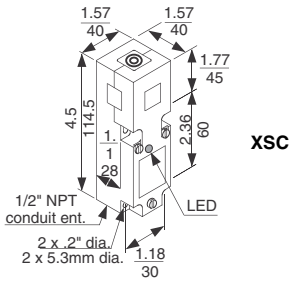
Telemecanique

Dimensions:
a = overall length (mm)
b = threaded section (mm)
c = for non-shielded sensors (mm)

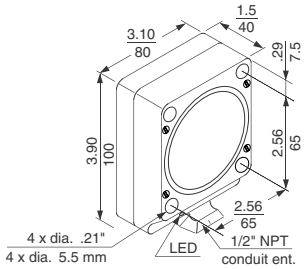


Tubular Style dimensions (mm)

		a	b	c
12 mm	Metal	1.9" (50)	1.6" (42)	0
	Plastic	1.9" (50)	1.6" (42)	0
18 mm	Metal	1.9" (50)	1.6" (42)	0
	Plastic	1.6" (40.6)	1.0" (26)	8
30 mm	Metal	1.9" (50)	1.6" (42)	0
	Plastic	2.07" (52.6)	1.2" (32)	0.5" (13)



XSC



XSD

Dual Dimensions inches / mm

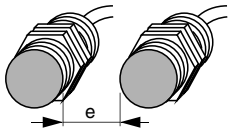
Features:

- DC output current is directly proportional to the target distance
- Three body styles: tubular, limit switch style (with 5 position turret head), block style
- Both metal and plastic enclosures available
- Two types of output:
  3 wire: 0 - 10 mA, 0 - 16 mA
  2 wire: 4 - 20 mA, 4 - 14 mA

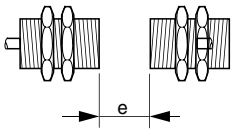
Nominal Sensing Distance	Enclosure Style	Enclosure Material	Voltage Range Max.	Circuit Type	Output Current	Operating Frequency Max.	Catalog Number
12 mm Diameter - 2 meter cable							
0.2 - 2 mm	Shielded	Metal	24 Vdc	2 wire	4 - 20 mA	1500 Hz	**XS1M12AB120**
				3 wire	0 - 16 mA		
0.4 - 4 mm	Non-Shielded	Plastic	24 Vdc	2 wire	4 - 20 mA	1500 Hz	**XS4P12AB120**
				3 wire	0 - 16 mA		
0.4 - 4 mm	Non-Shielded	Plastic	24-48 Vdc	2 wire	4 - 14 mA	1500 Hz	**XS4P12AB110**
				3 wire	0 - 10 mA		
18 mm Diameter - 2 meter cable							
0.5 - 5 mm	Shielded	Metal	24 Vdc	2 wire	4 - 20 mA	500 Hz	**XS1M18AB120**
				3 wire	0 - 16 mA		
0.8 - 8 mm	Non-Shielded	Plastic	24 Vdc	2 wire	4 - 20 mA	500 Hz	**XS4P18AB120**
				3 wire	0 - 16 mA		
0.8 - 8 mm	Non-Shielded	Plastic	24-48 Vdc	2 wire	4 - 14 mA	500 Hz	**XS4P18AB110**
				3 wire	0 - 10 mA		
30 mm Diameter - 2 meter cable							
1 - 10 mm	Shielded	Metal	24 Vdc	2 wire	4 - 20 mA	300 Hz	**XS1M30AB120**
				3 wire	0 - 16 mA		
1.5 - 15 mm	Non-Shielded	Plastic	24 Vdc	2 wire	4 - 20 mA	300 Hz	**XS4P30AB120**
				3 wire	0 - 16 mA		
1.5 - 15 mm	Non-Shielded	Plastic	24-48 Vdc	2 wire	4 - 14 mA	300 Hz	**XS4P30AB110**
				3 wire	0 - 10 mA		
Limit Switch Style - 2 meter cable							
2 - 20 mm	Non-Shielded	Plastic	24-48 Vdc	2 wire	4 - 14 mA	60 Hz	**XSCH207629**
				3 wire	0 - 10 mA		
2 - 20 mm	Non-Shielded	Plastic	24 Vdc	2 wire	4 - 20 mA	60 Hz	**XSCH203629**
				3 wire	0 - 16 mA		
Block Style - 2 meter cable							
6 - 60 mm	Non-Shielded	Plastic	24-48 Vdc	2 wire	4 - 14 mA	50 Hz	**XSDH607629**
				3 wire	0 - 10 mA		
6 - 60 mm	Non-Shielded	Plastic	24 Vdc	2 wire	4 - 20 mA	50 Hz	**XSDH603629**
				3 wire	0 - 16 mA		

Minimum Mounting Clearances (mm/inches)

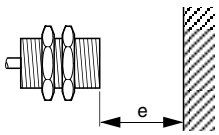
Side by side



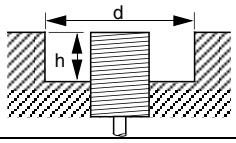
Face to face



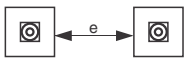
Facing a metal object



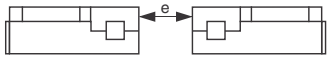
Mounting in a metal support



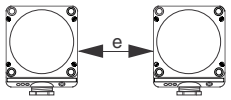
Side by side



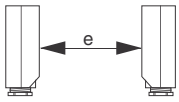
Face to face



Side by side



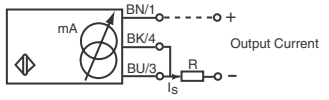
Face to face



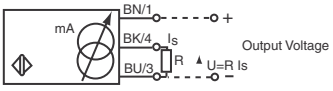
	Side by side	Face to face	Facing a metal object	Mounted in metal	
12 mm Shielded	e: 4 mm (0.16")	e: 24 mm (0.94")	e: 6 mm (0.24")	d: 12 mm (0.47")	h: 0 mm (0")
12 mm Non-shielded, 24 V	e: 16 mm (0.63")	e: 48 mm (1.89")	e: 12 mm (0.47")	d: 36 mm (1.42")	h: 8 mm (0.31")
12 mm Non-shielded, 48 V	e: 16 mm (0.63")	e: 48 mm (1.89")	e: 12 mm (0.47")	d: 36 mm (1.42")	h: 8 mm (0.31")
18 mm Shielded	e: 10 mm (0.39")	e: 60 mm (2.36")	e: 15 mm (0.59")	d: 18 mm (0.71")	h: 0 mm (0")
18 mm Non-shielded, 24 V	e: 32 mm (1.26")	e: 96 mm (3.78")	e: 24 mm (0.94")	d: 54 mm (2.12")	h: 16 mm (0.63")
18 mm Non-shielded, 48 V	e: 32 mm (1.26")	e: 96 mm (3.78")	e: 24 mm (0.94")	d: 54 mm (2.12")	h: 16 mm (0.63")
30 mm Shielded	e: 20 mm (0.79")	e: 120 mm (4.72")	e: 30 mm (1.18")	d: 30 mm (1.18")	h: 0 mm (0")
30 mm Non-shielded, 24 V	e: 60 mm (2.36")	e: 180 mm (7.08")	e: 45 mm (1.77")	d: 90 mm (3.54")	h: 30 mm (1.18")
30 mm Non-shielded, 48 V	e: 60 mm (2.36")	e: 180 mm (7.08")	e: 45 mm (1.77")	d: 90 mm (3.54")	h: 30 mm (1.18")
Limit switch style	e: 80 mm (3.15")	e: 160 mm (6.30")			
Block style	e: 300 mm (11.81")	not recommended			

Wiring

2-wire



3-wire



Output current		Value of R (R = load impedance)
24 V	0 to 10 mA	≤ 1800 Ω
	0 to 16 mA	≤ 1125 Ω
48 V	0 to 10 mA	≤ 4200 Ω

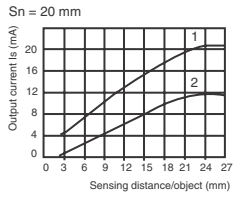
Ensure a minimum of 5 V between the + and sensor output

Specifications

Mechanical			
Temperature range		-13° F to +158° F (-25° C to +70° C)	
Enclosure rating		IEC Type IP67	
Tightening torque (max.)		Metal	Plastic
	12mm	6 N•m 4.5 (lb-ft)	2 N•m 1.5 (lb-ft)
	18mm	15 N•m 11.1 (lb-ft)	5 N•m 3.7 (lb-ft)
	30mm	40 N•m 29.5 (lb-ft)	20 N•m 14.7 (lb-ft)
Enclosure material		Metal	
		Plastic	
Wiring	Tubular	22 AWG (0.34 mm^2), PvR	
	Limit Switch/Block style	Screw term. 16 AWG(1.5 mm^2)	
General Characteristics			
Voltage limit (including ripple)		XS1●●●●120, XS4●●●●120: 15 - 38 Vdc	
		XS1●●●110, XS4●●●110: 15 - 58 Vdc	
		XSCH207●●●, XSDH607●●●: 19 - 58 Vdc	
		XSCH203●●●, XSDH603●●●: 19 - 30 Vdc	
Current consumption (no load)		4 mA	
Max. Output current drift with the rated operating temperature		10%	
Power Supply Current (no load)		4 mA	
Repeat Accuracy		+ - 1%	
Linearity error		+ - 4%	
Protective Circuitry	Short circuit protection	yes	
	Overload protection	yes	
	Reverse polarity protection	yes	
Agency Listings	(XS1, XS4) E 164869 CCN NRKH (XSC, XSD) E 164353 CCN NKCR		LR 44087 Class 3211 03

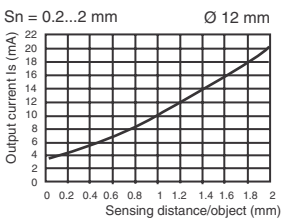
Output Curves 4 to 20 mA, 2 wire connection (cylindrical models)

XSCH20●629

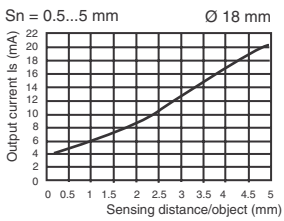


1 XSCH203629 2 XSCH207629

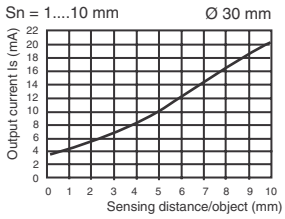
XS1M12AB120



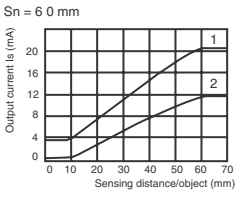
XS1M18AB120



XS1M30AB120

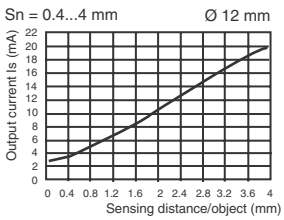


XSDH20●629

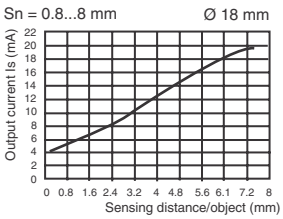


1 XSDH603629 2 XSDH607629

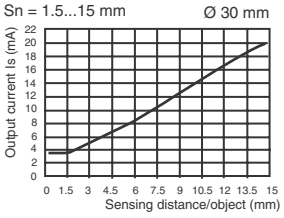
XS4P12AB120



XS4P18AB120

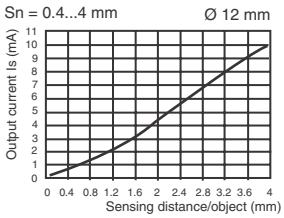


XS4P30AB120



Output Curves 0 to 10 mA, 3-wire connection, (cylindrical models)

XS4P12AB110



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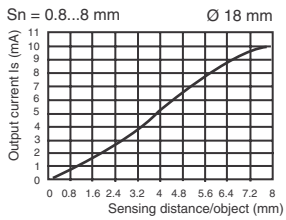

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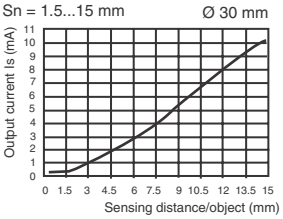
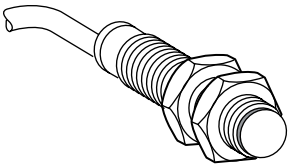
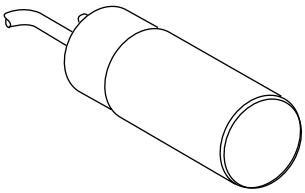




XT1/4 Threaded

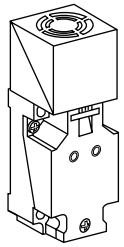


XT1/4 Smooth

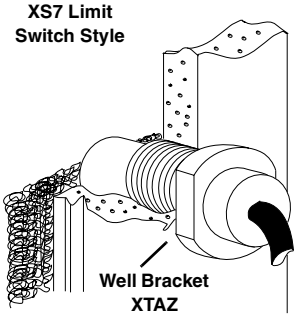
thread M12x1

thread M18x1

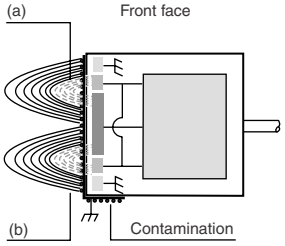
thread M30x1.5



XS7 Limit Switch Style



Well Bracket XTAZ Level Detection



Main electrode
Earth electrode
Compensation electrode

(a) : compensation field (suppression of external contamination)

(b) : main electric field

Features

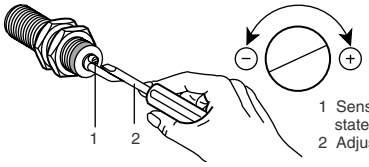
Capacitive proximity sensors are ideal for sensing non-metal objects or for level control of fluids and granular material. A special wall mounting bracket has been designed to replace thick or metal walls the sensor is not capable of penetrating. The actual sensing range varies widely depending on the target material and environmental conditions (humidity, dust, etc.).

An internal compensation electrode is incorporated to suppress the effects of material deposits on the sensor's face. The threshold level is adjustable via a 20 turn potentiometer (except 12mm) located at the rear of the switch. This adjustment can be used to zero out the presence of a plastic tube allowing the switch to sense "through" a bulk material or liquid level.

Other features include: metal housing: nickel plated brass, plastic housing: PBT; can be flush mounted in metal (except XT4); LED indication for output in closed state; mounting nuts included for threaded models; mounting bracket included for non-threaded versions, well mounting brackets are optional; sensitivity adjustment tool included; UL & CSA; CE mark.

Nominal Sensing Distance	AC or DC	Output Mode	Circuit Type	Voltage Range	Operating Frequency	Catalog Number
12 mm diameter, 2m (6.6') cable, Non Adjustment						
Flush Mountable -- Threaded Metal Case						
2 mm	DC	N.O.	PNP	12 – 24 V	100 Hz	**XT1M12PA372**
2 mm	DC	N.C.	PNP	12 – 24 V	100 Hz	**XT1M12PB372**
2 mm	DC	N.O.	NPN	12 – 24 V	100 Hz	**XT1M12NA372**
18 mm diameter, 2m (6.6') cable, with Sensitivity Adjustment						
Flush Mountable -- Threaded Metal Case						
5 mm	AC	N.O.	2 wire	24 – 240 V	25 Hz	**XT1M18FA262**
5 mm	AC	N.C.	2 wire	24 – 240 V	25 Hz	**XT1M18FB262**
5 mm	DC	N.O.	PNP	12 – 24V	100 Hz	**XT1M18PA372**
5 mm	DC	N.C.	PNP	12 – 24V	100 Hz	**XT1M18PB372**
5 mm	DC	N.O.	NPN	12 – 24V	100 Hz	**XT1M18NA372**
Non-Flush Mountable -- Threaded Plastic Case						
8 mm	AC	N.O.	2 wire	24 – 240 V	25 Hz	**XT4P18FA262**
8 mm	DC	N.O.	PNP	12 – 24V	100 Hz	**XT4P18PA372**
8 mm	DC	N.O.	NPN	12 – 24V	100 Hz	**XT4P18NA372**
30 mm diameter, 2m (6.6') cable, with Sensitivity Adjustment						
Flush Mountable -- Threaded Metal Case						
10 mm	AC	N.O.	2 wire	24 – 240 V	25 Hz	**XT1M30FA262**
10 mm	AC	N.C.	2 wire	24 – 240 V	25 Hz	**XT1M30FB262**
10 mm	DC	N.O.	PNP	12 – 24V	100 Hz	**XT1M30PA372**
10 mm	DC	N.C.	PNP	12 – 24V	100 Hz	**XT1M30PB372**
10 mm	DC	N.O.	NPN	12 – 24V	100 Hz	**XT1M30NA372**
Non-Flush Mountable -- Threaded Plastic Case						
15 mm	AC	N.O.	2 wire	24 – 240 V	25 Hz	**XT4P30FA262**
15 mm	AC	N.C.	2 wire	24 – 240 V	25 Hz	**XT4P30FB262**
15 mm	DC	N.O.	PNP	12 – 24V	100 Hz	**XT4P30PA372**
15 mm	DC	N.O.	NPN	12 – 24V	100 Hz	**XT4P30NA372**
32 mm diameter, 2m (6.6') cable, with Sensitivity Adjustment						
Flush Mountable -- Smooth Plastic Case						
15 mm	AC	N.O.	2 wire	110 – 220 V	10 Hz	**XT1L32FA262**
15 mm	AC	N.C.	2 wire	110 – 220 V	10 Hz	**XT1L32FB262**
Non-Flush Mountable -- Smooth Plastic Case						
20 mm	AC	N.O.	2 wire	110 – 220 V	10 Hz	**XT4L32FA262**
20 mm	AC	N.C.	2 wire	110 – 220 V	10 Hz	**XT4L32FB262**
Limit Switch Style, 0.5" NPT, with Sensitivity Adjustment						
Flush Mountable -- Plastic Case						
15 mm	AC	N.O. or N.C.	2 wire	24 – 240 V	25 Hz	**XT7C40FP262**
15 mm	DC	N.O. / N.C.	PNP	12 – 24V	100 Hz	**XT7C40PC440**
15 mm	DC	N.O. / N.C.	NPN	12 – 24V	100 Hz	**XT7C40NC440**

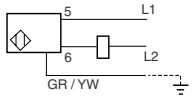
Sensitivity Adjustment



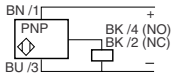
1 Sensitivity adjustment potentiometer and output state indicator (yellow LED)
2 Adjustment using screwdriver

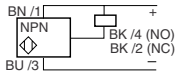
Wiring

2-wire AC, N.O. or N.C. output
XT1L32F●262, XT4L32F●262

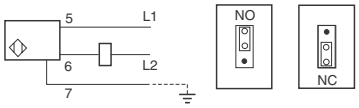


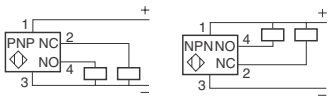
3-wire DC, N.O. or N.C. output
XT1M12F●A372, XT1M12PB372





2-wire AC, programmable
N.O. or N.C. output depending on position of jumper XT7C40FP262





Specifications

Mechanical				
Standard Temperature Range	-13° F to +158° F (-25° C to +70° C)			
Enclosure Rating	NEMA Type	4, 4X, 6, 6P, 12, 13 (Except Smooth Case 4, 4X, 6, 12)		
	IEC Type	IP67 (Except Smooth Case -- IP63)		
Differential (%of Sr.)	20%			
Repeatability (% of Sr.)	10%			
Electrical		**AC Models (All)**	**Smooth**	**DC Models**
Voltage Range		24 – 240 V	110 – 220 V	12 – 24 V
Voltage Limit		20 – 264 V	90 – 250 V	10 – 38 V
Voltage Drop (across switch) Closed State		5.5 V	9 V	2 V
Minimum Load Current		5 mA	15 mA	0 mA
Maximum Load Current	Tubular	300 mA	250 mA (Ue=110V∗)	300 mA
	Limit Switch	350 mA	–	200 mA
Current Consumption @ No Load		–	–	10 mA
Residual Leakage Current		1.5 mA at 120V	7 mA	–
On Delay Max	Tubular	50 ms	50 ms	5 ms
	Limit Switch	20 ms	–	5 ms
Off Delay Max.	Tubular	50 ms	15 ms	5 ms
	Limit Switch	30 ms	–	5 ms
Power-up Delay Max.	Tubular	300 ms	300 ms	30 ms
	Limit Switch	150 ms	–	30 ms
Protective Circuitry	Electrostatic Discharges		IEC 60947-5-2 and NEMA ICS 5, Part 4	
	Radio Magnetic Fields			
	Fast Transients			
	Impulse Voltage			
Agency Listings	UL E 164869 CCN NRKH		CSA LR 44087 Class 3211 03	

∗ Maximum load current 150mA when Ue=220V.

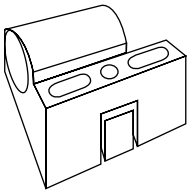
The operating distance of the sensor is related to the dielectric constant (εr) of the object material to be detected. The higher the value of εr, the easier it will be for the object to be detected.

NOTE: This product should not be used in an environment with dew or condensation

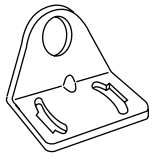
The Usable Sensing Distance depends on the object material: Su = Sn x Fc
Su = Usable Sensing Distance; Sn = Nominal Sensing Distance; Fc = Correction Coefficient for the object material
Example: Sensor XT1M30PA372 used to detect a rubber object Sn = 10 mm, Fc = 0.3
Usable Sensing Distance Su = 10 mm x 0.3 = 3 mm

Material	**εr**	**Fc**
Acetone	20	0.8
Air	1	0
Alcohol	24	0.85
Ammonia	15-25	0.75-0.85
Cement (powder)	4	0.35
Cereals	3-5	0.3-0.4
Damp wood	10-30	0.7-0.9
Dry wood	2-7	0.2-0.6
Ethylene glycol	38	0.95
Epoxy resin	4	0.36
Flour	2.5-3	0.2-0.3
Glass	3-10	0.3-0.7
Marble	6-7	0.5-0.6
Mica	6-7	0.5-0.6
Nylon	4-5	0.3-0.4
Oil	2.2	0.2

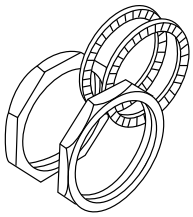
Material	**εr**	**Fc**
Paper	2-4	0.2-0.3
Paraffin	2-2.5	0.2
Petrol	2.2	0.2
Plexiglass	3.2	0.3
Polyester resin	2.8-8	0.2-0.6
Polystyrene	3	0.3
Porcelain	5-7	0.4-0.5
Powered Milk	3.5-4	0.3-0.4
Rubber	2.5-3	0.3
Salt	6	0.5
Sand	3-5	0.3-0.4
Sugar	3	0.3
Teflon	2	0.2
Vaseline	2-3	0.2-0.3
Water	80	1



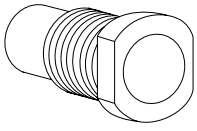
XSZB1●●



9006PA●●



XSZE●●●



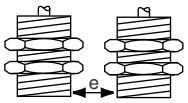
XTAZ3●
Well mounting bracket

Accessories

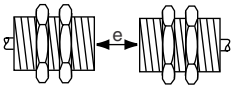
Size	**Description**	**Catalog Number**
18mm	Plastic mounting nuts	**XSZE218**
18mm	Metal mounting nuts	**XSZE118**
18mm	Plastic mounting bracket	**XSZB118**
18mm	Metal mounting bracket	**9006PA18**
30mm	Plastic mounting nuts	**XSZE230**
30mm	Metal mounting nuts	**XSZE130**
30mm	Plastic mounting bracket	**XSZB130**
30mm	Metal mounting bracket	**9006PA30**
30mm	Well mounting bracket	**XTAZ30**
32mm	Well mounting bracket	**XTAZ32**
32mm	Surface mounting bracket	**XUZB32**

Minimum Mounting Clearances

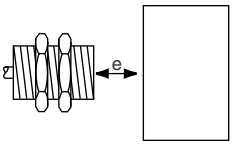
Side by side



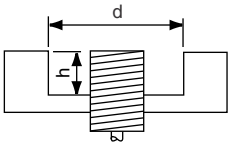
Face to face



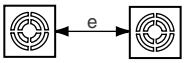
Facing a metal object



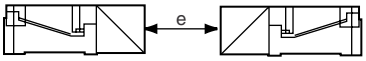
Mounted in metal



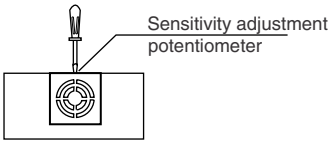
Side by side



Face to face



Flush mounting

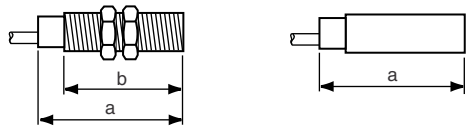


To avoid influence of the immediate surroundings it maybe necessary to reduce the sensitivity when flush mounting the sensor.

Minimum Mounting Clearances		Side by Side (mm/in)	Face to Face (mm/in)	Facing a Metal Object (mm/in)	Mounting in Metal (mm/in)
XT1 Flush Mountable	18 mm	e: 0	e: 30/1.18	e: 30/1.18	d: 18/.71 h: 0
	30 mm	e: 0	e: 60/2.36	e: 60/2.36	d: 30/1.18 h:0
	32 mm	e: 0	e: 100/3.94	e: 100/3.93	d: 32/1.26 h:0 x: 2/.07
XT4 Non-Flush Mountable	18 mm	e: 40/1.57	e: 50/1.97	e: 80/3.15	d: 18/.71 h: 0
	30 mm	e: 60/2.36	e: 80/3.15	e: 100/3.94	d: 90/3.54 h: 20/.79
	32 mm	e: 60/2.36	e: 100/3.94	e: 100/3.94	d: 96/3.78 h: 25/.98
XT7 Limit Switch Style		e: 40/1.57	e: 120/4.72		

Dimensions (mm/in.)

XT1/4

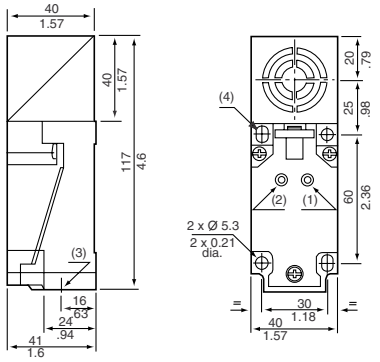


Dimensions (mm/in)	a	b
XT●M18	60/2.36	51/2.03
XT●M30	60/2.36	51/2.03
XT●M32	80/3.15	n/a

a = Overall
b = Threaded Section

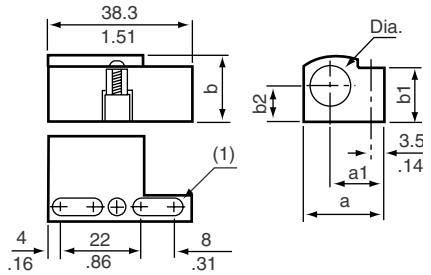
(1) Output LED
(2) Supply LED (depending on model)
(3) 1 entry threaded for 0.5 NPT
(4) 2 elongated holes 5.3 X 7mm (0.21 X 0.28")

XT7



Accessories Dimensions (mm/in.)

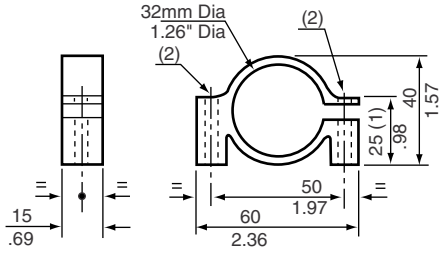
XSZB112, B118, B130



XSZ	a	a1	b	b1	b2	Dia.
B112	21.9 0.86	14.5 0.57	16 0.63	15.5 0.61	8.5 0.33	12
B118	26 1.02	15.7 0.62	22 0.87	20.1 0.80	11.5 0.45	18
B130	39 1.53	21.7 0.85	35.5 1.40	31 1.22	18.5 0.73	30

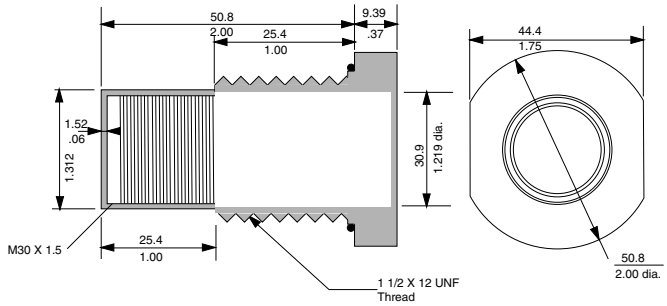
(1) 2 elongated holes 4 X 8mm (0.16 X 0.31 in)

XUZB32

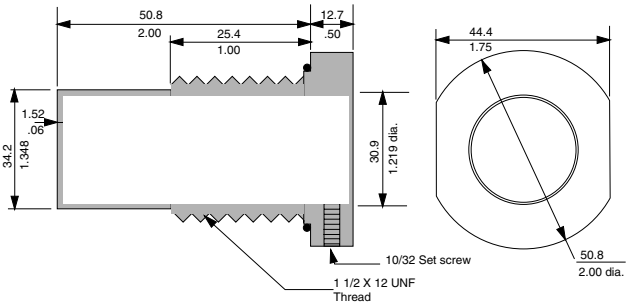


(1) maximum value
(2) 2 holes ∅ 5.5mm (.22 in)
Clamp supplied with two M5 screws. HM head

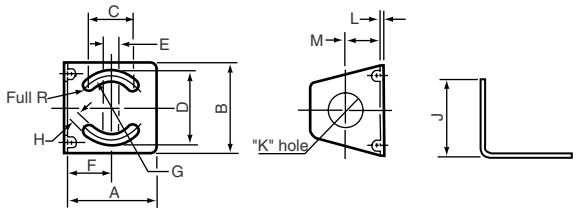
XTAZ30



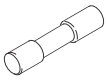
XTAZ32



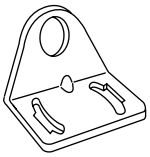
9006PA●●



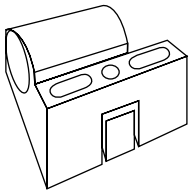
Type	A		B		C		D		E		F		G		H		J		K		L		M	
	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm
PA30	2.54	67	2.56	65	1.39	35	1.99	51	0.39	10	1.28	33	1.97	50	0.21	5	2.05	52	1.20	31	0.08	2	0.98	25
PA18	2.05	52	1.97	50	0.98	25	1.60	41	0.39	10	0.98	25	1.38	35	0.21	5	1.65	42	0.73	19	0.08	2	0.79	20
PA12	1.38	35	1.57	40	069	18	1.20	31	0.39	10	069	18	0.98	25	0.21	5	1.28	33	0.49	13	0.08	2	0.71	18



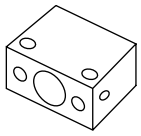
XUZE08



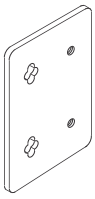
9006PA••



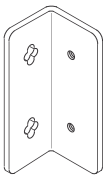
XSZB1••



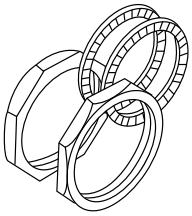
8316••



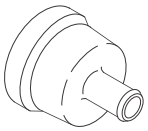
XSEZ01



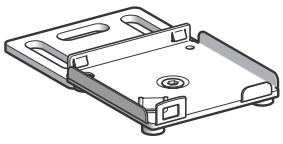
XSEZ02



XSZE•••



XSZP1••



XSZB•00

Protective fuses

For AC and AC/DC proximity sensors which do not incorporate overload and short circuit protection, the use of a "quick- blow" fuse connected in series with the sensor is recommended.

Description		Catalog Number
0.6A "quick-blow" cartridge fuse (5x20) (XSB proximity sensors) (Use with 9080 IEC 5 X 20 fuse block - See Digest 172, page 22-17)	Sold in lots of 10	**XUZE06**
0.8A "quick-blow" cartridge fuse (5x20) (XS dia. 8, 12, 18, 30, and XSD proximity sensors) (Use with 9080 IEC 5 X 20 fuse block - See Digest 172, page 22-17)	Sold in lots of 10	**XUZE08**

Mounting brackets

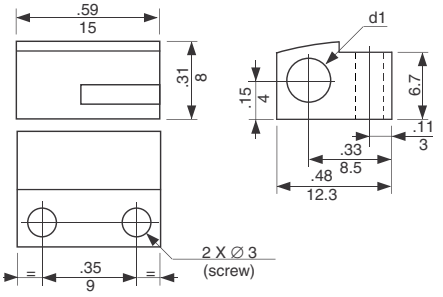
Description	Sensor Diameter	For use with	Catalog Number
Cylindrical inductive proximity sensors	4 unthreaded	XS1L04	**XSZB104**
	5 (M5 x 0.5)	XS1N05	**XSZB105**
	6.5 unthreaded	XS1/XS2 L06	**XSZB165**
	8 (M8 x 1)	XS1/XS2/XS4	**XSZB108**
	12 (M12 x 1)	XS1/XS2/XS4	**XSZB112** **9006PA12**
	18 (M18 x 1)	XS1/XS2/XS4	**XSZB118** **9006PA18**
	30 (M30 x 1.5)	XS1/XS2/XS4	**XSZB130** **9006PA30**
Zinc die cast for cylindrical 4-12 mm dia.	4mm	XS1L04	**831604**
	5mm	XS1L05	**831605**
	6mm	XS1/XS2 L06	**831606**
	8mm	XS1/XS2/XS4	**831608**
	12mm	XS1/XS2/XS4	**831612**
Metal plate bracket	Straight	XSE	**XSEZ01**
	Right angled	XSE	**XSEZ02**

Mounting nuts

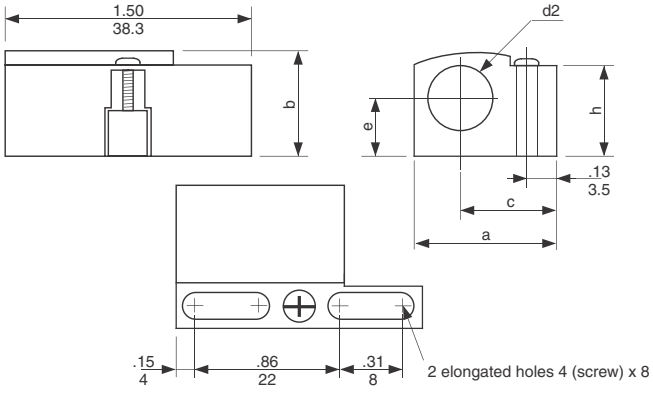
Description	Sensor Diameter	For use with	Catalog Number
2 Zamac nuts, nickel and chromium plated with 2 lock washers	5 (M5 x 0.5)	XS1N05	**XSZE105**
	8 (M8 x 1)	XS1/XS2	**XSZE108**
	12 (M12 x1)	XS1/XS2	**XSZE112**
	18 (M18 x 1)	XS1/XS2	**XSZE118**
	30 (M30 x 1.5)	XS1/XS2	**XSZE130**
2 Plastic nuts	8 (M8 x 1)	XS4	**XSZE208**
	12 (M12 x1)	XS4	**XSZE212**
	18 (M18 x 1)	XS4	**XSZE218**
	30 (M30 x 1.5)	XS4	**XSZE230**
Stainless steel mounting nuts	12 (M12 x1)	XS1/XS2	**XSZE312**
	18 (M18 x 1)	XS1/XS2	**XSZE318**
	30 (M30 x 1.5)	XS1/XS2	**XSZE330**
Stainless steel locknut washers	8 (M8x1)	XS1/XS2	**XSZE908**
	12 (M12 x1)	XS1/XS2	**XSZE912**
	18 (M18 x 1)	XS1/XS2	**XSZE918**
	30 (M30 x 1.5)	XS1/XS2	**XSZE930**
Protective cable end, (CNOMO type)	12	XS1/XS2/XS4	**XSZP112**
	18	XS1/XS2/XS4	**XSZP118**
	30	XS1/XS2/XS4	**XSZP130**
Flat mounting plate	–	XS•J	**XSZBJ00**
	–	XS•F	**XSZBF00**
	–	XS•E	**XSZBE00**
	–	XS•C	**XSZBC00**
	–	XS•D	**XSZBD00**
90° Angle flat mounting plat	–	XS•J	**XSZBJ90**
	–	XS•F	**XSZBF90**
	–	XS•E	**XSZBE90**
	–	XS•C	**XSZBC90**
	–	XS•D	**XSZBD90**
Substitution mounting bracket	–	XS•E	**XSZBE10**
	–	XS•C	**XSZBC10**
	–	XS•D	**XSZBD10**
Protective cover	–	XS•E	**XSZEE10**
	–	XS•C	**XSZEC10**
	–	XS•D	**XSZED10**

Mounting brackets

XSZB104/105

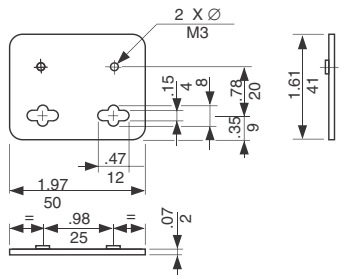


XSZB165/108/112/118/130

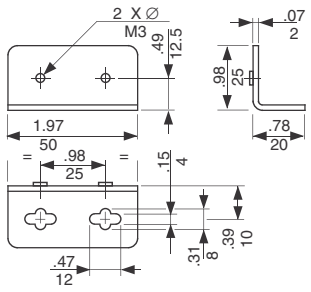


Sensors	Brackets	d1		d2		a		b		c		e		h	
		IN	mm	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm
4mm Unthreaded	**XSZB104**	.15	4												
5mm	**XSZB105**	.19	5												
6.5 mm Unthreaded	**XSZB165**			.25	6.5	.78	19.9	.55	14.0	.57	14.5	.29	7.5	.49	12.5
8mm	**XSZB108**			.31	8.0	.78	19.9	.55	14.0	.57	14.5	.29	7.5	.49	12.5
12mm	**XSZB112**			.47	12.0	.86	21.9	.63	16.0	.57	14.5	.33	8.5	.21	15.5
18mm	**XSZB118**			.70	18.0	1.00	26.0	.86	22.0	.61	15.7	.45	11.5	.79	20.1
30mm	**XSZB130**			1.18	30.0	1.53	39.0	1.40	35.5	.85	21.7	.72	18.5	1.20	31.0

XSEZ01

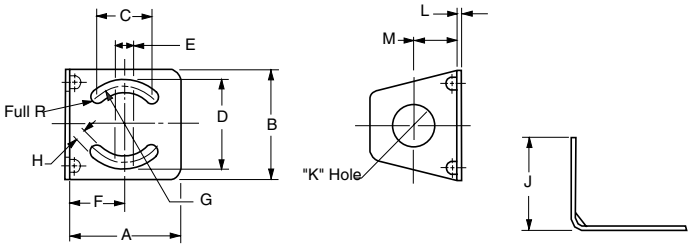


XSEZ02



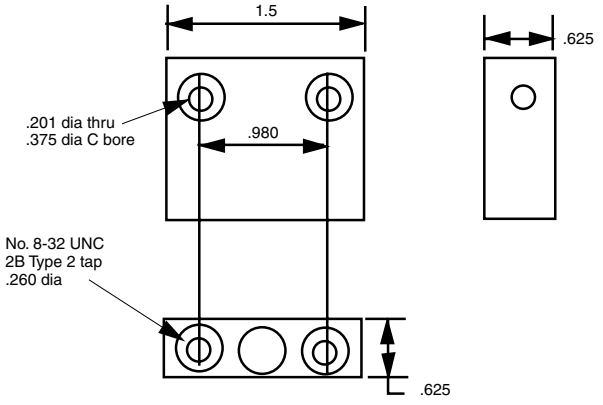
Approximate Dimensions

9006PA●●



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

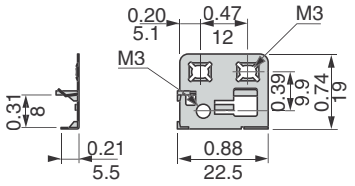
8316 Bracket



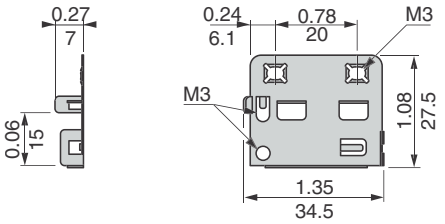
Type	A		B		C		D		E		F		G		H		J		K		L		M	
	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm
PA30	2.64	67	2.56	65	1.39	35	1.99	51	0.39	10	1.28	33	1.97	50	0.21	5	2.05	52	1.20	31	0.08	2	0.98	25
PA18	2.05	52	1.97	50	0.97	25	1.60	41	0.39	10	0.98	25	1.38	35	0.21	5	1.65	42	0.73	19	0.08	2	0.79	20
PA12	1.38	35	1.57	40	0.69	18	1.20	31	0.39	10	0.69	18	0.98	25	0.21	5	1.28	33	0.49	13	0.08	3	0.71	18

Telemecanique

XSZBJ00



XSZBF00



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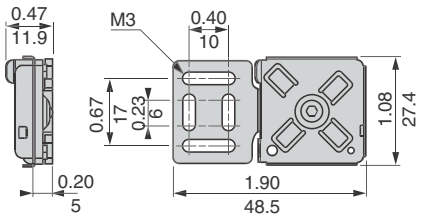
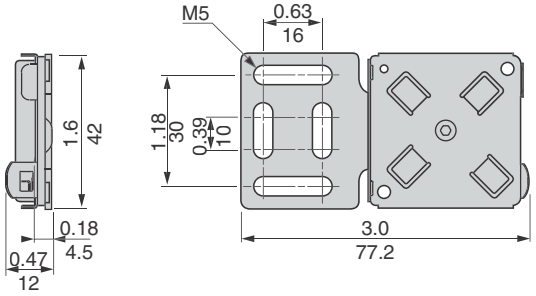
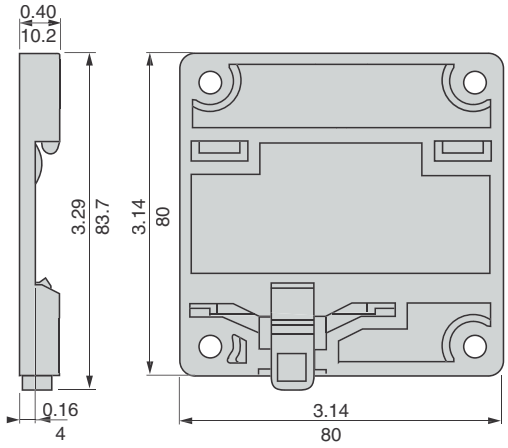


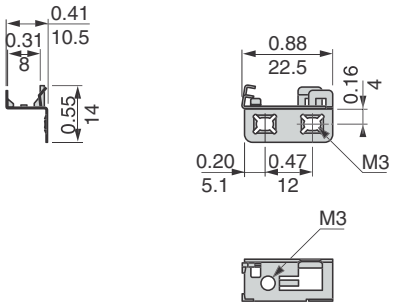
XSZBC00



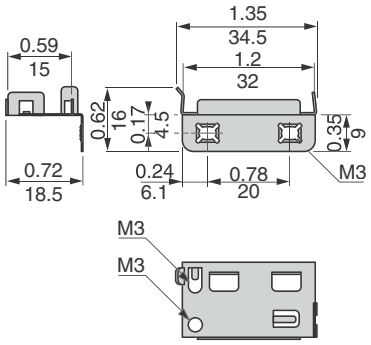
XSZBD00



XSZBJ90



XSZBF90



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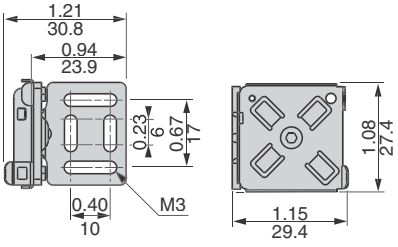
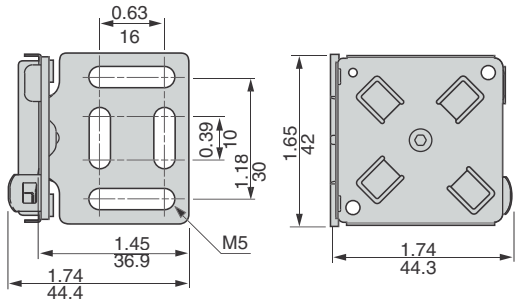


Dual Dimensions $\frac{\text{inches}}{\text{mm}}$

XSZBC90



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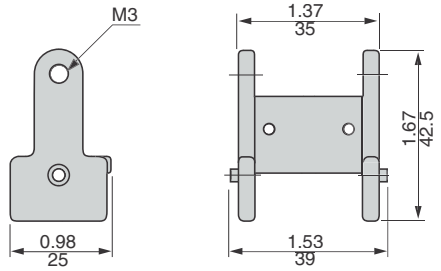
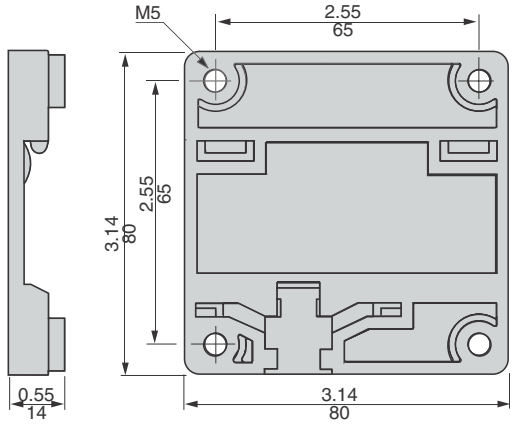
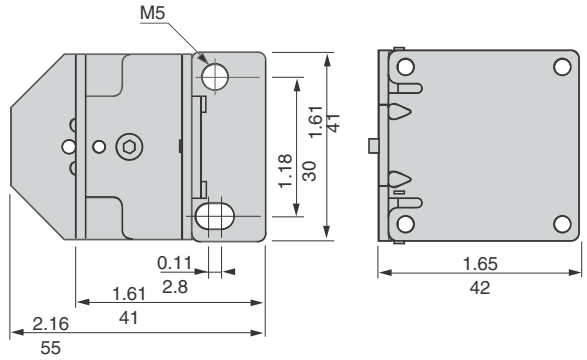


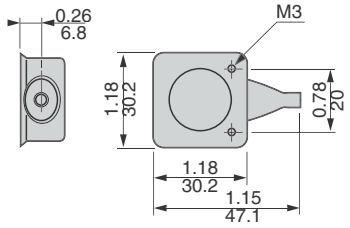
XSZBD10



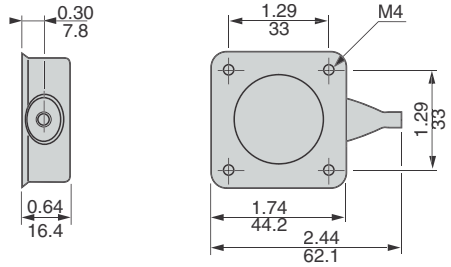
XSZBC10



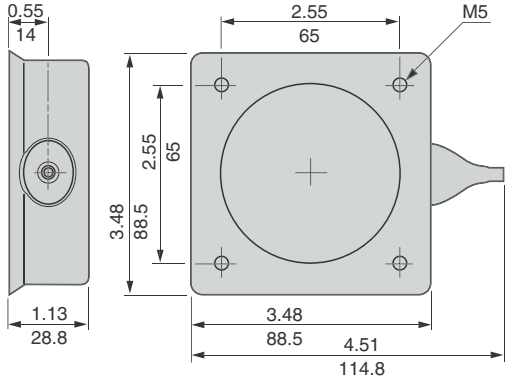
XSZEE10



XSZEC10



XSZED10



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

Proximity Sensors

Proximity Sensors
SG Magnet Actuated Sensors
Surface Mounted Style

Surface mounted magnet actuated sensors for industrial applications.

- Sensing is independent of magnet polarity
- Typical applications: security systems (gate interlocks), high speed rotational counting, identification of metal bins with magnet coded “labels”, sensing through non magnetic walls, etc.

Features:

- Housing; aluminum, plastic (PBT) for SG08168 and SG28195
- Completely epoxy encapsulated
- Very fast response time (reed output only)
- PLC compatible AC models (triac output)
- High transients protection (AC models)
- No bouncing.

Magnet actuated proximity sensors

Circuit Type	AC ratings			DC ratings			Leakage (mA)	Dim. Fig. No.	Wiring Fig.	Catalog Number
	VA (max.)	Volts †	Current (max.)	VA (max.)	Volts (max.)	Current (max.)				
Reed output - DC only										
N.O.	-	-	-	10	200	0.5 A	0	1	A	**SGA8016**
N.O.	-	-	-	10	200	0.5 A	0	2	A	**SGA8031**
Reed output - DC only - built-in resistor protection										
N.O.	-	-	-	10	200	0.5 A	0	1	A	**SGA8182**
Reed output - DC only - High temperature -40° F to 300° F										
N.O.	-	-	-	10	200	0.5 A	0	1	A	**SGA8053**
Reed output - AC and DC - built-in RC protection										
N.C.	3	130	0.25 A	3	100	0.25 A	6 (R) ①	2	B	**SGB8175**
N.O.	10	130	0.5 A	10	200	0.5 A	6 (R) ①	2	A	**SGA8176**
N.O.	10	130	0.5 A	10	200	0.5 A	6 (R) ①	1	A	**SGA8177**
Triac output - AC only (inductive PLC)										
N.O.	240	120	2.0 A	–	–	–	1.7 (P) ①	3	A	**SG08168 ★**
N.O./N.C.	50	240	0.5 A	–	–	–	1.7 (P) ①	3	C	**SG28195 ★**
N.O.	50	130	0.5 A	–	–	–	1.7 (P) ①	1	A	**SG08239**

① PLC applications:
P = PLC compatible.
R = Bleeder resistor required.
† For reed output: max. voltage. For triac output: nominal voltage.
★ UL Recognized

Magnet actuators

		Sensing distance		Catalog Number
		All ③	SG2 8195	
Tubular		1.3" (33mm)	1" (25.4mm)	**7046**
Flat bracket, center	South pole	0.7" (17.7mm)	0.4" (10mm)	**7093**
Flat bracket, side	South pole	0.5" (12.7mm)	0.2" (5mm)	**7063**
90° bracket	South pole	0.5" (12.7mm)	0.2" (5mm)	**7062**
Block type		0.5" (12.7mm)	0.2" (5mm)	**7099**
Flexible tape 1' long		0.3" (7.6mm)	0.2" (5mm)	**7096**

③ All block sensors except SG28195.

Wiring

Figure A (N/O)

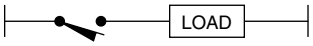


Figure B (N/C)

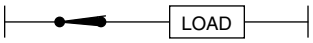
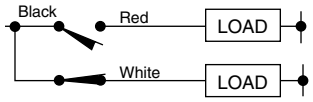


Figure C (N/O or N/C)



Specifications

Mechanical		
Standard temperature range	-40° F to +140° F (-40° C to +60° C) (to 300° F for SGA 8053)	
Enclosure ratings (NEMA) Type	1, 4, 13	
Vibration resistance	20 G (10 to 2000 Hz)	
Shock resistance	50 G for 11 mS	
Differential	Max. 75%	
Repeatability	0.003"	
Electrical	**AC (triac)**	**DC**
Voltage drop (across switch)	2 V	0 V (IR for SGA8182) ①
Minimum load current	15 mA	-
On delay (ms)	1 ms	0.75 ms
Off delay (ms)	8 ms	0.75 ms
Cable 3'	#22 AWG vinyl except SGO8168: #16 AWG SJTO, 2 individual Teflon #22 AWG for SGA8053	
Agency Listings	UL E 42259 CCN NKCR2 (SGO8168 and SG28195 only)	

① Voltage drop = IR where I= load current, R = 150 Ω

Options

	Cable Type	**Suffix**
2 meters (6') of individual wires	Teflon (SGA8053)	L02
5 meters (16') of individual wires	Teflon (SGA8053)	L05
5 meters (16') of cable	Vinyl	L05
	SJTO (SGO8168)	L05
10 meters (33') of cable, (for triac and models with built in resistor)	Vinyl	L10
	SJTO (SGO8168)	L10

Ex: SGO8168L05

Dimensions

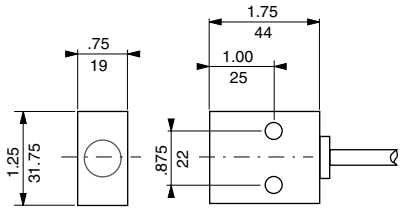


Figure 1
SGA8016
SGA8177
SGA8182
SGA8053
SGO8239

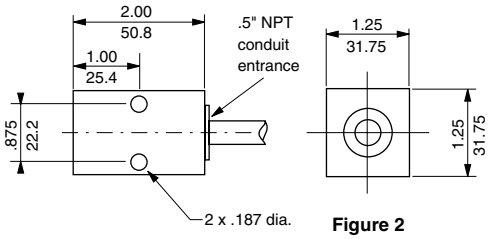


Figure 2
SGA8031
SGA8175
SGA8176

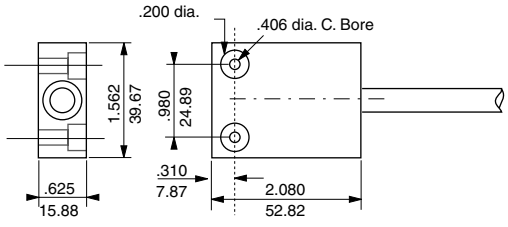


Figure 3
SGO8168
SG28195

Dual Dimensions inches / mm

Proximity Sensors

Non plug-in

Limit switch style magnet actuated proximity sensors for heavy duty industrial applications.

- Sensing is independent of magnet polarity
- Typical applications: security systems (gate interlocks), high speed rotational countings, identification.

Features:

- Housing; zinc die-cast
- Completely epoxy encapsulated
- Plug in models for fast replacement
- Very fast response time (reed output only)
- PLC compatible AC models
- High transient protection
- Overload and short protection (transistor models)
- No bouncing
- 0.5" NPT conduit entrance.
- UL recognized (except where indicated).

Circuit Type	AC ratings (inductive or resistive)			VA (max.)	DC ratings (resistive only)		Leakage (mA)	Dim. Fig. No.	Wiring Fig.	Catalog Number
	VA (max.)	Volts (nom.)	Current (max.)		Volts (max.)	Current (max.)				
AC triac output, non plug-in										
N.O.	360	120	3.0A	–	–	–	1.7 (P)▲	1	A	**SG08003**
N.C.	360	120	3.0A	–	–	–	1.7 (P)▲	1	B	**SG18004**
Non plug-in with light indicator										
N.O.	360	120	3.0A	–	–	–	1.7 (P)▲	1	A	**SG0L8003**
N.C.	360	120	3.0A	–	–	–	1.7 (P)▲	1	B	**SG1L8004**
DC, transistor output, non plug-in										
N.O.	-	-	-	7.5	30	0.25 A	0	1	D	**SG08079**
N.C.	-	-	-	7.5	30	0.25 A	0	1	E	**SG18056**
Reed output, non plug-in (AC model has built-in surge RC protection)										
N.O.	-	-	-	10	200	0.5 A	0	1	A	**SGA8005**
N.O.	15	120	1.0A	15	250	1.0 A	6 (R)▲	1	A	**SGA8040**
N.O./N.C.	-	-	-	3	200	0.25 A	0	1	C	**SGC8027**
N.O./N.C.	-	-	-	20	500	1.5 A	0	3	C	**SGC8025**

▲ (P)=PLC compatible. (R) Bleeder resistor required for PLC compatibility.

Magnet actuators (See page 310) inches (mm)

		To all others	8079	Sensing distance		8025	Catalog Number
				8040	8027		
Tubular		1.3" (33)	1.2" (30.5)	0.8" (20.3)	0.9" (23)	1" (25.4)	**7046**
Flat bracket, center	South pole	0.7" (17.7)	0.5" (12.7)	0.4" (10.1)	0.4" (10.1)	0.4" (10.1)	**7093**
Flat bracket, side	South pole	0.5" (12.7)	0.4" (10.0)	0.2" (5.1)	0.2" (5.1)	0.2" (5.1)	**7063**
90° bracket	South pole	0.5" (12.7)	0.4" (10.1)	0.2" (5.1)	0.2" (5.1)	0.2" (5.1)	**7062**
Block type		0.5" (12.7)	0.2" (5.1)	0.2" (5.1)	0.3" (7.6)	0.2" (5.1)	**7099**
Flexible type - 1' long		0.3"(7.6)	0.1" (2.5)	–	0.2" (5.1)	0.1" (2.5)	**7096**

✱ All sensors except the ones tabulated separately at right.

Wiring

Figure A

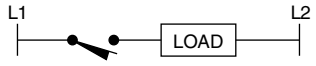


Figure B

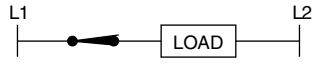
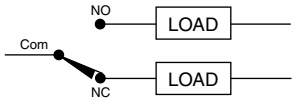
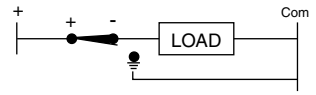


Figure C



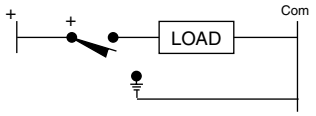
Terminal strip marked: NO-COM-NC

Figure D



SG18056 is normally closed. Connect red terminal (+) to power source. Connect minus (-) terminal to load. Housing must be connected to minus.

Figure E



Specifications

General characteristics						
Temperature range		-40° F to 140° F (-40° C to 60° C)				
		-40° F to 125° F (-40° C to 52° C) for transistor models				
Enclosure ratings	NEMA Type	1,4,13				
Vibration resistance		20G (10 to 2000Hz)				
Shock resistance		50G for 11ms				
Differential		Max. 75%				
Repeatability		0.003"				
	AC triac	**Transistor**	**Reed**			
Voltage drop (across switch)	2 V	–	–			
Minimum load current (max.)	15 mA	–	–			
			SGA8005	**SGA8040**	**SGS8027**	**SGC8025**
On delay (max.)	1 ms	0.75 ms	0.75	2 ms	1 ms N.O./ 1.5 ms N.C.	2 ms N.O./ 4 ms N.C.
Off delay (max.)		0.75 ms	0.75	2 ms	11 msN.O. 1.5 ms N.C.	2 msN.O./ 4 ms N.C.
Cable - screw terminals	#16 AWG					
Agency Listings except where noted	UL E 42259 CCN NKCR2					

Options - triac models only

Description	Fig.	Suffix adder
3' 16-3 SJTO vinyl cable, epoxy sealed	A,B	320
3' 16-3 SJTO vinyl cable, cord connector	A,B	321
3' 16-4 SJTO vinyl cable, epoxy sealed	C,D,E	420
3 pin mini style receptacle ①		347

① See p. 518 for matching connector cables.

Dimensions

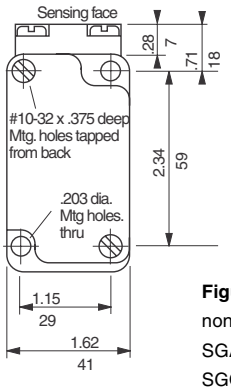


Figure 1
non-plug-in
SGA8005
SGO8003
SGC8027
SGI8056
SGO8056
SGI8004
SGO8040
SGO8079

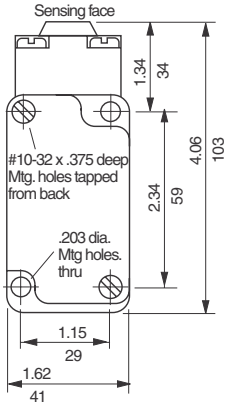
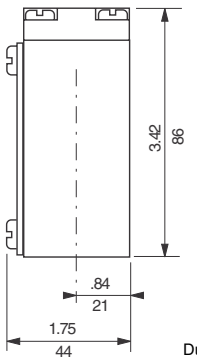
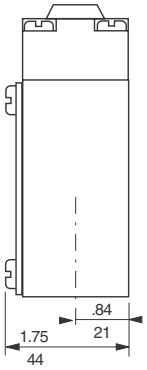


Figure 2
Style C
SGC8025





Dual Dimensions inches / mm

Proximity Sensors
SG Magnet Actuated Sensors
Tubular Style

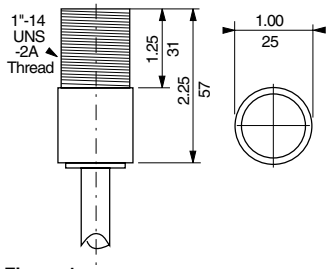


Figure 1
SGA8057
(Aluminum)
SGC8058 (PVC)
SGA8072 (PVC)
SGA8189 (Brass)

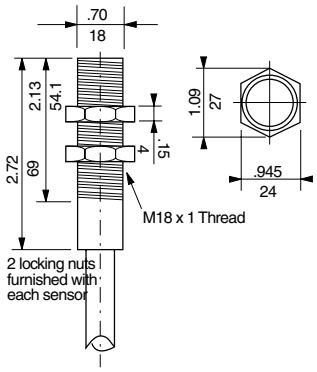


Figure 2
SGA8179
SGA8180
SGC8181

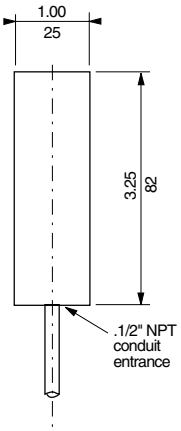


Figure 3
SGA8038

Tubular magnet actuated proximity sensors for heavy duty applications such as: high speed rotational counting, identification of metal bins with magnet coded “labels” sensing through non-magnetic walls, etc.

- Sensing is independent of magnet polarity

Features:

- Housings - Aluminum SGA8057; Plastic PVC SGC8058, SGA8072, SGA8039; Polymide SGA8179, SGA8180, SGA8181
- Completely epoxy encapsulated
- High transient protection
- Threaded and smooth housings
- High voltage versions
- SPST and SPDT models
- No bouncing.
- UL recognized (except where noted with ⋆).

Circuit type	AC ratings (inductive or resistive)			DC ratings (resistive only)			Leakage (mA)	Dim. Fig. No.	Wiring Fig.	Catalog Number
	VA (max.)	Volts nominal	Current (max.)	VA (max.)	Volts (max.)	Current (max.)				
Reed output AC & DC switching (Built-in RC protection), threaded.										
N.O.	15	120	1.0 A	12	48	0.25 A	6 ②	1	A	**SGA8057**
N.O./N.C.	15	120	1.0 A	15	100	1.0 A	6 ②	1	C	**SGC8058**
N.O.	15	120	1.0 A	15	250	1.0 A	6 ②	1	A	**SGA8072**
N.O.	25	480	1.0 A	25	480	1.0 A	.16	2	A	**SGA8179 ⋆**
Reed output - DC, threaded, resistor built-in for long cable runs ③										
N.O.	–	–	–	10	200	0.5 A	0	2	A	**SGA8180 ⋆**
N.O./N.C.	–	–	–	3	100	0.25 A	0	2	C	**SGC8181 ⋆**
Reed output - AC & DC (built-in RC protection), smooth										
1 N.O.	15	120	1.0 A	15	250	1.0 A	6 ②	3	A	**SGA8038 ⋆**

② Bleeder resistor required for PLC AC switching compatibility.
③ 150 Ω for SGA8180 and 470 Ω for SGC8181.
⋆ Not UL

Magnet actuators (See page 310)

Description		Sensing distance ∗	SGA8180	Catalog Number
Tubular		0.8" (20.3)	1.3" (33)	**7046**
Flat bracket, center	South pole	0.4" (10.1)	0.7" (17.8)	**7093**
Flat bracket, side	South pole	0.2" (5.1)	0.2" (5.1)	**7063**
90° bracket	South pole	0.2" (5.1)	0.2" (5.1)	**7062**
Block type		0.2" (5.1)	0.2" (5.1)	**7099**
Flexible tape - 1' long		0.1" (2.5)	0.1" (2.5)	**7096**

∗ All except SGA8180 tabulated at right.

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

Wiring

Figure A

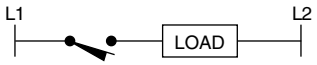
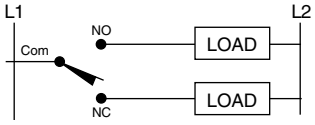


Figure C

SGC8058 & SGC8181
Black – Com
Blue – N.O.
Brown – N.C.



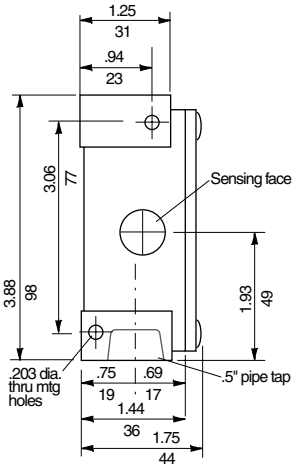
Specifications

General characteristics			
Temperature range	-40° F - 140° F (-40° C to 60° C)		
Enclosure ratings NEMA Type	1,4,13		
Vibration resistance	20G (10 to 1000Hz)		
Shock resistance	50G for 11mS		
Differential	Max. 75% (except SGA8179 = 1.06" max.)		
Repeatability	Max. 0.003"		
	Reed AC & DC	**SGA8180 Built in resistor (DC)**	**SGC8181 Built in resistor (DC)**
Voltage drop ①	25 mV	I x R	I x R
On delay (max.)	2 mS	0.75 ms	2.5 ms N.O. 3.5 ms N.C.
Cable, 3'	22-2 vinyl: SGA8038, 8180; 23-2 vinyl SGC 8181;		
	16-2 SJTO: SGA8057, 8072. SO cable for SGA8179		
Agency Listings except where noted	UL E 42259 CCN NKCR2		

① Voltage drop = IR, where I is load current and R built-in resistor.

Options

Description		Suffix
5 meters (16') of cable	Vinyl	L05
	SJTO (8057, 8072, 8179)	L05
10 meters (33') of cable (for models with built in resistor)	Vinyl	L10
	SJTO (8057, 8072, 8179)	L10



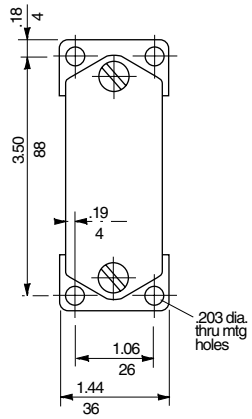


Figure 1
SGA8018
SGO8026
SGO8110
SGO8141

Maintained contact model - A highly reliable magnet actuated proximity limit switch designed to maintain contact for high speed stacker cranes, slow down and memory applications. Eliminates camming required for mechanically operated limit switches. **Maintains the information even if power is down**.

Movement of an N or S pole of a magnet actuator past the “blue dot” sensitive area within the specified range along the switch will change the contact position from open to closed. Once latched, the movement of the same magnetic pole in the opposite direction or the movement of the opposite magnetic pole in the same direction will unlatch the switch.

Features:

- Housing - zinc die cast
- PLC compatibility
- High transient protection
- No bouncing
- 0.5" NPT conduit entrance
- UL recognized.
- CSA certified.

NOTE: If during this procedure the switch closes and then opens again (pulses), reverse the polarity of the magnet and repeat above procedure. If desired direction of operation is opposite to that established above, reverse polarity of the magnet.

Circuit Type	AC ratings (inductive or resistive)			DC ratings (resistive only)			Leakage (mA)	Wiring Fig.	Catalog Number
	VA (max.)	Volts (nom.)	Current (max.)	VA (max.)	Volts (max.)	Current (max.)			
Reed, DC									
1 N.O.	–	–	–	15	250	1.0 A	0	A	**SGA8018**
Triac, AC									
1 N.O.	360	120	3.0 A	–	–	–	1.7	A	**SGO8026**
Triac, AC low temperature: -30° F to 85° F									
1 N.O.	360	120	3.0 A	–	–	–	1.7	B	**SGO8110**

Magnet actuators (see page 310)

Description		Sensing Distance	Catalog Number
Tubular		1.3"	**7046**
Flat bracket, center	South pole	1.0"	**7093**
	North pole	1.0"	**7547**
Flat bracket, side	South pole	0.7"	**7063**
	North pole	0.7"	**70631**
90° bracket	South pole	0.7"	**7062**
	North pole	0.7"	**70621**
Block type		0.5"	**7099**
Flexible tape - 1" long		0.5"	**7096**

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

Wiring

Figure A

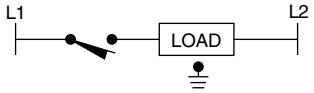
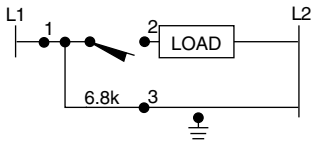


Figure B

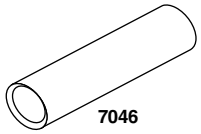


Connect terminal 3 (heater) to line (L2) for operation below +32°F.

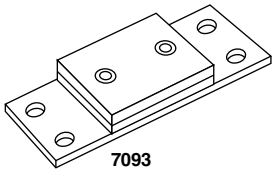
Specifications

Mechanical			
Temperature range		+32° F to 140° F (0° C to 60° C)	
		+30° F to 85° F (-35° C to 30° C) for SGO8110	
Enclosure ratings	NEMA Type	1, 4, 13	
Vibration resistance		20 G (10 to 2000 Hz)	
Shock resistance		50 G @ 11 ms	
Differential		Max. 50%	
Repeatability		Max. 0.003"	
Electrical		**Reed**	**Triac**
Voltage drop		–	3 V
Minimum load current (mA)		–	15 mA
On delay mS		2 ms	2 ms
Off delay mS		2 ms	2 ms
Cable - screw terminals			#16 AWG
Agency Listings		E 42259 CCN NKCR2	LR 25490 Class 3211 03

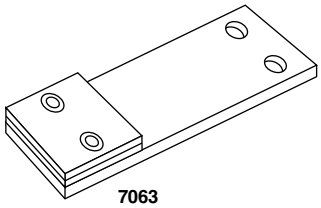
Proximity Sensors
SG Magnet Actuated Sensors
Magnet Actuators



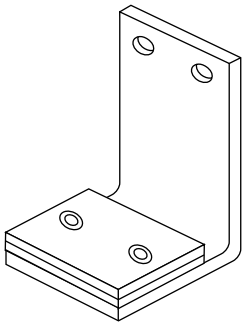
7046



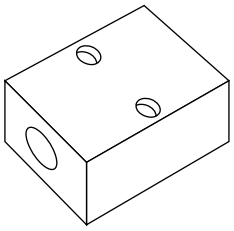
7093



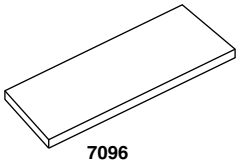
7063



7062



7099



7096

Features:

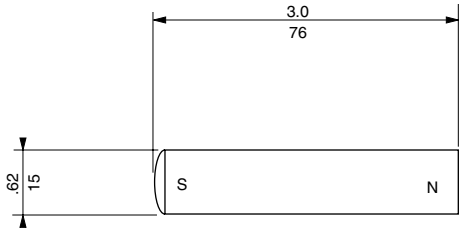
- Industrial grade magnet recommended for magnet actuated proximity sensors.
- Alnico is used as magnet material for all rigid models.
- Kevlar is used for the flexible magnetic tape.
- The rigid models are already mounted on several types of standard brackets for convenience (except the tubular “high power” version).
- Both South and North Poles are accessible and marked. **The South Pole version is the standard.** North Pole versions may be required in conjunction with the maintained magnetic switch (see page 308).
- For comparison an average magnetic strength rating is listed below. Measurements were made with a Gaussmeter at 0.13" from the sensing surface.

Description		Magnetic Strength	Catalog Number
Tubular		700 Gauss	**7046**
Flat bracket, center	South pole	330 Gauss	**7093**
	North pole	330 Gauss	**7547**
Flat bracket, side	South pole	240 Gauss	**7063**
	North pole	240 Gauss	**70631**
90° bracket	South pole	260 Gauss	**7062**
	North pole	260 Gauss	**70621**
Block type		340 Gauss	**7099**
Flexible tape	1' long	180 Gauss	**7096∗**

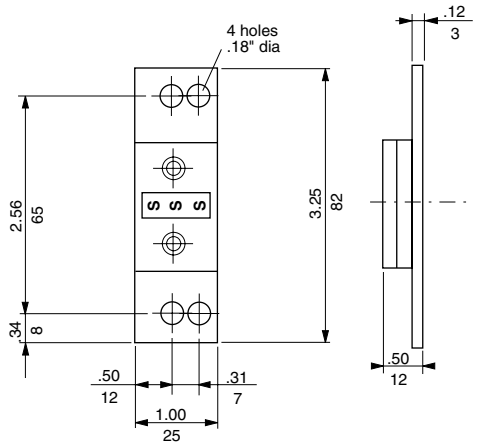
∗ For longer tape specify total length in feet. Example: 70966 = 6 feet.

Magnet actuator dimensions

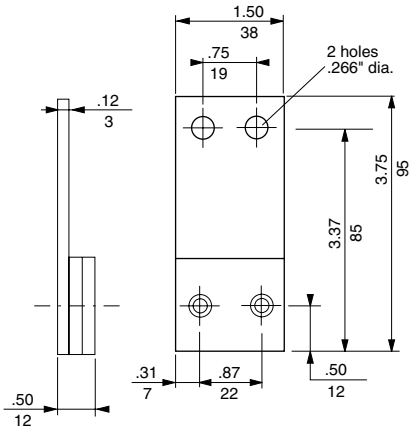
Tubular magnet actuator 7046



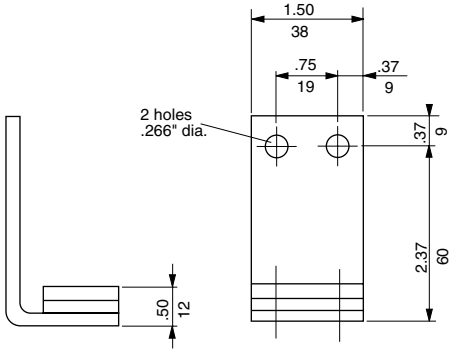
Magnet actuator 7093 (south pole)
Magnet actuator 7597 (north pole)



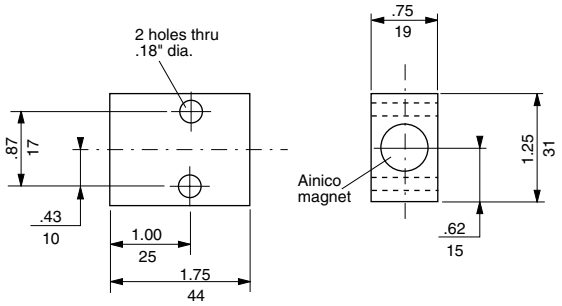
Magnetic actuator 7063 (south pole)
Magnet actuator 70631 (north pole)



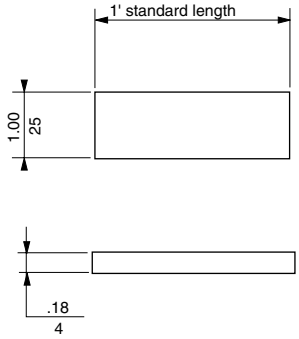
Magnet actuator 7062 (south pole)
Magnet actuator 70621 (north pole)



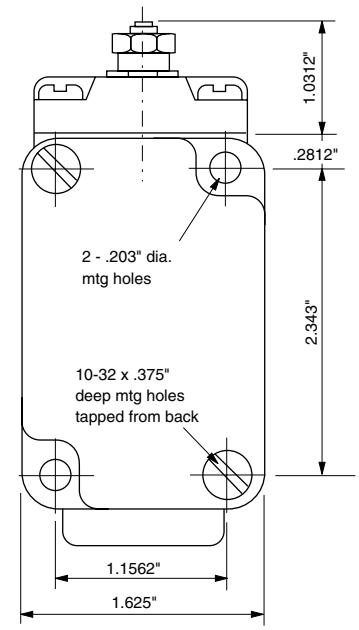
Block type magnet actuator 7099

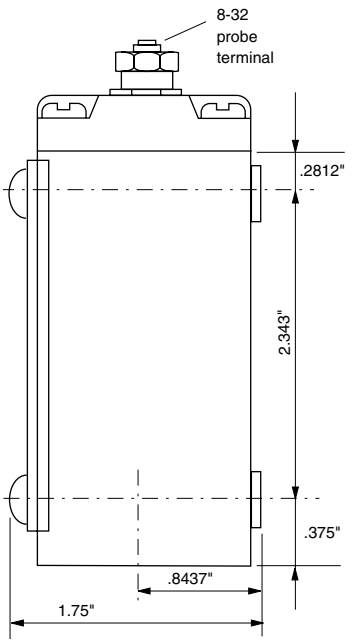


Flexible magnetic tape 7096 1 foot



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





The touch switch is a highly reliable AC solid state presence sensor designed for precise conductivity sensing. Applications include high temperature environment, light conductive, aggressive mechanical and chemical environments that targets positive end-point sensing. All models have a visible neon pilot light to indicate operation of the switch.

Features

- Housings - zinc die cast
- Solid state - no moving parts
- 115 Vac completely self-contained
- Probes up to 10 feet long
- High current output - no relay required for most applications
- Fast response - no warm-up time
- 0.5" NPT conduit entrance
- UL Recognized

Operation

The switch is actuated when a conductive path between probe terminal and ground (1 MΩ or less) is established. The electrical contact to ground operates the switching thyristor. Internal RC snubber and varistor provide effective protection from typical transients. Normal open models have a 10 millisecond (maximum) turn on time. Different off delay times are offered in order that the design engineer may compensate for relay chatter when the probe is subjected to “bounce” from irregular contact with the grounded metal point of contact.

NOTE: For isolated circuits where the ground is not common - the switch ground terminal should be connected to the neutral. The metal target to be detected by the probe should then be wired also to the neutral.

Probe characteristics

The probe terminal is an 8-32 stud protruding from the center of the head. Extensions may be any **electrically conductive wire** or material suitably **insulated from grounded** surface and **limited in length to 10** feet or less.

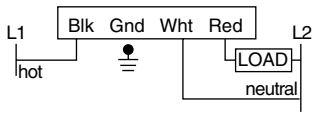
- Open voltage: 12 Vdc
- Peak current: 1 mA

Switch models

Circuit type	Voltage (nominal)	Current load (max.)	Leakage current (max.)	On delay	Off delay	Catalog Number
Terminal screws						
N.O.	120 Vac	3 Amp	1.7 mA	10 ms	100 ms	**STO8164**
N.C.	120 Vac	3 Amp	1.7 mA	100 ms	30m s	**ST18165**
N.O.	120 Vac	3 Amp	1.7 mA	10 ms	400 ms	**STO8166**
N.O.	120 Vac	3 Amp	1.7 mA	10 ms	20 ms	**STO8167**
Pre wired with 3 feet of cable						
N.O.	120 Vac	3 Amp	1.7 mA	10 ms	100 ms	**STO8001**
N.C.	120 Vac	3 Amp	1.7 mA	100 ms	30 ms	**ST18002**
N.O.	120 Vac	3 Amp	1.7 mA	10 ms	400 ms	**STO8036**
N.O.	120 Vac	3 Amp	1.7 mA	10 ms	20 ms	**STO8042**

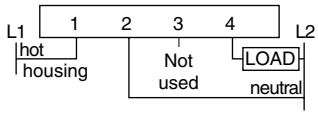
Wiring

Cable wiring



Target connected to ground

Terminal strip wiring

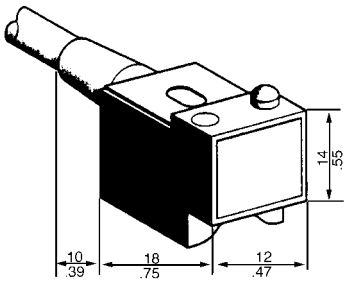


Target connected to ground
Housing must be grounded for proper operation.

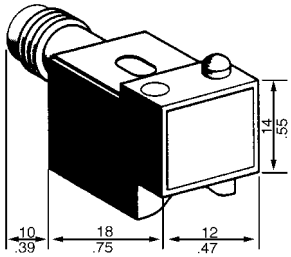
Model ST switches may be wired in series or parallel. Connect red lead to black lead of other switch (terminal 4 to terminal 1 of other switch) for series operation. The voltage drop across each switch (in the closed state) does not exceed 2 volts AC.

Specifications

General characteristics		
Temperature range		-40° F to 158° F (-40° C to 70° C)
Enclosure ratings	NEMA Type	1, 4, 13
Voltage drop		2 V
Inrush current maximum		10 Amp
Minimum load current		15 mA
Power supply current (no load)		30 mA
Cable		3' 16-4 SJTO or terminal screws #16 AWG



Cable



Nano style connector

Dual Dimensions inches / mm

Description

Detects the magnet installed on the piston through a non-ferrous cylinder wall. Universal mounting provided by clamp style and strap style mounting. Fast troubleshooting aided by output LED. Trouble-free operation insured by extensive protective circuitry. Connector versions.

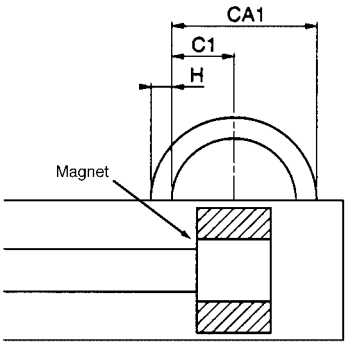
Circuit type	Nominal Sensing Range *	Output mode	Load current maximum	Voltage maximum	Mating connector style	Catalog Number
2m Cable						
PNP	3.5 mm	N.O.	100 mA	10-30 Vdc	–	**XS7V12PA332**
NPN	3.5 mm	N.O.	100 mA	10-30 Vdc	–	**XS7V12NA332**
Connector - Nano style						
PNP	3.5 mm	N.O.	100 mA	10-30 Vdc	1 thru 8	**XS7V12PA332S**
NPN	3.5 mm	N.O.	100 mA	10-30 Vdc	1 thru 8	**XS7V12NA332S**

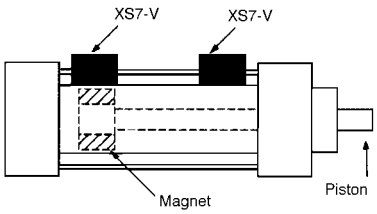
* At 11mT.

Application Information

The XS7V sensors detect the magnetic field generated by a magnet. The sensors are mounted in general on the cylinder. The magnets are mounted on the end of the piston and influence the sensor through a non- ferrous cylinder wall (i.e. aluminum). The sensors can be mounted anywhere along the cylinder using mounting accessories such as the ones shown on the next page.

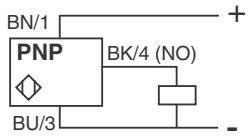
Cylinder Diameter		Active Travel CA1		Travel C1		Hysteresis H	
IN	mm	IN	mm	IN	mm	IN	mm
0.39	10	0.28	7.2	0.13	3.25	0.028	0.70
0.47	12	0.31	7.8	0.14	3.45	0.028	0.70
0.63	16	0.33	8.5	0.15	3.80	0.035	0.90
0.79	20	0.37	9.3	0.17	4.20	0.035	0.90
0.98	25	0.40	10.2	0.18	4.60	0.039	1.00
1.26	32	0.43	11	0.20	5.00	0.039	1.00
1.57	40	0.47	12	0.22	5.50	0.039	1.00
1.97	50	0.47	12	0.22	5.50	0.039	1.00
2.48	63	0.55	14	0.26	6.50	0.039	1.00
3.15	80	0.63	16	0.30	7.50	0.039	1.00
3.94	100	0.71	18	0.33	8.50	0.039	1.00



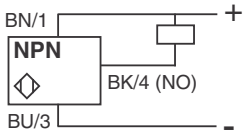


Wiring

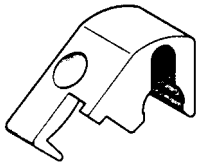
3 wire, PNP



3 wire, NPN



Stainless Steel Mounting Collar



Mounting Bracket for Cylinder Rods

Specifications

Mechanical		
Sensing range @ 11 mT		0 to 3.5mm
Standard Temperature range	Operating	-10° C to 60° C (+ 14° F to + 140° F)
	Storage	-40° C to + 70° C (-40° F to + 158° F)
Enclosure rating	NEMA Type	
	IEC Type	IP67
Enclosure material		Plastic
Repeatability		0.1 mm
Electrical		
Voltage range		12 to 24 Vdc
Voltage limit (including ripple)		10 to 30 Vdc
Voltage drop (across switch), closed state		0.5 V
Maximum load current		100 mA
Current consumption (no load)		30m A
Actuation speed (max.)		10 ms
Response time		3 ms

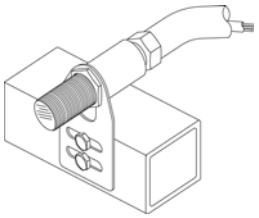
Options

Description		Suffix
Extended cable length	5 meter cable	L1
	10 meter cable	L2

Accessories

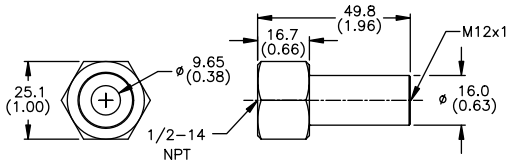
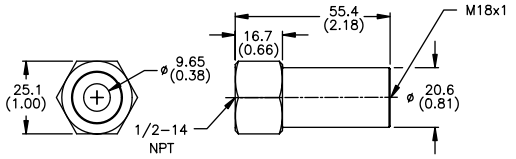
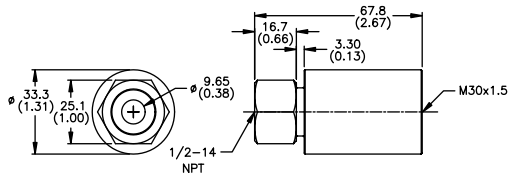
Description	Cylinder Diameter mm/in	Catalog Number	Sold in Lots of
Stainless steel mounting collar	10 / 0.39	**XSZB210**	5
Stainless steel mounting collar	12 / 0.47	**XSZB212**	5
Stainless steel mounting collar	16 / 0.63	**XSZB216**	5
Stainless steel mounting collar	20 / 0.79	**XSZB220**	5
Stainless steel mounting collar	25 / 0.98	**XSZB225**	5
Mounting bracket (for cylinder rods)	32 / 1.26 to 40 / 1.57	**XSZB240**	1
Mounting bracket (for cylinder rods)	50 / 1.97 to 63 / 2.48	**XSZB263**	1
Mounting bracket (for cylinder rods)	80 / 3.15 to 100 / 3.94	**XSZB200**	1

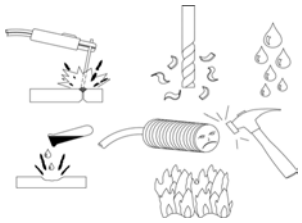
Proximity Sensors
Inductive Sensor Accessories
Conduit Adapters for Tubular Sensors



Features:

- Available for 12, 18 and 30mm tubular sensors
- 1/2" – 14 NPT Inside Thread
- Nickel Plated Brass

Tube Diameter	Tube Thread Size	Dimensions (mm)	Catalog Number
12mm (0.47)	M12 x 1		**XSZCAR12**
18mm (0.71)	M18 x 1		**XSZCAR18**
30mm (1.18)	M30 x 1.5		**XSZCAR30**

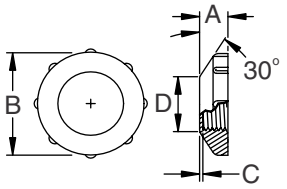


Features:

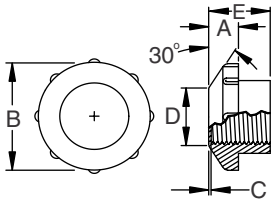
- Shielded and non-shielded caps available
- Different versions available (beveled or non-beveled)
- Provides sensor face protection with no effect in operation

Description

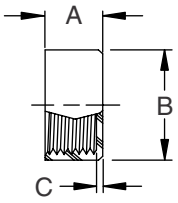
Protection in harsh applications, helps to prevent abrasions, cracks, and other possible damage to the sensors face. Available in many different materials Ceramic, Delrin (Acetal), and Teflon. Provide your sensor with protection and a longer life without the additional charge of a stainless steel face option.



XSZEN••



XSZENN••



XSZSC••••

Beveled caps (30 ° chamfer)

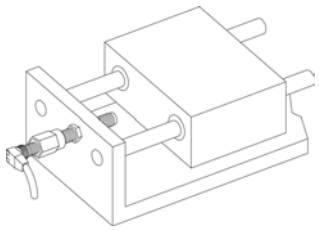
A	B	C	D	E	Catalog Number
8 mm Diameter shielded					
5.1 (0.20)	15.1 (0.59)	0.38 (0.15)	7.00 (0.28)	–	**XSZEN08**
12 mm Diameter shielded					
6.2 (0.26)	24.1 (0.95)	0.76 (0.03)	12.2 (0.48)	–	**XSZEN12**
18 mm Diameter shielded					
8.2 (0.32)	31.2 (1.23)	0.76 (0.03)	17.0 (0.67)	–	**XSZEN18**
30 mm Diameter shielded					
7.6 (0.30)	44.5 (1.75)	1.01 (0.04)	29.0 (1.19)	–	**XSZEN30**
8 mm Diameter non-shielded					
5.1 (0.20)	14.1 (0.56)	0.38 (0.15)	7.00 (2.76)	9.60 (0.37)	**XSZENN08**
12 mm Diameter non-shielded					
6.5 (0.26)	22.9 (0.90)	0.76 (0.03)	12.9 (0.51)	17.3 (0.68)	**XSZENN12**
18 mm Diameter non-shielded					
8.2 (0.32)	34.0 (1.34)	0.76 (0.03)	16.6 (0.65)	17.8 (0.70)	**XSZENN18**
30 mm Diameter non-shielded					
7.5 (0.30)	44.5 (1.75)	1.01 (0.04)	30.0 (1.18)	22.8 (0.90)	**XSZENN30**

Non-beveled caps

A	B	C	Catalog Number
12 mm Diameter shielded			
8.90 (0.35)	16.1 (0.63)	1.26 (0.05)	**XSZSC12C**
8.90 (0.35)	16.1 (0.63)	0.76 (0.03)	**XSZSC12D**
8.90 (0.35)	16.1 (0.63)	0.76 (0.03)	**XSZSC12T**
12 mm Diameter non-shielded			
15.2 (0.60)	16.1 (0.63)	0.76 (0.03)	**XSZSC12ND**
15.2 (0.60)	16.1 (0.63)	0.76 (0.03)	**XSZSC12NT**
18 mm Diameter shielded			
8.80 (0.35)	24.4 (0.96)	1.27 (0.05)	**XSZSC18D**
8.80 (0.35)	24.4 (0.96)	1.27 (0.05)	**XSZSC18T**
18 mm Diameter non-shielded			
18.0 (0.59)	24.4 (0.96)	1.27 (0.05)	**XSZSC18ND**
18.0 (0.59)	24.4 (0.96)	1.27 (0.05)	**XSZSC18NT**

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

Proximity Sensors
Inductive Sensor Accessories
Plunger Screw Adapters



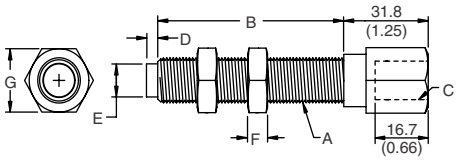
Features

- Accepts 8, 12, or 18mm shielded sensor
- Heat-treated alloy steel construction
- Rugged stop with solid state output

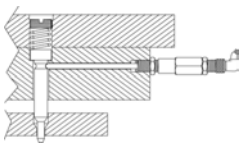
Description

Plunger Screw Adapters provide the ability for a shielded inductive proximity sensor to be used as a mechanical stop switch. Helps to solve many applications that require precise end of travel signals, or a hard stop. Spring requires 252g (9oz) to actuate sensor.

A	B	C	D	E (Dia.)	F	G	Impact Force (Max.)	Catalog Number
8 mm Diameter Shielded Sensors								
M8x1	25.0 (1.00)	M8x1	3.16 (0.12)	5.84 (0.23)	6.26 (0.24)	11.0 (0.43)	2000 N (450 lb-ft)	**XSZB0825**
M8x1	50.0 (2.00)	M8x1	3.16 (0.12)	5.84 (0.23)	6.26 (0.24)	11.0 (0.43)	2000 N (450 lb-ft)	**XSZB0850**
12 mm Diameter Shielded Sensors								
M12x1	25.0 (1.00)	M12x1	4.32 (0.17)	9.40 (0.37)	4.22 (0.17)	15.7 (0.62)	20,500 N (4608 lb-ft)	**XSZB1225**
M12x1	50.0 (2.00)	M12x1	4.32 (0.17)	9.40 (0.37)	4.22 (0.17)	15.7 (0.62)	20,500 N (4608 lb-ft)	**XSZB1250**
M12x1	75.0 (3.00)	M12x1	4.32 (0.17)	9.40 (0.37)	4.22 (0.17)	15.7 (0.62)	20,500 N (4608 lb-ft)	**XSZB1275**
M12x1	100 (4.00)	M12x1	4.32 (0.17)	9.40 (0.37)	4.22 (0.17)	15.7 (0.62)	20,500 N (4608 lb-ft)	**XSZB1210**
18 mm Diameter Shielded Sensors								
M18x1	25.0 (1.00)	M18x1	4.32 (0.17)	14.2 (0.56)	4.22 (0.17)	22.1 (0.87)	45,000 N (10,115lbft)	**XSZB1825**
M18x1	50.0 (2.00)	M18x1	4.32 (0.17)	14.2 (0.56)	4.22 (0.17)	22.1 (0.87)	45,000 N (10,115lbft)	**XSZB1850**
M18x1	75.0 (3.00)	M18x1	4.32 (0.17)	14.2 (0.56)	4.22 (0.17)	22.1 (0.87)	45,000 N (10,115lbft)	**XSZB1875**
M18x1	100 (4.00)	M18x1	4.32 (0.17)	14.2 (0.56)	4.22 (0.17)	22.1 (0.87)	45,000 N (10,115lbft)	**XSZB1810**



XSZB●●●●



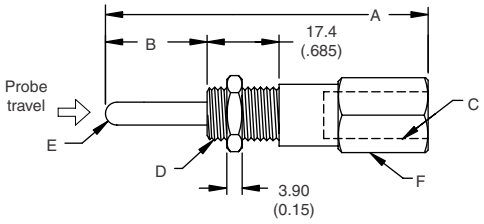
Features:

- Accepts any 8 or 12mm shielded sensor
- Accurate and compact switching in confined areas
- Large variety of stand probe lengths and diameters

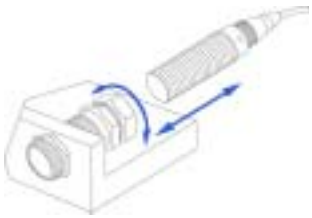
Description

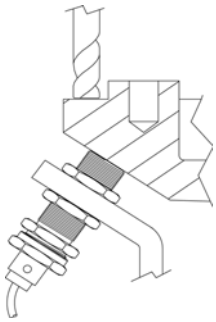
Proximity Probe is a spring loaded actuator designed to work with 8mm or 12mm cylindrical inductive proximity sensors. The probe and sensor combination offers increased flexibility in applications that require tight positioning.

A	B	C	D	E (Dia.)	F	Catalog Number
8 mm Diameter Shielded Sensor						
75.6 (2.98)	25.0 (1.00)	M8 x 1 to depth of 21.8 (0.86)	M8 x 1	3.18 (.125)	11.1 (.436)	**XSZPP0825**
99.6 (3.92)	50.0 (2.00)	M8 x 1 to depth of 21.8 (0.86)	M8 x 1	3.18 (.125)	11.1 (.436)	**XSZPP0850**
126 (4.96)	75.0 (3.00)	M8 x 1 to depth of 21.8 (0.86)	M8 x 1	3.18 (.125)	11.1 (.436)	**XSZPP0875**
150 (5.91)	100 (4.00)	M8 x 1 to depth of 21.8 (0.86)	M8 x 1	3.18 (.125)	11.1 (.436)	**XSZPP0810**
12 mm Diameter Shielded Sensor						
75.6 (2.98)	25.0(1.00)	M12 x 1 to depth of 18.0 (0.71)	M12 x 1	6.35 (0.25)	15.8 (.623)	**XSZPP1225**
99.6 (3.92)	50.0 (2.00)	M12 x 1 to depth of 18.0 (0.71)	M12 x 1	6.35 (0.25)	15.8 (.623)	**XSZPP1250**
126 (4.96)	75.0 (3.00)	M12 x 1 to depth of 18.0 (0.71)	M12 x 1	6.35 (0.25)	15.8 (.623)	**XSZPP1275**
150 (5.91)	100 (4.00)	M12 x 1 to depth of 18.0 (0.71)	M12 x 1	6.35 (0.25)	15.8 (.623)	**XSZPP1210**



XSZPP●●●●





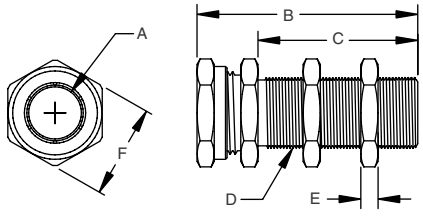
Features:

- Quick change mounting available for 8,12,18 and 30mm sensors
- Short and Long barrel lengths available
- One time adjustment, makes sensor replacement easy and quick
- Provide protection to sensor from impact and damage
- Teflon caps available for quick change mounts (shown below)

Description

Provides time savings in maintenance of sensors, helps prevent downtime. An internal shoulder stop and a collet-style locknut precisely holds the sensor. This helps to maintain a precise sensing distance and reduces the required expertise needed during sensor installation.

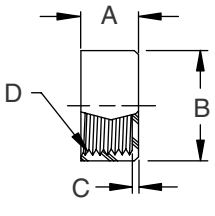
A	B	C	D	E	F	Catalog Number
8 mm Diameter Shielded Sensors						
8.18 (0.32)	32.4 (1.28)	17.5 (0.69)	M12x1	3.85 (0.15)	16.9 (0.67)	**XSZQT08**
8.18 (0.32)	48.0 (1.90)	34.0 (1.34)	M12x1	3.85 (0.15)	16.9 (0.67)	**XSZQTL08**
12 mm Diameter Shielded Sensors						
12.1 (0.48)	33.7 (1.34)	19.5 (0.77)	M16.5x1.5	4.01 (0.16)	21.8 (0.86)	**XSZQT12**
12.1 (0.48)	44.8 (1.76)	30.0 (1.18)	M16.5x1.5	4.01 (0.16)	21.8 (0.86)	**XSZQTL12**
18 mm Diameter Shielded Sensor						
18.1 (0.71)	38.5 (1.52)	20.0 (0.79)	M24 x 1.5	4.95 (0.19)	30.0 (1.18)	**XSZQT18**
18.1 (0.71)	58.0 (2.28)	40.0 (1.57)	M24 x 1.5	4.95 (0.19)	30.0 (1.18)	**XSZQTL18**
30 mm Diameter Shielded Sensors						
30.1 (1.19)	35.0 (1.50)	20.0 (0.79)	M36 x 1.5	6.13 (0.24)	41.0 (1.61)	**XSZQT30**
30.1 (1.19)	58.0 (2.28	40.0 (1.57)	M36 x 1.5	6.13 (0.24)	41.0 (1.61)	**XSZQTL30**



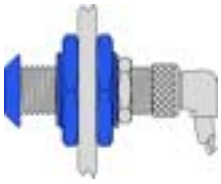
XSZQT●●●

Teflon Caps for Quick change mounting tubes

A	B	C	D	Catalog Number
8.84 (0.35)	14.8 (0.59)	0.76 (0.03)	M12x1	**XSZQTC08**
7.24 (0.29)	19.9 (0.75)	0.76 (0.03	M16x1	**XSZQTC12**
9.00 (0.35)	28.7 (1.13)	0.76 (0.03	M24x1.5	**XSZQTC18**
9.00 (0.35)	41.4 (1.63)	1.26 (0.05)	M36x1.5	**XSZQTC30**



XSZQTC●●



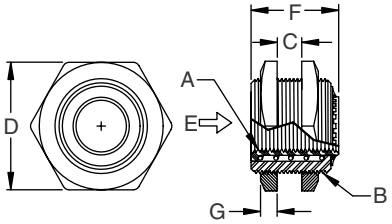
Features:

- Accepts 8, 12, 18 & 30mm shielded or non-shielded sensors
- Sensors become unaffected by accidental impact
- Shielded and Non-shielded caps available, see page 313.

Description

Spring loaded sensor mount for tubular body styles provides impact protection for the sensor in the case of target over travel. The mount is designed to be threaded onto a tubular sensor and held in place by using one of the mounting nuts provided with the sensor. Caps are available to help protect the face of the sensor from lateral and axial impacts, see page 313.

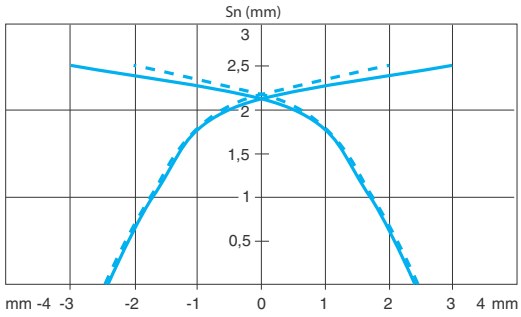
A Inside Thread	B Outside Thread	C Maximum	D Across Flats	E Maximum Over travel	F	G	Catalog Number
8 mm Diameter Sensors							
M8 x 1	M16 x 1.5	12.2 (.481)	22.2 (.875)	9.22 (.363)	22.0 (.867)	3.10 (.155)	**XSZSN08**
12 mm Diameter Sensors							
M12 x 1	M18 x 1	10.0 (.394)	23.9 (.943)	12.1 (.476)	21.3 (.840)	3.94 (.156)	**XSZSN12LP**
M12 x 1	M22 x 1.5	11.5 (.454)	28.4 (1.12)	10.5 (.413)	22.1 (.871)	3.88 (.153)	**XSZSN12**
18 mm Diameter Sensors							
M18 x 1	M30 x 1.5	16.1 (.634)	34.8 (1.37)	13.3 (.523)	29.7 (1.17)	5.08 (0.20)	**XSZSN18**
30 mm Diameter Sensors							
M30 x 1.5	M47 x 1.5	24.6 (.972)	50.8 (2.00)	15.6 (.615)	37.0 (1.37)	4.98 (.196)	**XSZSN30**



XSZSN••

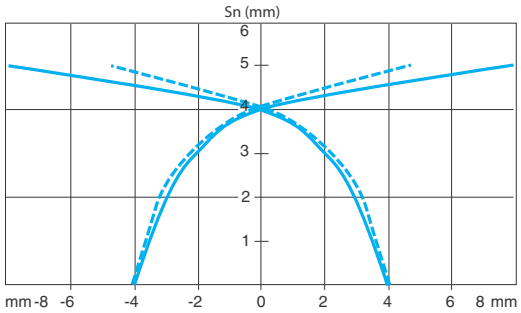
Telemecanique

Shielded



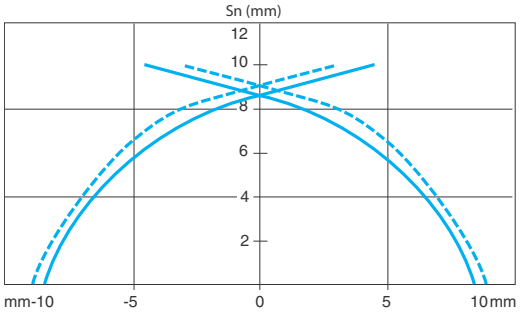
	Target size	Usable range
	mm	mm
XS7J1A1D	5 x 5 x 1	0 . . . 2

_____ pick up points
- - - - - - - - drop out points



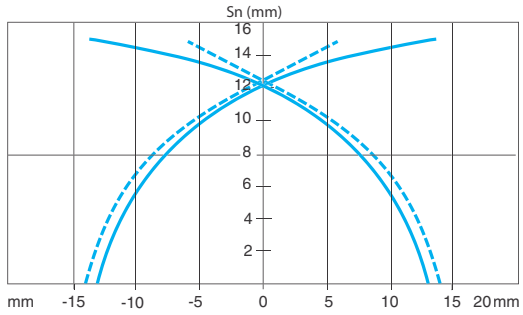
	Target size	Usable range
	mm	mm
XS7F1A1D	5 x 5 x 1	0 . . . 4

_____ pick up points
- - - - - - - - drop out points



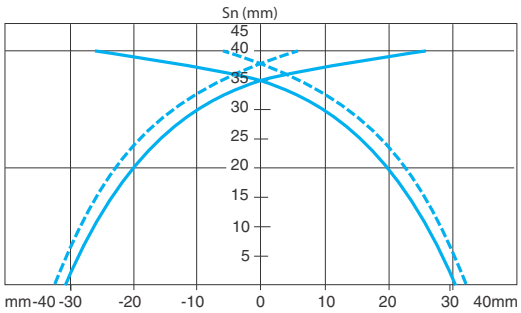
	Target size	Usable range
	mm	mm
XS7E1A1D	8 x 8 x 1	0 . . . 8
XS7E1A1C	8 x 8 x 1	0 . . . 8

_____ pick up points
- - - - - - - - drop out points



	Target size	Usable range
	mm	mm
XS7C1A1D	18 x 18 x 1	0 . . . 12
XS7C1A1C	18 x 18 x 1	0 . . . 12

_____ pick up points
- - - - - - - - drop out points



	Target size	Usable range
	mm	mm
XS7D1A1D	30 x 30 x 1	0 . . . 32
XS7D1A1C	30 x 30 x 1	0 . . . 32

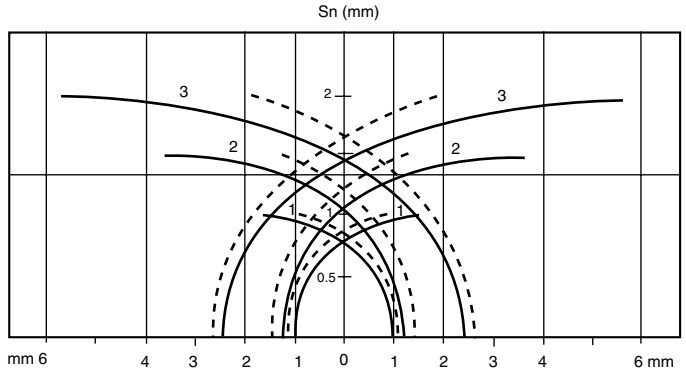
_____ pick up points
- - - - - - - - drop out points

Shielded

1 ø 4 XS1
ø 5 (M5x0.5) XS1

2 ø 6.5 XS1
ø 8 (M8x1) XS1, XS3

3 ø 12 (M12x1)
XS1, XS3

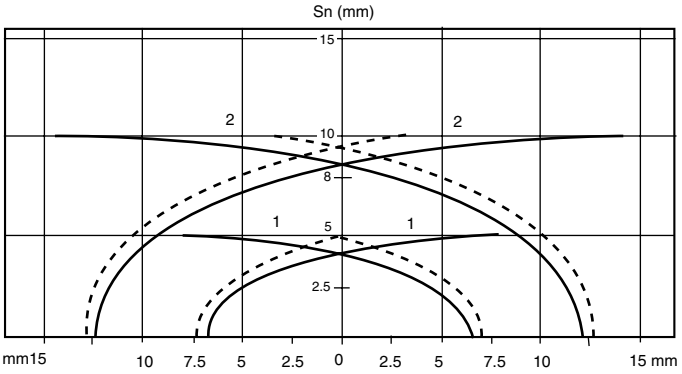


Standard targets	Size	Usable range
	mm	mm
4	5 x 5 x 1	0 . . . 0.8
5	5 x 5 x 1	0 . . . 0.8
6.5	8 x 8 x 1	0 . . . 1.2
8	8 x 8 x 1	0 . . . 1.2
12	12 x 12 x 1	0 . . . 1.6

_____ pick up points
- - - - - - - - drop out points

1 ø 18 (M18x1)
XS1, XS3

2 ø 30 (M30x1.5)
XS1, XS3



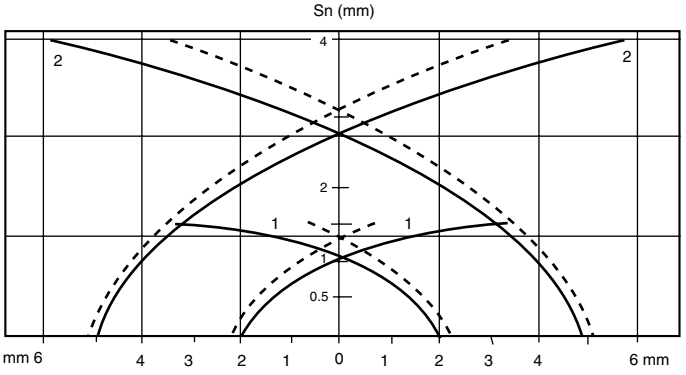
Standard targets	Size	Usable range
	mm	mm
18	18 x 18 x 1	0 . . . 4
30	30 x 30 x 1	0 . . . 8

_____ pick up points
- - - - - - - - drop out points

Non-Shielded and Extended Range

1 ø 8 (M8x1)
XS1, XS2, XS4

2 ø 12 (M12x1)
XS1, XS2, XS4

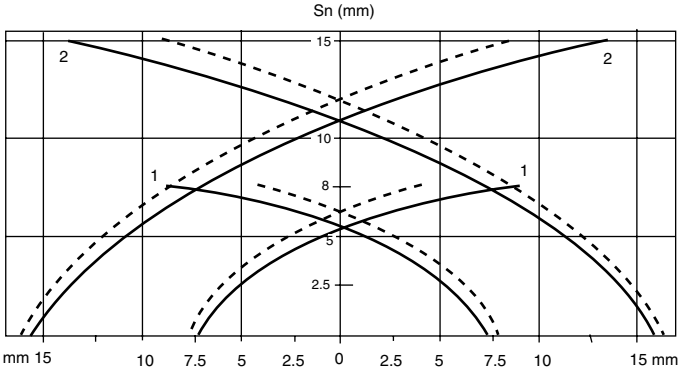


Standard targets	Size	Usable range
	mm	mm
8	8 x 8 x 1	0 . . . 2
12	12 x 12 x 1	0 . . . 3.2

_____ pick up points
- - - - - - - - drop out points

1 ø 18 (M18x1) XS1,
XS2, XS4

2 ø 30 (M30x1.5) XS1,
XS2, XS4



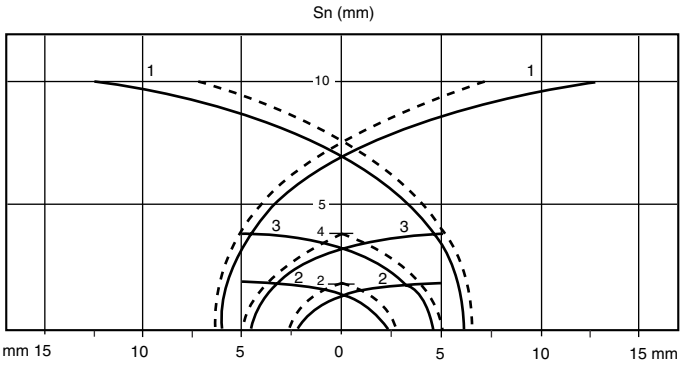
Standard targets	Size	Usable range
	mm	mm
18	24 x 24 x 1	0 . . . 6.4
30	45 x 45 x 1	0 . . . 12

_____ pick up points
- - - - - - - - drop out points

1 shielded, XSEC10

2 shielded, XSG•02

3 non-shielded, XSG•04

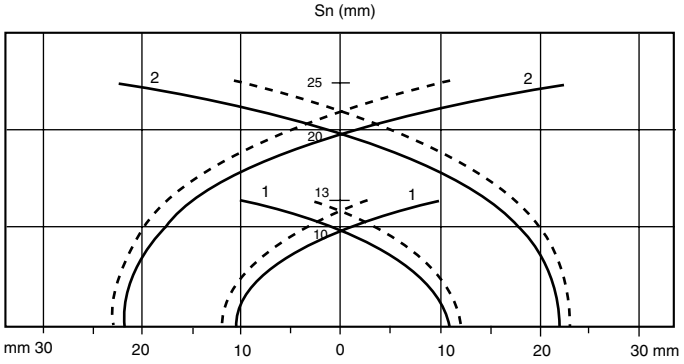


Standard targets	Size	Usable range
	mm	mm
XSEC10	30 x 30 x 1	0 . . . 8
XSG•02	12 x 12 x 1	0 . . . 1.6
XSG•04	12 x 12 x 1	0 . . . 3.2

_____ pick up points
- - - - - - - - drop out points

1 XSB•10

2 XSB•25

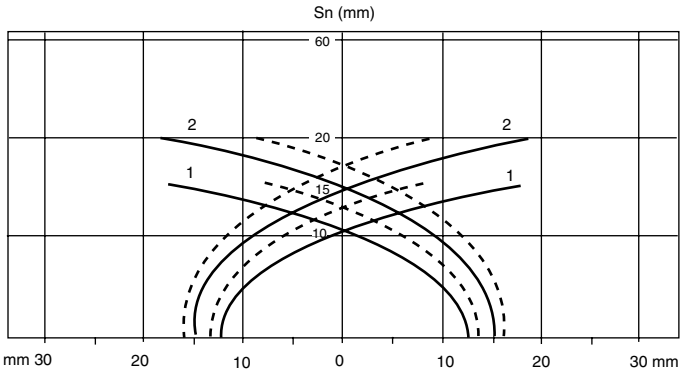


Standard targets	Size	Usable range
	mm	mm
XSB•10	40 x 40 x 1	0 . . . 9
XSB•25	75 x 75 x 1	0 . . . 20

_____ pick up points
- - - - - - - - drop out points

1 shielded, XS7

2 non-shielded, XS8

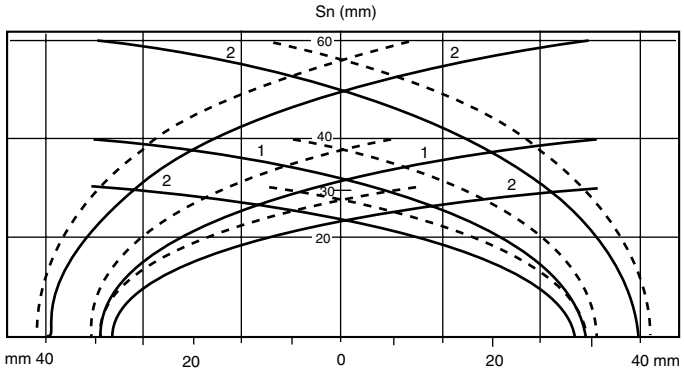


Standard targets	Size	Usable range
	mm	mm
XSC/XS7	45 x 45 x 1	0 . . . 12
XSC/XS8	60 x 60 x 1	0 . . . 16

_____ pick up points
- - - - - - - - drop out points

1 fixed sensing distance, XSD•40

2 adjustable sensing distance, XSD•60



Standard targets	Size	Usable range
	mm	mm
XSD•40	120 x 120 x 1	0 . . . 32
XSD•60	180 x 180 x 1	0 . . . 48

_____ pick up points
- - - - - - - - drop out points

Old Design	New Design
8 mm Cylindrical ⎓	
XS1M08DA210	**XS508B1DAL2**
XS1M08DA210D	**XS508B1DAM12**
XS1M08DA210L1	**XS508B1DAL5**
XS1M08DA210L2	**XS508B1DAL10**
XS1M08DA210LD	**XS508B1DAL08M12**
XS1M08DB210	**XS508B1DBL2**
XS1M08DB210D	**XS508B1DBM12**
XS1M08DB210L1	**XS508B1DBL5**
XS1M08NA370	**XS608B1NAL2**
XS1M08NA370D	**XS608B1NAM12**
XS1M08NA370L1	**XS608B1NAL5**
XS1M08NB370	**XS608B1NBL2**
XS1M08NB370D	**XS608B1NBM12**
XS1M08NC410	**XS508B1NAL2**
XS1M08NC410	**XS508B1NBL2**
XS1M08NC410D	**XS508B1NAM8**
XS1M08NC410D	**XS508B1NBM8**
XS1M08PA370	**XS608B1PAL2**
XS1M08PA370D	**XS608B1PAM12**
XS1M08PA370L1	**XS608B1PAL5**
XS1M08PA370L2	**XS608B1PAL10**
XS1M08PA370LD	**XS608B1PAL08M12**
XS1M08PA370S	**XS608B1PAM12**
XS1M08PB370	**XS608B1PBL2**
XS1M08PB370D	**XS608B1PBM12**
XS1M08PB370L1	**XS608B1PBL5**
XS1M08PB370L2	**XS608B1PBL10**
XS1M08PC410	**XS508B1PAL2**
XS1M08PC410	**XS508B1PBL2**
XS1M08PC410D	**XS508B1PAM8**
XS1M08PC410D	**XS508B1PBM8**
XS1N08NA340D	**XS508B1NAM8**
XS1N08NA340L1	**XS508B1NAL5**
XS1N08NA340L2	**XS508B1NAL10**
XS1N08NA340S	**XS508B1NAM8**
XS1N08NA349	**XS608B1NAL2**
XS1N08NA349D	**XS608B1NAM12**
XS1N08NA349L1	**XS608B1NAL5**
XS1N08NA349S	**XS608B1NAM12**
XS1N08NB340	**XS508B1NBL2**
XS1N08NB340D	**XS508B1NBM8**
XS1N08NB340S	**XS508B1NBM8**
XS1N08NB349	**XS608B1NBL2**
XS1N08NB349D	**XS608B1NBM12**
XS1N08NB349S	**XS608B1NBM12**
XS1N08PA340	**XS508B1PAL2**
XS1N08PA340D	**XS508B1PAM8**
XS1N08PA340L1	**XS508B1PAL5**
XS1N08PA340L2	**XS508B1PAL10**
XS1N08PA340LD	**XS508B1PAL08M12**
XS1N08PA340S	**XS508B1PAM8**
XS1N08PA349	**XS608B1PAL2**
XS1N08PA349D	**XS608B1PAM12**
XS1N08PA349L1	**XS608B1PAL5**
XS1N08PA349L2	**XS608B1PAL10**
XS1N08PA349S	**XS608B1PAM12**
XS1N08PB340	**XS508B1PBL2**
XS1N08PB340D	**XS508B1PBM8**
XS1N08PB340L1	**XS508B1PBL5**
XS1N08PB340S	**XS508B1PBM8**
XS1N08PB349	**XS608B1PBL2**
XS1N08PB349D	**XS608B1PBM12**
XS1N08PB349L1	**XS608B1PBL5**
XS1N08PB349L2	**XS608B1PBL10**
XS1N08PB349S	**XS608B1PBM12**
XS2M08NA340	**XS608B1NAL2**
XS2M08NC410	**XS608B1NAL2**
XS2M08NC410	**XS608B1NBL2**
XS2M08NC410D	**XS608B1NAM12**
XS2M08NC410D	**XS608B1NBM12**
XS2M08PC410	**XS608B1PAL2**
XS2M08PC410	**XS608B1PBL2**
XS2M08PC410D	**XS608B1PAM12**
XS2M08PC410D	**XS608B1PBM12**
XS2N08NA340	**XS608B1NAL2**
XS2N08NA340D	**XS608B1NAM8**
XS2N08NA340L1	**XS608B1NAL5**
XS2N08NA340S	**XS608B1NAM8**
XS2N08NB340	**XS608B1NBL2**
XS2N08PA340	**XS608B1PAL2**
XS2N08PA340D	**XS608B1PAM8**
XS2N08PA340L1	**XS608B1PAL5**
XS2N08PA340L2	**XS608B1PAL10**
XS2N08PA340S	**XS608B1PAM8**
XS2N08PB340	**XS608B1PBL2**
XS2N08PB340D	**XS608B1PBM8**
XS2N08PB340S	**XS608B1PBM8**
XS3P08NA340	**XS508B1NAL2**
XS3P08NA340D	**XS508B1NAM8**
XS3P08NA370	**XS608B1NAL2**
XS3P08PA340	**XS508B1PAL2**
XS3P08PA340D	**XS508B1PAM12**
XS3P08PA340L1	**XS508B1PAL5**
XS3P08PA370	**XS608B1PAL2**
12 mm Cylindrical ⎓	
XS1M12DA210	**XS512B1DAL2**
XS1M12DA210D	**XS512B1DAM12**
XS1M12DA210L1	**XS512B1DAL5**
XS1M12DA210L2	**XS512B1DAL10**
XS1M12DB210	**XS512B1DBL2**
XS1M12DB210D	**XS512B1DBM12**
XS1M12DB210L1	**XS512B1DBL5**
XS1M12KP340	**XS508B1PAL2**
XS1M12KP340	**XS508B1PBL2**
XS1M12KP340	**XS508B1NAL2**
XS1M12KP340	**XS508B1NBL2**
XS1M12KP340D	**XS508B1PAM8**
XS1M12KP340D	**XS508B1PBM8**
XS1M12KP340D	**XS508B1NAM8**
XS1M12KP340D	**XS508B1NBM8**
XS1M12KP340L1	**XS508B1PAL5**
XS1M12KP340L1	**XS508B1PBL5**
XS1M12KP340L1	**XS508B1NAL5**
XS1M12KP340L1	**XS508B1NBL5**
XS1M12KP340L2	**XS508B1PAL10**
XS1M12KP340L2	**XS508B1PBL10**
XS1M12KP340L2	**XS508B1NAL10**
XS1M12KP340L2	**XS508B1NBL10**
XS1M12NA370	**XS612B1NAL2**
XS1M12NA370D	**XS612B1NAM12**
XS1M12NA370L1	**XS612B1NAL5**
XS1M12NA370L2	**XS612B1NAL10**
XS1M12NA370S	**XS612B1NAM12**
XS1M12NB370	**XS612B1NBL2**
XS1M12NB370D	**XS612B1NBM12**
XS1M12PA370	**XS612B1PAL2**
XS1M12PA370D	**XS612B1PAM12**
XS1M12PA370L1	**XS612B1PAL5**
XS1M12PA370L2	**XS612B1PAL10**
XS1M12PB370	**XS612B1PBL2**
XS1M12PB370D	**XS612B1PBM12**
XS1M12PB370L1	**XS612B1PBL5**
XS1N12NA340	**XS512B1NAL2**
XS1N12NA340D	**XS512B1NAM12**
XS1N12NA340L1	**XS512B1NAL5**
XS1N12NA349	**XS612B1NAL2**
XS1N12NA349D	**XS612B1NAM12**
XS1N12NA349L1	**XS612B1NAL5**
XS1N12NA349L2	**XS612B1NAL10**
XS1N12NB340	**XS512B1NBL2**
XS1N12NB340D	**XS512B1NBM12**
XS1N12NB349	**XS612B1NBL2**
XS1N12NB349D	**XS612B1NBM12**
XS1N12NB349L2	**XS612B1NBL10**
XS1N12NC410	**XS512B1NAL2**
XS1N12NC410	**XS512B1NBL2**
XS1N12NC410D	**XS512B1NBM12**
XS1N12NC410D	**XS512B1NAM12**
XS1N12NC410L1	**XS512B1NAL5**
XS1N12NC410L1	**XS512B1NBL5**
XS1N12PA340	**XS512B1PAL2**
XS1N12PA340D	**XS512B1PAM12**
XS1N12PA340L1	**XS512B1PAL5**
XS1N12PA340L2	**XS512B1PAL10**
XS1N12PA340S	**XS512B1PAM12**
XS1N12PA349	**XS612B1PAL2**
XS1N12PA349D	**XS612B1PAM12**
XS1N12PA349L1	**XS612B1PAL5**
XS1N12PA349L2	**XS612B1PAL10**
XS1N12PA349S	**XS612B1PAM12**
XS1N12PB340	**XS512B1PBL2**
XS1N12PB340D	**XS512B1PBM12**
XS1N12PB349	**XS612B1PBL2**
XS1N12PB349D	**XS612B1PBM12**

Telemecanique

Old Design	New Design	Old Design	New Design	Old Design	New Design
XS1N12PB349L1	**XS612B1PBL5**	XS2N12PA340	**XS612B1PAL2**	XS1M18NA370C	**XS618B1NAM12**
XS1N12PB349L2	**XS612B1PBL10**	XS2N12PA340D	**XS612B1PAM12**	XS1M18NA370D	**XS618B1NAM12**
XS1N12PB349S	**XS612B1PBM12**	XS2N12PA340L1	**XS612B1PAL5**	XS1M18NA370L1	**XS618B1NAL5**
XS1N12PC410	**XS512B1PAL2**	XS2N12PA340L2	**XS612B1PAL10**	XS1M18NA370L2	**XS618B1NAL10**
XS1N12PC410	**XS512B1PBL2**	XS2N12PB340	**XS612B1PBL2**	XS1M18NB370	**XS618B1NBL2**
XS1N12PC410D	**XS512B1PAM12**	XS2N12PB340D	**XS612B1PBM12**	XS1M18NB370C	**XS618B1NBM12**
XS1N12PC410D	**XS512B1PBM12**	XS2N12PC410	**XS612B1PAL2**	XS1M18NB370D	**XS618B1NBM12**
XS1N12PC410L1	**XS512B1PAL5**	XS2N12PC410	**XS612B1PBL2**	XS1M18NB370L1	**XS618B1NBL5**
XS1N12PC410L1	**XS512B1PBL5**	XS2N12PC410D	**XS612B1PAM12**	XS1M18NB370L2	**XS618B1NBL10**
XS1N12PC410L2	**XS512B1PAL10**	XS2N12PC410D	**XS612B1PBM12**	XS1M18PA370	**XS618B1PAL2**
XS1N12PC410L2	**XS512B1PBL10**	XS2N12PC410L1	**XS612B1PAL5**	XS1M18PA370A	**XS618B1PAM12**
XS1N12PC419D	**XS612B1PAM12**	XS2N12PC410L1	**XS612B1PBL5**	XS1M18PA370B	**XS618B1PAM12**
XS1N12PC419D	**XS612B1PBM12**	XS2N12PC410L2	**XS612B1PAL10**	XS1M18PA370C	**XS618B1PAM12**
XS2M12KP340	**XS612B1PAL2**	XS2N12PC410L2	**XS612B1PBL10**	XS1M18PA370D	**XS618B1PAM12**
XS2M12KP340	**XS612B1PBL2**	XS3P12NA340	**XS512B1NAL2**	XS1M18PA370E	**XS618B1PAM12**
XS2M12KP340	**XS612B1NAL2**	XS3P12NA340D	**XS512B1NAM12**	XS1M18PA370G	**XS618B1PAM12**
XS2M12KP340	**XS612B1NBL2**	XS3P12NA370	**XS612B1NAL2**	XS1M18PA370L1	**XS618B1PAL5**
XS2M12KP340D	**XS612B1PAM12**	XS3P12PA340	**XS512B1PAL2**	XS1M18PA370L2	**XS618B1PAL10**
XS2M12KP340D	**XS612B1PBM12**	XS3P12PA340D	**XS512B1PAM12**	XS1M18PA370T	**XS618B1PAL2T**
XS2M12KP340D	**XS612B1NAM12**	XS3P12PA340L1	**XS512B1PAL5**	XS1M18PB370	**XS618B1PBL2**
XS2M12KP340D	**XS612B1NBM12**	XS3P12PA370	**XS612B1PAL2**	XS1M18PB370A	**XS618B1PBM12**
XS2M12KP340L1	**XS612B1PAL5**	XS3P12PA370L1	**XS612B1PAL5**	XS1M18PB370B	**XS618B1PBM12**
XS2M12KP340L1	**XS612B1PBL5**	**18 mm Cylindrical ⎓**		XS1M18PB370C	**XS618B1PBM12**
XS2M12KP340L1	**XS612B1NAL5**	XS1M18DA210	**XS518B1DAL2**	XS1M18PB370D	**XS618B1PBM12**
XS2M12KP340L1	**XS612B1NBL5**	XS1M18DA210B	**XS518B1DAM12**	XS1M18PB370G	**XS618B1PBM12**
XS2M12KP340L2	**XS612B1PAL10**	XS1M18DA210C	**XS518B1DAM12**	XS1M18PB370L1	**XS618B1PAL5**
XS2M12KP340L2	**XS612B1PBL10**	XS1M18DA210D	**XS518B1DAM12**	XS1M18PB370L2	**XS618B1PAL10**
XS2M12KP340L2	**XS612B1NAL10**	XS1M18DA210G	**XS518B1DAM12**	XS1N18NA340	**XS518B1NAL2**
XS2M12KP340L2	**XS612B1NBL10**	XS1M18DA210L1	**XS518B1DAL5**	XS1N18NA340D	**XS518B1NAM12**
XS2M12NA370	**XS612B1NAL2**	XS1M18DA210L2	**XS518B1DAL10**	XS1N18NA340L1	**XS518B1NAL5**
XS2M12NA370D	**XS612B1NAM12**	XS1M18DA210LD	**XS518B1DAL08M12**	XS1N18NA340L2	**XS618B1NAL10**
XS2M12NA370L1	**XS612B1NAL5**	XS1M18DA214D	**XS518B1CAM12**	XS1N18NA349	**XS618B1NAL2**
XS2M12NB370	**XS612B1NBL2**	XS1M18DA214LD	**XS518B1CAL08M12**	XS1N18NA349D	**XS618B1NAM12**
XS2M12NB370D	**XS612B1NBM12**	XS1M18DB210	**XS518B1DBL2**	XS1N18NA349L1	**XS618B1NAL5**
XS2M12PA370	**XS612B1PAL2**	XS1M18DB210B	**XS518B1DBM12**	XS1N18NB340	**XS518B1NBL2**
XS2M12PA370D	**XS612B1PAM12**	XS1M18DB210D	**XS518B1DBM12**	XS1N18NB340D	**XS518B1NBM12**
XS2M12PA370L1	**XS612B1PAL5**	XS1M18KP340	**XS518B1PAL2**	XS1N18NB349	**XS618B1NBL2**
XS2M12PA370L2	**XS612B1PAL10**	XS1M18KP340	**XS518B1PBL2**	XS1N18NB349D	**XS618B1NBM12**
XS2M12PB370	**XS612B1PBL2**	XS1M18KP340	**XS518B1NAL2**	XS1N18NC410	**XS518B1NAL2**
XS2M12PB370D	**XS612B1PBM12**	XS1M18KP340	**XS518B1NBL2**	XS1N18NC410	**XS518B1NBL2**
XS2M12PB370S	**XS612B1PBM12**	XS1M18KP340D	**XS518B1PAM12**	XS1N18NC410D	**XS518B1NAM12**
XS2M12PC410D	**XS612B1PAM12**	XS1M18KP340D	**XS518B1PBM12**	XS1N18NC410D	**XS518B1NBM12**
XS2M12PC410D	**XS612B1PBM12**	XS1M18KP340D	**XS518B1NAM12**	XS1N18NC410L1	**XS518B1NAL5**
XS2N12NA340	**XS612B1NAL2**	XS1M18KP340D	**XS518B1NBM12**	XS1N18NC410L1	**XS518B1NBL5**
XS2N12NA340D	**XS612B1NAM12**	XS1M18KP340L1	**XS518B1PAL5**	XS1N18PA340	**XS518B1PAL2**
XS2N12NA340L1	**XS612B1NAL5**	XS1M18KP340L1	**XS518B1PBL5**	XS1N18PA340D	**XS518B1PAM12**
XS2N12NA340L2	**XS612B1NAL10**	XS1M18KP340L1	**XS518B1NAL5**	XS1N18PA340L1	**XS518B1PAL5**
XS2N12NB340	**XS612B1NBL2**	XS1M18KP340L1	**XS518B1NBL5**	XS1N18PA340L2	**XS518B1PAL10**
XS2N12NB340D	**XS612B1NBM12**	XS1M18KP340L2	**XS518B1PAL10**	XS1N18PA349	**XS618B1PAL2**
XS2N12NC410	**XS612B1NAL2**	XS1M18KP340L2	**XS518B1PBL10**	XS1N18PA349D	**XS618B1PAM12**
XS2N12NC410	**XS612B1NBL2**	XS1M18KP340L2	**XS518B1NAL10**	XS1N18PA349L1	**XS618B1PAL5**
XS2N12NC410D	**XS612B1NAM12**	XS1M18KP340L2	**XS518B1NBL10**	XS1N18PA349L2	**XS618B1PAL10**
XS2N12NC410D	**XS612B1NBM12**	XS1M18NA370	**XS618B1NAL2**	XS1N18PA349S	**XS618B1PAM12**
XS2N12NC410L1	**XS612B1NAL5**	XS1M18NA370A	**XS618B1NAM12**	XS1N18PB340	**XS518B1PBL2**
XS2N12NC410L1	**XS612B1NBL5**	XS1M18NA370B	**XS618B1NAM12**	XS1N18PB340D	**XS518B1PBM12**

Old Design	New Design	Old Design	New Design	Old Design	New Design
XS1N18PB340L2	**XS518B1PBL10**	XS2N18NC410	**XS618B1NBL2**	XS1M30NA370	**XS630B1NAL2**
XS1N18PB349	**XS618B1PBL2**	XS2N18NC410D	**XS618B1NAM12**	XS1M30NA370B	**XS630B1NAM12**
XS1N18PB349D	**XS618B1PBM12**	XS2N18NC410D	**XS618B1NBM12**	XS1M30NA370C	**XS630B1NAM12**
XS1N18PB349L1	**XS618B1PBL5**	XS2N18PA340	**XS618B1PAL2**	XS1M30NA370D	**XS630B1NAM12**
XS1N18PB349L2	**XS618B1PBL10**	XS2N18PA340D	**XS618B1PAM12**	XS1M30NA370G	**XS630B1NAM12**
XS1N18PB349S	**XS618B1PBM12**	XS2N18PA340L1	**XS618B1PAL5**	XS1M30NA370L1	**XS630B1NAL5**
XS1N18PC410	**XS518B1PAL2**	XS2N18PA340L2	**XS618B1PAL10**	XS1M30NA370L2	**XS630B1NAL10**
XS1N18PC410	**XS518B1PBL2**	XS2N18PB340	**XS618B1PBL2**	XS1M30NA370T	**XS630B1NAL2T**
XS1N18PC410D	**XS518B1PAM12**	XS2N18PB340D	**XS618B1PBM12**	XS1M30NB370	**XS630B1NBL2**
XS1N18PC410D	**XS518B1PBM12**	XS2N18PC410	**XS618B1PAL2**	XS1M30NB370B	**XS630B1NBM12**
XS1N18PC410L1	**XS518B1PAL5**	XS2N18PC410	**XS618B1PBL2**	XS1M30NB370D	**XS630B1NBM12**
XS1N18PC410L1	**XS518B1PBL5**	XS2N18PC410D	**XS618B1PAM12**	XS1M30PA349C	**XS630B1PAM12**
XS1N18PC410P	**XS518B1PAL10**	XS2N18PC410D	**XS618B1PBM12**	XS1M30PA349D	**XS630B1PAM12**
XS1N18PC410P	**XS518B1PBL10**	XS2N18PC410L1	**XS618B1PAL5**	XS1M30PA370	**XS630B1PAL2**
XS2M18KP340	**XS618B1PAL2**	XS2N18PC410L1	**XS618B1PBL5**	XS1M30PA370A	**XS630B1PAM12**
XS2M18KP340	**XS618B1PBL2**	XS3P18NA340	**XS518B1NAL2**	XS1M30PA370B	**XS630B1PAM12**
XS2M18KP340	**XS618B1NAL2**	XS3P18NA340D	**XS518B1NAM12**	XS1M30PA370C	**XS630B1PAM12**
XS2M18KP340	**XS618B1NBL2**	XS3P18NA370	**XS618B1NAL2**	XS1M30PA370D	**XS630B1PAM12**
XS2M18KP340D	**XS618B1PAM12**	XS3P18PA340	**XS518B1PAL2**	XS1M30PA370G	**XS630B1PAM12**
XS2M18KP340D	**XS618B1PBM12**	XS3P18PA340D	**XS518B1PAM12**	XS1M30PA370L1	**XS630B1PAL5**
XS2M18KP340D	**XS618B1NAM12**	XS3P18PA340L1	**XS518B1PAL5**	XS1M30PA370L2	**XS630B1PAL10**
XS2M18KP340D	**XS618B1NBM12**	XS3P18PA370	**XS618B1PAL2**	XS1M30PA370T	**XS630B1PAL2T**
XS2M18KP340L1	**XS618B1PAL5**	**30 mm Cylindrical ⎓**		XS1M30PB370	**XS630B1PBL2**
XS2M18KP340L1	**XS618B1PBL5**	XS1M30DA210	**XS530B1DAL2**	XS1M30PB370B	**XS630B1PBM12**
XS2M18KP340L1	**XS618B1NAL5**	XS1M30DA210B	**XS530B1DAM12**	XS1M30PB370C	**XS630B1PBM12**
XS2M18KP340L1	**XS618B1NBL5**	XS1M30DA210C	**XS530B1DAM12**	XS1M30PB370D	**XS630B1PBM12**
XS2M18KP340L2	**XS618B1PAL10**	XS1M30DA210D	**XS530B1DAM12**	XS1M30PB370G	**XS630B1PBM12**
XS2M18KP340L2	**XS618B1PBL10**	XS1M30DA210G	**XS530B1DAM12**	XS1M30PB370L1	**XS630B1PBL5**
XS2M18KP340L2	**XS618B1NAL10**	XS1M30DA210L1	**XS530B1DAL5**	XS1M30PB370L2	**XS630B1PBL10**
XS2M18KP340L2	**XS618B1NBL10**	XS1M30DA210L2	**XS530B1DAL10**	XS1N30NA340	**XS530B1NAL2**
XS2M18NA370	**XS618B1NAL2**	XS1M30DA210LA	**XS530B1DAM12**	XS1N30NA340D	**XS530B1NAM12**
XS2M18NA370C	**XS618B1NAM12**	XS1M30DA210LD	**XS530B1DAM12**	XS1N30NA349	**XS630B1NAL2**
XS2M18NA370D	**XS618B1NAM12**	XS1M30DB210	**XS530B1DBL2**	XS1N30NA349D	**XS630B1NAM12**
XS2M18NA370L1	**XS618B1NAL5**	XS1M30DB210B	**XS530B1DBM12**	XS1N30NA349L1	**XS630B1NAL5**
XS2M18NA370L2	**XS618B1NAL10**	XS1M30DB210D	**XS530B1DBM12**	XS1N30NA349L2	**XS630B1NAL10**
XS2M18NA370T	**XS618B1NAM12T**	XS1M30KP340	**XS530B1PAL2**	XS1N30NB340	**XS530B1NBL2**
XS2M18NB370	**XS618B1NBL2**	XS1M30KP340	**XS530B1PBL2**	XS1N30NB349	**XS630B1NBL2**
XS2M18NB370D	**XS618B1NBM12**	XS1M30KP340	**XS530B1NAL2**	XS1N30NB349D	**XS630B1NBM12**
XS2M18PA370	**XS618B1PAL2**	XS1M30KP340	**XS530B1NBL2**	XS1N30NC410	**XS530B1NAL2**
XS2M18PA370C	**XS618B1PAM12**	XS1M30KP340D	**XS530B1PAM12**	XS1N30NC410	**XS530B1NBL2**
XS2M18PA370D	**XS618B1PAM12**	XS1M30KP340D	**XS308B1PBM12**	XS1N30NC410D	**XS530B1NAM12**
XS2M18PA370G	**XS618B1PAM12**	XS1M30KP340D	**XS530B1NAM12**	XS1N30NC410D	**XS530B1NBM12**
XS2M18PA370L1	**XS618B1PAL5**	XS1M30KP340D	**XS530B1NBM12**	XS1N30PA340	**XS530B1PAL2**
XS2M18PA370L2	**XS618B1PAL10**	XS1M30KP340L1	**XS530B1PAL5**	XS1N30PA340D	**XS530B1PAM12**
XS2M18PA370T	**XS618B1PAL2T**	XS1M30KP340L1	**XS530B1PBL5**	XS1N30PA340L1	**XS530B1PAL5**
XS2M18PB370	**XS618B1PBL2**	XS1M30KP340L1	**XS530B1NAL5**	XS1N30PA340L2	**XS530B1PAL10**
XS2M18PB370C	**XS618B1PBM12**	XS1M30KP340L1	**XS530B1NBL6**	XS1N30PA349	**XS630B1PAL2**
XS2M18PB370D	**XS618B1PBM12**	XS1M30KP340L2	**XS530B1PAL10**	XS1N30PA349D	**XS630B1PAM12**
XS2M18PB370G	**XS618B1PBM12**	XS1M30KP340L2	**XS530B1PBL10**	XS1N30PA349L1	**XS630B1PAL5**
XS2M18PB370L1	**XS618B1PBL5**	XS1M30KP340L2	**XS530B1NAL10**	XS1N30PA349L2	**XS630B1PAL10**
XS2M18PB370L2	**XS618B1PBL10**	XS1M30KP340L2	**XS530B1NBL10**	XS1N30PA349S	**XS630B1PAM12**
XS2N18NA340	**XS618B1NAL2**	XS1M30KP370	**XS630B1PAL2**	XS1N30PB340	**XS530B1PBL2**
XS2N18NA340D	**XS618B1NAM12**	XS1M30KP370	**XS630B1PBL2**	XS1N30PB340D	**XS530B1PBM12**
XS2N18NA340L1	**XS618B1NAL5**	XS1M30KP370	**XS630B1NAL2**	XS1N30PB349	**XS630B1PBL2**
XS2N18NC410	**XS618B1NAL2**	XS1M30KP370	**XS630B1NBL2**	XS1N30PB349D	**XS630B1PBM12**

Old Design	New Design	Old Design	New Design	Old Design	New Design
XS1N30PB349L1	**XS630B1PBL5**	XS2N30PB340D	**XS630B1PBM12**	XS1M18MA230B	**XS618B1MAU20**
XS1N30PB349L2	**XS630B1PBL10**	XS2N30PC410	**XS630B1PAL2**	XS1M18MA230C	**XS618B1MAU20**
XS1N30PC410	**XS530B1PAL2**	XS2N30PC410	**XS630B1PBL2**	XS1M18MA230G	**XS618B1MAU20**
XS1N30PC410	**XS530B1PBL2**	XS2N30PC410D	**XS630B1PAM12**	XS1M18MA230K	**XS618B1MAU20**
XS1N30PC410D	**XS530B1PAM12**	XS2N30PC410D	**XS630B1PBM12**	XS1M18MA230L1	**XS618B1MAL5**
XS1N30PC410D	**XS530B1PBM12**	XS2N30PC410L1	**XS630B1PAL5**	XS1M18MA230L2	**XS618B1MAL10**
XS1N30PC410L1	**XS530B1PAL5**	XS2N30PC410L1	**XS630B1PBL5**	XS1M18MA230T	**XS618B1MAL2T**
XS1N30PC410L1	**XS530B1PBL5**	XS3P30NA340	**XS530B1NAL2**	XS1M18MA239	**XS618B1MAL2**
XS1N30PC410L2	**XS530B1PAL10**	XS3P30NA340D	**XS530B1NAM12**	XS1M18MA239A	**XS618B1MAU20**
XS1N30PC410L2	**XS530B1PBL10**	XS3P30NA370	**XS630B1NAL2**	XS1M18MA239K	**XS618B1MAU20**
XS2M30KP340	**XS630B1PAL2**	XS3P30PA340	**XS530B1PAL2**	XS1M18MA250	**XS618B1MAL2**
XS2M30KP340	**XS630B1PAL2**	XS3P30PA340D	**XS530B1PAM12**	XS1M18MA250A	**XS618B1MAU20**
XS2M30KP340	**XS630B1PAL2**	XS3P30PA340L1	**XS530B1PAL5**	XS1M18MA250H4	**XS618B1MAL2**
XS2M30KP340	**XS630B1PAL2**	XS3P30PA340L2	**XS530B1PAL10**	XS1M18MA250K	**XS618B1MAU20**
XS2M30KP340D	**XS630B1PAM12**	XS3P30PA370	**XS630B1PAL2**	XS1M18MA250KH4	**XS618B1MAU20**
XS2M30KP340D	**XS630B1PAM12**	XS3P30PA370L1	**XS630B1PAL5**	XS1M18MA250L1	**XS618B1MAL5**
XS2M30KP340D	**XS630B1PAM12**	XS3P30PA370L2	**XS630B1PAL10**	XS1M18MA250L2	**XS618B1MAL10**
XS2M30KP340D	**XS630B1PAM12**	**12 mm Cylindrical ∿**		XS1M18MB230	**XS618B1MBL2**
XS2M30KP340L1	**XS630B1PAL5**	XS1M12MA230	**XS612B1MAL2**	XS1M18MB230A	**XS618B1MBU20**
XS2M30KP340L1	**XS630B1PAL5**	XS1M12MA230K	**XS612B1MAU20**	XS1M18MB230B	**XS618B1MBU20**
XS2M30KP340L1	**XS630B1PAL5**	XS1M12MA230L1	**XS612B1MAL5**	XS1M18MB230C	**XS618B1MBU20**
XS2M30KP340L1	**XS630B1PAL5**	XS1M12MA230L2	**XS612B1MAL10**	XS1M18MB230G	**XS618B1MBU20**
XS2M30KP340L2	**XS630B1PAL10**	XS1M12MA239	**XS612B1MAL2**	XS1M18MB230K	**XS618B1MBU20**
XS2M30KP340L2	**XS630B1PAL10**	XS1M12MA239K	**XS612B1MAU20**	XS1M18MB230L1	**XS618B1MBL5**
XS2M30KP340L2	**XS630B1PAL10**	XS1M12MA250	**XS612B1MAL2**	XS1M18MB230L2	**XS618B1MBL10**
XS2M30KP340L2	**XS630B1PAL10**	XS1M12MA250K	**XS612B1MAU20**	XS1M18MB250	**XS618B1MBL2**
XS2M30NA370	**XS630B1NAL2**	XS1M12MA250L1	**XS612B1MAL5**	XS1M18MB250A	**XS618B1MBU20**
XS2M30NA370D	**XS630B1NAM12**	XS1M12MA250L2	**XS612B1MAL10**	XS1M18MB250K	**XS618B1MBU20**
XS2M30NA370L1	**XS630B1NAL5**	XS1M12MB230	**XS612B1MBL2**	XS1M18MB250L1	**XS618B1MBL5**
XS2M30NB370	**XS630B1NBL2**	XS1M12MB230K	**XS612B1MBU20**	XS1M18MB250L2	**XS618B1MBL10**
XS2M30NB370D	**XS630B1NBM12**	XS1M12MB230L1	**XS612B1MBL5**	XS2M18DA210L2	**XS612B1MAL10**
XS2M30PA370	**XS630B1PAL2**	XS1M12MB230L2	**XS612B1MBL10**	XS2M18MA230	**XS618B1MAL2**
XS2M30PA370C	**XS630B1PAM12**	XS1M12MB250	**XS612B1MBL2**	XS2M18MA230A	**XS618B1MAU20**
XS2M30PA370D	**XS630B1PAM12**	XS2M12MA230	**XS612B1MAL2**	XS2M18MA230C	**XS618B1MAU20**
XS2M30PA370G	**XS630B1PAM12**	XS2M12MA230K	**XS612B1MAU20**	XS2M18MA230G	**XS618B1MAU20**
XS2M30PA370L1	**XS630B1PAL5**	XS2M12MA230L1	**XS612B1MAL5**	XS2M18MA230K	**XS618B1MAU20**
XS2M30PA370L2	**XS630B1PAL10**	XS2M12MA230L2	**XS612B1MAL10**	XS2M18MA230L1	**XS618B1MAL5**
XS2M30PA370T	**XS630B1PAL2T**	XS2M12MA250	**XS612B1MAL2**	XS2M18MA230L2	**XS618B1MAL10**
XS2M30PB370	**XS630B1PBL2**	XS2M12MA250K	**XS612B1MAU20**	XS2M18MA230T	**XS618B1MAL2T**
XS2M30PB370C	**XS630B1PBM12**	XS2M12MA250L1	**XS612B1MAL5**	XS2M18MA250	**XS618B1MAL2**
XS2M30PB370D	**XS630B1PBM12**	XS2M12MA250L2	**XS612B1MAL10**	XS2M18MA250A	**XS618B1MAU20**
XS2M30PB370L1	**XS630B1PBL5**	XS2M12MB230	**XS612B1MBL2**	XS2M18MA250K	**XS618B1MAU20**
XS2M30PB370L2	**XS630B1PBL10**	XS2M12MB230K	**XS612B1MBU20**	XS2M18MA250L1	**XS618B1MAL5**
XS2N30NA340	**XS630B1NAL2**	XS2M12MB230L1	**XS612B1MBL5**	XS2M18MA250L2	**XS618B1MAL10**
XS2N30NA340D	**XS630B1NAM12**	XS2M12MB230L2	**XS612B1MBL10**	XS2M18MB230	**XS618B1MBL2**
XS2N30NB340	**XS630B1NBL2**	XS2M12MB250	**XS612B1MBL2**	XS2M18MB230A	**XS618B1MBU20**
XS2N30NC410	**XS630B1NAL2**	XS2M12MB250L1	**XS612B1MBL5**	XS2M18MB230C	**XS618B1MBU20**
XS2N30NC410	**XS630B1NBL2**	XS2M12MB250L2	**XS612B1MBL10**	XS2M18MB230G	**XS618B1MBU20**
XS2N30NC410D	**XS630B1NAM12**	XS3P12MA230	**XS612B1MAL2**	XS2M18MB230K	**XS618B1MBU20**
XS2N30NC410D	**XS630B1NBM12**	XS3P12MA230K	**XS612B1MAU20**	XS2M18MB230L1	**XS618B1MBL5**
XS2N30PA340	**XS630B1PAL2**	XS3P12MA230L1	**XS612B1MAL5**	XS2M18MB230L2	**XS618B1MBL10**
XS2N30PA340D	**XS630B1PAM12**	XS3P12MB230	**XS612B1MBL2**	XS2M18MB250	**XS618B1MBL2**
XS2N30PA340L1	**XS630B1PAL5**	**18 mm Cylindrical ∿**		XS2M18MB250A	**XS618B1MBU20**
XS2N30PA340L2	**XS630B1PAL10**	XS1M18MA230	**XS618B1MAL2**	XS2M18MB250K	**XS618B1MBU20**
XS2N30PB340	**XS630B1PBL2**	XS1M18MA230A	**XS618B1MAU20**	XS2M18MB250L1	**XS618B1MBL5**

Old Design	New Design
XS2M18MB250L2	**XS618B1MBL10**
XS3P18MA230	**XS618B1MAL2**
XS3P18MA230A	**XS618B1MAU20**
XS3P18MA230K	**XS618B1MAU20**
XS3P18MA230L1	**XS618B1MAL5**
XS3P18MA230L2	**XS618B1MAL10**
XS3P18MB230	**XS618B1MBL2**
XS3P18MB230A	**XS618B1MBU20**
XS3P18MB230K	**XS618B1MBU20**
XS3P18MB230L1	**XS618B1MBL5**
30 mm Cylindrical ∿	
XS1M30MA230	**XS630B1MAL2**
XS1M30MA230A	**XS630B1MAU20**
XS1M30MA230B	**XS630B1MAU20**
XS1M30MA230C	**XS630B1MAU20**
XS1M30MA230G	**XS630B1MAU20**
XS1M30MA230K	**XS630B1MAU20**
XS1M30MA230L1	**XS630B1MAL5**
XS1M30MA230L2	**XS630B1MAL10**
XS1M30MA230T	**XS630B1MAL2T**
XS1M30MA239	**XS630B1MAL2**
XS1M30MA239A	**XS630B1MAU20**
XS1M30MA250	**XS630B1MAL2**
XS1M30MA250A	**XS630B1MAU20**
XS1M30MA250AH4	**XS630B1MAU20**
XS1M30MA250H4	**XS630B1MAL2**
XS1M30MA250K	**XS630B1MAU20**
XS1M30MA250KH4	**XS630B1MAU20**
XS1M30MA250L1	**XS630B1MAL5**
XS1M30MA250L2	**XS630B1MAL10**
XS1M30MB230	**XS630B1MBL2**
XS1M30MB230A	**XS630B1MBU20**
XS1M30MB230B	**XS630B1MBU20**
XS1M30MB230C	**XS630B1MBU20**
XS1M30MB230G	**XS630B1MBU20**
XS1M30MB230K	**XS630B1MBU20**
XS1M30MB230L1	**XS630B1MBL5**
XS1M30MB230L2	**XS630B1MBL10**
XS1M30MB250	**XS630B1MBL2**
XS1M30MB250A	**XS630B1MBU20**
XS1M30MB250K	**XS630B1MBU20**
XS1M30MB250L1	**XS630B1MBL5**
XS1M30MB250L2	**XS630B1MBL10**
XS2M30MA230	**XS630B1MAL2**
XS2M30MA230A	**XS630B1MAU20**
XS2M30MA230C	**XS630B1MAU20**
XS2M30MA230G	**XS630B1MAU20**
XS2M30MA230K	**XS630B1MAU20**
XS2M30MA230L1	**XS630B1MAL5**
XS2M30MA230L2	**XS630B1MAL10**
XS2M30MA230T	**XS630B1MAL2T**
XS2M30MA250	**XS630B1MAL2**
XS2M30MA250K	**XS630B1MAU20**
XS2M30MA250L1	**XS630B1MAL5**
XS2M30MA250L2	**XS630B1MAL10**
XS2M30MB230	**XS630B1MBL2**
XS2M30MB230A	**XS630B1MBU20**
XS2M30MB230C	**XS630B1MBU20**
XS2M30MB230G	**XS630B1MBU20**
XS2M30MB230K	**XS630B1MBU20**
XS2M30MB230L1	**XS630B1MBL5**
XS2M30MB230L2	**XS630B1MBL10**
XS2M30MB250	**XS630B1MBL2**
XS2M30MB250K	**XS630B1MBU20**
XS2M30MB250L1	**XS630B1MBL5**
XS3P30MA230	**XS630B1MAL2**
XS3P30MA230A	**XS630B1MAU20**
XS3P30MA230K	**XS630B1MAU20**
XS3P30MA230L1	**XS630B1MAL5**
XS3P30MA230L2	**XS630B1MAL10**
XS3P30MB230	**XS630B1MBL2**
XS3P30MB230A	**XS630B1MBU20**
XS3P30MB230K	**XS630B1MBU20**
XS3P30MB230L1	**XS630B1MBL5**
XSC Rectangular ∿	
XSCA150549	**XS8C1A1MAL01U20 + XSZBC10**
XSCA150549	**XS8C1A1MBL01U20 + XSZBC10**
XSD Rectangular ∿	
XSDA400519	**XS8D1A1MAU20 + XSZBD10**
XSDA400519	**XS8D1A1MBU20 + XSZBD10**
XSDA400519H7	**XS8D1A1MAU20 + XSZBD10**
XSDA400519H7	**XS8D1A1MBU20 + XSZBD10**
XSDA500519	**XS8D1A1MAU20 + XSZBD10**
XSDA500519	**XS8D1A1MBU20 + XSZBD10**
XSDA500519H7	**XS8D1A1MAU20 + XSZBD10**
XSDA500519H7	**XS8D1A1MBU20 + XSZBD10**
XSDA505539H4	**XS8D1A1MAU20 + XSZBD10**
XSDA505539H4	**XS8D1A1MBU20 + XSZBD10**
XSDA600519	**XS8D1A1MAU20 + XSZBD10**
XSDA600519	**XS8D1A1MBU20 + XSZBD10**
XSDA600519H7	**XS8D1A1MAU20 + XSZBD10**
XSDA600519H7	**XS8D1A1MBU20 + XSZBD10**
XSDM500538	**XS8D1A1MAU20 + XSZBD10**
XSDM500538	**XS8D1A1MBU20 + XSZBD10**
XSDM600539	**XS8D1A1MAU20 + XSZBD10**
XSDM600539	**XS8D1A1MBU20 + XSZBD10**
XSDM600539H7	**XS8D1A1MAU20 + XSZBD10**
XSDM600539H7	**XS8D1A1MBU20 + XSZBD10**
XS7 Rectangular ⎓	
XS7C40DA210	**XS7C1A1DAM8 + XSZBC10**
XS7C40DA210A	**XS7C1A1DAM8 + XSZBC10**
XS7C40DA214D	**XS7C1A1CAL08M12 + XSZBC10**
XS7C40DP210	**XS7C1A1DAM8 + XSZBC10**
XS7C40DP210	**XS7C1A1DBM8 + XSZBC10**
XS7C40DP210H29	**XS7C1A1DAM8 + XSZBC10**
XS7C40DP210H29	**XS7C1A1DBM8 + XSZBC10**
XS7C40DP210H7	**XS7C1A1DAM8 + XSZBC10**
XS7C40DP210H7	**XS7C1A1DBM8 + XSZBC10**
XS7C40DP210TT	**XS7C1A1DAM8 + XSZBC10**
XS7C40DP210TT	**XS7C1A1DBM8 + XSZBC10**
XS7C40DP210TF	**XS7C1A1DAM8 + XSZBC10**
XS7C40DP210TF	**XS7C1A1DBM8 + XSZBC10**
XS7C40KPM40	**XS9C11MPAM8 + XSZBC10**
XS7C40KPM40	**XS9C11MPBM8 + XSZBC10**
XS7C40KPM40	**XS9C11MNAM8 + XSZBC10**
XS7C40KPM40	**XS9C11MPBM8 + XSZBC10**
XS7C40KPM40H29	**XS9C11MPAM8 + XSZBC10**
XS7C40KPM40H29	**XS9C11MPBM8 + XSZBC10**
XS7C40KPM40H29	**XS9C11MNAM8 + XSZBC10**
XS7C40KPM40H29	**XS9C11MPBM8 + XSZBC10**
XS7C40KPM40H7	**XS9C11MPAM8 + XSZBC10**
XS7C40KPM40H7	**XS9C11MPBM8 + XSZBC10**
XS7C40KPM40H7	**XS9C11MNAM8 + XSZBC10**
XS7C40KPM40H7	**XS9C11MPBM8 + XSZBC10**
XS7C40NC440	**XS7C1A1NAM8 + XSZBC10**
XS7C40NC440	**XS7C1A1NBM8 + XSZBC10**
XS7C40NC440D	**XS7C1A1NAM8 + XSZBC10**
XS7C40NC440D	**XS7C1A1NBM8 + XSZBC10**
XS7C40NC440H29	**XS7C1A1NAM8 + XSZBC10**
XS7C40NC440H29	**XS7C1A1NBM8 + XSZBC10**
XS7C40NC449	**XS8C1A1NAM8 + XSZBC10**
XS7C40NC449	**XS8C1A1NBM8 + XSZBC10**
XS7C40NC449H29	**XS8C1A1NAM8 + XSZBC10**
XS7C40NC449H29	**XS8C1A1NBM8 + XSZBC10**
XS7C40PC440	**XS7C1A1PAM8 + XSZBC10**
XS7C40PC440	**XS7C1A1PBM8 + XSZBC10**
XS7C40PC440D	**XS7C1A1PAM8 + XSZBC10**
XS7C40PC440D	**XS7C1A1PBM8 + XSZBC10**
XS7C40PC440H29	**XS7C1A1PAM8 + XSZBC10**
XS7C40PC440H29	**XS7C1A1PBM8 + XSZBC10**
XS7C40PC440H7	**XS7C1A1PAM8 + XSZBC10**
XS7C40PC440H7	**XS7C1A1PBM8 + XSZBC10**
XS7C40PC449	**XS8C1A1PAM8 + XSZBC10**
XS7C40PC449	**XS8C1A1PBM8 + XSZBC10**
XS7C40PC449H29	**XS8C1A1PAM8 + XSZBC10**
XS7C40PC449H29	**XS8C1A1PBM8 + XSZBC10**
XS7C40PC449H7	**XS8C1A1PAM8 + XSZBC10**
XS7C40PC449H7	**XS8C1A1PBM8 + XSZBC10**
XS7T2DA210	**XS7E1A1DAL2 + XSZBE10**
XS7T2DA214LD	**XS7E1A1CAL08M12 + XSZBE10**
XS7T2DA214LD01	**XS7E1A1CAL01M12 + XSZBE10**
XS7T2NC440	**XS7E1A1NAL2 + XSZBE10**
XS7T2NC440	**XS7E1A1NBL2 + XSZBE10**
XS7T2NC440LD	**XS7E1A1NAL01M12 + XSZBE10**
XS7T2NC440LD	**XS7E1A1NBL01M12 + XSZBE10**
XS7T2PC440	**XS7E1A1PAL2 + XSZBE10**
XS7T2PC440	**XS7E1A1PBL2 + XSZBE10**
XS7T2PC440LD	**XS7E1A1PAL08M12 + XSZBE10**
XS7T2PC440LD	**XS7E1A1PBL08M12 + XSZBE10**
XS7T4DA210	**XS7C1A1DAL2 + XSZBC10**
XS7T4DA214LD	**XS7C1A1CAL08M12 + XSZBC10**
XS7T4DA214LD01	**XS7C1A1CAL01M12 + XSZBC10**
XS7T4NC440	**XS7C1A1NAL2 + XSZBC10**
XS7T4NC440	**XS7C1A1NBL2 + XSZBC10**
XS7T4NC440LD	**XS7C1A1NAL01M12 + XSZBC10**

Old Design	New Design
XS7T4NC440LD	**XS7C1A1NBL01M12 + XSZBC10**
XS7T4PC440	**XS7C1A1PAL2 + XSZBC10**
XS7T4PC440	**XS7C1A1PBL2 + XSZBC10**
XS7T4PC440LD	**XS7C1A1PAL01M12 + XSZBC10**
XS7T4PC440LD	**XS7C1A1PBL01M12 + XSZBC10**
XS8 Rectangular ⎓	
XS8C40DA210	**XS7C1A1DAL01M12 + XSZBC10**
XS8C40DP210	**XS8C1A1DAM8 + XSZBC10**
XS8C40DP210	**XS8C1A1DBM8 + XSZBC10**
XS8C40DP210H29	**XS8C1A1DAM8 + XSZBC10**
XS8C40DP210H29	**XS8C1A1DBM8 + XSZBC10**
XS8C40DP210H7	**XS8C1A1DAM8 + XSZBC10**
XS8C40DP210H7	**XS8C1A1DBM8 + XSZBC10**
XS8C40NC440	**XS8C1A1NAM8 + XSZBC10**
XS8C40NC440	**XS8C1A1NBM8 + XSZBC10**
XS8C40NC440H29	**XS8C1A1NAM8 + XSZBC10**
XS8C40NC440H29	**XS8C1A1NBM8 + XSZBC10**
XS8C40NC449	**XS8C1A1NAM8 + XSZBC10**
XS8C40NC449	**XS8C1A1NBM8 + XSZBC10**
XS8C40NC449H29	**XS8C1A1NAM8 + XSZBC10**
XS8C40NC449H29	**XS8C1A1NBM8 + XSZBC10**
XS8C40NC449H7	**XS8C1A1NAM8 + XSZBC10**
XS8C40NC449H7	**XS8C1A1NBM8 + XSZBC10**
XS8C40PC440	**XS8C1A1PAM8 + XSZBC10**
XS8C40PC440	**XS8C1A1PBM8 + XSZBC10**
XS8C40PC440D	**XS8C1A1PAL01M12 + XSZBC10**
XS8C40PC440D	**XS8C1A1PAL01M12 + XSZBC10**
XS8C40PC440H29	**XS8C1A1PAM8 + XSZBC10**
XS8C40PC440H29	**XS8C1A1PBM8 + XSZBC10**
XS8C40PC440H7	**XS8C1A1PAM8 + XSZBC10**
XS8C40PC440H7	**XS8C1A1PBM8 + XSZBC10**
XS8C40PC449	**XS8C1A1PAM8 + XSZBC10**
XS8C40PC449	**XS8C1A1PBM8 + XSZBC10**
XS8C40PC449D	**XS8C1A1PAL01M12 + XSZBC10**
XS8C40PC449D	**XS8C1A1PAL01M12 + XSZBC10**
XS8C40PC449H29	**XS8C1A1PAM8 + XSZBC10**
XS8C40PC449H29	**XS8C1A1PBM8 + XSZBC10**
XS8C40PC449H7	**XS8C1A1PAM8 + XSZBC10**
XS8C40PC449H7	**XS8C1A1PBM8 + XSZBC10**
XS8T2NC440	**XS8E1A1NAL2 + XSZBE10**
XS8T2NC440	**XS8E1A1NBL2 + XSZBE10**
XS8T2NC440LD	**XS8E1A1NAL01M12 + XSZBE10**
XS8T2NC440LD	**XS8E1A1NBL01M12 + XSZBE10**
XS8T2PC440	**XS8E1A1PAL2 + XSZBE10**
XS8T2PC440	**XS8E1A1PBL2 + XSZBE10**
XS8T2PC440LD	**XS8E1A1PAL01M12 + XSZBE10**
XS8T2PC440LD	**XS8E1A1PBL01M12 + XSZBE10**
XS8T4NC440	**XS8C1A1NAL2 + XSZBC10**
XS8T4NC440	**XS8C1A1NBL2 + XSZBC10**
XS8T4NC440LD	**XS8C1A1NAL01M12 + XSZBC10**
XS8T4NC440LD	**XS8C1A1NBL01M12 + XSZBC10**
XS8T4PC440	**XS8C1A1PAL2 + XSZBC10**
XS8T4PC440	**XS8C1A1PBL2 + XSZBC10**
XS8T4PC440LD	**XS8C1A1PAL01M12 + XSZBC10**
XS8T4PC440LD	**XS8C1A1PBL01M12 + XSZBC10**
XS7 Rectangular ∿	
XS7C40DA210	**XS8C1A1MAL01U20 + XSZBC10**
XS7C40DA210A	**XS8C1A1MAL01U20 + XSZBC10**
XS7C40DP210	**XS8C1A1MAL01U20 + XSZBC10**
XS7C40DP210	**XS8C1A1MBL01U20 + XSZBC10**
XS7C40DP210H29	**XS8C1A1MAL01U20 + XSZBC10**
XS7C40DP210H29	**XS8C1A1MBL01U20 + XSZBC10**
XS7C40DP210H7	**XS8C1A1MAL01U20 + XSZBC10**
XS7C40DP210H7	**XS8C1A1MBL01U20 + XSZBC10**
XS7C40DP210TT	**XS8C1A1MAL01U20 + XSZBC10**
XS7C40DP210TT	**XS8C1A1MBL01U20 + XSZBC10**
XS7C40DP210TF	**XS8C1A1MAL01U20 + XSZBC10**
XS7C40DP210TF	**XS8C1A1MBL01U20 + XSZBC10**
XS7C40FP260	**XS8C1A1MAL01U20 + XSZBC10**
XS7C40FP260	**XS8C1A1MBL01U20 + XSZBC10**
XS7C40FP260A	**XS8C1A1MAL01U20 + XSZBC10**
XS7C40FP260A	**XS8C1A1MBL01U20 + XSZBC10**
XS7C40FP260H29	**XS8C1A1MAL01U20 + XSZBC10**
XS7C40FP260H29	**XS8C1A1MBL01U20 + XSZBC10**
XS7C40FP260H7	**XS8C1A1MAL01U20 + XSZBC10**
XS7C40FP260H7	**XS8C1A1MBL01U20 + XSZBC10**
XS7C40FP260TF	**XS8C1A1MAL01U20 + XSZBC10**
XS7C40FP260TF	**XS8C1A1MBL01U20 + XSZBC10**
XS7C40FP260TT	**XS8C1A1MAL01U20 + XSZBC10**
XS7C40FP260TT	**XS8C1A1MBL01U20 + XSZBC10**
XS7C40MP230	**XS8C1A1MAL01U20 + XSZBC10**
XS7C40MP230	**XS8C1A1MBL01U20 + XSZBC10**
XS7C40MP230A	**XS8C1A1MAL01U20 + XSZBC10**
XS7C40MP230A	**XS8C1A1MBL01U20 + XSZBC10**
XS7C40MP230H29	**XS8C1A1MAL01U20 + XSZBC10**
XS7C40MP230H29	**XS8C1A1MBL01U20 + XSZBC10**
XS7C40MP230H7	**XS8C1A1MAL01U20 + XSZBC10**
XS7C40MP230H7	**XS8C1A1MBL01U20 + XSZBC10**
XS7C40MP230TF	**XS8C1A1MAL01U20 + XSZBC10**
XS7C40MP230TF	**XS8C1A1MBL01U20 + XSZBC10**
XS7C40MP230TT	**XS8C1A1MAL01U20 + XSZBC10**
XS7C40MP230TT	**XS8C1A1MBL01U20 + XSZBC10**
XS8 Rectangular ∿	
XS8C40DA210	**XS8C1A1MAL01U20 + XSZBC10**
XS8C40DP210	**XS8C1A1MAL01U20 + XSZBC10**
XS8C40DP210	**XS8C1A1MBL01U20 + XSZBC10**
XS8C40DP210H29	**XS8C1A1MAL01U20 + XSZBC10**
XS8C40DP210H29	**XS8C1A1MBL01U20 + XSZBC10**
XS8C40DP210H7	**XS8C1A1MAL01U20 + XSZBC10**
XS8C40DP210H7	**XS8C1A1MBL01U20 + XSZBC10**
XS8C40FP260	**XS8C1A1MAL01U20 + XSZBC10**
XS8C40FP260	**XS8C1A1MBL01U20 + XSZBC10**
XS8C40FP260H29	**XS8C1A1MAL01U20 + XSZBC10**
XS8C40FP260H29	**XS8C1A1MBL01U20 + XSZBC10**
XS8C40MP230	**XS8C1A1MAL01U20 + XSZBC10**
XS8C40MP230	**XS8C1A1MBL01U20 + XSZBC10**
XS8C40MP230	**XS8C1A1MAL01U20 + XSZBC10**
XS8C40MP230	**XS8C1A1MBL01U20 + XSZBC10**
XS8C40MP230H29	**XS8C1A1MAL01U20 + XSZBC10**
XS8C40MP230H29	**XS8C1A1MBL01U20 + XSZBC10**
XS8C40MP230H7	**XS8C1A1MAL01U20 + XSZBC10**
XS8C40MP230H7	**XS8C1A1MBL01U20 + XSZBC10**
XSD Rectangular ⎓	
XSDC407138	**XS7D1A1DAM12 + XSZBD10**
XSDC407139	**XS7D1A1DAM12 + XSZBD10**
XSDC407139D4	**XS7D1A1DAM12 + XSZBD10**
XSDC407139H7	**XS7D1A1DAM12 + XSZBD10**
XSDC407139LD	**XS7D1A1DAM12 + XSZBD10**
XSDC407139LD01	**XS7D1A1DAM12 + XSZBD10**
XSDC507139	**XS7D1A1DAM12 + XSZBD10**
XSDC607139	**XS7D1A1DAM12 + XSZBD10**
XSDC607139H7	**XS7D1A1DAM12 + XSZBD10**
XSDC607139LD	**XS7D1A1DAM12 + XSZBD10**
XSDC607139LD01	**XS7D1A1DAM12 + XSZBD10**
XSDC607319	**XS7D1A1DAM12 + XSZBD10**
XSDC607319	**XS7D1A1DBM12 + XSZBD10**
XSDH407339	**XS8D1A1PAM12 + XSZBD10**
XSDH407339	**XS8D1A1PBM12 + XSZBD10**
XSDH407339H7	**XS8D1A1PAM12 + XSZBD10**
XSDH407339H7	**XS8D1A1PBM12 + XSZBD10**
XSDH607339	**XS8D1A1PAM12 + XSZBD10**
XSDH607339	**XS8D1A1PBM12 + XSZBD10**
XSDH607339H7	**XS8D1A1PAM12 + XSZBD10**
XSDH607339H7	**XS8D1A1PBM12 + XSZBD10**
XSDH607339TF	**XS8D1A1PAM12 + XSZBD10**
XSDH607339TF	**XS8D1A1PBM12 + XSZBD10**
XSDJ407339	**XS8D1A1NAM12 + XSZBD10**
XSDJ407339	**XS8D1A1NBM12 + XSZBD10**
XSDJ407339H7	**XS8D1A1NAM12 + XSZBD10**
XSDJ407339H7	**XS8D1A1NBM12 + XSZBD10**
XSDJ607339	**XS8D1A1NAM12 + XSZBD10**
XSDJ607339	**XS8D1A1NBM12 + XSZBD10**
XSDJ607339H7	**XS8D1A1NAM12 + XSZBD10**
XSDJ607339H7	**XS8D1A1NBM12 + XSZBD10**
XSE Rectangular ⎓	
XSEC107130	**XS7E1A1DAL01M12 + XSZBE10**
XSEC1071300	**XS7E1A1DAL2 + XSZBE10**
XSEC1071300L05	**XS7E1A1DAL01M12 + XSZBE10**
XSEC1071301	**XS7E1A1DAL01M12 + XSZBE10**
XSEC1071302	**XS7E1A1DAL01M12 + XSZBE10**
XSEC1071304	**XS7E1A1DAL01M12 + XSZBE10**
XSEC107130D4	**XS7E1A1DAL01M12 + XSZBE10**
XSEC107130H7	**XS7E1A1DAL01M12 + XSZBE10**
XSEC107133	**XS7E1A1DAL01M12 + XSZBE10**
XSEC1071330	**XS7E1A1DAL2 + XSZBE10**
XSEC1071331	**XS7E1A1DAL01M12 + XSZBE10**
XSEC1071332	**XS7E1A1DAL01M12 + XSZBE10**
XSEC1071334	**XS7E1A1DAL01M12 + XSZBE10**
XSEC107133D4	**XS7E1A1DAL01M12 + XSZBE10**
XSEC107230	**XS7E1A1DBM12 + XSZBE10**
XSEC1072301	**XS7E1A1DBL01M12 + XSZBE10**
XSEC107233	**XS7E1A1DBM12 + XSZBE10**
XSEC1072331	**XS7E1A1DBL08M12 + XSZBE10**
XSEC1571300	**XS7E1A1DAL2 + XSZBE10**
XSEC1571330	**XS7E1A1DAL2 + XSZBE10**

Old Design	New Design	Old Design	New Design	Old Design	New Design
XSC Rectangular ∿					
XSCA150549	**XS8C1A1MAL01U20 + XSZBC10**				
XSCA150549	**XS8C1A1MBL01U20 + XSZBC10**				
XSD Rectangular ∿					
XSDA400519	**XS8D1A1MAU20 + XSZBD10**				
XSDA400519	**XS8D1A1MBU20 + XSZBD10**				
XSDA400519H7	**XS8D1A1MAU20 + XSZBD10**				
XSDA400519H7	**XS8D1A1MBU20 + XSZBD10**				
XSDA500519	**XS8D1A1MAU20 + XSZBD10**				
XSDA500519	**XS8D1A1MBU20 + XSZBD10**				
XSDA500519H7	**XS8D1A1MAU20 + XSZBD10**				
XSDA500519H7	**XS8D1A1MBU20 + XSZBD10**				
XSDA505539H4	**XS8D1A1MAU20 + XSZBD10**				
XSDA505539H4	**XS8D1A1MBU20 + XSZBD10**				
XSDA600519	**XS8D1A1MAU20 + XSZBD10**				
XSDA600519	**XS8D1A1MBU20 + XSZBD10**				
XSDA600519H7	**XS8D1A1MAU20 + XSZBD10**				
XSDA600519H7	**XS8D1A1MBU20 + XSZBD10**				
XSDM500538	**XS8D1A1MAU20 + XSZBD10**				
XSDM500538	**XS8D1A1MBU20 + XSZBD10**				
XSDM600539	**XS8D1A1MAU20 + XSZBD10**				
XSDM600539	**XS8D1A1MBU20 + XSZBD10**				
XSDM600539H7	**XS8D1A1MAU20 + XSZBD10**				
XSDM600539H7	**XS8D1A1MBU20 + XSZBD10**				

Telemecanique

Obsolete Part Number	Replaced by Part Number
AC	AC/DC
XS1M12FA260	XS1M12MA230
XS1M12FA260K	XS1M12MA230K
XS1M12FB260	XS1M12MB230
XS1M12FB260K	XS1M12MB230K
XS1M18FA260	XS1M18MA230
XS1M18FA260A	XS1M18MA230A
XS1M18FA260K	XS1M18MA230K
XS1M18FB260	XS1M18MB230
XS1M18FB260A	XS1M18MB230A
XS1M18FB260K	XS1M18MB230K
XS1M30FA260	XS1M30MA230
XS1M30FA260A	XS1M30MA230A
XS1M30FA260K	XS1M30MA230K
XS1M30FB260	XS1M30MB230
XS1M30FB260A	XS1M30MB230A
XS1M30FB260K	XS1M30MB230K
XS2M12FA260	XS2M12MA230
XS2M12FA260K	XS2M12MA230K
XS2M12FB260	XS2M12MB230
XS2M12FB260K	XS2M12MB230K
XS2M18FA260	XS2M18MA230
XS2M18FA260A	XS2M18MA230A
XS2M18FA260K	XS2M18MA230K
XS2M18FB260	XS2M18MB230
XS2M18FB260A	XS2M18MB230A
XS2M18FB260K	XS2M18MB230K
XS2M30FA260	XS2M30MA230
XS2M30FA260A	XS2M30MA230A
XS2M30FA260K	XS2M30MA230K
XS2M30FB260	XS2M30MB230
XS2M30FB260A	XS2M30MB230A
XS2M30FB260K	XS2M30MB230K
XS3P12FA260	XS3P12MA230
XS3P12FA260K	XS3P12MA230K
XS3P12FB260	XS3P12MB230
XS3P12FB260K	XS3P12MB230K
XS3P18FA260	XS3P18MA230
XS3P18FA260A	XS3P18MA230A
XS3P18FA260K	XS3P18MA230K
XS3P18FB260	XS3P18MB230
XS3P18FB260A	XS3P18MB230A
XS3P18FB260K	XS3P18MB230K
XS3P30FA260	XS3P30MA230
XS3P30FA260A	XS3P30MA230A
XS3P30FA260K	XS3P30MA230K
XS3P30FB260	XS3P30MB230
XS3P30FB260A	XS3P30MB230A
XS3P30FB260K	XS3P30MB230K
XS4P12FA260	XS4P12MA230
XS4P12FA260K	XS4P12MA230K
XS4P12FB260	XS4P12MB230
XS4P12FB260K	XS4P12MB230K
XS4P18FA260	XS4P18MA230
XS4P18FA260A	XS4P18MA230A
XS4P18FA260K	XS4P18MA230K
XS4P18FB260	XS4P18MB230
XS4P18FB260A	XS4P18MB230A
XS4P18FB260K	XS4P18MB230K
XS4P30FA260	XS4P30MA230
XS4P30FA260A	XS4P30MA230A
XS4P30FA260K	XS4P30MA230K
XS4P30FB260	XS4P30MB230
XS4P30FB260A	XS4P30MB230A
XS4P30FB260K	XS4P30MB230K

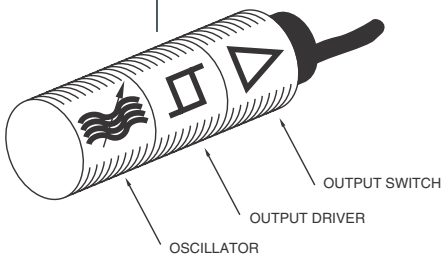
It is an important component in an automation control system.

It transmits information relating to the operating conditions of a machine to the logic processing system:

- Presence, passage, flow of parts
- End of travel
- Rotation and counting.

Essentially, it is a **non-contact part presence** detector.

Composition

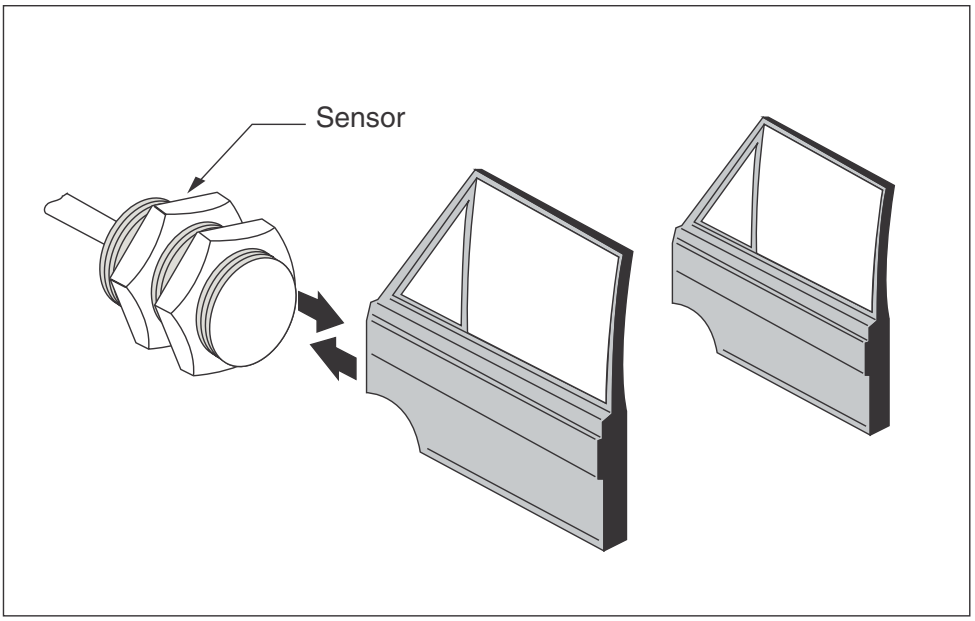
Detection stage	Output stage
	
Detection stage • *type of mounting (cylindrical, rectangular)* • *detection characteristics (sensing distance, hysteresis)*	*Output stage* • *type of supply (DC, AC, AC/DC)* • *electrical characteristics (current and voltage)*

Application	Advantages
• *no physical contact with the target*	➡ • *no wear, possibility of detecting fragile or freshly painted objects*
• *high operating rate*	➡ • *perfect compatibility with electronic automated systems*
• *high approach speeds*	➡ • *fast response*
• *rugged, fully encapsulated*	➡ • *excellent resistance to industrial environments*
• *solid state, no moving parts*	➡ • *life of the device is independent of the number of operations*

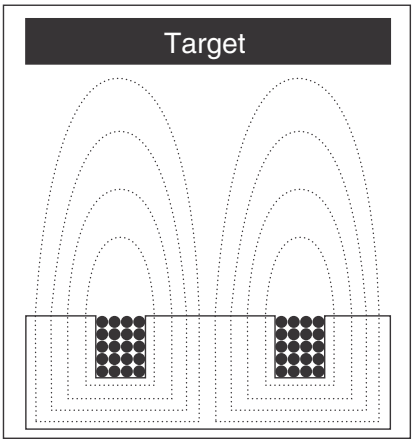
Suitable for the detection of metal objects

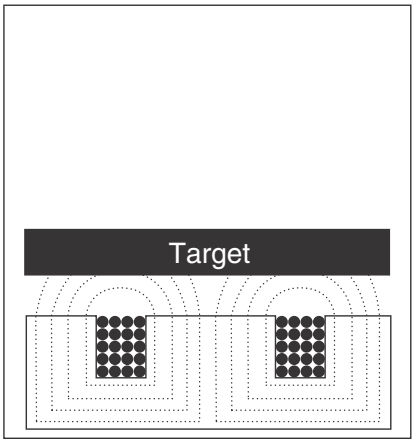
Inductive

- **Identifies** only **metal** targets
- **Predictable** sensing technology—few variables
- **Reliable** industrial technology



Principle of operation





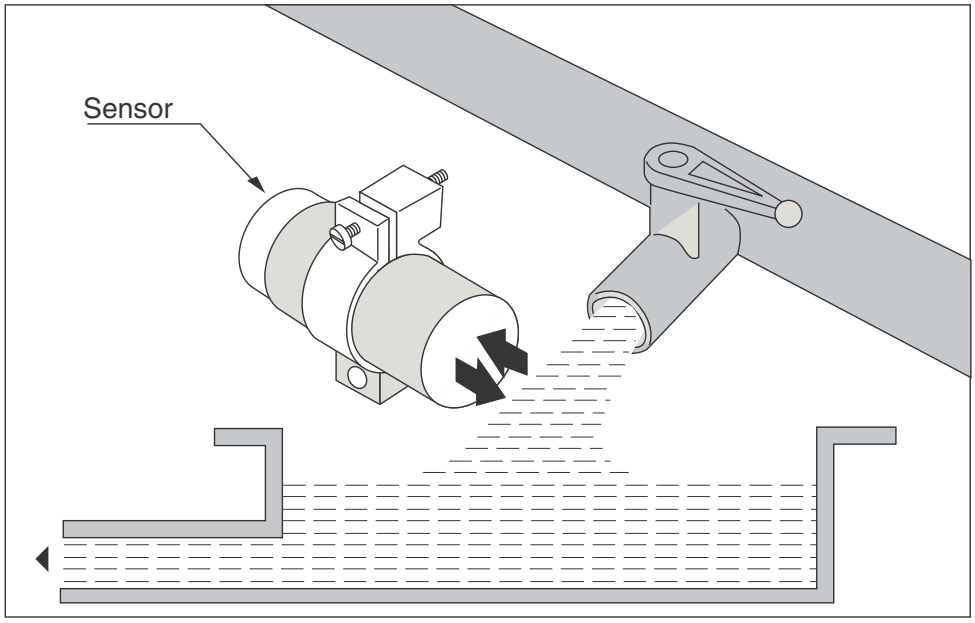
An inductive proximity sensor is essentially comprised of an oscillator whose windings constitute the sensing face. An electromagnetic field is generated in front of these windings.

When a metal object is placed within this field, the resulting currents induced into the target form an additional load, and the oscillations cease.

This causes the output driver to operate, producing an ON or OFF output signal.

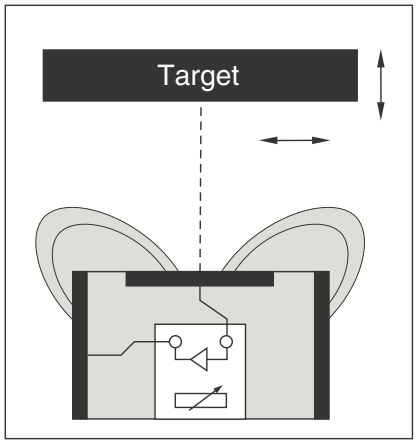
Capacitive

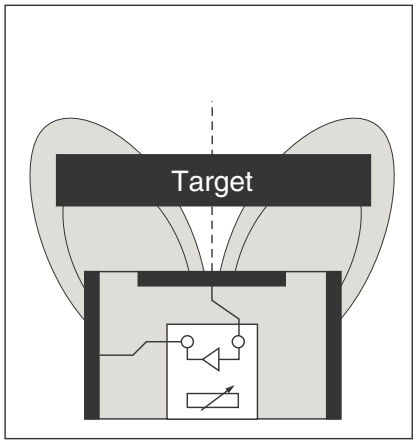
Suitable for the detection of non-conductive targets, liquids and powders



- Detects **any material**
- Affected by environment: humidity, dust, etc.
- Best for:
  - — bulk material
  - — liquids
  - — targets behind a separation wall

Principle of operation





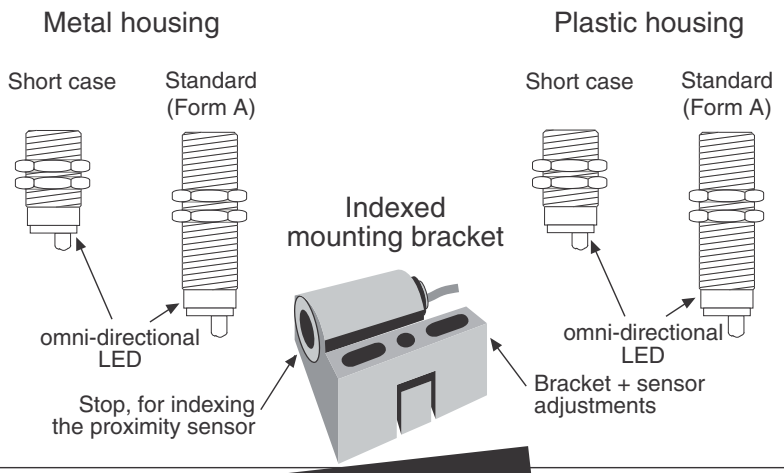
An capacitive proximity sensor is basically comprised of an oscillator whose capacitors constitute the sensing face.

When a conducting or insulating material with a permittivity greater than air is placed within this field, it modifies the coupling capacitance and causes oscillations.

This actuates the output driver, and, depending on the model, an ON or OFF output signal is produced.

Housing types

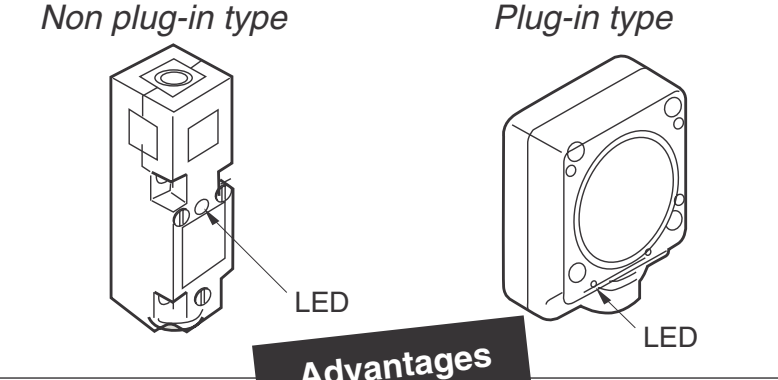
Tubular type



Advantages

- Simple installation and set-up: pre-wired or connector models
- Excellent environmental protection:
  - encapsulated
  - metal housing (plated brass)
  - plastic or stainless steel housing (food, pharmaceuticals)
- Two choices:
  - very short for restricted access areas
  - standard (form A) length for ease of replacement
- No adjustment replacement by using a patented indexing mounting bracket

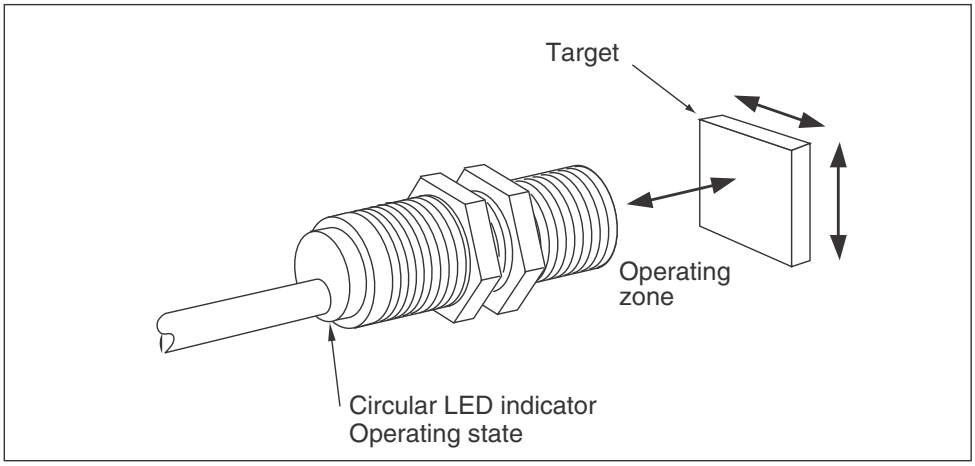
Block type



Advantages

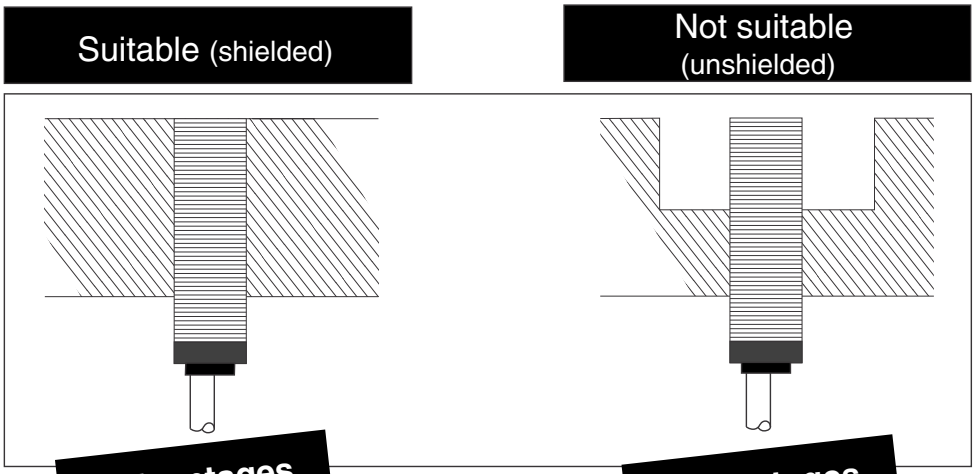
- Direct interchangeability, no need for readjustment
- Flexibility of connections: screw terminals or connector
- Long sensing distance

Operating zone



The targets are generally of steel, and of a size equivalent to the sensing face of the sensor. To ensure detection, the target should pass at a distance less than or equal to the usable sensing distance given in the data sheet of the sensor selected.

Suitabiliy for flush mounting in metal



Advantages

- No lateral effect

But

- Reduced sensing distance

Advantages

- Sensing distance + 50 to + 100%

But

- Space required around the device to eliminate the effects of the surrounding metal

Power supply

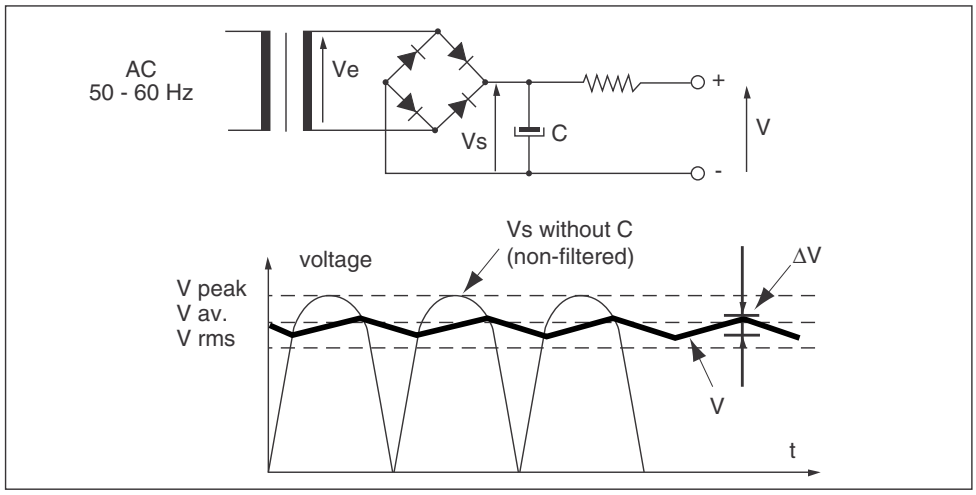
AC or AC/DC sensors for AC circuits

Check that the power supply range limits of the proximity sensor are compatible with the nominal voltage of the AC supply used.

Sensors for DC circuits

Where a DC supply is available, check that the voltage limits of the sensor, including ripple, are compatible with the supply used.

If an AC supply is available, a suitable DC power supply must be selected. A simple one has a transformer, a rectifier, and a smoothing capacitor.



Where voltage is derived from a single phase AC supply, it must be rectified and filtered to ensure that:

- **The peak voltage of the DC supply is lower than the maximum operating voltage of the sensor, peak voltage = rated voltage Ve x √2.**
- **The minimum voltage of the DC supply is greater than the minimum voltage rating of the sensor, given that ΔV = (I x t) ÷ C.**

  ΔV = maximum ripple: 10% (V)
  i = anticipated load current (mA)
  t = period of 1 cycle (8.8 m sec. full wave rectified 60 Hz frequency voltage)
  C = capacitance (μF)

As a general rule, use a transformer with a lower secondary voltage (Ue) than the required DC voltage (U).

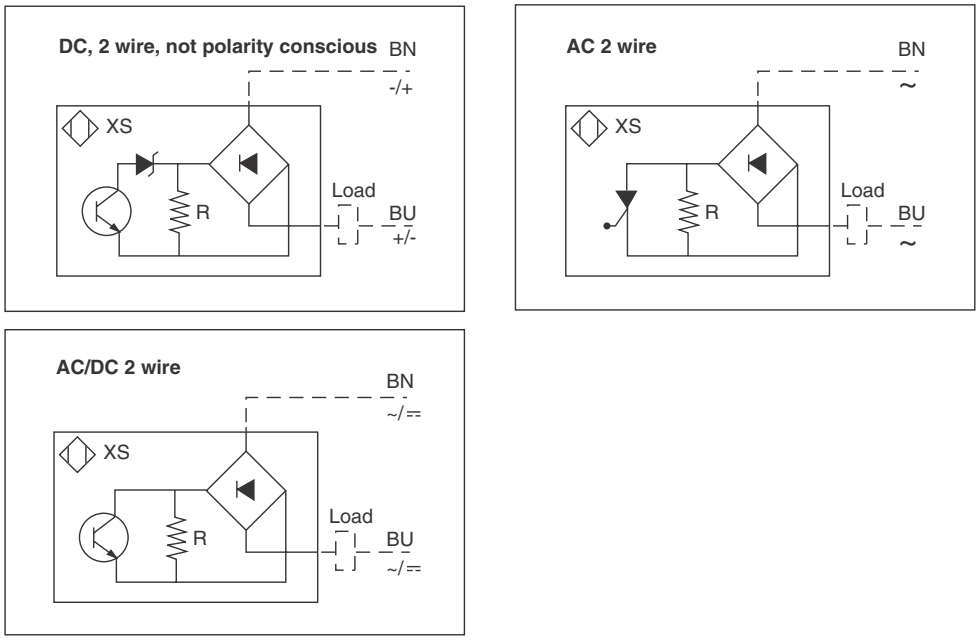
Example: 18 Vac to obtain 24 Vdc
35 Vac to obtain 48 Vdc

Mount a filtering capacitor of minimum 400 μF per sensor or 2000 μF for each ampere of load current required.

NOTE: Tubular 3 wire DC universal models (10-58 V), 3 wire DC XSF models, and all AC/DC models can be supplied from full-wave rectified non-filtered (no capacitor C in the diagram above) power supplies.

2 Wire type

Output signal



2 wire sensors are wired in series with the load to be switched.

They are subject to:

- a residual current (leakage current) - in the open state
- a voltage drop - in the closed state

For the AC and AC/DC versions, certain models are protected against short-circuits. Refer to the product characteristics.

Advantages

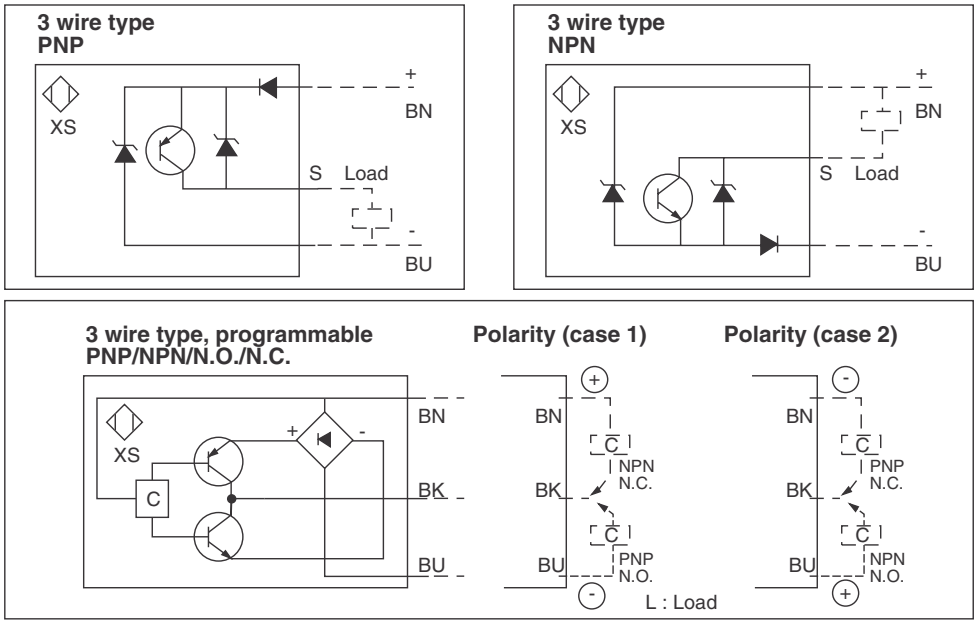
- *They can be wired in the same way as mechanical limit switches.*
- *For the DC and AC/DC versions, they can be connected to either positive (PNP) or negative (NPN) logic inputs.*
- *Polarity insensitive versions, no risk of incorrect connection.*
- *AC/DC versions, reduces stock requirements*

But

Check the possible effects of residual current and voltage drop on the input device controlled (pick-up and drop-out thresholds).

3 Wire type

Output signal



The sensors in this category have:

- 2 wires for the power supply
- 1 wire for the output signal

NOTE: Some models include an additional wire for a complementary output 4 wire type, N.O. + N.C. The technology is still 3 wires.

They are protected against reverse supply polarity and against overloads and short-circuit of the load. For the DC version, there are two types of sensor:

- Basic sensor
  - — PNP model, switching the positive side to the load (sourcing)
  - — NPN model, switching the negative side to the load (sinking)
- Universal DC sensors

A single universal sensor, depending on the wiring connections can perform any of the following 4 functions: PNP/N.O., PNP/N.C., NPN/N.O., NPN/N.C.

Advantages

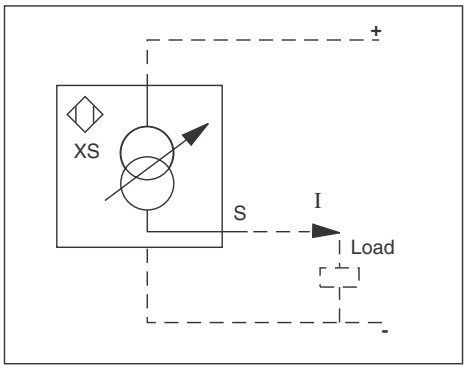
- *Best switching characteristics: no residual current, low voltage drop, fast*
- *N.O. + N.C. versions*
- *Universal versions, reduces stock requirements*

But

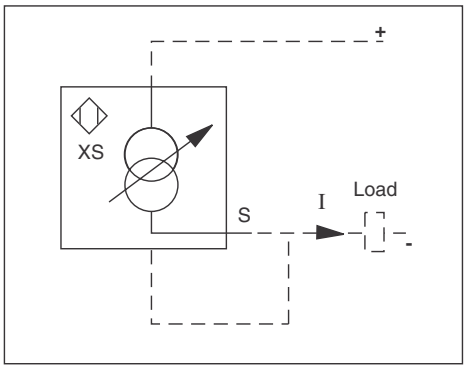
Requires the use of a specialized sensor (PNP or NPN, function of the load connection, to negative or positive, respectively) or a selectable universal type.

Analog type

Output signal



3 wire type



2 wire type

These proximity sensors convert the approach of a metal target towards the sensing face into a current output signal which is proportional to the distance between the target and the sensing face.

Two models:

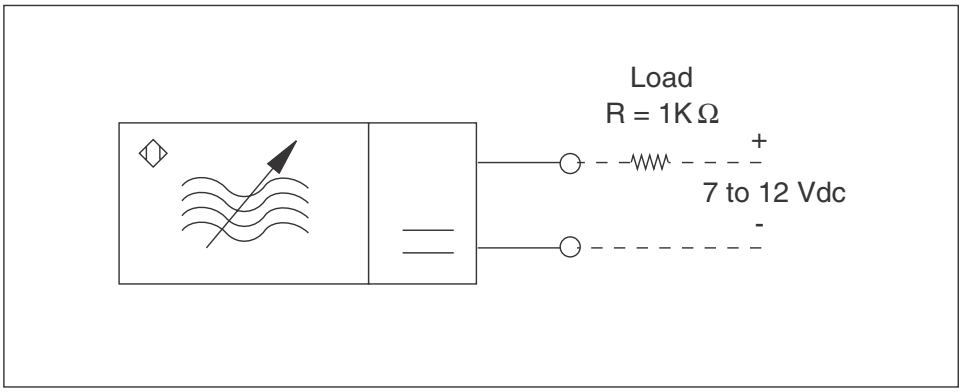
dual voltage:	24/48 Vdc
Output:	0 - 10 mA with 3 wire connection
	4 - 14 mA with 2 wire connection
single voltage:	24 Vdc
Output:	0 - 16 mA with 3 wire connection
	4 - 20 mA with 2 wire connection

Advantages

- *Output signal proportional to the distance.*
- *Two or three wire connection using the same device.*

Namur type

Output signal



Namur type proximity sensors (DIN 19234) are electronic sensors in which the current consumption varies when a metal object approaches.

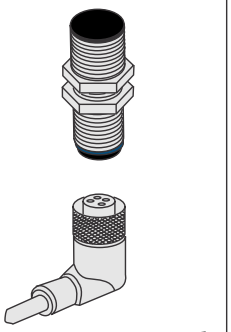
Their operating principle, together with their compact size, enables them to be used in a large number of applications:

- Intrinsically safe (hazardous environments, i.e. explosive). Sensors are used with NY2 intrinsically safe relay/amplifier or equivalent, approved intrinsically safe solid state input.
- Non-intrinsically safe (normal, safe zone). NAMUR sensors associated with a power supply and amplifier unit or equivalent solid state input.

Advantages

- *Can work in hazardous environments.*
- *Basic product, without amplifier.*
- *Compact size.*

Method of connection

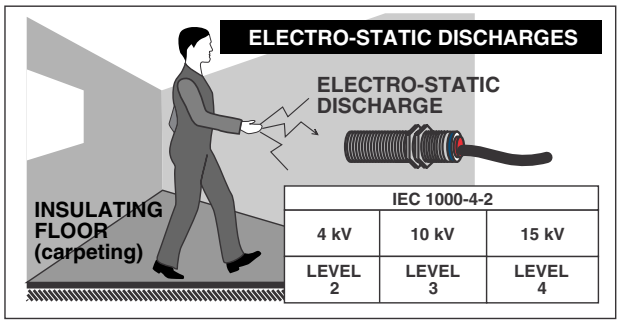
Cable	*Connector*	*Screw Terminals*
		
Features	**Features**	**Features**
Pre-wired sealed cable, excellent resistance to splashing liquid (IP67) or cutting oils (IP68).	*Ease of installation and replacement.*	*Flexibility: user selects type and length of cable.*

Note

In practice, the preceding information enables the selection and installation of a proximity sensor for applications having normal operating conditions. The following pages contain details for applications which need more specific information.

Electromagnetic interference

The XS sensors are tested according to IEC 60947.5.2 standard (similar to the proposed new NEMA ICS 5-4-1999x standard).



DC versions

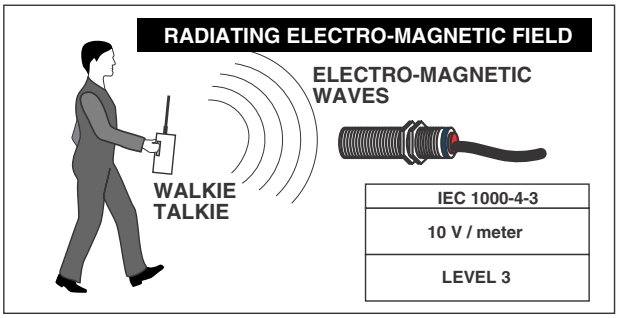
- level 2 immunity (3 wire type)
- level 3 immunity (2 wire type)

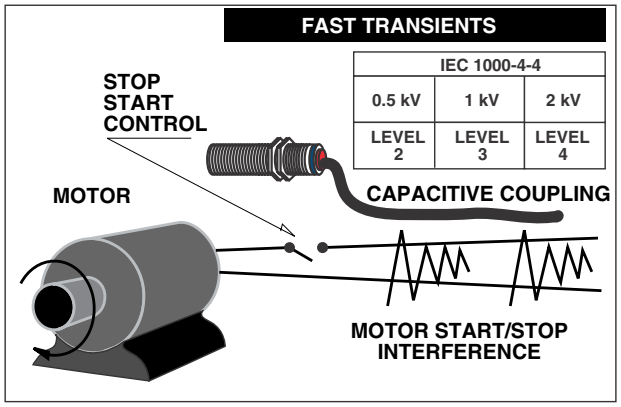
AC/DC versions

- level 4 immunity

DC and AC/DC versions

- level 3 immunity (RFI Radio Frequency Immunity)





DC versions

- level 3 immunity

AC/DC versions

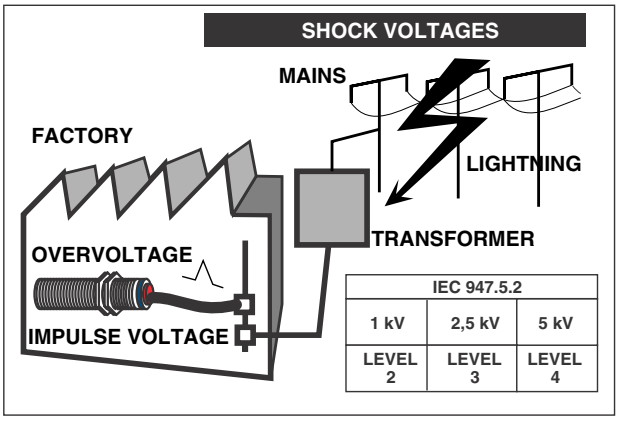
- level 4 immunity

Extended range DC

- level 3 immunity

DC and AC/DC versions

- level 3 immunity (over 8 mm diameter)
- level 2 immunity (tubular 8 mm and smaller)



Temperature Chemicals

Temperature: where sensors are used outside the ranges shown, reliable operation cannot be assured and permanent damage could result.

Standard length tubular sensors have a very large temperature range: -25° C to 80° C.

NOTE: For extended temperature range, consult factory.

Chemicals: due to the very wide range of chemicals which are found in modern industry, it is very difficult to give general guidelines on sensor applications.

To ensure lasting efficient operation, it is essential that the chemicals coming in contact with the sensors will not affect their housings and, in doing so, prevent their reliable operation.

The XS1/XS2 M series is particularly well adapted to the severe environment, such as machine tool applications.

NOTE: The cables used conform to standard NFC 32 206 and to recommendations CNOMO E03-40-150 N. They are UL Listed and CSA Certified.

The series XS4P plastic cylindrical proximity sensors as well as the stainless steel XS1/ XS2 sensors exhibit excellent overall resistance to:

- **Chemical products,** such as salts, halophytic and aromatic oils, petrols, acids, and diluted bases. For acids, ketones, and phenols, preliminary test should be made according to the nature and concentration of the liquid.
- **Agriculture and food industry products,** such as animal and vegetable based food products (vegetable oils, animal fat, fruit juice, dairy proteins, etc...).

NOTE: For specific details, please consult factory. Have the following information available when making the inquiry:

- *type of substance*
- *concentration*
- *maximum temperature*
- *specific sensor(s) part numbers considered for the application*

Shocks – Vibrations

Shocks

- The sensors are tested according to IEC 60068.2.27, 50g, duration 11 m sec.

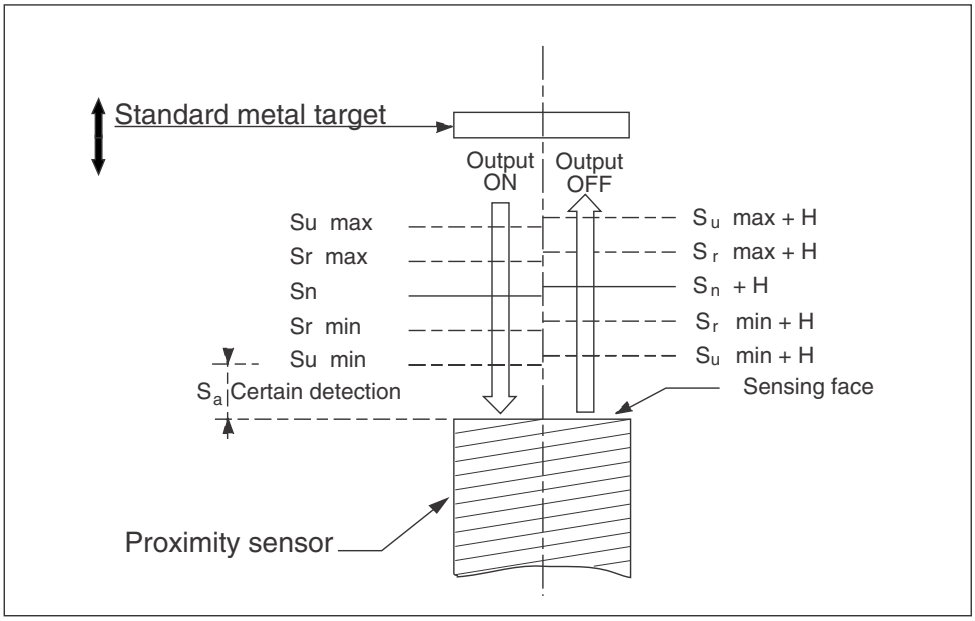
Vibrations

- The sensors are tested according to IEC 60068.2.6, amplitude ± 2 mm, F = 10-55 Hz, 25g to 55 Hz.

Degrees of protection

- IP67 - protection against the effects of immersion, tested according to IEC 60529. Sensor immersed for 30 minutes in 1 meter of water.
- UL Listed: typical NEMA 4X, 6P, 12. No deterioration in either operating or insulation characteristics.
- IP68 - protection against effects of prolonged immersion: the test conditions are subject to agreement between the manufacturer and user.
  Telemecanique selected machine tool applications or other machines frequently drenched in cutting fluids. **IP68 means,** in this case, **cutting oil proof**, a degree of protection requiring a superior encapsulation technology. Extensive testing is performed—1500 hours immersion in fluid at 70° C.

Definition of sensing distances



Nominal (or rated) sensing distance Sn:

The rated operating distance for which the sensor is designed. It does not take into account manufacturing tolerances, or any change in supply voltage, temperature, etc... during operation. Used for selection and base for exact calculations.

Real sensing distance Sr:

The real sensing distance is measured at rated voltage (Un) and at the rated ambient temperature (Tn). It must be between 90% and 110% of the real sensing distance: $0.9Sn \leq Sr \leq 1.1Sn$.

Usable sensing distance Su:

The usable sensing distance is measured at the limits of the permissible variations of the ambient temperature (Ta) and the supply voltage (Ub). It must be between 90% and 110% of the real sensing distance: $0.9Sr \leq Su \leq 1.1Sr$.

Operating zone Sa (usable sensing range):

The operating zone is between **0 and 81%** of the nominal sensing distance Sn:

$0 \leq Sa \leq 0.81Sn$

This is the operating zone of the sensor and corresponds to the area within which detection of the **standard metal target is certain** whatever the variations in voltage or temperature.

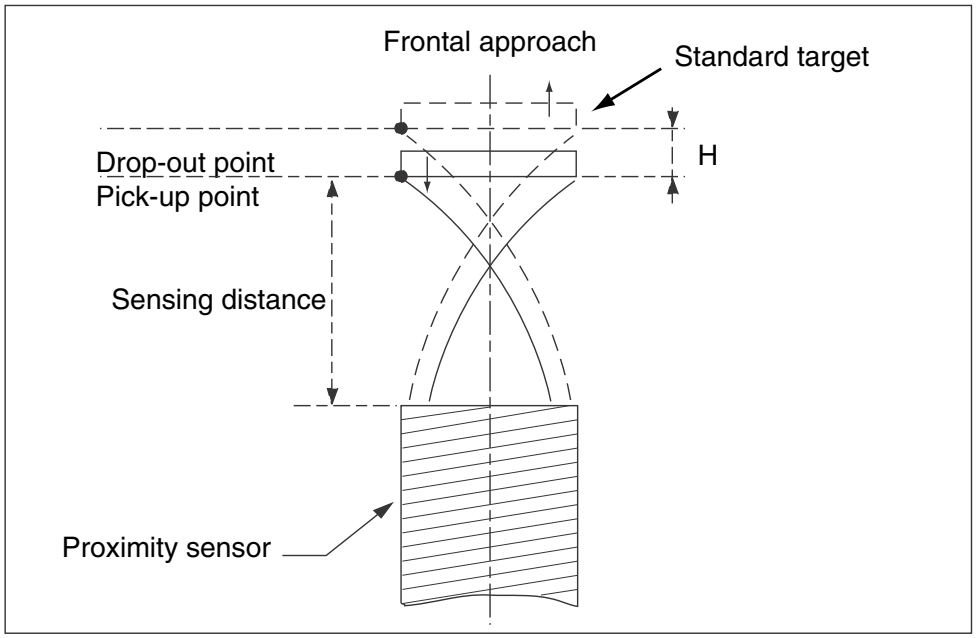
This is the **maximum** sensing distance **the designer should consider** for all applications. Correction factors should be considered only when conditions preclude the use of the standard target in the operating temperature and voltage range.

Standard metal target

Standard metal target:

1 mm thick, square mild cold rolled steel, type FE 360. The side of the square is either equal to the diameter of the sensor or of the circle engraved on the active face of the sensing face or is 3 times the nominal sensing distance (Sn). The higher of these values is used.

Differential travel



Differential travel: (hysteresis) H:

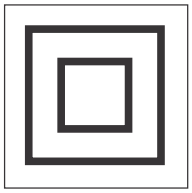
The distance between the pick-up point as the standard metal target frontally approaches the sensor, and the drop-out point as it moves away. Expressed as a percentage of the real sensing distance Sr.

Repeat accuracy (Repeatability

Repeat accuracy (repeatability) R:

The repeatability of the sensing distance, between successive operations. Readings are taken over a period of time while the sensor is subjected to environmental extremes, e.g. 8 hour cycle between 10 and 30° C, with supply voltage variation ± 5% of nominal. Expressed as a percentage of the real sensing distance Sr. Important parameter for positioning applications.

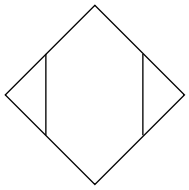
Class 2 material Double Isolation



Class 2 material - Double isolation

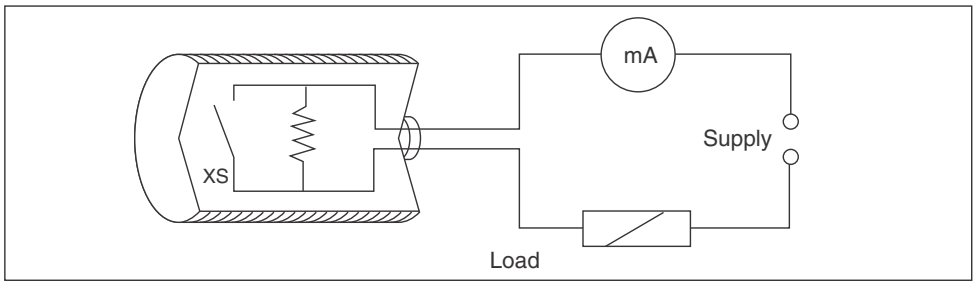
The symbol represents electrical insulation conforming to IEC 60536 class 2. It means that all live parts are isolated inside the housing and touching any exterior exposed metal is harmless. No groundings required.

Symbol



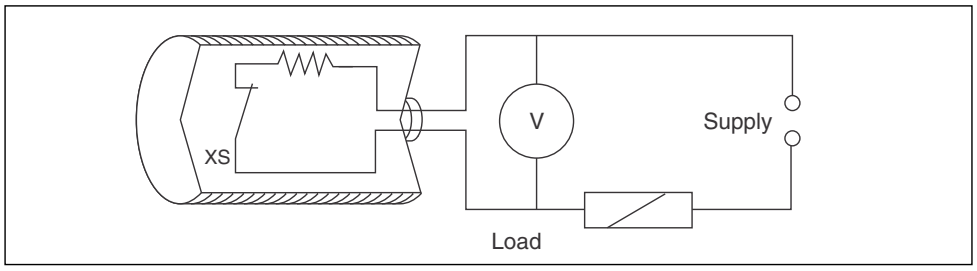
International symbol for proximity switches.

Leakage or Residual current (Ir)



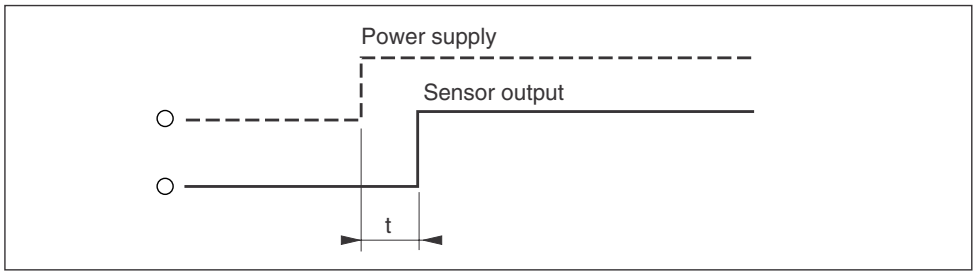
The leakage or residual current corresponds to the current flowing through the sensor in the OFF or “open” state. Important for 2 wire proximity sensors.

Voltage drop (Ud)



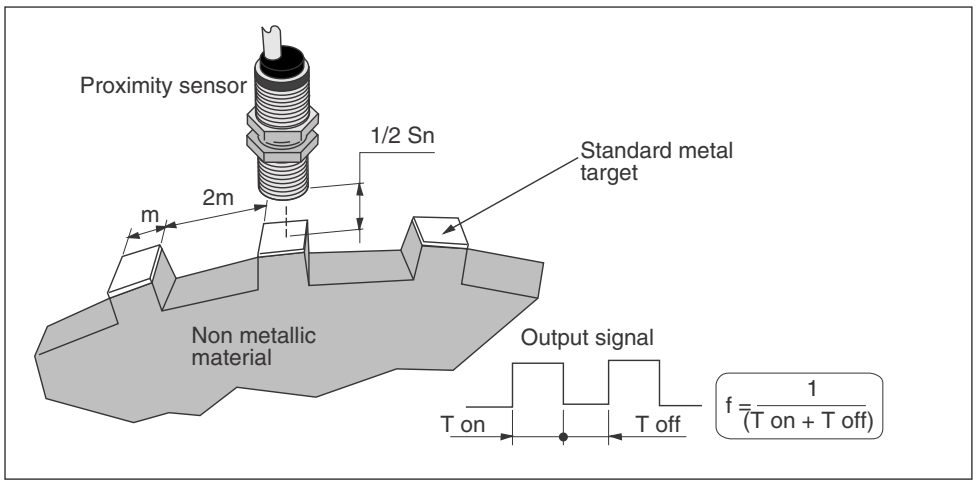
The voltage drop corresponds to the voltage at the proximity sensor’s terminals in the ON or “closed” state.Especially important for 2 wire proximity sensors.

RESPONSE TIME power-up delay



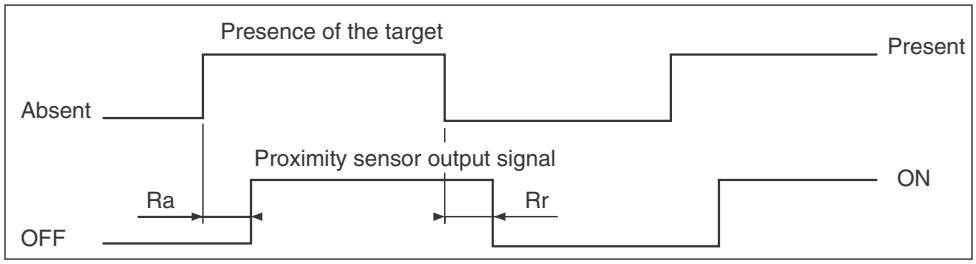
The period of time between energizing the sensor and its fully operational condition. Known also as “warm-up” or “first-up” delay.

Maximum operating frequency



The maximum number of targets a proximity sensor can detect in a second, under standard test conditions (standard EN50018, IEC 60947.5.2). Do not use for selection or design purposes unless the geometry of the application is identical with the one in the picture.

Response time



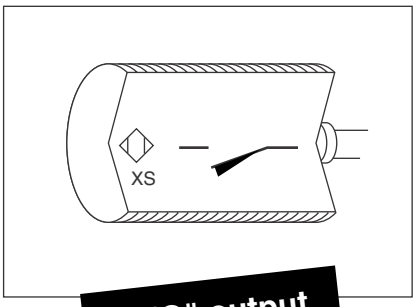
ON delay Ra:

The period between the detection of the target and the subsequent change in its output state. This design parameter determines the relationship between the speed of travel and the size of the target.

OFF delay Rr:

The period between the exit of the target from the sensor's operating zone and the subsequent change in its output state. This design parameter limits the interval between successive targets.

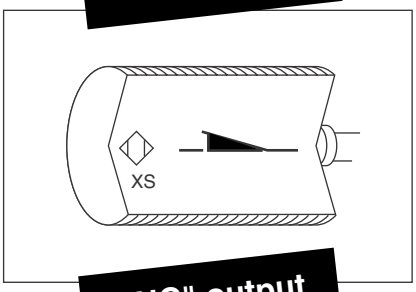
Output signal



"NO" output

N.O. - Normally open

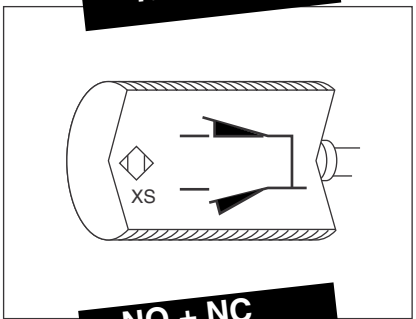
Output circuit turns ON output current when a target is present.



"NC" output

N.C. - Normally closed

Output circuit turns OFF output current when a target is present.



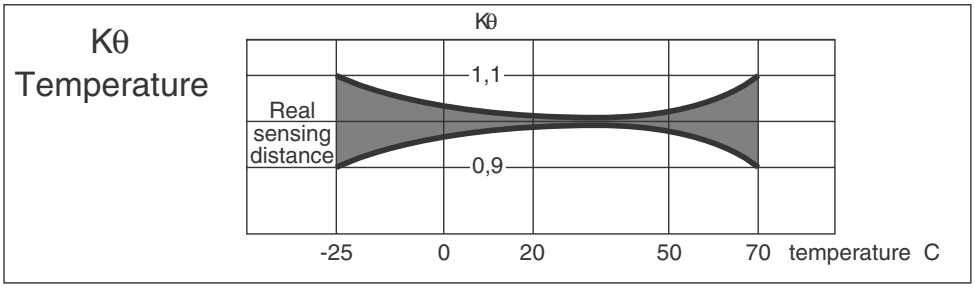
NO + NC output

N.O. + N.C.

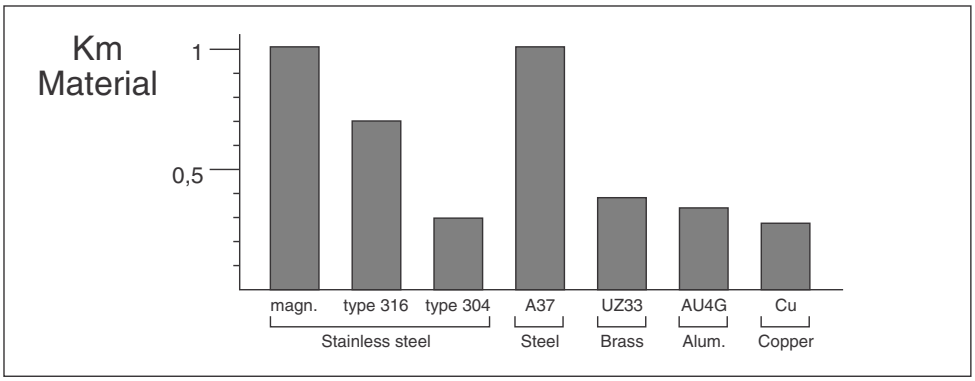
Complementary outputs proximity sensor with two outputs, one of which opens, the other closes when a target is present.

Theoretical calculation

In practice, most targets are generally made of steel and are of a size, equal to or greater than the sensing face of the sensor. Where this is the case, use the sensing distance values given in the characteristics for the particular sensor. To calculate the precise sensing distance for specific applications, the following parameters, which affect the sensing distance, must be taken into account.



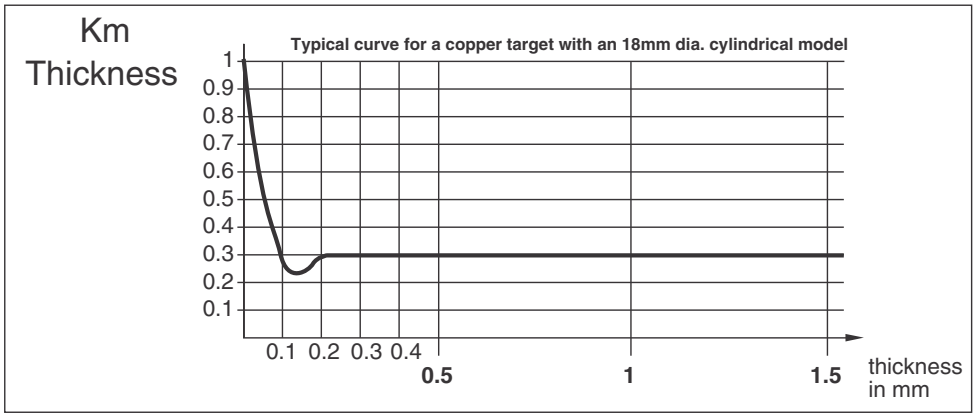
Apply a correction factor Kθ to be determined using the curve above.



Target material correction coefficient Km

Target Material	Stainless Steel			Mild Steel	Brass	Aluminum	Copper
	Magn.	Type 316	Type 304	A37	UZ33	AU4G	CU
Km	1.00	0.70	0.30	1.00	0.37	0.35	0.30

Apply a correction factor Km to be determined using the graph above.



Special case of a very thin target object made of non-ferrous material.

Application tip: Aluminum foil on a nonmetallic surface makes an excellent target.

Apply a correction factor Kd to be determined using the curve above.

Usable sensing distance

For all situations, use the general correction factor Kt = 0.9 for power supply variations within the entire voltage range.

Sa = Sn x KΘ x Km x Kd x Kt
Where Sa = usable sensing distance
Sn = nominal sensing distance

Calculation example

Proximity sensor XS7C40MP230 with nominal sensing distance Sn = 15 mm.
Ambient temperature variation 0° C to + 20° C.
Target characteristics:
material: Steel
dimensions: 45 mm x 45 mm x 1 mm

The operating zone, Sa can be found using the formula:
Sa = Sn x KΘ x Km x Kd x Kt
Sa = 15 x 0.98 x 1 x 0.95 x 0.9
Sa = 12.5 mm

Rule of thumb

For standard targets, the rule of thumb is:
Sa = 0.8 Sn

Always test!

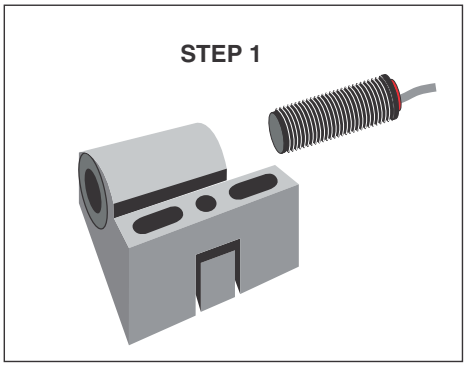
Note

The above curves are typical curves only. They are given as a guide to the approximate usable sensing distance of a proximity sensor for a given application

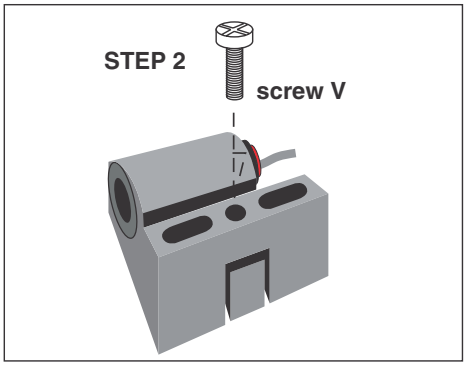
- Patented design
- No adjustment replacement

Mounting

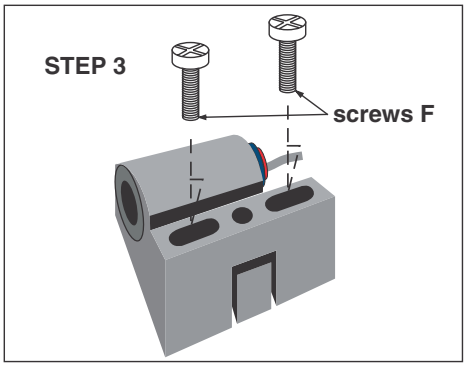
Indexed mounting bracket XSZB



- Insert the sensor in the bracket until it butts against the stop.



- Secure the sensor using V screw.



- Adjust the sensor/bracket combination to assure detection.
- Secure the combination using F screws.

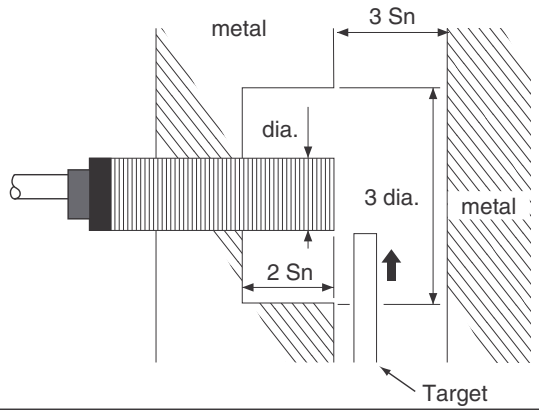
If for any reason adjustment or replacement is necessary:

- Unscrew screw V
- Butt the new sensor against the stop. Once screw V has been tightened, the new sensor will be indexed in the same position as the old one. No adjustment is necessary.

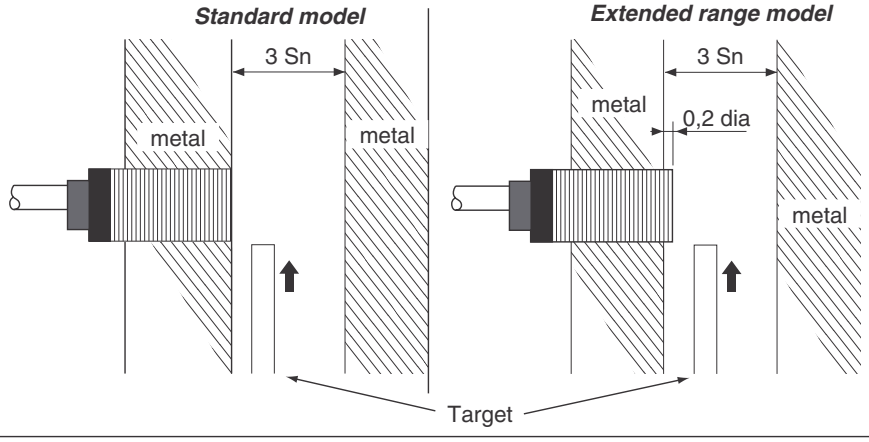
Note: these functions are similar to those of a block type sensor

Clearing distances

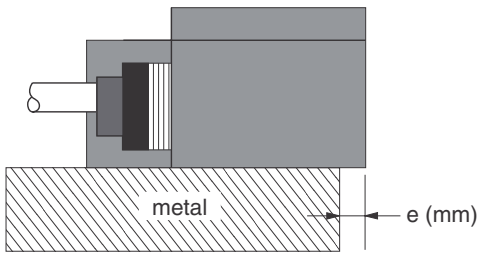
Tubular proximity sensor



Versions not suitable for flush mounting in metal (non-shielded)



Versions suitable for flush mounting in metal (shielded)



- Versions suitable for flush mounting in metal
  e (min): 0
- Versions not suitable for flush mounting in metal
  M8 e (min): 5 mm
  M12 e (min): 8 mm
  M18 e (min): 16 mm
  M30 e (min): 30 mm

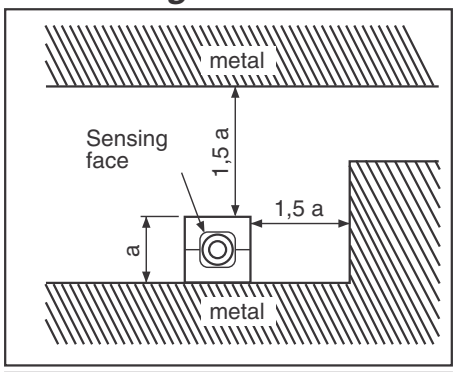
Mounting with XSZ B mounting bracket

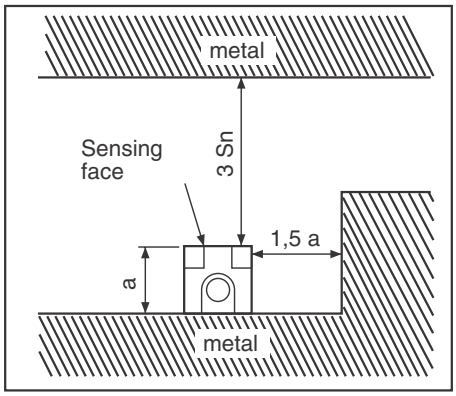
Block type proximity sensors not suitable for mounting in metal

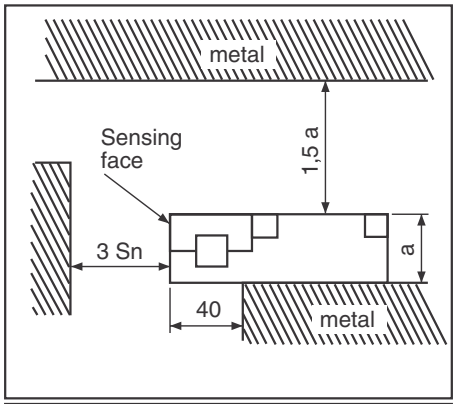
Non-shielded

Clearing distances

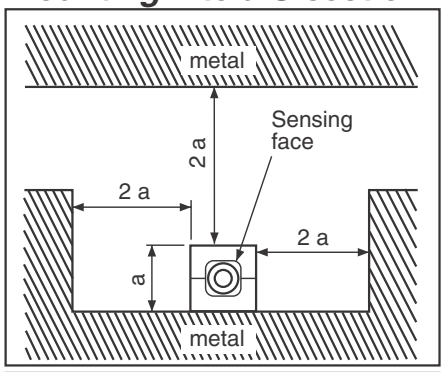
Mounting into a T section

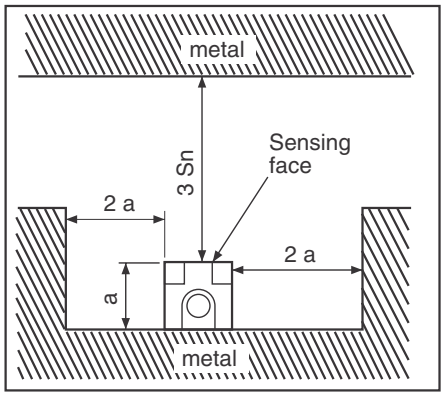


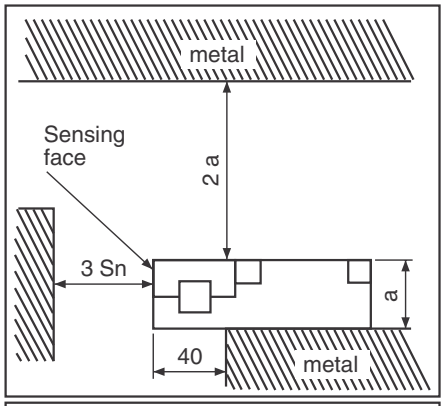




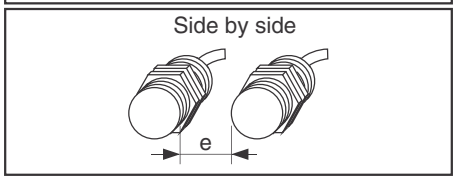
Mounting into a U section

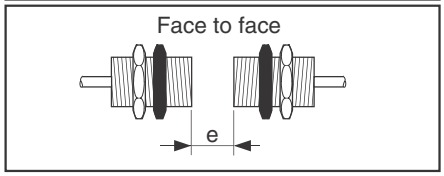






Side by side
Face to face

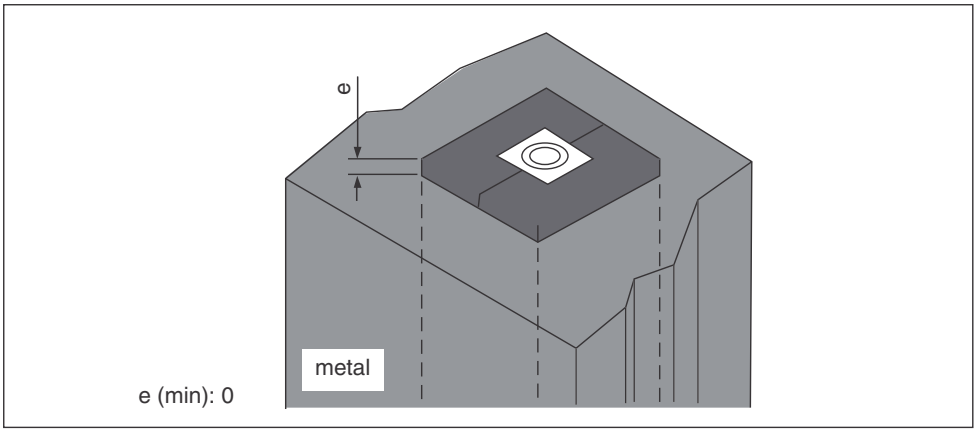


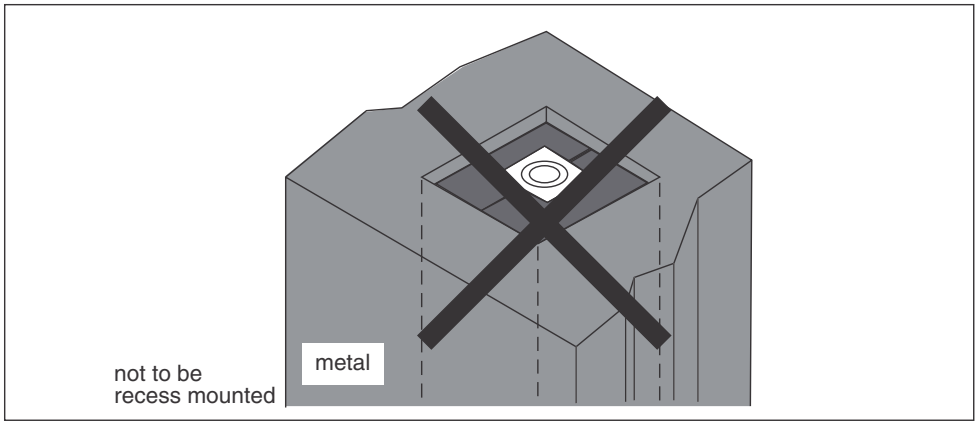


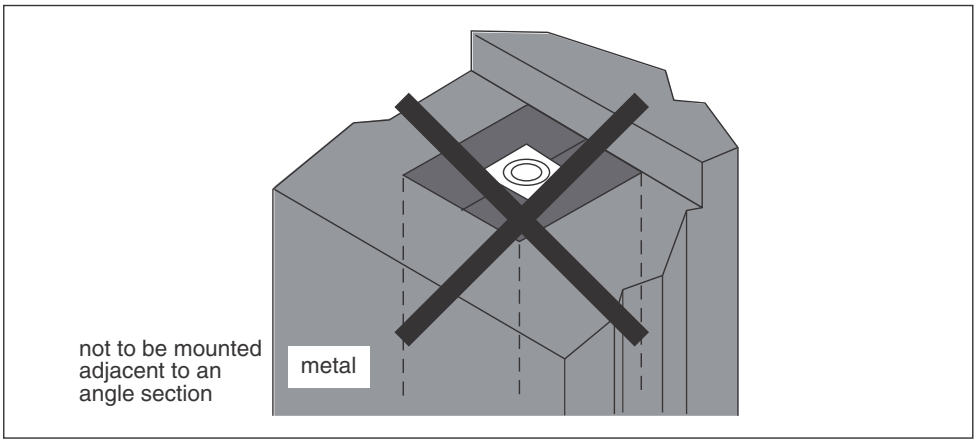
NOTE: For shorter distances, ***alternate frequency*** *models are required. Call factory for availability.*

Suitable for flush mounting in metal

Shielded
Mounting with metal on one or more sides simultaneously



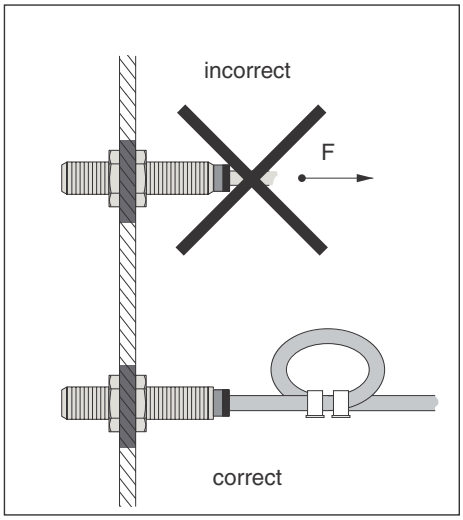




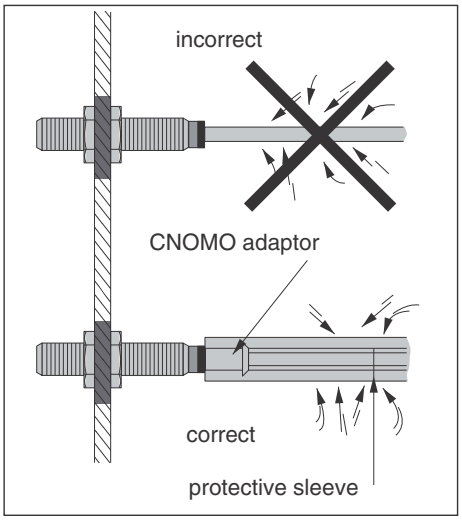
Any metal within the immediate vicinity of a proximity sensor distorts the magnetic field around the sensing face. The clearance distances shown above are given for a simplified installation arrangement and would result in the increase of the sensing distance of less than 5%.

Precautions

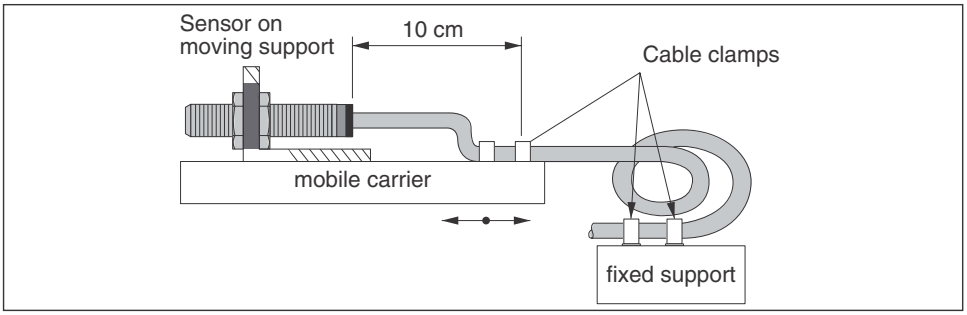
Protection of the cable



Do not exert a pulling force of over 4.4 lb on the sensor cable.

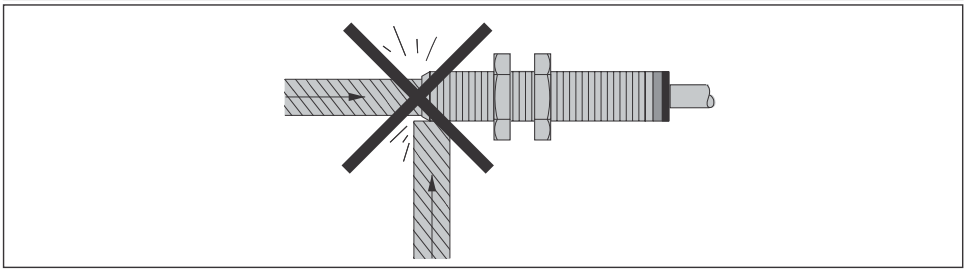


Consider using a protective sleeve or rigid conduit, where necessary.



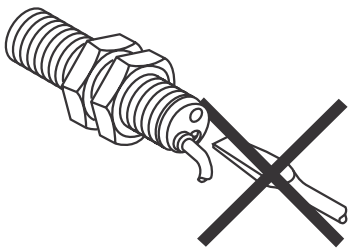
Avoid repetitive flexing movement between the cable and the sensor.

Protection of the sensing face

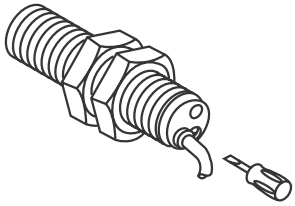


The sensor must never be used as a mechanical stop as this may cause irreparable damage.

Use of tools for adjustment of the proximity sensor



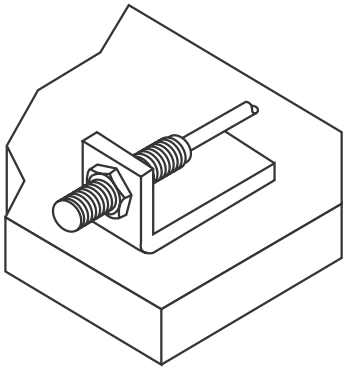
Incorrect



Correct

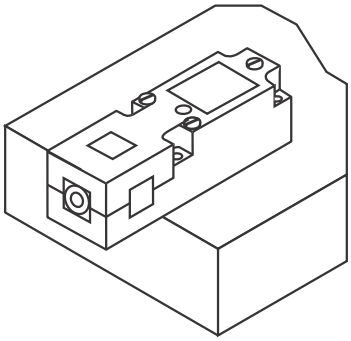
Mounting

Tubular sensor



Ensure a rigid mounting
the mounting must be sufficiently rigid and thick to resist shock and vibrations

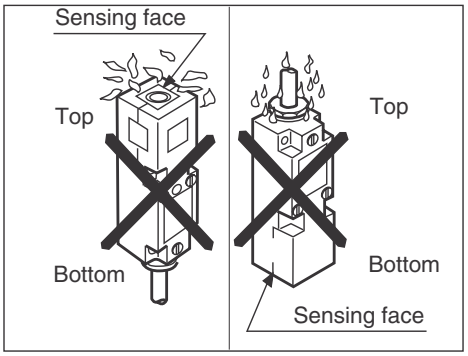
Block type sensor



Ensure a rigid mounting
the mounting area must be large enough to support the sensor correctly

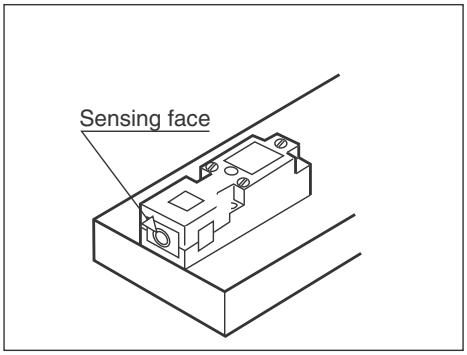
Precautions

Positioning



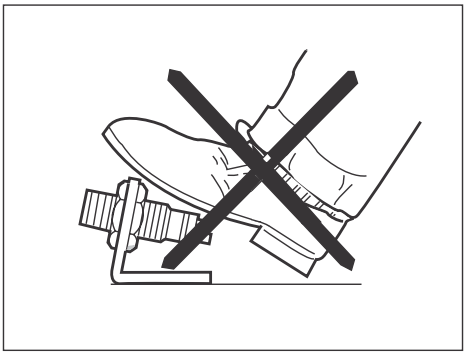
Incorrect

- *danger of debris collecting on the sensor sensing face*
- *danger of liquid entry should the cable gland be mounted improperly*

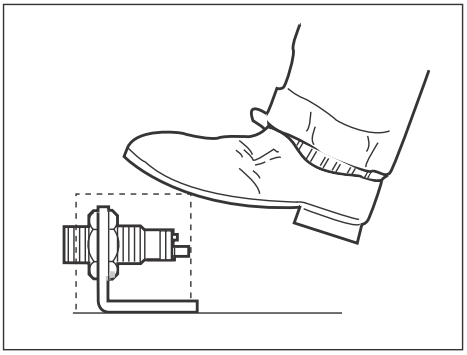


Correct

Mechanical protection



A proximity sensor should never be used as a footrest

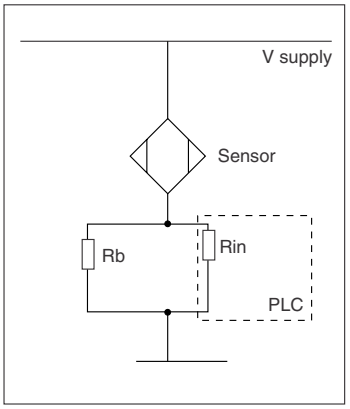


Where the possibility of this type of abuse exists, a protective cover should be fitted over the sensor

Remember: For proper installation, the sensor must be mounted solidly to its support.

Depending on the application, the adjustment of the operating distance is carried out:

- either by moving the mounting bracket
- or by adjusting the target



In order for a solid state, 2 wire, AC sensor to be directly compatible with a PLC, two conditions have to be met:

1. Leakage current: (I off) **less than 1.7 mA** (Off state)

2. Load current: greater than the sensor minimum load current (ON state). Typical PLC input currents (load current, I load) are 12-16 mA. Typical values for PLC input resistance (Rin) are: 7.5-10 kΩ.

For sensors which do not meet both of the requirements, a Bleeder Resistor (Rb) has to be wired in parallel with the load.

For each of the two situations, the Bleeder Resistor parameters have to be calculated as shown below. **The smaller value should be selected for the application.**

1. $Rb = \frac{Rin \times Vo\ Max}{I\ off\ (Rin) - Vo\ max}$ ✻ $Pb = \frac{Vs^2}{Rb}$

Where:
- Vo max = PLC input maximum OFF voltage (20-40 Vac)
- Rin = PLC input resistance
- Vs = Line voltage
- Pb = Minimum Bleeder Resistor power rating

Example:

I off = 3.5 mA
Vo max = 20 V
Rin = 6.5 kΩ

Typical examples for Telemecanique TSX DET input modules:

	TSX DET 1604	***TSX DET 0804***
For I off = 3.5 mA	*47 kΩ/0.5 W*	—
For I off = 7 mA	*4.7 kΩ/3 W*	*12 kΩ/1.5 W*

2. $Rb = \frac{Rin \times Vo\ Max}{I\ off\ (Rin) - Vo\ max}$ ✻ $Pb = \frac{Vs^2}{Rb}$

Example:

I min = 30 mA
Vs = 120 V
Rin = 7 kΩ

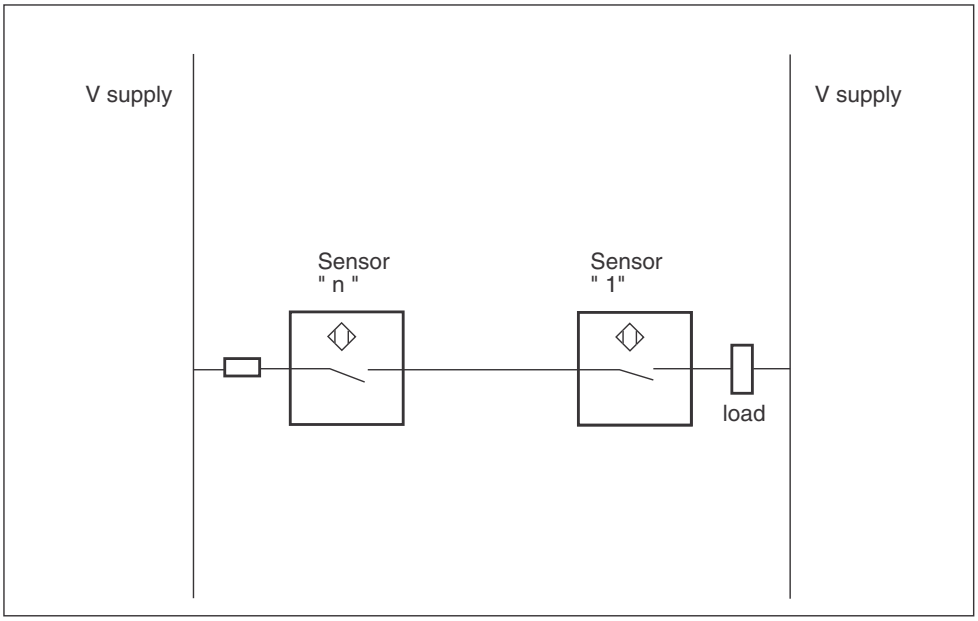
Typical examples using TSX programmable controllers:

	TSX DET 1604	***TSX DET 0804***
For I min = 20 mA	*64 kΩ/0.5 W*	*24 kΩ/1 W*
For I min = 30 mA	*8.7 kΩ/2 W*	*8.7 kΩ/2 W*

NOTE: All DC 3 wire sensors are PLC compatible.

Wiring in series

Wiring two or more sensors in series 2 wire type



The following points should be considered:

1. When in the open state, each sensor will share the supply voltage:

   voltage across the sensor = $\frac{\text{V supply}}{\text{n° proximity sensors}}$

   V sensor and V supply must fall within the sensor's voltage range.

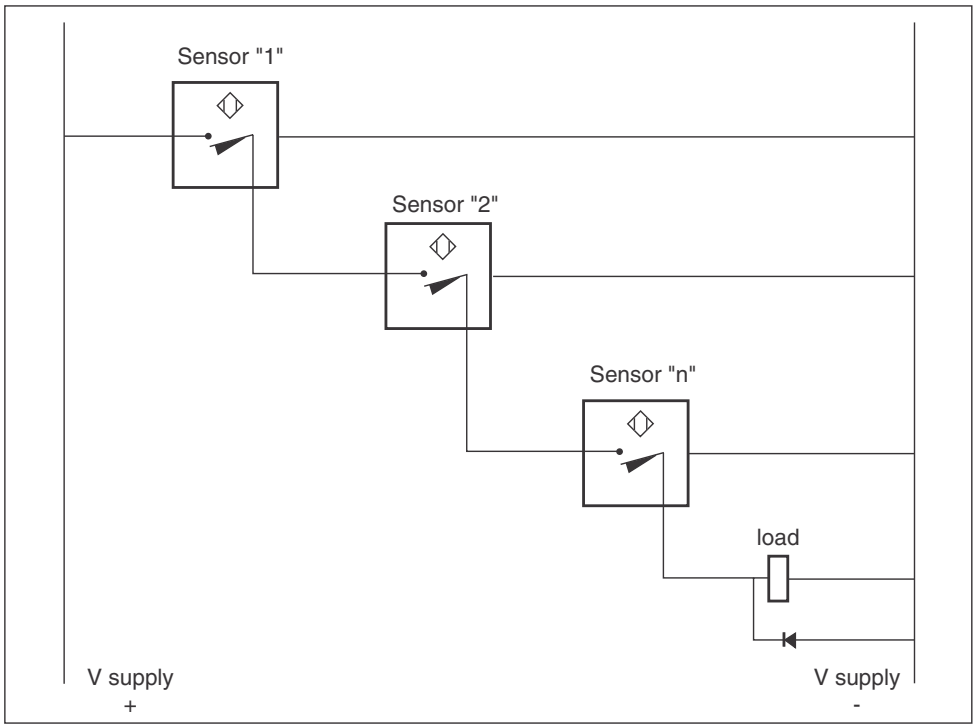
2. If a sensor is OFF, it will be supplied with nearly all the supply voltage.

3. When all sensors are ON, a small voltage drop is present across each sensor; the resultant loss of voltage at the load will be the sum of the individual voltage drops, and the load voltage should be selected accordingly.

4. **Series connection is only possible for sensors with a wide voltage range.**

Example: Four sensors rated at 24-240 Vac can be wired in series at 120 V because even at 90%, V supply = 108 V. When all sensors are OFF, each will see 108/4 = 27 V, which is higher than the minimum voltage rating of the switch (24 V).

Wiring two or more sensors in series 3 wire type

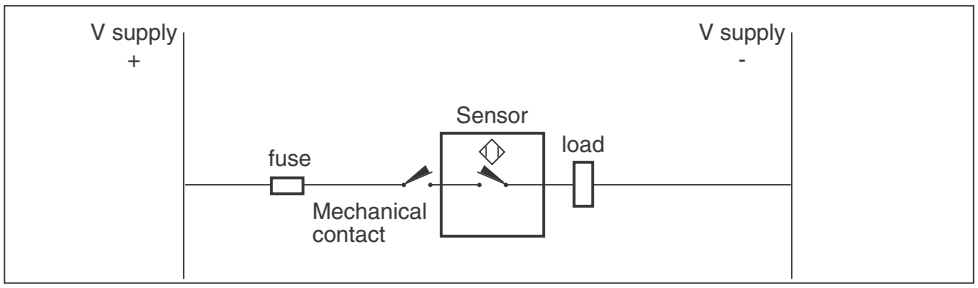


The following points should be considered:

1. Sensor 1, when conducting its load current, will also carry the leakage currents of all other sensors.
2. Each sensor, when conducting, will produce a voltage drop of 2.6 V, maximum. The load voltage should be selected accordingly.
3. Sensor 2 is powered only when Sensor 1 turns ON. Only after its power-up delay will Sensor 2 be able to function properly. This delay should be taken into consideration when speed is a factor.
4. Use of “flywheel” diodes is recommended where an inductive load is being switched.

Wiring in series

Wiring proximity sensors in series with mechanical contact devices



The following points should be considered:

1. When the mechanical contact is open, the sensor is not supplied.
2. When the contact closes, the proximity sensor will not operate until a certain time “T” has elapsed, corresponding to the **power-up delay**. Please refer to details of individuals sensor characteristics

Wiring several sensors in parallel 2 wire type

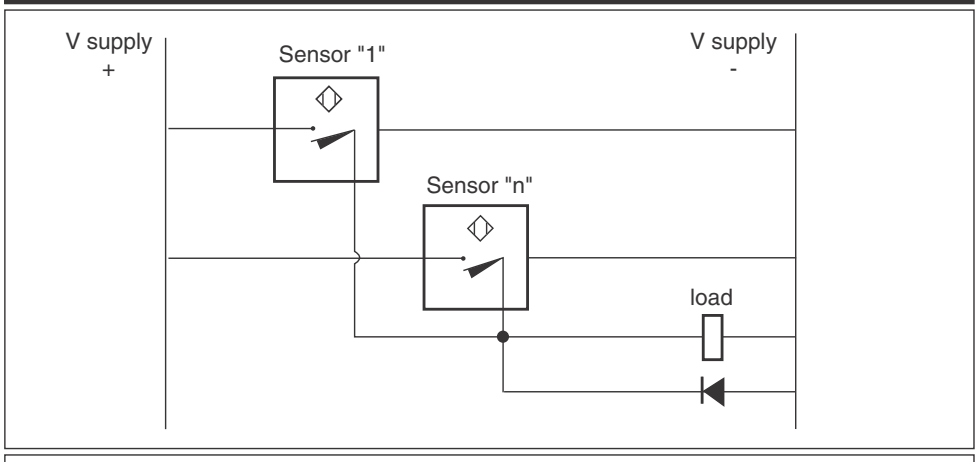
The use of proximity sensors wired in parallel either between themselves or together with mechanical contacts is not recommended.

When one of the sensors is in the ON state, the sensor in parallel is “shorted out” and thus no longer supplied.

As the first unit passes into the OFF state, the second sensor will become energized and will be subject to its power-up delay. This configuration is used where the sensors are working alternately.

When the sensors are OFF, the sum of the leakage currents must be less than the holding current of the load.

3 wire type



No restriction

Precautions

Length of the cable

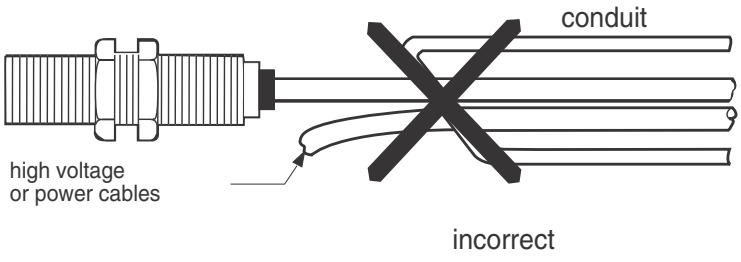
No restrictions up to 660 feet (200 meters) or up to a line capacitance of 0.1 µF. It is important to take into account voltage drop on the line over 660 feet (200 meters).

The XS models are immune to electrical interference encountered in normal industrial conditions.

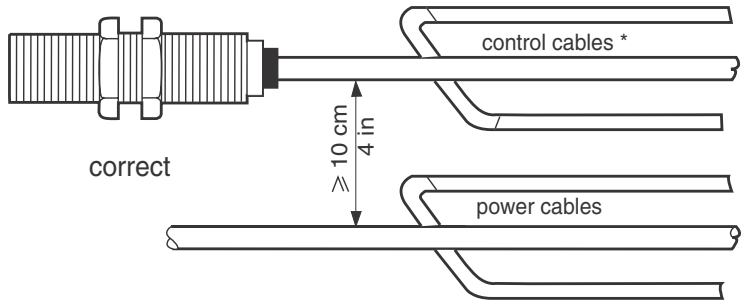
Where extreme electrical noise conditions could occur (large motors, spot welders, etc.) it may be advisable to protect against transients in the following ways:

Suppress interference at source, limit the length of the cables, separate power and control wiring from each other, ensure that the logic systems contain input transient suppression means and use twisted pair and shielded cables.

Separation of power and control wiring



Incorrect

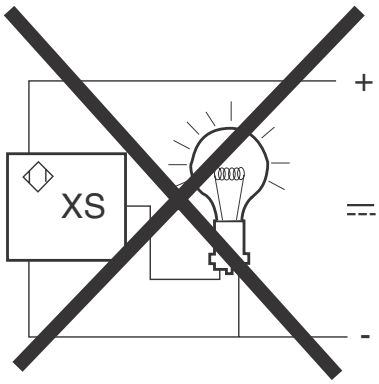


Correct

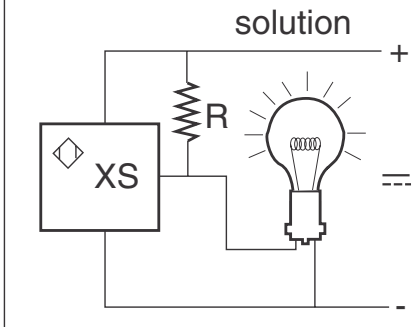
* Use of individual cables is recommended if long lengths are involved.

Precautions

Electrical connections to be avoided



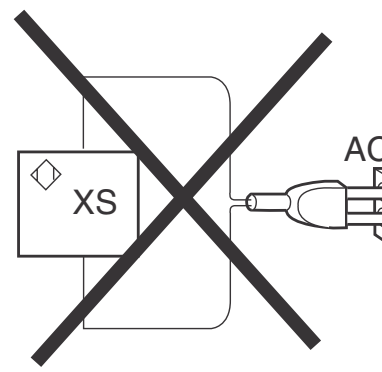
If the load consists of an incandescent lamp, the cold state resistance can be ten times lower than the hot state resistance. This can cause very high current levels on switching



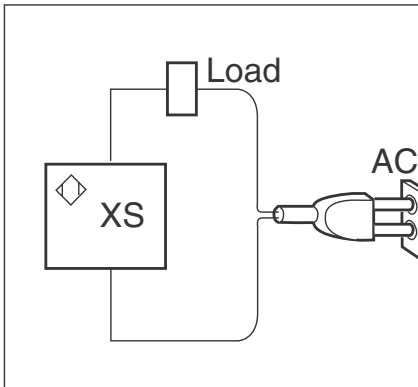
Install a pre-heat resistance in parallel with the proximity sensor.

$$R = \frac{V^2}{P} \times 10$$

V= supply voltage
P= power of lamp



An XS proximity sensor cannot be connected directly to an AC supply source. This would result in immediate destruction of the sensor and considerable danger to the operator (except short circuit protected switches)



A suitable load (see product data) must be connected in series with the proximity sensor.

Problems	Possible cause	Remedial action
The sensor's output will not change state when a metal target is moved within its operating zone.	*Output failure, or the short circuit protection has operated.*	*• Check that the sensor is the correct one for the supply being used.* *• Check the load current.* *Characteristics:* *- If load current is greater than the max. rated current, a relay should be interposed between the sensor and the load.* *- If load current is lower than the nominal rated current, check for wiring faults which could have caused a short circuit. In any case, a fast-blow fuse should be wired in series with the sensor (AC).* *- For a tubular sensor, if the sensor is brand new, check the mounting torque.*
	Wiring error *Supply problems*	*• Check the wiring.* *• Check voltage range.* *• Check that the supply voltage falls within the operating limits of the sensor in question. Remember that with a rectified supply: Vpeak = Vrms x $\sqrt{2}$*
False or erratic operation with or without the presence of the target object.	*Transients*	*• Install transient suppressors across potential sources (coils, arcing contactors)*
	Influence of surrounding metal	*• Refer to the instruction sheet supplied with the sensor.*
	Effect of interference on the supply lines	*• Ensure that any DC supplies when derived from rectified AC, are correctly filtered ($C \geq 400\ \mu f$)* *• Ensure that AC power cables are run separately from low level DC cables.* *• Where very long distances are involved, use suitable cable:* *- shielded and/or twisted pair* *- suitable wire gage* *• Position the sensor as far away as possible from any source of interference.*
	Response time of the sensor too long for the particular target.	*• Check suitability of the sensor for the target; choose a sensor with a faster response time or use a longer target.*
	Effects of high temperature	*• Eliminate sources of radiated heat, or protect the housing with a heat shield.*

Cenelec standards

Cylindrical		Block type	
Form A		**Form C**	**Form D**
EN 50008 (NFC 63-076) DC 3 or 4 terminals EN 50040 (NFC 63-071) DC 2 terminals EN 50036 (NFC 63-081) AC terminals		EN 50025 (NFC 63-077) DC 3 or 4 terminals EN 50037 (NFC 63-082) AC 2 terminals	EN 50026 (NFC 63-078) DC 3 or 4 terminals EN 50038 (NFC 63-083) AC 2 terminals

EN 50010 (NFC 63-075)	*Determination of sensing distance and operating frequencies*
EN 50032 (NFC 63-079)	*Definitions, classification, description*
EN 50040 (NFC 63-074)	*Connection identification*

Series XS1/XS2 N, XS1/XS2 M, XS4 P also conform to the requirements of IEC 60947.5.2 standard. (ISO 9000 Self-Certification, NEMA project ICS 5-4-199X)

Approvals

- File LR46094 + LR44087 class 321103
- File E39291 guide NKCR2
- File E39281 guide NKCR
- ● Standard version approved
- ○ pending
- ▲ Special North American version (1/2" NPT cable entry, UL label, etc.)
- FM Intrinsically safe applications

					USSR
XS1 / XS2 L/N	●	—	●	●	—
XS1 / XS2 M	●	—	●	●	—
XS4P	●	—	●	●	—
XSB	▲	—	▲	●	●
XS7 / 8	▲	—	▲	●	—
XSD	▲	—	▲	●	—
XSE	▲	—	▲	●	●
XSG	▲	▲	—	—	—
XS5	▲	—	●	●	—
XS6	▲	—	●	●	—
XS7	▲	—	●	●	—
XS8	▲	—	●	●	—
XS9	▲	—	●	●	—