

# Proximity Sensors with Built-in Amplifier - Screw

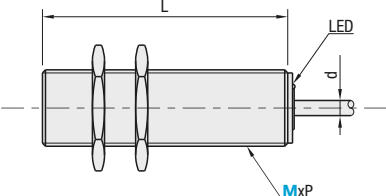
All Metal / Heat Resistant / Mini

**Do not use this product as a detection device for human body protection.**  
(For human body protection, use products compliant with the local laws and regulations such as OSHA, ANSI and IEC.)

**Features:** Case and detection surface with strong stainless steel one piece housing. High shock resistance allows stable detection even when coming to contact with workpiece.

**All Metal (IP68)**

**PSAM**



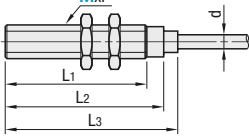
**A** Accessory: Hex Nut 2 pcs.  
M8 Thickness 4 Hex Socket 13  
M12 Thickness 4 Hex Socket 17  
M18 Thickness 4 Hex Socket 24  
M30 Thickness 5 Hex Socket 36

Part Number	Detection Distance	MxP (Fine)	L	d	Output	Unit Price	Volume Discount Rate
Type	M					1 ~ 5 pc(s).	6~20
PSAM	8	3	45	3.5	NPN N.O.		
	12	6					
	18	10					
	30	20					

**Features:** Useable in temperatures 100°C or more.

**Heat Resistant (IP67)**

**PSHM**



**A** Accessory: Hex Nut 2 pcs.  
M8 Thickness 4 Hex Socket 13  
M12 Thickness 4 Hex Socket 17  
M18 Thickness 4 Hex Socket 24

Part Number	Operating Ambient Temperature Range
PSHM8	-25°C~+130°C
PSHM12	-25°C~+140°C
PSHM18	-25°C~+160°C

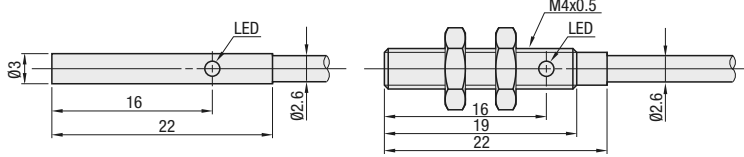
Part Number	Detection Distance	MxP (Fine)	L1	L2	L3	d	Output	Unit Price	Volume Discount Rate
Type	M							1 ~ 5 pc(s).	6~10
PSHM	8	2	55	60	-	5	NPN N.O.		
	12	3	49	56	59	5			
	18	5	60	70	76	3			

**Features:** Diameter being as small as Ø3 and M4, it can fit in limited spaces.

**Mini (IP67)**

**PSMMD3**

**PSMM4**



**A** Accessory: Hex Nut 2 pcs. (PSMM4 only)  
M4 Thickness 2 Hex Socket 6

Part Number	Detection Distance (mm)	Output	Unit Price	Volume Discount Rate
			1 ~ 5 pc(s).	6~20
PSMMD3	1	NPN N.O.		
PSMM4				

For orders larger than indicated quantity, please check with WOS.

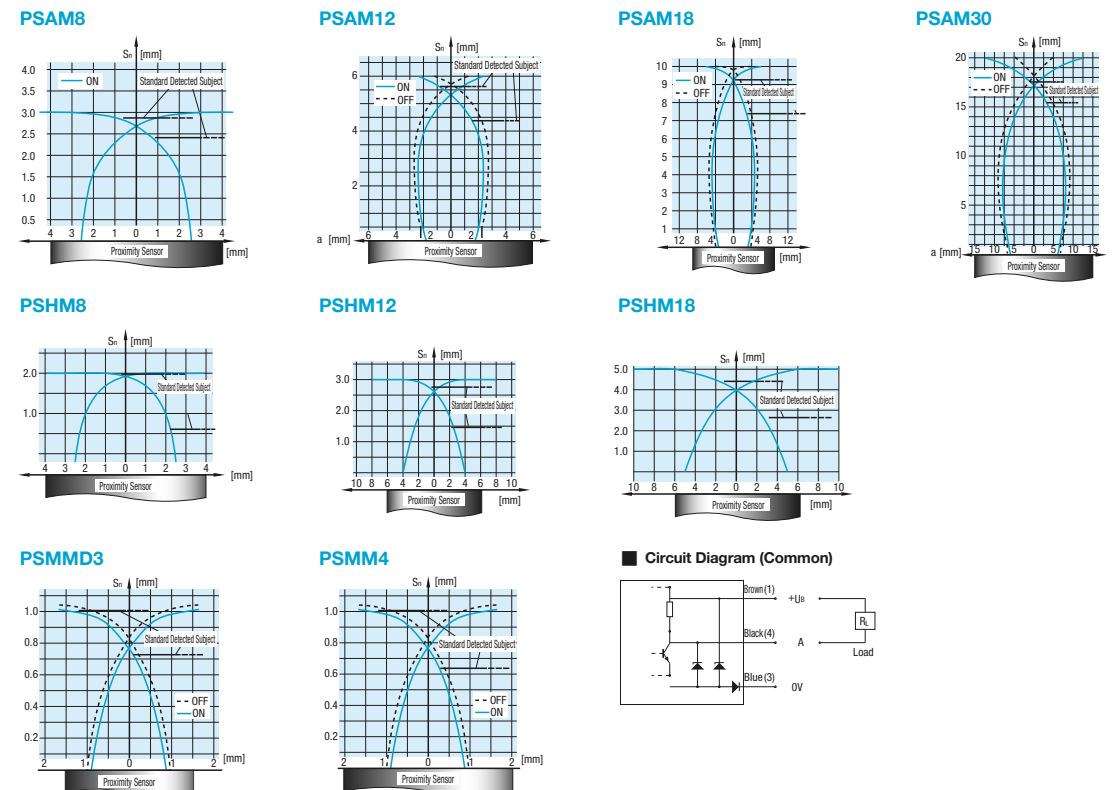
**Ordering Example**

Part Number  
PSAM8  
PSHM12  
PSMM4

## Specifications

Type	All Metal				Heat Resistant			Mini	
Part Number	PSAM8	PSAM12	PSAM18	PSAM30	PSHM8	PSHM12	PSHM18	PSMMD3	PSMM4
Size	M8	M12	M18	M30	M8	M12	M18	Ø3	M4
Detection Distance	3mm	6mm	10mm	20mm	2mm	3mm	5mm	1mm	1mm
Output Format / Operation Mode	NPN / N.O. (Normally Open)				NPN / N.O. (Normally Open)			NPN / N.O. (Normally Open)	
Power Supply	DC (3-Wire)				DC (3-Wire)			DC (3-Wire)	
Cable	Ø3.5 PUR Cable 2m	Ø5 PUR Cable 2m			Ø3 Silicon Cable 2m	Ø3 Teflon 2m		Ø3 PUR Cable 2m	
Structure of Detecting Head (How to Use)	Shield Type (Embedded use allowable)				Shield Type (Embedded use allowable)			Shield Type (Embedded use allowable)	
Detected Object	All Metal Compensation factor when iron (FE360) is 1 (as Ref. value) Aluminum: 1 Copper: 0.8 (0.9 for M8), Brass: 1.3 Stainless Steel 1mm Thick: 0.5 (0.3 for M8), Stainless Steel 2mm Thick: 0.9 (0.6 for M8)				All Metal Compensation factor when iron (FE360) is 1 (as Ref. value) Aluminum: 0.25 (0.2 for M12, and 0 for M8), Copper: 0.2 (0.15 for M12, and 0 for M8) Brass: 0.35 (0.15 for M12, and 0.25 for M8), Stainless Steel: 0.7 (0.65 for M12, and 0.6 for M8)			All Metal Compensation factor when iron (FE360) is 1 (as Ref. value) Aluminum: 0.5 Copper: 0.45 Brass: 0.6 Stainless Steel: 0.8	
Hysteresis	15% of effective detection distance Sr or less				3 ~ 15% of effective detection distance Sr			2 ~ 20% of effective detection distance Sr	
Supply Voltage Range	10~30V DC				10~30V DC			10~30V DC	
Output Current	200mA Max.				120mA(≤100°C) 80mA(>100°C)	120mA(≤100°C) 70mA(>100°C)	150mA	100mA Max.	
Supply Current at No Load	10mA Max.				10mA Max.			10mA Max.	
Max. Frequency Response	800Hz	600Hz	200Hz	120Hz	600Hz	500Hz	400Hz	3000Hz	
Operating Ambient Temperature Range	-25~+70°C				0~+140°C	0~+150°C	0~+180°C	-25~+70°C	
LED Operation Indicator Lamp	Detecting in Stable Range: ON Detecting in Unstable Range: Blink				-			ON	
Protection Structure	IP68				IP67			IP67	
Built-in Protection Circuit	Short Circuit Protection, Over Current Protection Reverse Polarity Protection, Induction Protection EMC Protection, Power-ON Reset				Short Circuit Protection, Over Current Protection Reverse Polarity Protection, Induction Protection EMC Protection, Power-ON Reset			Short Circuit Protection, Over Current Protection Reverse Polarity Protection, Induction Protection EMC Protection, Power-ON Reset	
Case Material	EN 1.4305 Equiv.				EN 1.4305 Equiv.			EN 1.4305 Equiv.	
Tightening Torque (N·m)	4	10	50	150	4	10	20	-	0.8
Features	<ol style="list-style-type: none"> <li>Long range detection.</li> <li>Nonferrous metals (Aluminum, Brass etc.) detection distance Equiv. of iron.</li> <li>The case and detection surface made of strong stainless steel one piece housing, resistant to shocks and stable detection possible even when coming to contact with objects.</li> <li>Dusts on detecting surface can be cleaned with a metallic brush.</li> <li>It can be used as the proximity sensor for welding spatter measures.</li> <li>Highly water and drip resistant (IP68), and is suitable in cleaning solution splashes. Applicable for use in water.</li> </ol>				<ol style="list-style-type: none"> <li>Eliminates provision of an amplifier unit separately, making the total cost less.</li> <li>Highly water resistant and drip resistant (IP67), and is suitable in high temperature environments and coolant splashes.</li> <li>Robust stainless steel case.</li> </ol>			<ol style="list-style-type: none"> <li>Although this is extremely small, its detection distance is 1mm.</li> <li>This compact design allows installation in limited spaces.</li> <li>Robust stainless steel case.</li> </ol>	

## Detection Range Characteristics



## Circuit Diagram (Common)

