

# M5 Series Stainless Steel Photoelectric Sensors



## M5 (5mm) stainless steel – DC

- Diffuse and through-beam styles
- Long operating distances
- Compact stainless steel housing
- Axial cable or M8 quick-disconnect models
- Complete overload protection
- IP67 rated



M5 Series 5mm Photoelectric Sensors Selection Chart								
Part Number	Price	Sensing Range <sup>1</sup>	Output 1	Output 2	Logic	Connection	Wiring	Dimensions
<b>Diffuse</b>								
<b>LTR-M05MA-NSK-301</b>		0-12 mm (0-0.47 in)	Light-on	–	NPN	PUR, 2m (6.56 ft), 3 wire	1	1
<b>LTR-M05MA-NSS-301</b>				–	NPN	M8, 3-pin	3	2
<b>LTR-M05MA-NSK-403*</b>				–	PNP	PUR, 2m (6.56 ft), 3 wire	2	1
<b>LTR-M05MA-NSS-403*</b>				–	PNP	M8, 3-pin	4	2
<b>LTR-M05MA-NMK-301</b>		0-24 mm (0-0.94 in)		–	NPN	PUR, 2m (6.56 ft), 3 wire	1	1
<b>LTR-M05MA-NMS-301</b>				–	NPN	M8, 3-pin	3	2
<b>LTR-M05MA-NMK-403*</b>				–	PNP	PUR, 2m (6.56 ft), 3 wire	2	1
<b>LTR-M05MA-NMS-403*</b>				–	PNP	M8, 3-pin	4	2
<b>LTR-M05MA-NLK-301</b>		0-60 mm (0-2.36 in)		–	NPN	PUR, 2m (6.56 ft), 3 wire	1	1
<b>LTR-M05MA-NLS-301</b>				–	NPN	M8, 3-pin	3	2
<b>LTR-M05MA-NLK-403*</b>				–	PNP	PUR, 2m (6.56 ft), 3 wire	2	1
<b>LTR-M05MA-NLS-403*</b>				–	PNP	M8, 3-pin	4	2
<b>LTR-M05MA-WXK-301</b>		0-120 mm (0-4.72 in)	Teach wire	NPN	PUR, 2m (6.56 ft), 4 wire	7	1	
<b>LTR-M05MA-WXK-403*</b>			Teach wire	PNP	PUR, 2m (6.56 ft), 4 wire	8	2	
<b>Through-beam<sup>2</sup></b>								
<b>LLR-M05MA-NMK-302</b>	Receiver	0-600 mm (0-23.62 in)	Dark-on	–	NPN	PUR, 2m (6.56 ft), 3 wire	1	1
<b>LLR-M05MA-NMS-302</b>	Receiver			–	NPN	M8, 3-pin	3	2
<b>LLR-M05MA-NMK-404*</b>	Receiver			–	PNP	PUR, 2m (6.56 ft), 3 wire	2	1
<b>LLR-M05MA-NMS-404*</b>	Receiver			–	PNP	M8, 3-pin	4	2
<b>LLR-M05MA-NMK-400</b>	Emitter		Receiver dependent	–	Receiver dependent	PUR, 2m (6.56 ft), 3 wire	5	1
<b>LLR-M05MA-NMS-400</b>	Emitter			–	Receiver dependent	M8, 3-pin	6	1

NOTES:

1) Based on 100x100 mm white matte paper

2) Purchase one receiver and one emitter for a complete set.

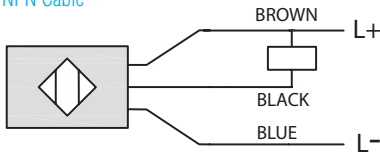
\* IO-Link Model

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## Wiring diagrams

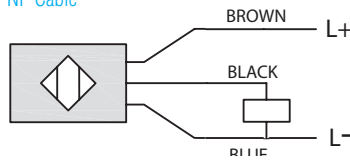
**Diagram 1**

NPN Cable



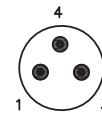
**Diagram 2**

PNP Cable



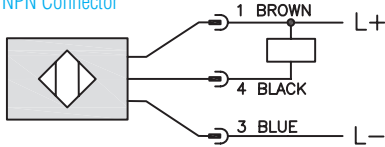
**Connector**

M8 Connector



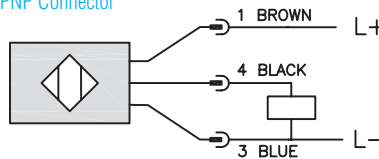
**Diagram 3**

NPN Connector



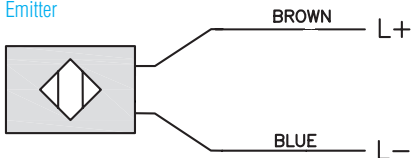
**Diagram 4**

PNP Connector



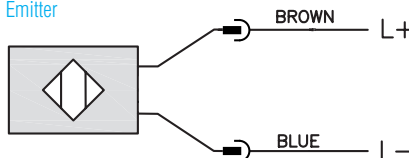
**Diagram 5**

Emitter



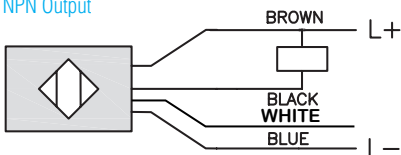
**Diagram 6**

Emitter



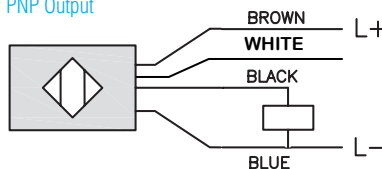
**Diagram 7**

NPN Output



**Diagram 8**

PNP Output



**NOTE:** White wire is Teach wire. See insert for function.

Warning: These products are not safety sensors and are not suitable for use in personal safety applications.

Switching Element Function		
	Through-beam and Reflective Models	Diffuse Reflective Models
Light on	N.C.	N.O.
Dark on	N.O.	N.C.

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Specifications	Diffuse and Through-beam Models				
Type	Diffuse				Through-beam
<b>Sensing Distance*</b>	12mm (0.47 in)	24mm (0.94 in)	60mm (2.36 in)	120mm (4.72 in)	600mm (23.62 in)
<b>Light Spot Diameter</b>	Ø 5mm (0.20 in) at 10mm (0.39 in)	Ø 5mm (0.20 in) at 10mm (0.39 in) Ø 8.0 mm (0.31 in) at 20mm (0.79 in)	Ø 5mm (0.20 in) at 10mm (0.39 in) Ø 20 mm (0.79 in) at 50mm (1.97 in)	Ø 20mm ( 0.79 in) at 50mm (1.97 in) Ø 35 mm ( 1.38 in) at 100mm (3.94 in)	Ø 50mm (1.97 in) at 200mm (7.87 in)
<b>Emission</b>	Red LED (630nm)				
<b>Sensitivity</b>	Fixed				
<b>Output Type</b>	NPN or PNP; N.O. only				
<b>Operating Voltage</b>	10-30 VDC				
<b>No-load Supply Current</b>	≤ 12mA		≤ 15mA		≤ 10mA receiver ≤ 8mA emitter
<b>Operating (Load) Current</b>	≤ 100mA				
<b>Off-state (Leakage) Current</b>	< 10uA for all types				
<b>Voltage Drop</b>	≤ 2.0V				
<b>Switching Frequency</b>	1kHz				
<b>Ripple</b>	≤ 10%				
<b>Time Delay Before Availability (tv)</b>	< 110ms for all types				
<b>Short Circuit Protection</b>	Yes (switch autoresets after overload is removed)				
<b>Operating Temperature</b>	-25 to +65°C (-13 to +149°F)				
<b>Protection Degree (DIN 400050)</b>	IEC IP67				
<b>LED Indicators Switching Status</b>	Yellow (output energized), green (excess light indication)				
<b>Housing Material</b>	Stainless steel V2A				
<b>Lens Material</b>	Polybutylene terephthalate / Polymethyl methacrylate				
<b>Shock/Vibration</b>	IEC 60947-5-2				
<b>Tightening Torque</b>	1.5 N•m (13.3 lb•in)				
<b>Weight (cable/connector)</b>	30g [1.06 oz] / 4g [0.14 oz]				
<b>IO-Link</b>	IO-Link version 1.0, PNP units only				
<b>Connectors</b>	PUR, 2m (6.5 ft) axial cable; M8 3-pin connector				
<b>Agency Approvals</b>	UL file E239373, CE				

\* LTR-xxMA-Wxx-xxx range can be adjusted via the Teach wire

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## Dimensions

mm [inches]

Figure 1

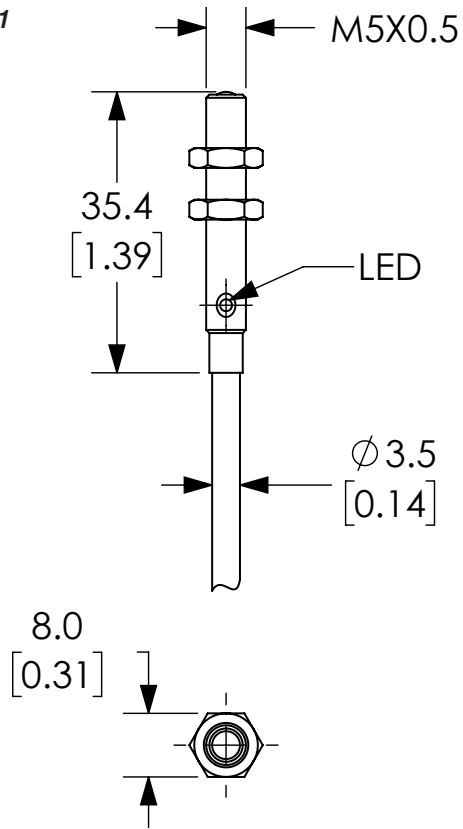


Figure 2

