





**DC - 3 WIRE – L SERIES**  
**Brass, Nickel Plated (BN),**  
**Cylindrical, Threaded,**  
**M8 – 10-30V DC, 200mA**  
**M12-M30 – 18-30V DC, 120mA**  
**1 LED for Output Energized**

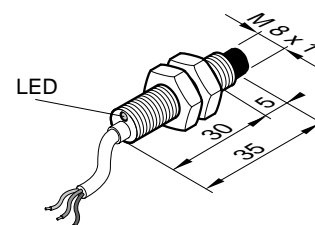
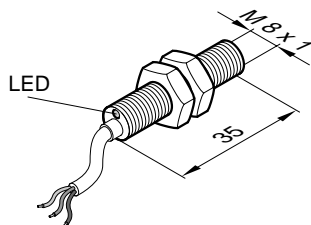
- **Short Body Sensors**
- **Economically priced**
- **Connector options**
- **Carries CE mark**

- IEC (529)IP67 (NEMA 1, 3, 4, 6, 12, 13) Protection
- Short Circuit Protection
- Overload Protection
- Reverse Polarity Protection
- Wire Break Resistance
- Temperature Range: -25 to 70°C (-13 to 158°F)

Sensing Distance	M8 Flush Mount 1.5mm (.06 in.)			M8 Non-Flush Mount 2mm (.08 in.)			
	Cable or Connector Style Cat. No.	Cable	64	65	Cable	64	65
<b>PNP</b>	Normally Open 	9981-2000	9981-2064	9981-2065	9981-2200	9981-2264	9981-2265
	Normally Closed 						
<b>NPN</b>	Normally Open 	9981-2100	9981-2164	9981-2165	9981-2300	9981-2364	9981-2365
	Normally Closed 						
Ripple Voltage		≤10%	≤10%	≤10%	≤10%	≤10%	≤10%
Voltage Range		10V - 30V	10V - 30V	10V - 30V	10V - 30V	10V - 30V	10V - 30V
Supply Current		≤10 mA	≤10 mA	≤10 mA	≤10 mA	≤10 mA	≤10 mA
Max. Load Current		200 mA	200 mA	200 mA	200 mA	200 mA	200 mA
Voltage Drop Across Sensor		≤2.4V	≤2.4V	≤2.4V	≤2.4V	≤2.4V	≤2.4V
Max. Leakage Current		≤10 μA	≤10 μA	≤10 μA	≤10 μA	≤10 μA	≤10 μA
Switching Frequency		2000Hz	2000Hz	2000Hz	2000Hz	2000Hz	2000Hz
Hysteresis		≤15%	≤15%	≤15%	≤15%	≤15%	≤15%
Temperature Drift		≤10%	≤10%	≤10%	≤10%	≤10%	≤10%
Repeatability		.15mm (.006 in.)	.15mm (.006 in.)	.15mm (.006 in.)	.20mm (.008 in.)	.20mm (.008 in.)	.20mm (.008 in.)
Front Cap Material		PBTP	PBTP	PBTP	PBTP	PBTP	PBTP

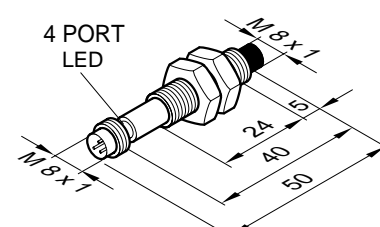
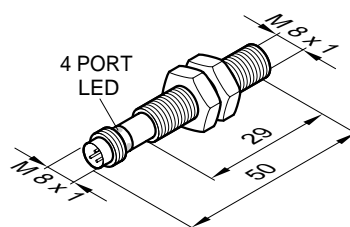
**Fixed Cable**

PVC 2m (6ft. 6in.). For 5m (16 ft. 5 in.) cable length, change the last two digits of the part number to 02. For other cable lengths and/or PUR cable, please consult Altech. Non-metallic locknuts for M8 and Brass, Nickel Plated (BN) locknuts for M12 through M30.



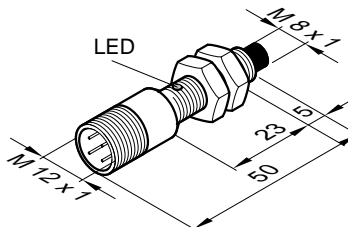
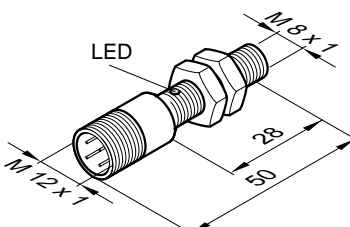
**64 Style Connector**

3-pin, Pico style, 8mm (.31 in.) supplied with non-metallic locknuts for M8 and Brass, Nickel Plated (BN) locknuts for M12 through M30.



**65 Style Connector**

4-pin, Micro style, 12mm (.47 in.) supplied with non-metallic locknuts for M8 and Brass, Nickel Plated (BN) locknuts for M12 through M30.



### Metric/in. Conversion Table

1.0 mm = .04 in.	30.0 mm = 1.18 in.
5.0 mm = .20 in.	34.0 mm = 1.34 in.
6.0 mm = .23 in.	35.0 mm = 1.37 in.
8.0 mm = .31 in.	39.0 mm = 1.53 in.
12.0 mm = .47 in.	40.0 mm = 1.57 in.
23.0 mm = .91 in.	50.0 mm = 1.96 in.
24.0 mm = .94 in.	
28.0 mm = 1.10 in.	
29.0 mm = 1.14 in.	

This table converts millimeters to inches in reference to the illustrations included on these pages

### Accessories

#### 2 meter (6 ft. 6 in.) DC Cable Assemblies for Quick Disconnect Sensors

64 Connector	8000-5220	PVC, Straight
64 Connector	8000-5230	PVC, Right Angle, 2LED, PNP
64 Connector	8000-5240	PVC, Right Angle, 2LED, NPN
65 Connector	8000-5110	PVC, Straight
65 Connector	8000-5120	PVC, Right Angle
65 Connector	8000-5150	PVC, Right Angle, 2LED, NPN
65 Connector	8000-5160	PVC, Right Angle, 2LED, PNP

Change last digit of connector number to 5 for 5 meter cable

Refer to pages 116-121 for more cable information

Mounting Brackets – see Page 114-115

### M12 Flush Mount

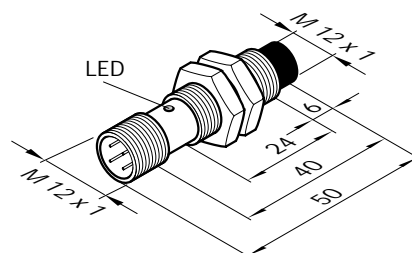
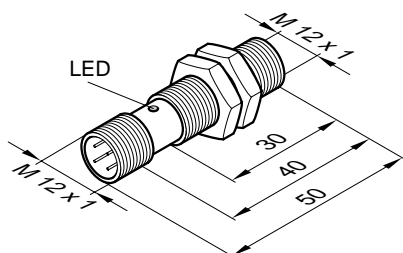
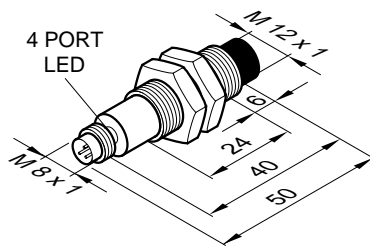
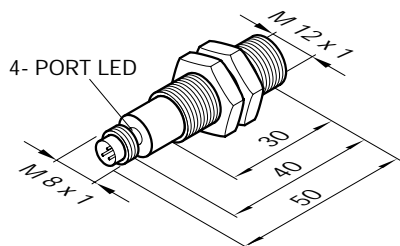
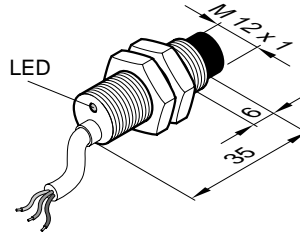
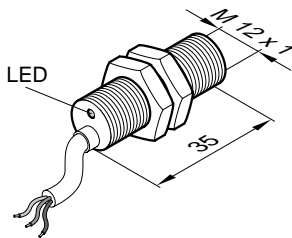
2mm (.08 in.)

### M12 Non-Flush Mount

4mm (.16 in.)

Cable	64	65	Cable	64	65
9982-2000	9982-2064	9982-2065	9982-2200	9982-2264	9982-2265
9982-2100	9982-2164	9982-2165	9982-2300	9982-2364	9982-2365
≤10%	≤10%	≤10%	≤10%	≤10%	≤10%
18V - 30V	18V - 30V	18V - 30V	18V - 30V	18V - 30V	18V - 30V
≤10 mA	≤10 mA	≤10 mA	≤10 mA	≤10 mA	≤10 mA
120 mA	120 mA	120 mA	120 mA	120 mA	120 mA
≤1.5V	≤1.5V	≤1.5V	≤1.5V	≤1.5V	≤1.5V
≤10 μA	≤10 μA	≤10 μA	≤10 μA	≤10 μA	≤10 μA
2000Hz	2000Hz	2000Hz	1000Hz	1000Hz	1000Hz
≤15%	≤15%	≤15%	≤15%	≤15%	≤15%
≤10%	≤10%	≤10%	≤10%	≤10%	≤10%
.20mm (.008 in.)	.20mm (.008 in.)	.20mm (.008 in.)	.40mm (.016 in.)	.40mm (.016 in.)	.40mm (.016 in.)
PBTP	PBTP	PBTP	PBTP	PBTP	PBTP

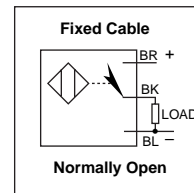
Note: Sensor dimensions in mm.



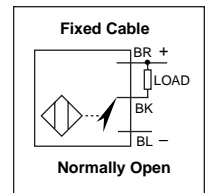
### Wiring Diagrams

Note: Wire colors are applicable on cables purchased from Altech.

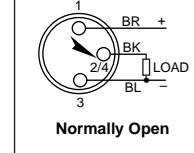
#### PNP



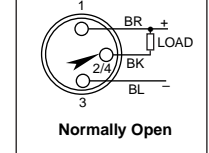
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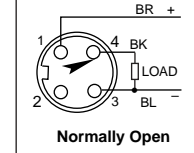
#### 64 Connector



#### 64 Connector



#### 65 Connector



#### 65 Connector

