

Table of Contents



OVERVIEW – Inductive Proximity Sensors

Introduction	4
Operation	5



CYLINDRICAL Inductive Proximity Sensors

Introduction/Operation	8
Selection Guide, DC styles	12
Selection Guide, AC styles	14
Product Specifications.....	16



LIMIT STYLE Inductive Proximity Sensors

Introduction/Operation	68
Selection Guide.....	71
Product Specifications.....	72



BLOCK STYLE Inductive Proximity Sensors

Introduction/Operation	80
Selection Guide.....	82
Product Specifications.....	84



RING STYLE Inductive Proximity Sensors

Introduction/Operation	98
Selection Guide.....	100
Product Specifications.....	102

OTHER INFORMATION

APPENDIX:	
IP Codes	132
NEMA requirements	133
Cross Reference	134
Glossary.....	135
Conversion Charts	137
INDEX	138
TERMS & CONDITIONS	141
WARRANTY	143



ACCESSORIES for Inductive Proximity Sensors

Introduction.....	113
Mounting Brackets	114
Cable Assemblies.....	116
Switching Units.....	122
Motion Detectors	128

All specifications subject to change without notice or obligation



Limit Style Sensors

LIMIT STYLE INDUCTIVE PROXIMITY SENSORS

The Limit Style Inductive Proximity Sensor features a housing with a similar outline of a mechanical Limit Switch which it has replaced in many applications. All Altech Limit Style models are 41mm (1.61 in.) x 40mm (1.57 in.) x 121 mm (4.76 in.). The Altech Versa Prox[®] construction features a rugged design that is capable of moving the sensing head into 17 unique positions. Once the positioning is completed, the Versa Prox[®] can be snapped and locked into position with no screws.

For connecting wiring to the Versa Prox[®], the unit separates once the locking mechanism is disengaged, and a terminal strip is available for connections. The hole opening is a threaded 1/2" 14NPT. Please see page 70 for detailed instruction for adjustments.

The Versa Prox[®] has 2 LED and 3 LED models, they have programmable, Normally Open or Normally Closed outputs, and both Flush or Non-Flush models are available. All sensors meet IP67 (NEMA 1,3,4,6,12,13) protection levels.

FLUSH MOUNT SENSORS

Flush Mounted Sensors have electromagnetic fields concentrated directly in front of the sensing head and may be mounted directly into metal mounting brackets or embedded directly into metal without causing a false output. **Figure 9** illustrates that on Limit Style sensors there should be at least the sensor width separating adjacent sensors. Also, no non-target metal should be less than 3 times the sensing distance S_n directly across the sensor. Two sensors directly across from each other should be greater than 6 times the sensing distance S_n .

Sensing Distances – AC, DC, AC/DC Limit Style Proximity Sensors

Type	Voltage	Flush*	Partially Flush*	Non-Flush*
Versa Prox [®]	AC, DC, AC/DC	20		40
Standard	AC, DC	15		40
Weld Immune	AC, DC	15	25	
Analog	DC			10-20

*All Sensing Distances in mm.

Operating Voltages – Limit Style

AC	20 - 250	
DC	10 - 30	10 - 60
AC/DC	20 - 250	

Operating Current– Limit Style

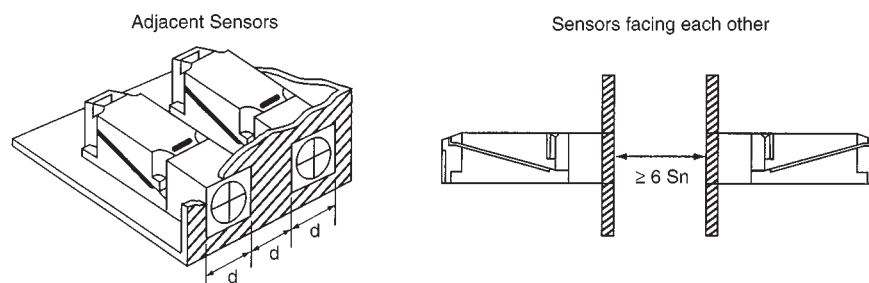
AC	500 mA	500 mA	
DC	120 mA	400 mA	5 mA
AC/DC	400 mA		

Sensor Wiring Systems – Limit Style

AC	2-Wire
DC	3-Wire
AC/DC	2-Wire

Fig. 9

FLUSH MOUNT INSTALLATION



NON-FLUSH MOUNT SENSORS

Non-Flushed Mounted Sensors have electromagnetic fields with a wide sensing angle and are internally unshielded (no metal surrounds the sensing head). Care must be taken to insure that no non-target metal comes in the sensing head area as shown in **Figure 10**. The sensing head must extend 40mm(1.57 in.) in front of metal, two sensors directly across from each other should be greater than 6 times Sn, the sensing distance. Adjacent sensors should be spaced greater than 280 mm (11.02 in.) center-to-center.

OUTPUT CONNECTIONS

- 1/2" - 14NPT Threaded Hole Opening and Terminal Block.
- Micro Style Quick Disconnect Connector.

HOUSING MATERIAL

PA6.6 (GV-30) – Versa Prox® Models.
 Trogamid T – Standard Models.

DC VOLTAGE LED FUNCTIONS

L Series

Condition	LED Color
Power	Green
Output	Orange
Overload	Green LED Flashes

GL Series

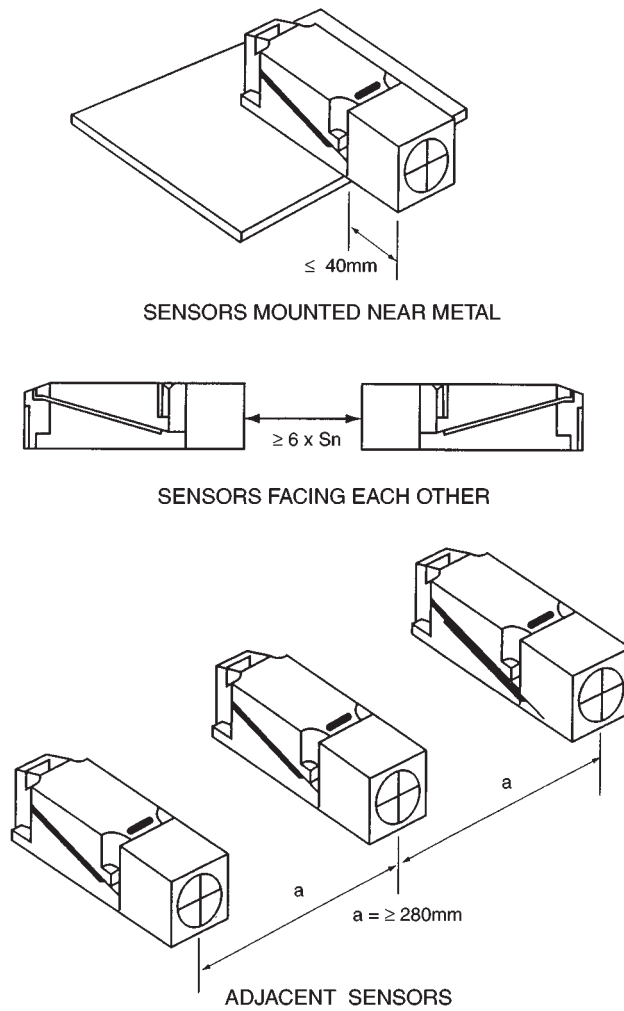
Condition	LED Color
Power	Green
Output	Orange
Adjust	Red
Unsafe Condition	Red (Adjust) LED flashes when target is detected.
Correct Setting	Orange (Output) LED lights when distance is reduced

AC VOLTAGE LED FUNCTIONS

Condition	LED Color
Power	Green
Output	Orange

Fig. 10

NON-FLUSH MOUNT INSTALLATION



AC/DC VOLTAGE LED FUNCTIONS

Condition	LED Color
Power	Green
Output	Orange
Overload/Short Circuit	Green LED flashes. To reset sensor, disconnect supply voltage for 2 seconds.

DC LIMIT SWITCHES – SELECTION GUIDE

Series	Sensing Distance (mm)					Mounting			Function Programmable				No. Wires	Sensing Head Positions	No. LED's	Connection		Page
	10	15	20	25	40	FL	NF	PF	PNP	NPN	NO	NC				Term. Strip	65	
L Series 10-30V DC, 120 mA • Economical • Snap & Lock construction • 17 position sensing head			•		•	•	•		•	•	•		3	17	2	•	•	72
GL Series 10-60V DC, 400 mA • Snap & Lock construction • 17 position sensing head • 3 LED's			•		•	•	•		•	•	•		3	17	3	•	•	73
AC/DC Series 20-250V AC/DC, 400 mA • Snap & Lock construction • 17 position sensing head • Includes short circuit protection			•		•	•	•				•		2	17	2	•		74
Weld Immune 10-30V DC, 200 mA • Protection from electromagnetic interference • Flush mount units have Teflon coating • 9 position sensing head		•		•		•	•				•		3	9	2	•		76
Analog Series 18-30V DC, 5 mA • Output 1-9V proportional to target distance • ±3% linearity	•		•				•						3	9	0	•		75

AC LIMIT SWITCHES – SELECTION GUIDE

Series	Sensing Distance (mm)					Mounting			Function Programmable		No. Wires	Sensing Head Positions	No. LED's	Connection Terminal Strip	Page
	10	15	20	25	40	FL	NF	PF	NO	NC					
GL Series 20-250V AC, 500 mA • Snap & Lock construction • 17 position sensing head • Extended sensing range			•		•	•	•			•	2	17	2	•	77
AC/DC Series 20-250V AC/DC, 400 mA • Snap & Lock construction • 17 position sensing head • Includes short circuit protection			•		•	•	•			•	2	17	2	•	74
Weld Immune 20-250V AC, 500 mA • Protection from electromagnetic interference • Teflon coating on flush mount unit • 9 position sensing head		•		•		•	•			•	2	9	2	•	78

**DC - 3 WIRE – L SERIES
VERSA PROX LIMIT STYLE
Polyamide (PA 6.6) Housing
10-30V DC, 120mA
2 LEDs for Operating
Voltage & Output Energized**

- 17 rotatable sensing head positions
- Programmable NO/NC outputs
- Rugged Housing
- Snap-together construction
- Separable mounting base
- Carries C€ 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)

Metric/in. Conversion Table

3.0 mm = .11 in.	41 mm = 1.61 in.
5.0 mm = .20 in.	60 mm = 2.36 in.
7.0 mm = .27 in.	121 mm = 4.76 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

- 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

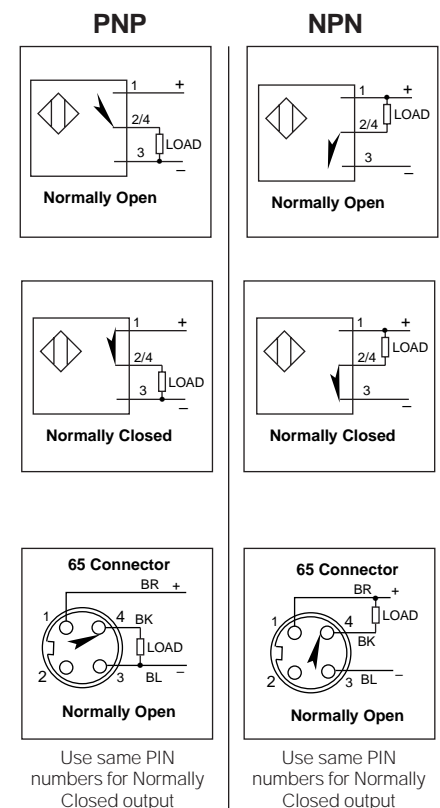
Change last digit of connector number to 5 for 5 meter cable

Refer to pages 116-121 for more cable information

Mounting Brackets – see Pages 114-115

Wiring Diagrams

Note: Wire colors are applicable on cables purchased from Altech

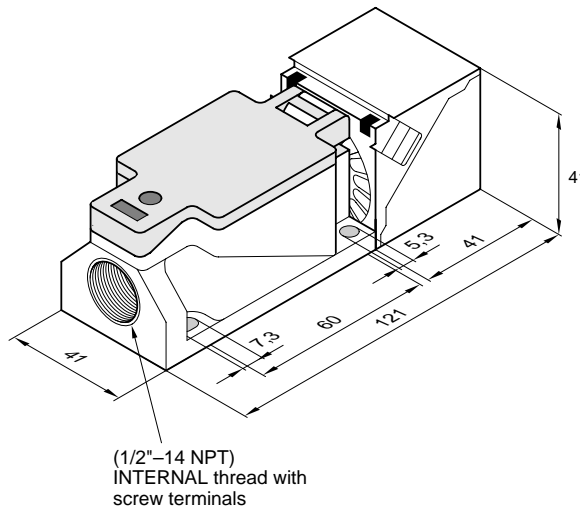


Sensing Distance	Flush Mount		Non-Flush Mount	
	20mm (.79 in.)		40mm (1.57 in.)	
Cable or Connector Style Cat. No.	Screw Terminal		Screw Terminal	
PNP (Programmable NO/NC)	9883-2033		9883-2233	
NPN (Programmable NO/NC)	9883-2333		9883-2533	
Ripple Voltage	≤10%		≤10%	
Voltage Range	10V-30V		10V - 30V	
Supply Current	≤10 mA		≤10 mA	
Max. Load Current	120 mA		120 mA	
Voltage Drop Across Sensor	≤1.5V		≤1.5V	
Max. Leakage Current	≤10 µA		≤10 µA	
Switching Frequency	100 Hz		50 Hz	
Hysteresis	≤20%		≤20%	
Temperature Drift	≤10%		≤10%	
Repeatability	1.0mm (.04 in.)		2mm (.079 in.)	

Note: Sensor dimensions in mm.

Screw Terminals

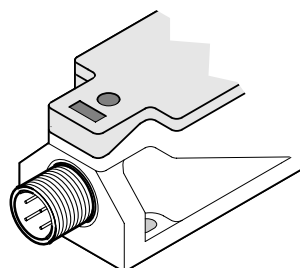
Screw terminals are located internally in housing for wire connections



Alternative Connector Style

65 Style Connector –
4-pin Micro style, 12mm (.47 in.).

Flush		Non-Flush	
PNP	NPN	PNP	NPN
9883-2065	9883-2365	9883-2265	9883-2565



**DC - 3 WIRE – GL SERIES
VERSA PROX LIMIT STYLE**
Polyamide (PA 6.6) Housing
10-60V DC, 400mA
3 LEDs for Operating Voltage,
Output Energized, and
Set-up aid

- 17 rotatable sensing head positions
- Programmable NO/NC outputs
- Rugged Housing
- Snap-together construction
- Separable mounting base
- Carries C_E 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	Flush Mount	Non-Flush Mount
	20mm (.79 in.)	40mm (1.57 in.)
Cable or Connector Style Cat. No.	Screw Terminal	Screw Terminal
PNP (Programmable NO/NC)	9883-3033	9883-3233
NPN (Programmable NO/NC)	9883-3333	9883-3533
Ripple Voltage	≤10%	≤10%
Voltage Range	10V-60V	10V - 60V
Supply Current	≤15 mA	≤15 mA
Max. Load Current	400 mA	400 mA
Voltage Drop Across Sensor	≤2.4V	≤2.4V
Max. Leakage Current	≤10 μA	≤10 μA
Switching Frequency	150 Hz	70 Hz
Hysteresis	≤20%	≤20%
Temperature Drift	≤10%	≤10%
Repeatability	1.0mm (.04 in.)	2.0mm (.079 in.)

Metric/in. Conversion Table

3.0 mm = .11 in.	41 mm = 1.61 in.
5.0 mm = .20 in.	60 mm = 2.36 in.
7.0 mm = .27 in.	121 mm = 4.76 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

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

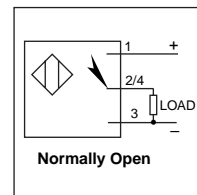
Refer to pages 116-121 for more cable information

Mounting Brackets – see Pages 114-115

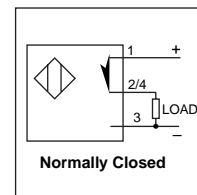
Wiring Diagrams

Note: Wire colors are applicable on cables purchased from Altech

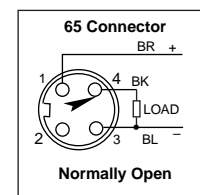
PNP



Normally Open



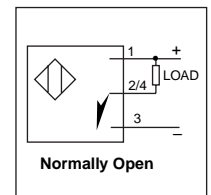
Normally Closed



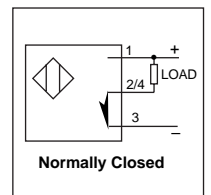
Normally Open

Use same PIN numbers for Normally Closed output

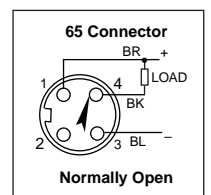
NPN



Normally Open



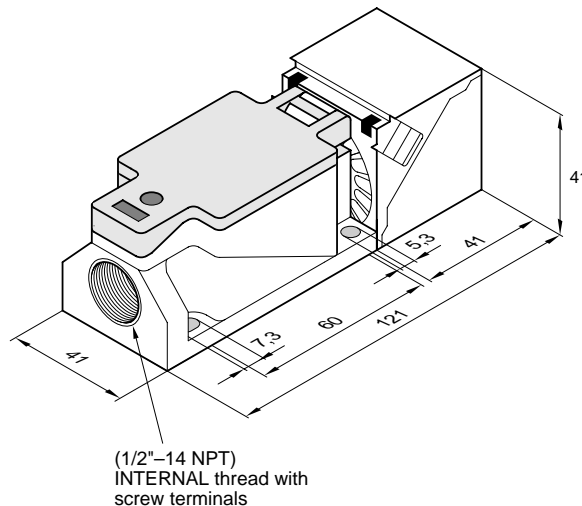
Normally Closed



Normally Open

Use same PIN numbers for Normally Closed output

Note: Sensor dimensions in mm.



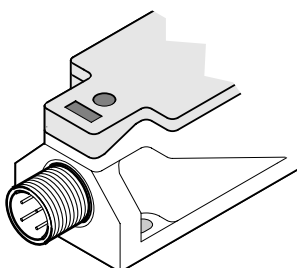
Screw Terminals

Screw terminals are located internally in housing for wire connections

Alternative Connector Style

65 Style Connector –
4-pin Micro style, 12mm (.47 in.).

Flush		Non-Flush	
PNP	NPN	PNP	NPN
9883-3065	9883-3365	9883-3265	9883-3565



AC/DC - 2 WIRE VERSA-PROX STANDARD SERIES, LIMIT STYLE Polyamide (PA 6.6), Standard Housing 20-250V AC/DC, 400mA 2 LEDs for Operating Voltage & Output Energized

- 17 rotatable sensing head positions
- Programmable NO/NC outputs
- Rugged Housing
- Snap-together construction
- Separable mounting base
- Carries C 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	Flush Mount	Non-Flush Mount
	20mm (.79 in.)	40mm (1.57 in.)
Cable or Connector Style Cat. No.	Screw Terminal	Screw Terminal
(Programmable NO/NC)	9873-0031	9873-0231
Voltage Range	20V-250V AC/DC	20V - 250V AC/DC
Operating Frequency	DC-60Hz	DC-60Hz
Output Current	400 mA	400 mA
Maximum Drop Across Sensor	≤5V	≤5V
Max. Leakage Current	≤2 mA	≤2 mA
Switching Frequency	15 Hz	15 Hz
Hysteresis	≤20%	≤20%
Temperature Drift	≤10%	≤10%
Repeatability	1.0mm (.04 in.)	2.0mm (.079in.)

Metric/in. Conversion Table

3.0 mm = .11 in.	41 mm = 1.61 in.
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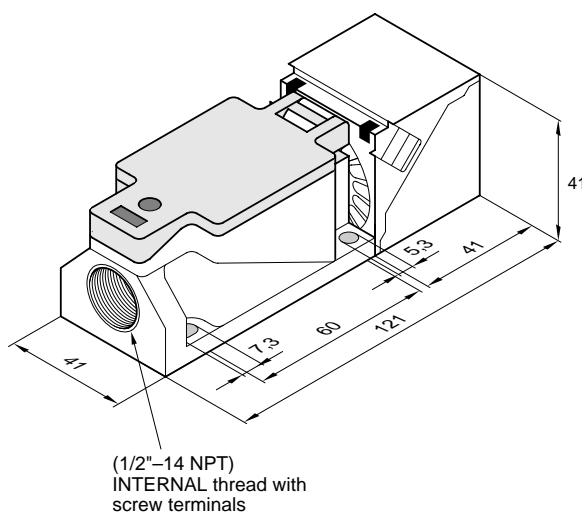
Accessories

Mounting Brackets – see Pages 114-115

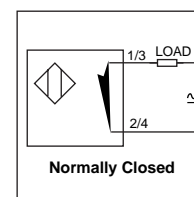
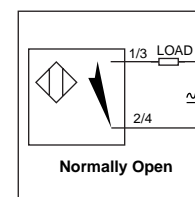
Note: Sensor dimensions in mm.

Screw Terminals

Screw terminals are located internally in housing for wire connections



Wiring Diagrams



**DC - 3 WIRE
ANALOG SYSTEM, LIMIT
STYLE, Trogamid T Housing
18-30V DC, 5mA
Analog Output: 1V - 9V**

- 9 rotatable sensing head positions
- Output voltage proportional to target distance
- Ideal for determining position information
- Excellent linearity $\pm 3\%$
- Carries ϵ mark

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

Non-Flush Mount

Sensing Distance	10mm (.39 in.) – 20mm (.79 in.)
Cable or Connector Style Cat. No.	Screw Terminals
	9814-1133
Voltage Range	18V - 30V
Supply Current	≤ 10 mA
Maximum Load Current	5 mA
Switching Frequency	25Hz
Temperature Drift	$\pm 3V$
Repeatability	1%
Output Voltage Range	1 - 9V DC

Additional Information

The Analog output voltage can be digitized by means of the 8100-2100 Switching Unit and the Modules 8100-2400/-2500

Metric/in. Conversion Table

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

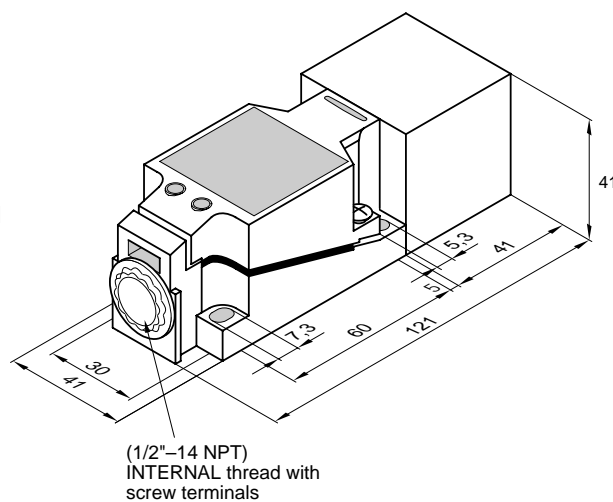
Accessories

Mounting Brackets – see Pages 114-115

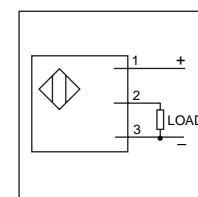
Note: Sensor dimensions in mm.

Screw Terminals

Screw terminals are located internally in housing for wire connections



Wiring Diagrams



**DC - 3 WIRE WELD IMMUNE
LIMIT STYLE,
Trogamid T Housing,
10 - 60V DC, 400 mA**

- 9 rotatable sensing head positions
- Programmable NO/NC outputs
- Circuitry that protects from electromagnetic interference
- Carries $\text{C}\epsilon$ 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)

Metric/in. Conversion Table

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Accessories

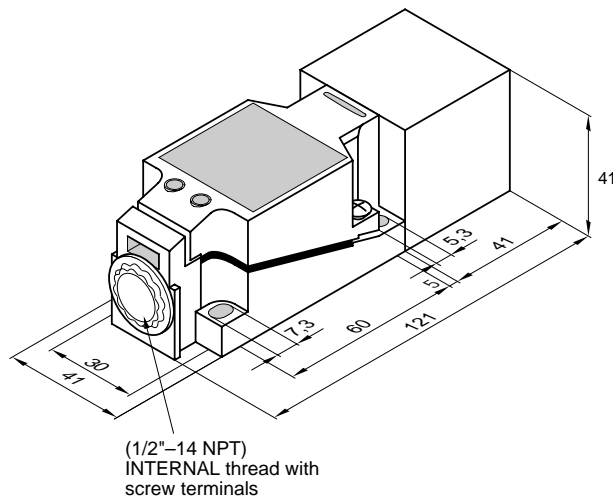
Mounting Brackets – see Pages 114-115

Sensing Distance	Flush Mount	Partially Flush Mount
	15mm (.59 in.)	25mm (.98 in.)
Cable or Connector Style Cat. No.	Screw Terminals	Screw Terminals
PNP (Programmable NO/NC)	9863-5833	9863-5933
Ripple Voltage	≤10%	≤10%
Voltage Range	10V-60V	10V - 60V
Supply Current	≤18 mA	≤18 mA
Max. Load Current	400 mA	400 mA
Voltage Drop Across Sensor	≤2.4V	≤2.4V
Max. Leakage Current	≤10 μA	≤10 μA
Switching Frequency	15 Hz	15 Hz
Hysteresis	≤15%	≤15%
Temperature Drift	≤10%	≤10%
Repeatability	1.5mm (.059 in.)	2.5mm (.098 in.)

Note: Sensor dimensions in mm.

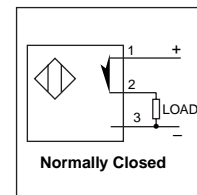
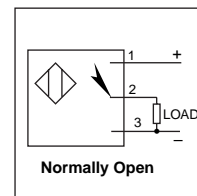
Screw Terminals

Screw terminals are located internally in housing for wire connections



Wiring Diagrams

PNP



**AC - 2 WIRE – GL SERIES
VERSA PROX LIMIT STYLE**
Polyamide (PA 6.6) Housing
20-250V AC, 500mA
2 LEDs for Operating Voltage
and Output Energized

- 17 rotatable sensing head positions
- Programmable NO/NC outputs
- Rugged Housing
- Snap-together construction
- Separable mounting base
- Carries C mark

- IEC (529) IP67 (NEMA 1, 3, 4, 6, 12, 13) Protection
- Temperature Range: -25 to 70°C (-13 to 158°F)

Sensing Distance	Flush Mount		Non-Flush Mount	
	20mm (.79 in.)		40mm (1.57 in.)	
Cable or Connector Style Cat. No.	Screw Terminals		Screw Terminals	
(Programmable NO/NC)	9873-3031		9873-3231	
Voltage Range	20V - 250V AC		20V - 250V AC	
Operating Frequency	50 - 60Hz		50 - 60Hz	
Supply Current	≤2 mA		≤2 mA	
Maximum Load Current	500 mA		500 mA	
Voltage Drop Across Sensor	≤5V		≤5V	
Maximum Leakage Current	≤2 mA		≤2 mA	
Switching Frequency	15Hz Resistive Load		15Hz Resistive Load	
Hysteresis	≤20%		≤20%	
Temperature Drift	≤10%		≤10%	
Repeatability	1.0mm (.04in.)		2.0mm (.08 in.)	

Metric/in. Conversion Table

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

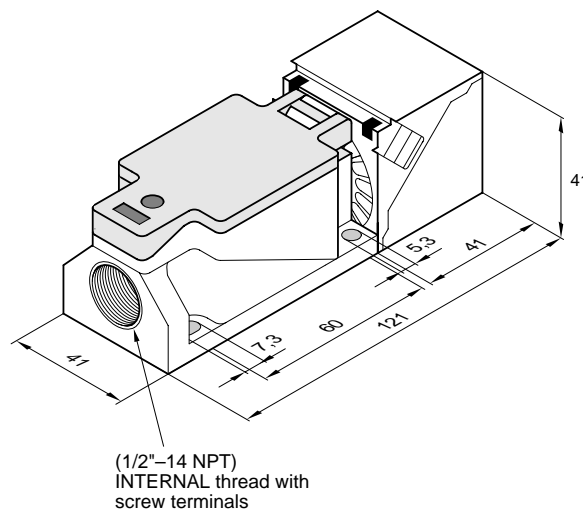
Accessories

Mounting Brackets – see Pages 114-115

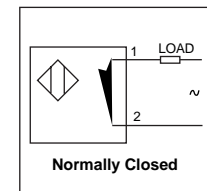
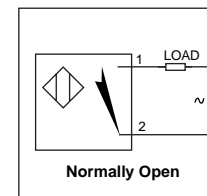
Note: Sensor dimensions in mm.

Screw Terminals

Screw terminals are located internally in housing for wire connections



Wiring Diagrams



**AC - 2 WIRE WELD IMMUNE
LIMIT STYLE**
Troglamid T Housing
20-250V AC, 500mA
2 LEDs for Operating Voltage
and Output Energized

- 9 rotatable sensing head positions
- Programmable NO/NC outputs
- Circuitry that protects for electro magnetic performance
- Carries C mark

- IEC (529) IP67 (NEMA 1, 3, 4, 6, 12, 13) Protection
- Temperature Range: -25 to 70°C (-13 to 158°F)

Metric/in. Conversion Table

3.0 mm = .11 in.	41 mm = 1.61 in.
5.0 mm = .20 in.	60 mm = 2.36 in.
7.0 mm = .27 in.	121 mm = 4.76 in.

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

	Flush Mount	Partially Flush Mount
Sensing Distance	15mm (.59 in.)	25mm (.98 in.)
Cable or Connector Style Cat. No.	Screw Terminals	Screw Terminals
(Programmable NO/NC)	9853-5831	9853-5931
Voltage Range	20V - 250V AC	20V - 250V AC
Operating Frequency	50 - 60Hz	50 - 60Hz
Supply Current	≤2 mA	≤2 mA
Maximum Load Current	500 mA	500 mA
Voltage Drop Across Sensor	≤5V	≤5V
Short Term Current (20 ms, 1Hz)	8A	8A
Maximum Leakage Current	≤2 mA	≤2 mA
Switching Frequency	15Hz	15Hz
Hysteresis	≤15%	≤15%
Temperature Drift	≤10%	≤10%
Repeatability	.75mm (.03in.)	1.25mm (.049 in.)

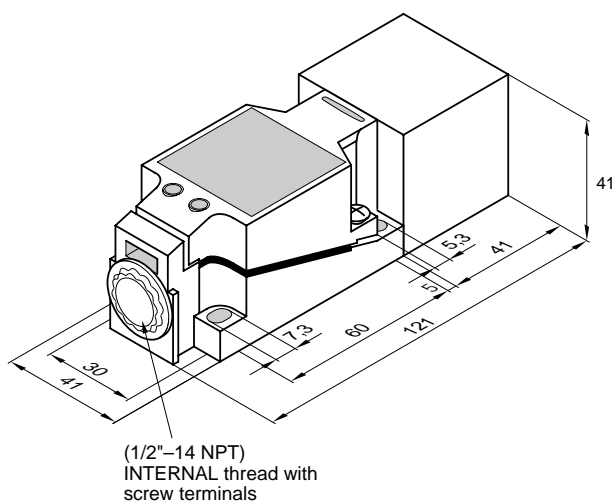
Note: Sensor dimensions in mm.

Accessories

Mounting Brackets – see Pages 114-115

Screw Terminals

Screw terminals are located internally in housing for wire connections



Wiring Diagrams

