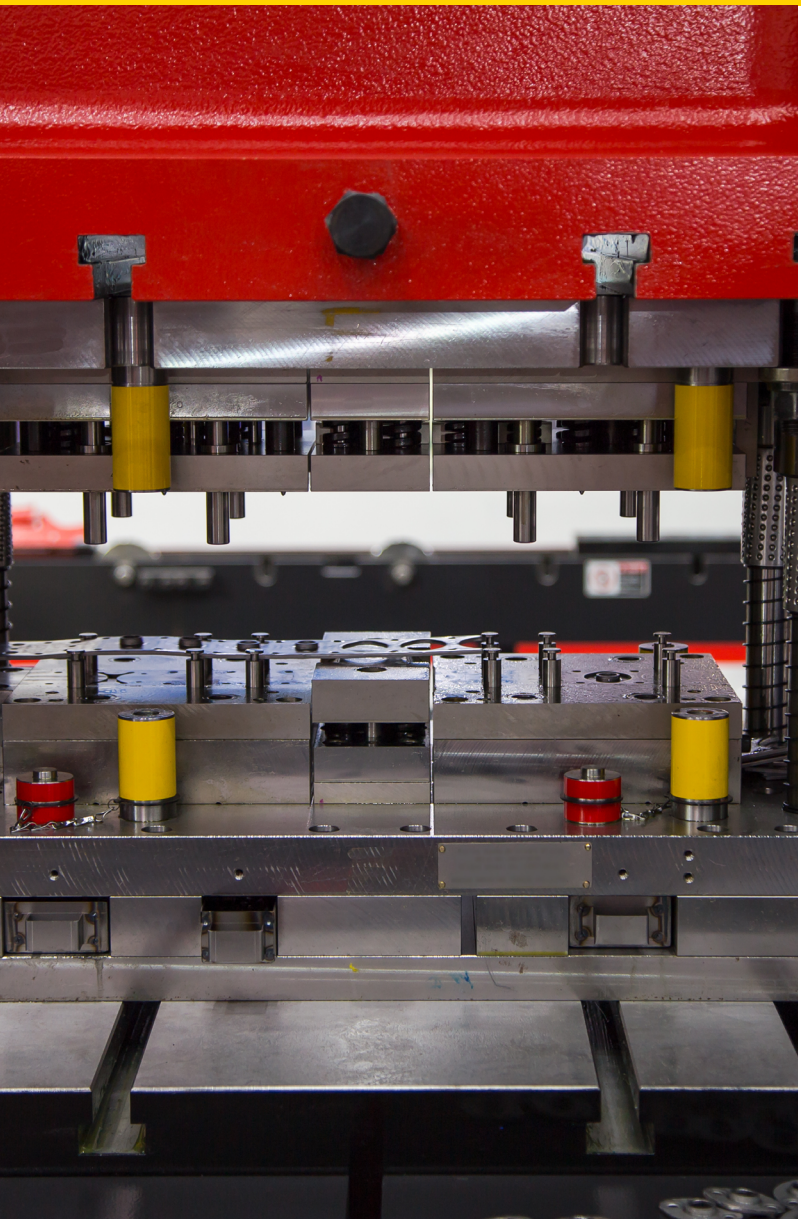
Your Global Automation Partner

TURCK

Sensors Catalog
Metal Forming and In-Die Sensing



A Global Leader in Industrial Automation

Turck's sensors, connectivity, and fieldbus technology products are built to be the best. As one of the most **prominent** sensor manufacturers **in the world**, we even back our sensors with a **lifetime warranty**. Turck works by bringing **rugged engineering** solutions to your industrial automation applications.

85,000+ SOLUTIONS

50+ YEARS OF INNOVATION

2,000+ EXPERIENCED SALES REPRESENTATIVES

Pioneer in non-contact **sensing** technology

Developed innovative **connectivity** solutions in response to our customers' needs

Recognized the need for advanced **I/O solutions** in harsh duty environments

SUPPORT & DEDICATED SERVICE

EXTENSIVE WARRANTY

4,000+ APPLICATION EXPERTS

RESPOND and SOLVE over **1,200** inquiries per day

Strategically placed manufacturing facilities in the **USA** with **28** GLOBAL SUBSIDIARIES

GLOBAL BUT LOCAL...

60 representations worldwide

Solutions for Metal Forming Environments

Protect Your Die Investment with Rugged Turck Sensors

With all the time and money spent on your dies, protecting them with affordable, easy-to-apply Turck DieGuard™ sensors is a smart investment. From our miniature 3 mm diameter barrel sensors, to our ultra-narrow Q-Pak™ Series, rugged Turck sensors are designed for feed, slug, stripper plate and part-out detection applications, preventing double hits and crashes.

Turck sensors can be embedded in dies or positioned around them in the tightest spaces. Able to withstand severe shock and vibration, fully-encapsulated Turck sensors are sealed against harsh liquids and the sensing field is completely immune to oil.

Common proximity sensors are non-contact, meaning they do not need to touch the actual target to sense it. However, in many applications the physical target inadvertently does touch the sensor. Friction between the target rubbing against the sensor can cause the sensing face to wear and eventually lead to sensor failure. Turck has solutions for this as well with the use of stainless steel face sensors or protective covers.

Above all, it is important to remember that every application is different, and no one solution will work to protect these components from every application hazard.

ENVIRONMENTS

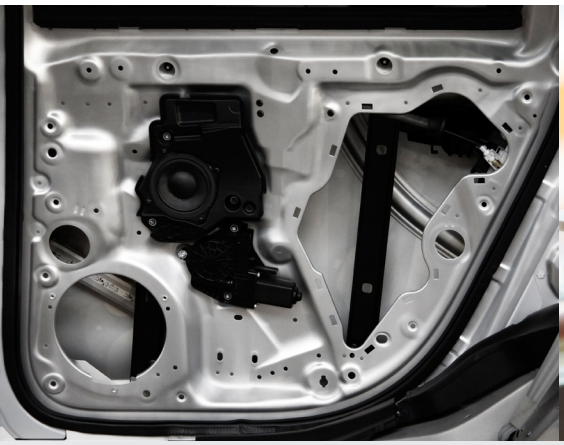
METAL FORMING

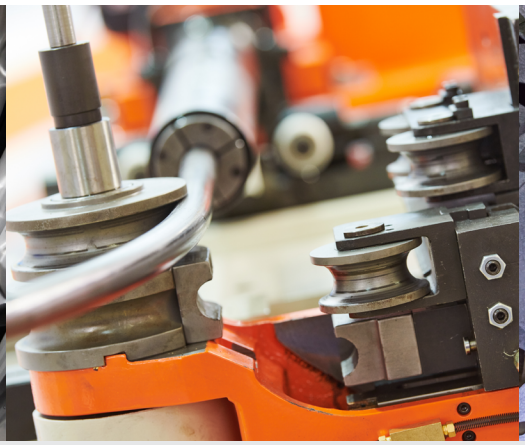
- Automotive Manufacturing
- Pipe Construction
- Stamping and Dies
- Precision Tooling

SOLUTIONS

PRODUCT ENHANCEMENTS

- Advanced Sensor Materials
- Protective Covers
- Miniature Sensors
- Uprox™ Technology





AUTOMOTIVE

We provide solutions for the fast-paced automotive manufacturing environment. Tier suppliers depend on Turck for continuous uptime and rugged products that can withstand the harshest conditions.

PIPE/METAL FORMING

Turck's wide variety of sensor offerings continue to be an industry "go to" product when it comes to reliability and ruggedness in the challening world of metal forming.

PRECISION MACHINING

Leading companies in precision machining have chosen Turck products to help them be proactive with cost reductions and risk mitigation.

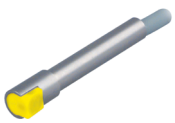
Content

Diegaurd Selection Guide

Rectangular Style Sensors					
					
Housing	**4.7 mm**	**5.5 mm**	**6 mm**	**6.5 mm**	**8 mm**
Sensing Range	**2 mm**	**2 - 3.5 mm**	**3 mm**	**1 - 2 mm**	**5 - 8 mm**
Pages	**6**	**6**	**6**	**6**	**8 - 10**

Rectangular Style Sensors					
					
Housing	**8 mm side sensing**	**10 mm side sensing**	**Qpak with pigtail**	**80 mm**	**130 mm**
Sensing Range	**4 mm**	**2 - 5 mm**	**2 - 7 mm**	**20 mm**	**20 mm**
Pages	**12**	**12**	**14**	**16 - 18**	**16 - 18**

Embeddable/Nonembeddable Barrels					
					
Housing	**3 mm**	**4 mm**	**4 mm**	**5 mm**	**6.5 mm**
Sensing Range	**1 mm**	**1 mm**	**1 mm**	**1 mm**	**1.5 - 6 mm**
Pages	**20**	**20**	**22**	**22**	**24 - 26**

Embeddable/Nonembeddable Barrels				Ring Sensors
					
Housing	**8 mm**	**Side Sensing**	**8 mm**	**12 mm**	**Rectangular**
Sensing Range	**1.5 - 2 mm**	**1 - 1.5 mm**	**1.5 - 6 mm**	**2 - 8 mm**	**Variable**
Pages	**28**	**30**	**32 - 44**	**46 - 48**	**50 - 52**

Diegaurd Selection Guide

Analog Inductive Sensors					
					
Housing	**Q08**	**Q14**	**Q20**	**4 mm**	**5 mm**
Sensing Range	**7 mm**	**10 - 20 mm**	**15 mm**	**1.5 mm**	**1.5 mm**
Pages	**54**	**54**	**54**	**56**	**56**

Analog Inductive Sensors					
					
Housing	**6.5 mm**	**8 mm**	**12 mm**	**18 mm**	**30 mm**
Sensing Range	**1.5 mm**	**1..5 mm**	**2 - 4 mm**	**5 - 8 mm**	**10 - 15 mm**
Pages	**56**	**56**	**58**	**58**	**58**

	M8	M12	7/8″	Die Protector	Whisker Probe
					
Pages	**60 - 62**	**63 - 64**	**65**	**66**	**66**

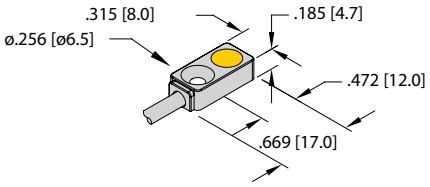
	Quick Mount	Cushion Mount	Lockwashers and Locknuts
			
Pages	**67**	**67**	**68**

Dieguard Sensors | Q4.7, Q5.5, Q06, & Q6.5

Subminiature Qpak Housing

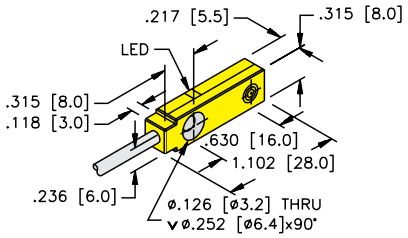
Dimension Drawings

A



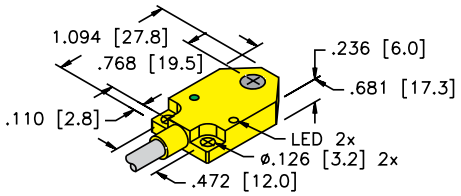
4.7 mm - Embeddable, Potted-In Cable

B



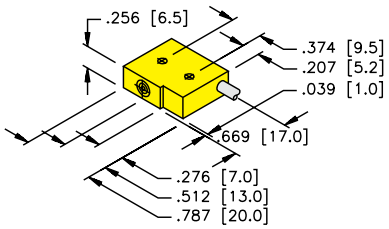
5.5 mm - Embeddable/Nonembeddable, Potted-In Cable

C



6.0 mm - Embeddable, Potted-In Cable

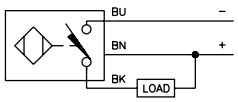
D



6.5 mm - EmbeddableNonembeddable, Potted-In Cable

Wiring Diagrams/Mating Cordsets

1



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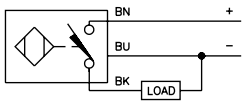


A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤1.8 V
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current
	≥170 mA on 150 mA Load Current
	≥120 mA on 100 mA Load Current
Off-State (Leakage) Current:	≤0.1 mA
No-Load Current:	≤15 mA (Ferrite, Uprox, Rectangular)
	≤20 mA (Uprox+, Uprox 3)
Time Delay Before Availability:	≤8 ms

Power-On Effect:	Per IEC 947-5-2
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Transient Protection:	Per EN 60947-5-2
Temperature Drift:	≤±10%
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

Dieguard Sensors | Q4.7, Q5.5, Q06, & Q6.5

Subminiature Qpak Housing

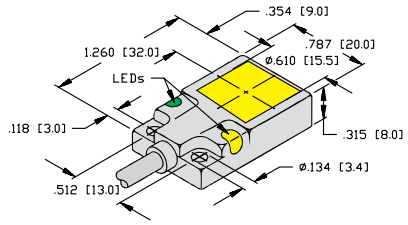
Part Number/ ID Number	Features	Embeddable	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi2-Q4.7-AN6X 1614001		•	2	3-wire DC NPN	10-30 VDC	1000	≤100	0 to +85	IP67	Zinc	PA	N/A	YE	2M/TPU	A	1	A4
Bi2-Q4.7-AP6X 1614000		•	2	3-wire DC NPN	10-30 VDC	1000	≤100	0 to +85	IP67	Zinc	PA	N/A	YE	2M/TPU	A	2	A4
Bi2-Q5.5-AN6X 1613100		•	2	3-wire DC NPN	10-30 VDC	2000	≤150	-25 to +85	IP67	PP	PP	N/A	YE	2M/TPU	B	1	A4
Bi2-Q5.5-AN6X/S34 1613101	WFI	•	2	3-wire DC NPN	10-30 VDC	2000	≤150	-25 to +70	IP67	PP	PP	N/A	YE	2M/TPU	B	1	A4
Bi2-Q5.5-AP6X 1613000		•	2	3-wire DC PNP	10-30 VDC	2000	≤150	-25 to +85	IP67	PP	PP	N/A	YE	2M/TPU	B	2	A4
Bi2-Q5.5-AP6X/S34 1613001	WFI	•	2	3-wire DC PNP	10-30 VDC	2000	≤150	-25 to +70	IP67	PP	PP	N/A	YE	2M/TPU	B	2	A4
Ni3.5-Q5.5-AN6X 4613610			3.5	3-wire DC NPN	10-30 VDC	2000	≤150	-25 to +70	IP67	PP	PP	N/A	YE	2M/TPU	B	1	A4
Ni3.5-Q5.5-AP6X 4613601			3.5	3-wire DC PNP	10-30 VDC	2000	≤150	-25 to +70	IP67	PP	PP	N/A	YE	2M/TPU	B	2	A4
Bi3-Q06-AN6X2 1620150		•	3	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	PBT	PA	GN	YE	2M/TPU	C	1	A4
Bi3-Q06-AP6X2 1620100		•	3	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	PBT	PA	GN	YE	2M/TPU	C	2	A4
Bi1-Q6.5-AP6/S34 4613401	WFI	•	1	3-wire DC PNP	10-30 VDC	300	≤150	-25 to +70	IP67	PP	PP	N/A	N/A	2M/TPU	D	2	A4
Ni2-Q6.5-AP6/S34 1650023	WFI		2	3-wire DC PNP	10-30 VDC	300	≤150	-25 to +70	IP67	PP	PP	N/A	N/A	2M/TPU	D	2	A4

Dieguard Sensors | Q08

Top Sensing Qpak Housing with Potted-in Cable

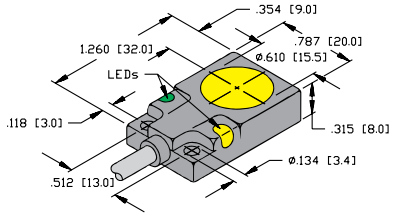
Dimension Drawings

A



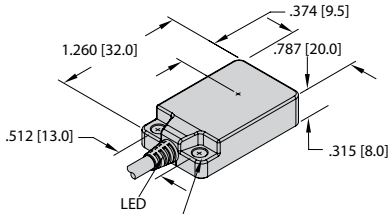
8.0 mm - Embeddable, Potted-In Cable

B



8.0 mm - Embeddable, Potted-In Cable

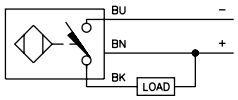
C



8 mm - Embeddable, Stainless Steel, Potted-In Cable

Wiring Diagrams/Mating Cordsets

1



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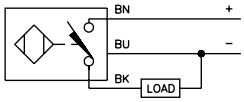


A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Power-On Effect:	Per IEC 947-5-2
Differential Travel (Hysteresis):	3-15% (5% typical)	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Wire-Break Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥170 mA on 150 mA Load Current	Temperature Drift:	≤±10%
	≥120 mA on 100 mA Load Current	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
No-Load Current:	≤15 mA (Ferrite, Uprox, Rectangular)	Repeatability:	≤2% of Rated Operating Distance
Time Delay Before Availability:	≤20 mA (Uprox+, Uprox 3)		
	≤8 ms		

A23 — 3-wire DC Stainless Front Face Ext Range (AP, AN, RP, RN)

Ripple:	≤10%	Temperature Drift:	≤±10%
Differential Travel (Hysteresis):	20%	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤2 V	Wire-Break Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Shock:	30 g, 11 ms
No-Load Current:	≤10 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Off-State (Leakage) Current:	≤0.1 mA	Repeatability:	≤5% of Rated Operating Distance

Dieguard Sensors | Q08

Top Sensing Qpak Housing with Potted-in Cable

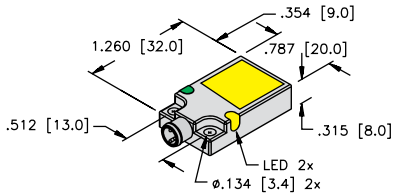
Part Number/ ID Number	Features	Embeddable	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi8U-Q08-AN6X2 1662007	Uprox+	•	8	3-wire DC NPN	10-30 VDC	1000	≤200	-30 to +85	IP68	Zinc	PA12	GN	YE	2M/TPU	A	1	A4
Bi8U-Q08-AP6X2 1662006	Uprox+	•	8	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP68	Zinc	PA12	GN	YE	2M/TPU	A	2	A4
Bi7-Q08-AN6X2 1601620	Ext. Range	•	7	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	Zinc	PA 12	GN	YE	2M/TPU	B	1	A4
Bi7-Q08-AP6X2 1601600	Ext. Range	•	7	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	Zinc	PA 12	GN	YE	2M/TPU	B	2	A4
Bi7-Q08F-AN6X 1608914	Full Stainless Steel	•	7	3-wire DC NPN	10-30 VDC	200	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	2M/TPU	C	1	A23
Bi7-Q08F-AP6X 1608916	Full Stainless Steel	•	7	3-wire DC PNP	10-30 VDC	200	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	2M/TPU	C	2	A23
Bi5U-Q08-AN6X2 1608911	Uprox	•	5	3-wire DC NPN	10-30 VDC	250	≤200	-30 to +85	IP67	Zinc	PA 12	GN	YE	2M/TPU	B	1	A4
Bi5U-Q08-AP6X2 1608901	Uprox	•	5	3-wire DC PNP	10-30 VDC	250	≤200	-30 to +85	IP67	Zinc	PA 12	GN	YE	2M/TPU	B	2	A4

Dieguard Sensors | Q08

Top Sensing Qpak Housing with Integral Connector

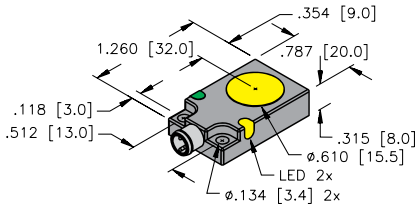
Dimension Drawings

A



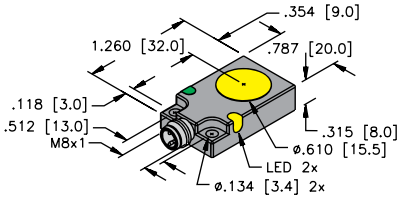
8.0 mm - Embeddable, M8 snap-on Picofast Connector

B



8.0 mm - Embeddable, M8 snap-on Picofast Connector

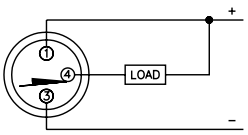
C



8.0 mm - Embeddable, M8 thread-on Picofast Connector

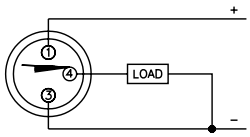
Wiring Diagrams/Mating Cordsets

1



Mating Cordset: PKG 3M-*; PKG 3Z-*

2



Mating Cordset: PKG 3M-*; PKG 3Z-*

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%
Differential Travel (Hysteresis):	3-15% (5% typical)
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	≥170 mA on 150 mA Load Current
	≥120 mA on 100 mA Load Current
Off-State (Leakage) Current:	≤0.1 mA
No-Load Current:	≤15 mA (Ferrite, Uprox, Rectangular)
	≤20 mA (Uprox+, Uprox 3)
Time Delay Before Availability:	≤8 ms

Power-On Effect:	Per IEC 947-5-2
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Transient Protection:	Per EN 60947-5-2
Temperature Drift:	≤±10%
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

Dieguard Sensors | Q08

Top Sensing Qpak Housing with Integral Connector

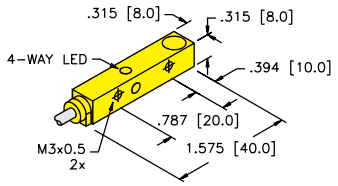
Part Number/ ID Number	Features	Embeddable	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Mating Cord	Dimension Drawings	Wiring Diagrams	Spec List
Bi8U-Q08-AN6X2-V1131 1662008	Uprox+	•	8	3-wire DC NPN	10-30 VDC	1000	≤200	-30 to +85	IP68	Zinc	PA 12	GN	YE	PKG 3Z-*	A	1	A4
Bi8U-Q08-AP6X2-V1131 1662005	Uprox+	•	8	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP68	Zinc	PA 12	GN	YE	PKG 3Z-*	A	2	A4
Bi7-Q08-AN6X2-V1131 1601622	Ext. Range	•	7	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	Zinc	PA 12	GN	YE	PKG 3Z-*	B	1	A4
Bi7-Q08-AP6X2-V1131 1601602	Ext. Range	•	7	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	Zinc	PA 12	GN	YE	PKG 3Z-*	B	2	A4
Bi7-Q08-AN6X2-V2131 1601623	Ext. Range	•	7	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	Zinc	PA 12	GN	YE	PKG 3M-*	C	1	A4
Bi7-Q08-AP6X2-V2131 1601603	Ext. Range	•	7	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	Zinc	PA 12	GN	YE	PKG 3M-*	C	2	A4
Bi5U-Q08-AN6X2-V1131 1608910	Uprox	•	5	3-wire DC NPN	10-30 VDC	250	≤200	-30 to +85	IP67	Zinc	PA 12	GN	YE	PKG 3Z-*	B	1	A4
Bi5U-Q08-AP6X2-V1131 1608900	Uprox	•	5	3-wire DC PNP	10-30 VDC	250	≤200	-30 to +85	IP67	Zinc	PA 12	GN	YE	PKG 3Z-*	B	2	A4
Bi5U-Q08-AN6X2-V2131 1608904	Uprox	•	5	3-wire DC NPN	10-30 VDC	250	≤200	-30 to +85	IP67	Zinc	PA 12	GN	YE	PKG 3M-*	C	1	A4
Bi5U-Q08-AP6X2-V2131 1608905	Uprox	•	5	3-wire DC PNP	10-30 VDC	250	≤200	-30 to +85	IP67	Zinc	PA 12	GN	YE	PKG 3M-*	C	2	A4
Bi5-Q08-AN6X2-V1131 1600600		•	5	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	Zinc	PA 12	GN	YE	PKG 3Z-*	B	1	A4
Bi5-Q08-AP6X2-V1131 1600500		•	5	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	Zinc	PA 12	GN	YE	PKG 3Z-*	B	2	A4
Bi5-Q08-AN6X2-V2131 1600602		•	5	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	Zinc	PA 12	GN	YE	PKG 3M-*	C	1	A4
Bi5-Q08-AP6X2-V2131 1600502		•	5	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	Zinc	PA 12	GN	YE	PKG 3M-*	C	2	A4

Dieguard Sensors | Q8SE & Q10S

Side Sensing Qpak Housing

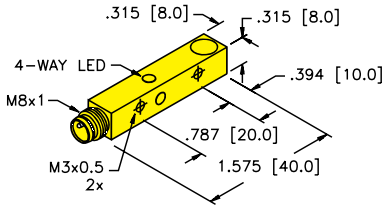
Dimension Drawings

A



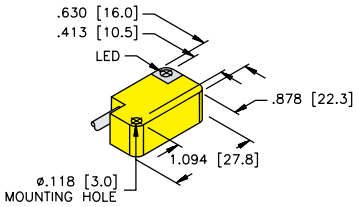
8.0 mm - Nonembeddable, Potted-In Cable

B



8.0 mm - Nonembeddable, M8 Picofast Connector

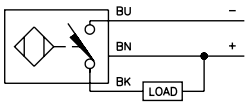
C



10 mm - Embeddable/Nonembeddable, Potted-In Cable

Wiring Diagrams/Mating Cordsets

1



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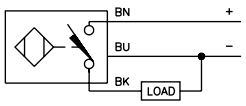

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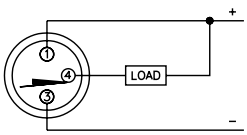
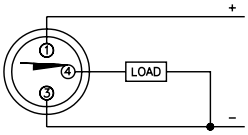


Mating Cordset: PKG 3Z-*

4



Mating Cordset: PKG 3Z-*

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤1.8 V
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current
	≥170 mA on 150 mA Load Current
	≥120 mA on 100 mA Load Current
Off-State (Leakage) Current:	≤0.1 mA
No-Load Current:	≤15 mA (Ferrite, Uprox, Rectangular)
	≤20 mA (Uprox+, Uprox 3)
Time Delay Before Availability:	≤8 ms

Power-On Effect:	Per IEC 947-5-2
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Transient Protection:	Per EN 60947-5-2
Temperature Drift:	≤±10%
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

Dieguard Sensors | Q8SE & Q10S

Side Sensing Qpak Housing

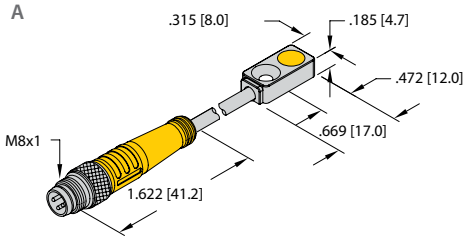
Part Number/ ID Number	Features	Embeddable	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Ni4U-Q8SE-AN6X 4635809	Uprox+		4	3-wire DC NPN	10-30 VDC	1000	≤150	-30 to +85	IP68	PP	PP	N/A	YE	2M/TPU	A	1	A4
Ni4U-Q8SE-AP6X 4635807	Uprox+		4	3-wire DC PNP	10-30 VDC	1000	≤150	-30 to +85	IP68	PP	PP	N/A	YE	2M/TPU	A	2	A4
Ni4U-Q8SE-AN6X-V1131 4635810	Uprox+		4	3-wire DC NPN	10-30 VDC	1000	≤150	-30 to +85	IP68	PP	PP	N/A	YE	- -	B	3	A4
Ni4U-Q8SE-AP6X-V1131 4635808	Uprox+		4	3-wire DC PNP	10-30 VDC	1000	≤150	-30 to +85	IP68	PP	PP	N/A	YE	- -	B	4	A4
Bi2-Q10S-AN6X 1619310		•	2	3-wire DC NPN	10-30 VDC	2000	≤150	-25 to +70	IP67	PP-GF20	PP	N/A	YE	2M/TPU	C	1	A4
Bi2-Q10S-AP6X 1609360		•	2	3-wire DC PNP	10-30 VDC	2000	≤150	-25 to +70	IP67	PP-GF20	PP	N/A	YE	2M/TPU	C	2	A4
Ni5U-Q10S-AN6X 1609365	Uprox+		5	3-wire DC NPN	10-30 VDC	1000	≤150	-30 to +85	IP68	PP-GF20	PP-GF20	N/A	YE	2M/TPU	C	1	A4
Ni5U-Q10S-AP6X 1609364	Uprox+		5	3-wire DC PNP	10-30 VDC	1000	≤150	-30 to +85	IP68	PP-GF20	PP-GF20	N/A	YE	2M/TPU	C	2	A4

Dieguard Sensors | Small Rectangular

Sensor with Molded Connector

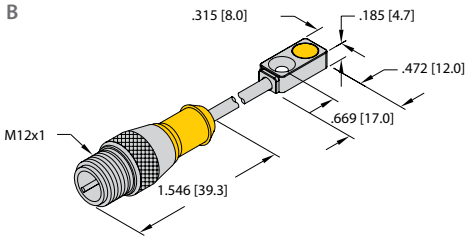
Dimension Drawings

A



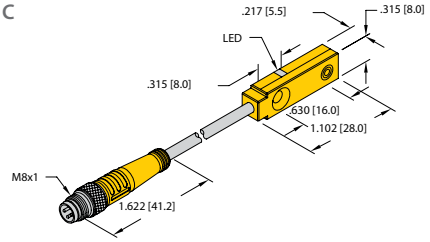
4.7 mm - M8 Picofast Quick Disconnect

B



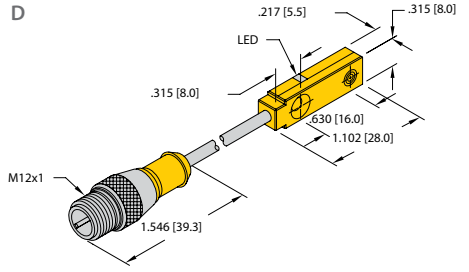
4.7 mm - M12 Eurofast Quick Disconnect

C



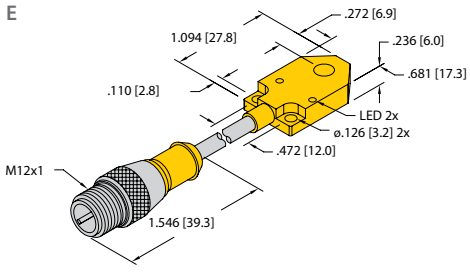
5.5 mm - M8 Picofast Quick Disconnect

D



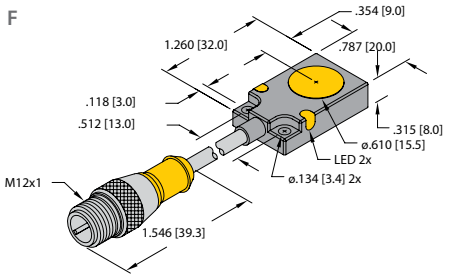
5.5 mm - M12 Eurofast Quick Disconnect

E



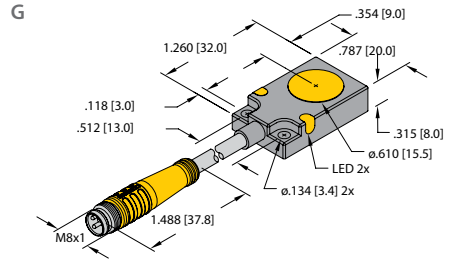
6.0 mm - M12 Eurofast Quick Disconnect

F



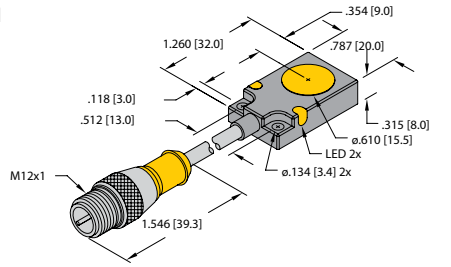
8.0 mm - M12 Eurofast Quick Disconnect

G



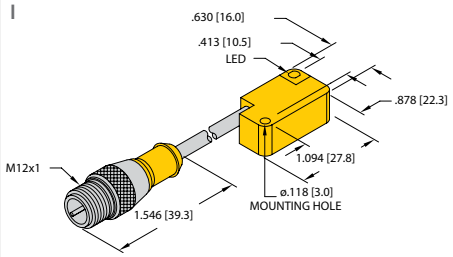
8.0 mm - M8 Picofast Quick Disconnect

H



8.0 mm - M12 Eurofast Quick Disconnect

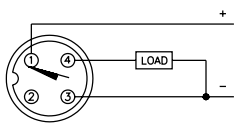
I



10 mm - M12 Eurofast Quick Disconnect

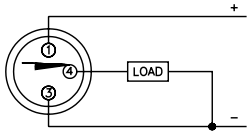
Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RK 4T-*

2



Mating Cordset: PKG 3M-*

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤1.8 V
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current
	≥170 mA on 150 mA Load Current
	≥120 mA on 100 mA Load Current
Off-State (Leakage) Current:	≤0.1 mA
No-Load Current:	≤15 mA (Ferrite, Uprox, Rectangular)
	≤20 mA (Uprox+, Uprox 3)
Time Delay Before Availability:	≤8 ms

Power-On Effect:	Per IEC 947-5-2
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Transient Protection:	Per EN 60947-5-2
Temperature Drift:	≤±10%
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

Dieguard Sensors | Small Rectangular

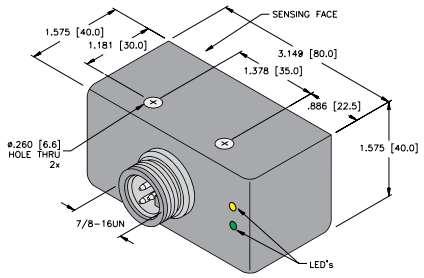
Sensor with Molded Connector

Part Number/ ID Number	Features	Embeddable	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi2-Q4.7-AP6X-0.3-PSG3M 16140000		•	2	3-wire DC PNP	10-30 VDC	1000	≤100	0 to +85	IP67	Zinc	PA	N/A	YE	0.3M/TPU	A	2	A4
Bi2-Q4.7-AP6X-0.3-RS4T 16140024		•	2	3-wire DC PNP	10-30 VDC	1000	≤100	0 to +85	IP67	Zinc	PA	N/A	YE	0.3M/TPU	B	1	A4
Bi2-Q5.5-AP6X-0.2-PSG3M 1613099		•	2	3-wire DC PNP	10-30 VDC	2000	≤150	-25 to +85	IP67	PP	PP	N/A	YE	0.2M/TPU	C	2	A4
Bi2-Q5.5-AP6X-0.2-RS4T 1613094		•	2	3-wire DC PNP	10-30 VDC	2000	≤150	-25 to +85	IP67	PP	PP	N/A	YE	0.2M/TPU	D	1	A4
Bi3-Q06-AP6X2-0.2-RS4T 1620193		•	3	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	PBT	PA	GN	YE	0.2M/TPU	E	1	A4
Bi7-Q08-AP6X2-0.2-RS4T 1601683		•	7	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	Zinc	PA 12	GN	YE	0.2M/TPU	H	1	A4
Bi5U-Q08-AP6X2-0.2-RS4T 1608990	Uprox	•	5	3-wire DC PNP	10-30 VDC	250	≤200	-30 to +85	IP67	Zinc	PA 12	GN	YE	0.2M/TPU	F	1	A4
Bi5-Q08-AP6X2-0.2-PSG3F 1600592		•	5	3-wire DC PNP	10-30 VDC	250	≤200	-25 to +70	IP67	Zinc	PA 12	GN	YE	0.2M/TPU	G	2	A4
Bi2-Q10S-AP6X-0.2-RS4T 1609390		•	2	3-wire DC PNP	10-30 VDC	2000	≤150	-25 to +70	IP67	PP-GF20	PP	N/A	YE	0.2M/TPU	I	1	A4

Rectangular Metal Housing with AC or DC Outputs and Integral Connector

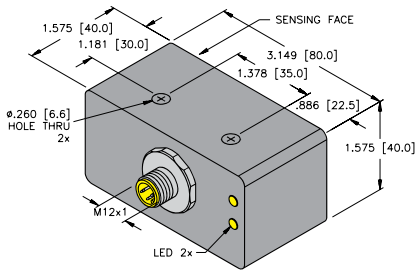
Dimension Drawings

A



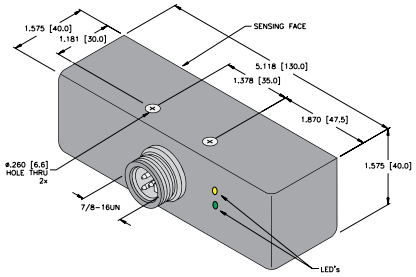
CA4080 - Embeddable, Minifast Connector

B



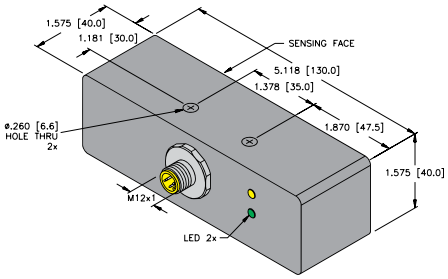
CA4080 - Embeddable, M12 Eurofast Connector

C



CA40130 - Embeddable, Minifast Connector

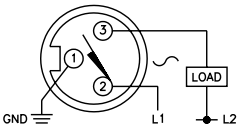
D



CA40130 - Embeddable, M12 Eurofast Connector

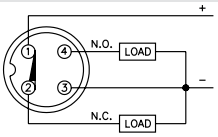
Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RKM 30-*M

2



Mating Cordset: RK 4.4T-*

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox 3)	Repeatability:	≤2% of Rated Operating Distance

A5 — 2-wire AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)

Line Frequency:	≥50... ≤60 Hz	Minimum Load Current:	≥3.0 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Inrush Current:	≤3 A (≤20 ms, max 5 Hz)
Voltage Drop Across Conducting Sensor:	≤6.0 V	Power-On Effect:	Per IEC 947-5-2
Trigger Current for Short Circuit Protection:	AC: ≥440 mA; DC: ≥330 mA	Transient Protection:	Per EN 60947-5-2
	AC: ≥120 mA; DC: ≥120 mA	Shock:	30 g, 11 ms
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
	AC: ≤100 mA; DC: ≤100 mA	Repeatability:	≤2% of Rated Operating Distance
Off-State (Leakage) Current:	≤1.7 mA (AC)		
	≤1.5 mA (DC)		

Dieguard Sensors | Edge Detection Sensors

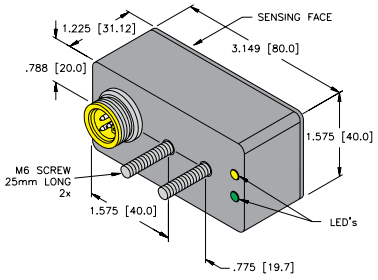
Rectangular Metal Housing with AC or DC Outputs and Integral Connector

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi20-CA4080-ADZ30X2-B1131 4283400		20	2-wire AC/DC	20-250 VAC/10-300 VDC	30/100	≤400/300	-25 to +70	IP67	TS	SF	GN	YE	A	1	A5
Bi20-CA4080-VP4X2-H1141 1625591		20	4-wire DC PNP	10-65 VDC	100	≤400	-25 to +70	IP67	TS	SF	GN	YE	B	2	A4
BI20-CA4080-VP4X2-H1141/S1009 1625590	250 ms Off Delay	20	4-wire DC PNP	10-65 VDC	100	≤400	-25 to +70	IP67	TS	SF	GN	YE	B	2	A4
Bi20-CA40130-ADZ30X2-B1131 4283503		20	2-wire AC/DC	20-250 VAC/10-300 VDC	30/100	≤400/300	-25 to +70	IP67	TS	SF	GN	YE	C	1	A5
BI20-CA40130-ADZ30X2-B1131/S1009 4283597	250 ms Off Delay	20	2-wire AC/DC	20-250 VAC/10-300 VDC	30/100	≤400/300	-25 to +70	IP67	TS	SF	GN	YE	C	1	A5
Bi20-CA40130-VP4X2-H1141 4283599		20	4-wire DC PNP	10-65 VDC	100	≤400	-25 to +70	IP67	TS	SF	GN	YE	D	2	A4

Rectangular Plastic Housing with AC or DC Outputs and Integral Connector

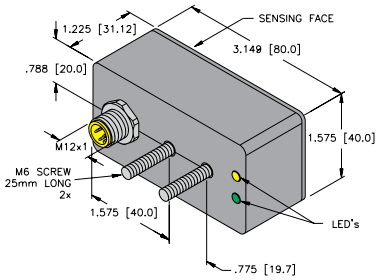
Dimension Drawings

A



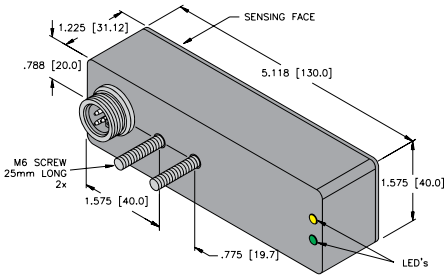
CK4080 - Embeddable, 7/8" Minifast Connector

B



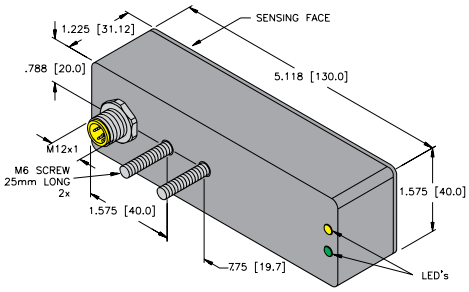
CK4080 - Embeddable, M12 Eurofast Connector

C



CK40130 - Embeddable, 7/8" Minifast Connector

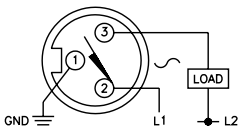
D



CK40130 - Embeddable, M12 Eurofast Connector

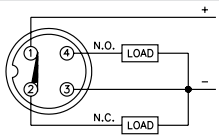
Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RKM 30-*M

2



Mating Cordset: RK 4.4T-*

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox 3)	Repeatability:	≤2% of Rated Operating Distance

A5 — 2-wire AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)

Line Frequency:	≥50... ≤60 Hz	Minimum Load Current:	≥3.0 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Inrush Current:	≤3 A (≤20 ms, max 5 Hz)
Voltage Drop Across Conducting Sensor:	≤6.0 V	Power-On Effect:	Per IEC 947-5-2
Trigger Current for Short Circuit Protection:	AC: ≥440 mA; DC: ≥330 mA	Transient Protection:	Per EN 60947-5-2
	AC: ≥120 mA; DC: ≥120 mA	Shock:	30 g, 11 ms
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
	AC: ≤100 mA; DC: ≤100 mA	Repeatability:	≤2% of Rated Operating Distance
Off-State (Leakage) Current:	≤1.7 mA (AC)		
	≤1.5 mA (DC)		

Dieguard Sensors | Edge Detection Sensors

Rectangular Plastic Housing with AC or DC Outputs and Integral Connector

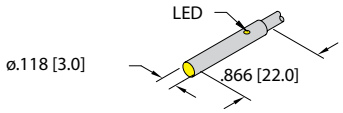
Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi20-CK4080-ADZ30X2-B1131 4283493		20	2-wire AC/DC	20-250 VAC/10-300 VDC	30/100	≤400/300	-25 to +70	IP67	PBT	PBT	GN	RD	A	1	A5
BI20-CK4080-ADZ30X2-B1131/S1009 4283495	250 ms Off Delay	20	2-wire AC/DC	20-250 VAC/10-300 VDC	30/100	≤400/300	-25 to +70	IP67	PBT	PBT	GN	RD	A	1	A5
Bi20-CK4080-VP4X2-H1141 4283491		20	4-wire DC PNP	10-65 VDC	100	≤400	-25 to +70	IP67	PBT	PBT	GN	YE	B	2	A4
BI20-CK4080-VP4X2-H1141/S1009 4283496	250 ms Off Delay	20	4-wire DC PNP	10-65 VDC	100	≤400	-25 to +70	IP67	PBT	PBT	GN	YE	B	2	A4
Bi20-CK40130-ADZ30X2-B1131 4283589		20	2-wire AC/DC	20-250 VAC/10-300 VDC	30/100	≤400/300	-25 to +70	IP67	PBT	PBT	GN	YE	C	1	A5
BI20-CK40130-ADZ30X2-B1131/S1009 42835953	250 ms Off Delay	20	2-wire AC/DC	20-250 VAC/10-300 VDC	30/100	≤400/300	-25 to +70	IP67	PBT	PBT	GN	YE	C	1	A5
Bi20-CK40130-VP4X2-H1141 42835911		20	4-wire DC PNP	10-65 VDC	100	≤400	-25 to +70	IP67	PBT	PBT	GN	YE	D	2	A4
BI20-CK40130-VP4X2-H1141/S1009 42835963	250 ms Off Delay	20	4-wire DC PNP	10-65 VDC	100	≤400	-25 to +70	IP67	PBT	PBT	GN	YE	D	2	A4

Dieguard Sensors | 3 mm, 4 mm

Embeddable and Nonembeddable Smooth Metal Barrels

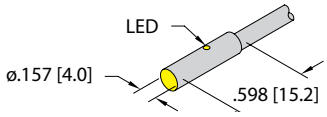
Dimension Drawings

A



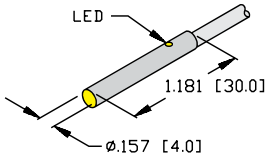
3 mm - Embeddable, Miniature Smooth Barrel, Potted-In Cable

B



4 mm - Embeddable, Miniature Smooth Barrel, Potted-In Cable

C



4 mm - Embeddable, Miniature Smooth Barrel, Potted-In Cable

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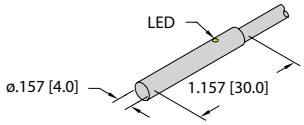
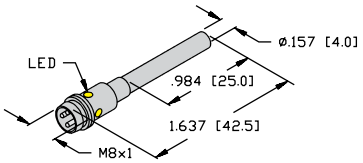


4 mm - Nonembeddable, Miniature Smooth Barrel, Potted-In Cable

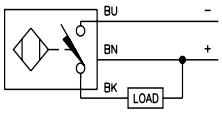
E



4 mm - Embeddable, Miniature Smooth, M8 Picofast Quick Disconnect

Wiring Diagrams/Mating Cordsets

1



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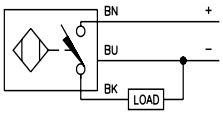

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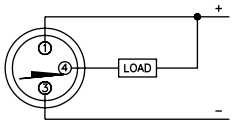
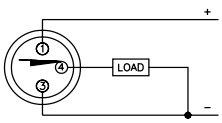


Mating Cordset: PKG 3M-*

4



Mating Cordset: PKG 3M-*

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Power-On Effect:	Per IEC 947-5-2
Differential Travel (Hysteresis):	3-15% (5% typical)	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Wire-Break Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥170 mA on 150 mA Load Current	Temperature Drift:	≤±10%
	≥120 mA on 100 mA Load Current	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
No-Load Current:	≤15 mA (Ferrite, Uprox, Rectangular)	Repeatability:	≤2% of Rated Operating Distance
Time Delay Before Availability:	≤20 mA (Uprox+, Uprox 3)		
	≤8 ms		

A23 — 3-wire DC Stainless Front Face Ext Range (AP, AN, RP, RN)

Ripple:	≤10%	Temperature Drift:	≤±10%
Differential Travel (Hysteresis):	20%	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤2 V	Wire-Break Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Shock:	30 g, 11 ms
No-Load Current:	≤10 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Off-State (Leakage) Current:	≤0.1 mA	Repeatability:	≤5% of Rated Operating Distance

Dieguard Sensors | 3 mm, 4 mm

Embeddable and Nonembeddable Smooth Metal Barrels

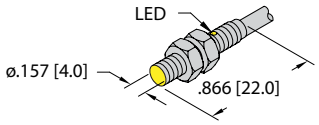
Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi1-EH03-AN6X 1619326		1	3-wire DC NPN	10-30 VDC	3000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	A	1	A4
Bi1-EH03-AP6X 1619325		1	3-wire DC PNP	10-30 VDC	3000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	A	2	A4
Ni3-EH04F-AN6X 100002320	Full Stain-less Steel	3	3-wire DC NPN	10-30 VDC	1200	≤200	-25 to +70	IP67	SS	SS	N/A	YE	2M/TPU	D	1	A23
Ni3-EH04F-AP6X 100001785	Full Stain-less Steel	3	3-wire DC PNP	10-30 VDC	1200	≤200	-25 to +70	IP67	SS	SS	N/A	YE	2M/TPU	D	2	A23
Bi1U-EH04-AN6X 4602114	Uprox3	1	3-wire DC NPN	10-30 VDC	2000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	C	1	A4
Bi1U-EH04-AP6X 4602112	Uprox3	1	3-wire DC PNP	10-30 VDC	2000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	C	2	A4
Bi1-EH04-AN6X 4609640		1	3-wire DC NPN	10-30 VDC	3000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	C	1	A4
Bi1-EH04-AP6X 4609540		1	3-wire DC PNP	10-30 VDC	3000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	C	2	A4
Bi1-EH04K-AN6X 4609768	Short Barrel	1	3-wire DC NPN	10-30 VDC	3000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	B	1	A4
Bi1-EH04K-AP6X 4609767	Short Barrel	1	3-wire DC PNP	10-30 VDC	3000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	B	2	A4
Bi1U-EH04-AN6X-V1331 4602115	Uprox3	1	3-wire DC NPN	10-30 VDC	2000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	--	E	3	A4
Bi1U-EH04-AP6X-V1331 4602113	Uprox3	1	3-wire DC PNP	10-30 VDC	2000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	--	E	4	A4
Bi1-EH04-AN6X-V1331 4608540		1	3-wire DC NPN	10-30 VDC	3000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	--	E	3	A4
Bi1-EH04-AP6X-V1331 4608440		1	3-wire DC PNP	10-30 VDC	3000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	--	E	4	A4

Dieguard Sensors | 4 mm, 5 mm

Embeddable and Nonembeddable Threaded Metal Barrels

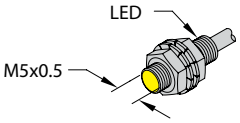
Dimension Drawings

A



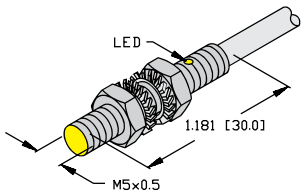
4 mm - Embeddable, Miniature Threaded Barrel, Potted-In Cable

B



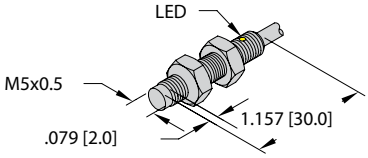
5 mm - Embeddable, Miniature Threaded Barrel, Potted-In Cable

C



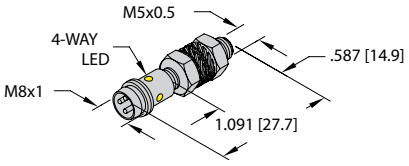
5 mm - Embeddable, Miniature Threaded Barrel, Potted-In Cable

D



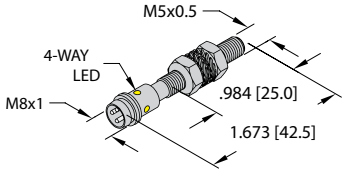
5 mm - Nonembeddable, Miniature Threaded Barrel, Potted-In Cable

E



5 mm - Embeddable, Miniature Threaded, M8 Picofast Quick Disconnect

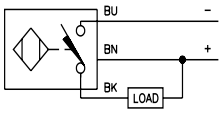
F



5 mm - Embeddable, Miniature Threaded, M8 Picofast Quick Disconnect

Wiring Diagrams/Mating Cordsets

1



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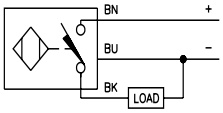

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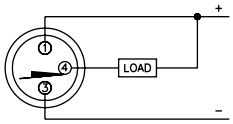
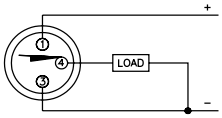


Mating Cordset: PKG 3M-*

4



Mating Cordset: PKG 3M-*

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤1.8 V
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current ≥170 mA on 150 mA Load Current ≥120 mA on 100 mA Load Current
Off-State (Leakage) Current:	≤0.1 mA
No-Load Current:	≤15 mA (Ferrite, Uprox, Rectangular)
Time Delay Before Availability:	≤20 mA (Uprox+, Uprox 3) ≤8 ms
Power-On Effect:	Per IEC 947-5-2
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Transient Protection:	Per EN 60947-5-2
Temperature Drift:	≤±10%
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

A23 — 3-wire DC Stainless Front Face Ext Range (AP, AN, RP, RN)

Ripple:	≤10%
Differential Travel (Hysteresis):	20%
Voltage Drop Across Conducting Sensor:	≤2 V
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current
No-Load Current:	≤10 mA
Off-State (Leakage) Current:	≤0.1 mA
Temperature Drift:	≤±10%
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤5% of Rated Operating Distance

Dieguard Sensors | 4 mm, 5 mm

Embeddable and Nonembeddable Threaded Metal Barrels

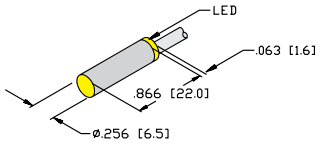
Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi1-EG04-AN6X 1619328		1	3-wire DC NPN	10-30 VDC	3000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	A	1	A4
Bi1-EG04-AP6X 1619327		1	3-wire DC PNP	10-30 VDC	3000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	A	2	A4
Ni3-EG05F-AN6X 100002321	Full Stainless Steel	3	3-wire DC NPN	10-30 VDC	1200	≤200	-25 to +70	IP67	SS	SS	N/A	YE	2M/TPU	D	1	A23
Ni3-EG05F-AP6X 100001784	Full Stainless Steel	3	3-wire DC PNP	10-30 VDC	1200	≤200	-25 to +70	IP67	SS	SS	N/A	YE	2M/TPU	D	2	A23
Bi1U-EG05-AN6X 4602118	Uprox3	1	3-wire DC NPN	10-30 VDC	2000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	C	1	A4
Bi1U-EG05-AP6X 4602116	Uprox3	1	3-wire DC PNP	10-30 VDC	2000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	C	2	A4
Bi1-EG05-AN6X 4609840		1	3-wire DC NPN	10-30 VDC	3000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	C	1	A4
Bi1-EG05-AP6X 4609740		1	3-wire DC PNP	10-30 VDC	3000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	C	2	A4
Bi1-EG05K-AN6X 4609764	Short Barrel	1	3-wire DC NPN	10-30 VDC	2000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	B	1	A4
Bi1-EG05K-AP6X 4609765	Short Barrel	1	3-wire DC PNP	10-30 VDC	2000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	B	2	A4
Bi1U-EG05-AN6X-V1331 4602119	Uprox3	1	3-wire DC NPN	10-30 VDC	2000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	--	F	3	A4
Bi1U-EG05-AP6X-V1331 4602117	Uprox3	1	3-wire DC PNP	10-30 VDC	2000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	--	F	4	A4
Bi1-EG05-AN6X-V1331 4608740		1	3-wire DC NPN	10-30 VDC	3000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	--	F	3	A4
Bi1-EG05-AP6X-V1331 4608640		1	3-wire DC PNP	10-30 VDC	3000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	--	F	4	A4
Bi1-EG05K-AP6X-V1331 4609766	Short Barrel	1	3-wire DC PNP	10-30 VDC	3000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	--	E	4	A4

Dieguard Sensors | 6.5 mm

Embeddable Smooth Metal Barrels

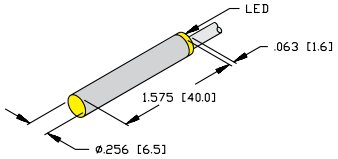
Dimension Drawings

A



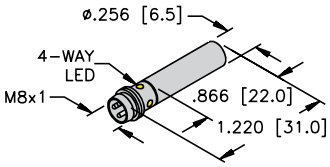
6.5 mm - Embeddable, Miniature Smooth Barrel, Potted-In Cable

B



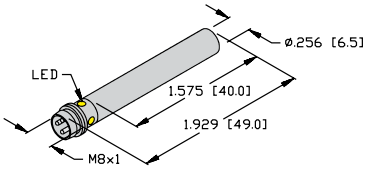
6.5 mm - Embeddable, Miniature Smooth Barrel, Potted-In Cable

C



6.5 mm - Embeddable, Miniature Smooth, M8 Picofast Quick Disconnect

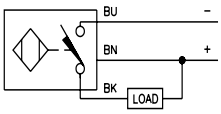
D



6.5 mm - Embeddable, Miniature Smooth, M8 Picofast Quick Disconnect

Wiring Diagrams/Mating Cordsets

1



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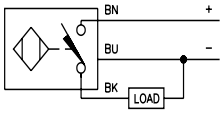

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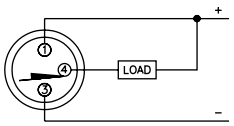
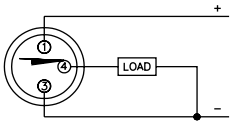


Mating Cordset: PKG 3M-*

4



Mating Cordset: PKG 3M-*

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤1.8 V
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current
	≥170 mA on 150 mA Load Current
	≥120 mA on 100 mA Load Current
Off-State (Leakage) Current:	≤0.1 mA
No-Load Current:	≤15 mA (Ferrite, Uprox)
	≤20 mA (Uprox+, Uprox3)

Time Delay Before Availability:	≤8 ms
Power-On Effect:	Per IEC 947-5-2
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Transient Protection:	Per EN 60947-5-2
Temperature Drift:	≤±10%
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

Dieguard Sensors | 6.5 mm

Embeddable Smooth Metal Barrels

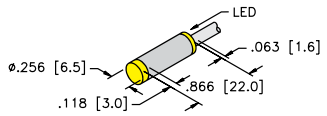
Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi2U-EH6.5-AN6X 4281170	Uprox	2	3-wire DC NPN	10-30 VDC	2000	≤150	-30 to +85	IP68	SS	PA 12	N/A	YE	2M/ TPU	B	1	A4
Bi2U-EH6.5-AP6X 4281150	Uprox	2	3-wire DC PNP	10-30 VDC	2000	≤150	-30 to +85	IP68	SS	PA 12	N/A	YE	2M/ TPU	B	2	A4
Bi2-EH6.5-AN6X 4612300		2	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/ TPU	B	1	A4
Bi2-EH6.5-AP6X 4612200		2	3-wire DC PNP	10-30 VDC	1000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/ TPU	B	2	A4
Bi2-EH6.5K-AN6X 4610100	Short Barrel	2	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/ TPU	A	1	A4
Bi2-EH6.5K-AP6X 4610000	Short Barrel	2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/ TPU	A	2	A4
Bi1.5-EH6.5-AN6X 4612100		1.5	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/ TPU	B	1	A4
Bi1.5-EH6.5-AP6X 4612000		1.5	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/ TPU	B	2	A4
Bi1.5-EH6.5-AP6X/S100 4612001	High Temp. 100 °C	1.5	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +100	IP67	SS	PA 12	N/A	YE	2M/ TPU	B	2	A4
Bi1.5-EH6.5K-AN6X 4610640	Short Barrel	1.5	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/ TPU	A	1	A4
Bi1.5-EH6.5K-AP6X 4610540	Short Barrel	1.5	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/ TPU	A	2	A4
Bi2U-EH6.5-AN6X-V1131 4281180	Uprox	2	3-wire DC NPN	10-30 VDC	1000	≤150	-25 to +70	IP68	SS	PA 12	N/A	YE	--	D	3	A4
Bi2U-EH6.5-AP6X-V1131 4281160	Uprox	2	3-wire DC PNP	10-30 VDC	1000	≤150	-25 to +70	IP68	SS	PA 12	N/A	YE	--	D	4	A4
Bi2-EH6.5-AN6X-V1131 4612320		2	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	--	D	3	A4
Bi2-EH6.5-AP6X-V1131 4612220		2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	--	D	4	A4
Bi2-EH6.5K-AN6X-V1131 4610120	Short Barrel	2	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	--	C	3	A4
Bi2-EH6.5K-AP6X-V1131 4610020	Short Barrel	2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	--	C	4	A4
Bi1.5-EH6.5-AN6X-V1131 4612120		1.5	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	--	D	3	A4
Bi1.5-EH6.5-AP6X-V1131 4612020		1.5	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	--	D	4	A4
Bi1.5-EH6.5K-AN6X-V1131 4610840	Short Barrel	1.5	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	--	C	3	A4
Bi1.5-EH6.5K-AP6X-V1131 4610740	Short Barrel	1.5	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	--	C	4	A4

Dieguard Sensors | 6.5 mm

6.5 mm - Embeddable, Miniature Smooth Barrel, Potted-In Cable

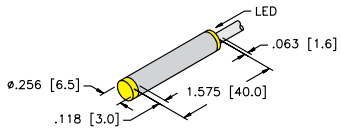
Dimension Drawings

A



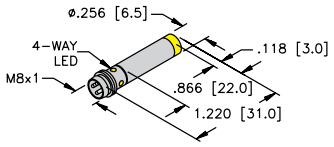
6.5 mm - Embeddable, Miniature Smooth Barrel, Potted-In Cable

B



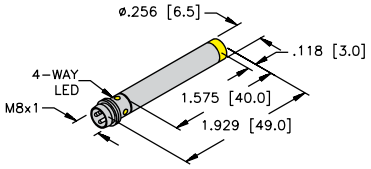
6.5 mm - Nonembeddable, Miniature Smooth Barrel, Potted-In Cable

C



6.5 mm - Nonembeddable, Miniature Smooth, M8 Picofast Quick Disconnect

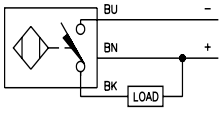
D



6.5 mm - Nonembeddable, Miniature Smooth, M8 Picofast Quick Disconnect

Wiring Diagrams/Mating Cordsets

1



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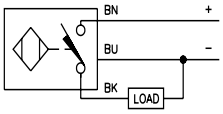

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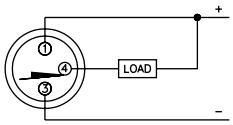
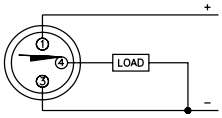


Mating Cordset: PKG 3M-*

4



Mating Cordset: PKG 3M-*

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

Dieguard Sensors | 6.5 mm

6.5 mm - Embeddable, Miniature Smooth Barrel, Potted-In Cable

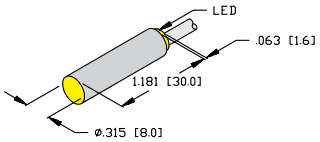
Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Ni3-EH6.5-AN6X 4612500		3	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	B	1	A4
Ni3-EH6.5-AP6X 4612400		3	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	B	2	A4
Ni3-EH6.5K-AN6X 4610300	Short Barrel	3	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	A	1	A4
Ni3-EH6.5K-AP6X 4610200	Short Barrel	3	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	A	2	A4
Ni6U-EH6.5-AP6X-V1131 4631510	Uprox+	6	3-wire DC PNP	10-30 VDC	1000	≤150	0 to +70	IP68	SS	PA 12	N/A	YE	--	D	4	A4
Ni4U-EH6.5-AN6X-V1131 4600683	Uprox	4	3-wire DC NPN	10-30 VDC	2000	≤150	-30 to +85	IP68	SS	PA 12	N/A	YE	--	D	3	A4
Ni4U-EH6.5-AP6X-V1131 4600681	Uprox	4	3-wire DC PNP	10-30 VDC	2000	≤150	-30 to +85	IP68	SS	PA 12	N/A	YE	--	D	4	A4
Ni3-EH6.5-AN6X-V1131 4612520		3	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	--	D	3	A4
Ni3-EH6.5-AP6X-V1131 4612420		3	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	--	D	4	A4
Ni3-EH6.5K-AN6X-V1131 4610320	Short Barrel	3	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	--	C	3	A4
Ni3-EH6.5K-AP6X-V1131 4610220	Short Barrel	3	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	--	C	4	A4

Dieguard Sensors | 8 mm

Embeddable and Nonembeddable Smooth Metal Barrels

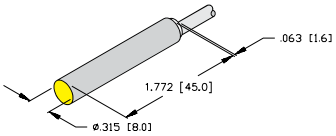
Dimension Drawings

A



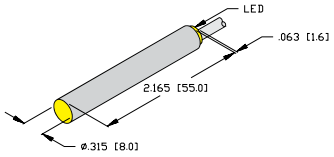
8 mm - Embeddable, Miniature Smooth Barrel, Potted-In Cable

B



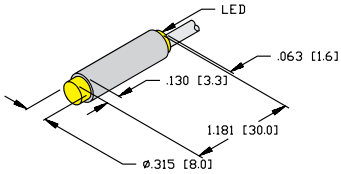
8 mm - Embeddable, Miniature Smooth Barrel, Potted-In Cable

C



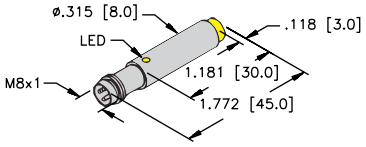
8 mm - Embeddable, Miniature Smooth Barrel, Potted-In Cable

D



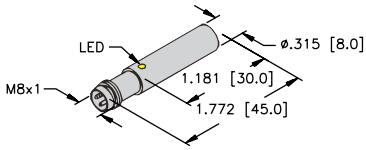
8 mm - Nonembeddable, Miniature Smooth Barrel, Potted-In Cable

E



8 mm - Nonembeddable, Miniature Smooth, M8 Picofast Quick Disconnect

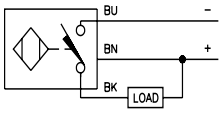
F



8 mm - Embeddable, Miniature Smooth, M8 Picofast Quick Disconnect

Wiring Diagrams/Mating Cordsets

1



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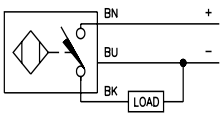

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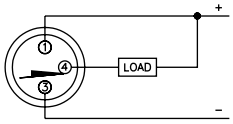
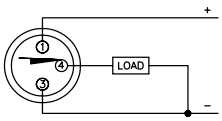


Mating Cordset: PKG 3M-*

4



Mating Cordset: PKG 3M-*

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

Dieguard Sensors | 8 mm

Embeddable and Nonembeddable Smooth Metal Barrels

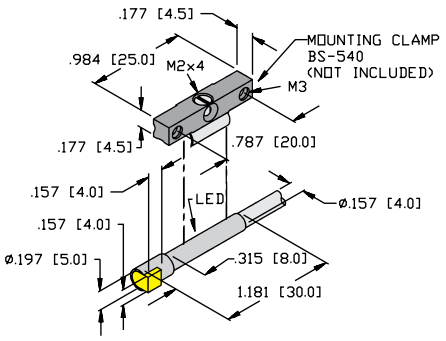
Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi1.5-H08K-AN6X 1604341	Short Barrel	1.5	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	A	1	A4
Bi1.5-H08K-AP6X 1604331	Short Barrel	1.5	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	A	2	A4
Bi1.5-H08M-AP6X 1604301		1.5	3-wire DC PNP	10-30 VDC	2000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	B	2	A4
Bi1.5-H08-AN6X 16143		1.5	3-wire DC NPN	10-30 VDC	2000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	C	1	A4
Bi1.5-H08-AP6X 16043		1.5	3-wire DC PNP	10-30 VDC	2000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	C	2	A4
Ni2-H08K-AN6X 16147	Short Barrel	2	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	D	1	A4
Ni2-H08K-AP6X 16047	Short Barrel	2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	D	2	A4
Bi1.5-H08K-AN6X-V1131 1604340	Short Barrel	1.5	3-wire DC NPN	10-30 VDC	5000	≤150	-25 to +70	IP67	SS	PBT	N/A	YE	--	F	3	A4
Bi1.5-H08K-AP6X-V1131 1604330	Short Barrel	1.5	3-wire DC PNP	10-30 VDC	5000	≤150	-25 to +70	IP67	SS	PBT	N/A	YE	--	F	4	A4
Ni2-H08K-AN6X-V1131 16148	Short Barrel	2	3-wire DC NPN	10-30 VDC	5000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	--	E	3	A4
Ni2-H08K-AP6X-V1131 16048	Short Barrel	2	3-wire DC PNP	10-30 VDC	5000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	--	E	4	A4

Dieguard Sensors | 5 mm, 8 mm

Embeddable Side Sensing Metal Barrels with Cable

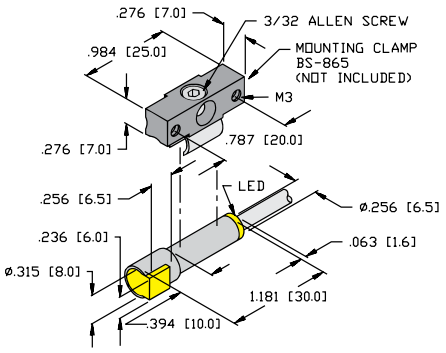
Dimension Drawings

A



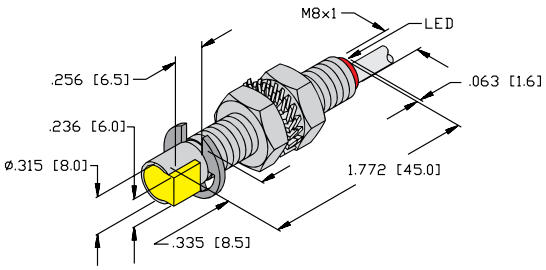
5 mm - Embeddable, Side Sensing, Miniature Smooth Barrel, Potted-In Cable

B



8 mm - Embeddable, Side Sensing, Miniature Smooth Barrel, Potted-In Cable

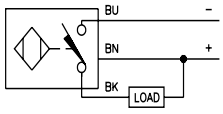
C



8 mm - Embeddable, Miniature Threaded Barrel, Side Sensing, Potted-In Cable

Wiring Diagrams/Mating Cordsets

1



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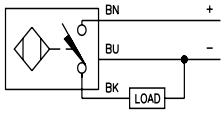


A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

Dieguard Sensors | 5 mm, 8 mm

Embeddable Side Sensing Metal Barrels with Cable

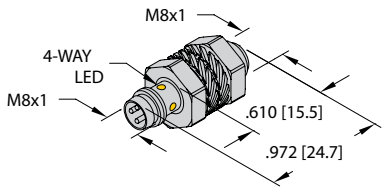
Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi1.5-HS865-AN6X 4604301	Side Sensing	1.5	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	B	1	A4
Bi1.5-HS865-AP6X 4604201	Side Sensing	1.5	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	B	2	A4
Bi1.5-GS880-AN6X 4604501	Side Sensing	1.5	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	C	1	A4
Bi1.5-GS880-AP6X 4604401	Side Sensing	1.5	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	C	2	A4
Bi1-HS540-AN6X 4604101	Side Sensing	1	3-wire DC NPN	10-30 VDC	3000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	A	1	A4
Bi1-HS540-AP6X 4604001	Side Sensing	1	3-wire DC PNP	10-30 VDC	3000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	A	2	A4

Dieguard Sensors | 8 mm

Embeddable Threaded Metal Barrels with Connector

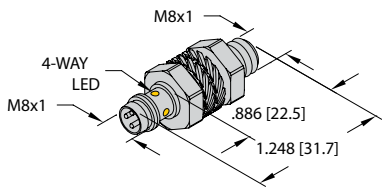
Dimension Drawings

A



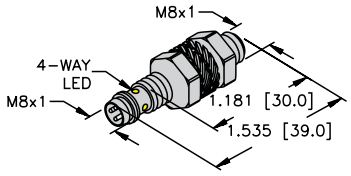
8 mm - Embeddable, Miniature Threaded, M8 Picofast Quick Disconnect

B



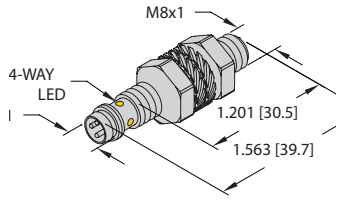
8 mm - Embeddable, Miniature Threaded, M8 Picofast Quick Disconnect

C



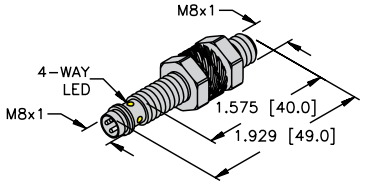
8 mm - Embeddable, Miniature Threaded, M8 Picofast Quick Disconnect

D



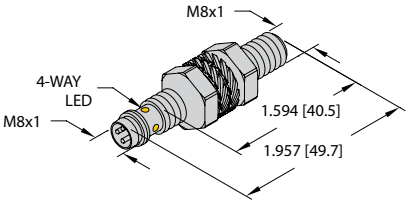
8 mm - Embeddable, Miniature Threaded, M8 Picofast Quick Disconnect

E



8 mm - Embeddable, Miniature Threaded, M8 Picofast Quick Disconnect

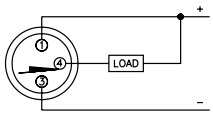
F



8 mm - Embeddable, Miniature Threaded, M8 Picofast Quick Disconnect

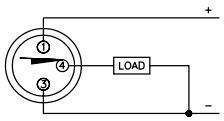
Wiring Diagrams/Mating Cordsets

1



Mating Cordset: PKG 3M-*

2



Mating Cordset: PKG 3M-*

A4 — **3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)**

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

Dieguard Sensors | 8 mm

Embeddable Threaded Metal Barrels with Connector

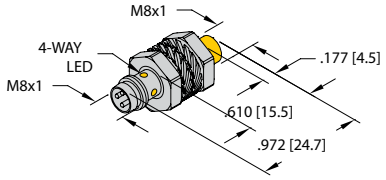
Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi3U-EM08-AN6X-V1131 4602423	Uprox3	3	3-wire DC NPN	10-30 VDC	1000	≤150	0 to +60	IP68	SS	PA 12	N/A	YE	--	C	1	A4
Bi3U-EM08-AP6X-V1131 4602413	Uprox3	3	3-wire DC PNP	10-30 VDC	1000	≤150	0 to +60	IP68	SS	PA 12	N/A	YE	--	C	2	A4
Bi3-M08-AN6X-V1131 4602914		3	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	--	D	1	A4
Bi3-M08-AP6X-V1131 4602911		3	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	--	D	2	A4
Bi3-M08KK-AN6X-V1131 4602942	Short Barrel	3	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	--	A	1	A4
Bi3-M08KK-AP6X-V1131 4602939	Short Barrel	3	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	--	A	2	A4
Bi2U-EG08-AN6X-V1131 4602036	Uprox+	2	3-wire DC NPN	10-30 VDC	1000	≤150	-30 to +85	IP68	SS	PA 12	N/A	YE	--	E	1	A4
Bi2U-EG08-AP6X-V1131 4602033	Uprox+	2	3-wire DC PNP	10-30 VDC	1000	≤150	-30 to +85	IP68	SS	PA 12	N/A	YE	--	E	2	A4
Bi2-M08E-AN6X-V1131 4602953		2	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	--	F	1	A4
Bi2-M08E-AP6X-V1131 4602956		2	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	--	F	2	A4
Bi2-M08K-AN6X-V1131 4602965		2	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	--	B	1	A4
Bi2-M08K-AP6X-V1131 4602968		2	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	--	B	2	A4
Bi1.5U-EG08-AN6X-V1131 4600530	Uprox	1.5	3-wire DC NPN	10-30 VDC	2000	≤150	-30 to +85	IP68	SS	PA 12	N/A	YE	--	E	1	A4
Bi1.5U-EG08-AP6X-V1131 4600520	Uprox	1.5	3-wire DC PNP	10-30 VDC	2000	≤150	-30 to +85	IP68	SS	PA 12	N/A	YE	--	E	2	A4

Dieguard Sensors | 8 mm

Nonembeddable Threaded Metal Barrels with Connector

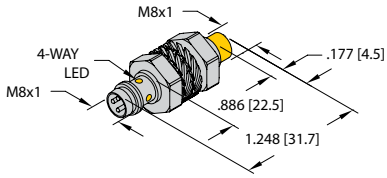
Dimension Drawings

A



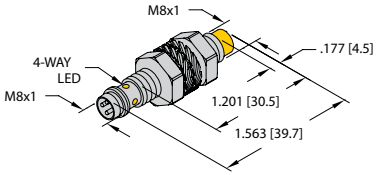
8 mm - Nonembeddable, Miniature Threaded, M8 Picofast Quick Disconnect

B



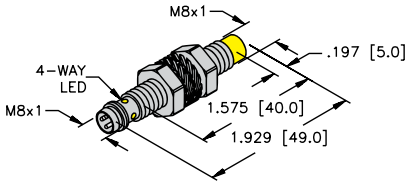
8 mm - Nonembeddable, Miniature Threaded, M8 Picofast Quick Disconnect

C



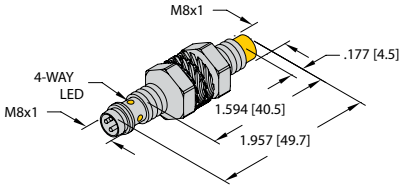
8 mm - Nonembeddable, Miniature Threaded, M8 Picofast Quick Disconnect

D



8 mm - Nonembeddable, Miniature Threaded, M8 Picofast Quick Disconnect

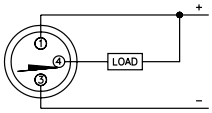
E



8 mm - Nonembeddable, Miniature Threaded, M8 Picofast Quick Disconnect

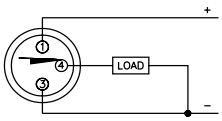
Wiring Diagrams/Mating Cordsets

1



Mating Cordset: PKG 3M-*

2



Mating Cordset: PKG 3M-*

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

Dieguard Sensors | 8 mm

Nonembeddable Threaded Metal Barrels with Connector

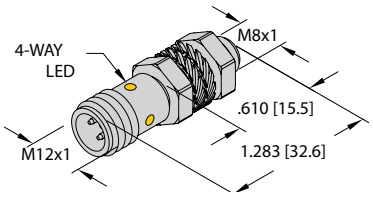
Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Ni6U-EG08-AN6X-V1131 4635804	Uprox+	6	3-wire DC NPN	10-30 VDC	1000	≤150	0 to +70	IP68	SS	LCP	N/A	YE	--	D	1	A4
Ni6U-EG08-AP6X-V1131 4635801	Uprox+	6	3-wire DC PNP	10-30 VDC	1000	≤150	0 to +70	IP68	SS	LCP	N/A	YE	--	D	2	A4
Ni5-M08-AN6X-V1131 4602924		5	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CBP	PP-GF20	N/A	YE	--	C	1	A4
Ni5-M08-AP6X-V1131 4602921		5	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CBP	PP-GF20	N/A	YE	--	C	2	A4
Ni5-M08KK-AN6X-V1131 4602949	Short Barrel	5	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CBP	PP-GF20	N/A	YE	--	A	1	A4
Ni5-M08KK-AP6X-V1131 4602946	Short Barrel	5	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CBP	PP-GF20	N/A	YE	--	A	2	A4
Ni4U-EG08-AN6X-V1131 4600630	Uprox	4	3-wire DC NPN	10-30 VDC	2000	≤150	-30 to +85	IP68	SS	PA 12	N/A	YE	--	D	1	A4
Ni4U-EG08-AP6X-V1131 4600620	Uprox	4	3-wire DC PNP	10-30 VDC	2000	≤150	-30 to +85	IP68	SS	PA 12	N/A	YE	--	D	2	A4
Ni3-M08E-AN6X-V1131 4602833		3	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CBP	PP-GF20	N/A	YE	--	E	1	A4
Ni3-M08E-AP6X-V1131 4602836		3	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CBP	PP-GF20	N/A	YE	--	E	2	A4
Ni3-M08K-AN6X-V1131 4602849		3	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CBP	PP-GF20	N/A	YE	--	B	1	A4
Ni3-M08K-AP6X-V1131 4602853		3	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CBP	PP-GF20	N/A	YE	--	B	2	A4

Dieguard Sensors | 8 mm

Embeddable Threaded Metal Barrels with Connector

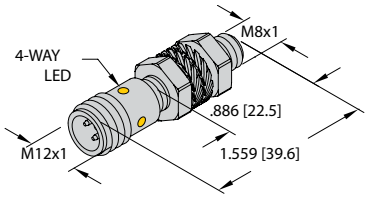
Dimension Drawings

A



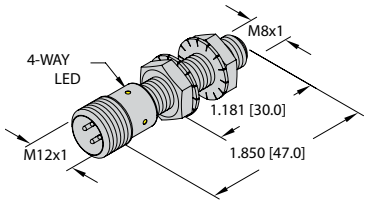
8 mm - Embeddable, Miniature Threaded, M12 Eurofast Quick Disconnect

B



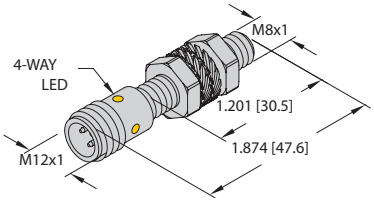
8 mm - Embeddable, Miniature Threaded, M12 Eurofast Quick Disconnect

C



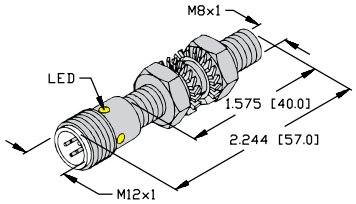
8 mm - Embeddable, Miniature Threaded, M12 Eurofast Quick Disconnect

D



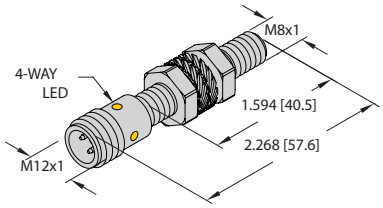
8 mm - Embeddable, Miniature Threaded, M12 Eurofast Quick Disconnect

E



8 mm - Embeddable, Miniature Threaded, M12 Eurofast Quick Disconnect

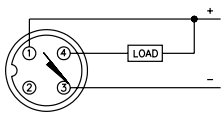
F



8 mm - Embeddable, Miniature Threaded, M12 Eurofast Quick Disconnect

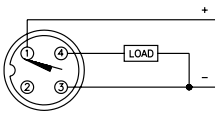
Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RK 4T-*

2



Mating Cordset: RK 4T-*

A4 — **3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)**

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

Dieguard Sensors | 8 mm

Embeddable Threaded Metal Barrels with Connector

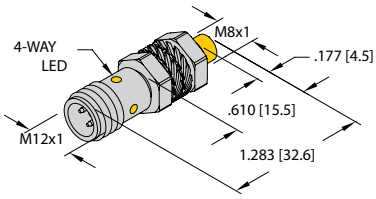
Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi3U-EM08-AN6X-H1341 4602422	Uprox3	3	3-wire DC NPN	10-30 VDC	1000	≤150	0 to +60	IP68	SS	PA 12	N/A	YE	--	C	1	A4
Bi3U-EM08-AP6X-H1341 4602412	Uprox3	3	3-wire DC PNP	10-30 VDC	1000	≤150	0 to +60	IP68	SS	PA 12	N/A	YE	--	C	2	A4
Bi3-M08-AN6X-H1341 4602915		3	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	--	D	1	A4
Bi3-M08-AP6X-H1341 4602912		3	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	--	D	2	A4
Bi3-M08KK-AN6X-H1341 4602943	Short Barrel	3	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	--	A	1	A4
Bi3-M08KK-AP6X-H1341 4602940	Short Barrel	3	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	--	A	2	A4
Bi2U-EG08-AN6X-H1341 4602037	Uprox	2	3-wire DC NPN	10-30 VDC	1000	≤150	-35 to +85	IP68	SS	PA 12	N/A	YE	--	E	1	A4
Bi2U-EG08-AP6X-H1341 4602034	Uprox	2	3-wire DC PNP	10-30 VDC	1000	≤150	-35 to +85	IP68	SS	PA 12	N/A	YE	--	E	2	A4
Bi2-M08E-AN6X-H1341 4602952		2	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CBP	PP-GF20	N/A	YE	--	F	1	A4
Bi2-M08E-AP6X-H1341 4602955		2	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CBP	PP-GF20	N/A	YE	--	F	2	A4
Bi2-M08K-AN6X-H1341 4602964		2	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	--	B	1	A4
Bi2-M08K-AP6X-H1341 4602967		2	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	--	B	2	A4
Bi1.5U-EG08-AN6X-H1341 4600550	Uprox	1.5	3-wire DC NPN	10-30 VDC	2000	≤150	-30 to +85	IP67	SS	PA 12	N/A	YE	--	E	1	A4
Bi1.5U-EG08-AP6X-H1341 4600540	Uprox	1.5	3-wire DC PNP	10-30 VDC	2000	≤150	-30 to +85	IP68	SS	PA 12	N/A	YE	--	E	2	A4

Dieguard Sensors | 8 mm

Nonembeddable Threaded Metal Barrels with Connector

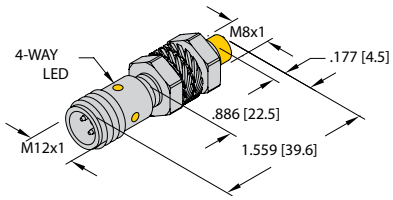
Dimension Drawings

A



8 mm - Nonembeddable, Miniature Threaded, M12 Eurofast Quick Disconnect

B



8 mm - Nonembeddable, Miniature Threaded, M12 Eurofast Quick Disconnect

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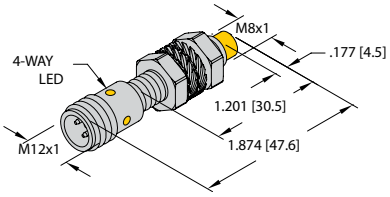

8 mm - Nonembeddable, Miniature Threaded, M12 Eurofast Quick Disconnect

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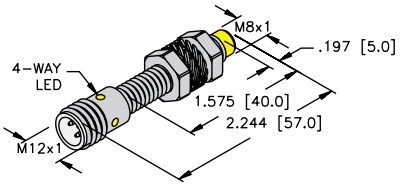
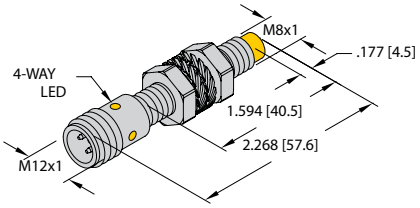


8 mm - Nonembeddable, Miniature Threaded, M12 Eurofast Quick Disconnect

E



8 mm - Nonembeddable, Miniature Threaded, M12 Eurofast Quick Disconnect

Wiring Diagrams/Mating Cordsets

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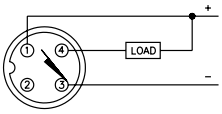
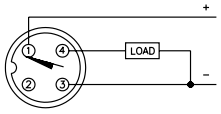


Mating Cordset: RK 4T-*

2



Mating Cordset: RK 4T-*

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤1.8 V
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current
	≥170 mA on 150 mA Load Current
	≥120 mA on 100 mA Load Current
Off-State (Leakage) Current:	≤0.1 mA
No-Load Current:	≤15 mA (Ferrite, Uprox)
	≤20 mA (Uprox+, Uprox3)

Time Delay Before Availability:	≤8 ms
Power-On Effect:	Per IEC 947-5-2
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Transient Protection:	Per EN 60947-5-2
Temperature Drift:	≤±10%
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

Dieguard Sensors | 8 mm

Nonembeddable Threaded Metal Barrels with Connector

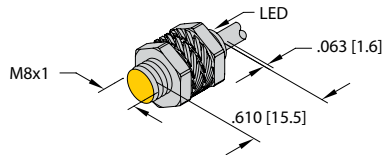
Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Ni6U-EG08-AN6X-H1341 4635805	Uprox+	6	3-wire DC NPN	10-30 VDC	1000	≤150	0 to +70	IP68	SS	LCP	N/A	YE	--	D	1	A4
Ni6U-EG08-AP6X-H1341 4635802	Uprox+	6	3-wire DC PNP	10-30 VDC	1000	≤150	0 to +70	IP68	SS	LCP	N/A	YE	--	D	2	A4
Ni5-M08-AN6X-H1341 4602925		5	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	--	C	1	A4
Ni5-M08-AP6X-H1341 4602922		5	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	--	C	2	A4
Ni5-M08KK-AN6X-H1341 4602950	Short Barrel	5	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	--	A	1	A4
Ni5-M08KK-AP6X-H1341 4602947	Short Barrel	5	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	--	A	2	A4
Ni4U-EG08-AN6X-H1341 4600650	Uprox	4	3-wire DC NPN	10-30 VDC	2000	≤150	-30 to +85	IP68	SS	PA 12	N/A	YE	--	D	1	A4
Ni4U-EG08-AP6X-H1341 4600640	Uprox	4	3-wire DC PNP	10-30 VDC	2000	≤150	-30 to +85	IP68	SS	PA 12	N/A	YE	--	D	2	A4
Ni3-M08E-AN6X-H1341 4602832		3	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	--	E	1	A4
Ni3-M08E-AP6X-H1341 4602835		3	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	--	E	2	A4
Ni3-M08K-AN6X-H1341 4602848		3	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	--	B	1	A4
Ni3-M08K-AP6X-H1341 4602852		3	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	--	B	2	A4

Dieguard Sensors | 8 mm

Embeddable Threaded Metal Barrels with Cable

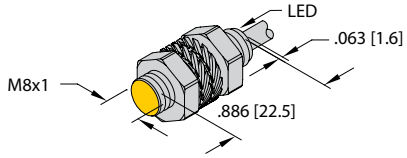
Dimension Drawings

A



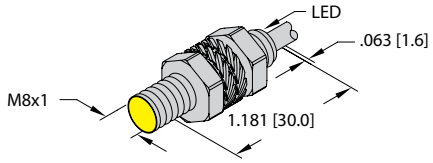
8 mm - Embeddable, Miniature Threaded Barrel, Potted-In Cable

B



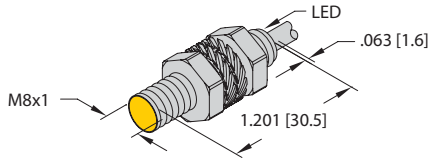
8 mm - Embeddable, Miniature Threaded Barrel, Potted-In Cable

C



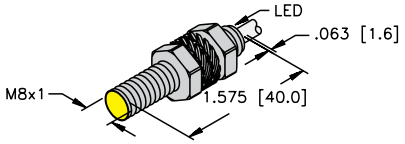
8 mm - Embeddable, Miniature Threaded Barrel, Potted-In Cable

D



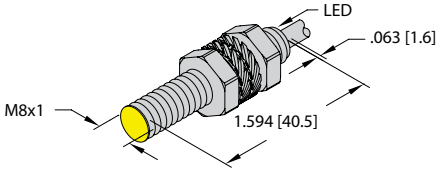
8 mm - Embeddable, Miniature Threaded Barrel, Potted-In Cable

E



8 mm - Nonembeddable, Miniature Threaded, M12 Eurofast Quick Disconnect

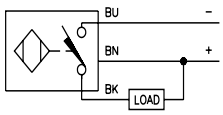
F



8 mm - Embeddable, Miniature Threaded Barrel, Potted-In Cable

Wiring Diagrams/Mating Cordsets

1



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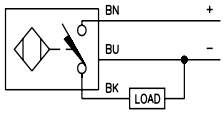


A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

Dieguard Sensors | 8 mm

Embeddable Threaded Metal Barrels with Cable

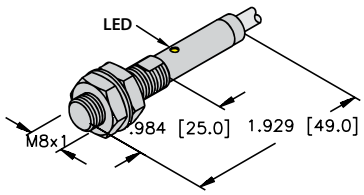
Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi3U-EM08-AN6X 4602421	Uprox3	3	3-wire DC NPN	10-30 VDC	1000	≤150	0 to +60	IP68	SS	PA 12	N/A	YE	2M/TPU	C	1	A4
Bi3U-EM08-AP6X 4602411	Uprox3	3	3-wire DC PNP	10-30 VDC	1000	≤150	0 to +60	IP68	SS	PA 12	N/A	YE	2M/TPU	C	2	A4
Bi3-M08-AN6X 4602913		3	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CBP	PP-GF20	N/A	YE	2M/TPU	D	1	A4
Bi3-M08-AP6X 4602910		3	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CBP	PP-GF20	N/A	YE	2M/TPU	D	2	A4
Bi3-M08KK-AN6X 4602941	Short Barrel	3	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CBP	PP-GF20	N/A	YE	2M/TPU	A	1	A4
Bi3-M08KK-AP6X 4602938	Short Barrel	3	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CBP	PP-GF20	N/A	YE	2M/TPU	A	2	A4
Bi2U-EG08-AN6X 4602035	Uprox	2	3-wire DC NPN	10-30 VDC	2000	≤150	-30 to +85	IP68	SS	PA 12	N/A	YE	2M/TPU	E	1	A4
Bi2U-EG08-AP6X 4602032	Uprox	2	3-wire DC PNP	10-30 VDC	2000	≤150	-30 to +85	IP68	SS	PA 12	N/A	YE	2M/TPU	E	2	A4
Bi2-M08E-AN6X 4602951		2	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CBP	PP-GF20	N/A	YE	2M/TPU	F	1	A4
Bi2-M08E-AP6X 4602954		2	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CBP	PP-GF20	N/A	YE	2M/TPU	F	2	A4
Bi2-M08K-AN6X 4602963		2	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CBP	PP-GF20	N/A	YE	2M/TPU	B	1	A4
Bi2-M08K-AP6X 4602966		2	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CBP	PP-GF20	N/A	YE	2M/TPU	B	2	A4
Bi1.5U-EG08-AN6X 4600510	Uprox	1.5	3-wire DC NPN	10-30 VDC	2000	≤150	-30 to +85	IP68	SS	PA 12	N/A	YE	2M/TPU	E	1	A4
Bi1.5U-EG08-AP6X 4600500	Uprox	1.5	3-wire DC PNP	10-30 VDC	2000	≤150	-30 to +85	IP68	SS	PA 12	N/A	YE	2M/TPU	E	2	A4

Dieguard Sensors | 8 mm

Embeddable Threaded Metal Barrels with Cable

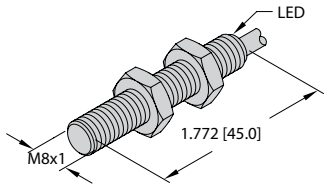
Dimension Drawings

A



8 mm - Embeddable, Stainless Steel Barrel, Potted-In Cable

B



8 mm - Embeddable, Stainless Steel Barrel, Potted-In Cable

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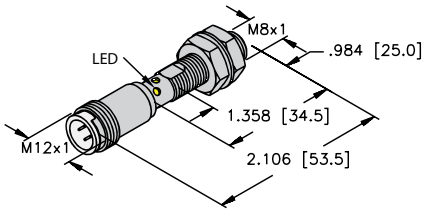
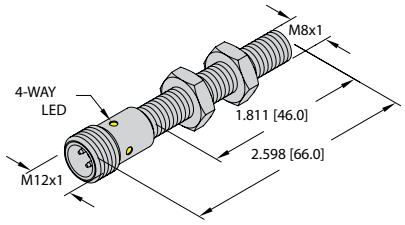


8 mm - Embeddable, Stainless Steel Barrel, M12 Eurofast Quick Disconnect

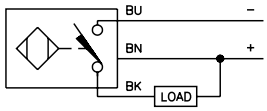
D



8 mm - Embeddable, Stainless Steel Barrel, M12 Eurofast Quick Disconnect

Wiring Diagrams/Mating Cordsets

1



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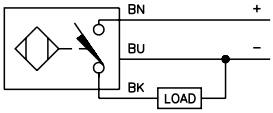

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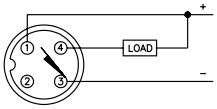
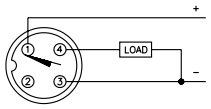


Mating Cordset: RKV 4T-*

4



Mating Cordset: RKV 4T-*

A22 — 3-wire DC Stainless Front Face (AP, AN, RP, RN)

Ripple:	≤10%	Temperature Drift:	≤±10%
Differential Travel (Hysteresis):	3-15% (5% typical)	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Wire-Break Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Off-State (Leakage) Current:	≤0.1 mA	Repeatability:	≤2% of Rated Operating Distance

A23 — 3-wire DC Stainless Front Face Ext Range (AP, AN, RP, RN)

Ripple:	≤10%	Temperature Drift:	≤±10%
Differential Travel (Hysteresis):	20%	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤2 V	Wire-Break Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Shock:	30 g, 11 ms
No-Load Current:	≤10 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Off-State (Leakage) Current:	≤0.1 mA	Repeatability:	≤5% of Rated Operating Distance

Dieguard Sensors | 8 mm

Embeddable Threaded Metal Barrels with Cable

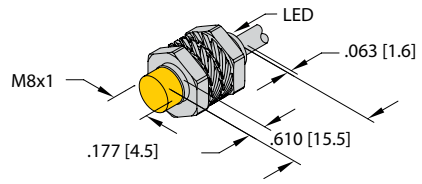
Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi3-EG08FE-AN6X 4614712	Full Stainless Steel	3	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	SS	SS	N/A	YE	2M/PVC	B	1	A23
Bi3-EG08FE-AP6X 4614704	Full Stainless Steel	3	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	SS	SS	N/A	YE	2M/PVC	B	2	A23
Bi1.5-EG08F-AN6X 4614627	Full Stainless Steel	1.5	3-wire DC NPN	10-30 VDC	200	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	2M/PVC	A	1	A22
Bi1.5-EG08F-AP6X 4614626	Full Stainless Steel	1.5	3-wire DC PNP	10-30 VDC	200	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	2M/PVC	A	2	A22
Bi3-EG08FE-AN6X-H1341 4614711	Full Stainless Steel	3	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	SS	SS	N/A	YE	- -	D	3	A23
Bi3-EG08FE-AP6X-H1341 4614703	Full Stainless Steel	3	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	SS	SS	N/A	YE	- -	D	4	A23
Bi1.5-EG08F-AN6X-H1341 4614630	Full Stainless Steel	1.5	3-wire DC NPN	10-30 VDC	200	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	- -	C	3	A22
Bi1.5-EG08F-AP6X-H1341 4614629	Full Stainless Steel	1.5	3-wire DC PNP	10-30 VDC	200	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	- -	C	4	A22

Dieguard Sensors | 8 mm

Nonembeddable Threaded Metal Barrels with Cable

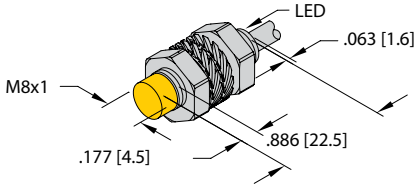
Dimension Drawings

A



8 mm - Nonembeddable, Miniature Threaded Barrel, Potted-In Cable

B



8 mm - Nonembeddable, Miniature Threaded Barrel, Potted-In Cable

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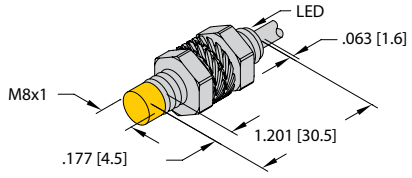

8 mm - Nonembeddable, Miniature Threaded Barrel, Potted-In Cable

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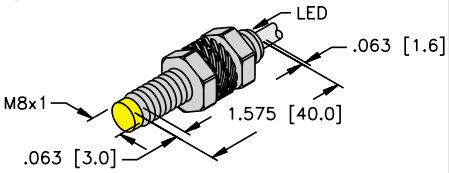

8 mm - Nonembeddable, Miniature Threaded Barrel, Potted-In Cable

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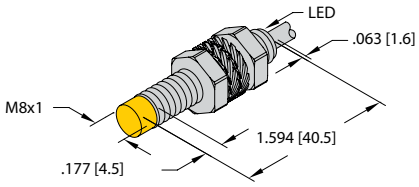
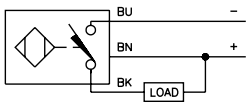


8 mm - Nonembeddable, Miniature Threaded Barrel, Potted-In Cable

Wiring Diagrams/Mating Cordsets

1



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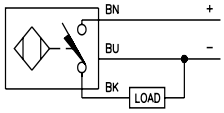


A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

Dieguard Sensors | 8 mm

Nonembeddable Threaded Metal Barrels with Cable

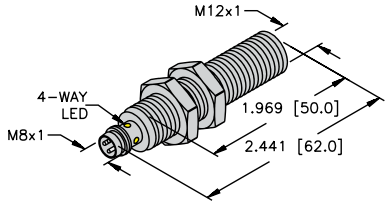
Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Ni6U-EG08-AN6X 4635803	Uprox+	6	3-wire DC NPN	10-30 VDC	1000	≤150	0 to +70	IP68	SS	LCP	N/A	YE	2M/TPU	D	1	A4
Ni6U-EG08-AP6X 4635800	Uprox+	6	3-wire DC PNP	10-30 VDC	1000	≤150	0 to +70	IP68	SS	LCP	N/A	YE	2M/TPU	D	2	A4
Ni5-M08-AN6X 4602923		5	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	2M/TPU	C	1	A4
Ni5-M08-AP6X 4602920		5	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	2M/TPU	C	2	A4
Ni5-M08KK-AN6X 4602948	Short Barrel	5	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	2M/TPU	A	1	A4
Ni5-M08KK-AP6X 4602944	Short Barrel	5	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	2M/TPU	A	2	A4
Ni4U-EG08-AN6X 4600610	Uprox	4	3-wire DC NPN	10-30 VDC	2000	≤150	-30 to +85	IP68	SS	PA 12	N/A	YE	2M/TPU	D	1	A4
Ni4U-EG08-AP6X 4600600	Uprox	4	3-wire DC PNP	10-30 VDC	2000	≤150	-30 to +85	IP68	SS	PA 12	N/A	YE	2M/TPU	D	2	A4
Ni3-M08E-AN6X 4602831		3	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	2M/TPU	E	1	A4
Ni3-M08E-AP6X 4602834		3	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	2M/TPU	E	2	A4
Ni3-M08K-AN6X 4602847		3	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	2M/TPU	B	1	A4
Ni3-M08K-AP6X 4602851		3	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	2M/TPU	B	2	A4

Dieguard Sensors | 12 mm

Fully Threaded Metal Barrels with Connector

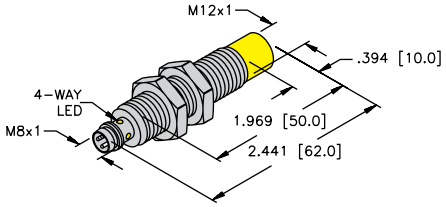
Dimension Drawings

A



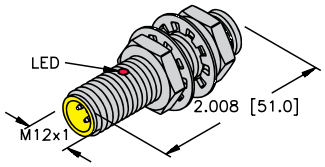
12 mm - Embeddable, M8 Picofast Connection

B



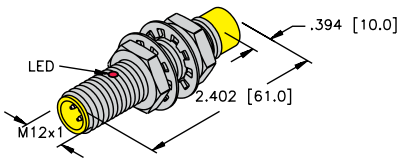
12 mm - Embeddable, M8 Picofast Connection

C



12 mm - Embeddable, M12 Eurofast Connection

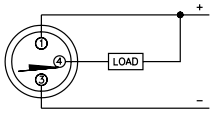
D



12 mm - Nonembeddable, M12 Eurofast Connection

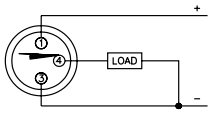
Wiring Diagrams/Mating Cordsets

1



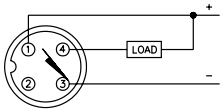
Mating Cordset: PKG 3M-*

2



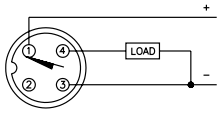
Mating Cordset: PKG 3M-*

3



Mating Cordset: RK 4T-*

4



Mating Cordset: RK 4T-*; RKV 4T-*

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

Dieguard Sensors | 12 mm

Fully Threaded Metal Barrels with Connector

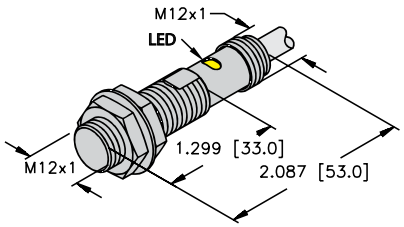
Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi4-G12-AN6X-V1131 1690707	Extended Range	4	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	--	A	1	A4
Bi4-G12-AP6X-V1131 1690703	Extended Range	4	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	--	A	2	A4
Bi4-EG12-AP6X-H1141 4607091	Extended Range	4	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	SS	PA 12	N/A	RD	--	C	4	A4
Bi2-G12-AN6X-V1131 4635583		2	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	--	A	1	A4
Bi2-G12-AN6X-H1141 4606693		2	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	RD	--	C	3	A4
Bi2-G12-AP6X-H1141 4606595		2	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	RD	--	C	4	A4
Bi2-G12-AP6X-V1131 4606597		2	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	--	B	2	A4
Ni8-G12-AN6X-H1141 4611383	Extended Range	8	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	RD	--	D	3	A4
Ni5-G12-AN6X-V1131 4635721		5	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	--	B	1	A4
Ni5-G12-AN6X-H1141 4635793		5	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	RD	--	D	3	A4
Ni5-G12-AP6X-V1131 4635690		5	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	--	B	2	A4
Ni5-G12-AP6X-H1141 4635692		5	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	RD	--	D	4	A4

Dieguard Sensors | 12 mm

Embeddable Threaded Metal Barrels with Cable or Connector

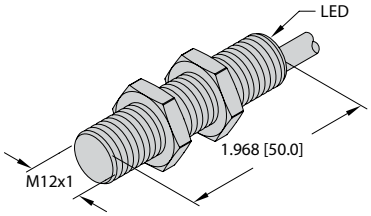
Dimension Drawings

A



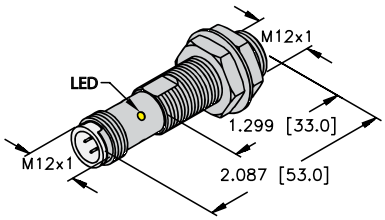
12 mm - Embeddable, Stainless Steel Barrel, Potted-In Cable

B



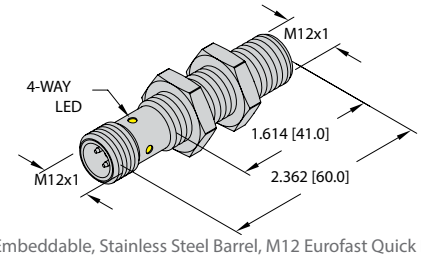
12 mm - Embeddable, Stainless Steel Barrel, Potted-In Cable

C



12 mm - Embeddable, Stainless Steel Barrel, M12 Eurofast Quick Disconnect

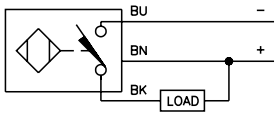
D



12 mm - Embeddable, Stainless Steel Barrel, M12 Eurofast Quick Disconnect

Wiring Diagrams/Mating Cordsets

1



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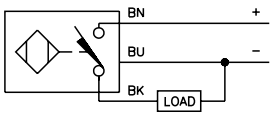

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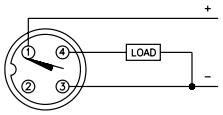
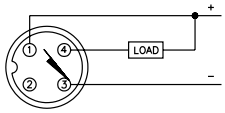


Mating Cordset: RKV 4T-*

4



Mating Cordset: RKV 4T-*

A22 — 3-wire DC Stainless Front Face (AP, AN, RP, RN)

Ripple:	≤10%	Temperature Drift:	≤±10%
Differential Travel (Hysteresis):	3-15% (5% typical)	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Wire-Break Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Off-State (Leakage) Current:	≤0.1 mA	Repeatability:	≤2% of Rated Operating Distance

A23 — 3-wire DC Stainless Front Face Ext Range (AP, AN, RP, RN)

Ripple:	≤10%	Temperature Drift:	≤±10%
Differential Travel (Hysteresis):	20%	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤2 V	Wire-Break Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Shock:	30 g, 11 ms
No-Load Current:	≤10 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Off-State (Leakage) Current:	≤0.1 mA	Repeatability:	≤5% of Rated Operating Distance

Dieguard Sensors | 12 mm

Embeddable Threaded Metal Barrels with Cable or Connector

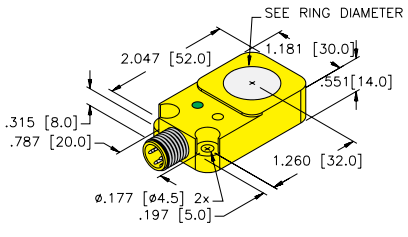
Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi6-EG12FE-AN6X 4614721	Full Stainless Steel	6	3-wire DC NPN	10-30 VDC	600	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	2M/PVC	B	1	A23
Bi6-EG12FE-AP6X 4614720	Full Stainless Steel	6	3-wire DC PNP	10-30 VDC	600	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	2M/PVC	B	2	A23
Bi2-EG12F-AN6X 4614633	Full Stainless Steel	2	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	2M/PVC	A	1	A22
Bi2-EG12F-AP6X 4614632	Full Stainless Steel	2	3-wire DC PNP	10-30 VDC	100	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	2M/PVC	A	2	A22
Bi6-EG12FE-AN6X-H1141 4614714	Full Stainless Steel	6	3-wire DC NPN	10-30 VDC	600	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	- -	D	3	A23
Bi6-EG12FE-AP6X-H1141 4614706	Full Stainless Steel	6	3-wire DC PNP	10-30 VDC	600	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	- -	D	4	A23
Bi2-EG12F-AN6X-H1141 4614636	Full Stainless Steel	2	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	- -	C	3	A22
Bi2-EG12F-AP6X-H1141 4614635	Full Stainless Steel	2	3-wire DC PNP	10-30 VDC	100	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	- -	C	4	A22

Dieguard Sensors | Ring Sensors

Plastic Housing Sensors with Cable or Connector

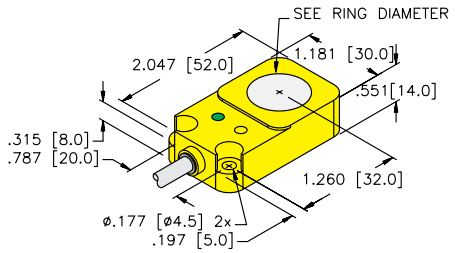
Dimension Drawings

A



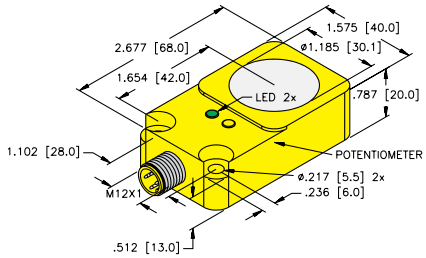
14 mm - Rectangular, Ring Sensor, M12 Eurofast Connector

B



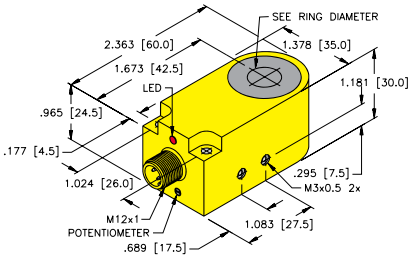
14 mm - Rectangular, Ring Sensor, Potted-In Cable

C



20 mm - Rectangular, Ring Sensor, M12 Eurofast Connector

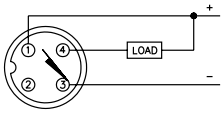
D



30 mm - Rectangular, Ring Sensor, M12 Eurofast Connector

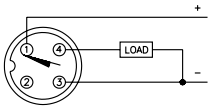
Wiring Diagrams/Mating Cordsets

1



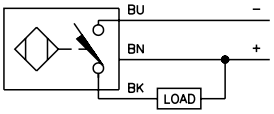
Mating Cordset: RK 4T-*

2



Mating Cordset: RK 4T-*

3



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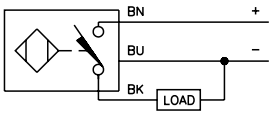


A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox 3)	Repeatability:	≤2% of Rated Operating Distance

Dieguard Sensors | Ring Sensors

Plastic Housing Sensors with Cable or Connector

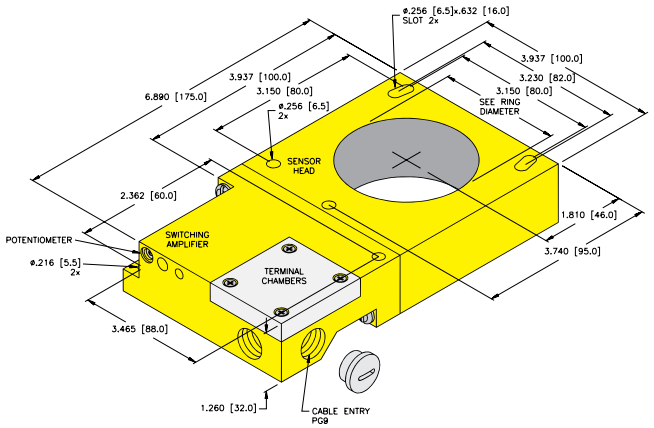
Part Number/ ID Number	Features	Minimum Target Diameter	Ring Diameter (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi10R-Q14-AN6X2-H1141 1407120	Static Output	≥ 2 mm	10	3-wire DC NPN	10-30 VDC	8	≤200	-25 to +70	IP67	PBT	POM	GN	YE	- -	A	1	A4
Bi15R-Q14-AN6X2-H1141 1407220	Static Output	≥ 3 mm	15	3-wire DC NPN	10-30 VDC	8	≤200	-25 to +70	IP67	PBT	POM	GN	YE	- -	A	1	A4
Bi20R-Q14-AN6X2-H1141 1407320	Static Output	≥ 4 mm	20	3-wire DC NPN	10-30 VDC	8	≤200	-25 to +70	IP67	PBT	POM	GN	YE	- -	A	1	A4
Bi6R-Q14-AP6X2-H1141 14070	Static Output	≥ 2 mm	6	3-wire DC PNP	10-30 VDC	8	≤200	-25 to +70	IP67	PBT	POM	GN	YE	- -	A	2	A4
Bi10R-Q14-AP6X2-H1141 14071	Static Output	≥ 2 mm	10	3-wire DC PNP	10-30 VDC	8	≤200	-25 to +70	IP67	PBT	POM	GN	YE	- -	A	2	A4
Bi15R-Q14-AP6X2-H1141 14072	Static Output	≥ 3 mm	15	3-wire DC PNP	10-30 VDC	8	≤200	-25 to +70	IP67	PBT	POM	GN	YE	- -	A	2	A4
Bi20R-Q14-AP6X2-H1141 14073	Static Output	≥ 4 mm	20	3-wire DC PNP	10-30 VDC	8	≤200	-25 to +70	IP67	PBT	POM	GN	YE	- -	A	2	A4
Bi10R-Q14-AN6X2 1406120	Static Output	≥ 2 mm	10	3-wire DC NPN	10-30 VDC	8	≤200	-25 to +70	IP67	PBT	POM	GN	YE	2M/PVC	B	3	A4
Bi15R-Q14-AN6X2 1406220	Static Output	≥ 3 mm	15	3-wire DC NPN	10-30 VDC	8	≤200	-25 to +70	IP67	PBT	POM	GN	YE	2M/PVC	B	3	A4
Bi20R-Q14-AN6X2 1406320	Static Output	≥ 4 mm	20	3-wire DC NPN	10-30 VDC	8	≤200	-25 to +70	IP67	PBT	POM	GN	YE	2M/PVC	B	3	A4
Bi10R-Q14-AP6X2 14061	Static Output	≥ 2 mm	10	3-wire DC PNP	10-30 VDC	8	≤200	-25 to +70	IP67	PBT	POM	GN	YE	2M/PVC	B	4	A4
Bi15R-Q14-AP6X2 14062	Static Output	≥ 3 mm	15	3-wire DC PNP	10-30 VDC	8	≤200	-25 to +70	IP67	PBT	POM	GN	YE	2M/PVC	B	4	A4
Bi20R-Q14-AP6X2 14063	Static Output	≥ 4 mm	20	3-wire DC PNP	10-30 VDC	8	≤200	-25 to +70	IP67	PBT	POM	GN	YE	2M/PVC	B	4	A4
Bi30R-Q20-AN6X2-H1141 1407520	Static Output	≥ 6 mm	30	3-wire DC NPN	10-30 VDC	8	≤200	-25 to +70	IP67	PBT	POM	GN	YE	- -	C	1	A4
Bi30R-Q20-AP6X2-H1141 14075	Static Output	≥ 6 mm	30	3-wire DC PNP	10-30 VDC	8	≤200	-25 to +70	IP67	PBT	POM	GN	YE	- -	C	2	A4
Bi6R-W30-DAN6X-H1141 14037	Dynamic Output	≥ 0.6 mm	6	3-wire DC NPN	10-30 VDC	8	≤200	-25 to +70	IP67	PA 12	POM	N/A	YE	- -	D	1	A4
Bi10R-W30-DAN6X-H1141 14039	Dynamic Output	≥ 1 mm	10	3-wire DC NPN	10-30 VDC	8	≤200	-25 to +70	IP67	PA 12	POM	N/A	YE	- -	D	1	A4
Bi15R-W30-DAN6X-H1141 14041	Dynamic Output	≥ 1.5 mm	15	3-wire DC NPN	10-30 VDC	8	≤200	-25 to +70	IP67	PA 12	POM	N/A	YE	- -	D	1	A4
Bi20R-W30-DAN6X-H1141 14043	Dynamic Output	≥ 2 mm	20	3-wire DC NPN	10-30 VDC	8	≤200	-25 to +70	IP67	PA 12	POM	N/A	YE	- -	D	1	A4
Bi30R-W30-DAN6X-H1141 1404501	Dynamic Output	≥ 3 mm	30	3-wire DC NPN	10-30 VDC	8	≤200	-25 to +70	IP67	PA 12	POM	N/A	YE	- -	D	1	A4
Bi6R-W30-DAP6X-H1141 14036	Dynamic Output	≥ 0.6 mm	6	3-wire DC PNP	10-30 VDC	8	≤200	-25 to +70	IP67	PA 12	POM	N/A	YE	- -	D	2	A4
Bi10R-W30-DAP6X-H1141 14038	Dynamic Output	≥ 1 mm	10	3-wire DC PNP	10-30 VDC	8	≤200	-25 to +70	IP67	PA 12	POM	N/A	YE	- -	D	2	A4
Bi15R-W30-DAP6X-H1141 14040	Dynamic Output	≥ 1.5 mm	15	3-wire DC PNP	10-30 VDC	8	≤200	-25 to +70	IP67	PA 12	POM	N/A	YE	- -	D	2	A4
Bi20R-W30-DAP6X-H1141 14042	Dynamic Output	≥ 2 mm	20	3-wire DC PNP	10-30 VDC	8	≤200	-25 to +70	IP67	PA 12	POM	N/A	YE	- -	D	2	A4
Bi30R-W30-DAP6X-H1141 14045	Dynamic Output	≥ 3 mm	30	3-wire DC PNP	10-30 VDC	8	≤200	-25 to +70	IP67	PA 12	POM	N/A	YE	- -	D	2	A4

Dieguard Sensors | Ring Sensors

Plastic Housing Sensors with Terminal Chamber or Connector

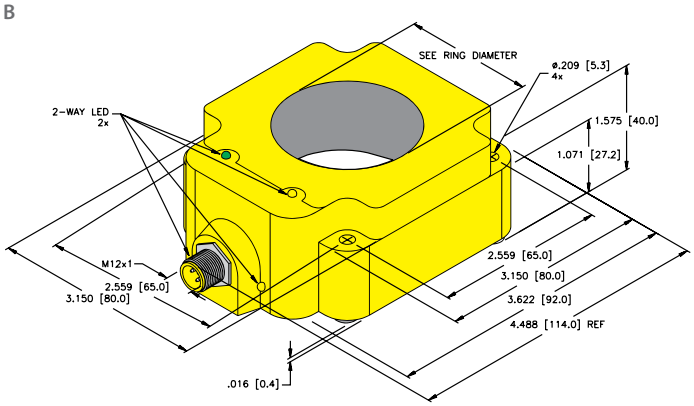
Dimension Drawings

A



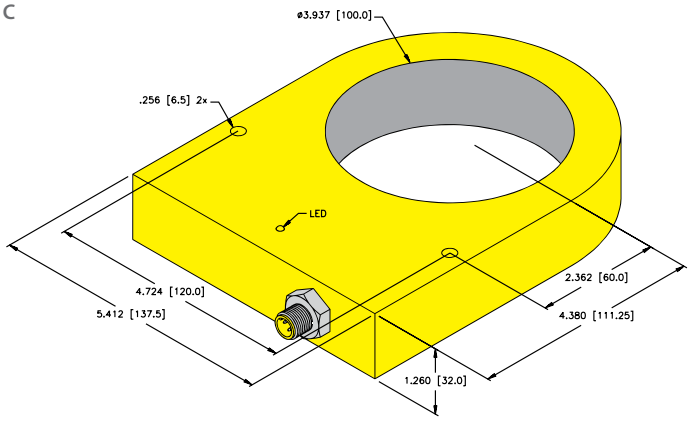
32 mm - Rectangular, Ring Sensor, Terminal Chamber

B



80 mm - Rectangular, Ring Sensor, M12 Eurofast Connector

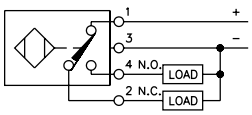
C



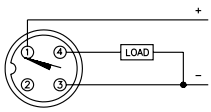
100 mm - Rectangular, Ring Sensor, M12 Eurofast Connector

Wiring Diagrams/Mating Cordsets

1

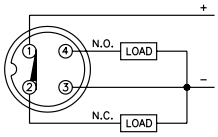


2



Mating Cordset: RK 4T-*

3



Mating Cordset: RK 4.4T-*

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox 3)	Repeatability:	≤2% of Rated Operating Distance

Dieguard Sensors | Ring Sensors

Plastic Housing Sensors with Terminal Chamber or Connector

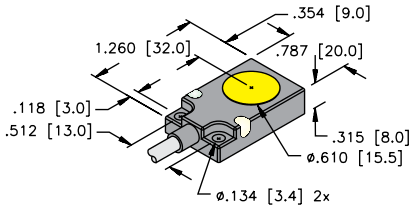
Part Number/ ID Number	Features	Minimum Target Diameter	Ring Diameter (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Ni20R-S32SR-VP44X 1440001	Static Output	≥ 0.4 mm	20	4-wire DC PNP	10-55 VDC	8	≤200	-25 to +70	IP67	ABS	ABS	N/A	YE	- -	A	1	A4
Ni40R-S32SR-VP44X 1440005	Static Output	≥ 1 mm	40	4-wire DC PNP	10-55 VDC	8	≤200	-25 to +70	IP67	ABS	ABS	N/A	YE	- -	A	1	A4
Ni65R-S32SR-VP44X 1440008	Static Output	≥ 12 mm	65	4-wire DC PNP	10-55 VDC	8	≤200	-25 to +70	IP67	ABS	ABS	N/A	YE	- -	A	1	A4
Bi50R-Q80-AP6X2-H1141 1407530	Static Output	≥ 8 mm	50	3-wire DC PNP	10-30 VDC	10	≤200	-25 to +70	IP67	PBT	PA 66	GN	YE	- -	B	2	A4
Bi65R-Q80-AP6X2-H1141 1407531	Static Output	≥ 10 mm	65	3-wire DC PNP	10-30 VDC	10	≤200	-25 to +70	IP67	PBT	PA 66	GN	YE	- -	B	2	A4
Ni100R-S32XL-VP44X-H1141 1510301	Static Output	≥ 10mm	100	4-wire DC PNP	10-55 VDC	8	≤200	-25 to +70	IP67	POM	POM	N/A	YE	- -	C	3	A4

Dieguard Sensors | Q08, Q14, & Q20

Qpak Housing with Analog output

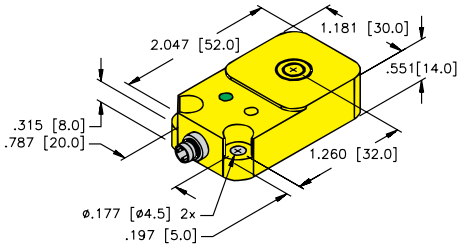
Dimension Drawings

A



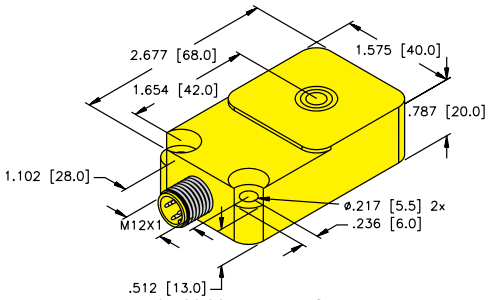
8 mm - Embeddable, Potted-In Cable

B



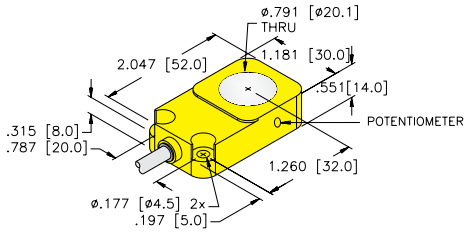
14 mm - Embeddable, M8 Picofast Connection

C



20 mm - Embeddable, M12 Eurofast Connection

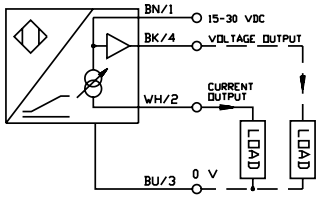
D



14 mm - Embeddable, Ring Sensor, Potted-In Cable

Wiring Diagrams/Mating Cordsets

1



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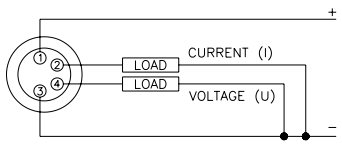
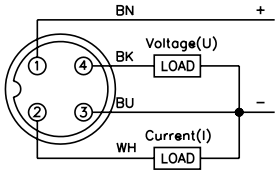


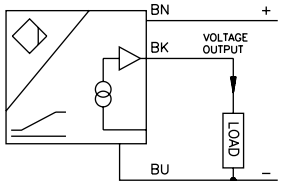
Mating Cordset: PKG 4M-*

3



Mating Cordset: RK 4.4T-*

4



A7 — 3 and 4-wire DC Analog - (LIU, SIU)

Ripple:	≤10%	Transient Protection:	Per EN 60947-5-2
No-Load Current:	≤8.0 mA	Shock:	30 g, 11 ms
Load Resistance Voltage Output:	0-10 V/R_L≥4.7 kΩ	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Load Resistance Current Output:	0-20 mA/R_L≤0.4 kΩ	Repeatability:	≤1% of measuring range |A-B|
Temperature Drift:	±0.06% / °C		(0.5% after 30 min. warm up)
LIU5:	4-20 mA, 0-10 V	Short-Circuit Protection:	Yes
LIU2:	4-20 mA, 2-10 V	Reverse Polarity Protection:	Incorporated

A8 — 3 and 4-wire DC Analog - (LU)

Ripple:	≤10%	Short-Circuit Protection:	Yes
No-Load Current:	≤8.0 mA	Wire-Break Protection:	Yes
Load Resistance Voltage Output:	0-10 V/R_L≥4.7 kΩ	Shock:	30 g, 11 ms
Temperature Drift:	±0.06% / °C	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Reverse Polarity Protection:	Incorporated	Repeatability:	≤1% of measuring range |A-B|
Transient Protection:	Per EN 60947-5-2		(0.5% after 30 min. warm up)

Dieguard Sensors | Q08, Q14, & Q20

Qpak Housing with Analog output

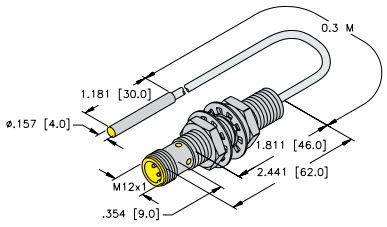
Part Number/ ID Number	Features	Measuring Range (mm)	Response Freq. (Hz)	Linearity Deviation (% of full scale)	Output	Voltage	Output Voltage/ Current	Operating Temp. (°C)	Protection	Slew Rate V/ms, mA/ms	Housing	Face	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi7-Q08-LIU 1534605		1-4	200	0.05	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	4, 8	Zinc	PA 12	2M/ TPU	A	1	A7
Bi10-Q14-LIU-V1141 1534603		3-8	140	0.03	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	2.8, 5.6	PBT	PBT	- -	B	2	A7
Bi15-Q20-LIU-H1141 1534601		4-11	110	0.03	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	2.2, 4.4	PBT	PBT	- -	C	3	A7
Bi20R-Q14-LU 1535546	Ring Sensor	1-19	80	N/A	3-wire DC Voltage	15-30 VDC	0-10 V	-25 to +70	IP67	2.8, N/A	PBT	PBT	2M/ PVC	D	4	A8

Dieguard Sensors | EH04, EG05, EH6.5, & EG08

Picoprox Barrel Styles with Analog output

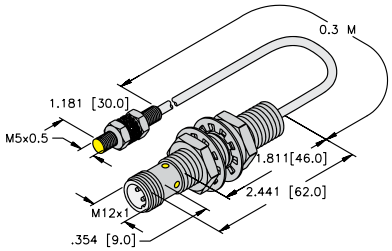
Dimension Drawings

A



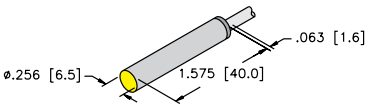
4 mm - Embeddable M12 Eurofast Connection

B



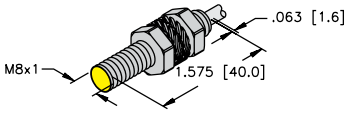
5 mm - Embeddable M12 Eurofast Connection

C



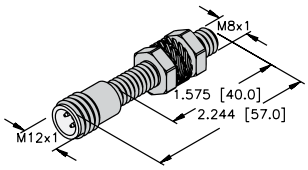
6.5 mm - Embeddable, Potted-In Cable

D



8 mm - Embeddable, Potted-In Cable

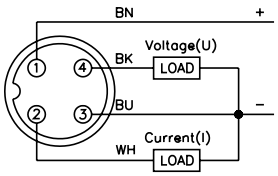
E



8 mm - Embeddable, M12 Eurofast Connection

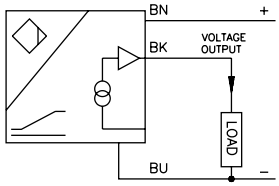
Wiring Diagrams/Mating Cordsets

1

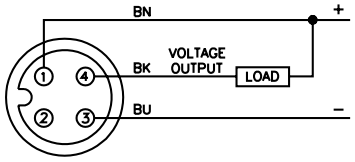


Mating Cordset: RK 4.4T-*

2



3



Mating Cordset: RK 4T-*

A7 — 3 and 4-wire DC Analog - (LIU, SIU)

Ripple:	≤10%	Transient Protection:	Per EN 60947-5-2
No-Load Current:	≤8.0 mA	Shock:	30 g, 11 ms
Load Resistance Voltage Output:	0-10 V/R_L ≥4.7 kΩ	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Load Resistance Current Output:	0-20 mA/R_L ≤0.4 kΩ	Repeatability:	≤1% of measuring range |A-B|
Temperature Drift:	±0.06% / °C		(0.5% after 30 min. warm up)
LIU5:	4-20 mA, 0-10 V	Short-Circuit Protection:	Yes
LIU2:	4-20 mA, 2-10 V	Reverse Polarity Protection:	Incorporated

A8 — 3 and 4-wire DC Analog - (LU)

Ripple:	≤10%	Short-Circuit Protection:	Yes
No-Load Current:	≤8.0 mA	Wire-Break Protection:	Yes
Load Resistance Voltage Output:	0-10 V/R_L ≥4.7 kΩ	Shock:	30 g, 11 ms
Temperature Drift:	±0.06% / °C	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Reverse Polarity Protection:	Incorporated	Repeatability:	≤1% of measuring range |A-B|
Transient Protection:	Per EN 60947-5-2		(0.5% after 30 min. warm up)

Dieguard Sensors | EH04, EG05, EH6.5, & EG08

Picoprox Barrel Styles with Analog output

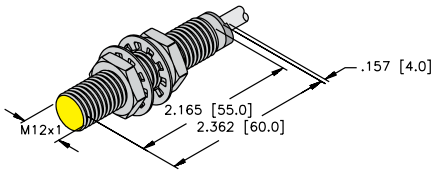
Part Number/ ID Number	Measuring Range (mm)	Response Freq. (Hz)	Linearity Deviation (% of full scale)	Output	Voltage	Output Voltage/ Current	Operating Temp. (°C)	Protection	Slew Rate V/ms, mA/ms	Housing	Face	Dimension Drawings	Wiring Diagrams	Spec List
Bi1.5-EH04-0.3-M12-SIU-H1141 1533001	0.1-1.5	200	N/A	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	4, 8	SS	PA 12	A	1	A7
Bi1.5-EG05-0.3-M12-SIU-H1141 1533005	0.1-1.5	200	N/A	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	4, 8	SS	PA 12	B	1	A7
Bi1.5-EH6.5-LU 1533002	0.25-1.25	200	0.03	3-wire DC Voltage	15-30 VDC	0-10 V	-10 to +70	IP67	4, N/A	SS	PA 12	C	2	A8
Bi1.5-EG08-LU 1533003	0.25-1.25	200	0.03	3-wire DC Voltage	15-30 VDC	0-10 V	-10 to +70	IP67	4, N/A	SS	PA 12	D	2	A8
Bi1.5-EG08-LU-H1341 1533004	0.25-1.25	200	0.03	3-wire DC Voltage	15-30 VDC	0-10 V	-10 to +70	IP67	4, N/A	SS	PA 12	E	3	A8

Dieguard Sensors | M12, M18, & M30

Threaded Barrel Styles with Analog output

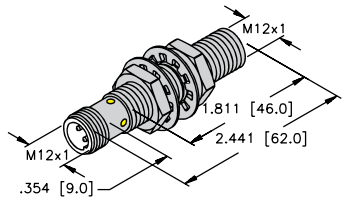
Dimension Drawings

A



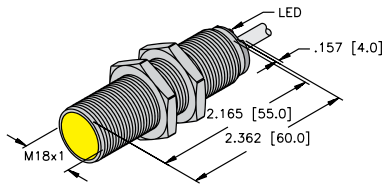
12 mm - Embeddable, Potted-In Cable

B



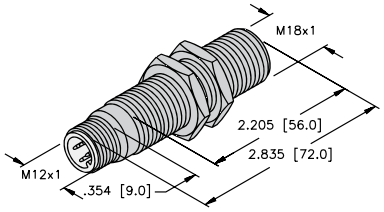
12 mm - Embeddable M12 Eurofast Connection

C



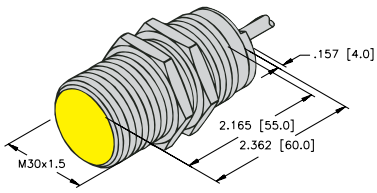
18 mm - Embeddable, Potted-In Cable

D



18 mm - Embeddable M12 Eurofast Connection

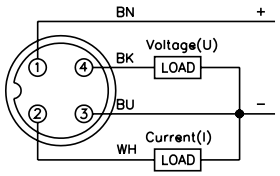
E



30 mm - Embeddable, Potted-In Cable

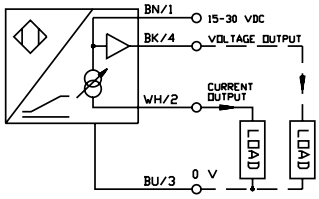
Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RK 4.4T-*

2



A7 — 3 and 4-wire DC Analog - (LIU, SIU)

Ripple:	≤10%	Transient Protection:	Per EN 60947-5-2
No-Load Current:	≤8.0 mA	Shock:	30 g, 11 ms
Load Resistance Voltage Output:	0-10 V/R_L ≥4.7 kΩ	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Load Resistance Current Output:	0-20 mA/R_L ≤0.4 kΩ	Repeatability:	≤1% of measuring range |A-B|
Temperature Drift:	±0.06% / °C		(0.5% after 30 min. warm up)
LIU5:	4-20 mA, 0-10 V	Short-Circuit Protection:	Yes
LIU2:	4-20 mA, 2-10 V	Reverse Polarity Protection:	Incorporated

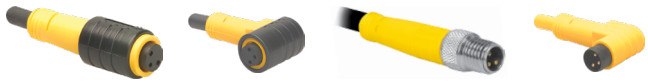
Dieguard Sensors | M12, M18, & M30

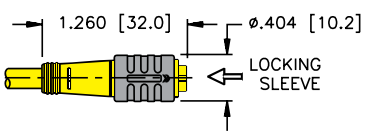
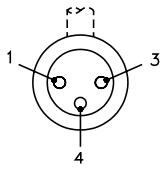
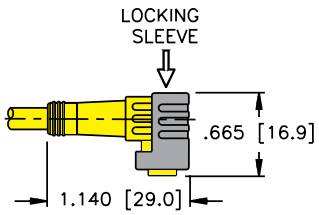
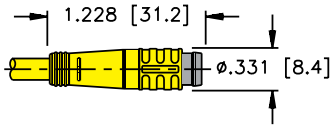
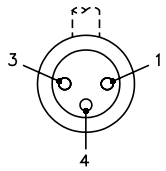
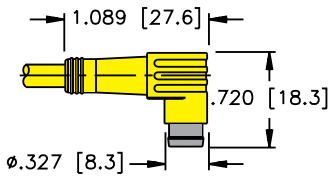
Threaded Barrel Styles with Analog output

Part Number/ ID Number	Features	Measuring Range (mm)	Response Freq. (Hz)	Linearity Deviation (% of full scale)	Output	Voltage	Output Voltage/ Current	Operating Temp. (°C)	Protection	Slew Rate V/ms, mA/ms	Housing	Face	Dimension Drawings	Wiring Diagrams	Spec List
Bi4-M12-LIU 1535532	Ext. Range	0.5-3	200	0.05	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	4, 8	CPB	PA 12	A	2	A7
Bi2-M12-LIU-H1141 1535533		1-2.5	200	0.03	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	4, 8	CPB	PA 12	B	1	A7
Bi4-M12-LIU-H1141 1535531	Ext. Range	0.5-3	200	0.05	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	4, 8	CPB	PA 12	B	1	A7
Bi5-M18-LIU 1536000		2-4	200	0.03	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	4, 8	CPB	PA 12	C	2	A7
Bi8-M18-LIU 1535538	Ext. Range	1-5	200	0.05	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	4, 8	CPB	PA 12	C	2	A7
Bi5-M18E-LIU-H1141 1536205		2-4	200	0.03	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	4, 8	CPB	PA 12	D	1	A7
Bi8-M18E-LIU-H1141 1535561	Ext. Range	1-5	200	0.05	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	4, 8	CPB	PA 12	D	1	A7
Bi10-M30-LIU 1535500		3-8	140	0.03	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	2.8, 5.6	CPB	PA 12	E	2	A7
Bi15-M30-LIU 1535543	Ext. Range	2-10	140	0.05	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	2.8, 5.6	CPB	PA 12	E	2	A7

3-Wire Cordsets, Snap Lock (Locking Sleeve)

- NEMA 1, 3, 4, 6P
- IEC IP67 Protection
- 125 V, 4 A



Connector Style	Female Part Number	Male Part Number	Features	Pinout	
PKG ..Z** 	**PKG 3Z-* PKW 3Z-***	**PSG 3-* PSW 3-***	AWM, PVC Yellow, 3x24 AWG, 105 °C, 4.4 mm OD, Cable #RF50642-*M, Flexlife®	1. BN 3. BU 4. BK	Female 
PKW ..Z** 	**PKG 3Z-*/S90 PKW 3Z-*/S90**	**PSG 3-*/S90 PSW 3-*/S90**	AWM, TPU Black, 3x24 AWG, 90 °C, 4.2 mm OD, Cable #RF50587-*M, Cut/Abrasion Immune		
	PKG 3Z-*/S90/S101 PKW 3Z-*/S90/S101	**PSG 3-*/S90/S101 PSW 3-*/S90/S101**	AWM, TPU Black, 3x24 AWG, 90 °C, 4.4 mm OD, Cable #RF51166-*M, Cut/Abrasion Immune, Flexlife-20, High Flex - Over 20 Million Cycles		
PSG .. 	**PKG 3Z-*/S90/S618 PKW 3Z-*/S90/S618**	**PSG 3-*/S90/S618 PSW 3-*/S90/S618**	AWM, TPU Black, 3x24 AWG, 90 °C, 4.2 mm OD, Cable #RF50601-*M, Cut/Abrasion Immune, EMI/RFI Protection		Male 
PSW .. 	**PKG 3Z-*/S760 PKW 3Z-*/S760**	**PSG 3-*/S760 PSW 3-*/S760**	AWM, PVC Black, 3x24 AWG, 105 °C, 4.2 mm OD, Cable #RF50585-M, Flexlife		

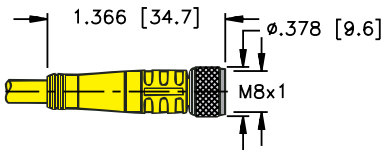
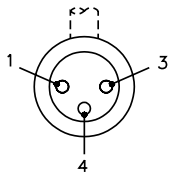
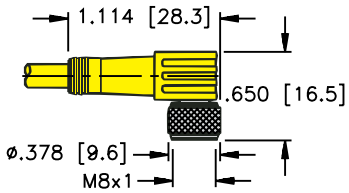
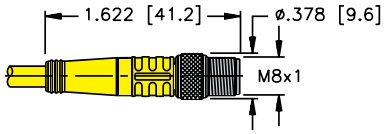
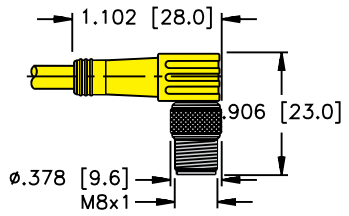
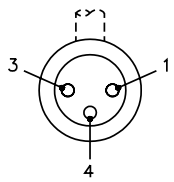
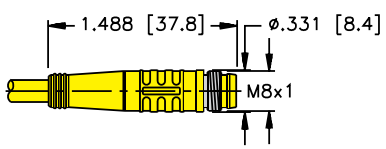
* Length in meters. Standard cable lengths are 2, 4, 5, 6, 8 and 10 meters.

** Locking sleeve material is POM.."PKG..Z".

Dieguard Sensors | M8 Picofast Connectivity

3-Wire Cordsets, Threaded Coupling Nut

- NEMA 1, 3, 4, 6P
- IEC IP67 Protection
- 125 V, 4 A

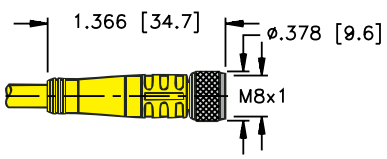
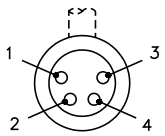
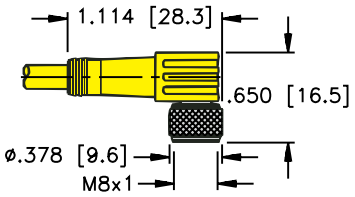
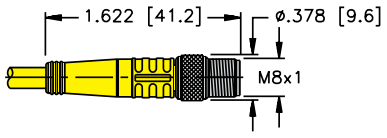
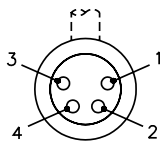
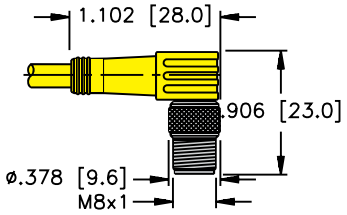
Connector Style	Female Part Number	Male Part Number	Features	Pinout	
PKG ..Z** 	PKG 3M-* PKW 3M-*	PSG 3M-* PSW 3M-*	AWM, PVC Yellow, 3x24 AWG, 105 °C, 4.4 mm OD, Cable #RF50642-*M, Flexlife®	1. BN 3. BU 4. BK	Female 
PKW ..M** 	PKG 3M-*/S90 PKW 3M-*/S90	PSG 3M-*/S90 PSW 3M-*/S90	AWM, TPU Black, 3x24 AWG, 90 °C, 4.2 mm OD, Cable #RF50587-*M, Cut/Abrasion Immune		
	PKG 3M-*/S90/S101 PKW 3M-*/S90/S101	PSG 3M-*/S90/S101 PSW 3M-*/S90/S101	AWM, TPU Black, 3x24 AWG, 90 °C, 4.4 mm OD, Cable #RF51166-*M, Cut/Abrasion Immune, Flexlife-20, High Flex - Over 20 Million Cycles		
PSG .. M** 	PKG 3M-*/S90/S618 PKW 3M-*/S90/S618	PSG 3M-*/S90/S618 PSW 3M-*/S90/S618	AWM, TPU Black, 3x24 AWG, 90 °C, 4.2 mm OD, Cable #RF50601-*M, Cut/Abrasion Immune, EMI/RFI Protection		
	PKG 3M-*/S1587 PKW 3M-*/S1587	PSG 3M-*/S1587 PSW 3M-*/S1587	AWM, TPE Yellow, 3x24 AWG, 105 °C, 4.4 mm OD, Cable #RF51271-*M, Weldlife®, Weld Flash Immune		
PSW .. M** 	PKG 3M-*/S760 PKW 3M-*/S760	PSG 3M-*/S760 PSW 3M-*/S760	AWM, PVC Black, 3x24 AWG, 4.2 mm OD, Cable #RF50585-M, Flexlife	1. BN 3. BU 4. Drain	Male 
	PKG 3M-*/S90/S1084 PKW 3M-*/S90/S1084	PSG 3M-*/S90/S1084 PSW 3M-*/S90/S1084	AWM, TPU Black, 2x24 AWG, 90 °C, 4.2 mm OD, Cable #RF51197-*M, Cut/Abrasion Immune, Shielded	1. BN 3. BU 4. BK	
PSG 3F .. ** 		PSG 3F-*	AWM, PVC Yellow, 3x24 AWG, 105 °C, 4.4 mm OD, Cable #RF50642-*M, Fixed coupling nut		

* Length in meters. Standard cable lengths are 2, 4, 5, 6, 8 and 10 meters.

** Standard coupling material is nickel plated brass.."PKG..M"; "PKGV..M" indicates stainless steel.

4-Wire Cordsets, Threaded Coupling Nut

- NEMA 1, 3, 4, 6P
- IEC IP67 Protection
- 125 V, 4 A

Connector Style	Female Part Number	Male Part Number	Features	Pinout	
PKG ..M** 	**PKG 4M-*** **PKW 4M-***	**PSG 4M-*** **PSW 4M-***	AWM PVC Yellow, 4x26 AWG, 105 °C, 4.4 mm OD, Cable #RF50697-*M, Flexlife®		
	PKG 4M-*/S90 **PKW 4M-*/S90**	**PSG 4M-*/S90** **PSW 4M-*/S90**	AWM TPU Black, 4x26 AWG, 90 °C, 4.2 mm OD, Cable #RF50586-*M, Cut/Abrasion Immune		**Female** 
PKW ..M** 	**PKG 4M-*/S90/S101** **PKW 4M-*/S90/S101**	**PSG 4M-*/S90/S101** **PSW 4M-*/S90/S101**	AWM TPU Black, 4x26 AWG, 90 °C, 4.4 mm OD, Cable #RF50935-*M, Cut/Abrasion Immune, Flexlife-20, High Flex - Over 20 Million Cycles	1. BN 2. WH 3. BU 4. BK	
	PKG 4M-*/S90/S618 **PKW 4M-*/S90/S618**	**PSG 4M-*/S90/S618** **PSW 4M-*/S90/S618**	AWM TPU Black, 4x26 AWG, 90 °C, 4.2 mm OD, Cable #RF50602-*M, Cut/Abrasion Immune, EMI/RFI Protection		
PSG .. M** 	**PKG 4M-*/S760** **PKW 4M-*/S760**	**PSG 4M-*/S760** **PSW 4M-*/S760**	AWM PVC Black, 4x26 AWG, 105 °C, 4.4 mm OD, Cable #RF50870-*M, Flexlife		**Male** 
PSW .. M** 	**PKG 4M-*/S90/S653** **PKW 4M-*/S90/S653**	**PSG 4M-*/S90/S653** **PSW 4M-*/S90/S653**	AWM TPU Black, 3x24 AWG, 90 °C, 4.2 mm OD, Cable #RF50601-*M, Cut/Abrasion Immune, EMI/RFI Protection	1. BN 2. Drain 3. BU 4. BK	

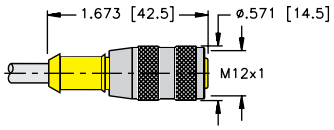
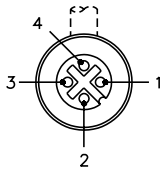
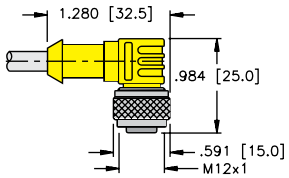
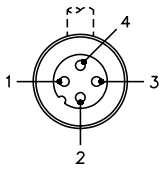
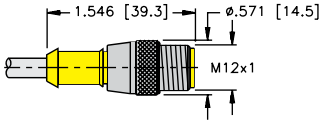
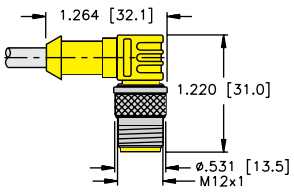
* Length in meters. Standard cable lengths are 2, 4, 5, 6, 8 and 10 meters.

** Standard coupling material is nickel plated brass.."PKG..M"; "PKGV..M" indicates stainless steel.

Dieguard Sensors | M12 Eurofast Connectivity

3-Wire Cordsets, Standard Plug Body

- NEMA 1, 3, 4, 6P
- IEC IP68 Protection
- 250 V, 4 A

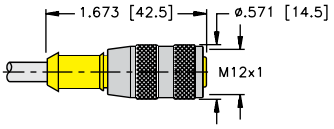
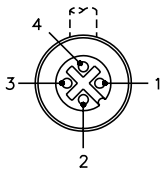
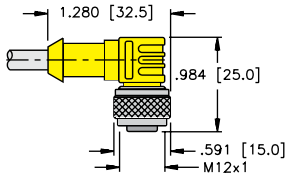
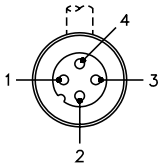
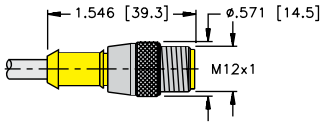
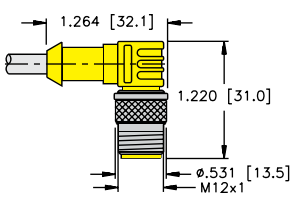
Connector Style	Female Part Number	Male Part Number	Features	Pinout	
RK ..** 	**RK 4T-* WK 4T-***	**RS 4T-* WS 4T-***	ITC/PLTC PVC Grey, 3x20 AWG, 105 °C, 5.1 mm OD, Cable #RF52081-*M, Flexlife®	1. BN 2. N/C 3. BU 4. BK	Female 
	RK 4T-*/S90 WK 4T-*/S90	**RS 4T-*/S90 WS 4T-*/S90**	AWM TPU Grey, 3x22 AWG, 90 °C, 4.8 mm OD, Cable #RF52080-*M, Cut/Abrasion Immune		
	RK 4T-*/S101 WK 4T-*/S101	**RS 4T-*/S101 WS 4T-*/S101**	AWM TPE Grey, 3x22 AWG, 105 °C, 4.8 mm OD, Cable #RF52085-*M, Flexlife-20, High Flex Over 20 Million Cycles		
WK ..** 	**RK 4T-*/S529 WK 4T-*/S529**	**RS 4T-*/S529 WS 4T-*/S529**	TPU/Heavy Braid Double Jacket Yellow, 3x22 AWG, 90 °C, 4.8 mm OD, Cable #RF52084-*M, Cut/Abrasion Immune Braided Mechanical Shield		
	RK 4T-*/S824 WK 4T-*/S824	**RS 4T-*/S824 WS 4T-*/S824**	ITC/PLTC AWM PVC Grey, 3x22 AWG, 105 °C, 5.1 mm OD, Cable #RF52081-*M, Tray Rated, Flexlife		Male 
RS ..** 	**RK 4T-*/S715 WK 4T-*/S715**	**RS 4T-*/S715 WS 4T-*/S715**	ITC/PLTC PVC Yellow, 3x22 AWG, 105 °C, 5.1 mm OD, Cable #RF52087-*M, Flexlife		
	RK 4T-*/S760 WK 4T-*/S760	**RS 4T-*/S760 WS 4T-*/S760**	ITC/PLTC PVC Black, 3x22 AWG, 105 °C, 5.1 mm OD, Cable #RF52083-*M, Flexlife		
WS ..** 	**RK 4T-*/S618 WK 4T-*/S618**	**RS 4T-*/S618 WS 4T-*/S618**	ITC/PLTC PVC Grey, 3x22 AWG, Foil/Drain, 105 °C, 5.1 mm OD, Cable #RF52082-*M, RFI/EMI Shielding, Tray Rated		

* Length in meters. Standard cable lengths are 2, 4, 5, 6, 8 and 10 meters. Consult factory for other lengths.

** Standard coupling nut material is nickel plated brass "RK ..."; "RKK ..." indicates nylon and "RKV ..." indicates stainless steel.

4-Wire Cordsets, Standard Plug Body

- NEMA 1, 3, 4, 6P
- IEC IP68 Protection
- 250 V, 4 A

Connector Style	Female Part Number	Male Part Number	Features	Pinout	
RK ..** 	**RK 4.41T-*** **WK 4.41T-***	**RS 4.41T-*** **WS 4.41T-***	ITC/PLTC PVC NAMUR Blue, 4x22 AWG, 105 °C, 5.3 mm OD, Cable #RF50598-*M, Flexlife®	1. BN 2. WH 3. BU 4. BK	**Female** 
	RK 4.41T-*/S529 **WK 4.41T-*/S529**	**RS 4.41T-*/S529** **WS 4.41T-*/S529**	TPU/Heavy Braid Double Jacket Yellow, 4x20 AWG, 90 °C, 5.7 mm OD, Cable #RF50526-*M, Cut/Abrasion Immune Braided Mechanical Shield		
	RK 4.43T-* **WK 4.43T-***	**RS 4.43T-*** **WS 4.43T-***	ITC/PLTC PVC Yellow, 4x22 AWG, 105 °C, 5.3 mm OD, Cable #RF50530-*M, Flexlife		
WK ..** 	**RK 4.43T-*/S90** **WK 4.43T-*/S90**	**RS 4.43T-*/S90** **WS 4.43T-*/S90**	AWM TPU Yellow, 4x22 AWG, 90 °C, 5.1 mm OD, Cable #RF50613-*M, Cut/Abrasion Immune		
	RK 4.4T-* **WK 4.4T-***	**RS 4.4T-*** **WS 4.4T-***	ITC/PLTC PVC Grey, 4x22 AWG, 105 °C, 5.3 mm OD, Cable #RF50516-*M, Flexlife		
	RK 4.4T-*/S90 **WK 4.4T-*/S90**	**RS 4.4T-*/S90** **WS 4.4T-*/S90**	AWM TPU Grey, 4x22 AWG, 90 °C, 5.1 mm OD, Cable #RF50532-*M, Cut/Abrasion Immune		**Male** 
RS ..** 	**RK 4.4T-*/S101** **WK 4.4T-*/S101**	**RS 4.4T-*/S101** **WS 4.4T-*/S101**	AWM TPE Grey, 4x22 AWG, 105 °C, 5.1 mm OD, Cable #RF50941-*M, Flexlife-20, High Flex Over 20 Million Cycles		
	RK 4.4T-*/S824 **WK 4.4T-*/S824**	**RS 4.4T-*/S824** **WS 4.4T-*/S824**	ITC/PLTC PVC Grey, 4x22 AWG, 105 °C, 5.3 mm OD, Cable #RF50698-*M, Tray Rated		
WS ..** 	**RK 4.4T-*/S618** **WK 4.4T-*/S618**	**RS 4.4T-*/S618** **WS 4.4T-*/S618**	ITC/PLTC PVC Grey, 4x22 AWG Foil/Drain, 105 °C, 5.3 mm OD, Cable #RF50577-*M, RFI/EMI Shielding		
	RK 4.4T-*/S618/S824 **WK 4.4T-*/S618/S824**	**RS 4.4T-*/S618/S824** **WS 4.4T-*/S618/S824**	ITC/PLTC PVC Grey, 4x22 AWG Foil/Drain, 105 °C, 5.3 mm OD, Cable #RF50777-*M, RFI/EMI Shielding, Tray Rated		

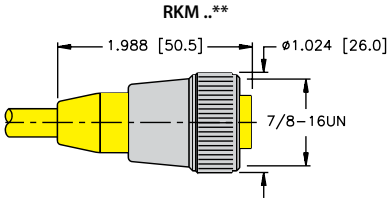
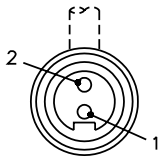
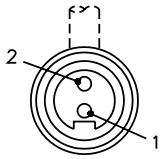
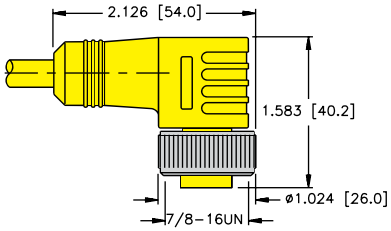
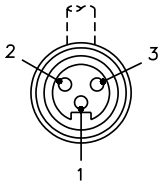
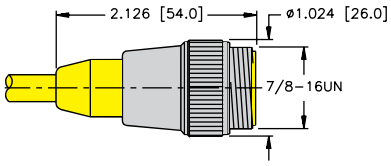
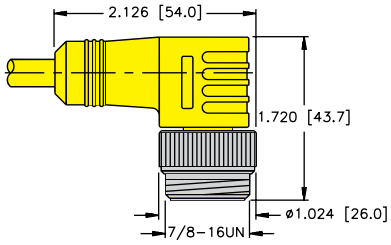
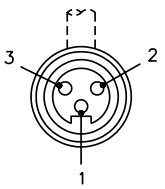
* Length in meters. Standard cable lengths are 2, 4, 5, 6, 8 and 10 meters. Consult factory for other lengths.

** Standard coupling nut material is nickel plated brass "RK ..."; "RKK ..." indicates nylon and "RKV ..." indicates stainless steel.

Dieguard Sensors | 7/8" Minifast Connectivity

2 and 3-Wire Cordsets, Standard

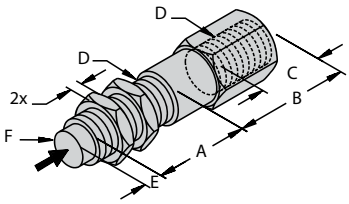
- NEMA 1, 3, 4, 6P
- IEC IP67 Protection
- 9 A

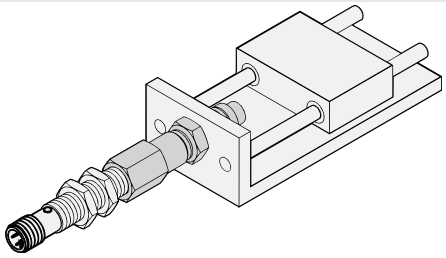
Connector Style	Female Part Number	Male Part Number	Features	Pinout	
RKM ..** 	RKM 20- *M WKM 20- *M	RSM 20- *M WSM 20- *M	ITC/PLTC PVC Yellow 2x18 AWG, 105 °C, 6.2 mm OD, Cable #RF50511-*M, Flexlife®, 600 V	1. BN 2. BU	Female  Male 
WKM ..** 	RKM 30-*M WKM 30-*M	RSM 30-*M WSM 30-*M	ITC/PLTC PVC Yellow, 3x18 AWG, 105 °C, 6.2 mm OD, Cable #RF50880-*M, Flexlife, 600 V	1. GN/YE 2. BN 3. BU	Female 
	RKM 30-*M/S90 WKM 30-*M/S90	RSM 30-*M/S90 WSM 30-*M/S90	AWM TPU Yellow, 3x18 AWG , 90 °C, 6.0 mm OD, Cable #RF50545-*M, Cut Abrasion Immune, 600 V		
RSM ..** 	RKM 30-*M/S101 WKM 30-*M/S101	RSM 30-*M/S101 WSM 30-*M/S101	AWM TPE Yellow, 3x18 AWG , 105 °C, 5.7 mm OD, Cable #RF51173-*M, Flexlife-20, high flex over 20 million cycles, 600 V C-track		
WSM ..** 	RKM 311-*M WKM 311-*M	RSM 311-*M WSM 311-*M	ITC/PLTC PVC Yellow, 3x18 AWG, 105 °C, 6.2 mm OD, Cable #RF50520-*M, Flexlife, 600 V	1. GN 2. RD/BK 3. RD/WH	Male 
	RKM 311-*M/S600 WKM 311-*M/S600	RSM 311-*M/S600 WSM 311-*M/S600	SJOOW CPE, Yellow, 3x18 AWG , 105 °C, 8.0 mm OD, Cable #RF50658-*M, Weld Flash Immune, Flame Immune, 300 V		

* Length in meters. Standard cable lengths are 2, 4, 5, 6, 8 and 10 meters. Consult factory for other lengths.

** Standard coupling nut material is nickel plated brass "RKM .."; "RK .." indicates nylon, "RKV .." indicates stainless steel, and "RKVH .." indicates stainless steel hex.

Die Protector





Part Number	ID Number	A	B	C	D	E	F
DP-08-25-08	**A2521**	0.98 [25.0]	1.25 [31.8]	0.66 [16.7]	M8x1	0.17 [4.3]	0.44 [11.1]
DP-08-50-08	**A9473**	1.97 [50.0]	1.25 [31.8]	0.66 [16.7]	M8x1	0.17 [4.3]	0.44 [11.1]
DP-12-25-12	**A2519**	0.98 [25.0]	1.25 [31.8]	0.66 [16.7]	M12x1	0.17 [4.3]	0.62 [15.7]
DP-12-50-12	**A9169**	1.97 [50.0]	1.25 [31.8]	0.66 [16.7]	M12x1	0.17 [4.3]	0.62 [15.7]
DP-18-25-18	**A2520**	0.98 [25.0]	1.25 [31.8]	0.66 [16.7]	M18x1	0.17 [4.3]	0.87 [22.1]
DP-18-75-18	**A9527**	2.95 [75.0]	1.25 [31.8]	0.66 [16.7]	M18x1	0.17 [4.3]	0.87 [22.1]

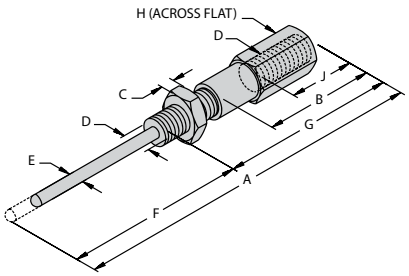
Inches [mm]
Spring rate for plunger actuation: 9 oz

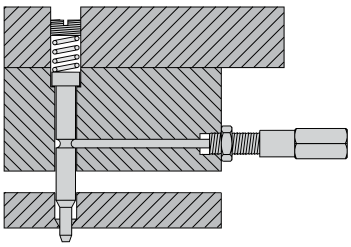
Recommended Sensors for Die Protector

Die Protector	DP-08-25-08	DP-12-25-12	DP-18-25-18
Sensors	Bi1.5U-EG08-AP6X Bi2-EG08-AP6X	Bi2-G12-AP6X-H1141	Bi5-G18-AP6X (When not fully engaged)

Note: Works with all shielded NPN, PNP, quick disconnect or potted-in-cable versions of the listed part numbers.

Whisker Probe





Part Number	ID Number	A	B	C	D	E	F	G	H	J
WP-08-50-03	**A2527**	3.92 [99.6]	1.25 [31.8]	0.15 [3.8]	M8x1	0.13 [3.2]	2.00 [50.8]	1.95 [49.5]	0.44 [11.1]	0.86 [21.8]
WP-12-50-03	**A2528**	3.92 [99.6]	1.25 [31.8]	0.15 [3.8]	M12x1	0.13 [3.2]	2.00 [50.8]	1.95 [49.5]	0.44 [11.1]	0.86 [21.8]
WP-12-50-06	**A2529**	3.92 [99.6]	1.25 [31.8]	0.15 [3.8]	M12x1	0.25 [6.4]	2.00 [50.8]	1.95 [49.5]	0.62 [15.8]	0.71 [18.0]
WP-12-100-06	**A9195**	5.91 [150]	1.25 [31.8]	0.15 [3.8]	M12x1	0.25 [6.4]	4.00 [102]	1.95 [49.5]	0.62 [15.8]	0.71 [18.0]

Inches [mm]

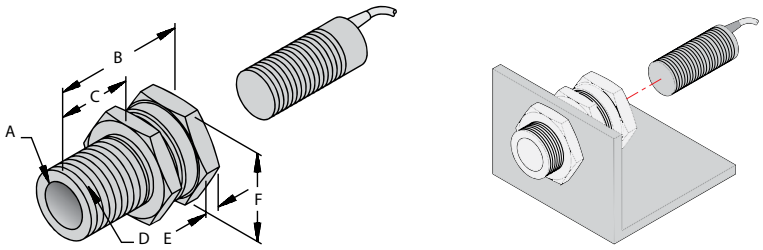
Recommended Sensors for Whisker Probe

Whisker Probe	WP-08-50-03		WP-12-50-03	WP-12-50-06
Sensors	Bi1-G08-AN6 Bi1.5-G08-AP6X	Bi1.5U-EG08-AP6X Bi2-EG08-AP6X	Bi2-G12-AP6X-H1141 Bi3U-M12-AP6X-H1141	Bi2-G12-AP6X-H1141 Bi3U-M12-AP6X-H1141

Note: Works with all shielded NPN, PNP, quick disconnect or potted-in-cable versions of the listed part numbers. Not for use with Uprox3.

Dieguard Sensors | Accessories

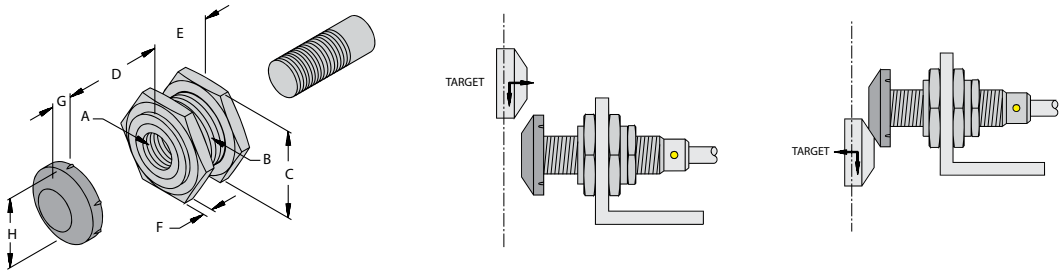
Quick Mount



Part Number	ID Number	Features	A	B	C	D	E	F
QM-08	A2511	—	0.32 [8.18]	1.28 [32.4]	0.69 [17.5]	M12x1	0.15 [3.85]	0.67 [16.9]
QM-08L	A2512	Ext. Length	0.32 [8.18]	1.90 [48.0]	1.34 [34.0]	M12x1	0.15 [3.85]	0.67 [16.9]
QM-12	A2513	—	0.48 [12.1]	1.34 [33.7]	0.77 [19.5]	M16x1	0.16 [4.01]	0.86 [21.8]
QM-12L	A2514	Ext. Length	0.48 [12.1]	1.76 [44.8]	1.18 [30.0]	M16x1	0.16 [4.01]	0.86 [21.8]
QM-12L-T	A2542	Ext. Length, PTFE	0.48 [12.1]	1.76 [44.8]	1.18 [30.0]	M16x1	0.16 [4.01]	0.86 [21.8]
QM-18	A2515	—	0.71 [18.1]	1.52 [38.5]	0.79 [20.0]	M24x1.5	0.19 [4.95]	1.18 [30.0]
QM-18L	A2516	Ext. Length	0.71 [18.1]	2.28 [58.0]	1.57 [40.0]	M24x1.5	0.19 [4.95]	1.18 [30.0]
QM-18L-T	A2543	Ext. Length, PTFE	0.71 [18.1]	2.28 [58.0]	1.57 [40.0]	M24x1.5	0.19 [4.95]	1.18 [30.0]
QM-30	A2517	—	1.19 [30.1]	1.50 [35.0]	0.79 [20.0]	M36x1.5	0.24 [6.13]	1.61 [41.0]
QM-30L	A2518	Ext. Length	1.19 [30.1]	2.28 [58.0]	1.57 [40.0]	M36x1.5	0.24 [6.13]	1.61 [41.0]

Inches [mm]
Material: Nickel plated brass
Note: Not for use with stainless steel face sensors

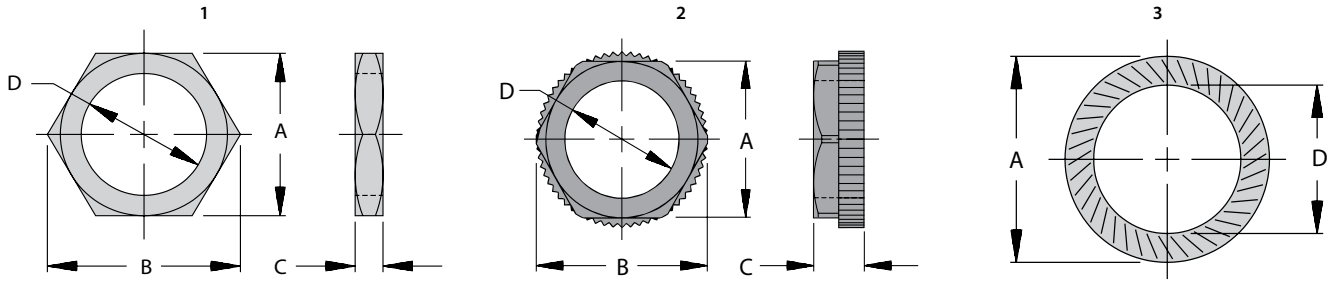
Cushion Mount



Part Number	ID Number	A	B	C	D	E	F	G	H	Cap Part Number	Cap ID Number
		Inside Thread	Outside Thread	Across Flats	Max Allowable Overtravel						
CM-08	A2503	M8x1	M16x1.5	0.88 [22.2]	0.35 [8.89]	0.87 [22.1]	0.16 [3.94]	0.21 [5.33]	0 .60 [15.2]	CAP-EN08	A6100
CM-08N	A2504									CAP-EN08N	A6200
CM-12	A2505	M12x1	M22x1.5	1.12 [28.6]	0.40 [10.0]	0.87 [22.1]	0.16 [4.06]	0.245 [6.22]	0 .90 [22.9]	CAP-EN12	A6300
CM-12N	A2506									CAP-EN12N	A6300-1
CM-18	A2507	M18x1	M30x1.5	1.41 [35.8]	0.49 [12.4]	1.17 [29.7]	0.20 [5.10]	0.33 [8.38]	1.18 [30.0]	CAP-EN18	A6400
CM-18N	A2508									CAP-EN18N	A6400-1
CM-30	A2509	M30x1.5	M47x1.5	2.01 [51.0]	0.57 [14.5]	1.47 [37.3]	0.20 [5.10]	0 .30 [7.62]	1.72 [43.7]	CAP-EN30	A 9567
CM-30N	A2510									—	—

Inches [mm]
Material: Anodized aluminum
Cap: Plastic
Stainless Versions available (CM-*NSS)

Locknuts and Washers



Part Number	ID Number	Barrel Diameter	Materials	A	B	C	D	Dimension Drawing
Locknut-M05	**A3119**	5 mm	SS	0.28 [7.0]	0.32 [8.0]	0.10 [2.5]	M5x0.5	1
Locknut-SS08	**A3123-08**	8 mm	SS	0.51 [13.0]	0.58 [14.7]	0.16 [4.0]	M8x1	1
Locknut-M8X1PTFE	**A9696**	8 mm	PTFE	0.51 [13.0]	0.58 [14.7]	0.16 [4.0]	M8x1	1
Locknut-M12	**A3122**	12 mm	CPB	0.67 [17.0]	0.76 [19.4]	0.16 [4.0]	M12x1	1
Locknut-MT12	**A3109**	12 mm	PTFE	0.67 [17.0]	0.76 [19.4]	0.16 [4.0]	M12x1	1
Locknut-SS12	**A3123**	12 mm	SS	0.67 [17.0]	0.76 [19.4]	0.16 [4.0]	M12x1	1
Locknut-P12	**A3446**	12 mm	PA	0.67 [17.0]	0.75 [19.0]	0.32 [8.0]	M12x1	2
Locknut-M18	**A3125**	18 mm	CPB	0.94 [24.0]	1.08 [27.4]	0.16 [4.0]	M18x1	1
Locknut-MT18	**A3108**	18 mm	PTFE	0.94 [24.0]	1.08 [27.4]	0.16 [4.0]	M18x1	1
Locknut-SS18	**A3123-0**	18 mm	SS	0.94 [24.0]	1.08 [27.4]	0.16 [4.0]	M18x1	1
Locknut-P18	**A3448**	18 mm	PA	0.94 [24.0]	1.06 [27.0]	0.32 [8.0]	M18x1	2
Locknut-M30	**A3126**	30 mm	CPB	1.42 [36.0]	1.63 [41.4]	0.20 [5.0]	M30x1.5	1
Locknut-MT30	**A3107**	30 mm	PTFE	1.42 [36.0]	1.63 [41.4]	0.20 [5.0]	M30x1.5	1
Locknut-SS30	**A3123-1**	30 mm	SS	1.42 [36.0]	1.63 [41.4]	0.20 [5.0]	M30x1.5	1
Locknut-P30	**A3450**	30 mm	PA	1.42 [36.0]	1.58 [40.1]	0.39 [10.0]	M30x1.5	2
Locknut-PG36	**A3440**	47 mm	CPB	2.01 [51.1]	2.20 [56.0]	0.20 [5.0]	PG36	1
LW-05	**A100066**	5 mm	SS	0.39 [10]	N/A	N/A	0.21 [5.3]	3
LW-08	**A3124**	8 mm	SS	0.55 [14]	N/A	N/A	0.32 [8.2]	3
LW-12	**A3127**	12 mm	SS	0.70 [17.8]	N/A	N/A	0.52 [13.2]	3
LW-18	**A3128**	18 mm	SS	1.06 [26.8]	N/A	N/A	0.76 [19.3]	3
LW-30	**A3129**	30 mm	SS	1.76 [44.8]	N/A	N/A	1.26 [32.0]	3

Inches [mm]
*For use with threaded barrel sensors

Important Safety Warning

Turck sensors and peripheral devices DO NOT include the self-checking redundant circuitry required to permit their use in personnel safety applications. A device failure or malfunction can result in either an energized or a de-energized output condition.

Never use these products as sensing devices for personnel protection. Their use as safety devices may create unsafe conditions that could lead to serious bodily injury or death.

Proximity Sensing Compared to Conventional Methods

Turck proximity sensors are designed using solid state technology and contain no moving parts to wear out, as is common in mechanical switches. They require no physical contact for actuation, no cams or linkages, have no contacts to bounce or arc and are completely encapsulated, making them impervious to most liquids, chemicals and corrosive agents. In addition, Turck has a line of sensors that can be used in hazardous explosive environments without any special enclosures.
See Hazardous Area Locations in Section A.

If any of the following conditions exists, a Proximity Sensor should be used:

- **The object being detected is too small, too lightweight, or too soft to operate a mechanical switch.**
- **Rapid response and high switching rates are required, as in counting or ejection control applications.**
- **Object has to be sensed through non-metallic barriers such as glass, plastic, or paper carton.**
- **Harsh environments demand improved sealing properties, preventing proper operation of mechanical switches.**
- **Long life and reliable service are required.**
- **Fast electronic control system requires bounce-free input signal.**

Common Industries for Proximity Sensors

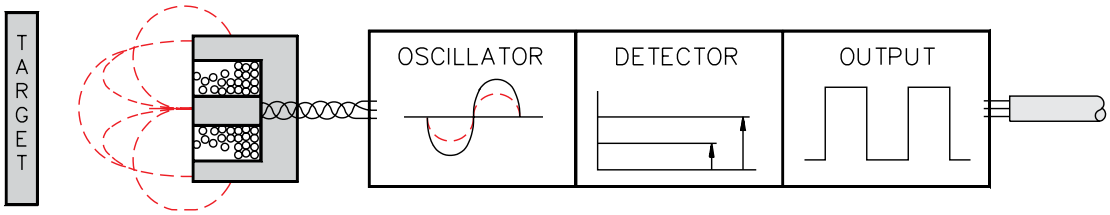
- **Mining and Metallurgy**
- **Foundries**
- **Automatic Assembly and Robotics**
- **Conveyor Systems in Airports and Factories**
- **Chemical Plants and Oil Refineries**
- **Semiconductor Equipment**
- **Sheet Metal Fabrication**
- **Automotive and Appliance Plants**
- **Electroplating Installations**
- **Can Plants, Food Processing and Breweries**
- **Shipyards, Docks, and Off-shore Drilling Rigs**
- **PC-board Handling Machinery**

Typical Applications

- **Parts Detection**
- **Parts Counting**
- **Positioning**
- **Motion and Speed Control**
- **Bottle Cap or Can Lid Detection**
- **Punch Press Feed and Ejection Control**
- **Broken or Damaged Tool Detection**
- **Void or Jam Control**
- **Feed Control**
- **Indexing**
- **Inter-lock Control**
- **Liquid Level Control**
- **Leak Detection**
- **Machine Programming**
- **Valve Position Indication**
- **Missing Parts Control**
- **Parts Diverting**
- **Coin Counting and Sorting**
- **Edge Guide Control**
- **Robotics and Conveyors**

Operating Principle Ferrite Core

Figure 1



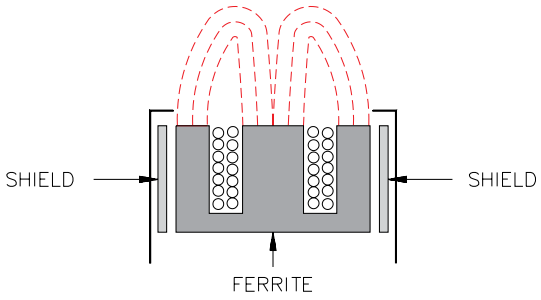
An inductive proximity sensor consists of a coil and ferrite core arrangement, an oscillator and detector circuit, and a solid-state output (**Figure 1**). The oscillator creates a high frequency field radiating from the coil in front of the sensor, centered around the axis of the coil. The ferrite core bundles and directs the electro-magnetic field to the front.

When a metal object enters the high-frequency field, eddy currents are induced on the surface of the target. This results in a loss of energy in the oscillator circuit and, consequently, a smaller amplitude of oscillation. The detector circuit recognizes a specific change in amplitude and generates a signal which will turn the solid-state output "ON" or "OFF". When the metal object leaves the sensing area, the oscillator regenerates, allowing the sensor to return to its normal state.

Mounting

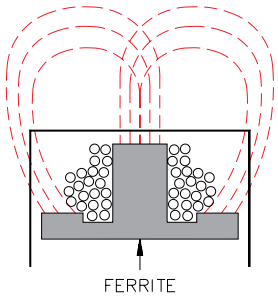
Turck inductive proximity sensors are available with either a shielded coil, designated by "Bi" in the part number, or a unshielded coil, designated by "Ni" in the part number. Embeddable (shielded) sensors may be safely flush-mounted in ferrous metal. Nonembeddable (unshielded) sensors require a metal free area around the sensing face. Due to the possible interference of the electromagnetic fields generated by the oscillators, minimum spacing is required between adjacent or opposing sensors. See mounting characteristics at the front of each section.

It is good engineering practice to mount sensors horizontally or with the sensing face looking down. Avoid mounting sensors with the sensing face looking up wherever possible, especially if metal filings or chips are present.



Embeddable (Shielded Sensor)

Embeddable construction includes a metal band that surrounds the ferrite core and coil arrangement. This helps to "bundle" or direct the electromagnetic field to the front of the sensor, allowing the sensor to be mounted fully surrounded by metal (flush mounting).



Nonembeddable (Nonshielded Sensor)

Nonembeddable sensors do not have this metal band; therefore, they have a longer operating distance and are side sensitive.

Operating Distance (Sensing Range) Considerations

The operating distance (S) of inductive proximity sensors is basically a function of the diameter of the sensing coil. The maximum operating distance is achieved with the use of a standard or larger target. The rated operating distance (Sn) for each model is given in the manual. When using a proximity sensor the target should be within the assured range (Sa).

Standard Target

A square piece of mild steel having a thickness of 1 mm (0.04 in) is used as a standard target to determine the following operating tolerances. The length and width of the square is equal to either the diameter of the circle inscribed on the active surface of the sensing face or three times the rated operating distance Sn, whichever is greater.

Operating Distance = S

The operating distance is the distance at which the target approaching the sensing face along the reference axis causes the output signal to change.

Rated Operating Distance = Sn

The rated operating distance is a conventional quantity used to designate the nominal operating distance. It does not take into account either manufacturing tolerances or variations due to external conditions such as voltage and temperature.

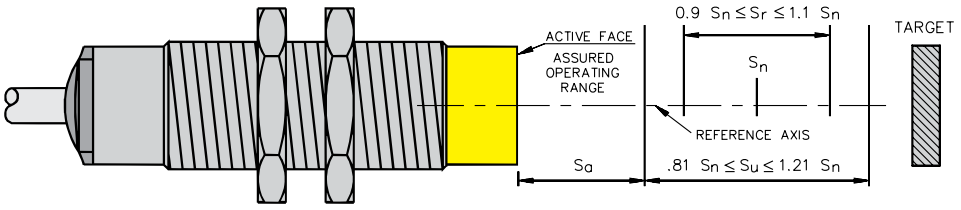
Effective Operating Distance = Sr 0.9 Sn ≤ Sr ≤ 1.1 Sn

The effective operating distance is the operating distance of an individual proximity sensor at constant rated voltage and 23°C (73°F). It allows for manufacturing tolerances.

Usable Operating Distance = Su 0.81 Sn ≤ Su ≤ 1.21 Sn

The usable operating distance is the operating distance of an individual proximity sensor measured over the operating temperature range at 85% to 110% of its rated voltage. It allows for external conditions and for manufacturing tolerances.

Assured Operating Range = Sa 0 ≤ Sa ≤ 0.81 Sn



The assured operating range is between 0 and 81% of the rated operating distance. It is the range within which the correct operation of the proximity sensor under specified voltage and temperature ranges is guaranteed.

Operating Distance (Sensing Range) Considerations

Turck standard inductive sensors use a single coil wound around a ferrite core. This coil induces eddy currents on the metal target, which results in energy loss in the oscillator circuit, enabling the detection of metal objects. The energy loss is greatly depended on the magnetic properties of the metal target. Ferrous and nonferrous metals affect the sensor differently, resulting in a different operating distance to different metals.

These correction factors apply to standard inductive sensors when a nonferrous target is being detected. The correction factors are nominal values. Deviations may be due to variations in oscillator frequency, alloy composition, purity and target geometry.

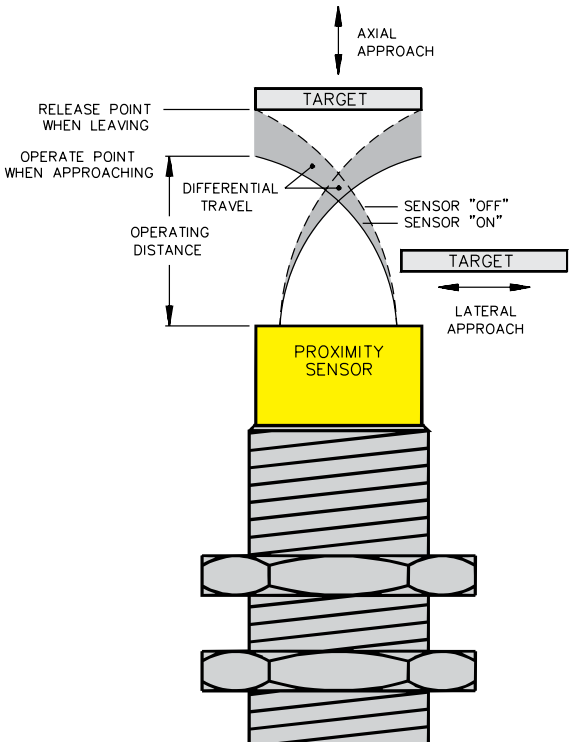
Aluminum foil	1.00
Stainless steel	0.60 to 1.00
Mercury	0.65 to 0.85
Lead	0.50 to 0.75
Brass	0.35 to 0.50
Aluminum (massive)	0.35 to 0.50
Copper	0.25 to 0.45

- Correction factors do not apply to Turck Uprox ® sensors. These sensors detect all metals at the same range.

- Turck also manufactures "nonferrous only" sensors. These sensors will selectively detect nonferrous targets at the rated operating distance. They will not detect ferrous targets; however, ferrous targets positioned between them and a nonferrous target may mask the nonferrous target. The rated operating distance of these sensors is not subject to the correction factors that apply to standard inductive sensors.

Differential Travel (Hysteresis)

Figure 2



Actuation Mode

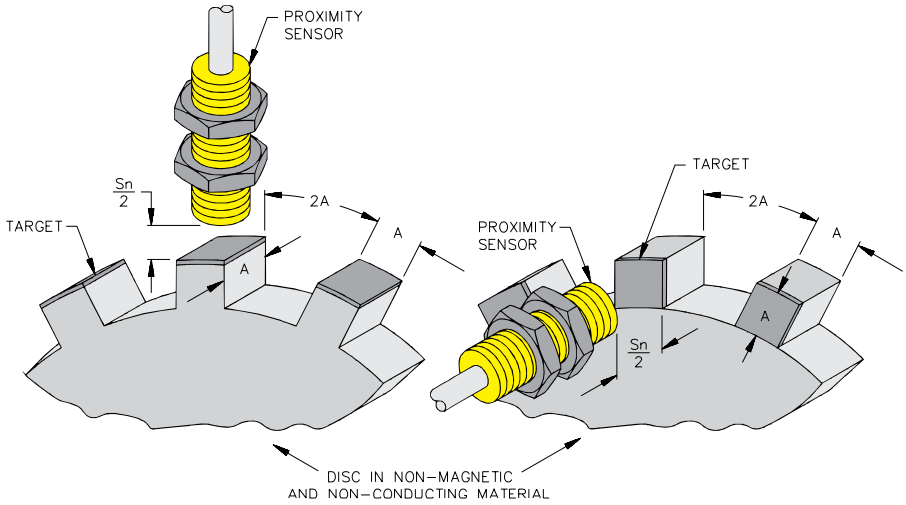
Inductive sensors can be actuated in an axial or lateral approach (**Figure 2**). It is important to maintain an air gap between the target and the sensing face to prevent physically damaging the sensors.

The difference between the "operate" and "release" points is called differential travel (See shaded area in Figure 7). It is factory set at less than 15% of the effective operating distance.

Differential travel is needed to keep proximity sensors from "chattering" when subjected to shock and vibration, slow moving targets, or minor disturbances such as electrical noise and temperature drift.

Maximum Switching Frequency

Figure 3



When using inductive sensors in high speed application, the maximum rated switching frequency is only guaranteed when using optimal target dimensions and sensor spacing. The minimum recommended parameters to use are shown in **Figure 3**. Using smaller targets, target spacing or increasing the sensor to target air gap may result in a reduction of the actual achievable maximum switching frequency. See page J4 for determining dimension "A" of a standard target.

Weld Field Immunity

Many critical applications for proximity sensors involve their use in welding environments. AC and DC resistance welders used in assembly equipment and other construction machines often require in excess of 20 kA to perform their weld function. Magnetic fields generated by these currents can cause false outputs in standard sensors.

Turck has pioneered the design and development of inductive proximity sensors that not only survive such environments, but remain fully operative in them.

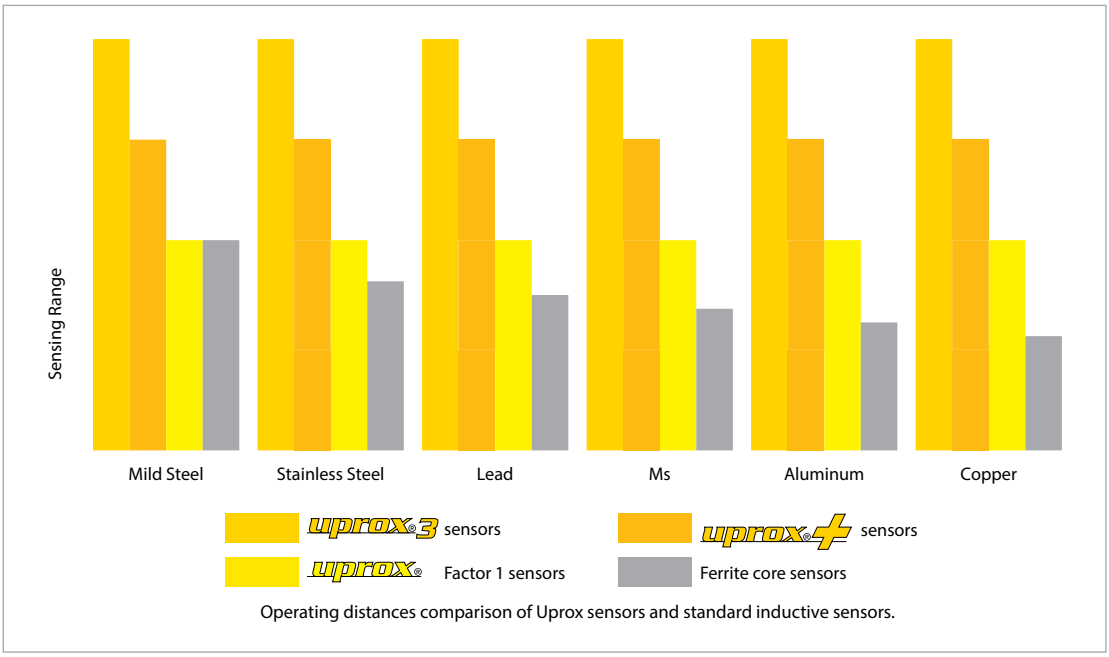
The limit of the weld field immunity depends on the kind of field (AC or DC), the housing size of the sensor and its location in the field. For example, in an AC or DC weld field, the "/S34" inductive sensors can be positioned one inch from a 20 kA current carrying bus.

Reference Values for Magnetic Induction:

I [kA]	12.5 mm	25 mm	50 mm	100 mm
5	80 mT	40 mT	20 mT	10 mT
10	160 mT	80 mT	40 mT	20 mT
20	320 mT	160 mT	80 mT	40 mT
50	800 mT	400 mT	200 mT	100 mT
100	1600 mT	800 mT	400 mT	200 mT

Gauss = 10 x mT

Operating Principle Uprox®

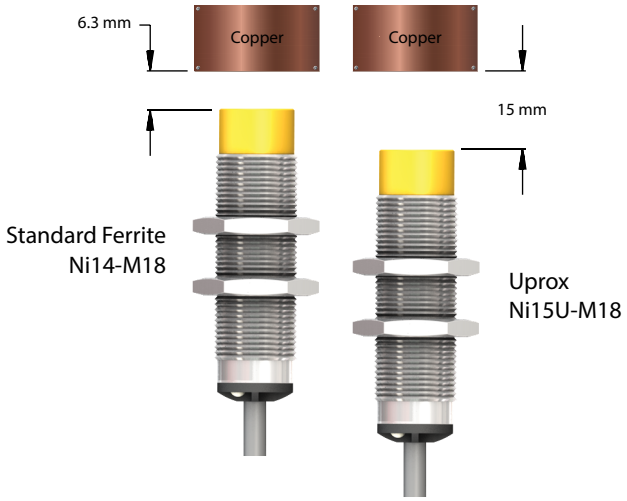


Operating distances comparison of Uprox sensors and standard inductive sensors.

Turck Uprox is a patented next generation development of inductive sensors that uses a multi-coil system. Active coil(s) induces eddy currents on the metal target and passive coil(s) are affected by these eddy currents. Ferrous and nonferrous metals have the same effect on the two coils. Therefore, all metals, including galvanized metals, have the same rated operating distance.

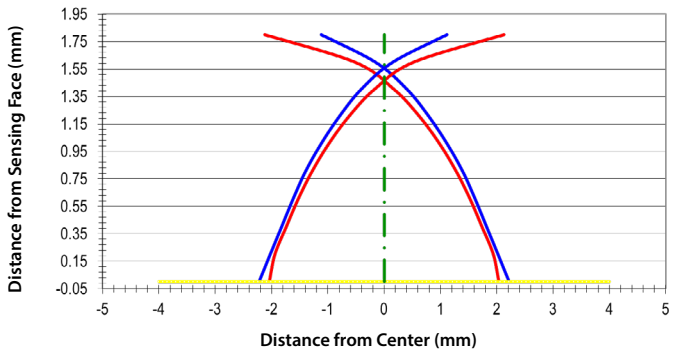
Uprox Advantage

Figure 4

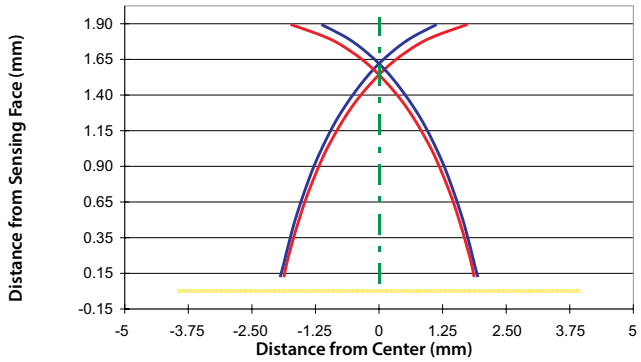


- **No Correction Factor - Same rated operating distance for all metals.**
- **Extended Operating Distance - Up to 400% greater than standard inductive sensors when using non-ferrous targets (Figure 4).**
- **Weld Field Immunity - Uprox is unaffected by strong electromagnetic AC or DC fields because of its unique patented design.**
- **High Switching Frequencies - Up to 10 times faster than standard inductive sensors.**
- **Extended Temperature Range - Uprox+ can withstand temperatures up to 85 °C (+185 °F) with a ±15% temperature drift.**
- **Select Uprox3 sensors are IO-Link compatible.**

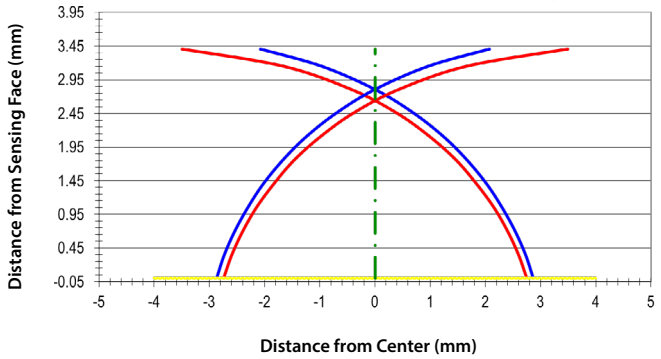
Bi2-Q4.7 - Lateral Approach 12x12x1mm Steel Target 1



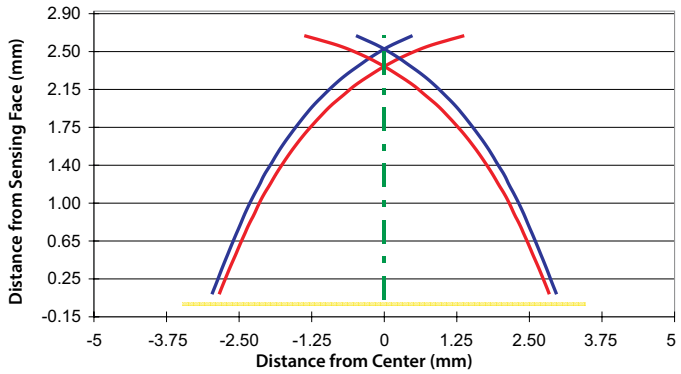
Bi2-Q5.5 - Lateral Approach 6x6x3 mm Steel Target 2



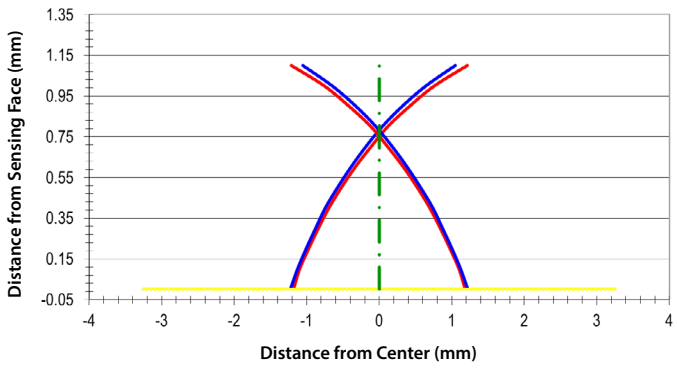
Ni3-Q5.5 - Lateral Approach 12x12x1mm Steel 3



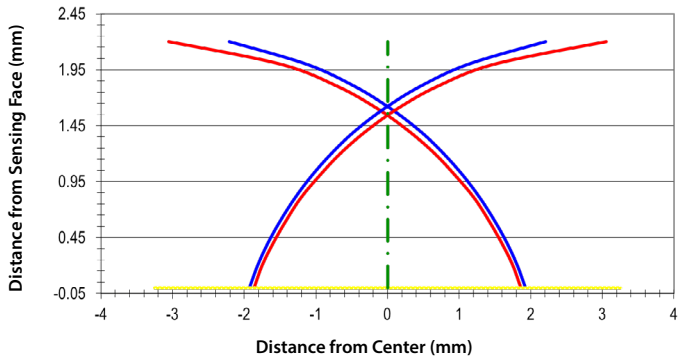
Bi3-Q06 - Lateral Approach 6x6x3 mm Steel Target 4



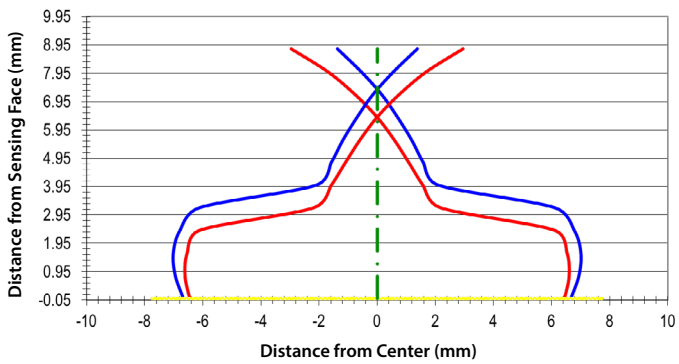
Bi1-Q6.5 - Lateral Approach 12x12x1mm Steel Target 5



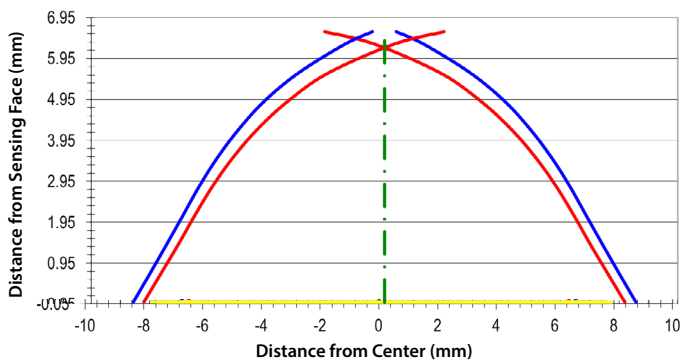
Ni2-Q6.5 - Lateral Approach 12x12x1mm Steel Target 6



Bi8U-Q08 - Lateral Approach 30x30x1mm Steel Target 7

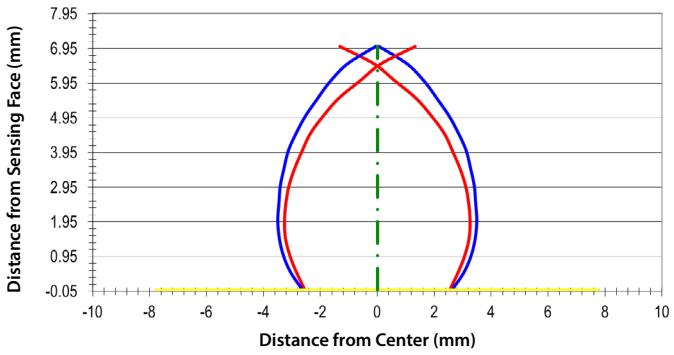


Bi7-Q08 - Lateral Approach 30x30x1mm Steel Target 8

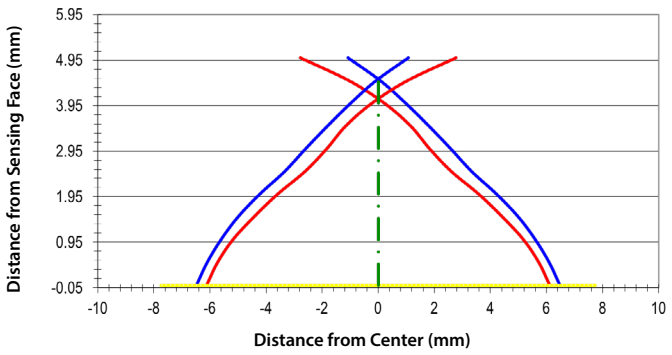


Red: Switch On
Blue: Switch Off
Green: Center
Yellow: Sensing Face

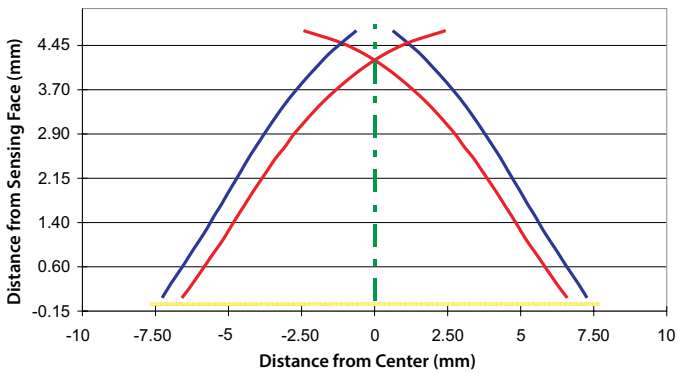
Bi7-Q08F - Lateral Approach 30x30x1 mm Steel Target 9



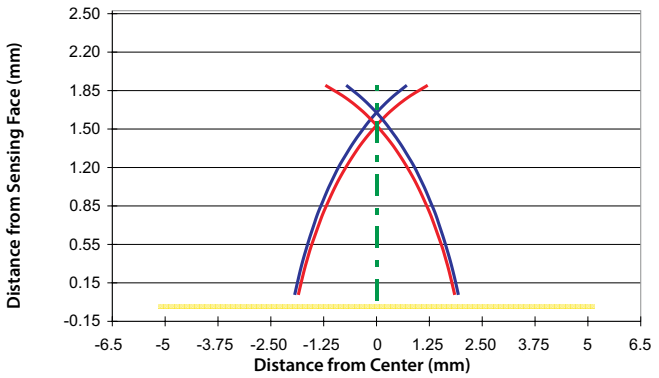
Bi5U-Q08 - Lateral Approach 15x15x1mm Steel Target 10



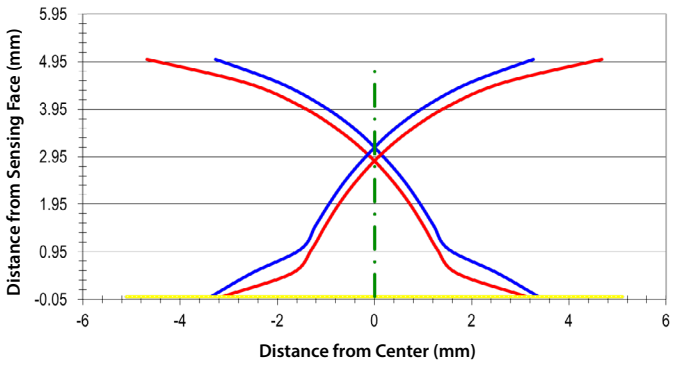
Bi5-Q08 - Lateral Approach 8x8x3 mm Steel Target 11



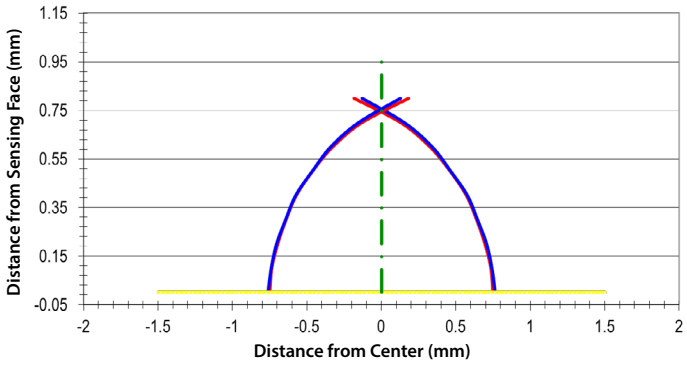
Bi2-Q10S - Lateral Approach 10x10x3 mm Steel Target 12



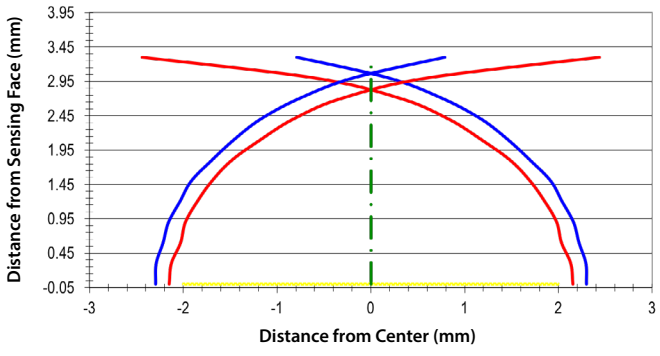
Ni5U-Q10S - Lateral Approach 15x15x1 mm Steel Target 13



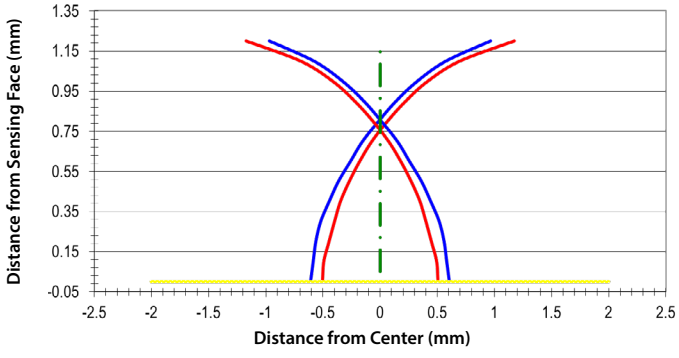
Bi1-EH03 - Lateral Approach 12x12x1 mm Steel Target 14



Ni3-EH04F - Lateral Approach 12x12x1 mm Steel Target 15

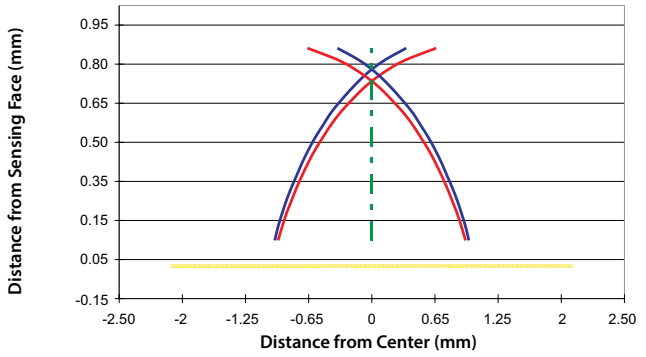


Bi1U-EH04 - Lateral Approach 12x12x1 mm Steel Target 16

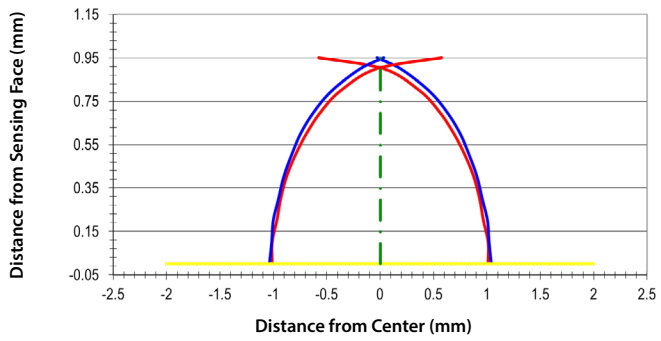


Red: Switch On
Blue: Switch Off
Green: Center
Yellow: Sensing Face

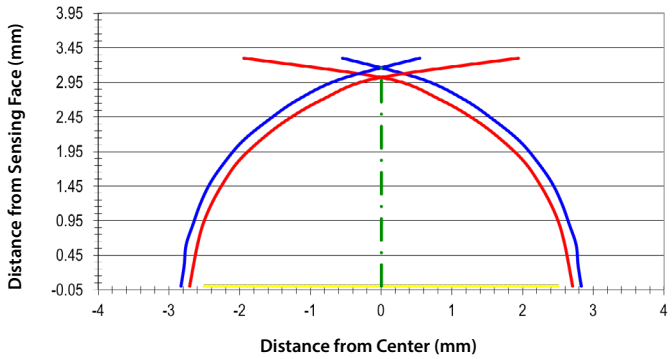
Bi1-EH04 - Lateral Approach 6x6x3 mm Steel Target 17



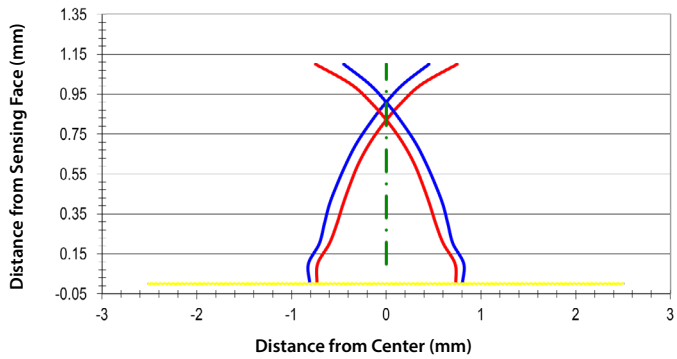
Bi1-EG04 - Lateral Approach 12x12x1 mm Steel Target 18



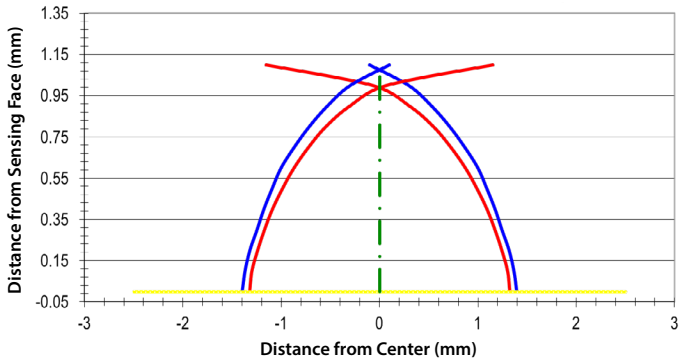
Ni3-EG05F - Lateral Approach 12x12x1mm Steel Target 19



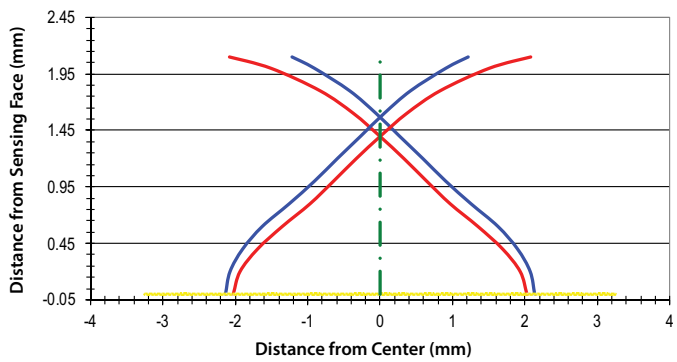
Bi1U-EG05 - Lateral Approach 12x12x1 mm Steel Target 20



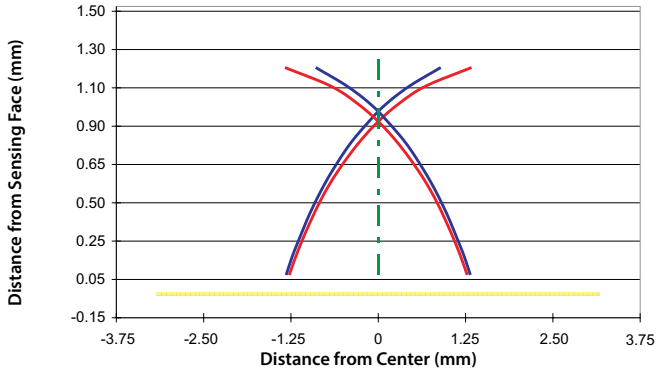
Bi1-EG05 - Lateral Approach 12x12x1 mm Steel Target 21



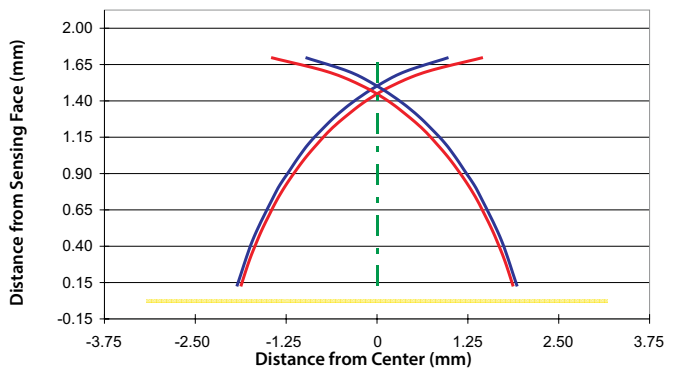
Bi2U-EH6.5 - Lateral Approach 12x12x1 mm Steel Target 22



Bi1.5-EH6.5 - Lateral Approach 6x6x3 mm Steel Target 23

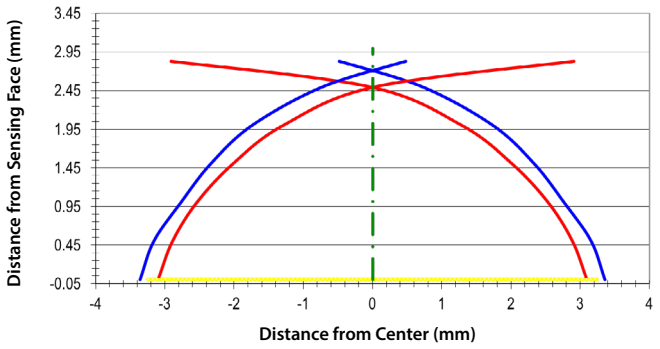


Bi2-EH6.5 - Lateral Approach 6x6x3 mm Steel Target 24

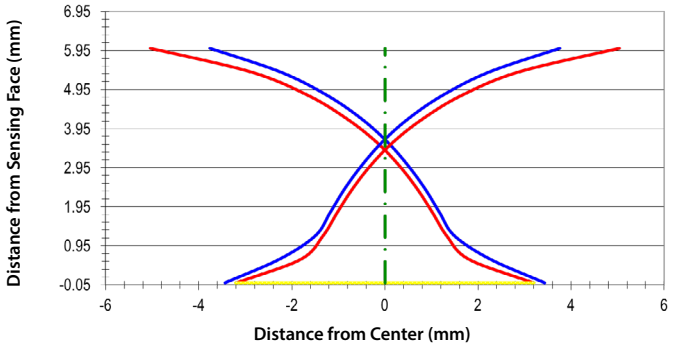


Red: Switch On
Blue: Switch Off
Green: Center
Yellow: Sensing Face

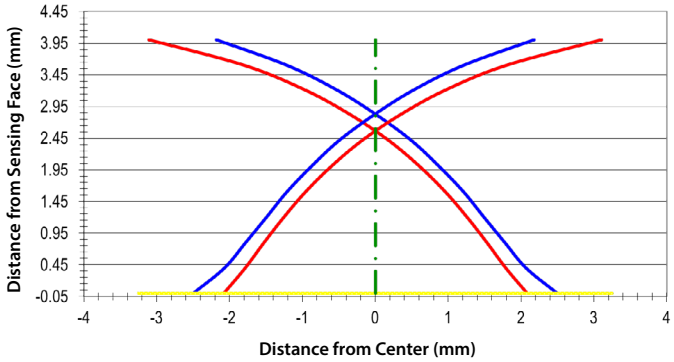
Ni3-EH6.5 - Lateral Approach 10x10x1 mm Steel Target 25



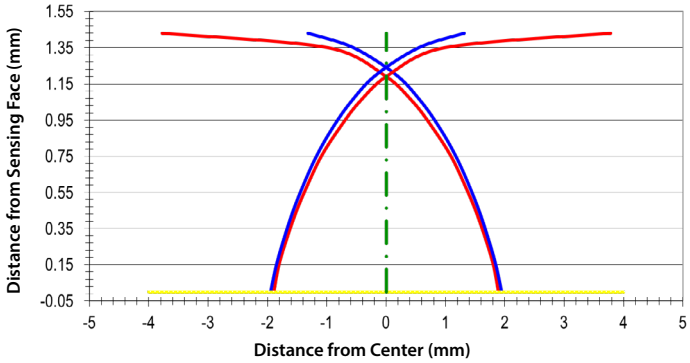
Ni6U-EH6.5 - Lateral Approach 30x30x1 mm Steel Target 26



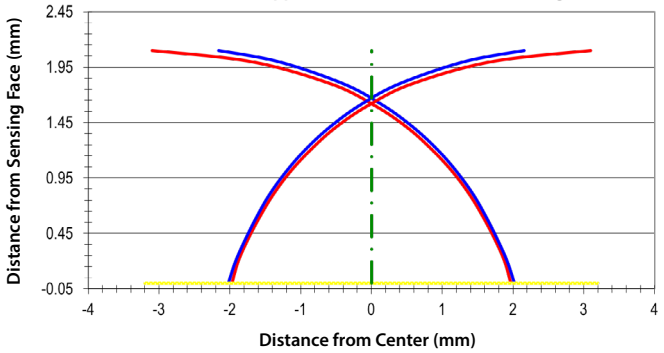
Ni4U-EH6.5 - Lateral Approach 12x12x1 mm Steel Target 27



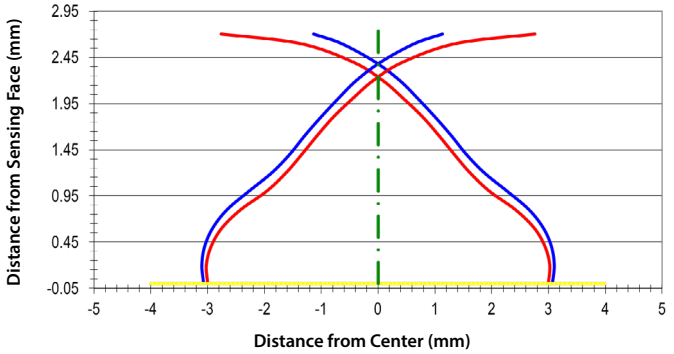
Bi1.5-H08 - Lateral Approach 12x12x1 mm Steel Target 28



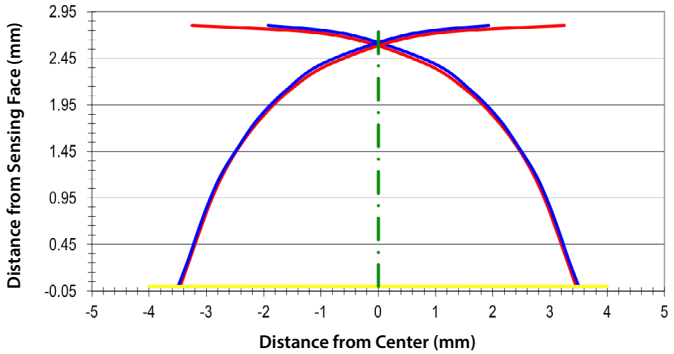
Ni2-H08 - Lateral Approach 12x12x1 mm Steel Target 29



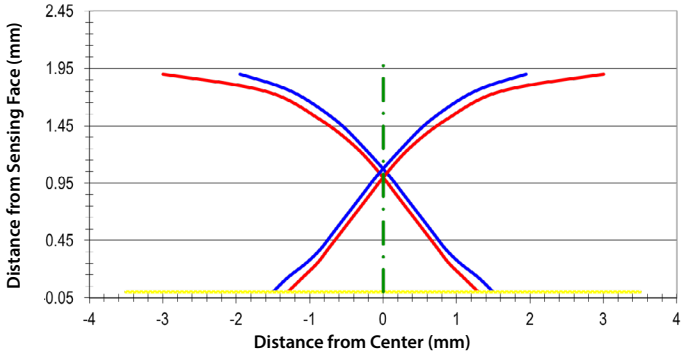
Bi3U-EM08 - Lateral Approach 12x12x1 mm Steel Target 30



Bi3-M08 - Lateral Approach 12x12x1 mm Steel Target 31



Bi2U-EG08 - Lateral Approach 8x8x1 mm Steel Target 32



Red: Switch On
Blue: Switch Off
Green: Center
Yellow: Sensing Face

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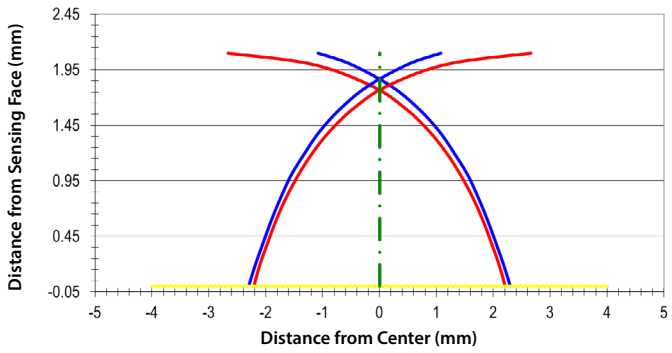
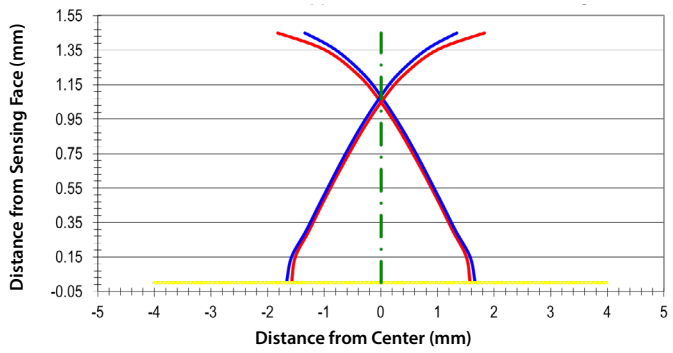
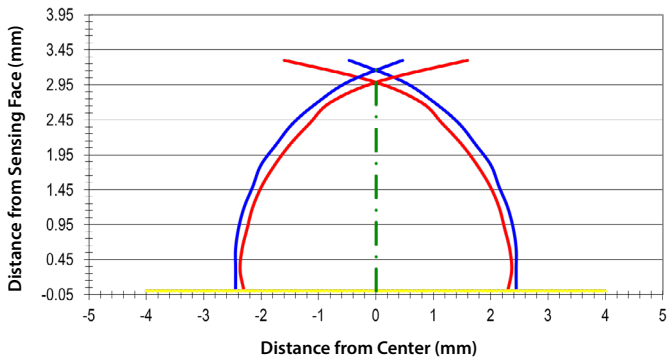
Bi2-M08 - Lateral Approach **12x12x1 mm Steel Target** 33



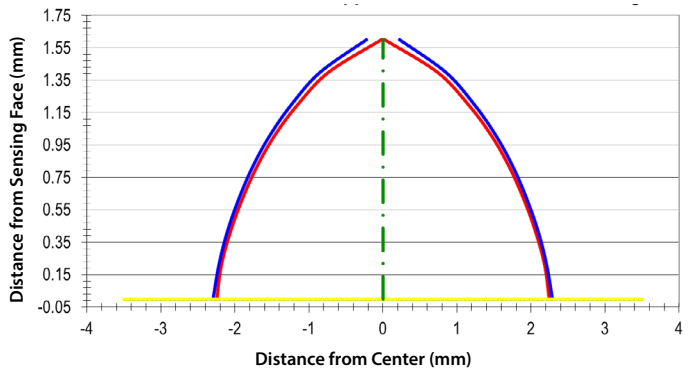
Bi1.5U-EG08 - Lateral Approach **12x12x1 mm Steel Target** 34



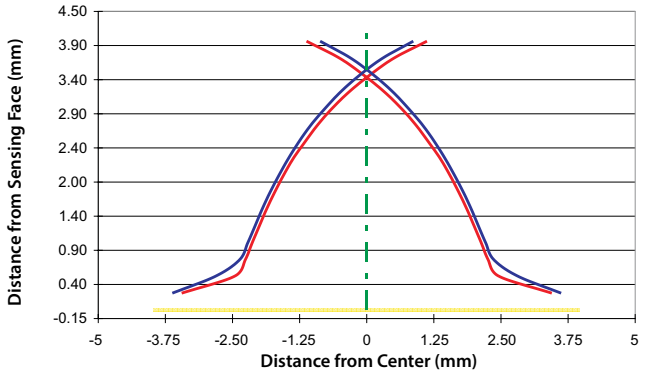
Bi3-EG08FE - Lateral Approach **12x12x1 mm Steel Target** 35



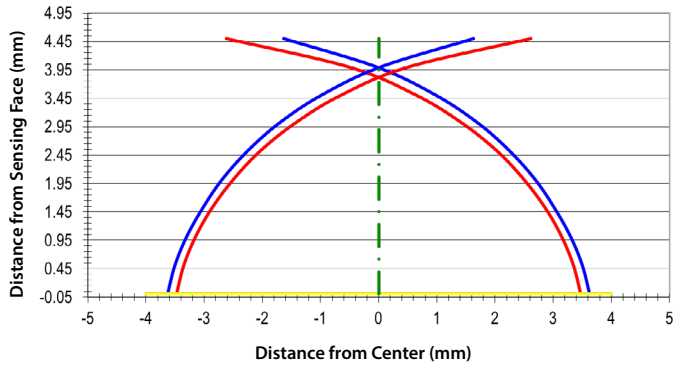
Bi1.5-EG08F - Lateral Approach **12x12x1 mm Steel Target** 36



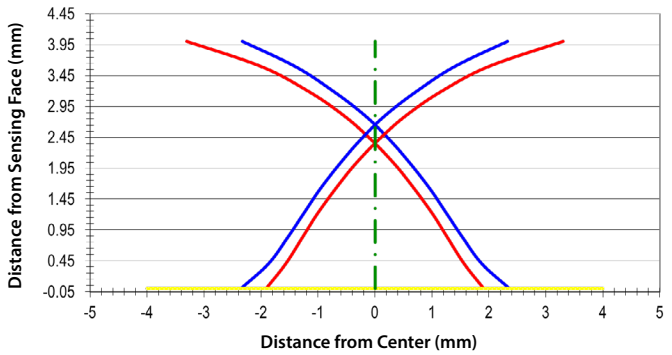
Ni6U-EG08-AP6X - Lateral Approach **8x8x3 mm Steel Target** 37



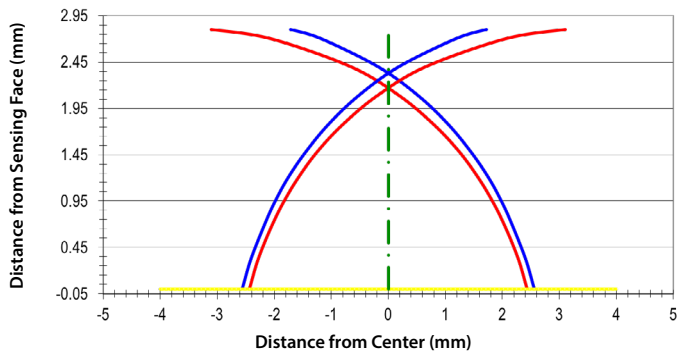
Ni5-M08 - Lateral Approach **15x15x1 mm Steel Target** 38



Ni4U-EG08 - Lateral Approach **12x12x1 mm Steel Target** 39

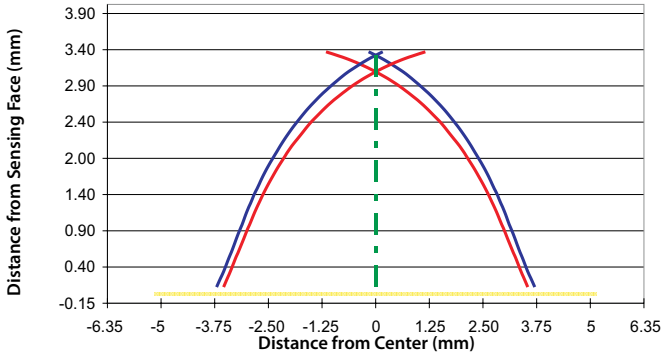


Ni3-M08 - Lateral Approach **12x12x1 mm Steel Target** 40

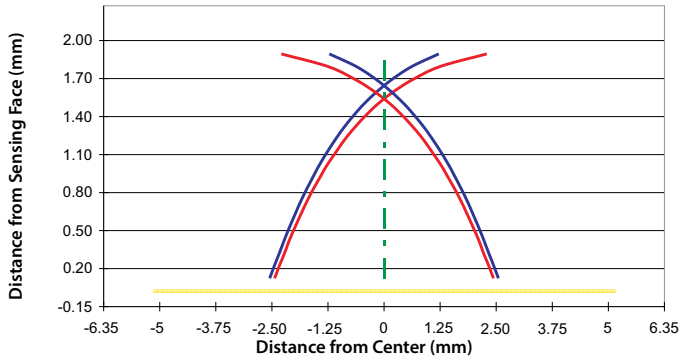


Red: Switch On
Blue: Switch Off
Green: Center
Yellow: Sensing Face

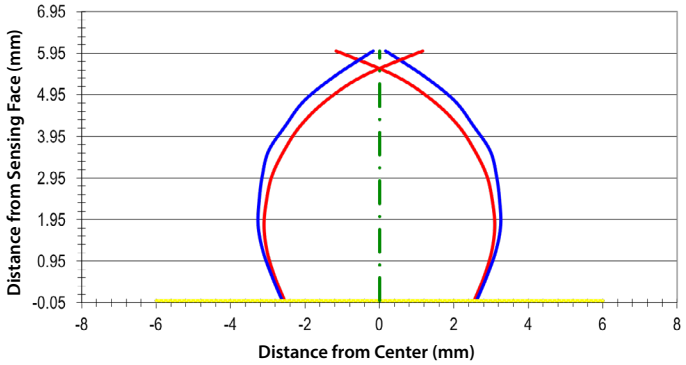
Bi4-G12 - Lateral Approach **12x12x3 mm Steel Target** 41



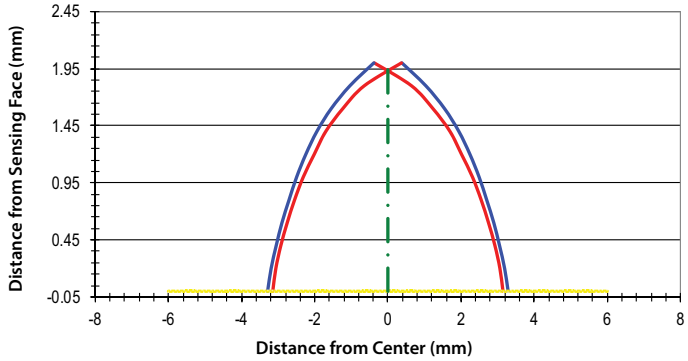
Bi2-G12 - Lateral Approach **12x12x3 mm Steel Target** 42



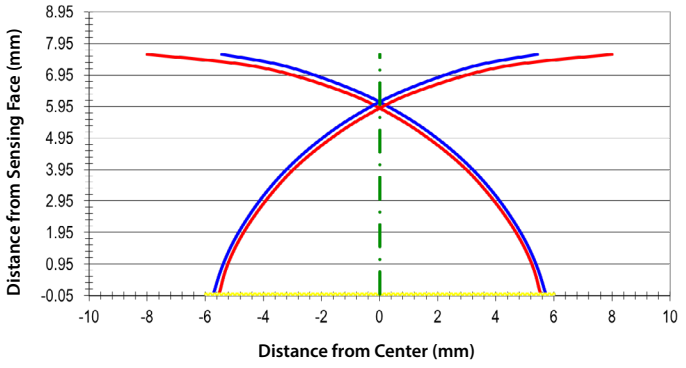
Bi6-EG12FE - Lateral Approach **30x30x1 mm Steel Target** 43



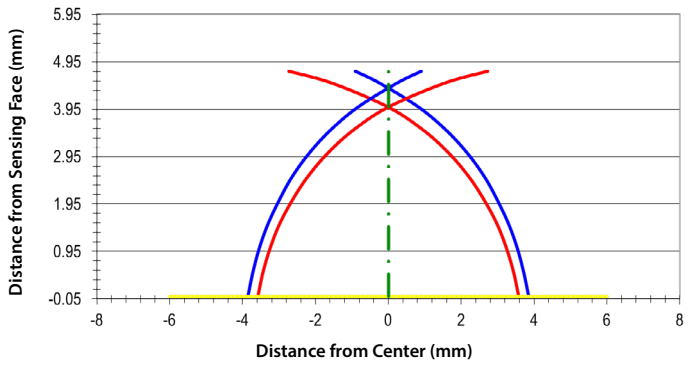
Bi2-EG12F - Lateral Approach **12x12x1 mm Steel Target** 44



Ni8-G12 - Lateral Approach **30x30x1 mm Steel Target** 45

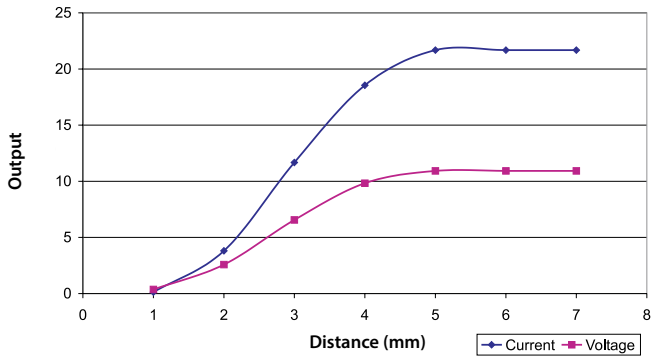


Ni5-G12 - Lateral Approach **15x15x1 mm Steel Target** 46

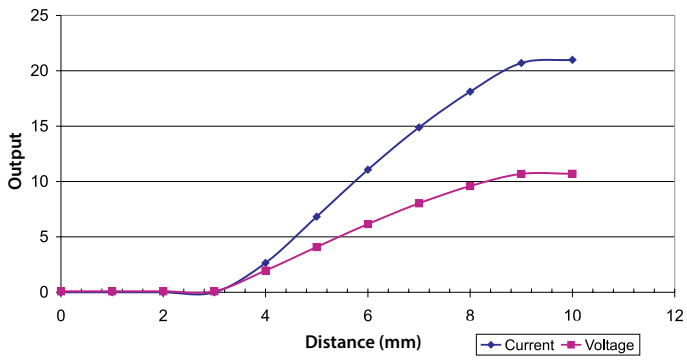


Red: Switch On
Blue: Switch Off
Green: Center
Yellow: Sensing Face

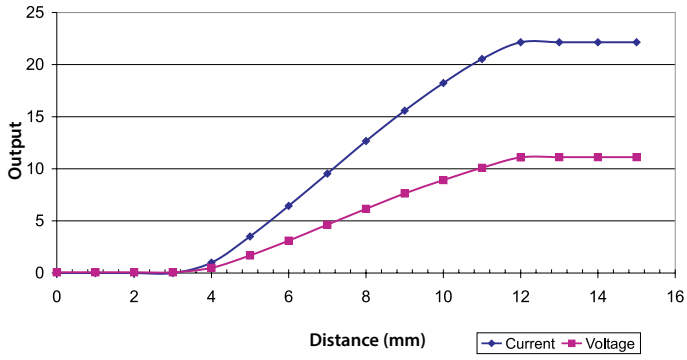
Bi7-Q08-LIU 1



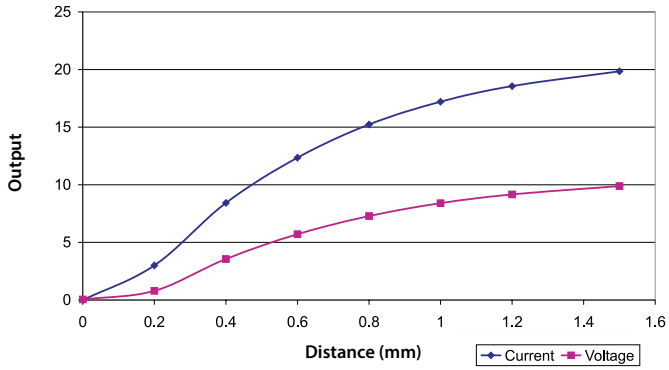
Bi10-Q14-LIU-H1141 2



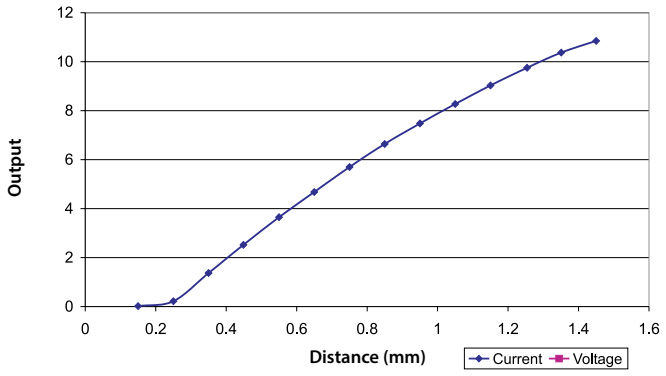
Bi15-Q20-LIU-H1141 3



Bi1.5-EH04(EH05)-0.3-SIU-H1141 4



Bi1.5-EG08(EH6.5)-LU 5



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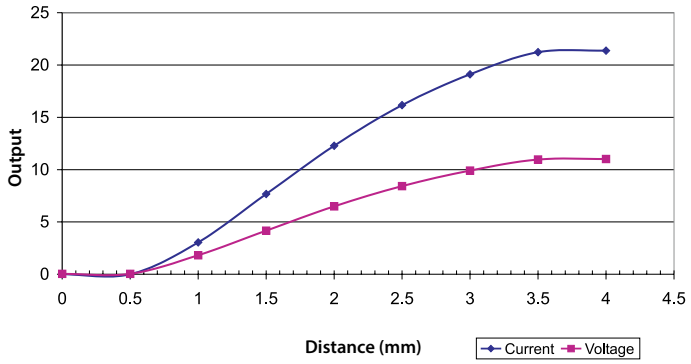
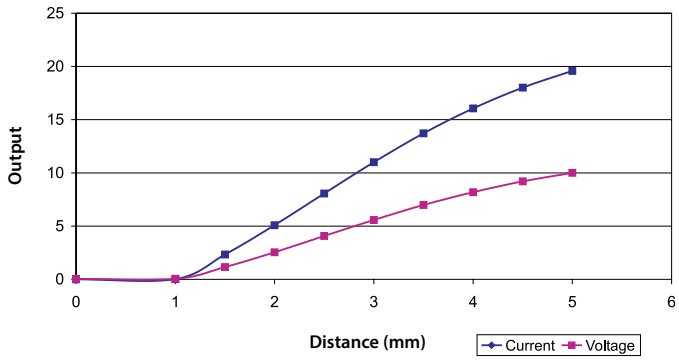
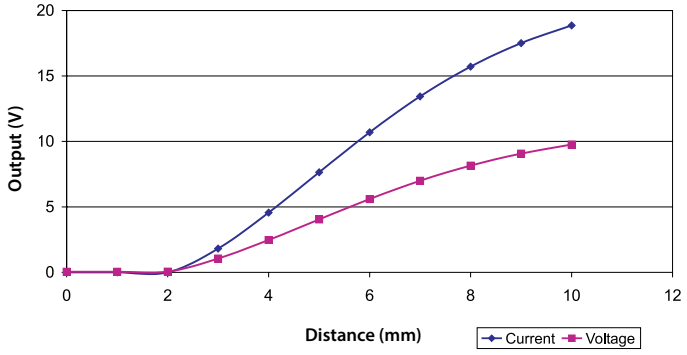


Bi8-M18E-LIU... 7



Bi15-M30E-LIU... 8



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