

Your Global Automation Partner

**TURCK**



# Sensors Catalog Welding Solutions

# 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 Welding Environments

Proximity sensors in welding environments are damaged and destroyed for a variety of reasons, including molten metal slag from MIG/TIG welding and weld spatter from resistance (spot) welding. To help our customers increase productivity in weld cells, Turck offers specialty sensors and cordsets to withstand the high heat and rigors associated with this harsh environments.

Weld slag and spatter are not the only factors that can harm sensors in these locations. Sensors are exposed to physical damage caused by either physical impact or abrasion from the target that is being sensed. Continuously exerting this kind of stress on a sensor will cause its internal electronics to fault and/or its exterior to break, leading to replacement.

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 a solution for this also.

Turck's solution protects the sensor from impact and abrasion, extending its service life exponentially.

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
- Welding Cells
- MIG/TIG & Resistance Applications

## SOLUTIONS

### PRODUCT ENHANCEMENTS

- Sensor Coatings
- Protective Covers
- Cable Sleeving
- High Temperature Sensors



### AUTOMOTIVE TIERS

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

### WELDING/JOINING

Turck sensor technologies are key aspects of many general welding disciplines, including gas metal arc welding, resistance spot welding, capacity discharge, drawn arc, and laser welding.

### ROBOTIC WELDING

Leading companies in the Robotic Welding industry have chosen Turck as their solutions provider for both small scale and multi axis positioning cells. Our sensors, tool changers, and welding positioners are top of the line, and trusted like no other.

## Sensors for Welding Environments

### Weldguard

See page 11



Resistance  
Welding

Weldguard sensors use a proprietary material on the sensing face that is:

- Independently tested to over 25,000 operations without failure
- Impervious to weld spatter that creates pitting, chipping and cracking caused by resistance welding
- A superior replacement for any type of material used on a sensing face
- Able to withstand high heat
- Resistance to pitting chipping and crackling caused by molten metal traveling at high velocity

**weld  
guard®**



Competitors failed at less than 2,000 welds.  
Turck Weldguard lasted 34,256 welds.

Turck Weldguard lasted  
25,691 welds.

Competitors failed between  
449 and 1,869 welds.

## Sensors for Welding Environments

### Armorguard

[See page 51](#)



Impact

Armorguard provides built-in durability that:

- Protects the sensor face from impact
- Can include Weldguard material on the sensing face to resist weld slag
- Extends the life of the sensor dramatically
- Available in 8, 12, 18 or 30 mm barrel diameters, as well as cube style sensors

**armor  
guard®**



Armorguard Accessories:

- Turck's Armorguard sleeves are available as an accessory to the sensor to protect the sensing face from lateral impact when not in a direct weld environment.



### Stainless Steel Front Face

[See page 59](#)



Impact



Abrasion



Resistance  
Welding



Stainless Steel Weldguard  
with PTFE coating



Stainless Steel



Stainless Steel

## Sensors for Welding Environments

Stoneface

See page 71

Turck's Stoneface sensors use a glass filled thermoset plastic material on the sensing face that:



Impact

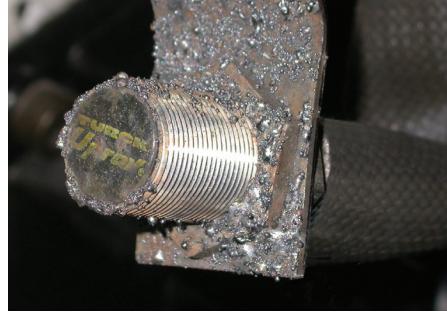
**stone**  
**face**®



Abrasion



MIG/TIG



Nut Detection Sensors

See page 81

Turck's weld nut sensors provide efficient and economical detection of weld nuts in automotive applications:

- An economical alternative to more expensive optical or vision-based systems that often malfunction due to:
  - Dirt and weldplatter residue
  - Frequently changing lighting conditions in welding zones
- Rugged construction delivers dependable performance
- PTFE coated
- TiN coated
- Simple programming
- Bright LEDs indicate the output status



## Instrumentation for Welding Environments

### Flow Monitors for Weld Tip Protection

See page 86

Flow monitors are used in the welding industry to detect the loss of coolant to weld tips, preventing damage to equipment.

#### Probe Style Flow Monitors

- Self contained
- Fits standard plumbing tees
- Stainless steel construction
- Compact design allows mounting near weld tip

#### Inert Gas Flow Monitors

- Verify presence of Argon, Helium and other MIG welding gases
- Verify ventilation system is working in fume hoods



### Pressure Sensors for Weld Cell Monitoring

See page 88

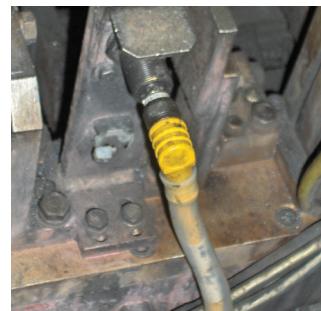
#### High Accuracy Pressure Sensors

- Hydraulic system monitoring
- Pneumatic system monitoring
- Material handling
- Vacuum and positive pressure ranges available



## Connectivity Weld Slag Protection Solutions

Depending on the application, users can choose from many different levels of protection. Plug body, coupling nuts, cable jacket, and protective sleeving are all components of the cordset that can be altered to provide weld slag protection.



### Plug Body & Coupling Nuts

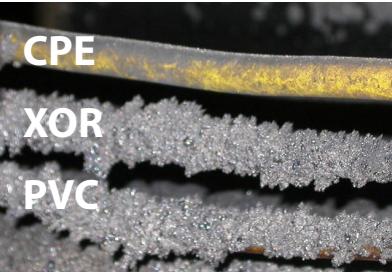
#### TPE (Thermo-Plastic Elastomer) and PTFE Coating

- TPE used as mold material in cordset plug body
- Coupling nuts coated with PTFE
- Provide excellent resistance to weld-slag buildup



### Cable Jacket

See page 93

CPE (Chlorinated Polyethylene) Jacket Over EPDM Rubber	TPE (Thermo-Plastic Elastomer)	Aramid Jacket
<p>CPE Resistance Welding</p>  <p>Turck CPE cable still performing after 24,000 welds.</p> <ul style="list-style-type: none"><li>■ Excellent resistance to flame and temperature extremes</li><li>■ Superior resistance to tears, cuts and abrasions</li><li>■ Flexlife rating of over 2 million cycles</li></ul> <p>The cable jacket most commonly used in weld environments is CPE rubber.</p>	<p>TPE Resistance Welding</p>  <p>Turck TPE cable still performing after 6,000 welds.</p> <ul style="list-style-type: none"><li>■ Excellent resistance to weld slag buildup</li><li>■ Available in more configurations</li><li>■ Allows for easier cable stripping</li><li>■ Flexlife rating of over 2 million cycles</li></ul> <p>If CPE rubber is too rugged for your application, we also offer TPE jacket material, sometimes called TPR (Thermo-Plastic Rubber).</p>	<p>New Product!</p>  <p>Superior protection with no installation time.</p> <ul style="list-style-type: none"><li>■ Covers entire cable jacket, captured under the molded plug body</li><li>■ Excellent resistance to sparks, slag, and flexing.</li><li>■ Capable of tolerating short-term temp spikes of up to 200 °C</li></ul> <p>The intricate weave of the over-braid eliminates any potential gaps in protection, reduces catch points with moving parts, and is capable of a smaller bend radius, resulting in a less bulky solution that saves space in the welding cell.</p>

## Connectivity Weld Slag Protection Solutions

### Accessories

See page 105

#### Viton Coated Fiberglass Sleevng



- Slides over the quick disconnect area
- Prevents accumulation of weld slag, dust and grease

#### Expandable Silicone Sleevng



- Provides a 'heat shrink' like fit
- Protects cable, mold and coupling nut

#### Wrap Around Weld Shield Sleevng



- Provides excellent resistance in welding environment
- Used in wide operating temperature range
- Rugged fiberglass material with hook and loop closure

#### Silicone Tubing



- Made of translucent rubber
- Assembled on cordsets end to end, up to four meters

#### Clear Weld Seal Tape



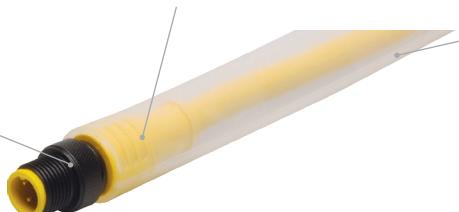
- Protects open areas between silicone tubing and mold body

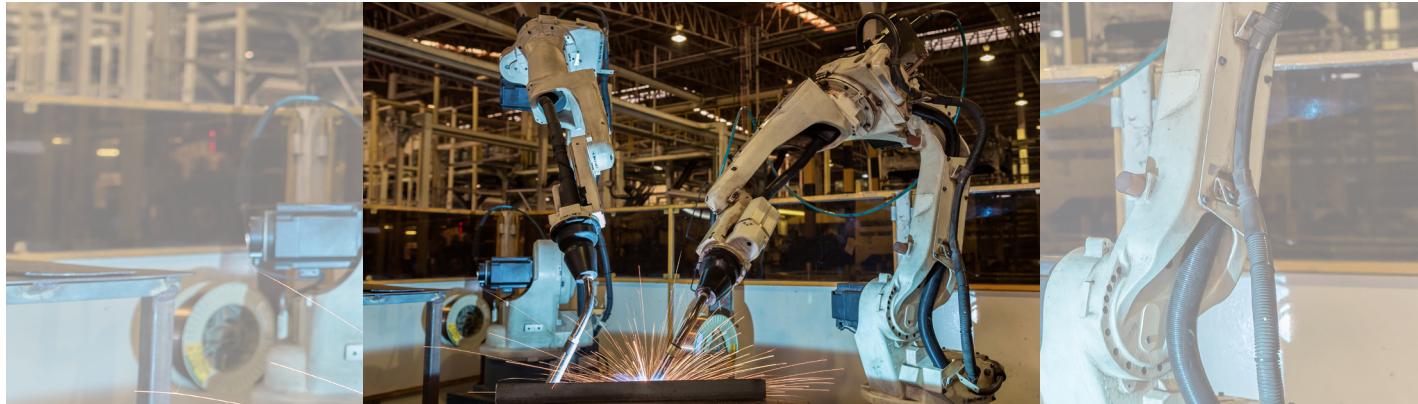
### Combine Multiple Solutions for Ultimate Protection

1. PTFE Coated Coupling Nut

2. TPE Mold Plug Body

3. Silicone Tubing





## Welding Tips

- Use PTFE coated threads and Weldguard front faces to protect sensor surfaces wherever extreme accumulation of weld slag is common.
- Specialty tubing can be used to further protect a sensor and cordset from weld slag accumulation. Tubing that is resistant to both the accumulation of weld slag and high heat may be placed over the cordset and connector, fitting against the barrel end.

### Weld Slag Cleaning/Removal

- Clean weld slag accumulation from PTFE coatings or covers using a gloved hand, if possible. Avoid cleaning PTFE with a tool or steel brush, as this can lead to slag accumulation quickly re-attaching to the areas worn by the tool or steel brush.
- Avoid cleaning surfaces coated with Turck's Weldguard material. The Weldguard material sheds weld slag, and should not require regular cleaning.
- Stainless steel faced sensors will stand up to much more frequent and abusive wire brushing or other cleaning. However, if the sensors are coated in PTFE or Weldguard, the coatings will suffer damage.

### Sensor Contact

- If contact with the sensor is a "glancing" blow across the entire sensing face and/or threads or side, use the extremely durable Armorguard tool steel protective products.
- If contact occurs directly on the sensing face, use a stainless steel sensor.

### 40 mm Cubed Sensors

- Always remember a cubed sensor's face orientation before removal.
- When working with popular CA40 sensors with the metal BS 2.1 or BS 2.0 brackets, use a 5/32 allen wrench socket instead(2.5 mm). This allows for quicker and easier removal and reinstallation.

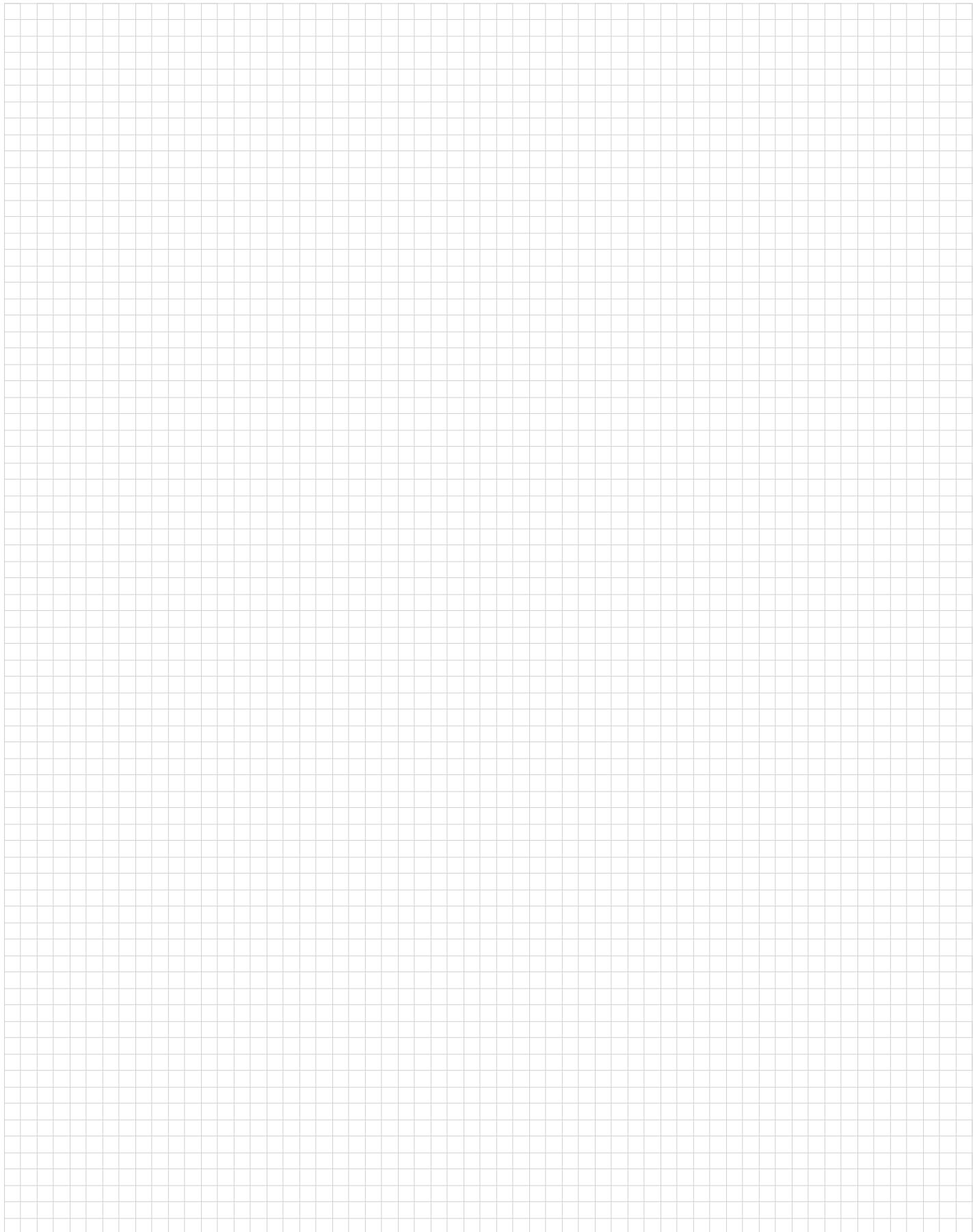
### Cordsets

- Avoid cross threading and the occasional difficulty attaching cordsets to sensors by turning the cordset's coupling nut in reverse (counter-clockwise) for about a turn (adjust to personal preference), watching to hold it as straight as possible before turning in the clockwise direction to tighten.
- If LED visibility is a problem, use an extension cordset with LEDs molded on the connector.

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## Notes





## weld guard®

Weldguard sensors use a proprietary material on the sensing face that is:

- Independently tested to over 25,000 operations without failure
- Impervious to weld spatter that creates pitting, chipping and cracking caused by resistance welding
- A superior replacement for any type of material used on a sensing face
- Able to withstand high heat
- Resistance to pitting, chipping and cracking caused by molten metal traveling at high velocity

- Protects against:



Resistance Welding

	BIM-UNR	BIM-UNT	Q4.7	Q5.5	Q08
Housing	UNR	UNT	4.7 mm	5.5 mm	8 mm
Sensing Range	Magnetic	Magnetic	2	2	5 - 8
Pages	12	12	14	14	16

	Rectangular	Embeddable/Nonembeddable Metal Barrel			
Housing	30 mm	8 mm	12 mm	18 mm	30 mm
Sensing Range	20 - 50 mm	1.5 - 6 mm	2 - 10 mm	5 - 14 mm	10 - 30 mm
Pages	18	20-28	30-36	38-44	46-48

# Weldguard | UNR, UNT

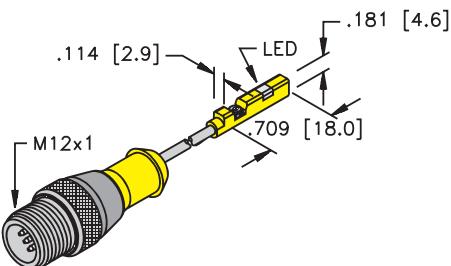
T-groove, C-groove, Tie-rod, and Round Cylinder Style

## Housing Style



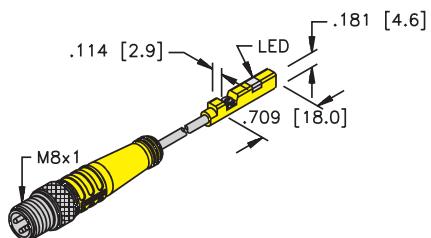
## Dimension Drawings

A



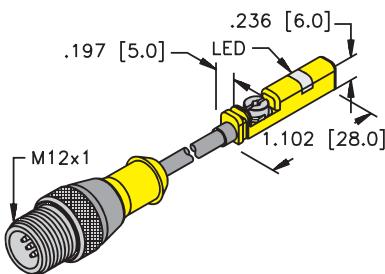
UNR - Eurofast Quick Disconnect

B



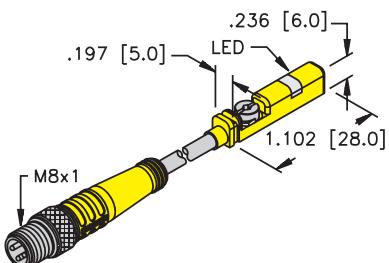
UNR - Picofast Quick Disconnect

C



UNT - Eurofast Quick Disconnect

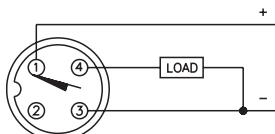
D



UNT - Picofast Quick Disconnect

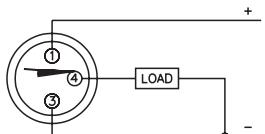
## Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RK 4T-\*

2



Mating Cordset: PKG 3M-\*

A1

## 3-wire DC - Magnetic (AN, RN, AP, RP)

Ripple:	$\leq 10\%$
Differential Travel (Hysteresis):	$\leq 1 \text{ mm}$
Voltage Drop Across Conducting Sensor:	$\leq 1.8 \text{ V}$
Trigger Current for Short Circuit Protection:	$\geq 220 \text{ mA}$ on $200 \text{ mA}$ Load Current $\geq 170 \text{ mA}$ on $150 \text{ mA}$ Load Current $\geq 120 \text{ mA}$ on $100 \text{ mA}$ Load Current
Off-State (Leakage) Current:	$\leq 0.1 \text{ mA}$
No-Load Current:	$\leq 15 \text{ mA}$
Pass Speed:	$\leq 10 \text{ ms}; \leq 3 \text{ ms}$ (UNR)

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:	$\leq 0.1 \text{ mm}, \leq 0.3 \text{ mm}$ (UNR)
Shock:	$30 \text{ g}, 11 \text{ ms}$
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	$\geq \pm 0.1 \text{ mm}, \geq \pm 0.3 \text{ mm}$ (UNR)

## Additional Specifications

Magnetic Actuation Strength (Gauss): 20-350

We reserve the right to make technical alterations without prior notice.

Weldguard | UNR, UNT   
T-groove, C-groove, Tie-rod, and Round Cylinder Style

Part Number/ ID Number	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
BIM-UNR-AP6X-0.3-RS4T/S1764 W/M 46858416	3-wire DC PNP	10-30 VDC	300	≤100	-25 to +70	IP67	PP	N/A	YE	0.3M/TPU	A	1	A1
BIM-UNR-AP6X-0.3-PSG3M/S1764 W/M 4685889	3-wire DC PNP	10-30 VDC	300	≤100	-25 to +70	IP67	PP	N/A	YE	0.3M/TPU	B	2	A1
BIM-UNR-AP6X-0.3-RS4T/S1154 46858419	3-wire DC PNP	10-30 VDC	300	≤100	-25 to +70	IP67	PP	N/A	YE	0.3M/TPU	A	1	A1
BIM-UNR-AP6X-0.3-PSG3M/S1154 46858414	3-wire DC PNP	10-30 VDC	300	≤100	-25 to +70	IP67	PP	N/A	YE	0.3M/TPU	B	2	A1
BIM-UNT-AP6X-0.2-RS4T/S1764 4685798	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	PA 12	N/A	YE	0.2M/TPU	C	1	A1
BIM-UNT-AP6X-0.3-PSG3M/S1764 4688097	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	PA 12	N/A	YE	0.3M/TPU	D	2	A1
BIM-UNT-AP6X-0.5-PSG3M/S1764 4685794	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	PA 12	N/A	YE	0.5M/TPU	D	2	A1
BIM-UNT-AP6X-0.3-PSG3M/S1765 4685799	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	PA 12	N/A	YE	0.3M/TPU	D	2	A1
BIM-UNT-AP6X-0.3-PSG3M/S1154 46857219	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	PA 12	N/A	YE	0.3M/TPU	D	2	A1
BIM-UNT-AP6X-0.5-RS4T/S1154 46857268	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	PA 12	N/A	YE	0.5M/TPU	C	1	A1

"/S1764" = Weldguard coated sensor with viton/fiberglass sleeving. Sleeve starts on sensor end, and covers all but 100 mm of cable held in place by shrink tube.

"/S1154" = Weldguard coated sensor with PTFE sleeving covering the entire cable length and captured under the connector mold body.

"/S1589" = Weldguard coating added to sensor.

# Weldguard | Q4.7, Q5.5

## Top Sensing Subminiature Qpak Housing

Housing Style	Dimension Drawings
	A  4.7 mm - M12 Eurofast Quick Disconnect
 4.7 mm - M8 Picofast Quick Disconnect	C  5.5 mm - M12 Eurofast Quick Disconnect
 5.5 mm - M8 Picofast Quick Disconnect	
Wiring Diagrams/Mating Cordsets	
1  Mating Cordset: RK 4T-*	2  Mating Cordset: PKG 3M-*
3  Mating Cordset: PKG 3M-*	
A2	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

We reserve the right to make technical alterations without prior notice.

## Weldguard | Q4.7, Q5.5

## Top Sensing Subminiature Qpak Housing

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
BI2-Q4.7-AP6X-0.3-RS4T/S1154 16140067		2	3-wire DC PNP	10-30 VDC	1000	≤100	0 to +85	IP67	Zinc	WG	N/A	YE	0.3M/TPU	A	1	A2
BI2-Q4.7-AP6X-0.5-RS4T/S1154 16140069		2	3-wire DC PNP	10-30 VDC	1000	≤100	0 to +85	IP67	Zinc	WG	N/A	YE	0.5M/TPU	A	1	A2
BI2-Q4.7-AP6X-0.2-PSG3M/S1154 16140097		2	3-wire DC PNP	10-30 VDC	1000	≤100	0 to +85	IP67	Zinc	WG	N/A	YE	0.2M/TPU	B	2	A2
BI2-Q4.7-AP6X-0.5-PSG3M/S1154 16140025		2	3-wire DC PNP	10-30 VDC	1000	≤100	0 to +85	IP67	Zinc	WG	N/A	YE	0.5M/TPU	B	2	A2
BI2-Q4.7-AP6X-0.3-RS4T/S1589 16140023		2	3-wire DC PNP	10-30 VDC	1000	≤100	0 to +85	IP67	Zinc	WG	N/A	YE	0.3M/TPU	A	1	A2
BI2-Q4.7-AP6X-0.3-PSG3M/S1589 16140001		2	3-wire DC PNP	10-30 VDC	1000	≤100	0 to +85	IP67	Zinc	WG	N/A	YE	0.3M/TPU	B	2	A2
BI2-Q5.5-AN6X-0.5-PSG3M/S1764 16131005		2	3-wire DC NPN	10-30 VDC	2000	≤150	-25 to +85	IP67	PP-GF20	WG	N/A	YE	0.5M/TPU	D	3	A2
BI2-Q5.5-AP6X-0.5-RS4T/S1764 16130001		2	3-wire DC PNP	10-30 VDC	2000	≤150	-25 to +85	IP67	PP-GF20	WG	N/A	YE	0.5M/TPU	C	1	A2
BI2-Q5.5-AP6X-0.4-RS4T/S34/S1764 1613063	WFI	2	3-wire DC PNP	10-30 VDC	2000	≤150	-25 to +85	IP67	PP-GF20	WG	N/A	YE	0.4M/TPU	C	1	A2
BI2-Q5.5-AP6X-0.2-RS4T/S34/S1764 16130011	WFI	2	3-wire DC PNP	10-30 VDC	2000	≤150	-25 to +85	IP67	PP-GF20	WG	N/A	YE	0.2M/TPU	C	1	A2
BI2-Q5.5-AP6X-0.2-PSG3M/S1154 16130019		2	3-wire DC PNP	10-30 VDC	2000	≤150	-25 to +85	IP67	PP-GF20	WG	N/A	YE	0.2M/TPU	D	2	A2

"/S1764" = Weldguard coated sensor with viton/fiberglass sleeving. Sleeve starts on sensor end, and covers all but 100 mm of cable held in place by shrink tube.

"/S1154" = Weldguard coated sensor with PTFE sleeving covering the entire cable length and captured under the connector mold body.

"/S1589" = Weldguard coating added to sensor.

# Weldguard | Q08

## Top Sensing Subminiature Qpak Housing

Housing Style	Dimension Drawings				
	A	 8.0 mm - M12 Eurofast Quick Disconnect	B	 8.0 mm - M8 Picofast Quick Disconnect	
 8.0 mm - M12 Eurofast Quick Disconnect	D	 8.0 mm - M8 Picofast Quick Disconnect	E	 8.0 mm - M12 Eurofast Quick Disconnect W/ LED	
 8.0 mm - M12 Eurofast Quick Disconnect					
Wiring Diagrams/Mating Cordsets					
1  Mating Cordset: RK 4T-*; RKV 4T-*	2  Mating Cordset: PKG 3M-*				
<b>A2</b>	<b>3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)</b>				
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				
	Temperature Drift: ≤±10%				
	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				
≤20 mA (Uprox+, Uprox 3)					
Time Delay Before Availability: ≤8 ms					

We reserve the right to make technical alterations without prior notice.

## Weldguard | Q08

## Top Sensing Subminiature Qpak Housing

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
BI8U-Q08-AP6X2-1-RS4T/S1764 1662089	Uprox+	8	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP68	Zinc	WG	GN	YE	1M/TPU	A	1	A2
BI8U-Q08-AP6X2-0.5-RS4T/S1764 16620066	Uprox+	8	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP68	Zinc	WG	GN	YE	0.5M/TPU	A	1	A2
BI8U-Q08-AP6X2-0.5-PSG3M/S1764 16620060	Uprox+	8	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP68	Zinc	WG	GN	YE	0.5M/TPU	B	2	A2
BI8U-Q08-AP6X2-0.5-RS4T/S1765 1662087	Uprox+	8	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP68	Zinc	WG	GN	YE	0.5M/TPU	A	1	A2
BI8U-Q08-AP6X2-0.2-RS4T/S1589 1662083	Uprox+	8	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP68	Zinc	WG	GN	YE	0.2M/TPU	A	1	A2
BI7-Q08-AP6X2-0.5-RS4T/S1764 1601676		7	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	Zinc	WG	GN	YE	0.5M/TPU	C	1	A2
BI7-Q08-AP6X2-0.5-RS4T/S1765 16016002		7	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	Zinc	WG	GN	YE	0.5M/TPU	C	1	A2
BI7-Q08-AP6X2-0.5-PSG3M/S1765 1601678		7	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	Zinc	WG	GN	YE	0.5M/TPU	D	2	A2
BI7-Q08-AP6X2-0.5-RS4T/S1154 16016004		7	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	Zinc	WG	GN	YE	0.5M/TPU	C	1	A2
BI7-Q08-AP6X2-0.3-RS4T/S1154 16016006		7	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	Zinc	WG	GN	YE	0.3M/TPU	C	1	A2
BI7-Q08-AP6X2-0.2-PSG3M/S1154 16016005		7	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	Zinc	WG	GN	YE	0.2M/TPU	D	2	A2
BI7-Q08-AP6X2-0.3-RSE 4T-P7X2/S1589 1601671		7	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	Zinc	WG	GN	YE	0.3M/TPU	E	1	A2
BI7-Q08-AP6X2-0.2-RS4T/S1589 16016001		7	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	Zinc	WG	GN	YE	0.2M/TPU	C	1	A2
BI7-Q08F-AP6X-0.2-RS4T/S1154 16089164	SSF	7	3-wire DC PNP	10-30 VDC	200	≤200	-25 to +70	IP68/69K	SS	WG	N/A	YE	0.2M/TPU	F	1	A2
BI7-Q08F-AP6X-0.2-RS4T/S1589 16089163	SSF	7	3-wire DC PNP	10-30 VDC	200	≤200	-25 to +70	IP68/69K	SS	WG	N/A	YE	0.2M/TPU	F	1	A2
BI5U-Q08-AP6X2-0.3-RS4T/S1154 1608899	Uprox	5	3-wire DC PNP	10-30 VDC	250	≤200	-30 to +85	IP67	Zinc	WG	GN	YE	0.3M/TPU	C	1	A2
BI5U-Q08-AP6X2-0.2-RS4T/S1589 1608975	Uprox	5	3-wire DC PNP	10-30 VDC	250	≤200	-30 to +85	IP67	Zinc	WG	GN	YE	0.2M/TPU	C	1	A2

We reserve the right to make technical alterations without prior notice.

Weldguard

"/S1764" = Weldguard coated sensor with viton/fiberglass sleeving. Sleeve starts on sensor end, and covers all but 100 mm of cable held in place by shrink tube.

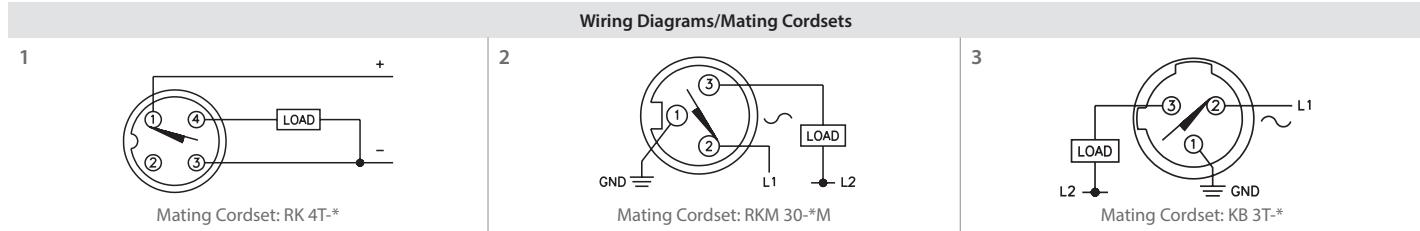
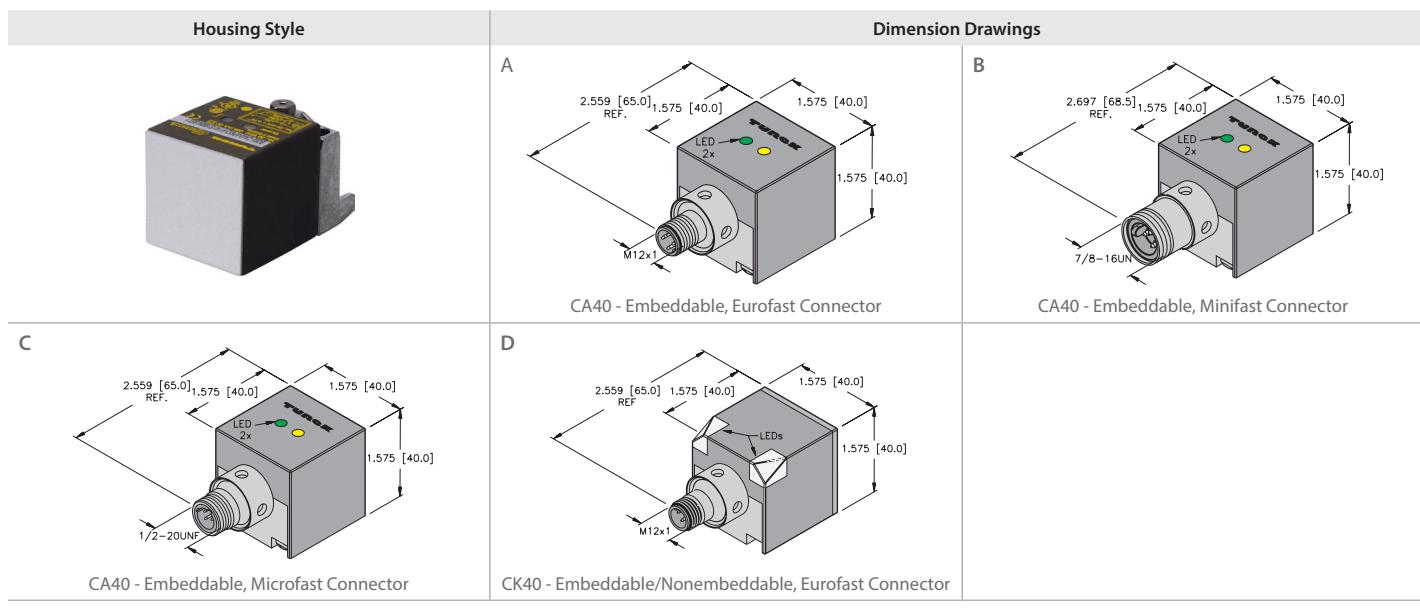
"/S1765" = Weldguard coated sensor with 1/4" diameter Silicone. Length of tubing is 200 mm less than total cable length.

"/S1154" = Weldguard coated sensor with PTFE sleeving covering the entire cable length and captured under the connector mold body.

"/S1589" = Weldguard coating added to sensor.

# Weldguard | CA40, CK40

## Rotatable Sensing Head with 2 and 3-Wire Outputs



A2	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
	≤20 mA (Uprox+, Uprox 3)	
Time Delay Before Availability: ≤8 ms		
A4	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)	

We reserve the right to make technical alterations without prior notice.

## Weldguard | CA40, CK40

## Rotatable Sensing Head with 2 and 3-Wire Outputs

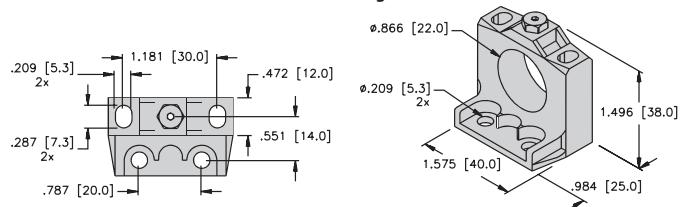
Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
BI20U-CA40-AP6X2-H1141/S1590W/BS2.1 1627295	Uprox	20	3-wire DC PNP	10-30 VDC	250	≤200	0 to +70	IP67	AL	WG	GN	YE	A	1	A2
BI20U-CA40-AP6X2-H1141/S1590 W/BS2.0 1627297	Uprox	20	3-wire DC PNP	10-30 VDC	250	≤200	0 to +70	IP67	AL	WG	GN	YE	A	1	A2
BI20U-CA40-ADZ30X2-B1131/S1590W/BS2.1 4283295	Uprox	20	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-30 to +85	IP67	AL	WG	GN	YE	B	2	A4
BI20-CA40-ADZ30X2-B3131/S34/S1590 4283594	WFI	20	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-30 to +85	IP67	AL	WG	GN	YE	C	3	A4
BI30U-CK40-AP6X2-H1141/S1590 W/BS 4 1625893	Uprox+	30	3-wire DC PNP	10-30 VDC	250	≤200	-10 to +60	IP68	PBT	WG	GN	YE	D	1	A2
NI50U-CK40-AP6X2-H1141/S1590 W/BS 4 1625891	Uprox+	50	3-wire DC PNP	10-30 VDC	250	≤200	-30 to +85	IP68	PBT	WG	GN	YE	D	1	A2
NI35U-CK40-AP6X2-H1141/S1590 W/BS 4 1625892	Uprox	35	3-wire DC PNP	10-30 VDC	250	≤200	-30 to +85	IP68	PBT	WG	GN	YE	D	1	A2
NI25U-CK40-AP6X2-H1141/S1590 W/BS 2.1 1625796	Uprox	25	3-wire DC PNP	10-30 VDC	250	≤200	-30 to +85	IP68	PBT	WG	GN	YE	D	1	A2

"/S1590" = Weldguard coating added to CA/CK 40 style sensor.

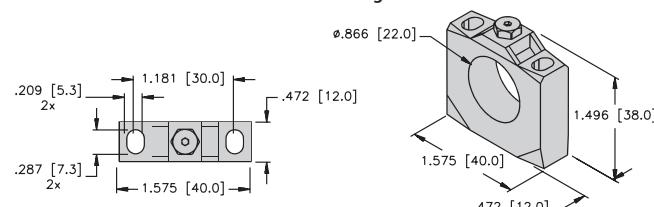
We reserve the right to make technical alterations without prior notice.

Weldguard

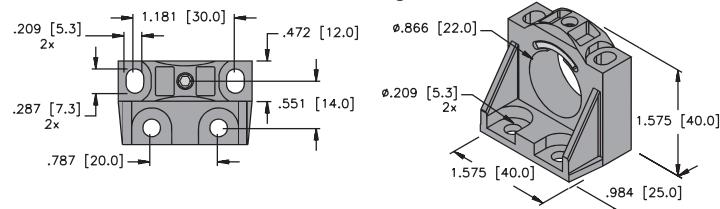
BS 2.1 Mounting Bracket



BS 2.0 Mounting Bracket

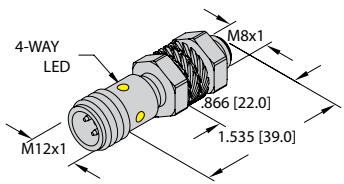
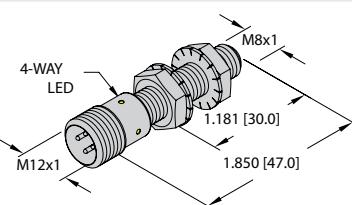
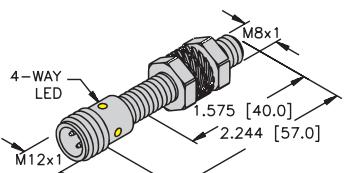
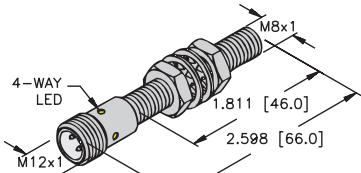


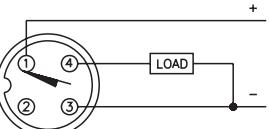
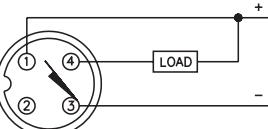
BS 4 Mounting Bracket



# Weldguard | 8 mm

## Embeddable Threaded Metal Barrels with Connector and DC Outputs

Housing Style	Dimension Drawings	
	A  8 mm - Embeddable, Miniature Threaded, M12 Eurofast Connection	B  8 mm - Embeddable, Miniature Threaded, M12 Eurofast Connection
C  8 mm - Embeddable, Miniature Threaded, M12 Eurofast Connection	D  8 mm - Embeddable, Stainless Steel Barrel, M12 Eurofast Connection	

Wiring Diagrams/Mating Cordsets		
1  Mating Cordset: RK 4T-*; RKV 4T-*	2  Mating Cordset: RK 4T-*	

A2	3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)
<p>Ripple: ≤10%</p> <p>Differential Travel (Hysteresis): 3-15% (5% typical)</p> <p>Voltage Drop Across Conducting Sensor: ≤1.8 V</p> <p>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</p> <p>Off-State (Leakage) Current: ≤0.1 mA</p> <p>No-Load Current: ≤15 mA (Ferrite, Uprox, Rectangular) ≤20 mA (Uprox+, Uprox 3)</p> <p>Time Delay Before Availability: ≤8 ms</p>	<p>Power-On Effect: Per IEC 947-5-2</p> <p>Reverse Polarity Protection: Incorporated</p> <p>Wire-Break Protection: Incorporated</p> <p>Transient Protection: Per EN 60947-5-2</p> <p>Temperature Drift: ≤±10%</p> <p>Shock: 30 g, 11 ms</p> <p>Vibration: 55 Hz, 1 mm Amplitude in all 3 Planes</p> <p>Repeatability: ≤2% of Rated Operating Distance</p>

A7	3-wire DC Stainless Front Face Ext Range (AP, AN, RP, RN)
<p>Ripple: ≤10%</p> <p>Differential Travel (Hysteresis): 20%</p> <p>Voltage Drop Across Conducting Sensor: ≤2 V</p> <p>Trigger Current for Short Circuit Protection: ≥220 mA on 200 mA Load Current</p> <p>No-Load Current: ≤10 mA</p> <p>Off-State (Leakage) Current: ≤0.1 mA</p>	<p>Temperature Drift: ≤±10%</p> <p>Reverse Polarity Protection: Incorporated</p> <p>Wire-Break Protection: Incorporated</p> <p>Shock: 30 g, 11 ms</p> <p>Vibration: 55 Hz, 1 mm Amplitude, in all 3 Planes</p> <p>Repeatability: ≤5% of Rated Operating Distance</p>

We reserve the right to make technical alterations without prior notice.

## Weldguard | 8 mm

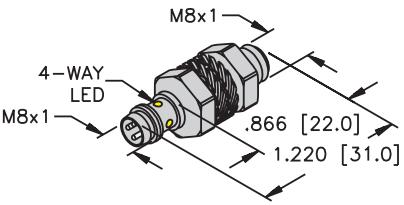
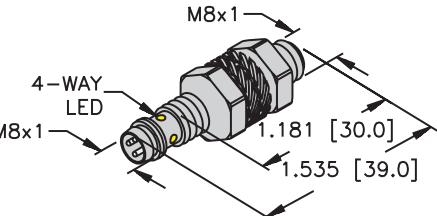
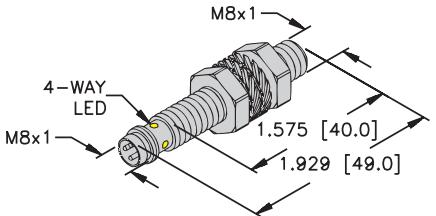
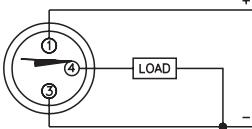
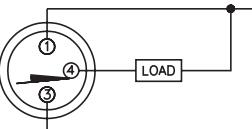
## Embeddable Threaded Metal Barrels with Connector and DC Outputs

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
BI3U-EMT08-AP6X-H1341/S1589 46021560	Uprox3, PTFE	3	3-wire DC PNP	10-30 VDC	1000	≤150	0 to +60	IP68	TC	WG	N/A	YE	B	1	A2
BI3-EG08FE-AP6X-H1341/S1589 46147031	SSF	3	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	SS	WG	N/A	YE	D	1	A7
BI3-EGT08FE-AP6X-H1341/S1589 46147032	SSF, PTFE	3	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	TC	WG	N/A	YE	D	1	A7
BI2U-EGT08-AP6X-H1341/S1589 46020702	Uprox+, PTFE	2	3-wire DC PNP	10-30 VDC	2000	≤150	-30 to +85	IP68	TC	WG	N/A	YE	C	1	A2
BI2U-EG08-AP6X-H1341/S1589 46020340	Uprox+	2	3-wire DC PNP	10-30 VDC	2000	≤150	-30 to +85	IP68	SS	WG	N/A	YE	C	1	A2
BI2-EG08-AP6X-H1341/S1589 4602086		2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	WG	N/A	YE	C	1	A2
BI2-EG08-AN6X-H1341/S1589 4602182		2	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	WG	N/A	YE	C	2	A2
BI2-EGT08-AP6X-H1341/S100/S1589 4602079	PTFE, High Temp. 100 °C	2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +100	IP67	TC	WG	N/A	YE	C	1	A2
BI2-EG08K-AP6X-H1341/S1589 4669486	Short Barrel	2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	WG	N/A	YE	A	1	A2
BI2-EG08K-AN6X-H1341/S1589 4669580	Short Barrel	2	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	WG	N/A	YE	A	2	A2
BI1.5U-EG08-AP6X-H1341/S1589 46005401	Uprox	1.5	3-wire DC PNP	10-30 VDC	2000	≤150	-30 to +85	IP68	SS	WG	N/A	YE	C	1	A2

"/S1589" = Weldguard coating added to sensor.

# Weldguard | 8 mm

## Embeddable Threaded Metal Barrels with Connector and DC Outputs

Housing Style	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
<b>Wiring Diagrams/Mating Cordsets</b>	
1  Mating Cordset: PKG 3M-*	2  Mating Cordset: PKG 3M-*
<b>A2</b>	<b>3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)</b>
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
	Temperature Drift: ≤±10%
	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: ≤8 ms	

We reserve the right to make technical alterations without prior notice.

## Weldguard | 8 mm

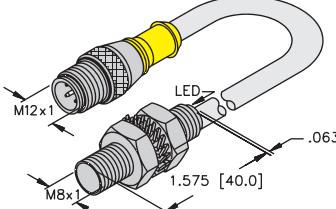
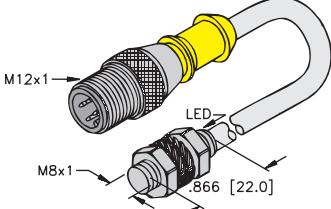
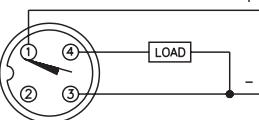
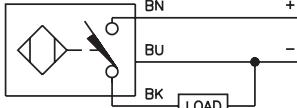
## Embeddable Threaded Metal Barrels with Connector and DC Outputs

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
BI3U-EMT08-AP6X-V1131/S1589 46021550	Uprox3, PTFE	3	3-wire DC PNP	10-30 VDC	1000	≤150	0 to +60	IP68	TC	WG	N/A	YE	B	1	A2
BI2U-EGT08-AP6X-V1131/S1589 46020701	Uprox+, PTFE	2	3-wire DC PNP	10-30 VDC	2000	≤150	-30 to +85	IP68	TC	WG	N/A	YE	C	1	A2
BI2-EG08-AP6X-V1131/S1589 46020501		2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	WG	N/A	YE	C	1	A2
BI2-EG08-AN6X-V1131/S1589 46021500		2	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	WG	N/A	YE	C	2	A2
BI2-EG08K-AP6X-V1131/S1589 46694003	Short Barrel	2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	WG	N/A	YE	A	1	A2

"/S1589" = Weldguard coating added to sensor.

# Weldguard | 8 mm

## Embeddable Threaded Metal Barrels 3-Wire DC Outputs

Housing Style	Dimension Drawings
	A  8 mm - Embeddable, Miniature Threaded Barrel, Potted-In Cable
	B  8 mm - Embeddable, Miniature Threaded, M12 Eurofast Quick Disconnect
	C  8 mm - Embeddable, Stainless Steel Barrel, M12 Eurofast Connection
<b>Wiring Diagrams/Mating Cordsets</b>	
1 	2 
Mating Cordset: RKV 4T-*, RK 4T-*	

A2

**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

A7

**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

We reserve the right to make technical alterations without prior notice.

## Weldguard | 8 mm

## Embeddable Threaded Metal Barrels 3-Wire DC Outputs

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-EGT08FE-AP6X-0.2-RS4T/S1154 46147013	SSF, PTFE	3	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	TC	WG	N/A	YE	0.2M/TPU	C	1	A7
BI2U-EG08-AP6X-0.2-RS4T/S1589 2690021	Uprox+	2	3-wire DC PNP	10-30 VDC	2000	≤150	-30 to +85	IP68	SS	WG	N/A	YE	0.2M/TPU	B	1	A2
BI2-EG08-AP6X/S1589 4602185		2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	WG	N/A	YE	2M/TPU	A	2	A2
BI2-EG08-AP6X-0.2-RS4T/S1589 4602084		2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	WG	N/A	YE	0.2M/TPU	B	1	A2
BI2-EG08K-AP6X-0.2-RS4T/S1589 46694951	Short Barrel	2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	WG	N/A	YE	0.2M/TPU	D	1	A2
BI2-EGT08K-AP6X-0.5-RS4T/S100/S1765 4602585	PTFE, High Temp. 100 °C	2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +100	IP67	TC	WG	N/A	YE	0.5M/TPU	D	1	A2

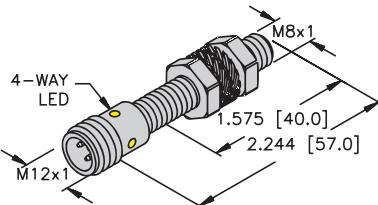
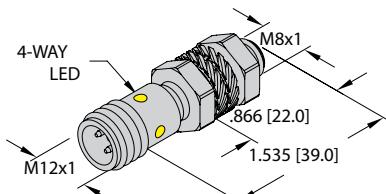
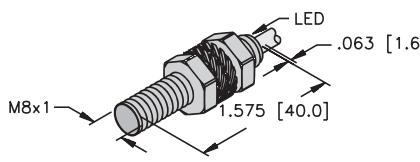
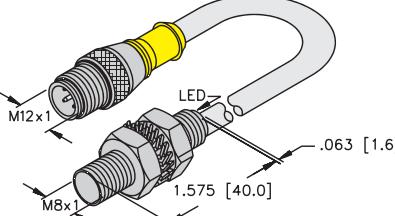
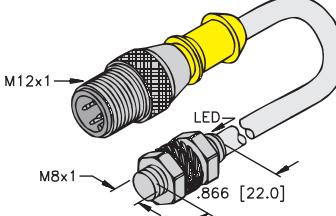
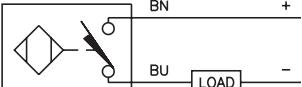
"/S1765" = Weldguard coated sensor with 1/4" diameter silicone. Length of tubing is 200 mm less than total cable length.

"/S1154" = Weldguard coated sensor with PTFE sleeving covering the entire cable length and captured under the connector mold body.

"/S1589" = Weldguard coating added to sensor.

# Weldguard | 8 mm

## Embeddable Threaded Metal Barrels 2-Wire DC Outputs

Housing Style	Dimension Drawings
	<p>A</p>  <p>8 mm - Embeddable, Miniature Threaded, M12 Eurofast Connection</p>
	<p>C</p>  <p>8 mm - Embeddable, Miniature Threaded Barrel, Potted-In Cable</p>
	<p>E</p>  <p>8 mm - Embeddable, Miniature Threaded, M12 Eurofast Quick Disconnect</p>
Wiring Diagrams/Mating Cordsets	
1 	2  Mating Cordset: RK 4.23T-*
3  Mating Cordset: RK 4.2T-*	
A3	2-wire DC - (AD, RD, AG)
Ripple: ≤10% Differential Travel (Hysteresis): 3-15% (5% typical) Voltage Drop Across Conducting Sensor: Non-polarized (AD) <5.0 V Trigger Current for Short Circuit Protection: ≥120 mA Minimum Load Current: ≥3.0 mA	Off-State (Leakage) Current: ≤0.8 mA Power-On Effect: Per IEC 947-5-2 Transient Protection: Per EN 60947-5-2 Shock: 30 g, 11 ms Vibration: 55 Hz, 1 mm Amplitude in all 3 Planes Repeatability: ≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

## Weldguard | 8 mm

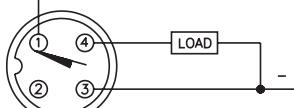
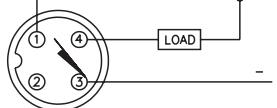
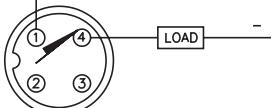
## Embeddable Threaded Metal Barrels 2-Wire DC Outputs

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
BI2-EG08-AG41X-H1341/S1589 4562095		2	2-wire DC	10-55 VDC	300	≤100	-25 to +70	IP67	SS	WG	N/A	YE	--	A	2	A3
BI2-EG08K-AG41X-H1341/S1589 4562090	Short Barrel	2	2-wire DC	10-55 VDC	300	≤100	-25 to +70	IP67	SS	WG	N/A	YE	--	B	2	A3
BI2-EGT08K-AG41X-H1341/S1589 4602599	PTFE, Short Barrel	2	2-wire DC	10-55 VDC	300	≤100	-25 to +70	IP67	TC	WG	N/A	YE	--	B	2	A3
BI2-EG08-AG41X/S1589 4562088		2	2-wire DC	10-55 VDC	300	≤100	-25 to +70	IP67	SS	WG	N/A	YE	2M/TPU	C	1	A3
BI2-EG08-AG41X-0.2-RS4.23T/S1589 4562097		2	2-wire DC	10-55 VDC	300	≤100	-25 to +70	IP67	SS	WG	N/A	YE	0.2M/TPU	D	2	A3
BI2-EGT08-AG41X-0.2-RS4.23T/S1589 4602593	PTFE	2	2-wire DC	10-55 VDC	300	≤100	-25 to +70	IP67	TC	WG	N/A	YE	0.2M/TPU	D	2	A3
BI2-EG08K-AG41X-0.3-RS4.23T/S1589 45620893	Short Barrel	2	2-wire DC	10-55 VDC	300	≤100	-25 to +70	IP67	SS	WG	N/A	YE	0.3M/TPU	E	2	A3
BI1.5-EG08-AD6X-H1341/S1589 4600298		1.5	2-wire DC	10-30 VDC	3000	≤100	-25 to +70	IP67	SS	WG	N/A	YE	--	A	3	A3

"/S1589" = Weldguard coating added to sensor.

# Weldguard | 8 mm

## Nonembeddable Threaded Metal Barrels with Connector and DC Outputs

Housing Style	Dimension Drawings
	A 
8 mm - Nonembeddable, Miniature Threaded, M12 Eurofast Quick Disconnect	
Wiring Diagrams/Mating Cordsets	
1 	2 
3 	Mating Cordset: RK 4.23T-*
<b>A2</b>	
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
	Temperature Drift: ≤±10%
	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
≤20 mA (Uprox+, Uprox 3)	
Time Delay Before Availability: ≤8 ms	
<b>A3</b>	
2-wire DC - (AD, RD, AG)	
Ripple: ≤10%	Off-State (Leakage) Current: ≤0.8 mA
Differential Travel (Hysteresis): 3-15% (5% typical)	Power-On Effect: Per IEC 947-5-2
Voltage Drop Across Conducting Sensor: Non-polarized (AD) <5.0 V	Transient Protection: Per EN 60947-5-2
	Shock: 30 g, 11 ms
Trigger Current for Short Circuit Protection: ≥120 mA	Vibration: 55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current: ≥3.0 mA	Repeatability: ≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

## Weldguard | 8 mm

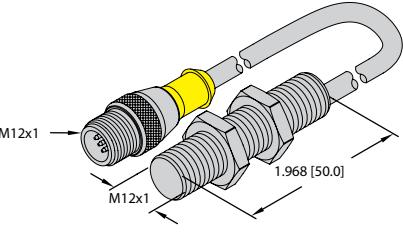
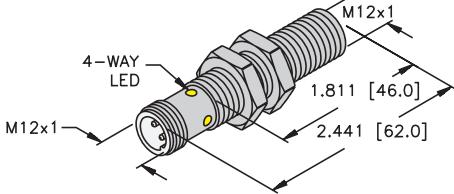
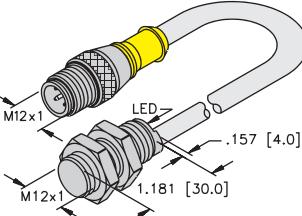
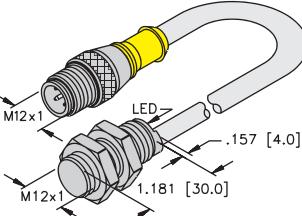
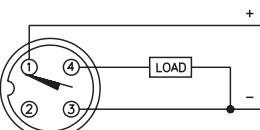
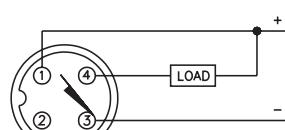
## Nonembeddable Threaded Metal Barrels with Connector and DC Outputs

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
NI6U-EGT08-AP6X-H1341/S1589 4635989	Uprox+, PTFE	6	3-wire DC PNP	10-30 VDC	1000	≤150	-25 to +70	IP68	TC	WG	N/A	YE	A	1	A2
NI6U-EG08-AN6X-H1341/S1589 46358050	Uprox+	6	3-wire DC NPN	10-30 VDC	1000	≤150	-25 to +70	IP68	SS	WG	N/A	YE	A	2	A2
NI4U-EG08-AP6X-H1341/S1589 46006401	Uprox	4	3-wire DC PNP	10-30 VDC	2000	≤150	-30 to +85	IP68	SS	WG	N/A	YE	A	1	A2
NI4-EG08-AG41X-H1341/S1589 4561091		4	2-wire DC	10-55 VDC	300	≤100	-25 to +70	IP67	SS	WG	N/A	YE	A	3	A3
NI3-EG08-AP6X-H1341/S1589 4602799		3	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	WG	N/A	YE	A	1	A2

"/S1589" = Weldguard coating added to sensor.

# Weldguard | 12 mm

## Embeddable Threaded Metal Barrels 3-Wire DC Outputs

Housing Style	Dimension Drawings																														
	<p>A</p> <p>12 mm - Embeddable, Stainless Steel Barrel, M12 Eurofast Connection</p>																														
	<p>B</p> <p>12 mm - Embeddable, Stainless Steel Barrel, M12 Eurofast Quick Disconnect</p>																														
	<p>C</p> <p>12 mm - Embeddable, M12 Eurofast Connection</p>																														
	<p>D</p> <p>12 mm - Embeddable, M12 Eurofast Connection, Extended Barrel Length</p>																														
	<p>E</p> <p>12 mm - Embeddable, M12 Eurofast Quick Disconnect</p>																														
Wiring Diagrams/Mating Cordsets																															
<p>1</p>  <p>Mating Cordset: RK 4T-*; RKV 4T-*</p>	<p>2</p>  <p>Mating Cordset: RK 4T-*; RKV 4T-*</p>																														
<p>A2</p> <table> <tbody> <tr> <td>Ripple:</td><td>≤10%</td></tr> <tr> <td>Differential Travel (Hysteresis):</td><td>3-15% (5% typical)</td></tr> <tr> <td>Voltage Drop Across Conducting Sensor:</td><td>≤1.8 V</td></tr> <tr> <td>Trigger Current for Short Circuit Protection:</td><td>≥220 mA on 200 mA Load Current ≥170 mA on 150 mA Load Current ≥120 mA on 100 mA Load Current</td></tr> <tr> <td>Off-State (Leakage) Current:</td><td>≤0.1 mA</td></tr> <tr> <td>No-Load Current:</td><td>≤15 mA (Ferrite, Uprox, Rectangular) ≤20 mA (Uprox+, Uprox 3)</td></tr> <tr> <td>Time Delay Before Availability:</td><td>≤8 ms</td></tr> </tbody> </table>	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	<p>3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)</p> <table> <tbody> <tr> <td>Power-On Effect:</td><td>Per IEC 947-5-2</td></tr> <tr> <td>Reverse Polarity Protection:</td><td>Incorporated</td></tr> <tr> <td>Wire-Break Protection:</td><td>Incorporated</td></tr> <tr> <td>Transient Protection:</td><td>Per EN 60947-5-2</td></tr> <tr> <td>Temperature Drift:</td><td>≤±10%</td></tr> <tr> <td>Shock:</td><td>30 g, 11 ms</td></tr> <tr> <td>Vibration:</td><td>55 Hz, 1 mm Amplitude in all 3 Planes</td></tr> <tr> <td>Repeatability:</td><td>≤2% of Rated Operating Distance</td></tr> </tbody> </table>	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
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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																														
<p>A7</p> <table> <tbody> <tr> <td>Ripple:</td><td>≤10%</td></tr> <tr> <td>Differential Travel (Hysteresis):</td><td>20%</td></tr> <tr> <td>Voltage Drop Across Conducting Sensor:</td><td>≤2 V</td></tr> <tr> <td>Trigger Current for Short Circuit Protection:</td><td>≥220 mA on 200 mA Load Current</td></tr> <tr> <td>No-Load Current:</td><td>≤10 mA</td></tr> <tr> <td>Off-State (Leakage) Current:</td><td>≤0.1 mA</td></tr> </tbody> </table>	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	<p>3-wire DC Stainless Front Face Ext Range (AP, AN, RP, RN)</p> <table> <tbody> <tr> <td>Temperature Drift:</td><td>≤±10%</td></tr> <tr> <td>Reverse Polarity Protection:</td><td>Incorporated</td></tr> <tr> <td>Wire-Break Protection:</td><td>Incorporated</td></tr> <tr> <td>Shock:</td><td>30 g, 11 ms</td></tr> <tr> <td>Vibration:</td><td>55 Hz, 1 mm Amplitude, in all 3 Planes</td></tr> <tr> <td>Repeatability:</td><td>≤5% of Rated Operating Distance</td></tr> </tbody> </table>	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						
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Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes																														
Repeatability:	≤5% of Rated Operating Distance																														

We reserve the right to make technical alterations without prior notice.

## Weldguard | 12 mm

## Embeddable Threaded Metal Barrels 3-Wire DC Outputs

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-EGT12FE-AP6X-H1141/S1589 46147061	SSF, PTFE	6	3-wire DC PNP	10-30 VDC	600	≤200	-25 to +70	IP68/69K	TC	WG	N/A	YE	--	A	1	A7
BI6-EGT12FE-AP6X-0.3-RS4T/S1589 46147200	SSF, PTFE	6	3-wire DC PNP	10-30 VDC	600	≤200	-25 to +70	IP68/69K	TC	WG	N/A	YE	0.3M/PVC	B	1	A7
BI4U-MT12-AP6X-H1141/S1589 1634997	Uprox+, PTFE	4	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	TC	WG	N/A	YE	--	C	1	A2
BI4U-MT12-AN6X-H1141/S1589 16348290	Uprox+, PTFE	4	3-wire DC NPN	10-30 VDC	2000	≤200	-30 to +85	IP68	TC	WG	N/A	YE	--	C	2	A2
BI4U-MT12E-AP6X2-H1141/S1589 1644797	Uprox+, PTFE	4	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	TC	WG	GN	YE	--	D	1	A2
BI4U-EM12-AP6X-H1141/S1589 16348971	Uprox+	4	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	SS	WG	N/A	YE	--	C	1	A2
BI4-MT12-AP6X-H1141/S1589 4607099	PTFE	4	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	TC	WG	N/A	YE	--	C	1	A2
BI4-MT12-AN6X-H1141/S1589 4607188	PTFE	4	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	TC	WG	N/A	YE	--	C	2	A2
BI4-MT12E-AP6X-H1141/S1589 4608094	PTFE	4	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	TC	WG	N/A	YE	--	D	1	A2
BI4-MT12E-AN6X-H1141/S1589 4607187	PTFE	4	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	TC	WG	N/A	YE	--	D	2	A2
BI4-EM12E-AP6X-H1141/S1589 4607184		4	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	SS	WG	N/A	YE	--	D	1	A2
BI4-EM12E-AN6X-H1141/S1589 4607185		4	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	SS	WG	N/A	YE	--	D	2	A2
BI3U-MT12-AP6X2-H1141/S1589 1634293	Uprox, PTFE	3	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP67	TC	WG	GN	YE	--	C	1	A2
BI3U-MT12-AP6X-H1141/S1589 16342121	Uprox, PTFE	3	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP67	TC	WG	N/A	YE	--	C	1	A2
BI3U-MT12E-AP6X2-H1141/S1589 1634291	Uprox, PTFE	3	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP67	TC	WG	GN	YE	--	D	1	A2
BI3U-MT12E-AN6X2-H1141/S1589 1634290	Uprox, PTFE	3	3-wire DC NPN	10-30 VDC	2000	≤200	-30 to +85	IP67	TC	WG	GN	YE	--	D	2	A2
BI3U-EM12HE-AP6X2-H1141/S1589 1634398	Uprox	3	3-wire DC PNP	10-30 VDC	3000	≤200	-30 to +85	IP68	SS	WG	GN	YE	--	D	1	A2
BI3U-EM12E-AN6X2-H1141/S1589 1634397	Uprox	3	3-wire DC NPN	10-30 VDC	3000	≤200	-30 to +85	IP68	SS	WG	GN	YE	--	D	2	A2
BI2-EG12K-AP6X-0.2-RS4T/S1589 4605193	Short Barrel	2	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	SS	WG	N/A	YE	0.2M/PVC	E	1	A2

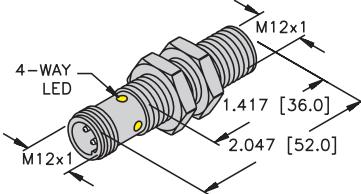
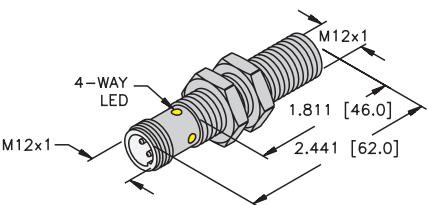
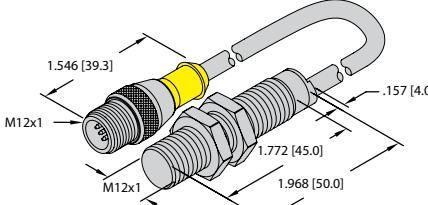
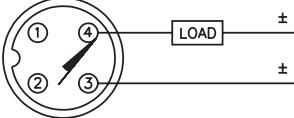
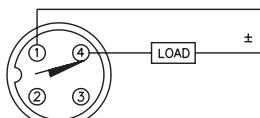
We reserve the right to make technical alterations without prior notice.

Weldguard

"/S1589" = Weldguard coating added to sensor.

# Weldguard | 12 mm

## Embeddable Threaded Metal Barrels 2-Wire DC Outputs

Housing Style	Dimension Drawings
	A  12 mm - Embeddable, M12 Eurofast Connection
B  12 mm - Embeddable, M12 Eurofast Connection, Extended Barrel Length	C  12 mm - Embeddable, M12 Eurofast Quick Disconnect
Wiring Diagrams/Mating Cordsets	
1  Mating Cordset: RK 4.2T-*; RK 4.23T-*	2  Mating Cordset: RK 4.23T-*
A3	2-wire DC - (AD, RD, AG)
Ripple: ≤10% Differential Travel (Hysteresis): 3-15% (5% typical) Voltage Drop Across Conducting Sensor: Non-polarized (AD) <5.0 V Polarized (AG) ≤4.2 V Trigger Current for Short Circuit Protection: ≥120 mA Minimum Load Current: ≥3.0 mA	Off-State (Leakage) Current: ≤0.8 mA Power-On Effect: Per IEC 947-5-2 Transient Protection: Per EN 60947-5-2 Shock: 30 g, 11 ms Vibration: 55 Hz, 1 mm Amplitude in all 3 Planes Repeatability: ≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

## Weldguard | 12 mm

## Embeddable Threaded Metal Barrels 2-Wire DC Outputs

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-MT12-AD4X-H1141/S1589 4405082	PTFE	3	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	TC	WG	N/A	YE	--	A	1	A3
BI3-MT12-AD4X-H1144/S1589 4405084	PTFE	3	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	TC	WG	N/A	YE	--	A	1	A3
BI3-MT12E-AD4X-H1141/S1589 4405086	PTFE	3	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	TC	WG	N/A	YE	--	B	1	A3
BI3-MT12E-AD4X-H1144/S1589 4405087	PTFE	3	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	TC	WG	N/A	YE	--	B	2	A3
BI3-MT12-AD4X-0.3-RS4.23T/S1589 44050820	PTFE	3	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	TC	WG	N/A	YE	0.3M/PVC	C	2	A3

"/S1589" = Weldguard coating added to sensor.

# Weldguard | 12 mm

## Nonembeddable Threaded Metal Barrels with Connector and DC Outputs

Housing Style	Dimension Drawings
	A 
B 	12 mm - Nonembeddable, M12 Eurofast Connection
Wiring Diagrams/Mating Cordsets	
1 	Mating Cordset: RK 4T-*; RKV 4T-*
2 	Mating Cordset: RK 4T-*; RKV 4T-*
3 	Mating Cordset: RK 4.2T-*
A2 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 Off-State (Leakage) Current: ≤0.1 mA No-Load Current: ≤15 mA (Ferrite, Uprox, Rectangular) 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
A3 2-wire DC - (AD, RD, AG)	
Ripple: ≤10% Differential Travel (Hysteresis): 3-15% (5% typical) Voltage Drop Across Conducting Sensor: Non-polarized (AD) <5.0 V Polarized (AG) ≤4.2 V Trigger Current for Short Circuit Protection: ≥120 mA Minimum Load Current: ≥3.0 mA	Off-State (Leakage) Current: ≤0.8 mA Power-On Effect: Per IEC 947-5-2 Transient Protection: Per EN 60947-5-2 Shock: 30 g, 11 ms Vibration: 55 Hz, 1 mm Amplitude in all 3 Planes Repeatability: ≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

## Weldguard | 12 mm

## Nonembeddable Threaded Metal Barrels with Connector and DC Outputs

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
NI10U-MT12E-AP6X2-H1141/S1589 1634994	Uprox+, PTFE	10	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP68	TC	WG	GN	YE	B	1	A2
NI10U-MT12-AP6X-H1141/S1589 16348101	Uprox+, PTFE	10	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP68	TC	WG	N/A	YE	A	1	A2
NI8U-MT12-AP6X2-H1141/S1589 1644292	Uprox, PTFE	8	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP67	TC	WG	GN	YE	A	1	A2
NI8U-MT12E-AP6X2-H1141/S1589 1644299	Uprox, PTFE	8	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP67	TC	WG	GN	YE	B	1	A2
NI8U-MT12E-AN6X2-H1141/S1589 16442480	Uprox, PTFE	8	3-wire DC NPN	10-30 VDC	2000	≤200	-30 to +85	IP67	TC	WG	GN	YE	B	2	A2
NI8U-EM12E-AP6X2-H1141/S1589 1644392	Uprox	8	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	SS	WG	GN	YE	B	1	A2
NI8U-EM12E-AN6X2-H1141/S1589 1644391	Uprox	8	3-wire DC NPN	10-30 VDC	2000	≤200	-30 to +85	IP68	SS	WG	GN	YE	B	2	A2
NI8-MT12E-AP6X-H1141/S1589 4611398	PTFE	8	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	TC	WG	N/A	YE	B	1	A2
NI8-MT12E-AN6X-H1141/S1589 4611397	PTFE	8	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	TC	WG	N/A	YE	B	2	A2
NI8-EM12E-AP6X-H1141/S1589 4611396		8	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	SS	WG	N/A	YE	B	1	A2
NI8-MT12-AD4X-H1141/S1589 4411291	PTFE	8	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	TC	WG	N/A	YE	A	3	A3

"/S1589" = Weldguard coating added to sensor.

# Weldguard | 12 mm

## Threaded Metal Barrels with Connector and AC/DC Outputs

Housing Style	Dimension Drawings
	A 
B 	12 mm - Embeddable, 1/2" Microfast Connection
Wiring Diagrams/Mating Cordsets	
1 	Mating Cordset: KB 3T-*
<b>A4</b>	<b>2-wire AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)</b>
<p>Line Frequency: <math>\geq 50 \dots \leq 60</math> Hz</p> <p>Differential Travel (Hysteresis): 3-15% (5% typical)</p> <p>Voltage Drop Across Conducting Sensor: <math>\leq 6.0</math> V</p> <p>Trigger Current for Short Circuit Protection: AC: <math>\geq 440</math> mA; DC: <math>\geq 330</math> mA AC: <math>\geq 120</math> mA; DC: <math>\geq 120</math> mA</p> <p>Continuous Load Current: AC: <math>\leq 400</math> mA; DC: <math>\leq 300</math> mA AC: <math>\leq 100</math> mA; DC: <math>\leq 100</math> mA</p> <p>Off-State (leakage) Current: <math>\leq 1.7</math> mA (AC) <math>\leq 1.5</math> mA (DC)</p>	<p>Minimum Load Current: <math>\geq 3.0</math> mA</p> <p>Inrush Current: <math>\leq 3</math> A (<math>\leq 20</math> ms, max 5 Hz)</p> <p>Power-On Effect: Per IEC 947-5-2</p> <p>Transient Protection: Per EN 60947-5-2</p> <p>Shock: 30 g, 11 ms</p> <p>Vibration: 55 Hz, 1 mm Amplitude, in all 3 Planes</p> <p>Repeatability: <math>\leq 2\%</math> of Rated Operating Distance</p>

We reserve the right to make technical alterations without prior notice.

## Weldguard | 12 mm

## Threaded Metal Barrels with Connector and AC/DC Outputs

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
BI4-GT12-ADZ32X-B3131/S1589 4205087	PTFE	4	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	TC	WG	N/A	RD	A	1	A4
BI2-GT12-ADZ32X-B3131/S34/S1589 4205096	PTFE, WFI	2	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	TC	WG	N/A	RD	A	1	A4
NI8-GT12-ADZ32X-B3131/S1589 42054801	PTFE	8	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	TC	WG	N/A	RD	B	1	A4
NI4-GT12-ADZ32X-B3131/S34/S1589 4205293	PTFE, WFI	4	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	TC	WG	N/A	RD	B	1	A4

"/S1589" = Weldguard coating added to sensor.

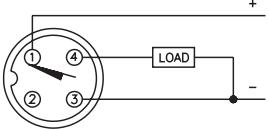
We reserve the right to make technical alterations without prior notice.

Weldguard

# Weldguard | 18 mm

## Embeddable Threaded Metal Barrels with Connector and DC Outputs

Housing Style	Dimension Drawings
	<p>A 18 mm - Embeddable, Stainless Steel Barrel, M12 Eurofast Connection</p>
<p>B 18 mm - Embeddable M12 Eurofast Connection</p>	<p>C 18 mm - Embeddable M12 Eurofast Connection</p>
<p>D 18 mm - Embeddable, Ext. Barrel Length, M12 Eurofast Connection</p>	

Wiring Diagrams/Mating Cordsets	
1	 <p>Mating Cordset: RK 4T-*</p>

A2	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

A7	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

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## Weldguard | 18 mm

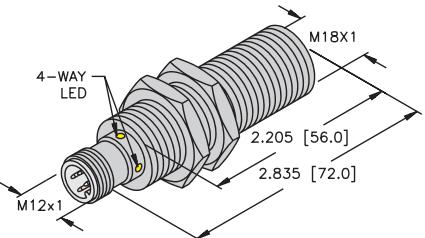
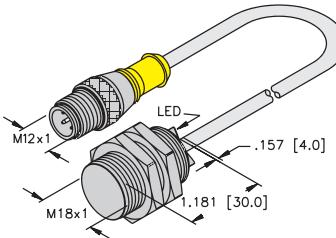
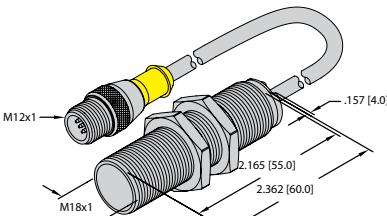
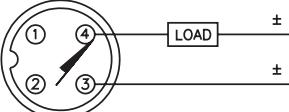
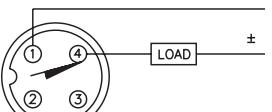
## Embeddable Threaded Metal Barrels with Connector and DC Outputs

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
BI10-EGT18F-AP6X-H1141/S1589 46147081	SSF, PTFE	10	3-wire DC PNP	10-30 VDC	200	≤200	-25 to +70	IP68/69K	TC	WG	N/A	YE	A	1	A7
BI8U-MT18M-AP6X2-H1141/S1589 16447411	Uprox+, PTFE	8	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP68	TC	WG	GN	YE	C	1	A2
BI8U-MT18-AP6X-H1141/S1589 1644789	Uprox+, PTFE	8	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP68	TC	WG	N/A	YE	B	1	A2
BI8U-EM18M-AP6X2-H1141/S1589 1644771	Uprox+	8	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP68	SS	WG	GN	YE	C	1	A2
BI8-EM18-AP6X-H1141/S1589 4615099		8	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	SS	WG	N/A	YE	B	1	A2
BI8-EM18E-AP6X-H1141/S1589 4615096		8	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	SS	WG	N/A	YE	D	1	A2
BI5U-MT18-AP6X2-H1141/S395/S1589 1635291	Uprox, PTFE	5	3-wire DC PNP	10-30 VDC	2500	≤200	-30 to +85	IP67	TC	WG	GN	YE	C	1	A2
BI5U-MT18-AP6X-H1141/S1589 1635294	Uprox, PTFE	5	3-wire DC PNP	10-30 VDC	2500	≤200	-30 to +85	IP67	TC	WG	N/A	YE	B	1	A2
BI5U-MT18-AP6X2-H1141/S1589 1635292	Uprox, PTFE	5	3-wire DC PNP	10-30 VDC	2500	≤200	-30 to +85	IP67	TC	WG	GN	YE	B	1	A2
BI5U-EM18-AP6X2-H1141/S395/S1589 1635197	Uprox	5	3-wire DC PNP	10-30 VDC	2500	≤200	-30 to +85	IP68	SS	WG	GN	YE	C	1	A2

"/S1589" = Weldguard coating added to sensor.

# Weldguard | 18 mm

## Embeddable Threaded Metal Barrels 2-Wire DC Outputs

Housing Style	Dimension Drawings
	<p>A</p> <p>18 mm - Embeddable M12 Eurofast Connection</p>
	<p>B</p> <p>18 mm - Embeddable, Ext. Barrel Length, M12 Eurofast Connection</p>
	<p>C</p> <p>18 mm - Embeddable, Short Barrel Length, M12 Eurofast Quick Disconnect</p>
	<p>D</p> <p>18 mm - Embeddable, Ext. Barrel Length, M12 Eurofast Quick Disconnect</p>
Wiring Diagrams/Mating Cordsets	
1 	2 
Mating Cordset: RK 4.2T-*	Mating Cordset: RK 4.23T-*
A3	2-wire DC - (AD, RD, AG)
Ripple: ≤10%	Off-State (Leakage) Current: ≤0.8 mA
Differential Travel (Hysteresis): 3-15% (5% typical)	Power-On Effect: Per IEC 947-5-2
Voltage Drop Across Conducting Sensor: Non-polarized (AD) <5.0 V	Transient Protection: Per EN 60947-5-2
	Shock: 30 g, 11 ms
Trigger Current for Short Circuit Protection: ≥120 mA	Vibration: 55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current: ≥3.0 mA	Repeatability: ≤2% of Rated Operating Distance

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## Weldguard | 18 mm

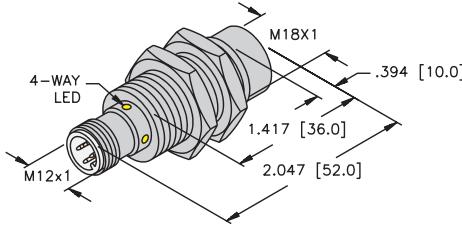
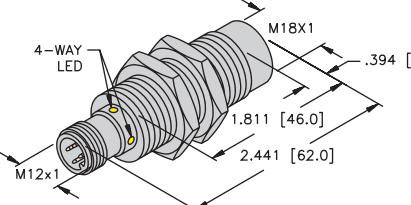
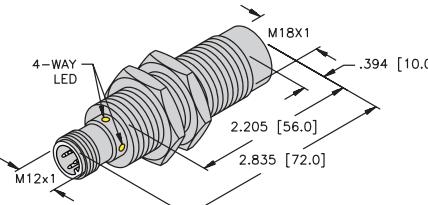
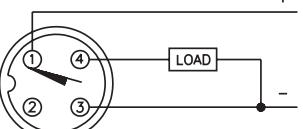
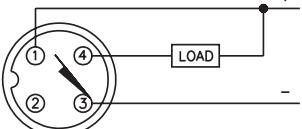
## Embeddable Threaded Metal Barrels 2-Wire DC Outputs

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
BI7-MT18-AD4X-H1144/S1589 4414576	PTFE	7	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	TC	WG	N/A	YE	--	A	2	A3
BI7-MT18E-AD4X-H1141/S1589 4414588	PTFE	7	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	TC	WG	N/A	YE	--	B	1	A3
BI7-MT18E-AD4X-H1144/S1589 4414599	PTFE	7	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	TC	WG	N/A	YE	--	B	2	A3
BI7-GT18K-AD4X-0.2-RS4.23T/S1589 4414592	PTFE, Short Barrel	7	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	TC	WG	N/A	YE	0.2M/PVC	C	2	A3
BI7-MT18E-AD4X-0.3-RS4.23T/S1589 4414589	PTFE	7	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	TC	WG	N/A	YE	0.3M/PVC	D	2	A3

"/S1589" = Weldguard coating added to sensor.

# Weldguard | 18 mm

## Nonembeddable Threaded Metal Barrels with Connector and DC Outputs

Housing Style	Dimension Drawings
	A  18 mm - Nonembeddable, M12 Eurofast Connection
	C  18 mm - Nonembeddable, Ext. Barrel Length M12 Eurofast Connection
Wiring Diagrams/Mating Cordsets	
1  Mating Cordset: RK 4T-*; RKV 4T-*	2  Mating Cordset: RK 4T-*; RKV 4T-*
<b>A2</b>	<b>3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)</b>
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
	Temperature Drift: ≤±10%
	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: ≤8 ms	

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## Weldguard | 18 mm

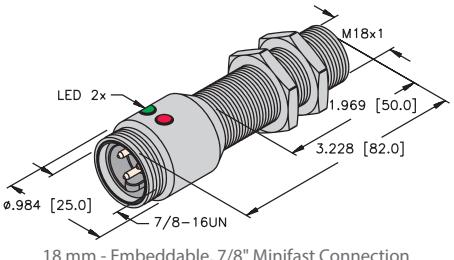
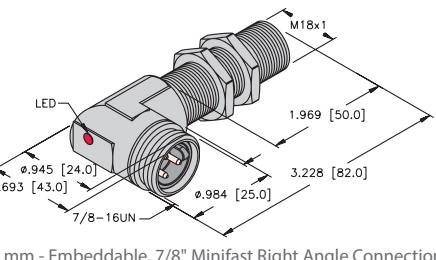
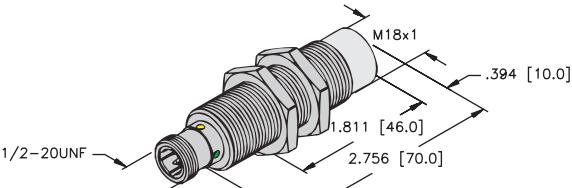
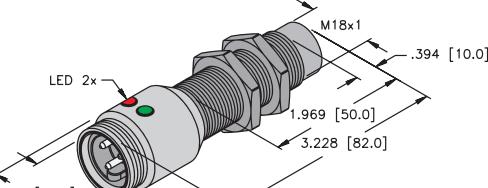
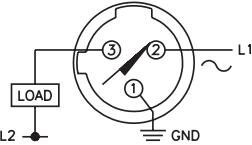
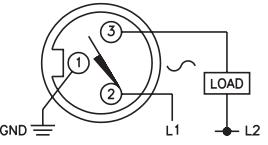
## Nonembeddable Threaded Metal Barrels with Connector and DC Outputs

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
NI15U-MT18-AP6X-H1141/S1589 16353331	Uprox+, PTFE	15	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP68	TC	WG	N/A	YE	A	1	A2	
NI15U-MT18-AN6X-H1141/S1589 16353370	Uprox+, PTFE	15	3-wire DC NPN	10-30 VDC	1500	≤200	-30 to +85	IP68	TC	WG	N/A	YE	A	2	A2	
NI15U-MT18M-AP6X2-H1141/S1589 16352920	Uprox+, PTFE	15	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP68	TC	WG	GN	YE	B	1	A2	
NI14-MT18E-AP6X-H1141/S1589 4611497	PTFE	14	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	TC	WG	N/A	YE	C	1	A2	
NI14-EM18E-AP6X-H1141/S1589 4611495		14	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	SS	WG	N/A	YE	C	1	A2	
NI12U-MT18-AP6X2-H1141/S395/S1589 1645291	Uprox, PTFE	12	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP67	TC	WG	GN	YE	B	1	A2	
NI12U-MT18-AP6X2-H1141/S1589 1645293	Uprox, PTFE	12	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP67	TC	WG	GN	YE	A	1	A2	
NI12U-MT18-AP6X-H1141/S1589 1645292	Uprox, PTFE	12	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP67	TC	WG	N/A	YE	A	1	A2	
NI12U-EM18-AP6X2-H1141/S395/S1589 1645491	Uprox	12	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	SS	WG	GN	YE	B	1	A2	
NI12U-EM18-AN6X2-H1141/S395/S1589 1645490	Uprox	12	3-wire DC NPN	10-30 VDC	2000	≤200	-30 to +85	IP68	SS	WG	GN	YE	B	2	A2	

"/S1589" = Weldguard coating added to sensor.

# Weldguard | 18 mm

## Threaded Metal Barrels with Connector and AC/DC Outputs

Housing Style	Dimension Drawings
	A  18 mm - Embeddable, 1/2" Microfast Connection
	C  18 mm - Embeddable, 7/8" Minifast Right Angle Connection
	E  18 mm - Nonembeddable 7/8" Minifast Connection
Wiring Diagrams/Mating Cordsets	
1 	2  Mating Cordset: RKM 30-*M

A4 2-wire AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)	
Line Frequency:	≥50... ≤60 Hz
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤6.0 V
Trigger Current for Short Circuit Protection:	AC: ≥440 mA; DC: ≥330 mA AC: ≥120 mA; DC: ≥120 mA
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA AC: ≤100 mA; DC: ≤100 mA
Off-State (leakage) Current:	≤1.7 mA (AC) ≤1.5 mA (DC)
Minimum Load Current:	≥3.0 mA
Inrush Current:	≤3 A (≤20 ms, max 5 Hz)
Power-On Effect:	Per IEC 947-5-2
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

## Weldguard | 18 mm

## Threaded Metal Barrels with Connector and AC/DC Outputs

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
BI5-GT18-ADZ30X2-B3331/S34/S1589 4255283	PTFE, WFI	5	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	TC	WG	GN	RD	A	1	A4
BI5-GT18-ADZ30X2-B1331/S34/S1589 4255284	PTFE, WFI	5	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	TC	WG	GN	RD	B	2	A4
BI5-GT18-ADZ30X2-B1431/S34/S1589 4255285	PTFE, WFI	5	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	TC	WG	GN	RD	C	2	A4
NI14-GT18-ADZ30X2-B3331/S1589 4205491	PTFE	14	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	TC	WG	GN	RD	D	1	A4
NI14-GT18-ADZ30X2-B1331/S1589 4205484	PTFE	14	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	TC	WG	GN	RD	E	2	A4
NI8-GT18-ADZ30X2-B3331/S34/S1589 4208891	PTFE, WFI	8	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	TC	WG	GN	RD	D	1	A4
NI8-GT18-ADZ30X2-B1331/S34/S1589 4208890	PTFE, WFI	8	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	TC	WG	GN	RD	E	2	A4

"/S1589" = Weldguard coating added to sensor.

# Weldguard | 30 mm

## Threaded Metal Barrels with Connector and DC Outputs

Housing Style	Dimension Drawings
	A  30 mm - Embeddable, M12 Eurofast Connection
 30 mm - Embeddable, M12 Eurofast Connection, Extended Barrel Length	C  30 mm - Embeddable, Potted-in Cable, Eurofast Quick Disconnect
 30 mm - Nonembeddable, M12 Eurofast Connection	
Wiring Diagrams/Mating Cordsets	
1  Mating Cordset: RK 4T-*; RKV 4T-*	2  Mating Cordset: RK 4T-*; RKV 4T-*
3  Mating Cordset: RK 4.2T-*	4  Mating Cordset: RK 4.23T-*

We reserve the right to make technical alterations without prior notice.

A2	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	Power-On Effect: Per IEC 947-5-2
No-Load Current: ≤15 mA (Ferrite, Uprox, Rectangular) ≤20 mA (Uprox+, Uprox 3)	Reverse Polarity Protection: Incorporated
Time Delay Before Availability: ≤8 ms	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
A3	2-wire DC - (AD, RD, AG)
Ripple: ≤10%	
Differential Travel (Hysteresis): 3-15% (5% typical)	
Voltage Drop Across Conducting Sensor: Non-polarized (AD) <5.0 V Polarized (AG) ≤4.2 V	
Trigger Current for Short Circuit Protection: ≥120 mA	Off-State (Leakage) Current: ≤0.8 mA
Minimum Load Current: ≥3.0 mA	Power-On Effect: Per IEC 947-5-2
	Transient Protection: Per EN 60947-5-2
	Shock: 30 g, 11 ms
	Vibration: 55 Hz, 1 mm Amplitude in all 3 Planes
	Repeatability: ≤2% of Rated Operating Distance

## Weldguard | 30 mm

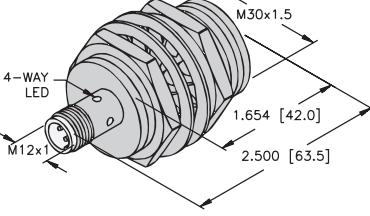
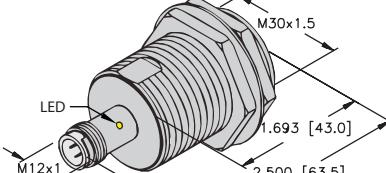
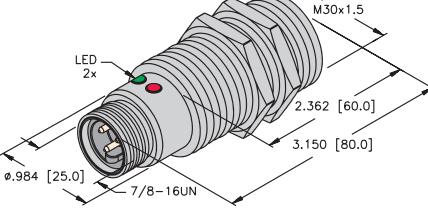
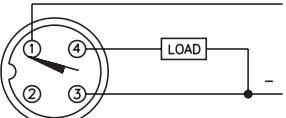
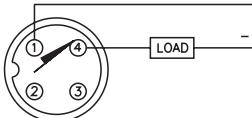
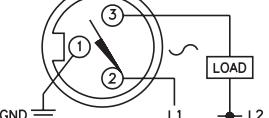
## Threaded Metal Barrels with Connector and DC Outputs

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
BI15U-MT30-AP6X-H1141/S1589 1636793	Uprox+, PTFE	15	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP68	TC	WG	N/A	YE	--	A	1	A2
BI15-EM30-AP6X-H1141/S1589 4618593		15	3-wire DC PNP	10-30 VDC	300	≤200	-25 to +70	IP67	SS	WG	N/A	YE	--	A	1	A2
BI15-EM30E-AP6X-H1141/S1589 4618587		15	3-wire DC PNP	10-30 VDC	300	≤200	-25 to +70	IP67	SS	WG	N/A	YE	--	B	1	A2
BI12-GT30-AD4X-0.3-RS4.2T/S1589 4417086	PTFE	12	2-wire DC	10-65 VDC	500	≤100	-25 to +70	IP67	TC	WG	N/A	YE	0.3M/PVC	C	3	A3
BI12-GT30-AD4X-0.3-RS4.23T/S1589 4417085	PTFE	12	2-wire DC	10-65 VDC	500	≤100	-25 to +70	IP67	TC	WG	N/A	YE	0.3M/PVC	C	4	A3
BI10U-MT30-AP6X2-H1141/S1589 1636291	Uprox, PTFE	10	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP67	TC	WG	GN	YE	--	A	1	A2
NI30U-MT30-AP6X2-H1141/S1589 16466351	Uprox+, PTFE	30	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP68	TC	WG	GN	YE	--	D	1	A2
NI20U-EM30-AP6X2-H1141/S1589 1646490	Uprox	20	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP68	SS	WG	GN	YE	--	D	1	A2
NI20U-EM30-AN6X2-H1141/S1589 1646191	Uprox	20	3-wire DC NPN	10-30 VDC	1500	≤200	-30 to +85	IP68	SS	WG	GN	YE	--	D	2	A2
NI20U-MT30-AP6X2-H1141/S1589 1646291	Uprox, PTFE	20	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP67	TC	WG	GN	YE	--	D	1	A2
NI20-MT30-AN6X-H1141/S1589 4670589	PTFE	20	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	TC	WG	N/A	YE	--	D	2	A2

"/S1589" = Weldguard coating added to sensor.

# Weldguard | 30 mm

## Embeddable Threaded Metal Barrels with Connector

Housing Style	Dimension Drawings	
	<p>A</p>  <p>30 mm - Embeddable, M12 Eurofast Connection, Stainless Steel</p>	
	<p>B</p> <p>30 mm - Embeddable, M12 Eurofast Connection, Stainless Steel</p>	
	<p>C</p>  <p>30 mm - Embeddable, 7/8" Minifast Connection</p>	
Wiring Diagrams/Mating Cordsets		
<p>1</p>  <p>Mating Cordset: RKV 4T-*</p>	<p>2</p>  <p>Mating Cordset: RK 4.23T-*</p>	
	<p>3</p>  <p>Mating Cordset: RKM 30-*M</p>	
A4	2-wire AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)	
<p>Line Frequency: <math>\geq 50 \dots \leq 60</math> Hz</p> <p>Differential Travel (Hysteresis): 3-15% (5% typical)</p> <p>Voltage Drop Across Conducting Sensor: <math>\leq 6.0</math> V</p> <p>Trigger Current for Short Circuit Protection: AC: <math>\geq 440</math> mA; DC: <math>\geq 330</math> mA AC: <math>\geq 120</math> mA; DC: <math>\geq 120</math> mA</p> <p>Continuous Load Current: AC: <math>\leq 400</math> mA; DC: <math>\leq 300</math> mA AC: <math>\leq 100</math> mA; DC: <math>\leq 100</math> mA</p> <p>Off-State (leakage) Current: <math>\leq 1.7</math> mA (AC) <math>\leq 1.5</math> mA (DC)</p>	<p>Minimum Load Current: <math>\geq 3.0</math> mA</p> <p>Inrush Current: <math>\leq 3</math> A (<math>\leq 20</math> ms, max 5 Hz)</p> <p>Power-On Effect: Per IEC 947-5-2</p> <p>Transient Protection: Per EN 60947-5-2</p> <p>Shock: 30 g, 11 ms</p> <p>Vibration: 55 Hz, 1 mm Amplitude, in all 3 Planes</p> <p>Repeatability: <math>\leq 2\%</math> of Rated Operating Distance</p>	
A5	2-wire DC Stainless Front Face (AG)	
<p>Ripple: <math>\leq 10\%</math></p> <p>Differential Travel (Hysteresis): 1-15% (5% typical)</p> <p>Voltage Drop Across Conducting Sensor: <math>\leq 3.5</math> V Polarized</p> <p>Trigger Current for Short Circuit Protection: <math>\geq 120</math> mA on 100 mA Load Current</p> <p>Minimum Load Current: <math>\geq 3.0</math> mA</p>	<p>Temperature Drift: <math>\leq \pm 20\%</math></p> <p>Off-State (Leakage) Current: <math>\leq 0.8</math> mA</p> <p>Shock: 30 g, 11 ms</p> <p>Vibration: 55 Hz, 1 mm Amplitude in all 3 Planes</p> <p>Repeatability: <math>\leq 2\%</math> of Rated Operating Distance</p>	
A7	3-wire DC Stainless Front Face Ext Range (AP, AN, RP, RN)	
<p>Ripple: <math>\leq 10\%</math></p> <p>Differential Travel (Hysteresis): 20%</p> <p>Voltage Drop Across Conducting Sensor: <math>\leq 2</math> V</p> <p>Trigger Current for Short Circuit Protection: <math>\geq 220</math> mA on 200 mA Load Current</p> <p>No-Load Current: <math>\leq 10</math> mA</p> <p>Off-State (Leakage) Current: <math>\leq 0.1</math> mA</p>	<p>Temperature Drift: <math>\leq \pm 10\%</math></p> <p>Reverse Polarity Protection: Incorporated</p> <p>Wire-Break Protection: Incorporated</p> <p>Shock: 30 g, 11 ms</p> <p>Vibration: 55 Hz, 1 mm Amplitude, in all 3 Planes</p> <p>Repeatability: <math>\leq 5\%</math> of Rated Operating Distance</p>	

We reserve the right to make technical alterations without prior notice.

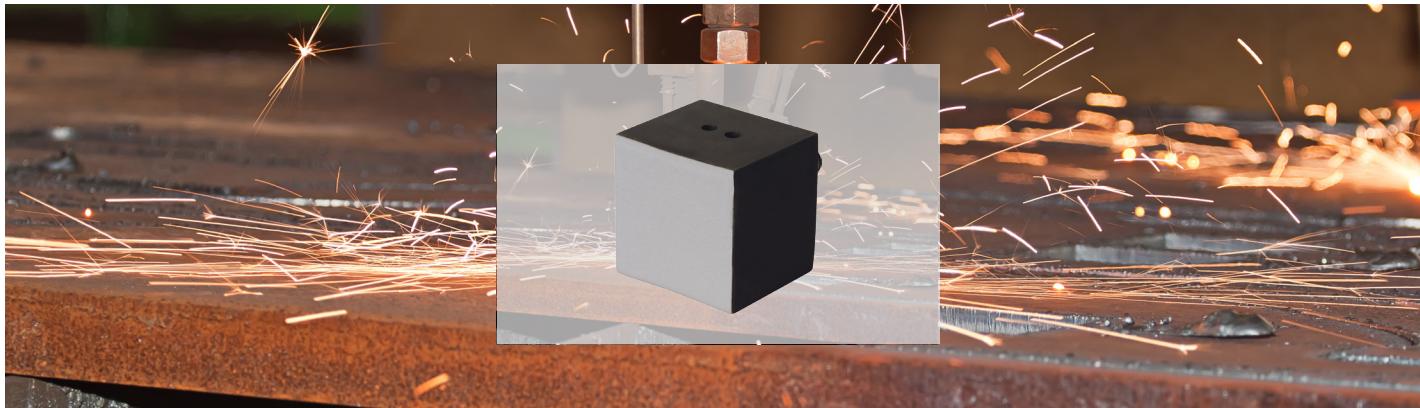
## Weldguard | 30 mm

## 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	Dimension Drawings	Wiring Diagrams	Spec List
BI20-EGT30F-AP6X-H1141/S1589 46147101	SSF, PTFE	20	3-wire DC PNP	10-30 VDC	100	≤200	-25 to +70	IP68/69K	TC	WG	N/A	YE	A	1	A7
BI10-EGT30F-AG6X-H1141/S1589 46146490	SSF, PTFE	10	2-wire DC	10-30 VDC	50	≤100	-25 to +70	IP68/69K	TC	WG	N/A	YE	B	2	A5
BI10-GT30-ADZ30X2-B1131/S34/S1589 4255280	PTFE, WFI	10	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10- 300 VDC	20	≤400/300	-25 to +70	IP67	TC	WG	GN	RD	C	3	A4

"/S1589" = Weldguard coating added to sensor.

## Notes



## armor guard®

Turck's Armorguard provides built-in durability that:

- Protects the sensor face from impact
- Includes Weldguard material on the sensing face to resist weld slag
- Extends the life of the sensor exponentially
- Available in 8, 12, 18 or 30 mm barrel diameters, as well as cube style sensors

- Protects against:



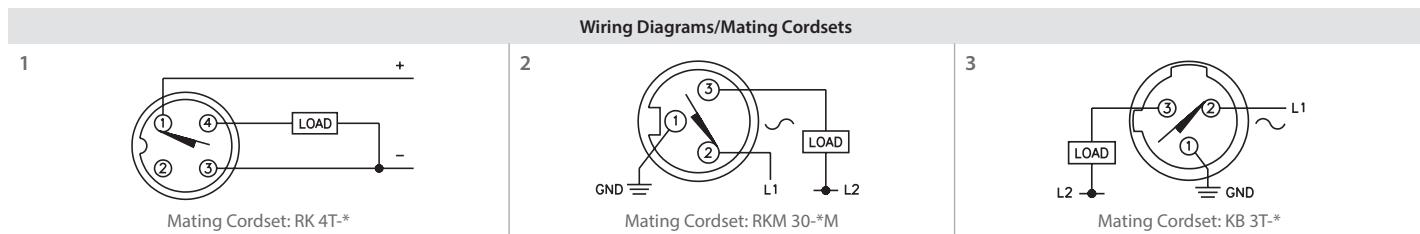
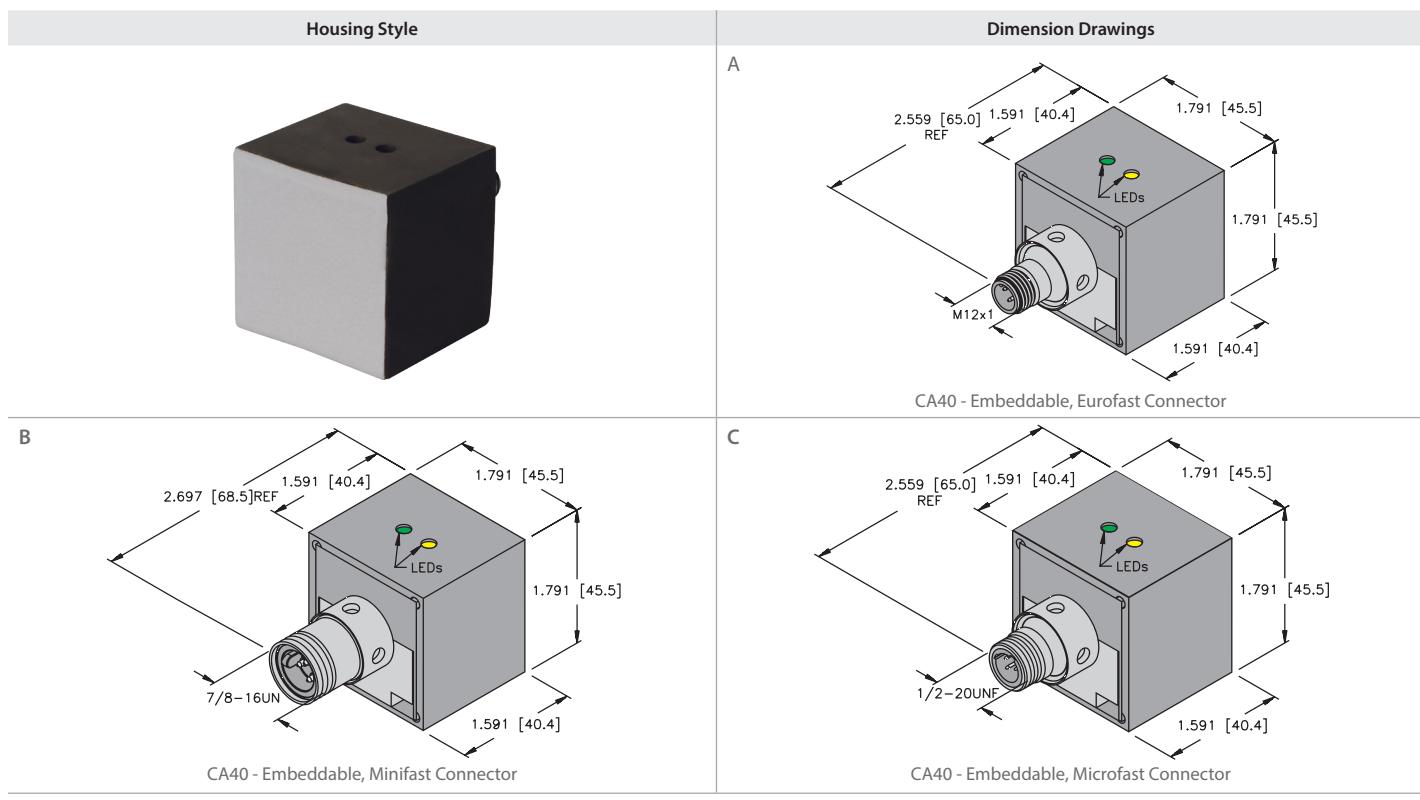
### Armorguard Accessories:

- See Accessories section on page 109

	Rectangular	Embeddable/Nonembeddable Metal Barrel			
Housing	40 mm	8 mm	12 mm	18 mm	30 mm
Sensing Range	20 mm	2 mm	3 - 4 mm	5 - 8 mm	15 mm
Pages	52	54	54	56	56

# Armorguard | CA40

## Rotatable Sensing Head with Metal Housing



A2	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

A3	2-wire DC - (AD, RD, AG)
Ripple: ≤10% Differential Travel (Hysteresis): 3-15% (5% typical) Voltage Drop Across Conducting Sensor: Non-polarized (AD) <5.0 V Polarized (AG) ≤4.2 V Trigger Current for Short Circuit Protection: ≥120 mA Minimum Load Current: ≥3.0 mA	Off-State (Leakage) Current: ≤0.8 mA Power-On Effect: Per IEC 947-5-2 Transient Protection: Per EN 60947-5-2 Shock: 30 g, 11 ms Vibration: 55 Hz, 1 mm Amplitude in all 3 Planes Repeatability: ≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

## Armorguard | CA40

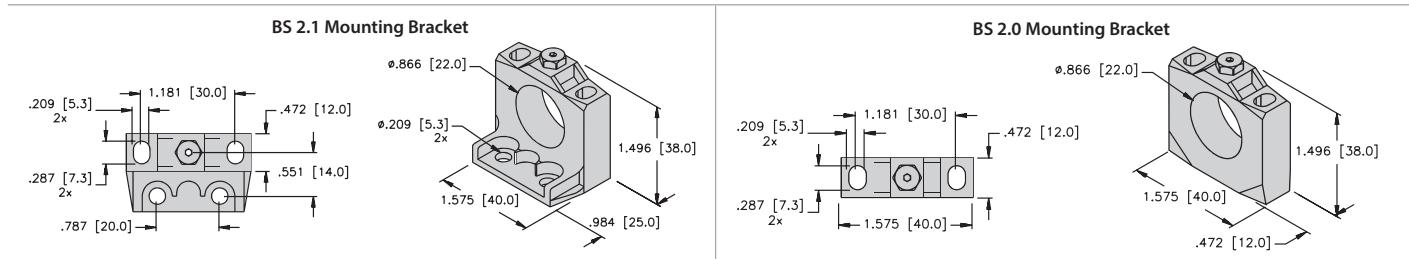
## Rotatable Sensing Head with Metal Housing

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
BI20U-CA40-AP6X2-H1141/S1591W/BS2.1 1627294	Uprox	20	3-wire DC PNP	10-30 VDC	250	≤200	0 to +70	IP67	AL	WG	GN	YE	A	1	A2
BI20U-CA40-AP6X2-H1141/S1591W/BS2.0 1627296	Uprox	20	3-wire DC PNP	10-30 VDC	250	≤200	0 to +70	IP67	AL	WG	GN	YE	A	1	A2
BI20-CA40-ADZ30X2-B1131/S34/S1591 W/BS21 4283595	WFI	20	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	300	≤400/300	-25 to +70	IP67	AL	WG	GN	YE	B	2	A3
BI20-CA40-ADZ30X2-B3131/S34/S1591 W/BS21 4283596	WFI	20	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	300	≤400/300	-25 to +70	IP67	AL	WG	GN	YE	C	3	A3

"/S1591" = Sensor encased in tool steel sleeve with Weldguard coating on face.

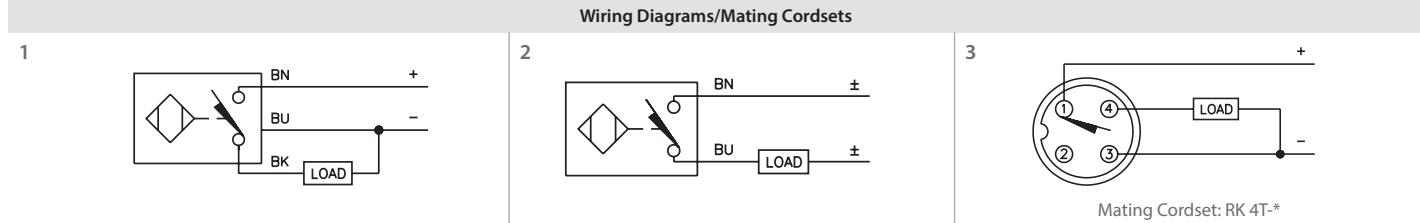
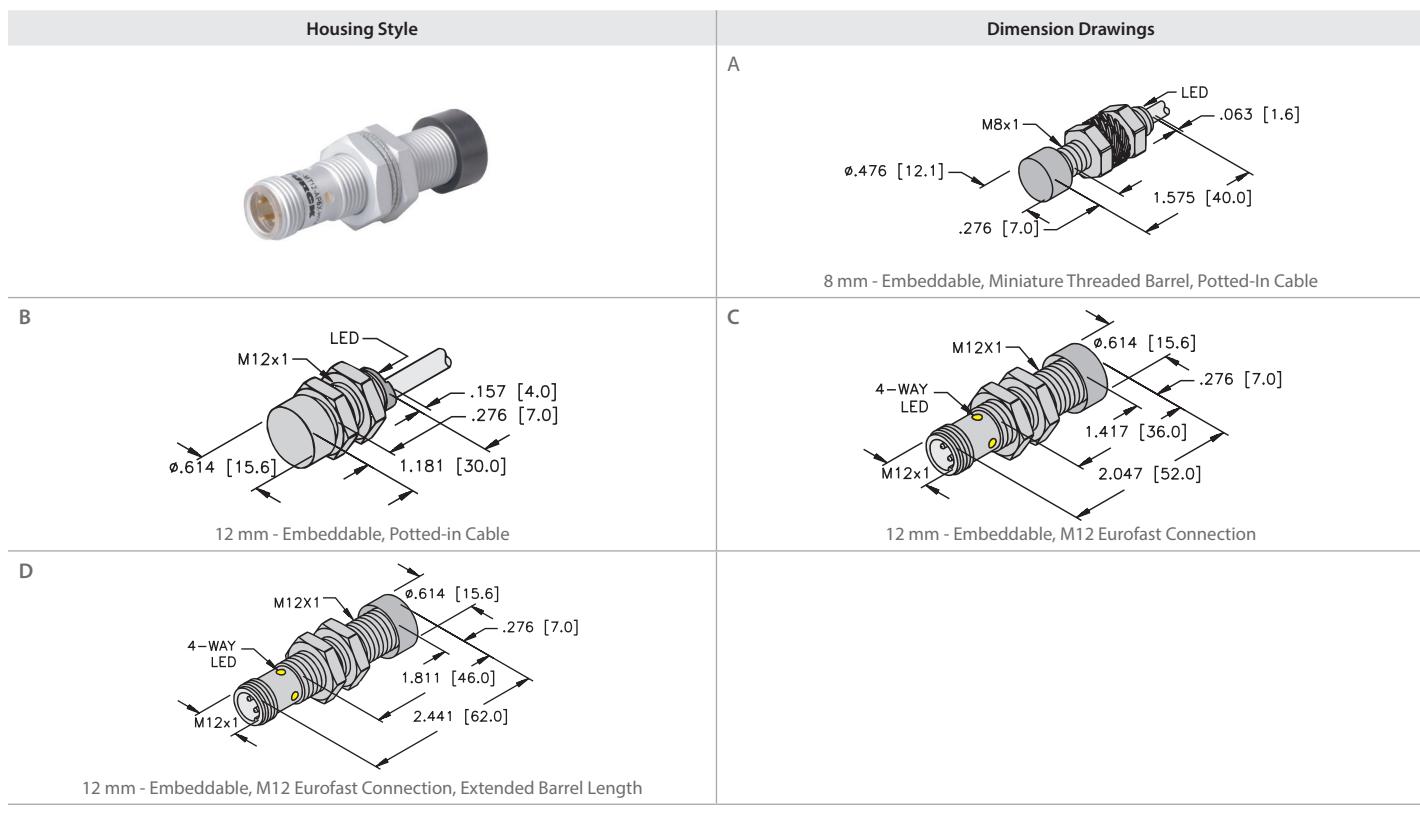
We reserve the right to make technical alterations without prior notice.

Armorguard



# Armorguard | 8 mm, 12 mm

## Embeddable Threaded Metal Barrels with DC Outputs



A2	3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)
<p>Ripple: ≤10%</p> <p>Differential Travel (Hysteresis): 3-15% (5% typical)</p> <p>Voltage Drop Across Conducting Sensor: ≤1.8 V</p> <p>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</p> <p>Off-State (Leakage) Current: ≤0.1 mA</p> <p>No-Load Current: ≤15 mA (Ferrite, Uprox, Rectangular) ≤20 mA (Uprox+, Uprox 3)</p> <p>Time Delay Before Availability: ≤8 ms</p>	<p>Power-On Effect: Per IEC 947-5-2</p> <p>Reverse Polarity Protection: Incorporated</p> <p>Wire-Break Protection: Incorporated</p> <p>Transient Protection: Per EN 60947-5-2</p> <p>Temperature Drift: ≤±10%</p> <p>Shock: 30 g, 11 ms</p> <p>Vibration: 55 Hz, 1 mm Amplitude in all 3 Planes</p> <p>Repeatability: ≤2% of Rated Operating Distance</p>

A3	2-wire DC - (AD, RD, AG)
<p>Ripple: ≤10%</p> <p>Differential Travel (Hysteresis): 3-15% (5% typical)</p> <p>Voltage Drop Across Conducting Sensor: Non-polarized (AD) &lt;5.0 V Polarized (AG) ≤4.2 V</p> <p>Trigger Current for Short Circuit Protection: ≥120 mA</p> <p>Minimum Load Current: ≥3.0 mA</p>	<p>Off-State (Leakage) Current: ≤0.8 mA</p> <p>Power-On Effect: Per IEC 947-5-2</p> <p>Transient Protection: Per EN 60947-5-2</p> <p>Shock: 30 g, 11 ms</p> <p>Vibration: 55 Hz, 1 mm Amplitude in all 3 Planes</p> <p>Repeatability: ≤2% of Rated Operating Distance</p>

We reserve the right to make technical alterations without prior notice.

## Armorguard | 8 mm, 12 mm

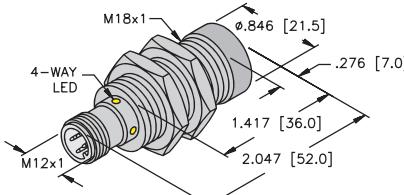
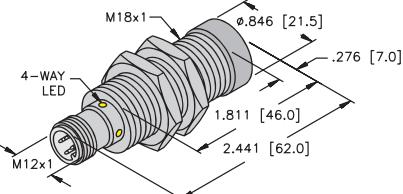
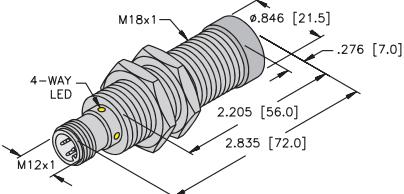
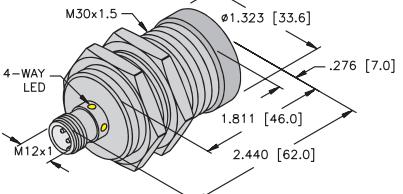
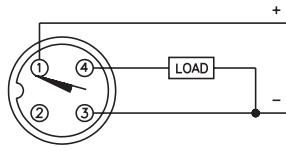
## Embeddable Threaded Metal Barrels with DC Outputs

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
BI2-EG08-AP6X/S1610 46020861		2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	WG	N/A	YE	A	1	A2
BI3-GT12K-AD4X/S1610 44050832	PTFE	3	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	TC	WG	N/A	YE	B	2	A3
BI4U-MT12-AP6X-H1141/S1610 16348092	Uprox+, PTFE	4	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	TC	WG	N/A	YE	C	3	A2
BI3U-MT12E-AP6X2-H1141/S1610 1634292	Uprox, PTFE	3	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP67	TC	WG	GN	YE	D	3	A2

"/S1610" = Sensor with 7 mm tool steel ring threaded onto the barrel, with Weldguard coating on sensing face.

# Armorguard | 18 mm, 30 mm

## Embeddable Threaded Metal Barrels with Connector and DC Outputs

Housing Style	Dimension Drawings																																
	 <p><b>18 mm - Embeddable, M12 Eurofast Connection</b></p>																																
B	 <p><b>18 mm - Embeddable, M12 Eurofast Connection</b></p>																																
C	 <p><b>18 mm - Embeddable, Ext. Barrel Length, M12 Eurofast Connection</b></p>																																
D	 <p><b>30 mm - Embeddable, M12 Eurofast Connection</b></p>																																
Wiring Diagrams/Mating Cordsets																																	
1	 <p>Mating Cordset: RK 4T-*; RKV 4T-*</p>																																
A2	<p><b>3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)</b></p> <table border="0"> <tbody> <tr> <td>Ripple:</td><td><math>\leq 10\%</math></td> <td>Power-On Effect:</td><td>Per IEC 947-5-2</td> </tr> <tr> <td>Differential Travel (Hysteresis):</td><td>3-15% (5% typical)</td> <td>Reverse Polarity Protection:</td><td>Incorporated</td> </tr> <tr> <td>Voltage Drop Across Conducting Sensor:</td><td><math>\leq 1.8\text{ V}</math></td> <td>Wire-Break Protection:</td><td>Incorporated</td> </tr> <tr> <td>Trigger Current for Short Circuit Protection:</td><td> <math>\geq 220\text{ mA}</math> on 200 mA Load Current  <math>\geq 170\text{ mA}</math> on 150 mA Load Current  <math>\geq 120\text{ mA}</math> on 100 mA Load Current         </td> <td>Transient Protection:</td><td>Per EN 60947-5-2</td> </tr> <tr> <td>Off-State (Leakage) Current:</td><td><math>\leq 0.1\text{ mA}</math></td> <td>Temperature Drift:</td><td><math>\leq \pm 10\%</math></td> </tr> <tr> <td>No-Load Current:</td><td> <math>\leq 15\text{ mA}</math> (Ferrite, Uprox, Rectangular)  <math>\leq 20\text{ mA}</math> (Uprox+, Uprox 3)         </td> <td>Shock:</td><td>30 g, 11 ms</td> </tr> <tr> <td>Time Delay Before Availability:</td><td><math>\leq 8\text{ ms}</math></td> <td>Vibration:</td><td>55 Hz, 1 mm Amplitude in all 3 Planes</td> </tr> <tr> <td></td><td></td> <td>Repeatability:</td><td><math>\leq 2\%</math> of Rated Operating Distance</td> </tr> </tbody> </table>	Ripple:	$\leq 10\%$	Power-On Effect:	Per IEC 947-5-2	Differential Travel (Hysteresis):	3-15% (5% typical)	Reverse Polarity Protection:	Incorporated	Voltage Drop Across Conducting Sensor:	$\leq 1.8\text{ V}$	Wire-Break Protection:	Incorporated	Trigger Current for Short Circuit Protection:	$\geq 220\text{ mA}$ on 200 mA Load Current $\geq 170\text{ mA}$ on 150 mA Load Current $\geq 120\text{ mA}$ on 100 mA Load Current	Transient Protection:	Per EN 60947-5-2	Off-State (Leakage) Current:	$\leq 0.1\text{ mA}$	Temperature Drift:	$\leq \pm 10\%$	No-Load Current:	$\leq 15\text{ mA}$ (Ferrite, Uprox, Rectangular) $\leq 20\text{ mA}$ (Uprox+, Uprox 3)	Shock:	30 g, 11 ms	Time Delay Before Availability:	$\leq 8\text{ ms}$	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes			Repeatability:	$\leq 2\%$ of Rated Operating Distance
Ripple:	$\leq 10\%$	Power-On Effect:	Per IEC 947-5-2																														
Differential Travel (Hysteresis):	3-15% (5% typical)	Reverse Polarity Protection:	Incorporated																														
Voltage Drop Across Conducting Sensor:	$\leq 1.8\text{ V}$	Wire-Break Protection:	Incorporated																														
Trigger Current for Short Circuit Protection:	$\geq 220\text{ mA}$ on 200 mA Load Current $\geq 170\text{ mA}$ on 150 mA Load Current $\geq 120\text{ mA}$ on 100 mA Load Current	Transient Protection:	Per EN 60947-5-2																														
Off-State (Leakage) Current:	$\leq 0.1\text{ mA}$	Temperature Drift:	$\leq \pm 10\%$																														
No-Load Current:	$\leq 15\text{ mA}$ (Ferrite, Uprox, Rectangular) $\leq 20\text{ mA}$ (Uprox+, Uprox 3)	Shock:	30 g, 11 ms																														
Time Delay Before Availability:	$\leq 8\text{ ms}$	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes																														
		Repeatability:	$\leq 2\%$ of Rated Operating Distance																														

We reserve the right to make technical alterations without prior notice.

## Armorguard | 18 mm, 30 mm

## Embeddable Threaded Metal Barrels with Connector and DC Outputs

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
BI8U-MT18-AP6X-H1141/S1610 16447302	Uprox+, PTFE	8	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP68	TC	WG	N/A	YE	B	1	A2
BI8U-MT18M-AP6X2-H1141/S1610 1644788	Uprox+, PTFE	8	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP68	TC	WG	GN	YE	A	1	A2
BI8-EM18E-AP6X-H1141/S1610 46150954		8	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	SS	WG	N/A	YE	C	1	A2
BI5U-EM18-AP6X2-H1141/S395/S1610 1635198	Uprox	5	3-wire DC PNP	10-30 VDC	2500	≤200	-30 to +85	IP67	SS	WG	N/A	YE	B	1	A2
BI5U-MT18-AP6X2-H1141/S395/S1610 1635293	Uprox, PTFE	5	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP67	TC	WG	GN	YE	B	1	A2
BI15-EM30-AP6X-H1141/S1610 4618589		15	3-wire DC PNP	10-30 VDC	300	≤200	-25 to +70	IP67	SS	WG	N/A	YE	D	1	A2

"/S1610" = Sensor with 7 mm tool steel ring threaded onto the barrel, with Weldguard coating on sensing face.

## Notes



## Stainless Steel Front Face

Turck's heavy-duty stainless steel construction:

- Protects the barrels and internal electronics from damage due to impact
- Protects the sensing face from damage due to abrasion
- Is available with PTFE or Weldguard coating for protection against weld slag
- Prevents oils and lubricants from seeping into the sensor
- Utilizes one-piece stainless steel housing
- Is offered in standard and extended sensing ranges

■ Protects against:



Impact



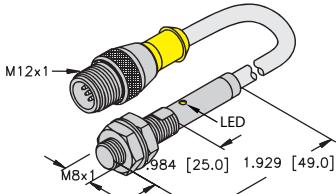
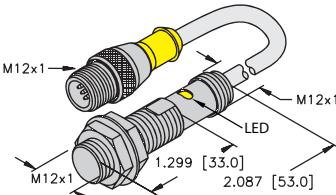
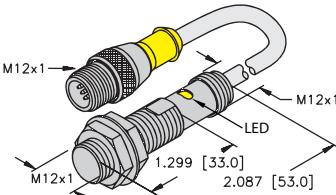
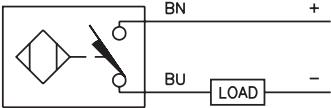
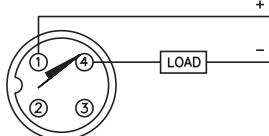
Abrasion



Resistance Welding

	Rectangular	Stainless Steel Front Face Barrel			
Housing	8 mm	8 mm	12 mm	18 mm	30 mm
Sensing Range	7 mm	1.5 - 3 mm	2 - 6 mm	5 - 10 mm	10 - 20 mm
Pages	64	60, 64	60, 66	62, 68	62, 68

## Stainless Steel Front Face | 8 mm, 12 mm Embeddable Threaded Metal Barrels with 2-Wire DC Outputs

Housing Style	Dimension Drawings
	<p>A</p> <p>8 mm - Embeddable, Stainless Steel Barrel, Potted-In Cable</p>
	<p>B</p> <p>8 mm - Embeddable, Stainless Steel Barrel, M12 Eurofast Quick Disconnect</p>
	<p>C</p> <p>12 mm - Embeddable, Stainless Steel Barrel, Potted-In Cable</p>
	<p>D</p> <p>12 mm - Embeddable, Stainless Steel Barrel, M12 Eurofast Quick Disconnect</p>
	<p>E</p> <p>12 mm - Embeddable, Stainless Steel Barrel, M12 Eurofast Connection</p>
Wiring Diagrams/Mating Cordsets	
1	
2	 <p>Mating Cordset: RKV 4.23T-*</p>
A5	2-wire DC Stainless Front Face (AG)
Ripple: ≤10%	Temperature Drift: ≤±20%
Differential Travel (Hysteresis): 1-15% (5% typical)	Off-State (Leakage) Current: ≤0.8 mA
Voltage Drop Across Conducting Sensor: ≤3.5 V Polarized	Shock: 30 g, 11 ms
Trigger Current for Short Circuit Protection: ≥120 mA on 100 mA Load Current	Vibration: 55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current: ≥3.0 mA	Repeatability: ≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

# Stainless Steel Front Face | 8 mm, 12 mm

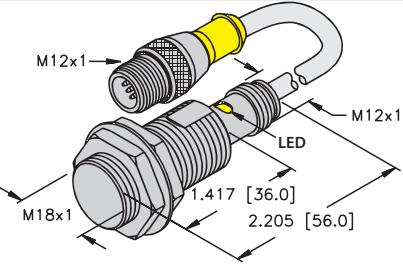
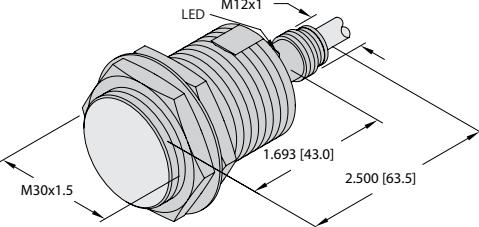
## Embeddable Threaded Metal Barrels with 2-Wire DC Outputs

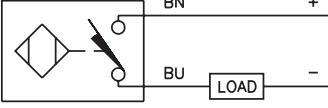
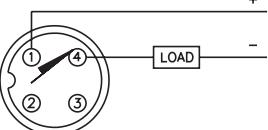
Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi1.5-EG08F-AG6X 4614628	SSF	1.5	2-wire DC	10-30 VDC	200	≤100	-25 to +70	IP68/69K	SS	SS	GN	RD	2M/PVC	A	1	A5
Bi1.5-EGT08F-AG6X 4614677	SSF, PTFE	1.5	2-wire DC	10-30 VDC	200	≤100	-25 to +70	IP68/69K	TC	SS	GN	RD	2M/PVC	A	1	A5
Bi1.5-EG08F-AG6X-0.3-RS4.23T 4614684	SSF	1.5	2-wire DC	10-30 VDC	200	≤100	-25 to +70	IP68/69K	SS	SS	GN	RD	0.3M/PVC	B	2	A5
Bi1.5-EGT08F-AG6X-0.2-RS4.23T 4614686	SSF, PTFE	1.5	2-wire DC	10-30 VDC	200	≤100	-25 to +70	IP68/69K	TC	SS	GN	RD	0.2M/PVC	B	2	A5
Bi2-EG08F-AG6X 4614664	SSF	2	2-wire DC	10-30 VDC	200	≤100	-25 to +70	IP67	SS	SS	N/A	RD	2M/PVC	A	1	A5
Bi2-EG12F-AG6X 4614634	SSF	2	2-wire DC	10-30 VDC	100	≤100	-25 to +70	IP68/69K	SS	SS	GN	RD	2M/PVC	C	1	A5
Bi2-EGT12F-AG6X 46146651	SSF, PTFE	2	2-wire DC	10-30 VDC	100	≤100	-25 to +70	IP68/69K	TC	SS	GN	RD	2M/PVC	C	1	A5
Bi2-EG12F-AG6X-0.3-RS4.23T 4614693	SSF	2	2-wire DC	10-30 VDC	100	≤100	-25 to +70	IP68/69K	SS	SS	GN	RD	0.3M/PVC	D	2	A5
Bi3-EG12F-AG6X 4614665	SSF	3	2-wire DC	10-30 VDC	80	≤100	-25 to +70	IP67	SS	SS	N/A	RD	2M/PVC	C	1	A5
Bi2-EG12F-AG6X-H1141 4614637	SSF	2	2-wire DC	10-30 VDC	100	≤100	-25 to +70	IP68/69K	SS	SS	GN	RD	--	E	2	A5
Bi2-EGT12F-AG6X-H1141 4614698	SSF, PTFE	2	2-wire DC	10-30 VDC	100	≤100	-25 to +70	IP68/69K	TC	SS	GN	RD	--	E	2	A5

We reserve the right to make technical alterations without prior notice.

Stainless Steel Front Face

**Stainless Steel Front Face | 18 mm, 30 mm  
Embeddable Threaded Metal Barrels with 2-Wire DC Outputs**

Housing Style	Dimension Drawings
	A 18 mm - Embeddable, Stainless Steel Barrel, Potted-In Cable
	C 18 mm - Embeddable, Stainless Steel Barrel, M12 Eurofast Connection
	D 30 mm - Embeddable, Stainless Steel Barrel, Potted-In Cable
	E 30 mm - Embeddable, M12 Eurofast Connection, Stainless Steel

Wiring Diagrams/Mating Cordsets	
1 	2 
	Mating Cordset: RKV 4T-*, RKV 4.23T-*

A5	2-wire DC Stainless Front Face (AG)
<p>Ripple: <math>\leq 10\%</math>            Differential Travel (Hysteresis): 1-15% (5% typical)            Voltage Drop Across Conducting Sensor: <math>\leq 3.5\text{ V}</math> Polarized            Trigger Current for Short Circuit Protection: <math>\geq 120\text{ mA}</math> on 100 mA Load Current            Minimum Load Current: <math>\geq 3.0\text{ mA}</math></p>	<p>Temperature Drift: <math>\leq \pm 20\%</math>            Off-State (Leakage) Current: <math>\leq 0.8\text{ mA}</math>            Shock: 30 g, 11 ms            Vibration: 55 Hz, 1 mm Amplitude in all 3 Planes            Repeatability: <math>\leq 2\%</math> of Rated Operating Distance</p>

We reserve the right to make technical alterations without prior notice.

## Stainless Steel Front Face | 18 mm, 30 mm Embeddable Threaded Metal Barrels with 2-Wire DC Outputs

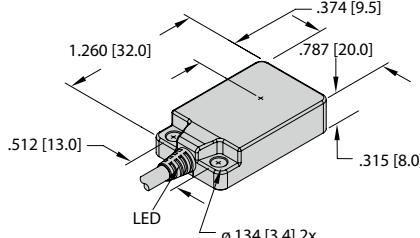
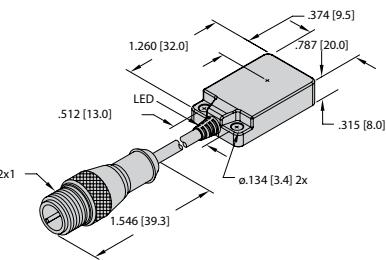
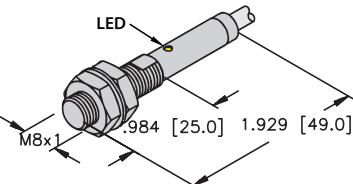
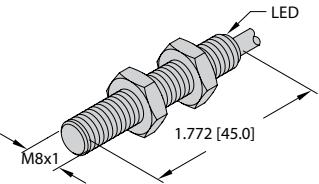
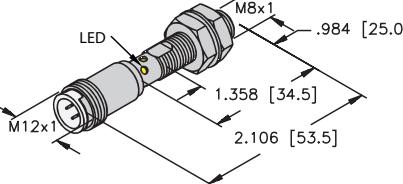
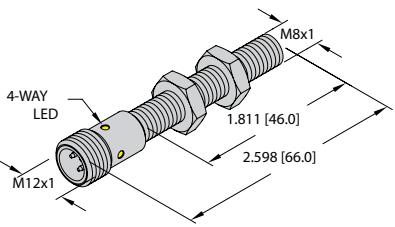
Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi5-EG18F-AG6X 4614640	SSF	5	2-wire DC	10-30 VDC	100	≤100	-25 to +70	IP68/69K	SS	SS	GN	RD	2M/PVC	A	1	A5
Bi5-EGT18F-AG6X 46146400	SSF, PTFE	5	2-wire DC	10-30 VDC	100	≤100	-25 to +70	IP68/69K	TC	SS	GN	RD	2M/PVC	A	1	A5
Bi5-EG18F-AG6X-0.3-RS4.23T 4614694	SSF	5	2-wire DC	10-30 VDC	100	≤100	-25 to +70	IP68/69K	SS	SS	GN	RD	0.3M/PVC	B	2	A5
Bi7-EG18F-AG6X 4614666	SSF	7	2-wire DC	10-30 VDC	100	≤100	-25 to +70	IP67	SS	SS	N/A	RD	2M/PVC	A	1	A5
Bi5-EG18F-AG6X-H1141 4614643	SSF	5	2-wire DC	10-30 VDC	100	≤100	-25 to +70	IP68/69K	SS	SS	GN	RD	--	C	2	A5
Bi12-EG30F-AG6X 4614667	SSF	12	2-wire DC	10-30 VDC	50	≤100	-25 to +70	IP67	SS	SS	N/A	RD	2M/PVC	D	1	A5
Bi10-EG30F-AG6X-H1141 4614649	SSF	10	2-wire DC	10-30 VDC	50	≤100	-25 to +70	IP68/69K	SS	SS	GN	RD	--	E	2	A5

We reserve the right to make technical alterations without prior notice.

Stainless Steel Front Face

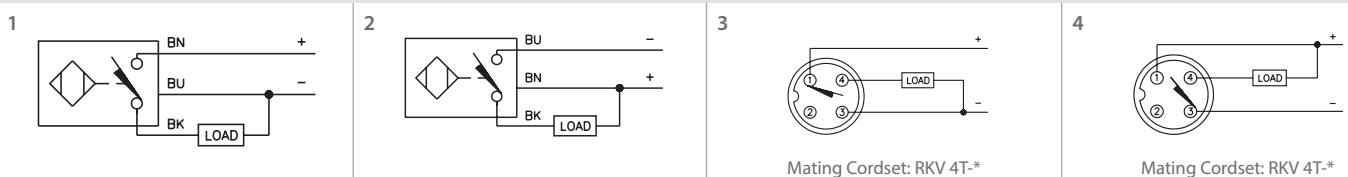
## Stainless Steel Front Face | 8 mm

### Embeddable Rectangular and Threaded Metal Barrels with 3-Wire DC Outputs

Housing Style	Dimension Drawings	
	A  8 mm - Embeddable, Stainless Steel, Potted-In Cable	B  8 mm - Embeddable, Stainless Steel, M12 Eurofast Quick Disconnect
 8 mm - Embeddable, Stainless Steel Barrel, Potted-In Cable	D  8 mm - Embeddable, Stainless Steel Barrel, Potted-In Cable	E  8 mm - Embeddable, Stainless Steel Barrel, M12 Eurofast Connection
 8 mm - Embeddable, Stainless Steel Barrel, M12 Eurofast Connection		

We reserve the right to make technical alterations without prior notice.

### Wiring Diagrams/Mating Cordsets



A6	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

A7	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

## Stainless Steel Front Face | 8 mm

## Embeddable Rectangular and Threaded Metal Barrels with 3-Wire DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi7-Q08F-AN6X 1608914	SSF	7	3-wire DC NPN	10-30 VDC	200	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	2M/TPU	A	2	A7
Bi7-Q08F-AP6X 1608916	SSF	7	3-wire DC PNP	10-30 VDC	200	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	2M/TPU	A	1	A7
Bi7-Q08F-AP6X-0.2-RS4T 16089160	SSF	7	3-wire DC PNP	10-30 VDC	200	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	0.2M/TPU	B	3	A7
Bi1.5-EG08F-AN6X 4614627	SSF	1.5	3-wire DC NPN	10-30 VDC	200	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	2M/PVC	C	2	A6
Bi3-EG08FE-AN6X 4614712	SSF	3	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	SS	SS	N/A	YE	2M/TPU	D	2	A7
Bi1.5-EG08F-AP6X 4614626	SSF	1.5	3-wire DC PNP	10-30 VDC	200	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	2M/PVC	C	1	A6
Bi1.5-EGT08F-AP6X 4614678	SSF, PTFE	1.5	3-wire DC PNP	10-30 VDC	200	≤200	-25 to +70	IP68/69K	TC	SS	N/A	YE	2M/PVC	C	1	A6
Bi3-EG08FE-AP6X 4614704	SSF	3	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	SS	SS	N/A	YE	2M/TPU	D	1	A7
Bi3-EGT08FE-AP6X 46147043	SSF, PTFE	3	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	TC	SS	N/A	YE	2M/TPU	D	1	A7
Bi1.5-EG08F-AN6X-H1341 4614630	SSF	1.5	3-wire DC NPN	10-30 VDC	200	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	--	E	4	A6
Bi3-EG08FE-AN6X-H1341 4614711	SSF	3	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	SS	SS	N/A	YE	--	F	4	A7
Bi1.5-EG08F-AP6X-H1341 4614629	SSF	1.5	3-wire DC PNP	10-30 VDC	200	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	--	E	3	A6
Bi3-EG08FE-AP6X-H1341 4614703	SSF	3	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	SS	SS	N/A	YE	--	F	3	A7
Bi3-EGT08FE-AP6X-H1341 46147030	SSF,PTFE	3	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	TC	SS	N/A	YE	--	F	3	A7

We reserve the right to make technical alterations without prior notice.

Stainless Steel Front Face

## Stainless Steel Front Face | 12 mm

### Embeddable Threaded Metal Barrels with 3-Wire DC Outputs

Housing Style	Dimension Drawings
	A 
	C 
Wiring Diagrams/Mating Cordsets	
1 	2 
3 	4 
<b>A6</b> <b>3-wire DC Stainless Front Face (AP, AN, RP, RN)</b>	
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 No-Load Current: ≤15 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: ≤2% of Rated Operating Distance
<b>A7</b> <b>3-wire DC Stainless Front Face Ext Range (AP, AN, RP, RN)</b>	
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

We reserve the right to make technical alterations without prior notice.

## Stainless Steel Front Face | 12 mm

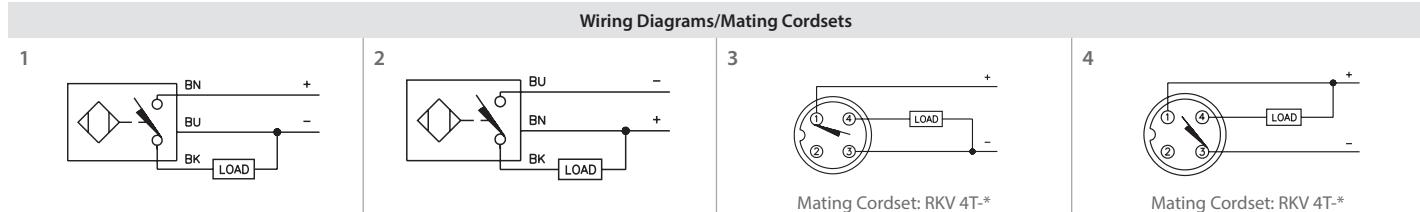
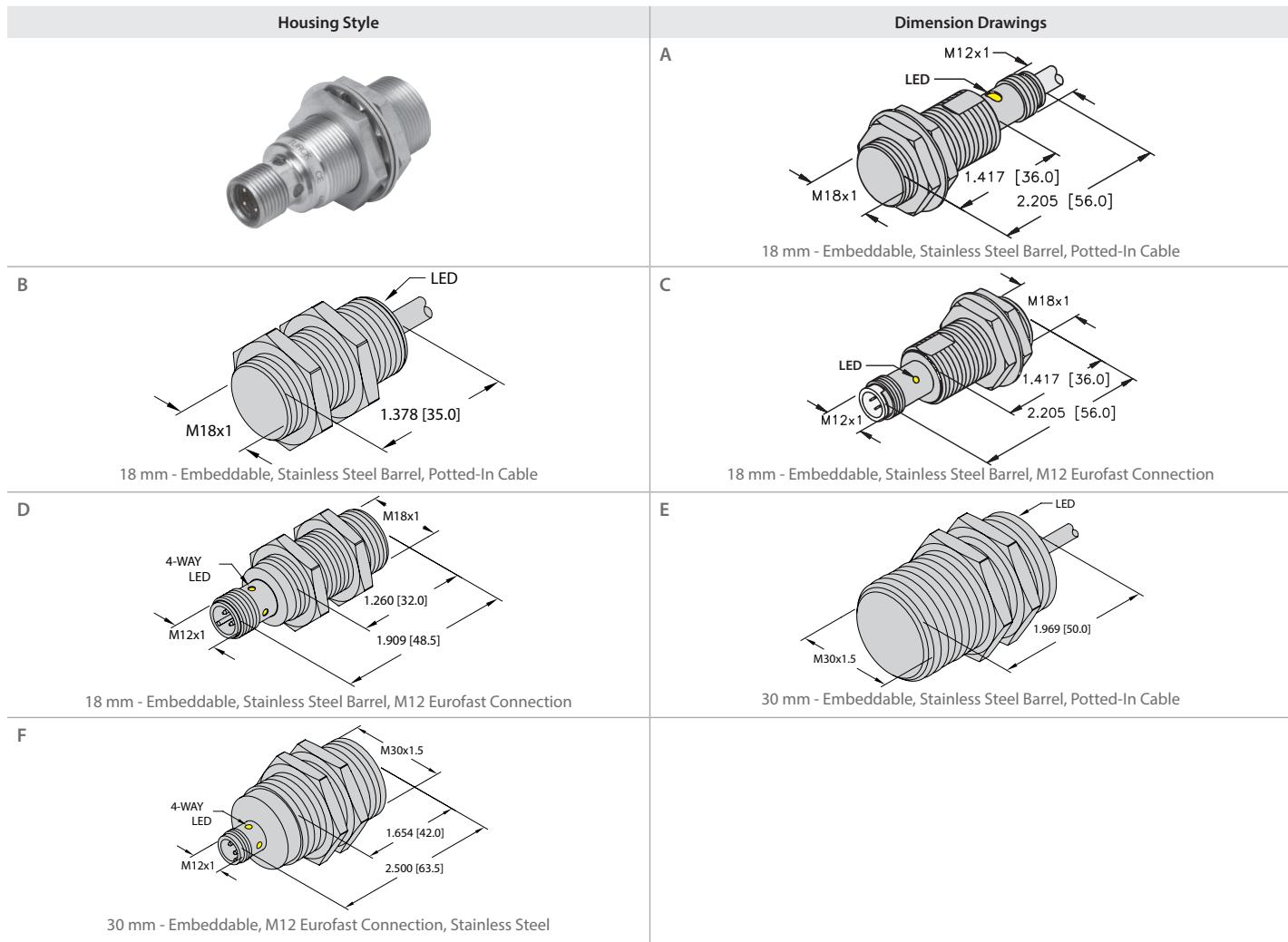
## Embeddable Threaded Metal Barrels with 3-Wire DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi2-EG12F-AN6X 4614633	SSF	2	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	2M/TPU	A	2	A6
Bi6-EG12FE-AN6X 4614721	SSF	6	3-wire DC NPN	10-30 VDC	600	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	2M/TPU	B	2	A7
Bi2-EG12F-AP6X 4614632	SSF	2	3-wire DC PNP	10-30 VDC	100	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	0.2M/TPU	A	1	A6
Bi6-EG12FE-AP6X 4614720	SSF	6	3-wire DC PNP	10-30 VDC	600	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	2M/PVC	B	1	A7
Bi2-EG12F-AN6X-H1141 4614636	SSF	2	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	2M/TPU	C	4	A6
Bi6-EG12FE-AN6X-H1141 4614714	SSF	6	3-wire DC NPN	10-30 VDC	600	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	2M/PVC	D	4	A7
Bi6-EGT12FE-AN6X-H1141 46147140	SSF, PTFE	6	3-wire DC NPN	10-30 VDC	600	≤200	-25 to +70	IP68/69K	TC	SS	N/A	YE	2M/PVC	D	4	A7
Bi2-EG12F-AP6X-H1141 4614635	SSF	2	3-wire DC PNP	10-30 VDC	100	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	2M/TPU	C	3	A6
Bi2-EGT12F-AP6X-H1141 46146971	SSF, PTFE	2	3-wire DC PNP	10-30 VDC	100	≤200	-25 to +70	IP68/69K	TC	SS	N/A	YE	2M/TPU	C	3	A6
Bi6-EG12FE-AP6X-H1141 4614706	SSF	6	3-wire DC PNP	10-30 VDC	600	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	--	D	3	A7
Bi6-EGT12FE-AP6X-H1141 46147060	SSF, PTFE	6	3-wire DC PNP	10-30 VDC	600	≤200	-25 to +70	IP68/69K	TC	SS	N/A	YE	--	D	3	A7

We reserve the right to make technical alterations without prior notice.

Stainless Steel Front Face

## Stainless Steel Front Face | 18 mm, 30 mm Embeddable Threaded Metal Barrels with 3-Wire DC Outputs



<b>A6</b>		<b>3-wire DC Stainless Front Face (AP, AN, RP, RN)</b>	
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
<b>A7</b>		<b>3-wire DC Stainless Front Face Ext Range (AP, AN, RP, RN)</b>	
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

We reserve the right to make technical alterations without prior notice.

## Stainless Steel Front Face | 18 mm, 30 mm Embeddable Threaded Metal Barrels with 3-Wire DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi5-EG18F-AN6X 4614639	SSF	5	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	2M/PVC	A	2	A6
Bi10-EG18F-AN6X 4614723	SSF	10	3-wire DC NPN	10-30 VDC	200	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	2M/PVC	B	2	A7
Bi10-EG18F-AP6X 4614722	SSF	10	3-wire DC PNP	10-30 VDC	200	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	2M/PVC	B	1	A7
Bi5-EG18F-AN6X-H1141 4614642	SSF	5	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	--	C	4	A6
Bi5-EGT18F-AN6X-H1141 4614672	SSF, PTFE	5	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP68/69K	TC	SS	N/A	YE	--	C	4	A6
Bi10-EG18F-AN6X-H1141 4614716	SSF	10	3-wire DC NPN	10-30 VDC	200	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	--	D	4	A7
Bi5-EG18F-AP6X-H1141 4614641	SSF	5	3-wire DC PNP	10-30 VDC	100	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	--	C	3	A6
Bi5-EGT18F-AP6X-H1141 4614675	SSF, PTFE	5	3-wire DC PNP	10-30 VDC	100	≤200	-25 to +70	IP68/69K	TC	SS	N/A	YE	--	C	3	A6
Bi10-EG18F-AP6X-H1141 4614708	SSF	10	3-wire DC PNP	10-30 VDC	200	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	--	D	3	A7
Bi10-EGT18F-AP6X-H1141 46147080	SSF, PTFE	10	3-wire DC PNP	10-30 VDC	200	≤200	-25 to +70	IP68/69K	TC	SS	N/A	YE	--	D	3	A7
Bi20-EG30F-AP6X 4614724	SSF	20	3-wire DC PNP	10-30 VDC	100	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	2M/PVC	E	1	A7
Bi20-EG30F-AP6X-H1141 4614710	SSF	20	3-wire DC PNP	10-30 VDC	100	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	--	F	3	A7
Bi20-EGT30F-AP6X-H1141 46147100	SSF, PTFE	20	3-wire DC PNP	10-30 VDC	100	≤200	-25 to +70	IP68/69K	TC	SS	N/A	YE	--	F	3	A7

We reserve the right to make technical alterations without prior notice.

## Notes



## stone face®

Turck's Stoneface sensors use a glass filled thermoset plastic material on the sensing face that:

- Protects the sensing face from abrasion
- Is resistant to weld slag buildup that is often a result of MIG/TIG welding
- Is available with PTFE coated barrels to shed weld slag

■ Protects against:



Impact



MIG/TIG Weld



Abrasion

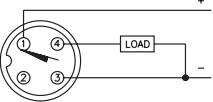
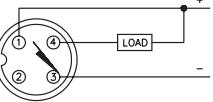
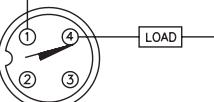
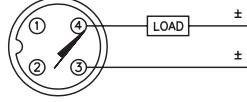
### Embeddable Metal Barrel



Housing	12 mm	18 mm	30 mm
Sensing Range	2 - 4 mm	5 - 8 mm	10 - 15 mm
Pages	72, 78	74, 78	76 - 78

# Stoneface | 12 mm

## Embeddable Threaded Metal Barrels with Cable and DC Outputs

Housing Style		Dimension Drawings																																											
	<b>A</b>  12 mm - Embeddable, M12 Eurofast Connection																																												
<b>B</b>  12 mm - Embeddable, M12 Eurofast Connection, Extended Barrel Length																																													
Wiring Diagrams/Mating Cordsets																																													
<b>1</b>  Mating Cordset: RK 4T-*; RKV 4T-*	<b>2</b>  Mating Cordset: RK 4T-*; RKV 4T-*	<b>3</b>  Mating Cordset: RK 4.23T-*  <b>4</b>  Mating Cordset: RK 4.2T-*																																											
<b>A2</b> <table border="0"> <tr> <td>Ripple:</td><td><math>\leq 10\%</math></td> <td>Power-On Effect:</td><td>Per IEC 947-5-2</td> </tr> <tr> <td>Differential Travel (Hysteresis):</td><td>3-15% (5% typical)</td> <td>Reverse Polarity Protection:</td><td>Incorporated</td> </tr> <tr> <td>Voltage Drop Across Conducting Sensor:</td><td><math>\leq 1.8\text{ V}</math></td> <td>Wire-Break Protection:</td><td>Incorporated</td> </tr> <tr> <td>Trigger Current for Short Circuit Protection:</td><td> <math>\geq 220\text{ mA}</math> on 200 mA Load Current  <math>\geq 170\text{ mA}</math> on 150 mA Load Current  <math>\geq 120\text{ mA}</math> on 100 mA Load Current           </td> <td>Transient Protection:</td><td>Per EN 60947-5-2</td> </tr> <tr> <td>Off-State (Leakage) Current:</td><td><math>\leq 0.1\text{ mA}</math></td> <td>Temperature Drift:</td><td><math>\leq \pm 10\%</math></td> </tr> <tr> <td>No-Load Current:</td><td> <math>\leq 15\text{ mA}</math> (Ferrite, Uprox, Rectangular)  <math>\leq 20\text{ mA}</math> (Uprox+, Uprox 3)           </td> <td>Shock:</td><td>30 g, 11 ms</td> </tr> <tr> <td>Time Delay Before Availability:</td><td><math>\leq 8\text{ ms}</math></td> <td>Vibration:</td><td>55 Hz, 1 mm Amplitude in all 3 Planes</td> </tr> </table>	Ripple:	$\leq 10\%$	Power-On Effect:	Per IEC 947-5-2	Differential Travel (Hysteresis):	3-15% (5% typical)	Reverse Polarity Protection:	Incorporated	Voltage Drop Across Conducting Sensor:	$\leq 1.8\text{ V}$	Wire-Break Protection:	Incorporated	Trigger Current for Short Circuit Protection:	$\geq 220\text{ mA}$ on 200 mA Load Current $\geq 170\text{ mA}$ on 150 mA Load Current $\geq 120\text{ mA}$ on 100 mA Load Current	Transient Protection:	Per EN 60947-5-2	Off-State (Leakage) Current:	$\leq 0.1\text{ mA}$	Temperature Drift:	$\leq \pm 10\%$	No-Load Current:	$\leq 15\text{ mA}$ (Ferrite, Uprox, Rectangular) $\leq 20\text{ mA}$ (Uprox+, Uprox 3)	Shock:	30 g, 11 ms	Time Delay Before Availability:	$\leq 8\text{ ms}$	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes	<b>3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)</b> <table border="0"> <tr> <td>Power-On Effect:</td><td>Per IEC 947-5-2</td> </tr> <tr> <td>Reverse Polarity Protection:</td><td>Incorporated</td> </tr> <tr> <td>Wire-Break Protection:</td><td>Incorporated</td> </tr> <tr> <td>Transient Protection:</td><td>Per EN 60947-5-2</td> </tr> <tr> <td>Temperature Drift:</td><td><math>\leq \pm 10\%</math></td> </tr> <tr> <td>Shock:</td><td>30 g, 11 ms</td> </tr> <tr> <td>Vibration:</td><td>55 Hz, 1 mm Amplitude in all 3 Planes</td> </tr> <tr> <td>Repeatability:</td><td><math>\leq 2\%</math> of Rated Operating Distance</td> </tr> </table>	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:	$\leq \pm 10\%$	Shock:	30 g, 11 ms	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes	Repeatability:	$\leq 2\%$ of Rated Operating Distance
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We reserve the right to make technical alterations without prior notice.

## Stoneface | 12 mm

## Embeddable Threaded Metal Barrels with Cable and DC Outputs

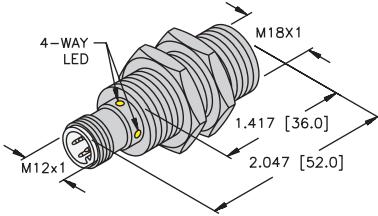
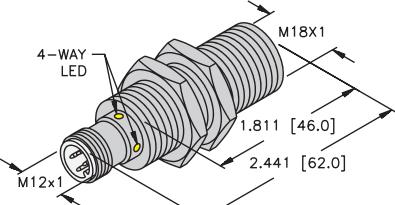
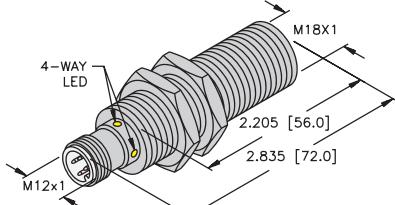
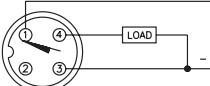
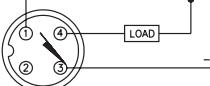
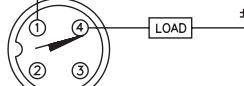
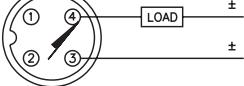
Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
BI4-MT12H-AN6X-H1141 4607194	PTFE	4	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	TC	SF	N/A	YE	A	2	A2
BI4-MT12H-AP6X-H1141 4607093	PTFE	4	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	TC	SF	N/A	YE	A	1	A2
BI4-MT12HE-AN6X-H1141 4607197	PTFE	4	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	TC	SF	N/A	YE	B	2	A2
BI4-MT12HE-AP6X-H1141 4608093	PTFE	4	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	TC	SF	N/A	YE	B	1	A2
BI3U-EM12H-AP6X-H1141 1634312	Uprox	3	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP67	SS	SF	N/A	YE	A	1	A2
BI3U-EM12HE-AN6X2-H1141 1634311	Uprox	3	3-wire DC NPN	10-30 VDC	2000	≤200	-30 to +85	IP67	SS	SF	GN	YE	B	2	A2
BI3U-EM12HE-AP6X2-H1141 1634310	Uprox	3	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP67	SS	SF	GN	YE	B	1	A2
BI3U-MT12H-AP6X-H1141 1634212	Uprox, PTFE	3	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP67	TC	SF	N/A	YE	A	1	A2
BI3U-MT12HE-AN6X2-H1141 1634230	Uprox, PTFE	3	3-wire DC NPN	10-30 VDC	2000	≤200	-30 to +85	IP67	TC	SF	GN	YE	B	2	A2
BI3U-MT12HE-AP6X2-H1141 1634220	Uprox, PTFE	3	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP67	TC	SF	GN	YE	B	1	A2
BI3-MT12H-AD4X-H1144 44050983	PTFE	3	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	TC	SF	N/A	YE	A	3	A3
BI3-MT12HE-AD4X-H1141 4405088	PTFE	3	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	TC	SF	N/A	YE	B	4	A3

We reserve the right to make technical alterations without prior notice.

Stoneface

# Stoneface | 18 mm

## Embeddable Threaded Metal Barrels with Cable and DC Outputs

Housing Style		Dimension Drawings	
		<b>A</b>  18 mm - Embeddable, M12 Eurofast Connection	
<b>B</b>  18 mm - Embeddable, M12 Eurofast Connection		<b>C</b>  18 mm - Embeddable, Ext. Barrel Length, M12 Eurofast Connection	
<b>Wiring Diagrams/Mating Cordsets</b>			
<b>1</b>  Mating Cordset: RK 4T-*; RKV 4T-*	<b>2</b>  Mating Cordset: RKV 4T-*	<b>3</b>  Mating Cordset: RK 4.23T-*	<b>4</b>  Mating Cordset: RK 4.2T-*
<b>A2</b>	<b>3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)</b>		
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		
<b>A3</b>	<b>2-wire DC - (AD, RD, AG)</b>		
Ripple: ≤10% Differential Travel (Hysteresis): 3-15% (5% typical) Voltage Drop Across Conducting Sensor: Non-polarized (AD) <5.0 V Polarized (AG) ≤4.2 V Trigger Current for Short Circuit Protection: ≥120 mA Minimum Load Current: ≥3.0 mA	Off-State (Leakage) Current: ≤0.8 mA Power-On Effect: Per IEC 947-5-2 Transient Protection: Per EN 60947-5-2 Shock: 30 g, 11 ms Vibration: 55 Hz, 1 mm Amplitude in all 3 Planes Repeatability: ≤2% of Rated Operating Distance		

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## Stoneface | 18 mm

## Embeddable Threaded Metal Barrels with Cable and DC Outputs

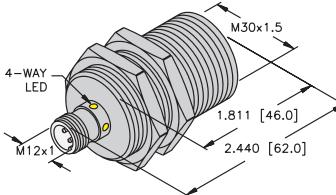
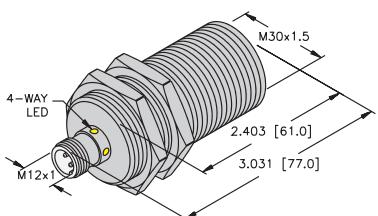
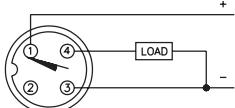
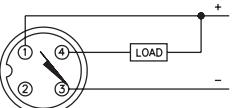
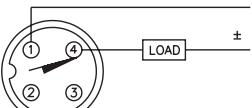
Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
BI8-EM18H-AP6X-H1141 4615094		8	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	SS	SF	N/A	YE	A	1	A2
BI8-EMT18H-AP6X-H1141 46150941	PTFE	8	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	TC	SF	N/A	YE	A	1	A2
BI8-EM18HE-AN6X-H1141 4615194		8	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	SS	SF	N/A	YE	C	2	A2
BI8-EM18HE-AP6X-H1141 4614100		8	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	SS	SF	N/A	YE	C	1	A2
BI8-EMT18HE-AP6X-H1141 46150943	PTFE	8	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	TC	SF	N/A	YE	C	1	A2
BI7-MT18H-AD4X-H1141 44145808	PTFE	7	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	TC	SF	N/A	YE	B	4	A3
BI7-EM18HE-AD4X-H1141 44145802		7	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	SS	SF	N/A	YE	C	4	A3
BI7-MT18HE-AD4X-H1141 4414597	PTFE	7	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	TC	SF	N/A	YE	C	4	A3
BI7-MT18HE-AD4X-H1144 4414598	PTFE	7	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	TC	SF	N/A	YE	C	3	A3
BI5U-EM18H-AP6X-H1141 1635112	Uprox	5	3-wire DC PNP	10-30 VDC	2500	≤200	-30 to +85	IP68	SS	SF	N/A	YE	A	2	A2
BI5U-EM18H-AN6X2-H1141/S395 1635146	Uprox	5	3-wire DC NPN	10-30 VDC	2500	≤200	-30 to +85	IP68	SS	SF	GN	YE	B	2	A2
BI5U-EM18H-AP6X2-H1141/S395 1635158	Uprox	5	3-wire DC PNP	10-30 VDC	2500	≤200	-30 to +85	IP68	SS	SF	GN	YE	B	1	A2
BI5U-MT18H-AP6X2-H1141/S395 1635220	Uprox, PTFE	5	3-wire DC PNP	10-30 VDC	2500	≤200	-30 to +85	IP68	TC	SF	GN	YE	B	1	A2
BI5-EM18H-AP6X-H1141 4614687		5	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	SS	SF	N/A	YE	A	1	A2

We reserve the right to make technical alterations without prior notice.

Stoneface

# Stoneface | 30 mm

## Embeddable Threaded Metal Barrels with Cable and DC Outputs

Housing Style	Dimension Drawings
	A  30 mm - Embeddable, M12 Eurofast Connection
	B 30 mm - Embeddable, M12 Eurofast Connection, Extended Barrel Length
Wiring Diagrams/Mating Cordsets	
1  Mating Cordset: RK 4T-*; RKV 4T-*	2  Mating Cordset: RKV 4T-*
3  Mating Cordset: RK 4.23T-*	
A2	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 Off-State (Leakage) Current: ≤0.1 mA No-Load Current: ≤15 mA (Ferrite, Uprox, Rectangular) 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
A3	2-wire DC - (AD, RD, AG)
Ripple: ≤10% Differential Travel (Hysteresis): 3-15% (5% typical) Voltage Drop Across Conducting Sensor: Non-polarized (AD) <5.0 V Polarized (AG) ≤4.2 V Trigger Current for Short Circuit Protection: ≥120 mA Minimum Load Current: ≥3.0 mA	Off-State (Leakage) Current: ≤0.8 mA Power-On Effect: Per IEC 947-5-2 Transient Protection: Per EN 60947-5-2 Shock: 30 g, 11 ms Vibration: 55 Hz, 1 mm Amplitude in all 3 Planes Repeatability: ≤2% of Rated Operating Distance

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## Stoneface | 30 mm

## Embeddable Threaded Metal Barrels with Cable and DC Outputs

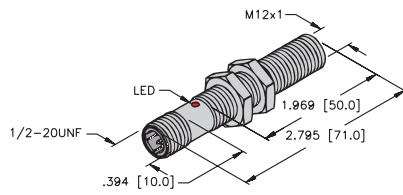
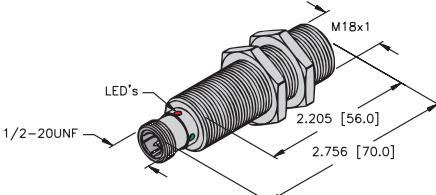
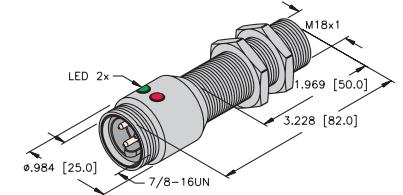
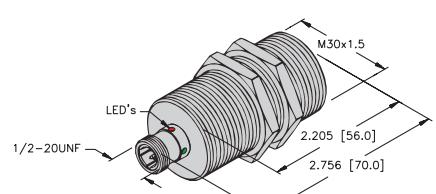
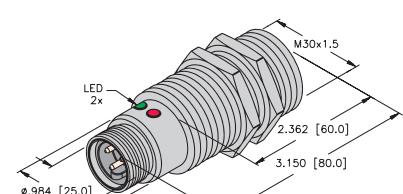
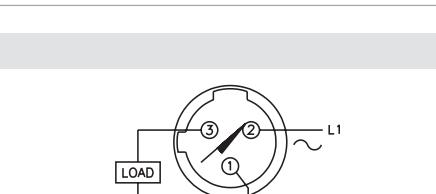
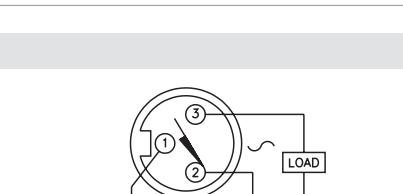
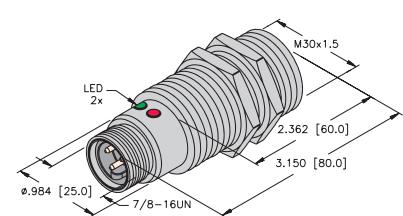
Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
BI15-EMT30H-AP6X-H1141 4618570	PTFE	15	3-wire DC PNP	10-30 VDC	300	≤200	-25 to +70	IP67	TC	SF	N/A	YE	A	1	A2
BI15-EM30H-AN6X-H1141 4618692		15	3-wire DC NPN	10-30 VDC	300	≤200	-25 to +70	IP67	SS	SF	N/A	YE	A	2	A2
BI15-EM30H-AP6X-H1141 4618592		15	3-wire DC PNP	10-30 VDC	300	≤200	-25 to +70	IP67	SS	SF	N/A	YE	A	1	A2
BI12-MT30H-AD4X-H1144 4417095	PTFE	12	2-wire DC	10-65 VDC	500	≤100	-25 to +70	IP67	TC	SF	N/A	YE	A	3	A3
BI10U-MT30H-AP6X2-H1141 1636220	Uprox, PTFE	10	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP67	TC	SF	GN	YE	A	1	A2
BI10U-EM30HE-AP6X2-H1141 1636415	Uprox	10	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP67	SS	SF	GN	YE	B	1	A2

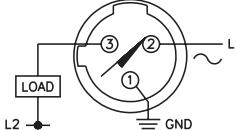
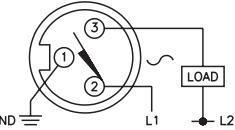
We reserve the right to make technical alterations without prior notice.

Stoneface

# Stoneface | 12, 18, and 30 mm

## Embeddable Threaded Metal Barrels with Connector and AC/DC Outputs

Housing Style	Dimension Drawings
	<p><b>A</b></p>  <p>12 mm - Embeddable, 1/2" Microfast Connection</p>
	<p><b>B</b></p>  <p>18 mm - Embeddable, 1/2" Microfast Connection</p>
	<p><b>C</b></p>  <p>18 mm - Embeddable, 7/8" Minifast Connection</p>
	<p><b>D</b></p>  <p>30 mm - Embeddable, 7/8" Minifast Connection</p>
	<p><b>E</b></p>  <p>30 mm - Embeddable, 7/8" Minifast Connection</p>

Wiring Diagrams/Mating Cordsets	
<b>1</b>	 <p>Mating Cordset: KB 3T-*</p>
<b>2</b>	 <p>Mating Cordset: RKM 30-*M</p>

A4	2-wire AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)
Line Frequency:	$\geq 50 \dots \leq 60$ Hz
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	$\leq 6.0$ V
Trigger Current for Short Circuit Protection:	AC: $\geq 440$ mA; DC: $\geq 330$ mA AC: $\geq 120$ mA; DC: $\geq 120$ mA
Continuous Load Current:	AC: $\leq 400$ mA; DC: $\leq 300$ mA AC: $\leq 100$ mA; DC: $\leq 100$ mA
Off-State (Leakage) Current:	$\leq 1.7$ mA (AC) $\leq 1.5$ mA (DC)
Minimum Load Current:	$\geq 3.0$ mA
Inrush Current:	$\leq 3$ A ( $\leq 20$ ms, max 5 Hz)
Power-On Effect:	Per IEC 947-5-2
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	$\leq 2\%$ of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

## Stoneface | 12, 18, and 30 mm

## Embeddable Threaded Metal Barrels with Connector and AC/DC Outputs

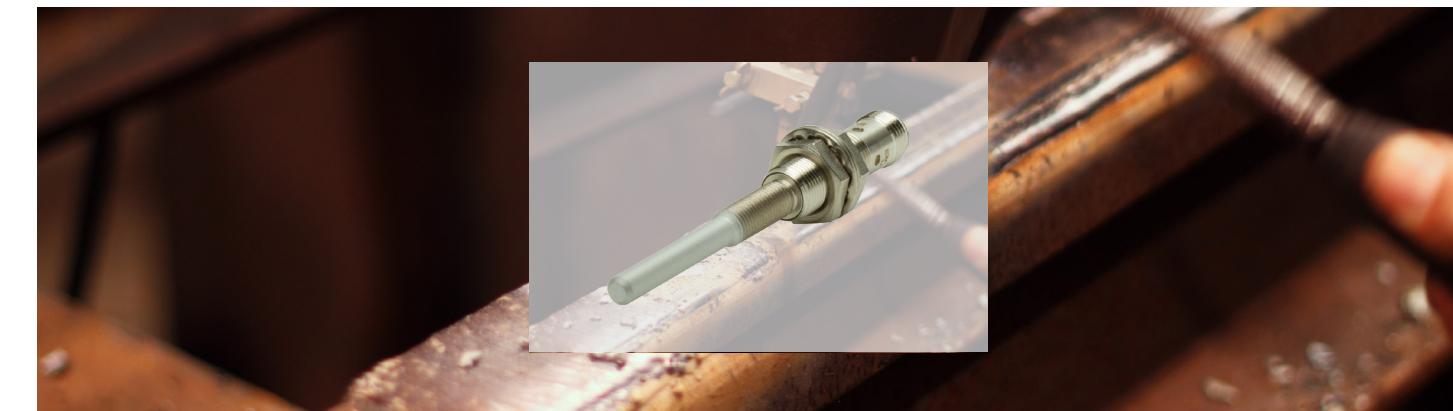
Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
BI4-GT12H-ADZ32X-B3131 4205097	PTFE	4	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	TC	SF	N/A	RD	A	1	A4
BI2-GT12H-ADZ32X-B3131/S34 4205093	PTFE, WFI	2	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	TC	SF	N/A	RD	A	1	A4
BI5-GT18H-ADZ30X2-B3331/S34 4255289	PTFE, WFI	5	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	TC	SF	GN	RD	B	1	A4
BI5-GT18H-ADZ30X2-B1331/S34 4255299	PTFE, WFI	5	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	TC	SF	GN	RD	C	2	A4
BI10-GT30H-ADZ30X2-B3131/S34 4256094	PTFE, WFI	10	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	TC	SF	GN	RD	D	1	A4
BI15-EG30H-ADZ30X2-B3131 4207284		15	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	10	≤400/300	-25 to +70	IP67	SS	SF	GN	RD	D	1	A4
BI15-EG30H-ADZ30X2-B1131 4207292		15	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	10	≤400/300	-25 to +70	IP67	SS	SF	GN	RD	E	2	A4

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Stoneface

## Notes





## Nut Detection Sensor

Turck's weld nut sensors provide efficient and economical detection of weld nuts in automotive applications:

- Rejection-free process for detecting weld nuts
- An economical alternative to more expensive optical or vision-based systems that often malfunction due to:
  - Dirt and weldsplatter residue
  - Frequently changing lighting conditions in welding zones
- Rugged construction delivers dependable performance
- PTFE coated versions available
- Titanium Nitride coated probe versions available
- Simple programming
- Bright LEDs indicate the output status

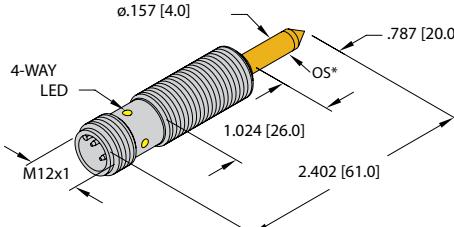
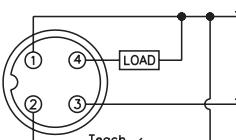
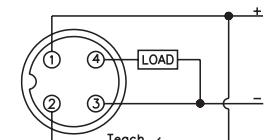
We reserve the right to make technical alterations without prior notice.

Nut Detection Sensor

Nut Detection Sensor Selection Guide			
Housing		12 mm	
Sensing Range	5 - 10 mm	6 - 12 mm	10 - 20 mm
Pages	82	82	82

# Weld Nut Detection Sensor

## Threaded Metal Barrel with Smooth Sensing Probe and 3-Wire DC Output

Housing Style	Dimension Drawings
	A  Nut Sensor, 5-12 mm Diameter Nut, Potted-In Cable
B  Nut Sensor, 5-12 mm Diameter Nut, M12 Eurofast Connector	C  Nut Sensor, 6-12 mm Diameter Nut, M12 Eurofast Connector
D  Nut Sensor, 6-12 mm Diameter Nut, M12 Eurofast Connector	E  Nut Sensor, 10-20 mm Diameter Nut, M12 Eurofast Connector
Wiring Diagrams/Mating Cordsets	
1  Mating Cordset: RK 4.4T-*	2  Mating Cordset: RK 4.4T-*
<b>A8</b>	<b>3-wire DC Nut Detection Sensor (AP, AN)</b>
Ripple: ≤10%	Reverse Polarity Protection: Incorporated
Voltage Drop Across Conducting Sensor: ≤1 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	

**Note:**

OS\* The optimal sensitive area for the 4.0 mm diameter probes has a width of 0.5 mm and is laser-engraved on the tip of the probe, 11.9 mm above the M12 thread.

S\*\* Sensitive area: Within this area the sensor signal changes when assembly parts are changed.

M\*\*\* Maximum area: The maximum signal intensity is reached if the sensitive area is completely covered.

Optional teach adapter available, part number VB2-SP1.

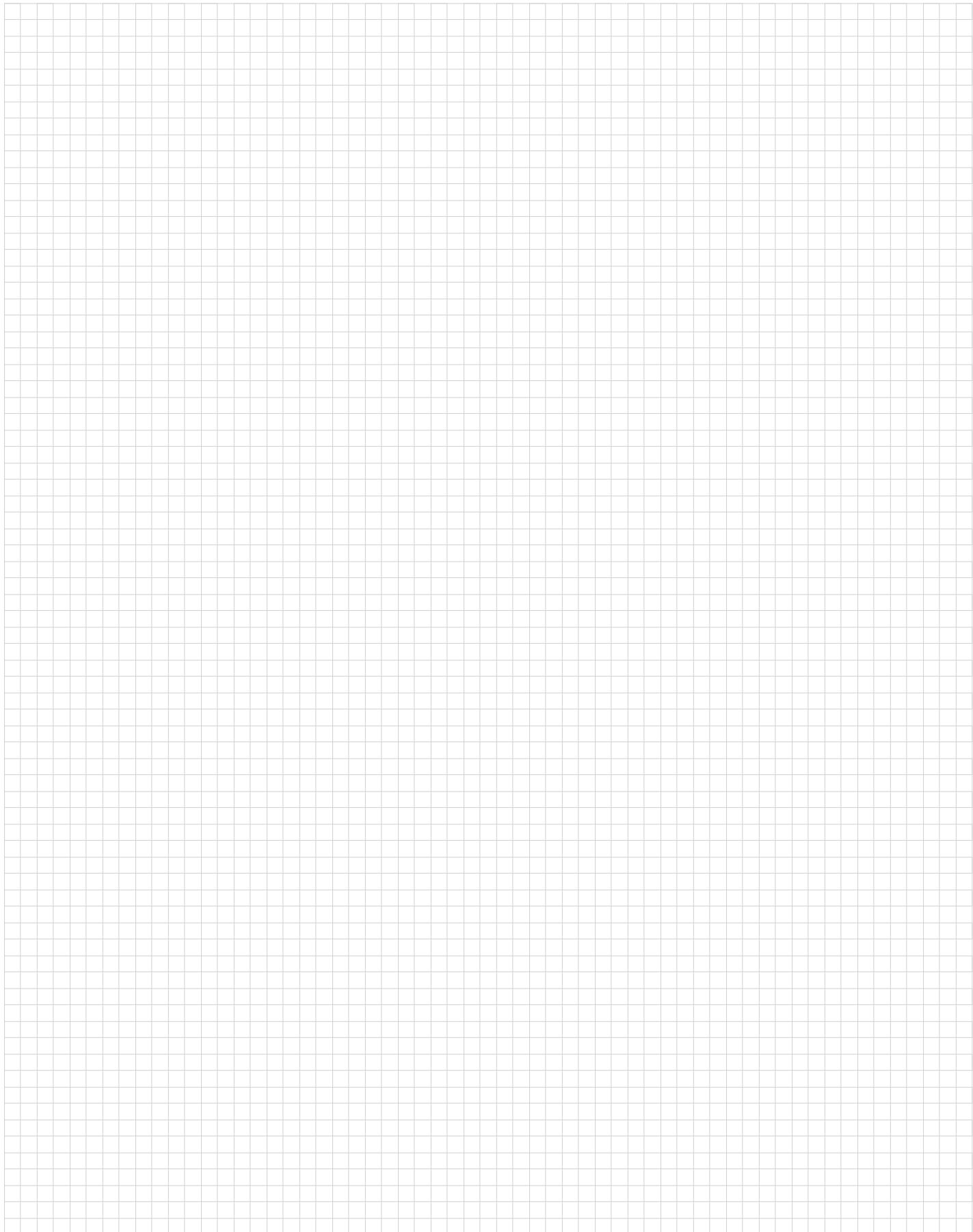
## Weld Nut Detection Sensor

## Threaded Metal Barrel with Smooth Sensing Probe and 3-Wire DC Output

Part Number/ ID Number	Features	Output	Voltage	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
NIMFE-EM12/4.0L61-UP6X-0.3XYE-RS4/S1182 1600623	Titanium Nitride	3-wire DC PNP	10-30 VDC	≤200	-25 to +70	IP67	SS	GN	YE	0.3M/TPE	A	2	A8
NIMFE-EM12/4.0L61-UN6X-0.3XYE-RS4/S1182 1600624	Titanium Nitride	3-wire DC NPN	10-30 VDC	≤200	-25 to +70	IP67	SS	GN	YE	0.3M/TPE	A	1	A8
NIMFE-EM12/4.0L61-UP6X-H1141/S1182 1600621	Titanium Nitride	3-wire DC PNP	10-30 VDC	≤200	-25 to +70	IP67	SS	GN	YE	--	B	2	A8
NIMFE-EM12/4.0L61-UN6X-H1141/S1182 1600622	Titanium Nitride	3-wire DC NPN	10-30 VDC	≤200	-25 to +70	IP67	SS	GN	YE	--	B	1	A8
NIMFE-M12/4.6L88-UN6X-H1141 1600610		3-wire DC NPN	10-30 VDC	≤200	-25 to +70	IP67	CPB	GN	YE	--	C	1	A8
NIMFE-EMT12/4.6L88-UN6X-H1141 1600618	PTFE Coated	3-wire DC NPN	10-30 VDC	≤200	-25 to +70	IP67	SS	GN	YE	--	C	1	A8
NIMFE-EM12/4.6L88-UN6X-H1141/S1182 1600617	Titanium Nitride	3-wire DC NPN	10-30 VDC	≤200	-25 to +70	IP67	SS	GN	YE	--	C	1	A8
NIMFE-M12/4.6L88-UP6X-H1141 1600608		3-wire DC PNP	10-30 VDC	≤200	-25 to +70	IP67	CPB	GN	YE	--	C	2	A8
NIMFE-EMT12/4.6L88-UP6X-H1141 1600619	PTFE Coated	3-wire DC PNP	10-30 VDC	≤200	-25 to +70	IP67	SS	GN	YE	--	C	2	A8
NIMFE-EM12/4.6L88-UP6X-H1141/S1182 1600620	Titanium Nitride	3-wire DC PNP	10-30 VDC	≤200	-25 to +70	IP67	SS	GN	YE	--	C	2	A8
NIMFE-EM12/4.9L88-UP6X-H1141/S1182 1600616	Titanium Nitride	3-wire DC PNP	10-30 VDC	≤200	-25 to +70	IP67	SS	GN	YE	--	D	2	A8
NIMFE-M12/6.2L101-UN6X-H1141 1600611		3-wire DC NPN	10-30 VDC	≤200	-25 to +70	IP67	CPB	GN	YE	--	E	1	A8
NIMFE-EMT12/6.2L101-UN6X-H1141 1600615	PTFE Coated	3-wire DC NPN	10-30 VDC	≤200	-25 to +70	IP67	SS	GN	YE	--	E	1	A8
NIMFE-M12/6.2L101-UP6X-H1141 1600609		3-wire DC PNP	10-30 VDC	≤200	-25 to +70	IP67	CPB	GN	YE	--	E	2	A8
NIMFE-EMT12/6.2L101-UP6X-H1141 1600613	PTFE Coated	3-wire DC PNP	10-30 VDC	≤200	-25 to +70	IP67	SS	GN	YE	--	E	2	A8
NIMFE-EM12/6.2L101-UP6X-H1141/S1182 1600612	Titanium Nitride	3-wire DC PNP	10-30 VDC	≤200	-25 to +70	IP67	SS	GN	YE	--	E	2	A8

"/S1182" = Titanium Nitride coated probe.

## Notes





# Instrumentation

## Flow Monitors for Weld Tip Protection

- Flow monitors are used in the welding industry to monitor flow of liquids and gases
- Based on the Caliometric flow principle
- No moving parts

## Pressure Sensors for Weld Cell Automation

- Hydraulic or pneumatic monitoring
- Fully programmable output, functionality, scaling, and display
- Stainless steel housing
- Pressure ranges up to 600 Bar

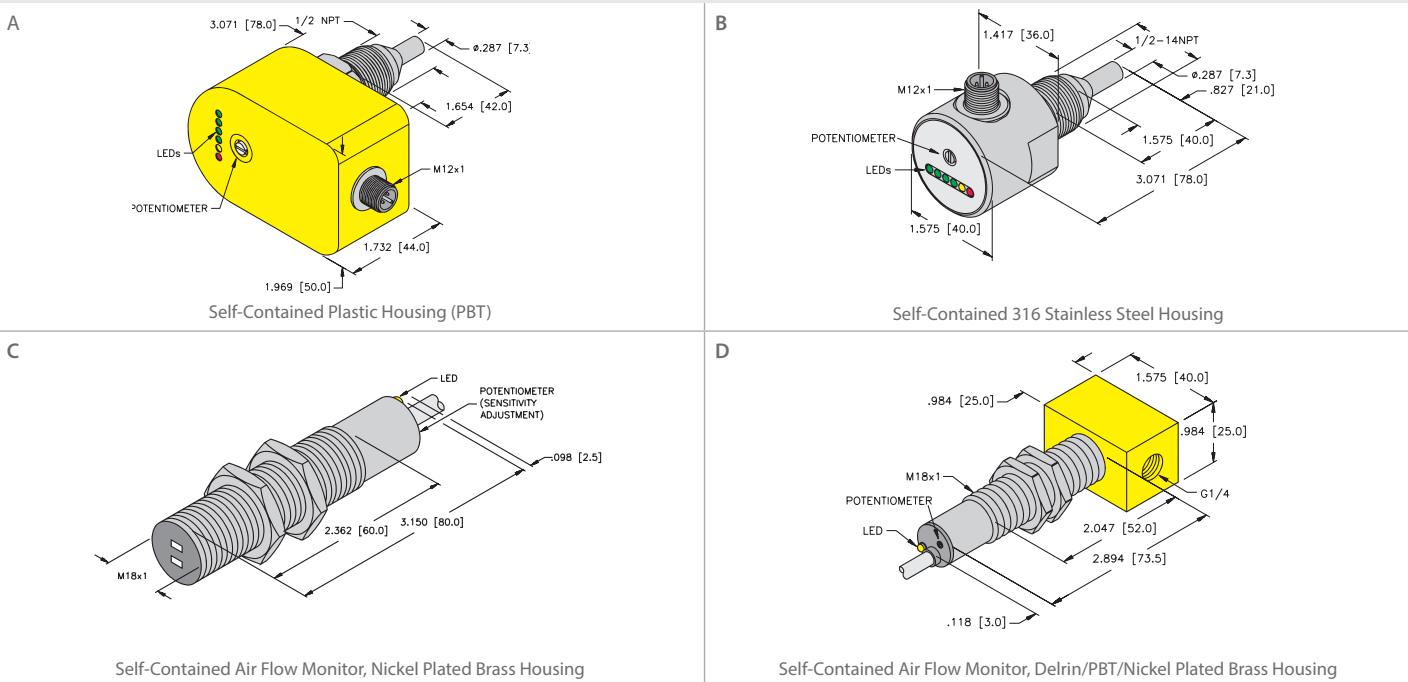
Instrumentation Selection Guide

			
<b>Housing</b>	<b>Self-Contained Monitor</b>	<b>Air Flow Monitor</b>	<b>Pressure Sensor</b>
Pages	86	86	88-90

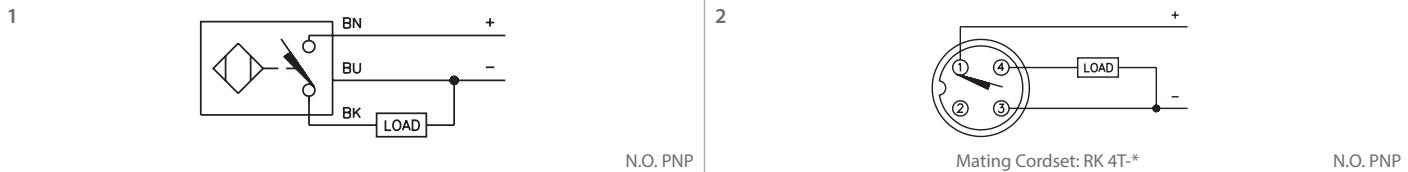
## Instrumentation

### Flow Sensors

Dimension Drawings



Wiring Diagrams/Mating Cordsets



We reserve the right to make technical alterations without prior notice.

## Instrumentation

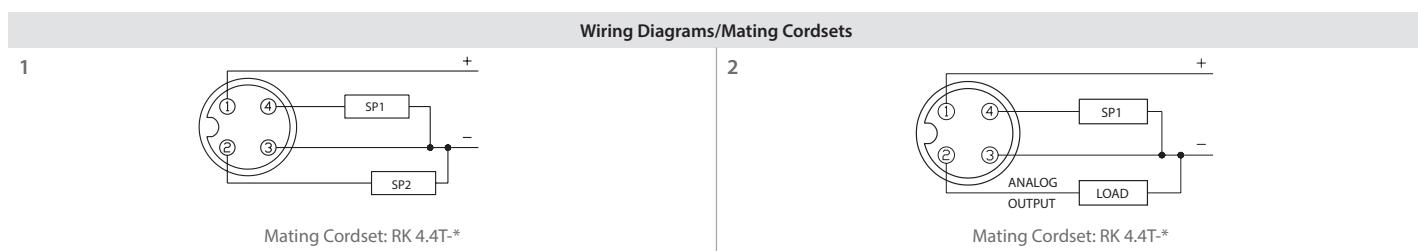
## Flow Sensors

Part Number/ ID Number	Flow Detection Range (water)	Flow Detection Range (oil)	Flow Detection Range (air)	Voltage	Current Consumption (mA)	Switching Current (mA)	Pressure Rating (psi)	Process Connection	Operating Temp. (ambient) (°C)	Operating Temp. (fluid) (°C)	Protection	Cable Length (mw)	Housing Material	Sensor Material	Dimension Drawings	Wiring Diagrams
FCS-N1/2A4P-AP8X-H1141 M6871032	1-150 cm/sec.	3-300 cm/sec.	--	19.2-28.8 VDC	≤60	≤400	1450	1/2 NPT	-25 to +70	-20 to +80	IP67	--	Plastic, PBT	Stainless Steel, V4A (1.4571)	A	2
FCS-N1/2A4-AP8X-H1141 M6871004	1-150 cm/sec.	3-300 cm/sec.	--	19.2-28.8 VDC	≤70	≤400	1450	1/2 NPT	-25 to +80	-20 to +80	IP67	--	Stainless Steel, V4A (1.4571)	Stainless Steel, V4A (1.4571)	B	2
FCS-M18-AP8X M6870704	--	--	0.5 - 15 m/sec.	19.2-28.8 VDC	≤70	≤200	145	M18x1	-25 to +70	-25 to +70	IP67	2	Metal, CuZn	Brass, nickel-plated	C	1
FCS-M18-AP8X/D041 M6870705	--	--	0.1 - 15 m/sec.	19.2-28.8 VDC	≤70	≤200	145	M18x1	-25 to +70	-25 to +70	IP67	2	Metal, CuZn	Brass, nickel-plated	D	1

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# Instrumentation

## PS500 Programmable Pressure Sensors, Rotatable Housing



Performance Data	
Analog Accuracy LHR:	±0.5% of Full Scale (±1% of Full Scale for PS0.25V)
Set point Accuracy:	±0.5% of Full Scale (±1% of Full Scale for PS0.25V)
Set Point Hysteresis:	0.5% of Span
Temperature Coefficient:	≤0.15% of Measuring Range per 10 °C
Programmable Analog Start Point:	0-90% of Measuring Range
Programmable Analog End Point:	10-100% of Measuring Range
Switch Point Range:	1-100% of Pressure Range
Reset Point Range:	0.5-99.5% of Pressure Range
Programmable Output for LI2UPN8X:	0-20 mA, 4-20 mA, 20-0 mA, 20-4 mA, 0-5 VDC, 1-6 VKC, 5-0 VDC, 10 VDC, 6-1 VDC and 1X PNP/NPN N.O./N.C or 2X PNP/NPN N.O./N.C
Programmable Output for 2UPNX:	2X PNP/NPN N.O./N.C

Electrical Data	
Operating Voltage:	18-30 VDC
Current Consumption:	≤50 mA
Voltage Drop:	≤2 V
Analog Load:	≤500 Ω
Switching Frequency:	≤180 Hz
Response Time:	<3 ms
Short Circuit/Reverse Polarity Protection:	Yes/Yes

Environmental Data	
Ambient Temperature:	-40 to +80 °C
Storage Temperature:	-40 to +80 °C
Medium Temperature:	-40 to +85 °C
Housing Materials:	Stainless-steel/Plastic, 303 Stainless Steel
Wetted Materials:	303 Stainless Steel, FPM, Al2O3 Ceramic
Protection Type:	IP67/IP69K/III
Shock Resistance:	50 g (11 ms), per IEC 61508
Vibration Resistance:	20 g (9-2000Hz) per IEC 68-2-6
LED Measuring Value:	4 digit 7 Segment Display

We reserve the right to make technical alterations without prior notice.

## Instrumentation

## PS500 Programmable Pressure Sensors, Rotatable Housing

Part Number	Operating Pressure	Over Pressure	Burst Pressure	Wiring Diagram
PS025V-503-LI2UPN8X-H1141 6833211	-.25-.25 Bar (-1-0 PSIG)	≤3 Bar (≤43.5 PSIG)	≥3 Bar (≤43.5 PSIG)	2
PS01VR-503-LI2UPN8X-H1141 6833280	-1-0 Bar (-14.5-14.5 PSIG)	≤5.5 Bar (≤80 PSIG)	≥5.5 Bar (≤80 PSIG)	2
PS001R-503-LI2UPN8X-H1141 6832281	0-1 Bar (0-14.5 PSIG)	≤5.5 Bar (≤80 PSIG)	≥5.5 Bar (≤80 PSIG)	2
PS001V-503-LI2UPN8X-H1141 6832827	-1-1 Bar (-14.5-14.5 PSIG)	≤5.5 Bar (≤80 PSIG)	≥5.5 Bar (≤80 PSIG)	2
PS003V-503-LI2UPN8X-H1141 6832828	-1-3 Bar (-14.5-43.5 PSIG)	≤12 Bar (≤174 PSIG)	≥12 Bar (≤174 PSIG)	2
PS010V-503-LI2UPN8X-H1141 6832829	-1-10 Bar (-14.5-145 PSIG)	≤50 Bar (≤725 PSIG)	≥50 Bar (≤725 PSIG)	2
PS016V-503-LI2UPN8X-H1141 6832830	-1-16 Bar (-14.5-232 PSIG)	≤40 Bar (≤580 PSIG)	≥40 Bar (≤580 PSIG)	2
PS025V-503-LI2UPN8X-H1141 6832831	-1-25 Bar (-14.5-362.5 PSIG)	≤110 Bar (≤1595 PSIG)	≥110 Bar (≤1595 PSIG)	2
PS040V-503-LI2UPN8X-H1141 6832832	-1-40 Bar (-14.5-580 PSIG)	≤180 Bar (≤2110 PSIG)	≥180 Bar (≤2110 PSIG)	2
PS100R-503-LI2UPN8X-H1141 6832287	0-100 Bar (0-1450 PSIG)	≤420 Bar (≤6092 PSIG)	≥420 Bar (≤6092 PSIG)	2
PS250R-503-LI2UPN8X-H1141 6832288	0-250 Bar (0-3625 PSIG)	≤500 Bar (≤7252 PSIG)	≥500 Bar (≤7252 PSIG)	2
PS400R-503-LI2UPN8X-H1141 6832289	0-400 Bar (0-5800 PSIG)	≤700 Bar (≤10153 PSIG)	≥700 Bar (≤10153 PSIG)	2
PS600R-503-LI2UPN8X-H1141 6832833	0-600 Bar (0-8700 PSIG)	≤900 Bar (≤13053 PSIG)	≥900 Bar (≤13053 PSIG)	2
PS025V-503-2UPNX-H1141 6833212	-.25-.25 Bar (-1-0 PSIG)	≤3 Bar (≤43.5 PSIG)	≥3 Bar (≤43.5 PSIG)	1
PS01VR-503-2UPNX-H1141 6832658	-1-0 Bar (-14.5-14.5 PSIG)	≤5.5 Bar (≤80 PSIG)	≥5.5 Bar (≤80 PSIG)	1
PS001R-503-2UPNX-H1141 6832659	0-1 Bar (0-14.5 PSIG)	≤5.5 Bar (≤80 PSIG)	≥5.5 Bar (≤80 PSIG)	1
PS001V-503-2UPNX-H1141 6832660	-1-1 Bar (-14.5-14.5 PSIG)	≤5.5 Bar (≤80 PSIG)	≥5.5 Bar (≤80 PSIG)	1
PS003V-503-2UPNX-H1141 6832661	-1-3 Bar (-14.5-43.5 PSIG)	≤12 Bar (≤174 PSIG)	≥12 Bar (≤174 PSIG)	1
PS010V-503-2UPNX-H1141 6832662	-1-10 Bar (-14.5-145 PSIG)	≤50 Bar (≤725 PSIG)	≥50 Bar (≤725 PSIG)	1
PS016V-503-2UPNX-H1141 6832663	-1-16 Bar (-14.5-232 PSIG)	≤40 Bar (≤580 PSIG)	≥40 Bar (≤580 PSIG)	1
PS025V-503-2UPNX-H1141 6832664	-1-25 Bar (-14.5-362.5 PSIG)	≤110 Bar (≤1595 PSIG)	≥110 Bar (≤1595 PSIG)	1
PS040V-503-2UPNX-H1141 6832665	-1-40 Bar (-14.5-580 PSIG)	≤180 Bar (≤2110 PSIG)	≥180 Bar (≤2110 PSIG)	1
PS100R-503-2UPNX-H1141 6832666	0-100 Bar (0-1450 PSIG)	≤420 Bar (≤6092 PSIG)	≥420 Bar (≤6092 PSIG)	1
PS250R-503-2UPNX-H1141 6832667	0-250 Bar (0-3625 PSIG)	≤500 Bar (≤7252 PSIG)	≥500 Bar (≤7252 PSIG)	1
PS400R-503-2UPNX-H1141 6832668	0-400 Bar (0-5800 PSIG)	≤700 Bar (≤10153 PSIG)	≥700 Bar (≤10153 PSIG)	1
PS600R-503-2UPNX-H1141 6832669	0-600 Bar (0-8700 PSIG)	≤900 Bar (≤13053 PSIG)	≥900 Bar (≤13053 PSIG)	1

We reserve the right to make technical alterations without prior notice.

Instrumentation

## Instrumentation

### PS300 Programmable Pressure Sensors, Non-Rotatable Housing

Housing Style	Dimension Drawings
Wiring Diagrams/Mating Cordsets	
<p>1</p> <p>Mating Cordset: RK 4.4T-*</p>	<p>2</p> <p>Mating Cordset: RK 4.4T-*</p>
Performance Data	Electrical Data
<p>Analog Accuracy LHR: <math>\pm 0.5\%</math> of Full Scale (<math>\pm 1\%</math> of Full Scale for PS0.25V)  Set point Accuracy: <math>\pm 0.5\%</math> of Full Scale (<math>\pm 1\%</math> of Full Scale for PS0.25V)  Set Point Hysteresis: 0.5% of Span  Temperature Coefficient: <math>\leq 0.15\%</math> of Measuring Range per <math>10^\circ\text{C}</math>  Programmable Analog Start Point: 0-90% of Measuring Range  Programmable Analog End Point: 10-100% of Measuring Range  Switch Point Range: 1-100% of Pressure Range  Reset Point Range: 0.5-99.5% of Pressure Range  Programmable Output for LI2UPN8X: 0-20 mA, 4-20 mA, 20-0 mA, 20-4 mA, 0-5 VDC, 1-6 VKC, 5-0 VDC, 10 VDC, 6-1 VDC and 1X PNP/NPN N.O./N.C or 2X PNP/NPN N.O./N.C  Programmable Output for 2UPNX: 2X PNP/NPN N.O./N.C</p>	<p>Operating Voltage: 18-30 VDC  Current Consumption: <math>\leq 50</math> mA  Voltage Drop: <math>\leq 2</math> V  Analog Load: <math>\leq 500</math> <math>\Omega</math>  Switching Frequency: <math>\leq 180</math> Hz  Response Time: <math>&lt; 3</math> ms  Short Circuit/Reverse Polarity Protection: Yes/Yes</p>
Environmental Data	
<p>Ambient Temperature: -40 to +80 <math>^\circ\text{C}</math>  Storage Temperature: -40 to +80 <math>^\circ\text{C}</math>  Medium Temperature: -40 to +85 <math>^\circ\text{C}</math>  Housing Materials: Stainless-steel/Plastic, V2A (1.4305)  Wetted Materials: 303 Stainless Steel, Plastic  Protection Type: IP67/IP69K/III  Shock Resistance: 50 g (11 ms), per IEC 61508  Vibration Resistance: 20 g (9-2000Hz) per IEC 68-2-6  LED Measuring Value: 4 digit 7 Segment Display</p>	

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## Instrumentation

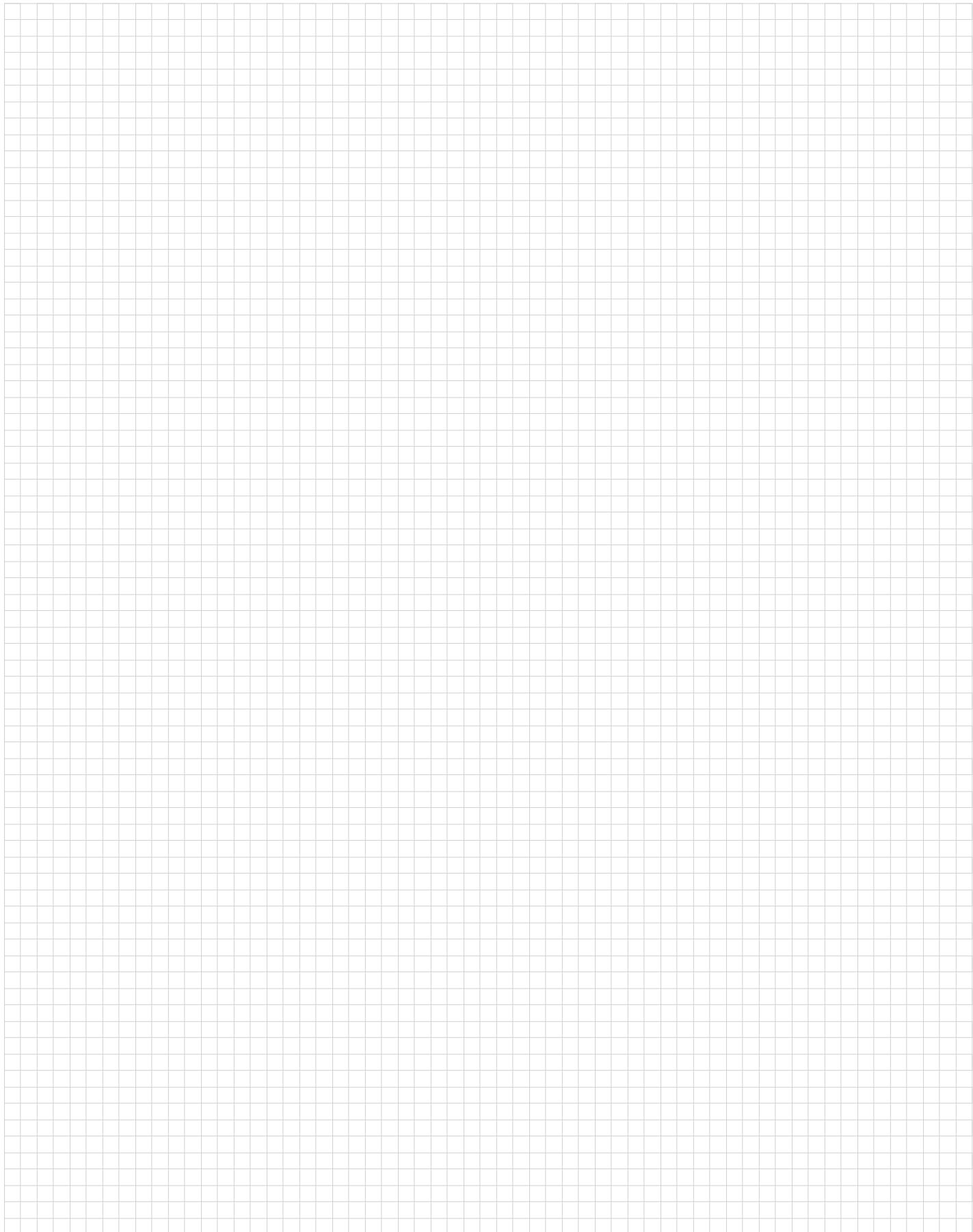
## PS300 Programmable Pressure Sensors, Non-Rotatable Housing

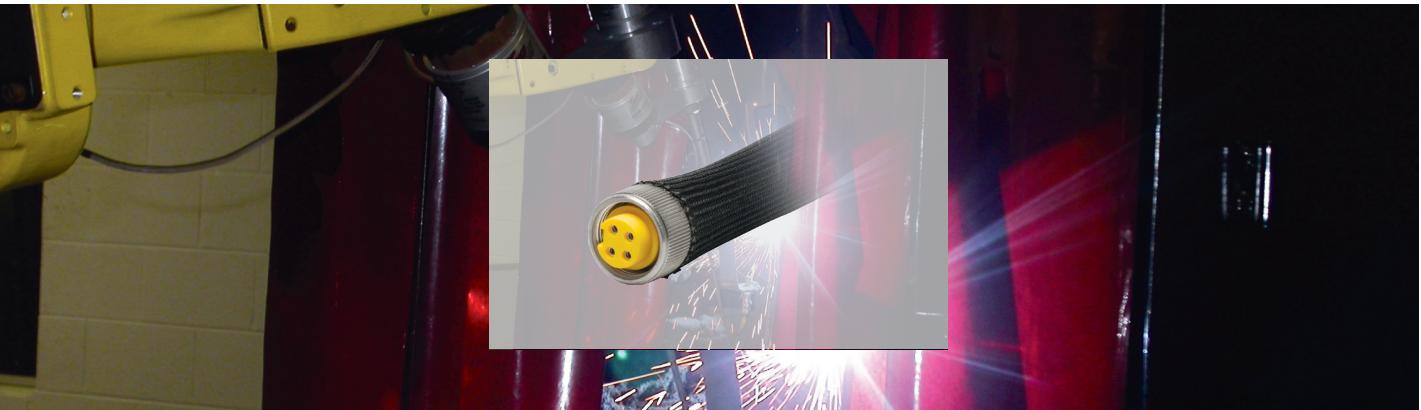
Part Number	Operating Pressure	Over Pressure	Burst Pressure	Wiring Diagram
PS01VR-303-LI2UPN8X-H1141 6833402	-1-0 Bar (-14.5-14.5 PSIG)	≤5.5 Bar (≤80 PSIG)	≥5.5 Bar (≤80 PSIG)	2
PS001V-303-LI2UPN8X-H1141 6833404	-1-1 Bar (-14.5-14.5 PSIG)	≤5.5 Bar (≤80 PSIG)	≥5.5 Bar (≤80 PSIG)	2
PS003V-303-LI2UPN8X-H1141 6833405	-1-3 Bar (-14.5-43.5 PSIG)	≤12 Bar (≤174 PSIG)	≥12 Bar (≤174 PSIG)	2
PS010V-303-LI2UPN8X-H1141 6833406	-1-10 Bar (-14.5-145 PSIG)	≤50 Bar (≤725 PSIG)	≥50 Bar (≤725 PSIG)	2
PS016V-303-LI2UPN8X-H1141 6833407	-1-16 Bar (-14.5-232 PSIG)	≤40 Bar (≤580 PSIG)	≥40 Bar (≤580 PSIG)	2
PS025V-303-LI2UPN8X-H1141 6833408	-1-25 Bar (-14.5-362.5 PSIG)	≤110 Bar (≤1595 PSIG)	≥110 Bar (≤1595 PSIG)	2
PS040V-303-LI2UPN8X-H1141 6833409	-1-40 Bar (-14.5-580 PSIG)	≤180 Bar (≤2110 PSIG)	≥180 Bar (≤2110 PSIG)	2
PS100R-303-LI2UPN8X-H1141 6833410	0-100 Bar (0-1450 PSIG)	≤420 Bar (≤6092 PSIG)	≥420 Bar (≤6092 PSIG)	2
PS250R-303-LI2UPN8X-H1141 6833411	0-250 Bar (0-3625 PSIG)	≤500 Bar (≤7252 PSIG)	≥500 Bar (≤7252 PSIG)	2
PS400R-303-LI2UPN8X-H1141 6833412	0-400 Bar (0-5800 PSIG)	≤700 Bar (≤10153 PSIG)	≥700 Bar (≤10153 PSIG)	2
PS600R-303-LI2UPN8X-H1141 6833413	0-600 Bar (0-8700 PSIG)	≤900 Bar (≤13053 PSIG)	≥900 Bar (≤13053 PSIG)	2
PS001R-303-LI2UPN8X-H1141 6833403	0-1 Bar (0-14.5 PSIG)	≤5.5 Bar (≤80 PSIG)	≥5.5 Bar (≤80 PSIG)	2
PS01VR-303-2UPNX-H1141 6833414	-1-0 Bar (-14.5-14.5 PSIG)	≤5.5 Bar (≤80 PSIG)	≥5.5 Bar (≤80 PSIG)	1
PS001R-303-2UPNX-H1141 6833415	0-1 Bar (0-14.5 PSIG)	≤5.5 Bar (≤80 PSIG)	≥5.5 Bar (≤80 PSIG)	1
PS001V-303-2UPNX-H1141 6833416	-1-1 Bar (-14.5-14.5 PSIG)	≤5.5 Bar (≤80 PSIG)	≥5.5 Bar (≤80 PSIG)	1
PS003V-303-2UPNX-H1141 6833417	-1-3 Bar (-14.5-43.5 PSIG)	≤12 Bar (≤174 PSIG)	≥12 Bar (≤174 PSIG)	1
PS010V-303-2UPNX-H1141 6833418	-1-10 Bar (-14.5-145 PSIG)	≤50 Bar (≤725 PSIG)	≥50 Bar (≤725 PSIG)	1
PS016V-303-2UPNX-H1141 6833419	-1-16 Bar (-14.5-232 PSIG)	≤40 Bar (≤580 PSIG)	≥40 Bar (≤580 PSIG)	1
PS025V-303-2UPNX-H1141 6833420	-1-25 Bar (-14.5-362.5 PSIG)	≤110 Bar (≤1595 PSIG)	≥110 Bar (≤1595 PSIG)	1
PS040V-303-2UPNX-H1141 6833421	-1-40 Bar (-14.5-580 PSIG)	≤180 Bar (≤2110 PSIG)	≥180 Bar (≤2110 PSIG)	1
PS100R-303-2UPNX-H1141 6833422	0-100 Bar (0-1450 PSIG)	≤420 Bar (≤6092 PSIG)	≥420 Bar (≤6092 PSIG)	1
PS250R-303-2UPNX-H1141 6833423	0-250 Bar (0-3625 PSIG)	≤500 Bar (≤7252 PSIG)	≥500 Bar (≤7252 PSIG)	1
PS400R-303-2UPNX-H1141 6833424	0-400 Bar (0-5800 PSIG)	≤700 Bar (≤10153 PSIG)	≥700 Bar (≤10153 PSIG)	1
PS600R-303-2UPNX-H1141 6833425	0-600 Bar (0-8700 PSIG)	≤900 Bar (≤13053 PSIG)	≥900 Bar (≤13053 PSIG)	1

We reserve the right to make technical alterations without prior notice.

Instrumentation

## Notes





# Connectivity

## Weld Slag Protection

Turck Connectivity offers many different levels of weld slag protection, including:

- CPE, TPE, Aramid overbraided, or Armor cables
- PTFE coated coupling nuts
- Protective sleeving, tubing and tape

We reserve the right to make technical alterations without prior notice.

Cordset Selection Guide					
Style	Picofast	Eurofast	Eurofast Aramid	Microfast	Minifast
Pages	97	98-102	99-100	103	104

Cordset Accessories Selection Guide					
Style	Fiberglass Sleeve	Silicone Sleeve	Silicone Tube	Weld Shield Sleeve	Weld Seal Tape
Pages	105	106	106	107	107

## Mating Cordset Selection Guide

Attributes	Instrumentation Tray Cable		General Purpose Cable		Instrumentation Tray/Exposed Run/Direct Burial Cable	
<b>Material:</b>	PVC	TPE	PVC	TPU	PVC	TPE
<b>Temp Range:</b>	-40 to 105 °C	-40 to 105 °C	-40 to 105 °C	-40 to 90 °C	-40 to 105 °C	-40 to 105 °C
<b>Cold Bend:</b>	-40 °C	-40 °C	-40 °C	-40 °C	-40 °C	-40 °C
<b>Cold Impact:</b>	---	---	---	---	---	---
<b>Crush and Impact:</b>	---	---	---	---	Excellent	Excellent
<b>Cut and Abrasion:</b>	Fair	Fair/Good	Fair	Excellent	Good	Fair/Good
<b>UV/Sunlight Resistant:</b>	Excellent	Excellent	Excellent	Poor/Fair	Excellent	Excellent
<b>Flame Retardant:</b>	UL 1685/CSA FT4	UL 1685/CSA FT4	UL 1061/CSA FT1	UL 1061/CSA FT1	UL 1685/CSA FT4	UL 1685/CSA FT4
<b>Weld Slag/Spatter:</b>	Poor	Very Good	Poor	Poor	Poor	Very Good
<b>Water:</b>	Very Good	Very Good	Very Good	Very Good	Very Good	Very Good
<b>Flexibility:</b>	Very Good	Very Good	Very Good	Good	Fair	Good
<b>Flexlife:</b>	Good	Good	Good	Good	Fair	Fair/Good
<b>Oils:</b>	Excellent	Excellent	Very Good	Good	Very Good	Excellent
<b>Greases:</b>	Excellent	Excellent	Very Good	Good	Very Good	Excellent
<b>Gasoline:</b>	Fair	Good	Fair	Fair	Poor	Good
<b>Alcohols:</b>	Good	Very Good	Good	Poor/Fair	Very Good	Very Good
<b>Acids &lt;20%:</b>	Good	Poor	Good	Fair	Good	Poor
<b>General Approvals:</b>	UL ITC, PLTC, AWM CSA AWM CMX OUTDOOR-CMG, MSHA 300 V, 600 V	UL ITC, PLTC, AWM CSA AWM CMX OUT-DOOR-CMG, MSHA 300 V, 600 V	UL/CSA, AWM, MSHA 300 V or 600 V	UL/CSA, AWM, MSHA 300 V or 600 V	UL ITC, PLTC, ERDB, AWM, CSA CIC or CMX OUT-DOOR-CM AWM, Marine Shipboard UL 1309, IEEE 1580-2010, CSA 245, ABS, 300 V, 600 V	UL ITC, PLTC, ERDB, AWM CSA CMX OUTDOOR-CMG 150 V, 300 V, 600 V

- Attributes are general statements for materials at room temperature. Each application should be evaluated individually.
  - Temperature, the percentage of chemical present, type of chemical exposure, and installation practices will all affect performance.
- For specific recommendations, please contact Turck.

We reserve the right to make technical alterations without prior notice.

## Mating Cordset Selection Guide

Attributes	Extremelife Cable	Flexlife Cable	Weldlife Cable
<b>Material:</b>	EX60	TPE	TPU
<b>Temp Range:</b>	-60 to 105 °C	-40 to 105 °C	-40 to 90 °C
<b>Cold Bend:</b>	-60 °C	-40 °C	-40 °C
<b>Cold Impact:</b>	-40 °C	---	---
<b>Crush and Impact:</b>	Excellent	---	---
<b>Cut and Abrasion:</b>	Very Good	Fair/Good	Excellent
<b>UV/Sunlight Resistant:</b>	Excellent	Excellent	Poor/Fair
<b>Flame Retardant:</b>	UL 1685/CSA FT4 IEC 60332-3-22	UL 1061/CSA FT1	UL 1061/CSA FT1
<b>Weld Slag/Spatter:</b>	Good	Very Good	Poor
<b>Water:</b>	Very Good	Very Good	Very Good
<b>Flexibility:</b>	Good	Excellent	Good
<b>Flexlife:</b>	Very Good	Excellent	Good
<b>Oils:</b>	Excellent	Excellent	Good
<b>Greases:</b>	Excellent	Excellent	Good
<b>Gasoline:</b>	Good	Good	Fair
<b>Alcohols:</b>	Excellent	Very Good	Poor/Fair
<b>Acids &lt;20%:</b>	Good	Poor	Fair
<b>General Approvals:</b>	UL TC-ERDB, ITC, PLTC, ERDB, CSA CIC/TC Marine Shipboard UL 1309, IEEE 1580-2010, ABS, 300 V, 600 V	UL/CSA, AWM 300 V or 600 V	UL/CSA, AWM 300 V or 600 V

We reserve the right to make technical alterations without prior notice.

- Attributes are general statements for materials at room temperature. Each application should be evaluated individually.
  - Temperature, the percentage of chemical present, type of chemical exposure, and installation practices will all affect performance.
- For specific recommendations, please contact Turck.

## Mating Cordset Selection Guide

Attributes	Aramid Overbraided Cable	Armorfast Instrumentation Cable	Flexible Service Cable	Halogen Free Cable/Low Smoke Cable
<b>Material:</b>	TPE with Aramid overbraid	PVC	PVC	TPU
<b>Temp Range:</b>	-40 to 105 °C (200 °C spikes)	-40 to 105 °C	-40 to 105 °C	-40 to 80 °C
<b>Cold Bend:</b>	-40 °C	-40 °C	-40 °C	-40 °C
<b>Cold Impact:</b>	---	---	---	---
<b>Crush and Impact:</b>	---	Excellent	---	---
<b>Cut and Abrasion:</b>	Good/Very Good	Good	Good	Excellent
<b>UV/Sunlight Resistant:</b>	Excellent	Excellent	Excellent	Poor/Fair
<b>Flame Retardant:</b>	UL 1061/CSA FT1	UL 1685/CSA FT4	UL Horizontal Flame/CSA FT2	UL 1061/CSA FT1
<b>Weld Slag/Spatter:</b>	Excellent	Poor	Poor	Poor
<b>Water:</b>	Very Good	Very Good	Very Good	Very Good
<b>Flexibility:</b>	Very Good	Fair	Good	Good
<b>Flexlife:</b>	Good	Poor	Good	Good
<b>Oils:</b>	Excellent	Very Good	Very Good	Good
<b>Greases:</b>	Excellent	Very Good	Very Good	Good
<b>Gasoline:</b>	Good	Poor	Poor	Fair
<b>Alcohols:</b>	Very Good	Very Good	Very Good	Poor/Fair
<b>Acids &lt;20%:</b>	Poor	Good	Good	Fair
<b>General Approvals:</b>	UL/CSA, AWM 300 V or 600 V	UL MC, ITC, PLTC, ERDB, CSA ACIC, 300 V, 600 V, HL ABCD	UL/CSA, STOOW MSHA, 600 V	UL/CSA, AWM 300 V

- Attributes are general statements for materials at room temperature. Each application should be evaluated individually.
  - Temperature, the percentage of chemical present, type of chemical exposure, and installation practices will all affect performance.
- For specific recommendations, please contact Turck.

We reserve the right to make technical alterations without prior notice.

## 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-*  PKG 3M-/S90 PKW 3M-/S90	PSG 3M-* PSW 3M-*  PSG 3M-/S90 PSW 3M-/S90	AWM, PVC Yellow, 3x24 AWG, 105 °C, 4.4 mm OD, Flexlife®	1. BN 3. BU 4. BK
PKW ..M**	PKG 3M-/S90/S101 PKW 3M-/S90/S101	PSG 3M-/S90/S101 PSW 3M-/S90/S101	AWM, TPU Black, 3x24 AWG, 90 °C, 4.2 mm OD, Cut/Abrasion Immune	
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, Cut/Abrasion Immune, EMI/RFI Protection	1. BN 3. BU 4. BK
PSW .. M**	PKG 3M-/S1587 PKW 3M-/S1587	PSG 3M-/S1587 PSW 3M-/S1587	AWM, TPE Yellow, 3x24 AWG, 105 °C, 4.4 mm OD, Weldlife®, Weld Flash Immune	
	PKG 3M-/S760 PKW 3M-/S760	PSG 3M-/S760 PSW 3M-/S760	AWM, PVC Black, 3x24 AWG, 4.2 mm OD, Flexlife	1. BN 3. BU 4. Drain
	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, Cut/Abrasion Immune, Shielded	1. BN 3. BU 4. BK

We reserve the right to make technical alterations without prior notice.

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

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

# M12 Eurofast Connectivity

## 2-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 4.2T-* WK 4.2T-*	RS 4.2T-* WS 4.2T-*	ITC/PLTC PVC Grey, 2x20 AWG, 105 °C, 5.1 mm OD, Flexlife®	1. N/C 2. N/C 3. BN 4. BU
	RK 4.2T-*/S90 WK 4.2T-*/S90	RS 4.2T-*/S90 WS 4.2T-*/S90	AWM TPU Grey, 2x20 AWG, 90 °C, 4.8 mm OD, Cut/Abrasion Immune	
	RK 4.2T-*/S748 WK 4.2T-*/S748	RS 4.2T-*/S748 WS 4.2T-*/S748	ITC/PLTC PVC Yellow, 2x22 AWG, 105 °C, 5.1 mm OD, Flexlife	1. WH 2. N/C 3. N/C 4. BK
	RK 4.22T-* WK 4.22T-*	RS 4.22T-* WS 4.22T-*	ITC/PLTC PVC Grey, 2x20 AWG, 105 °C, 5.1 mm OD, Flexlife	1. BN 2. N/C 3. BU 4. N/C
	RK 4.23T-* WK 4.23T-*	RS 4.23T-* WS 4.23T-*	ITC/PLTC PVC Grey, 2x20 AWG, 105 °C, 5.1 mm OD, Flexlife	1. BN 2. N/C 3. N/C 4. BU

We reserve the right to make technical alterations without prior notice.

\* 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.

Add "/S1077" to end of part number for silicone tubing assembled to pigtail or extension cordsets up to 4 meters (0.5 meter min. on extensions).

## 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 4T-*/S3415 WK 4T-*/S3415	RS 4T-*/S3415 WS 4T-*/S3415	Yellow Aramid overbraid, AWM TPE black, 3x22 AWG, 105 °C, 5.1 mm OD, Weld Flash Immune Flame Resistance	
	RK 4T-*/S90 WK 4T-*/S90	RS 4T-*/S90 WS 4T-*/S90	AWM TPU Grey, 3x22 AWG, 90 °C, 4.8 mm OD, 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, Flexlife-20, High Flex Over 20 Million Cycles	1. BN 2. N/C 3. BU 4. BK
	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, Cut/Abrasion Immune Braided Mechanical Shield	
	RK 4T-*/S715 WK 4T-*/S715	RS 4T-*/S715 WS 4T-*/S715	ITC/PLTC PVC Yellow, 3x22 AWG, 105 °C, 5.1 mm OD, 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, Flexlife	
	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, RFI/EMI Shielding, Tray Rated	

We reserve the right to make technical alterations without prior notice.

Connectivity

\* 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.

Add "/S1077" to end of part number for silicone tubing assembled to pigtails or extension cordsets up to 4 meters (0.5 meter min. on extensions).

† Available with TPU cable with PTFE protective tubing by adding /S1291. Max length for this option is 5 meters.

# M12 Eurofast Connectivity

## 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 4.4T-*/S3415 WK 4.4T-*/S3415	RS 4.4T-*/S3415 WS 4.4T-*/S3415	Yellow Aramid overbraid, AWM TPE black, 4x22 AWG, 105 °C, 5.1 mm OD, Weld Flash Immune Flame Resistance	Female 1. BN 2. WH 3. BU 4. BK
WK ..** 	RK 4.4T-*/S1587 WK 4.4T-*/S1587	RS 4.4T-*/S1587 WS 4.4T-*/S1587	ITC/PLTC TPE Yellow, 4x22 AWG, 105 °C, 5.3 mm OD, Weld Flash Immune, Flame Resistance	Male
RS ..** 	RK 4.4T-*/S90 WK 4.4T-*/S90	RS 4.4T-*/S90 WS 4.4T-*/S90	ITC/PLTC PVC Grey, 4x20 AWG, 105 °C, 5.1 mm OD, Flexlife®	
WS ..** 	RK 4.4T-*/S101 WK 4.4T-*/S101	RS 4.4T-*/S101 WS 4.4T-*/S101	AWM TPU Grey, 4x22 AWG, 90 °C, 4.8 mm OD, Cut/Abrasion Immune	
			AWM TPE Grey, 4x22 AWG, 105 °C, 4.8 mm OD, Flexlife-20, High Flex Over 20 Million Cycles	

We reserve the right to make technical alterations without prior notice.

Dimension Drawings	Part Number	Features	Wiring Diagrams	Pinouts
	VBRS 4.4-2RK 4T-*/S3415	Yellow aramid overbraid, AWM TPE black, 3x22 AWG, 105 °C, 5.1 mm OD. Combine two sensors into one cable. Connects directly to Eurofast junction box.	Wiring diagram showing a TRUNK connection to two BRANCH #1 and BRANCH #2, each with four pins (1, 2, 3, 4) connected in series.	Female 4-pin Male 4-pin

\* 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.

Add "/S1077" to end of part number for silicone tubing assembled to pigtail or extension cordsets up to 4 meters (0.5 meter min. on extensions).

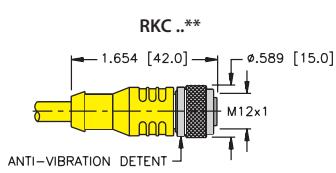
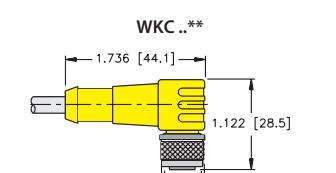
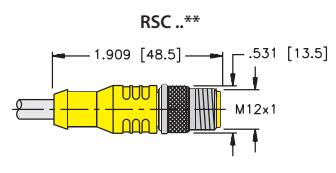
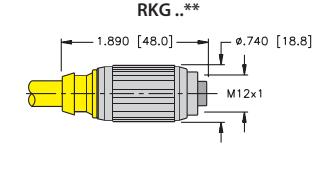
† Available with TPU cable with PTFE protective tubing by adding /S1291. Max length for this option is 5 meters.

## M12 Eurofast Connectivity

### 2, 3, 4-Wire Cordsets, "C" Style, Medium Plug Body, "G" Style, Large Plug Body

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



Connector Style	Female Part Number	Male Part Number	Features	Pinout
	RKC 4.2T-* WKC 4.2T-*	RSC 4.2T-* WSC 4.2T-*	ITC/PLTC PVC Yellow, 2x18 AWG, 105 °C, 6.2 mm OD, Flexlife	1. N/C 2. N/C 3. BN 4. BU
	RKC 4.4T-*/S1587 WKC 4.4T-*/S1587	RSC 4.4T-*/S1587 WKC 4.4T-*/S1587	ITC/PLTC PVC Yellow, 3x18 AWG, 105 °C, 6.2 mm OD, Flexlife	1. BN 2. N/C 3. BU 4. BK
	RKC 4.4T-*/S1587 WKC 4.4T-*/S1587	RSC 4.4T-*/S1587 WKC 4.4T-*/S1587	ITC/PLTC TPU Yellow, 4x18 AWG, 105 °C, 6.9 mm OD, Weld Flash Immune, Flexlife	1. BN 2. WH 3. BU 4. BK
	RKG 4T-*	RSG 4T-*	ITC/PLTC PVC Yellow, 3x18 AWG, 105 °C, 6.2 mm OD, Flexlife, tray rated	1. BN 2. N/C 3. BU 4. BK
	RKG 4-*/S600	RSG 4T-*/S600	SJOWW, CPE Yellow, 3.18 AWG, 105 °C, 8.0 mm OD, Weld Flash Immune, Flame Resistance	1. Male 2. 3 3. 4 4. 2

We reserve the right to make technical alterations without prior notice.

Connectivity

\* 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.

Add "/S1077" to end of part number for silicone tubing assembled to pigtail or extension cordsets up to 4 meters (0.5 meter min. on extensions).

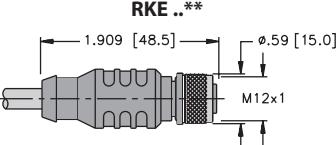
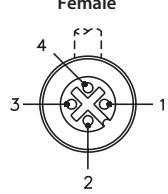
Add "/S1092" to end of part number for PTFE coated coupling nuts.

# M12 Eurofast Connectivity

## 4-Wire Cordsets with PNP to NPN Converter

- NEMA 1, 3, 4, 6P
- IEC IP68 Protection
- 24 VDC, 0.1 A
- PNP to NPN Signal Conversion



Connector Style	Female Part Number	Features	Pinout
 <b>RKE .. **</b>	RKE 4.4T-*/S849/PNP-NPN WKE 4.4T-*/S849/PNP-NPN	ITC/PLTC PVC Grey, 4.22 AWG, 105 °C, 5.3 mm OD, Flexlife	
	RKE 4.4T-*/S90/S849/PNP-NPN WKC 4.4T-*/S90/S849/PNP-NPN	AWM TPU Grey 4x22 AWG, 90 °C, 5.1 mm OD, Cut/Abrasion Immune	
	RKE 4.4T-*/S849/S1587/PNP-NPN WKC 4.4T-*/S849/S1587/PNP-NPN	ITC/PLTC TPE Yellow, 4x22 AWG, 105 °C, 5.3 mm OD, Weld Flash Immune, Flame Resistance	

\* 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.

Add "/S1077" to end of part number for silicone tubing assembled to pigtail or extension cordsets up to 4 meters (0.5 meter min. on extensions).

Add "/S1092" to end of part number for PTFE coated coupling nuts.

We reserve the right to make technical alterations without prior notice.

## 1/2" Microfast Connectivity

## 3-Wire Cordsets, Standard Duty and Large Plug Body

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



Connector Style	Female Part Number	Male Part Number	Features	Pinout
	KB 3T-* WKB 3T-*	SB 3T-* WSB 3T-*	ITC/PLTC PVC Yellow, 3x22 AWG, 105 °C, 5.1 mm OD	
	KB 3T-*/S90 WKB 3T-*/S90	SB 3T-*/S90 WSB 3T-*/S90	AWM TPU Yellow, 3x18 AWG, 90 °C, 5.3 mm OD, Cut/Abrasion Immune	1. GN 2. RD/BK 3. RD/WH
	KBE 3T-*/S600 WKBE 3T-*/S600	SBE 3T-*/S600 WSBE 3T-*/S600	SJOOW CPE Yellow, 3x18 AWG, 105 °C, 8.0 mm OD, Weld Flash Immune, Flame Immune	
	KBE 3T-*/S1587 WKBE 3T-*/S1587	SBE 3T-*/S1587 WSBE 3T-*/S1587	ITC/PLTC PVC Yellow, 3x18 AWG, 105 °C, 6.2 mm OD, Weldlife, Weld Flash Immune	
	KB 3T-*/S1507 WKB 3T-*/S1507	SB 3T-*/S1507 WSB 3T-*/S1507	AWM TPE Grey, 3x22 AWG 105 °C, 4.8 mm OD, Flexlife-20, High Flex - Over 20 million cycles	

We reserve the right to make technical alterations without prior notice.

Connectivity

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

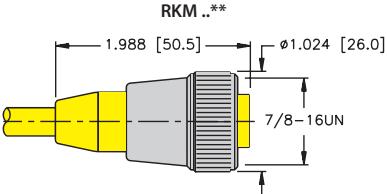
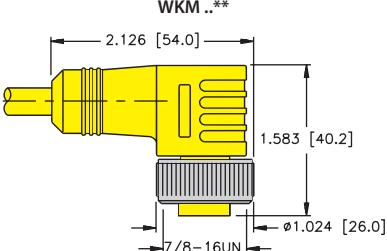
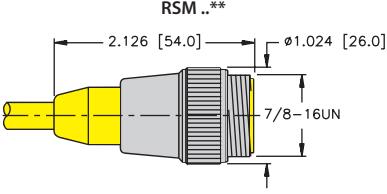
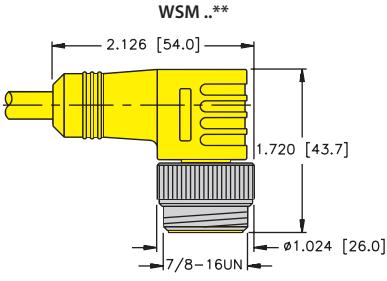
\*\* Standard coupling nut material is nickel plated brass "KB .."; "KBK .." indicates nylon and "KBV .." indicates stainless steel.

## 7/8" Minifast Connectivity Products

### 2 and 3-Wire Cordsets, Standard & Heavy Duty

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



Connector Style	Female Part Number	Male Part Number	Features	Pinout
	RKM 31-*M WKM 31-*M	RSM 31-*M WSM 31-*M	ITC/PLTC PVC Yellow, 3x18 AWG, 105 °C, 6.2 mm OD, Flexlife, 600 V	1. BK 2. BN 3. BU
	RKM 31-*M/S600 WKM 31-*M/S600	RSM 31-*M/S600 WSM 31-*M/S600	SJOOW CPE Yellow, 3x18 AWG, 105 °C, 8.0 mm OD, Weld Flash Immune, Flame Immune, 300 V	
	RKM 30-*M WKM 30-*M	RSM 30-*M WSM 30-*M	ITC/PLTC PVC Yellow, 3x18 AWG, 105 °C, 6.2 mm OD, Flexlife, 600 V	1. GN/YE 2. BN 3. BU
	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, Cut Abrasion Immune, 600 V	
	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, Flexlife-20, high flex over 20 million cycles, 600 V C-track	
	RKM 311-*M WKM 311-*M	RSM 311-*M WSM 311-*M	ITC/PLTC PVC Yellow, 3x18 AWG, 105 °C, 6.2 mm OD, Flexlife, 600 V	1. GN 2. RD/BK 3. RD/WH
	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, 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 "RKH .." indicates stainless steel hex.

We reserve the right to make technical alterations without prior notice.

## Connectivity Accessories

## Braided Fiberglass Sleeving



Part Number	Specifications	Application	Features
FFV 1/4INCH BLACK 50 FOOT ROLL <sup>†</sup> FFV 1/4INCH BLACK (10/BAG-6IN) <sup>†</sup>	Viton (fluoroelastomer) coated, braided fiberglass, black, 1/4" diameter, -70 to +220 °C, NEMA TF-1		
FFV 3/8INCH BLACK 50 FOOT ROLL <sup>†</sup> FFV 3/8INCH BLACK (10/BAG-6IN) <sup>†</sup>	Viton (fluoroelastomer) coated, braided fiberglass, black, 3/8" diameter, -70 to +220 °C, NEMA TF-1		
FFV 1/2INCH BLACK 50 FOOT ROLL <sup>†</sup> FFV 1/2INCH BLACK (10/BAG-6IN) <sup>†</sup>	Viton (fluoroelastomer) coated, braided fiberglass, black, 1/2" diameter, -70 to +220 °C, NEMA TF-1	Protective sleeving for insulation of cable.	Excellent chemical and solvent resistance. Coating offers improved flexibility and protection throughout a wide operating temperature range.
FFV 5/8INCH BLACK 50 FOOT ROLL <sup>†</sup> FFV 5/8INCH BLACK (10/BAG-6IN) <sup>†</sup>	Viton (fluoroelastomer) coated, braided fiberglass, black, 5/8" diameter, -70 to +220 °C, NEMA TF-1		
FFV 1INCH BLACK 50 FOOT ROLL <sup>†</sup> FFV 1INCH BLACK (10/BAG-6IN) <sup>†</sup>	Viton (fluoroelastomer) coated, braided fiberglass, black, 1" diameter, -70 to +220 °C, NEMA TF-1		
FFV 1 1/2INCH BLACK 50 FOOT ROLL <sup>†</sup> FFV 1 1/2INCH BLACK (10/BAG-6IN) <sup>†</sup>	Viton (fluoroelastomer) coated, braided fiberglass, black, 1 1/2" diameter, -70 to +220 °C, NEMA TF-1		

We reserve the right to make technical alterations without prior notice.

## Braided Fiberglass Sleeving Acryl-Coated (Bulk)

Part Number	Specifications	Application	Features
FF 3/4INCH BLACK (10/BAG) <sup>†</sup> FF 3/4INCH BLACK 50 FOOT ROLL <sup>†</sup>	Acryl-coated, braided fiberglass, 3/4" diameter, -70 to +240 °C, NEMA TF-1	Protective sleeving for insulation of cable.	Excellent chemical and solvent resistance.
FF 1/2INCH BLACK (10/BAG) <sup>†</sup> FF 1/2INCH BLACK 50 FOOT ROLL <sup>†</sup>	Acryl-coated, braided fiberglass, 1/2" diameter, -70 to +240 °C, NEMA TF-1		

<sup>†</sup> Sleeving part numbers only; cordset not included.

## Connectivity Accessories

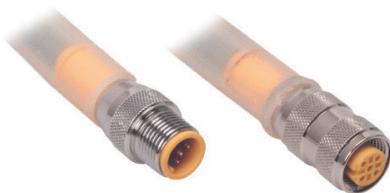
### Expandable Silicone Rubber Coated, Fiberglass Sleeving (Bulk)



Part Number	Specifications	Application	Features
FFFS WHT ID 3/8-INCH-30M <sup>†</sup> FFFS WHT ID 3/8-INCH (10/BAG-6IN) <sup>†</sup>	Fiberglass braid, silicone rubber coating, white, 3/8" diameter, -55 to +200 °C, NEMA TF-1		
FFFS WHT ID 5/8-INCH-30M <sup>†</sup> FFFS WHT ID 5/8-INCH (10/BAG-6IN) <sup>†</sup>	Fiberglass braid, silicone rubber coating, white, 5/8" diameter, -55 to +200 °C, NEMA TF-1		
FFFS BLK ID 3/4-INCH-30M <sup>†</sup> FFFS BLK ID 3/4-INCH (10/BAG-6IN) <sup>†</sup>	Fiberglass braid, silicone rubber coating, black, 3/4" diameter, -55 to +200 °C, NEMA TF-1	Expandable silicone coated fiberglass sleeving for protection of cable and coupling nut.	"Heat shrink"-like fit with abrasion, moisture, cut-through, chemical and weld slag resistance.
FFFS BLK ID 1-INCH-30M <sup>†</sup> FFFS BLK ID 1-INCH (10/BAG-6IN) <sup>†</sup>	Fiberglass braid, silicone rubber coating, black, 1" diameter, -55 to +200 °C, NEMA TF-1		

<sup>†</sup> Sleeving part numbers only; cordset not included.

### Silicone Tubing (\*Bulk)



Part Number	Specifications	Application	Features
ST ID 1/4-INCH-30M <sup>†</sup> ST ID 1/4-INCH (10/BAG-6IN) <sup>†</sup>	Silicone rubber tubing, translucent, 1/4" diameter, UL		
ST ID 3/8-INCH-30M <sup>†</sup> ST ID 3/8-INCH (10/BAG-6IN) <sup>†</sup>	Silicone rubber tubing, translucent, 3/8" diameter, UL		
ST ID 3/8-INCH-30M <sup>†</sup> ST ID 3/8-INCH (10/BAG-6IN) <sup>†</sup>	Silicone rubber tubing, translucent, 1/2" diameter, UL	Protective tubing for insulation of cable.	Excellent weld slag resistance.
ST ID 3/4-INCH-30M <sup>†</sup> ST ID 3/4-INCH (10/BAG-6IN) <sup>†</sup>	Silicone rubber tubing, translucent, 3/4" diameter, UL		

Add "/S1077" to end of part number to get silicone tubing assembled to pigtail or extension cordsets, up to 4 meters (Picofast, Eurofast, Microfast and Minifast; 0.5 meter min. on extensions).

<sup>†</sup> Sleeving part numbers only; cordset not included.

We reserve the right to make technical alterations without prior notice.

## Connectivity Accessories

## Weld Shield Sleeve - Hook and Loop Closure



Part Number	Specifications	Application	Features
FFW 1INC 2FOOT	Plain weave fiberglass, neoprene coated, black, 1" Bundle OD, 3.25" circumference, 4" Sleeve Width Flat, Tested to ISO 6945, -40 to +204 °C Temperature Resistance	Applicable sleeve for protection of cable.	Sleeve offers excellent resistance to abrasion, water, most chemicals, heat, sparks, and flame in a wide operating temperature range, while being lightweight, tough, and highly flexible.
FFW 2INC 2FOOT	Plain weave fiberglass, neoprene coated, black, 2" Bundle OD, 6" circumference, 7.75" Sleeve Width Flat, Tested to ISO 6945, -40 to +204 °C Temperature Resistance		
FFW 3INC 2FOOT*	Plain weave fiberglass, neoprene coated, black, 3" Bundle OD, 9.4" circumference, 11" Sleeve Width Flat, Tested to ISO 6945, -40 to +204 °C Temperature Resistance		
FFW 4INC 2FOOT*	Plain weave fiberglass, neoprene coated, black, 4" Bundle OD, 12.5" circumference, 14" Sleeve Width Flat, Tested to ISO 6945, -40 to +204 °C Temperature Resistance		
FFW 5INC 2FOOT	Plain weave fiberglass, neoprene coated, black, 5" Bundle OD, 15.75" circumference, 17.25" Sleeve Width Flat, Tested to ISO 6945, -40 to +204 °C Temperature Resistance		
FFW 6INC 2FOOT	Plain weave fiberglass, neoprene coated, black, 6" Bundle OD, 18.8" circumference, 20.375" Sleeve Width Flat, Tested to ISO 6945, -40 to +204 °C Temperature Resistance		
FFW 7INC 2FOOT	Plain weave fiberglass, neoprene coated, black, 7" Bundle OD, 22" circumference, 23.5" Sleeve Width Flat, Tested to ISO 6945, -40 to +204 °C Temperature Resistance		
FFW 8INC 2FOOT	Plain weave fiberglass, neoprene coated, black, 8" Bundle OD, 25.125" circumference, 26.625" Sleeve Width Flat, Tested to ISO 6945, -40 to +204 °C Temperature Resistance		

\* 25 foot spool also available.

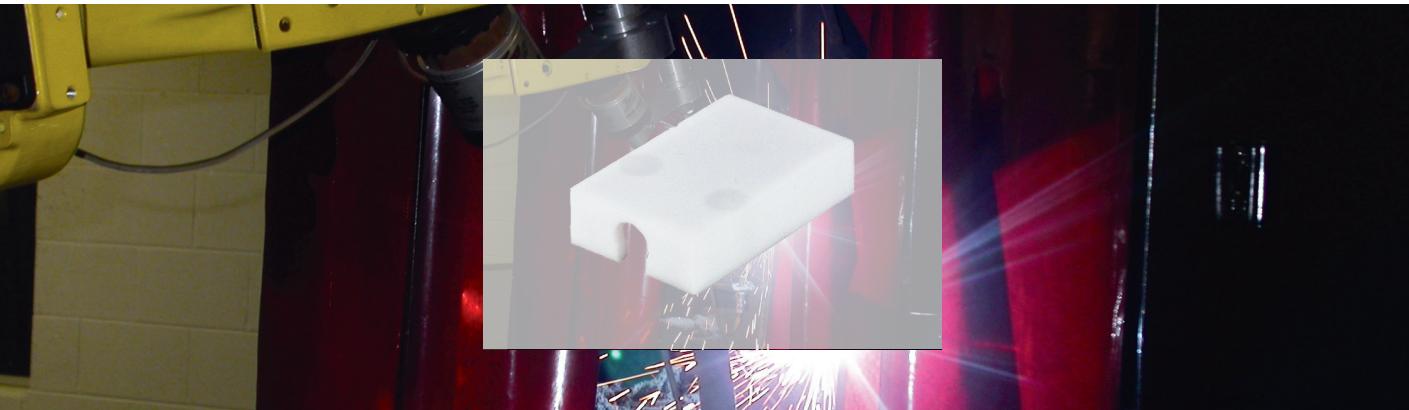
## Weld Seal Tape



Part Number	Specifications	Application	Features
FST 1IN 12YARDS	Silicone rubber, Clear, 1" width, 12 yard length, -40 to +204 °C	Applicable clear tape protecting open areas between silicone tubing and mold.	Tape offers excellent resistance to water, most chemicals, heat, sparks, and flame in a wide operating temperature range, while being lightweight and highly flexible.

## Notes





## Accessories

A variety of accessories are available to help protect sensors from weld spatter and physical damage.

- Cushion mount accessory protects sensor when used as an end stop
- PTFE and ceramic caps protect the sensor face from weld spatter
- Armorguard sleeves
- Protective cable sleeving
- PTFE coated quick mount allow for quick change mounting

■ Protects against:



Impact



MIG/TIG Weld



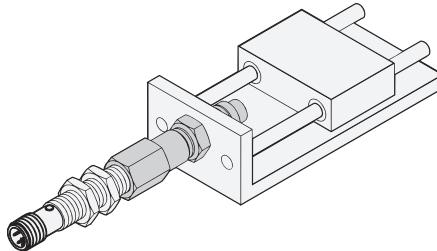
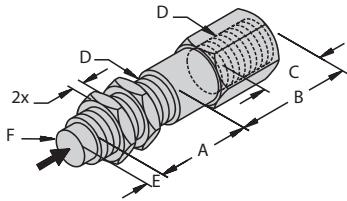
Resistance Welding

	Die Protector	Whisker Probe	Quick Mount	Cushion Mount	Mounting Brackets
Pages	110	110	111	111	112

	Mounting Clamps	PTFE/Ceramic Caps	Protective Covers	Lockwashers and Locknuts	Armorguard Sleeves
Pages	114	115	116	117	118

## Accessories

### 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]

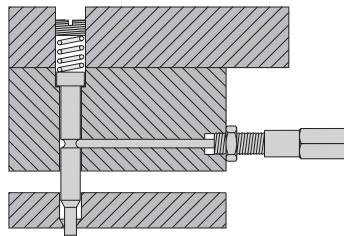
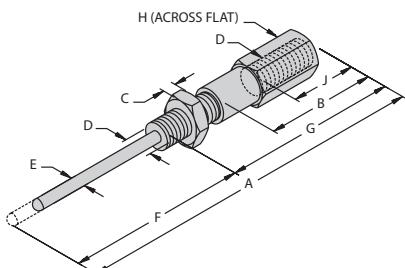
Spring rate for plunger actuation: 9 oz

### 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]

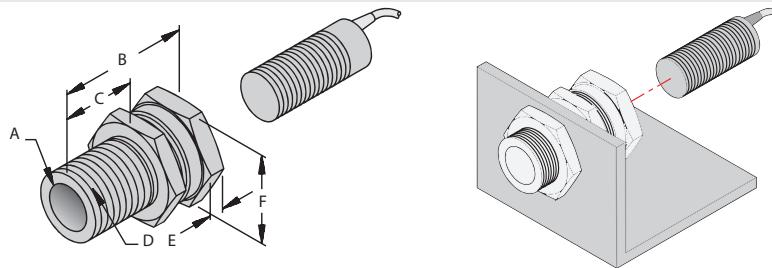
### Recommended Sensors for Whisker Probe

Whisker Probe	WP-08-50-03	WP-12-50-03	WP-12-50-06
Sensors	Bi1-G08-AN6 Bi1.5-G08-AP6X	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.

## Accessories

## Quick Mount

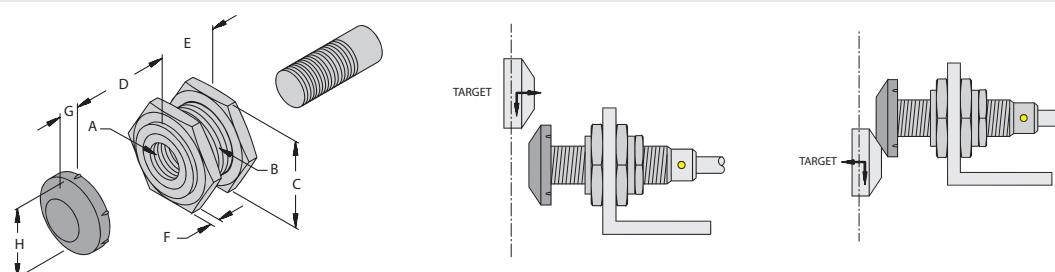


Part Number	ID Number	Features	A	B	C	D	E	F
QM-08	A2511	—	0.32 [8.18]	1.28 [32.4]	0.69 [17.5]	M12x1	0.15 [3.85]	0.67 [16.9]
QM-08L	A2512	Ext. Length	0.32 [8.18]	1.90 [48.0]	1.34 [34.0]	M12x1	0.15 [3.85]	0.67 [16.9]
QM-12	A2513	—	0.48 [12.1]	1.34 [33.7]	0.77 [19.5]	M16x1	0.16 [4.01]	0.86 [21.8]
QM-12L	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

## 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]

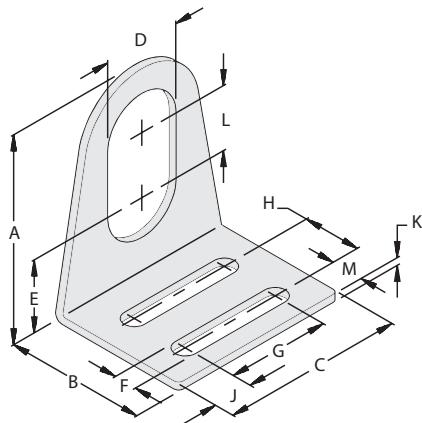
Material: Anodized aluminum

Cap: Plastic

Stainless versions available (CM-\*NSS)

## Accessories

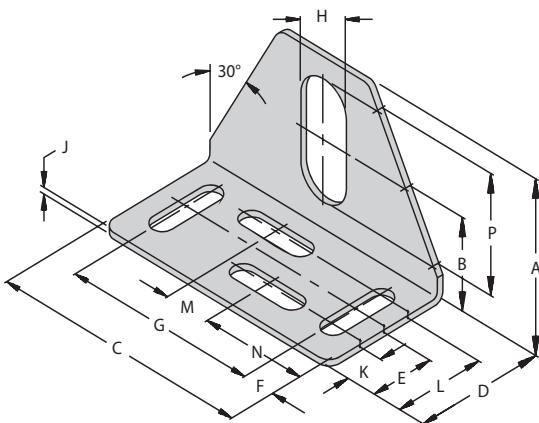
### Mounting Brackets



Part Number	ID Number	Barrel Diameter	A	B	C	D	E	F	G	H	J	K	L	M
MBSS-08	A2522	8 mm	1.00 [25.4]	1.13 [28.7]	1.25 [31.8]	0.34 [8.74]	0.31 [7.92]	0.22 [5.54]	0.63 [15.9]	0.47 [11.9]	0.31 [7.92]	0.070 [1.78]	0.37 [9.53]	0.28 [7.14]
MBSS-12	A2523	12 mm	1.50 [38.1]	1.37 [34.8]	1.50 [38.1]	0.50 [12.7]	0.55 [13.9]	0.22 [5.54]	0.75 [19.1]	0.56 [14.3]	0.37 [9.53]	0.070 [1.78]	0.50 [12.7]	0.31 [7.92]
MBSS-18	A2524	18 mm	2.00 [50.8]	1.37 [34.8]	1.75 [44.5]	0.75 [19.1]	0.22 [19.1]	0.22 [5.54]	1.00 [25.4]	0.56 [14.3]	0.37 [9.53]	0.070 [1.78]	0.62 [15.9]	0.31 [7.92]
MBSS-30	A2525	30 mm	2.50 [63.5]	1.75 [44.5]	2.25 [57.2]	1.18 [30.5]	0.91 [23.0]	0.22 [5.54]	1.37 [34.8]	0.81 [20.6]	0.44 [11.2]	0.085 [2.16]	0.75 [19.1]	0.41 [10.3]

Inches [mm]

Material: 304 stainless steel



Part Number	ID Number	Barrel Diameter	A	B	C	D	E	F	G	H	J	K	L	M	N	P
MB-8	A3130-1	8 mm	1.26 [32.0]	0.66 [16.7]	2.00 [50.8]	1.00 [25.4]	0.45 [11.5]	0.30 [7.5]	1.41 [35.8]	0.33 [8.4]	0.06 [1.5]	0.24 [6.0]	0.67 [17.0]	0.35 [8.8]	0.83 [21.0]	.84 [21.4]
MB-12	A3130	12 mm	1.63 [41.5]	0.87 [22.15]	2.50 [63.5]	1.25 [31.8]	0.61 [15.5]	0.31 [7.9]	1.88 [47.8]	0.50 [12.7]	0.06 [1.5]	0.35 [9.0]	0.87 [22.0]	0.45 [11.5]	1.02 [26.0]	1.13 [28.7]
MB-18	A3135	18 mm	1.63 [41.5]	0.79 [20.0]	2.50 [63.5]	1.25 [31.8]	0.61 [15.5]	0.31 [7.9]	1.88 [47.8]	0.75 [19.1]	0.06 [1.5]	0.35 [9.0]	0.87 [22.0]	0.45 [11.5]	1.04 [26.3]	1.15 [29.1]
MB-30	A3140	30 mm	2.62 [66.5]	1.32 [33.5]	4.25 [108.0]	1.75 [44.5]	0.88 [22.4]	0.37 [9.5]	3.50 [88.9]	1.19 [30.2]	0.07 [1.8]	0.63 [16.0]	1.14 [29.0]	1.18 [30.0]	1.54 [39.0]	2.06 [52.2]

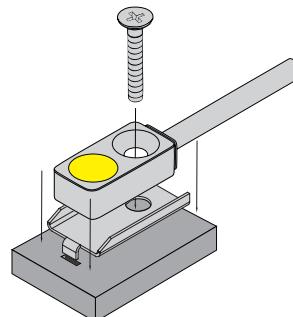
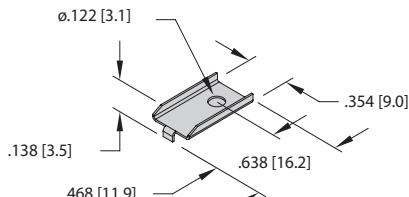
Inches [mm]

Material: Cold roll steel

Finish: Galvanized

## Accessories

## Mounting Brackets

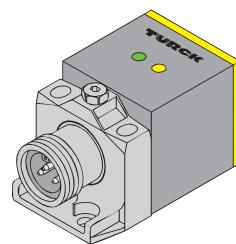
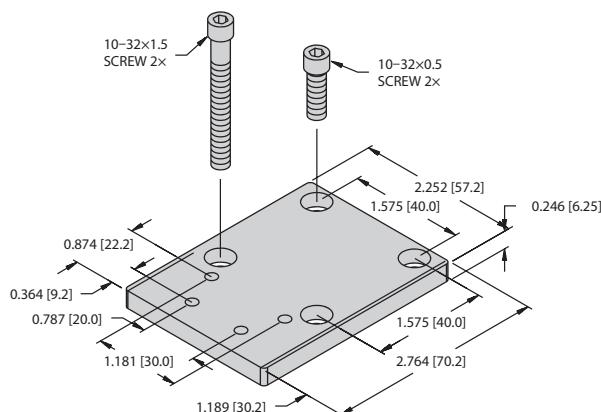
**MW-Q4.7/5.5**

Part Number	ID Number
MW-Q4.7/5.5	6945013

Inches [mm]

Material: Stainless steel

\*For surface mounting of Q4.7 or Q5.5 sensors

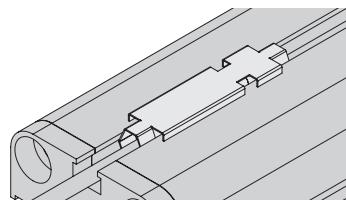
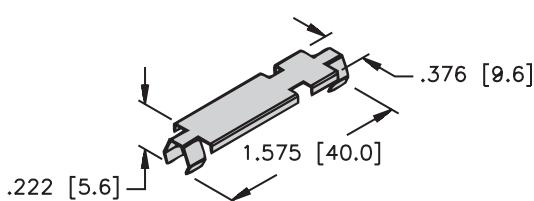
**MB-Q50/CK40**

Part Number	ID Number
MB-Q50/CK40	A3148

Inches [mm]

Material: Stainless steel

\*For use with Q50 or CK40 sensors

**SG-UNT**

Part Number	ID Number
SG-UNT	A9800

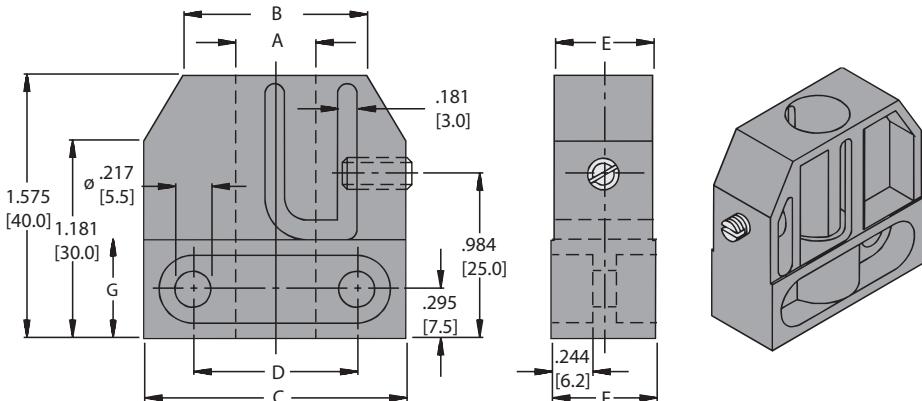
Inches [mm]

Material: Nickel-plated steel

\*For use with BIM-UNT cylinder sensors

## Accessories

### Mounting Clamps



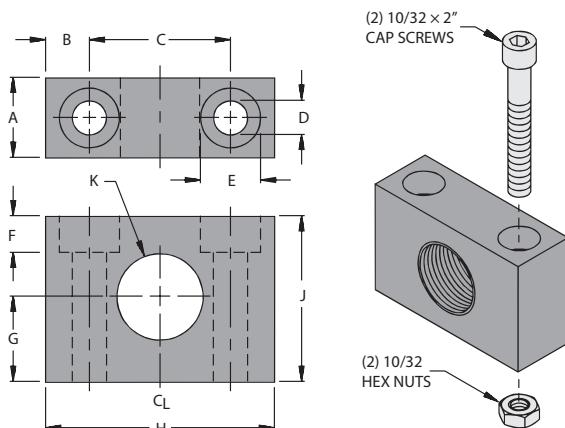
Part Number	ID Number	Barrel Diameter	A	B	C	D	E	F	G
BS-12	M6947000	12 mm	0.48 [12.2]	1.10 [28.0]	1.57 [40.0]	0.98 [25.0]	0.59 [15.0]	0.63 [16.0]	0.59 [15.0]
BS-18	M6947100	18 mm	0.72 [18.2]	1.30 [33.0]	1.77 [45.0]	1.18 [30.0]	0.83 [21.0]	0.87 [22.0]	0.59 [15.0]

Inches [mm]

Material: PA 66-GF

\*For use with 12 and 18 mm threaded barrel sensors

We reserve the right to make technical alterations without prior notice.



Part Number	ID Number	Barrel Diameter	A	B	C	D	E	F	G	H	J	K
MB-S12	A3150	12 mm	0.44 [11.2]	0.24 [6.2]	0.77 [19.6]	0.20 [5.0]	0.34 [8.7]	0.20 [5.0]	0.45 [11.4]	1.26 [32.0]	0.91 [23.0]	M12x1
MB-S18	A3155	18 mm	0.63 [16.0]	0.30 [7.6]	1.20 [30.5]	0.22 [5.5]	0.38 [9.6]	0.25 [6.4]	0.57 [14.5]	1.80 [45.8]	1.15 [29.3]	M18x1

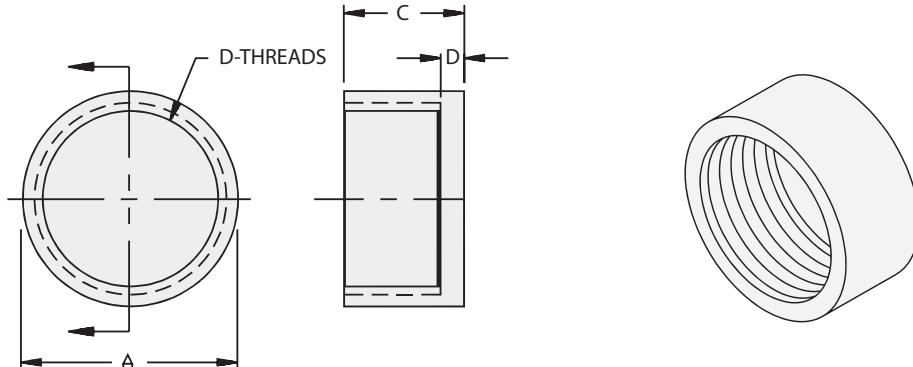
Inches [mm]

Material: Delrin

\*For use with 12 and 18 mm threaded barrel sensors. Mounting hardware included.

## Accessories

## PTFE / Ceramic Caps



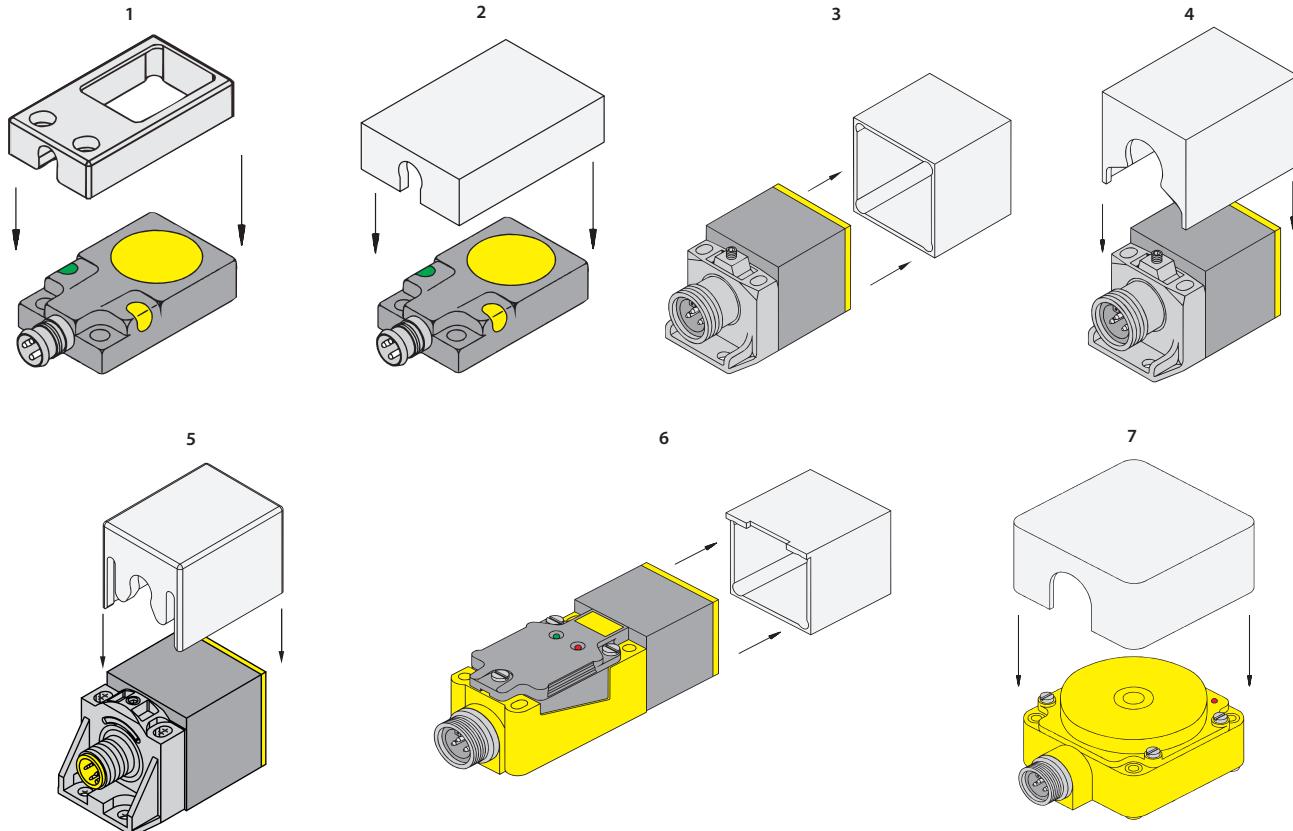
We reserve the right to make technical alterations without prior notice.

Part Number	ID Number	Barrel Diameter	Material	A	B	C	D
CAP 08-PTFE	A3055-1	8 mm Embeddable	PTFE	0.375 [9.5]	0.03 [0.7]	0.437 [11.1]	M8x1
CAP 08-DER	A9326	8 mm Embeddable	Delrin	0.375 [9.53]	0.03 [0.76]	0.437 [11.1]	M8x1
CAP 12-PTFE	M6966200	12 mm Embeddable	PTFE	0.63 [16.0]	0.03 [0.7]	0.63 [16.0]	M12x1
CAP 12-CER	A2530	12 mm Embeddable	Ceramic	0.58 [14.7]	0.035 [.89]	0.35 [8.90]]	M12x1
CAP 12-DER	A9321	12 mm Embeddable	Delrin	0.58 [14.7]	0.035 [.89]	0.35 [8.90]	M12x1
CAP 12N-CER	A9129	12 mm Non-embeddable	Ceramic	0.58 [14.7]	0.035 [.89]	0.60 [15.2]	M12x1
CAP 12N-DER	A9322	12 mm Non-embeddable	Delrin	0.58 [14.7]	0.035 [.89]	0.60 [15.2]	M12x1
CAP 18-PTFE	A3055	18 mm Embeddable	PTFE	0.87 [22.0]	0.04 [1.0]	0.35 [9.0]	M18x1
CAP 18N-PTFE	A3056	18 mm Non-embeddable	PTFE	0.87 [22.0]	0.04 [1.0]	0.79 [20.0]	M18x1
CAP 18-CER	A2531	18 mm Embeddable	Ceramic	0.95 [24.1]	0.045 [1.14]	0.35 [8.90]	M18x1
CAP 18-DER	A9323	18 mm Embeddable	Delrin	0.95 [24.1]	0.045 [1.14]	0.35 [8.90]	M18x1
CAP 18N-CER	A3056-4	18 mm Non-embeddable	Ceramic	0.95 [24.1]	0.045 [1.14]	0.70 17.8	M18x1
CAP 18N-DER	A9324	18 mm Non-embeddable	Delrin	0.95 [24.1]	0.045 [1.14]	0.70 17.8	M18x1
CAP 30-PTFE	A3057	30 mm Embeddable	PTFE	1.34 [34.0]	0.05 [1.2]	0.35 [9.0]	M30x1.5
CAP 30N-PTFE	A3058	30 mm Non-embeddable	PTFE	1.34 [34.0]	0.05 [1.2]	1.14 [29.0]	M30x1.5
CAP 30-CER	A2532	30 mm Embeddable	Ceramic	1.50 [38.1]	0.08 [2.03]	0.39 [9.90]	M30x1.5
CAP 30-DER	A9325	30 mm Embeddable	Delrin	1.50 [38.1]	0.08 [2.03]	0.39 [9.90]	M30x1.5
CAP 30N-DER	A9320	30 mm Non-embeddable	Delrin	1.50 [38.1]	0.08 [2.03]	1.00 [25.4]	M30x1.5
CAP 47-PTFE	A3060	47 mm Embeddable	PTFE	2.20 [55.8]	0.06 [1.6]	0.38 [9.7]	PG 36

Inches [mm]

## Accessories

### Protective Covers

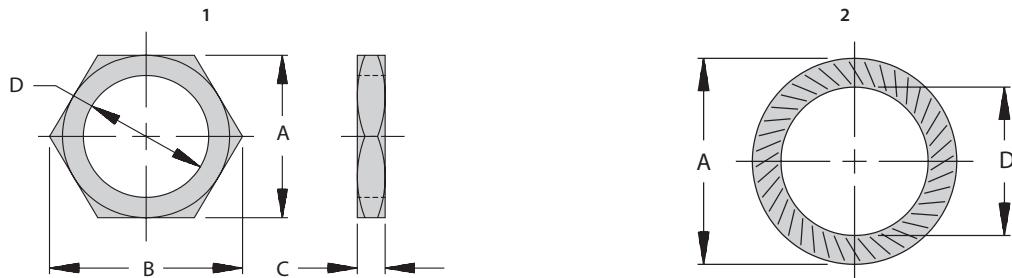


We reserve the right to make technical alterations without prior notice.

Part Number	ID Number	Material	For Use With Sensor Housing	Drawing Image
MBS-Q08TS	A9492	Nickel Plated Steel	Q08	1
T-Q08-T-MCC	A5155	PTFE	Q08	2
T-Q14-T-MCC	A5154	PTFE	Q14	2
T-Q20-T-MCC	A5156	PTFE	Q20	2
T-CK40-T-FC	A5202	PTFE	CK40	3
T-CK40-D-FC	A5160	Delrin	CK40	3
T-CK40-T-MCC	A5201	PTFE	CK40	4
T-CK40-T-MCB	A9126	PTFE	CK40	5
T-CP40-T-C	A5204	PTFE	CP40	6
T-CP80-T	A5207	PTFE	CP80	7

## Accessories

## Locknuts and Washers



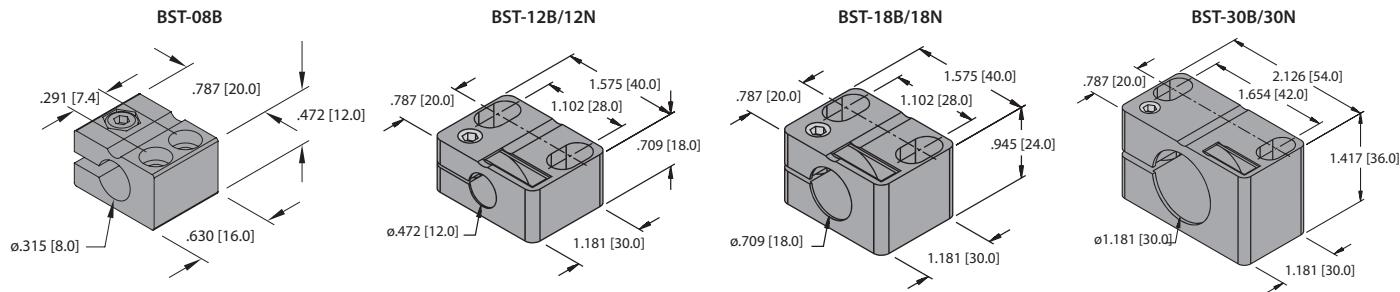
Part Number	ID Number	Barrel Diameter	Materials	A	B	C	D	Dimension Drawing
Locknut-SS08	A3123-08	8 mm	SS	0.51 [13.0]	0.58 [14.7]	0.16 [4.0]	M8x1	1
Locknut-M8X1PTFE	A9696	8 mm	PTFE	0.51 [13.0]	0.58 [14.7]	0.16 [4.0]	M8x1	1
Locknut-M12	A3122	12 mm	CPB	0.67 [17.0]	0.76 [19.4]	0.16 [4.0]	M12x1	1
Locknut-MT12	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-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-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
LW-08	A3124	8 mm	SS	0.55 [14]	N/A	N/A	0.32 [8.2]	2
LW-12	A3127	12 mm	SS	0.70 [17.8]	N/A	N/A	0.52 [13.2]	2
LW-18	A3128	18 mm	SS	1.06 [26.8]	N/A	N/A	0.76 [19.3]	2
LW-30	A3129	30 mm	SS	1.76 [44.8]	N/A	N/A	1.26 [32.0]	2

Inches [mm]

\*For use with threaded barrel sensors

## Accessories

### Mounting Clamps



Part Number	ID Number	Barrel Diameter
BST-08B	6947210	8 mm
BST-12B	6947212	12 mm
BST-12N	6945200	12 mm
BST-18B	6947214	18 mm
BST-18N	6947215	18 mm
BST-30B	6947216	30 mm
BST-30N	6947217	30 mm

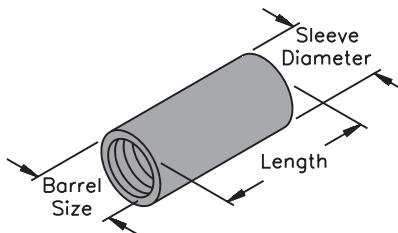
Inches [mm]

B Version comes with dead stop for flush mounted sensors

Material: PA 66-6F

\*For use with threaded barrel sensors

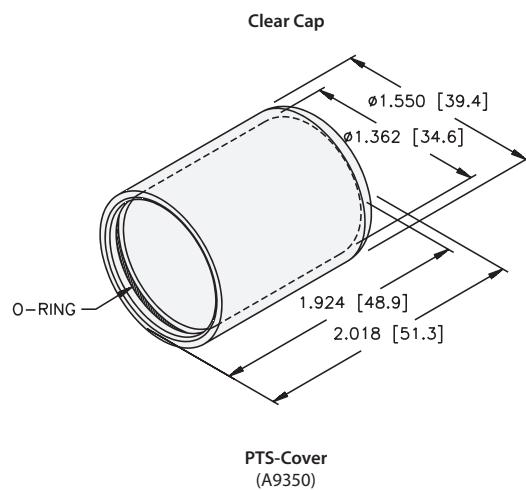
### Armorguard Sleeves



Part Number	ID Number	Barrel Size	Sleeve Diameter	Length
MBS-08TS 7MM	A0835		Ø0.48 [12.1]	0.28 [7.0]
MBS-08TS 15MM	A0835-01	M8x1		0.59 [15.0]
MBS-12TS 15MM	A3152-04			0.59 [15.0]
MBS-12TS 35MM	A3152-01		Ø0.61 [15.6]	1.38 [35.0]
MBS-12TS 45MM	A3152-02	M12x1		1.77 [45.0]
MBS-12TS 50MM	A3152-03			1.97 [50.0]
MBS-18TS 7MM	A0837			0.28 [7.0]
MBS-18TS 15MM	A3143-03			0.59 [15.0]
MBS-18TS 35MM	A3143-01	M18x1	Ø0.85 [21.5]	1.38 [35.0]
MBS-18TS 45MM	A3143-02			1.77 [45.0]
MBS-18TS 50MM	A3143			1.97 [50.0]
MBS-30TS 7MM	A9123	M30x1	Ø1.32 [33.6]	0.28 [7.0]
MBS-30TS 15MM	A9124			0.59 [15.0]

Inches [mm]

\*For use with threaded barrel sensors

**Pressure Sensor Accessories**

**PTS-Cover**  
(A9350)

We reserve the right to make technical alterations without prior notice.

## Notes

## Notes

A large grid of squares, resembling graph paper, intended for users to write their notes.

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We reserve the right to make technical alterations without prior notice.

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## Notes



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