

# Rectangular Inductive Sensor Selection Guide

| Rectangular Style Sensors |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |
|---------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                           |  |  |  |  |  |
| Housing                   | 4.7 mm                                                                            | 5.5 mm                                                                            | 6 mm                                                                              | 8 mm                                                                                | 10 mm                                                                               |
| Sensing Range             | 2 mm                                                                              | 2 - 3.5 mm                                                                        | 3 mm                                                                              | 5 - 8 mm                                                                            | 2 - 5 mm                                                                            |
| Pages                     | A11                                                                               | A11                                                                               | A11                                                                               | A13 - 16                                                                            | A17                                                                                 |
| Features                  |                                                                                   |                                                                                   |                                                                                   | Uprox+                                                                              | Uprox+                                                                              |

| Rectangular Style Sensors |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |
|---------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                           |  |  |  |  |  |
| Housing                   | Variable, with pigtail                                                            | 10 mm                                                                             | 12 mm                                                                             | 14 mm                                                                               | 20 mm                                                                               |
| Sensing Range             | 2 - 7 mm                                                                          | 2 - 4 mm                                                                          | 2 - 5 mm                                                                          | 10 - 20 mm                                                                          | 15 - 25 mm                                                                          |
| Pages                     | A19                                                                               | A21                                                                               | A23                                                                               | A25                                                                                 | A27 - 30                                                                            |
| Features                  |                                                                                   |                                                                                   | Uprox+                                                                            |                                                                                     |                                                                                     |

| Rectangular Style Sensors |                                                                                     |                                                                                     |                                                                                     |                                                                                       |                                                                                       |
|---------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|                           |  |  |  |  |  |
| Housing                   | 18 mm                                                                               | 25 mm                                                                               | 30 mm                                                                               | 40 mm                                                                                 | 40 mm                                                                                 |
| Sensing Range             | 5 - 10 mm                                                                           | 10 mm                                                                               | 15 mm                                                                               | 20 mm                                                                                 | 15 - 50 mm                                                                            |
| Pages                     | A31                                                                                 | A31                                                                                 | A31                                                                                 | A33                                                                                   | A35 - 40                                                                              |
| Features                  |                                                                                     |                                                                                     |                                                                                     | Uprox+                                                                                | Uprox+                                                                                |

| Rectangular Style Sensors |                                                                                     |                                                                                     |                                                                                     |                                                                                       |                                                                                       |
|---------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|                           |  |  |  |  |  |
| Housing                   | 40 mm                                                                               | 80 mm                                                                               | 80 mm                                                                               | 90 mm                                                                                 | Variable                                                                              |
| Sensing Range             | 15 - 50 mm                                                                          | 40 - 75 mm                                                                          | 50 - 75 mm                                                                          | 60 - 100 mm                                                                           | 2 - 50 mm                                                                             |
| Pages                     | A41 - 46                                                                            | A47 - 50                                                                            | A51                                                                                 | A53                                                                                   | A55 - 58                                                                              |
| Features                  | Uprox+                                                                              | Uprox+                                                                              | Uprox+                                                                              |                                                                                       | Intrinsically Safe                                                                    |

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



# Rectangular Inductive Sensor Part Number Key

| B i 15                                                                                                                                                                                                   |  |  |  | - | Q 20 |  | - | A P 6 |  | X2 | Wiring Option*                                                                                                                                                                                                                                                                                                                                                                                              | Special Option Code** |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|---|------|--|---|-------|--|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| <b>Mounting</b><br>B = embeddable<br>N = nonembeddable                                                                                                                                                   |  |  |  |   |      |  |   |       |  |    | <b>Number of LEDs</b><br>(blank) = no LEDs<br>X = 1 LED<br>X2 = 2 LEDs                                                                                                                                                                                                                                                                                                                                      |                       |
| <b>Principle of Operation</b><br>i = inductive                                                                                                                                                           |  |  |  |   |      |  |   |       |  |    | <b>Voltage Range</b><br><b>AC/DC: (No SCP**)</b><br>3 = 20-250 VAC, 10-300 VDC<br>31 = 20-250 VAC, 10-300 VDC, plastic barrel<br><b>AC/DC: (Latched SCP)</b><br>30 = 20-250 VAC, 10-300 VDC 400 mA<br>32 = 20-250 VAC, 10-300 VDC 400 mA<br><b>DC:</b><br>4 = 10-65 VDC, polarity protected, pulsed SCP**<br>6 = 10-30 VDC, polarity protected, pulsed SCP<br>**SCP = short-circuit and overload protection |                       |
| <b>Rated Operating Distance (mm)</b>                                                                                                                                                                     |  |  |  |   |      |  |   |       |  |    | <b>Output</b><br>D = 2-wire DC (transistor output)<br>DZ = 2-wire AC/DC, (power MOSFET output)<br>N = NPN transistor (current sinking)<br>P = PNP transistor (current sourcing)<br>Z = 2-wire AC or 2-wire AC/DC                                                                                                                                                                                            |                       |
| <b>Sensing Characteristics</b><br>S = side sensing on Q10S sensor<br>U = Uprox® Sensor                                                                                                                   |  |  |  |   |      |  |   |       |  |    | <b>Output Function</b><br>A = normally open (N.O.)<br>F = connection programmable (N.O. or N.C.)<br>V = complementary outputs: one N.O., one N.C.<br>Y0 = NAMUR output, requires switching amplifier<br>Y1 = NAMUR output, requires switching amplifier/ATEX approved                                                                                                                                       |                       |
| <b>Housing Style</b><br><b>Rectangular</b><br>K = smooth<br>Q = metal or plastic, various rectangular styles                                                                                             |  |  |  |   |      |  |   |       |  |    | <b>Secondary Housing Modifier</b><br>SR = straight terminal chamber                                                                                                                                                                                                                                                                                                                                         |                       |
| <b>Limit Switch</b><br>CA = Stubby®, short aluminum housing, connector<br>CK = Stubby, short plastic housing, connector<br>CP = Combiprox®, plastic housing, terminal chamber base with removable sensor |  |  |  |   |      |  |   |       |  |    |                                                                                                                                                                                                                                                                                                                                                                                                             |                       |
| <b>Housing Height (mm)</b>                                                                                                                                                                               |  |  |  |   |      |  |   |       |  |    |                                                                                                                                                                                                                                                                                                                                                                                                             |                       |

**NOTE:**  
 Part number keys are to assist in identification only.  
 Verify new part numbers with factory; some configurations are not possible.

Rectangular Inductive Sensors

## Wiring Options\*

### A. Connectorized Sensor

Bi15 - Q20 - AN6X2 - H1 1 4 1

#### Connector Family

- B1 = Minifast®, Metal, Male
- B2 = Minifast, Plastic, Male
- B3 = Microfast®, Metal, Male
- H1 = Eurofast®, Metal or Plastic, Male
- V1 = Picofast®, Metal, Male
- V2 = Picofast, Snap and M8x1, Male (Q08 Only)

#### Connector/Sensor Transition

- 1 = straight

#### Wiring Configuration

##### Example:

- 1 = Standard
- 3 = N.C. DC Output on Pin 4 (for US)

#### Number of Pins

### B. Potted Cable

Bi15 - Q20 - AN6X2 - 7M

#### Cable Length

- Blank = 2 meter cable
- 7M = 7 meter cable

## Special Option Codes\*\*

Bi - 5 - Q08 - AN6XS /S34

#### Option Code

##### Example:

- /S34 = Weld Field Immune
- /S97 = -40 °C (-40 °F) Operating Temperature
- /S100 = +100 °C (+212 °F) Operating Temperature
- /S1590 = CK/CA40 sensors with Weldguard laminate
- /S1591 = CA40 sensors with Weldguard and Armorguard



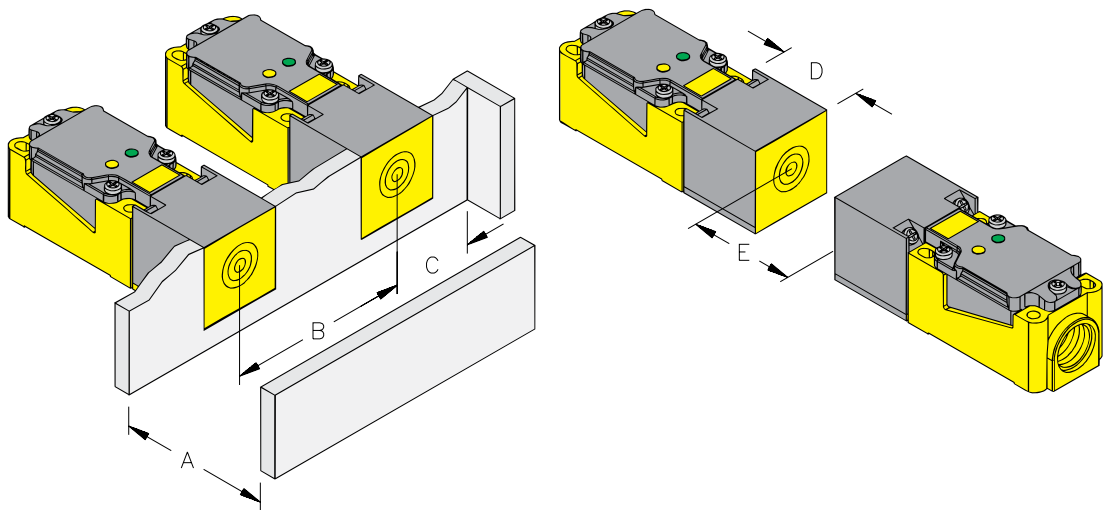
# Rectangular Inductive Sensors

## Mounting

Turck inductive proximity sensors are manufactured with a shielded coil, designated by “Bi” in the part number, and a nonshielded coil, designated by “Ni” in the part number (see page A2). Embeddable (shielded) units may be safely flush-mounted in metal. Nonembeddable (nonshielded) units require a metal free area around the sensing face. Because of possible interference of the electromagnetic fields generated by the oscillators, minimum spacing is required between adjacent or opposing sensors.

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

## Embeddable Mounting Characteristics - Rectangular Housings



### Flush Mountable - CK40 and CP40

| Housing Type   | Sensor Type | A     | B     | C     | D     | E      |
|----------------|-------------|-------|-------|-------|-------|--------|
| CP40/CK40      | Bi15U       | 45.00 | 80.00 | 40.00 | 40.00 | 90.00  |
| CP40/CK40      | Bi15        | 45.00 | 80.00 | 40.00 | 40.00 | 90.00  |
| CP40/CK40/CA40 | Bi20U       | 60.00 | 80.00 | 40.00 | 40.00 | 120.00 |
| CP40           | Bi20        | 60.00 | 80.00 | 40.00 | 40.00 | 120.00 |
| CP40/CK40      | Bi30U       | 90.00 | 80.00 | 40.00 | 40.00 | 180.00 |

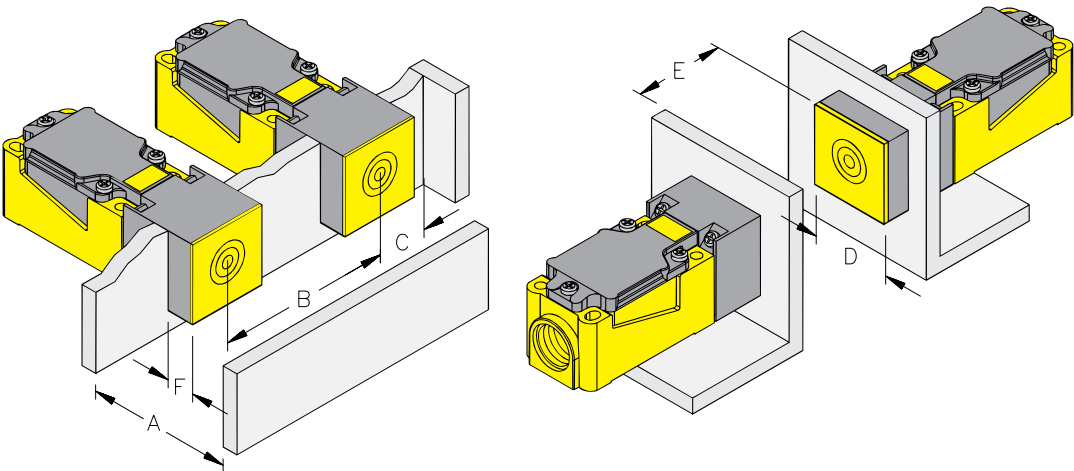
Dimensions are in mm.

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Rectangular Inductive Sensors

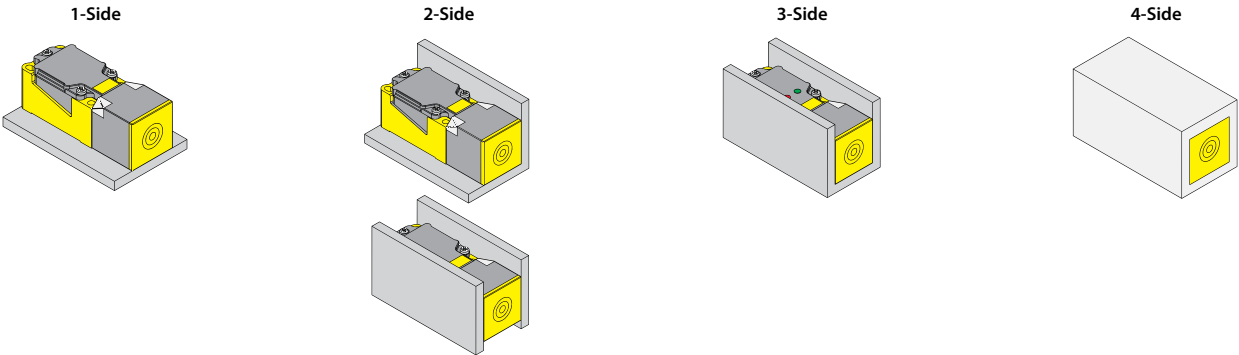
Nonembeddable Mounting Characteristics - Rectangular Housings



Non - Flush Mountable - CA25, CK40, and CP40

| Housing Type | Sensor Type | A      | B      | C     | D     | E      | F     | 1-Side    | 2-Side    | 3-Side    | 4-Side    |
|--------------|-------------|--------|--------|-------|-------|--------|-------|-----------|-----------|-----------|-----------|
| CP/CK40      | Ni20        | 60.00  | 120.00 | 60.00 | 40.00 | 120.00 | 20.00 |           |           |           |           |
| CP/CK40      | Ni25U       | 75.00  | 240.00 | 60.00 | 40.00 | 150.00 | 30.00 | Sr=22 mm* | Sr=20 mm* | Sr=17 mm* | Sr=13 mm* |
| CP/CK40      | Ni25        | 75.00  | 120.00 | 60.00 | 40.00 | 150.00 | 40.00 |           |           |           |           |
| CP/CK40      | Ni35U       | 105.00 | 240.00 | 60.00 | 40.00 | 210.00 | 30.00 | Sr=28 mm* | Sr=24 mm* | Sr=19 mm* |           |
| CP/CK40      | Ni35        | 105.00 | 180.00 | 60.00 | 40.00 | 210.00 | 40.00 |           |           |           |           |
| CP/CK40      | Ni40U       | 120.00 | 240.00 | 60.00 | 40.00 | 240.00 | 30.00 |           |           |           |           |
| CP/CK40      | Ni40        | 120.00 | 180.00 | 60.00 | 40.00 | 240.00 | 40.00 |           |           |           |           |
| CP/CK40      | Ni50U       | 105.00 | 240.00 | 60.00 | 40.00 | 240.00 | 30.00 | Sr=35 mm* | Sr=25 mm* | Sr=20 mm* | Sr=15 mm* |

Dimensions are in mm.  
\*Uprox Non-embeddable flush mounting guidelines. The above Uprox Ni sensors with DC outputs can be flush mounted because the sensor automatically compensates for metal alongside its sensing face by decreasing the sensing range, preventing the output from locking on.

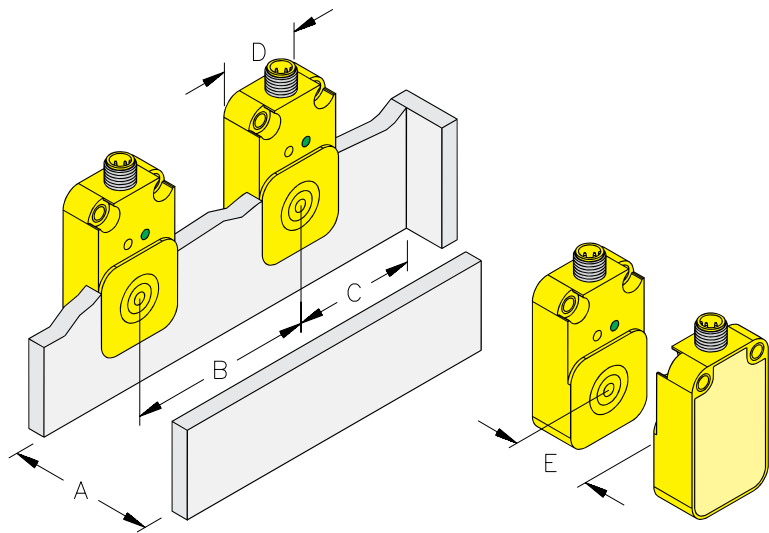


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Rectangular Inductive Sensors

# Rectangular Inductive Sensors

## Embeddable Mounting Characteristics - Rectangular Housings



### Flush Mountable

| Housing Type | Sensor Type | A      | B      | C     | D     | E      |
|--------------|-------------|--------|--------|-------|-------|--------|
| Q4.7         | Bi2         | 6.00   | 16.00  | 12.00 | 8.00  | 12.00  |
| Q5.5         | Bi2         | 6.00   | 16.00  | 8.00  | 8.00  | 12.00  |
| Q06          | Bi3         | 9.00   | 35.00  | 17.00 | 17.30 | 18.00  |
| Q08          | Bi5         | 15.00  | 40.00  | 20.00 | 20.00 | 30.00  |
| Q08          | Bi5U        | 15.00  | 40.00  | 20.00 | 20.00 | 30.00  |
| Q08          | Bi7         | 21.00  | 40.00  | 20.00 | 20.00 | 42.00  |
| Q10          | Bi8         | 24.00  | 50.00  | 25.00 | 25.00 | 48.00  |
| Q10          | Bi8U        | 24.00  | 50.00  | 25.00 | 25.00 | 48.00  |
| Q14          | Bi10        | 30.00  | 45.00  | 30.00 | 30.00 | 60.00  |
| Q14          | Bi10U       | 30.00  | 45.00  | 30.00 | 30.00 | 60.00  |
| Q20          | Bi15        | 45.00  | 60.00  | 40.00 | 40.00 | 90.00  |
| Q20          | Bi15U       | 45.00  | 60.00  | 40.00 | 40.00 | 90.00  |
| CP80         | Bi40        | 120.00 | 160.00 | 80.00 | 80.00 | 240.00 |
| Q80          | Bi50U       | 150.00 | 240.00 | 80.00 | 80.00 | 300.00 |

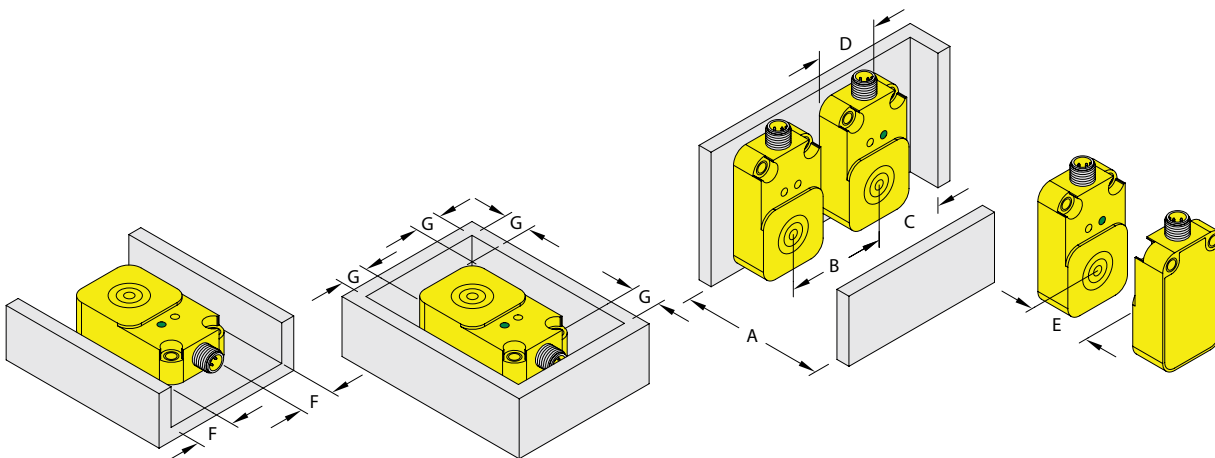
Dimensions are in mm.

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# Rectangular Inductive Sensors

## Embeddable Mounting Characteristics - Rectangular Housings

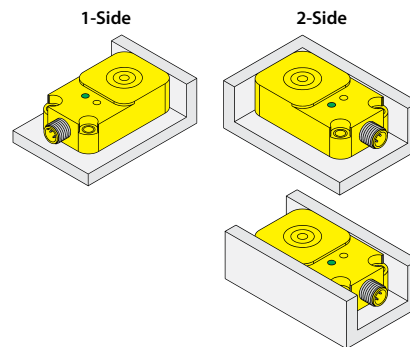


### Non-flush Mountable - Minimum Distances - Q5.5, Q14, Q20, CP80, Q80 and K90

| Housing Type | Sensor Type | A      | B      | C      | D     | E      | F      | G      | 1-Side    | 2-Side    | 3 & 4-Side |
|--------------|-------------|--------|--------|--------|-------|--------|--------|--------|-----------|-----------|------------|
| Q5.5         | Ni3.5       | 11.00  | 24.00  | 12.00  | 8.00  | 21.00  | 4.00   | 8.00   |           |           |            |
| Q14          | Ni20        | 60.00  | 90.00  | 45.00  | 30.00 | 120.00 | 20.00  | 40.00  |           |           |            |
| Q20          | Ni25        | 75.00  | 120.00 | 60.00  | 40.00 | 150.00 | 25.00  | 50.00  |           |           |            |
| CP80         | Ni40        | 120.00 | 240.00 | 120.00 | 80.00 | 240.00 | 80.00  | 80.00  |           |           |            |
| Q80          | Ni75U       | 225.00 | 240.00 | 60.00  | 80.00 | 450.00 | 80.00  | 80.00  | Sr=50 mm* | Sr=45 mm* | Sr=40 mm*  |
| CP80         | Ni75U       | 225.00 | 240.00 | 120.00 | 80.00 | 450.00 | 80.00  | 80.00  |           |           |            |
| K90          | Ni60        | 180.00 | 270.00 | 135.00 | 90.00 | 360.00 | 60.00  | 90.00  |           |           |            |
| K90SR        | Ni100U      | 300.00 | 270.00 | 90.00  | 90.00 | 600.00 | 100.00 | 200.00 | Sr=70 mm* |           |            |

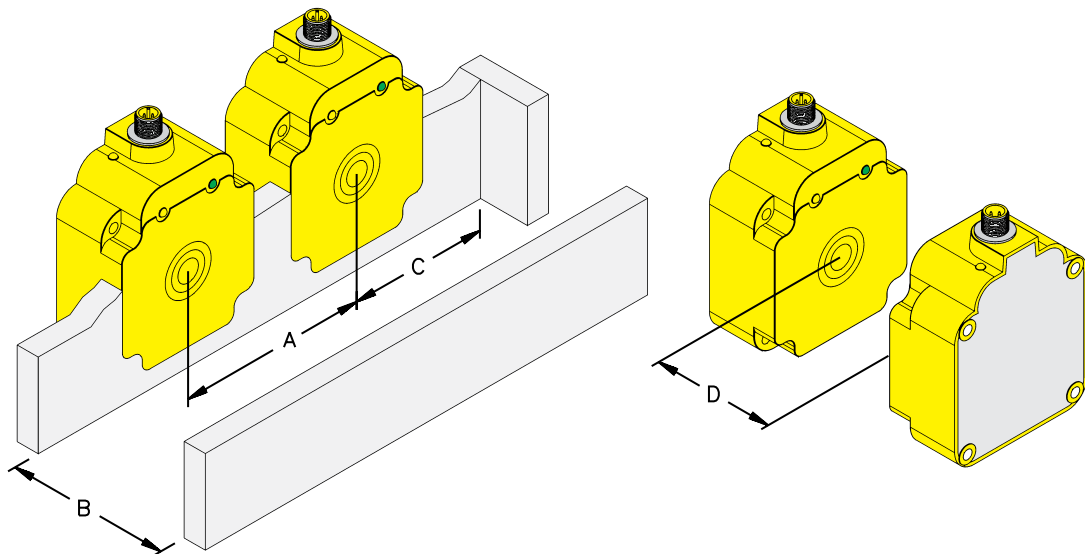
Dimensions are in mm.

\*Uprox Non-embeddable flush mounting guidelines. The above Uprox Ni sensors with DC outputs can be flush mounted because the sensor automatically compensates for metal alongside its sensing face by decreasing the sensing range, preventing the output from locking on.



# Rectangular Inductive Sensors

## Embeddable Mounting Characteristics

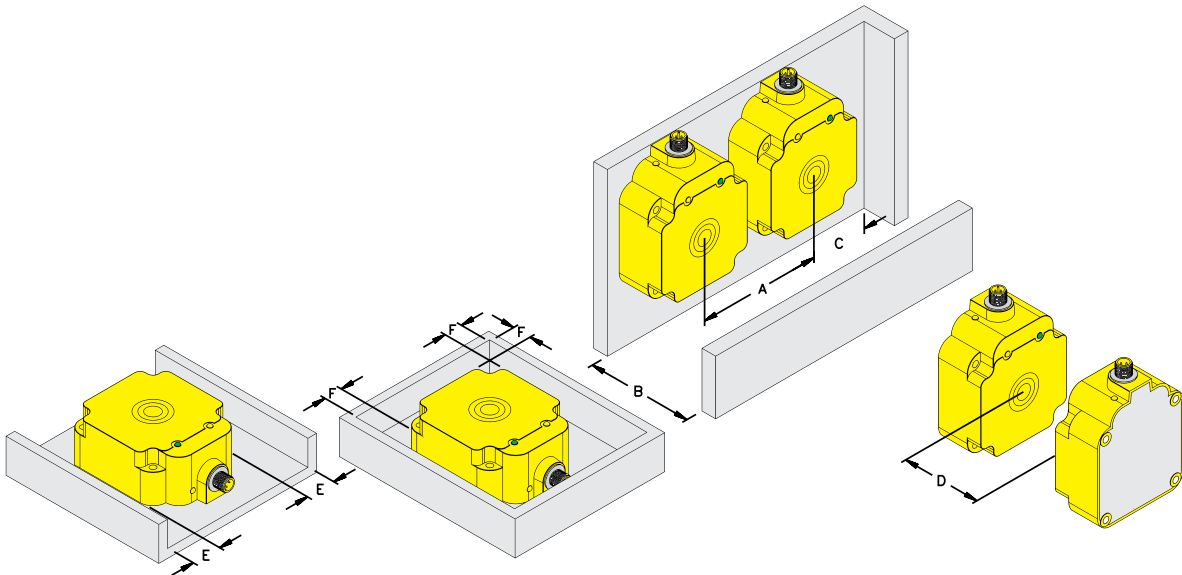


### Embeddable, Square Sensors

| Part Number | A      | B      | C     | D      |
|-------------|--------|--------|-------|--------|
| Bi50U-Q80   | 240.00 | 150.00 | 80.00 | 300.00 |

Dimensions are in mm.

## Nonembeddable Mounting Characteristics



### Nonembeddable, Square Sensors

| Part Number | A      | B      | C     | D      | E     | F     |
|-------------|--------|--------|-------|--------|-------|-------|
| Ni75U-Q80   | 240.00 | 225.00 | 60.00 | 450.00 | 80.00 | 80.00 |

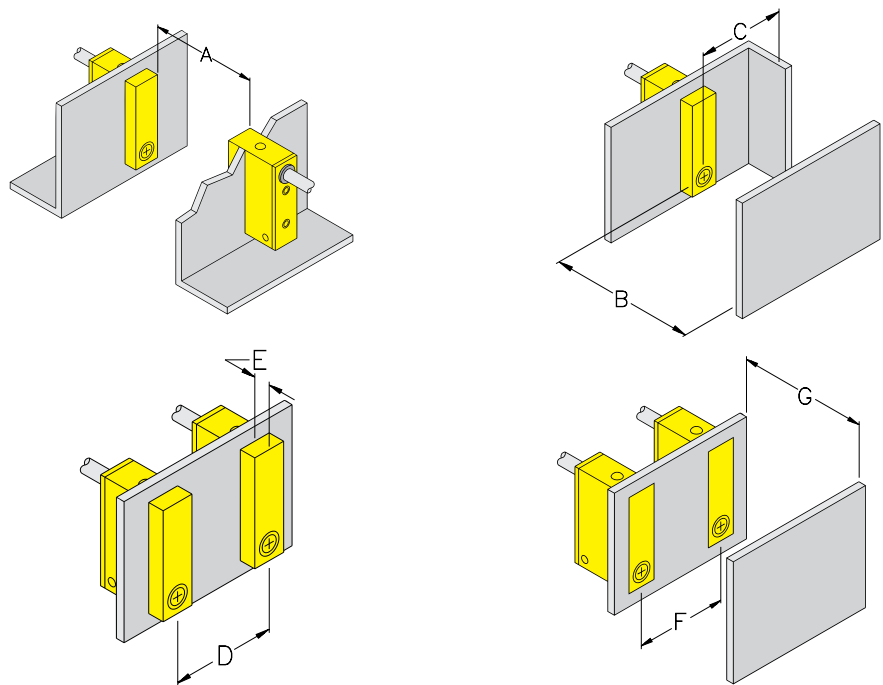
Dimensions are in mm.

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Rectangular Inductive Sensors

Embeddable Mounting Characteristics - Rectangular Housings



Flush Mountable

| Housing Type | Sensor Type | Housing | A     | C     | F     | G    |
|--------------|-------------|---------|-------|-------|-------|------|
| Q6.5         | Bi1         | 6.50    | 6.00  | 7.00  | 13.00 | 3.00 |
| Q10S         | Bi2         | 10.00   | 12.00 | 10.00 | 20.00 | 6.00 |
| Q12          | Bi2         | 12.00   | 12.00 | 12.00 | 24.00 | 6.00 |

Dimensions are in mm.

Non-Flush Mountable

| Housing Type | Sensor Type | Housing | A     | B     | C     | D     | E     |
|--------------|-------------|---------|-------|-------|-------|-------|-------|
| Q6.5         | Ni2         | 6.50    | 12.00 | 6.00  | 10.00 | 20.00 | 4.00  |
| Q9.5         | Ni2         | 9.50    | 12.00 | 6.00  | 14.00 | 19.00 | 4.00  |
| Q12          | Ni4         | 12.00   | 24.00 | 12.00 | 18.00 | 24.00 | 8.00  |
| Q25          | Ni10        | 25.00   | 60.00 | 30.00 | 38.00 | 75.00 | 20.00 |
| Q30          | Ni15        | 30.00   | 90.00 | 45.00 | 45.00 | 90.00 | 30.00 |

Dimensions are in mm.

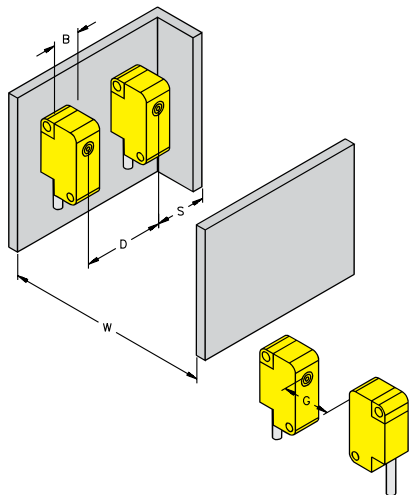
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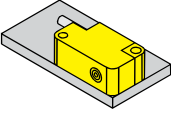
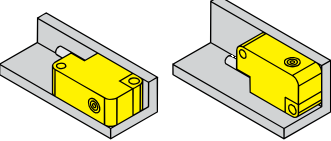
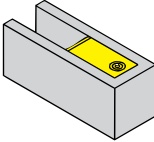
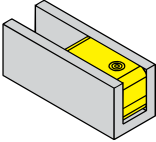
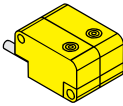
Rectangular Inductive Sensors



# Rectangular Inductive Sensors

## Embeddable Mounting Characteristics

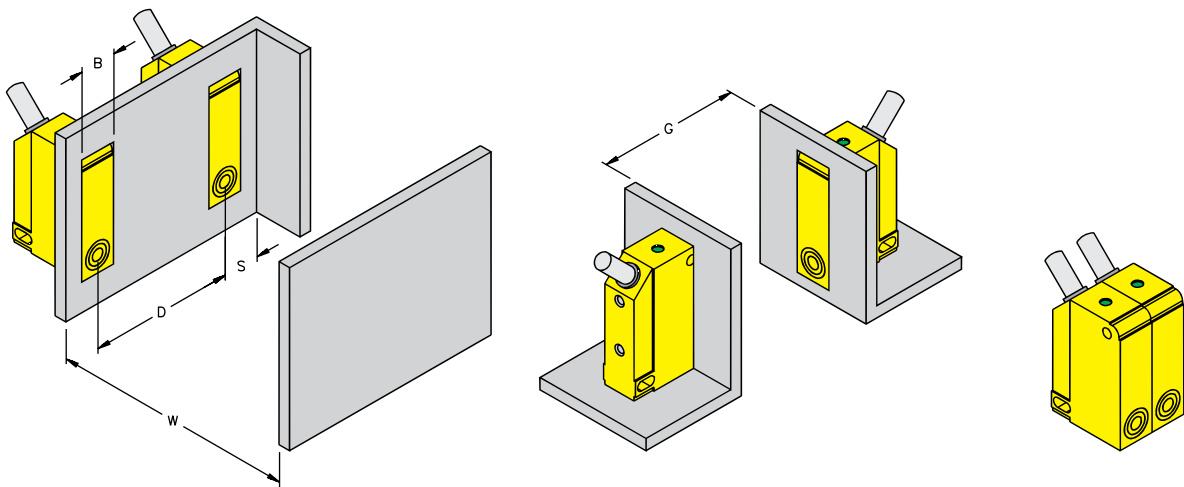


|                                                                                                                                                                                                                                                                       |                                                                                                                     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
| <br>1-side mounting<br>Sn=3                                                                                                                                                          | <br>2-side mounting<br>Sn=3 mm    |
| <br>4-side mounting<br>Sn=2.3 mm                                                                                                                                                     | <br>3-side mounting<br>Sn=2.6 mm |
| <br>In many cases sensors have to be mounted in close proximity to fulfill the monitoring work. In order to avoid mutual interferences, Turck offers the Q105-ZP shield (Q105 only). |                                                                                                                     |

## Nonembeddable, Square Sensors

| Part Number | D     | W     | S     | G     | B Width of Active Face |
|-------------|-------|-------|-------|-------|------------------------|
| Ni5U-Q105   | 31.00 | 15.00 | 15.30 | 30.00 | 10.20                  |

Dimensions are in mm.



## Embeddable, Square Sensors

| Part Number | D     | W     | S     | G     | B Width of Active Face |
|-------------|-------|-------|-------|-------|------------------------|
| Bi5U-Q12    | 48.00 | 25.00 | 12.00 | 50.00 | 12.00                  |

Dimensions are in mm.

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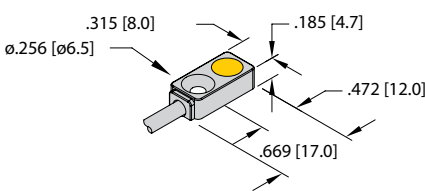
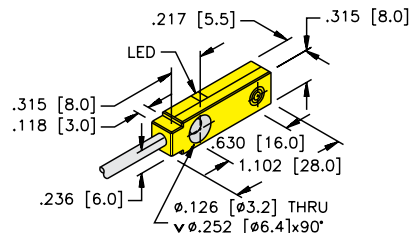
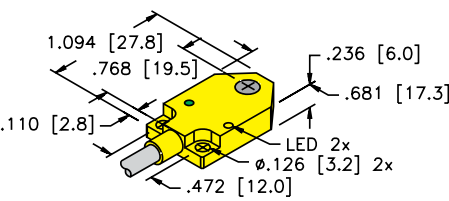
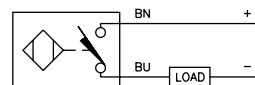
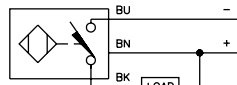
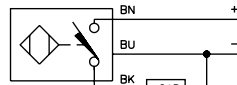


Notes



# Rectangular Inductive Sensors | Q4.7, Q5.5, & Q06

## Top Sensing Subminiature Qpak Housing

| Housing Style                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                             | Dimension Drawings                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                             | A                                                                                                                                                                                                                                                                                                                                                         |  <p>4.7 mm - Embeddable, Potted-In Cable</p> |
| B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  <p>5.5 mm - Embeddable/Nonembeddable, Potted-In Cable</p> | C                                                                                                                                                                                                                                                                                                                                                         |  <p>6.0 mm - Embeddable, Potted-In Cable</p> |
| Wiring Diagrams/Mating Cordsets                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                           | 2                                                                                                                                                                                                                                                                                                                                                         |                                              |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                         |                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                |
| 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</p> <p>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>                                                                                 |                                                                                                                                |
| 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</p> <p>≥170 mA on 150 mA Load Current</p> <p>≥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)</p> <p>≤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> |                                                                                                                                |

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



# Rectangular Inductive Sensors | Q4.7, Q5.5, & Q06

## Top Sensing Subminiature Qpak Housing

| Part Number/<br>ID Number    | Features | Embeddable | Sensing Range (mm) | Output        | Voltage   | Switching Freq. (Hz) | Operating Current (mA) | Operating Temp. (°C) | Protection | Housing | Front Cap/Face | Power LED | Output LED | Cable Length/Jacket | Dimension Drawings | Wiring Diagrams | Spec List |
|------------------------------|----------|------------|--------------------|---------------|-----------|----------------------|------------------------|----------------------|------------|---------|----------------|-----------|------------|---------------------|--------------------|-----------------|-----------|
| Bi2-Q4.7-AN6X<br>1614001     |          | •          | 2                  | 3-wire DC NPN | 10-30 VDC | 1000                 | ≤100                   | 0 to +85             | IP67       | Zinc    | PA             | N/A       | YE         | 2M/TPU              | A                  | 2               | A4        |
| Bi2-Q4.7-AP6X<br>1614000     |          | •          | 2                  | 3-wire DC NPN | 10-30 VDC | 1000                 | ≤100                   | 0 to +85             | IP67       | Zinc    | PA             | N/A       | YE         | 2M/TPU              | A                  | 3               | A4        |
| Bi2-Q5.5-AG6X<br>1613108     |          | •          | 2                  | 2-wire DC     | 10-30 VDC | 1000                 | ≤50                    | -25 to +70           | IP67       | PP      | PP             | N/A       | YE         | 2M/TPU              | B                  | 1               | A2        |
| Bi2-Q5.5-AN6X<br>1613100     |          | •          | 2                  | 3-wire DC NPN | 10-30 VDC | 2000                 | ≤150                   | -25 to +85           | IP67       | PP      | PP             | N/A       | YE         | 2M/TPU              | B                  | 2               | A4        |
| Bi2-Q5.5-AN6X/S34<br>1613101 | WFI      | •          | 2                  | 3-wire DC NPN | 10-30 VDC | 2000                 | ≤150                   | -25 to +70           | IP67       | PP      | PP             | N/A       | YE         | 2M/TPU              | B                  | 2               | A4        |
| Ni3.5-Q5.5-AN6X<br>4613610   |          |            | 3.5                | 3-wire DC NPN | 10-30 VDC | 2000                 | ≤150                   | -25 to +70           | IP67       | PP      | PP             | N/A       | YE         | 2M/TPU              | B                  | 2               | A4        |
| Bi2-Q5.5-AP6X<br>1613000     |          | •          | 2                  | 3-wire DC PNP | 10-30 VDC | 2000                 | ≤150                   | -25 to +85           | IP67       | PP      | PP             | N/A       | YE         | 2M/TPU              | B                  | 3               | A4        |
| Bi2-Q5.5-AP6X/S34<br>1613001 | WFI      | •          | 2                  | 3-wire DC PNP | 10-30 VDC | 2000                 | ≤150                   | -25 to +70           | IP67       | PP      | PP             | N/A       | YE         | 2M/TPU              | B                  | 3               | A4        |
| Ni3.5-Q5.5-AP6X<br>4613601   |          |            | 3.5                | 3-wire DC PNP | 10-30 VDC | 2000                 | ≤150                   | -25 to +70           | IP67       | PP      | PP             | N/A       | YE         | 2M/TPU              | B                  | 3               | A4        |
| Bi3-Q06-AN6X2<br>1620150     |          | •          | 3                  | 3-wire DC NPN | 10-30 VDC | 1000                 | ≤200                   | -25 to +70           | IP67       | PBT     | PA             | GN        | YE         | 2M/TPU              | C                  | 2               | A4        |
| Bi3-Q06-AP6X2<br>1620100     |          | •          | 3                  | 3-wire DC PNP | 10-30 VDC | 1000                 | ≤200                   | -25 to +70           | IP67       | PBT     | PA             | GN        | YE         | 2M/TPU              | C                  | 3               | A4        |

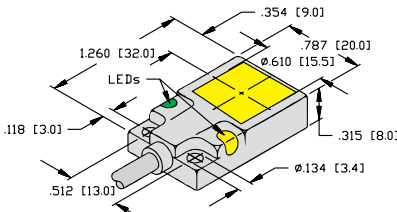
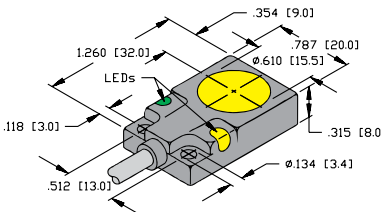
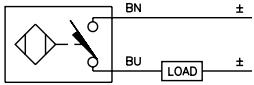
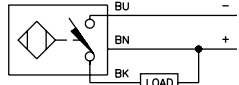
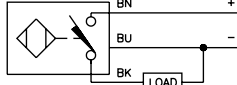
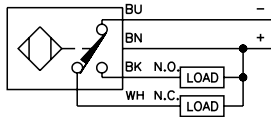
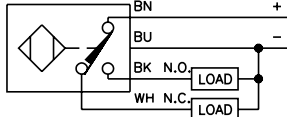
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Rectangular Inductive Sensors



# Rectangular Inductive Sensors | Q08

## Top Sensing Qpak Housing with Potted-in Cable

| Housing Style                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                     | Dimension Drawings                                                                                                                                                                                                                                                                                                                                                                               |                                                                                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                     | <p><b>A</b></p>  <p>8.0 mm - Embeddable, Potted-In Cable</p>                                                                                                                                                                                                                                                   |                                                                                     |
| <p><b>B</b></p>  <p>8.0 mm - Embeddable, Potted-In Cable</p>                                                                                                                                                                                                                                                                                                                                         |                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                     |
| Wiring Diagrams/Mating Cordsets                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                     |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |    | 2                                                                                                                                                                                                                                                                                                                                                                                                |    |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  | 4                                                                                                                                                                                                                                                                                                                                                                                                |  |
| 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                     |
| A2 2-wire DC - (AD, RD, AG)                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                     |
| <p>Ripple: <math>\leq 10\%</math></p> <p>Differential Travel (Hysteresis): 3-15% (5% typical)</p> <p>Voltage Drop Across Conducting Sensor: Non-polarized (AD) <math>&lt; 5.0</math> V</p> <p>Trigger Current for Short Circuit Protection: <math>\geq 120</math> mA</p> <p>Minimum Load Current: <math>\geq 3.0</math> mA</p>                                                                                                                                                        |                                                                                     | <p>Off-State (Leakage) Current: <math>\leq 0.8</math> 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: <math>\leq 2\%</math> of Rated Operating Distance</p>                                                                                     |                                                                                     |
| A4 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                     |
| <p>Ripple: <math>\leq 10\%</math></p> <p>Differential Travel (Hysteresis): 3-15% (5% typical)</p> <p>Voltage Drop Across Conducting Sensor: <math>\leq 1.8</math> V</p> <p>Trigger Current for Short Circuit Protection: <math>\geq 220</math> mA on 200 mA Load Current</p> <p>Off-State (Leakage) Current: <math>\leq 0.1</math> mA</p> <p>No-Load Current: <math>\leq 15</math> mA (Ferrite, Uprox, Rectangular)</p> <p>Time Delay Before Availability: <math>\leq 8</math> 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: <math>\leq \pm 10\%</math></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.



# Rectangular Inductive Sensors | Q08

## Top Sensing Qpak Housing with Potted-in Cable

| Part Number/<br>ID Number   | Features         | Embeddable | Sensing Range (mm) | Output        | Voltage   | Switching Freq. (Hz) | Operating Current (mA) | Operating Temp. (°C) | Protection | Housing | Front Cap/Face | Power LED | Output LED | Cable Length/Jacket | Dimension Drawings | Wiring Diagrams | Spec List |
|-----------------------------|------------------|------------|--------------------|---------------|-----------|----------------------|------------------------|----------------------|------------|---------|----------------|-----------|------------|---------------------|--------------------|-----------------|-----------|
| Bi5U-Q08-AN6X2<br>1608911   | Uprox            | •          | 5                  | 3-wire DC NPN | 10-30 VDC | 250                  | ≤200                   | -30 to +85           | IP67       | Zinc    | PA 12          | GN        | YE         | 2M/TPU              | B                  | 2               | A4        |
| Bi5U-Q08-AP6X2<br>1608901   | Uprox            | •          | 5                  | 3-wire DC PNP | 10-30 VDC | 250                  | ≤200                   | -30 to +85           | IP67       | Zinc    | PA 12          | GN        | YE         | 2M/TPU              | B                  | 3               | A4        |
| Bi5-Q08-AD4X/S34<br>4414550 | WFI              | •          | 5                  | 2-wire DC     | 10-65 VDC | 50                   | ≤100                   | -25 to +70           | IP67       | Zinc    | PA 12          | N/A       | YE         | 2M/TPU              | B                  | 1               | A2        |
| Bi5-Q08-VN6X2<br>1600200    | Comp.<br>Outputs | •          | 5                  | 4-wire DC NPN | 10-30 VDC | 1000                 | ≤200                   | -25 to +70           | IP67       | Zinc    | PA 12          | GN        | YE         | 2M/TPU              | B                  | 4               | A4        |
| Bi5-Q08-VP6X2<br>1600100    | Comp.<br>Outputs | •          | 5                  | 4-wire DC PNP | 10-30 VDC | 1000                 | ≤200                   | -25 to +70           | IP67       | Zinc    | PA 12          | GN        | YE         | 2M/TPU              | B                  | 5               | A4        |
| Bi7-Q08-AN6X2<br>1601620    | Ext.<br>Range    | •          | 7                  | 3-wire DC NPN | 10-30 VDC | 500                  | ≤200                   | -25 to +70           | IP67       | Zinc    | PA 12          | GN        | YE         | 2M/TPU              | B                  | 2               | A4        |
| Bi7-Q08-AP6X2<br>1601600    | Ext.<br>Range    | •          | 7                  | 3-wire DC PNP | 10-30 VDC | 500                  | ≤200                   | -25 to +70           | IP67       | Zinc    | PA 12          | GN        | YE         | 2M/TPU              | B                  | 3               | A4        |
| Bi7-Q08-VN6X2<br>1600920    | Ext.<br>Range    | •          | 7                  | 4-wire DC NPN | 10-30 VDC | 500                  | ≤200                   | -25 to +70           | IP67       | Zinc    | PA 12          | GN        | YE         | 2M/TPU              | B                  | 4               | A4        |
| Bi7-Q08-VP6X2<br>1600900    | Ext.<br>Range    | •          | 7                  | 4-wire DC PNP | 10-30 VDC | 500                  | ≤200                   | -25 to +70           | IP67       | Zinc    | PA 12          | GN        | YE         | 2M/TPU              | B                  | 5               | A4        |
| Bi8U-Q08-AN6X2<br>1662007   | Uprox+           | •          | 8                  | 3-wire DC NPN | 10-30 VDC | 1000                 | ≤200                   | -30 to +85           | IP68       | Zinc    | PA12           | GN        | YE         | 2M/TPU              | A                  | 2               | A4        |
| Bi8U-Q08-AP6X2<br>1662006   | Uprox+           | •          | 8                  | 3-wire DC PNP | 10-30 VDC | 1000                 | ≤200                   | -30 to +85           | IP68       | Zinc    | PA12           | GN        | YE         | 2M/TPU              | A                  | 3               | A4        |

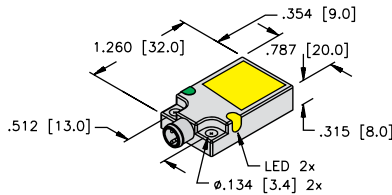
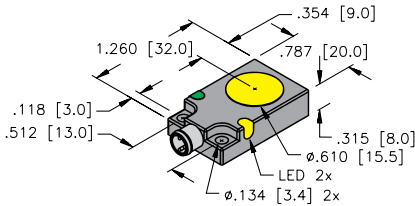
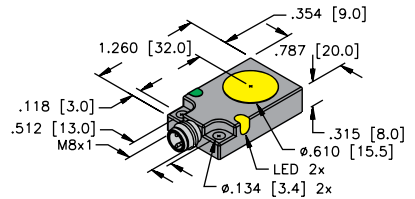
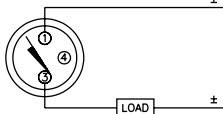
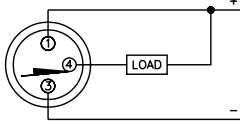
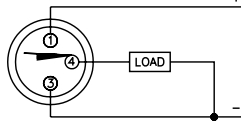
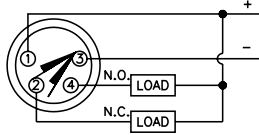
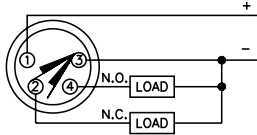
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Rectangular Inductive Sensors



# Rectangular Inductive Sensors | Q08

## Top Sensing Qpak Housing with Integral Connector

| Housing Style                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                             | Dimension Drawings                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                |   |                                                                                                                               |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|---|-------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                             | A                                                                                                                                                                                                                                                                                                                                       |  <p>8.0 mm - Embeddable, Picofast Connector</p>              |   |                                                                                                                               |
| B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  <p>8.0 mm - Embeddable, M8 snap-on Picofast Connector</p> | C                                                                                                                                                                                                                                                                                                                                       |  <p>8.0 mm - Embeddable, M8 thread-on Picofast Connector</p> |   |                                                                                                                               |
| Wiring Diagrams/Mating Cordsets                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                |   |                                                                                                                               |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  <p>Mating Cordset: PKG 3Z-*; PKG 3M-*</p>                 | 2                                                                                                                                                                                                                                                                                                                                       |  <p>Mating Cordset: PKG 3Z-*; PKG 3M-*</p>                    | 3 |  <p>Mating Cordset: PKG 3Z-*; PKG 3M-*</p> |
| 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  <p>Mating Cordset: PKG 4Z-*</p>                         | 5                                                                                                                                                                                                                                                                                                                                       |  <p>Mating Cordset: PKG 4Z-*</p>                            |   |                                                                                                                               |
| A2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                             | 2-wire DC - (AD, RD, AG)                                                                                                                                                                                                                                                                                                                |                                                                                                                                                |   |                                                                                                                               |
| Ripple: $\leq 10\%$<br>Differential Travel (Hysteresis): 3-15% (5% typical)<br>Voltage Drop Across Conducting Sensor: Non-polarized (AD) $< 5.0\text{ V}$<br>Polarized (AG) $\leq 4.2\text{ V}$<br>Trigger Current for Short Circuit Protection: $\geq 120\text{ mA}$<br>Minimum Load Current: $\geq 3.0\text{ mA}$                                                                                                                                                                                                                                            |                                                                                                                                             | Off-State (Leakage) Current: $\leq 0.8\text{ mA}$<br>Power-On Effect: Per IEC 947-5-2<br>Transient Protection: Per EN 60947-5-2<br>Shock: 30 g, 11 ms<br>Vibration: 55 Hz, 1 mm Amplitude in all 3 Planes<br>Repeatability: $\leq 2\%$ of Rated Operating Distance                                                                      |                                                                                                                                                |   |                                                                                                                               |
| A4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                             | 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)                                                                                                                                                                                                                                                                                              |                                                                                                                                                |   |                                                                                                                               |
| Ripple: $\leq 10\%$<br>Differential Travel (Hysteresis): 3-15% (5% typical)<br>Voltage Drop Across Conducting Sensor: $\leq 1.8\text{ V}$<br>Trigger Current for Short Circuit Protection: $\geq 220\text{ mA}$ on 200 mA Load Current<br>$\geq 170\text{ mA}$ on 150 mA Load Current<br>$\geq 120\text{ mA}$ on 100 mA Load Current<br>Off-State (Leakage) Current: $\leq 0.1\text{ mA}$<br>No-Load Current: $\leq 15\text{ mA}$ (Ferrite, Uprox, Rectangular)<br>$\leq 20\text{ mA}$ (Uprox+, Uprox 3)<br>Time Delay Before Availability: $\leq 8\text{ ms}$ |                                                                                                                                             | Power-On Effect: Per IEC 947-5-2<br>Reverse Polarity Protection: Incorporated<br>Wire-Break Protection: Incorporated<br>Transient Protection: Per EN 60947-5-2<br>Temperature Drift: $\leq \pm 10\%$<br>Shock: 30 g, 11 ms<br>Vibration: 55 Hz, 1 mm Amplitude in all 3 Planes<br>Repeatability: $\leq 2\%$ of Rated Operating Distance |                                                                                                                                                |   |                                                                                                                               |

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



# Rectangular Inductive Sensors | Q08

## Top Sensing Qpak Housing with Integral Connector

| Part Number/<br>ID Number       | Features      | Embeddable | Sensing Range (mm) | Output        | Voltage   | Switching Freq. (Hz) | Operating Current (mA) | Operating Temp. (°C) | Protection | Housing | Front Cap/Face | Power LED | Output LED | Mating Cord | Dimension Drawings | Wiring Diagrams | Spec List |
|---------------------------------|---------------|------------|--------------------|---------------|-----------|----------------------|------------------------|----------------------|------------|---------|----------------|-----------|------------|-------------|--------------------|-----------------|-----------|
| Bi5U-Q08-AN6X2-V1131<br>1608910 | Uprox         | •          | 5                  | 3-wire DC NPN | 10-30 VDC | 250                  | ≤200                   | -30 to +85           | IP67       | Zinc    | PA 12          | GN        | YE         | PKG 3Z-*    | B                  | 2               | A4        |
| Bi5U-Q08-AP6X2-V1131<br>1608900 | Uprox         | •          | 5                  | 3-wire DC PNP | 10-30 VDC | 250                  | ≤200                   | -30 to +85           | IP67       | Zinc    | PA 12          | GN        | YE         | PKG 3Z-*    | B                  | 3               | A4        |
| Bi5U-Q08-AN6X2-V2131<br>1608904 | Uprox         | •          | 5                  | 3-wire DC NPN | 10-30 VDC | 250                  | ≤200                   | -30 to +85           | IP67       | Zinc    | PA 12          | GN        | YE         | PKG 3M-*    | C                  | 2               | A4        |
| Bi5U-Q08-AP6X2-V2131<br>1608905 | Uprox         | •          | 5                  | 3-wire DC PNP | 10-30 VDC | 250                  | ≤200                   | -30 to +85           | IP67       | Zinc    | PA 12          | GN        | YE         | PKG 3M-*    | C                  | 3               | A4        |
| Bi5-Q08-AD4X-V1130<br>4414551   |               | •          | 5                  | 2-wire DC     | 10-65 VDC | 1000                 | ≤100                   | -25 to +70           | IP67       | Zinc    | PA 12          | N/A       | YE         | PKG 3Z-*    | B                  | 1               | A2        |
| Bi5-Q08-AN6X2-V1131<br>1600600  |               | •          | 5                  | 3-wire DC NPN | 10-30 VDC | 1000                 | ≤200                   | -25 to +70           | IP67       | Zinc    | PA 12          | GN        | YE         | PKG 3Z-*    | B                  | 2               | A4        |
| Bi5-Q08-AP6X2-V1131<br>1600500  |               | •          | 5                  | 3-wire DC PNP | 10-30 VDC | 1000                 | ≤200                   | -25 to +70           | IP67       | Zinc    | PA 12          | GN        | YE         | PKG 3Z-*    | B                  | 3               | A4        |
| Bi5-Q08-VN6X2-V1141<br>1600400  | Comp. Outputs | •          | 5                  | 4-wire DC NPN | 10-30 VDC | 1000                 | ≤200                   | -25 to +70           | IP67       | Zinc    | PA 12          | GN        | YE         | PKG 4Z-*    | B                  | 4               | A4        |
| Bi5-Q08-VP6X2-V1141<br>1600300  | Comp. Outputs | •          | 5                  | 4-wire DC PNP | 10-30 VDC | 1000                 | ≤200                   | -25 to +70           | IP67       | Zinc    | PA 12          | GN        | YE         | PKG 4Z-*    | B                  | 5               | A4        |
| Bi5-Q08-AD4X-V2130<br>4414553   |               | •          | 5                  | 2-wire DC     | 10-65 VDC | 1000                 | ≤100                   | -25 to +70           | IP67       | Zinc    | PA 12          | N/A       | YE         | PKG 3M-*    | C                  | 1               | A2        |
| Bi5-Q08-AN6X2-V2131<br>1600602  |               | •          | 5                  | 3-wire DC NPN | 10-30 VDC | 1000                 | ≤200                   | -25 to +70           | IP67       | Zinc    | PA 12          | GN        | YE         | PKG 3M-*    | C                  | 2               | A4        |
| Bi5-Q08-AP6X2-V2131<br>1600502  |               | •          | 5                  | 3-wire DC PNP | 10-30 VDC | 1000                 | ≤200                   | -25 to +70           | IP67       | Zinc    | PA 12          | GN        | YE         | PKG 3M-*    | C                  | 3               | A4        |
| Bi7-Q08-AN6X2-V1131<br>1601622  | Ext. Range    | •          | 7                  | 3-wire DC NPN | 10-30 VDC | 500                  | ≤200                   | -25 to +70           | IP67       | Zinc    | PA 12          | GN        | YE         | PKG 3Z-*    | B                  | 2               | A4        |
| Bi7-Q08-AP6X2-V1131<br>1601602  | Ext. Range    | •          | 7                  | 3-wire DC PNP | 10-30 VDC | 500                  | ≤200                   | -25 to +70           | IP67       | Zinc    | PA 12          | GN        | YE         | PKG 3Z-*    | B                  | 3               | A4        |
| Bi7-Q08-AN6X2-V2131<br>1601623  | Ext. Range    | •          | 7                  | 3-wire DC NPN | 10-30 VDC | 500                  | ≤200                   | -25 to +70           | IP67       | Zinc    | PA 12          | GN        | YE         | PKG 3M-*    | C                  | 2               | A4        |
| Bi7-Q08-AP6X2-V2131<br>1601603  | Ext. Range    | •          | 7                  | 3-wire DC PNP | 10-30 VDC | 500                  | ≤200                   | -25 to +70           | IP67       | Zinc    | PA 12          | GN        | YE         | PKG 3M-*    | C                  | 3               | A4        |
| Bi7-Q08-VN6X2-V1141<br>1600922  | Ext. Range    | •          | 7                  | 4-wire DC NPN | 10-30 VDC | 500                  | ≤200                   | -25 to +70           | IP67       | Zinc    | PA 12          | GN        | YE         | PKG 4Z-*    | B                  | 4               | A4        |
| Bi7-Q08-VP6X2-V1141<br>1600902  | Ext. Range    | •          | 7                  | 4-wire DC PNP | 10-30 VDC | 1000                 | ≤200                   | -25 to +70           | IP67       | Zinc    | PA 12          | GN        | YE         | PKG 4Z-*    | B                  | 5               | A4        |
| Bi8U-Q08-AN6X2-V1131<br>1662008 | Uprox+        | •          | 8                  | 3-wire DC NPN | 10-30 VDC | 1000                 | ≤200                   | -30 to +85           | IP68       | Zinc    | PA 12          | GN        | YE         | PKG 3Z-*    | A                  | 2               | A4        |
| Bi8U-Q08-AP6X2-V1131<br>1662005 | Uprox+        | •          | 8                  | 3-wire DC PNP | 10-30 VDC | 1000                 | ≤200                   | -30 to +85           | IP68       | Zinc    | PA 12          | GN        | YE         | PKG 3Z-*    | A                  | 3               | A4        |

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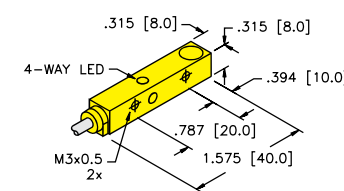
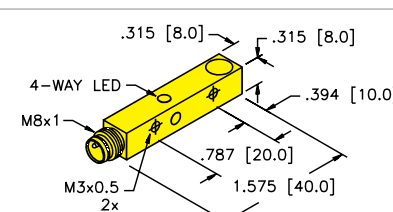
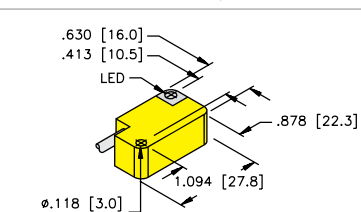
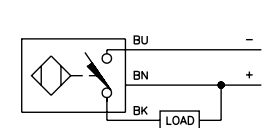
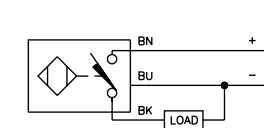
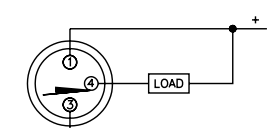
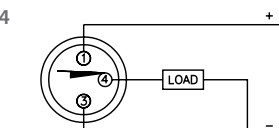
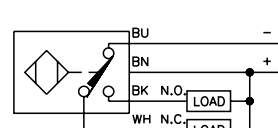
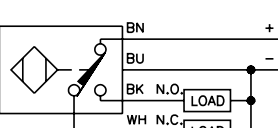
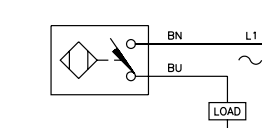
Rectangular Inductive Sensors





# Rectangular Inductive Sensors | Q8SE & Q10S

## Side Sensing Qpak Housing

| Housing Style                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                        | Dimension Drawings                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                             |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                        | A                                                                                                                                                                                                                                                                                                                                                         |  <p>8.0 mm - Nonembeddable, Potted-In Cable</p>           |
| B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  <p>8.0 mm - Nonembeddable, M8 Picofast Connector</p> | C                                                                                                                                                                                                                                                                                                                                                         |  <p>10 mm - Embeddable/Nonembeddable, Potted-In Cable</p> |
| Wiring Diagrams/Mating Cordsets                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                             |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                       | 2                                                                                                                                                                                                                                                                                                                                                         |                                                            |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  <p>Mating Cordset: PKG 3Z-*</p>                     | 4                                                                                                                                                                                                                                                                                                                                                         |  <p>Mating Cordset: PKG 3Z-*</p>                         |
| 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                     | 6                                                                                                                                                                                                                                                                                                                                                         |                                                          |
| 7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                    |                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                             |
| A4 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<br/>≥170 mA on 150 mA Load Current<br/>≥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)<br/>≤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> |                                                                                                                                             |
| A6 2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                             |
| <p>Line Frequency: ≥50... ≤60 Hz</p> <p>Differential Travel (Hysteresis): 3-15% (5% typical)</p> <p>Voltage Drop Across Conducting Sensor: ≤6.0 V</p> <p>Continuous Load Current: AC: ≤400 mA; DC: ≤300 mA<br/>AC: ≤100 mA; DC: ≤100 mA</p> <p>Off-State (Leakage) Current: ≤1.7 mA</p> <p>Minimum Load Current: ≥3.0 mA</p>                                                                                                                                                      |                                                                                                                                        | <p>Inrush Current: ≤8 A (≤10ms max. 5 Hz)<br/>≤1 A (≤10 ms max. 5 Hz) 12 mm<br/>≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm</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.



# Rectangular Inductive Sensors | Q8SE & Q10S

## Side Sensing Qpak Housing

| Part Number/<br>ID Number       | Features         | Embeddable | Sensing Range (mm) | Output           | Voltage                     | Switching Freq. (Hz) | Operating Current (mA) | Operating Temp. (°C) | Protection | Housing | Front Cap/Face | Power LED | Output LED | Cable Length/Jacket | Dimension Drawings | Wiring Diagrams | Spec List |
|---------------------------------|------------------|------------|--------------------|------------------|-----------------------------|----------------------|------------------------|----------------------|------------|---------|----------------|-----------|------------|---------------------|--------------------|-----------------|-----------|
| Ni4U-Q8SE-AN6X<br>4635809       | Uprox+           |            | 4                  | 3-wire DC<br>NPN | 10-30 VDC                   | 1000                 | ≤150                   | -30 to +85           | IP68       | PP      | PP             | N/A       | YE         | 2M/TPU              | A                  | 1               | A4        |
| Ni4U-Q8SE-AP6X<br>4635807       | Uprox+           |            | 4                  | 3-wire DC<br>PNP | 10-30 VDC                   | 1000                 | ≤150                   | -30 to +85           | IP68       | PP      | PP             | N/A       | YE         | 2M/TPU              | A                  | 2               | A4        |
| Ni4U-Q8SE-AN6X-V1131<br>4635810 | Uprox+           |            | 4                  | 3-wire DC<br>NPN | 10-30 VDC                   | 1000                 | ≤150                   | -30 to +85           | IP68       | PP      | PP             | N/A       | YE         | - -                 | B                  | 3               | A4        |
| Ni4U-Q8SE-AP6X-V1131<br>4635808 | Uprox+           |            | 4                  | 3-wire DC<br>PNP | 10-30 VDC                   | 1000                 | ≤150                   | -30 to +85           | IP68       | PP      | PP             | N/A       | YE         | - -                 | B                  | 4               | A4        |
| Bi2-Q10S-AN6X<br>1619310        |                  | •          | 2                  | 3-wire DC<br>NPN | 10-30 VDC                   | 2000                 | ≤150                   | -25 to +70           | IP67       | PP-GF20 | PP             | N/A       | YE         | 2M/TPU              | C                  | 1               | A4        |
| Bi2-Q10S-AP6X<br>1609360        |                  | •          | 2                  | 3-wire DC<br>PNP | 10-30 VDC                   | 2000                 | ≤150                   | -25 to +70           | IP67       | PP-GF20 | PP             | N/A       | YE         | 2M/TPU              | C                  | 2               | A4        |
| Bi2-Q10S-VN6X<br>1609341        | Comp.<br>Outputs | •          | 2                  | 4-wire DC<br>NPN | 10-30 VDC                   | 2000                 | ≤150                   | -25 to +70           | IP67       | PP-GF20 | PP             | N/A       | YE         | 2M/TPU              | C                  | 5               | A4        |
| Bi2-Q10S-VP6X<br>1609340        | Comp.<br>Outputs | •          | 2                  | 4-wire DC<br>PNP | 10-30 VDC                   | 2000                 | ≤150                   | -25 to +70           | IP67       | PP-GF20 | PP-<br>GF20    | N/A       | YE         | 2M/TPU              | C                  | 6               | A4        |
| Bi2-Q10S-AZ31X<br>1309100       |                  | •          | 2                  | 2-wire AC        | 20-250<br>VAC/10-300<br>VDC | 60                   | ≤100                   | -25 to +70           | IP67       | PP-GF20 | PP-<br>GF20    | N/A       | RD         | 2M/TPU              | C                  | 7               | A6        |
| Ni5U-Q10S-AN6X<br>1609365       | Uprox+           |            | 5                  | 3-wire DC<br>NPN | 10-30 VDC                   | 1000                 | ≤150                   | -30 to +85           | IP68       | PP-GF20 | PP-<br>GF20    | N/A       | YE         | 2M/TPU              | C                  | 1               | A4        |
| Ni5U-Q10S-AP6X<br>1609364       | Uprox+           |            | 5                  | 3-wire DC<br>PNP | 10-30 VDC                   | 1000                 | ≤150                   | -30 to +85           | IP68       | PP-GF20 | PP-<br>GF20    | N/A       | YE         | 2M/TPU              | C                  | 2               | A4        |

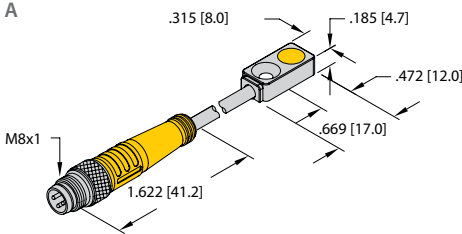
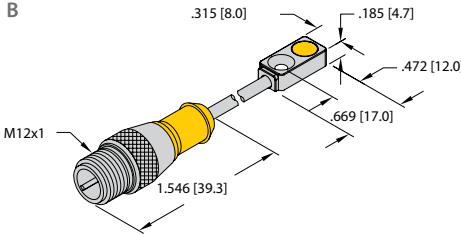
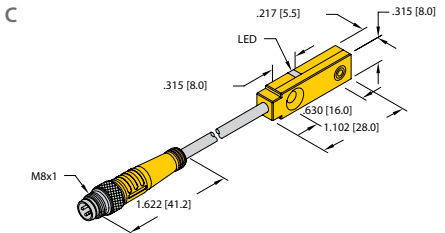
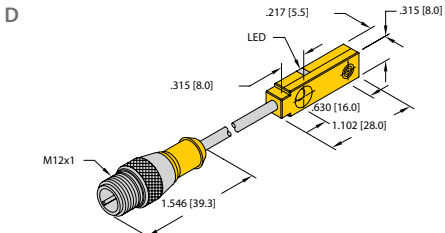
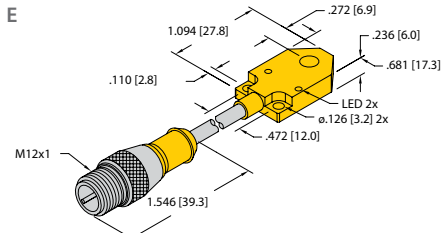
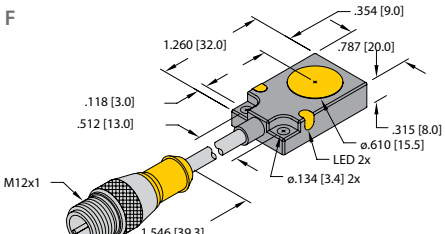
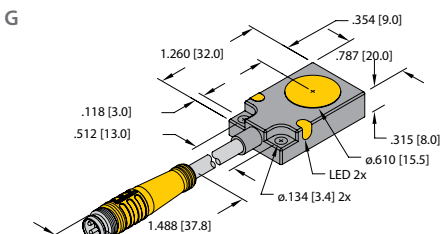
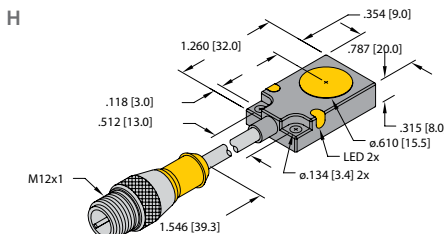
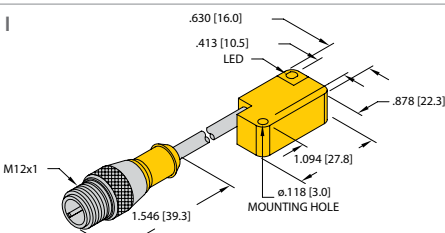
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Rectangular Inductive Sensors

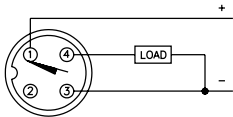
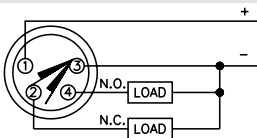


# Rectangular Inductive Sensors | Small Rectangular

## Sensor with Molded Connector

| Housing Style                                                                                                                            | Dimension Drawings                                                                                                                       |                                                                                                                                            |
|------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
|                                                         |                                                                                                                                          |                                                                                                                                            |
|                                                                                                                                          | <b>A</b><br><br>4.7 mm - M8 Picofast Quick Disconnect  | <b>B</b><br><br>4.7 mm - M12 Eurofast Quick Disconnect  |
| <b>C</b><br><br>5.5 mm - M8 Picofast Quick Disconnect   | <b>D</b><br><br>5.5 mm - M12 Eurofast Quick Disconnect | <b>E</b><br><br>6.0 mm - M12 Eurofast Quick Disconnect  |
| <b>F</b><br><br>8.0 mm - M12 Eurofast Quick Disconnect | <b>G</b><br><br>8.0 mm - M8 Picofast Quick Disconnect | <b>H</b><br><br>8.0 mm - M12 Eurofast Quick Disconnect |
| <b>I</b><br><br>10 mm - M12 Eurofast Quick Disconnect |                                                                                                                                          |                                                                                                                                            |

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

| Wiring Diagrams/Mating Cordsets                                                                                            |                                                                                                                               |
|----------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| <b>1</b><br><br>Mating Cordset: RK 4T-* | <b>2</b><br><br>Mating Cordset: PKG 3M-* |

| A4 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ripple: ≤10%<br>Differential Travel (Hysteresis): 3-15% (5% typical)<br>Voltage Drop Across Conducting Sensor: ≤1.8 V<br>Trigger Current for Short Circuit Protection:<br>≥220 mA on 200 mA Load Current<br>≥170 mA on 150 mA Load Current<br>≥120 mA on 100 mA Load Current<br>Off-State (Leakage) Current: ≤0.1 mA<br>No-Load Current:<br>≤15 mA (Ferrite, Uprox, Rectangular)<br>≤20 mA (Uprox+, Uprox 3)<br>Time Delay Before Availability: ≤8 ms | Power-On Effect: Per IEC 947-5-2<br>Reverse Polarity Protection: Incorporated<br>Wire-Break Protection: Incorporated<br>Transient Protection: Per EN 60947-5-2<br>Temperature Drift:<br>Shock: 30 g, 11 ms<br>Vibration: 55 Hz, 1 mm Amplitude in all 3 Planes<br>Repeatability: ≤2% of Rated Operating Distance |



# Rectangular Inductive Sensors | Small Rectangular

## Sensor with Molded Connector

| Part Number/<br>ID Number          | Features | Embeddable | Sensing Range (mm) | Output           | Voltage      | Switching Freq. (Hz) | Operating Current (mA) | Operating Temp. (°C) | Protection | Housing | Front Cap/Face | Power LED | Output LED | Cable Length/Jacket | Dimension Drawings | Wiring Diagrams | Spec List |
|------------------------------------|----------|------------|--------------------|------------------|--------------|----------------------|------------------------|----------------------|------------|---------|----------------|-----------|------------|---------------------|--------------------|-----------------|-----------|
| Bi2-Q4.7-AP6X-0.3-PSG3M<br>1614000 |          | •          | 2                  | 3-wire DC<br>PNP | 10-30<br>VDC | 1000                 | ≤100                   | 0 to +85             | IP67       | Zinc    | PA             | N/A       | YE         | 0.3M/TPU            | A                  | 2               | A4        |
| Bi2-Q4.7-AP6X-0.3-RS4T<br>16140024 |          | •          | 2                  | 3-wire DC<br>PNP | 10-30<br>VDC | 1000                 | ≤100                   | 0 to +85             | IP67       | Zinc    | PA             | N/A       | YE         | 0.3M/TPU            | B                  | 1               | A4        |
| Bi2-Q5.5-AP6X-0.2-PSG3M<br>1613099 |          | •          | 2                  | 3-wire DC<br>PNP | 10-30<br>VDC | 2000                 | ≤150                   | -25 to +85           | IP67       | PP      | PP             | N/A       | YE         | 0.2M/TPU            | C                  | 2               | A4        |
| Bi2-Q5.5-AP6X-0.2-RS4T<br>1613094  |          | •          | 2                  | 3-wire DC<br>PNP | 10-30<br>VDC | 2000                 | ≤150                   | -25 to +85           | IP67       | PP      | PP             | N/A       | YE         | 0.2M/TPU            | D                  | 1               | A4        |
| Bi3-Q06-AP6X2-0.2-RS4T<br>1620193  |          | •          | 3                  | 3-wire DC<br>PNP | 10-30<br>VDC | 1000                 | ≤200                   | -25 to +70           | IP67       | PBT     | PA             | GN        | YE         | 0.2M/TPU            | E                  | 1               | A4        |
| Bi5U-Q08-AP6X2-0.2-RS4T<br>1608990 | Uprox    | •          | 5                  | 3-wire DC<br>PNP | 10-30<br>VDC | 250                  | ≤200                   | -30 to +85           | IP67       | Zinc    | PA 12          | GN        | YE         | 0.2M/TPU            | F                  | 1               | A4        |
| Bi5-Q08-AP6X2-0.2-PSG3F<br>1600592 |          | •          | 5                  | 3-wire DC<br>PNP | 10-30<br>VDC | 250                  | ≤200                   | -25 to +70           | IP67       | Zinc    | PA 12          | GN        | YE         | 0.2M/TPU            | G                  | 2               | A4        |
| Bi7-Q08-AP6X2-0.2-RS4T<br>1601683  |          | •          | 7                  | 3-wire DC<br>PNP | 10-30<br>VDC | 500                  | ≤200                   | -25 to +70           | IP67       | Zinc    | PA 12          | GN        | YE         | 0.2M/TPU            | H                  | 1               | A4        |
| Bi2-Q10S-AP6X-0.2-RS4T<br>1609390  |          | •          | 2                  | 3-wire DC<br>PNP | 10-30<br>VDC | 2000                 | ≤150                   | -25 to +70           | IP67       | PP-GF20 | PP             | N/A       | YE         | 0.2M/TPU            | I                  | 1               | A4        |

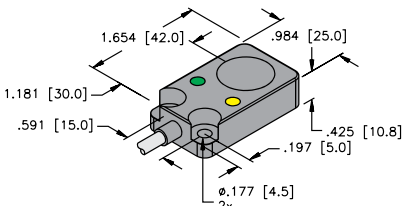
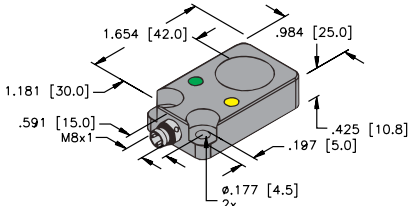
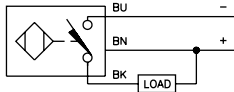
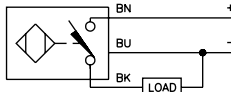
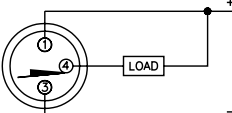
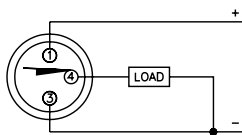
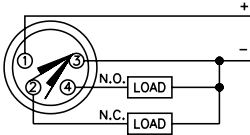
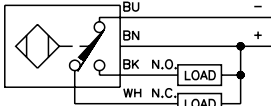
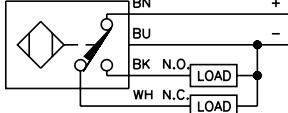
We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors



Rectangular Inductive Sensors | Q10

Top Sensing Qpak Housing

| Housing Style                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                     | Dimension Drawings                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                           |   |                                                                                                                     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                     | <p>A</p>  <p>10 mm - Embeddable, Potted-In Cable</p> |                                                                                                                                                                                                                                                                                                                                                           |   |                                                                                                                     |
| <p>B</p>  <p>10 mm - Embeddable, M8 Picofast Connector</p>                                                                                                                                                                                                                                                                                                                                       |                                                                                                                     |                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                           |   |                                                                                                                     |
| Wiring Diagrams/Mating Cordsets                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                     |                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                           |   |                                                                                                                     |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                    | 2                                                                                                                                      |                                                                                                                                                                                                                                                                          | 3 |  <p>Mating Cordset: PKG 3Z-*</p> |
| 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  <p>Mating Cordset: PKG 3Z-*</p> | 5                                                                                                                                      |  <p>Mating Cordset: PKG 4Z-*</p>                                                                                                                                                                                                                                       | 6 |                                |
| 7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                  |                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                           |   |                                                                                                                     |
| A4 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<br/>≥170 mA on 150 mA Load Current<br/>≥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)<br/>≤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> |   |                                                                                                                     |

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



Rectangular Inductive Sensors | Q10

Top Sensing Qpak Housing

| Part Number/<br>ID Number       | Features         | Embeddable | Sensing Range (mm) | Output        | Voltage   | Switching Freq. (Hz) | Operating Current (mA) | Operating Temp. (°C) | Protection | Housing | Front Cap/Face | Power LED | Output LED | Cable Length/Jacket | Dimension Drawings | Wiring Diagrams | Spec List |
|---------------------------------|------------------|------------|--------------------|---------------|-----------|----------------------|------------------------|----------------------|------------|---------|----------------|-----------|------------|---------------------|--------------------|-----------------|-----------|
| Bi8U-Q10-AN6X2<br>1662003       | Uprox            | •          | 8                  | 3-wire DC NPN | 10-30 VDC | 250                  | ≤200                   | -30 to +85           | IP67       | PBT     | PBT            | GN        | YE         | 2M/TPU              | A                  | 1               | A4        |
| Bi8U-Q10-AP6X2<br>1662001       | Uprox            | •          | 8                  | 3-wire DC PNP | 10-30 VDC | 250                  | ≤200                   | -30 to +85           | IP67       | PBT     | PBT            | GN        | YE         | 2M/TPU              | A                  | 2               | A4        |
| Bi8U-Q10-AN6X2-V1131<br>1662004 | Uprox            | •          | 8                  | 3-wire DC NPN | 10-30 VDC | 250                  | ≤200                   | -30 to +85           | IP67       | PBT     | PBT            | GN        | YE         | - -                 | B                  | 3               | A4        |
| Bi8U-Q10-AP6X2-V1131<br>1662002 | Uprox            | •          | 8                  | 3-wire DC PNP | 10-30 VDC | 250                  | ≤200                   | -30 to +85           | IP67       | PBT     | PBT            | GN        | YE         | - -                 | B                  | 4               | A4        |
| Bi8-Q10-VN6X2<br>4616410        | Comp.<br>Outputs | •          | 8                  | 4-wire DC NPN | 10-30 VDC | 250                  | ≤200                   | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | 2M/TPU              | A                  | 6               | A4        |
| Bi8-Q10-VP6X2<br>4616401        | Comp.<br>Outputs | •          | 8                  | 4-wire DC PNP | 10-30 VDC | 250                  | ≤200                   | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | 2M/TPU              | A                  | 7               | A4        |
| Bi8-Q10-VP6X2-V1141<br>4616402  | Comp.<br>Outputs | •          | 8                  | 4-wire DC PNP | 10-30 VDC | 500                  | ≤200                   | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | - -                 | B                  | 5               | A4        |

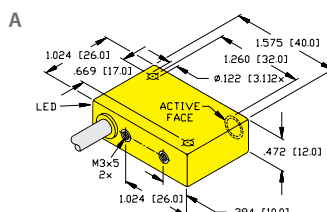
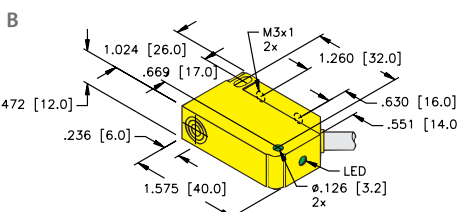
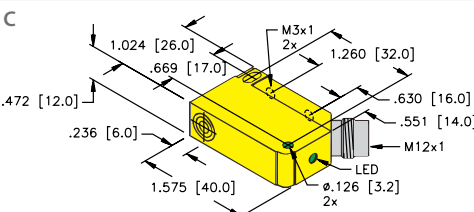
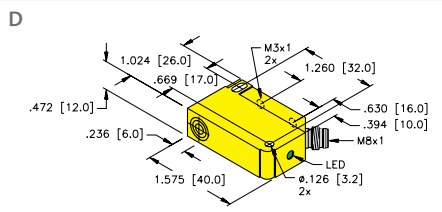
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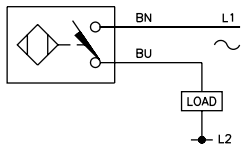
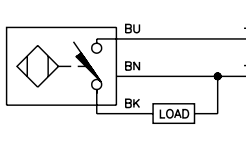
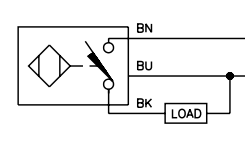
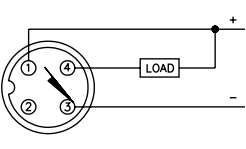
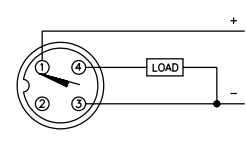
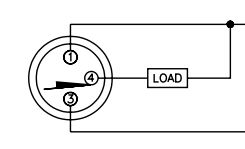
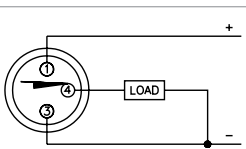
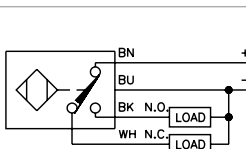
Rectangular Inductive Sensors



# Rectangular Inductive Sensors | Q12

## Side Sensing Qpak Housing

| Housing Style                                                                                                                                        | Dimension Drawings                                                                                                                                         |                                                                                                                                                |
|------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                     | <p><b>A</b></p>  <p>12 mm - Embeddable/Nonembeddable, Potted-In Cable</p> | <p><b>B</b></p>  <p>12 mm - Embeddable, Potted-In Cable</p> |
| <p><b>C</b></p>  <p>12 mm - Embeddable, M12 Eurofast Connection</p> | <p><b>D</b></p>  <p>12 mm - Embeddable, M8 Picofast Connection</p>       |                                                                                                                                                |

| Wiring Diagrams/Mating Cordsets                                                                                                     |                                                                                                                                    |                                                                                                                                       |
|-------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>1</b></p>                                   | <p><b>2</b></p>                                  | <p><b>3</b></p>                                   |
| <p><b>4</b></p>  <p>Mating Cordset: RK 4T-*</p>  | <p><b>5</b></p>  <p>Mating Cordset: RK 4T-*</p> | <p><b>6</b></p>  <p>Mating Cordset: PKG 3Z-*</p> |
| <p><b>7</b></p>  <p>Mating Cordset: PKG 3Z-*</p> | <p><b>8</b></p>                                 |                                                                                                                                       |

| A4 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<br/>≥170 mA on 150 mA Load Current<br/>≥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)<br/>≤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> |  |
| A6 2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                           |  |
| <p>Line Frequency: ≥50... ≤60 Hz</p> <p>Differential Travel (Hysteresis): 3-15% (5% typical)</p> <p>Voltage Drop Across Conducting Sensor: ≤6.0 V</p> <p>Continuous Load Current: AC: ≤400 mA; DC: ≤300 mA<br/>AC: ≤100 mA; DC: ≤100 mA</p> <p>Off-State (Leakage) Current: ≤1.7 mA</p> <p>Minimum Load Current: ≥3.0 mA</p>                                                                                                                                                      | <p>Inrush Current: ≤8 A (≤10ms max. 5 Hz)<br/>≤1 A (≤10 ms max. 5 Hz) 12 mm<br/>≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm</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.



# Rectangular Inductive Sensors | Q12

## Side Sensing Qpak Housing

| Part Number/<br>ID Number       | Features | Embeddable | Sensing Range (mm) | Output           | Voltage               | Switching Freq. (Hz) | Operating Current (mA) | Operating Temp. (°C) | Protection | Housing    | Front Cap/Face | Power LED | Output LED | Cable Length/Jacket | Dimension Drawings | Wiring Diagrams | Spec List |
|---------------------------------|----------|------------|--------------------|------------------|-----------------------|----------------------|------------------------|----------------------|------------|------------|----------------|-----------|------------|---------------------|--------------------|-----------------|-----------|
| Bi2-Q12-AZ31X<br>13100          |          | •          | 2                  | 2-wire AC        | 20-250 VAC/10-300 VDC | 20                   | ≤100                   | -25 to +70           | IP67       | PBT        | PBT            | N/A       | YE         | 2M/<br>PVC          | A                  | 1               | A6        |
| Ni4-Q12-AZ31X<br>13102          |          |            | 4                  | 2-wire AC        | 20-250 VAC/10-300 VDC | 20                   | ≤100                   | -25 to +70           | IP67       | PBT        | PBT            | N/A       | YE         | 2M/<br>PVC          | A                  | 1               | A6        |
| Bi5U-Q12-AN6X2<br>1635523       | Uprox+   | •          | 5                  | 3-wire DC<br>NPN | 10-30 VDC             | 1000                 | ≤200                   | -25 to +70           | IP68       | PA 12-GF30 | LCP            | GN        | YE         | 2M/<br>TPU          | B                  | 2               | A4        |
| Bi5U-Q12-AP6X2<br>1635522       | Uprox+   | •          | 5                  | 3-wire DC<br>PNP | 10-30 VDC             | 1000                 | ≤200                   | -25 to +70           | IP68       | PA 12-GF30 | LCP            | GN        | YE         | 2M/<br>TPU          | B                  | 3               | A4        |
| Bi5U-Q12-VP6X2<br>1635533       | Uprox+   | •          | 5                  | 4-wire DC<br>PNP | 10-30 VDC             | 1000                 | ≤200                   | -25 to +70           | IP68       | PA 12-GF30 | PA 12-<br>GF30 | GN        | YE         | 2M/<br>TPU          | B                  | 8               | A4        |
| Bi5U-Q12-AN6X2-H1141<br>1635527 | Uprox+   | •          | 5                  | 3-wire DC<br>NPN | 10-30 VDC             | 1000                 | ≤200                   | -25 to +70           | IP68       | PA 12-GF30 | LCP            | GN        | YE         | --                  | C                  | 4               | A4        |
| Bi5U-Q12-AP6X2-H1141<br>1635526 | Uprox+   | •          | 5                  | 3-wire DC<br>PNP | 10-30 VDC             | 1000                 | ≤200                   | -25 to +70           | IP68       | PA 12-GF30 | LCP            | GN        | YE         | --                  | C                  | 5               | A4        |
| Bi5U-Q12-AN6X2-V1131<br>1635525 | Uprox+   | •          | 5                  | 3-wire DC<br>NPN | 10-30 VDC             | 1000                 | ≤200                   | -25 to +70           | IP68       | PA 12-GF30 | LCP            | GN        | YE         | --                  | D                  | 6               | A4        |
| Bi5U-Q12-AP6X2-V1131<br>1635524 | Uprox+   | •          | 5                  | 3-wire DC<br>PNP | 10-30 VDC             | 1000                 | ≤200                   | -25 to +70           | IP68       | PA 12-GF30 | LCP            | GN        | YE         | --                  | D                  | 7               | A4        |

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

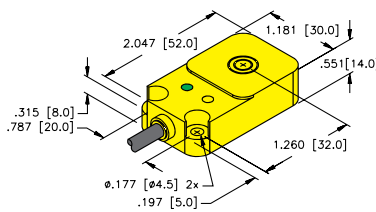
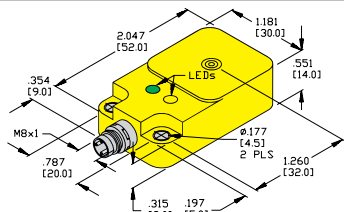
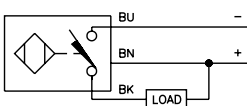
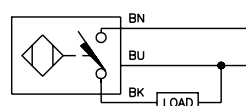
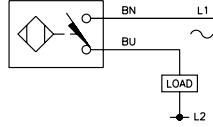
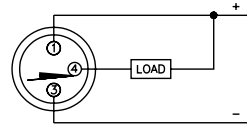
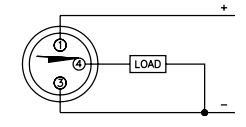
Rectangular Inductive Sensors





# Rectangular Inductive Sensors | Q14

## Top Sensing Qpak Housing

| Housing Style                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                     | Dimension Drawings                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                     | <p><b>A</b></p>  <p>14 mm - Potted-In Cable</p>                                                                                                                                                                                                                                                                              |                                                                                   |
| <p><b>B</b></p>  <p>14 mm - Embeddable/Nonembeddable, M8 Picofast Connector</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                   |
| Wiring Diagrams/Mating Cordsets                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                   |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                    | 2                                                                                                                                                                                                                                                                                                                                                                                                              |  |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                   |
| 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  <p>Mating Cordset: PKG 3M-*</p> |                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                   |
| 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  <p>Mating Cordset: PKG 3M-*</p> |                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                   |
| A4 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                   |
| <p>Ripple: <math>\leq 10\%</math></p> <p>Differential Travel (Hysteresis): 3-15% (5% typical)</p> <p>Voltage Drop Across Conducting Sensor: <math>\leq 1.8\text{ V}</math></p> <p>Trigger Current for Short Circuit Protection: <math>\geq 220\text{ mA}</math> on 200 mA Load Current<br/><math>\geq 170\text{ mA}</math> on 150 mA Load Current<br/><math>\geq 120\text{ mA}</math> on 100 mA Load Current</p> <p>Off-State (Leakage) Current: <math>\leq 0.1\text{ mA}</math></p> <p>No-Load Current: <math>\leq 15\text{ mA}</math> (Ferrite, Uprox, Rectangular)<br/><math>\leq 20\text{ mA}</math> (Uprox+, Uprox 3)</p> <p>Time Delay Before Availability: <math>\leq 8\text{ ms}</math></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: <math>\leq \pm 10\%</math></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 AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                   |
| <p>Line Frequency: <math>\geq 50\text{...} \leq 60\text{ Hz}</math></p> <p>Differential Travel (Hysteresis): 3-15% (5% typical)</p> <p>Voltage Drop Across Conducting Sensor: <math>\leq 6.0\text{ V}</math></p> <p>Trigger Current for Short Circuit Protection: AC: <math>\geq 440\text{ mA}</math>; DC: <math>\geq 330\text{ mA}</math><br/>AC: <math>\geq 120\text{ mA}</math>; DC: <math>\geq 120\text{ mA}</math></p> <p>Continuous Load Current: AC: <math>\leq 400\text{ mA}</math>; DC: <math>\leq 300\text{ mA}</math><br/>AC: <math>\leq 100\text{ mA}</math>; DC: <math>\leq 100\text{ mA}</math></p> <p>Off-State (Leakage) Current: <math>\leq 1.7\text{ mA}</math> (AC)<br/><math>\leq 1.5\text{ mA}</math> (DC)</p> |                                                                                                                     | <p>Minimum Load Current: <math>\geq 3.0\text{ mA}</math></p> <p>Inrush Current: <math>\leq 3.0\text{ A}</math> (<math>\leq 20\text{ ms}</math>, 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.



# Rectangular Inductive Sensors | Q14

## Top Sensing Qpak Housing

| Part Number/<br>ID Number        | Features | Embeddable | Sensing Range (mm) | Output        | Voltage               | Switching Freq. (Hz) | Operating Current (mA) | Operating Temp. (°C) | Protection | Housing | Front Cap/Face | Power LED | Output LED | Cable Length/Jacket | Dimension Drawings | Wiring Diagrams | Spec List |
|----------------------------------|----------|------------|--------------------|---------------|-----------------------|----------------------|------------------------|----------------------|------------|---------|----------------|-----------|------------|---------------------|--------------------|-----------------|-----------|
| Bi10U-Q14-AN6X2<br>1608710       | Uprox    | •          | 10                 | 3-wire DC NPN | 10-30 VDC             | 250                  | ≤200                   | -30 to +85           | IP67       | PBT     | PBT            | GN        | YE         | 2M/<br>TPU          | A                  | 1               | A4        |
| Bi10U-Q14-AP6X2<br>1608700       | Uprox    | •          | 10                 | 3-wire DC PNP | 10-30 VDC             | 250                  | ≤200                   | -30 to +85           | IP67       | PBT     | PBT            | GN        | YE         | 2M/<br>TPU          | A                  | 2               | A4        |
| Bi10U-Q14-AN6X2-V1131<br>1608510 | Uprox    | •          | 10                 | 3-wire DC PNP | 10-30 VDC             | 250                  | ≤200                   | -30 to +85           | IP67       | PBT     | PBT            | GN        | YE         | - -                 | B                  | 4               | A4        |
| Bi10U-Q14-AP6X2-V1131<br>1608500 | Uprox    | •          | 10                 | 3-wire DC PNP | 10-30 VDC             | 250                  | ≤200                   | -30 to +85           | IP67       | PBT     | PBT            | GN        | YE         | - -                 | B                  | 5               | A4        |
| Bi10-Q14-AN6X2<br>1608320        |          | •          | 10                 | 3-wire DC NPN | 10-30 VDC             | 250                  | ≤200                   | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | 2M/<br>TPU          | A                  | 1               | A4        |
| Bi10-Q14-AP6X2<br>1608720        |          | •          | 10                 | 3-wire DC PNP | 10-30 VDC             | 250                  | ≤200                   | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | 2M/<br>TPU          | A                  | 2               | A4        |
| Bi10-Q14-ADZ32X2<br>4256220      |          | •          | 10                 | 2-wire AC/DC  | 20-250 VAC/10-300 VDC | 20                   | ≤100                   | -25 to +70           | IP67       | PBT     | PBT            | GN        | RD         | 2M/<br>TPU          | A                  | 3               | A5        |
| Bi10-Q14-ADZ32X2/S34<br>4256225  | WFI      | •          | 10                 | 2-wire AC/DC  | 20-250 VAC/10-300 VDC | 20                   | ≤100                   | -25 to +70           | IP67       | PBT     | PBT            | GN        | RD         | 2M/<br>TPU          | A                  | 3               | A5        |
| Bi10-Q14-AP6X2-V1131<br>1608530  |          | •          | 10                 | 3-wire DC PNP | 10-30 VDC             | 250                  | ≤200                   | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | - -                 | B                  | 5               | A4        |
| Ni20-Q14-AP6X2-V1131<br>4690210  |          |            | 20                 | 3-wire DC PNP | 10-30 VDC             | 250                  | ≤200                   | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | - -                 | B                  | 5               | A4        |
| Ni20-Q14-AN6X2<br>4690220        |          |            | 20                 | 3-wire DC NPN | 10-30 VDC             | 250                  | ≤200                   | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | 2M/<br>TPU          | A                  | 1               | A4        |
| Ni20-Q14-AP6X2<br>4690205        |          | •          | 20                 | 3-wire DC PNP | 10-30 VDC             | 250                  | ≤200                   | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | 2M/<br>TPU          | A                  | 2               | A4        |
| Ni20-Q14-ADZ32X2<br>4205410      |          | •          | 20                 | 2-wire AC/DC  | 20-250 VAC/10-300 VDC | 20                   | ≤100                   | -25 to +70           | IP67       | PBT     | PBT            | GN        | RD         | 2M/<br>TPU          | A                  | 3               | A5        |

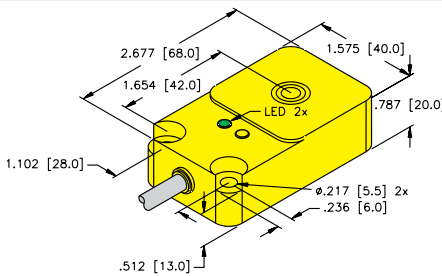
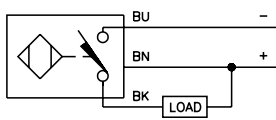
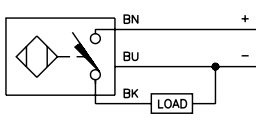
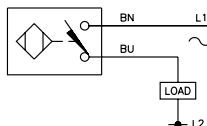
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Rectangular Inductive Sensors



# Rectangular Inductive Sensors | Q20

## Top Sensing Qpak Housing with Potted-in Cable

| Housing Style                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  | Dimension Drawings                                                                                                                                                                                                                                                                                                                                                                               |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  | <div>A</div>  <p>20 mm - Embeddable/Nonembeddable, Potted-In Cable</p>                                                                                                                                                                                                                                         |  |
| Wiring Diagrams/Mating Cordsets                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                                                                                                                                                                                                                                                                                                                                                                                  |  |
| <div>1</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  | <div>2</div>                                                                                                                                                                                                                                                                                                    |  |
| <div>3</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                                                                                                                                                                                                                                                                                                                                                                                  |  |
| A4 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                                                                                                                                                                                                                                                                                                                                                                                                  |  |
| <p>Ripple: <math>\leq 10\%</math></p> <p>Differential Travel (Hysteresis): 3-15% (5% typical)</p> <p>Voltage Drop Across Conducting Sensor: <math>\leq 1.8</math> V</p> <p>Trigger Current for Short Circuit Protection: <math>\geq 220</math> mA on 200 mA Load Current<br/><math>\geq 170</math> mA on 150 mA Load Current<br/><math>\geq 120</math> mA on 100 mA Load Current</p> <p>Off-State (Leakage) Current: <math>\leq 0.1</math> mA</p> <p>No-Load Current: <math>\leq 15</math> mA (Ferrite, Uprox, Rectangular)<br/><math>\leq 20</math> mA (Uprox+, Uprox 3)</p> <p>Time Delay Before Availability: <math>\leq 8</math> 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: <math>\leq \pm 10\%</math></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 AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |                                                                                                                                                                                                                                                                                                                                                                                                  |  |
| <p>Line Frequency: <math>\geq 50... \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<br/>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<br/>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)<br/><math>\leq 1.5</math> mA (DC)</p>    |  | <p>Minimum Load Current: <math>\geq 3.0</math> mA</p> <p>Inrush Current: <math>\leq 3.0</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>        |  |

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Rectangular Inductive Sensors | Q20

Top Sensing Qpak Housing with Potted-in Cable

| Part Number/<br>ID Number   | Features | Embeddable | Sensing Range (mm) | Output        | Voltage               | Switching Freq. (Hz) | Operating Current (mA) | Operating Temp. (°C) | Protection | Housing | Front Cap/Face | Power LED | Output LED | Cable Length/Jacket | Dimension Drawings | Wiring Diagrams | Spec List |
|-----------------------------|----------|------------|--------------------|---------------|-----------------------|----------------------|------------------------|----------------------|------------|---------|----------------|-----------|------------|---------------------|--------------------|-----------------|-----------|
| Bi15U-Q20-AN6X2<br>1608810  | Uprox    | •          | 15                 | 3-wire DC NPN | 10-30 VDC             | 250                  | ≤200                   | -30 to +85           | IP67       | PBT     | PBT            | GN        | YE         | 2M/TPU              | A                  | 1               | A4        |
| Bi15U-Q20-AP6X2<br>1608800  | Uprox    | •          | 15                 | 3-wire DC PNP | 10-30 VDC             | 250                  | ≤200                   | -30 to +85           | IP67       | PBT     | PBT            | GN        | YE         | 2M/TPU              | A                  | 2               | A4        |
| Bi15-Q20-AP6X2<br>1608300   |          | •          | 15                 | 3-wire DC PNP | 10-30 VDC             | 250                  | ≤200                   | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | 2M/TPU              | A                  | 2               | A4        |
| Bi15-Q20-ADZ32X2<br>4256250 |          | •          | 15                 | 2-wire AC/DC  | 20-250 VAC/10-300 VDC | 20                   | ≤100                   | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | 2M/TPU              | A                  | 3               | A5        |
| Ni25-Q20-AN6X2<br>1602800   |          |            | 25                 | 3-wire DC NPN | 10-30 VDC             | 250                  | ≤200                   | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | 2M/TPU              | A                  | 1               | A4        |
| Ni25-Q20-AP6X2<br>1602700   |          |            | 25                 | 3-wire DC PNP | 10-30 VDC             | 250                  | ≤200                   | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | 2M/TPU              | A                  | 2               | A4        |

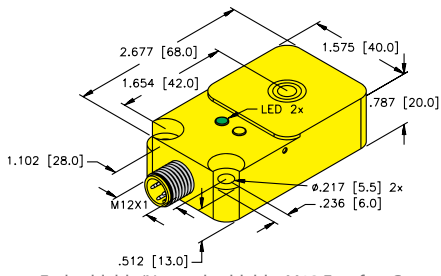
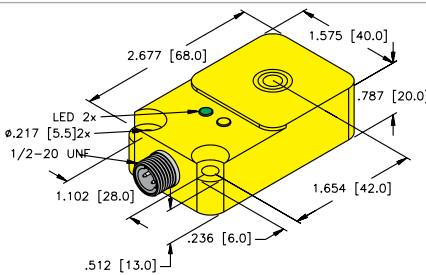
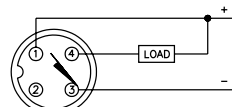
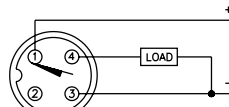
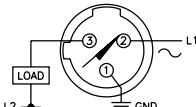
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Rectangular Inductive Sensors



# Rectangular Inductive Sensors | Q20

## Top Sensing Qpak Housing with Integral Connector

| Housing Style                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                   | Dimension Drawings                                                                                                                                                                                                                                                                                                                                        |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                   | <p><b>A</b></p>  <p>20 mm - Embeddable/Nonembeddable, M12 Eurofast Connector</p>                                                                                                                                                                                        |  |
| <p><b>B</b></p>  <p>20 mm - Embeddable, 1/2-20UNF Microfast Connector</p>                                                                                                                                                                                                                                                                                                                        |                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                           |  |
| Wiring Diagrams/Mating Cordsets                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                           |  |
| <p><b>1</b></p>  <p>Mating Cordset: RK 4T-*</p>                                                                                                                                                                                                                                                                                                                                                 | <p><b>2</b></p>  <p>Mating Cordset: RK 4T-*</p> | <p><b>3</b></p>  <p>Mating Cordset: KB 3T-*</p>                                                                                                                                                                                                                       |  |
| A4 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<br/>≥170 mA on 150 mA Load Current<br/>≥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)<br/>≤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> |  |
| A5 2-wire AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                           |  |
| <p>Line Frequency: ≥50... ≤60 Hz</p> <p>Differential Travel (Hysteresis): 3-15% (5% typical)</p> <p>Voltage Drop Across Conducting Sensor: ≤6.0 V</p> <p>Trigger Current for Short Circuit Protection: AC: ≥440 mA; DC: ≥330 mA<br/>AC: ≥120 mA; DC: ≥120 mA</p> <p>Continuous Load Current: AC: ≤400 mA; DC: ≤300 mA<br/>AC: ≤100 mA; DC: ≤100 mA</p> <p>Off-State (leakage) Current: ≤1.7 mA (AC)<br/>≤1.5 mA (DC)</p>                                                          |                                                                                                                                   | <p>Minimum Load Current: ≥3.0 mA</p> <p>Inrush Current: ≤3.0 A (≤20 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: ≤2% of Rated Operating Distance</p>                                      |  |

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Rectangular Inductive Sensors | Q20

Top Sensing Qpak Housing with Integral Connector

| Part Number/<br>ID Number         | Features | Embeddable | Sensing Range (mm) | Output        | Voltage               | Switching Freq. (Hz) | Operating Current (mA) | Operating Temp. (°C) | Protection | Housing | Front Cap/Face | Power LED | Output LED | Dimension Drawings | Wiring Diagrams | Spec List |
|-----------------------------------|----------|------------|--------------------|---------------|-----------------------|----------------------|------------------------|----------------------|------------|---------|----------------|-----------|------------|--------------------|-----------------|-----------|
| Bi15U-Q20-AN6X2-H1141<br>1608610  | Uprox    | •          | 15                 | 3-wire DC NPN | 10-30 VDC             | 250                  | ≤200                   | -30 to +85           | IP67       | PBT     | PBT            | GN        | YE         | A                  | 1               | A4        |
| Bi15U-Q20-AP6X2-H1141<br>1608600  | Uprox    | •          | 15                 | 3-wire DC PNP | 10-30 VDC             | 250                  | ≤200                   | -30 to +85           | IP67       | PBT     | PBT            | GN        | YE         | A                  | 2               | A4        |
| Bi15-Q20-AN6X2-H1141<br>1608315   |          | •          | 15                 | 3-wire DC NPN | 10-30 VDC             | 250                  | ≤200                   | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | A                  | 1               | A4        |
| Bi15-Q20-AP6X2-H1141<br>1608305   |          | •          | 15                 | 3-wire DC PNP | 10-30 VDC             | 250                  | ≤200                   | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | A                  | 2               | A4        |
| Bi15-Q20-ADZ32X2-B3131<br>4256251 |          | •          | 15                 | 2-wire AC/DC  | 20-250 VAC/10-300 VDC | 20                   | ≤100                   | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | B                  | 3               | A5        |
| Ni25-Q20-AN6X2-H1141<br>1602802   |          |            | 25                 | 3-wire DC NPN | 10-30 VDC             | 250                  | ≤200                   | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | A                  | 1               | A4        |
| Ni25-Q20-AP6X2-H1141<br>1602702   |          |            | 25                 | 3-wire DC PNP | 10-30 VDC             | 250                  | ≤200                   | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | A                  | 2               | A4        |

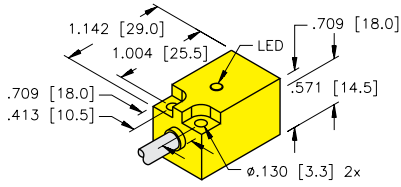
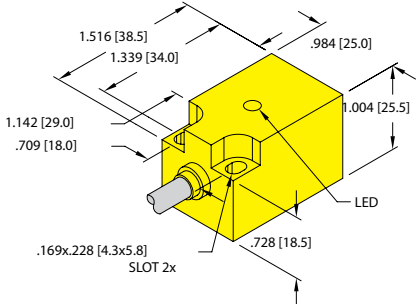
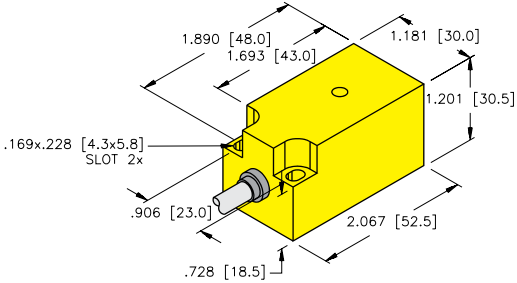
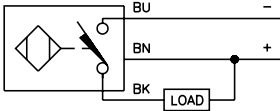
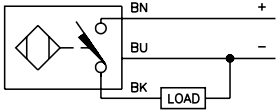
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Rectangular Inductive Sensors



Rectangular Inductive Sensors | Q18, Q25, & Q30

Side Sensing Qpak Housing

| Housing Style                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                 | Dimension Drawings                                                                                                                                                                                                                                                                                                     |                                                                                                                                  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                 | A                                                                                                                                                                                                                                                                                                                      |  <p>18 mm - Nonembeddable, Potted-In Cable</p> |
| B                                                                                                                                                                                                                                                                                                                                                                                                                                               |  <p>25 mm - Nonembeddable, Potted-In Cable</p> | C                                                                                                                                                                                                                                                                                                                      |  <p>30 mm - Nonembeddable, Potted-In Cable</p> |
| Wiring Diagrams/Mating Cordsets                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                 |                                                                                                                                                                                                                                                                                                                        |                                                                                                                                  |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                               | 2                                                                                                                                                                                                                                                                                                                      |                                              |
| A4 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                 |                                                                                                                                                                                                                                                                                                                        |                                                                                                                                  |
| Ripple: ≤10%<br>Differential Travel (Hysteresis): 3-15% (5% typical)<br>Voltage Drop Across Conducting Sensor: ≤1.8 V<br>Trigger Current for Short Circuit Protection: ≥220 mA on 200 mA Load Current<br>≥170 mA on 150 mA Load Current<br>≥120 mA on 100 mA Load Current<br>Off-State (Leakage) Current: ≤0.1 mA<br>No-Load Current: ≤15 mA (Ferrite, Uprox, Rectangular)<br>≤20 mA (Uprox+, Uprox 3)<br>Time Delay Before Availability: ≤8 ms |                                                                                                                                 | Power-On Effect: Per IEC 947-5-2<br>Reverse Polarity Protection: Incorporated<br>Wire-Break Protection: Incorporated<br>Transient Protection: Per EN 60947-5-2<br>Temperature Drift: ≤±10%<br>Shock: 30 g, 11 ms<br>Vibration: 55 Hz, 1 mm Amplitude in all 3 Planes<br>Repeatability: ≤2% of Rated Operating Distance |                                                                                                                                  |

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Rectangular Inductive Sensors | Q18, Q25, & Q30

Side Sensing Qpak Housing

| Part Number/<br>ID Number | 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 |
|---------------------------|--------------------|---------------|-----------|----------------------|------------------------|----------------------|------------|---------|----------------|-----------|------------|---------------------|--------------------|-----------------|-----------|
| Ni5-Q18-AN6X<br>4614607   | 5                  | 3-wire DC NPN | 10-30 VDC | 500                  | ≤200                   | -25 to +70           | IP67       | PBT     | PBT            | N/A       | YE         | 2M/PVC              | A                  | 1               | A4        |
| Ni5-Q18-AP6X<br>4614606   | 5                  | 3-wire DC PNP | 10-30 VDC | 500                  | ≤200                   | -25 to +70           | IP67       | PBT     | PBT            | N/A       | YE         | 2M/PVC              | A                  | 2               | A4        |
| Ni10-Q25-AN6X<br>4652330  | 10                 | 3-wire DC NPN | 10-30 VDC | 500                  | ≤200                   | -25 to +70           | IP67       | PBT     | PBT            | N/A       | YE         | 2M/PVC              | B                  | 1               | A4        |
| Ni10-Q25-AP6X<br>4652225  | 10                 | 3-wire DC PNP | 10-30 VDC | 500                  | ≤200                   | -25 to +70           | IP67       | PBT     | PBT            | N/A       | YE         | 2M/PVC              | B                  | 2               | A4        |
| Ni15-Q30-AN6X<br>4659330  | 15                 | 3-wire DC NPN | 10-30 VDC | 500                  | ≤200                   | -25 to +70           | IP67       | PBT     | PBT            | N/A       | YE         | 2M/PVC              | C                  | 1               | A4        |
| Ni15-Q30-AP6X<br>4659325  | 15                 | 3-wire DC PNP | 10-30 VDC | 500                  | ≤200                   | -25 to +70           | IP67       | PBT     | PBT            | N/A       | YE         | 2M/PVC              | C                  | 2               | A4        |

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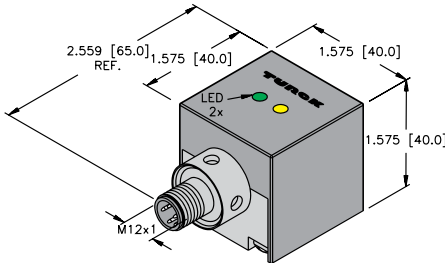
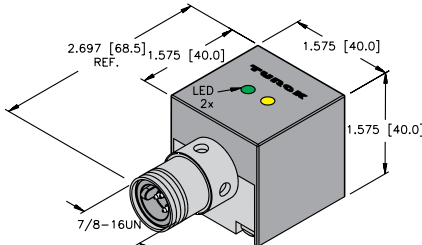
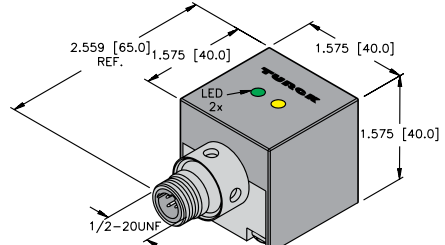
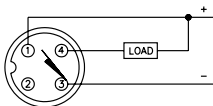
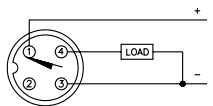
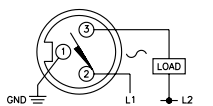
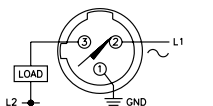
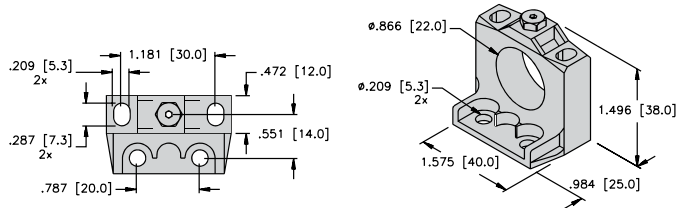
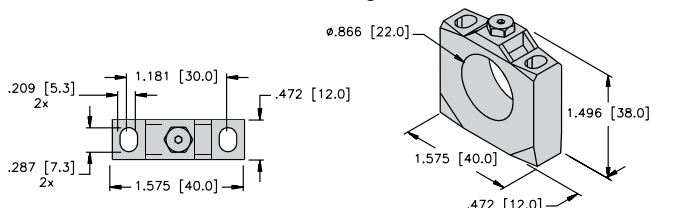
Rectangular Inductive Sensors





# Rectangular Inductive Sensors | CA40

## Rotatable Sensing Head with Metal Housing

| Housing Style                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  | Dimension Drawings                                                                                                                                                                                                                                                                                                                                        |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|                                                                                                                                                                                                                                                                                                                                                                                                  |  | <p><b>A</b></p>  <p>CA40 - Embeddable, Eurofast Connector</p>                                                                                                                                                                                                           |  |
| <p><b>B</b></p>  <p>CA40 - Embeddable, Minifast Connector</p>                                                                                                                                                                                                                                                                                                                                    |  | <p><b>C</b></p>  <p>CA40 - Embeddable, Microfast Connector</p>                                                                                                                                                                                                          |  |
| Wiring Diagrams/Mating Cordsets                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |                                                                                                                                                                                                                                                                                                                                                           |  |
| <p><b>1</b></p>  <p>Mating Cordset: RK 4T-*</p>                                                                                                                                                                                                                                                                                                                                                 |  | <p><b>2</b></p>  <p>Mating Cordset: RK 4T-*</p>                                                                                                                                                                                                                         |  |
| <p><b>3</b></p>  <p>Mating Cordset: RKM 30-*M</p>                                                                                                                                                                                                                                                                                                                                              |  | <p><b>4</b></p>  <p>Mating Cordset: KB 3T-*</p>                                                                                                                                                                                                                       |  |
| A4 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<br/>≥170 mA on 150 mA Load Current<br/>≥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)<br/>≤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> |  |
| A5 2-wire AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)                                                                                                                                                                                                                                                                                                                                                                                                                |  |                                                                                                                                                                                                                                                                                                                                                           |  |
| <p>Line Frequency: ≥50... ≤60 Hz</p> <p>Differential Travel (Hysteresis): 3-15% (5% typical)</p> <p>Voltage Drop Across Conducting Sensor: ≤6.0 V</p> <p>Trigger Current for Short Circuit Protection: AC: ≥440 mA; DC: ≥330 mA<br/>AC: ≥120 mA; DC: ≥120 mA</p> <p>Continuous Load Current: AC: ≤400 mA; DC: ≤300 mA<br/>AC: ≤100 mA; DC: ≤100 mA</p> <p>Off-State (leakage) Current: ≤1.7 mA (AC)<br/>≤1.5 mA (DC)</p>                                                          |  | <p>Minimum Load Current: ≥3.0 mA</p> <p>Inrush Current: ≤3.0 A (≤20 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: ≤2% of Rated Operating Distance</p>                                      |  |
| BS 2.1 Mounting Bracket                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  | BS 2.0 Mounting Bracket                                                                                                                                                                                                                                                                                                                                   |  |
|                                                                                                                                                                                                                                                                                                                                                                                                |  |                                                                                                                                                                                                                                                                       |  |

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



Rectangular Inductive Sensors | CA40

Rotatable Sensing Head with Metal Housing

| Part Number/<br>ID Number                       | Features   | Embeddable | Sensing Range (mm) | Output        | Voltage               | Switching Freq. (Hz) | Operating Current (mA) | Operating Temp. (°C) | Protection | Housing | Front Cap/Face | Power LED | Output LED | Dimension Drawings | Wiring Diagrams | Spec List |
|-------------------------------------------------|------------|------------|--------------------|---------------|-----------------------|----------------------|------------------------|----------------------|------------|---------|----------------|-----------|------------|--------------------|-----------------|-----------|
| Bi20U-CA40-AN6X2-H1141 W/BS2.1<br>1627390       | Uprox      | •          | 20                 | 3-wire DC NPN | 10-30 VDC             | 250                  | ≤200                   | 0 to +70             | IP67       | AL      | TP             | GN        | YE         | A                  | 1               | A4        |
| Bi20U-CA40-AP6X2-H1141 W/BS2.1<br>1627290       | Uprox      | •          | 20                 | 3-wire DC PNP | 10-30 VDC             | 250                  | ≤200                   | 0 to +70             | IP67       | AL      | TP             | GN        | YE         | A                  | 2               | A4        |
| Bi20U-CA40-AP6X2-H1141/S1590 W/BS2.0<br>1627297 | Weldguard® | •          | 20                 | 3-wire DC PNP | 10-30 VDC             | 250                  | ≤200                   | 0 to +70             | IP67       | AL      | WG             | GN        | YE         | A                  | 2               | A4        |
| Bi20U-CA40-ADZ30X2-B1131 W/BS2.1<br>4283290     | Uprox      | •          | 20                 | 2-wire AC/DC  | 20-250 VAC/10-300 VDC | 10                   | ≤400/300               | -30 to +85           | IP67       | AL      | TP             | GN        | YE         | B                  | 3               | A5        |
| Bi20U-CA40-ADZ30X2-B3131 W/BS2.1<br>4283292     | Uprox      | •          | 20                 | 2-wire AC/DC  | 20-250 VAC/10-300 VDC | 10                   | ≤400/300               | -30 to +85           | IP67       | AL      | TP             | GN        | YE         | C                  | 4               | A5        |

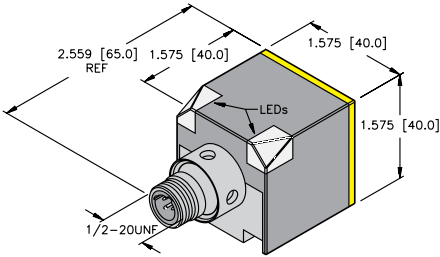
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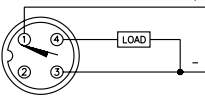
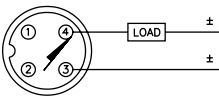
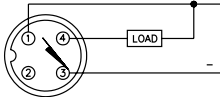
Rectangular Inductive Sensors



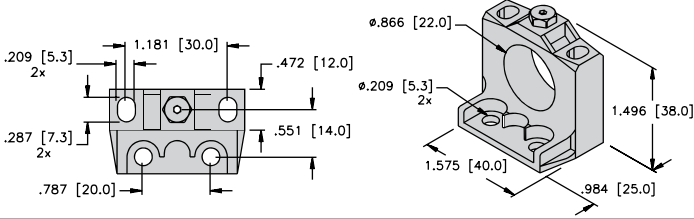
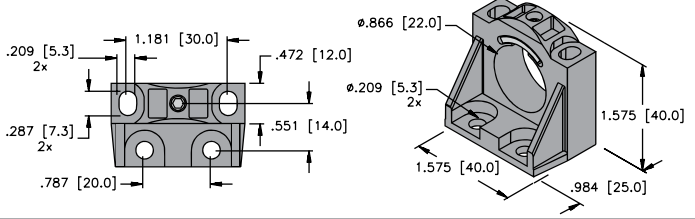
Rectangular Inductive Sensors | CK40

Rotatable Sensing Head with 2 and 3-wire DC Outputs

| Housing Style                                                                     | Dimension Drawings                                                                                                                                     |
|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p>A</p>  <p>CK40 - Embeddable/Nonembeddable, Eurofast Connector</p> |

| Wiring Diagrams/Mating Cordsets                                                                                       |                                                                                                                         |                                                                                                                         |
|-----------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| 1<br> <p>Mating Cordset: RK 4T-*</p> | 2<br> <p>Mating Cordset: RK 4.2T-*</p> | 3<br> <p>Mating Cordset: RK 4T-*</p> |

| A2 2-wire DC - (AD, RD, AG)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Ripple: <math>\leq 10\%</math></p> <p>Differential Travel (Hysteresis): 3-15% (5% typical)</p> <p>Voltage Drop Across Conducting Sensor: Non-polarized (AD) <math>&lt; 5.0\text{ V}</math></p> <p>Trigger Current for Short Circuit Protection: <math>\geq 120\text{ mA}</math></p> <p>Minimum Load Current: <math>\geq 3.0\text{ mA}</math></p>                                                                                                                                                                                                                                                                                                                                                          | <p>Off-State (Leakage) Current: <math>\leq 0.8\text{ mA}</math></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>                                                                              |
| A4 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                  |
| <p>Ripple: <math>\leq 10\%</math></p> <p>Differential Travel (Hysteresis): 3-15% (5% typical)</p> <p>Voltage Drop Across Conducting Sensor: <math>\leq 1.8\text{ V}</math></p> <p>Trigger Current for Short Circuit Protection: <math>\geq 220\text{ mA}</math> on 200 mA Load Current</p> <p><math>\geq 170\text{ mA}</math> on 150 mA Load Current</p> <p><math>\geq 120\text{ mA}</math> on 100 mA Load Current</p> <p>Off-State (Leakage) Current: <math>\leq 0.1\text{ mA}</math></p> <p>No-Load Current: <math>\leq 15\text{ mA}</math> (Ferrite, Uprox, Rectangular)</p> <p><math>\leq 20\text{ mA}</math> (Uprox+, Uprox 3)</p> <p>Time Delay Before Availability: <math>\leq 8\text{ ms}</math></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: <math>\leq \pm 10\%</math></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> |

| BS 2.1 Mounting Bracket                                                            | BS 4 Mounting Bracket                                                                |
|------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
|  |  |

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



# Rectangular Inductive Sensors | CK40

## Rotatable Sensing Head with 2 and 3-wire DC Outputs

| Part Number/<br>ID Number                 | Features | Embeddable | Sensing Range (mm) | Output        | Voltage   | Switching Freq. (Hz) | Operating Current (mA) | Operating Temp. (°C) | Protection | Housing | Front Cap/Face | Power LED | Output LED | Dimension Drawings | Wiring Diagrams | Spec List |
|-------------------------------------------|----------|------------|--------------------|---------------|-----------|----------------------|------------------------|----------------------|------------|---------|----------------|-----------|------------|--------------------|-----------------|-----------|
| Bi15U-CK40-AN6X2-H1141 W/BS2.1<br>1625690 | Uprox    | •          | 15                 | 3-wire DC NPN | 10-30 VDC | 250                  | ≤200                   | -30 to +85           | IP68       | PBT     | PBT            | GN        | YE         | A                  | 3               | A4        |
| Bi15U-CK40-AP6X2-H1141 W/BS2.1<br>1625689 | Uprox    | •          | 15                 | 3-wire DC PNP | 10-30 VDC | 250                  | ≤200                   | -30 to +85           | IP68       | PBT     | PBT            | GN        | YE         | A                  | 1               | A4        |
| Bi15-CK40-AN6X2-H1141 W/BS2.1<br>1625190  |          | •          | 15                 | 3-wire DC NPN | 10-30 VDC | 150                  | ≤200                   | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | A                  | 3               | A4        |
| Bi15-CK40-AP6X2-H1141 W/BS2.1<br>1625090  |          | •          | 15                 | 3-wire DC PNP | 10-30 VDC | 150                  | ≤200                   | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | A                  | 1               | A4        |
| Bi15-CK40-AD4X-H1141 W/BS2.1<br>4465090   |          | •          | 15                 | 2-wire DC     | 10-65 VDC | 150                  | ≤100                   | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | A                  | 2               | A2        |
| Bi20U-CK40-AN6X2-H1141<br>1627231         | Uprox+   | •          | 20                 | 3-wire DC NPN | 10-30 VDC | 250                  | ≤200                   | -30 to +85           | IP68       | PBT     | PBT            | GN        | YE         | A                  | 3               | A4        |
| Bi20U-CK40-AP6X2-H1141 W/BS2.1<br>1627288 | Uprox+   | •          | 20                 | 3-wire DC PNP | 10-30 VDC | 250                  | ≤200                   | -30 to +85           | IP68       | PBT     | PBT            | GN        | YE         | A                  | 1               | A4        |
| Bi30U-CK40-AN6X2-H1141<br>1625820         | Uprox+   | •          | 30                 | 3-wire DC NPN | 10-30 VDC | 250                  | ≤200                   | -10 to +60           | IP68       | PBT     | PBT            | GN        | YE         | A                  | 3               | A4        |
| Bi30U-CK40-AP6X2-H1141<br>1625829         | Uprox+   | •          | 30                 | 3-wire DC PNP | 10-30 VDC | 250                  | ≤200                   | -10 to +60           | IP68       | PBT     | PBT            | GN        | YE         | A                  | 1               | A4        |
| Ni20-CK40-AN6X2-H1141 W/BS2.1<br>1625390  |          |            | 20                 | 3-wire DC NPN | 10-30 VDC | 150                  | ≤200                   | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | A                  | 3               | A4        |
| Ni20-CK40-AP6X2-H1141 W/BS2.1<br>1625290  |          |            | 20                 | 3-wire DC PNP | 10-30 VDC | 150                  | ≤200                   | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | A                  | 1               | A4        |
| Ni20-CK40-AD4X-H1141 W/BS2.1<br>4465290   |          |            | 20                 | 2-wire DC     | 10-65 VDC | 200                  | ≤100                   | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | A                  | 2               | A2        |
| Ni25U-CK40-AN6X2-H1141 W/BS2.1<br>1625789 | Uprox    |            | 25                 | 3-wire DC NPN | 10-30 VDC | 250                  | ≤200                   | -30 to +85           | IP68       | PBT     | PBT            | GN        | YE         | A                  | 3               | A4        |
| Ni25U-CK40-AP6X2-H1141 W/BS2.1<br>1625790 | Uprox    |            | 25                 | 3-wire DC PNP | 10-30 VDC | 250                  | ≤200                   | -30 to +85           | IP68       | PBT     | PBT            | GN        | YE         | A                  | 1               | A4        |
| Ni35U-CK40-AP6X2-H1141<br>1625800         | Uprox    |            | 35                 | 3-wire DC PNP | 10-30 VDC | 250                  | ≤200                   | -30 to +85           | IP67       | PBT     | PBT            | GN        | YE         | A                  | 1               | A4        |
| Ni35U-CK40-AN6X2-H1141<br>1625810         | Uprox    |            | 35                 | 3-wire DC NPN | 10-30 VDC | 250                  | ≤200                   | -30 to +85           | IP67       | PBT     | PBT            | GN        | YE         | A                  | 3               | A4        |
| Ni50U-CK40-AN6X2-H1141<br>1625823         | Uprox+   |            | 50                 | 3-wire DC NPN | 10-30 VDC | 250                  | ≤200                   | -25 to +70           | IP68       | PBT     | PBT            | GN        | YE         | A                  | 3               | A4        |
| Ni50U-CK40-AP6X2-H1141<br>1625868         | Uprox+   |            | 50                 | 3-wire DC PNP | 10-30 VDC | 250                  | ≤200                   | -25 to +70           | IP68       | PBT     | PBT            | GN        | YE         | A                  | 1               | A4        |

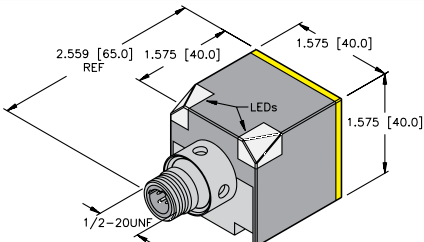
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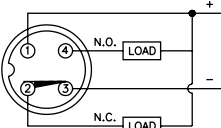
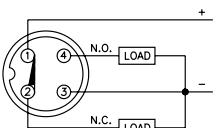
Rectangular Inductive Sensors



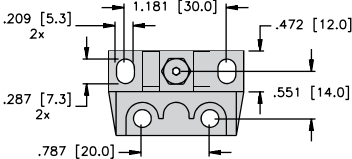
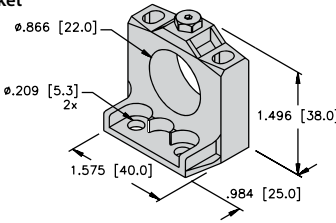
# Rectangular Inductive Sensors | CK40

## Rotatable Sensing Head with Complementary Outputs

| Housing Style                                                                     | Dimension Drawings                                                                                                                                     |
|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p>A</p>  <p>CK40 - Embeddable/Nonembeddable, Eurofast Connector</p> |

| Wiring Diagrams/Mating Cordsets                                                                                             |                                                                                                                               |
|-----------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| <p>1</p>  <p>Mating Cordset: RK 4.4T-*</p> | <p>2</p>  <p>Mating Cordset: RK 4.4T-*</p> |

| A4 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Ripple: <math>\leq 10\%</math></p> <p>Differential Travel (Hysteresis): 3-15% (5% typical)</p> <p>Voltage Drop Across Conducting Sensor: <math>\leq 1.8\text{ V}</math></p> <p>Trigger Current for Short Circuit Protection: <math>\geq 220\text{ mA}</math> on 200 mA Load Current<br/><math>\geq 170\text{ mA}</math> on 150 mA Load Current<br/><math>\geq 120\text{ mA}</math> on 100 mA Load Current</p> <p>Off-State (Leakage) Current: <math>\leq 0.1\text{ mA}</math></p> <p>No-Load Current: <math>\leq 15\text{ mA}</math> (Ferrite, Uprox, Rectangular)<br/><math>\leq 20\text{ mA}</math> (Uprox+, Uprox 3)</p> <p>Time Delay Before Availability: <math>\leq 8\text{ ms}</math></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: <math>\leq \pm 10\%</math></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> |

| BS 2.1 Mounting Bracket                                                             |                                                                                      |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
|  |  |

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

Rectangular Inductive Sensors | CK40

Rotatable Sensing Head with Complementary Outputs

| Part Number/<br>ID Number                | Features              | Embeddable | Sensing Range (mm) | Output        | Voltage   | Switching Freq. (Hz) | Operating Current (mA) | Operating Temp. (°C) | Protection | Housing | Front Cap/Face | Power LED | Output LED | Dimension Drawings | Wiring Diagrams | Spec List |
|------------------------------------------|-----------------------|------------|--------------------|---------------|-----------|----------------------|------------------------|----------------------|------------|---------|----------------|-----------|------------|--------------------|-----------------|-----------|
| Bi15-CK40-VN4X2-H1141 W/BS2.1<br>1550190 | Comp. Outputs         | •          | 15                 | 4-wire DC NPN | 10-65 VDC | 250                  | ≤200                   | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | A                  | 1               | A4        |
| Bi15-CK40-VP4X2-H1141 W/BS2.1<br>1550091 | Comp. Outputs         | •          | 15                 | 4-wire DC PNP | 10-65 VDC | 250                  | ≤200                   | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | A                  | 2               | A4        |
| Ni20-CK40-VN4X2-H1141 W/BS2.1<br>1550390 | Comp. Outputs         |            | 20                 | 4-wire DC NPN | 10-65 VDC | 250                  | ≤200                   | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | A                  | 1               | A4        |
| Ni20-CK40-VP4X2-H1141 W/BS2.1<br>1550290 | Comp. Outputs         |            | 20                 | 4-wire DC PNP | 10-65 VDC | 250                  | ≤200                   | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | A                  | 2               | A4        |
| Ni35U-CK40-VP6X2-H1141<br>1625815        | Uprox, Comp. Outputs  |            | 35                 | 4-wire DC PNP | 10-30 VDC | 250                  | ≤200                   | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | A                  | 2               | A4        |
| Ni50U-CK40-VN4X2-H1141<br>1625806        | Uprox+, Comp. Outputs |            | 50                 | 4-wire DC NPN | 10-65 VDC | 250                  | ≤200                   | -25 to +70           | IP68       | PBT     | PBT            | GN        | YE         | A                  | 1               | A4        |
| Ni50U-CK40-VP4X2-H1141<br>1538302        | Uprox+, Comp. Outputs |            | 50                 | 4-wire DC PNP | 10-65 VDC | 250                  | ≤200                   | -25 to +70           | IP68       | PBT     | PBT            | GN        | YE         | A                  | 2               | A4        |

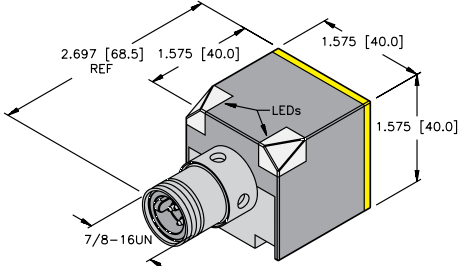
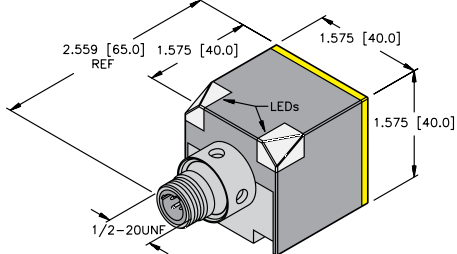
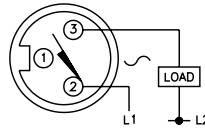
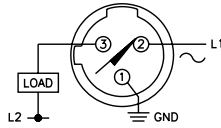
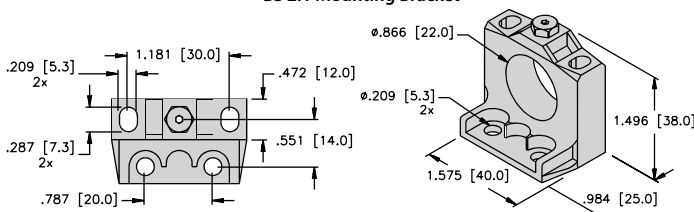
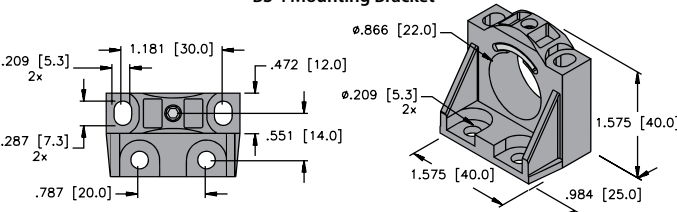
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Rectangular Inductive Sensors



# Rectangular Inductive Sensors | CK40

## Rotatable Sensing Head with AC/DC Outputs

| Housing Style                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Dimension Drawings                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <p>A</p>  <p>CK40 - Embeddable/Nonembeddable, Minifast Connector</p>                                                                                                                                                                                                                                                                                                                       |
| <p>B</p>  <p>CK40 - Embeddable/Nonembeddable, Microfast Connector</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Wiring Diagrams/Mating Cordsets                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <p>1</p>  <p>Mating Cordset: RKM 30-*M</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <p>2</p>  <p>Mating Cordset: KB 3T-*</p>                                                                                                                                                                                                                                                                                                                                                 |
| A5 2-wire AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <p>Line Frequency: <math>\geq 50... \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<br/>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<br/>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)<br/><math>\leq 1.5</math> mA (DC)</p> | <p>Minimum Load Current: <math>\geq 3.0</math> mA</p> <p>Inrush Current: <math>\leq 3.0</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>                                                                                    |
| A6 2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <p>Line Frequency: <math>\geq 50... \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>Continuous Load Current: AC: <math>\leq 400</math> mA; DC: <math>\leq 300</math> mA<br/>AC: <math>\leq 100</math> mA; DC: <math>\leq 100</math> mA</p> <p>Off-State (Leakage) Current: <math>\leq 1.7</math> mA</p> <p>Minimum Load Current: <math>\geq 3.0</math> mA</p>                                                                                                                                                                 | <p>Inrush Current: <math>\leq 8</math> A (<math>\leq 10</math> ms max. 5 Hz)<br/><math>\leq 1</math> A (<math>\leq 10</math> ms max. 5 Hz) 12 mm<br/><math>\leq 0.2</math> A (<math>\leq 10</math> ms max. 0.2 Hz) 8 mm</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> |
| <p>BS 2.1 Mounting Bracket</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <p>BS 4 Mounting Bracket</p>                                                                                                                                                                                                                                                                                                                                                             |

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# Rectangular Inductive Sensors | CK40

## Rotatable Sensing Head with AC/DC Outputs

| Part Number/<br>ID Number                   | Features | Embeddable | Sensing Range (mm) | Output       | Voltage               | Switching Freq. (Hz) | Operating Current (mA) | Operating Temp. (°C) | Protection | Housing | Front Cap/Face | Power LED | Output LED | Dimension Drawings | Wiring Diagrams | Spec List |
|---------------------------------------------|----------|------------|--------------------|--------------|-----------------------|----------------------|------------------------|----------------------|------------|---------|----------------|-----------|------------|--------------------|-----------------|-----------|
| Bi15U-CK40-ADZ30X2-B1131 W/BS2.1<br>4280090 | Uprox    | •          | 15                 | 2-wire AC/DC | 20-250 VAC/10-300 VDC | 10                   | ≤400/300               | -30 to +85           | IP68       | PBT     | PBT            | GN        | YE         | A                  | 1               | A5        |
| Bi15U-CK40-ADZ30X2-B3131 W/B 2.1<br>4280091 | Uprox    | •          | 15                 | 2-wire AC/DC | 20-250 VAC/10-300 VDC | 10                   | ≤400/300               | -30 to +85           | IP68       | PBT     | PBT            | GN        | YE         | B                  | 2               | A5        |
| Bi15-CK40-AZ3X2-B1131 W/BS2.1<br>1335091    |          | •          | 15                 | 2-wire AC/DC | 20-250 VAC/10-300 VDC | 20                   | ≤400/300               | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | A                  | 1               | A5        |
| Bi15-CK40-AZ3X2-B3131 W/BS2.1<br>1335095    |          | •          | 15                 | 2-wire AC    | 20-250 VAC/10-300 VDC | 20                   | ≤400/300               | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | B                  | 2               | A6        |
| Ni20-CK40-AZ3X2-B1131 W/BS2.1<br>1335291    |          |            | 20                 | 2-wire AC    | 20-250 VAC/10-300 VDC | 20                   | ≤400/300               | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | A                  | 1               | A6        |
| Ni20-CK40-AZ3X2-B3131 W/BS2.1<br>1335290    |          |            | 20                 | 2-Wire AC    | 20-250 VAC/10-300 VDC | 20                   | ≤400/300               | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | B                  | 2               | A6        |
| Ni25U-CK40-ADZ30X2-B1131 W/BS2.1<br>4280290 | Uprox    |            | 25                 | 2-wire AC/DC | 20-250 VAC/10-300 VDC | 10                   | ≤400/300               | -30 to +85           | IP67       | PBT     | PBT            | GN        | YE         | A                  | 1               | A5        |
| Ni25U-CK40-ADZ30X2-B3131 W/BS2.1<br>4280291 | Uprox    |            | 25                 | 2-wire AC/DC | 20-250 VAC/10-300 VDC | 10                   | ≤400/300               | -30 to +85           | IP67       | PBT     | PBT            | GN        | YE         | B                  | 2               | A5        |
| Ni35U-CK40-ADZ30X2-B1131<br>4280410         | Uprox    |            | 35                 | 2-wire AC/DC | 20-250 VAC/10-300 VDC | 10                   | ≤400/300               | -30 to +85           | IP68       | PBT     | PBT            | GN        | YE         | A                  | 1               | A5        |

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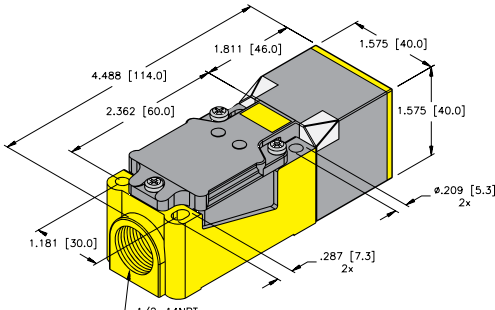
Rectangular Inductive Sensors

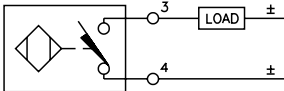
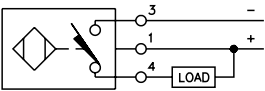
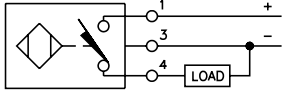




Rectangular Inductive Sensors | CP40

Rotatable Sensing Head with 2 and 3-wire DC Outputs and Terminal Chamber

| Housing Style                                                                     | Dimension Drawings                                                                                                                                   |
|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p>A</p>  <p>CP40 - Embeddable/Nonembeddable, Terminal Chamber</p> |

| Wiring Diagrams/Mating Cordsets                                                   |                                                                                   |                                                                                     |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 1                                                                                 | 2                                                                                 | 3                                                                                   |
|  |  |  |

| A2 | 2-wire DC - (AD, RD, AG)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                  |
|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | <p>Ripple: <math>\leq 10\%</math></p> <p>Differential Travel (Hysteresis): 3-15% (5% typical)</p> <p>Voltage Drop Across Conducting Sensor: Non-polarized (AD) <math>&lt; 5.0\text{ V}</math></p> <p>Trigger Current for Short Circuit Protection: <math>\geq 120\text{ mA}</math></p> <p>Minimum Load Current: <math>\geq 3.0\text{ mA}</math></p>                                                                                                                                                                      | <p>Off-State (Leakage) Current: <math>\leq 0.8\text{ mA}</math></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>                                                                              |
| A4 | 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                  |
|    | <p>Ripple: <math>\leq 10\%</math></p> <p>Differential Travel (Hysteresis): 3-15% (5% typical)</p> <p>Voltage Drop Across Conducting Sensor: <math>\leq 1.8\text{ V}</math></p> <p>Trigger Current for Short Circuit Protection: <math>\geq 220\text{ mA}</math> on 200 mA Load Current</p> <p>Off-State (Leakage) Current: <math>\leq 0.1\text{ mA}</math></p> <p>No-Load Current: <math>\leq 15\text{ mA}</math> (Ferrite, Uprox, Rectangular)</p> <p>Time Delay Before Availability: <math>\leq 8\text{ ms}</math></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: <math>\leq \pm 10\%</math></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> |

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# Rectangular Inductive Sensors | CP40

## Rotatable Sensing Head with 2 and 3-wire DC Outputs and Terminal Chamber

| Part Number/<br>ID Number          | Features            | Embeddable | Sensing Range (mm) | Output        | Voltage   | Switching Freq. (Hz) | Operating Current (mA) | Operating Temp. (°C) | Protection | Housing | Front Cap/Face | Power LED | Output LED | Dimension Drawings | Wiring Diagrams | Spec List |
|------------------------------------|---------------------|------------|--------------------|---------------|-----------|----------------------|------------------------|----------------------|------------|---------|----------------|-----------|------------|--------------------|-----------------|-----------|
| Bi15U-CP40-AP6X2<br>1623502        | Uprox               | •          | 15                 | 3-wire DC PNP | 10-30 VDC | 250                  | ≤200                   | -30 to +85           | IP68       | PBT     | PBT            | GN        | YE         | A                  | 3               | A4        |
| Bi15-CP40-AN6X2<br>1623000         |                     | •          | 15                 | 3-wire DC NPN | 10-30 VDC | 150                  | ≤200                   | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | A                  | 2               | A4        |
| Bi15-CP40-AN6X2/S10-S97<br>1623001 | Low Temp.<br>-40 °C | •          | 15                 | 3-wire DC NPN | 10-30 VDC | 250                  | ≤200                   | -40 to +70           | IP67       | PBT     | PBT            | GN        | YE         | A                  | 2               | A4        |
| Bi15-CP40-AP6X2/S10<br>16030       |                     | •          | 15                 | 3-Wire DC PNP | 10-30 VDC | 150                  | ≤200                   | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | A                  | 3               | A4        |
| Bi15-CP40-AD4X/S10<br>44770        |                     | •          | 15                 | 2-wire DC     | 10-65 VDC | 150                  | ≤100                   | -25 to +70           | IP67       | PBT     | PBT            | N/A       | YE         | A                  | 1               | A2        |
| Bi20U-CP40-AP6X2/S10<br>1625826    | Uprox+              | •          | 20                 | 3-wire DC PNP | 10-30 VDC | 250                  | ≤200                   | -25 to +70           | IP68       | PBT     | PBT            | GN        | YE         | A                  | 3               | A4        |
| Bi30U-CP40-AP6X2/S10<br>1625825    | Uprox+              | •          | 30                 | 3-wire DC PNP | 10-30 VDC | 250                  | ≤200                   | -10 to +60           | IP68       | PBT     | PBT            | GN        | YE         | A                  | 3               | A4        |
| Ni20-CP40-AP6X2/S10<br>16031       |                     |            | 20                 | 3-wire DC PNP | 10-30 VDC | 150                  | ≤200                   | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | A                  | 3               | A4        |
| Ni20-CP40-AD4X/S10<br>44771        |                     |            | 20                 | 2-wire DC     | 10-65 VDC | 150                  | ≤100                   | -25 to +70           | IP67       | PBT     | PBT            | N/A       | YE         | A                  | 1               | A2        |
| Ni25U-CP40-AP6X2/S10<br>1623701    | Uprox               |            | 25                 | 3-wire DC PNP | 10-30 VDC | 250                  | ≤200                   | -30 to +85           | IP67       | PBT     | PBT            | GN        | YE         | A                  | 3               | A4        |
| Ni40U-CP40-AP6X2/S10<br>1623602    | Uprox               |            | 40                 | 3-wire DC PNP | 10-30 VDC | 250                  | ≤200                   | -30 to +85           | IP68       | PBT     | PBT            | GN        | YE         | A                  | 3               | A4        |
| Ni50U-CP40-AN6X2/S10<br>1625824    | Uprox+              |            | 50                 | 3-wire DC NPN | 10-30 VDC | 250                  | ≤200                   | -25 to +70           | IP68       | PBT     | PBT            | GN        | YE         | A                  | 2               | A4        |
| Ni50U-CP40-AP6X2/S10<br>1625842    | Uprox+              |            | 50                 | 3-wire DC PNP | 10-30 VDC | 250                  | ≤200                   | -30 to +85           | IP68       | PBT     | PBT            | GN        | YE         | A                  | 3               | A4        |

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Rectangular Inductive Sensors

### Rotatable Sensing Head with Complementary Outputs and Terminal Chamber

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

# Rectangular Inductive Sensors | CP40

## Rotatable Sensing Head with Complementary Outputs and Terminal Chamber

| Part Number/<br>ID Number         | Features             | Embeddable | Sensing Range (mm) | Output        | Voltage   | Switching Freq. (Hz) | Operating Current (mA) | Operating Temp. (°C) | Protection | Housing | Front Cap/Face | Power LED | Output LED | Dimension Drawings | Wiring Diagrams | Spec List |
|-----------------------------------|----------------------|------------|--------------------|---------------|-----------|----------------------|------------------------|----------------------|------------|---------|----------------|-----------|------------|--------------------|-----------------|-----------|
| Bi15U-CP40-VN4X2/S10<br>1540511   | Uprox                | •          | 15                 | 4-wire DC NPN | 10-65 VDC | 250                  | ≤200                   | -30 to +85           | IP68       | PBT     | PBT            | GN        | YE         | A                  | 1               | A4        |
| Bi15U-CP40-VP4X2/S10<br>1540501   | Uprox                | •          | 15                 | 4-wire DC PNP | 10-65 VDC | 250                  | ≤200                   | -30 to +85           | IP67       | PBT     | PBT            | GN        | YE         | A                  | 2               | A4        |
| Bi15-CP40-VN4X2/S100<br>15250     | Comp. Outputs        | •          | 15                 | 4-wire DC NPN | 10-65 VDC | 150                  | ≤200                   | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | A                  | 1               | A4        |
| Bi15-CP40-VN4X2/S100-S10<br>15144 | High Temp.<br>100 °C | •          | 15                 | 4-wire DC NPN | 10-65 VDC | 150                  | ≤200                   | -25 to +100          | IP67       | PBT     | PBT            | GN        | YE         | A                  | 1               | A4        |
| Bi15-CP40-VP4X2/S10<br>15010      | Comp. Outputs        | •          | 15                 | 4-wire DC PNP | 10-65 VDC | 150                  | ≤200                   | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | A                  | 2               | A4        |
| Bi15-CP40-VP4X2/S100-S10<br>15019 | High Temp.<br>100 °C | •          | 15                 | 4-wire DC PNP | 10-65 VDC | 150                  | ≤200                   | -25 to +100          | IP67       | PBT     | PBT            | GN        | YE         | A                  | 2               | A4        |
| Bi20-CP40-VN4X2/S10<br>1579221    | Ext. Range           | •          | 20                 | 4-wire DC NPN | 10-65 VDC | 100                  | ≤200                   | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | A                  | 1               | A4        |
| Bi20-CP40-VP4X2/S10<br>15012      | Ext. Range           | •          | 20                 | 4-wire DC PNP | 10-65 VDC | 100                  | ≤200                   | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | A                  | 2               | A4        |
| Ni20-CP40-VN4X2/S10<br>15251      | Comp. Outputs        |            | 20                 | 4-wire DC NPN | 10-65 VDC | 150                  | ≤200                   | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | A                  | 1               | A4        |
| Ni20-CP40-VP4X2/S10<br>15011      | Comp. Outputs        |            | 20                 | 4-wire DC PNP | 10-65 VDC | 150                  | ≤200                   | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | A                  | 2               | A4        |
| Ni20-CP40-VP4X2/S100-S10<br>15020 | High Temp.<br>100 °C |            | 20                 | 4-wire DC PNP | 10-65 VDC | 150                  | ≤200                   | -25 to +100          | IP67       | PBT     | PBT            | GN        | YE         | A                  | 2               | A4        |
| Ni35-CP40-VN4X2/S10<br>15254      | Comp. Outputs        |            | 35                 | 4-wire DC NPN | 10-65 VDC | 150                  | ≤200                   | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | A                  | 1               | A4        |
| Ni35-CP40-VP4X2/S10<br>15014      | Comp. Outputs        |            | 35                 | 4-wire DC PNP | 10-65 VDC | 150                  | ≤200                   | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | A                  | 2               | A4        |
| Ni40U-CP40-VN4X2/S10<br>1540611   | Uprox, Ext. Range    |            | 40                 | 4-wire DC NPN | 10-65 VDC | 250                  | ≤200                   | -30 to +85           | IP68       | PBT     | PBT            | GN        | YE         | A                  | 1               | A4        |
| Ni40U-CP40-VP4X2/S10<br>1540601   | Uprox, Ext. Range    |            | 40                 | 4-wire DC PNP | 10-65 VDC | 250                  | ≤200                   | -30 to +85           | IP68       | PBT     | PBT            | GN        | YE         | A                  | 2               | A4        |
| Ni50U-CP40-VN4X2/S10<br>1625807   | Uprox+               |            | 50                 | 4-wire DC NPN | 10-65 VDC | 250                  | ≤200                   | -30 to +85           | IP68       | PBT     | PBT            | GN        | YE         | A                  | 1               | A4        |
| Ni50U-CP40-VP4X2<br>1538303       | Uprox+               |            | 50                 | 4-wire DC PNP | 10-65 VDC | 250                  | ≤200                   | -30 to +85           | IP68       | PBT     | PBT            | GN        | YE         | A                  | 2               | A4        |

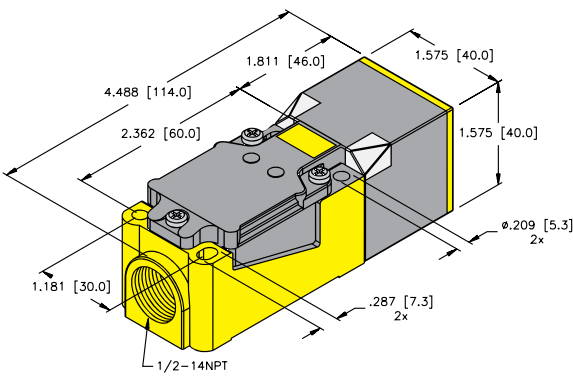
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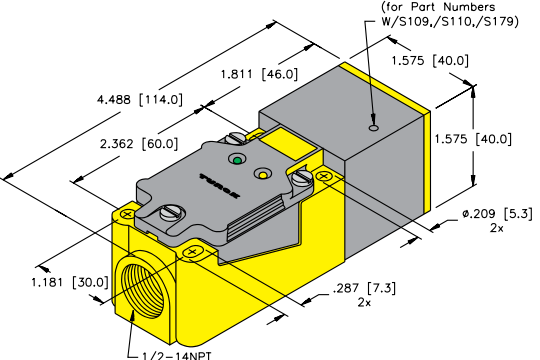
Rectangular Inductive Sensors

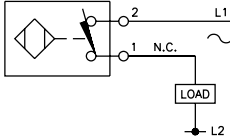
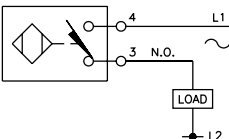


# Rectangular Inductive Sensors | CP40

## Rotatable Sensing Head with AC/DC Outputs and Terminal Chamber

| Housing Style                                                                     | Dimension Drawings                                                                                                                                   |
|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p>A</p>  <p>CP40 - Embeddable/Nonembeddable, Terminal Chamber</p> |

|                                                                                                                                                      |                                                                            |
|------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| <p>B</p>  <p>CP40 - Embeddable/Nonembeddable, Terminal Chamber</p> | <p>Time Delay Adjustment<br/>(for Part Numbers<br/>W/S109, S110, S179)</p> |
|------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|

| Wiring Diagrams/Mating Cordsets                                                              |                                                                                                   |
|----------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| <p>1</p>  | <p>-OR-</p>  |

| A5 2-wire AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Line Frequency: <math>\geq 50... \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</p> <p>Continuous Load Current: AC: <math>\leq 400</math> mA; DC: <math>\leq 300</math> mA</p> <p>Off-State (Leakage) Current: <math>\leq 1.7</math> mA (AC)</p> <p><math>\leq 1.5</math> mA (DC)</p> | <p>Minimum Load Current: <math>\geq 3.0</math> mA</p> <p>Inrush Current: <math>\leq 3.0</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>                                                                                          |
| A6 2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <p>Line Frequency: <math>\geq 50... \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>Continuous Load Current: AC: <math>\leq 400</math> mA; DC: <math>\leq 300</math> mA</p> <p>Off-State (Leakage) Current: <math>\leq 1.7</math> mA</p> <p>Minimum Load Current: <math>\geq 3.0</math> mA</p>                                                                                                     | <p>Inrush Current: <math>\leq 8</math> A (<math>\leq 10</math> ms max. 5 Hz)</p> <p><math>\leq 1</math> A (<math>\leq 10</math> ms max. 5 Hz) 12 mm</p> <p><math>\leq 0.2</math> A (<math>\leq 10</math> ms max. 0.2 Hz) 8 mm</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> |



# Rectangular Inductive Sensors | CP40

## Rotatable Sensing Head with AC/DC Outputs and Terminal Chamber

| Part Number/<br>ID Number           | Features             | Embeddable | Sensing Range (mm) | Output       | Voltage               | Switching Freq. (Hz) | Operating Current (mA) | Operating Temp. (°C) | Protection | Housing | Front Cap/Face | Power LED | Output LED | Dimension Drawings | Wiring Diagrams | Spec List |
|-------------------------------------|----------------------|------------|--------------------|--------------|-----------------------|----------------------|------------------------|----------------------|------------|---------|----------------|-----------|------------|--------------------|-----------------|-----------|
| Bi15U-CP40-FDZ30X2<br>4280601       | Uprox                | •          | 15                 | 2-wire AC/DC | 20-250 VAC/10-300 VDC | 10                   | ≤400/300               | -30 to +85           | IP67       | PBT     | PBT            | GN        | YE         | A                  | 1               | A5        |
| Bi15-CP40-FDZ30X2/S10<br>42241      | Prog. Outputs        | •          | 15                 | 2-wire AC/DC | 20-250 VAC/10-300 VDC | 60                   | ≤400/300               | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | A                  | 1               | A5        |
| Bi15-CP40-FDZ30X2/S10-S97<br>42266  | Low Temp.<br>-40 °C  | •          | 15                 | 2-wire AC/DC | 20-250 VAC/10-300 VDC | 60                   | ≤400/300               | -40 to +70           | IP67       | PBT     | PBT            | GN        | YE         | A                  | 1               | A5        |
| Bi15-CP40-FZ3X2/S109-S10<br>13737   | Time Delay           | •          | 15                 | 2-wire AC    | 20-250 VAC/10-300 VDC | 20                   | ≤400/300               | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | B                  | 1               | A6        |
| Bi15-CP40-FZ3X2/S110-S10<br>13735   | Time Delay           | •          | 15                 | 2-wire AC    | 20-250 VAC/10-300 VDC | 20                   | ≤400/300               | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | B                  | 1               | A6        |
| Bi15-CP40-FZ3X2/S10<br>13410        | Prog. Outputs        | •          | 15                 | 2-wire AC    | 20-250 VAC/10-300 VDC | 20                   | ≤400/300               | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | A                  | 1               | A6        |
| Bi15-CP40-FZ3X2/S10-S97<br>1341010  | Low Temp.<br>-40 °C  | •          | 15                 | 2-wire AC    | 20-250 VAC/10-300 VDC | 20                   | ≤400/300               | -40 to +70           | IP67       | PBT     | PBT            | GN        | YE         | A                  | 1               | A6        |
| Bi15-CP40-FZ3X2/S100-S10<br>13776   | High Temp.<br>100 °C | •          | 15                 | 2-wire AC    | 20-250 VAC/10-300 VDC | 20                   | ≤400/300               | -25 to +100          | IP67       | PBT     | PBT            | GN        | YE         | A                  | 1               | A6        |
| Ni20-CP40-FDZ30X2/S10<br>42242      | Prog. Outputs        |            | 20                 | 2-wire AC/DC | 20-250 VAC/10-300 VDC | 60                   | ≤400/300               | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | A                  | 1               | A5        |
| Ni20-CP40-FZ3X2/S100<br>13411       | Prog. Outputs        |            | 20                 | 2-wire AC    | 20-250 VAC/10-300 VDC | 20                   | ≤400/300               | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | A                  | 1               | A6        |
| Ni20-CP40-FZ3X2/S100-S10<br>13775   | High Temp.<br>100 °C |            | 20                 | 2-wire AC    | 20-250 VAC/10-300 VDC | 20                   | ≤400/300               | -25 to +100          | IP67       | PBT     | PBT            | GN        | YE         | A                  | 1               | A6        |
| Ni20-CP40-FZ3X2/S110-S10<br>13746   | Time Delay           |            | 20                 | 2-wire AC    | 20-250 VAC/10-300 VDC | 20                   | ≤400/300               | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | B                  | 1               | A6        |
| Ni30-CP40-FZ3X2/S109-S10<br>13747   | Time Delay           |            | 30                 | 2-wire AC    | 20-250 VAC/10-300 VDC | 20                   | ≤400/300               | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | B                  | 1               | A6        |
| Ni30-CP40-FZ3X2/S110-S10<br>13744   | Time Delay           |            | 30                 | 2-wire AC    | 20-250 VAC/10-300 VDC | 20                   | ≤400/300               | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | B                  | 1               | A6        |
| Ni35-CP40-FDZ30X2/S10<br>42245      | Prog. Outputs        |            | 35                 | 2-wire AC/DC | 20-250 VAC/10-300 VDC | 60                   | ≤400/300               | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | A                  | 1               | A5        |
| Ni35-CP40-FZ3X2/S10<br>13413        | Prog. Outputs        |            | 35                 | 2-wire AC    | 20-250 VAC/10-300 VDC | 20                   | ≤400/300               | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | A                  | 1               | A6        |
| Ni40U-CP40-FDZ30X2/S10<br>4280801   | Uprox                |            | 40                 | 2-wire AC/DC | 20-250 VAC/10-300 VDC | 10                   | ≤400/300               | -30 to +85           | IP68       | PBT     | PBT            | GN        | YE         | A                  | 1               | A5        |
| Ni40-CP40-FZ3X2/S100-S10<br>1374802 | High Temp.<br>100 °C |            | 40                 | 2-wire AC    | 20-250 VAC/10-300 VDC | 20                   | ≤400/300               | -25 to +100          | IP67       | PBT     | PBT            | GN        | YE         | A                  | 1               | A6        |

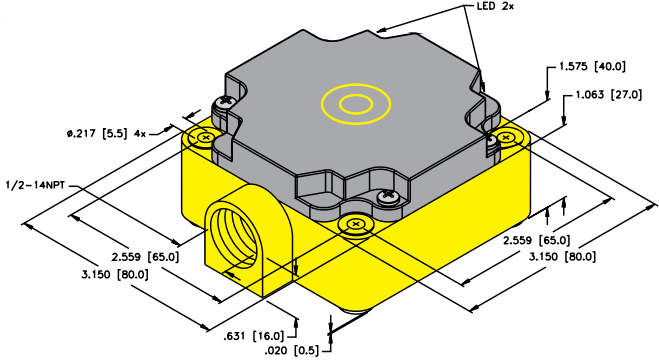
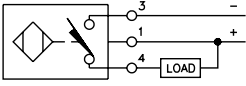
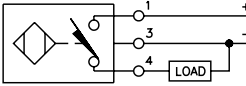
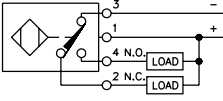
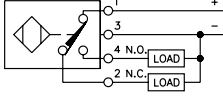
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Rectangular Inductive Sensors



Rectangular Inductive Sensors | CP80

Top Sensing with 3 and 4-Wire DC Outputs and Terminal Chamber

| Housing Style                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Dimension Drawings                                                                                                                                                                                                                                                                                                                                        |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                  | <p>A</p>  <p>CP80 - Embeddable/Nonembeddable, Terminal Chamber</p>                                                                                                                                                                                                      |
| Wiring Diagrams/Mating Cordsets                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                           |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 2                                                                                                                                                                                                                                                                                                                                                         |
|                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                        |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 4                                                                                                                                                                                                                                                                                                                                                         |
|                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                       |
| A4 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<br/>≥170 mA on 150 mA Load Current<br/>≥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)<br/>≤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> |

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# Rectangular Inductive Sensors | CP80

## Top Sensing with 3 and 4-Wire DC Outputs and Terminal Chamber

| Part Number/<br>ID Number       | Features      | Embeddable | Sensing Range (mm) | Output        | Voltage   | Switching Freq. (Hz) | Operating Current (mA) | Operating Temp. (°C) | Protection | Housing | Front Cap/Face | Power LED | Output LED | Dimension Drawings | Wiring Diagrams | Spec List |
|---------------------------------|---------------|------------|--------------------|---------------|-----------|----------------------|------------------------|----------------------|------------|---------|----------------|-----------|------------|--------------------|-----------------|-----------|
| Bi40-CP80-VN4X2/S10<br>1579800  | Comp. Outputs | •          | 40                 | 4-wire DC NPN | 10-65 VDC | 100                  | ≤200                   | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | A                  | 3               | A4        |
| Bi40-CP80-VP4X2/S10<br>15698    | Comp. Outputs | •          | 40                 | 4-wire DC PNP | 10-65 VDC | 100                  | ≤200                   | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | A                  | 4               | A4        |
| Ni40-CP80-VP4X2/S10<br>15015    | Comp. Outputs |            | 40                 | 4-wire DC PNP | 10-65 VDC | 100                  | ≤200                   | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | A                  | 4               | A4        |
| Ni50-CP80-VN4X2/S10<br>15256    | Comp. Outputs |            | 50                 | 4-wire DC NPN | 10-65 VDC | 100                  | ≤200                   | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | A                  | 3               | A4        |
| Ni50-CP80-VP4X2/S10<br>15016    | Comp. Outputs |            | 50                 | 4-wire DC PNP | 10-65 VDC | 100                  | ≤200                   | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | A                  | 4               | A4        |
| Ni75U-CP80-AN6X2/S10<br>1623811 | Uprox         |            | 75                 | 3-wire DC NPN | 10-30 VDC | 250                  | ≤200                   | -30 to +85           | IP67       | PBT     | PBT            | GN        | YE         | A                  | 1               | A4        |
| Ni75U-CP80-AP6X2/S10<br>1623801 | Uprox         |            | 75                 | 3-wire DC PNP | 10-30 VDC | 250                  | ≤200                   | -30 to +85           | IP67       | PBT     | PBT            | GN        | YE         | A                  | 2               | A4        |
| Ni75U-CP80-VN4X2/S10<br>1540811 | Uprox         |            | 75                 | 4-wire DC NPN | 10-65 VDC | 250                  | ≤200                   | -30 to +85           | IP67       | PBT     | PBT            | GN        | YE         | A                  | 3               | A4        |
| Ni75U-CP80-VP4X2/S10<br>1540801 | Uprox         |            | 75                 | 4-wire DC PNP | 10-65 VDC | 250                  | ≤200                   | -30 to +85           | IP67       | PBT     | PBT            | GN        | YE         | A                  | 4               | A4        |

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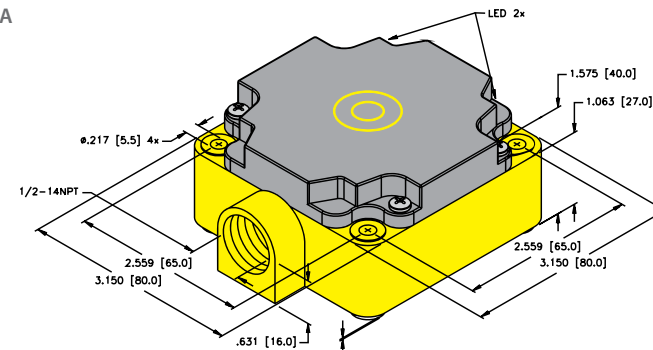
Rectangular Inductive Sensors

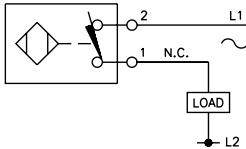
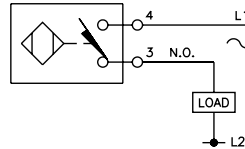




# Rectangular Inductive Sensors | CP80

## Top Sensing with AC/DC Outputs and Terminal Chamber

| Housing Style                                                                     | Dimension Drawings                                                                                                                                   |
|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p>A</p>  <p>CP80 - Embeddable/Nonembeddable, Terminal Chamber</p> |

| Wiring Diagrams/Mating Cordsets                                                            |                                                                                                 |
|--------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| <p>1</p>  | <p>-OR-</p>  |

| A5 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</p> <p>Continuous Load Current: AC: <math>\leq 400</math> mA; DC: <math>\leq 300</math> mA</p> <p>Off-State (leakage) Current: <math>\leq 1.7</math> mA (AC)</p> <p><math>\leq 1.5</math> mA (DC)</p> | <p>Minimum Load Current: <math>\geq 3.0</math> mA</p> <p>Inrush Current: <math>\leq 3.0</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>                                                                                          |
| A6 2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <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>Continuous Load Current: AC: <math>\leq 400</math> mA; DC: <math>\leq 300</math> mA</p> <p>Off-State (Leakage) Current: <math>\leq 1.7</math> mA</p> <p>Minimum Load Current: <math>\geq 3.0</math> mA</p>                                                                                                     | <p>Inrush Current: <math>\leq 8</math> A (<math>\leq 10</math> ms max. 5 Hz)</p> <p><math>\leq 1</math> A (<math>\leq 10</math> ms max. 5 Hz) 12 mm</p> <p><math>\leq 0.2</math> A (<math>\leq 10</math> ms max. 0.2 Hz) 8 mm</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> |

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# Rectangular Inductive Sensors | CP80

## Top Sensing with AC/DC Outputs and Terminal Chamber

| Part Number/<br>ID Number                  | Features             | Embeddable | Sensing Range (mm) | Output       | Voltage               | Switching Freq. (Hz) | Operating Current (mA) | Operating Temp. (°C) | Protection | Housing | Front Cap/Face | Power LED | Output LED | Dimension Drawings | Wiring Diagrams | Spec List |
|--------------------------------------------|----------------------|------------|--------------------|--------------|-----------------------|----------------------|------------------------|----------------------|------------|---------|----------------|-----------|------------|--------------------|-----------------|-----------|
| <b>Bi40-CP80-FDZ30X2/S10</b><br>4230901    | Prog. Outputs        | •          | 40                 | 2-wire AC/DC | 20-250 VAC/10-300 VDC | 20                   | ≤400/300               | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | A                  | 1               | A5        |
| <b>Bi40-CP80-FZ3X2/S10</b><br>1340401      | Prog. Outputs        | •          | 40                 | 2-wire AC    | 20-250 VAC/10-300 VDC | 20                   | ≤400/300               | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | A                  | 1               | A6        |
| <b>Ni40-CP80-FZ3X2/S100</b><br>13415       | Prog. Outputs        |            | 40                 | 2-wire AC    | 20-250 VAC/10-300 VDC | 20                   | ≤400/300               | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | A                  | 1               | A6        |
| <b>Ni40-CP80-FZ3X2/S100-S10</b><br>13453   | High Temp.<br>100 °C |            | 40                 | 2-wire AC    | 20-250 VAC/10-300 VDC | 20                   | ≤400/300               | -25 to +100          | IP67       | PBT     | PBT            | GN        | YE         | A                  | 1               | A6        |
| <b>Ni50-CP80-FZ3X2/S10</b><br>13410        | Prog. Outputs        |            | 50                 | 2-wire AC    | 20-250 VAC/10-300 VDC | 20                   | ≤400/300               | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | A                  | 1               | A6        |
| <b>Ni50-CP80-FDZ30X2/S100</b><br>42321     | Prog. Outputs        |            | 50                 | 2-wire AC/DC | 20-250 VAC/10-300 VDC | 20                   | ≤400/300               | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | A                  | 1               | A5        |
| <b>Ni50-CP80-FDZ30X2/S100-S10</b><br>42290 | High Temp.<br>100 °C |            | 50                 | 2-wire AC/DC | 20-250 VAC/10-300 VDC | 20                   | ≤400/300               | -25 to +100          | IP67       | PBT     | PBT            | GN        | YE         | A                  | 1               | A5        |
| <b>Ni75U-CP80-FDZ30X2/S10</b><br>4280901   | Uprox                |            | 75                 | 2-wire AC/DC | 20-250 VAC/10-300 VDC | 10                   | ≤400/300               | -30 to +85           | IP67       | PBT     | PBT            | GN        | YE         | A                  | 1               | A5        |

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Rectangular Inductive Sensors



### Top Sensing with 3 and 4-Wire DC or AC/DC Outputs

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# Rectangular Inductive Sensors | Q80

## Top Sensing with 3 and 4-Wire DC or AC/DC Outputs

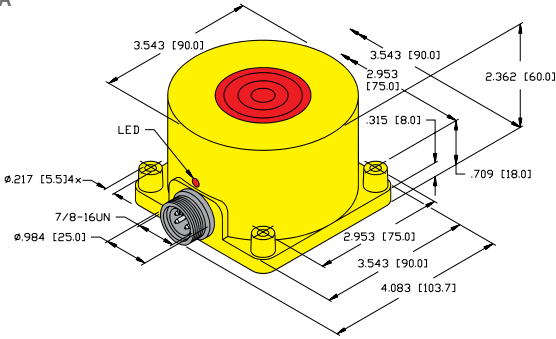
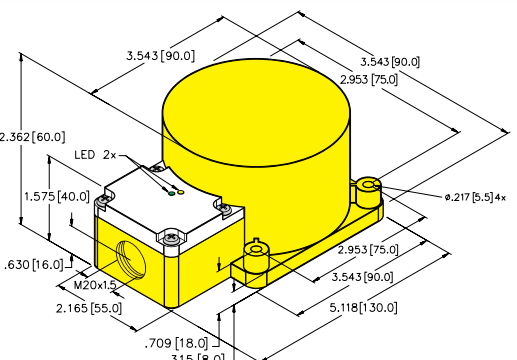
| Part Number/<br>ID Number         | Features                 | Embeddable | Sensing Range (mm) | Output        | Voltage                  | Switching Freq. (Hz) | Operating Current (mA) | Operating Temp. (°C) | Protection | Housing | Front Cap/Face | Power LED | Output LED | Dimension Drawings | Wiring Diagrams | Spec List |
|-----------------------------------|--------------------------|------------|--------------------|---------------|--------------------------|----------------------|------------------------|----------------------|------------|---------|----------------|-----------|------------|--------------------|-----------------|-----------|
| Bi50U-Q80-AP6X2-H1141<br>1608940  | Uprox+                   | •          | 50                 | 3-wire DC PNP | 10-30 VDC                | 250                  | ≤200                   | -25 to +70           | IP68       | PBT     | PBT            | GN        | YE         | A                  | 2               | A4        |
| Bi50U-Q80-VN4X2-H1141<br>1562001  | Uprox+, Comp.<br>Outputs | •          | 50                 | 4-wire DC NPN | 10-65 VDC                | 250                  | ≤200                   | -25 to +70           | IP68       | PBT     | PBT            | GN        | YE         | A                  | 3               | A4        |
| Bi50U-Q80-VP4X2-H1141<br>15620    | Uprox+, Comp.<br>Outputs | •          | 50                 | 4-wire DC PNP | 10-65 VDC                | 250                  | ≤200                   | -25 to +70           | IP68       | PBT     | PBT            | GN        | YE         | A                  | 4               | A4        |
| Bi50-Q80-ADZ30X2-B1131<br>4200310 |                          | •          | 50                 | 2-wire AC/DC  | 20-250 VAC/10-300<br>VDC | 20                   | ≤400/300               | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | B                  | 5               | A5        |
| Bi50-Q80-ADZ30X2-B3131<br>4200311 |                          | •          | 50                 | 2-wire AC/DC  | 20-250 VAC/10-300<br>VDC | 20                   | ≤400/300               | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | C                  | 6               | A5        |
| Ni75U-Q80-AN6X2-H1141<br>1625856  | Uprox+                   |            | 75                 | 3-wire DC NPN | 10-30 VDC                | 250                  | ≤200                   | -25 to +70           | IP68       | PBT     | PBT            | GN        | YE         | A                  | 1               | A4        |
| Ni75U-Q80-AP6X2-H1141<br>1625855  | Uprox+                   |            | 75                 | 3-wire DC PNP | 10-30 VDC                | 250                  | ≤200                   | -25 to +70           | IP68       | PBT     | PBT            | GN        | YE         | A                  | 2               | A4        |
| Ni75U-Q80-VP4X2-H1141<br>1625857  | Uprox+, Comp.<br>Outputs |            | 75                 | 4-wire DC PNP | 10-65 VDC                | 250                  | ≤200                   | -25 to +70           | IP68       | PBT     | PBT            | GN        | YE         | A                  | 4               | A4        |

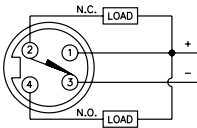
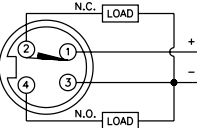
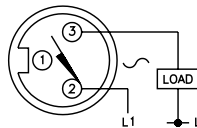
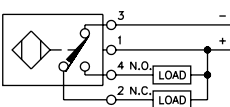
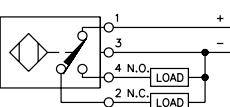
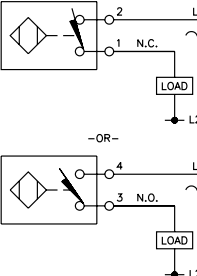
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Rectangular Inductive Sensors

# Rectangular Inductive Sensors | K90 & K90SR

## Top Sensing with 4-Wire DC or AC/DC Outputs

| Housing Style                                                                     | Dimension Drawings                                                                                                                                                                                                                                                                                                           |
|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <div> <p><b>A</b></p>  <p>K90 - Nonembeddable, Minifast Connector</p> </div> <div> <p><b>B</b></p>  <p>K90SR - Nonembeddable, Terminal Chamber</p> </div> |

| Wiring Diagrams/Mating Cordsets |                                                                                     |   |                                                                                     |   |                                                                                      |
|---------------------------------|-------------------------------------------------------------------------------------|---|-------------------------------------------------------------------------------------|---|--------------------------------------------------------------------------------------|
| 1                               |    | 2 |    | 3 |   |
| 4                               |  | 5 |  | 6 |  |

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

| A4 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)               |                                                                                                    |                              |                                                                                             |  |  |
|-------------------------------------------------------------|----------------------------------------------------------------------------------------------------|------------------------------|---------------------------------------------------------------------------------------------|--|--|
| Ripple:                                                     | ≤10%                                                                                               | Power-On Effect:             | Per IEC 947-5-2                                                                             |  |  |
| Differential Travel (Hysteresis):                           | 3-15% (5% typical)                                                                                 | Reverse Polarity Protection: | Incorporated                                                                                |  |  |
| Voltage Drop Across Conducting Sensor:                      | ≤1.8 V                                                                                             | Wire-Break Protection:       | Incorporated                                                                                |  |  |
| Trigger Current for Short Circuit Protection:               | ≥220 mA on 200 mA Load Current<br>≥170 mA on 150 mA Load Current<br>≥120 mA on 100 mA Load Current | Transient Protection:        | Per EN 60947-5-2                                                                            |  |  |
| Off-State (Leakage) Current:                                | ≤0.1 mA                                                                                            | Temperature Drift:           | ≤±10%                                                                                       |  |  |
| No-Load Current:                                            | ≤15 mA (Ferrite, Uprox, Rectangular)<br>≤20 mA (Uprox+, Uprox 3)                                   | Shock:                       | 30 g, 11 ms                                                                                 |  |  |
| Time Delay Before Availability:                             | ≤8 ms                                                                                              | Vibration:                   | 55 Hz, 1 mm Amplitude in all 3 Planes                                                       |  |  |
|                                                             |                                                                                                    | Repeatability:               | ≤2% of Rated Operating Distance                                                             |  |  |
| A6 2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ) |                                                                                                    |                              |                                                                                             |  |  |
| Line Frequency:                                             | ≥50... ≤60 Hz                                                                                      | Inrush Current:              | ≤8 A (≤10ms max. 5 Hz)<br>≤1 A (≤10 ms max. 5 Hz) 12 mm<br>≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm |  |  |
| Differential Travel (Hysteresis):                           | 3-15% (5% typical)                                                                                 | Power-On Effect:             | Per IEC 947-5-2                                                                             |  |  |
| Voltage Drop Across Conducting Sensor:                      | ≤6.0 V                                                                                             | Transient Protection:        | Per EN 60947-5-2                                                                            |  |  |
| Continuous Load Current:                                    | AC: ≤400 mA; DC: ≤300 mA<br>AC: ≤100 mA; DC: ≤100 mA                                               | Shock:                       | 30 g, 11 ms                                                                                 |  |  |
| Off-State (Leakage) Current:                                | ≤1.7 mA                                                                                            | Vibration:                   | 55 Hz, 1 mm Amplitude, in all 3 Planes                                                      |  |  |
| Minimum Load Current:                                       | ≥3.0 mA                                                                                            | Repeatability:               | ≤2% of Rated Operating Distance                                                             |  |  |



Rectangular Inductive Sensors | K90 & K90SR

Top Sensing with 4-Wire DC or AC/DC Outputs

| Part Number/<br>ID Number     | Features                 | Embeddable | Sensing Range (mm) | Output        | Voltage                  | Switching Freq. (Hz) | Operating Current (mA) | Operating Temp. (°C) | Protection | Housing | Front Cap/Face | Power LED | Output LED | Dimension Drawings | Wiring Diagrams | Spec List |
|-------------------------------|--------------------------|------------|--------------------|---------------|--------------------------|----------------------|------------------------|----------------------|------------|---------|----------------|-----------|------------|--------------------|-----------------|-----------|
| Ni60-K90-VN4X-B2141<br>15203  | Comp. Outputs            |            | 60                 | 4-wire DC NPN | 10-65 VDC                | 60                   | ≤200                   | -25 to +70           | IP67       | PUR     | PUR            | N/A       | YE         | A                  | 1               | A4        |
| Ni60-K90-VP4X-B2141<br>15103  | Comp. Outputs            |            | 60                 | 4-wire DC PNP | 10-65 VDC                | 60                   | ≤200                   | -25 to +70           | IP67       | PUR     | PUR            | N/A       | YE         | A                  | 2               | A4        |
| Ni60-K90-AZ3X-B2131<br>13542  |                          |            | 60                 | 2-wire AC     | 20-250 VAC/10-300<br>VDC | 20                   | ≤500                   | -25 to +70           | IP67       | PBT     | PBT            | N/A       | YE         | A                  | 3               | A6        |
| Ni60-K90SR-VN4X2<br>15740     | Comp. Outputs            |            | 60                 | 4-wire DC NPN | 10-65 VDC                | 60                   | ≤200                   | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | B                  | 4               | A4        |
| Ni60-K90SR-VP4X2<br>15640     | Comp. Outputs            |            | 60                 | 4-wire DC PNP | 10-65 VDC                | 250                  | ≤200                   | -30 to +85           | IP68       | PBT     | PBT            | GN        | YE         | B                  | 5               | A4        |
| Ni60-K90SR-FZ3X2<br>13429     | Prog. Outputs            |            | 60                 | 2-wire AC     | 20-250 VAC/10-300<br>VDC | 20                   | ≤400/300               | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | B                  | 6               | A6        |
| Ni100U-K90SR-VP4X2<br>1625834 | Uprox+, Comp.<br>Outputs |            | 100                | 4-wire DC PNP | 10-65 VDC                | 60                   | ≤200                   | -25 to +70           | IP67       | PBT     | PBT            | GN        | YE         | B                  | 5               | A4        |

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Rectangular Inductive Sensors



Rectangular Inductive Sensors | Namur



| Dimension Drawings                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                      |                    |                  |                       |                  |        |                                    |         |                                |         |                                                   |                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                  |                       |                              |              |                        |                       |                       |                       |        |             |            |                                       |                |                                 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|--------------------|------------------|-----------------------|------------------|--------|------------------------------------|---------|--------------------------------|---------|---------------------------------------------------|----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-----------------------|------------------------------|--------------|------------------------|-----------------------|-----------------------|-----------------------|--------|-------------|------------|---------------------------------------|----------------|---------------------------------|
| <p>A</p> <p>5.5 mm - Embeddable/Nonembeddable, Potted-In Cable</p>                                                                                                                                                                                                                                                                                                                                                                                                                         | <p>B</p> <p>8.0 mm - Embeddable, Potted-In Cable</p>                 |                    |                  |                       |                  |        |                                    |         |                                |         |                                                   |                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                  |                       |                              |              |                        |                       |                       |                       |        |             |            |                                       |                |                                 |
| <p>C</p> <p>10 mm - Embeddable/Nonembeddable, Potted-In Cable</p>                                                                                                                                                                                                                                                                                                                                                                                                                          | <p>D</p> <p>14 mm - Potted-In Cable</p>                              |                    |                  |                       |                  |        |                                    |         |                                |         |                                                   |                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                  |                       |                              |              |                        |                       |                       |                       |        |             |            |                                       |                |                                 |
| <p>E</p> <p>20 mm - Embeddable/Nonembeddable, Potted-In Cable</p>                                                                                                                                                                                                                                                                                                                                                                                                                          | <p>F</p> <p>20 mm - Embeddable/Nonembeddable, Eurofast Connector</p> |                    |                  |                       |                  |        |                                    |         |                                |         |                                                   |                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                  |                       |                              |              |                        |                       |                       |                       |        |             |            |                                       |                |                                 |
| Wiring Diagrams/Mating Cordsets                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                      |                    |                  |                       |                  |        |                                    |         |                                |         |                                                   |                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                  |                       |                              |              |                        |                       |                       |                       |        |             |            |                                       |                |                                 |
| <p>1</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <p>2</p> <p>Mating Cordset: RK 4.21T-*</p>                           |                    |                  |                       |                  |        |                                    |         |                                |         |                                                   |                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                  |                       |                              |              |                        |                       |                       |                       |        |             |            |                                       |                |                                 |
| 2-wire DC NAMUR - (Y0 and Y1)                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                      |                    |                  |                       |                  |        |                                    |         |                                |         |                                                   |                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                  |                       |                              |              |                        |                       |                       |                       |        |             |            |                                       |                |                                 |
| <p>A1</p> <table><tr><td>Differential Travel (Hysteresis):</td><td>1-10% (5% typical)</td></tr><tr><td>Nominal Voltage:</td><td>8.2 VDC (EN60947-5-6)</td></tr><tr><td>Load Resistance:</td><td>1000 Ω</td></tr><tr><td>Non-activated Current Consumption:</td><td>≥2.1 mA</td></tr><tr><td>Activated Current Consumption:</td><td>≤1.2 mA</td></tr><tr><td>Recommended Switching Point for Remote Amplifier:</td><td>&gt;1.2 to &lt;2.1 mA, typ. 1.55 mA ON/1.75 mA OFF</td></tr></table> | Differential Travel (Hysteresis):                                    | 1-10% (5% typical) | Nominal Voltage: | 8.2 VDC (EN60947-5-6) | Load Resistance: | 1000 Ω | Non-activated Current Consumption: | ≥2.1 mA | Activated Current Consumption: | ≤1.2 mA | Recommended Switching Point for Remote Amplifier: | >1.2 to <2.1 mA, typ. 1.55 mA ON/1.75 mA OFF | <table><tr><td>Power-On Effect:</td><td>Realized in Amplifier</td></tr><tr><td>Reverse Polarity Protection:</td><td>Incorporated</td></tr><tr><td>Wire-Break Protection:</td><td>Realized in Amplifier</td></tr><tr><td>Transient Protection:</td><td>Realized in Amplifier</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></table> | Power-On Effect: | Realized in Amplifier | Reverse Polarity Protection: | Incorporated | Wire-Break Protection: | Realized in Amplifier | Transient Protection: | Realized in Amplifier | Shock: | 30 g, 11 ms | Vibration: | 55 Hz, 1 mm Amplitude in all 3 Planes | Repeatability: | ≤2% of Rated Operating Distance |
| Differential Travel (Hysteresis):                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 1-10% (5% typical)                                                   |                    |                  |                       |                  |        |                                    |         |                                |         |                                                   |                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                  |                       |                              |              |                        |                       |                       |                       |        |             |            |                                       |                |                                 |
| Nominal Voltage:                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 8.2 VDC (EN60947-5-6)                                                |                    |                  |                       |                  |        |                                    |         |                                |         |                                                   |                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                  |                       |                              |              |                        |                       |                       |                       |        |             |            |                                       |                |                                 |
| Load Resistance:                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 1000 Ω                                                               |                    |                  |                       |                  |        |                                    |         |                                |         |                                                   |                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                  |                       |                              |              |                        |                       |                       |                       |        |             |            |                                       |                |                                 |
| Non-activated Current Consumption:                                                                                                                                                                                                                                                                                                                                                                                                                                                         | ≥2.1 mA                                                              |                    |                  |                       |                  |        |                                    |         |                                |         |                                                   |                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                  |                       |                              |              |                        |                       |                       |                       |        |             |            |                                       |                |                                 |
| Activated Current Consumption:                                                                                                                                                                                                                                                                                                                                                                                                                                                             | ≤1.2 mA                                                              |                    |                  |                       |                  |        |                                    |         |                                |         |                                                   |                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                  |                       |                              |              |                        |                       |                       |                       |        |             |            |                                       |                |                                 |
| Recommended Switching Point for Remote Amplifier:                                                                                                                                                                                                                                                                                                                                                                                                                                          | >1.2 to <2.1 mA, typ. 1.55 mA ON/1.75 mA OFF                         |                    |                  |                       |                  |        |                                    |         |                                |         |                                                   |                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                  |                       |                              |              |                        |                       |                       |                       |        |             |            |                                       |                |                                 |
| Power-On Effect:                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Realized in Amplifier                                                |                    |                  |                       |                  |        |                                    |         |                                |         |                                                   |                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                  |                       |                              |              |                        |                       |                       |                       |        |             |            |                                       |                |                                 |
| Reverse Polarity Protection:                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Incorporated                                                         |                    |                  |                       |                  |        |                                    |         |                                |         |                                                   |                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                  |                       |                              |              |                        |                       |                       |                       |        |             |            |                                       |                |                                 |
| Wire-Break Protection:                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Realized in Amplifier                                                |                    |                  |                       |                  |        |                                    |         |                                |         |                                                   |                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                  |                       |                              |              |                        |                       |                       |                       |        |             |            |                                       |                |                                 |
| Transient Protection:                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Realized in Amplifier                                                |                    |                  |                       |                  |        |                                    |         |                                |         |                                                   |                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                  |                       |                              |              |                        |                       |                       |                       |        |             |            |                                       |                |                                 |
| Shock:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 30 g, 11 ms                                                          |                    |                  |                       |                  |        |                                    |         |                                |         |                                                   |                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                  |                       |                              |              |                        |                       |                       |                       |        |             |            |                                       |                |                                 |
| Vibration:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 55 Hz, 1 mm Amplitude in all 3 Planes                                |                    |                  |                       |                  |        |                                    |         |                                |         |                                                   |                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                  |                       |                              |              |                        |                       |                       |                       |        |             |            |                                       |                |                                 |
| Repeatability:                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | ≤2% of Rated Operating Distance                                      |                    |                  |                       |                  |        |                                    |         |                                |         |                                                   |                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                  |                       |                              |              |                        |                       |                       |                       |        |             |            |                                       |                |                                 |

**Amplifier Note:**  
Inductive sensors with Namur outputs are typically used in hazardous locations and the approval agencies require the use of an amplifier to regulate the signals in the hazardous area. Due to the wide variety of approvals, output options, and amplifier designs, it is not possible to incorporate all of the choices in this catalog. For the most up to date information, please either search for these products under our interface technology product category ([www.turck.us](http://www.turck.us)) or contact us by phone.

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Rectangular Inductive Sensors | Namur

Intrinsically Safe 

| Part Number/<br>ID Number     | Features | Embeddable | Sensing Range (mm) | Output          | Voltage         | Switching Freq. (Hz) | Operating Current (mA) | Operating Temp. (°C) | Protection | Housing | Front Cap/Face | Power LED | Output LED | Cable Length/Jacket | Dimension Drawings | Wiring Diagrams | Spec List |
|-------------------------------|----------|------------|--------------------|-----------------|-----------------|----------------------|------------------------|----------------------|------------|---------|----------------|-----------|------------|---------------------|--------------------|-----------------|-----------|
| Bi2-Q5.5K-Y1X<br>4055300      |          | •          | 2                  | 2-wire DC NAMUR | 8.2 VDC nominal | 2000                 | Remote                 | -25 to +70           | IP67       | PP      | PP             | N/A       | YE         | 2M/TPU              | A                  | 1               | A1        |
| Bi5-Q08-Y1X<br>4054000        |          | •          | 5                  | 2-wire DC NAMUR | 8.2 VDC nominal | 1000                 | Remote                 | -25 to +70           | IP67       | Zinc    | PA 12          | N/A       | YE         | 2M/TPU              | B                  | 1               | A1        |
| Bi2-Q10S-Y1X<br>4012130       |          | •          | 2                  | 2-wire DC NAMUR | 8.2 VDC nominal | 1000                 | Remote                 | -25 to +70           | IP67       | PP-GF20 | PP-GF20        | N/A       | YE         | 2M/PVC              | C                  | 1               | A1        |
| Bi10-Q14-Y1X<br>1608730       |          | •          | 10                 | 2-wire DC NAMUR | 8.2 VDC nominal | 1000                 | Remote                 | -25 to +70           | IP67       | PBT     | PBT            | N/A       | YE         | 2M/TPU              | D                  | 1               | A1        |
| Bi15-Q20-Y1X<br>1080020       |          | •          | 15                 | 2-wire DC NAMUR | 8.2 VDC nominal | 1000                 | Remote                 | -25 to +70           | IP67       | PBT     | PBT            | N/A       | YE         | 2M/TPU              | E                  | 1               | A1        |
| Bi15-Q20-Y1X-H1141<br>1080025 |          | •          | 15                 | 2-wire DC NAMUR | 8.2 VDC nominal | 1000                 | Remote                 | -25 to +70           | IP67       | PBT     | PBT            | N/A       | YE         | - -                 | F                  | 2               | A1        |

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Rectangular Inductive Sensors



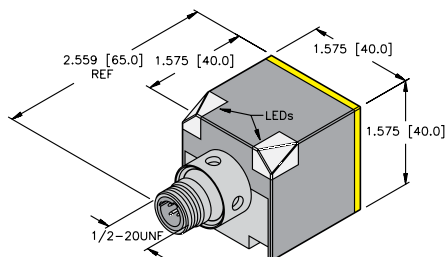


# Rectangular Inductive Sensors | Namur

Intrinsically Safe 

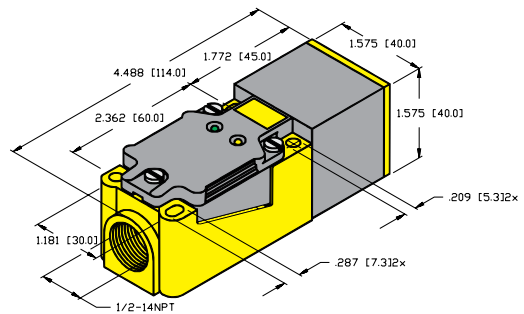
## Dimension Drawings

A



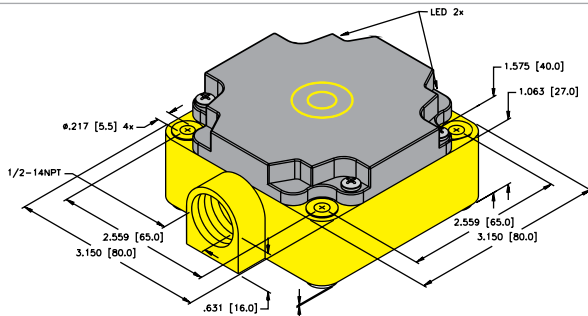
CK40 - Embeddable/Nonembeddable, Eurofast Connector

B



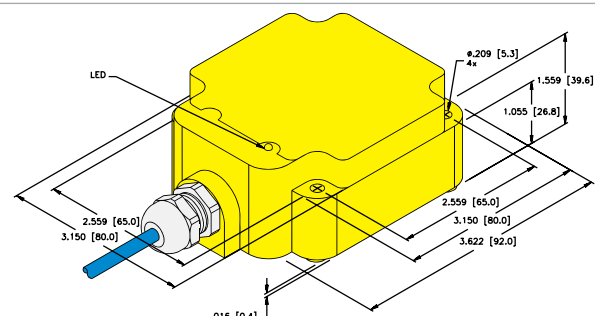
CP40 - Embeddable/Nonembeddable, Terminal Chamber

C



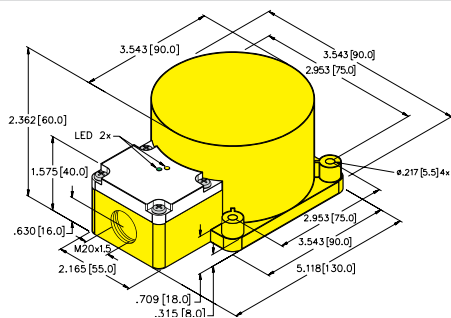
CP80 - Embeddable/Nonembeddable, Terminal Chamber

D



Q80 - Nonembeddable, Potted-In Cable

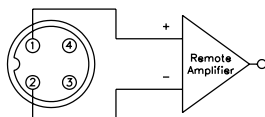
E



K90SR - Nonembeddable, Terminal Chamber

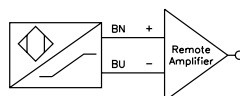
## Wiring Diagrams/Mating Cordsets

1

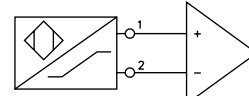


Mating Cordset: RK 4.21T-\*

2



3



A1

## 2-wire DC NAMUR - (Y0 and Y1)

|                                                   |                                                       |
|---------------------------------------------------|-------------------------------------------------------|
| Differential Travel (Hysteresis):                 | 1-10% (5% typical)                                    |
| Nominal Voltage:                                  | 8.2 VDC (EN60947-5-6)                                 |
| Load Resistance:                                  | 1000 $\Omega$                                         |
| Non-activated current consumption:                | $\geq 2.1$ mA                                         |
| Activated current consumption:                    | $\leq 1.2$ mA                                         |
| Recommended Switching Point for Remote Amplifier: | $> 1.2$ to $< 2.1$ mA,<br>typ. 1.55 mA ON/1.75 mA OFF |

|                              |                                        |
|------------------------------|----------------------------------------|
| Power-On Effect:             | Realized in Amplifier                  |
| Reverse Polarity Protection: | Incorporated                           |
| Wire-Break Protection:       | Realized in Amplifier                  |
| Transient Protection:        | Realized in Amplifier                  |
| Shock:                       | 30 g, 11 ms                            |
| Vibration:                   | 55 Hz, 1 mm Amplitude in all 3 Planes  |
| Repeatability:               | $\leq 2\%$ of Rated Operating Distance |

### Amplifier Note:

Inductive sensors with Namur outputs are typically used in hazardous locations and the approval agencies require the use of an amplifier to regulate the signals in the hazardous area. Due to the wide variety of approvals, output options, and amplifier designs, it is not possible to incorporate all of the choices in this catalog. For the most up to date information, please either search for these products under our interface technology product category ([www.turck.us](http://www.turck.us)) or contact us by phone.



Rectangular Inductive Sensors | Namur

Intrinsically Safe 

| Part Number/<br>ID Number         | Features             | Embeddable | Sensing Range (mm) | Output             | Voltage            | Switching Freq. (Hz) | Operating Current (mA) | Operating Temp. (°C) | Protection | Housing | Front Cap/Face | Power LED | Output LED | Cable Length/Jacket | Dimension Drawings | Wiring Diagrams | Spec List |
|-----------------------------------|----------------------|------------|--------------------|--------------------|--------------------|----------------------|------------------------|----------------------|------------|---------|----------------|-----------|------------|---------------------|--------------------|-----------------|-----------|
| Bi15-CK40-Y1X-H1141<br>4065000    |                      | •          | 15                 | 2-wire DC<br>NAMUR | 8.2 VDC<br>nominal | 150                  | Remote                 | -25 to +70           | IP67       | PBT     | PBT            | N/A       | YE         | --                  | A                  | 1               | A1        |
| Bi15-CP40-Y1X/S10<br>10120        |                      | •          | 15                 | 2-wire DC<br>NAMUR | 8.2 VDC<br>nominal | 150                  | Remote                 | -25 to +70           | IP67       | PBT     | PBT            | N/A       | YE         | --                  | B                  | 3               | A1        |
| Ni20-CP40-Y1X/S10<br>10121        |                      |            | 20                 | 2-wire DC<br>NAMUR | 8.2 VDC<br>nominal | 150                  | Remote                 | -25 to +70           | IP67       | PBT     | PBT            | N/A       | YE         | --                  | B                  | 3               | A1        |
| Ni35-CP40-Y1X/S100-S10<br>1011126 | High Temp.<br>100 °C |            | 35                 | 2-wire DC<br>NAMUR | 8.2 VDC<br>nominal | 80                   | Remote                 | -25 to +100          | IP67       | PBT     | PBT            | N/A       | YE         | --                  | B                  | 3               | A1        |
| Ni50-CP80-Y1/S10<br>10401         |                      |            | 50                 | 2-wire DC<br>NAMUR | 8.2 VDC<br>nominal | 100                  | Remote                 | -25 to +70           | IP67       | PBT     | PBT            | N/A       | N/A        | --                  | C                  | 3               | A1        |
| Ni60-Q80-Y1X<br>1008700           |                      |            | 60                 | 2-wire DC<br>NAMUR | 8.2 VDC<br>nominal | 100                  | Remote                 | -25 to +70           | IP67       | PBT     | PBT            | N/A       | YE         | 2M/<br>PVC          | D                  | 2               | A1        |
| Ni50-K90SR-Y1<br>10074            |                      |            | 50                 | 2-wire DC<br>NAMUR | 8.2 VDC<br>nominal | 100                  | Remote                 | -25 to +70           | IP67       | PBT     | PBT            | N/A       | N/A        | --                  | E                  | 3               | A1        |

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

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