

## 872C WorldProx™ 3- and 4-wire DC Tubular Sensors

### Plastic Face/Threaded Nickel-plated Brass Barrel



DC Micro Quick-disconnect Style  
8 mm, 12 mm, 18 mm, and 30 mm



DC Pico Quick-disconnect Style  
6.5 mm, 8 mm, and 12 mm



DC Cable Style  
6.5 mm, 8 mm, 12 mm, 18 mm, and 30 mm



Pigtail Cable with Integral Micro QD Connector  
8 mm, 12 mm, 18 mm, and 30 mm

#### Specifications

| Attribute              | 8 mm                                                                                                                                                                                                                                                                                                                                         | 12 mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 18 mm                   | 30 mm                   |
|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-------------------------|
| Load Current           | ≤100 mA                                                                                                                                                                                                                                                                                                                                      | ≤200 mA                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                         |                         |
| Leakage Current        | ≤5 µA                                                                                                                                                                                                                                                                                                                                        | ≤10 µA                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                         |                         |
| Operating Voltage      | 5...30V DC                                                                                                                                                                                                                                                                                                                                   | 10...30V DC                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                         |                         |
| Voltage Drop           | ≤1.5V                                                                                                                                                                                                                                                                                                                                        | ≤1.8V                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                         |                         |
| Switching Frequency    | ≤2500 Hz                                                                                                                                                                                                                                                                                                                                     | ≤1300 Hz <sup>(1)</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                       | ≤1500 Hz <sup>(1)</sup> | ≤1000 Hz <sup>(1)</sup> |
| No-load Supply Current | ≤10 mA                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                         |                         |
| Repeatability          | ≤5%                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                         |                         |
| Hysteresis             | ≤10% typical                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                         |                         |
| Protection Type        | False pulse on power, transient noise, reverse polarity, short circuit, and overload                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                         |                         |
| Certifications         | c-UL-us Listed and CE Marked for all applicable directives                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                         |                         |
| Enclosure Type Rating  | IP67                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                         |                         |
| Housing Material       | Nickel-plated brass barrel nuts with integral locking feature, plastic face (LCP)                                                                                                                                                                                                                                                            | Nickel-plated brass barrel nuts with integral locking feature, plastic face (PBT)                                                                                                                                                                                                                                                                                                                                                                                             |                         |                         |
| Connections            | <ul style="list-style-type: none"><li>• Cable (PVC/PUR):<br/>2 m (6.5 ft), 5 m (16.4 ft), 10 m (32.8 ft) length, 3.5 mm (0.175 in.) dia. (PVC); 3.3 mm dia. (PUR); 3 x 0.14 mm<sup>2</sup> PVC or PP</li><li>• Cable (Pigtail):<br/>0.2 m (0.7 ft), 0.5 m (1.6 ft), 1 m (3.3 ft) length</li><li>• Connector: 3-pin M12 or 3-pin M8</li></ul> | <ul style="list-style-type: none"><li>• Cable (PVC/PUR):<br/>2 m (6.5 ft), 5 m (16.4 ft), 10 m (32.8 ft) length, 4.3 mm (0.17 in.) diameter; 3x 0.34 mm<sup>2</sup> (0.01 in.<sup>2</sup>) or 4x 0.34 mm<sup>2</sup> PVC or PUR</li><li>• Cable (Pigtail):<br/>0.2 m (0.7 ft), 0.5 m (1.6 ft), 1 m (3.3 ft) length, Integral connector (M12) 3- or 4-pin micro QD</li><li>• Quick-disconnect:<br/>3- or 4-pin micro QD (M12) or [3-pin pico QD (M8) for 12 mm only]</li></ul> |                         |                         |
| Status Indicator       | Amber: output energized                                                                                                                                                                                                                                                                                                                      | Amber: output energized                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                         |                         |
| Operating Temperature  | -25...+70 °C (-13...+158 °F)                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                         |                         |
| Shock                  | 30 g (1.06 oz), 11 ms half-sine                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                         |                         |
| Vibration              | 55 Hz, 1 mm amplitude, 3 planes                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                         |                         |

#### Nominal Sensing Distance (mm [in.])

| Size   | Description | Standard Sensing Range | Extended Sensing Range |
|--------|-------------|------------------------|------------------------|
| 6.5 mm | Shielded    | 2 (0.08)               | —                      |
|        | Unshielded  | 3 (0.12)               | —                      |
| 8 mm   | Shielded    | 2 (0.08)               | 3 (0.12)               |
|        | Unshielded  | 3 (0.12)               | 4 (0.16)               |
| 12 mm  | Shielded    | 3 (0.12)               | 4 (0.16)               |
|        | Unshielded  | 4 (0.16)               | 8 (0.31)               |
| 18 mm  | Shielded    | 5 (0.20)               | 8 (0.31)               |
|        | Unshielded  | 8 (0.31)               | 12 (0.47)              |
| 30 mm  | Shielded    | 10 (0.39)              | 15 (0.59)              |
|        | Unshielded  | 15 (0.59)              | 20 (0.79)              |

#### Correction Factors (mm [in.])

| Target Material | 6.5 mm      | 8 mm        | 12 mm       | 18 mm       | 30 mm       |
|-----------------|-------------|-------------|-------------|-------------|-------------|
| Steel           | 1.0         | 1.0         | 1.0         | 1.0         | 1.0         |
| Stainless Steel | 0.7...0.8   | 0.7...0.8   | 0.7...0.8   | 0.7...0.8   | 0.7...0.8   |
| Brass           | 0.45...0.55 | 0.45...0.55 | 0.45...0.55 | 0.45...0.55 |             |
| Aluminum        | 0.3...0.4   | 0.45...0.55 | 0.45...0.55 | 0.4...0.5   | 0.45...0.55 |
| Copper          | 0.2...0.3   | 0.35...0.45 | 0.35...0.45 | 0.3...0.45  | 0.35...0.45 |

(1) Select 3-wire models have switching frequency less than previously specified:

12 mm diameter shielded, extended range, N.O., PNP, micro QD ≤800 Hz

12 mm diameter unshielded, extended range, N.O., PNP, micro QD ≤1000 Hz

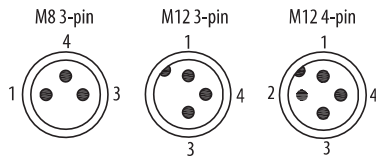
18 mm diameter shielded, extended range, N.O., PNP, micro QD, and cable ≤500 Hz

30 mm diameter shielded, extended range, N.O., PNP, micro QD <100 Hz at SD = 7.5 mm (0.3 in.), 200 Hz at SD = 10 mm (0.39 in.)

## 872C WorldProx 3- and 4-wire DC Tubular Sensors

### Plastic Face/Threaded Nickel-plated Brass Barrel

#### 8 mm, 12 mm, 18 mm, and 30 mm Pinouts



1 BN (brown) 2 WH (white) 3 BU (blue) 4 BK (black)

#### 8 mm, 12 mm, 18 mm, and 30 mm 3-wire DC Wiring

| NPN/PNP  | Cable | M12 Micro Connector | M8 Pico Connector |
|----------|-------|---------------------|-------------------|
| NPN N.O. |       |                     |                   |
| NPN N.C. |       |                     |                   |
| PNP N.O. |       |                     |                   |
| PNP N.C. |       |                     |                   |

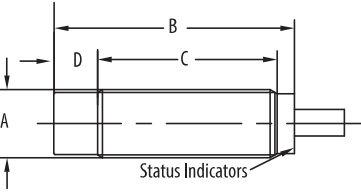
#### 12 mm, 18 mm, and 30 mm 4-wire DC Complementary Wiring

| NPN/PNP                          | Cable | M12 Micro Connector | M8 Pico Connector |
|----------------------------------|-------|---------------------|-------------------|
| NPN N.O. + N.C.<br>Complementary |       |                     |                   |
| PNP N.O. + N.C.<br>Complementary |       |                     |                   |

## 872C WorldProx 3- and 4-wire DC Tubular Sensors — Standard and Extended Sensing

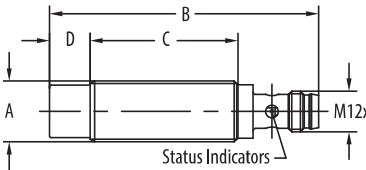
### Plastic Face/Threaded Nickel-plated Brass Barrel — Standard Barrel Length

#### Cable Style Approximate Dimensions

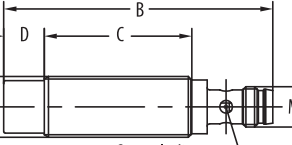
| Dimensions [mm (in.)]                                                             | Thread Size | Barrel Type         | Smooth Diameter    | Shielded | mm (in.)    |             |             |             |
|-----------------------------------------------------------------------------------|-------------|---------------------|--------------------|----------|-------------|-------------|-------------|-------------|
|                                                                                   |             |                     |                    |          | A           | B (Max)     | C (Min)     | D (Max)     |
|  | —           | Nickel-plated Brass | 6.5 <sup>(1)</sup> | Yes      | 6.50 (0.26) | 33.0 (1.30) | —           | —           |
|                                                                                   | M8 X 1      | Nickel-plated Brass | —                  | Yes      | 8.00 (0.31) | 30.0 (1.18) | 30.2 (1.19) | —           |
|                                                                                   |             |                     | —                  | No       | —           | 35.0 (1.38) |             | 5.0 (0.20)  |
|                                                                                   | M12 X 1     |                     | —                  | Yes      | 12.0 (0.47) | 50.8 (2.00) | 46.7 (1.84) | —           |
|                                                                                   |             |                     | —                  | No       |             | 58.8 (2.31) |             | 8.0 (0.31)  |
|                                                                                   | M18 X 1     |                     | —                  | Yes      | 18.0 (0.71) | 50.8 (2.00) | 46.7 (1.84) | —           |
|                                                                                   |             |                     | —                  | No       |             | 60.8 (2.39) |             | 10.0 (0.39) |
|                                                                                   | M30 X 1     |                     | —                  | Yes      | 30.0 (1.18) | 50.8 (2.00) | 47.8 (1.88) | —           |
|                                                                                   |             |                     | —                  | No       |             | 63.0 (2.48) |             | 18.0 (0.71) |

(1) 6.5 mm diameter is standard only

#### Micro QD Style Approximate Dimensions

| Dimensions [mm (in.)]                                                               | Thread Size | Barrel Type         | Shielded | mm (in.)    |             |             |             |
|-------------------------------------------------------------------------------------|-------------|---------------------|----------|-------------|-------------|-------------|-------------|
|                                                                                     |             |                     |          | A           | B (Max)     | C (Min)     | D (Max)     |
|  | M8 X 1      | Nickel-plated Brass | Yes      | 8.00 (0.31) | 55.0 (2.16) | 30.0 (1.18) | —           |
|                                                                                     |             |                     | No       |             | 60.0 (2.36) |             | 5.00 (0.20) |
|                                                                                     | M12 X 1     |                     | Yes      | 12.0 (0.47) | 64.3 (2.53) | 38.1 (1.50) | —           |
|                                                                                     |             |                     | No       |             | 72.3 (2.85) |             | 8.0 (0.31)  |
|                                                                                     | M18 X 1     |                     | Yes      | 18.0 (0.71) | 65.5 (2.58) | 38.1 (1.50) | —           |
|                                                                                     |             |                     | No       |             | 75.5 (2.97) |             | 10.0 (0.39) |
|                                                                                     | M30 X 1.5   |                     | Yes      | 30.0 (1.18) | 64.3 (2.53) | 48.3 (1.90) | —           |
|                                                                                     |             |                     | No       |             | 76.5 (3.01) |             | 18.0 (0.71) |

#### Pico QD Style Approximate Dimensions

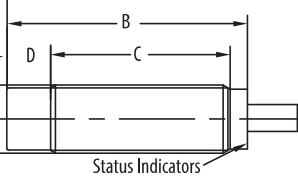
| Dimensions [mm (in.)]                                                               | Thread Size | Barrel Type         | Smooth Diameter    | Shielded | mm (in.)    |             |             |         |
|-------------------------------------------------------------------------------------|-------------|---------------------|--------------------|----------|-------------|-------------|-------------|---------|
|                                                                                     |             |                     |                    |          | A           | B (Max)     | C (Min)     | D (Max) |
|  | —           | Nickel-plated Brass | 6.5 <sup>(1)</sup> | Yes      | 6.50 (0.26) | 49.0 (1.93) | —           | —       |
|                                                                                     | M8 X 1      |                     | —                  | Yes      | 8.0 (0.31)  | 50.0 (1.97) | 35.0 (1.38) | —       |
|                                                                                     |             |                     |                    | No       |             | 55.0 (2.16) |             |         |
|                                                                                     | M12 X 1     |                     | —                  | Yes      | 12.0 (0.47) | 63.5 (2.50) | 47.5 (1.87) | —       |
|                                                                                     |             |                     |                    | No       |             | 71.5 (2.81) |             |         |

(1) 6.5 mm diameter is standard only

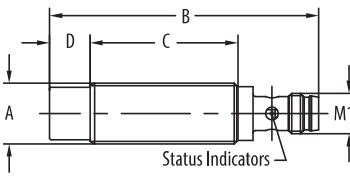
## 872C WorldProx 3- and 4-wire DC Tubular Sensors — Standard and Extended Sensing

### Plastic Face/Threaded Nickel-plated Brass Barrel — Short Barrel Length

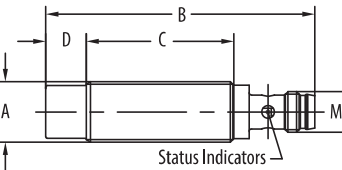
#### Cable Style Approximate Dimensions

| Dimensions                                                                        | Thread Size | Barrel Type         | Shielded | mm (in.)    |             |             |             |
|-----------------------------------------------------------------------------------|-------------|---------------------|----------|-------------|-------------|-------------|-------------|
|                                                                                   |             |                     |          | A           | B (Max)     | C (Min)     | D (Max)     |
|  | M8 X 1      | Nickel-plated Brass | Yes      | 8.0 (0.31)  | 25.0 (0.98) | 25.0 (0.98) | —           |
|                                                                                   |             |                     | No       |             | 30.0 (1.18) |             | 5.0 (0.2)   |
|                                                                                   | M12 X 1     |                     | Yes      | 12.0 (0.47) | 34.8 (1.37) | 31.8 (1.25) | —           |
|                                                                                   |             |                     | No       |             | 42.8 (1.68) |             | 8.0 (0.31)  |
|                                                                                   | M18 X 1     |                     | Yes      | 18.0 (0.71) | 34.8 (1.37) |             | —           |
|                                                                                   |             |                     | No       |             | 44.8 (1.76) |             | 10.0 (0.39) |
|                                                                                   | M30 X 1     | Nickel-plated Brass | Yes      | 30.0 (1.18) | 34.8 (1.37) |             | —           |
|                                                                                   |             |                     | No       |             | 47.0 (1.85) | 26.0 (1.02) | 18.0 (0.71) |

#### Micro Style Approximate Dimensions

| Dimensions                                                                         | Thread Size | Barrel Type         | Shielded | mm (in.)    |             |             |             |
|------------------------------------------------------------------------------------|-------------|---------------------|----------|-------------|-------------|-------------|-------------|
|                                                                                    |             |                     |          | A           | B (Max)     | C (Min)     | D (Max)     |
|  | M8 X 1      | Nickel-plated Brass | Yes      | 8.0 (0.31)  | 45.0 (1.77) | 20.0 (0.79) | —           |
|                                                                                    |             |                     | No       |             | 50.0 (1.97) |             | 5.0 (0.20)  |
|                                                                                    | M12 X 1     |                     | Yes      | 12.0 (0.47) | 48.3 (1.90) | 27.4 (1.08) | —           |
|                                                                                    |             |                     | No       |             | 56.4 (2.22) |             | 8.0 (0.31)  |
|                                                                                    | M18 X 1     |                     | Yes      | 18.0 (0.71) | 49.5 (1.95) | 26.4 (1.04) | —           |
|                                                                                    |             |                     | No       |             | 59.5 (2.34) |             | 10.0 (0.39) |
|                                                                                    | M30 X 1.5   |                     | Yes      | 30.0 (1.18) | 50.8 (2.00) | 31.8 (1.25) | —           |
|                                                                                    |             |                     | No       |             | 63.2 (2.49) | 29.2 (1.15) | 18.0 (0.71) |

#### Pico Style Approximate Dimensions

| Dimensions                                                                          | Thread Size | Barrel Type         | Shielded    | mm (in.)    |             |             |            |
|-------------------------------------------------------------------------------------|-------------|---------------------|-------------|-------------|-------------|-------------|------------|
|                                                                                     |             |                     |             | A           | B (Max)     | C (Min)     | D (Max)    |
|  | M8 X 1      | Nickel-plated Brass | Yes         | 8.0 (0.31)  | 45.0 (1.77) | 30.0 (1.18) | —          |
|                                                                                     | No          |                     | 50.0 (1.97) |             | 5.0 (0.2)   |             |            |
|                                                                                     | M12 X 1     |                     | Yes         | 12.0 (0.47) | 45.2 (1.78) | 29.2 (1.15) | —          |
|                                                                                     |             |                     | No          |             | 53.2 (2.10) |             | 8.0 (0.31) |