

# UT2 Series Ultrasonic Sensors

## M30 (30 mm) plastic – Discrete or analog output

- 12 to 30 VDC or 15 to 30 VDC powered (model dependent)
- Discrete models available with adjustable sensitivity
- Analog output models available
- Models available with analog or discrete switching outputs
- Sensing distances up to 6m
- Complete overload protection
- IP67 rated
- LED status indicators
- Mounting hex nuts included
- Purchase cable for M12 plug separately
- Lifetime warranty



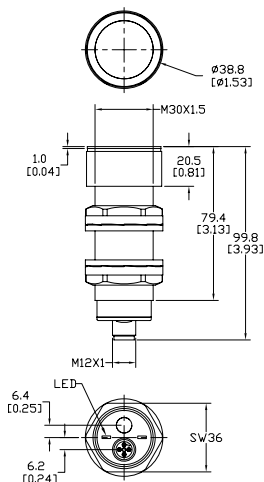
M12 Quick Disconnect

2m Output Cable

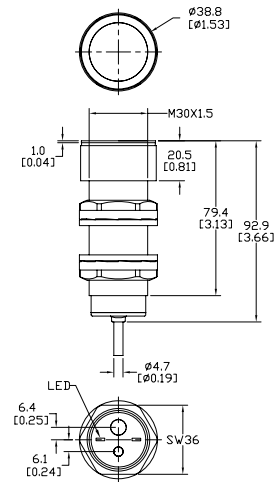
| UT 2F Series Ultrasonic Discrete or Analog Output Sensor Selection Chart |          |                                    |   |                      |           |          |
|--|----------|------------------------------------|---|----------------------|-----------|----------|
| Part Number  | Price    | Sensing Range                      | Output State                                  | Connection           | Wiring    | Function |
| <b>UT2F-E7-0E</b>  | \$274.00 | 350–6000 mm<br>(13.8 in–236.22 in) | 0–10 VDC analog output, PNP, NO/NC selectable | M12 quick disconnect | Diagram 1 | 1        |
| <b>UT2F-E7-0A</b>  | \$274.00 |                                    | 0–10 VDC analog output, PNP, NO/NC selectable | 2 m output cable     | Diagram 1 | 1        |
| <b>UT2F-E9-0E</b>  | \$274.00 |                                    | 0–10 VDC analog output, NPN, NO/NC selectable | M12 quick disconnect | Diagram 2 | 1        |
| <b>UT2F-E9-0A</b>  | \$274.00 |                                    | 0–10 VDC analog output, NPN, NO/NC selectable | 2 m output cable     | Diagram 2 | 1        |
| <b>UT2F-E6-0E</b>  | \$274.00 |                                    | 4–20 mA analog output, PNP, NO/NC selectable  | M12 quick disconnect | Diagram 1 | 1        |
| <b>UT2F-E6-0A</b>  | \$274.00 |                                    | 4–20 mA analog output, PNP, NO/NC selectable  | 2 m output cable     | Diagram 1 | 1        |
| <b>UT2F-E4-0E</b>  | \$274.00 |                                    | 4–20 mA analog output, NPN, NO/NC selectable  | M12 quick disconnect | Diagram 2 | 1        |
| <b>UT2F-E4-0A</b>  | \$274.00 |                                    | 4–20 mA analog output, NPN, NO/NC selectable  | 2 m output cable     | Diagram 2 | 1        |
| <b>UT2F-EW-0E</b>  | \$274.00 |                                    | PNP, 2 outputs, hysteresis + window functions | M12 quick disconnect | Diagram 3 | 2        |
| <b>UT2F-EW-0A</b>  | \$274.00 |                                    | PNP, 2 outputs, hysteresis + window functions | 2 m output cable     | Diagram 3 | 2        |
| <b>UT2F-EM-0E</b>  | \$274.00 |                                    | NPN, 2 outputs, hysteresis + window functions | M12 quick disconnect | Diagram 4 | 2        |
| <b>UT2F-EM-0A</b>  | \$274.00 |                                    | NPN, 2 outputs, hysteresis + window functions | 2 m output cable     | Diagram 4 | 2        |

### Dimensions

mm [inches]



UT2 Series M12 Quick Disconnect



UT2 Series 2m Cable

# UT2 Series Ultrasonic Sensors

| Specifications                      |   |
|-------------------------------------|---|
| Model                               | UT2F  |
| Nominal Sensing Distance            | 350 mm – 6000 mm<br>(13.78 in – 236.22 in)                                      |
| Operating Distance (Sensing Range)  | 350 mm – 6000 mm<br>(13.78 in – 236.22 in)                                      |
| Output Type                         | See "Output State" column in selection chart                                    |
| Operating Voltage                   | 12 – 30 VDC; 15 – 30 VDC (for 0 – 10 VDC analog models)                         |
| No-load Supply Current              | ≤50 mA  |
| Operating (Load) Current            | 100 mA  |
| Off-state (Leakage) Current         | <10 μA (VDC max)  |
| Analog Output                       | Voltage: minimum load is 3 kΩ / Current: maximum load is 500 Ω at 24 VDC supply |
| Voltage Drop                        | 2.2 V max @ 100 mA  |
| Switching Frequency                 | 1 Hz  |
| Repeat Accuracy                     | 0.5%  |
| Time Delay Before Availability (tv) | ≤≤300; ≤≤900 ms for UT2F-EW-0*, UT2F-EM-0*                                      |
| Reverse Polarity Protection         | Yes   |
| Short-Circuit Protection            | Yes   |
| Linearity Error                     | 1%  |
| Ultrasonic Frequency                | 75 kHz  |
| Ultrasonic Beam Angle               | 15° ± 2°  |
| Max. Response Time (digital output) | 500 ms  |
| Sensitivity Adjustment              | Yes, via teach-in button  |
| Input Voltage Transient Protection  | Yes   |
| Operating Temperature               | -20° to +70°C (-4° to +158°F)   |
| Temperature Compensation            | Yes   |
| Protection Degree                   | IEC IP67  |
| Indication/Switch Status            | Multi-function LED indicator  |
| Housing Material                    | Polybutylene Terephthalate (PBT)  |
| Shock/Vibration                     | See <a href="#">Proximity Sensor Terminology</a>                                |
| Tightening Torque                   | 1 Nm (0.737 lb-ft)  |
| Weight                              | 130 g (4.59 oz) (plug exit)<br>199 g (7.02 oz) (cable exit)                     |
| Connection                          | M12 (12 mm) connector or 2 m prewired output cable                              |
| Agency Approvals                    | CE, cULus file E187310, RoHS  |

## Wiring Diagrams

Diagram 1

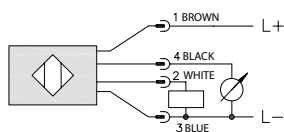


Diagram 2

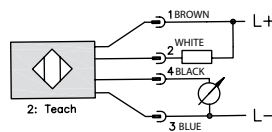


Diagram 3

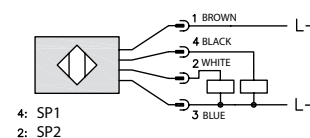
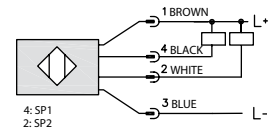


Diagram 4



### Connector

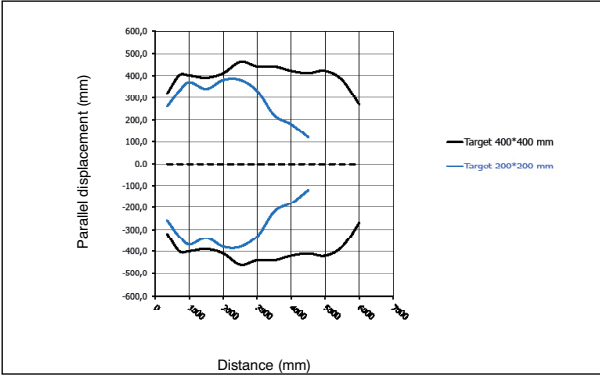
M12 connector



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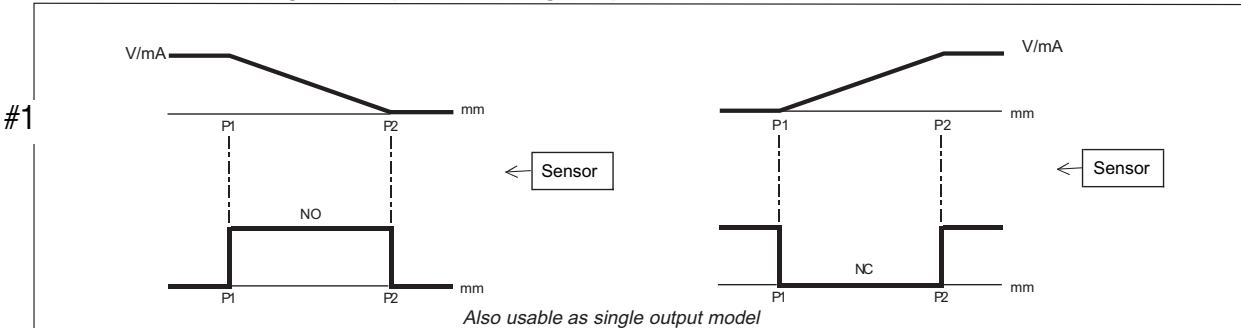
## Characteristic Curves

### UT2F models



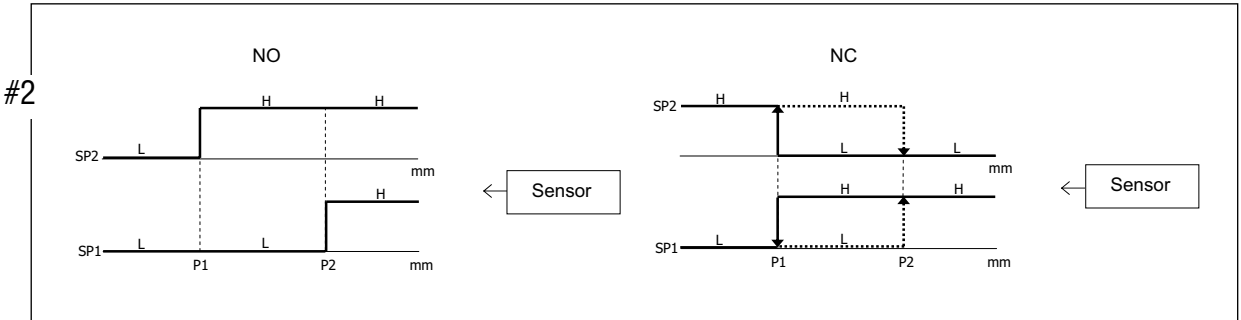
## Functions

### Models with digital output + analog output



Note: P1 maximum selected working distance and first point to select  
 P2 minimum selected working distance and second point to select

### Models with double digital output: hysteresis or standard window



# Accessories for 30mm Sensors

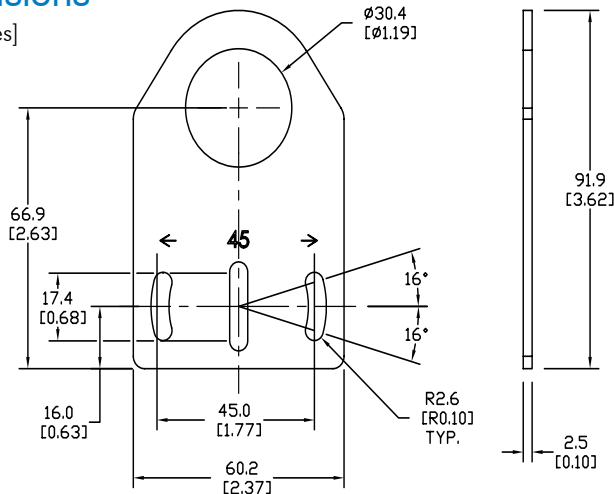
## Axial Mounting Bracket

Mounting bracket, axial, zinc-plated steel. For use with 30mm sensors. Has two mounting holes (use 5mm screws) and allows the rotation of an optical axis for right-beam-angle-adaptor sensors. Hexagonal nuts not included.

| Accessories for 30mm Sensors |        |  |             |
|------------------------------|--------|--|-------------|
| Part Number                  | Price  | Description  | Weight [lb] |
| <b>ST30A</b>                 | \$2.00 | Mounting bracket, axial, zinc-plated steel. For use with 30mm sensors. 1/pk. | 0.18        |

### Dimensions

mm [inches]



**ST30A**

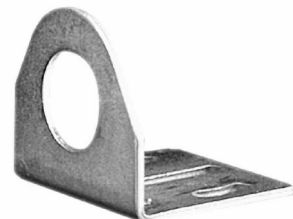
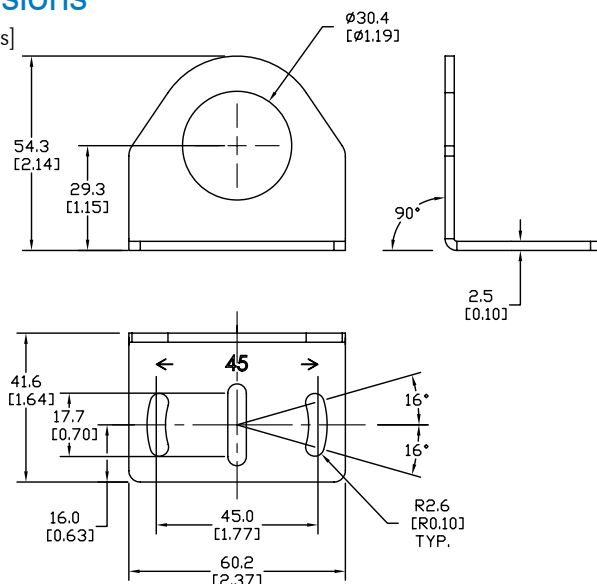
## Right-angle Mounting Bracket

Mounting bracket, right-angle, zinc-plated steel. For use with 30mm sensors. Has two mounting holes (use 5mm screws) and allows the rotation of an optical axis for axial sensors. Hexagonal nuts not included.

| Accessories for 30mm Sensors |        |  |             |
|------------------------------|--------|--|-------------|
| Part Number                  | Price  | Description  | Weight [lb] |
| <b>ST30C</b>                 | \$2.00 | Mounting bracket, right angle, zinc-plated steel. For use with 30mm sensors. 1/pk. | 0.18        |

### Dimensions

mm [inches]



**ST30C**

See our website: [www.AutomationDirect.com](http://www.AutomationDirect.com) for complete engineering drawings

# Accessories for 30mm Sensors

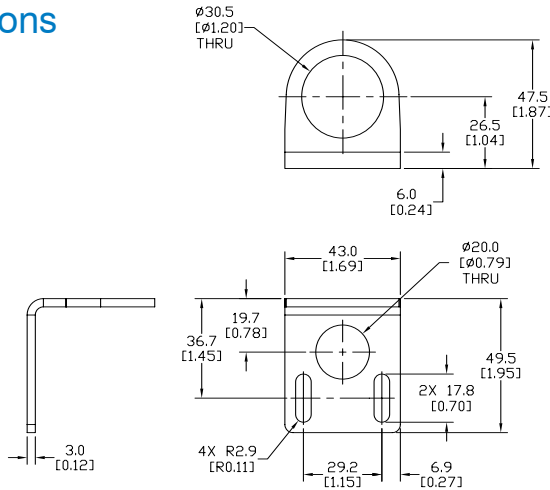
## Right-angle Mounting Bracket

Mounting bracket, right-angle, 304 stainless steel. For use with 30mm sensors.

| Accessories for FW Series Sensors |        |  |             |
|-----------------------------------|--------|--|-------------|
| Part Number                       | Price  | Description  | Weight [lb] |
| <b>ST30C6W</b>                    | \$2.50 | Mounting bracket, right angle, 304 stainless steel. For use with 30mm sensors. | 0.15        |

### Dimensions

mm [inches]



**ST30C6W**

## Right-angle Swivel Mounting Systems

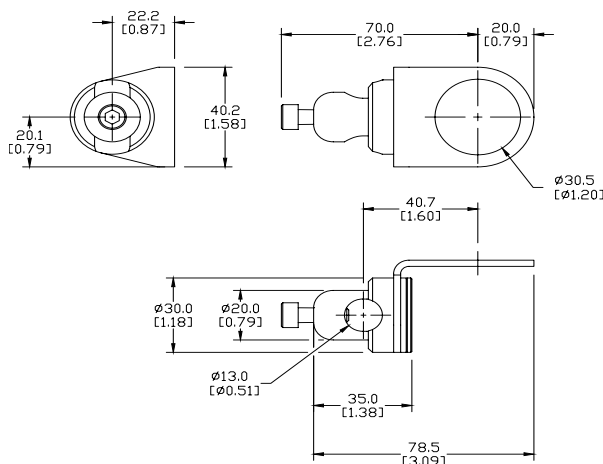
Mounting bracket, right-angle swivel, 360 degree vertical and horizontal adjustment, 12mm rod mount. For use with 30mm sensors. Available in all 304 stainless steel or with an aluminum head with a 304 stainless steel mounting plate.

| Accessories for 30mm Sensors |         |   |                     |                     |             |
|------------------------------|---------|---|---------------------|---------------------|-------------|
| Part Number                  | Price   | Description   | Mounting Head       | Mounting Plate      | Weight [lb] |
| <b>OPT2118</b>               | \$9.25  | Mounting bracket, right-angle swivel, 360 vertical and horizontal adjustment, aluminum, 12mm rod mount. For use with 30mm sensors.            | Aluminum            | 304 Stainless Steel | 0.18        |
| <b>OPT2119</b>               | \$16.50 | Mounting bracket, right-angle swivel, 360 vertical and horizontal adjustment, 304 stainless steel, 12mm rod mount. For use with 30mm sensors. | 304 Stainless Steel | 304 Stainless Steel | 0.30        |

**Note:** 304 Stainless steel mounting rods sold separately: OPT2109 (200mm length), OPT2110 (300mm length), and OPT2111 (500mm length).

### Dimensions

mm [inches]



**OPT2118, OPT2119**

See our website: [www.AutomationDirect.com](http://www.AutomationDirect.com) for complete engineering drawings

# Mounting Rods

## Mounting Rods

304 Stainless steel rods for mounting swivel brackets OPT2112 - OPT2127. Available in three lengths: 200mm, 300mm, and 500mm. 12mm diameter.

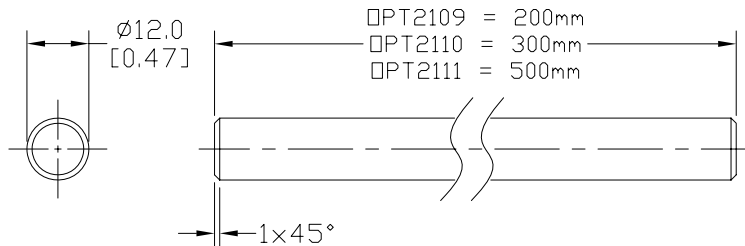
| Mounting Rods for OPT2112-2127 Swivel Mounting Brackets |         |   |             |
|---|---------|---|-------------|
| Part Number   | Price   | Description   | Weight [lb] |
| <b>OPT2109</b>  | \$10.50 | Mounting rod, 12mm diameter, 200mm length, 304 stainless steel. | 0.41        |
| <b>OPT2110</b>  | \$12.50 | Mounting rod, 12mm diameter, 300mm length, 304 stainless steel. | 0.60        |
| <b>OPT2111</b>  | \$16.50 | Mounting rod, 12mm diameter, 500mm length, 304 stainless steel. | 0.98        |



**OPT2109, OPT2110, OPT2111**

## Dimensions

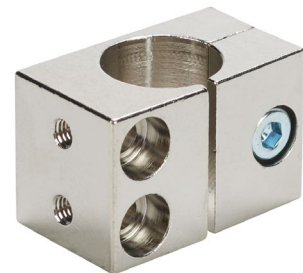
mm [inches]



## Right-angle Mounting Bracket

Mounting bracket, right-angle, nickel-plated brass. For use with 12mm mounting rods OPT2109, OPT2110 & OPT2111.

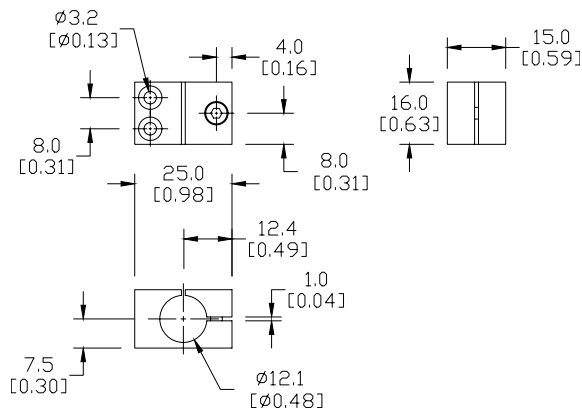
| Accessories for 12mm Sensors |         |   |             |
|------------------------------|---------|---|-------------|
| Part Number                  | Price   | Description   | Weight [lb] |
| <b>OPT2108</b>               | \$12.50 | Mounting bracket, right-angle, nickel-plated brass. For use with 12mm mounting rods OPT2109, OPT2110 & OPT2111. | 0.07        |



**OPT2108**

## Dimensions

mm [inches]



See our website: [www.AutomationDirect.com](http://www.AutomationDirect.com) for complete engineering drawings