

# UT Series Ultrasonic Sensors



**UT1B-G7-1E**  
**UT5L-G7-1E**

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

- 10 to 30 VDC
- Discrete models available with adjustable sensitivity
- Analog output models available
- Models available with analog and discrete switching outputs
- Several units can be synchronized for multi-point inspection
- IP67 rated
- LED status indicators
- Mounting hex nuts included
- Purchase cable for M12 plug separately
- Lifetime warranty



### UT1B Series Ultrasonic Discrete or Analog Output Sensor Selection Chart

| Part Number       | Price    | Sensing Range                         | Output State                                      | Connection           | Wiring    | Function |
|-------------------|----------|---------------------------------------|---|----------------------|-----------|----------|
| <b>UT1B-GW-1E</b> | \$222.00 | 250 to 3500 mm<br>[9.84 to 137.80 in] | PNP, 2 N.O./N.C. selectable                       | M12 quick-disconnect | Diagram 1 | 2        |
| <b>UT1B-G6-1E</b> | \$222.00 |                                       | 4-20mA analog output, PNP, N.O./N.C. selectable   | M12 quick-disconnect | Diagram 2 | 1        |
| <b>UT1B-G7-1E</b> | \$222.00 |                                       | 0-10 VDC analog output, PNP, N.O./N.C. selectable | M12 quick-disconnect | Diagram 2 | 1        |

### UT5L Series Ultrasonic Discrete or Analog Output Sensor Selection Chart

| Part Number       | Price    | Sensing Range                          | Output State                                      | Connection           | Wiring    | Function |
|-------------------|----------|--|---|----------------------|-----------|----------|
| <b>UT5L-GW-1E</b> | \$346.00 | 600 to 8000 mm<br>[23.62 to 314.96 in] | PNP, 2 N.O./N.C. selectable                       | M12 quick-disconnect | Diagram 1 | 2        |
| <b>UT5L-G6-1E</b> | \$346.00 |  | 4-20mA analog output, PNP, N.O./N.C. selectable   | M12 quick-disconnect | Diagram 2 | 1        |
| <b>UT5L-G7-1E</b> | \$346.00 |  | 0-10 VDC analog output, PNP, N.O./N.C. selectable | M12 quick-disconnect | Diagram 2 | 1        |

## Wiring Diagrams

Diagram 1

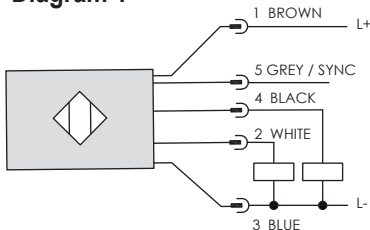
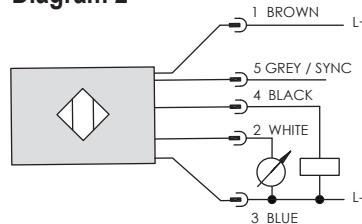
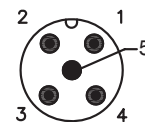


Diagram 2



Connector

M12 connector

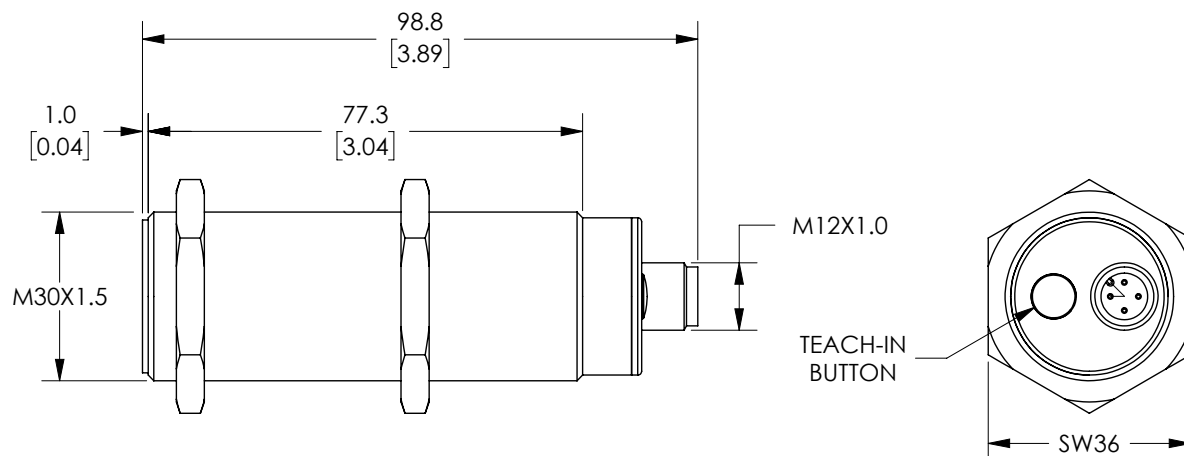


# UT Series Ultrasonic Sensors

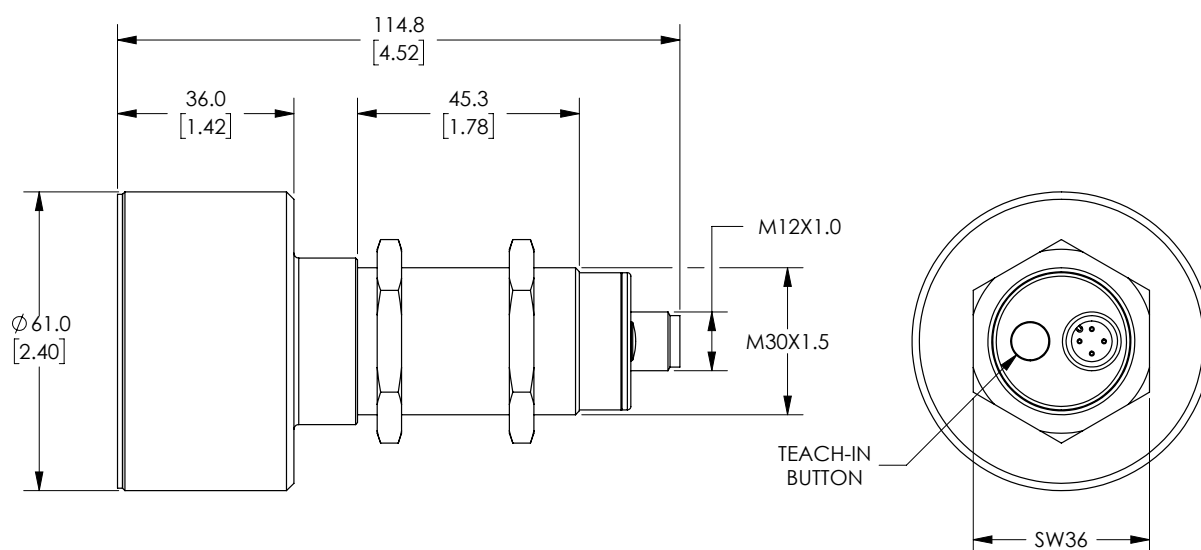
## Dimensions

mm [inches]

### UT1B Series Metal M12 Quick Disconnect



### UT5L Series Metal M12 Quick Disconnect



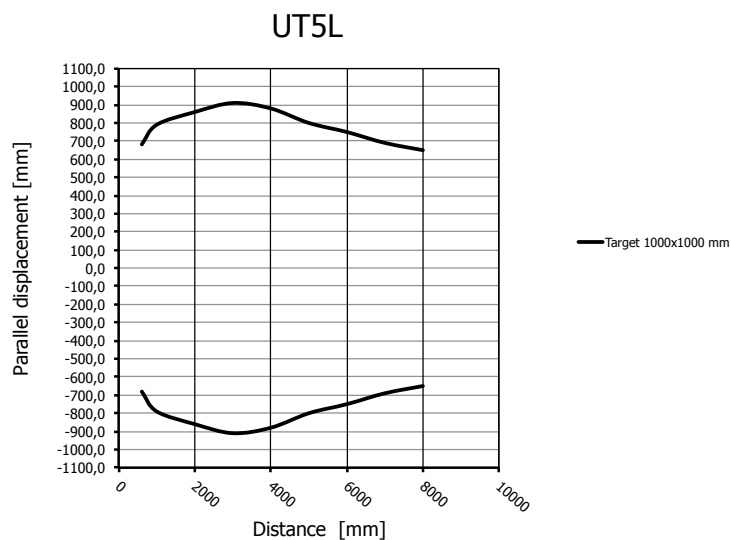
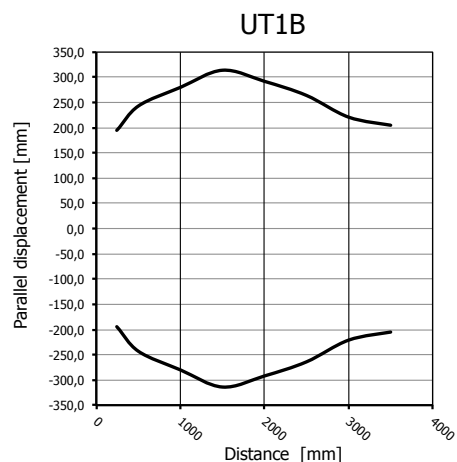
# UT Series Ultrasonic Sensors

| Specifications                      |   |   |
|-------------------------------------|---|---|
| Model                               | UT1B  | UT5L  |
| Nominal Sensing Distance            | 250 to 3500 mm<br>[9.84 to 137.80 in]   | 600 to 8000 mm<br>[23.62 to 314.96 in]  |
| Operating Distance (Sensing Range)  | 250 to 3500 mm<br>[9.84 to 137.80 in]   | 600 to 8000 mm<br>[23.62 to 314.96 in]  |
| Output Type                         | See "Output State" column in selection chart                                  | See "Output State" column in selection chart                                  |
| Operating Voltage                   | 10-30 VDC   | 10-30 VDC   |
| No-load Supply Current              | ≤ 25mA  | ≤ 5 0mA   |
| Operating (Load) Current            | 100mA   | 100mA   |
| Off-state (Leakage) Current         | 10μA @ 30VDC  | 10μA @ 30VDC  |
| Analog Output                       | Voltage: minimum load is 3kΩ<br>Current: maximum load is 500Ω at 24VDC supply | Voltage: minimum load is 3kΩ<br>Current: maximum load is 500Ω at 24VDC supply |
| Voltage Drop                        | 2.2 V max @ 100mA   | 2.2 V max @ 100mA   |
| Switching Frequency                 | 1Hz   | 1Hz   |
| Repeat Accuracy                     | 0.1%  | 1%  |
| Time Delay Before Availability (tv) | ≤ 400ms (digital out), ≤ 600ms (analog out)                                   | ≤ 400ms (digital out), ≤ 600ms (analog out)                                   |
| Reverse Polarity Protection         | Yes   | Yes   |
| Short-Circuit Protection            | Yes   | Yes   |
| Linearity Error                     | 0.5%  | 1%  |
| Ultrasonic Frequency                | 112kHz  | 60kHz   |
| Ultrasonic Beam Angle               | 12° ± 2°  | 10° ± 2°  |
| Max. Response Time (digital output) | 600ms   | 600ms   |
| Sensitivity Adjustment              | Yes, via teach-in button  | Yes, via teach-in button  |
| Input Voltage Transient Protection  | Yes   | Yes   |
| Operating Temperature               | -20 to +70°C [-4 to +158°F]   | -20 to +70°C [-4 to +158°F]   |
| Temperature Compensation            | Yes   | Yes   |
| Protection Degree                   | IEC IP67  | IEC IP67  |
| Indication/Switch Status            | Multi-function LED indicator  | Multi-function LED indicator  |
| Housing Material                    | 316L stainless steel  | 316L stainless steel  |
| Shock/Vibration                     | IEC 69047-5-2/7.4   | IEC 69047-5-2/7.4   |
| Tightening Torque                   | 100 N•m [73.7 lb•ft]  | 100 N•m [73.7 lb•ft]  |
| Weight                              | 150g [5.29 oz] (plug exit)  | 350g [12.35 oz] (plug exit)   |
| Connection                          | M12 [12mm] connector  | M12 [12mm] connector  |
| Agency Approvals                    | CE, cULus file E187310  | CE, cULus file E187310, RoHS  |

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

# UT Series Ultrasonic Sensors

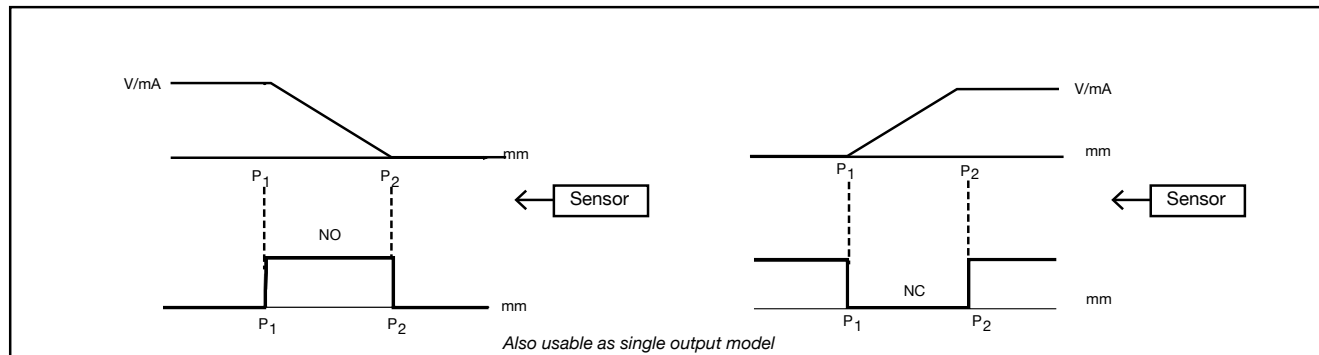
## Characteristic Curves



## Functions

### Models with digital output + analog output

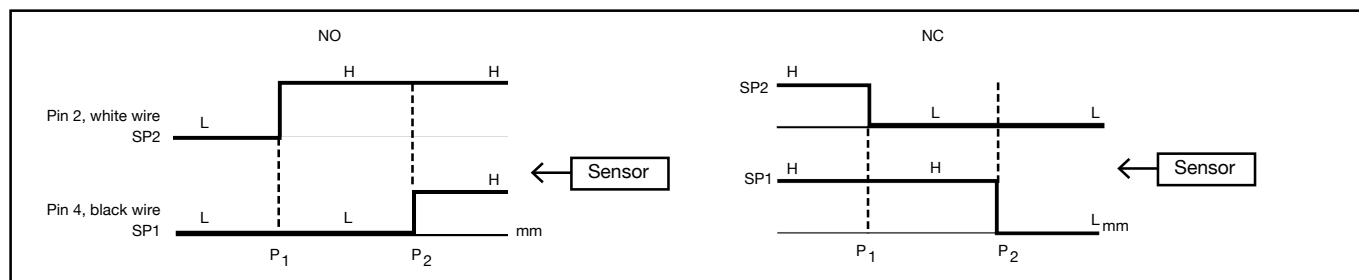
#1



**Note:** P<sub>1</sub> maximum selected working distance and first point to select  
P<sub>2</sub> minimum selected working distance and second point to select

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

#2



# Accessories for 30mm Sensors

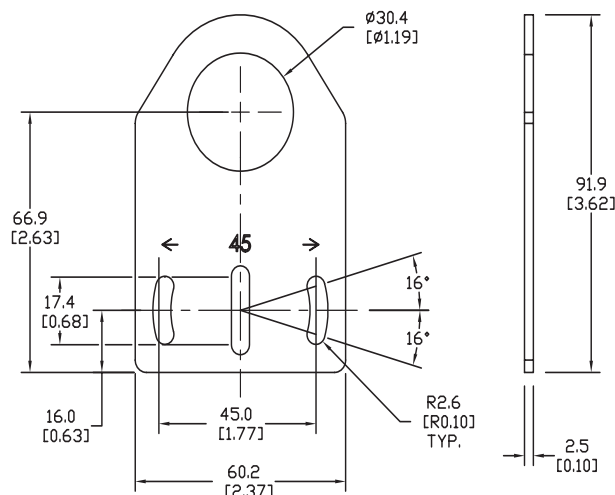
## Axial Mounting Bracket

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 [g] |
| <b>ST30A</b>                 | \$2.25 | Micro Detectors mounting bracket, axial, zinc plated steel. For use with 30mm sensors. | 0.18 [81.7]   |

### Dimensions

mm [inches]



**ST30A**

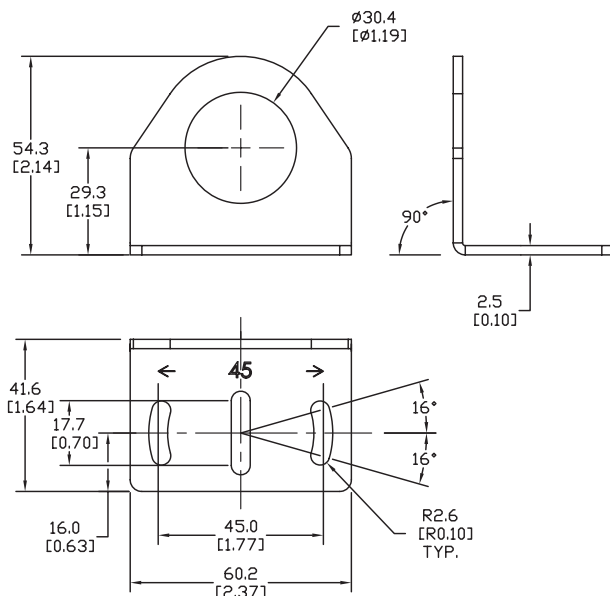
## Right-angle Mounting Bracket

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 [g] |
| <b>ST30C</b>                 | \$2.25 | Micro Detectors mounting bracket, right-angle, zinc plated steel. For use with 30mm sensors. | 0.18 [81.7]   |

### Dimensions

mm [inches]



**ST30C**

# Accessories for 30mm Sensors

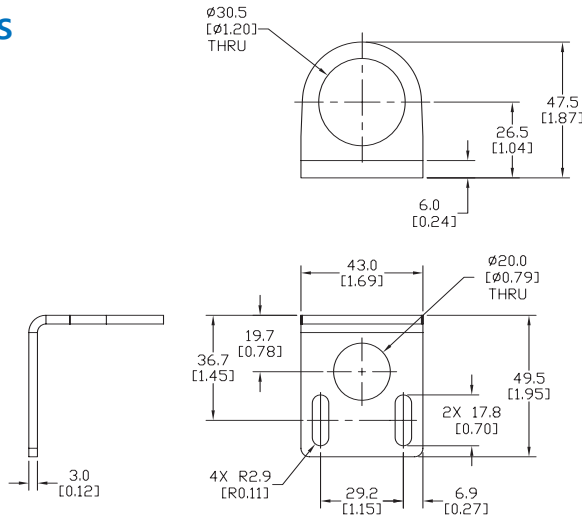
## Right-angle Mounting Bracket

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

| Accessories for FW Series Sensors |        |   |               |
|-----------------------------------|--------|---|---------------|
| Part Number                       | Price  | Description   | Weight lb [g] |
| <a href="#"><u>ST30C6W</u></a>    | \$5.50 | AutomationDirect mounting bracket, right-angle, 304 stainless steel. For use with 30mm sensors. | 0.15 (68.0)   |

## 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      | Drawing Link               | Weight lb [g] |
| <a href="#"><u>OPT2118</u></a> | \$11.50 | Wenglor mounting bracket, right-angle swivel, 360 degree vertical and horizontal adjustment, aluminum, 12mm rod mount. For use with 30mm sensors.            | Aluminum            | 304 Stainless steel | <a href="#"><u>PDF</u></a> | 0.18 [81.7]   |
| <a href="#"><u>OPT2119</u></a> | \$21.00 | Wenglor mounting bracket, right-angle swivel, 360 degree vertical and horizontal adjustment, 304 stainless steel, 12mm rod mount. For use with 30mm sensors. | 304 Stainless Steel | 304 Stainless steel | <a href="#"><u>PDF</u></a> | 0.18 [81.7]   |

Note: 304 Stainless steel mounting rods sold separately: [OPT2109](#) (200mm [7.87 in] length), [OPT2110](#) (300mm [11.81 in] length), and [OPT2111](#) (500mm [19.69 in] length).



[OPT2118, OPT2119](#)

# Mounting Rods and Brackets

## 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   | Drawing Link        | Weight lb (g)    |
| <a href="#">OPT2109</a>                                 | \$13.00 | Wenglor mounting rod, 12mm diameter, 200mm length, 304 stainless steel. | <a href="#">PDF</a> | 0.41<br>[185.97] |
| <a href="#">OPT2110</a>                                 | \$16.00 | Wenglor mounting rod, 12mm diameter, 300mm length, 304 stainless steel. | <a href="#">PDF</a> | 0.60<br>[272.16] |
| <a href="#">OPT2111</a>                                 | \$21.00 | Wenglor mounting rod, 12mm diameter, 500mm length, 304 stainless steel. | <a href="#">PDF</a> | 0.98<br>[444.52] |



## Right-angle Mounting Bracket

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

| Right-angle Mounting Brackets for 12mm Sensors |         |   |                     |                |
|--|---------|---|---------------------|----------------|
| Part Number                                    | Price   | Description   | Drawing Link        | Weight lb [g]  |
| <a href="#">OPT2108</a>                        | \$16.00 | Wenglor mounting bracket, right-angle, nickel-plated brass. For use with 12mm mounting rods OPT2109, OPT2110 & OPT2111. | <a href="#">PDF</a> | 0.07<br>[31.8] |

