# SU Series Ultrasonic Sensors

## M18 (18mm) Plastic – PNP or Analog Output

- High resolution
- 2 analog models available
- Complete overload protection

- IP67 rated
- Purchase cable separately (for quick-disconnect model)

NEED CABLES?

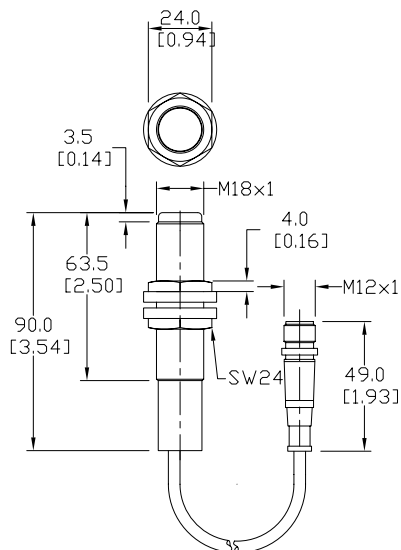| SU Series Ultrasonic Analog Output Sensor Selection Chart | | | | | |
|---|---|---|---|---|---|
| *Part Number* | *Price* | *Sensing Range* | *Output* | *Connection* | *Wiring* |
| SU1-B1-0E | $-008ul: | 100 to 600 mm [3.94-23.62 in] | 0-10 VDC | M12 [12mm] connector | Diagram 2 |
| SU2-A1-0E | $;-008ti: | 200 to 1500 mm [7.87-59.06 in] | 0-10 VDC | M12 [12mm] connector | Diagram 2 |

| Specifications | | |
|---|---|---|
| *Mounting Type* | *SU1-B1-0E* | *SU2-A1-0E* |
| Nominal Sensing Distance | 100 to 600 mm [3.94-23.62 in] | 200 to 1500 mm [7.87-59.06 in] |
| Operating Distance | N/A | |
| Output Type | 0-10VDC | |
| Operating Voltage | 18-30VDC | |
| No-load Supply Current | ≤ 35 mA | |
| Operating (Load) Current | ≤ 5 mA | |
| Off-state (Leakage) Current | ≤ 10 µA | |
| Voltage Drop | - | - |
| Switching Frequency | NA | |
| Differential Travel | - | - |
| Repeat Accuracy | ±2 mm | |
| Time Delay Before Availability (tv) | ≤ 500ms | |
| Reverse Polarity Protection | Yes | |
| Short-Circuit Protection | Yes (switch auto-resets after overload is removed) | |
| Linearity Error | ≤ 0.3% | |
| Ultrasonic Frequency | 300kHz | 180kHz |
| Ultrasonic Beam Angle | 8° | |
| Max. Response Time | 50ms | 150ms |
| Control Input | Hold / Sync | |
| Sensitivity Adjustment | - | |
| Input Voltage Transient Protection | Yes, only if transient peak does not exceed 30 VDC | |
| Operating Temperature | -25 to +70°C [-13 to 158°F] | |
| Temperature Compensation | Yes | |
| Protection Degree | IEC IP67 | |
| Indication/Switch Status | - | |
| Housing Material | Polybutylene Terephthalate [PBT] | |
| Shock/Vibration | See Proximity Sensor Terminology | |
| Tightening Torque | 3 Nm [2.21 lb-ft] | |
| Weight | 38g [1.34 oz] | |
| Connection | M12 [12 mm] connector | |
| Agency Approvals | CE, UL listed file E187310 | |

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

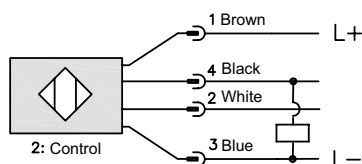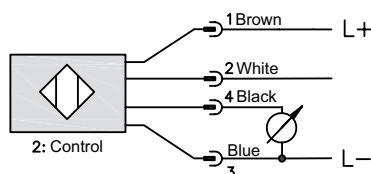# SU Series Ultrasonic Sensors

## Dimensions

mm [inches]

24.0 [0.94]

3.5 [0.14]

M18×1

4.0 [0.16]

63.5 [2.50]

M12×1

90.0 [3.54]

49.0 [1.93]

SW24

## Wiring Diagrams

**Diagram 1***

1 Brown — L+
4 Black
2 White
3 Blue — L−

2: Control

**Diagram 2***

1 Brown — L+
2 White
4 Black
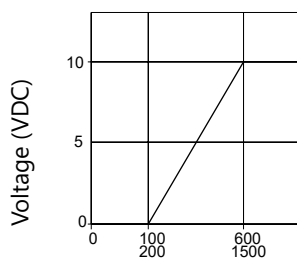Blue — L−
3

2: Control

**Connector**
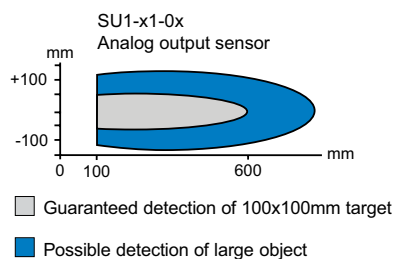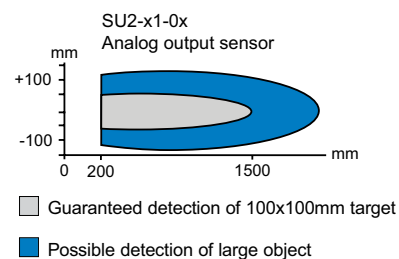
2  1
3  4

*Must be used with 2M or 7M cable (4-wire)*

*Note: Control wire can be used to inhibit sensor or to synchronize with another sensor.*

## Characteristic Curves

**Analog Output**

Voltage (VDC)

10
5
0

0   100   600
    200   1500

Distance (mm)

**Detection Area
SU1 Analog output**

SU1-x1-0x
Analog output sensor

mm
+100
-100

0  100        600    mm

☐ Guaranteed detection of 100x100mm target

■ Possible detection of large object

**Detection Area
SU2 Analog output**

SU2-x1-0x
Analog output sensor

mm
+100
-100

0  200        1500   mm

☐ Guaranteed detection of 100x100mm target

■ Possible detection of large object

# Accessories for 18mm Sensors

## Axial Mounting Bracket

Axial mounting bracket available in zinc plated steel or 316L stainless steel. Has two mounting holes (use 4mm screws) and allows for rotation of an optical axis for right-beam-angle-adapter sensors. Hexagonal nuts not included. For use with 18mm sensors.
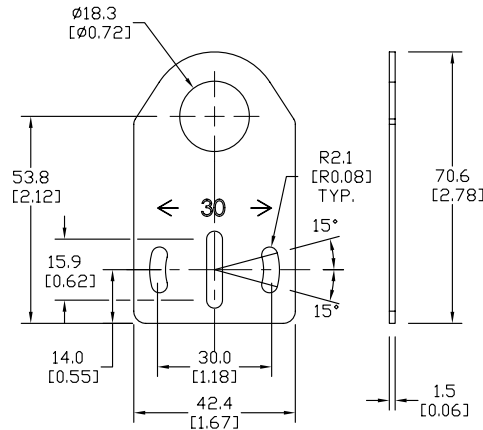


**ST18A**

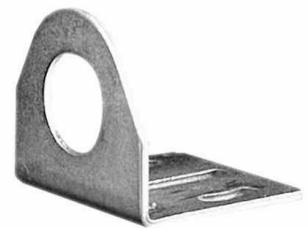| Accessories for 18mm Sensors | | | |
|---|---|---|---|
| **Part Number** | **Price** | **Description** | **Weight lb [g]** |
| ST18A | $;97,: | Micro Detectors mounting bracket, axial, zinc plated steel. For use with 18mm sensors. | 0.06 [27.2] |
| ST18A7W | $980: | Micro Detectors mounting bracket, axial, 316L stainless steel. For use with 18mm sensors. | 0.06 [27.2] |

## Dimensions

mm [inches]



## Right-angle Mounting Bracket

Right-angle mounting bracket for use with 18mm sensors. Has two mounting holes (use 4mm screws) and allows the rotation of an optical axis for axial sensors. Hexagonal nuts not included.
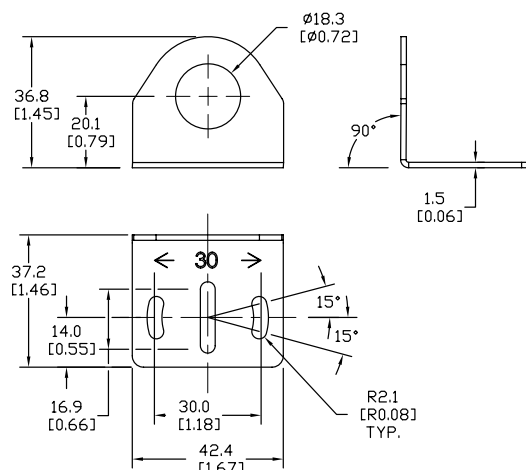


**ST18C**

| Accessories for 18mm Sensors | | | |
|---|---|---|---|
| **Part Number** | **Price** | **Description** | **Weight lb [g]** |
| ST18C | $981: | Micro Detectors mounting bracket, right-angle, zinc plated steel. For use with 18mm sensors. | 0.06 [27.2] |
| ST18C7W | $982: | Micro Detectors mounting bracket, right-angle, 316L stainless steel. For use with 18mm sensors. | 0.06 [27.2] |

## Dimensions

mm [inches]

# Accessories for 18mm Sensors

## Right-angle Mounting Brackets

Mounting bracket, right-angle, fixed insertion stop adjustment, plastic. For use with 18mm sensors. Available with or without fixed insertion stop.



**OPT2104, OPT2105**

| Accessories for 18mm Sensors | | | | |
|---|---|---|---|---|
| Part Number | Price | Description | Drawing Link | Weight lb [g] |
| OPT2104 | $;-1nlt: | Wenglor mounting bracket, right-angle, fixed insertion stop adjustment, plastic. For use with 18mm sensors. | PDF | 0.06 [27.2] |
| OPT2105 | $-1nlu: | Wenglor mounting bracket, right-angle, plastic. For use with 18mm sensors. | PDF | 0.06 [27.2] |

## Right-angle Swivel Mounting Systems

Mounting bracket, right-angle swivel, 360 degree vertical and horizontal adjustment, 12mm rod mount. For use with 18mm sensors. Available in all 304 stainless steel or with an aluminum head and a stainless steel mounting plate.



**OPT2116, OPT2117**

| Accessories for 18mm Sensors | | | | | |
|---|---|---|---|---|---|
| Part Number | Price | Description | Mounting Head | Mounting Plate | Drawing Link | Weight lb [g] |
| OPT2116 | $-1nl#: | Wenglor mounting bracket, right-angle swivel, 360 degree vertical and horizontal adjustment, aluminum, 12mm rod mount. For use with 18mm sensors. | Aluminum | 304 Stainless steel | PDF | 0.15 [68.0] |
| OPT2117 | $;-1nl!: | Wenglor mounting bracket, right-angle swivel, 360 degree vertical and horizontal adjustment, 304 stainless steel, 12mm rod mount. For use with 18mm sensors. | 304 Stainless steel | 304 Stainless steel | PDF | 0.28 [127.0] |

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).

# 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) |
| OPT2109 | $1nn9: | Wenglor mounting rod, 12mm diameter, 200mm length, 304 stainless steel. | PDF | 0.41 [185.97] |
| OPT2110 | $1nna: | Wenglor mounting rod, 12mm diameter, 300mm length, 304 stainless steel. | PDF | 0.60 [272.16] |
| OPT2111 | $1nnb: | Wenglor mounting rod, 12mm diameter, 500mm length, 304 stainless steel. | PDF | 0.98 [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] |
| OPT2108 | $-1nly: | Wenglor mounting bracket, right-angle, nickel-plated brass. For use with 12mm mounting rods OPT2109, OPT2110 & OPT2111. | PDF | 0.07 [31.8] |