

# MQ Series Photoelectric Sensors



## M18 (18mm) Plastic - AC

The MQ series is an AC diffuse photoelectric with a unique 90° optic package for mounting in space-limited applications. This series fits in a standard 18 mm mounting bracket or mounting hole, and is available in a choice of 20-250 VAC outputs in N.O. or N.C. configurations with an M12 disconnect. All MQ models include background suppression with maximum available sensing distances of 50mm or 100mm.

## Features

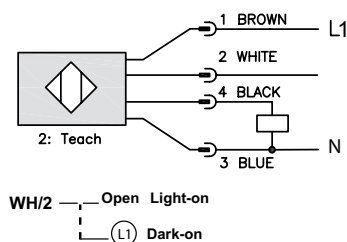
- Diffuse with background suppression
- Models with 50mm or 100mm maximum reading distance
- M12 plug connection
- Plastic housing
- Supply voltage 20 - 253 VAC
- LED output status indicator
- Light-on / Dark-on selectable
- IP67 housing protection



### 18mm AC Photoelectric Reflection Sensors with Background Suppression Selection Chart

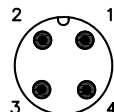
| Part Number      | Price   | Voltage Range | Sensing Range      | Switching Frequency | Sensing Beam | Through-Beam Component              | Output Type                         | Connection Type                                     |
|------------------|---------|---------------|--------------------|---------------------|--------------|-------------------------------------|-------------------------------------|-----------------------------------------------------|
| <b>MQ0-00-0E</b> | \$69.00 | 20 to 253 VAC | 50mm<br>[1.96 in]  | 25 Hz               | Infrared     | N.O./N.C.<br>background suppression | TRIAC Light-on / Dark-on selectable | M12 quick-disconnect<br>(purchase cable separately) |
| <b>MQ1-00-0E</b> | \$69.00 |               | 100mm<br>[3.93 in] |                     |              |                                     | TRIAC Light-on / Dark-on selectable | M12 quick-disconnect<br>(purchase cable separately) |

## Wiring Diagram



### Connector

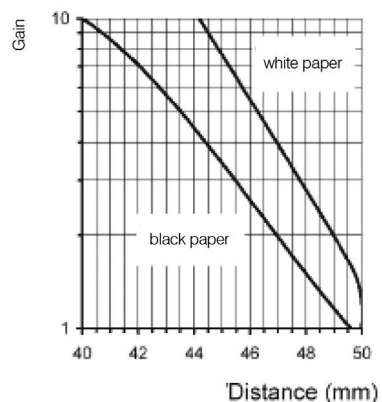
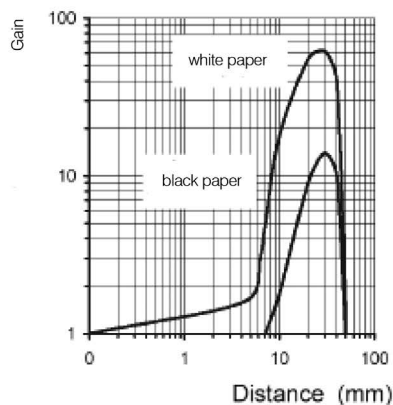
#### M12 Connector



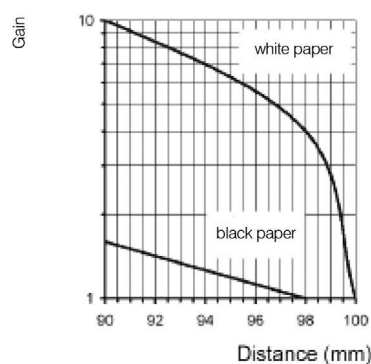
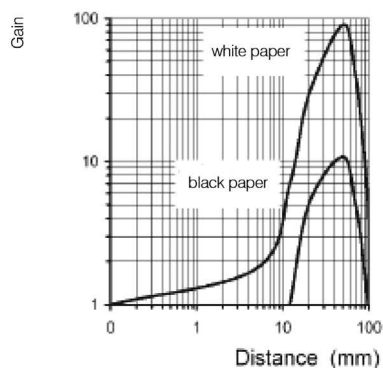
|             |          |
|-------------|----------|
| <b>N.O.</b> | Light-on |
| <b>N.C.</b> | Dark-on  |

## Characteristic Curves

### MQ0-00-0E



### MQ1-00-0E



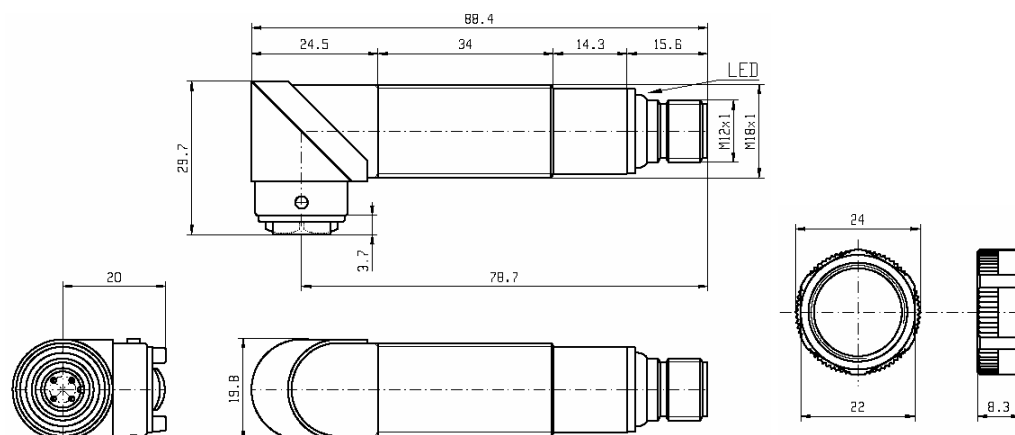
# MQ Series Photoelectric Sensors

| MQ Series Photoelectric Sensors Specifications |                                                            |
|------------------------------------------------|------------------------------------------------------------|
| Type                                           | 18mm Diffuse with Background Suppression, 90° Radial Optic |
| Model Series                                   | MQ0/MQ1                                                    |
| Sensing Distance                               | 50mm / 100mm                                               |
| LightSpot Diameter                             | 0.6 mm @ 50mm / 0.9 mm @ 100mm                             |
| Emission                                       | Infrared (C880nm)                                          |
| Sensitivity                                    | Fixed                                                      |
| Output Types                                   | TRIAC                                                      |
| Operating Voltage                              | 20 - 253 VAC                                               |
| No Load Supply Current                         | 40mA                                                       |
| Operating (Load) Current                       | < 300mA                                                    |
| Off-state (Leakage) Current (max)              | m1.5 mA @ 250 VAC                                          |
| Voltage Drop                                   | 3V @ 300mA                                                 |
| Switching Frequency                            | 25 Hz                                                      |
| Ripple                                         | <10%                                                       |
| Time Delay Before Availability (tv)            | 200ms                                                      |
| Short-circuit Protection                       | Yes                                                        |
| Operating Temperature                          | -13 to 158°F [-25 to 70°C]                                 |
| Protection Degree (DIN 40050)                  | IP67                                                       |
| LED Indicators - Switching Status              | Yellow Output State                                        |
| Housing Material                               | Polybutylene Terephthalate (PBT)                           |
| Lens Material                                  | Polymethyl methacrylate (PMMA)                             |
| Shock/Vibration                                | <a href="#">See terminology section</a>                    |
| Tightening Torque                              | 1 N•m [0.74 lb-ft]                                         |
| Weight                                         | 34.473 g [1.216 oz]                                        |
| Connectors                                     | M12 quick-disconnect                                       |
| Agency Approvals                               | UL Recognized E130644, CE                                  |

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

## Dimensions

(mm)



**Warning:** These products are not safety sensors and are not suitable for use in personal safety applications.

# 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-adaptor sensors. Hexagonal nuts not included. For use with 18mm sensors.

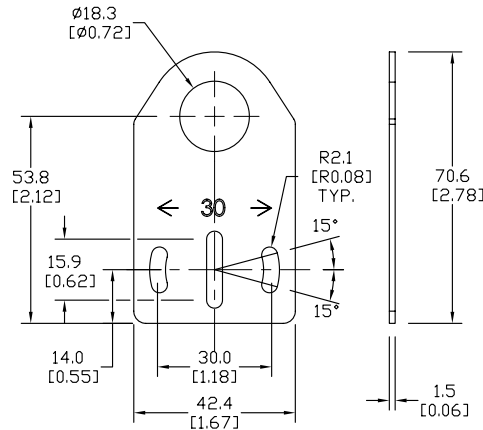
| Accessories for 18mm Sensors |        |                                                                                           |                  |
|------------------------------|--------|-------------------------------------------------------------------------------------------|------------------|
| Part Number                  | Price  | Description                                                                               | Weight<br>lb [g] |
| <b>ST18A</b>                 | \$2.00 | Micro Detectors mounting bracket, axial, zinc plated steel. For use with 18mm sensors.    | 0.06 [27.2]      |
| <b>ST18A7W</b>               | \$7.25 | Micro Detectors mounting bracket, axial, 316L stainless steel. For use with 18mm sensors. | 0.06 [27.2]      |



**ST18A**

## Dimensions

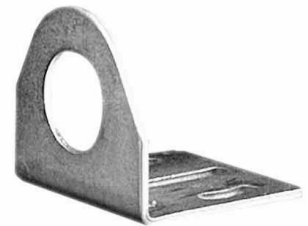
mm [inches]



## 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.

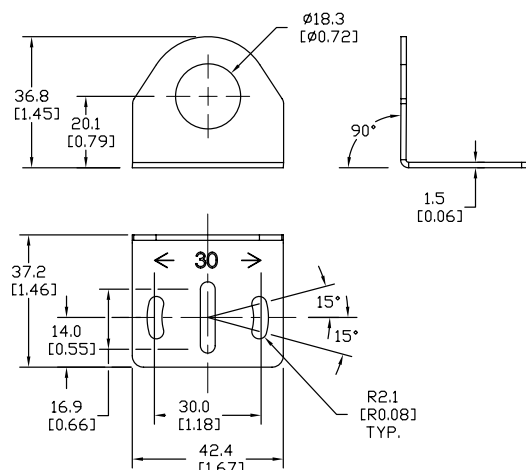
| Accessories for 18mm Sensors |        |                                                                                                 |                  |
|------------------------------|--------|-------------------------------------------------------------------------------------------------|------------------|
| Part Number                  | Price  | Description                                                                                     | Weight<br>lb [g] |
| <b>ST18C</b>                 | \$2.00 | Micro Detectors mounting bracket, right-angle, zinc plated steel. For use with 18mm sensors.    | 0.06 [27.2]      |
| <b>ST18C7W</b>               | \$7.25 | Micro Detectors mounting bracket, right-angle, 316L stainless steel. For use with 18mm sensors. | 0.06 [27.2]      |



**ST18C**

## Dimensions

mm [inches]



# Accessories for 18mm Sensors

## Right-angle Fine Tune Mounting Bracket

Mounting bracket, right-angle, fine tune vertical and horizontal adjustment, nickel-plated steel. For use with 18mm sensors. Allows for fine tuning vertical and horizontal placement.

| Accessories for 18mm Sensors |         |                                                                                                                                      |                     |             |
|------------------------------|---------|--------------------------------------------------------------------------------------------------------------------------------------|---------------------|-------------|
| Part Number                  | Price   | Description                                                                                                                          | Drawing Link        | Weight [lb] |
| <b>OPT2036</b>               | \$38.50 | Wenglor mounting bracket, right-angle, fine tune vertical and horizontal adjustment, nickel plated steel. For use with 18mm sensors. | <a href="#">PDF</a> | 0.02        |

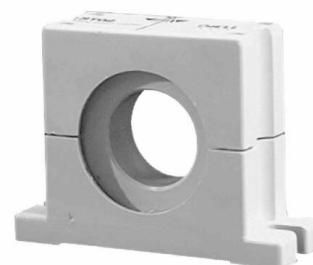


**OPT2036**

## Swivel Mounting Bracket

Mounting bracket, ball swivel, plastic. For use with 18mm sensors. Has a ball-joint and set screws to adjust sensor orientation. Allows angular orientation up to 15 degrees (from center) in all directions for photoelectric sensors (Will not work with C18 series).

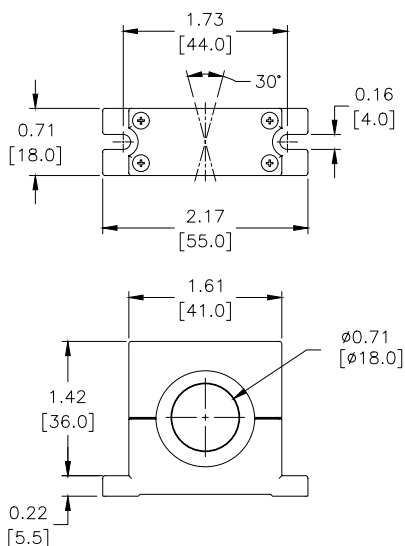
| Accessories for 18mm Sensors |        |                                                                                    |             |
|------------------------------|--------|------------------------------------------------------------------------------------|-------------|
| Part Number                  | Price  | Description                                                                        | Weight [lb] |
| <b>ST02</b>                  | \$9.50 | Micro Detectors mounting bracket, ball swivel, plastic. For use with 18mm sensors. | 0.06        |



**ST02**

## 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.

| Accessories for 18mm Sensors |         |                                                                                                             |                     |               |
|------------------------------|---------|-------------------------------------------------------------------------------------------------------------|---------------------|---------------|
| Part Number                  | Price   | Description                                                                                                 | Drawing Link        | Weight lb [g] |
| <a href="#">OPT2104</a>      | \$10.50 | Wenglor mounting bracket, right-angle, fixed insertion stop adjustment, plastic. For use with 18mm sensors. | <a href="#">PDF</a> | 0.06 [27.2]   |
| <a href="#">OPT2105</a>      | \$10.50 | Wenglor mounting bracket, right-angle, plastic. For use with 18mm sensors.                                  | <a href="#">PDF</a> | 0.06 [27.2]   |



[OPT2104](#), [OPT2105](#)

## 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.

| Accessories for 18mm Sensors |         |                                                                                                                                                              |                     |                     |                     |               |
|------------------------------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|---------------------|---------------------|---------------|
| Part Number                  | Price   | Description                                                                                                                                                  | Mounting Head       | Mounting Plate      | Drawing Link        | Weight lb [g] |
| <a href="#">OPT2116</a>      | \$11.50 | 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 | <a href="#">PDF</a> | 0.15 [68.0]   |
| <a href="#">OPT2117</a>      | \$21.00 | 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 | <a href="#">PDF</a> | 0.28 [127.0]  |



[OPT2116](#), [OPT2117](#)

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)    |
| <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] |

