

# UHZ Series Ultrasonic Sensors



Measuring only 30 mm x 20 mm, these miniature sensors are specifically designed for applications with limited mounting space. Thru-beam pair sensors are often the most accurate and reliable sensor configurations, but can also be the most costly when compared to traditional diffuse or retro-reflective sensors. The low price of a UHZ series thru-beam pair allows it to be a competitive alternative to similarly priced but less accurate sensors.

Ultrasonic sensors (rectangular) are ideal for detecting objects in applications where the use of a normal photocell does not, such as:

- level measurement: for tanks containing solid or liquid
- diameter or loop detection: for materials such as paper, sheet iron, etc.
- transparent object detection: for plastic or glass bottles, plastic filters, etc.

## Overview

The principle of ultrasonic sensors is based on the emission of a sound impulse and the measurement of the time elapsing of the return echo signal reflected by the detected object. The ultrasonic beam is well reflected by almost all materials (metal, wood, plastic, glass, liquid, etc.) and is not affected by colored, transparent, or shiny objects.

This allows the user to standardize on one sensor for many materials without any extra setup or sensing concerns.



Ultrasonic Thru-Beam Sensors Specifications	
Specifications	UHZ
<b>Nominal Sensing Distance</b>	300 mm (11.81 in)
<b>Operating Distance</b>	N/A
<b>Output Type</b>	PNP/NPN, NO/ NC
<b>Operating Voltage</b>	18 - 30 VDC
<b>No Load Supply Current</b>	< 40 mA
<b>Operating (Load) Current</b>	500 mA
<b>Off-state (Leakage) Current</b>	<10 $\mu$ A @ 30 VDC
<b>Voltage Drop</b>	N/A
<b>Switching Frequency</b>	150 Hz
<b>Sensing Beam</b>	Beam angle 15°
<b>Differential Travel (% of Nominal Distance)</b>	N/A
<b>Repeat Accuracy</b>	N/A
<b>Ripple</b>	N/A
<b>Time Delay Before Availability (tv)</b>	N/A
<b>Response Time</b>	1 ms
<b>Reverse Polarity Protection</b>	Yes
<b>Short-Circuit Protection</b>	Output short circuit and overcurrent protection, reverse polarity protection
<b>Operating Temperature</b>	5°F to 140°F (-15°C to +60°C)
<b>Protection Degree</b>	IEC-IP67
<b>Indication/Switch Status</b>	Yellow Output State
<b>Case Material</b>	PBTP
<b>Active Head Material</b>	Ceramic
<b>Shock/Vibration</b>	per IEC EN 60947-5-2
<b>Tightening Torque</b>	N/A
<b>Weight</b>	161 g (5.68 oz)
<b>Connection</b>	2m (6.5') axial cable
<b>Agency Approvals</b>	CE

# UHZ Series Ultrasonic Sensors

The UHZ series of miniature ultrasonic sensors includes four models of rectangular thru-beam units. These tiny 20 mm x 30 mm sensors have a maximum sensing distance of 300 mm, with no dead zone at close range. This enables object sensing at a variety of distances. All models have an LED indicator on the receiver and are IP67 protection rated.

With two pre-drilled mounting holes, the UHZ units can be surface mounted more easily than traditional 18 mm or 30 mm threaded tubular designs, which often require a separate mounting bracket or a large mounting hole and additional lock-nuts.

## Features

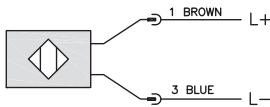
- 30x20x12 mm emitter/receiver rectangular ultrasonic sensor
- LED status indicator for all models
- Complete protection against electrical damage
- IP67 protection
- Strong plastic housing
- Switching frequency 150 Hz
- Sensing distance (sn): 300mm
- Beam angle: 15°
- Supply voltage: 18 - 30 VDC
- NPN or PNP, NO or NC models
- Lifetime warranty

Rectangular Ultrasonic Thru-Beam Sensors Selection Chart

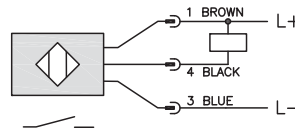
Part Number	Price	Voltage Range	Sensing Range	Switching Frequency	Sensing Beam	Thru-Beam Component	Output Type	Connection Type	Wiring
UHZ-AN-0A	<-->	18 - 30 VDC	11.81 in. (0.3 m)	150 Hz	ultrasonic	pair	NPN /N.O.	2 meter cable	Diagram 1
UHZ-AP-0A	<-->					pair	PNP / N.O.		Diagram 2
UHZ-CN-0A	<-->					pair	NPN /N.C.		Diagram 3
UHZ-CP-0A	<-->					pair	PNP / N.C.		Diagram 4

## Wiring Diagram

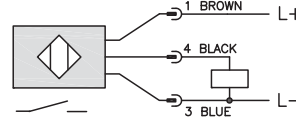
### Emitter



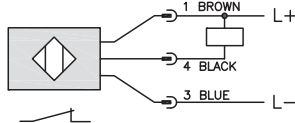
### Receiver (NPN) Diagram 1



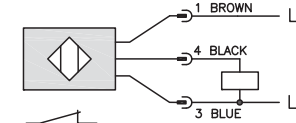
### Receiver (PNP) Diagram 2



### Receiver (NPN) Diagram 3

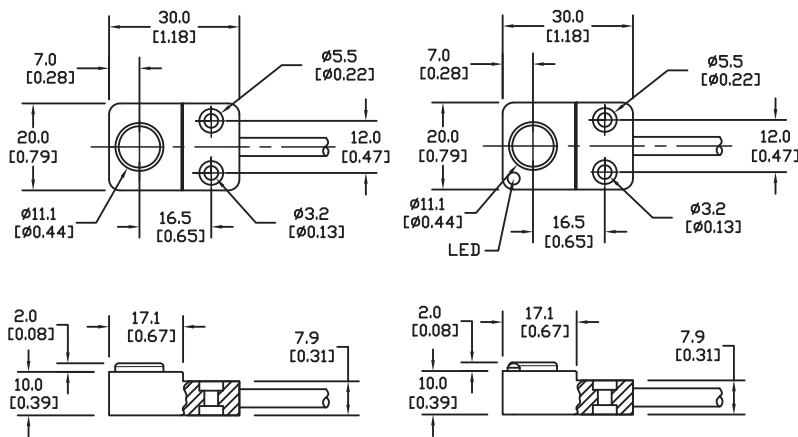


### Receiver (PNP) Diagram 4



## Dimensions

mm [inches]



EMITTER

RECEIVER

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

# Accessories: Adapter, Mounting Brackets

## ST12A axial bracket

For mounting M12 (12 mm) sensors. Has two mounting holes (use 3 mm screws) and allows the rotation of an optical axis for right-beam angle adapter sensors. Hexagonal nuts not included.



## ST12C right-angle bracket

Angular mounting bracket for use with M12 (12 mm) sensors. Has two mounting holes (use 3 mm screws) and allows the rotation of an optical axis for axial sensors. Hexagonal nuts not included.

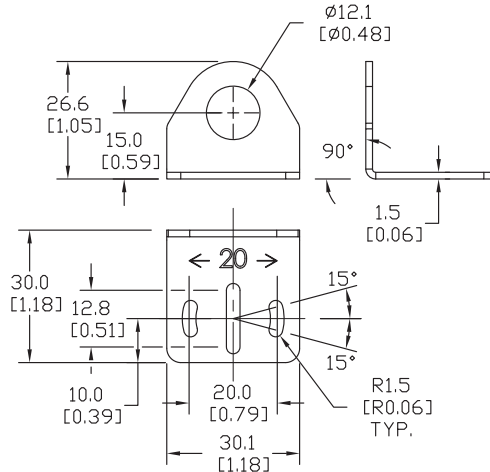
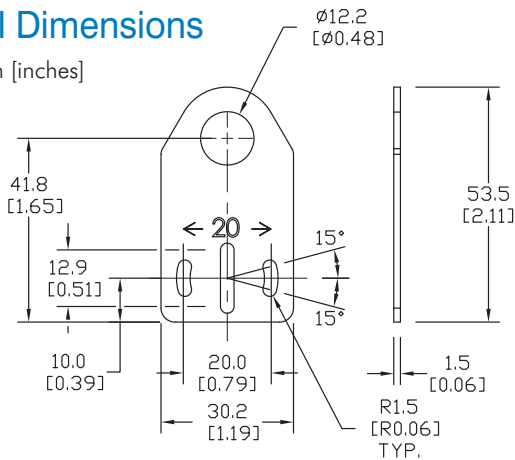


Brackets		
Part Number	Price	Description
ST12A	<-->	Metal axial bracket for 12 mm sensors, 1/pk
ST12A7W	<-->	316L stainless steel axial bracket for 12 mm sensors, 1/pk

Brackets		
Part Number	Price	Description
ST12C	<-->	Metal right angle bracket for 12 mm sensors, 1/pk
ST12C7W	<-->	316L stainless steel right angle bracket for 12 mm sensors, 1/pk

### All Dimensions

mm [inches]



## ST18A axial bracket

Mounting bracket for M18 (18 mm) sensors. Has two mounting holes (use 4 mm screws) and allows the rotation of an optical axis for right-beam-angle-adapter sensors. Hexagonal nuts not included.



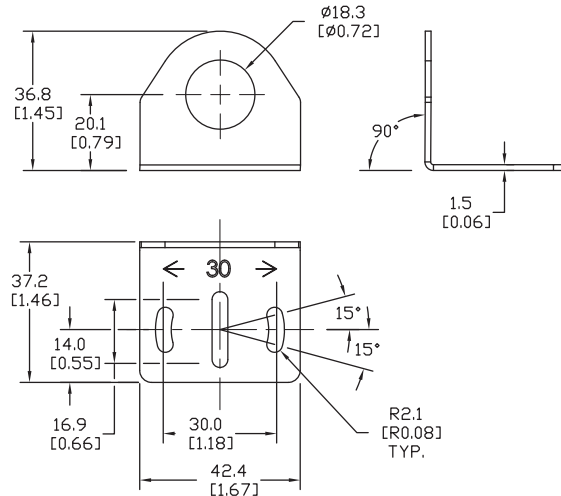
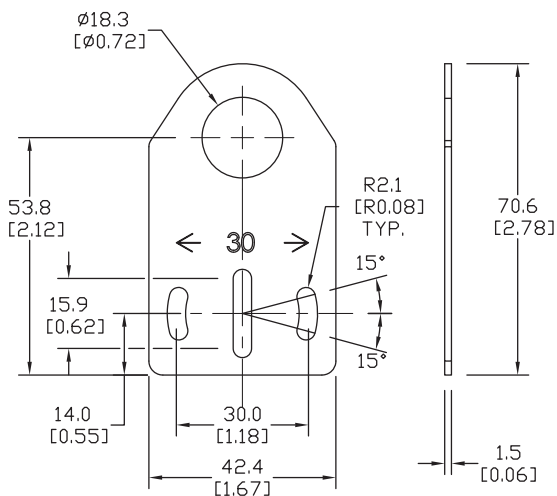
## ST18C right-angle bracket

Angular mounting bracket for M18 (18 mm) sensors. Has two mounting holes (use 4 mm screws) and allows the rotation of an optical axis for axial sensors. Hexagonal nuts not included.



Brackets		
Part Number	Price	Description
ST18A	<-->	Metal axial bracket for 18 mm sensors, 1/pk
ST18A7W	<-->	316L stainless steel axial bracket for 18 mm sensors, 1/pk

Brackets		
Part Number	Price	Description
ST18C	<-->	Metal right angle bracket for 18 mm sensors, 1/pk
ST18C7W	<-->	316L stainless steel right angle bracket for 18 mm sensors, 1/pk



# Accessories: Mounting Brackets

## ST30A axial bracket

Mounting M30 (30 mm) sensors. Has two mounting holes (use 5 mm screws) and allows the rotation of an optical axis for right-beam-angle-adaptor sensors. Hexagonal nuts not included.



Brackets		
Part Number	Price	Description
<b>ST30A</b>	<-->	Metal axial bracket for 30 mm sensors, 1/pk

## ST30C right-angle bracket

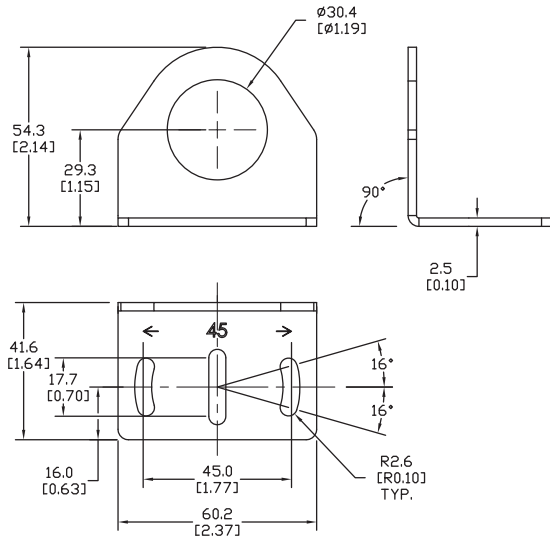
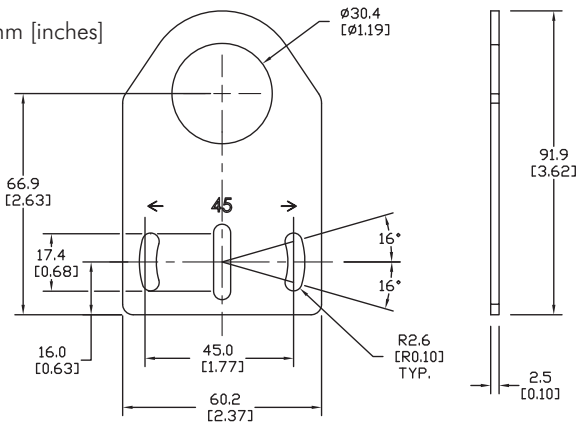
Angular mounting bracket for M30 (30 mm) sensors. Has two mounting holes (use 5 mm screws) and allows the rotation of an optical axis for axial sensors. Hexagonal nuts not included.



Brackets		
Part Number	Price	Description
<b>ST30C</b>	<-->	Metal right angle bracket for 30 mm sensors, 1/pk

## All Dimensions

mm [inches]



# We sell good proximity sensors at great prices – and we back them up!

## AutomationDirect Lifetime Warranty

### Registration required

For inductive proximity sensors sold to the Original User for the lifetime of the original application.

The following terms apply to the LIFETIME WARRANTY in addition to the General Terms:

1. This warranty is available only to AUTOMATIONDIRECT's authorized Value Added Resellers and to the Original User. In the event the ownership of the product is transferred to a person, firm, or corporation other than the Original User, this WARRANTY shall terminate.
2. This WARRANTY is applicable only to the original installation of the product. In the event the machinery, equipment, or production line to which the product is connected, or on which it is installed, is substituted, changed, moved or replaced, the WARRANTY shall terminate.
3. This WARRANTY shall be valid only if the product was purchased by the Original User from AUTOMATIONDIRECT, or from an authorized AUTOMATIONDIRECT Value Added Reseller, or was an integral part of a piece of machinery and equipment obtained by the Original User from an original equipment manufacturer, where the part was purchased by the original equipment manufacturer directly from AUTOMATIONDIRECT or from an authorized AUTOMATIONDIRECT Value Added Reseller.

### Purchaser's remedies

This remedy shall apply to all WARRANTIES. If an AUTOMATIONDIRECT Value Added Reseller desires to make a WARRANTY claim, the Value Added Reseller shall, if requested by AUTOMATIONDIRECT, ship the product to AUTOMATIONDIRECT's facility in Cumming, GA postage or freight prepaid. If the Original User desires to make a WARRANTY Claim, they shall notify the authorized Value Added Reseller from whom it was purchased or, if purchased directly from AUTOMATIONDIRECT, shall notify AUTOMATIONDIRECT and, if requested by AUTOMATIONDIRECT, ship the Product to AUTOMATIONDIRECT's facility in Cumming, GA postage or freight prepaid. AUTOMATIONDIRECT shall, at its option, take any of the following two courses of action for any products which AUTOMATIONDIRECT determines are defective in materials or workmanship.

1. Repair or replace the product and ship the product to the Original User or to the authorized AUTOMATIONDIRECT Value Added Reseller, postage or freight prepaid; or
2. Repay to the Original User that price paid by the Original User; provided that if the claim is made under the lifetime warranty, and such product is not then being supplied by AUTOMATIONDIRECT, then the amount to be repaid by AUTOMATIONDIRECT to the Original User shall be reduced according to the following schedule:

Number of Years Since Date of Purchase by Original User	Percent of Original Purchase Price To Be Paid by AutomationDirect
10	50 percent
15	25 percent
20	10 percent
More than 20	5 percent

**REMEDIES OF PURCHASER'S AND VALUE ADDED RESELLERS SHALL BE LIMITED EXCLUSIVELY TO THE RIGHT OF REPLACEMENT, REPAIR OR REPAYMENT AS PROVIDED ABOVE AND DOES NOT INCLUDE ANY LABOR COST OR REPLACEMENT AT ORIGINAL USER'S SITE. AUTOMATIONDIRECT.COM SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL DAMAGES RESULTING FROM ANY BREACH OF ANY WARRANTY, EXPRESSED OR IMPLIED, APPLICABLE TO THE PRODUCT, INCLUDING WITHOUT LIMITATION, ANY DAMAGES RESULTING FROM PROPERTY DAMAGE, PERSONAL INJURY OR BUSINESS INTERRUPTION, EVEN IF NOTIFIED OF THE POSSIBILITY OF SUCH DAMAGES.**

Inductive proximity sensors warranty form may be obtained online at:

<http://www.automationdirect.com/static/specs/proxwarranty.pdf>