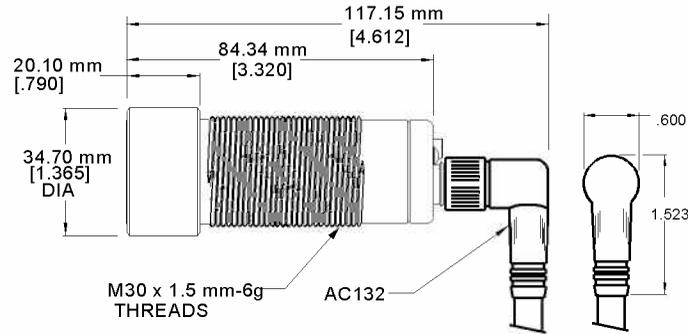


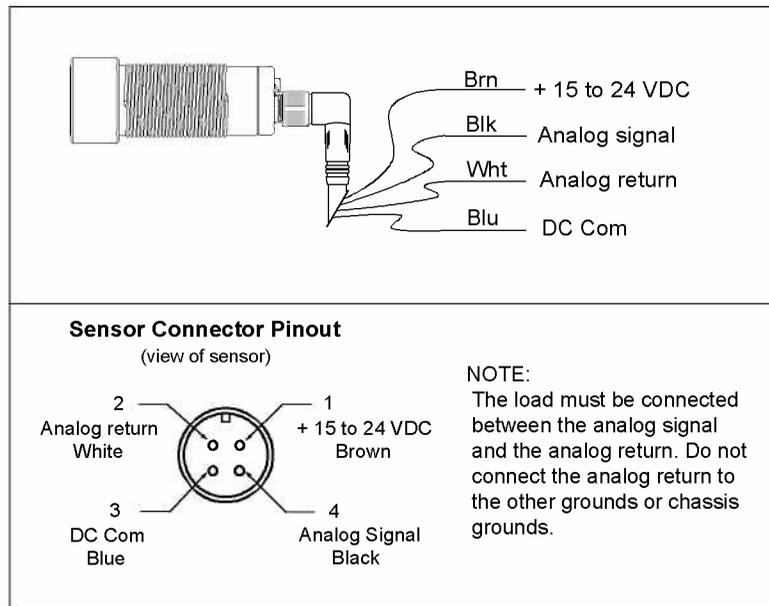
## Mounting and Wiring

Mount the sensor firmly so that the object to be detected is never within 51 mm (2.0 inches) of the face of the sensor. For best results the sensor face should be parallel to the object surface. Also the sensor should be away from air currents.

### Dimensions



### Wiring Connections



## Operation

The analog output varies inversely proportional with the object position relative to the analog span limits. When the object is at or closer than the near analog span limit and farther than the deadband, the analog output is at 4 mA and the amber LED is off. When the object is at or farther than the far analog span limit and within the sensing range, the analog output is at 20 mA and the amber LED is at full brightness.

### Multicolor LED States

The multicolor LED indicates the position of the object

| Multicolor Led | Object Position                   |
|----------------|-----------------------------------|
| Red            | At or closer than near span limit |
| Green          | Between near and far span limits  |
| Amber          | At or farther than far span limit |
| Off            | Object not being detected         |

### Amber LED

The amber LED intensity varies directly with the magnitude of the analog output, with off indicating the analog output is at 4 mA and full brightness indicating the analog output is at 20 mA.

### Loss of Echo Operation

On loss-of-echo, the multicolor LED is off and the output holds for the last known distance.

## Setting the Analog Span Limits

Depress the SETUP pushbutton (the multicolor LED rapidly flashes amber to indicate the pushbutton is pressed) until the multicolor LED flashes green (about 3 seconds), and then release the SETUP pushbutton. The multicolor LED continues flashing green indicating the sensor is waiting for the first limit. Align a flat object parallel to the sensor face at the desired distance position for either window limit, and press the SETUP pushbutton once. Upon release of the SETUP pushbutton, the multicolor LED flashes amber indicating the first limit is set and the sensor is waiting for the second limit. Align a flat object parallel to the sensor face at the desired position for the second window limit and press the SETUP pushbutton once. Upon release of the SETUP pushbutton, the multicolor LED turns to the color that indicates where the object is located. The sensor has no timeout for setting limits.

While the SETUP pushbutton is depressed, the multicolor LED turns amber to indicate the sensor detects the object. If the sensor does not detect the object, the multicolor LED is red while the SETUP pushbutton is depressed, and when the SETUP pushbutton is released after not detecting an object, the multicolor LED flashes red 2 seconds, and then requests that limit again by flashing green for the first limit or flashing amber for the second limit.

The limits are saved in nonvolatile memory and thus retained when power is removed from the sensor.

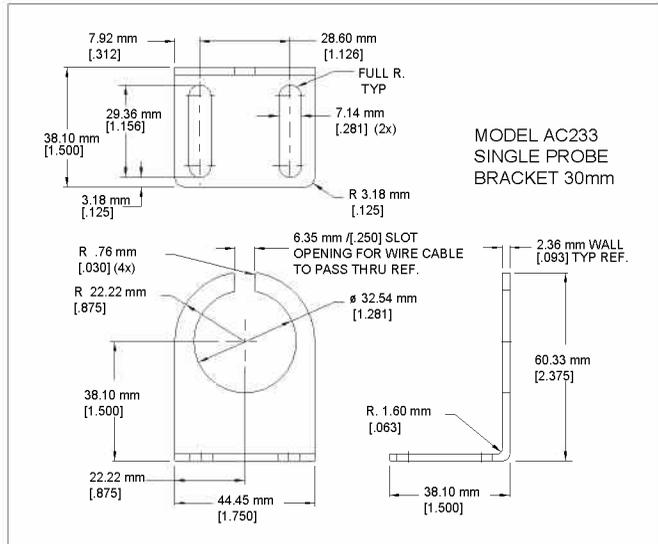
## Accessories

### Quick Connect Cables

Model: AC130 Straight, 4-conductor, 5 meters (16 feet)  
 Model: AC132 Right-angle, 4-conductor, 5 meters (16 feet)

### Mounting Brackets

MODEL AC233



## General Specifications

**Power Supply:** +15 to 24 VDC @ 80 mA, excluding load

**Analog Output:** 4-20 mA

**Response Time:** 100 milliseconds

**Loss-Echo Time:** Holds last known state on echo loss

**Power Up Output State:** 20 mA

**Operating Temperature:**

0°C to 50°C (32°F to 122°F) @ 100% relative humidity

**Sensing:**

Range: 51 to 991 mm (2.0 to 39.0 inches)

Limit Adjustment Resolution: 0.08 mm (0.003 inch)

Sensor Angle with respect to smooth flat surface: 90° ± 10°

Repeatability: ± 0.86 mm (0.034 inch) from smooth flat surface at constant air temperature

**Quick Disconnect Cables (Optional):**

AC130: Straight, 4-conductor, 5 meters (16 feet)

AC132: Right-angle, 4-conductor, 5 meters (16 feet)

**Sensor Housing Material:**

Case: PEI

Face: FDA approved silicone rubber

**Sensor Ratings and Approvals**

NEMA 4X (Indoor Use Only) 5, 12, 12K, 13, and IP67

Installation/Overvoltage Category: I

This Product is UL Listed if powered by a Class II Power Supply and protected by a 2.0A Max UL Listed Fuse

# SUPERPROX<sup>®</sup>



## SM956A-123203

### Ultrasonic Analog Output Sensor

**30 mm, Inverse 4-20 mA Analog Output**

**Hold output on loss-of-echo, 20 mA at power up**

**Foreground/Background Suppression (Background Mode)**

## OPERATOR INSTRUCTIONS

This self-contained, ultrasonic analog output sensor provides an analog output signal that is inversely proportional to the object position relative to the analog span limits. The analog output is at 20 mA when an object is at or farther than the far analog span limit. The analog output is at 4 mA when an object is at or closer than the near analog span limit. Objects that are transparent, opaque, plastic, glass, metal, liquid, or solid can be detected within the sensing range. A multicolor LED indicates the zone of the object and an amber LED indicates the magnitude of the 4-20 mA analog output.

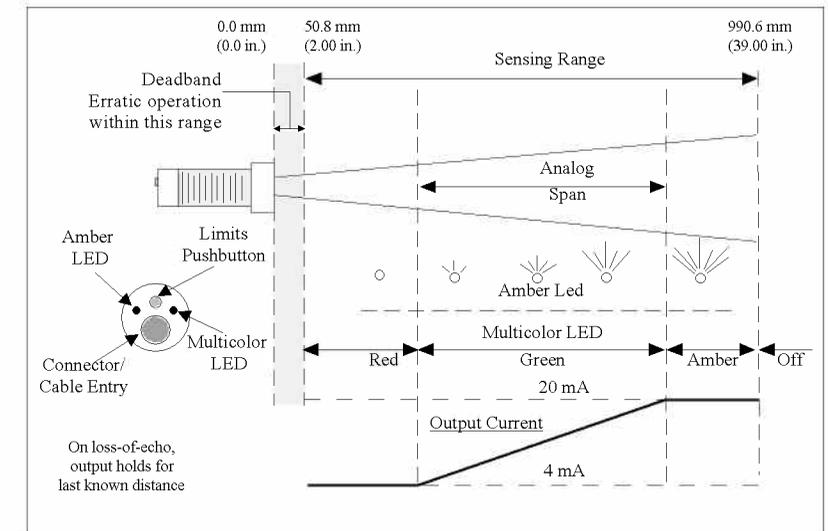


Figure 1

Literature and application engineering assistance are provided by Hyde Park and its authorized distributors to aid the customer in selecting the product for an application. The customer, however, is responsible for determining the suitability of the product in the application.

## WARNING

### UNINTENDED OPERATION

Do not use this product to detect objects within the deadband.

Failure to follow this instruction can result in death, serious injury or equipment damage.

### LIMITATIONS AND EXCLUSION OF WARRANTIES

All goods purchased from Hyde Park Electronics LLC shall be free from defects in materials, design and workmanship under normal conditions of use for one year from the date of shipment. THIS WARRANTY IS THE SOLE WARRANTY AND IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OF FITNESS FOR A PARTICULAR PURPOSE. THE LIABILITY OF HYDE PARK TO ANY PURCHASER SHALL BE LIMITED EXCLUSIVELY TO THE COST OF REPLACEMENT OR REPAIR OF DEFECTIVE PARTS, AND SHALL NOT INCLUDE LIABILITY FOR ANY DIRECT, CONSEQUENTIAL OR INCIDENTAL DAMAGES WHATSOEVER, WHETHER FORESEEN OR UNFORESEEN, INCLUDING BUT NOT LIMITED TO LOST PROFITS, LOST SALES, OR INJURY TO PERSONS OR PROPERTY.

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