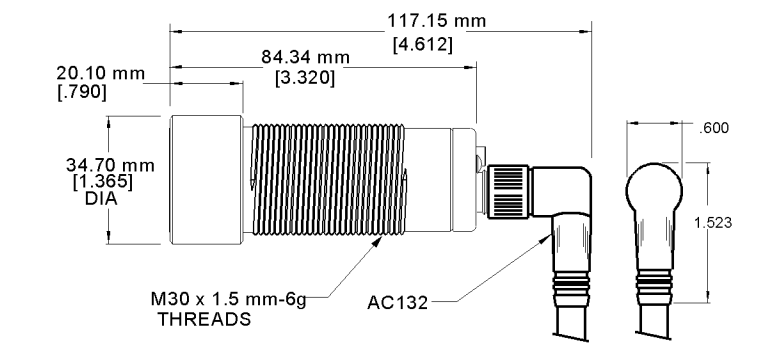


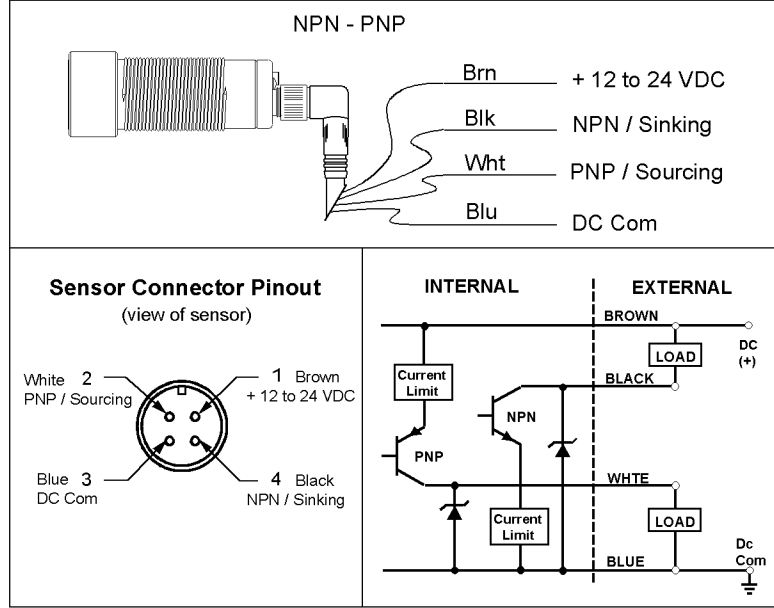
Mounting and Wiring

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

NPN and PNP Control Outputs

When an object is detected beyond the far limit, the black-wire NPN CONTROL output goes to the sinking state, and the white-wire PNP CONTROL output goes to the sourcing state. The control outputs remain in the active state until an object is detected closer than the near limit. When an object is detected closer than the near limit, the black-wire NPN CONTROL output goes to the non-sinking state, and the white-wire PNP CONTROL output goes to the non-sourcing state. The control outputs remain in the non-active state until an object is detected beyond the far limit.

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

Amber LED

The amber LED shows the state of the control outputs. When the black-wire NPN CONTROL output is sinking and the white-wire PNP CONTROL output is sourcing, the amber LED is on. When the black-wire NPN CONTROL output is not sinking and the white-wire PNP CONTROL output is non-sourcing, the amber LED is off.

Loss of Echo

If no echoes are detected for the specified time, a loss-of-echo occurs. On loss-of-echo, the multicolor and amber LED turn off, and the black-wire NPN CONTROL output goes non-sinking, and the white-wire PNP CONTROL output goes non-sourcing.

Setting the Window 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 the Near or Far window limit, and press the pushbutton once. Upon release of the 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 pushbutton once. Upon release of the 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 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 pushbutton is depressed, and when the 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.

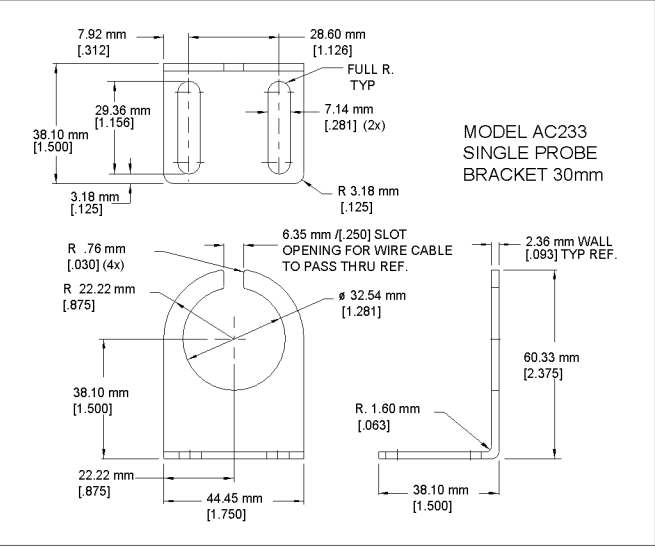
Accessories

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:** +12 to 24 VDC @ 80 mA, excluding load  
**Sinking Output:**  
Maximum on-state voltage @ 100 mA: 0.37 volts  
Maximum load current: 100 mA  
Maximum applied voltage: 35 VDC  
Protection: ESD and over-current

**Sourcing Output:**  
Maximum on-state voltage drop @ 100 mA: 1.0 volts  
Maximum load current: 100 mA  
Maximum output voltage: Equal to supply voltage  
Protection: ESD and over-current

**Loss-Echo Time:** 1 second

**Loss-Echo State:** Inactive

**Response Time:** 150 milliseconds

**Operating Temperature:**  
0°C to 50°C (32°F to 122°F) @ 100% relative humidity

**Sensing:**  
Span: 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 1, 3, 4x, 12, 13, and IP 67  
Installation/Overvoltage Category: II

**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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# SUPERPROX<sup>®</sup>

## SM952A-110000

### Ultrasonic Dual-Level Sensor

#### 30 mm, Pump-In Latch, Outputs off on loss-of-echo

#### NPN & PNP Normally Open Outputs

OPERATOR INSTRUCTIONS

This self-contained, ultrasonic dual-level sensor provides both a NPN (sinking) and a PNP (sourcing) output. When an object is detected farther than the far limit, both outputs go to the active state, and remain in the active state until an object is detected closer than the near 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 is on when the control outputs are active.

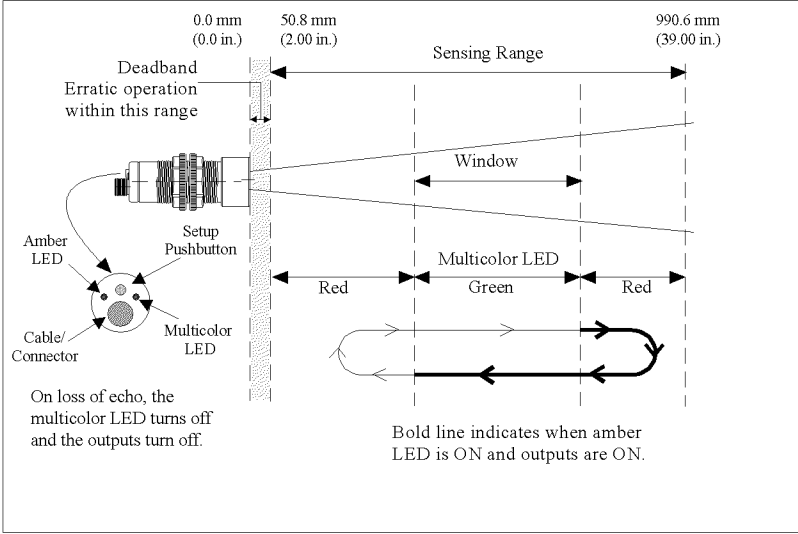


Figure 1

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.