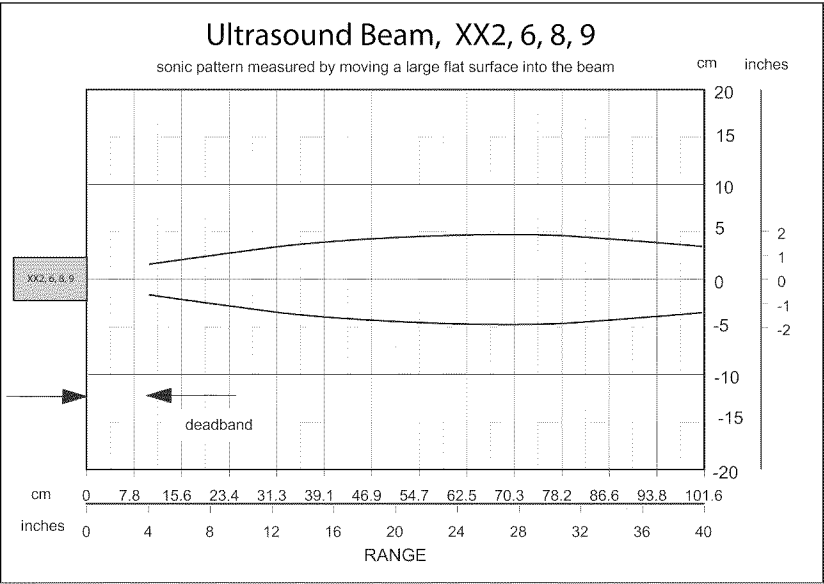


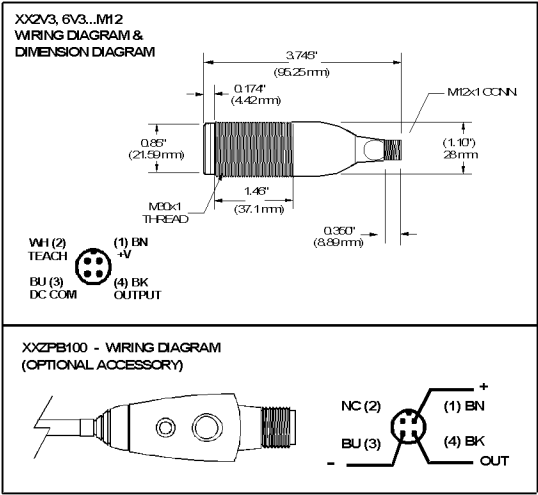
Beam Plot



Mounting / Alignment

Mount the sensor such that the surface of the object to be detected is approximately centered within the sensor’s sensing field. Mount the sensor firmly to avoid vibration. The sensor face should be parallel to the liquid or material surface and free of air currents.

Wiring Connections and Dimensions, Connector Model



Accessories

Model	XXZPB100	Inline Pushbutton Switch (for teaching window)
Model	XXZAC130	Straight, 4-Conductor Cable, Shielded, 5 meters (16 ft.)
Model	XXZAC132	Right-Angle, 4-Conductor Cable, Shielded, 5 meters (16 ft.)
Model	XXZAC233	Right-Angle Bracket

Output Indicator LED (Operation Mode)

- Off: Sensor is not powered
- Green: Output is Off
- Amber: Output is On
- Green with short amber flash every second: Output in overload

Teach Sensing Window

Before operating the sensor, you should teach the sensor the sensing window which is the distance between the near and far limits. The following procedure describes teaching the limits with a remote pushbutton. To teach the limits, press and hold the pushbutton. The LED fast flashes amber and then after 3 seconds, the LED slowly flashes green indicating the sensor is in teach mode. Release the pushbutton, and the LED continues slowly flashing green indicating the sensor is waiting for the first limit. Place a target at either the near or far limit, then press and release the pushbutton. While the pushbutton is pressed with a target present, the LED turns amber indicating a valid echo is being detected. After the first limit is successfully taught, the LED slowly flashes amber indicating the sensor is waiting for the second limit. Place a target at the second limit, and press and release the pushbutton. While the pushbutton is pressed with a target present, the LED turns amber indicating a valid echo is being detected. After second limit is taught, the two limits are saved in non-volatile memory and the LED then fast flashes green for 3 seconds to indicate the limits were successfully saved. The limits can be set in either order.

To teach the default window of 50.8 mm (2.00 in.), while the sensor is in teach mode requesting the first limit (LED slowly flashing green), place a target parallel to the sensor face at the center of the desired window. Press and release the pushbutton twice in succession within one second. The LED fast flashes green indicating the limits were successfully saved. This sets the limits 25.4 mm (1.00 in.) in front of and behind the front surface of the target.

If not using an optional pushbutton, the process is similar. The White teach wire (Pin 2) can be grounded to the Blue DC return wire (Pin 3) to simulate the pushing of the button. All LED indications and the teach sequence are identical to the above detailed process.

While setting either limit, if no echo is detected, the LED fast flashes green and amber indicating no object is detected. There is no timeout for entry of the limit setpoints.

## General Specifications

### Power Supply:

Supply: + 12 to 24 VDC ( $\pm 10\%$ ) @ 40 mA max (excluding output load)  
Protection: ESD and reverse-polarity

### Sourcing Output:

Maximum on-state voltage drop: 1.321V @ 100mA  
Maximum load current: 100 mA  
Maximum output voltage: Supply voltage -1.321 volt @ 100 mA  
Protection: ESD and over-current, 33 V transorb

### Pushbutton Input:

Active voltage level: < 1.0 volt  
Inactive voltage level: > 2.5 volts  
Activation On/Off time: > 25 ms (3 seconds to arm for limit setup)

### Response Time:

150 ms On / Off, 750 ms loss-of-echo

### Loss-of-Echo State:

Off

### Operating Temperature:

0°C to 70°C (32°F to 158°F)

### Sensing: [T<sub>A</sub>=20°C (68°F)] -Large Flat Target

Range: 100.0 mm (3.94 in.) to 1000.0 mm (39.37 in.)  
Maximum plane-reflector angle:  $\pm 5^\circ$   
Sonic Cone Angle:  $\pm 7^\circ$   
Window-edge accuracy:  $\pm 1.27$  mm (0.050 in.) @ constant temperature  
Minimum object size Rod: 50.8 mm (2.00 in) at 1000.0 mm (39.37 in) range, 0° tilt  
Factory Set sensing window: 100.0 mm (3.94 in.) to 1000.0 mm (39.37 in.)  
Temperature Compensation: Temperature Compensation Enabled

### Sensor Dimensions:

See Sensor Dimension section

### Sensor Connector Cable:

Model XXZAC130 or XXZAC132 (see Accessories list)

### Sensor Materials:

Housing: PBT  
Transducer face: Epoxy  
Cable: Non-toxic PVC jacket  
LED: Polycarbonate

### Sensor Ratings and Approvals:

Installation/Over voltage Category:

II

CE Mark pending: Declaration of conformity available upon request.

#### 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.

## HYDE PARK ELECTRONICS LLC

1875 Founders Drive  
Dayton, Ohio USA 45420-4017  
Phone (937) 252-2121 Fax (937) 258-5830  
Email: [help@sesensors.com](mailto:help@sesensors.com)  
Web Site: <http://www.sesensors.com>

© 2004 Hyde Park Electronics LLC

# VIRTU™

## XX2V3A1PHM12

**Proximity Sensor, Ultrasonic, Pump Out**  
**PNP (Sourcing), Normally Open Output, Connector**  
**Output off on Loss-of-echo and at power up**

**Hyde Park**  
Sensors for the Real World

## OPERATOR INSTRUCTIONS

This self-contained, ultrasonic proximity sensor is capable of sensing most objects within a 100.0 mm (3.94 in.) to 1000.0 mm (39.37 in.) sensing field (Fig.1). Objects that are transparent, opaque, plastic, glass, metal, liquid or solid can be detected if located within the sensing field.

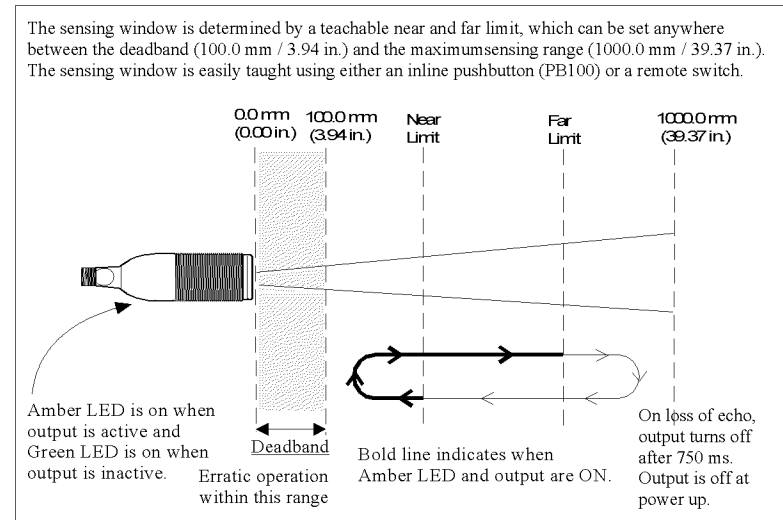


Figure 1

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.