

FB Ultrasonic Level Sensors

Technical Brief

The FB series of height sensors are designed to operate with the Vantage 2200 series electronics for open channel or level measurements. The FB family of height sensors incorporate a piezo crystal and a temperature compensator inside the housing. There is also a diode protection network designed to protect these components inside the housing.

Specifications:

FB4 Sensor

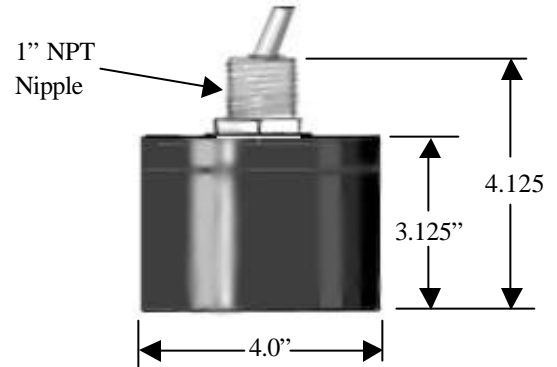
Application: Flow and/or Level
 Range: 0-25 Feet (with minimum 1 ft offset region)
 Accuracy: +/- 0.02" or +/-0.05% of target distance, which ever is greater
 Material: PVC
 Cable: 4 conductor, 3 shields (Belden 8728) PVC coated
 Cable lengths: 30, 100, 200 ft standard, special length over 200 feet up to 1000 feet maximum
 Operating frequency: 60KHZ
 Temperature: -40° F to 158° F (-40° to 70° C)
 Rating: Class I, Div. I, Groups A, B, C, and D, Type 2 available (pending)

FB2 Sensor

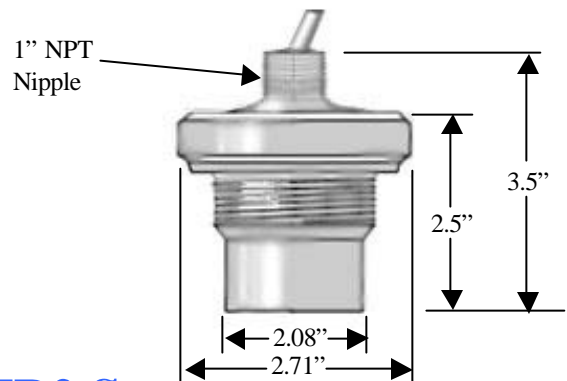
Application: Flow and/or Level
 Range: 0-15 Feet (with minimum 1 ft offset region)
 Accuracy: +/- 0.02" or +/-0.05% of target distance, which ever is greater
 Material: Tefzel
 Cable: 4 conductor, 3 shields (Belden 8728) PVC coated
 Cable lengths: 30, 100, 200 ft standard, special length over 200 feet up to 1000 feet maximum
 Operating frequency: 51KHZ
 Temperature: -40° F to 158° F (-40° to 70° C)
 Rating: Class I, Div. I, Groups A, B, C, and D, Type 2 available (pending)

FB3 Sensor

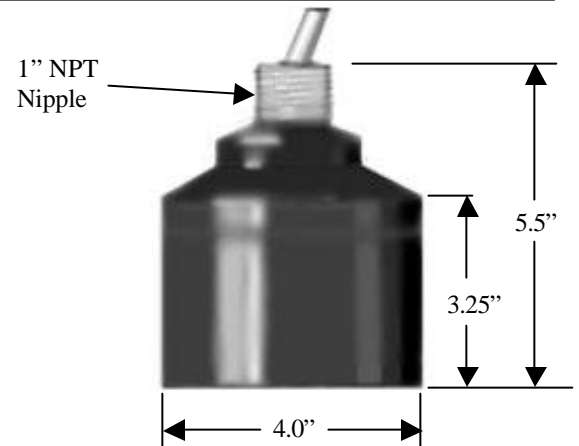
Application: Level
 Range: 0-50 Feet (with minimum 2 ft offset region)
 Accuracy: +/- 0.1" or +/-0.1% of target distance, which ever is greater
 Material: ABS Glass filled epoxy
 Cable: 4 conductor, 3 shields (Belden 8728) PVC coated
 Cable lengths: 100 ft standard, 300ft maximum
 Operating Frequency: 60KHZ
 Temperature: -40° F to 158° F (-40° to 70° C)
 Rating: Class I, Div. 2, Groups A, B, C, and D, Type 2



FB4 Sensor



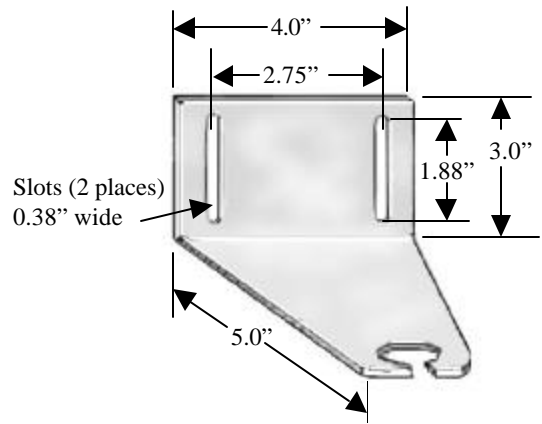
FB2 Sensor



FB3 Sensor

Sensor Bracket:

A Stainless Steel sensor bracket is provided with each FB sensor. Dimensions are shown to the right. Simply route cable through the end of the bracket and slide the 1 inch nipple through the hole in the bracket and tighten both nuts.



Sensor Placement:

All primary devices (flume/weirs) will have a horizontal distance that is required. This dimension is usually upstream of the restriction in the device. (i.e. throat of flume, or crest of weir)

On both level and flow measurements, there is a minimum clearance from a wall or obstruction to the side of the sensor.

(Refer to the drawing on the right.) This dimension is referred to as "A". "A" is calculated as follows:

FB2 Sensor: A = 4 degrees or (0.07*Total Range)

FB3 Sensor: A = 7 degrees or (0.1228*Total Range)

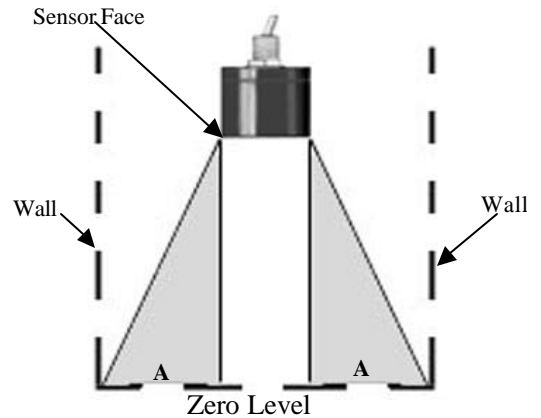
FB4 Sensor: A = 3.5 degrees or (0.062* Total Range)

Total Range = Distance from bottom of sensor to zero level in feet or inches.

Example: Using an FB4 with a Total Range of 10ft.

0.062*10ft = 0.62ft.

The sensor will need to be mounted as a minimum of 0.62ft or 7.44 inches away from any wall or obstruction.



System Diagram

