**FB LEVEL SENSORS**

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

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**FB5 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, whichever is greater  
Material: PVC Glass Filled Polyester  
Cable: 1 conductor, 3 shields (Belden 3124A) PVC coated  
Cable lengths: 30, 100, 200 ft standard. Special over 200 ft up to 1000 ft max.  
Operating frequency: 50KHZ  
Temperature: -40º F to 158º F (-40º to 70º C)

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**FB2 Sensor**

Application: Flow and/or Level (Food Safe)  
Range: 0-16 Feet (with minimum 1 ft offset region)  
Accuracy: +/- 0.02° or +/- 0.05% of target distance, whichever is greater  
Material: Tefzel  
Cable: 4 conductor, 3 shields (Belden 8728) PVC coated  
Cable lengths: 30, 100, 200 ft standard. Special over 200 ft up to 1000 ft max.  
Operating frequency: 51KHZ  
Temperature: -40º F to 158º F (-40º to 70º C)

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**FB3 Sensor**

Application: Level  
Range: 0-50 Feet (with minimum 2 ft offset region)  
Accuracy: +/- 0.1° or +/- 0.1% of target distance, whichever is greater  
Material: ABS  
Cable: 4 conductor, 3 shields (Belden 8728) PVC coated  
Cable lengths: 100 ft standard, 300ft maximum.  
Operating Frequency: 30KHZ  
Temperature: -40º F to 158º F (-40º to 70º C)
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 Bracket:
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:

FB5 Sensor: $A = 6 \text{ degrees} \text{ or } (0.09 \times \text{Total Range})$
FB2 Sensor: $A = 5 \text{ degrees} \text{ or } (0.07 \times \text{Total Range})$
FB3 Sensor: $A = 5 \text{ degrees} \text{ or } (0.09 \times \text{Total Range})$

Total Range = Distance from bottom of sensor to zero level in feet or inches.
Example: Using an FB5 with a Total Range of 10ft. $0.09 \times 10ft = 0.9ft.$ or 10.8in.ft.
The sensor will need to be mounted as a minimum of 0.09ft or 10.8 inches away from any wall or obstruction.

System Diagram
Metallic Conduit (by others)
Maximum Cable Length:
FB5 = 1000ft
FB2 = 1000ft
FB3 = 300ft

Pull Box
(by others)
Flex Conduit
(by others)

*Nmt = Vertical mounting for the sensor. Minimum dimension of maximum liquid level + sensor offset distance.
Sensor Minimum Offset:
FB5 = 12.00 inch
FB2 = 12.00 inch
FB3 = 24.00"