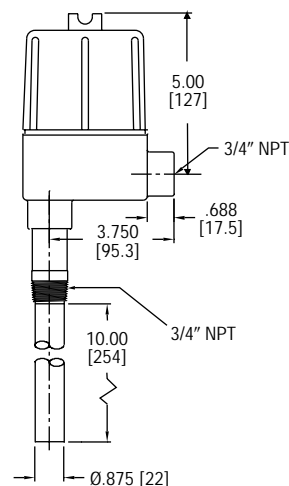
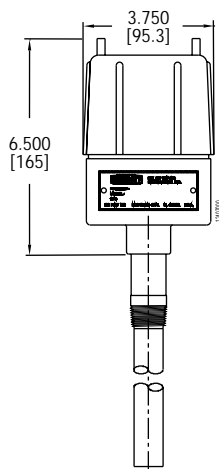


Model  
UT125

# Ultrasonic Level Transmitter

## Specifications – Installation and Operating Instructions



### GENERAL

Model UT125 Ultrasonic Level Transmitter provides reliable, noncontact measurement for liquid level control in tanks and other vessels. Integral electronics generate an ultrasonic pulse which is transmitted through the air space in the tank. The pulse is reflected back to the sensor at the liquid/air interface. From the received echo, the time of flight can be calculated which is directly proportional to the distance of the liquid surface to the sensor. A continuous 4 to 20 mA output signal is generated and updated every half second. Units feature a fully adjustable zero and span, height and distance mode adjustment, lost echo LED indication, and reverse polarity protection.

### INSTALLATION

#### Sensor Installation

The sensor should be mounted on the top of the vessel with the sensor facing downward. A clear path, free of any obstructions, must be provided between the sensor and the liquid surface. Due to the narrow sensor beam pattern, vertical-axis positioning of the sensor is important. The sensor must be installed so as to maintain perpendicularity to the liquid surface.

For sensors provided with an NPT threaded fitting, drill a suitable hole in the vessel top and tap for the correct NPT thread. In thin walled vessels, or vessels constructed of material not suitable for tapping, weld or braze a bushing to accept the sensor.

Screw the sensor into the threaded fitting being careful not to cross thread the sensor. When possible, the use of a pipe compound or sealing tape is recommended. Avoid over-tightening.

### SPECIFICATIONS

**Range:** 10 ft (3 m).

**Accuracy:**  $\pm 0.25\%$  full scale.

**Repeatability:** 1/8" typical.

**Supply Voltage:** 16 to 30 VDC.

**Output:** 4 to 20 mA DC (isolated), 4-wire.

**Dead Zone:** 6 inches.

**Adjustments:** Zero: 1" to 100", Span: 1" to 120".

**Maximum Pressure Rating:** 100 psig.

**Temperature Range:** Sensor: -20 to 160°F (-29 to 71°C), Electronics: -10 to 170°F (-23 to 77°C) compensated over full range of sensor.

**Sensor Material:** CPVC.

**Enclosure:** NEMA 7 Cast Aluminum.

**Mounting Connections:** 3/4" NPT male.

For flanged mounted sensors, simply bolt the flange assembly to the proper mating flange connection.

Unscrew cover of enclosure to gain access to the circuit board. Connect power and control wiring to the unit as indicated in figure 1. If routing the sensor cable through conduit, a dedicated conduit should be used. Avoid routing the sensor cable in close proximity to any source of alternating current RFI. Be sure wiring is properly dressed to prevent pinching between the housing and the cover. Observe all applicable local electrical codes and wiring procedures.

**CAUTION:** Do not attempt to remove a threaded sensor from the vessel with the cable attached to the control unit. Cable damage may result.

## WIRING CONNECTIONS

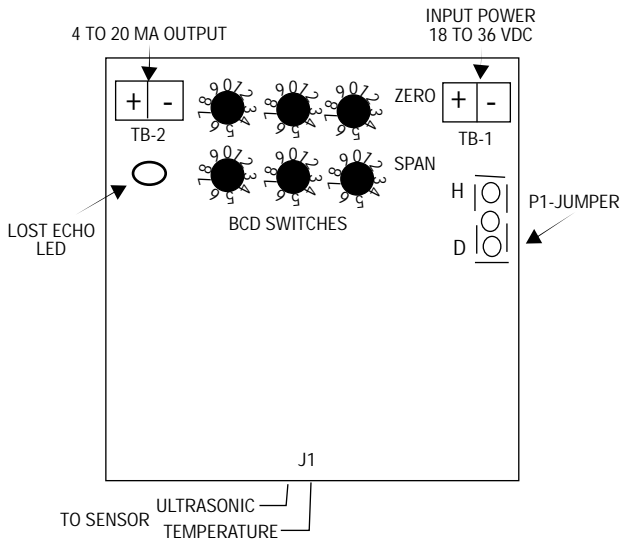


FIGURE 1

### OPERATION

The Model UT125 is calibrated via BCD switches. All data entered during the calibration procedure is stored in a nonvolatile memory to prevent loss of data in the event of a power failure.

### Calibration Procedure

Unscrew the control unit cover to obtain access to the BCD switches. Refer to figure 1 for BCD switch location on the circuit board.

The system range equals the zero value plus the span value measured in inches. See figure 2.

1. Dial the zero setting through the top BCD switches in increments of 6" up to 114". Example: 12" can be set as 012 on BCD switches). Zero is calibrated in inches from the face of the sensor. When setting zero, include the dead zone of 6".
2. Dial the span setting through the bottom BCD switches in increments of 1" up to 120". Example: 120" can be set as 120 on BCD switches). Span is calibrated in inches from the zero point.

3. Set "P1" jumper for height distance mode (see figure 2).

Height mode: Zero setting: 20 mA  
Span setting: 4 mA

Distance mode: Zero setting: 4 mA  
Span setting: 20 mA

After completing the calibration procedure, apply power to the unit. The "Lost Echo" LED can be observed while the cover is off. A steady on LED indicates the unit is functioning properly. A flashing LED indicates lost echo. The unit will maintain the output at a value equal to the value just before the echo loss occurred.

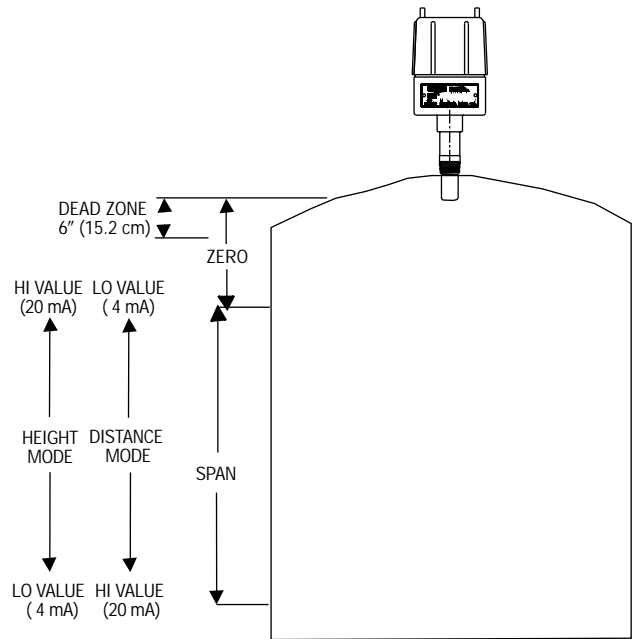


FIGURE 2

### MAINTENANCE

After final installation of the Model UT125 Ultrasonic Level Transmitter, no routine maintenance is required. Periodic checks of "echo lost" LED and connections is recommended. Please contact Dwyer Instruments, Inc. before returning unit for repair to review information relative to your application. When returning a product to the factory, carefully package and ship freight pre-paid. Be sure to include a complete description of the application and problem and identify any hazardous material used with the product.