INSTALLATION MANUAL

2-CHANNEL BASE UNIT
Unisource Assembly Corp. P/N 9902-0002

DESCRIPTION

The 2-Channel Base Unit has an LED bar-graph showing relative percent full and alarm conditions of the storage bin being monitored. This receives a signal from an Electronic Tank Probe Module that is mounted in a weatherproof enclosure at the top of the storage bin. Optional alarm interfaces are available to drive external alarm devices.

The 2-Channel Base Unit powered by a 15 Volt DC plug-in power supply transformer. Mounting location should be convenient for plant personnel to see the display and close enough to a 115VAC outlet where the transformer will be plugged.

NOTE: DO NOT PLUG IN THE 2-CHANNEL BASE UNIT DRY UNTIL ALL OF THE WIRING HAS BEEN COMPLETED.

WARNING: THE TRANSFORMER MUST BE WIRED WITH THE PROPER POLARITY. THE PLAIN BLACK WIRE IS NEGATIVE AND THE WIRE WITH THE WHITE STRIPE (LINE) IS POSITIVE.

MOUNTING OF ELECTRONIC TANK PROBE MODULE AND ENCLOSURE

Refer to the instructions packed with the Electronic Tank Probe Module and the Probe Wire Kit for proper placement and mounting of these components.

WIRING

Use Belden #9365 18/3 600V Shielded Control Cable or equivalent for wiring between the 2-Channel Base Unit and the Electronic Tank Probe Module. This cable should be protected by ½ inch conduit.

The wires of the cable should be connected to the Electronic Tank Probe Module as follows:

RED wire of cable to RED wire of the Electronic Tank Probe Module (+15V)

BLACK wire of cable to BLACK wire of the Electronic Tank Probe Module (GND)

WHITE wire of cable to WHITE wire of the Electronic Tank Probe Module (SIGNAL)

Use the Twist-On Wire Connectors (GB-2) supplied with the Electronic Tank Probe Module for making these connections. (Older versions will have Butt Splices)

The wires of the cable should be connected to the 2-Channel Base Unit as follows:

RED wire of cable to +15V terminal of CHANNEL 1

BLACK wire of cable to GND terminal of CHANNEL 1

WHITE wire of cable to SIGNAL terminal of CHANNEL 1

DO NOT TERMINATE SHIELD DRAIN WIRE INSIDE THE 2-CHANNEL BASE UNIT! CLIP IT OFF AT BOTH ENDS AND WRAP ELECTRICAL TAPE AROUND ENDS OF CABLE JACKET

Repeat the above wiring for CHANNEL 2 if you are using both channels of the 2-Channel Base Unit.

WARNING: Insure that all wires are terminated properly before using the system. Incorrect wiring can damage both the 2-Channel Base Unit and the Electronic Tank Probe Module.

CALIBRATION:

NOTE: Repeat Calibration Operation for each channel in the system.

(1) Electronic Tank Probe Module - this assembly is calibrated and sealed at the factory to give a linear output and cannot be field calibrated.

(2) 2-Channel Base Unit - the only adjustments are zero (empty) and span (full) potentiometers for each channel

Direction of adjustment is as follows:

Zero Adjust Pot - CW turn of screw REDUCES the offset for an empty vessel

Span Adjust - CW turn of screw INCREASES the gain or output level signal

Procedure for Calibration:

(A) Start with an empty bin (no adjustment should be made without the sensing wire fully positioned in the vessel) and plug the 15 Volt DC wall transformer of the 2-Channel Base Unit into a 120VAC outlet.

NOTE: The circuits are filtered to reduce the effect of electrical noise; therefore, any of the following adjustments must be made slowly to allow the signals to settle out and become stable.

(B) If the ZERO/STATUS LED is off, rotate zero adjust pot CCW until the ZERO/STATUS LED turns on fully (no blinking). If the ZERO/STATUS LED is on, rotate zero adjust pot CW until the ZERO/STATUS LED turns off, then rotate zero adjust pot CCW until the ZERO/STATUS LED turns on fully (no blinking). (Note: if there has been no material in the bin before, this setting may be too low and will need to be checked after use of the bin).

(C) When the bin has been filled to a known level, set the gain adjust:

If the meter reads too high, turn the Gain Pot CCW to reduce the meter level reading.

If the meter reads too low, turn the Gain Pot CW to increase the meter level reading.

(D) Normally these readings will be reasonably accurate; however, due to the slight shift due to a powder coating on the wire, any change in the zero adjust will move the full level proportionally. Therefore, if the zero adjust is changed, the gain adjustment will need to be readjusted. However, the gain adjustment does not change the zero adjust.

Alternate calibration procedure for partially filled bins:

(A) Determine how full the bin is and adjust the Span pot so the display indicates this level.

(B) When the bin is less than 30% full, adjust the Zero pot if display does not agree with actual bin level.

(C) When the bin is over 60% full, adjust the Span pot if display does not agree with actual bin level.

SETTING HIGH AND LOW ALARMS

To set the High Alarm for any channel, move the High Alarm jumper from the OFF position to the desired alarm set point (60 to 100 percent). The High Alarm LED will blink when the bin level is over the alarm set point.

To set the Low Alarm for any channel, move the Low Alarm jumper from the OFF position to the desired alarm set point (10 to 50 percent). The Low Alarm LED will blink when the bin level is under the alarm set point.

TROUBLE SHOOTING

Problem	Possible Cause	Symptom
No Display (both channels)	No power to base unit	No voltage between 15VDC and GND terminals at Ch.1
One channel dead	Broken wiring between Dry Material Level Indicator & Electronic Tank Probe Module	No power at Electronic Tank Probe Module or greater than 2V from signal wire to DC GND
	Defective Sensing Unit (Tank Probe Module)	Approx. 15VDC reaching Electronic Tank Probe Module but 0V between signal wire and DC GND