

RATIO:GUARD[®] Tank Level Monitor

Quick Start Guide

Installation

1. Do not apply power until installation is complete.
2. Install the enclosure in a convenient location, close to a 120 VAC power source, and protected from direct spray.
3. The transducer is already connected with a 25' cable. It is threaded for a 2½" pipe thread to screw into a bung, or you can cut a 2-5/16" hole in the top of your tank and install it with the included nut. Hand tighten only. **Install near the center of the tank. Irregularities on the sides of the tank could cause reading errors.**
4. Remove the front of the enclosure. Connect the RD-485 communications line to the RS-232/485 converter which is connected to the computer, or to another controller which is connected to the computer. Connect the + and – wires together. (The terminal block is on the back right side of the front panel.)
5. Replace the front panel. **Be certain that the ribbon cable is properly inserted with the marked edge of the cable on the left.**
6. When all controllers have been connected to the RS-232/485 converter, apply power to the monitor. It should start cycling through the four measurements. Any input with no transducer connected will display "--"

Calibration

Calibration is done by setting the distance in inches from the shoulder of the transducer (at the top of the threads) to the level in the tank when it is full, and when it is empty. Measure both of these distances with the transducer in place at the top of the tank. The

1. Press the **MODE** key. The display should display "**1F 6**". This is the distance from the transducer when the tank is full for tank #1.

2. Press the **MODE** and **ENTER** keys together and hold them until the display starts blinking. Use the **↑** and **↓** keys to set the proper full distance. Once set, press the **ENTER** key.
3. Press and hold the **MODE** Now press the **↑** key until the display shows "**1E44**". This is the distance from the transducer when the tank is empty for tank #1.
4. Without releasing the **MODE** key, press the **MODE** and **ENTER** keys together and hold them until the display starts blinking. Use the **↑** and **↓** keys to set the proper empty distance, and press **ENTER**.
5. In the same manner, set the full distances for any other transducers that are installed, (**2F, 3F, and 4F**) and the empty distances, (**2E, 3E, and 4E**).

Operation

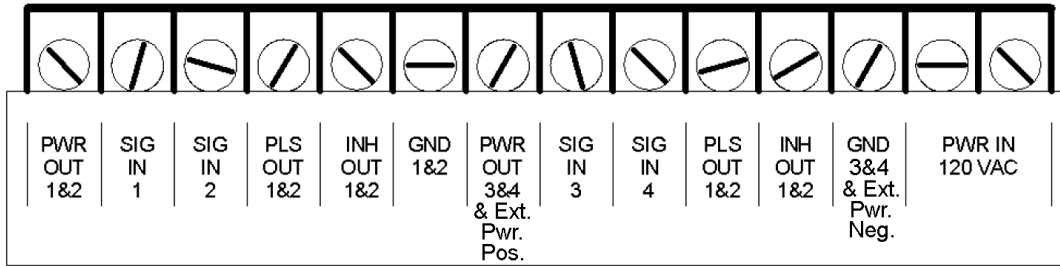
Once calibrated, the monitor will cycle through the four tanks and display the level as a percentage of full., from 0 to 99. If a tank is at or above the full level, it will display **xFUL**, where x is the tank number. If no transducer is present for a position it will display **x --**.

When the unit is in operation and communicating with the computer, it will display a momentary ":" in the middle of the display each time the computer accesses the monitor, about every 10 seconds. This indicates that communication is occurring without error.

Technical Support

Our technical staff is ready to assist you.
Phone: 800-331-9620 (U.S.A. and Canada)
918-687-4426.
Our hours are 8:30 a.m. to 4:30 p.m. central time, weekdays.
Email: info@heanderson.com
FAX: 918-682-3342

L-1 Power & Signal Connections



SPECIFICATIONS

Model L-1

**Maximum Transducer-Solution Distance
(for 0% [empty] indication)**

99 inches

**Minimum Transducer-Solution
Distance**

(for 100% [full] indication)

6 inches

Display

0.7 in. LCD 4-digit numeric

Keypad

4-Key panel integrated keypad

Enclosure

Water resistant with gasketed cover;

Sealed front panel

Transducer

50 kHz electrostatic, Parylene coated face
for harsh environments w/25' cable

Power Requirements

120 VAC

240 VAC (With A suffix on model no.)

Setpoint Memory Retention

Greater than thirty days with zero power.



RATIO:GUARD® LIMITED WARRANTY

WHAT IS COVERED

The H.E. Anderson Company of Muskogee, Oklahoma, will make any necessary repairs and/or replace any parts of any Ratio:Guard® alarm/controller made necessary because of defects in materials or workmanship for the periods specified below. Warranty repairs and/or replacements will be performed without charge to the owner by H.E. Anderson Company within a reasonable time after prepaid delivery of the alarm/controller to the H.E. Anderson Company, 2100 Anderson Drive, Muskogee, Oklahoma 74403.

WARRANTY PERIODS

CONTROL ELECTRONICS	Fifteen months from date of manufacture.
EC & TEMPERATURE SENSORS	Fifteen months from date of manufacture.
pH & ORP SENSORS	Six months from date of manufacture.

WHAT IS NOT COVERED

Repairs and/or replacements of parts caused by failure to follow prescribed installation instructions and limitations issued by H.E. Anderson Company. In addition, this warranty does not cover service adjustments, repairs, or replacements caused by misuse, negligence, alteration, accident, or lack of specified maintenance. Specifically, improper handling of pH sensors, including letting the electrode dry out, will void the warranty on the sensor. This warranty does not cover components used by, but not manufactured by H.E. Anderson Company, in the manufacture of said alarm/controller, except to the extent of said component manufacturer's warranty.

This warranty specifically excludes liability for consequential damages or for charges for labor or expense in making repairs or adjustments, or losses of time or inconvenience.

This warranty gives you specific legal rights and you may also have other legal rights which may vary from state to state. H.E. Anderson Company does not authorize any person to create for it any other obligation or liability in connection with these products. **ANY IMPLIED WARRANTY APPLICABLE TO THESE PRODUCTS IS LIMITED TO THE DURATION OF THIS WARRANTY.** H.E. Anderson Company shall not be liable for consequential damages resulting from breach of this written warranty.

NOTE: Some states do not allow limitation on how long an implied warranty will last or the exclusion of limitations of incidental or consequential damages, so the above limitations or exclusions may not apply to you.

WHAT TO DO IF THERE IS A QUESTION REGARDING WARRANTY

- 1) Promptly notify the consumer adviser at H.E. Anderson Company by telephone.
- 2) Confirm the report in writing to the H.E. Anderson Company, stating the circumstances surrounding the problem.

PURCHASER'S OBLIGATION

- a) Purchaser must give H.E. Anderson Company immediate written notice on discovery of defect.
- b) Purchaser must pay for shipment of the defective product to the H.E. Anderson Company, 2100 Anderson Drive, Muskogee, Oklahoma 74403.