

AQUAGAUGE™ Installation and Operating Instructions.

Installation Details

The following instructions provide a guide to the recommended method of installation and operation of an AQUAGAUGE water level sensor. Individual circumstances may require some departure from these procedures. At all stages take care not to damage, by cutting or abrading, the plastic insulating coating on the sensing cable.

Installation in a water tank requires an appropriately sized hole, normally about 3 cm diameter, to be cut in the top of the tank, followed by insertion and adjustment of the sensing element. All AQUAGAUGE sensors have mountings that enable them to be attached to the top of a water tank or fixed to any other suitable supporting structure above the surface of water. For installation in the top of a plastic tank we recommend using a hole-saw and a power drill or Dremel tool to cut the hole. Alternatively, mark the circumference of the hole and drill a series of small holes, then join the holes with a hacksaw or wire-cutter. For the screw holes around the edge of the mounting plate use a 2 mm drill and the provided self-tapping screws. If the unit is to be used in a concrete tank it will be necessary to use an impact drill with an appropriate masonry drill to form a hole large enough to pass the suspending weights and bottom of the transmitter.

Once the transmitter unit has been fixed in position the length of the active section of the sensing cable can be adjusted so that the cable end-piece sits just above the bottom of the tank. Unscrew the lid on the transmitter and uncoil a length of cable approximately equal to the height above the bottom of the tank. Slacken the black cable gland and feed the cable into the tank. Move the cable up and down until the end-piece feels to be touching the bottom of the tank then raise it slightly. The cable can be held in place by tightening the cable gland. The unused length of the cable can be re-coiled and held in place on the inside of the transmitter case lid.

The conducting electrode* (black wire) should be adjusted in a similar fashion, however the length of this is not critical and the gold wire electrode only needs to make electrical contact with the liquid at its lowest level (see Installation Diagram). The unused length of cable can be coiled and held in place on the outside of the transmitter case.

*The AQUAGAUGE data logger unit has a single strand construction and has internal conducting electrode.

Operation

The tank transmitter unit normally accepts four AA batteries. These can be accessed or installed by unscrewing the lid on the side of the transmitter. This combination of batteries (6V) gives an output power which is within allowable limits specified by most broadcasting regulations for an operating frequency of 434 MHz. Voltages up to 12V can be used but permissible RF power limits may be exceeded in these circumstances. The transmitter unit will send data every 5-6 seconds and batteries should last for 12 months. When disconnecting and reconnecting batteries they must remain disconnected for at least 15 seconds to ensure complete power down.

To use the receiver/display unit:

- Install the 9V battery and switch the receiver on.
- The unit should display the message “**AQUAGAUGE loading...**” followed by “**searching**” and then the **depth** in centimeters.
- If no RF signal is being received then the display will show “**NO SIGNAL**”
- The receiver display will retain a reading for 4 minutes if no new data is received. The unit must therefore be periodically switched on and off when testing reception range.

Maintenance and Operating Problems

Provided that the batteries are charged and the RF receiver unit is within an acceptable distance from the transmitter, then AQUAGAUGE sensor units should operate continuously and reliably. Common causes of problems include low batteries in the receiver or transmitter unit and electrical or RF interference from external sources. If there is a sluggish response from the sensor when rapid (i.e. over a few seconds) changes in water level are being monitored then the polymer coating on the cable may have become contaminated with biological growth. If this is suspected to be the case then wipe the cable with a clean wet cloth. This cleaning procedure should be followed routinely if these conditions persist.

AQUACHART Data Logging and Charting Software.

If the system has been purchased with the optional serial data collection package (for WINDOWS 95 or latter WINDOWS operating system) then the AQUACHART software supplied on CD will need to be installed. Insert the CD and run the setup program and follow the instructions. Once installed connect the supplied serial cable to the socket on the AQUAGAUGE display unit and an available serial port on the PC. Check that the chosen serial port is not allocated to other software running on the PC. Start the AQUACHART software and select appropriate data collection parameters as follows:

Serial Port: select the port to which the serial cable is connected

Data Storage Buffer Size: default size is 12800. This value will determine the number of data points available for display in the main text box. If the data buffer size is exceeded it will automatically be saved and appended to a file named Aquachart_overflow_data.txt

Time Interval Between Readings: Choose an appropriate interval for data collection

Initial x-axis Span: Determines the initial time span for the Level and Temperature data plots.

The START button commences data collection

The STOP button stops data collection

The CLEAR button erases all data

The PRINT button prints the graphs

The SAVE button will save the data displayed in the text box in a text file of choice

Drag handles are provided on the charts for data rescaling and a cursor can be used to determine x,y values at any position on both charts.

INSTALLATION DIAGRAM

