

TANKMASTER Combined Temperature and Liquid Level Controller

Installation Instructions

We strongly recommend that installation is carried out by a qualified electrician. This controller is manufactured from top quality non-corrodable materials and should give trouble free service provided it is installed, operated and maintained properly.

Warning-Mains Voltage

- Always disconnect supply before removing cover or attempting connections.
- The output lead (marked with a red warning label and fitted with a protective cap) becomes live once the mains supply lead is connected. Always connect output lead first.
- The controller is rated at 5 amps, any heater or pump likely to draw more current should be connected through a contactor as shown in the wiring diagram.

Note: Failure to connect the earth may result in a serious safety hazard.

- Your Tankmaster controller is sealed to IP65 standard. Installation of this unit does not normally require the removal of the cover. However, if the cover is removed ensure that the gasket is firmly seated in the locating groove before tightening the remaining screws.

Installation

1. Screw the mounting tabs to the back of the controller and fix to a suitable surface within reach of the probe lead.
2. The controller is fitted with flying leads for easy connection. The output lead is marked with a red warning label and is fitted with a protective cap. The other lead is the mains supply. Ensure unit is correct type for operating mode.
3. The unit should be positioned within easy reach of the equipment to which it will be connected.
4. Connect the controller as in the wiring diagram.
5. The probes are supplied with two and three pin IP66 standard plugs which should be connected to the sockets on the underside of the control box. Ensure that the locking rings are tightened to secure.
6. Double check all connections before supply is switched on.
7. For correct operation ensure that the Thermaster probes are installed in the most suitable position in the tank. (Ideally opposite the Polaris heater at working depth).
8. Fit the fixing clip to a suitable point so that the Levelmaster probe assembly hangs in the tank. The assembly must be kept clear of any sludge.

Temperature Setting

1. Switch on the mains supply. The digital display will illuminate to indicate that power is on, the 'Heater On' indicator will illuminate if the temperature of the solution is below set point.
2. Adjust the temperature Set Point to the required value as follows:

- Depress and hold the push button on the left hand side of the unit. This will display the set temperature.
- Adjust the set temperature by rotating the control knob by the right hand side. (Clockwise rotation to increase set point).
- Release the push button, the controller is now operational, displaying the tank temperature.

IMPORTANT - Do not rotate the control knob without depressing the push button as this will change the set point to an unknown value.

Once set, the Tankmaster should not require re-calibration. However, for Quality Control purposes the unit can be re-calibrated, please contact our Technical Department.

Fault Display

Should a fault occur in the probe circuit, a flashing display will be shown indicating the type of failure as follows:

- Flashing display +188 Fault-Probe Open Circuit
- Flashing display -188 Fault-Probe Short Circuit

Check connections in probe plug, secure if disconnected. Check probe and replace if there is a short or open circuit. Controller and probe can be returned to E. Braude (London) Ltd., for Calibration, Service and Repair.

SINGLE LEVEL CONTROL (USING 3 WIRE LEVELMASTER PROBE)

1. Low level only
 - Cut the red sensor to the low level required.
 - Cut the white sensor 50mm higher than the low level sensor.
 - Cut the green sensor to not less than 30mm below the lowest level required.
 - The ends of all the sensors should be stripped to expose approximately 5mm of carbon filament.
 - Fit the probe assembly in clip.
- 2 High level only
 - Cut the white sensor to the high level required.
 - Cut the red sensor to 50mm below the high level.
 - The ends of all the sensors should be stripped to expose approximately 5mm of carbon filament.
 - Fit the probe assembly in clip
3. The white wire on the output lead will be live at high liquid level. The red wire on the output lead will be live at low level, off at high level.

ALWAYS INSULATE AND ISOLATE ANY WIRE NOT IN USE

4. The 'power on' light indicates main supply present. The 'level warning' light indicates solution level below the red sensor.

DUAL LEVEL CONTROL (USING 3 WIRE LEVELMASTER PROBE)

1. Level Setting
 - Cut the white sensor to the high level required.
 - Cut the red sensor to the low level require
 - Cut the green sensor to not less than 30mm below the lowest level required.

- The ends of all the sensors should be stripped to expose approximately 5mm of carbon filament.
 - Fit the probe assembly in clip.
2. Connect the white lead to the heater contactor and the red lead to the pump contactor (if required). The black lead is a neutral for both.
 3. The 'power on' light indicates mains supply present. The level warning light indicates solution level below the red sensor.

LEVEL CONTROL USING POLARIS HEATER HPD PROBE

INSTALLATION

1. Mount the POLARIS in the tank following the relevant installation instructions, supplied with your immersion heater. If the HPD is used to control more than one heater, the POLARIS fitted with an HPD probe must be mounted slightly higher than the others.
2. Plug the probe lead into the right hand side of the Tankmaster controller and screw the locking ring firmly home. The level warning light will come on when the solution level falls below the HPD probe which is located at the top of the POLARIS.
3. Connect the white wire on the output lead to the contactor for the heater. The red wire will be live under low level conditions and could be used to power a remote alarm, otherwise it should be isolated.

4. OPERATION

The level control is fully automatic and does not require attention once installed. However, it is recommended that the HPD probe in the POLARIS is cleaned a part of the regular maintenance schedule set out in the POLARIS installation instructions.

CAUTION RELAY CONNECTION

The output wires from the relay are wired as follows:

- Black - Neutral
- White – Live N/O (Break on low liquid level)
- Red – Live N/C (Break on high liquid level)

This is not a volt free relay – the output lead is live.

For de-ionised water and similar low conductivity solutions a special high sensitivity controller is supplied with stainless steel sensors. These are marked as follows:

- White (No. 9) - high level
- Red (No. 2) - low level
- Green (No. 5) - common

During commissioning of the standard units, if tap water is used for testing add a small amount of common salt to increase the conductivity of the solution.

It is recommended that the probe assemblies are cleaned as part of the regular maintenance schedule to avoid build up of scale or other solids.



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