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Water Level Controlling Board – Control and Alarm Version

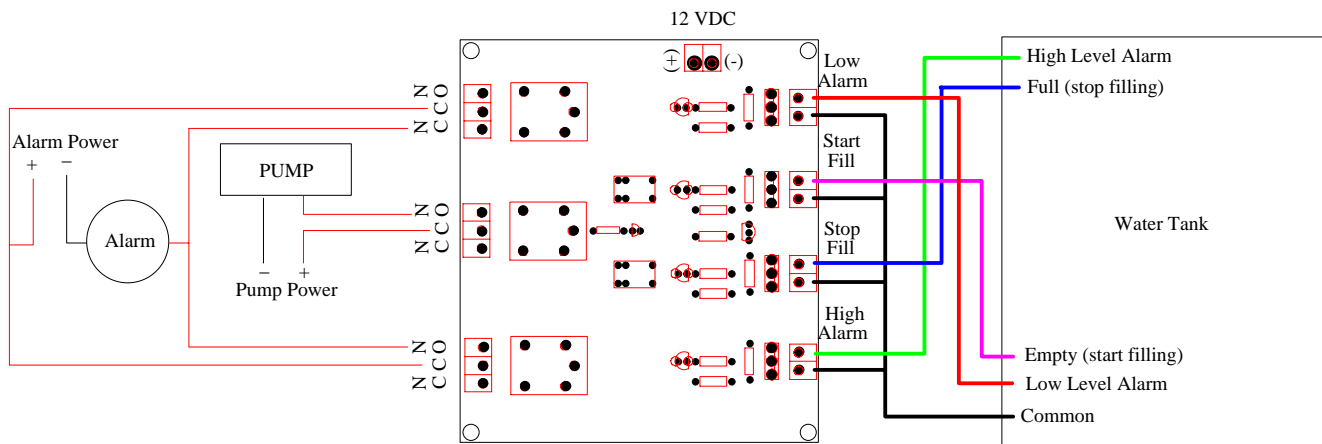


This is a handy little board if you are interested in controlling the level of a liquid in a vessel. It works based on conductivity of the liquid so it does not require a moveable float switch (although they can be used with this design). It uses Darlington Transistors which enable this circuit to work with very clean (low conductivity) water. It detects the presence or absence of liquid at the tip of the probes. This version has 4 probes. Two “controlling probes” and 2 “alarm probes”. The controlling probes are placed at the upper and lower limit levels and the alarm probes are placed at positions outside of the upper and lower level limits to signal when the level exceeds those limits. When the liquid level in the vessel drops below the lower limit probe (normally closed), the 10A relay is activated which turns on your filling device (pump, solenoid, etc.) and remains on until the liquid level reaches the upper limit level probe at which time the relay opens and shuts off your filling device. If the level exceeds the upper and lower limits and triggers either alarm probe, the associated relay will close powering the alarm. The alarm relays only stay activated as long as the alarm condition exists. As soon as the alarm condition ends, the alarm will go off. The probes for this board can be moveable level switches or simply stainless steel screws screwed into the vessel at the desired levels.

Miscellaneous Information:

The relays on this circuit board are rated for 10 amps of current. The circuit board has not been tested at the maximum rated current. I have routinely used it to switch motors and solenoids that drew around 3 amps each for extended periods of time and have not seen any problems with the circuit handling those loads and expect it to perform well at higher currents. There is some back-EMF protection offered by the LED circuit and the circuit traces for the relay have been “beefed-up” with extra solder.

Below is a diagram how this board might be hooked up. In this diagram, the probes are inserted directly into the side of the vessel. If the vessel is metal, the probes must be isolated from it. Regular switch-closing float switches can be used as well.



Specifications:

- Input Power: 12 VDC
- Number of Outputs: 1 control and 2 alarm
- Output Control: 10 A max (see note above)
- Board Dimensions: 4 x 4.5 inches

Disclaimer:

These boards are designed for educational use only. In no circumstances should these circuit boards be used in critical situations where failure could mean injury or property damage.

For more information, contact us at:
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