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Water or Fluid Level Sensor, Alarm and control.

This is a way by which you can monitor the level of fluids like water in a tank. Based on data from the sensor you can control things like solenoids or motors as required or even turn on a buzzer, hooter or annunciator in a control panel.

Description.

Look at the picture on the right, the float can be a styrofoam type with a couple of ceramic magnets stuck inside. The float must move freely up and down a long plastic pipe of around 10 mm dia. If the fluid is not water but a solvent then design a non-soluble float or coat the float you made with something like an epoxy resin.

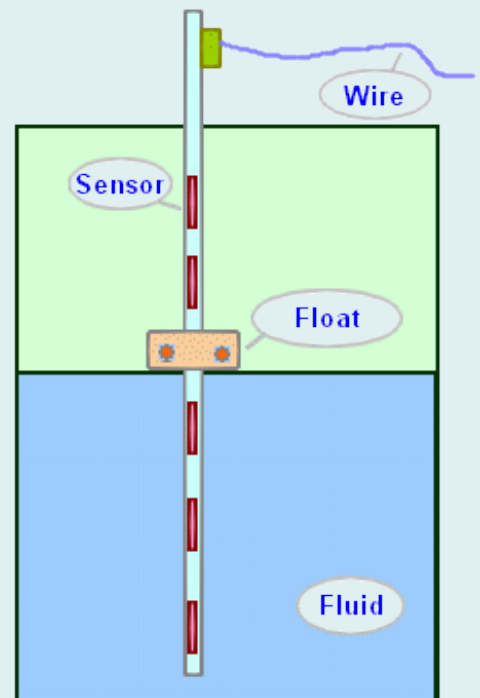
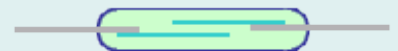
Then you need to assemble a small circuit within the long plastic pipe. Many reed relays with a chain of resistors in series has to be inserted in the pipe. The resistor and the glass reed relays should be in different levels of the pipe where you need an alarm or indication. Seal the pipe hermetically at both ends with epoxy resin after taking out a shielded cable of just 2 wires + 1 ground shield.

When the fluid level changes, the float moves up or down with it, when the float moves over a section of pipe where the reed relay is mounted, the magnets on the float make the reed operate and the resistance of the sensor changes.

The resistance is measured and the alarm can be operated as you like. The advantage of this arrangement is the electric circuit does not come in contact with the fluid, no sparking risk.

Reed Relay.

It was invented by Dr. W. B. Ellwood at Bell Labs in 1936. Contacts are in a sealed glass tube filled with inert gas like in a bulb, so they do not corrode. It is faster than regular relays and as no spring is used it has a longer mechanical life. The two contacts are ferromagnetic blades plated with rhodium. When you take a magnet close by, the contacts touch each other. You can also put the reed in a coil, then when you energise the coil the reed operates. Used in telecommunication. OKI is one manufacturer of this type of component.



Design and Caution.

When you drive inductive loads you have to use RC snubbers, freewheeling diodes, varistors or zeners. when you drive lamps the cold current is high so use thermistors. The Reed relay is best used in telecom and instrumentation and avoided in power electronics. It can handle high RF frequency as the path of current is straight and footprint small.

"When you use the DMM or digital multimeter, try not to use it for high voltages and currents, use external shunts and attenuators instead. If you try to measure 230V AC in the Ohms mode or in the Current mode with the probe in the current socket then you will see fumes in your DMM and a hole in your pocket !! "

Water or Fluid Level Sensor, Alarm and control

– Solderman 1702



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