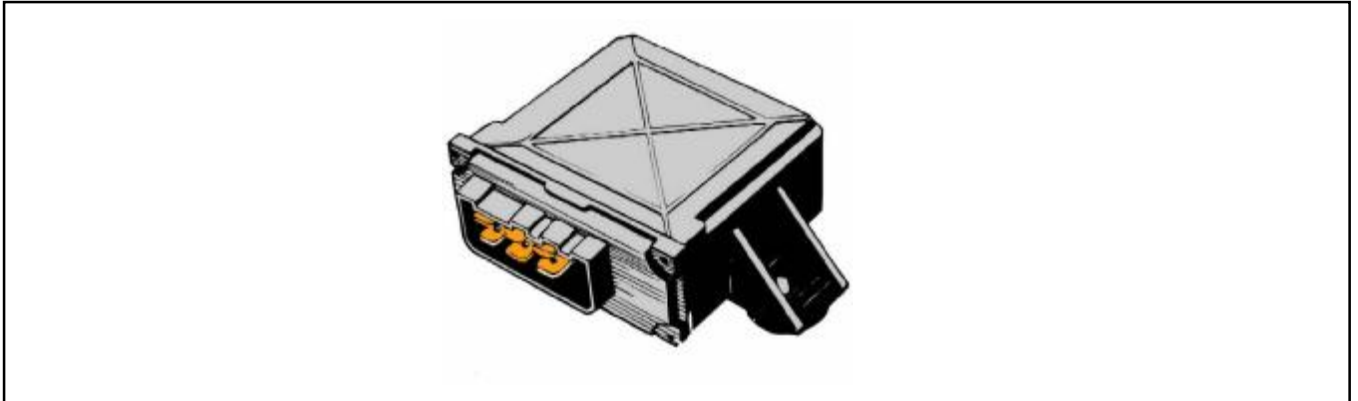


CAPACITIVE [4–20mA] LOW WATER LEVEL SWITCH

P/no. 410.054 - Installation Instructions for 12/24vdc module



GENERAL

The Capacitive Low Water Level Switch is designed to give an alarm output when the level in a water reservoir falls below a predetermined level. The unit must operate in conjunction with part no. N02 230 202 Fresh Water Tank Gauge and part no. N02 240 402 Water Tank Sensor (capacitive) or similar. The output from this tank sensor to the gauge is actually a 4-20mA signal, hence this unit may be used on any 4-20mA system.

When the Fresh Water Tank level drops below the preset switching level, this is read as an alarm situation and an electronic switch is closed to ground. This switching action may be used to turn on a warning lamp or operate a relay coil. The relay contact may then be used to switch a higher current level for operating solenoids or warning bells etc.

An option available on the unit is a “delay on switching”. This can be useful for vehicles or boats in motion where a rolling action or bump will cause the alarm to activate intermittently. The delay, when switched in, gives approximately an 8 second delay on alarm.

FITTING INSTRUCTIONS

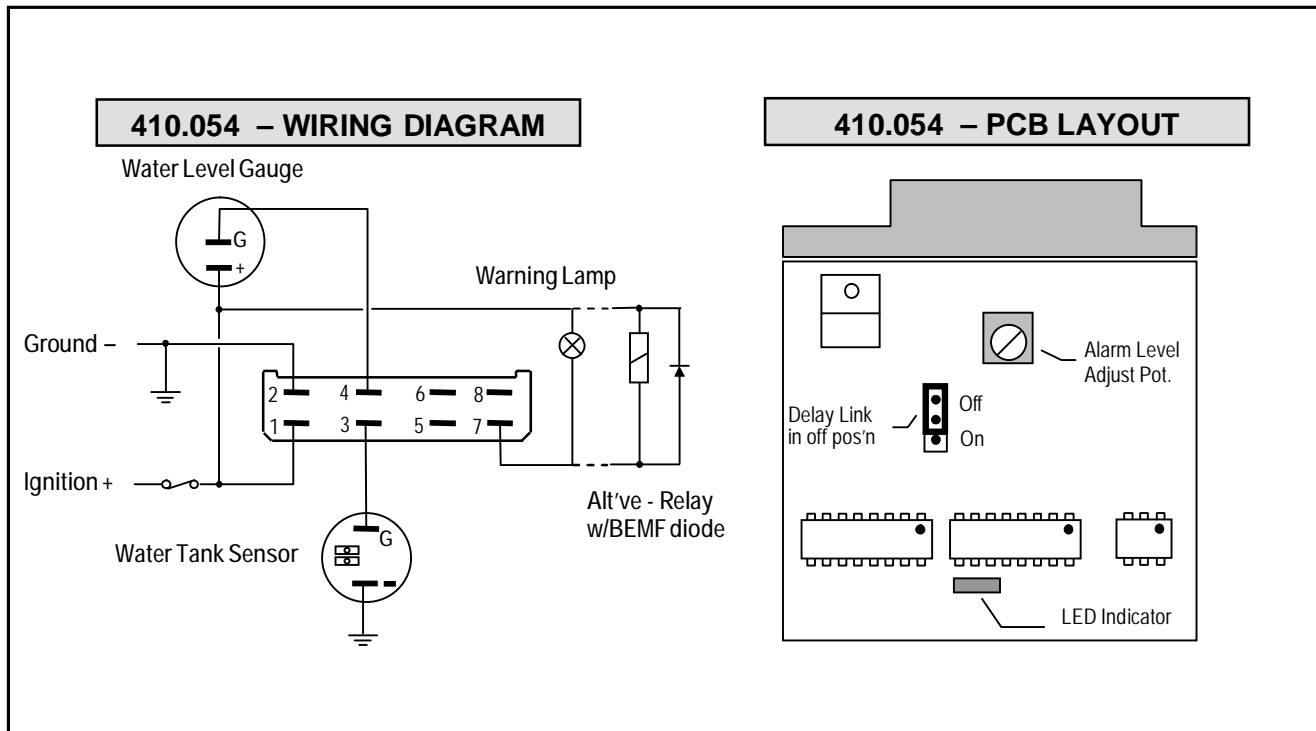
1. Locate a convenient mounting place in the instrument panel or under the dash near the fuse panel and mount the 410.054 Capacitive Low Water Level Switch module. Screws (3/16” or 5mm), double sided tape, or Silastic are all acceptable. Orientation is not critical.
2. Connect the “+” terminal (Term. No. 1) on the control module to your positive source or ignition switch via a 5 amp fuse.
3. Connect the “-” terminal (Term. No. 2) to a good earth or ground connection.
4. Connect terminal no. 4 to the “G” terminal on your gauge.
5. Connect terminal no. 3 to the “G” terminal on your tank sender.
6. Connect the output terminal (Term No. 7) as required to a light or relay. Maximum current flow should not be more than 0.5 amps. Refer to the Connections and Wiring Diagram sections.
7. Adjust the level setting and time delay as required. Refer to Setting section.
8. When switching relay and solenoid coils with other electronic items connected it is recommended to fit reverse EMF diodes across all coils.
9. It is good wiring practice to make all circuits failsafe where possible and practical.

CONNECTIONS

Terminal connections are as follows...

Term no. 1	= Positive 12/24 VDC Supply
Term no. 2	= Negative or Ground
Term no. 3	= “G” terminal on Water Tank Sender
Term no. 4	= “G” terminal on Fresh Water Tank Gauge
Term no. 5	= Not used
Term no. 6	= Not used
Term no. 7	= Output – maximum 0.5 Amp at 12/24 VDC
Term no. 8	= Not used (Spare ground/earth)

WIRING DIAGRAM



SETTING

1. With the 410.054 module fitted, check & set the full reading on your water level gauge per instructions.
2. Drain your water tank to the desired switch level. Use the water level gauge and/or a measuring stick to confirm you have the desired level.
3. Wire a test lamp to the 410.054 module as in the wiring diagram above and mount in a position where it may be easily seen during the adjustment procedure.
4. Remove the 4 screws holding the 410.054 together and remove the PCB from the case. Ensure the PCB and any components **can not touch anything conductive**, ie: metal seats, screwdrivers, tools, etc.
5. Set the time delay link on the PCB to "off". Turn the adjustment pot fully anti-clockwise and then slowly clockwise until the test lamp just comes on. Repeat a few times to fine tune. The unit is now set.
6. Set the time delay to "on" if required, reassemble the module and fit to its final position. Refill the water tank.

TESTING

1. With ignition "On", release some water from the tank until the level falls below the preset alarm level. At this point the alarm should operate.
2. Alternately, If the sensor assembly has not been screwed into its housing, you may lift this up and down to move the sensor probes out of the water and exposing the probes to air. As the probes are lifted past the set point, the alarm should trigger.
3. Once the alarm is finally set, do not forget to move the time delay link to the "on" position before closing the module case.

It is important to repeat the above operation "Testing...3." periodically (eg. every service) as the different composition and water quality of various fill ups may change the reading and set points on the gauge. It is also a good idea to check and clean the sensors probes of any residue or build up.

SPECIFICATIONS

- Dimensions: 68 x 30 x 73mm deep, overall box dimensions.
- Mounting: Hole centres...83mm, mounted height...35mm, box with plug & wiring allow min 110mm.
- Voltage: 12/24 vdc negative ground.
- Adjustment: Between empty and $\frac{3}{4}$ full depending on sender length and number of gauges fitted.
- Time Delay: Approx 8 seconds on falling level when selected
- Switch rating: 12/24 vdc 0.5amp resistive. Fit a back EMF diode if using relays.