

# CM<sup>3</sup> Water Level Sensor Diagnostics

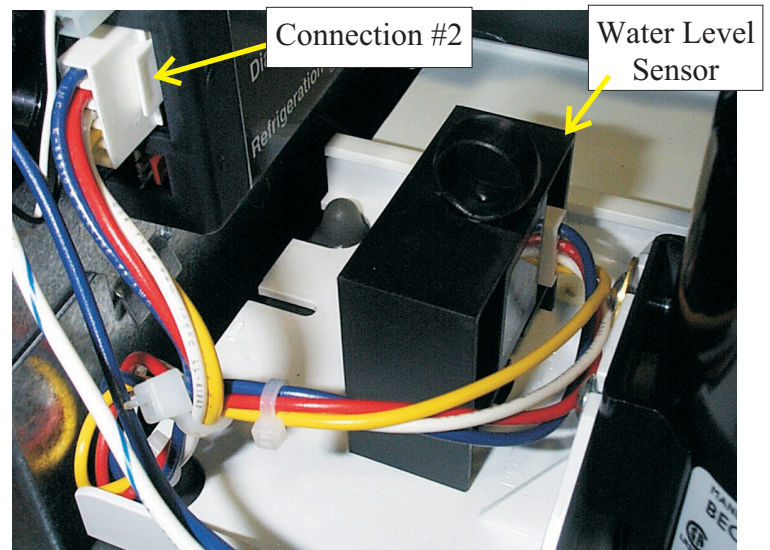
## for use with Black or Blue Controllers

**Tools Needed:** Digital voltmeter that can read DC

**Goal:** To determine if the water level sensor is capable of normal operation.

**Note:** Ambient light can affect this test. Shade the sensor if needed.

1. Unplug water sensor harness from controller (connection #2).
2. Confirm that the power to the machine is ON and that there is at least one light on the board that is glowing. If not, check the transformer.
3. Set the voltmeter to DC and use a scale low enough to measure less than 40 Volts.



4. Measure the voltage between the top and the bottom pins on the controller at connection #2 (the bottom is ground or negative).

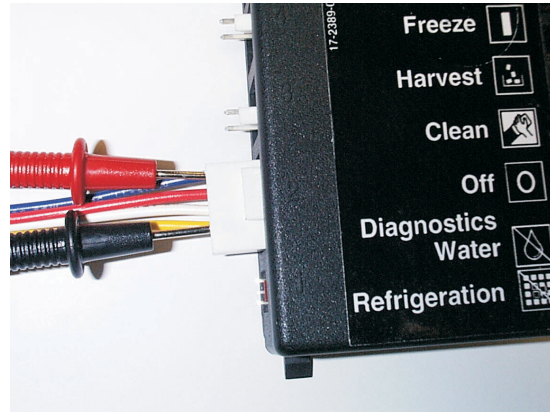
	Yellow (bottom) - Black Housing Controller	Yellow (bottom) - Blue Housing Controller
Blue - harness unplugged	24 to 30 VDC	.5 to 2 VDC

If it is much less than that, there is something wrong with either the power supply to the controller or the controller itself. If the voltage measures correctly proceed to the next step.

5. Reconnect the harness. Be SURE it is on properly and has a good connection. To confirm, unplug the harness from the water sensor and redo step #4 at the end of the harness. Then plug the harness back onto the sensor.

### Harness Connected Voltage (DC)

6. At the controller, measure the voltage between the top and bottom pins on connection #2. This should be between the ranges in the table below. If it outside this range there is a problem in the sensor and it should be changed out. If it is within this range, proceed to the next step.



	Yellow (bottom) - Black Housing Controllers	Yellow (bottom) - Blue Housing Controllers
Blue (top)	2 to 3.5 VDC	.4 to 2.0 VDC

7. Place negative voltmeter probe on the bottom terminal (yellow wire). Place the other on the one just above it (terminate freeze sender - white wire). Move the float stem/stick up and down and note the voltage changes. There should be a significant change between when it is blocked to when it is not blocked. If there is **NO change**, the sensor may be dirty or has failed. Remove the dust cover from the sensor to clean it.

Note: The sensor must be properly reassembled. When looking at the terminals of the sensor, they must be in the lower right corner. If they are in the upper left remove the sensor's dust cover and reverse the board. Later models have an UP arrow on the right side of the circuit board.

	Yellow (bottom) Black Housing Controllers	Yellow (bottom) Blue Housing Controllers
White - Blocked	5 VDC	about 5 VDC
White - Unblocked	<1 VDC	less than when blocked

8. With the voltmeter probe still on the bottom terminal (still in connection #2), place the other one on the second pin from the top (sump full sender - red wire). Move the float stick up and down, note the changes in voltage. It should react the same as in step 7.

	Yellow (bottom) Black Housing Controllers	Yellow (bottom) Blue Housing Controllers
Red - Blocked	5 VDC	about 5 VDC
Red - Unblocked	<1 VDC	less than when blocked

9. If all voltages check out, there is nothing wrong with the sensor or the voltage it receives from the controller.