

Troubleshooting the Drainac™

Probe Settings

If the probe attributes are set incorrectly, the Drainac may not properly detect the level of the filtrate in the analysis chamber. Under such circumstances, the system will continue to sample until timeout is reached. This extended sample interval can result in the analysis chamber filling completely and, in some cases, in filtrate working its way back up the sample lines into the pneumatic components. Pneumatics flooding is undesirable as the filtrate will likely cause both blockages and corrosion of the internal components of the precision differential regulator relays. This, in turn, will significantly reduce the service lifespan of these components and, in the worst case, may require that these components be replaced.

Step One – Assess Current Probe Resistance and Settings

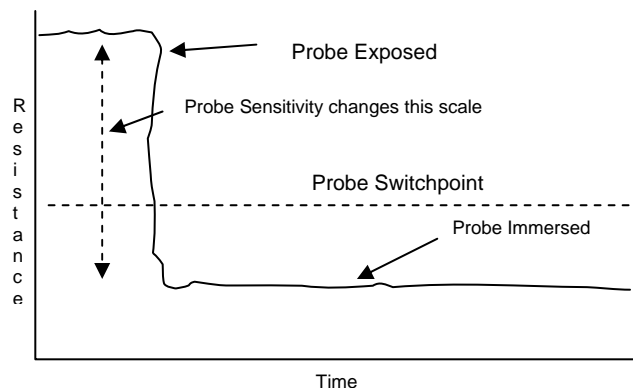
Enter configuration mode by pressing the **CONFIG** button on the main display and use the arrow keys to advance the display to the Probe Parameter screen. There are four attributes to check: These are the switchpoint and sensitivity attributes for both the upper and lower probes.

Advance the screen to lower sensitivity attribute. In the lower left hand corner of the screen, the apparent resistance value of the lower probe will be displayed. Monitor this resistance value through a few cycles of the system. The apparent resistance should be a large number while the probe is exposed and a low number while immersed. See the figure below for an illustration of probe resistance as a function of time. Please note that you will observe intermediate values during flush cycles and also if foaming occurs. If the low value is zero, increase the sensitivity until single digit resistances are observed. If no change in lower probe resistance is noted during a cycle, then the electronics are not properly detecting the resistance. Go to Step 2 otherwise, continue below.

Advance the screen until the lower probe switchpoint is displayed. Adjust the switchpoint such that the value is at least two to three times greater than the resistance value displayed while the probe is immersed. If foaming is observed, select a value less than that displayed while the probe is touching the foam only. Please note that it may be necessary to increase the probe sensitivity to adequately separate the displayed resistance for immersed versus foamy filtrate.

Adjust the upper probe settings to match those set for the lower probe. Note that it is difficult to monitor the upper probe resistance as the system will (normally) immediately initiate a flush once the filtrate level reaches the upper probe. The total immersion time for the upper probe is typically far too brief to register onscreen.

This procedure should result in probe settings which accurately detect the level of filtrate in the system. If the system is still not detecting the level correctly, proceed to step two.



Step Two – Manually Simulate Level Changes

It may be necessary to check that the electronics are properly detecting the resistances. Disconnect the probe leads from the TB1 terminal strip and check the resistance between the upper probe TB1-1, the lower probe TB1-2 and probe ground TB1-3. These should indicate an open circuit if the chamber is empty. Low resistances indicate a short somewhere between the terminal strip and the probe tip. Inspect inside of the probe cap as occasionally moisture can collect in the cap and cause a short. Also inspect the cable run for damage to the cable. Inspect the inside of the solenoid box on the riser as a leak in this enclosure can also cause electrical shorts.

Using a wire or a pair of needle nose pliers, short TB1-1 and TB1-3 while monitoring the upper probe resistance on the appropriate probe screen. The resistance should fall to zero. Repeat for TB1-2 and TB1-3 while monitoring the lower probe resistance. If you do not see the resistance fall to zero in both cases, check the terminal strip to ensure that it is clean and free of debris and then repeat the test. If the probe resistance does not change, then your electronics are likely faulty and should be returned to the factory for repair.

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