



GF Signet pH probe maintenance and calibration

There are three (3) main components to the pH Monitoring systems for each tank.

1. pH electrode, this is the probe
2. Pre-Amplifier, this is the connector that the probe locks into and is how the signal is created and sent to the meter (controller) located in the panel.
3. pH Meter (controller) this is the panel mounted meter which displays the pH values and controls the signal. These meters are also what gets calibrated, they take the signal and convert the signal from the pre-amplifier into a usable pH value.

Before calibrating your pH probes, you should always have a full kit put together to use for maintaining your probes. The kit should include pH buffer solution 7, pH buffer solution 4, denatured alcohol, a soft cloth and gloves. Always wear gloves when handling probes, it is best not to get either buffer solution, waste from the system or alcohol on yourself.

Each time you calibrate a probe, you should put on a pair of gloves. Then take the probe out of the tank, dry it off with the rag and then swirl it in denatured alcohol to clean it off. Wipe the probe off again and then go through the buffering process.

Make sure to put the meter in calibrate mode before working with the probe, that way the system will not react by injecting chemicals during the calibration process.

There are two distinct versions of calibrating GF Signet meters, the first is called "EasyCal" which is a simple, quick process to regularly check and refine the meter calibration. However, this process will only work if the meter has been regularly calibrated manually to set the standards to define during the "EasyCal" process.

The second process is a manual calibration, this process should be done to set the calibration of the meter and must be done on every new meter. **The meter will not work correctly unless it has been**

manually calibrated first. Once the meter has been calibrated manually, EasyCal can be used on a regular basis.

EasyCal Process:

From the main pH read screen, press the up arrow until you reach a screen that says EasyCal. Then, press the right arrow, you will be prompted for a password. Tap the up arrow three times and then the down arrow once for the password. You will enter EasyCal and will be prompted to put the pH probe in buffer solution 1. The screen will then show the pH the probe is reading, with the millivolt reading below it and a flashing asterisk in the upper left corner.

Clean the probe with alcohol and wipe it clean with the soft rag. Then, place the probe in buffer 7 pH and swirl it around. Holding the probe in buffer 7, wait until the pH stabilizes on the display, then press enter to log in the pH value.

You will be prompted to put the pH probe in buffer 2. Take the probe out of buffer solution 7 pH and wipe it off with the soft rag. Then place the probe in buffer solution 4 and swirl it around. Leave the probe in the buffer solution and wait until the pH reading on the meter stabilizes and stops changing. Check the millivolt reading at this time, a good probe should have a minimum of 115 mV reading, if the reading is below that, then it is time to replace the probe. Once you have the mV reading, then, press the enter key to set the calibration for buffer 4.

The screen will now say "good EasyCal" and will say press enter. Do not press enter yet.

Pull the probe from buffer solution 4 and put it back in the tank, swirling the probe for a moment to help it readjust to the tank pH. Then, press enter to return to normal operation.

Manual Calibration Process:

To calibrate the probe manually, go to the default reading output screen, then hold down the enter key. A password screen will come up, press up three times, then the down arrow once and you will enter a separate menu.

Once in this menu, press the down arrow until you come to "Set Standard" and place the pH probe in buffer solution 7 pH. Mix and let sit for a second and then press the right arrow, the screen will change and show the pH reading of the pH probe. The far left number should begin to flash. To change the number, press the up and down buttons, to move to the next number, press the right arrow. Change the number to say 7.00 and then press enter. The number will be logged and you can take the probe out of buffer solution 7.

Now press the up and down arrow at the same time, this will exit the screen and put you back at the menu. Press the down arrow until you reach "Set Slope". Wipe the probe off with the soft cloth and put the probe in buffer solution 4 pH. Swirl it around for a moment and then press the right arrow to enter

the set slope screen. The number of the pH reading should be shown and the far left number should flash. Use the up and down arrows to change the reading, set the number to 4.00 and press enter. The number will be logged.

Now press the up and down arrow at the same time. This will take you back to the menu, press the up and down arrow again and it will exit from the settings menu and the screen will be back to the default readings screen. The manual calibration has been completed. Try EasyCal again to see if the probe reacts correctly and to assure proper calibration and then put the probe back in normal operation.

Schedule of Maintenance:

Action	Schedule
EasyCal Probes	Weekly
Manual Calibration	Every 6 months
Replace Probe	Once per year or when reaches 115 mV in buffer 4
Replace Pre-Amplifier	When fails or has erratic readings
Replace Meter	when fails

Basic Trouble Shooting:

Problem	Cause	Solution
Error message during EasyCal	probe is weak and should be replaced soon.	May be able to manually calibrate probe, probe must be replaced soon.
Strange or erratic probe readings	calibration is off or Pre-Amplifier is failing	Check readings in buffer solution, if reacts well, then recalibrate. If will not calibrate, then replace Pre-Amplifier.
Display shows 15 pH or negative pH	Pre-Amplifier is failing or probe is failing or broken	Check probe in different Pre-Amplifier, if probe works, change Pre-Amplifier, if probe does not calibrate or react well then replace probe.
Inconsistent pH Readings	Pre-Amplifier is failing or probe is out of calibration	Calibrate probe manually, then check reaction with buffer solution. If doesn't work, check probe in different Pre-Amplifier, if works, change Pre-Amplifier, if not, change probe.
Slow Reaction to change in pH	probe is dirty and needs to be cleaned, may also be weak	Using denatured alcohol and a soft clothe, douse probe tip in alcohol and then wipe with clothe. Check probe again for quicker reaction. Continue cleaning if necessary.
Display says Check Sensor	Pre-Amplifier has failed or pH probe is not connected correctly	Disconnect and reconnect sensor, if doesn't work, check probe in different Pre-Amplifier. If probe is OK, change Pre-Amplifier, if not, change probe.