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Quick Start Guide AccuFloc AF9000–1 and AF9000-3

This guide is provided as supplement to the AF9000 Operation and Maintenance Manual. If you have any questions about this guide, please refer to the full manual or call your local distributor to speak with an application expert.

Sample and Sample Point

The reliability and performance of your streaming current measurement is largely a function of how and where the sample is taken. Therefore, it is very important to read these tips carefully and to understand what constitutes an optimum sample point for your AF9000 Streaming Current Monitor.

- Wherever possible, avoid sampling from places where sludge, grit, etc. will be drawn into the sensor sample cell, piston and parts are made of plastics and will wear more quickly if exposed to abrasive material.
- To avoid blockages, keep sample lines at least 1 /2 ” to 1" (12.7mm to 25.4mm) ID and with enough flow to prevent solids accumulation.
- Keep sample lines as short as possible to minimize delay in response time.
- The sample must be taken at a point as close to the coagulant injection point as possible where uniform distribution and mixing of coagulant is obtained at all flow rate conditions, and at a point that allows for a quick response to chemical feed changes as measured by the analyser. In many cases, the sample is best pulled right out of the flash mixer or very soon after a static mixer, ideally the sample needs to be taken upstream of flocculation and sedimentation basins. Note: Coagulation occurs very quickly in the rapid mix or flash mix process. The flash mix process only lasts for a few seconds as the coagulant rapidly mixes and reacts with the raw water
- Do not sample off the bottom of a pipe where solids are more likely to accumulate. Abrasive solids will increase wear of the piston and sensor, resulting in a loss of sensitivity to changes in coagulant dosage and water quality and earlier piston replacement.
- Always try to pull the sample before the slow mixer or flocculation basin
- The lag time, or the amount of time it takes the water to travel from the point of chemical addition to the sensor, should be no greater than 1 minute downstream
- If uniform distribution and mixing is not being obtained at a selected sample point, the streaming current reading will oscillate or be unstable. If the coagulant is not being properly mixed, try to first take any possible steps to improve mixing (contact us or your distributor for suggestions). If nothing can be done to improve mixing, the coagulant dosing needs to be moved

further upstream, or the sample point needs to be moved further downstream to allow the coagulant more time to be fully mixed.

- To confirm the sample point, make sure the measured value is stable, as a sample that is not well mixed will see the display moving around quite a bit as it sees water, mixed sample, higher concentration of coagulant and so on. Remember the instrument update of final measurement is only1 second and is without filtering damping – so response is very quick.

Analyser Installation and Sample Lines Guidelines

Install the AccuFloc AF9000 as close to the sample point in order minimize the time it takes the sensor to detect process changes and maximize the response. If the analyser needs to be mounted further away from the sample point, ensure the flow rate is high enough to deliver sample to sensor ideally within 30 sec or 1 minute max.

AF-765 Water Weir kit with auto flush:
Sample pre and post sample flow pipework kit is supplied, this includes a sample flow isolation valve, non-return valve grit trap, sensor inlet fitting, outlet fittings, water weir with clear sight tube, for setting the sample flow –Please Note: water level should be set to just be visible at the bottom of the clear tube meaning the sensor is fully flooded. Direction of sample flow does not matter, and the inlet or outlet can be selected as to your preference on site. Piping size can be reduced, but do not reduce diameter of piping below ½" diameter.

Sample flow through the sensor is recommended to be set for anywhere between 2-4 Liters / minute. Flow does not typically need to be tightly regulated, especially with short sample lines and when draining to atmosphere. Sensors running under pressure or hooked up to long sample lines may experience some impact from flow/pressure variations.

Applications with higher solids/NTU should use a higher flow to prevent solids from accumulating in the sample line and sensor. Longer sample lines also need higher flow rates to ensure timely delivery of sample to the sensor. Consider a larger diameter higher volume circulation loop and draw off this as an alternative, also consider this if a longer sample run.

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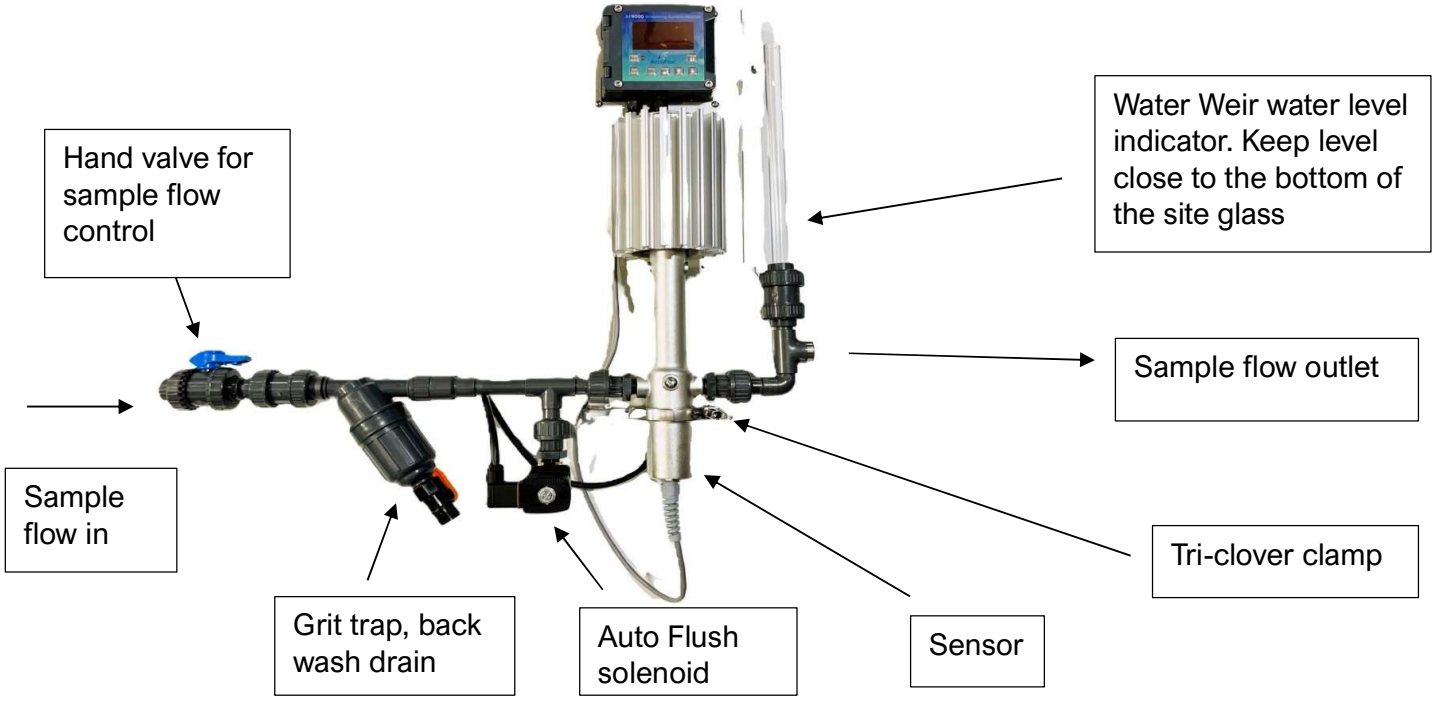

Shown Above - AF9000 with sample water weir and auto flush kit shown, note the kit can be fitted either way around for flow in either direction.

Analyser installation

- Mount securely on a Wall, preferably inside or if outside please use a good quality weather shield.
- Make sure you allow 400mm (16”) clear space below the sensor so as the piston can be changed in situ.
- Plug in the 115/240Vac 50/60Hz power cable to a power outlet socket or if hard wiring please do so safely – please refer to the full manual for instructions and connections.

Connecting the 4-20mA output Signal

- Make sure the AF9000 has no power connected
- Open the Analyser cover and connect the 4-20mA signal wires to the market connections as shown as follows:

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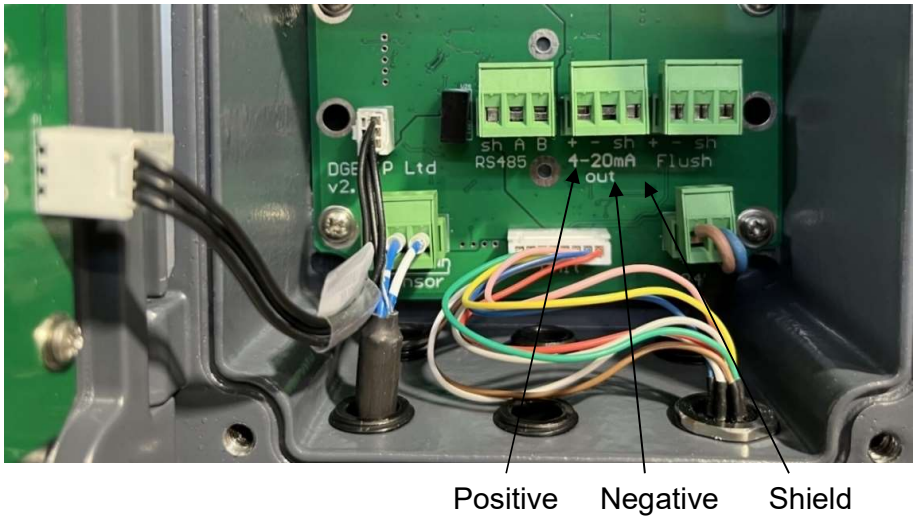
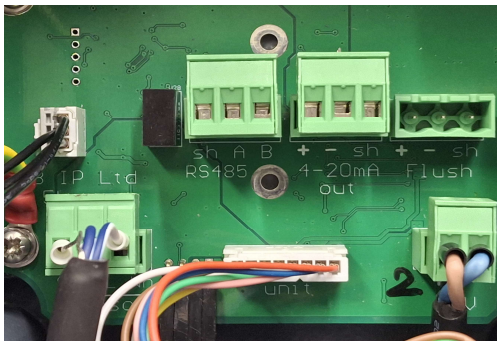
- The connection for the analyser 4-20mA output = SCU is located on the base electronics board (labelled 4-20mA out) The analyser 4-20mA output provides power to the loop. The shield on the 4-20 wire can be grounded in the 3rd terminal on the 4-20 card (labelled Sh) which is connected to ground. The shield wire should be grounded at only one end.



4-20mA output = Streaming Current Units (SCU) CONNECTIONS

Wiring The Auto Flush Solenoid

The auto flush solenoid is supplied with the correct cable connected which now requires wiring into the AF9000. Fit solenoid to the piping fitting supplied, make sure power is turned off the instrument, open the electrical cover and pass the solenoid cable through a spare gland and tighten. Remove the green phoenix plug on the "right" side of the board – marked "Flush". Wire the solenoid cable (fitted to the solenoid) into the phoenix plug as per the picture. Wiring is shown - left to right the Red, Black, Shield (clear). Plug the connector in and the auto flush will now operate correctly.



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Calibration Once Installed

- Request the site WTP Operator to carry out a jar test
- The WTP Operator selects the preferred jar test result and sets the WTP coagulant dosage manually to inject at this calculated PPM rate
- Let the plant settle for approx. 15 minutes at the set coagulant dose rate.
- Request the WTP Operator to review the water quality and confirm ok.
- Push the “Zero” keypad button on the AF9000 analyser and hold for 3 seconds, then release.
- The “0.00” or ”target” point is now set the span automatically applied.
  4mA out = -10 SCU
  12mA out = 0.00 SCU (target of optimum dosing)
  20mA out = +10 SCU

  SCU = Streaming Current Units
- To check the AF9000 is performing correctly, please adjust the coagulant dosing up or down by 10% to make sure you see the instrument respond, challenge test.

For confirming the sample point and AF9000 is seeing a well-mixed sample. Make sure the measured value is stable, as a sample that is not well mixed will see the display moving around quite a bit as it sees water, then mixed sample, then higher concentration of coagulant and so on. Remember the instrument update of final measurement is 1 second – so response is quick.

PLC, SCADA or Controller output for Dosing Pump Control

Your AccuFloc AF9000 is operating correctly now and providing an output of 4-20mA = -10…0.00…+10 SCU range to your site PLC, SCADA or Controller whose PID output should be used for dosing pump control.

The AF9000-1 top display row will show -10…0.00…+10 SCU range with the 12mA (0.00) as being the optimum dosing point or “Target”.

For a Copy of the Full Manual

The Full Operation and Maintenance Manual can be downloaded from our website www.accuflocs.com or requested to be emailed via the contact form on our website or via your distributor