Monitor description:

The ABB 600 series monitor is a colorimetric analyser that can measure different parameters such as Phosphate, Iron and Aluminium, each parameter uses different reagents and generates a different final colour, but the measurement principles remain the same, i.e. reagents are added to a sample and a specific colour is generated, the intensity of the colour is directly proportional to the concentration of the parameter that is being measured in the sample.

The analyser comprises of the following parts: -

1. A light source and detector
2. An optical cell, where the reaction and measurement takes place,
3. A piston pump, driven by a stepper motor, that draws the liquids into the optical cell
4. A solenoid valve array which controls which liquid is drawn in to the optical cell.

The measurement steps are as follows: -

1. Piston draws sample into the cell to rinse the previous analysis
2. First reagent is drawn into the cell and sample is drawn in and mixed at a controlled temperature.
3. Pre reaction optical measurement (blank) taken, to edit out background colour and turbidity
4. Second reagent drawn in and mixed with air to agitate the solution and aid the reaction
5. After the preset period of time that the analyser allows for the reaction to take place, and the colour to develop, another optical measurement is taken, and the resultant value is compared to the stored calibration data and a concentration is presented on the display

The instruments can be set to perform a measurement at user defined intervals of between 10 and 60 minutes, the units on STW sites are all set to 60 minute analysis frequency.

Sample delivery to analyser:

The sample is delivered by one of four means: -

1. Rotorflush pump
2. Standard submersible pump and filter pot
3. Peristaltic pump and filter pot
4. Surface mount pump (mono) and filter pot

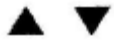
There is a separate sheet applicable to the different sample pumps, and the pertinent sheet will be left at each site. The filter pot is described in this information sheet

Front panel controls


Menu Key – Displays or hides the context-sensitive operator menu associated with each view. It also cancels the menu without making a change or returns to the previous menu level.


Group Key – Toggles between the operator and log screens.


Left Key – Scroll left.


Up/Down Keys – Highlights menu items and scrolls through previously recorded data.


View Key – Toggles between the operator and chart screens.


Right Key – Scroll right.


Enter Key – Selects the highlighted menu item, operation button or edit selection.

Analyser Maintenance:

The analyser will be covered by the Servitech maintenance framework, and each one will be visited on a fortnightly or monthly basis, if there are problems between these visits then a call out visit can be requested on our normal number (24 hours a day) 01234 744700. There are, however, a number of troubleshooting steps that site personnel can take in the event of an instrument failure, either to rectify a problem, or to provide the call out recipient with details of the problem. The 600 series monitor has extensive self diagnostics and will normally display the problem on the screen, the common failures, and the appropriate steps to take are as follows: -

1. Calibration Failure: Enter the Calibration Status screen of the analyzer – Press the menu key and scroll up to Diagnostics, press the enter key and enter Monitor Status. Press the enter key to enter Cal. Check the OD (Optical Density) Low value and the OD High value against the acceptable values – Contact Servitech and advise values

    - Phosphate OD low -0.005 to 0.0015, OD High 0.210 to 0.420
    - Iron OD low 0.000 to 0.010, OD high 0.100 to 0.120
    - Aluminium OD low 0.035 to 0.085, OD high 0.400 to 0.600

2. Flow Failure: The float switch in the pot on the side of the monitor will not be at the top, this can be either due to flow failure, or possibly that it has become stuck in the chamber. Isolate the flow to the instrument and remove the stopper from the bottom of the chamber (place a small jug under the chamber to catch any residual water and the float) use a bottle brush, or clean cloth to clean the inside of the chamber and the outside of the float, put float back in chamber (ensuring it is the correct way up) and refit the stopper, turn sample back on and observe sample flowing into the chamber, and the float rising to the top. – If this doesn't clear the fault, contact Servitech

3. Reagent n empty: The reagent uptake pipes incorporate float switches which generate this error message when the bottles are empty. If this error is on the display and the containers are not empty, carefully remove the uptake pipe from the relevant container, and check that the float switch is not impeded, if the bottle contains liquid and the error doesn't deactivate contact Servitech

4. Piston origin or reset fault: The piston that draws solutions into the measuring chamber has become stuck – contact Servitech.

5. Does the filter pot contain sample? – Remove lid of pot to inspect, if not call Servitech

Filter Pot Maintenance:

The filter pot, and metal filter when used, may become blocked on sites with high solids, they are cleaned by Servitech during each visit however if in the interim they become blocked the procedure to clean them is as follows: -

1. Isolate the flow to the pot, using the valve.
2. Unscrew the top lock nut and pull the cover upwards.
3. If there is a filter pull it out and rinse it, (inside and out) if there is no filter then wipe out the inside of the pot with a cloth, or suitably sized bottle brush. (dispose of rinsing safely)
4. Refit filter, if present, screw lock nut back on to pot, turn flow back on.