Analytical Technology Gatehead Business Park, Delph New Road, Saddleworth OL35DE 01457873318 sales@atiuk.com

Portable turbidity monitoring

Turbidity monitoring is an important measuring instrument when investigating changes in colour in a main or any place within water distribution. Dis-colouration can occur when there are changes in flow, pressure, direction and when water is stored in the network.

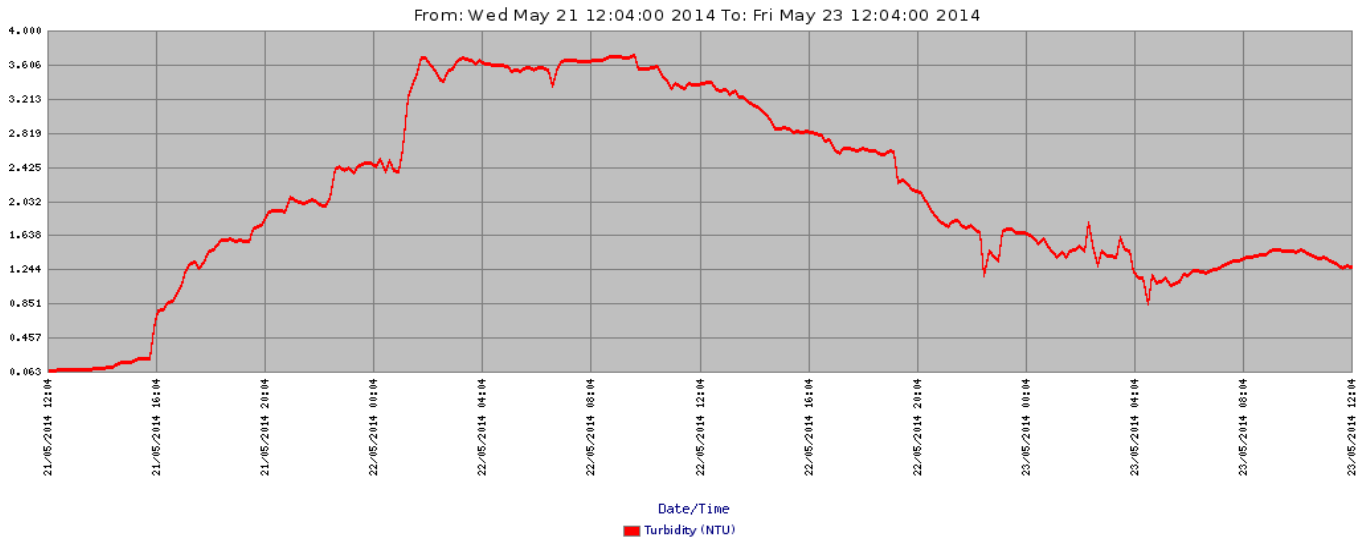
There is increased pressure on water suppliers to provide ever improved water quality. The demand by the general public to have good clean, 'odour less' drinking water has prompted studies by universities (supported by water companies) to investigate what can be done to monitor early increases of dis-colouration, well before the customers turn on the tap and pick up the phone to complain. In an era where information sharing is at an increasing peek, this type of bad publicity is seen as potentially harmful to all stakeholders (including investors).

Continually measuring

The quicker the user is notified of a high level alarm, the quicker they can react to an incident. With continuous measurements, the user will be alerted to an alarm immediately. The user can then contact the contractor/engineer for instant investigation. Minor spikes that only last a second or so (set by the user) can be ignored so that there is not 'over examination' of a particular sample point.

With a constant stream of data, the flushing/network team can see what happens every second of the day but will only receive alarms when necessary. Previous non-continual sensing has lead to missed opportunities to prevent complaints. However, with continuous data, the power is handed to the water provider to better control the logistics of their product. On previous trials of the nephnet, the users liked the fact that the data was continuous. It gave them better information on when to flush, where to flush and how effective the flush was. There was an overall acceptance that this data would provide better analysis on whether the company could move away from flushing patterns to 'required flushing'.

Network teams can now scrutinise the data received from the nephnet to check how the quality of a particular 'leg' of a network fluctuates at more precise times of the day.



Better accuracy at lower levels-Auto zero adjust

The NephNet sensor has built in 'automatic zero' technology. This means that the sensor will deal with a level of contamination that may sit on the lens of the sensor over a period of time. Contamination such as iron and manganese, silt, etc. The auto zero adjusts led sits behind the main lens of the sensor and checks (every millisecond) the strength of its signal to check the overall sensitivity of the probe. When there is an obstruction, such as iron, the signal reduces and the offset is corrected by using this led behind the lens to correct for the obstruction. This allows for more accurate readings at lower levels. This improvement to sensing at low levels offers the user a great understanding of what happens incrementally over a period of time. This can be set as alarm to warn the user.

Flow cell:

Air bubbles are a common problem in many turbidity systems. The nephnet sensor is designed to operate under pressure to eliminate the sample degassing that often causes air bubble errors. Sample pressure is not dropped until the sample exits the measuring chamber, resulting in more reliable measurements.

Simple maintenance and check:

The nephnet has no moving parts to break down. The auto zero adjusts means that the sensor will work with a level of contamination. If the sensor needs cleaning and the sensor needs checking, the nephnet is designed to be easily unscrewed so that the lens can be seen and easily wiped with a non abrasive cloth. The flow cell can then be re assembled and checked with a level of about 50 ml of non formazene turbidity standard.

USB Data logging:

Data logging comes as standard with the nephnet. The data can be stored every second and can be increased if needed by the user at their discretion. The USB logger is very easy to use and there are no issues with software or licenses. Where telemetry fails (due to poor phone signal) the logger can be used as backup to secure the data the nephnet has provided

'Tailor made' telemetry:

The transfer of data is imperative to the user. Data taken directly from the sensor is useless if it cannot be seen immediately. For this reason, nephnet has an optional telemetry unit that is secure and can be 'tailor made' by the user to best suit their systems.

After working with several of the large UK water companies, the options that are offered to the user allows for better control and exceptional value. The main focus is secure data with websites assigned to the user. The telemetry is tailor made to best suit the culture of the company using the nephnet. The user can select from multiple configurations to be assured of satisfaction. Websites, alarm levels, power consumption, text messaging and software variations can be selected. Consultations between the provider and the user must be undertaken primarily to maximise the overall value of data collection.

Specifications

- Range: 4/400 NTU (0-4.000, 0-40.00, 0-400.0)
- Accuracy: ± 5% of reading or ± 0.02 NTU Whichever is greater
- Linearity: 0.1% of F.S.
- Operating Conditions: -20° to +55° C., 0-95% R.H. noncondensing.
- Measurement angle: 90-degree scatter (nephelometric)
- Response Time: 95% in 10 seconds
- Sensor Power: 7-36 VDC
- Sensor Temp. Limit: 0 - 50° C.
- Sensor Pressure Limit: 0 -6 bar
- Sensor Output Range : 400 mV – 2000 mV
- Connections: sensor cable 0.5m
- Sensor Materials: delrin body, Acrylic optical windows
- Flowcell Materials: black PVC
- Flowcell Connections: series 21 connector, male for hydrant. (black tubing supplied)
- Flowcell Pressure: 0-6 bar

Features & Benefits

- ✓ Continuous remote monitoring of turbidity
- ✓ Better accuracy at lower levels
- ✓ Quick connection to water mains via hydrants
- ✓ Wireless communications and alarms
- ✓ Data accessed via secure website
- ✓ Battery life for NephNet is over one year
- ✓ Battery for NephNet with GSM comes with rechargeable battery
- ✓ Battery charger option
- ✓ Less water wastage
- ✓ Remote NephNet DM (display module LED 0-4NTU)
- ✓ Requires only annual servicing