Solutions for a Smarter Future

Q46UV Monitor.
UV-254 and turbidity measurement in one sensor.

Water quality monitoring continues to grow in importance as water sources come under increasing pressure. Conventional measurements of turbidity, pH, conductivity, and colour provide useful information but do not reflect changes in dissolved organic constituents. Many of these dissolved organic compounds absorb UV energy. A UV-254 absorption measurement has increasingly become a useful indicator of organic carbon content, providing operators with real-time information on contaminant levels.

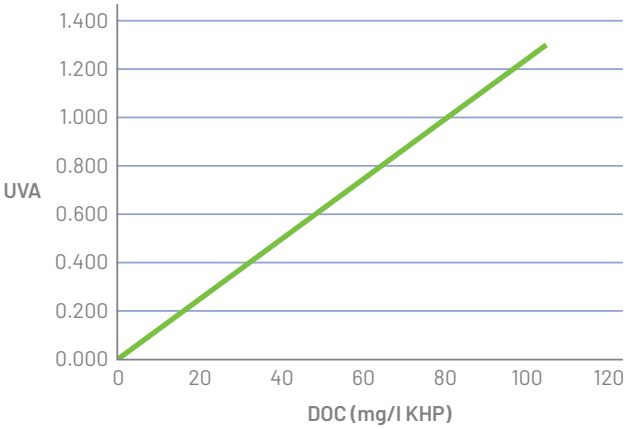
ATI's Model Q46UV Monitor continuously monitors the quality of raw water, treated water, recycle water or wastewater effluents. With a relatively long 20 mm absorption path length, this sensor provides excellent sensitivity to small changes in Dissolved Organic Carbon (DOC). Employing a pulsed UV LED light source and scratch resistant sapphire optical windows, the UV-254 sensor will provide years of trouble-free monitoring.

UV absorption & turbidity in a single sensor

- Long life Pulsed UV LED for extended service life.
- 20 mm measurement path for high sensitivity
- 860 nm IR turbidity measurement (ISO-7027)
- R sensor measures both 90° scatter & absorption
- Analog outputs for both UVA and Turbidity
- Available 3rd output for DOC
- User editable table for UVA vs DOC/TOC/COD/BOD
- Chemical cleaning system option
- Automatic Sensor Fouling Compensation

Dissolved organic carbon

UV-254 measurements are a practical indicator of dissolved organic compounds in water. Traditional methods such as TOC, COD, and BOD all capture more organics and other potential contaminants but have the drawback of being expensive and maintenance intensive. In fact, most are done only in the laboratory due to the complexity of on-line systems.

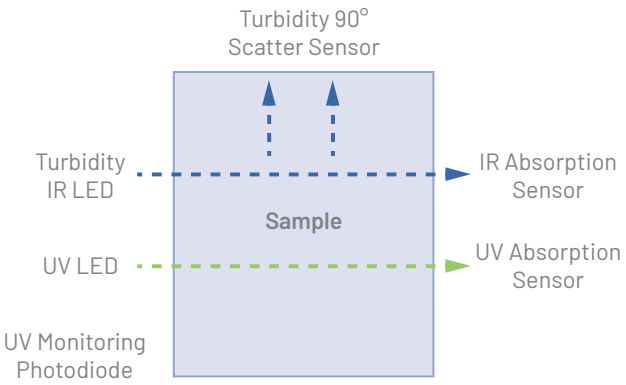


UV-254 measurement is much simpler and can be correlated to DOC levels. It has the advantage of being nearly real time, providing input to treatment control systems and alarming of abnormal conditions. Routine maintenance consists of cleaning the optical surfaces, which is generally simple and quick.

UV and turbidity optics

The Q46UV sensor provides additional optical measurements for added measurement capabilities and increased reliability. Infrared sensors for measuring both 90° Scatter Turbidity and IR absorption are built into the UVA sensor.

These additional optics allow for the measurement of both UV-254 and Turbidity, a unique capability to enhances the usefulness of the monitoring package, especially in raw water monitoring applications. The IR absorption measurement is used to correct measurements for minor optical fouling that can occur over weeks or months of operation.



Automatic sensor cleaning

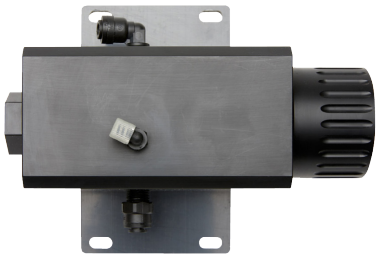
Sensors in contact with raw or settled water samples may experience fouling from iron and manganese. Prechlorination causes iron and manganese to precipitate out of solution and coat surfaces that are in contact with the sample. While manual sensor cleaning is easy, ATI offers Q-Clean, an automatic sensor cleaning system that reduces user maintenance.

The cleaning system consists of an automatic sensor wash system that injects a cleaning solution into the sensor flow chamber at the frequency programmed by the operator. The cleaning solution contains chemicals that dissolve iron and manganese that has accumulated on optical surfaces. The duration of the cleaning cycle is about 15 minutes but can be changed by the operator to meet specific application requirements.

Cleaning system

Flowcell or submersible installation

UV-254 sensors are designed for either submersion or flowcell installation. Flowcells are supplied with a flow regulator installed in the outlet fitting to maintain flow at 450 ml/min.



Flowcell

Specifications	
Range	UVA (0-1.3 ABS), UVT (0-100%) and SUVA. Surrogate measurements DOC,TOC, BOD, COD Turbidity, 0-4000 NTU, IR, 90° Scatter per ISO-7027
Accuracy	± 0.5% UVT
Repeatability	± 0.05% UVT
UV Path Length	20mm
Response Time	90% in 3 minutes
Power	100-240 VAC, 50/60 Hz., 10 VA Max., 24 VDC optional
Cleaning	Manual cleaning standard. Optional Q-Clean cleaner system available
Optical Sources	254 nm UV LED and Narrow 254 nm filter photodiode. 780 nm IR LED for Turbidity
Dimensions	Probe Diameter 1.54" (39 mm), Length 6.3" (160 mm) Controller: 5.6" x 4.9" x 6.6" (142 x 125 x 168 mm)
Display	4 digit, 0.75" numeric LCD, 12 character second line, LED back light
Sensor Temp Limits	2° to 45°C (Operating); -40° to 70°C (Storage)
Readout Temp Limits	-25° to 60°C (Operating); -40° to 70°C (Storage)
Enclosure Rating	Probe NEMA 6P (IP68), Control Unit NEMA 4X (IP66)
Analogue Output	Two 4-20 mA DC, 500 ohms Max.; UVA + Turbidity, DOC, or Temp. Note: 3rd 4-20 mA output supplied if Q-Clean is not used
Relay Outputs	Three SPDT alarm relays standard. Contacts rated 6 amp @ 250 VAC, 5 amp @ 24 VDC
Optional Cleaner Relays	Three low power relays for cleaner system control

Ordering information

Option A
Power

1. 100-240V +/-10%, 50/60 Hz
2. 2-24 VDC, (requires 300 mA, 600 mA with Q-Clean)

Option B
Sensor Type

1. Submersible Sensor with 25 ft. cable
2. Sensor with flowcell
3. Sensor with flowcell and Q-Clean Assembly

Option C
Optional Output

1. 3rd 4-20 mA output
2. Low power relay board (required with option B3 above)

Option D
Digital Output

1. None
2. Profibus DP
3. Modbus RTU
4. Ethernet/IP
5. Modbus TCP/IP

ATi UK is a leading provider of engineered, analytical sensor monitoring solutions to the water and gas industry. Our pioneering and industry leading range of Network Monitors, Water Quality Monitors and Gas Detectors provide innovative solutions for the most demanding of applications.

Q Series

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