

Series C15 Water Quality Monitoring Modules



Increasingly stringent drinking water standards are a fact of life for both private and municipal water systems. Continuous monitoring of water quality can provide valuable operational data on the day-to-day changes occurring within a distribution system or a specific well site. Information on changes in pH, conductivity, temperature, and residual chlorine serve as useful indicators of changes in raw water quality, chemical feed system stability, and chemical changes within distribution piping.

ATI has developed a modular water quality system that meets the need for economical on-line monitors for water quality parameters. The Series C15 monitoring system allows the user to



choose those parameters for which monitoring is desired, and to integrate those components into a monitoring package suitable for continuous monitoring, alarming, and data collection.

System components are currently available for Free Chlorine, Combined Chlorine (for chloramine treated systems), Dissolved Ozone, pH, ORP, Conductivity, and Temperature. In addition, Dissolved Oxygen and Turbidity modules will be added to the system in the near future.

Series C15 monitoring modules are compact DIN rail mounted components that provide a direct LCD display of the specific parameter (PPM Cl_2 , PPM DO_3 , μS , pH, mv., $^{\circ}C$) and provide one alarm contact that can be used to warn of



potentially hazardous conditions. Zero and span controls are conveniently located on the front of each module for easy calibration, and a 4-20 mA output is

available from each module for use with external recorders, data loggers, or for telemetry input.

Monitoring modules are mounted in NEMA 4X enclosures, with the enclosure size determined by the number of modules required for a specific application. Packages are available for single parameter systems, or enclosures can contain up to 8 modules. Clear windows on the front of the enclosure allow viewing of the LCD displays, while protecting the electronics against water, dirt, and dust.

Residual Chlorine Module

The chlorine monitor module uses ATI's unique membraned sensor to continuously monitor either free chlorine or combined chlorine without the need for chemical reagents. Sample simply flows past the sensor, with the resulting signal being displayed directly in PPM chlorine. An RTD in the sensor provides automatic temperature compensation for sensor signals.



Specifications

Range:	0-1.000, 0-2.000 or 0-5.00 PPM, free or combined chlorine
Repeatability:	±0.05 PPM
Response Time:	90% within 60 seconds
Display:	LCD
Alarm:	Single adjustable alarm, may be high or low
Output:	Non-isolated 4-20 mA, 500 ohms max.
Power:	120/240 VAC, 50/60 Hz., 3 VA maximum
Operating Conditions:	0-40°C

pH Module

The pH module uses a rugged combination pH and reference electrode mounted in a convenient twist-lock assembly. This system can be used either with or without an automatic temperature compensator, depending on application requirements. Separate temperature condensation elements can be supplied for systems where temperature measurement is also required.

Specifications

Range:	0-14.00 pH
Repeatability:	±0.10 PPM
Response Time:	90% within 10 seconds
Display:	LCD
Alarm:	Single adjustable alarm, may be high or low
Output:	Non-isolated 4-20 mA, 500 ohms max.
Power:	120/240 VAC, 50/60 Hz., 3 VA maximum
Operating Conditions:	0-40°C



ORP Module



The ORP monitoring module uses either platinum or gold oxidation reduction potential electrodes to provide an indication of the amounts of oxidizing or reducing substances in solution. Similar in design to the pH system, the sensor assembly uses a simple twist-lock connector for insertion into the flowcell.

Specifications

Range:	0-1000 mv (positive or negative)
Repeatability:	±2 mv
Response Time:	90% within 10 seconds
Display:	LCD
Alarm:	Single adjustable alarm, may be high or low
Output:	Non-isolated 4-20 mA, 500 ohms max.
Power:	120/240 VAC, 50/60 Hz., 3 VA maximum
Operating Conditions:	0-40°C

Dissolved Ozone Module

Similar in operation to the residual chlorine monitor, the dissolved ozone monitoring module uses a highly specific membraned ozone sensor to measure dissolved ozone concentrations in all types of ozonated water streams. Measurements can be made accurately, even in the presence of residual chlorine in the stream.



Specifications

Range:	0-1.000, 0-2.000 or 0-5.00 PPM
Repeatability:	±0.02 PPM
Response Time:	90% within 60 seconds
Display:	LCD
Alarm:	Single adjustable alarm, may be high or low
Output:	Non-isolated 4-20 mA, 500 ohms max.
Power:	120/240 VAC, 50/60 Hz., 3 VA maximum
Operating Conditions:	0-40°C

Conductivity Module



The conductivity monitoring module uses a standard platinum conductivity sensor with a 1.0 cell constant. As with the pH system, the conductivity sensor can be used with or without the separate temperature compensator element. Platinum electrodes insure reliable and accurate measurements without polarization or plating problems.

Specifications

Range:	0-200 µS, 0-2000 µS or 0-20 mS
Repeatability:	±2 µS
Response Time:	90% within 60 seconds
Display:	LCD
Alarm:	Single adjustable alarm, may be high or low
Output:	Non-isolated 4-20 mA, 500 ohms max.
Power:	120/240 VAC, 50/60 Hz., 3 VA maximum
Operating Conditions:	0-40°C

Temperature Module

The temperature monitoring module uses a precision 100 ohm platinum RTD to accurately measure water temperature. The temperature sensor is integrated into the same sensor assembly used to house the pH and conductivity temperature condensators.

Specifications

Range:	-20° to +120°C
Repeatability:	±0.1°C
Response Time:	90% within 60 seconds
Display:	LCD
Alarm:	Single adjustable alarm, may be high or low
Output:	Non-isolated 4-20 mA, 500 ohms max.
Power:	120/240 VAC, 50/60 Hz., 3 VA maximum
Operating Conditions:	0-40°C



Sensors and Flowcells

The sensor for each parameter is normally supplied with a clear acrylic flowcell which is connected to the water system to be monitored. Each sensor inserts into the flowcell with a simple twist-lock or screw-in connection, and the flowcells are mounted to a plate for installation on a wall or in a separate enclosure. The flowcells for systems with multiple parameters are connected in series so that only a single inlet connection is required. Sample flowrates of 300-500 cc/min. are typical. Submersible sensors are also available for many parameters. Your ATI representative can assist with special sensor requirements.



Submersible or flow sensors available.



Typical flowcells

Enclosures



Single module enclosure



Two module enclosure

(Four module enclosure shown on cover)

Other Monitoring Products

ATI manufactures other on-line water monitoring instruments plus a complete line of gas detection equipment. If we can be of assistance with any of the products listed below, please contact us or your local ATI representative.

Auto-Clean Dissolved Oxygen Monitor
Residual Chlorine Recorder
Residual Chlorine Dioxide Monitor
On-Line Particle Counter
Portable Toxic Gas Leak Detectors
On-Line Particle Counter
Portable Toxic Gas Leak Detectors
On-Line Combustible Gas Monitors
Two-wire Toxic Gas Transmitters

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