Portable Water Quality Monitoring System

Model PQ45

Portable System for Water Quality Monitoring

Continuous monitoring of residual chlorine in water distribution systems, dissolved ozone in ultrapure water systems, or chlorine dioxide in food chiller systems are commonly done to document process performance and regulatory compliance. This is most frequently done by installing fixed line-powered instrumentation intended for permanent use in one location. But with increasing demand for measurements in other areas, the need for temporary monitoring is growing.

ATI's new **Series P-Q45** is the answer to the need for a rugged field-deployable package capable of measuring and recording water quality data in a variety of operating environments. It is ideal for short-term recording of specific parameters such as Free Chlorine and pH in potable water.

P-Q45 Systems are available for monitoring various components in water. The available measurements are shown in the listing below. Free chlorine, combined chlorine, dissolved ozone, and residual chlorine dioxide systems are supplied with a "Sensor Keeper" to maintain sensor polarization, even when the monitor is turned off.

Available Measurements

- **Combined Residual Chlorine**
- **Dissolved Ozone**
- **Free Residual Chlorine**
- **Residual Chlorine Dioxide**
- **Plus an optional second parameter for pH measurement**
- **Dissolved Oxygen**
- **Conductivity**
- **ORP or pH**

Portable monitoring systems operate continuously for up to 30 days on 2 internal C-cell batteries. Rechargeable C-cell batteries may be substituted for the standard alkaline batteries, but the duration of operation will be different depending on the batteries used. As an option, the internal batteries may be eliminated and a terminal block is supplied for connection to an external 5-17 VDC power supply. This option allows easy adaptability to solar power systems.

Complete P-Q45 systems are supplied in a durable carrying case with provision for user supplied locks to protect from tampering. Sensors and flowcells are mounted on an internal hinged panel for easy access. The optional data logger is located on the front of the panel, and is removable by simply unplugging input cables. The data logger contains it's own internal battery suitable for about 6 months operation.

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Customer Hookup

Water connections are made using flexible inlet and drain tubing. Fittings are supplied for the user to adapt tubing to piping systems. Other than a shut-off valve at the sample point, no additional flow controls are required. The P-Q45 contains a flow regulation device that will maintain sample flow at about 400 cc/min. at any inlet pressure from 5-100 PSI (0.3-7 Bar). An internal V-strainer protects the flow control from any large particles, and the fittings supplied for liquid connection contain internal valves that stop flow as soon as the fitting is disconnected. A 20ft length of tubing is included.

Data Collection

The P-Q45 data logger has an optional software package for programming the data logger, downloading data and displaying data in graphical and tabular form.

System Maintenance

Each P-Q45 systam comes with a supply of spare parts for routine maintenance. These parts are conveniently stored behind the internal hinged panel, and are sufficient for regenerating the sensor at prescribed intervals through the first year of operation.

Features

- **Fully isolated battery-powered instrument that also can be run from an external power source of 5-17 VDC such as solar power.**
- **Runs on 2 C-cell batteries for 30 days**
- **Two, isolated 0-2.5 VDC analog outputs**
- **Optional data logger, 12 bit resolution**
- **Diagnostic message codes displayed on LCD screen**
- **High accuracy temperature compensation**
- **Security lock feature to prevent tampering**
- **Low battery indicator**

PQ45H Specifications

Measurement Type:	Dissolved Oxygen	0-40.00 PPM
	Combined Chlorine	0-2.000 PPM Min., 0-200 PPM Max.
	Free Chlorine	0-2.000 PPM Min., 0-200 PPM Max.
	Dissolved Ozone	0-200 PPB Min., 0-20.00 PPM Max.
	Dissolved ClO2	0-200 PPB Min., 0-20.00 PPM Max.
	Conductivity	0.0 – 200 µS Min., 0.00 – 2 S Max.
	pH	0.00 – 14.00 pH
	ORP	-1000 to +2000 mV
Sensor Type:	Voltametric, potentiometric or conductance	
Response Time:	90% in 60 seconds average (dependent on type of measurement)	
Accuracy:	± 1% of range typical	
Repeatability:	± 0.5% of range typical	
Electronic Linearity:	± 0.5% of Full Scale	
Zero Drift:	< 1% full scale per month, non-cumulative	
Display:	Large format LCD with auto-off backlight	
Outputs:	Two 0-2.5 VDC for data logger, 500K Min. input impedance	
Sample Flowrate:	400 cc/min. controlled internally	
Inlet Pressure:	0-100 PSI (0-7 Bar)	
Connections:	Quick-disconnect fittings with integral shut-off valves, ¼" OD tubing	
Data Logger Memory:	43,000 data points	
Storage Interval:	Programmable from < 1 minute to > 1 hour	
Data Logger Software:	PC compatible supplied standard, MAC available	
Data Logger Connection to PC:	USB, interface cable supplied with software	
Typical Capacity:	11 Days at 1-minute storage interval	
Alarms:	Low Battery indicator on LCD	
Power:	Internal C-cells standard External 5-17 VDC supply optional (through multipin connector)	
Operating Temp.:	-5 to 55°C	
Humidity:	0-95% Non-condensing	
Weight:	17 lbs. (7.7 Kg.)	
Size:	18" X 14" X 8" (46 x 36 x 20 cm)	

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Represented By:

Ordering Information
Model PQ45-A B C D Portable Analyzer

Suffix A: Primary Measurement Parameter
- 60 – Dissolved Oxygen
- 62 – Free Residual Chlorine
- 63 – Combined Residual Chlorine
- 64 – Dissolved Ozone
- 65 – Residual Chlorine Dioxide
- 72 – pH
- 73 – Conductivity, 4-electrode sensor
- 75 – ORP

Suffix B: (Available ONLY for Suffix A types 62, 63, 64, and 65)
- 1 – With pH Sensor and Flowcell
- 2 – Without pH Sensor and Flowcell

Suffix C: Data Logger
- 1 – With Battery Powered Data Logger and Software
- 2 – Without Data Logger
- 3 – With Data Logger (No Software)

Suffix D: Power
- 1 – Internal C Cell Batteries
- 2 – Terminals for external (customer supplied), 5-17 VDC Power