



# Residual Chlorine Monitor

## Q46H / 62-63



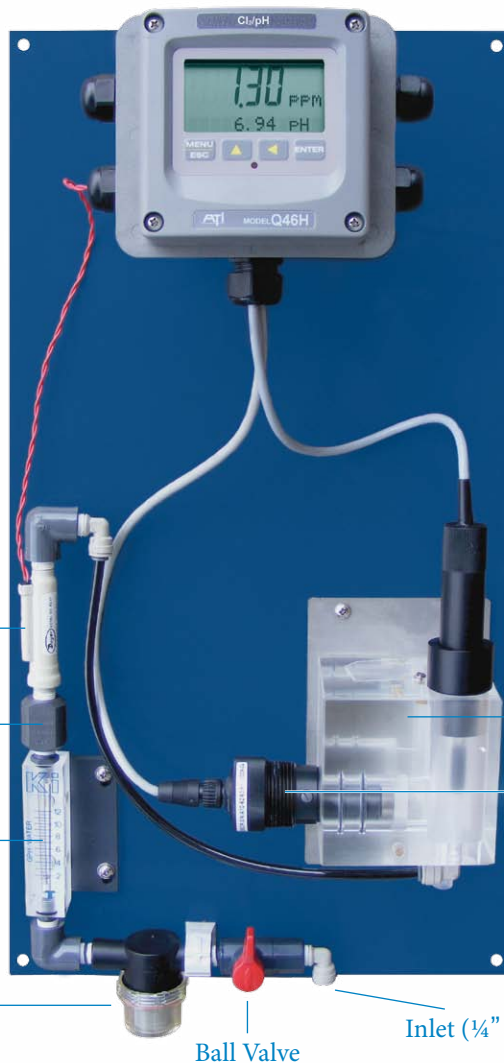
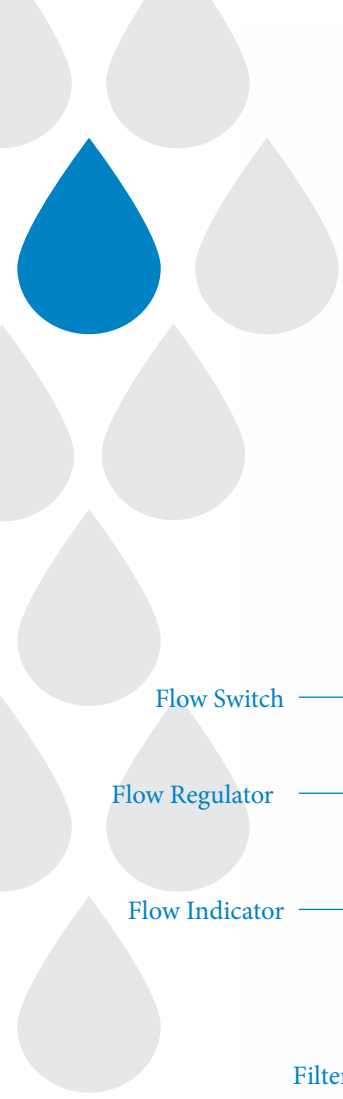
Q46H Flowcell Style Sensor

**ATI's Model Q46H** Chlorine Monitor is an upgraded version of our proven Q45H system for continuous monitoring of free or combined chlorine. Monitor capabilities have been expanded to include options for a 3rd analog output or for adding additional low power relay outputs. Digital communication options for Profibus, Modbus, or Ethernet have been added as well.

The Q46H system uses a polarographic membraned sensor to measure chlorine directly, without the need for chemical reagents. When needed, automatic pH compensation may be added for highest free chlorine measurement accuracy. Systems are available to provide 4-20 mA outputs for chlorine, pH, and temperature to allow easy CT calculations.

Q46H systems are economical to purchase, economical to maintain, and provide long term accuracy and reliability for your chlorine monitoring needs.

MONITOR YOUR CHLORINE ...*Reagent Free*



## EASY INSTALL.

*Want to simplify installation?*

ATI can supply the Q46H complete with sample flow controls mounted to a PVC back plate ready to mount. Connect power, water sample, and analog/relay outputs and you're ready to go. Systems are available with or without a flow switch for remote indication of loss of sample.

## FEATURES.

**Free or Combined Chlorine.** Q46H Monitors are factory set for either Free or Combined Chlorine measurement, but can easily be converted from one to the other in the field.

**Flexible Operating Range.** Monitors may be programmed for display ranges of 0-2, 0-20, or 0-200 PPM, and a 0-200 PPB range is available for chlorine breakthrough applications.

**Economical Operation.** Reagent-less operation and low parts cost makes the Q46H your best choice for chlorine monitoring applications in potable water, wastewater, cooling water, or high purity water systems.

**AC or DC Power Options.** Units are available for operation from AC power (100-240 VAC) or from low voltage DC supplies (12-24 VDC).

**Automatic pH Compensation.** For free chlorine monitoring under widely varying pH conditions, automatic pH compensation may be added to maintain the highest measurement accuracy at pH levels up to 9.5.

**Dual Chlorine/pH Monitoring.** Even when pH correction is not required, adding a pH sensor to the system converts the monitor to a dual analyzer, providing 4-20 mA outputs for both chlorine and pH.

**Three Analog Output Options.** A third analog output may be added to provide outputs for chlorine, pH, and temperature, ideal for applications where CT calculations are desired.

**PID Output.** When chlorine control is desired, one 4-20 mA outputs may be configured for PID control of chlorine free equipment.

**Relay Outputs.** Monitors provide three standard SPDT relay outputs. Three additional low-power SPST relays may be added if needed for special applications.

**Digital Communications.** Q46H monitors are available with digital outputs. Options include Profibus-DP, Modbus, or Ethernet.

## SENSOR & FLOWCELL OPTIONS.

Two types of chlorine sensors are available. One is designed for flowcell installation, and the other is for submersion applications. Free chlorine monitoring should always be done using a flowcell system. Good control of sample flow and pressure is important for accurate measurement. The standard constant-head flowcell should be used for most applications. A sealed flowcell and a low-volume flowcell are also available for special applications. Consult your ATI representative for application assistance.

Submersible combined chlorine sensors can sometimes be used for measuring total chlorine in wastewater effluent. Wastewater effluents containing more than 1 PPM of ammonia, often result in a chlorine residual that is more than 90% monochloramine. Direct measurement with a submersible sensor can provide a dependable monitor without all the sampling and chemicals associated with total chlorine measurement.



Submersion and Flowcell Sensors



Constant Head Flowcell



Sealed Flowcell

Say *Goodbye*  
to Buffers &  
DPD Reagents  
*...Forever!*

## SENSOR STABILIZATION.

Chlorine sensors, especially free chlorine, require up to 8 hours of stabilization time when first installed or after membrane change. ATI offers a battery powered "polarizer" that can be used to stabilize a spare sensor so it is ready to run within a few minutes of installation. Polarizers simply plug into the sensor connector and require no adjustments.



Sensor Polarizer

## SYSTEM OPTIONS.

Standard Q46H Systems are AC powered (100-240 VAC, 50/60 Hz) or DC powered (12-24 VDC) version is also available. The basic system includes two isolated 4-20 mA outputs and 3 SPDT alarm relays.

If pH correction is required, or if pH measurement is also desired, an optional pH sensor is available. With this sensor connected, the second analog output may be configured for pH instead of temperature to provide a dual chlorine/pH monitor system.

Q46H systems may also be supplied with an additional output board. This output board may contain **either** a third 4-20 mA output **or** three additional low power relays. Adding the third analog output is the most common as the system then provides isolated outputs for chlorine, pH, and temperature.

In addition to the analog output options, Q46H monitors may be supplied with digital communications. A Profibus DP interface is currently available, with Modbus and Ethernet options under development.

# Q46H/62-63 SPECIFICATIONS

## ELECTRONIC MONITOR

<b>Display Range</b>	0-2.000, 0-20.00, or 0-200.0 PPM
<b>Accuracy</b>	± 0.01 PPM
<b>Repeatability</b>	± 0.01 PPM
<b>Zero Drift</b>	< 0.01 PPM/month
<b>Power</b>	100-240 VAC ± 10%, 50/60 Hz., 10 VA max. 12-24 VDC, 500 mA max. Optional
<b>Analog Outputs</b>	Two isolated 4-20 mA, 500 Ω max. standard
<b>Relay Output</b>	Three SPDT, 6A @ 250 VAC standard Three additional SPST low voltage relays optional
<b>Display</b>	4 digit, 0.75" LCD numeric plus 12 digit second line
<b>Enclosure</b>	Nema 4X (IP-66) Polycarbonate
<b>Operating Conditions</b>	0-50° C
<b>Weight</b>	6 lbs. (2.7 Kg) with sensor, flowcell & accessories 15 lbs (6.8 Kg) assembled into panel

## SENSOR & FLOWCELL

<b>Chlorine Sensor</b>	Membrane-Covered Amperometric (Polarographic)
<b>Optional pH Sensor</b>	Combination pH Sensor, with or without preamplifier
<b>Materials</b>	PVC & 316 Stainless Steel
<b>Response Time</b>	90% in 60 seconds
<b>Temperature Limits</b>	0-50°C
<b>Pressure Limit</b>	0-50 PSIG
<b>Sensor Cable</b>	25 ft. (7.5 m) standard
<b>Sensor Flowcell</b>	Clear Acrylic Constant-Head Overflow standard Sealed Acrylic Flowcell optional
<b>Sample Flowrate</b>	7-15 GPH (0.5-1.0 LPM)

### NOTES:

- 1 - All systems are supplied w/one package of membranes, one 120 cc bottle of electrolyte, & one spare parts kit containing 3 each of all o-rings & special screws.
- 2 - Suffix D, 2, 3, or 4 allow Q46H to supply outputs for both chlorine & pH.
- 3 - Flowcell for Cl<sub>2</sub> / pH Combo systems should be kept within 25 ft of monitor.
- 4 - Buffer packet for pH 4 & 7 supplied with opt. 2, 3 or 4, suffix D.
- 5 - Pipe mount requires two 2" U-bolts (47-0005).

## ORDERING INFORMATION

Model Q46H-A-B-C-D-E-F-G Chlorine Monitor

### Suffix A - Measurement Type

- 62 - Free Chlorine
- 63 - Combined Chlorine

### Suffix B - Power

- 1 - 100-240 VAC, 50/60 Hz
- 2 - 12-24 VDC

### Suffix C - Sensor Style

- 1 - Sensor with constant head flowcell and 25' cable
- 2 - Submersible sensor with 25' cable (Combined chlorine only)
- 3 - Sensor with sealed low-volume flowcell
- 4 - Sensor with 1-1/2" Flow "T" (Combined chlorine only)
- 5 - Sensor with sealed flowcell
- 6 - Flow sensor only, no flowcell (consult factory)

### Suffix D - pH Sensor Input

- 1 - None
- 2 - Q22 pH Sensor with battery preamp, 25' cable
- 3 - Standard pH sensor with 25 ft. cable & Adapter for overflow cell
- 4 - Standard pH sensor with 25 ft. cable & sealed flowcell

### Suffix E - Digital Output

- 1 - None
- 2 - Profibus DP
- 3 - Modbus
- 4 - Ethernet

### Suffix F - Optional output (select only one)

- 1 - None
- 2 - One additional 4-20 mA output
- 3 - Three additional low power relays (SPST, 0.5A Max)

### Suffix G - System Assembly

- 1 - None
- 2 - Panel with flow controls, without flow switch
- 3 - Panel with flow controls, with flow switch

### OPTIONS

- 07-0100 NEMA 4X junction box
- 31-0038 Sensor interconnect cable (max. 100 ft.)
- 00-0628 Mounting bracket kit for submersible sensor
- 00-0259 CO2 buffer injection system (for precipitation control)
- 55-0003 Rotameter for CO2 buffer system
- 00-0570 Free Chlorine Sensor polarizer (flow)
- 00-0572 Combined Chlorine Sensor polarizer (flow)
- 00-0573 Combined Chlorine Sensor polarizer (submersion)
- 47-0005 2" U-bolt, 304SS
- 05-0068 Panel mount bracket kit

CSA & UL Approvals Pending.



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