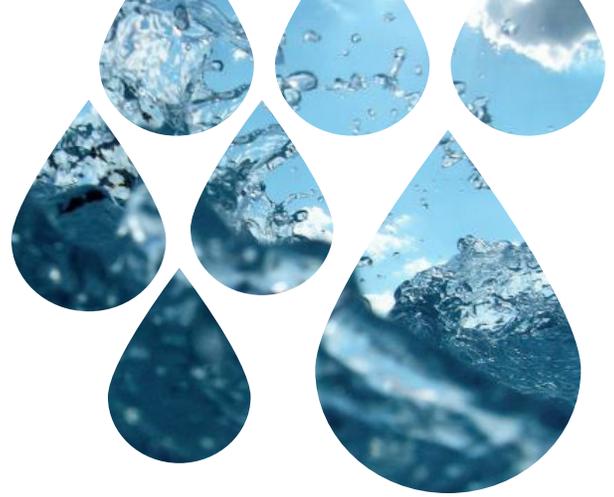


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# TotalChlorineMonitor

## Model Q46H/79PR



Flowcell Style Sensor

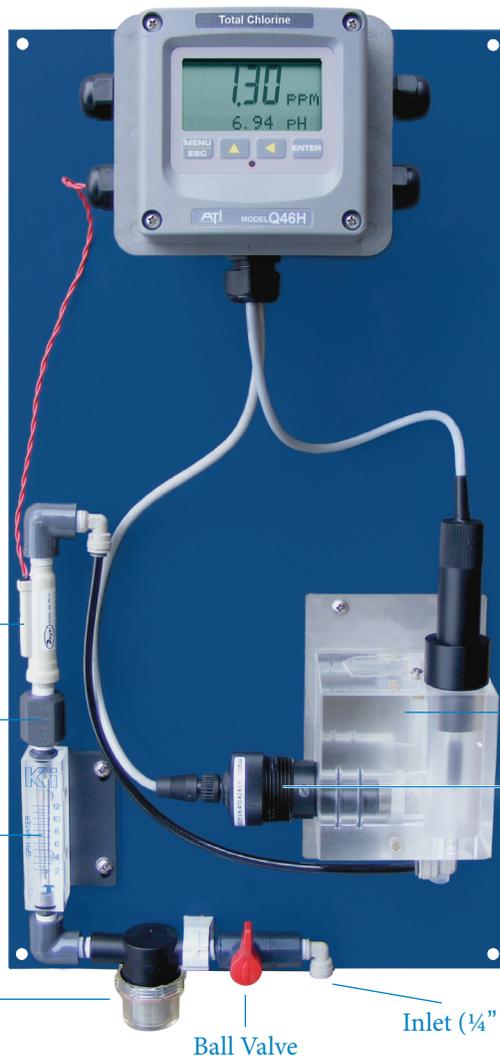
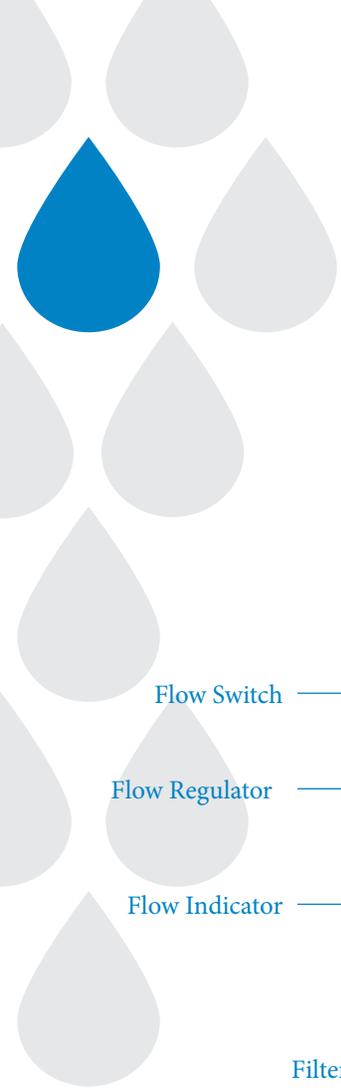
**ATI's Model Q46H/79PR** Total Chlorine Measurement System is a highly versatile on-line monitoring system designed for the continuous measurement of total chlorine in solution. This direct measuring system **does not require the addition of chemical reagents** to measure total chlorine. The Q46H/79PR is well suited for potable water systems, water reuse systems, cooling towers, aquariums, and for monitoring wastewater treatment effluents.

The basic sensing element used in the total chlorine monitor is a 3-electrode amperometric membrane sensor which measures chlorine directly. The chlorine measurement does not alter the sample or add any chemicals to the sample stream, so the water flow can return to the system if desired.

In addition to total chlorine measurement, the Q46/79PR is also available with an optional pH input which provides a two-parameter monitoring system.

MONITOR YOUR TOTAL CHLORINE ...*Reagent Free*

**ATI**  
ANALYTICAL TECHNOLOGY, INC.



## EASY INSTALL

*Want to simplify installation?*

ATI can supply the Q46H/79PR 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.

pH Sensor

Constant-Head Flowcell

Chlorine Sensor

Flow Switch

Flow Regulator

Flow Indicator

Filter

Ball Valve

Inlet (¼" O.D. Tube)

## FEATURES

**Total Chlorine.** Membraned-covered amperometric sensor that measures total chlorine without the addition of pH buffer, iodide solution, or other reagents. The total chlorine sensor can be tank mounted with a submersion assembly, or flow-cell mounted for sampling applications.

**Optional pH Sensor.** Active pH measurement with choice of pH sensor types. Selecting this option converts the monitor to a dual analyzer, providing 4-20 mA outputs for both chlorine and pH.

**Flexibility.** Programmable range options from 0.1 PPM to 200.0 PPM through 3 internal automatic ranges. User ranges of 2.000 PPM, 20.00 PPM, or 200.0 PPM.

**AC or DC Power Options.** Available in either 90-260 VAC or 12-24 VDC power supply systems. All features remain the same in both variations.

**Analog Output Options.** Two analog outputs may be configured to track chlorine and temperature, chlorine and chlorine, or chlorine and pH. Both analog outputs can be individually programmed to fail to specific values. An optional 3<sup>rd</sup> output is available for tracking all three parameters.

**PID Output.** PID controller can be configured as one of the two outputs. PID includes manual operation feature, and diagnostic "stuck-controller" timer feature for relay notification of control problems.

**Digital Communications.** Available in either Profibus-DP or Modbus RTU. More versions pending.

**Relay Contacts.** Three 6 amp SPDT relays and two analog 4-20 mA outputs are standard. Software settings for relay control include setpoint, deadband, phase, delay, and fail safe. An optional 3-relay card, for 0-30 VDC signals, is available to bring the total to 6 relays.

## SENSOR & FLOWCELL OPTIONS

Two types of chlorine sensors are available. One is designed for flowcell installation, and the other is for submersion applications. Total chlorine monitoring below a concentration of 0.5 PPM should be done using a flowcell system if possible. 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 total chlorine sensors can be used for measuring total chlorine in wastewater effluent or other open-channel applications. Direct measurement with a submersible sensor can provide a dependable monitor without all the sampling and chemicals associated with traditional total chlorine measurement.



Submersion and Flowcell Sensors



Constant Head Flowcell



Sealed Flowcell



Sensor Handrail Mounting

## SYSTEM OPTIONS

Standard Q46H/79PR Systems are AC powered (90-260 VAC, 50/60 Hz), or a DC powered (12-24 VDC) version is also available. The basic system includes two isolated 4-20 mA outputs and three SPDT alarm relays.

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/79PR 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/79PR monitors may be supplied with digital communications: Profibus-DP, Modbus RTU, or Ethernet/IP.

# Q46H/79PR SPECIFICATIONS

## ELECTRONIC MONITOR

<b>Display Range</b>	0-2,000, 0-20.00, or 0-200.0 PPM
<b>Accuracy</b>	± 0.05 PPM
<b>Repeatability</b>	± 0.02 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 load max.
<b>Relays</b>	Three SPDT, 6A @ 250 VAC standard Three additional SPST low voltage relays optional
<b>Display</b>	4 digit, 0.75" numeric LCD plus 12 digit second line
<b>Enclosure</b>	NEMA 4X (IP-66) Polycarbonate
<b>Weight</b>	6 lbs. (2.7 kg) with sensor, flowcell & accessories 15 lbs (6.8 kg) assembled into panel
<b>Operating Conditions</b>	0 to 50°C

## SENSOR & FLOWCELL

<b>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 to 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 with two spare membrane assemblies, one 120 cc bottle of electrolyte, and one spare parts kit containing 3 each of all o-rings & special screws.
- 2 - Suffix C, 2, 3, or 4 allows 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 packets of pH 4 & 7 supplied with option 2, 3, or 4, Suffix C.
- 5 - Pipe mount requires two 2" U-bolts (47-0005).

## ORDERING INFORMATION

Model Q46H/79PR-A-B-C-D-E-F Total Chlorine Monitor

### Suffix A - Power

- 1 - 100-240 VAC, ±10%, 50/60 Hz
- 2 - 12-24 VDC, (requires 300 mA)

### Suffix B - Sensor Style

- 1 - Sensor with constant head flowcell and 25' cable
- 2 - Submersible sensor with 25' cable
- 3 - Sensor with sealed flowcell

### Suffix C - pH Sensor Input

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

### Suffix D - Digital Output

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

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

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

### Suffix F - System Assembly

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

## OPTIONS

- 05-0109** Total Chlorine Membrane Cap, Pkg. of 2  
**07-0100** Universal junction box, NEMA 4X  
**31-0038** 7-c Sensor interconnect cable, max. 100 ft  
**00-0628** Mounting bracket kit for submersible sensor  
**05-0094** Panel mount bracket kit  
**47-0005** 2" U-bolt, 304SS  
**55-0048** Fixed flow regulator, 400 cc/min., 1/4" inlet & outlet  
**03-0372** Fixed flow regulator assembly, 400 cc/min., 1/4" inlet & outlet, Buna-N