InPipe or in Plant

Low maintenance Multiparameter Chlorine and Monochloramine Sensor

Remote Monitoring

HALOGEN SYSTEMS

Halogen's No Maintenance Chlorine Sensor*

The MP5-A chlorine sensor can be installed in locations that are impossible for other sensors. It is designed for low maintenance, with service intervals of six months or more, and zero water waste, potentially saving up to 70,000 gallons of water per year. Furthermore, the MP5-A does not require reagents or membranes, leading to savings of thousands of dollars.

Features

These features are exclusive to Halogen's MP5-A, setting it apart from all other sensors in the market.

Highest Accuracy

MP5-A is chlorine reading is accurate over a wide range of conditions of temperature, pH and conductivity. It is accurate within ±4% over 6.5 to 8.5 pH. Chlorine measurement is up to 20 ppm.

NSF61 Certification-no waste stream

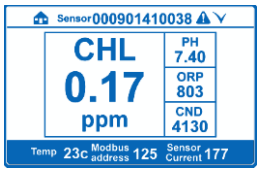
MP5-A is rated for drinking water exposure so it can be installed directly in a pipe for enormous water savings of over 70,000 gallons of water per year per sensor.

No Reagents, No Membrane

Since MP5-A is reagentless, it saves thousands of dollars over its lifetime. There is no need for monthly reagent or pump tubing changes. No waste stream or chemicals are needed.

6 months- no maintenance

MP5-A does not require frequent calibration like membrane chlorine sensors. It can operate for 6 months or more unattended. Variables that cause other sensors to go out of calibration do not affect MP5-A.



Five Parameters on One Sensor

MP5-A provides operators with 5 critical water parameters every minute. Its chlorine measurement is membrane-free and automatically compensated for temperature, pH and conductivity changes. It measures:

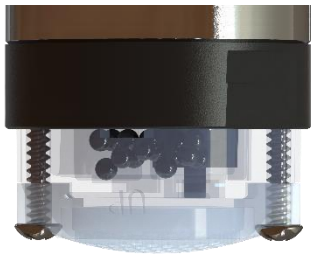
1. Free chlorine
2. pH
3. Conductivity
4. Temperature(digital
5. Rapid Response ORP™

A single sensor gives operators these critical monitoring parameters.

Factory calibrated

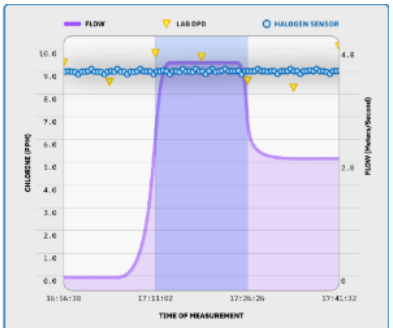
Sensors often read accurately right out of the box. There is no need for expensive service contracts. Spares can be kept on the shelf and swapped out, if necessary.

Self-Cleaning



All electrodes are continuously cleaned and polished by cleaning beads. These beads also clean the pH sensor. This means the sensor does not require frequent calibration, cleaning, or service. This self-cleaning module makes each of these parameters “best in class” in reliability and accuracy.

Flow Independent



Since this chlorine sensor is unaffected by flow changes, it stays in calibration and can be installed virtually anywhere in a process. It does not require complete flow chambers and drains to waste.

Ultralow Chlorine Level Monitoring

MP5-A now has improved accuracy and performance at low chlorine levels. No other sensor matches the ultralow performance of MP5-A.

- Unlike membrane sensors, it can operate in zero flow. This means it can be installed in tanks or clear wells.

- There is no memory if exposed to zero chlorine for hours. It responds quickly when chlorine residual returns.
- The LOD (limit of detection), now 0.01 ppm, and LOQ (limit of quantification), now at 0.04 ppm, are the best in class.

No other sensor can claim the following features and benefits:

Feature	Benefit
1. Pressure and Flow Independent	Operates at any flow & pressure
2. In Pipe installation/Wet tap NSF61 Certified	Remote monitoring of tanks distribution lines or wells
3. Self-cleaning	Little to no maintenance
4. No membranes, reagents, or tubing	No labor for six months
5. Accuracy over a wide range of parameters	Frequent calibration not needed
6. Ultralow measurement	Measures low levels at 0 flow with no memory like membranes sensors
7. Measures 5 Parameters Factory calibrated	Eliminate 3 or 4 other discrete sensors. Often accurate out of the box.
8. Remote Monitoring w Cellular Modem	Operation unattended for 6 months or more
9. No waste stream	Saves 70,000 gallons per year
10. Versatile Controller	Standard features like SD Card, RTC, Modbus Communication, (Ethernet Q2)

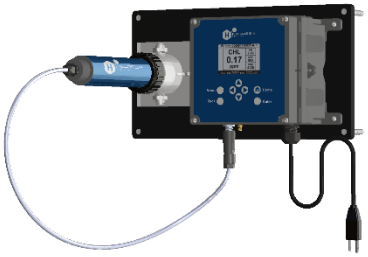
*6 months

MP6 Monochloramine and Free Chlorine

The MP6 Sensor will also measure Free Chlorine and Monochloramine in addition to the other parameters. It is the only reagentless direct measuring monochloramine sensor available. It provides near real time measurements (every 100 seconds). Monochloramine is specifically measured without measuring the unwanted species (dichloramine and trichloramine). It offers big advantages over measuring Total Chlorine.

Feature	Halogen	Reagent Based Systems
Frequency	100 seconds	4.5 minutes
Initial Cost	<$10,000	>$33,000
Consumable Cost		$4,000 per year

Ideal for Distribution Lines

			
Immersion version for tanks.	Easy to install panel with preassembled equipment. Just plug in and add tubing connections.	Pipe version for lowest cost.	Wet Tap Version for Drinking Water distribution pipelines.

D20 Controller delivers more for lower cost

All five parameters are displayed at once on a graphic display. An integrated supplied SD Card records log files and enables reprogramming of both sensor and controller. Two control relays can be used for operating chemical pumps and an alarm relay for warnings. An optional Cellular Modem connects to the Cloud.

High Pressure Wet Tap Remover

A Wet Tap Sensor and remover assembly enables installation in Corp Stop Valve with conventional wet tapping equipment. Sensors can be installed in problem areas or dead ends to provide an early warning of an upset or equipment malfunction or the need for flushing.

Battery Options

An IP65 Battery and IoT Cellular Modem enable remote sites to be monitored every 15 minutes and battery life of over 6 months.

Easy Install Side Stream Panel Mount

The MKIT panel is complete, just mount it on the wall, plug it in and connect tubing to the process. It has a small footprint and is very easy to install.

Immersion Mount for remote tanks

Since flow is not required, it is ideal for remote tanks or clear wells. The sensor reads zero chlorine and responds when chlorine returns without a memory, unlike membrane sensors.

Overall*	
Measurement method	Reagent less, three electrodes, no membrane or electrolyte
Free Chlorine measurement range - Limit of detection (LOD) - Limit of quantitation (LOQ) -	0 to 20 ppm 10 ppb (0.01 ppm) 40 ppb (0.04 ppm)
Resolution	0.001 ppm (1 ppb)
Chlorine accuracy [1]	±5% of the calibrated value1 (DPD) at any pH between 6.5 and 8.75 ±4% of the calibrated value1 (DPD) at any temperature between 15° and 35°C ±4% of the calibrated value1 (DPD) at any conductivity between 200 and 10,000 µS ±10% underflow changes from 0 to 4 meters/second velocity
Turbidity in sample without impact	No effect up to 3000 ppm (Arizona test dust fine, 50-micron size)
Calibration stability	6 months (typ)
Measurement interval	60 seconds
pH range (chlorine)	6.5 to 8.75
Conductivity	200 to 10000 µS
Pressure limit	10 bar (145 psi)
Temperature	5 to 55°C
Sample compensation	Automatic
Factory calibration performed	Yes
Power consumption	24VDC ±10% at 50mA 200 mA startup maximum

1. Value1 derived from 9 sensors calibrated at a single point: pH 8.0 and chlorine level of 1.25 ppm at 2,700 µS and 20°C.

What Users are Saying

These Halogen units exceeded my expectations; they truly are a game changer!

I have 3 of these Halo MP5 units; 2 are at a wastewater plant, and 1 is installed at a water plant in S. FL. The oldest one is now 2 years old, with NO ISSUES. I love these units; they have saved us time and money (no reagents), no chemicals going down the drain, and maintenance is a snap, with no tubing or mixing chambers to deal with. They have turned out to be very reliable and easy to use. I have only had to calibrate one of the units about 3 times over 2 years. Very stable and fast response time. ***The maintenance***…. These units are the way to go for us, especially since they require so much less maintenance and combine 3* parameters in one unit. They are so much better for the environment as well. I am in the process of replacing all our current DPD reagent units with these.

V.G. Palm Beach Utilities, FL

This new technology can save many man-hours, improve processes, and reduce cost, both CAPEX and OPEX, for plants. We believe that this technology is a huge leap forward for plant operators and we want to share our experience for the benefit of our industry and the environment.

TT, Orlando, FL

Additional benefits of the Halogen MP5 sensor include:

- A small footprint. The sensor takes up very little space on the wall and in the pipe.
- A common interface for all parameters, simplifying the SOPs for plants.
- Stability after five minutes of operation and frequent calibration is not required as it is with the other amperometric sensors.

If utilities are looking for a low maintenance chlorine sensor, or need to reduce water consumption at the plant, I encourage them to investigate the MP5 sensor from Halogen. With water saving mandates enacted through the country, this is a timely solution of critical importance.

RT, Orlando, FL

“The Halogen MP5 sensor performed extremely well at all the installed sites.” Benefits include “reduced manpower requirements – As everyone is aware, manpower is in short supply in most areas of the country. Truck rolls to pull daily or weekly grab samples have largely been eliminated. Periodic calibration checks are made to ensure the accuracy of the data collected. Staff was pleasantly surprised that the calibration requirements of the sensor are minimal. Sensor calibration is performed initially and has not been required in over six months. The manpower savings are roughly two hours per day per sensor, with an estimated savings of 2,080 man-hours per year for five sensors.”

J.F. Orlando, FL

Order today sales@halogensys.com.

Feature	Halogen	DPD	Other Amperometric
Not Affected by Flow			
Direct In Pipe Measurement			
No Membranes			
No Waste stream			
No Reagents			
Self-Cleaning			
High Pressure pH			
Calibration or Service in Months			

Accessories and Options

Battery & Modem Package		
Bluetooth Module		
Pipe Tee Version		
Panel Mount Kit		
Immersion Mounting		

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