

## Halogen MP-HOT Multiparameter Sensor

### Overview

The Halogen MP5-A sensor sets a new standard that measures five parameters and amperometric chlorine without membranes or reagents. The MP5-A does not require a waste stream and can be used in many installation and monitoring configurations, unaffected by flow or pressure. EPA Method 334.0 compliant, the MP5-A sensor can be used for reporting chlorine residual measurements.

### Features and Benefits

- The latest sensor technology offered by Halogen Systems
- Measures:
  - Free chlorine
  - pH
  - Conductivity
  - Temperature
  - Oxidation-reduction potential (ORP)
- Flow independent: can be installed directly in a pipe
- Self-cleaning
- Typical 6+ months of unattended operation
- No reagents or membrane
- NSF61 certified for drinking water contact
- New cellular communication with data accessibility via the cloud
- No waste stream (possible savings of up to 70,000 gallons of water per year)
- Battery power options

### Options



### Compliance

EPA 334.0 can be used for reporting chlorine residual measurements

### Installation:

Immersed directly in a tank, distribution line, or side stream

### Communication:

The sensor communicates via:

- Modbus RTU
- D20™ display/controller or SCADA PLC
- Remote access and monitoring with the cloud-based connectivity option

## Self-cleaning flow-independent system

The MP5-A sensor is designed with a long-life pump that ensures a consistent flow across the sensor electrodes. This feature allows the sensor to provide accurate readings even when operating in pipes with varying or no flow. Additionally, the sensor includes captive cleaning beads that continuously polish the electrode surfaces and the pH glass. This self-cleaning mechanism enables the sensor to be used in challenging conditions without the need for frequent maintenance.



**Easy-to-service exchange program:** No expensive service contracts are needed for the MP5-A. (The Halogen D20 display/controller enables easy sensor and display firmware updates.)

**Replaceable cable lengths:** Three NSF61-certified cable lengths are available for direct immersion in a water tank or reservoir.

## Technical Specifications

| Overall*                           |                                                                                                                                                                                                                                                                         |
|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Measurement method                 | Reagent less, three electrodes, no membrane or electrolyte                                                                                                                                                                                                              |
| Chlorine measurement range         | 0 to 20 ppm                                                                                                                                                                                                                                                             |
| - Limit of detection (LOD)         | 10 ppb (0.01 ppm)                                                                                                                                                                                                                                                       |
| - Limit of quantitation (LOQ)      | 40 ppb (0.04 ppm)                                                                                                                                                                                                                                                       |
| Resolution                         | 0.001 ppm (1 ppb)                                                                                                                                                                                                                                                       |
| Chlorine accuracy <sup>1</sup>     | ±5% of the calibrated value <sup>1</sup> (DPD) at any pH between 6.5 and 8.75<br>±4% of the calibrated value <sup>1</sup> (DPD) at any temperature between 15° and 45°C<br>±4% of the calibrated value <sup>1</sup> (DPD) at any conductivity between 200 and 10,000 µS |
| 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                       | 50 to 10000 µS                                                                                                                                                                                                                                                          |
| Pressure limit                     | 10 bar (145 psi)                                                                                                                                                                                                                                                        |
| Temperature                        | 1 to 55°C                                                                                                                                                                                                                                                               |
| Sample Compensation                | Automatic                                                                                                                                                                                                                                                               |
| Factory calibration performed      | Yes                                                                                                                                                                                                                                                                     |
| Power consumption                  | 24VDC ±10% at 50mA 200 mA startup maximum                                                                                                                                                                                                                               |
| Data transfer                      | Through controller or PLC                                                                                                                                                                                                                                               |

<sup>1</sup> Calibration at 1.5 ppm @ pH 8.0 and 20°C and 2700µS

| Ambient data*                           |                                                                                                                                                                                                                                                                         |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Storage temperature                     | -20 to 60°C (-4 to 140°F)                                                                                                                                                                                                                                               |
| Operating temperature                   | 1 to 50°C (33 to 122°F)                                                                                                                                                                                                                                                 |
| Maximum flow velocity                   | 0 to 4 meters/sec velocity                                                                                                                                                                                                                                              |
| Maximum sensor immersion depth/pressure | 30' or greater, 145 psi                                                                                                                                                                                                                                                 |
| Cleaning method                         | Continuous mechanical cleaning, electrochemical cleaning                                                                                                                                                                                                                |
| Cable length                            | 5' standard (up to 100')                                                                                                                                                                                                                                                |
| Cable connection                        | M12 4-pin                                                                                                                                                                                                                                                               |
| Certifications                          | CE-compliant for conducted and radiated emissions: <ul style="list-style-type: none"> <li>- CISPOR 11 (Class A limits)</li> <li>Limit of detection (LOD)</li> <li>- EMC immunity EN 61326-1 (industrial limits)</li> <li>- NSF61/372 Certified (by ALS Labs)</li> </ul> |
| Sensor dimensions                       | 1.75" x 12" (45 mm x 305 mm)                                                                                                                                                                                                                                            |
| Weight                                  | 400 grams                                                                                                                                                                                                                                                               |
| Warranty                                | 12 months                                                                                                                                                                                                                                                               |

\* Subject to change without notice

## Sensors

| Models and options                               | Item picture                                                                        | As installed                                                                          |
|--------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| D-H1WT-P<br>Wet Tap Sensor (for use with RMR-WT) |  |   |
| D-H1MF-P<br>PVC TEE Sensor (for use with PT-01)  |                                                                                     |  |