

Halogen MP5-A 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

Installation:

Communication:



EPA 334.0 can be used for reporting chlorine residual measurements

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

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.



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 ¹	±5% of the calibrated value1 (DPD) at any pH between 6.5 and 8.75 ±5% 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
Calibration stability	6 months (typical)
Measurement interval	60 seconds
pH range (chlorine)	6.5 to 9.3
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
Ambient data*	
Storage temperature	-20 to 60°C (-4 to 140°F)
- Operating temperature	1 to 55°C (33 to 131°F)
Maximum flow velocity	0 to 4 meters/sec velocity
Cleaning method	Continuous mechanical cleaning, electrochemical cleaning
Certifications	CE-compliant for conducted and radiated emissions: - CISPOR 11 (Class A limits) Limit of detection (LOD) - EMC immunity EN 61326-1 (industrial limits) NSF61/372 Certified (by ALS Labs) Multiparameter Chlorine Sensor

Halogen D20 Display/Controller

Overview

The Halogen D20 is one of the most advanced instrumentation controllers available. Halogen MP5-A sensors display all five parameters on one screen.

The D20 complies with US and EU Safety and EMC compliance certifications. Onboard SD card enables easy reprogramming of integrated sensor and display firmware as new features become available. This intelligent controller remotely connects with the cloud to provide low-cost data subscriptions.

Features and Benefits

- The latest display technology offered by Halogen Systems
- Data logging capable of storing over 1 million lines of logged data on an included SD card
- Display and sensor firmware can be easily updated with the press of a few keys on the display panel
- Autodetection of buffers for easy pH calibration
- Integrated real-time clock
- Optional communication board with cellular/Ethernet connection and Bluetooth® mobile app
- Up to 10 sensors may be connected to a single display
- Standard with 120VAC NEMA plug and M12 sensor connection for fast installation
- IP65 rating for outdoor use
- Four (4) 4-20 mA outputs
- One alarm-dry contact
- Two-relay output switching (120/240VAC at 5A)



Options

Power:	24VDC 120/240VAC (hard wired)
Communication board:	Mobile app North America cellular model EMEA cellular module Ethernet (Modbus® over TCP/IP)
Mounting:	Wall mount (standard)

Technical Specifications*

Overall	
Description	Microprocessor-controlled, menu-driven controller that communicates with the sensor
Dimensions	6.3" H x 6.3" W x 4" D (160 x 160 x 101.6 mm)
Weight	3 lbs (display)
Display technology	3.5" TFT
Enclosure rating	IEC/EN 60529-IP 65, NEMA 250 type 4X, plastic enclosure
Installation category	Category II
Compliance certifications	CE, ETL certified to UL and CSA safety standards (with all sensor types), FCC, EU, UKCA
Warranty	12 months
Environmental	
Operating temperature	-20 to 60°C (-4 to 140°F) (8W (AC)/9W (DC) sensor load) -20 to 45°C (-4 to 113°F) (28W (AC)/20W (DC) sensor load) Linear derating between 45 and 60°C (-1.33 W/°C)
Storage conditions	-20 to 70°C (-4 to 158°F), 0 to 95% relative humidity, non-condensing
Altitude	2000 m (6562 ft) maximum
Pollution degree	4
Power, data storage, and connectivity	
Power requirements	85 to 240VAC ±10%, 50/60Hz; 1 A (MP5 sensor 5.1W, D20 6.5W with sensor load)
Protection class	I, connected to protective Earth
Measurement interfaces	Two MP5 Modbus connectors
Relays	Three relays (SPDT) Wire gauge: 0.75 to 1.5 mm ² (18 to 16AWG) Maximum switching voltage: 100 - 240VAC Maximum switching current: 5A Resistive/1A pilot duty maximum switching power: 1200VA resistive/360VA pilot duty
Communication	Analog: Four 0-20mA (or 4-20mA) analog outputs Digital: Modbus RTU standard
SD card	Used for data upload, software download, capable of est. 1M data points/sensor
Real-time clock	Battery, estimated to last 5 years

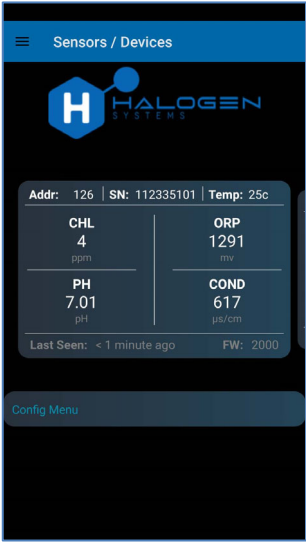
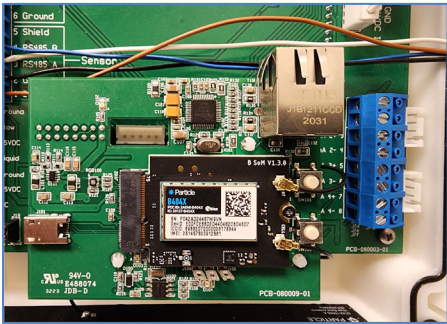
* Subject to change without notice

Order information

Base	Input power cable	Communication PCB	Output connector sensor 1	Output connector sensor 2	Part number
24VDC	None-conduit	None	None	None	D20-24
120/240VAC 50/60Hz	None-conduit	None	M12-4 sensor	None	D20-N
120/240VAC 50/60Hz	None-conduit	North America	M12-4 sensor	None	D20-C-US
120/240VAC 50/60Hz	18 AWG cable NEMA 5 P	Cellular North America	M12-4 sensor	None	D20-C-US-PC
120/240VAC 50/60Hz	None-conduit	EMEA	M12-4 sensor	None	D20-C-EMEA
120/240VAC 50/60Hz	18 AWG cable NEMA 5 P	None	M12-4 sensor	M12-4 sensor	D20-PC

(Future adder) Communications module

- Add-on board
- Bluetooth-enabled mobile app duplicates all D20 functions in an easy-to-use familiar interface
- North America cellular model
- EMEA cellular module
- Ethernet:
 - Modbus over TCP/IP
 - Ethernet IP (Q22024)
 - Profibus (Q22024)
- The latest in cloud data syncing capability
- Remote troubleshooting
- Lowest cost data plans
- Latest eSIM technology: No SIM cards needed



Communications module	
Communication	Modbus TCP/IP Ethernet IP module (Q22024) Bluetooth mobile app
Network connectivity	LAN: Ethernet connector (10/100 Mbps) Cellular: External LTE CAT-M1 and 4G (North America) or (EMEA) modules available BLE
Mobile App	iPhone or Android
Ethernet/IP	Optional module for Ethernet/IP BACnet/IP Modbus TCP/IP
ProfiBus	Optional Module 2024 Q2



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