

REAL PERMANGANATE MONITORING SYSTEM



PM SERIES

REAL PERMANGANATE MONITORING SYSTEM OVERVIEW

The PM series permanganate sensor uses long life LED light sources for measurement. Maintenance is low with the automatic chemical cleaning system that is configurable for on-site cleaning demands. The Real Controller provides easy integration to PLCs and plant SCADA systems using a 4-20 mA output signal or Modbus.



FEATURES

- Continuous monitoring of permanganate levels
- Outputs as permanganate (mg/L or $\mu\text{g/L}$)
- Long life LED light sources
- Automatic chemical cleaning lowers maintenance
- Simple integration with 4-20 mA output
- Available as a panel providing easy install and operation
- Connects with Real Tech's Liquid Ai data services platform

PERMANGANATE IN DRINKING WATER

Although permanganate is an effective water treatment aid, residual amounts in treated water can lead to customer complaints. Dosing of permanganate needs to be carefully controlled and regularly adjusted to ensure just enough permanganate is dosed for treatment goals while avoiding residual levels after treatment. The Real Permanganate sensor has a very low detection limit that provides an early warning of overdosing, enabling operators to adjust feed rates well before residual levels reach the threshold of customer complaints.

MEASUREMENT PRINCIPLE

The Real Permanganate sensor uses the absorbance of light at multiple key wavelengths to accurately detect permanganate levels, even in the presence of interferences that can affect single wavelength instruments. The sensor also uses a unique long pathlength measurement cell which enables the detection levels and sensitivity required in drinking water applications.

SYSTEM SPECIFICATIONS

CHARACTERISTIC	TECHNICAL DATA
SENSOR	
Path Length	25 mm, 50 mm, 100 mm, 150 mm
Range	Depends on model selected. Refer to range chart on next page
Units	mg/L, ug/L, ppm, ppb
Sampling Time	30 seconds
Calibration	Zero to DI water. Factory permanganate calibration allows field adjustment as required
Cleaning	Automatic chemical cleaning
Self-Diagnostics	Continuous detection of leaks, lamp output, humidity, temperature and electrical fault
Humidity Control	Humidity sensor with large plug-in regeneratable desiccant pack
Wavelengths	Multiple wavelengths
Light Source	LED Lamps
Pressure Rating	20 PSI
Fluid Connections	1/4" tube push in fittings
Flow Rate	300-1000 mL/min
Enclosure	NEMA 4, wall mountable
Weight	24 lb
Dimensions	17.75"H x 15.5"W x 6.75"D
CONTROLLER	
Display	4-line x 20-character backlit LCD with LED indicator
Operator Interface	Five push buttons to control a comprehensive hierarchical menu system
Alarms	Display of sensor specific alarms
Communication	Modbus (RS485), 4-20mA output standard. Optional WiFi, additional 4-20mA, cellular modem
Data Logging	Onboard (6-month nominal configuration dependent). Optional remote data logging. Export data via USB
Electrical	24VDC 13.4A power adapter (accepts 90-250VAC 50/60Hz)
Enclosure	NEMA 4, wall mountable
Weight	8 lb
Dimensions	10.25" H x 10.25" W x 5.5" D
CLEANING	
Clean Frequency	User configurable
Cleaning Capacity	1L storage container, cleaning fluid recapture feature reduces fluid replenishment frequency
Fluid Connections	1/4" tube push in fittings
Enclosure	NEMA 4, wall mountable
Weight	10 lbs.
Dimensions	13.75"H x 16.0"W x 7.5"D
FULL SYSTEM	
Storage Temp.	-20 to 60°C (-4 to 140°F)
Operating Temp.	0 to 45°C (32 to 113°F)
Warranty	2-year limited warranty (Extended care packages available)

* Technical Specifications are subject to change without notice.

ORDERING INFORMATION

NAME	DESCRIPTION	PRODUCT #
SENSORS		
Real Permanganate PM4025 Sensor	Permanganate sensor with 25 mm path length measurement cell	PM4025
Real Permanganate PM4050 Sensor	Permanganate sensor with 50 mm path length measurement cell	PM4050
Real Permanganate PM4100 Sensor	Permanganate sensor with 100 mm path length measurement cell	PM4100
Real Permanganate PM4150 Sensor	Permanganate sensor with 150 mm path length measurement cell	PM4150
CONTROLLER		
Real Controller	Wall mounted controller with 4-line x 20-character back lit LCD display for sensors	S-169000
CLEANING		
Real Clean System II	Automatic chemical cleaning system for use with 4000 series models	UVT-118010
MOUNTING		
Backboard	Sensor, controller and cleaning system pre-mounted, plumbed and wired to backboard	S-179034
Backboard with Stand	Sensor, controller and cleaning system pre-mounted, plumbed and wired to backboard with stand	S-179035

MEASUREMENT RANGE

MODEL#	PATH LENGTH	PERMANGANATE (mg/L)	PERMANGANATE (µg/L)
PM4025	25 mm	0.1 - 20	100 - 20,000
PM4050	50 mm	0.05 - 10	50 - 10,000
PM4100	100 mm	0.025 - 5	25 - 5,000
PM4150	150 mm	0.02 - 3.5	20 - 3,500



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