PermaTest Scan

MEASUREMENT ANALYZER FOR MnO_4^-

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MEASUREMENT ANALYZER FOR MNO_4^-

PermaTest is a compact and automatic system designed for the **continuous measurement of residual permanganate (MnO_4^-)** in drinking or industrial water.

The instrument uses an electrochemical measuring cell with **selective electrodes** and provides analog outputs and remote communication for integration into control systems.

Residual permanganate monitoring is a key parameter in water treatment processes, particularly when oxidants such as **Potassium Permanganate ($KMnO_4$)** or **Sodium Permanganate ($NaMnO_4$)** are used.

Both compounds perform a selective oxidizing function but require **accurate dosing control** to avoid overdosing (which may cause pink coloration of the water or formation of by-products) or underdosing (resulting in reduced treatment effectiveness).

In this context, PermaTest serves as a strategic continuous monitoring tool, enabling **precise and reliable in-line measurement** of residual permanganate.

APPLICATION FIELDS

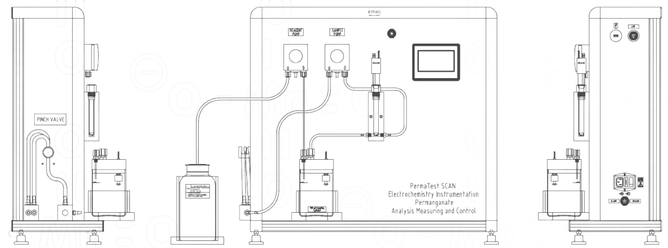
- DRINK. WATER TREAT. PLANTS
- WASTE WATER
- IRON AND MANGANESE OXIDATION
- INDUSTRIAL
- MONITORING

MAIN FEATURES

- Automatic Control
- Easy Calibration with known Permanganate solutions
- Robust Sensor
- 2 Sampling and Measuring Streams
- Designed to operate with turbid water and water rich in manganese dioxide
- Wide operating range: from ultrapure water to seawater without recalibration
- Peristaltic sampling and reagent pumps with stepper motor
- Fast response time: 30 seconds
- Remote control capability via Ethernet Modbus TCP-IP
- Case-type enclosur
- Electrical connections via connectors
- Alarms (all alarms are configured as remote alarms)

TECHNICAL SPECIFICATIONS
OVERVIEW

Protection	IP55
Dimensions	655 x 630 x Depth 330 mm
Materials	PP, PMMA, Aluminum
Measurement	From MnO_4 sensor
Sampling	Batch
Frequency	Programmable
Streams	2 streams (customer-selectable: pre-oxidation, sedimentation inlet, sedimentation outlet, filtration outlet)
Analysis Time	30 seconds
Digital Inputs	Sampling completed via SL1 probe
Display	4" Touch Screen (1/4 VGA), 32,000 color
Digital Outputs	General Alarm
Analog Outputs	Proportional to measurement, 4–20 mA; max load 500 ohm Galvanically isolated outputs — Range 0.00 to max 5.00 mg/L
Measuring Range	0.000–5.000 ppm MnO_4
Power Supply	100–230 Vac ±10%, 50/60 Hz, 150 VA
Communication	Ethernet; Modbu; TCP-IP protocol
Temperature Limit	0–40 °C
Weight	5 kg

TECHNICAL SPECIFICATIONS
MEASURING ELECTRODE

Body Material	Glass
Sensor	201S-090
Analysis Technique	Electrochemical analysis with selective electrodes
Measuring Range	0,000 – 10,000 ppm MnO_4
pH Range	2 to 10
Sample Conductivity Range	From 0 (ultrapure water) to seawater
Accuracy	± 1% f.s.
Analog Outputs	Proportional to measurement, 4–20 mA; max load 500 ohm Galvanically isolated outputs — Range 0.00 to max 5.00 mg/L
Uncertainty	± 0.5% full scale
Sensitivity	0.001 mg/L
Repeatability	2%
Drift	< 2% of value per month
Buffer Solution	Added via peristaltic pump
Operating Pressure	Free discharge
Response Time	30 seconds rise time (90% of final value)
CE Compliance	In accordance with Machinery Directive 2006/42/EC Complies with requirements of 93/68/EEC Electromagnetic compatibility; Low voltage