EZ2000 Series
Online Colorimetric
Analyzers for
Total Manganese

Results you can rely on
EZ2000 Total Manganese Analyzers achieve excellent precision and accuracy. At the heart of the colorimeter there is a compact photometer assembly developed especially for the EZ Series. Consumption of reagents is reduced by low volume analysis, yet high sensitivity is assured by a long optical path length. The limit of detection is in the low µg/L range.

EZ2000 Total Manganese Analyzers have an internal digestion unit. This additional step prior to analysis allows to measure non-soluble or complexed metal species.

Smart automatic features for calibration, validation, priming and cleaning are embedded in the controller software and contribute to analytical performance, maximized uptime and negligible operator intervention. Precision micropumps dose all reagents. Sample lines and analysis vessel are cleaned with demineralized water to eliminate cross contamination between samples. Electronic and wet-chemical part of the analyzer are strictly separated. A transparent door allows for instant visual inspection of the wet part.

Flexibility that meets your needs
EZ Series Manganese Analyzers come in an attractive, ergonomic mainframe with a compact footprint. All hardware is controlled by the integrated industrial panel PC. The modular build allows for the analyzer to match your application and operational needs.

• The standard measuring range can be narrowed by a different calibration range or extended via internal dilution options.
• Analog and digital output options
• Multiple stream analysis for up to 8 sample streams

Options for the determination of Manganese include: Total Manganese, Total Manganese & Manganese Mn(II), dissolved

Applications
• Wastewater
• Drinking Water
• Power
• Surface Water

Online colorimetric analysis of Total Manganese in water
## Technical Data*

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Manganese</strong></td>
<td>Manganese Mn(II), dissolved</td>
</tr>
<tr>
<td><strong>Measurement Method</strong></td>
<td>Colorimetric measurement using formaldoxime method at 450 nm</td>
</tr>
<tr>
<td><strong>Range</strong></td>
<td>0.02 - 1 mg/L Mn</td>
</tr>
<tr>
<td></td>
<td>Optional:</td>
</tr>
<tr>
<td></td>
<td>0.004 - 0.1 mg/L</td>
</tr>
<tr>
<td></td>
<td>0.01 - 0.25 mg/L</td>
</tr>
<tr>
<td></td>
<td>0.01 - 0.5 mg/L</td>
</tr>
<tr>
<td></td>
<td>0.16 - 4 mg/L (with internal dilution)</td>
</tr>
<tr>
<td></td>
<td>0.32 - 10 mg/L (with internal dilution)</td>
</tr>
<tr>
<td></td>
<td>2 - 20 mg/L (with internal dilution) (only EZ2003)</td>
</tr>
<tr>
<td><strong>Precision</strong></td>
<td>Better than 2% full scale range for standard test solutions</td>
</tr>
<tr>
<td><strong>Lower Limit of Detection (LOD)</strong></td>
<td>≤ 4 µg/L</td>
</tr>
<tr>
<td><strong>Interferences</strong></td>
<td>Large amounts of color and turbidity interfere. Fats, oil, proteins, surfactants and tar.</td>
</tr>
<tr>
<td><strong>Cycle Time</strong></td>
<td>20 min Total Mn (dilution + 5 min)</td>
</tr>
<tr>
<td></td>
<td>30 min Total Mn &amp; Mn(II)</td>
</tr>
<tr>
<td><strong>Automatic cleaning</strong></td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Calibration</strong></td>
<td>Automatic, 2-point; frequency freely programmable</td>
</tr>
<tr>
<td><strong>Validation</strong></td>
<td>Automatic; frequency freely programmable</td>
</tr>
<tr>
<td><strong>Ambient Temperature</strong></td>
<td>10 - 30 °C ± 4 °C deviation (50 - 86 °F ± 7.2 °F deviation) at 5 - 95% relative humidity (non-condensing)</td>
</tr>
<tr>
<td><strong>Reagent Requirements</strong></td>
<td>Keep between 10 - 30 °C (50 - 86 °F)</td>
</tr>
<tr>
<td><strong>Sample Pressure</strong></td>
<td>By external overflow vessel</td>
</tr>
<tr>
<td><strong>Sample Flow Rate</strong></td>
<td>100 - 300 mL/min</td>
</tr>
<tr>
<td><strong>Sample Temperature</strong></td>
<td>10 - 30 °C (50 - 86 °F)</td>
</tr>
<tr>
<td><strong>Sample Quality</strong></td>
<td>Maximum particle size 100 µm, &lt; 0.1 g/L; Turbidity &lt; 50 NTU</td>
</tr>
<tr>
<td><strong>Power</strong></td>
<td>220 - 240 VAC, 4 A, 50/60 Hz</td>
</tr>
<tr>
<td></td>
<td>Max. power consumption: 440 VA</td>
</tr>
<tr>
<td></td>
<td>Other voltages available on request</td>
</tr>
<tr>
<td><strong>Instrument Air</strong></td>
<td>Dry and oil free according to ISA-S7.0.01-1996 quality standard for instrument air</td>
</tr>
<tr>
<td><strong>Demineralized Water</strong></td>
<td>For rinsing / dilution</td>
</tr>
<tr>
<td><strong>Drain</strong></td>
<td>Atmospheric pressure, vented, min. Ø 64 mm</td>
</tr>
<tr>
<td><strong>Cooling Water</strong></td>
<td>Flow rate approx. 5 L/h; temperature max. 30 °C; pressure max. 0.5 bar</td>
</tr>
<tr>
<td><strong>Earth Connection</strong></td>
<td>Dry and clean earth pole with low impedance (&lt; 1 Ohm) using an earth cable of &gt; 2.5 mm²</td>
</tr>
<tr>
<td><strong>Analog Outputs</strong></td>
<td>Active 4 - 20 mA max. 500 Ohm load, standard 1, max. 8 (option)</td>
</tr>
<tr>
<td><strong>Digital Outputs</strong></td>
<td>Optional: RS232, Modbus (TCP/IP, RS485)</td>
</tr>
<tr>
<td><strong>Alarm</strong></td>
<td>1 x malfunctioning, 4 x user-configurable, max. 24 VDC/0.5 A, potential free contacts</td>
</tr>
<tr>
<td><strong>Protection Class</strong></td>
<td>Analyzer cabinet: IP55 / Panel PC: IP65</td>
</tr>
<tr>
<td><strong>Material</strong></td>
<td>Hinged part: Thermoform ABS, door: plexiglass</td>
</tr>
<tr>
<td></td>
<td>Wall section: Galvanized steel, powder coated</td>
</tr>
<tr>
<td><strong>Dimensions (H x W x D)</strong></td>
<td>690 mm x 465 mm x 330 mm</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>25 kg (55 lbs.)</td>
</tr>
<tr>
<td><strong>Certifications</strong></td>
<td>CE compliant / UL certified</td>
</tr>
</tbody>
</table>

*Subject to change without notice.

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Hach Service

With Hach Service, you have a global partner who understands your needs and cares about delivering timely, high-quality service you can trust. Our Service Team brings unique expertise to help you maximize instrument uptime, ensure data integrity, maintain operational stability, and reduce compliance risk.
## Order Information - Part Number Configurator

<table>
<thead>
<tr>
<th>Total Mn, 0.02-1 mg/L</th>
<th>EZ2003.99</th>
<th>X</th>
<th>X</th>
<th>X</th>
<th>X</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Mn / Mn(II), 0.02-1 mg/L</td>
<td>EZ2303.99</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Measurement range settings / Dilution options

- 10% of standard range: A
- 25% of standard range: B
- 50% of standard range: C
- Standard range: 0
- Internal micropump dilution (factor 4): 1
- Internal micropump dilution (factor 10): 3
- Internal micropump dilution (factor 20) (only EZ2003): 4
- Customized: Z

### Power supply

- 220 VAC / 50 Hz: A
- 110 VAC / 60 Hz: B
- Customized: Z

### Number of sample streams

- 1 stream: 1
- 2 streams: 2
- 3 streams: 3
- 4 streams: 4
- 5 streams: 5
- 6 streams: 6
- 7 streams: 7
- 8 streams: 8

### Outputs

- 1x mA: 1
- 2x mA: 2
- 3x mA: 3
- 4x mA: 4
- 5x mA: 5
- 6x mA: 6
- 7x mA: 7
- 8x mA: 8
- RS232: A
- Modbus TCP/IP: B
- Modbus RS485: C

- 1x mA + Modbus RS485: E
- 2x mA + Modbus RS485: F
- 3x mA + Modbus RS485: G
- 4x mA + Modbus RS485: H
- 1x mA + Modbus TCP/IP: I
- 2x mA + Modbus TCP/IP: J
- 3x mA + Modbus TCP/IP: K
- 4x mA + Modbus TCP/IP: L
- Customized / combined: Z

### Specials

- No adaption, standard version: 0
- Customer specific adoptions required, to specify: S