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| **PLEASE NOTE: The following specification contains areas, highlighted with the [ ] symbol. In these areas, the engineer has to make a selection, add specific, project related information and has to delete what is not applicable for the specific project.** |

**Single or multi-stream online Hardness Analyser (Total / Calcium)**

Analyser for automatic measurement of Total Hardness and Calcium Hardness in water. The method is colorimetric measurement at 610 nm in a cuvette with 30 mm pathlength. Reagents are dosed by high precision micropumps. The analyser performs automatic priming, cleaning, calibration and validation. Up to 8 process streams can be monitored. The analyser is capable of measuring up to 3 parameters in parallel. Single sample ("grab sample") measurement is possible.

**Technical Data**

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| --- | --- |
| **Measurement method** | Total Hardness: colorimetric measurement at 610 nm using calmagite/EDTA  Calcium Hardness: colorimetric measurement at 610 nm using hydroxynaphthol blue/EDTA |
| **Measuring range** | See Scope of delivery section |
| **Precision** | Better than 2% full scale range for standard test solutions |
| **Detection limit** | ≤ 2.5 µg/L CaCO3 |
| **Cycle time** | 10 min (dilution + 5 min) per parameter |
| **Automatic cleaning** | Yes |
| **Calibration** | Automatic, 2-point; frequency freely programmable |
| **Validation** | Automatic; frequency freely programmable |
| **Ambient temperature** | 10 - 30 °C ± 4 °C deviation at 5 - 95% relative humidity (non-condensing) |
| **Reagent requirements** | Keep between 10 - 30 °C |
| **Sample pressure** | By external overflow vessel |
| **Flow rate** | 100 - 300 mL/min |
| **Sample temperature** | 10 - 30 °C |
| **Sample quality** | Maximum particle size 100 µm, ≤ 0.1 g/L; Turbidity ≤ 50 NTU |
| **Power** | 100 - 240 VAC, 50/60 Hz  Max. power consumption: 120 VA |
| **Instrument air** | Dry and oil free according to ISA-S7.0.01-1996 quality standard for instrument air |
| **Demineralised water** | For rinsing / dilution |
| **Drain** | Atmospheric pressure, vented, min. Ø 64 mm |
| **Earth connection** | Dry and clean earth pole with low impedance (≤ 1 Ohm) using an earth cable of Ø 2.5 mm² |
| **Analogue outputs** | Active 4 - 20 mA max. 500 Ohm load, standard 1, max. 8 (option) |
| **Digital outputs** | Optional: RS232, Modbus (TCP/IP, RS485) |
| **Alarm** | 1 x malfunctioning, 4 x user-configurable, max. 24 VDC/0.5 A, potential free contacts |
| **Protection class** | Analyser cabinet: IP55 / Panel PC: IP66 |
| **Material** | Hinged part: Thermoform ABS, door: plexiglass  Wall section: galvanised steel, powder coated |
| **Dimensions ( H x W x D)** | 690 mm x 465 mm x 330 mm |
| **Weight** | 25 kg |
| **Certifications** | CE compliant / UL certified |

**Scope of delivery**

[ ] (delete what is not needed)

Analytical Instrument

Online Analyser for

[ ] Total Hardness

[ ] Calcium Hardness

[ ] Total Hardness & Calcium

[ ] Total Hardness & Calcium & Magnesium

Measuring Range

[ ] Total Hardness, Calcium: 0.0025 - 0.1 mg/L | Magnesium: 0.01 - 0.1 mg/L CaCO<sub>3</sub>

[ ] Total Hardness, Calcium: 0.005 - 0.25 mg/L | Magnesium: 0.02 - 0.25 mg/L

[ ] Total Hardness, Calcium: 0.005 - 0.5 mg/L | Magnesium: 0.02 - 0.5 mg/L

[ ] Total Hardness, Calcium: 0.025 - 1 mg/L | Magnesium: 0.1 - 1 mg/L

[ ] Total Hardness, Calcium: 0.2 - 4 mg/L | Magnesium: 0.5 - 4 mg/L with internal dilution

[ ] Total Hardness, Calcium: 0.4 - 8 mg/L | Magnesium: 1 - 8 mg/L with internal dilution

[ ] Total Hardness, Calcium: 2.5 - 100 mg/L | Magnesium: 10 - 100 mg/L with internal dilution

Process Streams/Channels

[\_\_\_\_\_] streams (fill in, select up to 8)

Accessories and options

[\_\_\_\_\_]x 4-20 mA outputs (fill in, select up to 8)

[\_\_\_\_\_]x 4-20 mA Outputs and Modbus RS485 (fill in, select up to 4)

[\_\_\_\_\_]x 4-20 mA Outputs and Modbus TC/IP (fill in, select up to 4)

[ ] Modbus RS485

[ ] Modbus TCP/IP

[ ] RS232

[ ] Microfiltration System, for immersion, pore size 0.04 µm

[ ] Microfiltration System, with buffer tank, for bypass, pore size 0.04 µm

[ ] Table stand

[ ] Floor stand

Services

[ ] Manufacturer’s services to perform start-up on instrument to include basic operational training and certification of performance of the instrument.

[ ] Manufacturer’s Service Agreement that covers all the manufacturer’s recommended preventative maintenance, regularly scheduled calibration and any necessary repairs beginning from the time of equipment start-up through to end user acceptance / plant turnover and the first 12 months of end-user operation post turnover.

**Brand:** Hach

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**Product:** EZ1000 Hardness Analyser