

HARDNESS COLORIMETRIC ANALYZER

Compact online analyzer for measurement of hardness in water

APPLICATION FIELDS

- Power plants
- Cooling water
- Water steam cycle
- Boiler feedwater
- Reversed osmosis
- Ion exchangers
- Ultrapure water
- Drinking water



ADVANTAGES / FEATURES

• Different compartments

To ensure complete separation between the electronics (upper case) and the wet part (lower case).

• Low reagents consumption

Minimum operating cost by small reagent consumption, only 1.7 L (0.45 US.gal) for the 16 mm cell / 2.5 L (0.66 US.gal) for the 26 mm cell of each reagent every 30 days with 15 minute analysis frequency.

• Automatic calibration / validation / cleaning

Validation, cleaning and calibration are standard features which significantly reduce downtime and operator intervention ensuring the most accurate results are obtained. Free selectable validation, cleaning and calibration intervals.

• Color touchscreen user interface

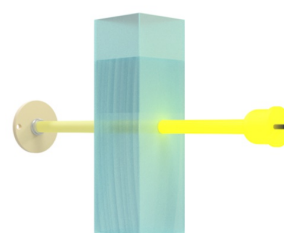
The colorimeter is equipped with a graphic touchscreen interface showing measured values and status information. Easy access to menus and functions. Integrated datalogger with USB download.

• Factory tested, ready for installation and operation

Just connect the power, sample, and reagent lines and the analyzer is fully operational.

• Measurement principle

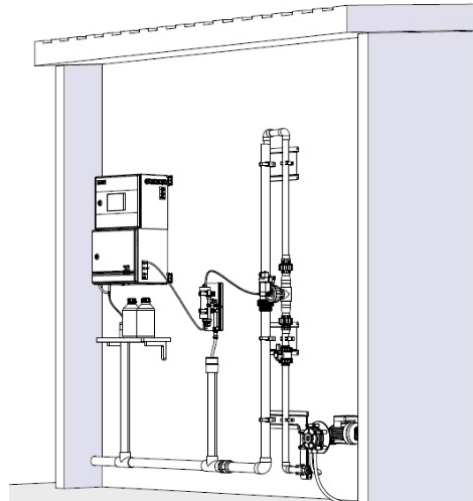
The photometric determination is based on the reaction of calcium with *o*-cresolphalein complexone solution, which yields a violet colored complex. The intensity of the color formed is proportional to the calcium concentration in the sample. Absorbance of the complex is measured at 572 nm.



TECHNICAL SPECIFICATIONS

Measured parameter	Hardness as CaCO ₃ (ppb, ppm, mg/l).
Measuring principle	Differential colorimetric absorbance. o-Cresolphthalein complexone method.
Measuring range	0-500 ppb (26 mm cell) 0-1000 ppb (16 mm cell) up to 50 ppm with internal dilution.
Reproducibility	± 5 ppb or ± 5%, whichever is greater (26 mm cell) ± 10 ppb or ± 5%, whichever is greater (16 mm cell)
Analysis Frequency	Freely programmable, batch near-continuous analysis.
Cycle time	6 minutes, including conditioning before analysis cycle and rinsing after measuring.
Reaction cell	Temperature heated
Sample	Pressure-free vessel Temperature: 5 - 50 °C (41 - 122 °F) Flow Rate: 80 to 500 mL/min Connection: 6 mm (¼-in.)
Drain	Pressure-free, atmospheric drain Connection: 12 mm (½-in.)
N° of streams	1, 2 with integrated switching valve
Dimensions (H x W x D)	604 x 380 x 242 mm (23.6 x 14.8 x 9.4 in)
Weight	Approx. 20 Kg (44 lbs)
Power Supply	Voltage: 100 - 240 VAC 50/60 Hz standard or 24 VDC (option) Power consumption: max. 80 VA
Outputs	2 x 4-20 mA outputs for measured data Modbus RTU RS485
Alarms	2 SPDT programmable potential free relays
Digital Input	Remote start/stop, start extra cycle, skip idle time, emergency stop
Working Temperature	5 - 45 °C (41 - 113 °F)
Humidity	10 to 90% RH (indoor use only)
Installation	Wall mount (standard), bench top support or panel mount (options).
Protection Grade	IP54

INSTALLATION EXAMPLE



The analyzer is easily installed in a minimum amount of wall space.

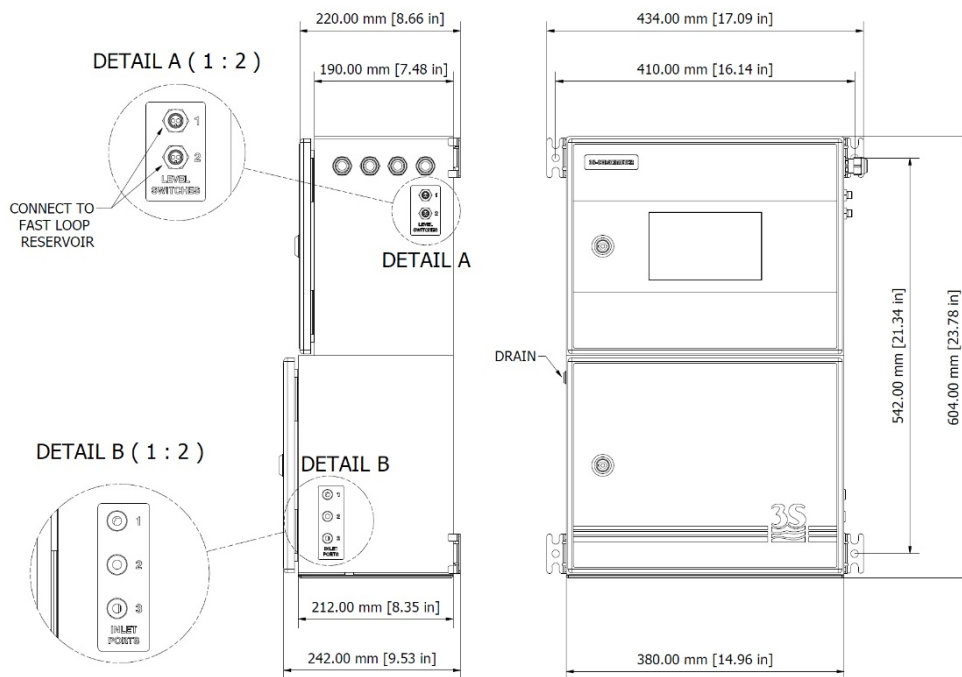
In the picture are included the optional accessories:

- a) A46ERLS000 - Fast Loop external reservoir with level switch
- b) A46SF10020 - Filtration unit 100 micron 230 VAC (other mesh size and input voltages available)
- c) A46SPP0000 - Sampling Pump

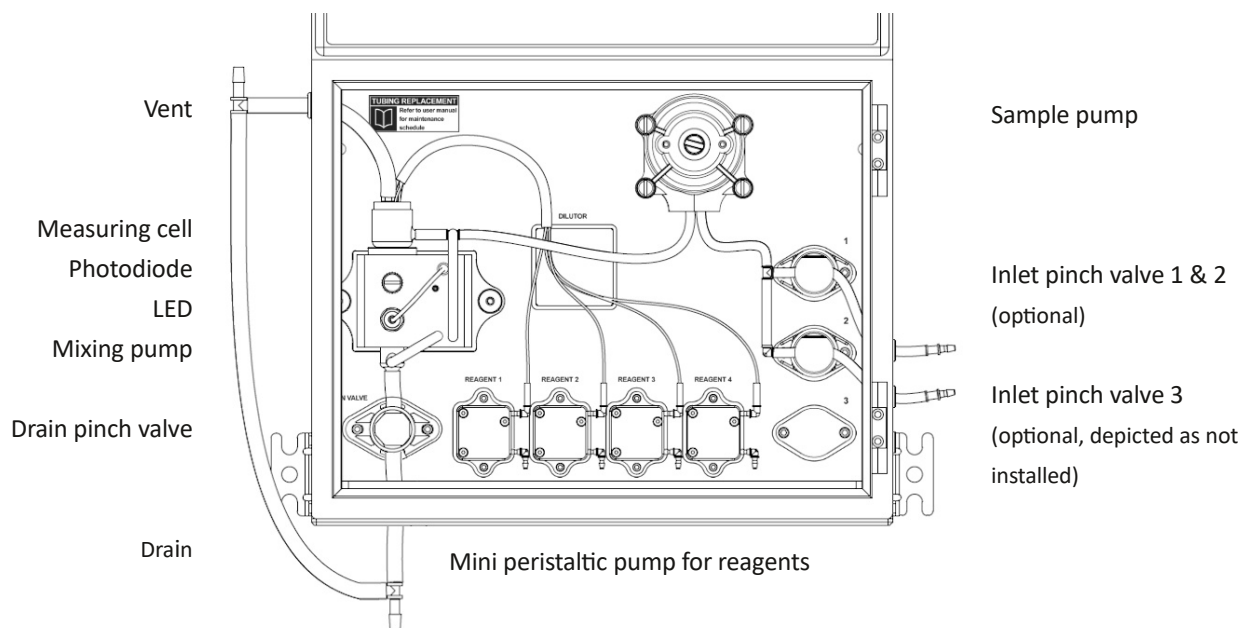
Other accessories, including external dilutors to increase the analyzer range and different kind of sample reservoirs are also available. See our website for more info.



TECHNICAL DRAWING



HYDRAULIC COMPARTMENT VIEW



PRODUCT CODES

CL3-2-572-0-16-HA	Hardness Colorimeter, one inlet port, 16 mm cell
CL3-2-572-2-16-HA	Hardness Colorimeter, two inlet ports, 16 mm cell
CL3-2-572-3-16-HA	Hardness Colorimeter, three inlet ports, 16 mm cell
CL3-2-572-0-26-HA	Hardness Colorimeter, one inlet port, 26 mm cell
CL3-2-572-2-26-HA	Hardness Colorimeter, two inlet ports, 26 mm cell
CL3-2-572-3-26-HA	Hardness Colorimeter, three inlet ports, 26 mm cell