IRON PHENANTROLINE COLORIMETRIC ANALYZER

Compact online analyzer for measurement of iron in water

APPLICATION FIELDS

- Drinking water
- Iron removal processes and residual coagulant monitoring
- Industrial wastewater
- Measurement of effluents and wastewaters
- Boiler feed water
- Corrosion control
- Cooling water
- Surface water

ADVANTAGES / FEATURES

• Different compartments

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

• Two reagents configuration, low reagent consumption

Minimum operating cost by small reagent consumption, only 1L R1 / 2L R2 (0.26 / 0.53 US.gal) for the 16 mm cell / 2L / 4L (0.53 / 1 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.

• Wide measuring range

The determination ranges of the Iron Analyzer vary from trace µg/L to 200 mg/L using internal dilution module.

• Factory tested, ready for installation and operation

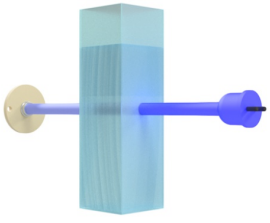
Just connect the power, sample, and reagent lines and the analyzer is fully operational.

• 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.

• Measurement principle

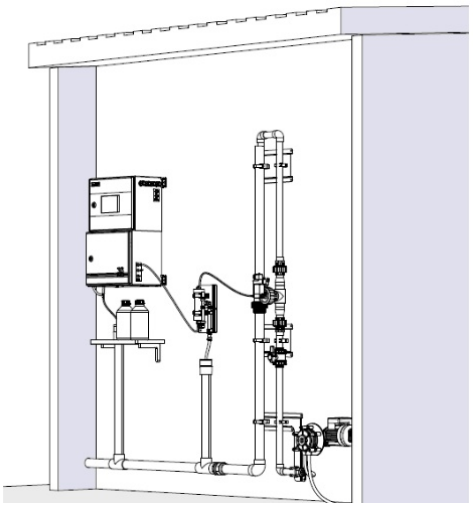
In a slightly acidic buffered solution, 1,10-phenanthroline and ferrous ion react to form an orange color in proportion to the iron concentration. The Fe(II)-*o*-phenanthroline complex is quite stable and measured at 430 nm. The absorption intensity is proportional to the iron concentration in the sample. A reduction of Iron(III) to Iron (II) must first be carried out in order to measure both iron species.



TECHNICAL SPECIFICATIONS

Measured parameter	Fe^{2+}, Fe^{3+}, Total Dissolved Iron (ppb, ppm, mg/l).
Measuring principle	Differential colorimetric absorbance.
Measuring range	0.02 to 3 ppm (26 mm cell) 0.05 to 7 ppm (16 mm cell) up to 200 mg/L with internal dilution
Reproducibility	± 0.02 ppm or ± 5%, whichever is greater (26 mm cell) ± 0.05 ppm or ± 5%, whichever is greater (16 mm cell)
Analysis Frequency	Freely programmable, batch near-continuous analysis.
Cycle time	8-10 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

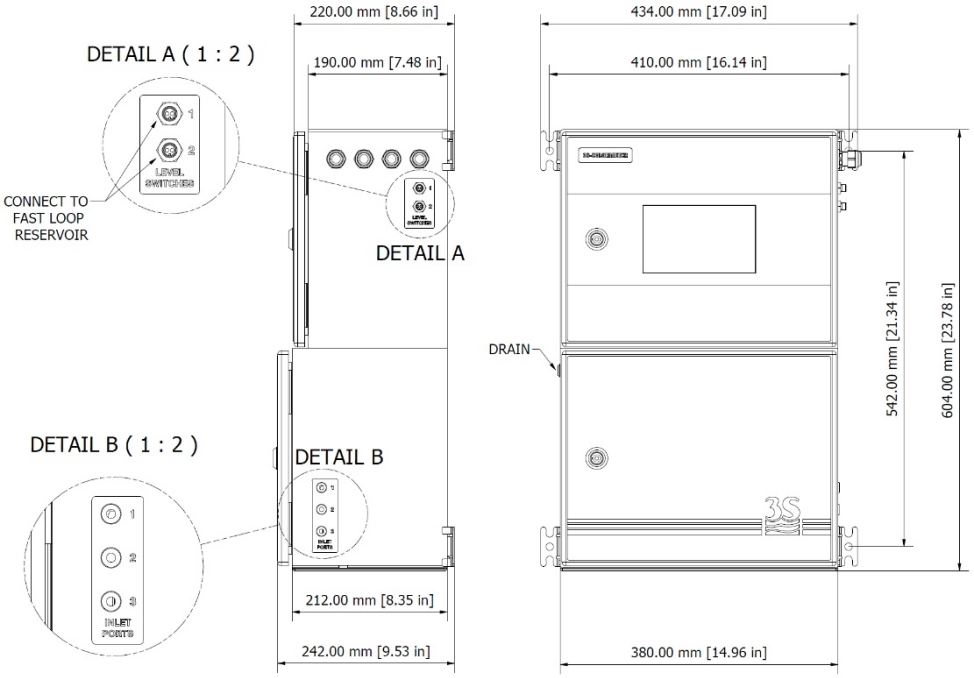
b) A46SF10020 - Filtration unit 100 micron 230 VAC (other mesh size and input voltages available)

c) A46SPP0000 - Sampling Pump

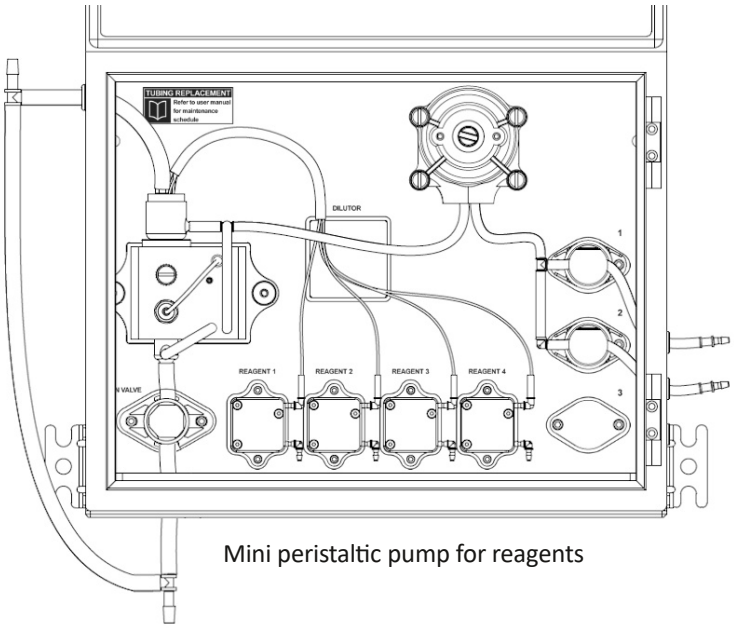
Other accessories, including external dilutors to increase the analyzer range and different kind of sample reservoirs are also available. See our website for more info.

3S ANALYZERS S.r.l. Via Molino Nuovo 12, 16036 Avegno (GE) Italy
Tel. +39 0185 799024 - info@3s-analyzers.eu - www.3s-analyzers.eu

TECHNICAL DRAWING



HYDRAULIC COMPARTMENT VIEW



Vent

Measuring cell
Photodiode
LED

Mixing pump

Drain pinch valve

Drain

Sample pump

Inlet pinch valve 1 & 2 (optional)

Inlet pinch valve 3 (optional, depicted as not installed)

Mini peristaltic pump for reagents

PRODUCT CODES

CL3-2-430-0-16-FE	Colorimeter Iron Phenantroline, one inlet port, 16 mm cell
CL3-2-430-2-16-FE	Colorimeter Iron Phenantroline, two inlet ports, 16 mm cell
CL3-2-430-3-16-FE	Colorimeter Iron Phenantroline, three inlet ports, 16 mm cell
CL3-2-430-0-26-FE	Colorimeter Iron Phenantroline, one inlet port, 26 mm cell
CL3-2-430-2-26-FE	Colorimeter Iron Phenantroline, two inlet ports, 26 mm cell
CL3-2-430-3-26-FE	Colorimeter Iron Phenantroline, three inlet ports, 26 mm cell