

3S-CL

Colorimetric Analyzer



Online analyzer for quantitative determination of common contaminants in aqueous streams.

3S Analyzers, with over 25 years of experience in the field, offers a wide selection of analytical instrumentation for online water monitoring.

Wastewater, process water and surface water analysis is crucial for the human productivity and sustainable development, our job and mission is to provide our customers with precise and reliable methods to monitor water flows.

The 3S-CL is a robust and easy to use instrument which guarantees precise quantitative determination of the most common aqueous pollutants and contaminants.



Versatile.

The 3S-CL colorimetric analyzer can be used in many different applications

Industrial sector	Sample type
<ul style="list-style-type: none"> • Chemistry • Pharmaceuticals • Food & beverage • Automotive • Oil & gas • Power production • Petrochemical • Wood & paper • Airports • Environmental monitoring 	<ul style="list-style-type: none"> • Potable water • Surface water • Process water • Boiler water/condensates • Cooling water • Wastewater



- **Many parameters available**

Due to its modular design, the 3S-CL colorimetric analyzer has the possibility to measure many different parameters.

With the internal dilution module the range of the analyzer can be extended up to 40 times.

- **Dual parameter configuration**

Some parameters can have compatible analytical methods and can be combined in one single unit.

With the Dual Parameter option you can analyze two different parameters and in two different sample streams too!

A complete series.
Many different parameters are available.

Parameters
• Aluminum
• Ammonia
• Chlorine
• Chromium
• Copper
• Cyanide
• Formaldehyde
• Hardness
• Hydrazine
• Iron
• Manganese
• Nickel
• Nitrate
• Nitrite
• Phenol
• Phosphate
• Silica
• Sulphate
• Total Phosphorus
• Zinc



- **Different compartments**

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

- **Factory tested, ready for installation and operation**

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

- **Large color touchscreen**

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 storage.

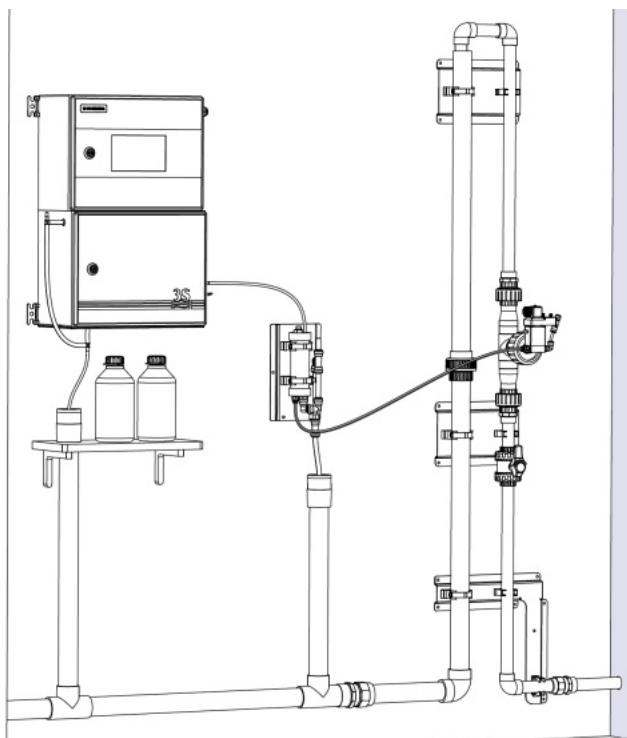
- **Dual Stream analysis**

The Dual Stream version is able to make analyses on two different sample streams. The number of sample can be extended with the optional sequencer module.



Simple and robust.

Complete separation between the electronics and the wet part.



- **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 3S-CL colorimetric analyzer vary from trace $\mu\text{g/L}$ to high ppm ranges using the internal dilution module.

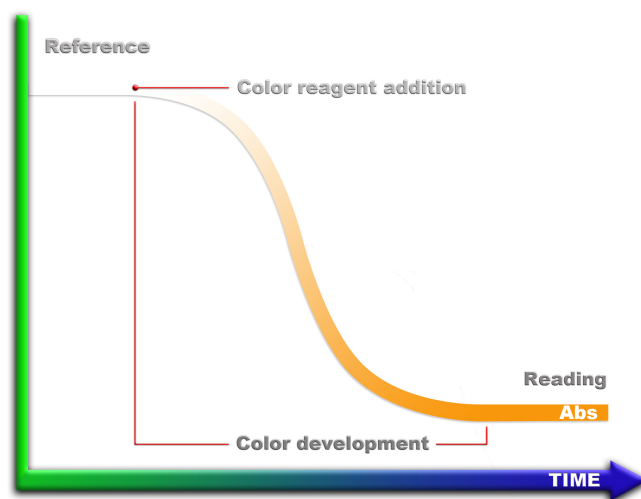
- **Many accessories available**

We provide everything you need for the analyzer installation and operation. This includes sample reservoirs, filtration units and external pumps for sampling.



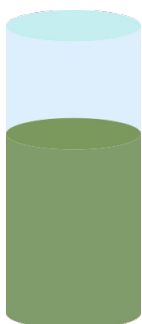
Colorimetric determinations are based on the color formation after the addition of reagents to the sample or standard solution. The absorbance of the solution is measured at a specific wavelength and is related to the sample concentration according to Beer's law.

The analyzer measures an initial reference absorbance value to compensate for the sample intrinsic color. After the addition of the reagents the color-forming reaction starts. The analyzer waits for a complete color development and then measures a final absorbance value. The intensity of the absorbance is proportional to the concentration of the analyte.



Reliable.

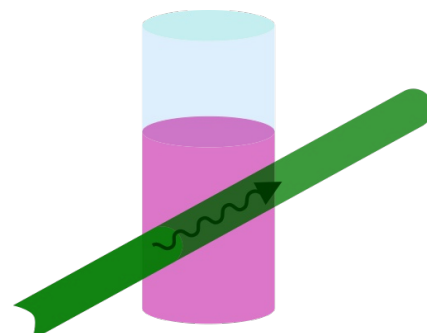
Based on proven analytical methods.



1. Sampling

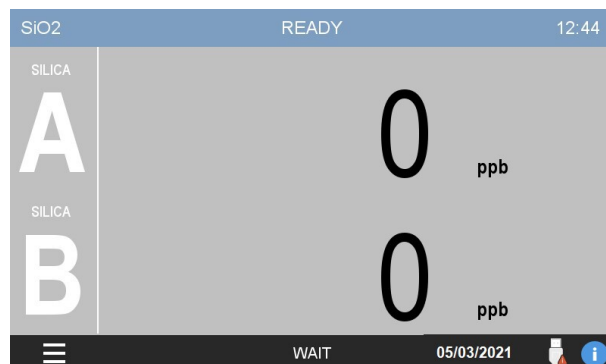
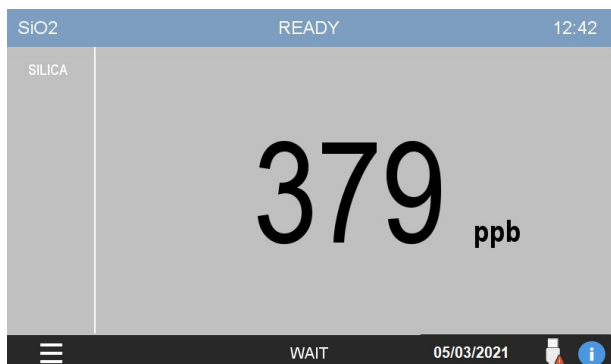


2. Color development



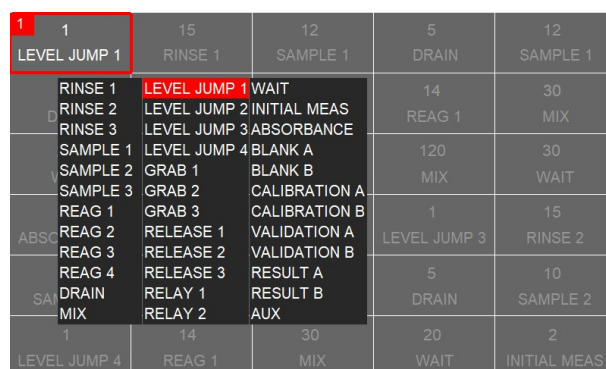
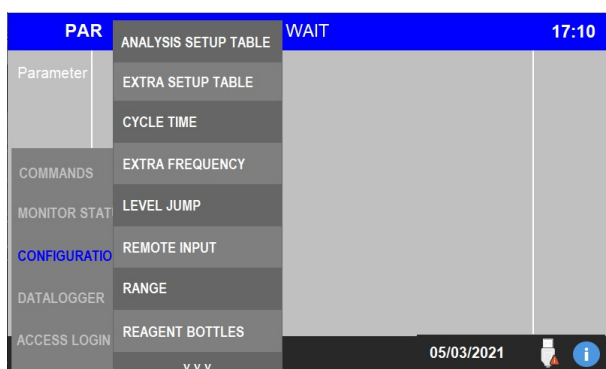
3. Measuring

Easy.
The interface is simple and intuitive.

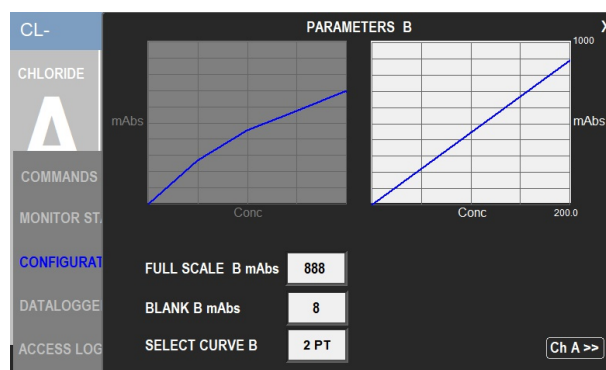
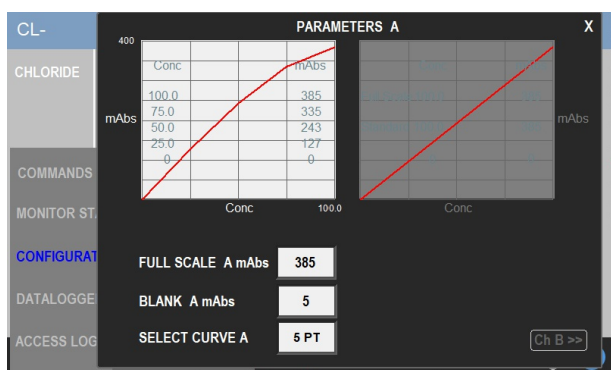


With the color touchscreen interface is really easy to configure and operate the analyzer.

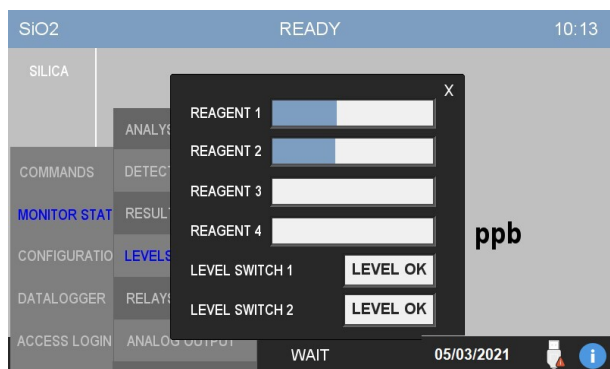
The measure value is shown clearly in the main screen together with the measure unit. The Dual Stream option is straightforward to use.



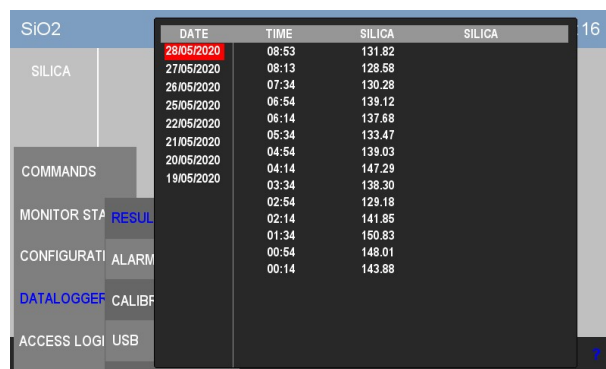
The analyzer is largely configurable in just a few click. The analysis cycle comes pre-programmed during our factory test and can be modified at any time if required.



There is the possibility to choose between a linear and non-linear calibration, to accomodate analytical methods with non-linear response. The Dual Calibration option can be used to calibrate a second stream or a second parameter on the same stream.



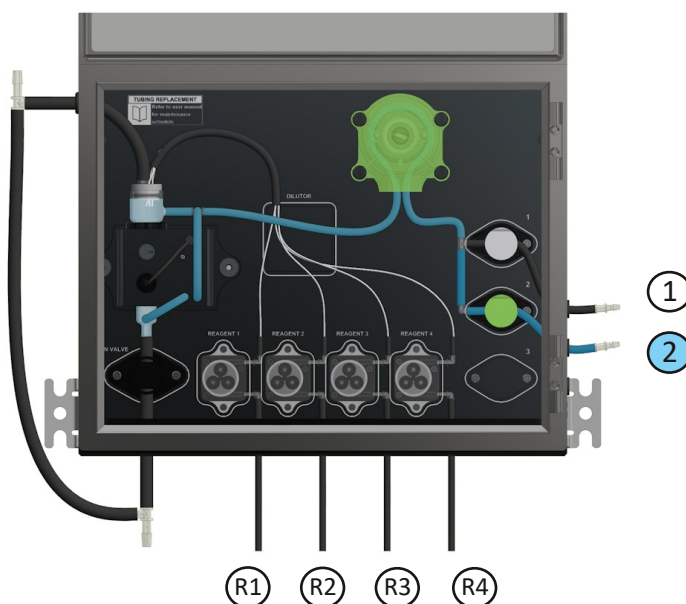
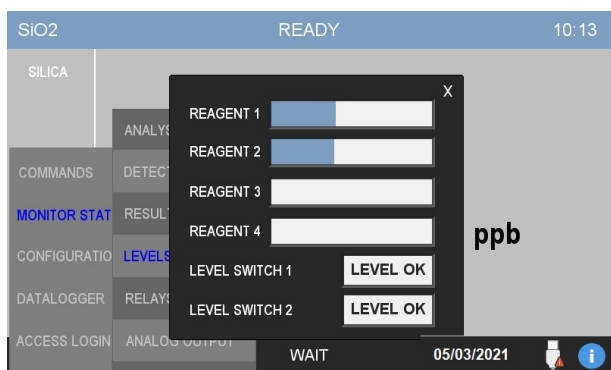
Reagent level is monitored. A warning will notify the user when it's time to refill the reagent containers.



Calibration data, alarms and analysis result are stored in the integrated datalogger with USB storage. Analysis result can be exported for further elaboration on PC (file .csv).

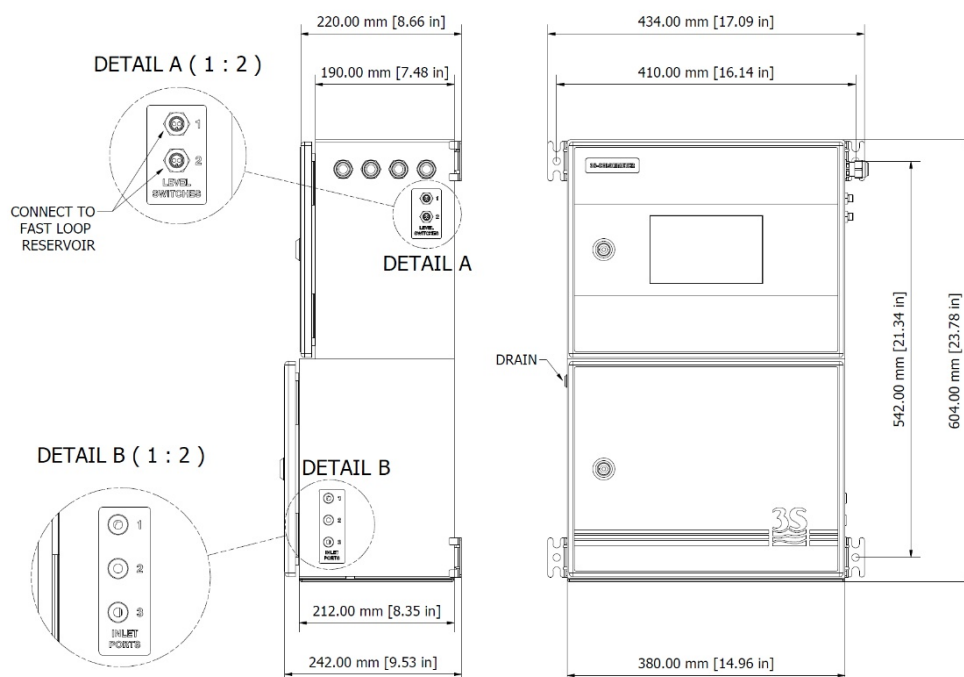
Completely automatic.

Programmable autofunctions to keep the analyzer in perfect operating conditions.

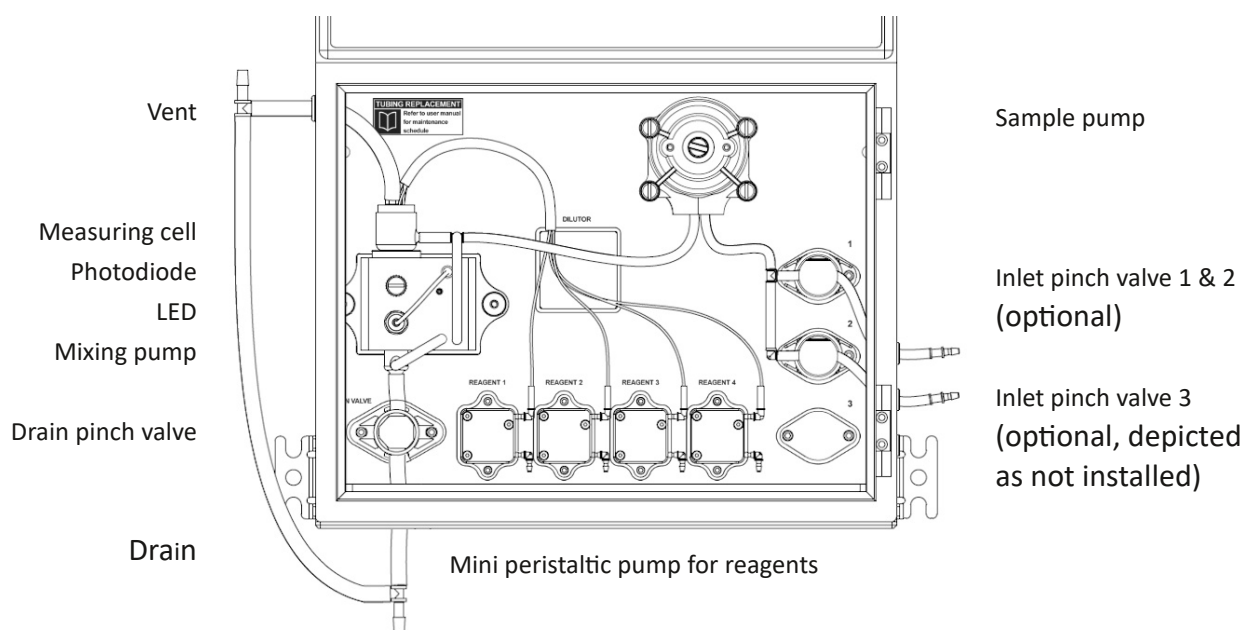


Autocleaning, autocalibration and autovalidation can be programmed at regular intervals to prevent analyzer failures and keep the analyzer always reliable.

TECHNICAL DRAWING



HYDRAULIC COMPARTMENT VIEW



TECHNICAL SPECIFICATIONS

Measure principle	Spectroscopic determination of color development chemical reaction (colorimetric analysis)
Measuring variables	See list of parameters
Analysis frequency	From 6 to 20 minutes (depending on the parameter)
Repeatability	± 1% absorbance (concentration % depending on the parameter)
Power supply	110-230 VAC, 50/60 Hz, 80 VA, optional 24 VDC
Working conditions	Temperature 5 - 45°C (41 - 113 °F), humidity max 85% RH
Cabinet	Epoxy-coated stainless steel
Protection grade	IP54
Mounting	Wall or rack mounting, in vertical position with fixing hinges
Dimensions (H x L x D)	680 x 380 x 242 mm (23.6 x 14.8 x 9.4 in)
Weight	Approx. 20 kg (44 lbs)
Output signals	n. 2 analog outputs 4-20 mA, serial com. ModBUS RTU RS485 / ethernet
Alarms	n. 2 programmable relays, voltage free, NO or NC
Datalogger	Integrated, with USB storage
Automatic functions	Calibration, validation, cleaning
Measurable samples	2
Sample pressure	Atmospheric, flow (max 500 ml/min) goes to a sample reservoir with overflow to drain
Samples connection	To sample reservoir: flexible tubing 6 mm OD
Sample temperature	5 - 45°C (41 - 113°F)
Maintenance frequency	Every 4 months; some parameters or samples require more maintenance