

PROCESS ANALYZER

Controllers

Sensors

Analysers

Samplers

Flow

Level

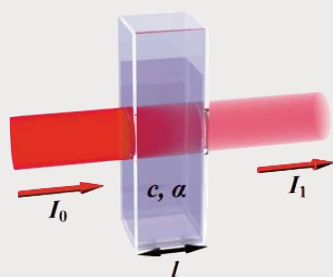
Pressure

Web App

Remote control

Data logging

Accessories



GENERAL PRINCIPLES OF THE LAMBERT-BEER LAW

The Lambert-Beer law is an empirical relation that correlates the amount of light absorbed by a medium to the chemical nature (molar extinction coefficient α), to the concentration (c) and to the thickness of the crossed medium.

When a light beam (monochromatic) of intensity I_0 passes through a layer with the thickness l of the medium, a part of it is absorbed by the medium itself and another part of it is transmitted with residual intensity I_1 .

Analyzer for chemical parameters such as Al , NH_4^+ , Cr^{+6} , PO_4^{3-} , Fe , Mn , SiO_2 and other on request.

ColorTec

It consists of two sections, hydraulic/analytical and electronics. These two sections are separated from each other so as to ensure efficiency and durability of all the parts

User Interface (HMI)

The user interface consists of an **industrial PC with touch screen**.

Software & Functions

The **control software**, simple and intuitive, allows the immediate understanding of all the commands and functions.

It is possible to perform measurements at programmed intervals, at a specific time or at an external event.

The software archives and makes available in graphical form all the measurements.

The instrument is **designed for connection to an existing LAN**.

Phases of the measuring cycle

The analyzer automatically reproduces the colorimetric determination, as well as carried out in the laboratory, according to the following steps:

Emptying of the reading cell

The cell is emptied by use of an air pump

Zero measurement

The fresh sample is inputted and the instrument performs a first reading of the sample as received (or, if required by the methodology, with the addition of reagents) to acquire the photometric Zero.

Emptying of the reading cell

The cell is emptied again



Colouring reagent(s) and sample dosing

Depending on the specific methodology, one or more colorimetric reagents are dosed

Absorbance measurement and calculation of the concentration

Reading of light intensity value of the coloured liquid after proper mixing of the reagents

Emptying, rinsing of the hydraulic circuit and of the measuring cell

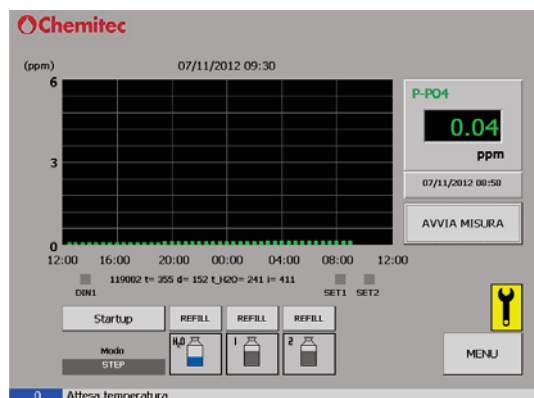
The reading cell is emptied and flushed with cleaning water together with the entire hydraulic circuit. At the end the reading cell will be left full of clean water until the next measurement.

Calibration

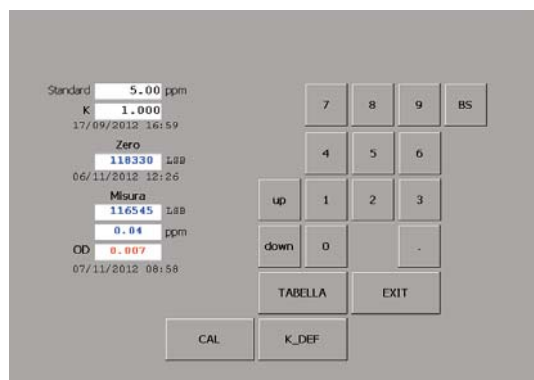
The instrument is supplied with factory calibration, performed using certified standard solutions; however, the user has the possibility to change this calibration by acting directly on the coefficient K (1,000 by default).

The coefficient "k" can be automatically determined by the instrument after making a measurement of known value, set in the "STANDARD" box.

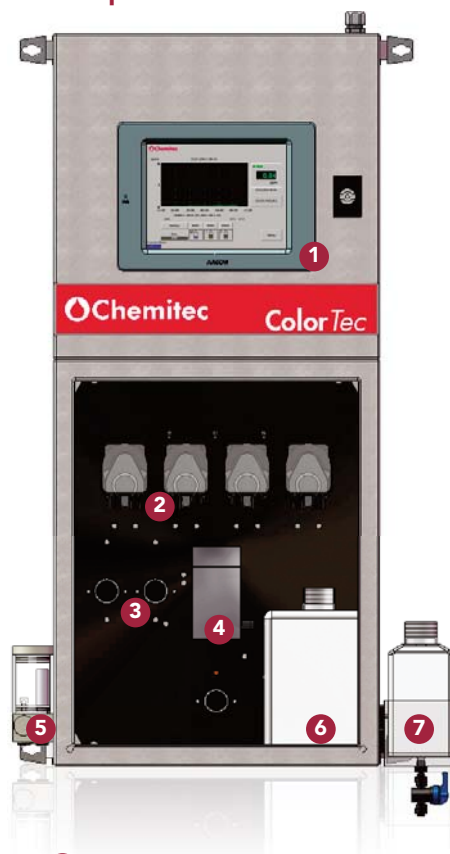
Alternatively, the calibration can be changed by using an ABS/PPM correlation table (up to a maximum of 50 points).



1 Touch screen controller



System composition



- 1 Touch screen controller
- 2 Peristaltic pump for dosing reagents / sample / cleaning water
- 3 Sample/Cleaning water solenoid valves
- 4 Measuring cell
- 5 Sample inflow cell
- 6 Cleaning water tank
- 7 Reagent bottles

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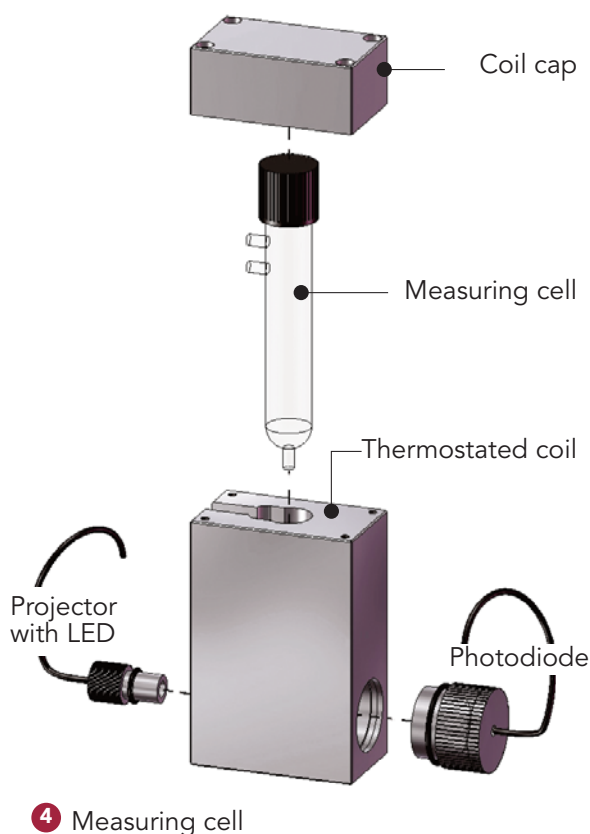
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Measuring cell

The measuring cell consists of a thermostated aluminum coil inside of which is contained a test tube into which flows the liquid to be analysed.

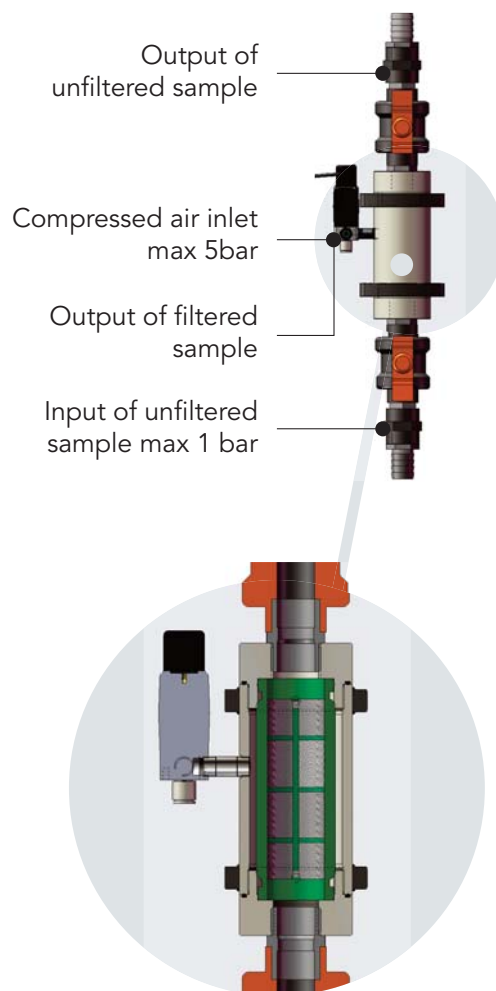
A projector with LED sends a light beam that passes through the medium, while a photodiode, located on the opposite side of the projector relative to liquid to be analysed, receives the signal given by the emitted light beam, according to the Lambert-Beer law.



Filtering system (OPTIONAL)

In particular applications, it is necessary to perform a pretreatment of the sample to remove suspended particles present into the liquid to be analysed.

Chemitec can provide a filtration system at 100 μm , complete with self-cleaning system (with compressed air) disposed on perforated panel to be installed comfortably on the wall.



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