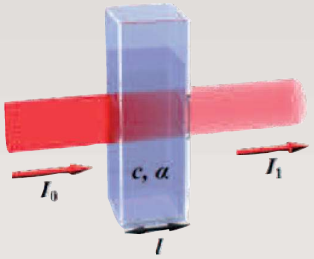


GENERAL PRINCIPLES OF THE LAMBERT-BEER LAW

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 ∝), to the concentration (c) and to the thickness of the crossed medium.

When a light beam (monochromatic) of intensity I0 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 I1.

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

COLOR TEC

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 fare dosed

Absorbance measurement and calculation of the concentration
Reading of light intensity value of the coloured liquid after proper mixing of the reagents

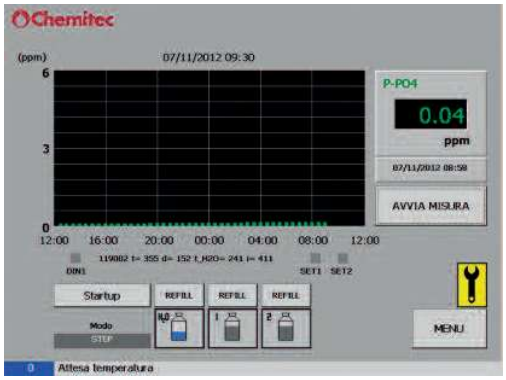
Emptying, rinsing of the hydraulic circuit and of the measuring cell
The reading cell is emptied and flushed with cleaning water together with the entire hydraulic circuit. At the end the reading cell will be left full of clean water until the next measurement.

Calibration

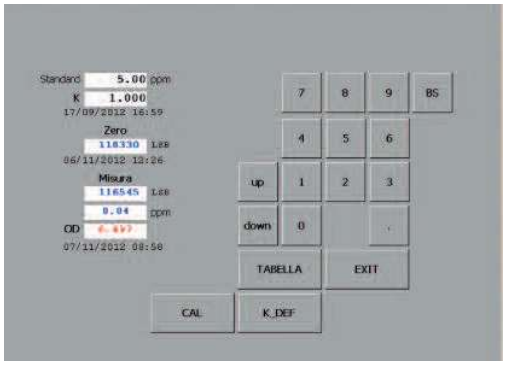
The instrument is supplied with factory calibration, performed using certified standard solutions; however, the user has the possibility to change this calibration by acting directly on the coefficient K (1,000 by default).

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

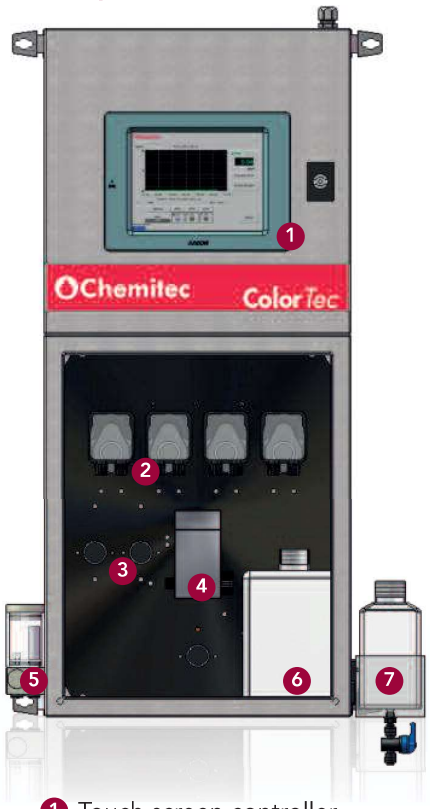
Alternatively, the calibration can be changed by using an ABS/PPM correlation table (up to a maximum of 50 points).



1 Touch screen controller



System composition

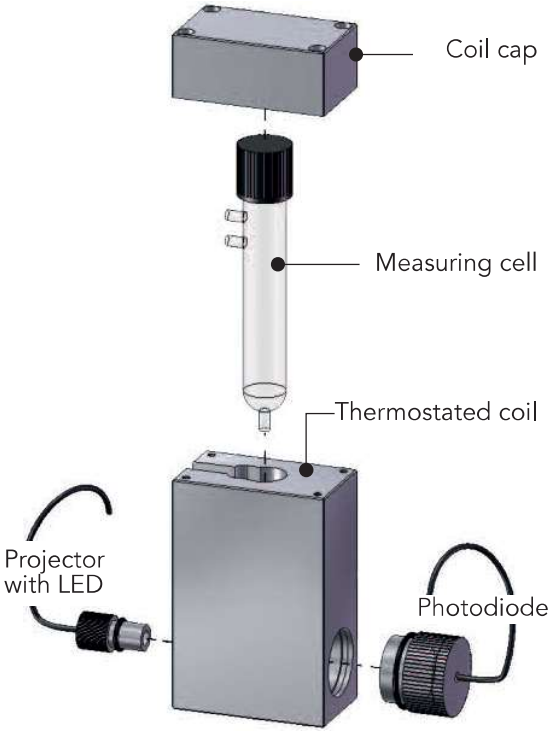


1. Touch screen controller
2. Peristaltic pump for dosing reagents / sample / cleaning water
3. Sample/Cleaning water solenoid valves
4. Measuring cell
5. Sample inflow cell
6. Cleaning water tank
7. Reagent bottles

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.

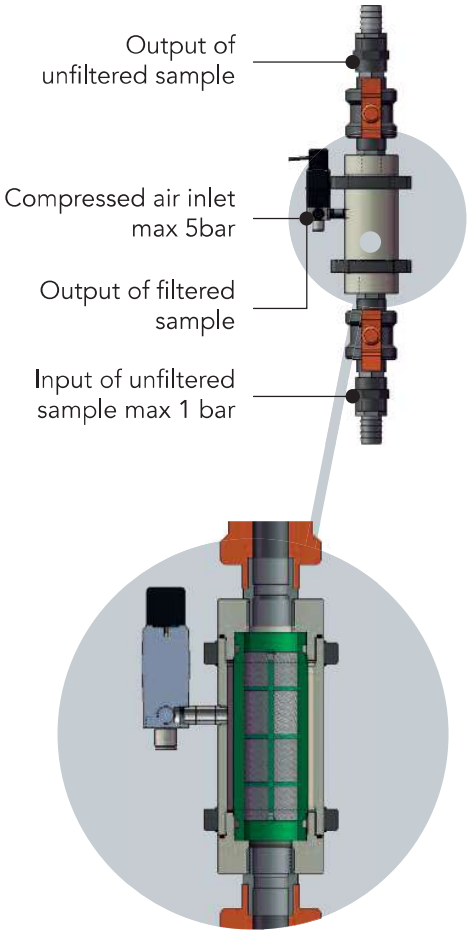


4 Measuring cell

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.



Hardware features, software features and functions COLOR TEC

Photometric range	2.5 Optical density
Accuracy	± 3 % of the full scale
Repeatability	90 % of the measure
Frequency of the analysis	Hourly or by step (20 minutes minimum)
Turbidity of the sample	Max 10 FTU/NTU. For higher turb. it's recommended to use the filtration syst. (optional)
Liquid pressure	0.1…0.3 Atm. stable
H_2O or air pressure for filter washing	0.1…0.5 Atm. stable
Measuring sensor	Standard Silicon sensor with 17-bit digital converter
Wave length	445…800 nm with led
Light source	Led
Reading cell	made of PIREX® Ø 16 mm
Mixer	Reaction Coil in thermostated Aluminum
Dosage of reagents	Peristaltic pumps with variable speed
Hydraulic system cleaning	Automatic washing with distilled H_2O
Visualization	LCD 8.4 colour display
Data insertion	Resistive TOUCH SCREEN
Computer CPU	Atom with 4GB flash disk
Access to the system	through password
Archive	Circular, with date and value storage
Visualization of measures	Via SW it is possible to view the daily, weekly and / or monthly chart of all the archived measures
Data download	Possible via USB mass storage device
Set-Points	Two (2) ON-OFF programmable as min. or max. via SW
Output relay contacts	Max 2A 220V resistive load
Current output	0/ 4…20 mA programmable via software
Load	maximum 500 ohm
Serial interface	Two (2) ON-OFF programmable as min. or max. via SW
Calibration	Manual with activation from menu
Calibration curve	Creation of the calibration curve using a table from 2 to 50 points in which it is possible to enter arbitrary values
Dimensions (L x H x P)	1000 x 400 x 200 mm
Weight	45 Kg
Power supply	220 Vac 50 Hz (110Vac on request)
Power consumption	100 W max