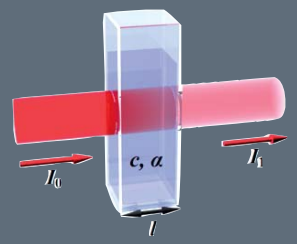
60 Series
Process Analyzer

- ALUMINUM
- AMMONIA
- CYANIDES
- CHLORIDES
- CHROME VI
- IRON
- PHOSPHATES
- MANGANESE
- NICKEL
- NITRITES
- COPPER
- SILICA
- ZINC

Chemitec
Water Monitoring Solutions

60 Series



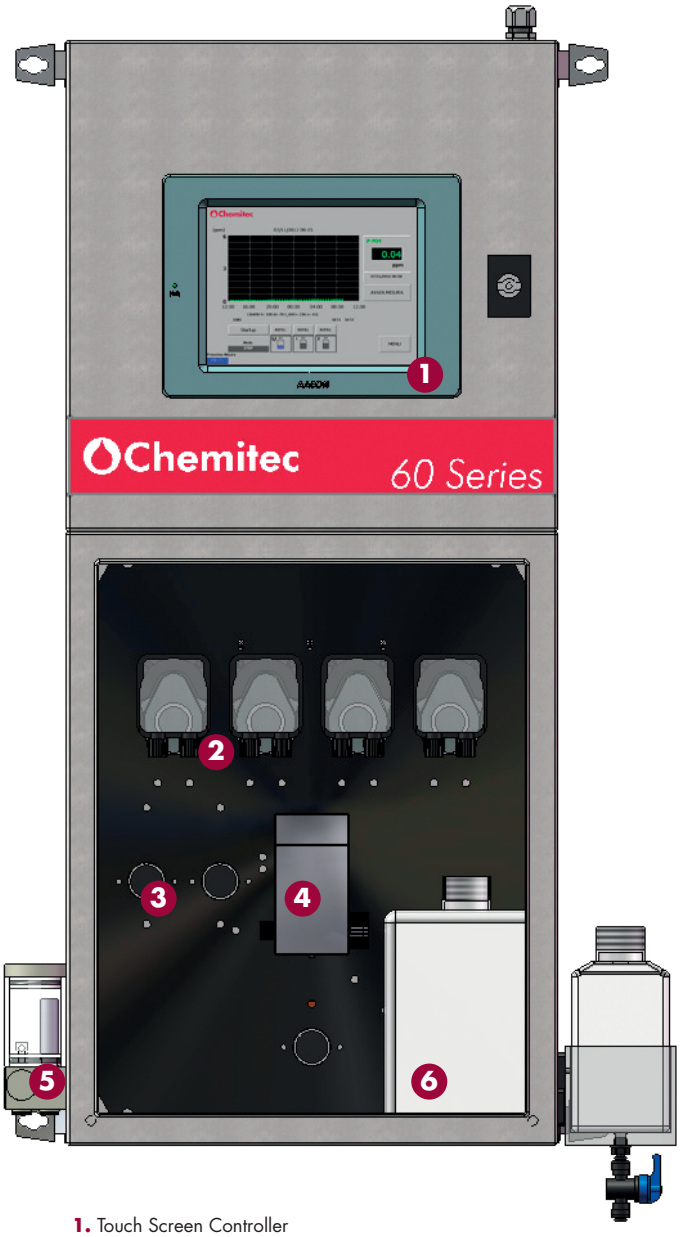
GENERAL PRINCIPLES OF THE LAMBERT-BEER LAW

The Lambert-Beer law is an empirical relation that relates the quantity of light absorbed by a material to the chemical nature (molar extinction coefficient ∝) to the molar concentration (c) and to the thickness of the traversed material.

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

The **60 Series Analyzer** is composed by two sections: one hydraulic/analytic and one electronic, completely separated between themselves, in order to ensure the efficiency and the durability of all the parts.

- The user interface consists of an industrial PC with a touch screen. The control Software, simply and intuitive, allows the immediate comprehension of all the functions and commands.
- It is possible to execute measures at programmed intervals, scheduled or on an external event.
- The software archives and makes available all the measures in a graphical form.
- The instrument has the predisposition to be connected to an existing LAN network.



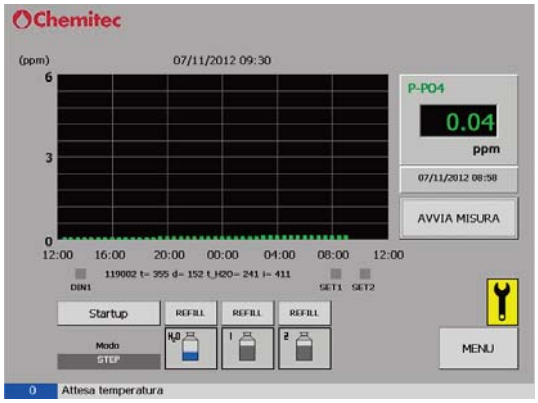
1. Touch Screen Controller
2. Dosing Peristaltic Pumps Reagent / Sample / Cleaning Water
3. Sample Solenoid Valves / Washing Water
4. Measuring cell
5. Sample Inlet cell
6. Cleaning Water Tank
7. Reagents' bottles

Calibration

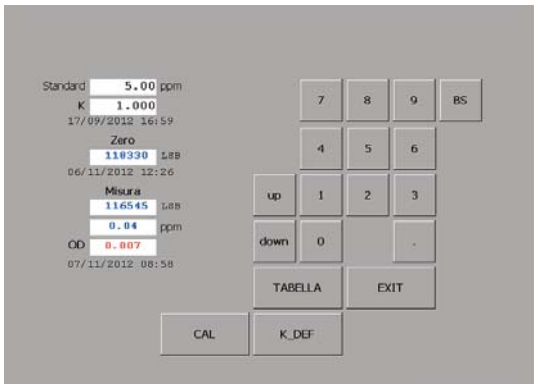
The instrument comes with a factory calibration, performed using standard certified solutions; however, user has the possibility to modify this calibration directly acting on the K coefficient (default value is 1000).

The K coefficient can be determined automatically from the instrument after performing a measure of known value that is set in the "STANDARD" box.

In alternative factory calibration can be modified by the user utilizing a customized table ABS/PPM up to 50 points.



1. Touch Screen Controller



ANALYSIS CYCLE

The analyzer automatically reproduces the colorimetric determination, as realized in laboratory, following the steps written below:

Emptying of the measuring cell
The measuring cell is emptied through the use of an air pump.

Zero measure
Fresh sample is collected and the instrument performs a first reading on the sample as received (or, if requested by the method with the addition of reagents) to acquire the photometric zero.

Emptying of the measuring cell
The measuring cell is emptied again.

Dosage of coloration and sample reagent(s)
Depending on the particular type of method, one or more colorimetric reagents are dosed.

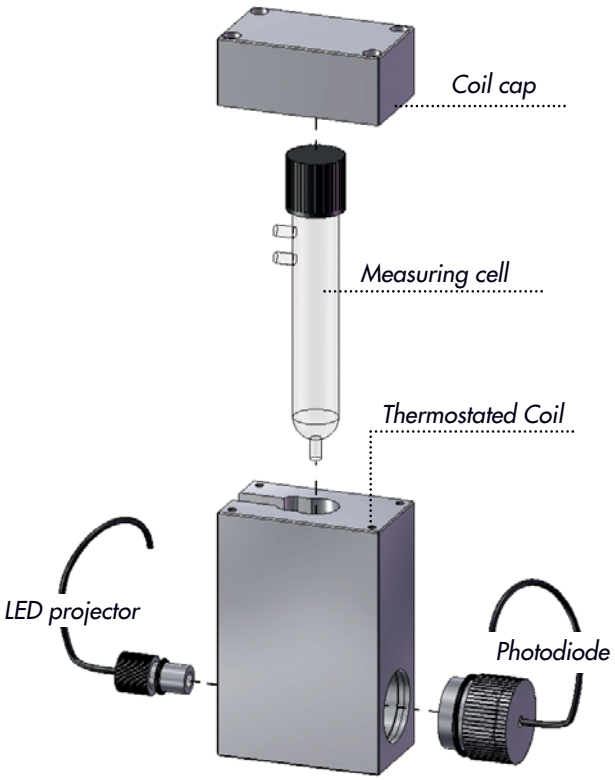
Absorbance measurement and calculation of the concentration
Reading of the value of light intensity of the colored liquid after an appropriate mixing of the reagents.

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

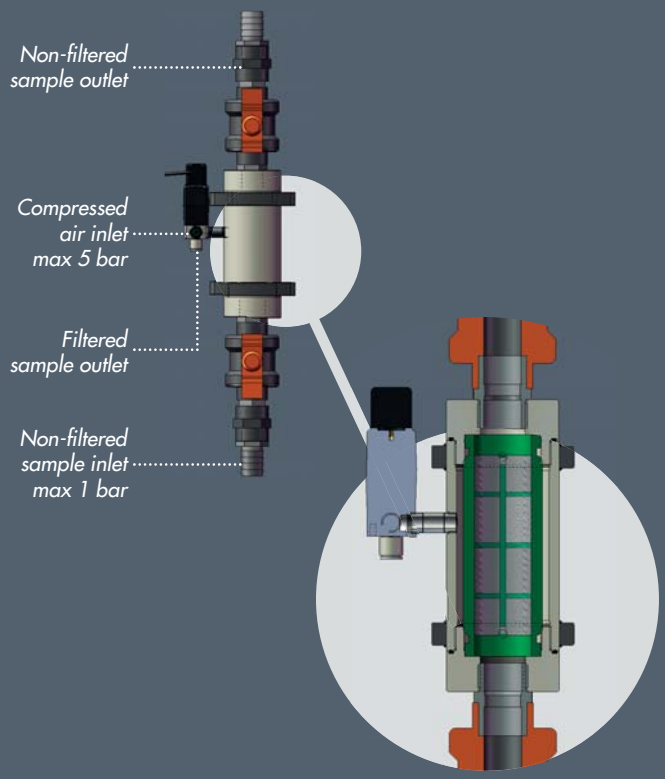
Measuring cell

The measuring cell consists in a thermostated aluminum coil containing a test tube in wich the analyzing liquid flows.

A **LED projector** sends a beam of light that passes through the liquid, while a **photodiode**, located on the opposite side of the projector relative to the liquid to be analyzed, riceives the signal given by the outgoing light beam (measuring method based on the Lambert-Beer law).



4. Measuring cell



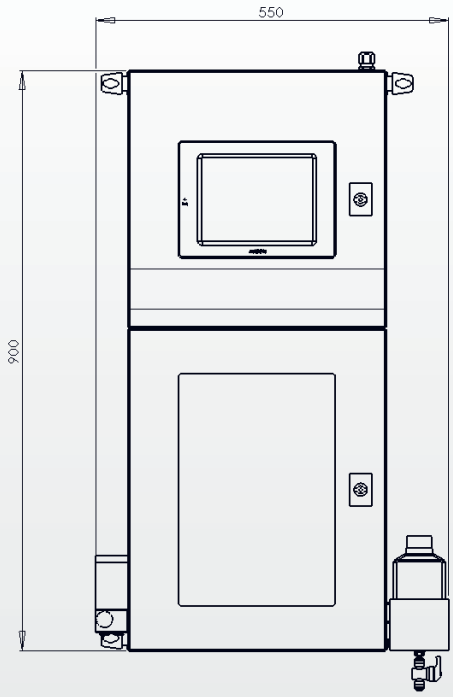
Filtering system (OPTIONAL)

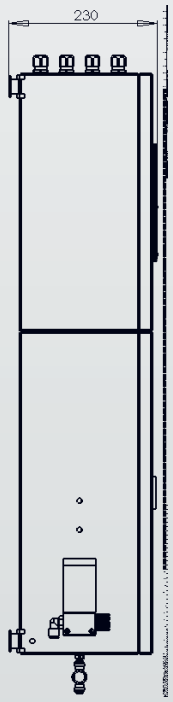
In particular applications it's necessary to perform a pre-treatment of the sample in order to remove particles in suspension in the analyzing liquid.

Chemitec can provide a 100µm self-cleaning filtering system (using compressed air) fitted on a perforated panel in order to easily install on a wall.

TECHNICAL FEATURES

Photometric Range	2,5 Optical Density
Accuracy	± 3 % of f.s.
Repeatability	90 % of the measure
Analisys frequency	Hourly or by step (20 minutes minimum)
Measuring sensor	Silica sensor normalized with a digital 17 bit converter
Wave length	445 ÷ 800 nm with led
Light source	Led
Measuring cell	Made of PIREX® Ø 16 mm
Mixer	Reaction Coil in thermostated Aluminum
Dosage of reagents	Peristaltic pumps with variable speed
Hydraulic system washing	Automatic washing with distilled water
Visualization	LCD 8,4 color display
Data insertion	TOUCH SCREEN resistive
CPU Computer	Atom with 4gb flash disk
Access to the system	Via Password
Archive	Circular with data and values storage
Visualization of the measures	Via SW it is possible to visualize the daily, weekly and monthly graphic of all the measures that are stored in the archive
Data download	Possible via USB mass storage device
Set-Points	2 ON-OFF programmable as min. or max. via SW
Output relays' contacts	Max 2A 220V resistive load
Current output	0/4÷20 mA programmable via SW. Max load 500 ohm
Calibration	Manual with activation from menu
Serial Interface	nr.1 RS 232 port MODBUS RTU protocol nr.2 LAN ports
Calibration curve	Creation of the calibration curve using a 2 to 50 points table in which it is possible to insert arbitrary values
Power supply / Absorption	220 Vac 50 Hz (110Vac optional) 100 W max
Liquid Pressure / H_2O or air for filter washing	0,1÷0,3 Atm. stable / 0,1÷0,5 Atm. stable
Turbidity of the sample	Max 10 FTU/NTU. For higher values of turbidity the filtering system (optional) is recommended.





DIMENSIONS
1000 x 400 x 200

WEIGHT
45 Kg

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Water Monitoring Solutions

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ISO 9001
Quality System Certification

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