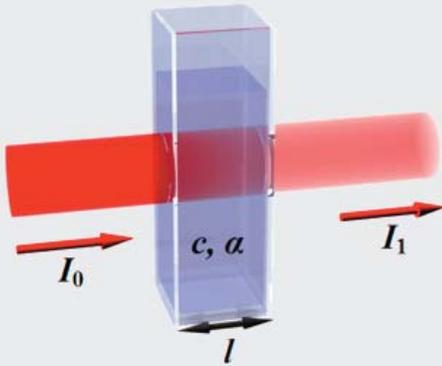


4001 Series

Photometric Analyzer

4001 Series

The photometric method



In recent decades, the photometry was developed as an essential method of analysis because it allows the "Quantitative" determination of organic and inorganic compounds.

The methods in this technique uses the colorimetric characteristics of some compounds, ie the ownership of some chemical reagents to develop color intensity proportional to the concentration of a substance at a particular wavelength of the visible spectrum between the UV and IR (from 400 to 800nm).

Compared to the IR or UV spectrophotometry, the colorimetric technique has the tremendous advantage of relying on well-defined linear response with only few well known interfering substances .

The Palin method employs the principle of interactivity of the DPD to determine the concentration of some oxidants such as free chlorine, total chlorine, chlorine dioxide, ozone, peracetic acid, bromine, permanganate. ect.

The DPD reacts with the oxidant present in water and almost instantly produces a pink color, making all those factors which may affect the measure (pH, microseconds, ° C, organic matter, etc..) to have no influence on the analytical methodology.

The 4001 measurement cycle are:

- Sample taken in the measuring cell for wash / rinse / sample
- First sample measure as (Photometric Zero)
- Entering the reagents through the peristaltic pump
- Development of the colorimetric reaction by stirring the sample
- Reading the absorbance (OD)

The differential measurement between zero and the absorption is processed by an electronic processor and transformed into a concentration value, through the use of specific correlation tables developed in our laboratories.

The electronic controller visualize on the display the mg / l of the substance measured, and provide to activate or not the devices responsible for dosing to the correct value.

Running costs and maintenance are very low and, above all, the system calibration is done automatically at each measurement cycle.

Industrial applications not only include the analysis of drinking water and wastewater but also analysis including food, pharmaceutical, chemical, etc..



Measuring cell

- ▶ Photometric measurement cell complete of serial interface RS485
- ▶ PVC / Plexiglass / Glass body
- ▶ LED light emitter
- ▶ Silica photosensor
- ▶ Electrode probe holder for housing pH, ORP, temperature sensor / flow
- ▶ Hydraulic Power-60 l / h
- ▶ Max pressure 1 bar
- ▶ Gravity discharge for clean water
- ▶ Gravity discharge for polluted water



User-friendly interface.

The wide display allows the creation of graphics for each available measurement via an internal Data Logger function.



The peristaltic pump, which has 4 pressure points, saves on reagents



Continuous monitoring of reagents using level probes. The DPD reagent in powder form (to be diluted before use) is an excellent solution for safe storage.

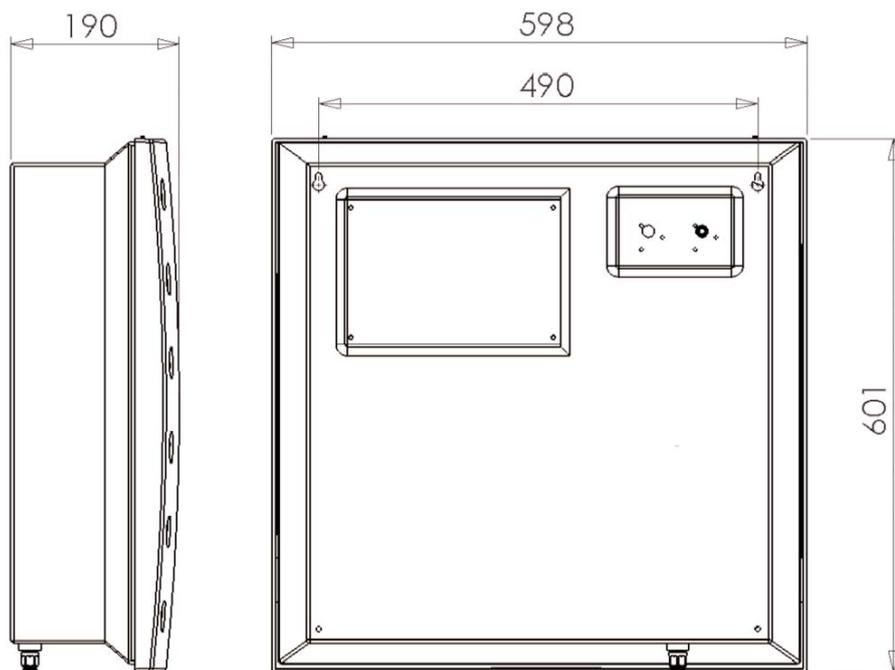
Available Versions

4001_2 Cl₂ Photometric Unit for determination of: Free (or Total) Chlorine and temperature	Free Chlorine	00.00 ÷ 05.00 ppm Cl ₂ - Resolution: 0.01 ppm Accuracy: 1% f.s. (with DPD colorimetric method)
	Temperature	00.0 ÷ 50.0°C - Resolution: 0.1°C - Accuracy: 1% f.s.
4001_2 PPA Photometric Unit for determination of: Peracetic acid and temperature	Peracetic Acid	00.00 ÷ 05.00 ppm PPA - Resolution: 0.01 ppm Accuracy: 1% f.s. (with DPD colorimetric method)
	Temperature	00.0 ÷ 50.0°C - Resolution: 0.1°C - Accuracy: 1% f.s.
4001_2 ClO₂ Photometric unit for determination of: Chlorine dioxide and temperature	Chlorine Dioxide	00.00 ÷ 05.00 ppm Cl ₂ - Resolution: 0.01 ppm Accuracy: 1% f.s. (with DPD colorimetric method)
	Temperature	00.0 ÷ 50.0°C - Resolution: 0.1°C - Accuracy: 1% f.s.
4001_2 O₃ Photometric unit for determination of: Residual Ozone and temperature	Ozone	00.00 ÷ 05.00 ppm O ₃ - Resolution: 0.01 ppm Accuracy: 1% f.s. (with DPD colorimetric method)
	Temperature	00.0 ÷ 50.0°C - Resolution: 0.1°C - Accuracy: 1% f.s.
4001_3 Cl₂ - pH - T Multi-Parameter photometric unit for contemporary determination of: Free chlorine, pH, and temperature	Free Chlorine	00.00 ÷ 05.00 ppm Cl ₂ - Resolution: 0.01 ppm Accuracy: 1% f.s. (with DPD colorimetric method)
	pH	00.00 ÷ 14.00 pH - Resolution: 0.01 pH - Accuracy: 1%f.s
	Temperature	00.0 ÷ 50.0°C - Resolution: 0.1°C - Accuracy: 1% f.s.
4001_4 Cl₂ - pH - Rx - T Multi-Parameter photometric unit for contemporary determination of: Free chlorine, pH, and temperature	Free Chlorine	00.00 ÷ 05.00 ppm Cl ₂ - Resolution: 0.01 ppm Accuracy: 1% f.s. (with DPD colorimetric method)
	pH	00.00 ÷ 14.00 pH - Resolution: 0.01 pH - Accuracy: 1%f.s
	ORP	± 1500 mV - Resolution: 1 mV - Accuracy: 1%f.s.
	Temperature	00.0 ÷ 50.0°C - Resolution: 0.1°C - Accuracy: 1% f.s.
4001_6 Cl₂ - Cl₂ tot - Cl₂ comb - pH - Rx -T Multi-Parameter photometric unit for contemporary determination of: Free, Total and combined chlorine, pH, ORP and temperature	Free & Total Chlorine	00.00 ÷ 05.00 ppm Cl ₂ - Resolution: 0.01 ppm Accuracy: 1% f.s. (with DPD colorimetric method)
	Combined Chlorine	00.00 ÷ 05.00 ppm Cl ₂ (as calculated channel)
	pH	00.00 ÷ 14.00 pH - Resolution: 0.01 pH - Accuracy: 1%f.s
	ORP	±1500 mV - Resolution: 1 mV - Accuracy: 1%f.s.
	Temperature	00.0 ÷ 50.0°C - Resolution: 0.1°C - Accuracy: 1% f.s.

Common technical Features

Graphic display	LCD STN 240x128 backlighted. Visualisation of: measurements (simultaneous up to 4 values + trend line) Digital outputs condition, storage condition, malfunctions.
Programming	through keyboard with 4 bubble keys
Internal Data Logger	Flash 4 Mbit storage equal to 16000 recordings - Recording interval: 00:00 ÷ 99:99 min Type: circular / filling - Visualisation: table/chart
Analogue outputs	Up to 4 in reference with the model - Typology: 0.00 / 4.00 ÷ 20.00 mA galvanically isolated Limit programming: lower / higher / Inversion - Max load: 500 Ohm Output alarm according to NAMUR 2.4 mA (with range 4/20mA)
Set point Relay Outputs	nr. 2 for Chlorine + 2 for pH - Programming of Hysteresis and operational time: 000 ÷ 999 sec. or Daily activation on a hour basis: with programming of switching on and off hour Relay max resistive load 5A at 230Vac
Alarm Relay Output	ON-OFF cumulative for: Min/Max, set point delay, defects (lack of sample water, reagents exhaustion, burnt projector, dirty cell) - Delay time: 00:00 ÷ 59:99 mm:ss at minimum step of 15 seconds - Threshold disabling: active - Relay functioning: closed / open - Relays max resistive load 5A at 230Vac
Auxiliary Relay Output	Programmable as: Set point for Temperature measurement, timing activation (programmable activation time and frequency) - Relay max resistive load 5A at 230Vac
Digital Input	Contact fed at 24Vdc for dose disabling
Analogue Input	0/4 ÷ 20mA for auxiliary measurements - MODBUS RTU protocol with programmable velocity 1200 ÷ 38400 Baud Rate. for set-up, Real Time condition, or data download
Functioning conditions	Operational Temperature 0÷50°C - Storage and Transportation -25÷65°C - Humidity 10-95% not condensed
Power Supply/ Electric Protection	Power supply 90÷260Vac/dc 50-60Hz - Average absorption 66 W Electric protection: UL6950-1 TUV EN60950 EN 55022 ClasseB EN61000 ENV50204 EN55024

Dimensions



Mechanical Dimensions	
Dimensions (L x H x P)	598x601x190 mm
Overall Width	598 mm
Overall height (including taps)	601 mm

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