

UV300-5D

Online Analyser For Drinking Water



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INSTRUMENTS

Specialist Of UV Spectroscopy

> UV300-5D Online Analyser for Drinking Water

*The **UV300-5D** is a pre-defined configuration of the UV300 analyser dedicated to drinking water monitoring.*

It offers the possibility to monitor simultaneously FIVE parameters or per option:

- Total Free residual chlorine (Optional by Colorimetric method or Amperometric sensor)
- Turbidity
- pH
- Conductivity (Option)
- Temperature

All this is done by a single unit that allows high performance measurements at a cost-effective price.

An automatic cleaning system maintains clean the flow cell and also make an auto-zero that guaranties the absence of long-term drift.

A web-based interface allows the control and the troubleshooting at distance using an internet browser on computer, tablet or i-phone. The reagent and cleaning solution level can be also followed at distance.



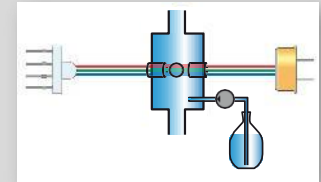
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Colorimetric DPD Method : A Reliable Method for Free Residual Chlorine

- The US-EPA 330.5 (or standard methods 4500-Cl-G) DPD method is internationally recognized for its good accuracy and stability, while specific electrodes for chlorine may drift or show a sensitivity to the sample flow.
- Other oxidizing agents are also taken in account by the DPD method, that makes it the best choice method.
- The colorimetric module has been specially developed to reach a very small volume flow cell (7ml) that reduces the quantity of reagent to preserve the environment and reduce the operating cost.
- A multi-wavelength LED source assumes a colour and turbidity compensation with an unlimited lifetime. Large bore tubing avoids clogging as accumulated sediments might be a problem even on drinking water for long term operation.



Patented clogging-free flow cell

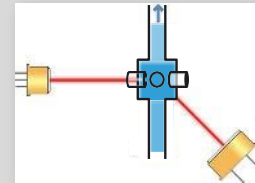


Multi-Wavelength colorimetric method principle

Turbidity by Laser Diode

The turbidity module is based on a high stability laser diode to reach low level of detection as required for drinking water.

The automatic cleaning system allows to perform once per day to guaranty the absence of drift on long term for sample cell. It also avoids the accumulation of sediments that may perturb the measurement. Light source and photocell (detector) are non-contact with water sample that help turbidity sensor avoid dirty compounds or obstacles on their surfaces.



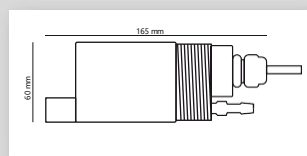
Turbidity by laser diode principle

The laser diode could be either a red visible model to ease the maintenance and troubleshooting, or an infra-red model to follow the ISO 7027 nephelometric method.

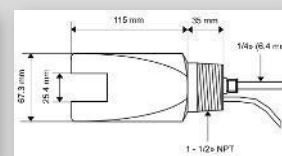
Robust Industrial Probes

All the probes are specially designed for harsh environments with high level of suspended solid.

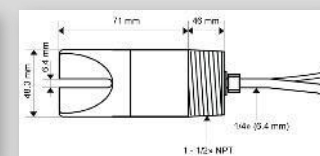
pH and conductivity probes are robust industrial models mounted externally for an easy maintenance. The temperature is obtained from the pH or from the conductivity probe and is also used internally for pH and conductivity compensation.



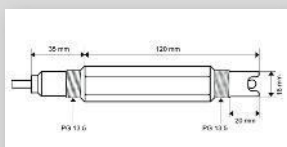
Turbidity Probe Low Range



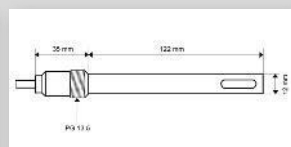
Turbidity Probe Medium Range



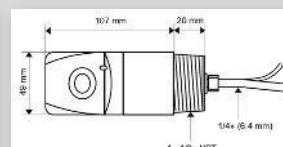
Turbidity Probe High Range



pH Probe



Conductivity Probe



Dissolved Oxygen Probe

As an option, a dissolved oxygen probe based on fluorescence method for a lower maintenance and higher stability can be added.

Low maintenance and high reliability

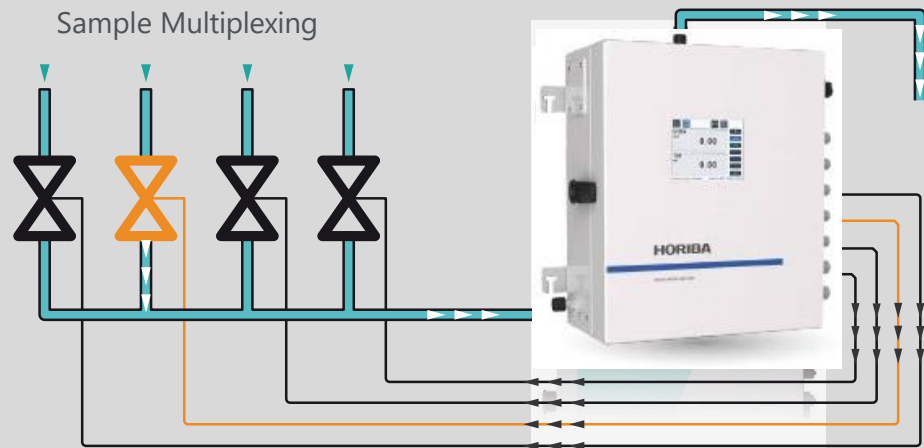
The design has been specially oriented for low maintenance and high reliability on the measurements. To avoid deposits on the optical windows and tubing, the UV300-D has a built-in automatic cleaning system that injects a 5% sulphuric solution once per day.

An auto-zero is performed at the same time to avoid any drift of the measurement. The level of the cleaning solution and reagent can be controlled at distance to plan the refill.

When different streams need to be analysed, for example different treatments facilities an optional multiplexing system delivers relay contacts to control external electric-valves or external pumps.

Up to 6 different streams can be selected.

The measuring channels can be either duplicated (each one having its own 4-20mA output or MODBUS register), or measured sequentially to fit with the maximum of 16 measuring channels (a MODBUS register indicates which stream is currently being measured).

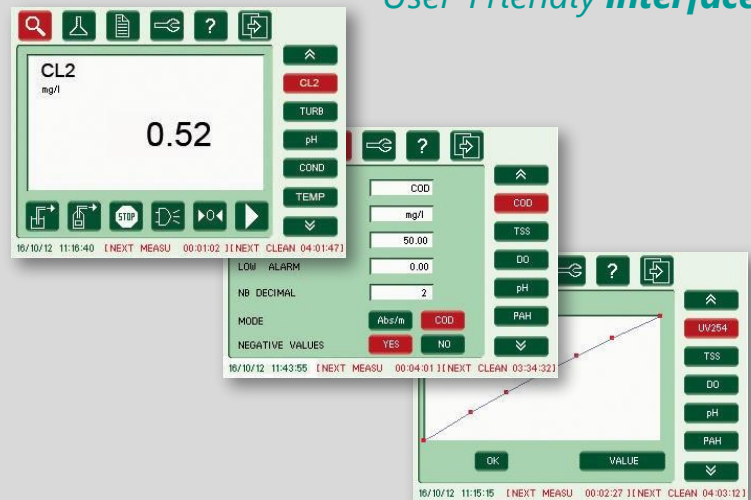


The colour touch screen and intuitive interface available in 8 different languages (Chinese, English, French, German, Italian, Portuguese, Spanish, Turkish) makes very easy to test or configure the analyser.

Many test functions allow to test and troubleshoot each element of the analysers (light signal, pumps, solenoid valves, etc...) to setup quickly a maintenance diagnostic.

The complete configuration can be saved on a USB key and reload if necessary.

User-Friendly Interface



Complementary measurements

Complementary measurements like UV254, NO₃, Colour, NH₄ may be added or put in replacement of turbidity and/or chlorine parameters thanks to the modular concept. Depending on the total number of parameters, UV300 or UV400 models can be used.

Communication

The RS232 port supports the MODBUS protocol to transmit each measuring channel value to a SCADA system.

Additional parameters are available like status code, error code, calibration values and pumps run time. Basic 4-20 mA output modules can be plugged on the main board for each measuring channel. A USB port enables to download on any USB key the last 5000 recorded measurements as well as a diagnostic file containing the configuration and useful information for remote troubleshooting.

The new web interface makes possible to drive remotely the analyser from any computer, tablet or i-phone with a web browser. For this, an optional Wi-Fi or Ethernet module is added inside the analyser to connect it to an existing network with an internet gateway.

The recorded measurements file can be imported to Excel for graphs or other treatments. The software of the analyser can be upgraded by connecting a USB key.



> UV300-5D Parameters Specifications



Parameter	Standard range Other ranges on request	Accuracy (with standard reference)
Free Residual Chlorine (No affected by sample pH)	0 - 5 mg/l	< +/- 0.01 mg/l or +/-2% reading which is greater.
Turbidity	0 - 10 NTU	< +/- 0.01 NTU or +/-2% reading which is greater.
pH	0 - 14	< +/- 0.01 pH
Conductivity (Optional)	0 - 2000 μ S	< +/-1% reading.
Dissolved oxygen (option)	0 - 25 mg/l O ₂	< +/- 0.02 mg/l O ₂
Temperature	0 - 60 °C	< +/- 0.1 °C
Turbidity (Optional)	0 - 100 NTU	< +/- 0.01 NTU or +/-2% reading which is greater.
Conductivity (Optional)	0 - 10000 μ S	< +/-1% reading.
Amperometric Free Residual Chlorine (pH and Temperature compensation)	0 - 5 mg/l	< +/- 0.1 mg/l or +/-2% reading which is greater.

> UV300-5D General Specifications

Sample flow	0.05 - 1 l/min
Sample pressure	0 - 4 Bar
Sample temperature	0 - 50°C
Wet parts materials	Quartz, Polypropylene, Polyethylene, FPM (viton), PMMA
Measuring time	5 sec for turbidity, pH, Temperature, conductivity, 2 min for chlorine
Measurement interval	2 min to 720 min for chlorine, other parameters are continuous.
Memory	5000 lines of measurements (for all channels) with date and time
Consumption	Cleaning solution (5% sulfuric acid): 220 ml/day Reagents (DPD/reagent) for Cl ₂ : 0.3 ml per measurement
Maintenance interval	Recommended: 6 months to 1 year (except for refilling)
Power supply	90- 264 VAC 50/60 Hz 40 VA - 12V DC 3A maxi
Screen	Colour TFT LCD 320x240 pixels with LED backlight
Communication	RS232, MODBUS or HTTP/Web interface (Windows 7 with IE9, Android with Opera, Apple i-phone with Safari) RS485 for additional probes (DO, pH) USB
Certifications	CE, EN 61010-1, EN 61326 ISO7027 for turbidity and US-EPA 330.5 for chlorine
Enclosure	Stainless steel with epoxy coating, IP66 (NEMA 4X), wall mounting brackets
Dimensions	420 x 360 x 200 mm
Weight	14 kg approx.

> UV300-5D Parts references

Basic unit

UV300-5D

5 parameters analyser for drinking water

- Colorimetric Free residual chlorine, range 0 - 5 mg/l Cl₂ colorimetric, auto cleaning by 5% H₂SO₄ solution.
 - Optional: Amperometric Free residual chlorine, range 0 - 5 mg/l, self-cleaning by water pressure. (pH compensation for sample range 4-12 with Amperometric chlorine sensor).
 - Turbidity by nephelometry with laser diode, range 0 - 10 NTU/ Option to 100 NTU, auto cleaning by 5% H₂SO₄ solution.
 - pH module with probe, range 0 – 14.
 - Conductivity module with probe (Optional), range 0 – 2000 µS/cm, optional to 10000 µS /cm.
 - Temperature, range 0 - 60 °C (inside pH sensor for temperature compensation).
- Response time: 2 minutes for Residual Chlorine and 5 seconds for others: pH, Temp, Turbidity and Conductivity.

Color graphic display 320x240 pixels with touch screen
Built-in data logger, memory 5000 measurements for each parameter,
Non-volatile memory (no lost data after power off)
10 sockets available for additional input or output modules (not included) 7 available glands for inputs /outputs.
RS232 included (Sub-D 9 ways female connector) with 2 meters cable for PC
RS485 included for the connection of optional external probes
USB port included for USB key connection
Automatic cleaning system with 2-litres tank.
Sensors were calibrated by standard solutions.
Power supply 90-260 VAC 47-63 Hz with power cord 2 meters
Enclosure IP66 (equivalent to NEMA 4X)
Dimension: 420x360x200 mm (HxWxD) / 14 kg approx.
Operation temperature: 0~50°C
Mounting lugs for wall

Output modules

MO4-20

4-20 mA output module

Isolated 4-20 mA output
Active output, Max load 500 Ohm

MRELAY

Relay module

Contact rating: 2A/220V
Maximum 6 relays modules allowed

Communications

WIFI400

Wifi Interface

Connection to wireless WIFI network
300m nominal range (open space)
Secured data transfer (WEP keys)

ETHER400

Ethernet interface

Ethernet 10 base-T (IEEE 802.3)

MTI133

Phone modem

Industrial modem 33,6 Kb/s V34+
DIN rail Mounting
Power supply 12V from the analyser

Recommended consumables for 2 years:

P-ACI-HD1: Head of cleaning pump (x1)

Cleaning solution and reagents are not provided

HORIBA Advanced Techno | **TETHYS** TECHNOLOGY

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*Please note that since April 12, 2023, the company name has changed from Tethys Instruments SAS to HORIBA Advanced Techno France SAS.

All registration numbers, including the EORI and EU VAT Reg. No. remain the same.

Website: <http://www.horiba.com>