EL300

Multi-Channel Water Controller

TETHYS INSTRUMENTS

Specialist Of UV Spectroscopy

> EL300 Multi-Channel Water Controller

The UL300 *is a universal water controller based on a modular concept.*

The EL300 can adapt to many different probes and configurations, mono or multi-channel.

It allows the connection of one or several probes for each parameter among pH, ORP, dissolved oxygen, conductivity, chlorine, total suspended solid (TSS), total dissolved solid (TDS), temperature and turbidity in the limit of 16 channels.

A very user-friendly interface can display all the values as well as graphs of the recorded values with periods from 10 minutes to one month.

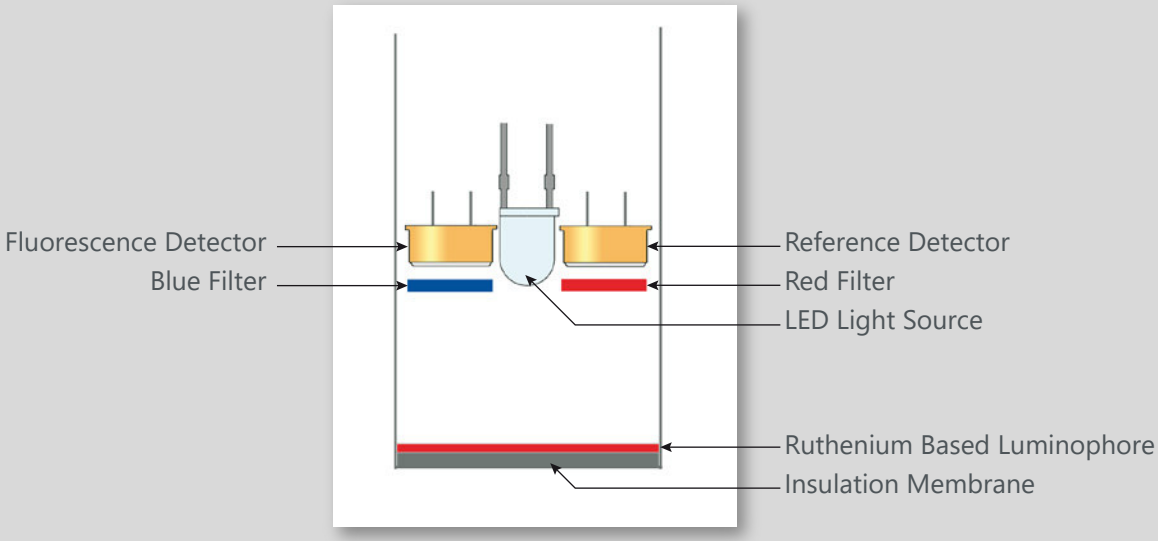
A USB port allows to transfer the recorded measurements that may be imported to Excel for treatments or graphs.

The transmission of the data to a SCADA system can be done by 4-20 mA outputs or by MODBUS protocol on the RS232 port.

A new web-based interface allows the control and the troubleshooting at distance using an internet browser on a computer, tablet or i-phone.

Quenching Fluorescence *based Oxygen Probe*

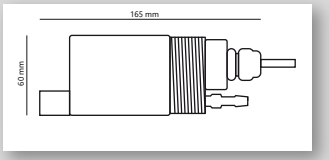
- The dissolved oxygen probe is based on the fluorescence method for a lower maintenance and higher stability.
- At the opposite of galvanic and polarographic probes, the fluorescence based probes requires no electrolyte refill, no membrane change and no routine calibration. No flow is needed because there is no oxygen consumption.
- They also perform very well in harsh environments that normally destroy other conventional sensors.



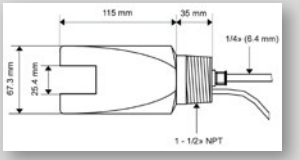
DO principle

Robust *Industrial Probes*

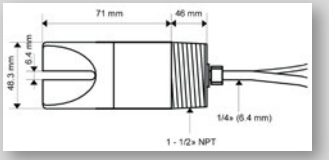
All the probes are specially designed for harsh environments with high level of suspended solid.



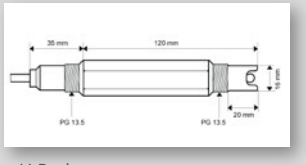
Turbidity Probe Low Range



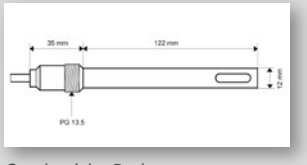
Turbidity Probe Medium Range



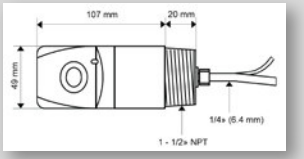
Turbidity Probe High Range



pH Probe



Conductivity Probe



Dissolved Oxygen Probe

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, in the limit of 12 modules.

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.

Low Maintenance and High Reliability

The EL300 delivers a periodic 12V output to drive an air compressor to clean the probes equipped with air cleaning.

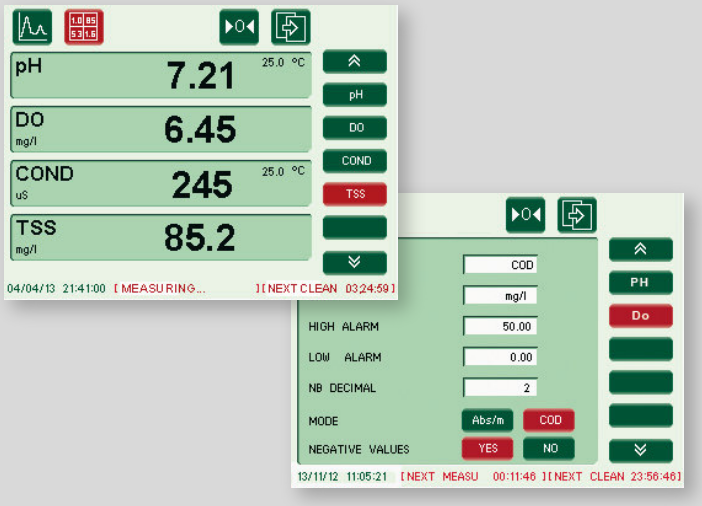
The IP65 enclosure with an acid resistant protection film on the screen assume a efficient long term protection of the analyser.

User-Friendly Interface

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 allows 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.



Modular Concept

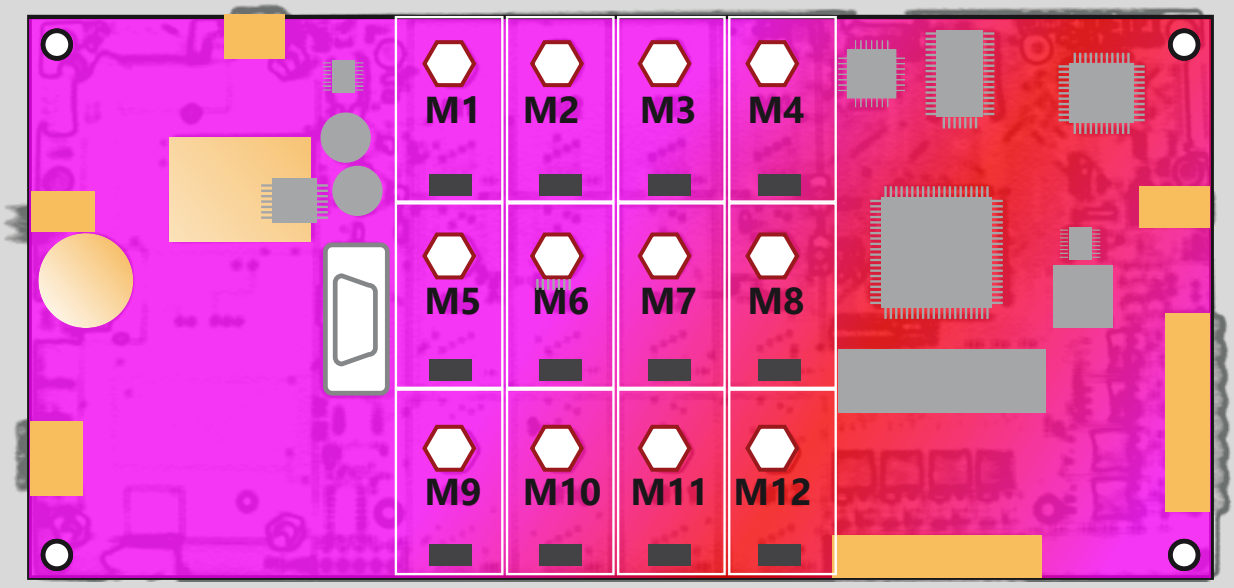
The EL300 main electronics board includes 12 sockets that can receive input or output modules.

Input modules concern mainly pH and conductivity, while output modules can be 4-20 mA output or relays for high or low alarms.

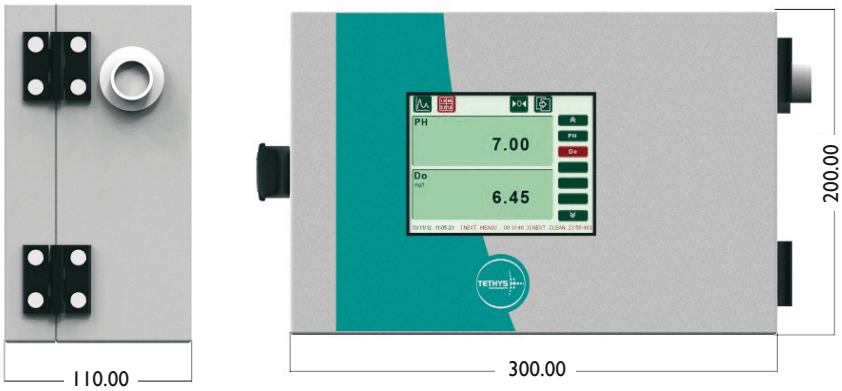
A RS485 port directly connects to a serie of RS485 probes for dissolved oxygen, turbidity (high range and low range) or pH with long cable distance. Several probes can be connected in parallel on the same RS485 port.

A scan function in the software automatically recognises the network of probes connected.

DSP400 TFT - 12 Sockets



> EL300 Parameters Specifications



Parameter	Standard range Other ranges on request	Typical Repeatability	Accuracy On standard solution
pH	0-14	+/- 0.01 pH	+/- 2%
ORP	+/-2000 mV	+/- 1 mV	+/- 2%
Dissolved oxygen	0-25 mg/l O2	+/- 0.02 mg/l O2	+/- 2%
Conductivity	0-20 µS (K=0.01) 0-200 µS (K=0.1) 0-2000 µS (K=1) 0-20 mS (K=10)	+/- 0.01 µS +/- 0.1 µS +/- 1 µS +/- 0.01 mS	+/- 2% +/- 2% +/- 2% +/- 2%
Total Residual Chlorine	0-5 mg/l	+/- 0.01 mg/l	+/- 2%
Turbidity (TSS by correlation)	0-4 NTU 0-40 NTU 0-400 NTU		+/- 2% +/- 2% +/- 2%
TSS (Total Suspended Solid)	0-1500 mg/l TSS 0-30000 mg/l TSS	+/- 1% of reading or +/- 2 mg/l TSS +/- 1% of reading or +/- 2 mg/l TSS	+/- 2% +/- 2%
TDS (Total Dissolved Solid)	0 – 20 mg/l 0 – 200 mg/l 0 – 2000 mg/l 0 – 20 g/l	+/- 0.01 mg/l +/- 0.1 mg/l +/- 1 mg/l +/- 0.01 g/l	+/- 2% +/- 2% +/- 2% +/- 2%
Temperature	0-80°C	+/- 0.1 °C	+/- 2%

> EL300 General Specifications

Sample temperature	0 - 60 °C
Measuring time	< 5 sec
Measurement interval	Continuous or periodic, 1 min to 720 min
Memory	5000 lines of measurements (up to 16 channels) with date and time
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 (Window 7 with IE9, Android with Opera, Apple i-phone with Safari) RS485 for probes (DO, TSS) USB Wi-Fi (IEEE802.11B) optional Ethernet (IEEE802.3) optional
Certifications	CE, EN 61010-1, EN 61326
Enclosure	Stainless steel with epoxy coating, IP65, wall mounting brackets
Dimensions	300 x 200 x 110 mm
Weight	6 kg approx.

> EL300 Parts references

Basic unit

EL300 — ***Basic unit (no measurement included)***

Color graphic display 320x240 pixels with touch screen
Built-in data logger, memory 5000 measurements for each parameter
12 sockets for input and output modules (not included, refer to options)
10 available glands for inputs / outputs
RS232 included (Sub-D 9 ways female connector) with 2 meters cable for PC
RS485 included for communication with external probes
USB port included for USB key connection
Power supply 90-260 VAC 47-63 Hz with power cord 2 meters
Enclosure IP65/Nema4X 200x300x125mm / 6kg approx.
Mounting lugs for wall

Measurement module by electrode

MPH — ***pH module***
Range: 0 – 14
ATC input for platinum RTD 100 Ohm or 1000 Ohm

ELPH — ***pH online electrode***
Range: 0 – 14
5 meters of cable (10 meters in option)
Built-in ATC RTD 100 Ohm

ELCHL — ***Amperometric chlorine electrode***
Range: 0 – 5 mg/l Cl2
Built-in temperature compensation
Requires a 4-20 mA input module
Constant flow recommended
See below recommanded holder
3 meters cable

HDCHL — ***Holder for chlorine probe ELCHL***
For 3/8" ID tubing

MORP — ***ORP module***
Range: -2000 mV – +2000 mV
ATC input for platinum RTD 100 Ohm or 1000 Ohm

ELORP — ***ORP online electrode***
Range: -2000 mV – +2000 mV
5 meters of cable (10 meters in option)
Built-in ATC RTD 100 Ohm

MCOND — ***Conductivity module***
Range: 0 – 100 µS to 0 – 100 mS
ATC input for platinum RTD 100 Ohm or 1000 Ohm

ELCOND — ***Conductivity online electrode***
Range: 0 – 10 mS
Cell constant k=1.0 cm-1 (medium range)
5 meters of cable (10 meters in option)
Built-in ATC RTD 1000 Ohm

ELCOND-0.01 — ***Conductivity online electrode***
Range: 0 – 0.1 mS
Cell constant k=0.01 cm-1 (very low range)
5 meters of cable (10 meters in option)
Built-in ATC RTD 1000 Ohm

ELCOND-0.1 — ***Conductivity online electrode***
Range: 0 – 1 mS
Cell constant k=0.1 cm-1 (low range)
5 meters of cable (10 meters in option)
Built-in ATC RTD 1000 Ohm

ELCOND-10 — ***Conductivity online electrode***
Range: 0 – 100 mS
Cell constant k=10.0 cm-1 (high range)
5 meters of cable (10 meters in option)
Built-in ATC RTD 1000 Ohm

ICOND — ***Inductive conductivity online probe***
Range: 0 – 100 mS
3 meters of cable
Built-in temperature compensation at 2.2%/°C
Requires a MI4-20 module instead of MCOND module

> EL300 Parts references

Measurement by Optical method

DO-F — ***Dissolved oxygen probe by fluorescence***
Range: 0 - 25 mg/l O2
7 meters of cable

EXT-TURB-H — ***Turbidity probes high range***
High range: 0 – 30,000 mg/l TSS
7 meters cable

EXT-TURB-L — ***Turbidity probes low range***
Low range: 0 – 1500 mg/l TSS
7 meters cable

EXT-TURBNEPH-H — ***Nephelometric turbidity probes high range***
Range: 0 – 400 NTU
10 meters cable

EXT-TURBNEPH-M — ***Nephelometric turbidity probes medium range***
Range: 0 – 40 NTU
10 meters cable

EXT-TURBNEPH-L — ***Nephelometric turbidity probes low range***
Range: 0 – 4 NTU
10 meters cable

Input modules

MI4-20 — ***4-20 mA input module***
Isolated 4-20 mA input
Impedance: 100 Ohm

MIL — ***Double logical inputs module***
Input no 1 : external pulse command for measurement
Input no 2 : measurements inhibition
Isolated 0 – 48 V DC inputs
Impedance: >10 Kohm

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

GSM — ***GSM modem***
Dual band (EGSM 900/1800 MHz)
Integral SIM card reader
R & TTE approved

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