

Eligere 1 CD



 **ETATRON**



(IT) DIRETTIVA "RAEE" SUI RIFIUTI DI APPARECCHIATURE ELETTRICHE ED ELETTRONICHE, AGGIORNATA ALL'ULTIMA EDIZIONE

Il simbolo sotto riportato indica che il prodotto non può essere smaltito come normale rifiuto urbano. Le Apparecchiature Elettriche ed Elettroniche (AEE) possono contenere materiali nocivi per l'ambiente e la salute e pertanto devono essere oggetto di raccolta differenziata: smaltite quindi presso apposite discariche o riconsegnate al distributore a fronte dell'acquisto di una nuova, di tipo equivalente o facente le stesse funzioni. La normativa sopracitata, alla quale rimandiamo per ulteriori particolari e approfondimenti, prevede sanzioni per lo smaltimento abusivo di detti rifiuti.

—

(UK) WASTE OF ELECTRICAL AND ELECTRONIC EQUIPMENT DIRECTIVE (WEEE, RAEE in Italy) UP TO LAST EDITION

The marking shown below indicates that the product cannot be disposed of as part of normal household waste. Electrical and Electronic Equipment (EEE) can contain materials harmful to health and the environment, and therefore is subject to separate waste collection: it must be disposed of at appropriate waste collection points or returned to the distributor against purchase of new equipment of similar type or having the same functions. The directive mentioned above, to which make reference for further details, provides for punitive actions in case of illegal disposal of such waste.

—

(FR) DIRECTIVE "RAEE" MISE À JOUR DE LA DERNIÈRE ÉDITION CONCERNANT LES REBUTS D'APPAREILLAGES ÉLECTRIQUES ET ÉLECTRONIQUES

Le symbole ci-dessous indique que le produit ne pas être éliminé comme un normal déchet urbain. Les Appareillages Électriques et Électroniques (AEE) peuvent contenir des matériaux nocifs pour l'environnement et la santé et doivent donc faire l'objet de collecte différenciée: éliminés donc auprès de décharges prévues à cet effet ou rendus au distributeur pour l'achat d'un nouveau, de type équivalent ou ayant les mêmes fonctions. La réglementation susmentionnée, à laquelle nous vous renvoyons pour les détails et les approfondissements ultérieurs, prévoit des sanctions pour la mise en décharge abusive desdits rebus.

—

(ES) DIRECTIVA "RAEE" ACTUALIZADO A LA ÚLTIMA EDICIÓN SOBRE RESIDUOS DE APARATOS ELÉCTRICOS Y ELECTRÓNICOS

El símbolo que se muestra abajo indica que el producto no puede eliminarse como un residuo urbano normal. Los Aparatos Eléctricos y Electrónicos (AEE) pueden contener materiales nocivos para el medio ambiente y la salud y por tanto tienen que ser objeto de recogida selectiva: por consiguiente tienen que eliminarse en vertederos apropiados o entregarse al distribuidor cuando se adquiera uno nuevo, del mismo tipo o con las mismas funciones. La normativa mencionada arriba, a la que remitimos para más detalles y profundizaciones, prevé sanciones por la eliminación clandestina de dichos residuos.

—

(PR) DIRETRIZ "RAEE" ATUALIZADO À ÚLTIMA EDIÇÃO SOBRE RESÍDUOS DE EQUIPAMENTO ELÉTRICO SE ELETRÔNICOS

O símbolo referido abaixo indica que o produto não pode ser eliminado como resíduo urbano normal. Os Aparelhos Elétricos e Eletrônicos (AEE) podem conter materiais nocivos ao ambiente e à saúde e, portanto, devem ser objeto de coleta seletiva: eliminados, portanto, através de depósitos apropriados ou pelo reenvio ao distribuidor para a aquisição de um novo, de tipo equivalente ou que realize as mesmas funções. A normativa referida acima, à qual nos referimos para detalhes complementares e esclarecimentos, prevê sanções no caso de eliminação inadequada de tais resíduos.

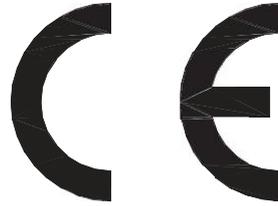
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(DE) RICHTLINIE "WEEE" AKTUALISIERT AUF DIE LETZTE EDITION ÜBERELEKTRO- UNDELEKTRONIK-ALTGERÄTE

El símbolo que se muestra abajo indica que el producto no puede eliminarse como un residuo urbano normal. Los Aparatos Eléctricos y Electrónicos (AEE) pueden contener materiales nocivos para el medio ambiente y la salud y por tanto tienen que ser objeto de recogida selectiva: por consiguiente tienen que eliminarse en vertederos apropiados o entregarse al distribuidor cuando se adquiera uno nuevo, del mismo tipo o con las mismas funciones. La normativa mencionada arriba, a la que remitimos para más detalles y profundizaciones, prevé sanciones por la eliminación clandestina de dichos residuos.



CERTIFICATE OF CONFORMITY



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AS MANUFACTURER OF CHEMICAL DOSING PUMPS

**series: eControl, eSelect, AG-Select, AG-S/Control,
ePhoton, Laundry Control System, Flow Meter PN**

Under our own responsibility we declare conformity in accordance with the following directives:

2014/30/UE: "Electromagnetic Compatibility"

2014/35/UE: "Low voltage"

2012/19/UE: "RAEE"

In addition, in accordance with the following regulations:

UNI EN ISO 12100:2010, CEI EN 60204-1:2016, CEI EN 55014-1:2017

This certificate confirms equipment supplied  marked and technical documentation including operating manual and spare parts manual.

This declaration conforms to the above directive an integral part of the manufacturer operating manual.

ETATRON D.S.
Sole Director
Nicola Carbone

(Rome) Italy, Date: 01/01/2019

1 WARNINGS

Read the warnings below carefully. They provide important information regarding safe installation, use and maintenance. Store this manual with the utmost care for future reference.

The device is built to a professional standard. Its durability and electrical and mechanical reliability will be more efficient if it is used properly and maintenance is carried out on a regular basis.

CAUTION: Any work or repairs inside the device must be carried out by qualified and authorised personnel. We assume no liability due to failure to comply with this rule.

WARRANTY: 1 year (excluding parts subject to normal wear where applicable, namely: valves, fittings, pipe clamps, tubes, filter and injection valve). Improper use of the device will void this warranty. The warranty is understood as ex-works or authorised distributors.

Symbols used in the manual

		
<p style="text-align: center;">FORBIDDEN</p> <p>Precedes information regarding safety. Indicates a forbidden operation.</p>	<p style="text-align: center;">CAUTION</p> <p>Precedes very important text to protect the health of exposed persons or the machine itself.</p>	<p style="text-align: center;">NOTICE</p> <p>Precedes information concerning use of the equipment.</p>

Transport and handling

The device must be transported as indicated on the box. Shipping by any means, even if free of carriage of the purchaser or recipient, is carried out at the purchaser's risk. Complaints for missing materials must be submitted within 10 days of arrival of the goods. Whereas defective material within 30 days of receipt. If the device is to be replaced, this must be agreed upon with authorised personnel or the authorised distributor.

Intended use of the device

The device must be solely employed for the use it has been expressly built for, i.e. to check the pH/Rx measurement. Any other use is considered improper and therefore dangerous. The device is not intended to be used for any applications not foreseen at the design stage. For further explanations, the customer must contact our offices for information on the type of instrument in their possession and its correct use. The manufacturer shall not be held liable for any damage resulting from improper, erroneous or unreasonable use.

Risks

After removing the packaging, check the integrity of the device. If in doubt, do not use it and contact a qualified technician. The packing materials (such as plastic bags, polystyrene, etc.) must not be left within the reach of children since they are potentially dangerous.

Before connecting the device, make sure that the rating corresponds to that of the mains. The rating is displayed on the adhesive label on the device itself.

The execution of the electrical system must comply with the standards that define professional workmanship in the country where the system is made.

Use of any electrical equipment implies observance of some fundamental rules. In particular:

- do not touch the device with wet or damp hands or feet (e.g. swimming pools);

- do not leave the device exposed to atmospheric agents (rain, sun, etc.);
- do not allow the device to be used by children or persons incapable of using it without surveillance.

- In case of failure and/or malfunctioning of the device, switch it off and do not tamper with it. For any repairs, please contact our service centres and request the use of original spare parts. Failure to comply with the above can jeopardise the safety of the pump.
- If you decide to no longer use a device, it is recommended to make it inoperable by unplugging it from the mains.
- Make sure it is switched off electrically (both polarities), disconnecting the conductors from the contact points of the mains by opening the omnipolar switch with at least 3 mm between the contacts.

Assembly of the instrument

All instruments produced are normally supplied already assembled. For wall installation see paragraph “**Wall assembly**”.

Disassembling the Instrument

Always pay the utmost attention when disassembling the instrument or before performing maintenance on it. Always disable electrical connections beforehand.

2 ELIGERE INSTRUMENT

2.1 MAIN FEATURES

	ELIGERE							
	03 PH-RX-CL	01 CI	01 pH(Rx)	01 CD	01 CD COOL	02 PH(RX)-CD	02 PH(RX)-CL	02 PH-RX
Device manufactured according to standards	X	X	X	X	X	X	X	X
Case made of: ABS plastic	X	X	X	X	X	X	X	X
128x64 backlit display	X	X	X	X	X	X	X	X
Can be fitted with level probe (to check chemicals) (not included)	X	X	X	X	X	X	X	X
Output relay for setpoint values	X	X	X	X	X	X	X	X
mA outputs	X	X	X	X	X	X	X	X
AUX external unit remote control output	X	X	X	X	X	X	X	X
RS485 / Ethernet external module connection	X	X	X	X	-	X	X	X
Proximity sensor input	X	X	X	X	X	X	X	X
PT100 temperature sensor input	X	X	X	X	X	X	X	X
100/240 VAC power supply 50/60 Hz single-phase (maximum $\pm 10\%$ fluctuations are permitted); on demand 12/24 V	X	X	X	X	X	X	X	X

2.1.1 ELIGERE 01 CD model

ELIGERE 01 CD is a compact system with ELECTRIC CONDUCTIVITY (EC) regulator. In many cases, conductivity is directly connected to total dissolved solids (TDS): conductivity offers an approximate value of TDS concentration, generally by approximately ten percent.

The ELIGERE 01 CD device, together with the high quality performance in terms of measurement and operation, is able to meet most requirements of instruments and offers a number of features that make it extremely versatile and easy to use.

The regulator varies from constant K 1 up to 20.00 mS and up to 200.00 mS (the latter with graphite sensor electrodes) and the K 5 constant reaches up to 2,000 μ S; it is recommended not to exceed 100.00 mS.

Two types of programming menus:

- **BASIC:** for non-expert users (END USER).
- **EXPERT:** for installer, and/or person trained on the instrument.

2.2 DIMENSIONS OF THE INSTRUMENT

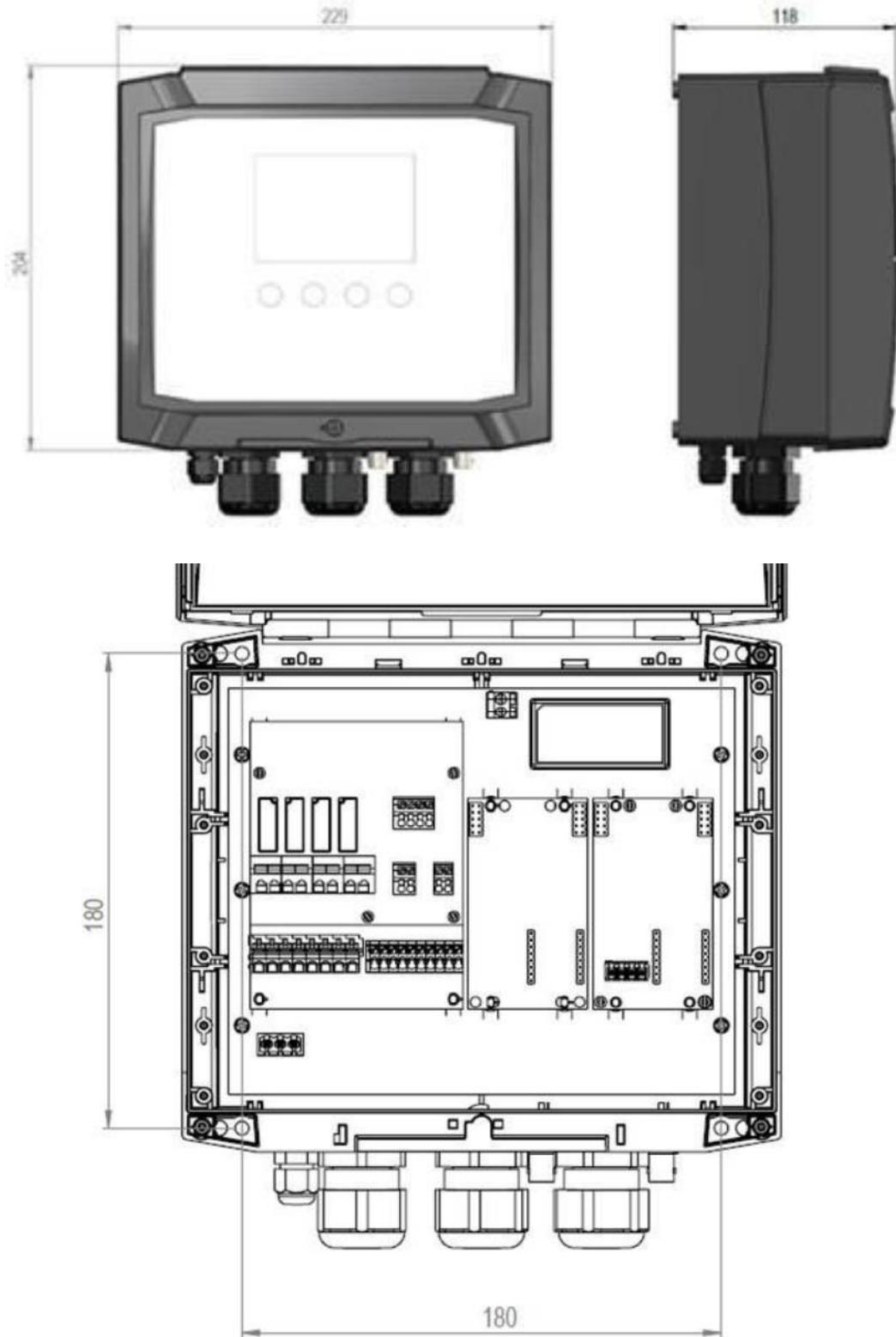


Fig. 2.1 - Instrument dimensions

3 TECHNICAL SPECIFICATIONS OF THE INSTRUMENT

	ELIGERE							
	03 PH-RX-CL	01 CI	01 pH(RX)	01 CD	01 CD COOL	02 PH(RX)-CD	02 PH(RX)-CL	02 PH-RX
PH measurement range:								
0 pH 14 pH (0 100 °C)	x	-	x	-	-	x	x	x
Resolution ±0.01 pH Accuracy 0.5% of electrode input signal	x	-	x	-	-	x	x	x
Input resistance > 10 ¹² Ohm	x	-	x	-	-	x	x	x
Zero calibration: ±10% adjustment range from calibration point	x	-	x	-	-	x	x	x
Gain calibration: ±10%	x	-	x	-	-	x	x	x
Hysteresis: 0.05 pH (programmable)	x	-	x	-	-	x	x	x
Timed PWM impulses: activation point: 1.50 pH (programmable)	x	-	x	-	-	x	x	x
RX (Redox) measurement range								
-1000 mV +1000 mV	x	-	x	-	-	x	x	x
Input resistance > 10 ¹² Ohm	x	-	x	-	-	x	x	x
Resolution ±1mV Accuracy 0.5% of electrode input signal	x	-	x	-	-	x	x	x
Hysteresis: 10 mV (programmable)	x	-	x	-	-	x	x	x
Hysteresis: 0.05 pH (programmable)	x	-	x	-	-	x	x	x

	ELIGERE							
	03 PH-RX-CL	01 CI	01 pH(Rx)	01 CD	01 CD COOL	02 PH(RX)-CD	02 PH(RX)-CL	02 PH-RX
Timed PWM impulses: activation point: 150 mV (programmable)	x	-	x	-	-	x	x	x
Chlorine CI ppm (free or total) or generic PPM measuring range								
Membrane type sensors								
0-2 CI ppm = Resolution 0.01 CI ppm <i>Hysteresis/PWM point = 0.050 CI ppm</i>	x	x	-	-	-	-	x	-
0-20 CI ppm = Resolu- tion 0.10 CI ppm <i>Hysteresis/PWM point = 0.50 CI ppm</i>	x	x	-	-	-	-	x	-
0-200 CI ppm = Resolu- tion 1.0 CI ppm <i>Hysteresis/PWM point = 5 CI ppm</i>	x	x	-	-	-	-	x	-
<i>CL 0 – 5 ppm</i>	x	x	-	-	-	-	x	-
0 – 2 ppm	x	x	-	-	-	-	x	-
0 – 20 ppm	x	x	-	-	-	-	x	-
0 – 200 ppm	x	x	-	-	-	-	x	-
0 – 2000 ppm	x	x	-	-	-	-	x	-
0 – 20000 ppm	x	x	-	-	-	-	x	-
Chlorine CI ppm (free) Open type cell measuring range								
0-10 CI ppm (Open type cell) / Resolution 0.10 CI ppm <i>Hysteresis/PWM point = 0.50 CI ppm</i>	x	x	x	-	-	-	x	-

	ELIGERE							
	03 PH-RX-CL	01 CI	01 pH(Rx)	01 CD	01 CD COOL	02 PH(RX)-CD	02 PH(RX)-CL	02 PH-RX
Temperature Settings								
Manual or automatic offset (auto with temperature probe PT100) Resolution 0.1% °C Accuracy: ±0.5% °C	x	x	x	x	x	x	x	x
Temperature probe range								
0/100 °C	x	x	x	x	x	x	x	x
Power supply / Consumption								
Universal power supply 100÷250Vac/ 5W at 240Vac	x	x	x	x	x	x	x	x
Power supply unit assures electrical protection (instead of fuse)	x	x	x	x	x	x	x	x
Display								
Backlit 128x64 display; Visible display area 70x37 mm	x	x	x	x	x	x	x	x
Delay on start-up								
Relay delay on switch-on, programmable for each setpoint	x	x	x	x	x	x	x	x
Level / Relay remote control								
Level delay	x	x	x	x	x	x	x	x
Chemical additive level (level switch not included)	x	x	x	x	x	x	x	x
	3	1	1	1	3	2	2	2

ELIGERE								
03 PH-RX-CL	01 CI	01 pH(Rx)	01 CD	01 CD COOL	02 PH(RX)-CD	02 PH(RX)-CL	02 PH-RX	
Outputs								
SETPOINT RELAY output								
(set-point 1) PH (or RX) ON-OFF / PWM mode voltage-free, relay 5Amax 230Vac	x	x	x	x	x	x	x	x
	4	2	2	2	3	3	3	3
AUX RELAY output								
(AUX1) AUX outputs ON-OFF external equipment voltage-free, relay 5A max 230Vac	x	x	x	x	x	x	x	x
	3	1	1	1	-	2	2	2
ALARM RELAY output								
ALARM Voltage-free contact, relay 5A max 230Vac	x	x	x	x	x	x	x	x
Flow sensor (proximity switch)								
Blocks outlet operations if there is no flow in the probe socket	x	x	x	x	x	x	x	x
4/20mA output								
Adjustable (500 Ω maximum input impedance), with galvanic separation.	x	x	x	x	x	x	x	x
	3	2	2	2	2	2	2	2
Unit load								
Inductive load 1A at 230Vac	x	x	x	x	x	x	x	x

ELIGERE								
03 PH-RX-CL	01 CI	01 pH(Rx)	01 CD	01 CD COOL	02 PH(RX)-CD	02 PH(RX)-CL	02 PH-RX	
Operating temperature								
Ideal temperature 5°C-40°C, resistance up to 0°C-45°C. Possibly dry environment, altitude up to 2000m, Relative humidity 80% for temperature up to 31°C linearly decreasing to 50% of relative humidity at 40°C. Pollution degree 2.	x	x	x	x	x	x	x	x
Noise level								
Irrelevant	x	x	x	x	x	x	x	x
Transport and storage conditions								
-5 to 60 °C in a dry environment	x	x	x	x	x	x	x	x
UPON REQUEST.								
Optional features included with control via Ethernet/RS485								
ETACLOUD software ETHERNET/WIFI connection, RS485 ON EXTERNAL MODULE, OR DIRECTLY ON INTERNAL MODULE	x	x	x	x	-	x	x	x

4 INSTALLATION



Install the instrument in a dry place, away from heat sources at a maximum room temperature of 40°C. Comply with standards in force in the different countries regarding electrical installation (Fig. 4.1).

If the power cord does not have a plug, the equipment must be connected to the mains by means of an omnipolar disconnecting switch with at least 3 mm distance between the contacts. All the power supply circuits must be interrupted before accessing the connection devices.

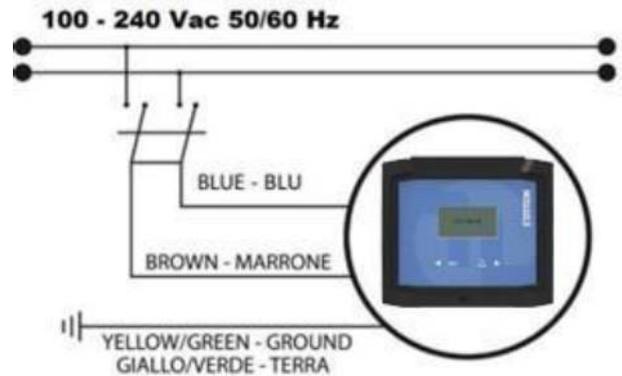


Fig. 4.2 - Electrical connection

4.1 WALL INSTALLATION

The wall-mounting plugs are supplied with the device.

Always use a suitable type of plug for the support available; the layout of the holes to be drilled in the support is shown in Figure 4.3.

- To access the 4 mounting holes: remove the plugs on the mounting points (A) located on each corner of the instrument.
- Use a Phillips screwdriver to unscrew the four screws underneath the plugs; open the front panel.

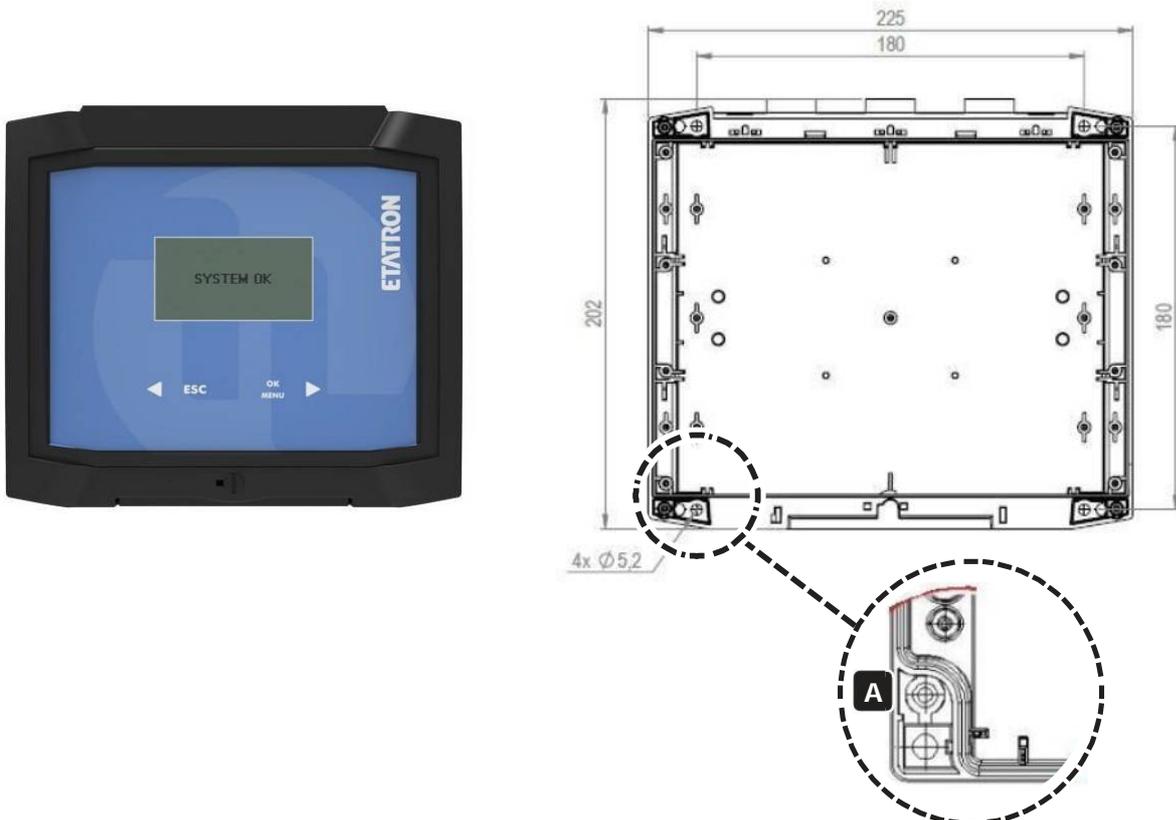


Fig. 4.3 - Box detail

The casing has 4 captive screws to quickly open/close the cover, thereby allowing for easy access for commissioning and servicing, as well as assuring excellent seal for long-lasting operation

- Install the unit in a dry place away from heat sources. Max room temperature 40°C.
- Strictly comply with the regulations in force in the various countries regarding electrical systems.
- Fit the instrument on the wall using the screws supplied

4.2 DIAGRAM OF ELECTRICAL CONNECTIONS

To connect the accessories and peripheral devices to the instrument, remove the front cover screws, using a Phillips screwdriver to reach the connecting terminal boards.

The terminal boards consist of spring terminals for quick coupling of the wires. Press the square “**slotted**” pin with a small flat headed screwdriver and insert the stripped wire in the corresponding terminal.



ATTENTION!

Exert slight pressure on the spring pin to avoid irreparably damaging the terminal board.

Do not connect more than one device to each pin.

Run the wires to be connected through the cable glands on the case wall.

4.2.1 ELIGERE 01 CD connection diagram

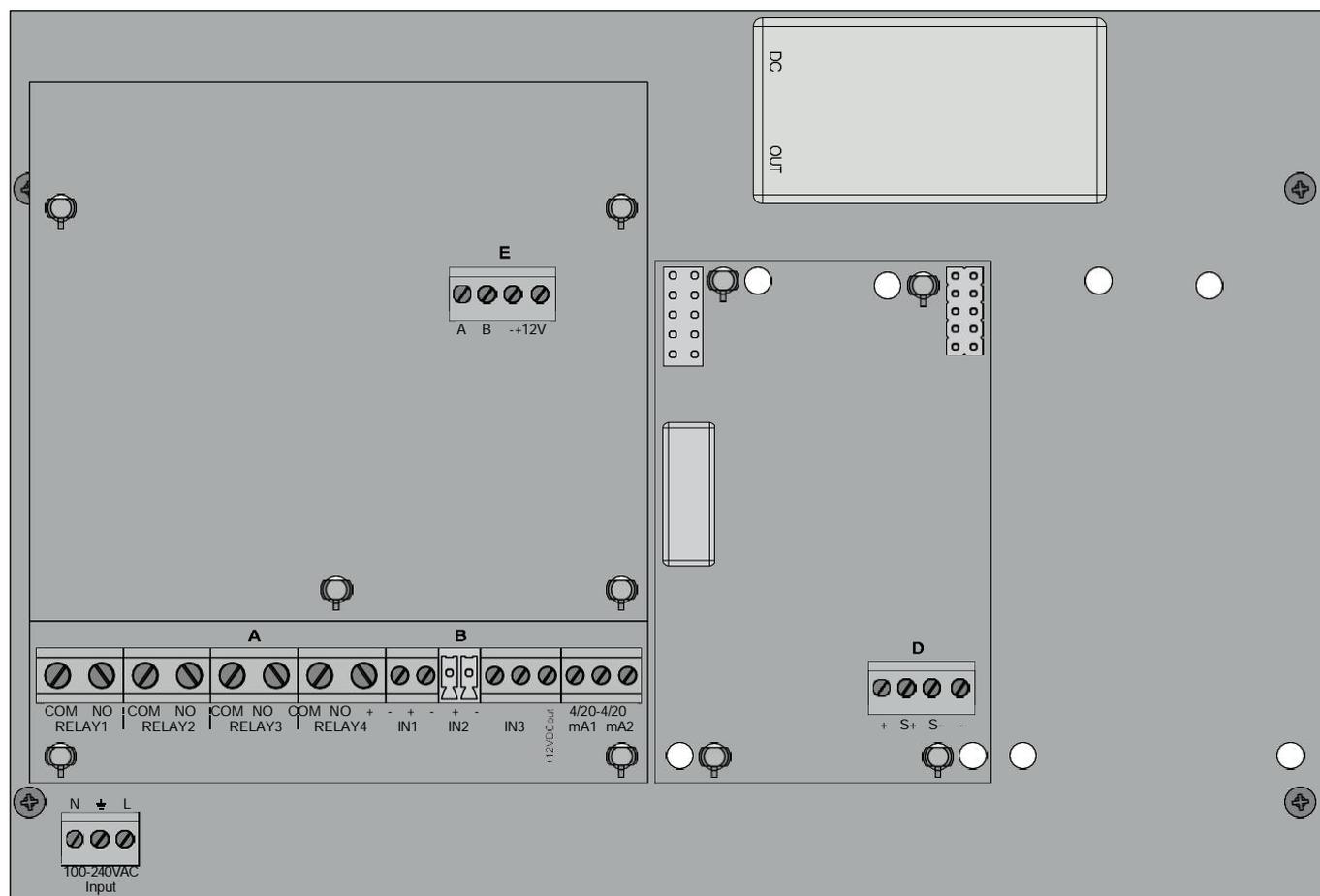


Fig. 4.7 - Connection diagram

TERMINAL BOARD "A"		
Relay 1	COM	Setpoint 1 ON-OFF / PWM output relay timed pulses
	NO	
Relay 2	COM	Setpoint 2 ON-OFF / PWM output relay timed pulses
	NO	
Relay 3	COM	Not Connected
	NO	
Relay 4	COM	Not Connected
	NO	
TERMINAL BOARD "B"		
IN 1	+	Digital input level switch for chemical tank
	-	
IN 2	+	NOT Connected
	-	
IN 3	+	Proximity Sensor input BLACK wires
	-	Proximity Sensor input BLUE wires
+12VDC	+	12 VDC output of the Proximity Sensor BROWN wire
4/20 mA1	+	(+) Proportional output Conductivity 4-20mA1 for metering pump mA, PLC, data collection

-	-	(-) Proportional output Conductivity 4-20mA1 for metering pump mA, PLC, data collection
TERMINAL BOARD "C"		
S +	Conductivity Probe (WHITE wire)	RED/WHITE wire
+	Conductivity probe (WHITE/BROWN wire)	
-	Conductivity probe (BLACK/ BROWN wire)	
S -	Conductivity probe (BLACK wire)	WHITE/RED wire
TERMINAL BOARD "D"		
+	PT100 temperature probe (RED wire)	
S +	PT100 temperature probe (BLUE wire)	
S -	PT100 temperature probe (GREEN wire)	
-	PT100 temperature probe (YELLOW wire)	
TERMINAL BOARD "E"		
A	ORANGE wire	Connection for RS485 / ETHERNET external module. For connection to the ETACLOUD , the external KIT CONNECT module must be connected (NOT included with the instrument) code KST0000101 - KIT CONNECT FOR SERIES M INSTRUMENTS
B	YELLOW wire	
-	BLACK wire	
+	Not Connected	



REMEMBER: unit with universal voltage 100-250 VAC ($\pm 10\%$) or 9-24VDC. If the real voltage is constantly at the limit (minimum or maximum), or when the peaks are far above the mentioned range, the unit input is electrically protected against voltage fluctuations; outside the range mentioned above, the instrument does not work and the printed circuit must be replaced. **It is recommended** to use voltage protections, check the earthing system and, when other equipment is connected in parallel, use a transducer. Furthermore, ETATRON **recommends** installing a UPS (genset) to assure continuity thus ensuring no data are lost. A system that is set up without following the proper electrical design rules, without an earthing system, with frequent ON/OFF operations, might directly undermine the printed circuit.

5 CONTROL PANEL

The following figure shows the control panel with the description of the functions of the different keys.

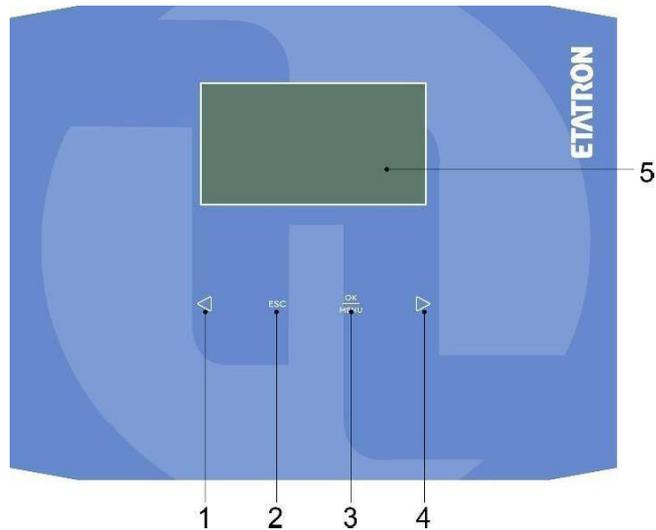


Fig. 5.1 - Keypad

1	Button to scroll the menu to the left and decrease values
2	Button to quit the menu
3	Button to enter the menu and confirm selections
4	Button to scroll the menu to the right and increase values
5	Display

5.1 DESCRIPTION OF THE DISPLAY

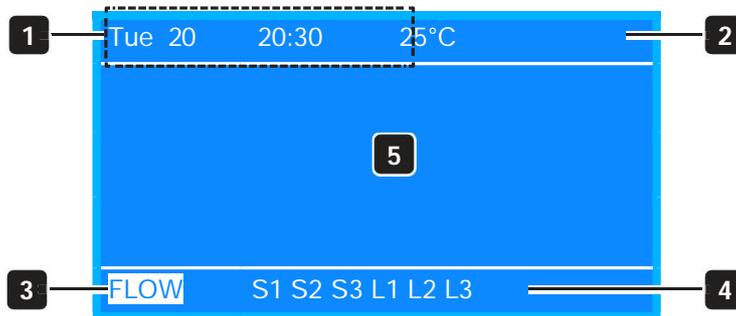


Fig. 5.1 - Display, common parts

1	Date / Time
2	Temperature value (*)
3	Status of the instrument
4	Other status icons (*)
5	Display of measurements / Backlit display (128x64) / Visible display area 70x37 mm

ELIGERE 03 PH-RX-CL

- 5.1 PH measurement
- 5.2 RX measurement (ORP)
- 5.3 Chlorine value

5.1 6.50 pH
 5.2 500 mV
 5.3 0.050 Cl ppm

ELIGERE 01 CL

- 5.1 Chlorine value

5.1 0.050 Cl ppm

ELIGERE 01 pH(RX)

- 5.1 PH measurement
- 5.2 RX measurement (ORP)

5.1 6.50 pH
 5.2 500 mV

ELIGERE 01 CD

- 5.1 Conductivity measurement mS / range 20 mS
 1050 μ S: Conductivity measurement μ S / range 2000 μ S

5.1 10.50 mS

ELIGERE 01 CD COOL

- 5.1 Conductivity measurement mS / range 20 mS
 1050 μ S: Conductivity measurement μ S / range 1999 μ S

5.1 10.50 mS

ELIGERE 02 PH(RX)-CD

- 5.1 PH measurement
- 5.2 Conductivity value

5.1 6.50 pH
 5.2 10.50 mS

- 5.1 RX measurement (Redox)
- 5.2 Conductivity value

5.1 500 mV
 5.2 1050 μ S

5.2 INSTRUMENT STATUS MESSAGES

When the instrument is **first** switched on, a list of all key programming functions is displayed.

If more than one function is active, the messages are displayed in continuous cycle, each is displayed for 3 seconds. The ALARM or OVERDOSE message disappears once the measurements are again consistent with the programmed settings. To remove the active icons from the display, press and hold **ESC**.

When a message is displayed, the temperature status is NOT displayed.

	ELIGERE							
	03 PH-RX-CL	01 CD	01 CD COOL	02 PH(RX)-CD	02 PH(RX)-CL	02 PH-RX	01 CI	01 PH(RX)
MESSAGES								
MAX-SET POINT ALARM X	X	X	X	X	X	X	X	X
MIN-SET POINT ALARM X	X	X	X	X	X	X	X	X
FLOW	X	X	X	X	X	X	X	X
NO MEASUREMENT CONN.	X	-	X	X	X	X	X	X
OVERDOSE - 4-20mA X	X	X	-	X	X	X	X	X
AUX OUTPUTS	X	X	X	X	X	X	X	X
DATE / TIME	X	X	X	X	X	X	X	X
TEMPERATURE	X	X	X	X	X	X	X	X
BIOCIDE PROGRAM	-	-	X	-	-	-	-	-
MAX EC ALARM	-	-	X	-	-	-	-	-
MIN EC ALARM	-	-	X	-	-	-	-	-
INHIBITOR TANK	-	-	X	-	-	-	-	-
BIOCIDE X TANK	-	-	X	-	-	-	-	-

ELIGERE 01 CD



NOTE:

when working with the **Basic menu**, the **mA programming IS NOT AVAILABLE**.

The controller covers the ranges from 20uS to 100mS in accordance with the K of the probe.

- **NO LINK:** communication between regulator and display is down.



When the display shows '**NO CONNECTION**', this means that there is a problem between the two boards, so check the flat electrical cable and the wiring between them and contact ETATRON service immediately.

(*) Other status icons



Other status messages are displayed here, such as: **S1, S2, L1, ALARM, OVERDOSE, FLOW, 'BASIC MENU', 'EXPERT MENU'**.

"**BASIC MENU**" , "**EXPERT MENU**" these messages appear as reminders during programming.

By default, the regulator is set up with * **BASIC MENU** *, i.e. simple programming for non-professional users and an extremely simple menu.

- * **EXPERT MENU** * it lets you select other parameters, thus fine-tuning the unit's operation and safety functions while maintaining easy programming for the user.
- **S1 S2:** indicates the corresponding active Set point. By selecting "Timed pulse mode" (Pulse Width Modulation) during the setpoint stage, the message **S1... S2** flashes during PWM operations. When the set point is NOT active no message is displayed.
- ** **FLOW** **: indicates the absence of water flow within the sensor's support: this only applies if a proximity switch is used and if the "Flow sensor" is in active mode; condition only possible if the "Expert Menu" is used.
- **L1 L2:** indicate the "Level" control of external chemical tanks and are only displayed once the float level probe is connected to the pins of terminal block IN1 and IN2: a status message is displayed when the level inside the tank is lower than the float level probe.

- (*) **Temperature value:**



If the temperature has been set up in Manual mode, the temperature value matches the one selected. If the PT100 mode has been selected and the relevant sensor has been connected, the indicated temperature value matches the actual system value.

Connecting the conductivity sensor



The ELIGERE CD unit works with simple conductivity sensors with 2 open electrodes, with AISI 316 or graphite electrodes. It is also possible to connect CONDUCTIVITY probes with type PT100 internal temperature sensors; contact ETATRON D.S. service or your local dealer for the correct configuration. The ELIGERE-CD unit is NOT suitable for EC inductive sensors!

Install the conductivity sensor in the system and connect it to the terminal board (see page 13) before powering it from the mains.

It is recommended to use a new electrode or at least one in good working order (not worn).

NOTE: The ELIGERE CD device is automatically adjusted based on the conductivity ranges by adapting the regulator to the various characteristics of the probes' "K" constant. However, at the start of programming and in "Expert Menu Setpoint 1" the user may adjust the required K factor.

It is always RECOMMENDED and mandatory to use the correct K probe according to the regulator's operating range. The regulator also adapts the measurements and display resolution based on the type of probe in use.

5.3 INITIAL DISPLAY



NOTE FOR THE PROGRAMMER

Read the manual before starting programming or always have it at hand to be sure you are making the correct selections.



IMPORTANT NOTE

If no keys are pressed for 60 seconds, the instrument will show the current measurement.

To go forward quickly, press and hold one of the ◀▶ keys.

03 PH-RX-CL
01 CI
01 PH(RX)
01 CD
01 CD COOL
02 PH(RX)-CD
02 PH(RX)-CL
02 PH-RX

ETATRON
ELIGERE 0x model
Rev. X.X

The software version is shown when the instrument is on the lower part of the display.

The software is subject to revisions without notice.

The instrument is prepared for measuring and is then ready to operate.



At this stage, certain status messages might be displayed, which might be active because of current measurements, just go on programming.

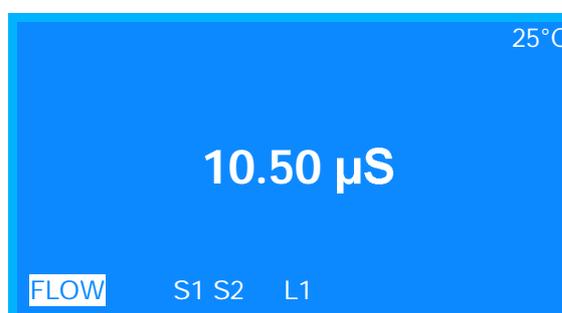
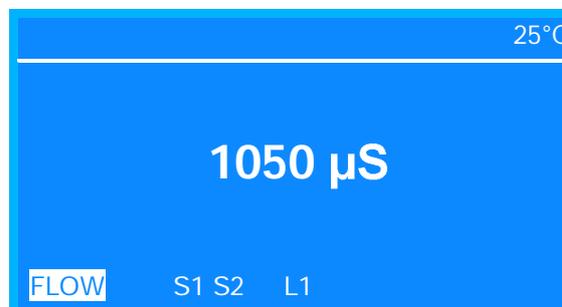
- **ELIGERE 01 CD:**
S1, S2, L1, ALARM, OVERDOSE, FLOW, BASIC MENU, EXPERT MENU.

5.3.1 Initial display - Mod. ELIGERE 01 CD

The **INITIAL DISPLAY** shows the measurements according to the selected K range. If the instrument has already been programmed, the display shows the programs selected previously.

The **CONTINUOUS MEASUREMENT DISPLAY** shows the measurements of the parameter, the status of the functions and the alarm indications.

When the instrument is **switched on for the first time**, a list of functions of all keys is displayed (in English). This screen is no longer displayed during subsequent start-up operations.



5.3.2 Constant K factor of the conductivity probe

5.3.2.1 Model: ELIGERE 01 CD

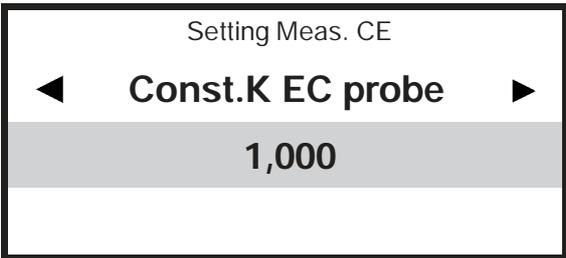
The conductivity value (EC) is automatically adjusted based on the conductivity ranges by adapting the regulator to the characteristics of the probe cells' "K" constant.

The regulator covers the ranges from **cell constant K 1 up to 20.00 mS** and up to 100.00 mS (the latter with graphite sensor electrodes) and the **K 5 constant up to 2,000 μ S**. The display shows the μ S values but if the setpoint value exceeds 1999 μ S, it shows 2.00 mS (when the value decrease the reading goes back to μ S). By selecting the K5 range (5,000) the setpoint will be 100 μ S



IMPORTANT.

The μ S ranges above are purely indicative; for example, a K1 probe can measure correctly below 1000 μ S, the resolution will simply be less precise. However, the same concept does not apply for high ranges.

	<p>The cell constant K default set at 1,000, press ◀▶ to edit the K value. K1 select 1,000 K5 select 5,000.</p> <p>The display shows the value in μS but if the selected value exceeds 1999 μS, it will show 2.00 mS</p>
---	--



IMPORTANT.

Once the EC probe's K factor has been selected, **ENSURE** the **correct** conductivity sensor is connected.

If the user wishes to modify the EC K RANGE even during operation:

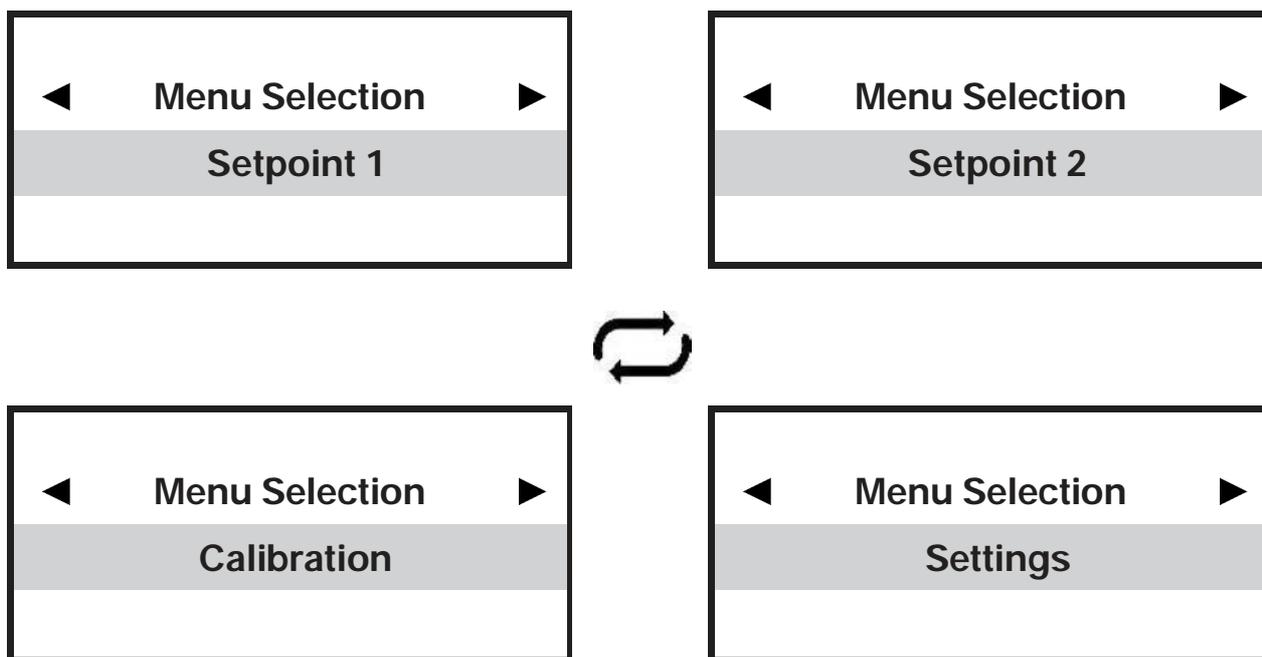


- Press **ESC** to go back to the **MAIN MENU** or press **ESC ESC** to display **CONTINUOUS MEASUREMENT**.

5.4 PROGRAMMING: ELIGERE 01 CD

5.4.1 MAIN MENU > BASIC PROGRAMMING MENU

These are all the steps included in the **MAIN MENU** configuration with the **BASIC** programming:



- By selecting this setting, programming will follow the range values:

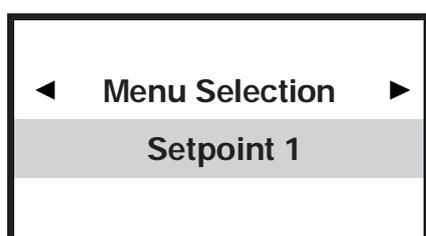
Range K probe CE > Setpoint 1 - 2 > CALIBRATION

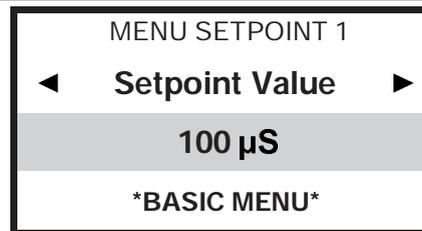
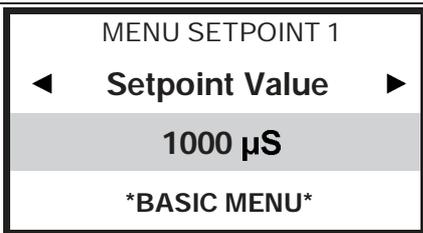
- Press **OK/MENU** to confirm the selection and to go on to the next sub-menu.
- Press "**ESC**" to go back to "**CONTINUOUS MEASUREMENT**".

5.4.2 SETPOINT 1 EC CONDUCTIVITY > BASIC MENU

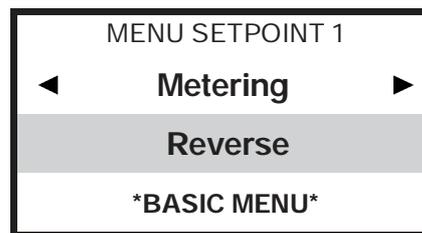
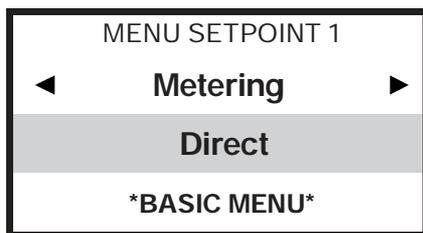


Please note that the displayed value is automatically adjusted based on the features of the "**K**" cell constant of the conductivity range selected in the previous paragraph **SELECTION OF "K" CONDUCTIVITY FACTOR**.

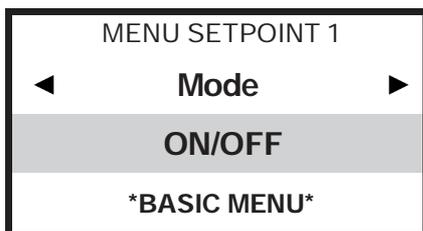




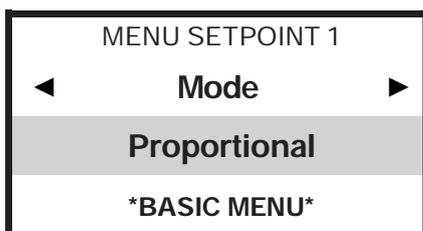
The set point activates the output relays for the metering pumps and other equipment once the selected setpoint level is reached. The display shows the µS values but if the setpoint value exceeds 1999 µS, it shows 2.00 mS (when the value decrease the reading goes back to µS).



Direct Dosing mode: the output is active if the measured value is lower than the selected setpoint, thus activating the connected equipment. The Reverse mode operates exactly in the opposite manner.

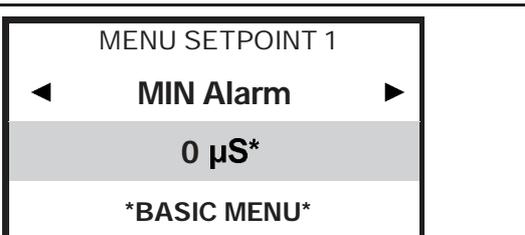


The unit has an **ON-OFF** mode which switches on or off (if the reverse mode is ON) the output relays of Constant / ON-OFF metering pumps or other ON-OFF equipment.

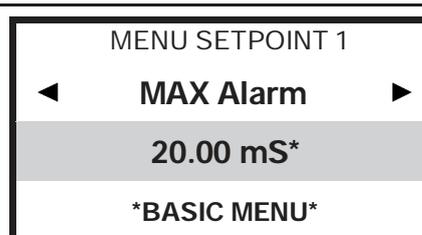


*The Proportional mode, also referred to as PWM “Pulse modulation”, activates the proportional mode on each setpoint, activating the corresponding pulses on the output relay according to the measured value and always referring to the previously selected hysteresis settings. **Default activation point at 1000 µS** (range 0-20,000 µS DEFAULT); **100 µS** (range 0-2000 µS); **0.10 µS** (range 0-200 µS); **10000 µS** (range 0-200,000 µS)

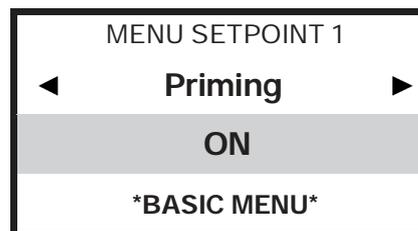
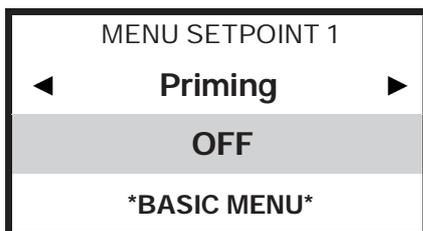
For more accurate settings of the “Modular pulses” PWM, select the “Expert” menu in the initial settings.



The **MIN** Alarm function selects the MINIMUM level after which the alarm relay is on.

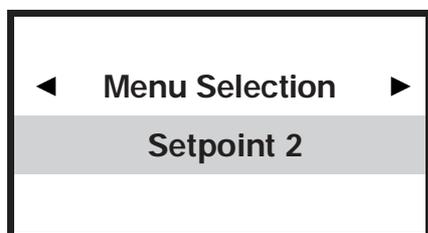


The **MAX** Alarm function selects the MAXIMUM level after which the alarm relay is on.

ONLY IF THE METERING PUMP IS USED


The Priming ON function “freezes” the set point value to allow metering pumps to be primed; the outputs are not active.

- Press **ESC** to go back to **MAIN MENU** or press **ESC ESC** to go back to **CONTINUOUS MEASUREMENT**.

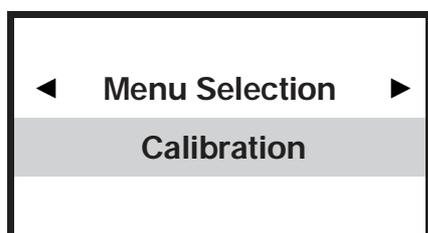
5.4.3 SETPOINT 2 EC CONDUCTIVITY > BASIC MENU


The SETPOINT 2 settings are the same as the SETPOINT 1, except the MIN ALARM and MAX ALARM menus which are not included.

Therefore, for SETPOINT 2 programming and navigation refer to that for SETPOINT 1.

5.4.4 SENSOR CALIBRATION > BASIC MENU
IMPORTANT NOTES:

- If there is NO temperature sensor for Temperature adjustment, to change the desired temperature value go to: **Expert Menu > "Settings > Temperature > Manual"**
- When calibrating the sensor, ensure the probe electrodes do not touch any surface except the solution;
- Ensure the sensor is securely positioned in the **solution's** container without any movement;
- Wait for the time required for the calibration measurements to stabilise.



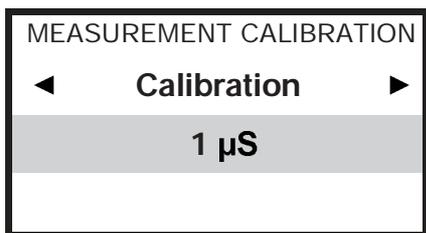
- Press **OK/MENU** to confirm the selection and go to the next sub-menu.

A reminder message is displayed before calibration:

It is recommended to create a sample solution that matches the EC value required by the system (normally the setpoint value); use a suitable portable EC meter to ensure the conductivity levels meet the requirements. Use a conductivity Sensor with cell constant according to the selected K factor range, with max. cable length 4 m.



After calibration, wait 5/10 minutes for the measurement to stabilise.

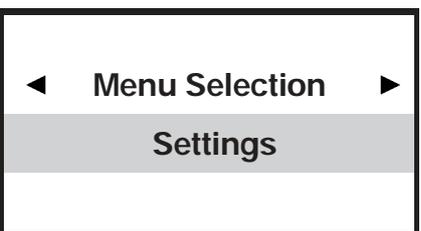
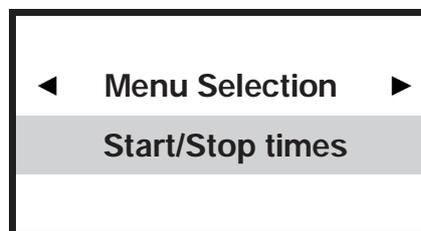
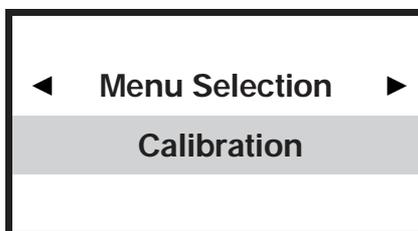
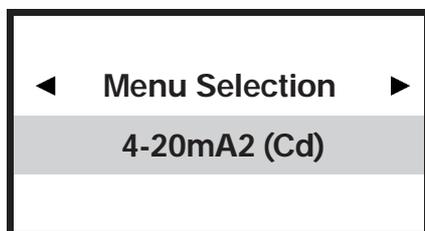
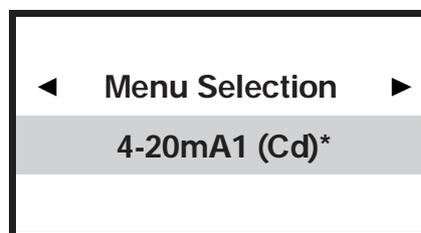
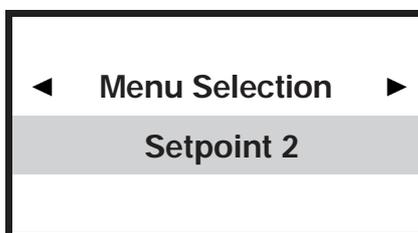
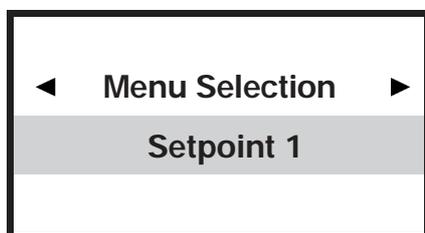


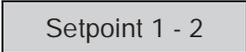
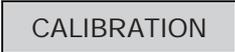
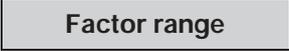
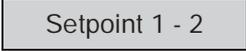
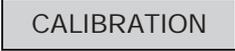
Immerse the EC probe in the sample solution previously prepared and wait for the measurement to stabilise.

To edit the value press **OK/Menu**, then press and hold ◀▶ until the value of the sample solution is displayed, then press **OK/MENU** to confirm.

- Press **OK/MENU** to confirm the selection.
- Press **ESC** to go back to the **MAIN MENU**.
- Press **ESC ESC** to display the **CONTINUOUS MEASUREMENT** screen.

5.4.5 MAIN MENU > EXPERT PROGRAMMING MENU

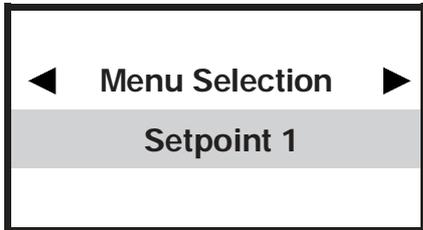


- By selecting this setting, programming will follow the range values:
 >  > 
- By selecting this setting, programming will follow the selected range values:
 >  > 
- Press **OK/MENU** to confirm the selection and to go on to the next sub-menu.
- Press **ESC** to go back to **CONTINUOUS MEASUREMENT**.

5.4.6 SETPOINT 1 EC CONDUCTIVITY > EXPERT MENU



Please note that the displayed value is automatically adjusted based on the features of the “K” cell constant of the conductivity range selected in the previous paragraph SELECTION OF “K” CONDUCTIVITY FACTOR.



MENU SETPOINT 1

◀ **Setpoint Value** ▶

1000 μ S

EXPERT MENU

MENU SETPOINT 1

◀ **Setpoint Value** ▶

100 μ S

EXPERT MENU

The setpoint activates the output relays for the metering pumps and other equipment once the selected setpoint level is reached. The display shows the μ S values but if the setpoint value exceeds 1999 μ S, it shows 2.00 mS (when the value decrease the reading goes back to μ S). By selecting the K5 range (5,000) the setpoint will be 100 μ S

MENU SETPOINT 1

◀ **Metering** ▶

Direct

EXPERT MENU

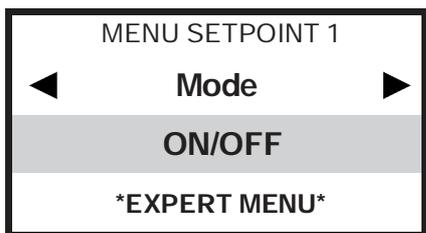
MENU SETPOINT 1

◀ **Metering** ▶

Reverse

EXPERT MENU

Direct Dosing mode: the output is active if the measured value is lower than the selected setpoint, thus activating the connected equipment. The Reverse mode operates exactly in the opposite manner.

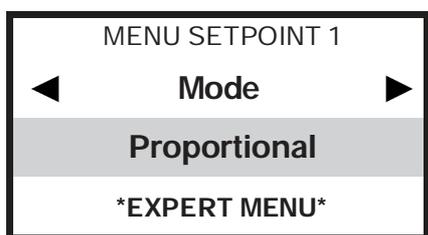


The unit has an **ON-OFF** mode which switches on or off (if the reverse mode is ON) the output relays of Constant / ON-OFF metering pumps or other ON-OFF equipment.



* SELECTION OF **ON-OFF** MODE NEXT PROGRAMMING STEP: '**HYSTERESIS**'

SELECTION OF THE "**PROPORTIONAL**" MODE REQUIRES SETTING UP THE FOLLOWING PARAMETERS.



*The Proportional mode, also referred to as PWM "**Pulse modulation**", activates the proportional mode on each ON-OFF set-point, activating the corresponding pulses on the output relay according to the measured value and always referring to the previously selected hysteresis settings.

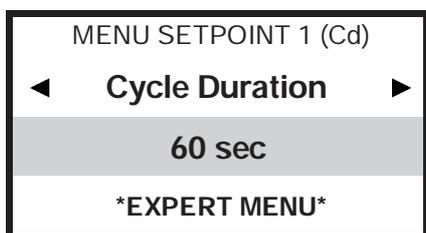
Default activation point at 1000 µS (range 0-20,000 µS DEFAULT); **100 µS** (range 0-2000 µS); **0.10 µS** (range 0-200 µS); **10000 µS** (range 0-200,000 µS).

EC CONDUCTIVITY TIMED PULSES PROGRAMMING



Window width (example with 2000 µS range): pulses are timed ON and OFF according to the distance from the selected programmable set-point, e.g.: if the selected set-point is 700 µS CE and the measured value is 600 µS, the PMW mode will start after reaching 650 µ with the Time/Pause pulses and after decreasing the active time while reaching the set-point value.

* Value shown according to the selected K range'.



Cycle Duration: Cycle in PWM mode 60 seconds (programmable): e.g. setpoint 700 µS, window width 850 µS CE = active time 60 sec - pause time = 0 sec.; at measured value 775 µS EC active time= 30 sec / pause time 30 sec.....and decrease of the activity time based on reaching the setpoint.

The cycle time depends on a number of variables such as: the distance between the injection time and the treatment system, required reaction speed, chemical substance concentration, etc.

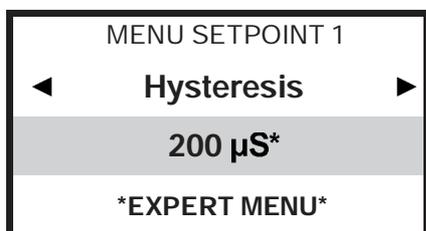


MIN Active time: (minimum, programmable): sets the minimum PWM activity time, cancels the programmed minimum settings. If the user has selected **Active time min 5 sec.**, this will be the minimum PWM time (see 'Timed Pulses Function').



BY SELECTING THE "ON-OFF" MODE THE NEXT PROGRAMMING STEP IS AS FOLLOWS: 'HYSTERESIS'.

FUNCTION NOT AVAILABLE WITH TIMED PULSE MODE

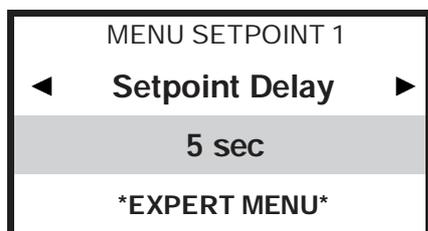


Hysteresis is used to activate or deactivate the output relays when the selected value is reached. It is useful when too many changes are made or made too quickly, operation that may damage the connected equipment.

Increasing the hysteresis allows to deviate from the setpoint value.

* Value shown according to the selected K range.

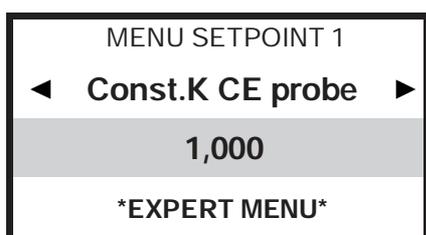
FUNCTION NOT AVAILABLE WITH TIMED PULSE MODE



The Delay time function blocks the relay outputs to ensure the outputs are active only when the sensor measurements are stable, thus providing the best result in terms of chemical balance.



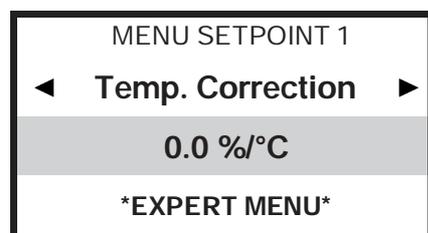
*PROCEDURE TO GO BACK TO PROGRAMMING THE SETPOINT FROM THE "ON-OFF" OR "TIMED PULSES" MODES.



The cell constant **K** is set by default at 1,000, press ◀▶ to edit the **K** value.

K1 select 1,000

K5 select 5,000



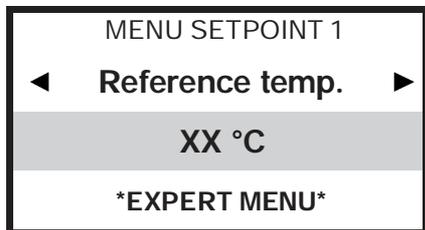
The **EC Alpha factor** is the correction factor of the conductivity measurement according to temperature: EVERY CONDUCTIVITY SENSOR DEPENDS ON THE TEMPERATURE. Conductivity changes linearly according to the temperature of the solution. This coefficient normalises the conductivity measurement at the reference temperature of 25°C. For aqueous solutions, this coefficient is normally 1.9%-2% per °C. Select 0 if you do not wish to normalise the reading. The alpha factor guarantees the best result in terms of precision.

EACH CONDUCTIVITY SENSOR DEPENDS ON THE TEMPERATURE.

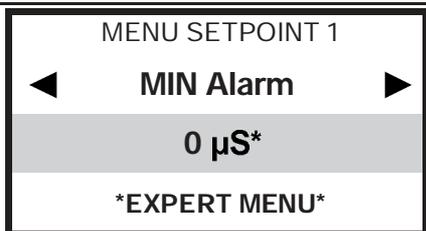
Conductivity changes linearly according to the temperature of the solution. Normally, the best measurement is obtained by automatic temperature offsetting by using the PT100 temperature sensor. If the operator does NOT have the temperature sensor, it is highly recommended to proceed with the MANUAL temperature programming step.

The ELIGERE-series makes it possible to choose between:

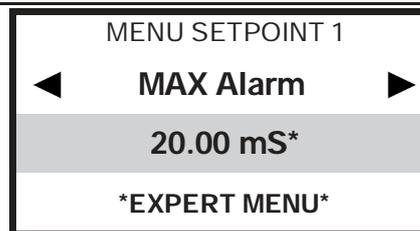
- **MANUAL** selection of the buffer solution and/or current ambient temperature (preset at 25°C)
- **PT100 or NTC** system which provides for automatic temperature offsetting by connecting a temperature probe.



- Press ◀▶ to adjust the current temperature of the liquid to calibrate the sensor.



The **MIN** Alarm function selects the MINIMUM level after which the alarm relay is on.

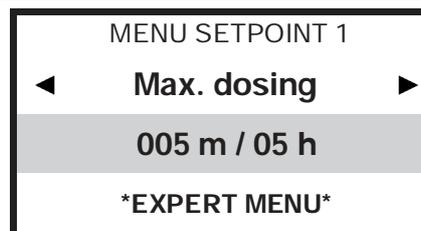
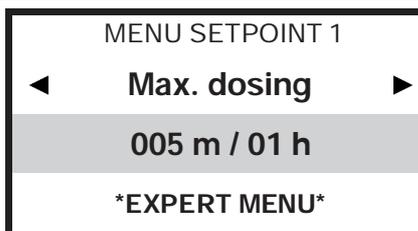
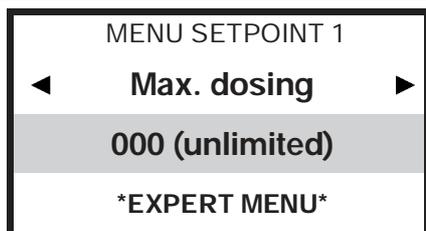


The **MAX** Alarm function selects the MAXIMUM level after which the alarm relay is on.

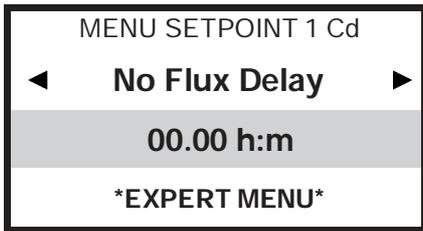


ONLY IF THE METERING PUMP IS USED

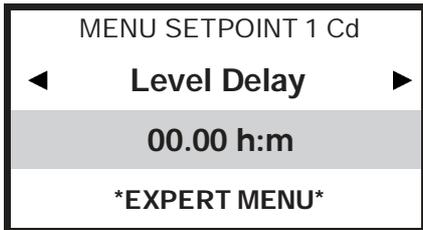
The overdose time-out alarm selects a period of time for reaching the setpoint.
If the setpoint is not reached within the set time, the regulator blocks output operation, including the mA outputs.



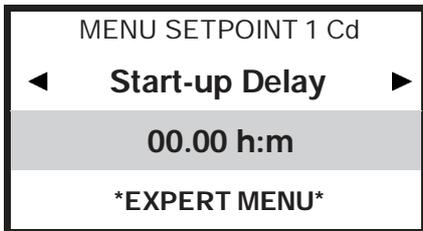
Maximum Dosing is an extra safety function that ensures metering is completed in the selected time. This function makes it possible to eliminate time limits (continuous metering according to the selected setpoints) or to select the minutes (up to 999) and the hours, for instance metering for 999 minutes in 24 hours.



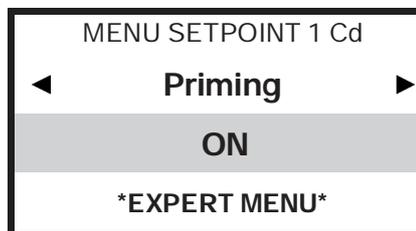
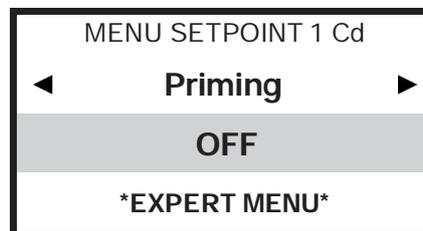
It is possible to set a **no flux delay time**; if the lack of flow is longer than the set time, the controller waits for the time set in the 'Start Delay' parameter, before eventually enabling the various outputs to control the pumps.



It is possible to set a **delay time on the level alarm**, the controller goes into alarm as soon as it receives contact from the relevant level probe, but only switches off the pumps connected to it after the previously set time.



The Start-up delay time “freezes” relay outputs allowing sensors to polarise hence correct measurement.



ONLY IF THE METERING PUMP IS USED

The priming function blocks the setpoint value to allow the metering pump to remain primed.

- Press **ESC** to go back to **MAIN MENU** or press **ESC ESC** to go back to **CONTINUOUS MEASUREMENT**.

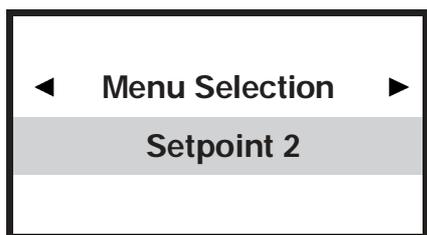
5.4.7 SETPOINT 2 EC CONDUCTIVITY > EXPERT MENU

The **SETPOINT 2** settings, in **EXPERT** mode, are the same as those for **SETPOINT 1**, with the exception of the following menus, not included:

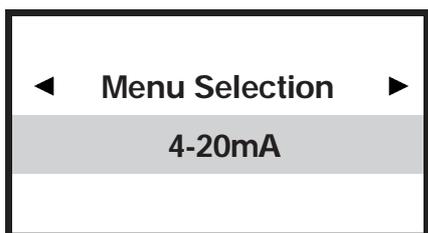


- **EC PROBE K CONSTANT**;
- **TEMPERATURE CORRECTION**;
- **MIN ALARM** and **MAX ALARM**;
- **START-UP DELAY**

Therefore, for **SETPOINT 2** programming and navigation refer to that for **SETPOINT 1**.



5.4.8 ANALOGUE CURRENT OUTPUT FUNCTION 4-20mA > EXPERT MENU

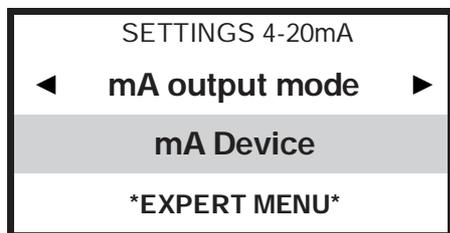


The analogue proportional output 4-20mA of the ELIGERE CD follows the option previously selected in the conductivity measurement range.

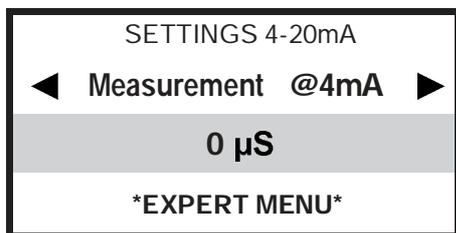
The mA output of the ELIGERE CD series lets you select one of two functions:

- **mA device:** for activating the data logger or data recorder or other devices suited to operating with the mA signal.
- **SETPOINT:** for activating the metering pumps suited to operating with the mA signal.

5.4.8.1 OUTPUTS 4 -20 mA > DEVICE function mA

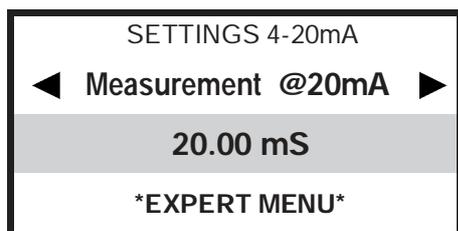


The dosing Setpoint of the proportional 4-20mA analogue outputs follows the set point selected below and therefore activates a metering pump suitable to processing the remote mA current signal.



Select the value corresponding to point 4 mA based on **Setpoint 1** settings.

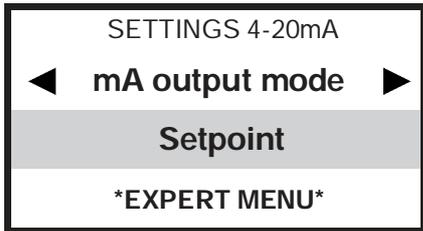
Please note that the displayed value is automatically adjusted based on the "K" features of the conductivity range cell constant selected in the previous paragraphs.



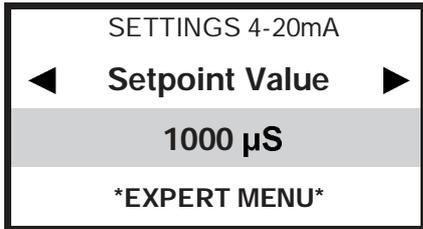
Select the value corresponding to point 20 mA based on **Setpoint 1** settings.

- Press **ESC** to go back to **MAIN MENU** or press **ESC ESC** to go back to **CONTINUOUS MEASUREMENT**.

5.4.8.2 4-20 mA OUTPUTS > SETPOINT

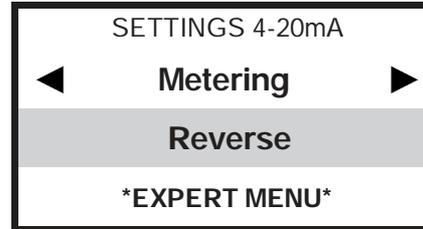
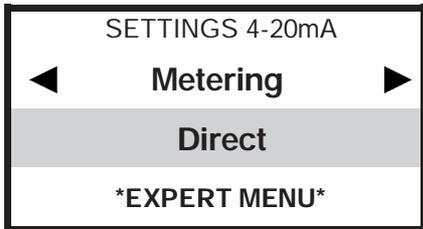


The Setpoint of the proportional 4-20mA analogue outputs follows the setpoint selected below and therefore activates a solenoid valve or metering pump suitable to processing the remote mA current signal.

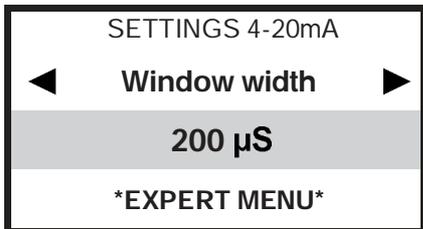


Select the value corresponding to point 4 mA based on **Setpoint 1** settings.

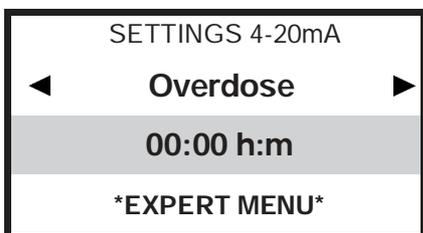
Please note that the displayed value is automatically adjusted based on the “K” features of the conductivity range cell constant selected in the previous paragraphs.



The **Direct Dosing** mode means that the output is active when the measured value is lower than the selected setpoint, the connected metering pump dispenses chlorine and vice versa with the reverse mode



Window width: sets the distance from the set point to the point where the 4-20mA mode is activated: 4 mA = 0 metering pump pulse, 20 mA = max frequency of the metering pump pulses. The window width depends on many variables: distance of the injection point, reaction time, chemical solution %, etc.



The overdose time-out alarm selects a period of time for reaching the setpoint.

If the set point is not reached within the set time, the regulator blocks output operation, including the mA outputs (metering pump).

The alarm is displayed ON and activates relay4 activating an alarm device.

<p style="text-align: center;">SETTING 4-20mA 1</p> <p style="text-align: center;">◀ Max. dosing ▶</p> <p style="text-align: center; background-color: #cccccc;">000 (unlimited)</p> <p style="text-align: center;">*EXPERT MENU*</p>	<p style="text-align: center;">SETTING 4-20mA 1</p> <p style="text-align: center;">◀ Max. dosing ▶</p> <p style="text-align: center; background-color: #cccccc;">005 m / 01 h</p> <p style="text-align: center;">*EXPERT MENU*</p>	<p style="text-align: center;">SETTING 4-20mA 1</p> <p style="text-align: center;">◀ Max. dosing ▶</p> <p style="text-align: center; background-color: #cccccc;">005 m / 05 h</p> <p style="text-align: center;">*EXPERT MENU*</p>
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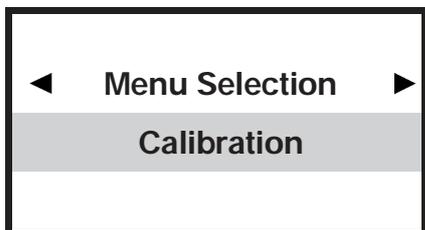
Maximum Dosing is an extra safety function that ensures metering is completed in the selected time. This function makes it possible to eliminate time limits (continuous metering according to the selected setpoints) or to select the minutes (up to 999) and the hours, for instance metering for 999 minutes in 24 hours.

- Press **ESC** to go back to **MAIN MENU** or press **ESC ESC** to go back to **CONTINUOUS MEASUREMENT**.

5.4.9 SENSOR CALIBRATION > EXPERT MENU

IMPORTANT NOTES:

- if there is NO temperature sensor for Temperature adjustment, to change the desired temperature value go to: **Expert Menu > *Settings > Temperature > Manual**;
- when calibrating the sensor, ensure the probe electrodes do not touch any surface except the solution;
- ensure the sensor is securely positioned in the **solution's** container without any movement;
- wait for the time required for the calibration measurements to stabilise.



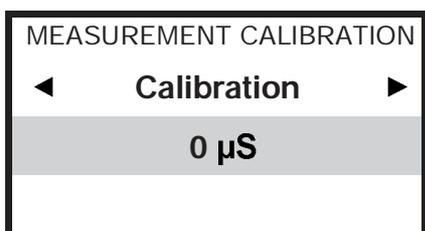
- Press **OK/MENU** to confirm the selection and go to the next sub-menu.

A reminder message is displayed before calibration:



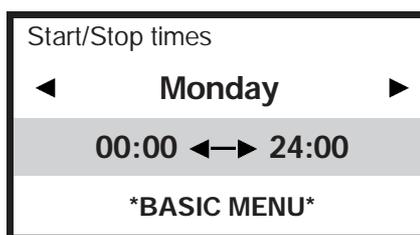
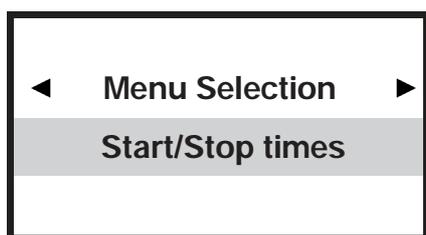
It is recommended to create a sample solution that matches the EC value required by the system (normally the setpoint value); use a suitable portable EC meter to ensure the conductivity levels meet the requirements. Use a conductivity Sensor with cell constant according to the selected K factor range, with max. cable length 4 m.

After calibration, wait 5/10 minutes for the measurement to stabilise.



Immerse the EC probe in the sample solution previously prepared and wait for the measurement to stabilise.

To edit the value press **OK/Menu**, then press and hold ◀▶ until the value of the sample solution is displayed, then press **OK/MENU** to confirm.



Programming the days and hours of instrument operations.

- Press **OK/MENU** to confirm the selection.
- Press **ESC** to go back to the **MAIN MENU**.
- Press **ESC ESC** to display the **CONTINUOUS MEASUREMENT** screen.

* It shows the value according to the selected range, example: by selecting K1 (1,000) range 20.00 mS, this will be the max. alarm value, by selecting K5 (5,000) 2000 µS will be displayed at the start of programming.

5.4.10 AUX OUTPUTS > EXPERT MENU

The auxiliary outputs control various functions connected to any type of remote On-Off device controlled by a timer in real time. The AUX output may control a device or appliance thanks to very accurate programming of minutes/hours/days/weeks.

ADVANTAGES: this function makes this instrument a very versatile control unit not only to measure chemical physical parameters but also for other functions connected to the system where it is installed.



- Press **OK/MENU** to confirm the selection and to go on to the next sub-menu.
- Press '**ESC**' to go back to '**MAIN MENU**' or press "**ESC**" "**ESC**" to go back to '**CONTINUOUS MEASUREMENT**'.

AUX 1	Programme 01
T. active	(h:m) 00 : 00
Start time	(h:m) -- : --
Enabl. days	Mon : -
Tue : -	Wed : - Thu : -
Fri : -	Sat : - Sun : -
Week 1 : -	2 : - 3 : - 4 : -

AUX 2	Programme 01
T. active	(h:m) 00 : 00
Start time	(h:m) -- : --
Enabl. days	Mon : -
Tue : -	Wed : - Thu : -
Fri : -	Sat : - Sun : -
Week 1 : -	2 : - 3 : - 4 : -

The settings of the program entail many steps, which may be selected to have absolute operating precision (up to 99 programs for each AUX output).

AUX 1 or AUX 2	Program 01	<ul style="list-style-type: none"> • Press ◀ ▶ select program number (up to 99). • Confirm by pressing OK, automatically goes to the next step.
Active time	(h:m) 01:00	<p>Selects the active time of the connected On/Off device</p> <ul style="list-style-type: none"> • Press ◀ ▶ to select the minutes, confirm OK to move to the next digits. • Press ◀ ▶ to select the seconds, confirm OK to move to the next step.
Start time	(h:m) 10:30	<p>Selects the start time of the connected On/Off device.</p> <ul style="list-style-type: none"> • Press ◀ ▶ to select the hours, confirm OK to move to the next digits. • Press ◀ ▶ to select the minutes, confirm OK to move to the next step.
Enabled days	Mon : N ... Y	<p>Selects the days during which the connected equipment is operational.</p> <ul style="list-style-type: none"> • Press ◀ ▶ to select the days of activity ◀ ▶ N no or Y yes. • Confirm by pressing OK, automatically goes to the next step.
Weeks	1:Y 2:N 3:N 4:N	<p>Selects the weeks of the month during which the connected equipment is operational.</p> <ul style="list-style-type: none"> • Press ◀ ▶ to select the weeks of activity ◀ ▶ N no or Y yes. • Confirm by pressing OK, automatically goes to the next step.

- Press **ESC** to go back to **MENU SELECTION** or press **ESC ESC** to go back to **MEASUREMENT DISPLAY**.

CONDUCTIVITY SENSORS

ELIGERE 01 CD

The ELIGERE-CD unit works with simple conductivity sensors with 2 open electrodes, with AISI 316 and graphite electrodes.



FOR 4-WIRE CONDUCTIVITY SENSORS (with internal temperature sensor): as various types are available on the market, should the operator wish to use this type of sensor, contact ETATRON D.S. service or your local dealer for the correct set-up for connecting to the terminal board.

The ELIGERE-CD unit is NOT suitable for EC inductive sensors!

The ELIGERE CD device is automatically adjusted based on the conductivity ranges by adapting the regulator to the various characteristics of the probe cells' "K" constant.

The conductivity measurement is in microsiemens with 4 ranges of the K factor (Cell constant) suitable for:

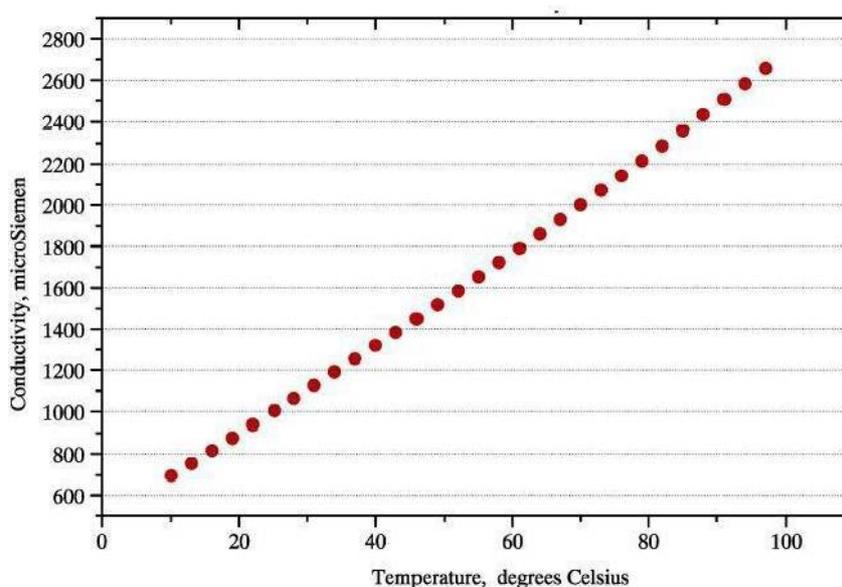
IMPORTANT: the μS ranges above are purely indicative; considering that, for example, a K1 probe can measure correctly below 1000 μS , the resolution will simply be less precise. However, the same concept does not apply for high ranges also.

5.4.11 TEMPERATURE correction (EC Alpha factor)

ELIGERE 01 CD

The EC Alpha factor is the correction factor of the conductivity measurement according to temperature: EVERY CONDUCTIVITY SENSOR DEPENDS ON THE TEMPERATURE. Conductivity changes linearly according to the temperature of the solution. This coefficient normalises the conductivity measurement at the reference temperature of 25°C. The alpha factor guarantees the best result in terms of precision.

The typical average of most water samples with some dissolved solids is 2% per °C. In wide temperature ranges (e.g. from 0 to 100°C) the temperature offset factor may not remain constant.



6 INSTRUMENT TROUBLESHOOTING



WARNING.

Ignoring the safety information may endanger your life or cause severe injuries!



CAUTION.

In the presence of gas or in premises saturated with gas, ensure you disconnect the **device's** power supply for metering the Chlorine gas; also ensure the power supply of other equipment making up the system is secured.



Before working on the unit, disconnect it from the mains.

MALFUNCTION	POSSIBLE CAUSE	SOLUTION
Display is OFF	Power failure	Check the electrical connections Check whether the mains match the power supply printed on the label.
	Burnt smell	Check the board and replace it following authorisation by ETATRON
The measurement display remains fixed (there are no changes)	pH or RX levels are NOT stable	Check again using a portable instrument.
	Conductivity levels are NOT stable	Check again using a portable instrument or portable conductivity kit
	The signal from the sensor does not change	Repeat sensor calibration and if the problem persists, change the sensor.
The measurement display changes all the time (measurement surges)	Electrical disruption from the local mains	Check the local mains. Check the earthing system connections
	Micro-electrical disturbances in the measured fluid	Check instrument calibration, if the instrument measures correctly eliminate the electrical disturbances and refer to point A
The sensor calibration procedure cannot be completed	Old or contaminated buffer solution kit	Change buffer solution and use a portable kit
	Faulty sensor	Adhere to the recommendations below

IMPORTANT TESTS: in cases 2, 3, 4 above always test operation of the unit with the following steps:

- A. Take down the unit from the system and install it in another room or laboratory without connections to other devices, but directly to the local mains.
- B. Recreate in a container with fresh water the chemical-physical conditions of the system and relevant conductivity value.
- C. Program the unit and calibrate the sensor.
 - a. If the results show correct unit operation, this means the issues lie within the system.
 - b. If the problem persists, replace the sensor with a new one; if the problem continues, the unit is faulty, contact the Manufacturer or authorised Dealer.

MALFUNCTION	POSSIBLE CAUSE	SOLUTION
The setpoint relay does not close the contact	Incorrect setpoint	Correct the setpoint
	Incorrect setpoint mode	Change the setpoint operating mode, direct or reverse, on the functions menu

REMEMBER: unit with universal voltage 100-250 VAC ($\pm 10\%$) or 9-24VDC. If the real voltage is constantly at the limit (minimum or maximum), or when the peaks are far above the mentioned range, the unit input is electrically protected against voltage fluctuations; outside the range mentioned above, the instrument does not work and the printed circuit must be replaced.



It is recommended to use voltage protections, check the earthing system and, when other equipment is connected in parallel, use a contactor. Furthermore, ETATRON **recommends** installing a UPS (genset) to assure continuity thus ensuring no data are lost. A system that is set up without following the proper electrical design rules, without an earthing system, with frequent ON/OFF operations, might directly undermine the printed circuit.

Suggestions for troubleshooting CONDUCTIVITY SENSORS

- **Slow Response:** typically due to excessive length of the collection system and slow flow, which therefore results in long delays in sample conveyance. Solve by adding a fast flow circuit with the sensor on the short current side or by shortening the line. A slow response may also be caused by a dirt buildup in the collecting line. In this case the problem may be mitigated by changing the collection point and installing a knock-out pot.
- **Constantly low readings/low peaks:** typical of bubbles in the collection line that remain between the probe electrodes.
- **Gradually decreasing readings:** the instrument cannot be adequately calibrated. This problem is typical of scaling or deposits of fouling/sludge on the sensor. The sensor must be cleaned.
- **Maximum readings in any condition:** first of all ensure the instrument is showing the conductivity by using a portable conductivity meter.