



This manual contains safety information that if ignored can endanger life or result in serious injury. They are indicated by this icon.



Keep the instrument protected from sun and water. Avoid water splashes.



OPERATING INSTRUCTIONS FOR "LDSTORBH" INSTRUMENT SERIES



ERMES COMMUNICATION
www.ermes-server.com



Read Carefully !



ENGLISH Version

R10-09-18



NORME CE
EC RULES(STANDARD EC)
NORMAS DE LA CE

Direttiva Bassa Tensione
Low Voltage Directive
Directiva de baja tensión

} 2014/35/UE

Direttiva EMC Compatibilità Elettromagnetica
EMC electromagnetic compatibility directive
EMC directiva de compatibilidad electromagnética

} 2014/30/UE



GENERAL SAFETY GUIDELINES

Danger!

In emergencies the instrument should be switched off immediately! Disconnect the power cable from the power supply!

When installing always observe local regulations!

Manufacturer is not liable for any unauthorized use or misuse of this product that may cause injury, damage to persons and / or materials.

Caution!

Instrument must be accessible at all times for both operating and servicing. Access must not be obstructed in any way!

Feeder should be interlocked with a no-flow protection device to automatically shut-off the pumps when there is no flow!

Pumps and accessories must be serviced and repaired by qualified and authorized personnel only!

Always discharge the liquid end before servicing the instrument!

Empty and rinse the liquid end before work on a pump which has been used with hazardous or unknown chemicals!

Always read chemical safety datasheet!

Always wear protective clothing when handling hazardous or unknown chemicals!

Instrument must be operated / serviced by trained technicians only!

All connection operations must be performed while the instrument is not connected to main supply!

1. Introduction

LDSTORBH is a microprocessor based digital regulator for NTU and temperature reading. On/Off is main working mode. All information are provided through a large LCD display. Using a revolutionary wheel control the instrument can be easily programmed. LDSTORBH is housed in a IP65 plastic box.

INPUTS:

- Stand-by
- Flow
- Dissolved oxygen level
- Dissolved oxygen probe
- Temperature probe (embedded)

OUTPUTS:

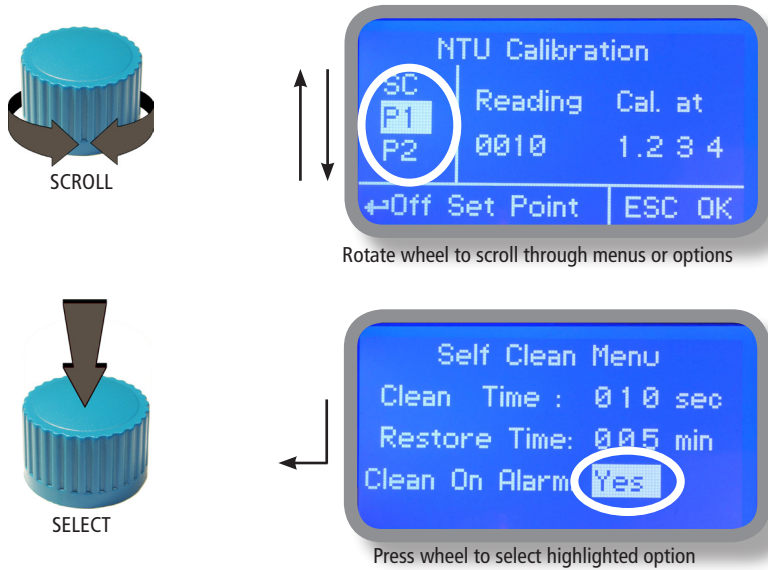
- 1 relay output (NTU)
- 1 opto coupled pulses outputs (NTU)
- Main alarm

Scale:	0 / 40 NTU (ETORB)	40.00 (ETO)
	0 / 9,999 NTU	400.0 (ETO)
	0 / 99,99 NTU	4000.0 (ETO)
	0 / 999,9 NTU	
	0 / 9999 NTU	

2. The wheel

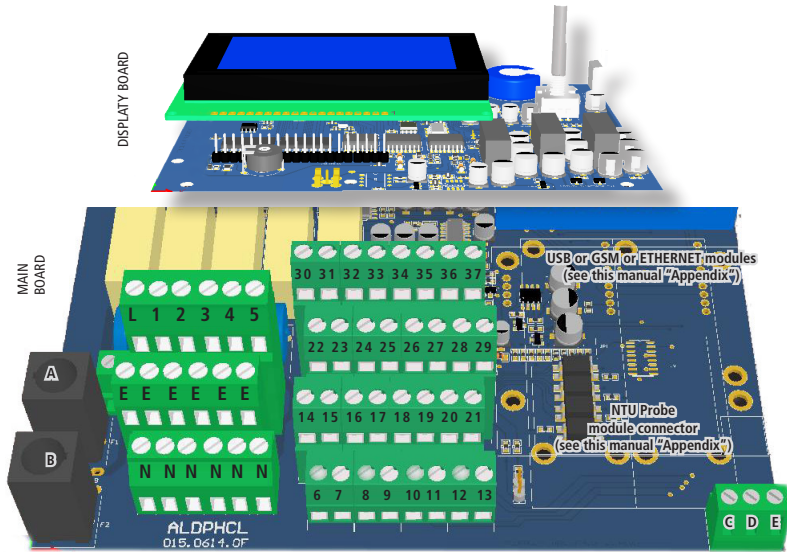
Located in the upper right side of LDSTORBH there is a wheel that must be used to control the instrument. Wheel can be rotated in both directions to scroll over the menus and / or pressed to confirm highlighted selection / value.

NOTE: Once changes are made press "OK" to save and exit from submenu. Press "ESC" to exit without saving.



3. Mainboard Connections

Unplug instrument from main power supply then perform connections by following the above picture.



A: Main Fuse (6A T)
 B: Instrument Fuse (3.15A T)
 C - D - E : Factory reserved +5V

L(Live) - E (Earth) - N (Neutral): 85÷264VAC - 50/60 Hz

1(Live) - E(Earth) - N(Neutral): 85÷264VAC - 5A 50/60 Hz Relay 1 Output "PROBE CLEANING".
 2(Live) - E(Earth) - N(Neutral): 85÷264VAC - 5A 50/60 Hz Relay 2 Output "RELAY NTU". To use with ON/OFF or PWM device
 3(Live) - E(Earth) - N(Neutral): 85÷264VAC Alarm output

31(-) - 32(+): Current output mA2 for NTU
 34(-) - 35(+): Current output mA4 for temperature } Max resistive load: 500 Ohm

21(GND) - 28(+RS485) - 29(-RS485): RS485

14(+ Brown) - 15(Black) - 16(- Blue) - 17(GND): Proximity sensor mod. "SEPR"

11(-) - 10(+): Standby contact

6(Green) - 7(Brown) - 8(White) - 9(Yellow): PT100 temperature probe (if present remove jumper / resistance before to connect probe)

Warning: Connections must be performed by qualified and trained personnel only.

4. Main Screen

When into normal operating mode, LDSTORBH shows the following main screen:



Main screen zones:

- (1) UNIT

“NTU” is the measuring unit for turbidity probe.
- (2) VALUES

These numbers are values read by the probes.
According to selected scale (see “Set Scale” menu at page 11), this field may be different.
- (3) OUTPUTS STATUS

These fields are related to current outputs status and instrument activity.
For more information rotate the wheel when into main screen. (see next page)
- WARNING MESSAGE NOTIFICATION AREA

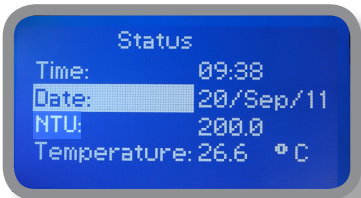
During critical situations a warning / alarm message may appear. To in-depth explanation **completely rotate clockwise** the wheel to review main instrument parameters and current outputs status.

*with GSM Modem installed

Note: the word “PUMP” as shown into this manual refers to a “dosing device” connected to the instrument!

5. Quick status check

From main screen **completely rotate clockwise** the wheel to review main instrument parameters and current outputs status.



Local Time
Local Date
Turbidity probe reading
Temperature probe reading



Dosing alarm condition
Probe failure status
Alarm contact status
Flow contact status



Last Temp. calibration result
Last Temp. calibration date



Outputs Status
See mainboard (page 4) for related connetions.

6. Password

To grant access into “Main Menu” press the wheel from main screen and enter the passcode. If this is the first time here then the passcode is 0000 (factory preset). Press wheel 5 times to enter into “Main Menu”. Otherwise press the wheel 1 time and enter the passcode. Numbers can be selected rotating the wheel.



To set a new passcode choose “PARAMETERS” from “Main Menu”, move on “New Pcode”, click on wheel and enter a four numbers code. Click on “EXIT” and choose “YES” to save request. The new passcode is now ready.

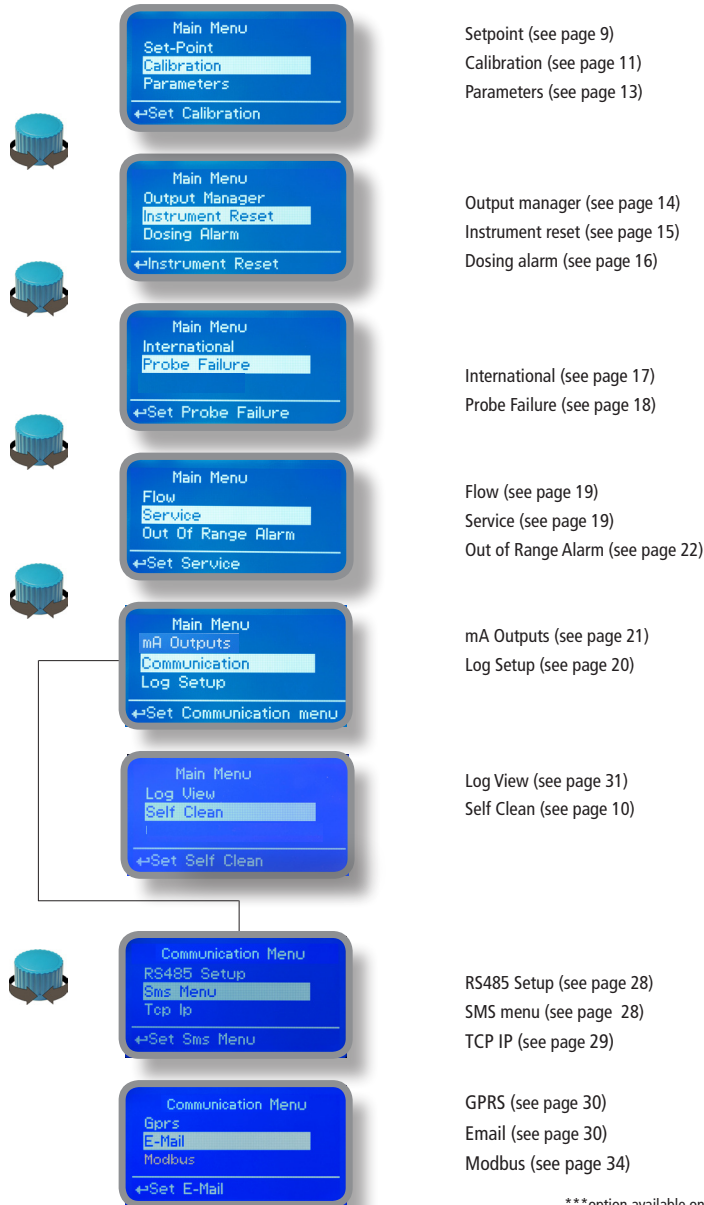


Lost passcode ?

Please don't forget the passcode (if changed). In the unfortunate event, please call your local distributor for unlocking procedure. There is no way for you to recover lost passcode.

7. "Main Menu" list

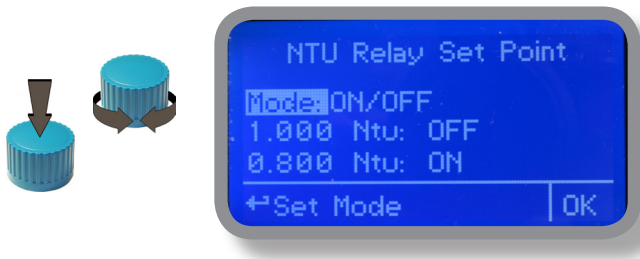
To grant access into "Main Menu" enter the passcode (as described in previous chapter). Once into "Main Menu" rotate the wheel to scroll through all the options available.



***option available on "current output model" only

8. "Set-Point", NTU (on/off)

On/Off setpoint mode set the instrument to operate using two set values that enable or disable the "NTU Relay". Press wheel for editing.



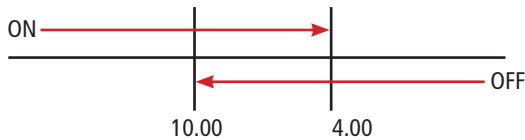
ON/OFF mode

Set NTU value at 4.00 OFF and 10.00 ON.

Instrument will leave "Relay 1 Output" active until reading value will decrease up to 4.00NTU.

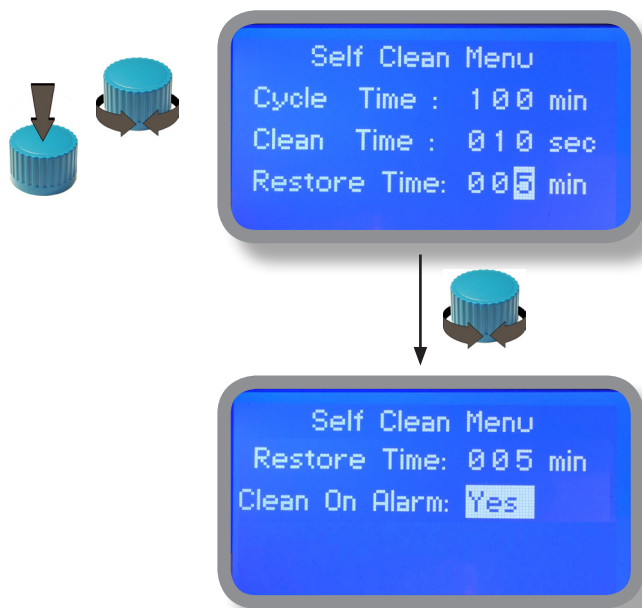
At 4.00NTU the "Relay 1 Output" will be disabled until reading value will increase up to 10.00NTU.

Note: On/Off mode can't be changed.



9. "Self clean", probe self-cleaning setup (Relay 1 Output)

An internal motor automatically wipes the optical face of probe. To define how much this motor must be on or off use the "Self Clean" menu.



"Cycle": the time between each cleaning. Can be set between 0 (disabled) and 999 minutes. Setting "0" as value the whole "Self-Clean" function will be disabled.

"Clean Time": probe cleaning time. Can be set between 0 (disabled) and 999 seconds. Setting "0" as value the whole "Self-Clean" function will be disabled.

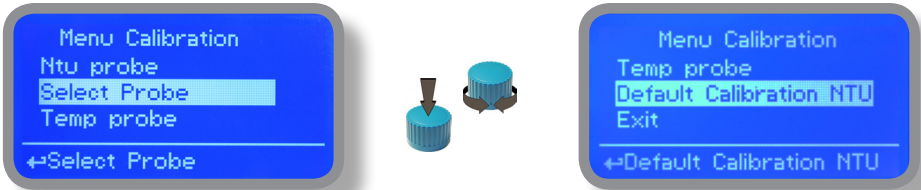
"Restore Time": is the probe recovery time needed to come back in full operations after the cleaning. Can be set between 0 (disabled) and 999 minutes. Setting "0" as value the whole "Self-Clean" function will be disabled.

"Clean on alarm": automatic probe cleaning when the reading alarm is active. The probe will not read until the end of the cleaning.

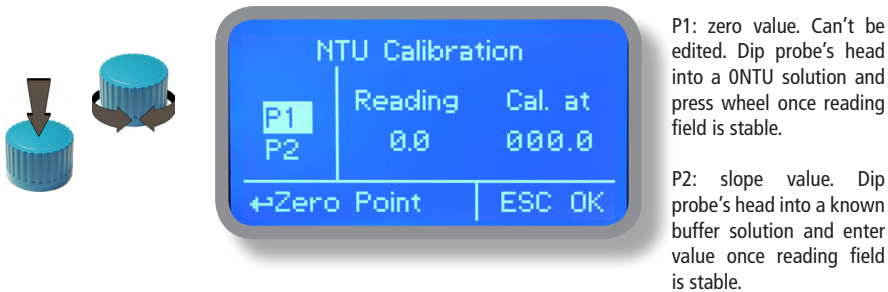
Note: During "Clean Time", "Restore Time" and "Clean on alarm" all NTU outputs are DISABLED.

10. "NTU scale set" (Menu Calibration)

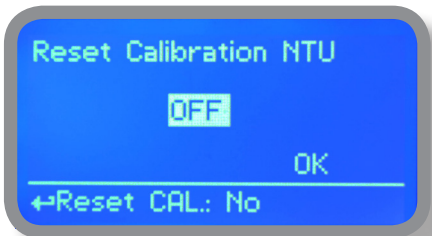
To properly set probe reliability set: SELECT PROBE (NTU scale based on probe's model), NTU probe calibration based on two points (zero and slope) or get back to original NTU calibration parameters.



Turbidity sensor is shipped fully calibrated (plug&play) so usually doesn't need to be calibrated. However by selecting "NTU probe" within "Calibration menu" a two points calibration can be performed.



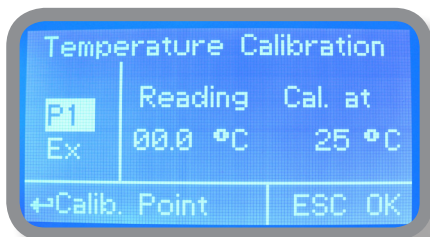
Please read probe's manufacturer instructions to achieve best results.



To get back to original NTU calibration parameters enter into "Default Calibration NTU" menu and confirm operation by changing OFF to ON then moving on OK and pressing the wheel.

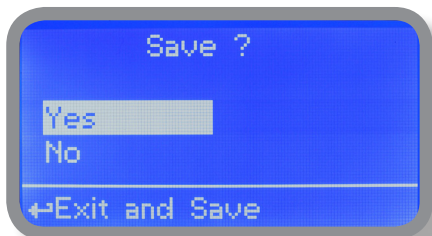
10.1 "Temp probe", °C - Temperature (Menu calibration)

A professional thermometer is required to obtain a reliable calibration. Within "Calibration" menu choose "Temp probe".



Note: This procedure assumes that instrument is correctly installed and configured, connected to a working NTC temperature probe (embedded). Calibrate using plant's temperature otherwise unattended results may occur.

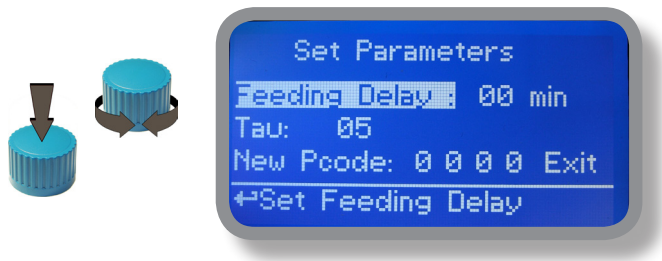
Using an external thermometer read actual temperature and edit related field "Cal. at". Confirm by pressing wheel.



To end procedure move cursor on "OK" and press wheel to proceed to "Save" request screen. Move wheel on "YES" to save or "NO" to discard changes. If an error occurred during calibration procedure then the instrument will show an error message and will ask to proceed to a new calibration, cancel current operation or restore default settings.

11. "Parameters"

From "Menu Calibration" choose "Parameters". This menu allows to set a delay (max 60 minutes) before pumps begin to feed. Furthermore use this menu to change default passcode.



Feeding Delay.

Move on "Feeding Delay" then press wheel. Choose a value between 0 (disabled) and 60 minutes (maximum delay time). This feature can be used to accord a startup delay for the pumps. Delay occurs when instrument is powered.

Tau.

Change this value to stabilize reading values from turbidity probe.

New Pcode.

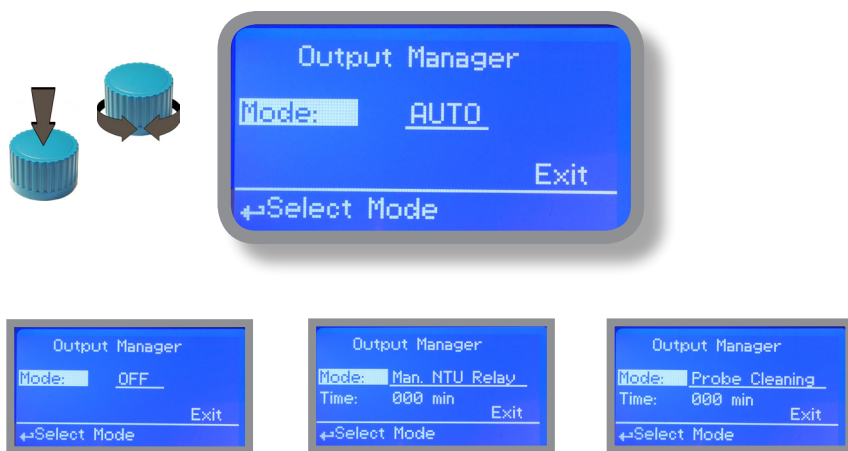
See page 10.



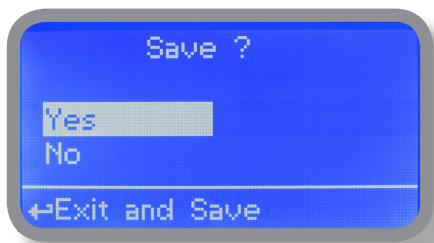
To end procedure move cursor on "Exit and Save" and press wheel to proceed to save request screen. Move wheel on "YES" to save or "NO" to discard changes.

12. "Output Manager"

From "Menu Calibration" choose "Output Manager". This menu allows to manually operate all outputs for a settable time. Set to "AUTO" for normal operating mode. Set to "OFF" to permanently disable outputs.



Press wheel to move cursor on "TIME" field. Once here, choose a working time between 0 (disabled) or 199 minutes. Move on "EXIT", then press wheel.



Choose "YES" to save changes. Exit from main menu. Main display will show a countdown for selected output. To stop this countdown go back to "Output Manager" menu and choose "AUTO" as working mode or wait until countdown ends. **This function can be used for priming purposes.**

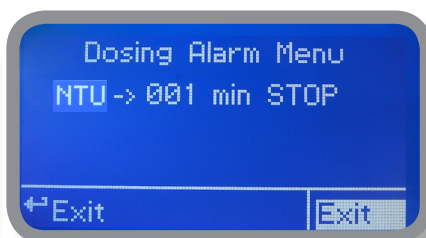
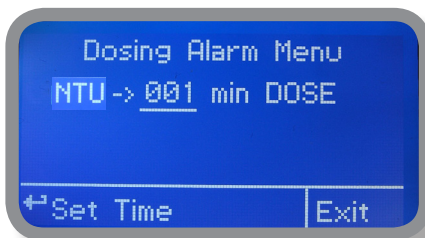
13. "Instrument Reset"

To restore instrument to its default values (including password) once into "Instrument Reset" menu, press wheel then change value to "ON", press wheel again, move on "OK" then finally press wheel. The instrument display will show "CHECKSUM ERROR". Press wheel to return into "Main Menu". Move on "EXIT", then press wheel. The instrument is now restored to factory default. Please repeat all calibration procedures and programming parameters.

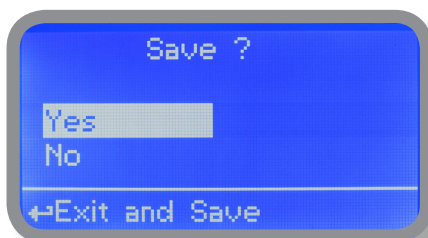


14. "Dosing Alarm"

Use this menu to assign a maximum time to the pumps for reaching the setpoint. If set time ends and the pumps are still dosing, within this menu is possible to STOP them or just to show an alarm message. Function can be disabled selecting "OFF" instead of a number (minutes). Dosing alarm can be set for both or just one pump.



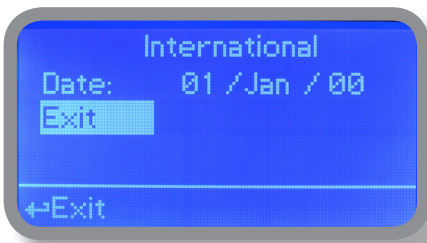
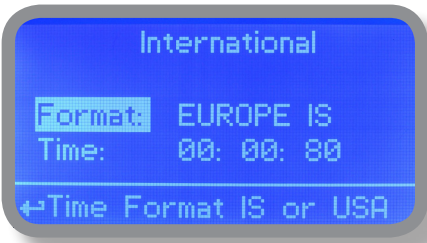
E.g. To set NTU pump to stop after time ends and setpoint isn't still reached press wheel, choose maximum time, press wheel move on next field and choose "STOP". Time can be set between 0 and 100 minutes. When satisfied with settings move on exit and press wheel.



To end procedure move cursor on "OK" and press wheel to proceed to "Save" request screen. Move wheel on "YES" to save or "NO" to discard changes.

15. "International"

Use this menu to set international parameters as UNIT FORMAT (Europe IS or USA), Local Time and Date.



Format.

Use this option to use European or USA units format. See table for differences.

EUROPE IS (International Standard)	USA
Date (DD/MMM/YY)	Date (MMM/DD/YY)
Time 24h	Time AM / PM
°C	°F

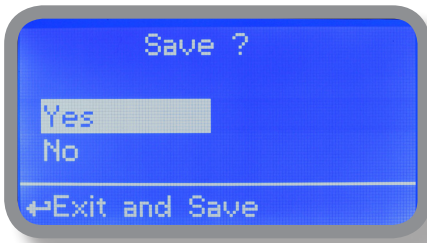
Time.

Use this option to set local time.

Date.

Use this option to set date.

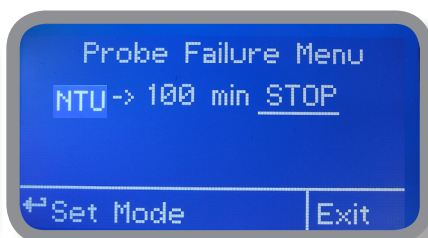
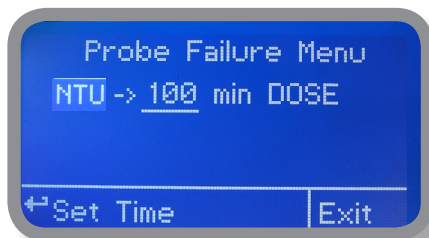
Move on exit to end changes.



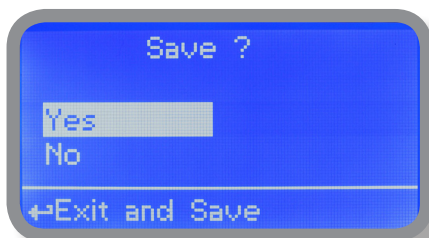
To end procedure move cursor on "OK" and press wheel to proceed to "Save" request screen. Move wheel on "YES" to save or "NO" to discard changes.

16. "Probe Failure"

Use this menu to assign a maximum time for connected probes to stay in "stuck" condition. A stuck probe (it remains on same reading value for some time) means that probably probe itself is damaged. Within this menu is possible to STOP pumps or just to show an alarm message (probe failure) . Function can be disabled selecting "OFF" instead of a number (minutes). This function can be set for both or just one probe.



E.g. To set NTU pump to stop after time ends and probe doesn't change reading values press wheel, choose maximum time, press wheel move on next field and choose "STOP". Time can be set between 100 and 254 minutes. When satisfied with settings move on exit and press wheel.

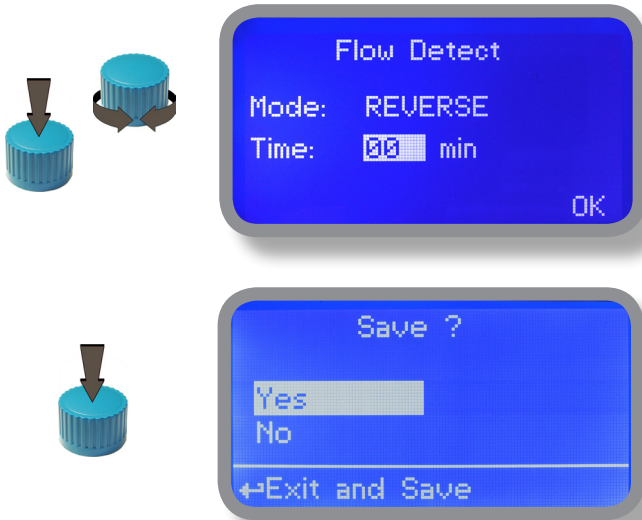


To end procedure move cursor on "OK" and press wheel to proceed to "Save" request screen. Move wheel on "YES" to save or "NO" to discard changes.

17. "Flow Contact"

Flow contact (see "SEPR" blocks on page 4) can be enabled to stop a dosing procedure using a N.O. contact mode (normally open) or N.C. contact mode (normally closed) when status on blocks changes. Rotate wheel to choose between: "DISABLE", "REVERSE" (N.O. contact) or "DIRECT" (N.C. contact).

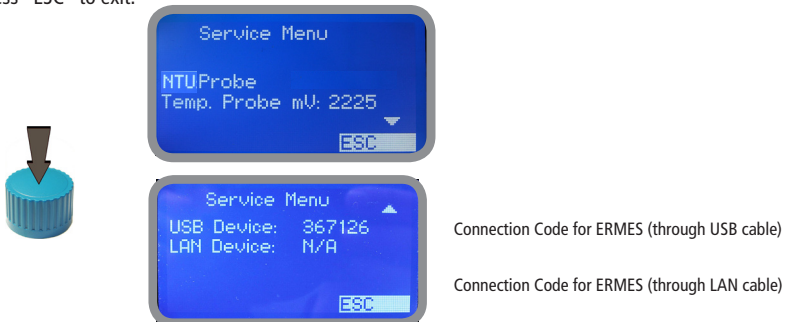
Furthermore "Flow contact" can starts after a specified time when contact status changes. To set it move wheel on "Time:00 min", click it and rotate to choose time (from 0 to 99 minutes). Confirm selection by clicking wheel.



To end procedure move cursor on "OK" and press wheel to proceed to "Save" request screen. Move wheel on "YES" to save or "NO" to discard changes.

17. "Service"

This "view only" menu shows probes reading live and instrument ID for USB LOG connection (if device's connected). Press "ESC" to exit.



18. "Log Setup"

Log setup stores instrument activities when an alarm (flow, level, out of range reading, etc.) occurs.



Log activity recording can be started by moving wheel on "Mode: Disable" and changing it to "Mode: Enable". Log activity starting time can be set to begin at specified time by entering "Time". Activities data are collected every specified hour or minutes. Edit this parameter by moving wheel on "Every: 00:00" and changing it to desired time.

ID and Station Name as appears on a received SMS from instrument



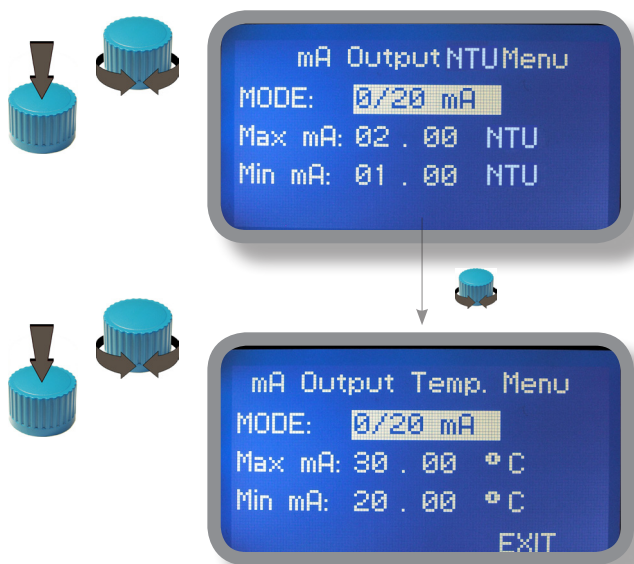
19. "mA Outputs"

This menu allows to configure mA current output for Dissolved oxygen. Options to set are:

MODE (selectable between 0-20 or 4-20 mA current output)

Max mA: maximum probe's reading value at 20 mA current

Min mA: minimum probe's reading value at 0 or 4 mA current



Rotate wheel to move within all 3 channels. Click wheel to select parameter and rotate wheel to change it. Click wheel again and rotate wheel to move cursor on next parameter. To end procedure move cursor on "EXIT" and press wheel to proceed to "Save" request screen. Move wheel on "YES" to save or "NO" to discard changes.

This menu is available only for "LDSxx" instrument series with current outputs option enabled.

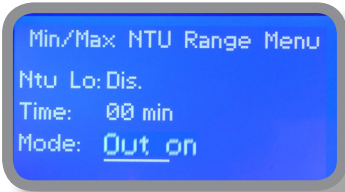
20. "Out of range alarm"

"Out of range alarm" menu defines the minimum and maximum NTU value read by the probe before to stop connected device activity and to show an alarm message.



Move wheel on "NTU Hi: Dis." and change status from "Dis." (option disabled) to "En." (option enabled) by clicking on wheel and rotating it. Press wheel again and move on next field. Press wheel and enter a value for HIGH alarm.

Repeat procedure for "NTU Lo: Dis." and enter a value for LOW alarm.



As last option enter "Time" (max 99 minutes) after which if lower or higher read value condition stays then the alarm occurs (to set into mode field).

To change alarm mode move wheel on "Mode", press it and choose between "OUT ON" (connected device will not stop activity when read value is out of range) or "OUT OFF" (connected device will stop activity when read value is out of range and an alarm message is displayed).

21. Technical information.

Power supply: 85÷264 VAC
 NTU Range: 9,999NTU or 99,99NTU or 999,9NTU or 9999NTU
 Environment Temperature: -10 ÷ 45°C (14 ÷ 113°F)
 Chemical Temperature: 0 ÷ 50°C (32 ÷ 122°F)
 Installation Class: II
 Pollution Level: 2
 Packaging and Transporting Temperature: -10 ÷ 50°C (14 ÷ 122°F)
 Protection degree: IP 65

Product	Formula	Ceram.	PVDF	PP	PVC	SS 316	PMMA	Hastel.	PTFE	FPM	EPDM	NBR	PE
Acetic Acid, Max 75%	CH ₃ COOH	2	1	1	1	1	3	1	1	3	1	3	1
Hydrochloric Acid, Concentrate	HCl	1	1	1	1	3	1	1	1	1	3	3	1
Hydrofluoric Acid 40%	H ₂ F ₂	3	1	3	2	3	3	2	1	1	3	3	1
Phosphoric Acid, 50%	H ₃ PO ₄	1	1	1	1	2	1	1	1	1	1	3	1
Nitric Acid, 65%	HNO ₃	1	1	2	3	2	3	1	1	1	3	3	2
Sulphuric Acid, 85%	H ₂ SO ₄	1	1	1	1	2	3	1	1	1	3	3	1
Sulphuric Acid, 98.5%	H ₂ SO ₄	1	1	3	3	3	3	1	1	1	3	3	3
Amines	R-NH ₂	1	2	1	3	1	-	1	1	3	2	3	1
Sodium Bisulphite	NaHSO ₃	1	1	1	1	2	1	1	1	1	1	1	1
Sodium Carbonate (Soda)	Na ₂ CO ₃	2	1	1	1	1	1	1	1	2	1	1	1
Ferric Chloride	FeCl ₃	1	1	1	1	3	1	1	1	1	1	1	1
Calcium Hydroxide (Slaked Lime)	Ca(OH) ₂	1	1	1	1	1	1	1	1	1	1	1	1
Sodium Hydroxide (Caustic Soda)	NaOH	2	1	1	1	1	1	1	1	2	1	2	1
Calcium Hypochlor (Chlor. ted Lime)	Ca(OCl) ₂	1	1	1	1	3	1	1	1	1	1	3	1
Sodium Hypochlorite, 12.5%	NaOCl + NaCl	1	1	2	1	3	1	1	1	1	1	2	2
Potassium Permanganate, 10%	KMnO ₄	1	1	1	1	1	1	1	1	1	1	3	1
Hydrogen Peroxide, 30% (Perydrol)	H ₂ O ₂	1	1	1	1	1	3	1	1	1	2	3	1
Aluminium Sulphate	Al ₂ (SO ₄) ₃	1	1	1	1	1	1	1	1	1	1	1	1
Copper-II-Sulphate (Roman Vitriol)	CuSO ₄	1	1	1	1	1	1	1	1	1	1	1	1

Resistance rating: (1: Resistant) ; (2: Fairly resistant) ; (3: Not resistant)

Polyvinylidene fluoride (PVDF) Pump Heads, valves, fitting, tubing

Polypropylene (PP) Pump Heads, valves, fitting, level floater

PVC Pump Heads

Stainless steel (SS 316) Pump Heads, valves

Polymethyl Metacrilate (Acrylic) PMMA Pump Heads

Hastelloy C-276 Injection valve spring

Polytetrafluoroethylene (PTFE) Diaphragm

Fluorocarbon (Viton® B) Sealings

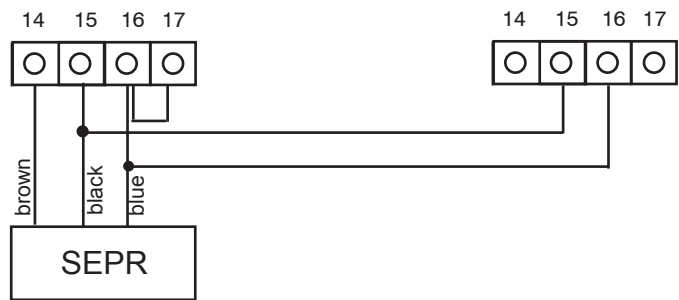
Ethylene propylene (EPDM) Sealings

Nitrile (NBR) Sealings

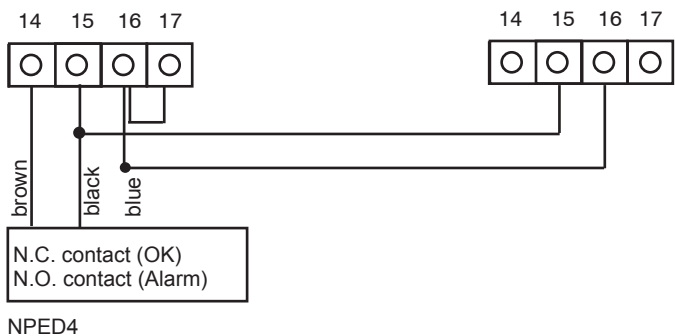
Polyethylene (PE) Tubing

22. SEPR configuration

SEPR "Flow Sensor" configuration for two instruments

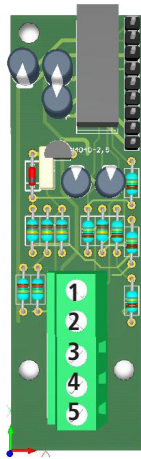


Configuration of a Flow Switch with a voltage free contact and two instruments



Appendix - ETORBH probe series module

Located under mainboard cover there are two connectors that can be used to install probe modules. Modules come pre-installed upon request and may appear different as shown (different configurations). Identify installed modules to correctly connect probes. From Calibration Menu choose "Select Probe" and according to installed probe select required model.



Module suitable for:

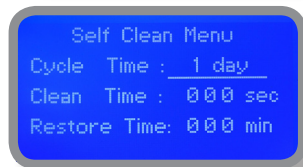
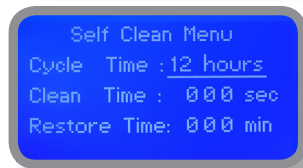
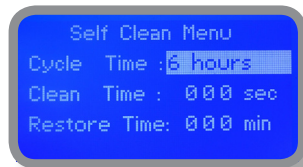
ETORBH probe

Connect probe as follows (no extra cable):

- 1 Green
- 2 Yellow
- 3 Black
- 4 White
- 5 Brown

If probe is supplied with extra cable connect as follows:

- 1 Green
- 2 Yellow
- 3 Black + White
- 4 Blue
- 5 Brown + Red



Use "Self Clean Menu" to activate cleaning procedure for probe. Options available are:

Cycle Time: time before next cleaning (adjustable from 6 hours to 10 days)

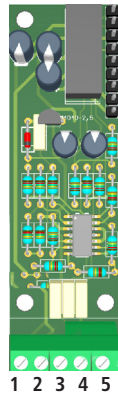
Clean Time: time required to complete cleaning procedure (can be set from 0 to 999 seconds)

Restore Time: waiting time at the end of cleaning procedure to restore reading functionality (adjustable from 0 to 999 minutes)

Clean on Alarm: cleaning activation when an "out of range alarm" occurs

Appendix - ETORBH probe module

Located under mainboard cover there are connectors that are used to install the probe module. Module comes pre-installed upon request. Identify installed module to correctly connect probe.



Module suitable for:

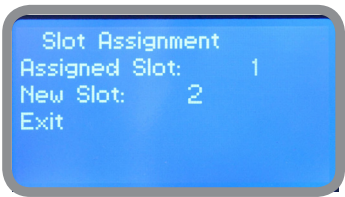
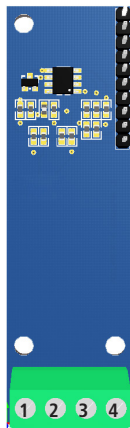
ETORB probe

Connect probe as follows:

- 1 Blue
- 2 Brown
- 3 GND
- 4 White
- 5 Green

Appendix - ETORB2 probe module

Located under mainboard cover there are connectors that are used to install the probe module. Module comes pre-installed upon request. Identify installed module to correctly connect probe. To assign a probe to a slot between the two available connecting the probe module to the required slot and repeating the procedure for each module. Within the calibration menu select "PROBES SLOT ASSIGN." and assign the probe to the required SLOT setting it into "NEW SLOT" field. To change the probe's scale please refer to SELECT PROBE MENU within SETTINGS menu. (Options are: 40.00 - 400.0 - 4000.0 NTU). For cleaning option menu see page 25.

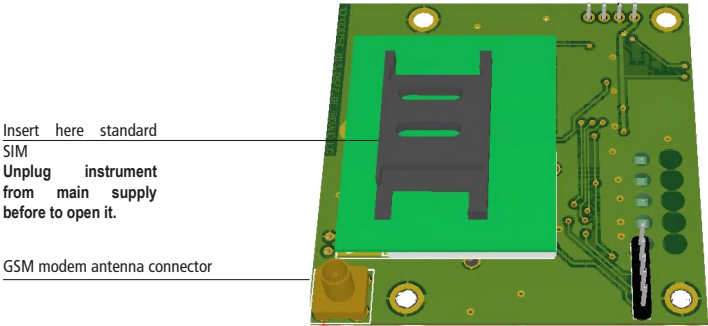


Connect probe as follows:

- 1 (-485) WHITE wire
- 2 (+485) YELLOW wire
- 3 (GND) BLACK + BLUE wire
- 4 (+5VDC) RED wire

Appendix Communication HARDWARE - "SMS/GSM" Module

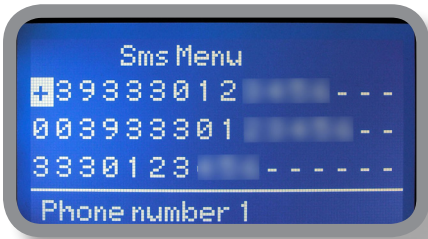
Located under mainboard cover there is a four pins connector that can be used to install USB, ETHERNET or MODEM modules. Modules come pre-installed upon request and may appear different as shown (different configurations).
"SMS/GMS module" can be configured to send SMS messages containing critical instrument information.



To obtain reliable results with this feature please check the following list:

- Make certain the antenna location is not shielded by metal objects or near sources of electrical 'noise'.
- Do not route the cable where it could be pinched in doors, windows etc.
- Secure the antenna cable
- Ensure that SIM into "SMS/GSM module" is properly inserted, activated and within operator range.
- Set instrument ID / NAME from "RS485 Setup" menu and configure "Out of Range Alarm" menu.

Within "Main menu" select "SMS MENU" to enable SMS service and enter SMS receiver phone numbers.



Up to three numbers for sending SMS can be stored into LDSTORBH memory. SMS recipient will receive an SMS containing instrument ID, NAME and status. Number formats can be stored using international prefix "+", international prefix "00" or local.

To enable warning message for related alarm condition choose "ON", to disable choose "OFF". Then move wheel on Exit and SAVE configuration.
SMS will be sent when one or more ("ON") fields will change.

Msg Flow: flow alarm
Msg AI NTU: Reading alarm
Msg Dos. NTU: Dosing alarm

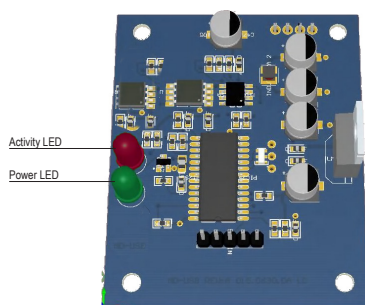
WARNING: TO AVOID UNDESIRED MESSAGES USE CAREFULLY THIS SETUP!

WARNING: THIS FUNCTION COULD NOT BE FREE OF CHARGE. DEPENDING ON YOUR OPERATOR CONTRACT IT COULD GENERATE PAYING SMS TRAFFIC !

Appendix Communication HARDWARE - "LOG USB" Module

Located under mainboard cover there is a four pins connector that can be used to install "USB data log module" or "SMS module". Modules come pre-installed upon request and may appear different as shown (different configurations).

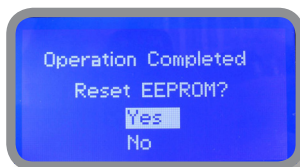
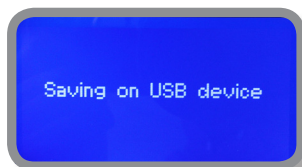
"USB data log module" records instrument activities. These information can be permanently stored into a standard USB pendrive. Pendrive can be connected to a PC using "ERMES" web www.ermes-server.com to review and print instrument's activities. **To obtain reliable results with this feature please set instrument ID and NAME from "RS485 Setup" menu and activate log recording from "LOG SETUP" menu.**



Insert USB pendrive here
(right side of instrument)
After usage put back USB cap

HOW TO RECORD INSTRUMENT'S ACTIVITIES INTO USB PENDRIVE ?

Insert USB pendrive into USB connector (located on the right side of instrument). Instrument will save data log on USB pendrive. After succeeded in saving data it will ask if delete instrument's log or not (anyway USB pendrive will not be formatted). Move wheel on "YES" to delete log info from instrument and return to main screen or "NO" to leave log info on instrument and return to main screen. **Wait about 30 seconds to safely remove the USB pendrive.**



HOW TO REVIEW INSTRUMENT'S ACTIVITIES RECORDED INTO USB PENDRIVE ?

It's necessary to connect to web "ERMES" www.ermes-server.com to review USB pendrive info on a PC.

Appendix Communication - Software

“RS485” menu.

Prior to install the instrument into an RS485 local system a unique ID NUMBER (from 1 to 30) and ID NAME (station name) must be set. Rotate wheel and edit fields. If ID number has already assigned an error message will follow after ID Check (move cursor on CHECK and press wheel). In this event try using another number.



“SMS” menu.

Instrument may remotely send SMS alarm messages using its own modem (sold as option). It can be configured as follows:

SMS1 / SMS2 / SMS3.

Using the wheel enter a mobile phone that will receive alert SMS messages if something wrong occurs. SMS number must be set using local number format. For example : 3391349134 will send an SMS message to mobile phone. Log level (and SMS frequency alert) may be set using options in “ACTIVE MSG” within “GSM menu”.



- TO AVOID UNDESIRED MESSAGES USE CAREFULLY LOG SETUP -

- WARNING: THIS FUNCTION COULD NOT BE FREE OF CHARGE. DEPENDING ON YOUR OPERATOR CONTRACT IT COULD GENERATE PAYING SMS TRAFFIC !

Appendix Communication - Software

“TCP/IP” menu.

The instrument may be remotely operated using a standard ethernet connection (sold as option). A static or dynamic IP address and a CAT5 ethernet cable is required. According to your network capacity connection speed is 10/100Mbps. To obtain a valid IP address and subnet mask contact your net administrator. Enter parameters and move cursor on “SAVE” to store parameters then move on “OK” and press wheel to save and activate configuration.

Based on your network configuration choose to obtain network parameters automatically (DYNAMIC) or manually (STATIC).



See “ERMES Communication Software” manual for proper PC software configuration.

What is a static IP address/dynamic IP address?

A static IP address is a number (in the form of a dotted quad) that is assigned to a computer by an Internet service provider (ISP) to be its permanent address on the Internet. Computers use IP addresses to locate and talk to each other on the Internet, much the same way people use phone numbers to locate and talk to one another on the telephone. When you want to visit whatis.com, your computer asks a domain name system (DNS) server (think telephone information operator) for the correct dotted quad number (think phone number) for whatis.com and your computer uses the answer it receives to connect to the whatis.com server. It would be simple if every computer that connects to the Internet could have its own static IP number, but when the Internet was first conceived, the architects didn't foresee the need for an unlimited number of IP addresses. Consequently, there are not enough IP numbers to go around. To get around that problem, many Internet service providers limit the number of static IP addresses they allocate, and economize on the remaining number of IP addresses they possess by temporarily assigning an IP address to a requesting Dynamic Host Configuration Protocol (DHCP) computer from a pool of IP addresses. The temporary IP address is called a dynamic IP address.

Requesting DHCP computers receive a dynamic IP address (think temporary phone number) for the duration of that Internet session or for some other specified amount of time. Once the user disconnects from the Internet, their dynamic IP address goes back into the IP address pool so it can be assigned to another user. Even if the user reconnects immediately, odds are they will not be assigned the same IP address from the pool. To keep our telephone analogy going, using a dynamic IP address is similar to using a pay phone. Unless there is a reason to receive a call, the user does not care what number he or she is calling from.

There are times, however, when users who connect to the Internet using dynamic IP wish to allow other computers to locate them. Perhaps they want to use CU-SeeMe or use a VoIP application to make long distance phone calls using their IP connection. In that case, they would need a static IP address. The user has two choices; they can contact their ISP and request a static IP address, or they can use a dynamic DNS service. Either choice will probably involve an additional monthly fee.

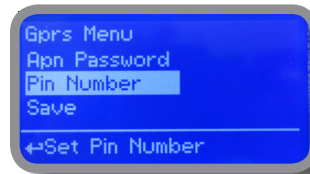
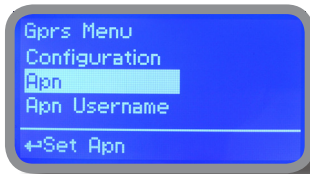
Using a dynamic DNS service works as if there was an old-fashioned telephone message service at your computer's disposal. When a user registers with a DNS service and connects to the Internet with a dynamic IP address, the user's computer contacts the DNS service and lets them know what IP address it has been assigned from the pool; the service works with the DNS server to forward the correct address to the requesting DHCP computer. (Think of calling the message service and saying "Hi. I can be reached at 435.44.32.111 right now. Please tell anyone who tries to reach me to call that number.") Using a dynamic DNS service to arrange for computers to find you even though you are using a dynamic IP address is the next-best thing to having a static IP.

Appendix Communication - Software

“GPRS” menu.

Instrument may be remotely operated using an embedded standard GPRS modem (sold as option). In order to activate this service please ensure that the following steps are correctly completed:

- Make certain the antenna location is not shielded by metal objects or near sources of electrical 'noise'.
- Make certain the distance from the antenna to the “Instrument” unit is within cable length.
- Do not route the cable where it could be pinched in doors, windows etc.
- Ensure that SIM into “Instrument” modem is correctly inserted, activated and within operator range.



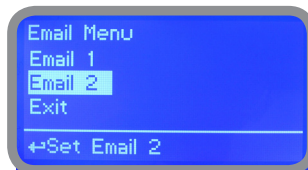
Instrument can be set for ERMES services enabled (Configuration option set to “ERMES YES”) or messages only (Configuration option set to “ERMES NO”) based on your SIM data access parameters. For manual configuration option enter APN (access point name) and SIM phone number. Move wheel on “OK” to save and move on “ESC” to go back to main menu.

Don't forget to enter SIM CODE into PIN NUMBER menu to unlock SIM.

WARNING: THIS FUNCTION COULD NOT BE FREE OF CHARGE. DEPENDING ON YOUR OPERATOR CONTRACT IT COULD GENERATE PAYING DATA TRAFFIC !

“Email” menu.

If Ethernet module or GPRS module is installed (sold as option) the instrument can be configured to send email alarm messages up to two recipients. Click on “Email 1” or “Email 2” and enter email address.



Access point name (APN) identifies an IP packet data network (PDN), that a mobile data user wants to communicate with. In addition to identifying a PDN, an APN may also be used to define the type of service, (eg connection to wireless application protocol (WAP) server, multimedia messaging service (MMS)), that is provided by the PDN. APN is used in 3GPP data access networks, eg general packet radio service (GPRS), evolved packet core (EPC).

Appendix Communication - Software

“LOG” menu.

This function records instrument activity (date, hour, temperature, uS, totalizer I/O, alarms, outputs). It starts for selected frequency period (every) at requested time (time). SET DATE & TIME BEFORE TO ENABLE LOG. IF NOT POWERED FOR ABOUT 30 DAYS THE INSTRUMENT WILL LOOSE DATE/TIME



Set ACTIVE to “enabled” to activate log recording.

TIME: recording start time (time format 23h e 59min)

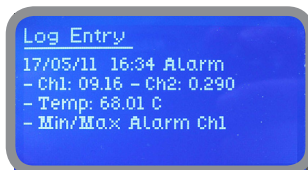
EVERY: recording frequency (time format 23h e 59min)

Note: advanced log control (graph, printing, comparison tables, event filtering, etc) is available through “ERMES Communication Software” for PC.

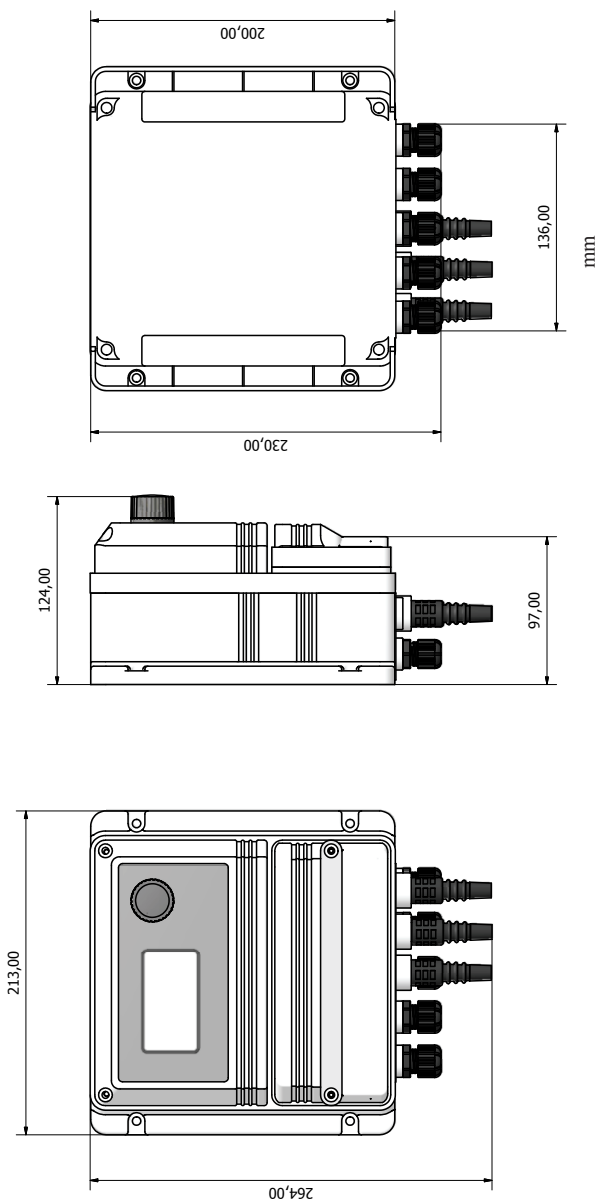
See “ERMES Communication Software” manual for proper PC software configuration.

“LOG VIEW” menu.

To see alarm log entries as set on log menu choose “log view” on main menu.



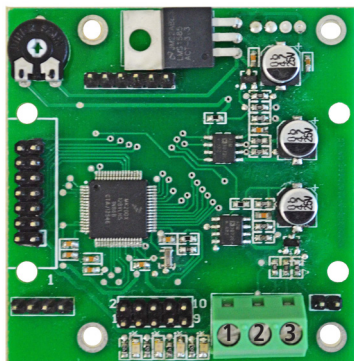
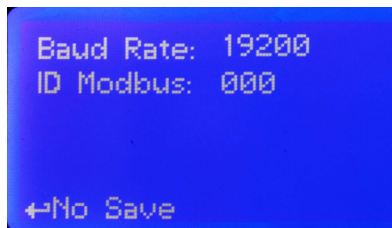
Appendix E - Dimensions



MODBUS

Modbus is a serial communications protocol originally published by Modicon (now Schneider Electric) in 1979 for use with its programmable logic controllers (PLCs). Simple and robust, it has since become a de facto standard communication protocol, and it is now a commonly available means of connecting industrial electronic devices.

From main menu select COMMUNICATION then MODBUS to access the options. Set the communication speed according to the PLC system available. Set the ID assigning an UNIQUE address to avoid conflicts.



- 1: GND
- 2: A-RS485 (+)
- 3: B-RS485 (-)

To access the module MODBUS open the instrument only after power is switched off!

Never make connections with the instrument powered!



WARNING

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When dismantling this instrument please separate material types and send them according to local recycling disposal requirements.

We appreciate your efforts in supporting your local Recycle Environmental Program.

Working together we'll form an active union to assure the world's invaluable resources are conserved.