IdroMOP
User Manual
v4.02.01

The information, the descriptions and the illustrations in this Manual reflect the current version.

The maker reserves the right to make at any time changes to the equipment for technical or commercial reasons.

These changes do not require that the maker intervene on the equipment sold before the release of this current version.

Any additions that the maker will consider necessary will need to be attached to this document and considered to be a part of it.

This document contains technical information that cannot be disclosed or released to third parties without prior written permission of the maker.

The information contained in this Manual is intended for professional use.

The maker recommends the users to read carefully this Manual before using the equipment.

WARRANTY

- The warranty is valid one year from the date of delivery of the equipment and covers all faults of the materials
- The warranty doesn´t include the transport costs and the receiver supports the transport risks
- The warranty concerns only the reparation or the free of charge replacement of the defective piece
- The warranty doesn't cover any damage due to costs of labour, transportation, direct or indirect accidents, loss of earnings related to the crops
- Possible damages caused to persons or things are not covered by the warranty

WARRANTY EXPIRATION

- In case you don't respect the electrical characteristics of the equipment
- In case you use the equipment inadequately, for applications that don't suit the purpose of the appliance
- In case you don't follow carefully the instructions explained in this manual
- In case of wrong use, faulty maintenance or installation errors
- In case you remove or modify the protective parts of the equipment

SAFETY AND MAINTENANCE

- The equipment must be supplied with continuous electric tension between 10 Vdc and 30 Vdc
- Always check the polarity of the power source
- In case of personalization of the cables of the engine supplied with the equipment, you have to respect strictly the positions of the electric signals provided on the connector and the dimensions of the electrical wiring
- The warranty does not cover any damage compensation due to labor costs, transportation, direct or indirect accidents, loss of earnings on the harvest
- Avoid exposing the electronic unit to environmental conditions that favour the inflow of corrosive agents or liquids in general
- Protect the display carefully and keep away as much as possible from direct exposure to the sun
- Pay attention to the mechanical operations carried out in front of the equipment in order to prevent accidental damage to the front knob
- Don't attempt any maintenance procedure not described in the present documentation
- In case of moving or relocating the equipment, proceed with extreme caution
- In case of installation with remote control, make sure that the whole machine is inaccessible to persons or things during the operation
- At the end of the season take care that the equipment is kept in a dry place, protected from all external agents such as rain and ice. Also make sure that you disconnect the power cords

Index

PUSH AND GO

The knob can be rotated on 2 ways: clockwise and counterclockwise.

The main function of the knob is to move the cursor, the highlighted area in black color (flashing or fixed).

The clockwise rotation allows you to move the cursor to the right, and the counterclockwise moves the cursor to the left.

If the current field is editable, briefly pressing the knob, you can change the parameter value.

Then confirm the change by briefly pressing the knob.

This procedure is valid for all editable fields in the setups pages.

On the main work page, the **MANUAL/AUTOMATIC** field allows you to select the operating mode with a prolonged pressure of the knob.
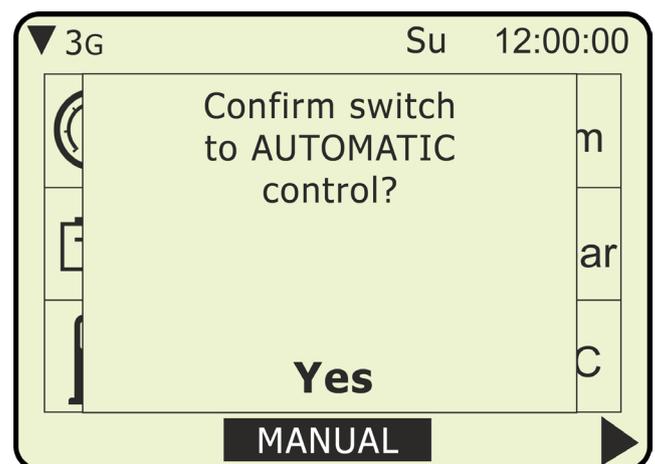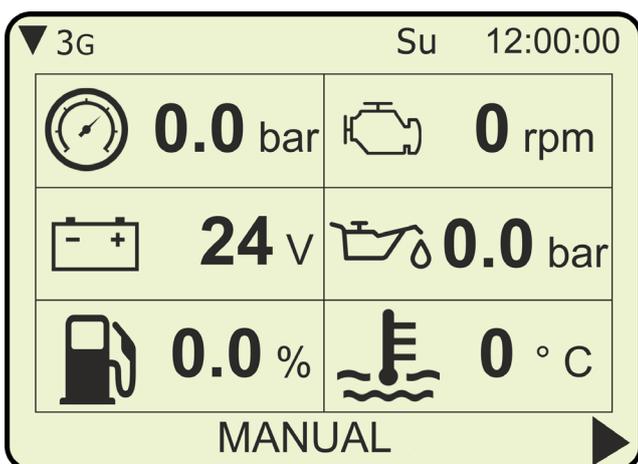
The knob NEVER act directly on the START or STOP of the work cycle: press the START button to start a new irrigation cycle or to move the hose reel machine with the engine starting; the other way around press the STOP button to end the irrigation cycle in progress or stop the engine.

With the unit switched off, press the ON/OFF button to turn it on.

Wait for the system initialization signaled by the load bar;

A beep will alert you to the completion of the boot procedure with the ability to access the job functions. To turn off the control unit, press and hold the ON/OFF button for more than 3 seconds until you see the closing system window "**SHUTDOWN SYSTEM**". During the job functions, press the ON/OFF button to open or close the configuration menus:

- **SETUPS OPERATOR/MANUFACTURER**
- **SYSTEM SETTINGS**
- **DIAGNOSTICS**
- **EXIT THE MENU**
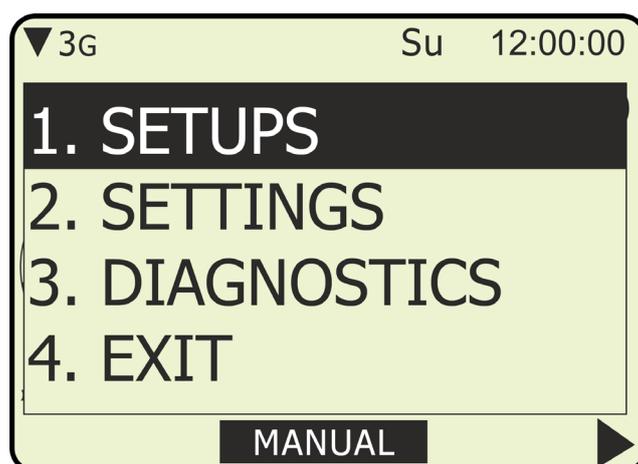
With the engine stopped, press the START key to initialize the engine start.
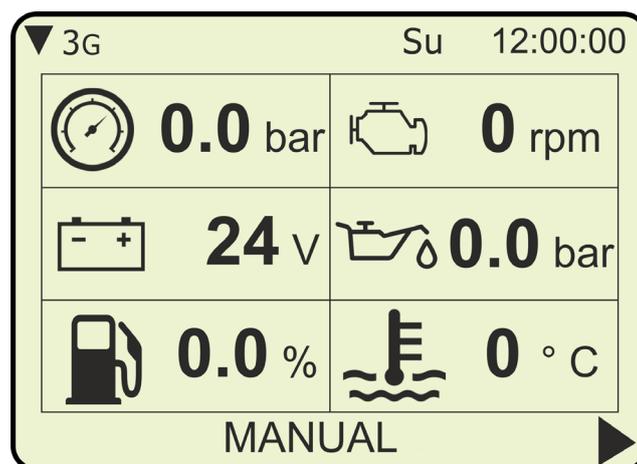
With the engine running, during the irrigation cycle, keeping this button pressed will start the stop procedure to the engine.
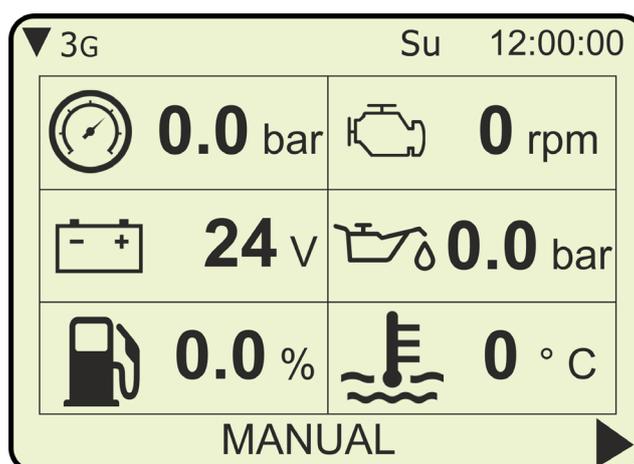
When the engine is started and **MANUAL**, the pressure of this button acts directly on the increase of the engine speed.

When the engine is started and **MANUAL**, the pressure of this button acts directly on the decrease of the engine speed.
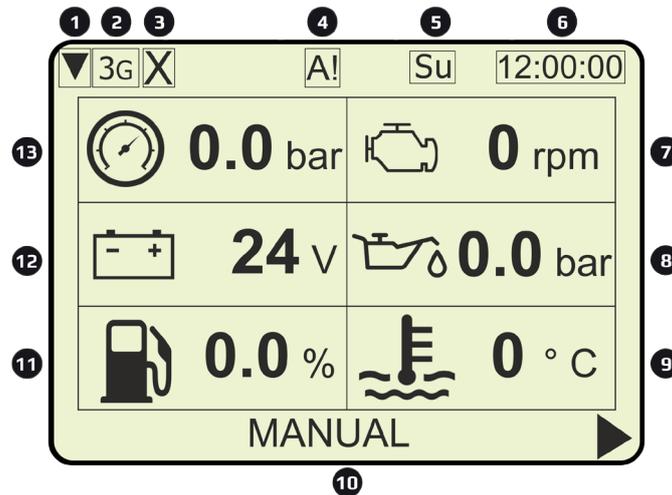
1. It raises the signal level of the GSM network.

2. The **2G** or **3G** symbol indicates that the data connection.

3. The **X** field represents the connection status to the server ID4 Irrigation for remote control:

   absent communication with the server   **X**

   device in connection with the server   ⇕

4. Presence of alarm condition.

5. Abbreviation day of the week, in this case, **Su** stands for **Sunday**.

6. Current time expressed in **HH:MM:SS**. (Hours:Minutes:Seconds)

7. It indicates the current rpm.

8. The current engine oil pressure expressed in **bar**.

9. The current engine water temperature, expressed in **° C / ° F**.

10. Operating mode. In this case it is **MANUAL** but with pressure it is possible to change it in **AUTOMATIC** at any time.

11. Indicates the current percentage of liters left in the tank.

12. The current battery voltage, measured in **Volt**.

13. Current water pressure , expressed in **bar**.
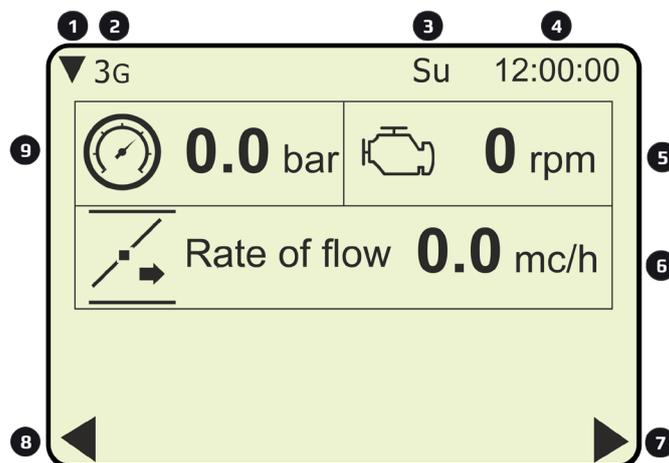
1. It raises the signal level of the GSM network.

2. The **2G** or **3G** symbol indicates that the data connection.

3. Abbreviation day of the week, in this case, **Su** stands for **Sunday**.

4. Current time expressed in **HH**:**MM**:**SS**. (Hours:Minutes:Seconds)

5. It indicates the current rpm.

6. It indicates the current flow, expressed in m ^{3}/h.

7. It indicates that there is a next page.

8. It indicates that there is a back page.

9. Current water pressure , expressed in **bar**.
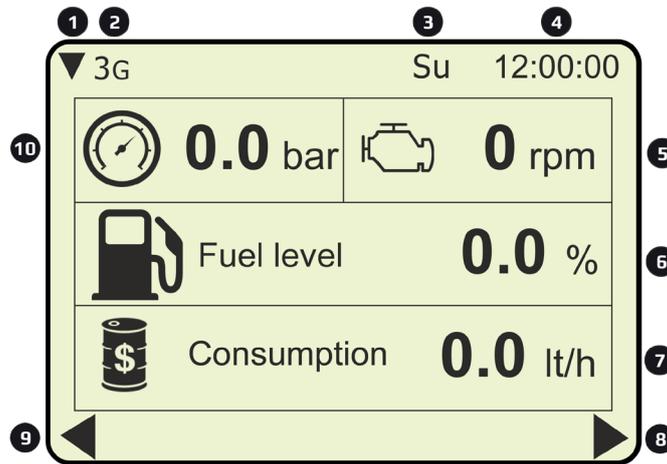
1. It raises the signal level of the GSM network.

2. The **2G** or **3G** symbol indicates that the data connection.

3. Abbreviation day of the week, in this case, **Su** stands for **Sunday**.

4. Current time expressed in **HH:MM:SS**. (Hours:Minutes:Seconds)

5. It indicates the current rpm.

6. Indicates the current percentage of liters left in the tank.

7. Average consumption, measured in **lt/h**.

8. It indicates that there is a next page.

9. It indicates that there is a back page.

10. Current water pressure , expressed in **bar**.
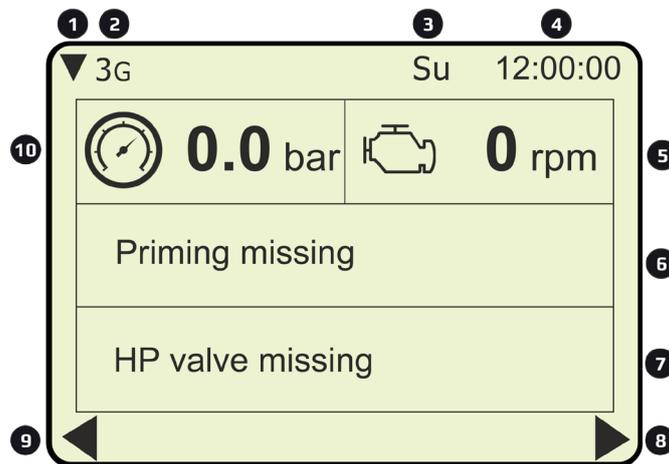
1. It raises the signal level of the GSM network.

2. The **2G** or **3G** symbol indicates that the data connection.

3. Abbreviation day of the week, in this case, **Su** stands for **Sunday**.

4. Current time expressed in **HH**:**MM**:**SS**. (Hours:Minutes:Seconds)

5. It indicates the current rpm.

6. Indicates whether the priming valve is present or not. In this case it is absent and is then marked as such.

7. Indicates whether the discharge valve is present or not. In this case it is absent and is then marked as such.

8. It indicates that there is a next page.

9. It indicates that there is a back page.

10. Current water pressure , expressed in **bar**.

1. It raises the signal level of the GSM network.
2. The **2G** or **3G** symbol indicates that the data connection.
3. Abbreviation day of the week, in this case, **Su** stands for **Sunday**.
4. Current time expressed in **HH**:**MM**:**SS**. (Hours:Minutes:Seconds)
5. It indicates the current rpm.
6. This indicates the presence of external emergency.
7. This indicates the presence of common rail alarm.
8. It indicates that there is a next page.
9. It indicates that there is a back page.
10. Current water pressure , expressed in **bar**.
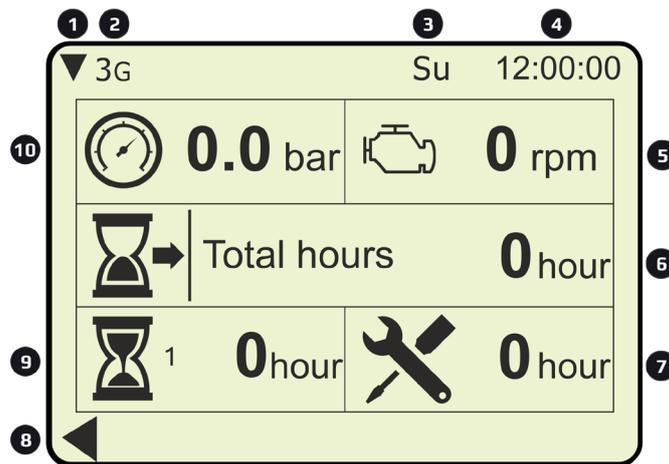
1. It raises the signal level of the GSM network.

2. The **2G** or **3G** symbol indicates that the data connection.

3. Abbreviation day of the week, in this case, **Su** stands for **Sunday**.

4. Current time expressed in **HH:MM:SS**. (Hours:Minutes:Seconds)

5. It indicates the current rpm.

6. Total hour-meter.

7. Maintenance.

9. It indicates that there is a back page.

9. Partial hour-meter.

10. Current water pressure , expressed in **bar**.

▼ 3G   Su   12:00:00

1. SETUPS
2. SETTINGS
3. DIAGNOSTICS
4. EXIT

MANUAL   ▶
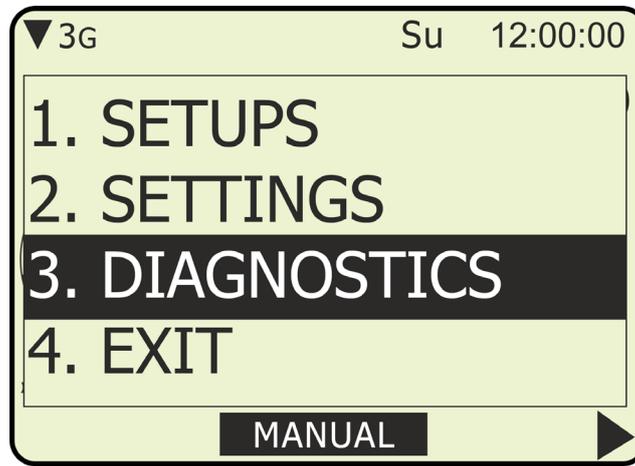
DA MODIFICARE

1.1 OPERATOR

U01 Time priming
pump

1:50 min:sec

SAVE & EXIT ▶

U01: Operating time of the auxiliary pump to fill the pump impellers with water. At the end of this time the motor pump will turn on.

UOM: *minutes:seconds*

Default: 1:50   **Allowed values:** 0 / 3:00

1.1 OPERATOR

U02 End pressure
priming

1.0 bar

◀ SAVE & EXIT ▶

U02: It is the water pressure above which the priming of the motor pump occurred correctly.

UOM: *bar*

Default: 2.0   **Allowed values:** 0.1 / 3.0

1.1 OPERATOR

U03 Filling pipes
time

3:00 min:sec

SAVE & EXIT ▶

U03: Useful to give the possibility to fill the water pipes at a low engine rpm, avoiding so the damaging of the water system.

UOM: *minutes:seconds*

Default: 3:00   **Allowed values:** 0 / 60:00

1.1 OPERATOR

U04 Minimum pressure
starts work

3.0 bar

◀ SAVE & EXIT ▶

U04: It's a control parameter (water pressure), expressed in bar tenths which allows to point out the condition of dry running avoiding to burn the pump; this value represents a threshold that has different functions in accordance with manual or automatic functioning: with **MANUAL** function it represents the pressure value that must be reached within 10 minutes from motor pump switching on; if,spent this time, the pressure decreases below of this threshold, the motor stops immediately. With **AUTOMATIC** function it represents pressure value that must be reached to enable the motor pump to accelerate (in accordance of what specified in "Acceleration Ramp" parameter) and to bring the motor at work pressure. The gradual filling of the tubes facilitates the emptying of air pockets to avoid ram shots on the distribution system. The motor starts idling and at regular intervals increases speed of 20 revolutions per minute for trying to reach this pressure threshold. Once it is reached, the motor proceeds with the successive acceleration stage, that is the real acceleration to bring itself at the work pressure. If it isn't reached within 1350 revolutions per minute, and it's not maintained above of this value for at least 5 minutes, the motor stops and on the panel alarm PIPES NO FILLING is visualized (possible problems in suction or in recharge).

UOM: *bar*

Default: 3.0   **Allowed values:** 0 / 10.0

1.1 OPERATOR U05 Maximum water pressure **14.0** bar ◄ SAVE & EXIT ►	**U05:** It's set to a value just below of the threshold of breaking pipes and it depends on the plant type connected to the motor pump. **UOM:** *bar* **Default:** 14.0 **Allowed values:** 2.0 / 25.0
1.1 OPERATOR U06 Positive tollerance **1.0** bar ◄ SAVE & EXIT ►	**U06:** Refer to the work pressure; when the pressure exits from the tolerance band, the motor stops with the setdeceleration ramp. **UOM:** *bar* **Default:** 1.0 **Allowed values:** 0.2 / 5.0
1.1 OPERATOR U07 Negative tollerance **1.0** bar ◄ SAVE & EXIT ►	**U07:** Refer to the work pressure; when the pressure exits from the tolerance band, the motor stops with the setdeceleration ramp. **UOM:** *bar* **Default:** 1.0 **Allowed values:** 0.2 / 5.0
1.1 OPERATOR U08 Warm-up time engine **0:00** min:sec ◄ SAVE & EXIT ►	**U08:** Useful for motors that must start with low temperatures. If the motor receives a starting request when is yet hot this time is ignored. **UOM:** *minutes:seconds* **Default:** 0 **Allowed values:** 0 / 10:00
1.1 OPERATOR U09 Engine cooling time **0:00** min:sec ◄ SAVE & EXIT ►	**U09:** At each stop request, the motor's revolutions are brought to a minimum, as specified in the "deceleration ramp" parameter. **UOM:** *minutes:seconds* **Default:** 0 **Allowed values:** 0 / 10:00
1.1 OPERATOR U10 Service interval **200** hours ◄ SAVE & EXIT ►	**U10:** If set, the unit will warn you by highlighting the field "Service", that you find in the work pages. **UOM:** *hour* **Default:** 200 **Allowed values:** 0 / 5000
1.1 OPERATOR U11 Key code **0000** ◄ SAVE & EXIT ►	**U10:** This is the user code. Once inserted, <u>it is essential to remember the code</u> as, without it, it will no longer be possible to access the work pages. To remove this code set it to 0000. **UOM:** / **Default:** 0000 **Allowed values:** 0000 / 9999

PRIVATE CODE FOR THE ADVANCED SETUP - 0123 -

THE USE OF THIS SECTION IS DEDICATED FOR EXPERIENCED USERS OR TECHNICIANS

THE MODIFICATION OF THESE PARAMETERS CAN COMPROMISE MACHINE OPERATIONS

RECOMMENDED BEFORE EDIT THESE PARAMETERS TO CONSULT THE MANUFACTURER

Screen	Description
1.2 ADVANCED A12 Delay alarm signal out of tolerance **0:10** min:sec ◄ SAVE & EXIT ►	**A12:** It's a filter time that delays the intervention of the parameter 'Minimum system pressure and' Positive / negative tolerance '; if the pressure exits the control band for a time longer than this value, the engine will triggered the stopping procedure with deceleration. **UOM:** *minutes:seconds* **Default:** 0:10 **Allowed values:** 0 / 10:00
1.2 ADVANCED A13 Acceleration time **2:00** min:sec ◄ SAVE & EXIT ►	**A13:** This parameter allows you to adjust the speed profile with which the system will reach the working water pressure. **UOM:** *minutes:seconds* **Default:** 2:00 **Allowed values:** 0:10 / 10:00
1.2 ADVANCED A14 Deceleration time **0:20** min:sec ◄ SAVE & EXIT ►	**A14:** This parameter allows you to adjust the speed profile with which the system will reach the idling speed **UOM:** *minutes:seconds* **Default:** 0:20 **Allowed values:** 0:10 / 10:00
1.2 ADVANCED A15 Coefficient of adjustment **0.900** ◄ SAVE & EXIT ►	**A15:** Index of reactivity of the pressure control. The higher this value, the faster the regulator will recover pressure errors. Pay attention to set extreme values as you may get unwanted regulation effects, such as: **the inability of the pressure regulator to reach the set working pressure and oscillations around the value of the set working pressure.** **UOM:** */* **Default:** 0.900 **Allowed values:** 0.100 / 2.000

1.2 ADVANCED

A16 Minimum pulse control

50 ms

◄ SAVE & EXIT ►

A16: Minimum correction applied during water pressure regulation.

If the control unit is installed on a motor pump unit with IVECO TIER3 motor, this time must be set to 200 ms

UOM: *milliseconds*

Default: 50   **Allowed values:** 10 / 500

1.2 ADVANCED

A17 Flow control

0 min

◄ SAVE & EXIT ►

A17: Alarm activation delay due to lack of flow

UOM: *minutes*

Default: 0   **Allowed values:** 0 / 15

1.2 ADVANCED

A18 Limit overspeed

2100 rpm

◄ SAVE & EXIT ►

A18: Indicates the maximum control limit allowed for the single-cylinder engine above which it will be stopped with deceleration.

UOM: *rpm*

Default: 2100   **Allowed values:** 0 / 3600

1.2 ADVANCED

A19 Delay engine starter

0:00 min:sec

◄ SAVE & EXIT ►

A19: Delay ignition engine after an automatic START.

UOM: *minutes:seconds*

Default: 0   **Allowed values:** 0 / 59:59

1.2 ADVANCED

A20 Glow plugs preheat time

0.0 sec

◄ SAVE & EXIT ►

A20: Activation time of glow plug preheating output. With electrical system and motor temperature sensor, this time is ignored over 50 ° C.

UOM: *seconds*

Default: 0   **Allowed values:** 0 / 9.9

1.2 ADVANCED

A21 ID System

1

◄ SAVE & EXIT ►

A21: Assign a numerical code to the motor pump unit.

UOM: */*

Default: 1   **Allowed values:** 1 / 99

THE USE OF THIS SECTION IS DEDICATED EXCLUSIVELY TO MANUFACTURES AND TECHNICAL EXPERTS

2.1 MANUFACTURER

M01 System control for

Pressure

SAVE & EXIT ▶

M01: You choose the type of measurement, PRESSURE or ENGINE RPM that the ldroMOP panel will adjust during operation.

UOM: /
Default: Pressure   **Allowed values:** Pressure / Engine RPM

2.1 MANUFACTURER

M03 Priming mode

Compressor

◀ SAVE & EXIT ▶

M03: Select the type of priming to be used.

UOM: /   **Allowed values:** Unavailable / Only panel /
Default: Unavailable   Tank / Compressor

2.1 MANUFACTURER

M04 Auxiliary output control

No control

◀ SAVE & EXIT ▶

M04: If the **GLOW PLUGS** function is set, the output will be activated before the start-up phase for the time set in the Glow plugs preheat time parameter.

UOM: /   **Allowed values:** No control / Glow plugs /
Default: No control   Alarm / Soft-start

2.1 MANUFACTURER

M05 RPM conversion ratio

0.330

◀ SAVE & EXIT ▶

M05: Set this parameter in order to obtain the correct number of revolutions acquired by the control unit. To obtain the new engine rpm conversion ratio, multiply the engine rpm read with the reference tool for the set conversion ratio (0.330 by default); the result obtained must be divided by the number of laps read by the control unit.

UOM: *millimeters*
Default: 150   **Allowed values:** 60 / 200

THE USE OF THIS SECTION IS DEDICATED EXCLUSIVELY TO MANUFACTURES AND TECHNICAL EXPERTS

2.1 MANUFACTURER M06 Stop engine for fuel reserve **2.00** min:sec ◄ SAVE & EXIT ►	**M06:** Indicates the time that is expected before the engine stops due to the fuel reserve effect. **UOM:** *minutes:seconds* **Default:** 2:00　　　　　　　　　**Allowed values:** 0 / 4:00
2.1 MANUFACTURER M07 Capacity tank **600** liters ◄ SAVE & EXIT ►	**M07:** This parameter depends on the total capacity of the tank. **UOM:** *liters* **Default:** 600　　　　　　　　　**Allowed values:** 0 / 2000
2.1 MANUFACTURER M08 Sensor oil pressure type **Veglia** ◄ SAVE & EXIT ►	**M08:** Select the type of oil pressure transducer mounted on the engine. **UOM:** / **Default:** Veglia　　　　**Allowed values:** Veglia / VDO / Elcos TP0403
2.1 MANUFACTURER M09 Sensor engine temperature type **Veglia** ◄ SAVE & EXIT ►	**M09:** Select the type of transducer mounted on the engine. **UOM:** /　　　　　**Allowed values:** Veglia / VDO 0-120 / VDO 0-150 / **Default:** Veglia　　　　　Elcos TTA0402 / JCB / F16173
2.1 MANUFACTURER M10 Polarity H2O input **N.O** ◄ SAVE & EXIT ►	**M10:** Polarity of the contact of a possible water presence sensor. If the contact is normally closed, this parameter must be set to N.C. otherwise N.O. If no water presence sensor is provided, leave the parameter setting to N.O. **UOM:** / **Default:** N.O　　　　　　　　　**Allowed values:** N.O / N.C

THE USE OF THIS SECTION IS DEDICATED EXCLUSIVELY TO MANUFACTURES AND TECHNICAL EXPERTS

2.1 MANUFACTURER

M11 Polarity emergency input

N.O

◄ SAVE & EXIT ►

M11: Polarity of the contact of a possible emergency button. If the contact is normally closed, this parameter must be set to N.C. otherwise N.O. If no emergency button is provided, leave the parameter setting to N.O.

UOM: /

Default: N.O   **Allowed values:** N.O / N.C

2.1 MANUFACTURER

M12 Moving time of actuator

8.0 sec

◄ SAVE & EXIT ►

M12: Action time of the actuator.

UOM: *seconds*

Default: 8.0   **Allowed values:** 2.0 / 12.0

2.1 MANUFACTURER

M13 Threshold engine speed starts

350 rpm

◄ SAVE & EXIT ►

M13: It is a value expressed in rpm which indicates the threshold for disconnecting the starter motor.

UOM: *rpm*

Default: 350   **Allowed values:** 200 / 600

2.1 MANUFACTURER

M14 Idling speed engine

900 rpm

◄ SAVE & EXIT ►

M14: The engine rpm threshold which must keep the engine idling

UOM: /

Default: 900   **Allowed values:** 900 / 2100

THE USE OF THIS SECTION IS DEDICATED EXCLUSIVELY TO MANUFACTURES AND TECHNICAL EXPERTS

⚙ 2.1 MANUFACTURER

M15 CAN BUS protocol type

Disabled

◀ SAVE & EXIT

M15: With this parameter it's possible to activate the reading of some functioning data for motors VOLVO-IVECO-DEUTZ. It is also foreseen the reading of parameters which: motor revolutions (rpm), motor temperature, oil pressure and motor high temperature bulb. Information on CAN BUS line have the priority on the acquisition of the respective values by external sensors that are directly connected with IdroMOP.

UOM: /　　　　　　**Allowed values:** Disabled / Iveco VE-27 / Iveco TE-21 /
Default: Disabled　　Iveco AE - 1 / JCB / DEUTZ / JOHN DEERE

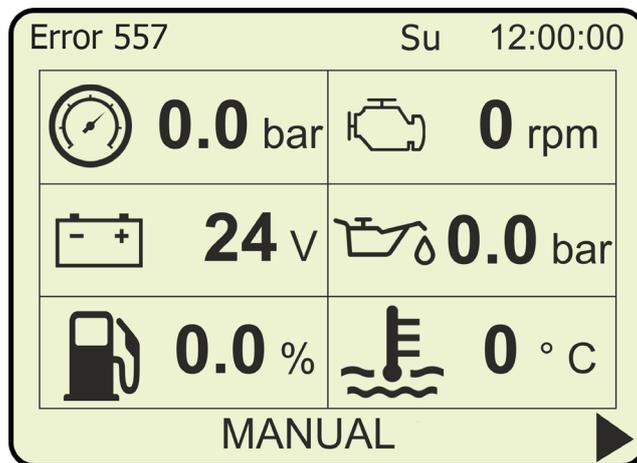|	
3. SETTINGS S01 Texts language **English** SAVE & EXIT ▶	**S01:** Select and set the language of the IrriMOP panel. **Languages:** Italian / English / French / Spanish / Deutsch / Hungarian
3. SETTINGS S02 Year **2017** ◀ SAVE & EXIT ▶	**S02:** Select and set the current year
3. SETTINGS S03 Weekday **Sunday** ◀ SAVE & EXIT ▶	**S03:** Select and set the current weekly day
3. SETTINGS S04 Date **01/01** ◀ SAVE & EXIT ▶	**S04:** Select and set the month and the current day. (mm:dd)
3. SETTINGS S05 Hour **12:00** ◀ SAVE & EXIT ▶	**S05:** Select and set the current time
3. SETTINGS S06 Backlight time **3** min ◀ SAVE & EXIT ▶	**S06:** Select and set the duration of the screen backlight. If the value is 0, the backlight will be always active.
3. SETTINGS S07 Sense of rotation of the knob **Clockwise** ◀ SAVE & EXIT ▶	**S07:** Select and set the rotation direction of the knob.
3. SETTINGS S08 Unit of measurement of temperature **Celsius** ◀ SAVE & EXIT ▶	**S08:** Select and set the temperature unit with which you want to work.
3. SETTINGS S09 Device serial number **00000000** ◀ SAVE & EXIT	**S09:** Serial number is a unique code, 8-digit format to identify the device.

```
Error 557              Su    12:00:00
 ⊘  0.0 bar   ⌐⌐   0 rpm
 ⊟  24 v     🛢 0.0 bar
 ⛽ 0.0 %    🌡  0 ° C
            MANUAL              ▶
```

 The communication error with the SIM card is placed on the top left, instead of the GSM signal level
 and the code 2G/3G.

 The following errors are followed by the description of why the given error occurred. When you receive a
 particular error, ex. 557, contact the manufacturer for detailed information on how to solve it.

- **Error 3**: Invalid SIM Card
- **Error 4**: Invalid operation
- **Error 10**: SIM Card not inserted
- **Error 13**: Faulty SIM Card
- **Error 30**: Network not available
- **Error 310**: SIM Card not inserted
- **Error 315**: Faulty SIM Card
- **Error 331**: Network not available
- **Error 552**: Wrong connection mode
- **Error 553**: Connection to the server already active
- **Error 555**: Network connection failed
- **Error 556**: Connection setting to server failed
- **Error 557**: Socket configuration failed
- **Error 559**: Open communication channel to server failed
- **Error 560**: Server communication channel not available
- **Error 562**: Connection failed
- **Error 567**: Wrong APN
- **Error 568**: Wrong PDP
- **Error 569**: Service not working
- **Error 999**: Internal modem communication lost
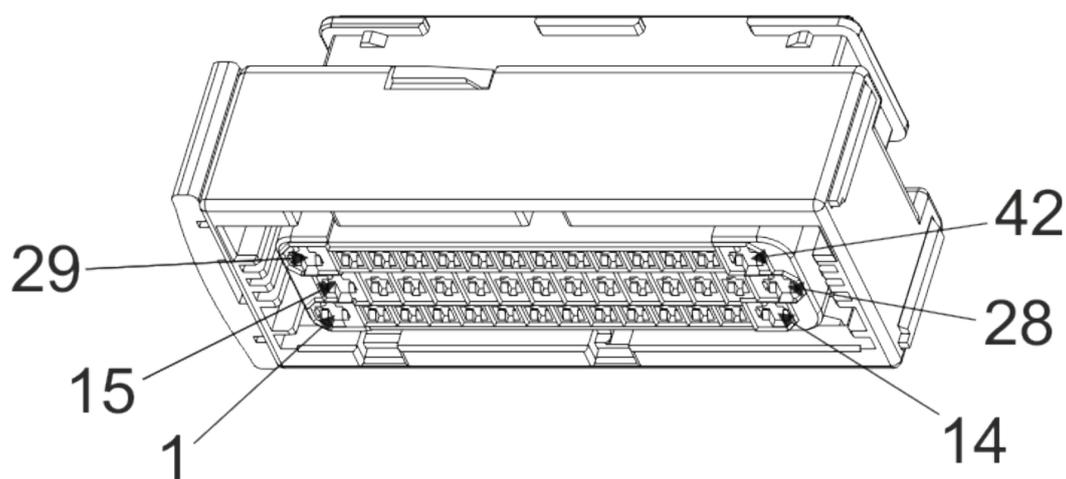
| 1)	–	15)	15/54	29)	– Battery (31)
2)	AN oil pressure	16)	15/54	30)	AN engine temperature
3)	–	17)	15/54 water pressure	31)	AN fuel level
4)	AN water pressure	18)	15/54	32)	Reference ground
5)	–	19)	15/54	33)	Flow switch ground
6)	IN stop hose reel	20)	15/54 Can bus	34)	Can bus ground
7)	IN rpm	21)	Can L	35)	Can H
8)	OUT wafer valve –	22)	IN priming enable	36)	IN common rail alarm
9)	OUT wafer valve +	23)	IN high temperature	37)	IN external start
10)	OUT actuator motor –	24)	IN radiator coolant level	38)	IN low oil pressure
11)	OUT actuator motor +	25)	IN emergency	39)	IN reserve
12)	OUT solenoid valve (PNP)	26)	IN dynamo (D+)	40)	IN flow switch
13)	OUT aux (PNP)	27)	DOUT 2 (NPN)	41)	DOUT 1 (NPN)
14)	OUT starting (50)	28)	+ Battery (30)	42)	+ Battery (30)

Legenda

OUT : power output (max 8 A) AN : analog input
DOUT : digital output (max 0.5 A) IN : digital input
PNP : positive output
NPN : negative output
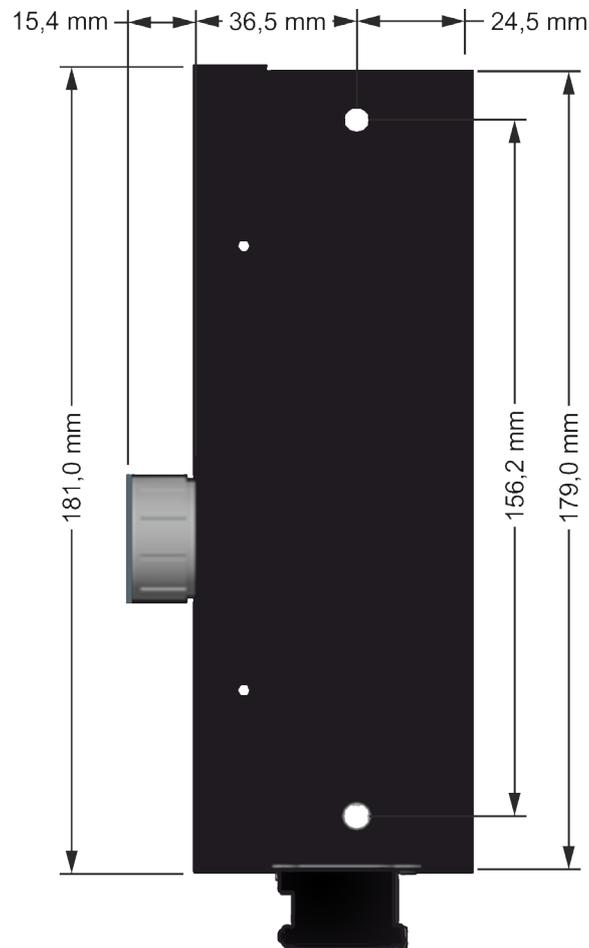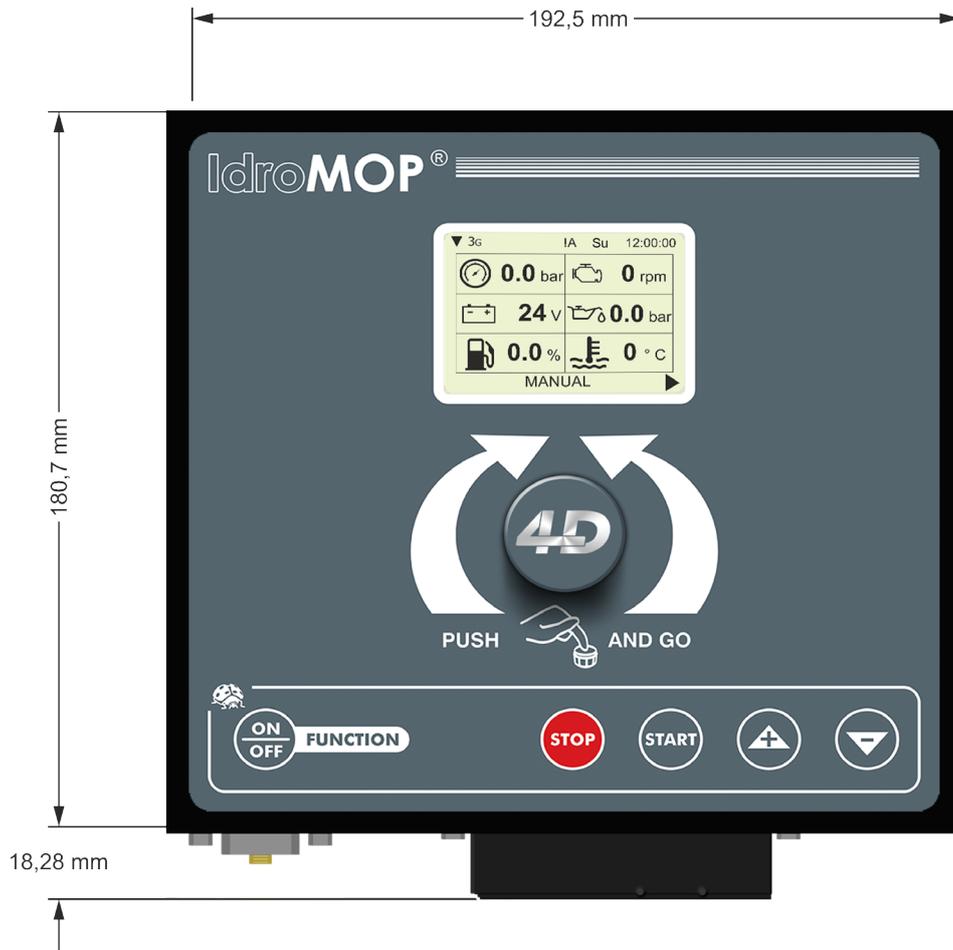
The irrigation
Future
on
Your hands