

USER MANUAL

MU 7081 EN C
GRAVICOMPT UNI

C	2021/10/01	Calculator indicator UNI-2. Software changes: Loading menu. Date and time menu. Density adjustment by the user. Removal of CTD+ and clarification about power supply.	DSM	NC
Issue	Date	Nature of modifications	Written by	Approved by

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1 GENERAL PRESENTATION AND DESCRIPTION

1.1 General presentation

The GRAVICOMPT UNI is a measuring system for gravity measurement of liquids other than water mounted on tank trucks. Liquid temperatures are between -10°C and +50°C.

The GRAVICOMPT UNI contains these parts:

- An hydraulic sleeve which includes the elements that follow:
 - An ALMA ADRIANE turbine meter
 - Two ALMA vacuity detectors DG
 - A sight glass, downstream of the turbine meter
 - An unloading valve
 - If required, a spacer pipe
 - If required, a 3-wires Pt100 temperature sensor (example CT1001)
- A UNI-2 electronic calculator-indicating device, installed directly on the ADRIANE turbine meter or in an independent case.

The optional functions are available:

- An MPLS device can be associated to the UNI-2. In that case the measuring system is called GRAVICOMPT UNI MPLS.
 - It is used to preset the volume and control the end of pouring if a fault occurs
 - It may be connected to a printer for delivery tickets.
- NOTE:** The GRAVICOMPT UNI shows the legally-binding information. The information printed by the printer has no metrological value.

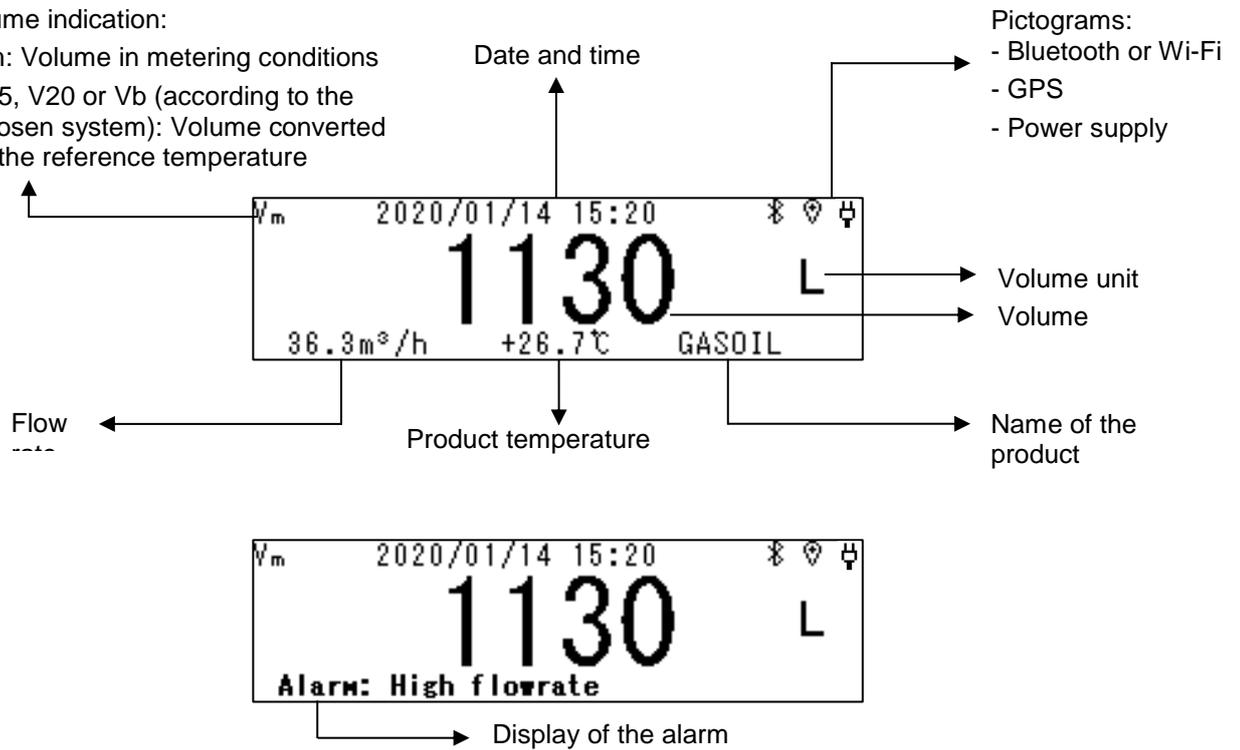
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1.2 Description

The GRAVICOMPT UNI has one display:

Volume indication:

- Vm: Volume in metering conditions
- V15, V20 or Vb (according to the chosen system): Volume converted to the reference temperature



Meaning of the pictograms displayed in the upper right of the screen:

Bluetooth		Wi-Fi		GPS		Power supply			
	blinking	steady		blinking	with signal strength		GPS	Power supply	
OFF	Not connected	Connected	OFF	Not connected	Connected	OFF	ON without position	ON position OK	External power supply

NOTE 1: Bluetooth and Wi-Fi connections are exclusives.

The GRAVICOMPT UNI has five keys:

		Lights the display during 10 seconds
	MODIF	Normal mode: back to previous quantity Metrological mode: increment the flashing figure when imputing a value or return to previous menu
	SELECT	Normal mode, metering off: select the menu Normal mode, metering on: display the values (immediate flow, temperature) Metrological mode: select the figure to be modified or select the menu
	VALID	Normal mode: validate the selected menu or value Metrological mode: validate the displayed value or the selected menu In case of default: acknowledge the default
	RESET	The key is active when the UNI-2 is autonomus. Reset the display when entering data

1.3 Metrological features

The GRAVICOMPT UNI performs the functions that follows:

- It ensures the acquisition and processing of the pulses from different transducers.
- It calculates and displays volume or weight in metering conditions corrected by the application with a correction factor determined during the calibration.
In some cases, this volume in metering conditions can be corrected depending on the flowrate and/or the type of liquid measured.
- If required, it calculates and displays volume converted to base conditions. Volume is calculated by taking into account the mean temperature of the liquid during metering. Using a standard conversion formula, the conversion factor can be calculated according to density in base conditions. Density is set manually prior to metering.
- If required, it calculates and displays the mean temperature of the liquid when it is measured by a Pt100 temperature sensor.
- The indicating device is reset to zero automatically.
- It memorizes and secures measurement information, which can be read from its user interface.
- Volume or mass preset.
- It registers accumulated weight or volumes in metering conditions, and if required, the accumulated volumes in base conditions.
- The automatic update processing of the date and time in case of clock loss.

The GRAVICOMPT UNI has two operation levels: the USER mode for operating: measurement, visualization, maintenance and the METROLOGICAL mode for the configuration of the device by authorized personnel.

2 OPERATING RECOMMENDATIONS

- ⇒ The operating temperature of the UNI-2 is between -20°C and +50°C.
- ⇒ When it is not used, it's better to close the UNI-2 cover.
- ⇒ The front face glass must be regularly cleaned for easy readability.

3 CONNECTED FEATURES AND SUPPLY OF THE GRAVICOMPT UNI

	Stationary equipment	
	Battery switch open	Battery switch close
Metering	On	On
Wi-Fi	Off	On
Bluetooth	Off	On
GPS	Off	On



Wi-Fi cannot work with Bluetooth or GPS

The Wi-Fi network name cannot exceed 20 characters and Wi-Fi password cannot exceed 30 characters

3.1 Connected functions



Connectivity cannot be used if the battery-switch is open.

The wireless connection enables the GRAVICOMPT UNI to communicate with an embedded computer or with a PC/tablet/portable device

The connected functions of the GRAVICOMPT UNI are:

- Incoming data flow processing
- Recovery of parameters
- Recovery of maintenance information
- Geo-tracking of each measurement, the instantaneous position of the GRAVICOMPT UNI
- Recovery of the clock

Communication modules are listed below:

- Bluetooth Low Energy 4.1 or Wi-Fi (IEEE 802.11 b/g/n (2.4GHz)
They are used for outsourcing of measurement data and parameters of the GRAVICOMPT UNI for the customer. The customer uses a local interface that can be one of his tools or a tool supplied by ALMA. These features are exclusive. Wi-Fi cannot work with Bluetooth or GPS
- GPS. It is used to locate measurements and synchronize the clock again. It switches on automatically during measurements only
To set date and time, you can switch on the GPS manually to synchronize the clock again. This operation lasts one minute and must be done outdoors. Turn of the GPS at the end of synchronization (see Connect>Start GPS).

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3.2 Power supply

The GRAVICOMPT UNI is powered by the vehicle as described in the Installation guides DI 019 (GRAVICOMPT UNI) and DI 023 (GRAVICOMPT UNI MPLS)

What happens if the external power supply is cut off during the measurement?

- The UNI-2 is then powered by the internal batteries
- In any case, the measurement is no longer guaranteed
- GRAVICOMPT UNI: The alarm Power supply loss appears, metering continues and the volume is displayed alternately with dashes to mention that it is no longer guaranteed. Data is recorded until the delivery is complete or until the batteries are run down. When power is restored:
 - If required, the metering continues and the volume is recorded until the delivery is complete
 - At the end of delivery, the UNI-2 reboots
 - Acknowledge the alarm Power supply loss when the UNI-2 restarts
- GRAVICOMPT UNI MPLS: The valve closes, the delivery stops. When power is restored, acknowledge the alarm Power supply loss when the UNI-2 restarts.

4 CONFIGURATION AND CALIBRATION

4.1 Configure the GRAVICOMPT UNI

You must configure the GRAVICOMPT UNI during commissioning and sometimes during metrological controls. Break the seals protecting the opening of the case, remove the four screws and press the micro BP Metro. See below.

Then you enter the METROLOGICAL mode. Details are available in the section CONFIGURE THE GRAVICOMPT UNI: METROLOGICAL MODE. METROLOGICAL MODE.

NOTE: Only approved persons are permitted to remove the seal.

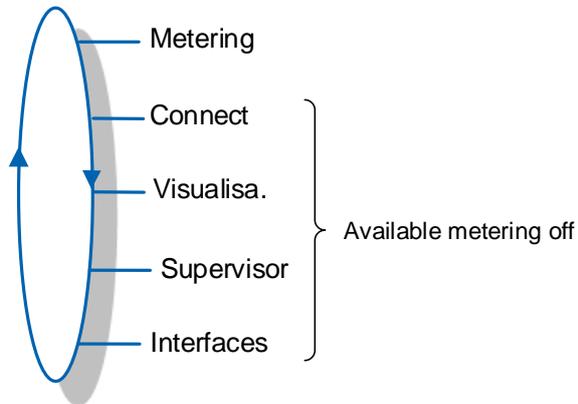


4.2 Calibrate the GRAVICOMPT UNI

To calibrate the GRAVICOMPT UNI, choose the menu User>Supervisor>Calibration. To modify the coefficient, remove the seal to switch in METROLOGICAL mode.

NOTE: Only approved persons are permitted to remove the seal.

5 USING THE GRAVICOMPT UNI: USER MODE



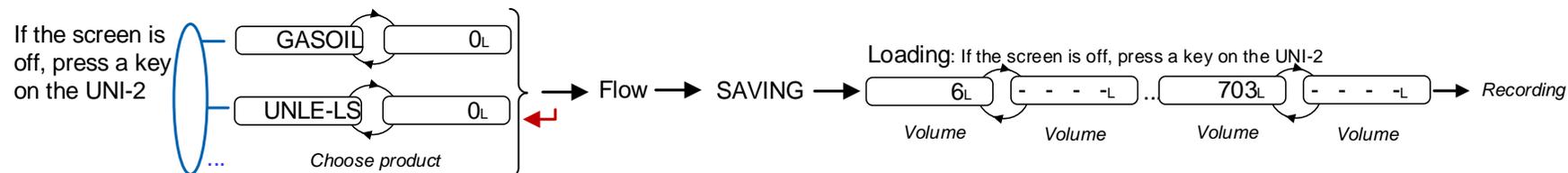
The displayed volume depends on the configuration set in METROLOGICAL mode. A pictogram at the upper left of the screen, indicates V_m for volume at temperature, or $V_{15}/V_{20}/V_b$ for a volume converted to the reference temperature.

5.1 Menu Metering

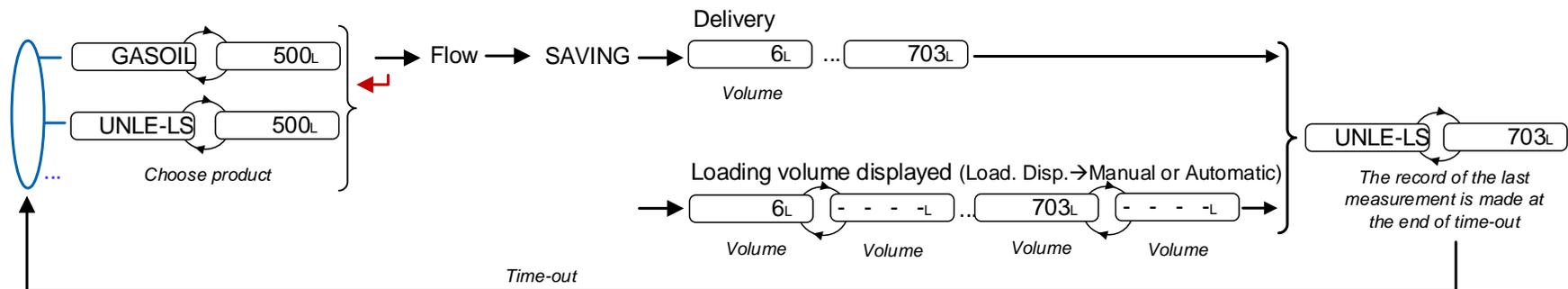
5.1.1 Using the GRAVICOMPT UNI

At the beginning of measurement, appearance of flowrate resets the volume. The last measurement data is automatically recorded at the end of measurement, at zero flow and when the time-out is up. The time required at the end of measurement before recording must be set in METROLOGICAL mode (menu Auto save).

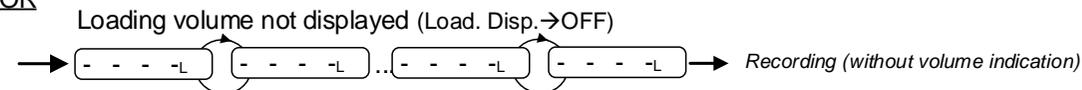
5.1.1.1 Metering with open battery-switch



5.1.1.2 Metering with closed battery-switch



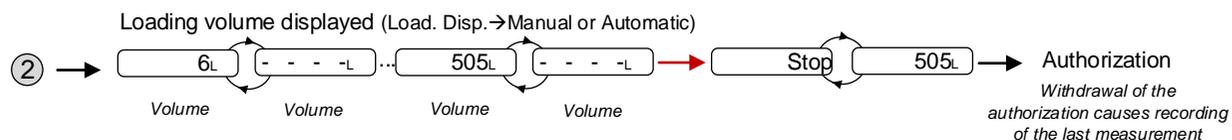
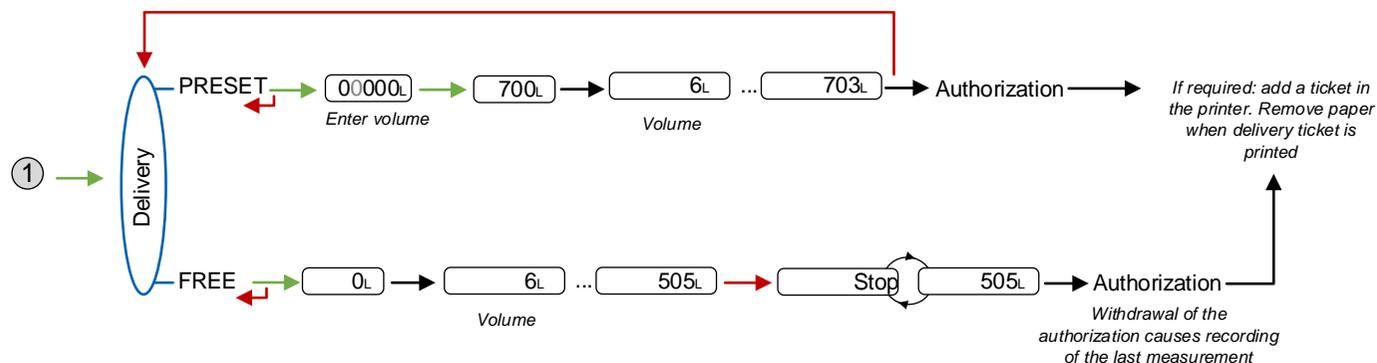
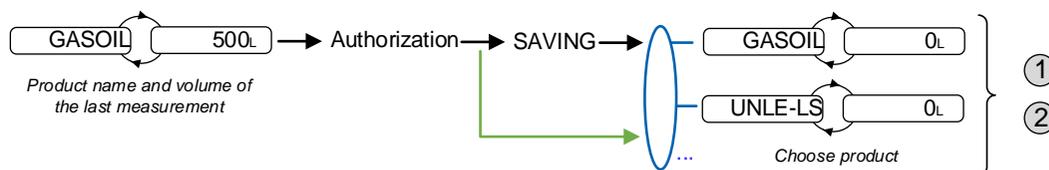
OR



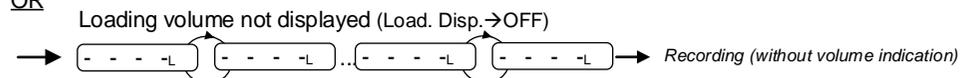
5.1.2 Using the GRAVICOMPT UNI MPLS

The GRAVICOMPT UNI MPLS operates with an external authorization (switch or other device). At the beginning of measurement, appearance of the authorization resets the volume. Withdrawal of the authorization causes the end of measurement and the recording of the last measurement data. If required, to print the delivery ticket, you can add paper into the printer during pouring or at withdrawal of the authorization.

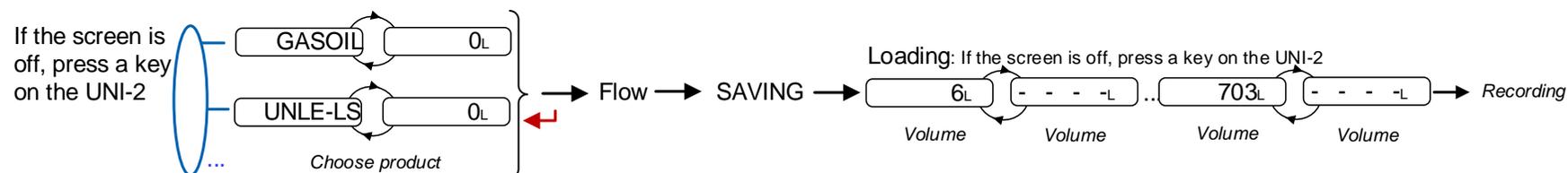
5.1.2.1 Metering with closed battery-switch



OR



5.1.2.2 Metering with open battery-switch



5.1.3 Data recording and volume reset

GRAVICOMPT UNI

The appearance of flowrate resets the volume to zero. The last measurement data are recorded when the time-out is up.

GRAVICOMPT UNI MPLS

Appearance of the authorization resets the volume. Withdrawal of the authorization at zero flow conditions causes the recording of the last measurement data.

5.1.4 Transfer measurement results and parameters

The INSIDE app is used to transfer measurement results and parameters via Bluetooth or Wi-Fi. See the user guide GU 7081 and 7094.

5.1.5 Printing of a delivery ticket

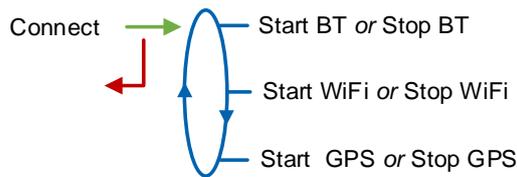
5.1.5.1 Printing with the INSIDE app

Use the INSIDE app to print the delivery ticket. This feature is used to print delivery ticket as a PDF file. See the user guide GU 7081 and 7094.

5.1.5.2 Printing with MPLS

If a printer is connected to the MPLS, simply add paper into the printer during pouring or at withdrawal of the authorization. Then the delivery ticket is printed when authorization is removed. You can print the ticket until next reset of the volume. Remove the ticket from the printer when printing is finished (example of a delivery ticket in ANNEX)

5.2 Menu Connect

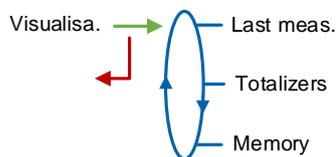


Start BT: Start or stop Bluetooth connection. The Bluetooth switches automatically to stand-by mode after two minutes of inactivity when connection is off and after ten minutes of inactivity when connection is on

Start Wi-Fi: Start or stop Wi-Fi connection

Start GPS: This menu is used to turn on the GPS manually to synchronize the clock again. This operation must be done outdoors, it can take up to 5 minutes. Stop GPS at the end of synchronization.

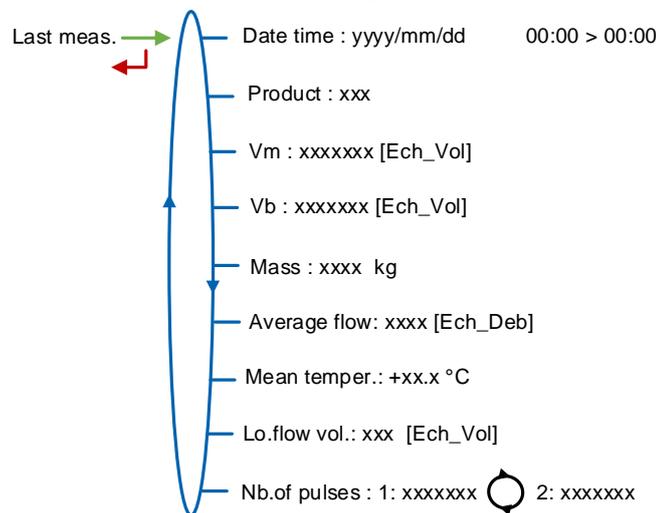
5.3 Menu Visualisa.



If the values are preceded by this display ‘-----’; it means they are no longer guaranteed.

5.3.1 Sub-menu Last Meas.

This menu displays the information of the last measurement. Information displayed depends on the UNI-2 configuration.



Date time: Date and time when measurement started and ended

Product: Product

Vm: Volume in metering conditions

Vb: Volume converted to the reference temperature

Mass: Mass

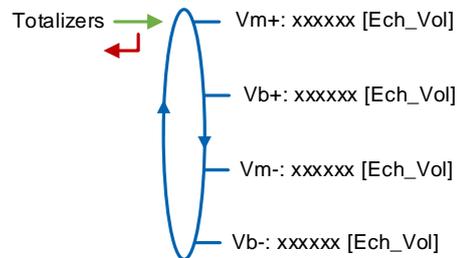
Average flow: Average flow of the measurement

Mean temper: Mean temperature of the measurement

Lo.flow vol: Volume measured under minimal flow rate during measurement

Nb.of pulses: Number of pulses by liter of the measuring device (way 1 alternating with way 2)

5.3.2 Sub-menu Totalizers



Vm+: Totalizer of volume in metering conditions

Vb+: Totalizer of volume converted to base conditions if the temperature option is activated

Vm-: Totalizer of volume in metering conditions for loadings, if the loading menu is on

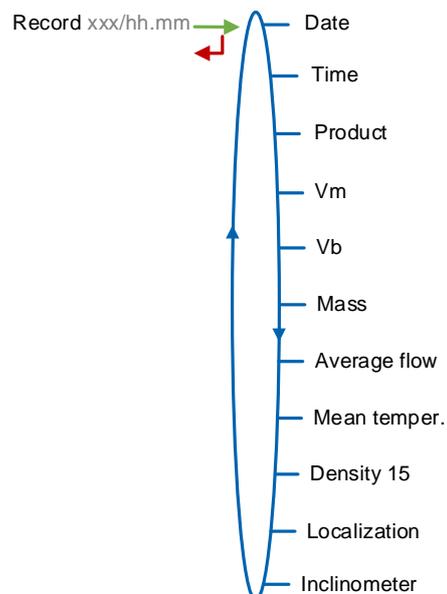
Vb-: Totalizer of volume converted to base conditions with temperature option, if the loading menu is on

5.3.3 Sub-menu Memory

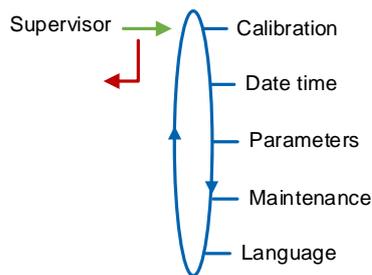
Enter or validate the date and the measurement number to access the relevant data.



Available information depends on the UNI-2 configuration. Temperature, converted volume, and mass are displayed if the temperature option is activated.



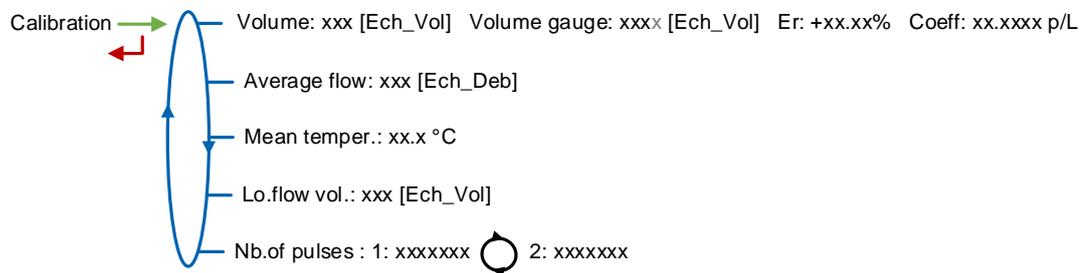
5.4 Menu Supervisor



5.4.1 Sub-menu Calibration

Measure the accuracy of the measuring system during the calibration. It is available after a measurement. With GRAVICOMPT UNI MPLS, remove the authorization.

NOTE: Only approved persons are permitted to remove the seal.



Volume: Display the volume; **Gauge volume:** Enter the volume read on the calibration mean; **Er:** Display the error in %; **Coeff:** Coefficient to be set only by an authorized person in METROLOGICAL mode, if required

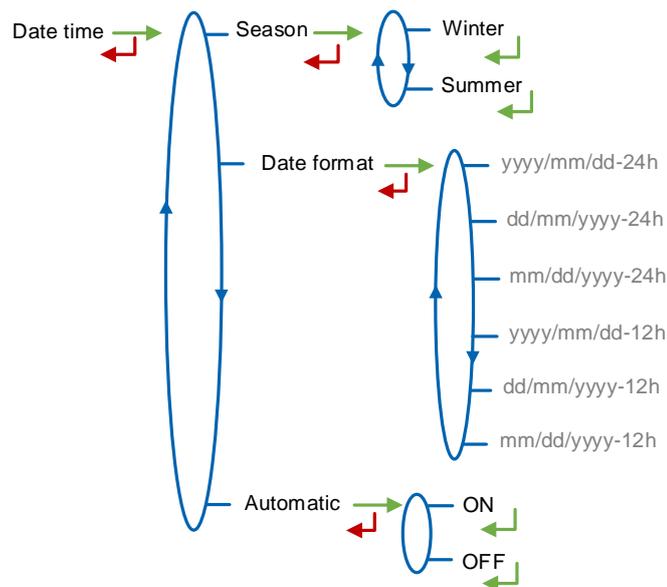
Average flow: Average flow of the measurement

Mean temper: Mean temperature of the measurement

Lo.flow vol: Volume measured under minimal flow rate during measurement

Nb.of pulses: Number of pulses by liter of the measuring device (way 1 alternating with way 2)

5.4.2 Sub-menu Date time



Season: This menu is used to change from summer to winter time (and back again).

Date format: This menu is used to choose the date format

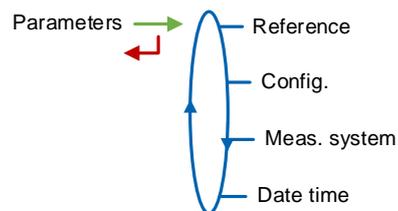
Automatic:

- **OFF:** Date and time are set manually
- **ON:** Timing recovery with the GPS

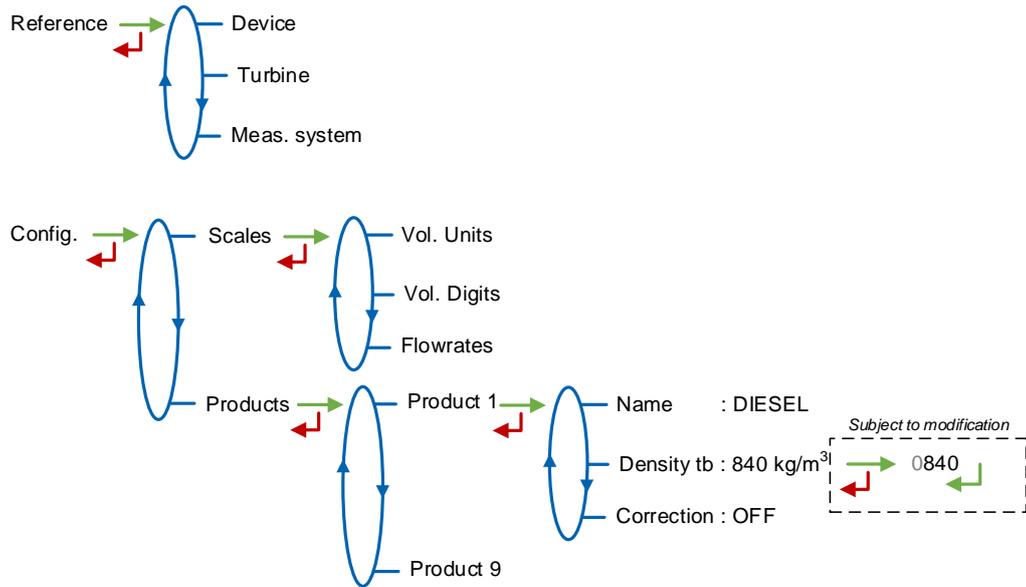
5.4.3 Sub-menu Parameters

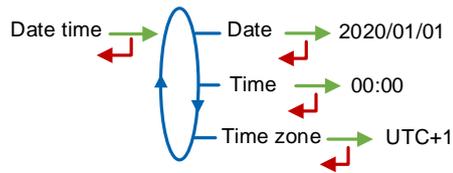
This menu is used to display the parameters set in METROLOGICAL mode. The values depend on the configuration.

Density of products can be adjusted to $\pm 5\%$ if the authorization is given at the metrological menu Config>Density tb adj.

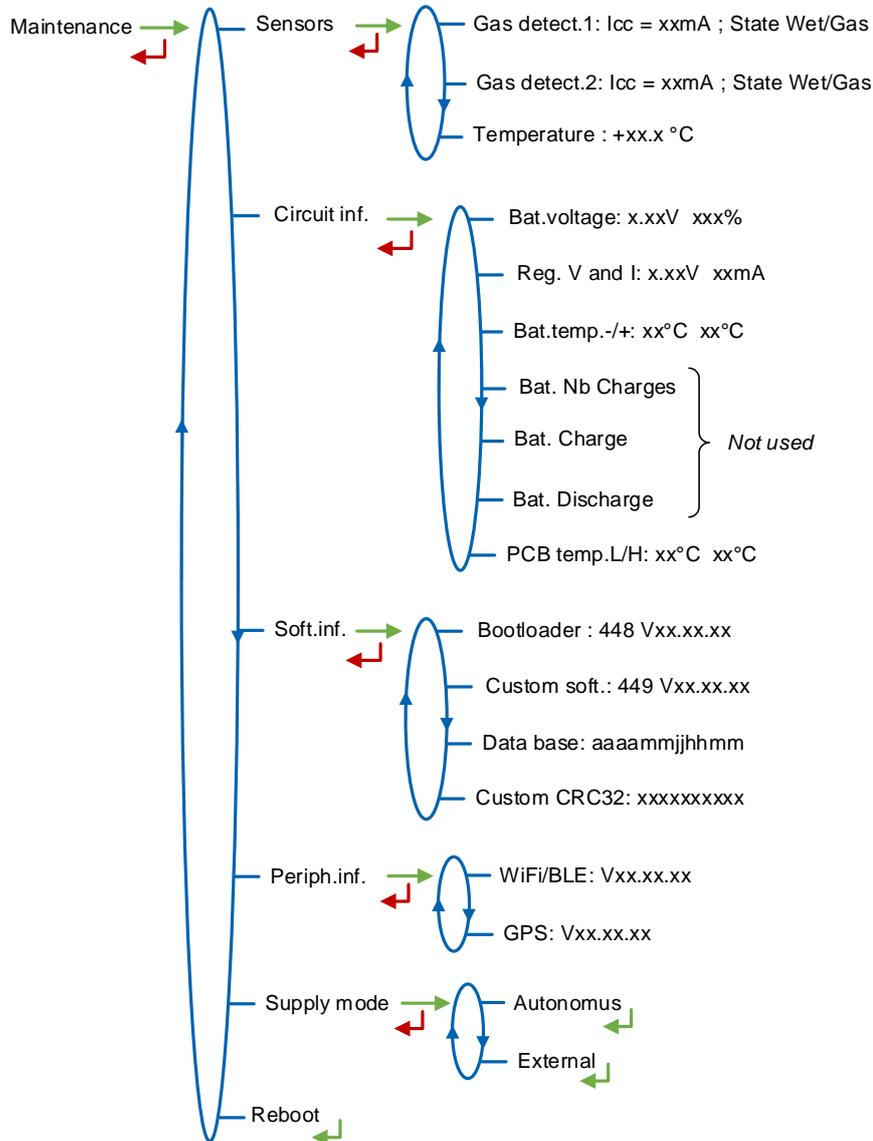


E.g.:





5.4.4 Sub-menu Maintenance



Sensors:

- **Gas detect. 1:** Current and status (wet or dry) of the gas detector 1
- **Gas detect. 2:** Current and status (wet or dry) of the gas detector 2
- **Temperature:** Product temperature

Circuit Inf.:

- **Bat.voltage:** Batteries voltage and remaining charge (from 0% to 100%)
- **Reg. V and I:** Internal supply voltage and current of the UNI-2 circuit

- **Bat. temp.-/+:** Minimum and maximum values of the batteries temperature
- **PCB temp.L/H:** Minimum and maximum values of printed circuit operating temperatures in °C

Soft.inf.: Information about the software, the database and the app

Periph.inf.: Information about peripherals (Wi-Fi/Bluetooth and GPS)

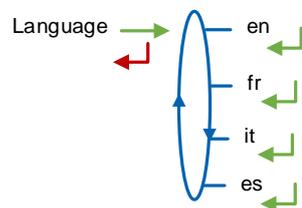


Supply mode: The GRAVICOMPT UNI is powered by the vehicle, validate the choice External.

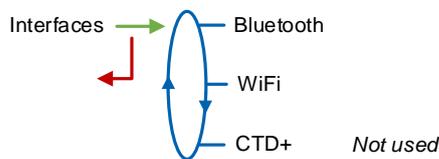
Reboot: When blocked, the UNI-2 reboots. Metrological and supervisor parameters are saved as well as the measurements recording

5.4.5 Sub-menu Language

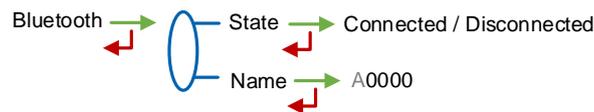
Select the display language. This menu is available if a translation catalogue is uploaded in the GRAVICOMPT UNI. Confirm the desired language and wait until you return to the Supervisor menu.



5.5 Menu Interfaces



5.5.1 Sub-menu Bluetooth

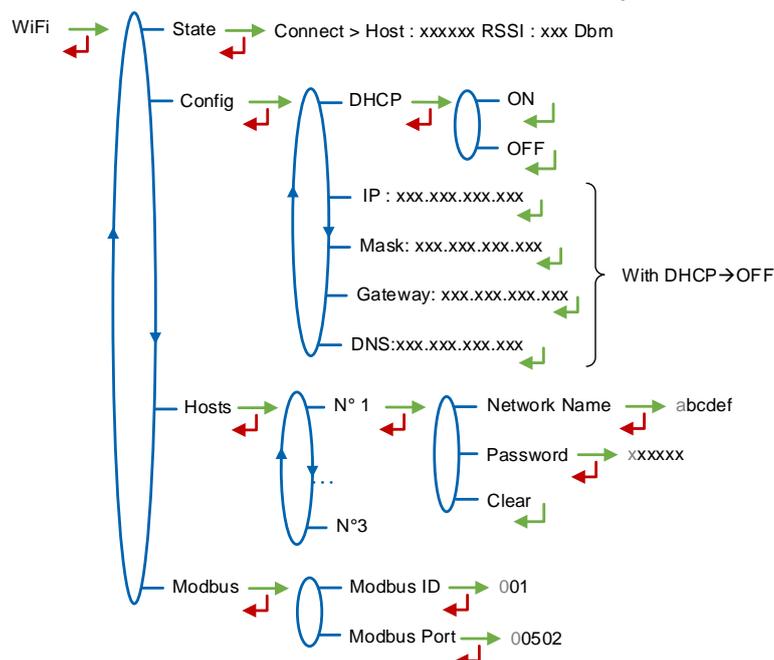


State: Status of the Bluetooth connection

Name: Assign a Bluetooth device name to UNI-2 (alphanumeric value such as the serial number for example)

5.5.2 Sub-menu Wi-Fi

Characteristics of the wireless network access point



State:

- **Connect:** Status of the Wi-Fi connection

Config:

- **DHCP:**
 - **ON:** The Wi-Fi network automatically assigns an IP address to the UNI-2
 - **OFF:** The parameters of the Wi-Fi connection are set manually
- **IP:** IP address of the UNI-2
- **Mask:** Subnet mask (IP mask for the internal IP address allocation)
- **Gateway:** Gateway (IP Address for the internet access of the Ethernet interface)
- **DNS:** IP address to access a DNS server

Hosts: You can set three access points



- **Network name:** Wi-Fi network name, 20 characters maximum
- **Password:** Wi-Fi network password, 30 characters maximum
- **Clear:** Clear the network data

Modbus:

- **ID:** UNI-2 Modbus identifier between 0 and 255
- **Port:** TCP/IP access port for Modbus protocol

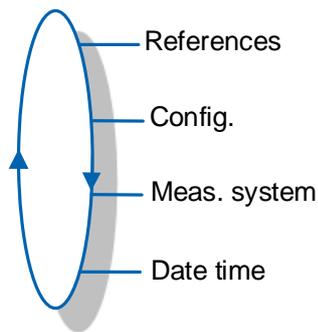
5.6 List of alarms

Should a fault occur, the GRAVICOMPT UNI displays Alarm: name of the default at the bottom of the screen. The volume remains visible. The operator acknowledges the fault by pressing VALID (even when pouring). Persistent faults cannot be acknowledged. Once the fault is acknowledged, the selected value is displayed alternately with "-----" to indicate that the measured values are no longer guaranteed.

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		DISPLAY	MEANING	ACTION
USER	COMMON	Power supply loss	Power failure during metering, the measurement is no longer guaranteed	Check the reason of the power outage Restore power supply and acknowledge the alarm
		Overflow	Volume greater than 4 194 304 liters	Reset the device
		Low flowrate	Flow rate less than the setting minimal flow rate	Do a check of the hydraulic configuration and the flowing
		Pressure low	Pressure below the minimum threshold	Do a check of the setup / the transmitter status
		Sensor 1	High gas detector fault (GDh)	Use the maintenance menu to do a check of the detector status
		Sensor 2	Low gas detector fault (GDI)	Use the maintenance menu to do a check of the detector status
		Loading	Flow direction change during metering	Do a check of the hydraulic configuration and the flowing
		Bat too low	Battery is not charged enough to light the display or to start Bluetooth, Wi-Fi or GPS	Outside potentially explosive area: Charge the battery (min 50%)
		Init Bluetooth	Bluetooth module initialization problem	Restart the UNI-2 via the menu Supervisor>Maintenance>Reboot
		Init GPS	GPS module initialization problem	Restart the UNI-2 via the menu Supervisor>Maintenance>Reboot
		Init Wi-Fi	Wi-Fi module initialization problem	Restart the UNI-2 via the menu Supervisor>Maintenance>Reboot
		Stop	Intentional interruption of the discharge	End or continue delivery
	MPLS	Authorization	The authorization has been removed during pouring	Stop delivery
Leak		Counting of a volume greater than or equal to 1 liter (metering off)	Acknowledge the alarm to end measurement	
Preset		Volume \geq preset volume+1% the minimum quantity	Acknowledge the alarm	
REPARATOR	COMMON	Flowrates	Inconsistency of the flowrates set in the Coefficients menu	Do a check of the parameters
		Frequency	Exceeding the authorized frequency	Do a check of the consistency of the coefficient and high flowrate settings
		Coefficients	Difference between coefficients 1 and 2 greater than 0.5%	Do a check of the coefficients setup
		Metering	Inconsistency of metering ways	If steady alarm, substitution of the UNI-2
		High flowrate	Flowrate greater than the setting maximum flowrate	Do a check of the consistency between the flowrate measured during pouring and the set value
		Low flow high	Flow greater than 20m ³ /h while GDh dry	Do a check of the parameter low flow goal
		Date time	Loss of date and time	Set date and time in METROLOGICAL mode or use the menu Connect>Start GPS to switch on the GPS. This operation must be done outdoors, it can take up to 5 minutes.
		Gas	GDh is wet but GDI is dry	Do a check of the hydraulic configuration / detector status
		Dry metering	The volume of gas is greater than the minimum measured quantity	Stop metering
		Coil	Loss of pulse transmitter signal	Do a check of the connection with the pulse transmitter
		Temperature	Faulty temperature measure. Temperature less than - 20°C or greater than 50°C	Do a check of the temperature sensor (measure and calibration)
		Pressure	Incorrect measure of pressure	If steady alarm, substitution of the UNI-2
		Display	LCD display fault	If steady alarm, substitution of the UNI-2
		Watchdog	Fault with card	If steady alarm, substitution of the UNI-2
		Program	Error on the checksum of the metrological data	If steady alarm, substitution of the UNI-2
		RAM	Saved memory fault	If steady alarm, substitution of the UNI-2
		Memory	Bad writing into the memory	If steady alarm, substitution of the UNI-2
		Metrological	Loss of configuration	If steady alarm, substitution of the UNI-2
		Low Battery	The battery is no more charging	Substitution of the battery
	Totalizer	Totalizer fault	If steady alarm, substitution of the UNI-2	
	Memory default	Problem with the measurement integrity: loss of backup data concerning the last measurement	If steady alarm, substitution of the UNI-2	
	Micro SD card	Problem with the micro SD card	Make sure the micro SD card is in. Try another one if necessary	
MPLS	Reception	Problem of communication protocol between the UNI-2 and the MPLS	Make sure the device is supported	
	Communication	No more communication on the IRDA link to the MPLS	Do a check of the IRDA link	

6 CONFIGURE THE GRAVICOMPT UNI: METROLOGICAL MODE METROLOGICAL MODE



Setup should be done under cover, metering off, with dry gas detectors.

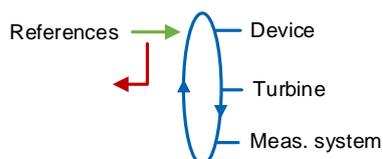
NOTE: Only approved persons are permitted to change parameters

The configuration parameters can only be modified by pressing the micro BP Metro on the electronic board.

Exit the METROLOGICAL mode by pressing the micro BP Metro. The UNI-2 resets.

The option to display the volume (volume in metering conditions or volume converted to base conditions) is made in menu Meas. System>Temperature>Vol. disp. when the temperature is activated.

6.1 Menu References

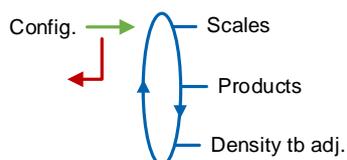


Device: Set the serial number of the UNI-2

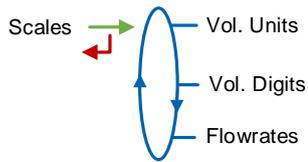
Turbine: Set the serial number of the turbine meter

Meas. system: Set the serial number of the GRAVICOMPT UNI.

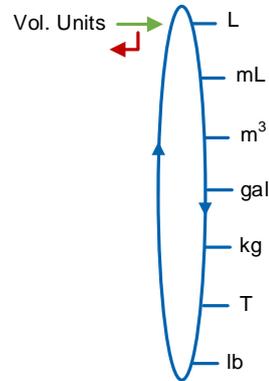
6.2 Menu Config.



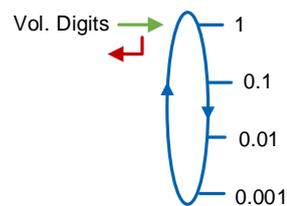
6.2.1 Sub-menu Scales



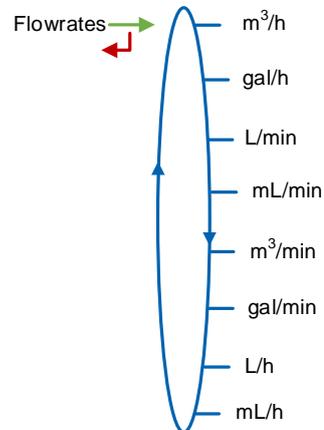
Vol. Units: Select the unit of the volume.



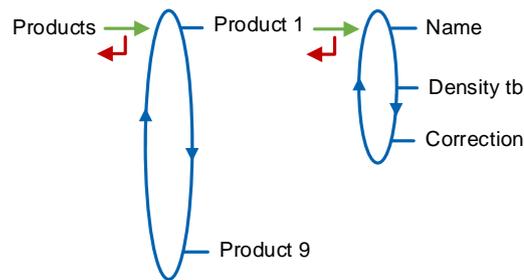
Vol. Digits: Select the accuracy of the volume.



Flowrates: Select the unit and the accuracy of the flowrate.



6.2.2 Sub-menu Products



You can configure 9 different products.

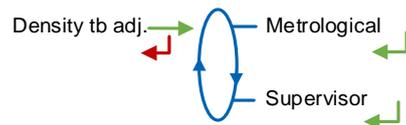
Name: Enter the product name (max 8 alphanumeric characters)

Density tb: Enter the density in kg/m³ in base conditions (min: 550 max: 1100). Set 0000 to remove the product from the list displayed in USER mode See next chapter for user adjustment of density

Correction: Select if the correction is on or off for the product. If Density tb ≤ 750 → Correction=ON. Otherwise → Correction=OFF

6.2.3 Sub-menu Density tb adj.

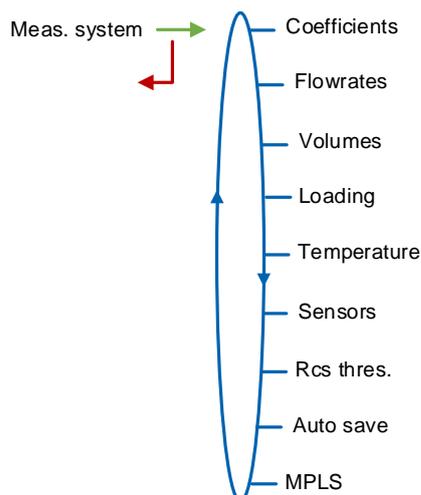
This menu is used to enable or disable density adjustment in USER mode.



Metrological: The density is set in METROLOGICAL mode and cannot be modified by the user

Supervisor: The density can be adjusted by the user within ±5% at the menu Supervisor>Config.>Products> Product N>Density tb.

6.3 Menu Meas. System



6.3.1 Sub-menu Coefficients

Coeff. low flow: Coefficient for low flow (pulses/liter)

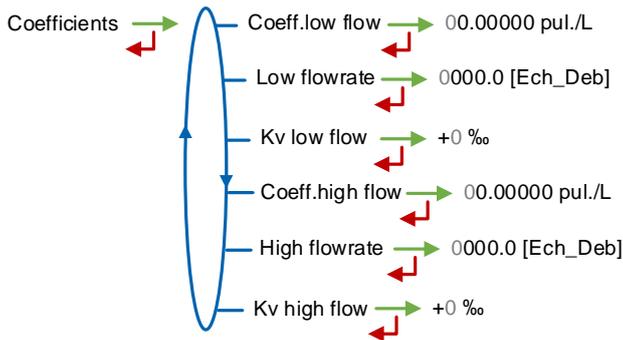
Low flowrate: Flowrate corresponding to Coeff.low flow. Unit depends on the configuration (Config.>Scales>Flowrates)

Kv low flow: Correction coefficient (%) at low flowrate for low viscosity products

Coeff. high flow: Coefficient for high flow (pulses/liter)

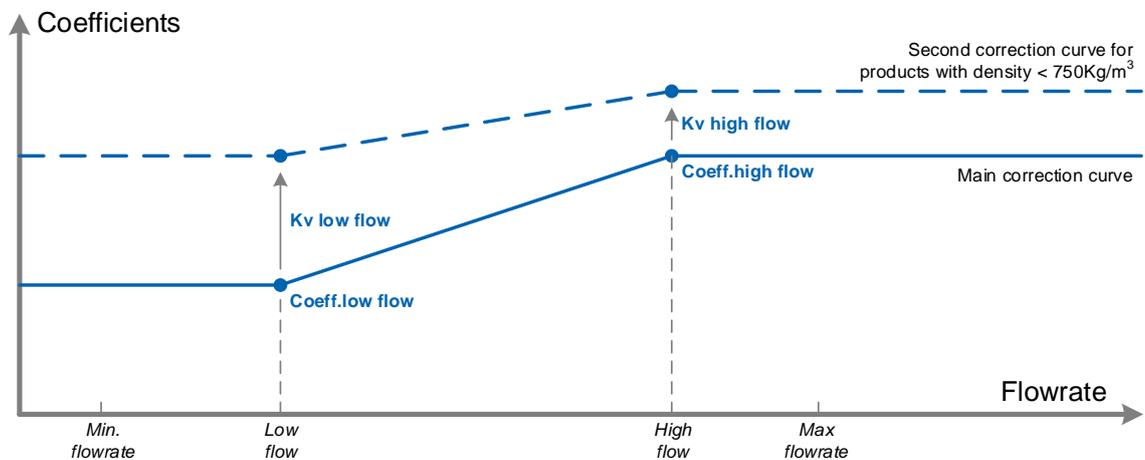
High flowrate: Flowrate corresponding to Coeff.high flow. Unit depends on the configuration (Config.>Scales>Flowrates)

Kv high flow: Correction coefficient in (%) at flowrate 2 for low viscosity products



When parameters **Low flowrate** and **High flowrate** are set to zero, parameters **Coeff.high flow** and **Kv high flow** are not applied.

Adjustment of coefficients for several flowrates:



Coefficients applied in accordance with flowrate and product density

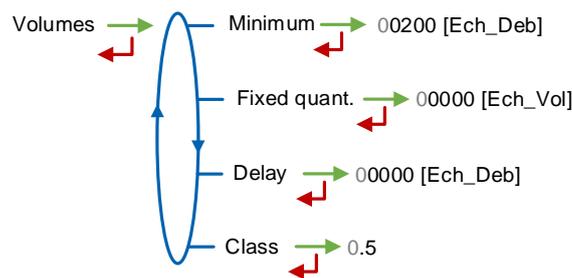
6.3.2 Sub-menu Flowrates



Minimum: Minimum flowrate of the measuring system. Unit depends on the configuration (Config.>Scales>Flowrates)

Maximum: Maximum flowrate of the measuring system. Unit depends on the configuration (Config.>Scales>Flowrates)

6.3.3 Sub-menu Volumes



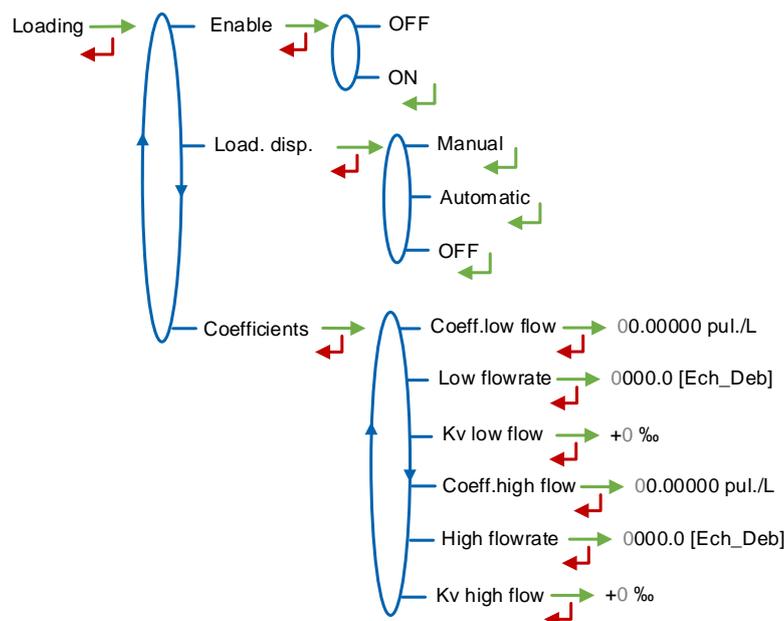
Minimum: Minimum measured quantity to guaranty the measurement. Unit depends on the choice made for the scale interval

Fixed quant.: End of counting fixed volume of the measuring system. Unit depends on the choice made for the scale interval. Not applicable without gas detectors.

Delay: Delay for the additional volume (upper gas detector dry). Unit depends on the choice made for the scale interval. Not applicable without gas detectors

Class: Accuracy class of the GRAVICOMPT UNI: 0.5

6.3.4 Sub-menu Loading



Enable: Choose ON if the GRAVICOMPT UNI is intended to detect the loading direction.

Load. disp.:

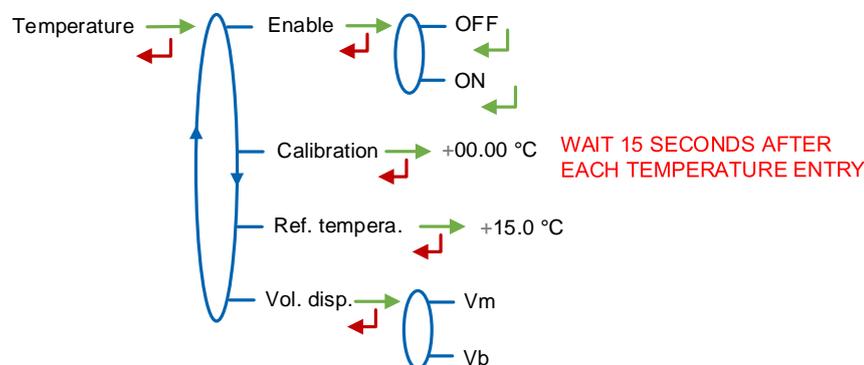
- **Manual:** The loading volumes are counted and recorded in a specific totalizer (non-guaranteed volumes). If the UNI-2 is not powered, during the measurement the display is off. Press any key to display the volume for 2 minutes. This saves the batteries
- **Automatic:** The loading volumes are counted and recorded in a specific totalizer (non-guaranteed volumes). During the measurement, the volume is displayed
- **OFF:** Volumes are not counted. If the UNI-2 is not powered, the display is off. If the UNI-2 is powered, dashes are displayed

Coefficients: Coefficients for loading.

- **Coeff. low flow:** Coefficient for low flow (pulses/liter)
- **Low flowrate:** Flowrate corresponding to Coeff.1. Unit depends on the configuration (Config.>Scales>Flowrates)
- **Kv low flow:** Correction coefficient (‰) at low flowrate for low viscosity products
- **Coeff. high flow:** Coefficient for high flow (pulses/liter)
- **High flowrate:** Flowrate corresponding to Coeff.1. Unit depends on the configuration (Config.>Scales>Flowrates)
- **Kv high flow:** Correction coefficient (‰) at high flowrate for low viscosity products

6.3.5 Sub-menu Temperature

This menu is an option. It is used to calibrate the temperature into the GRAVICOMPT UNI. See maintenance sheet FM 8513



Enable: Enable or disable the product temperature control

Calibration: Calibrate the temperature on two measuring points. The measure must be done at $t \leq -20^\circ\text{C}$ and at $t \geq +50^\circ\text{C}$.

Ref. tempera: Reference temperature ($^\circ\text{C}$)

Vol. disp.: Choose the volume displayed in USER mode:

- **Vm:** Volume in metering conditions
- **Vb:** Volume converted to the reference temperature

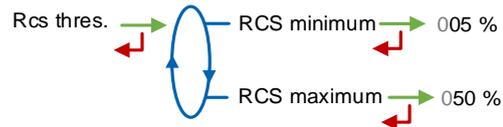
6.3.6 Sub-menu Sensors



ON: Before validation, make sure both gas detectors are dry and well-connected to the GRAVICOMPT UNI.

6.3.7 Sub-menu Rcs thres.

Detection thresholds of metering inputs at zero flow and at maximal flow.



6.3.8 Sub-menu Auto Save

Set the time required at the end of measurement before automatic recording of the measurement data (in seconds).



GRAVICOMPT UNI

Auto Save>1: Data recording is automatic, it is done when the time-out is up. The RESET key is disabled. The volumes counted during the time-out are added at recording of the measurement data.

For example, the parameter can have the value that follows:

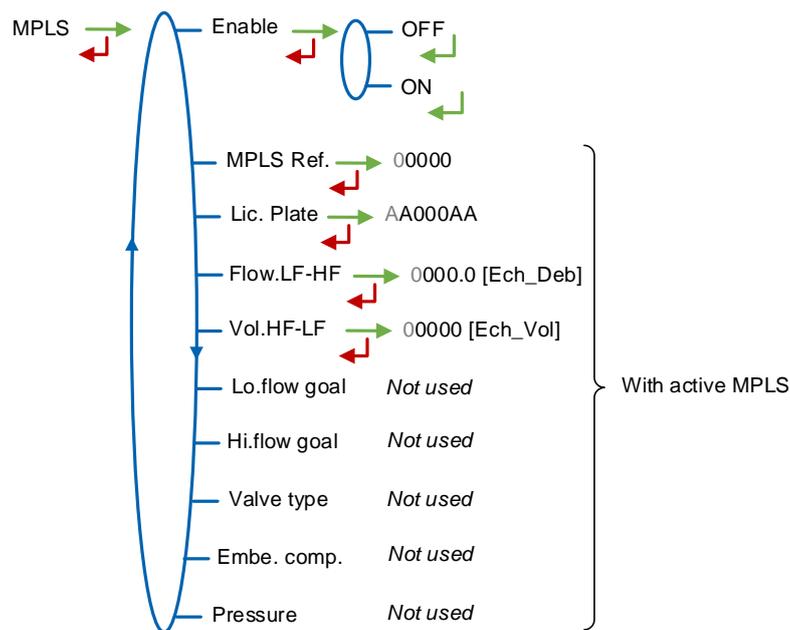
Auto Save=060. Automatic recording with time-out 60 seconds

GRAVICOMPT UNI MPLS

This parameter is zero. Withdrawal of the authorization causes recording of the measurement data.

Auto Save=000

6.3.9 Sub-menu MPLS



Enable:

- **GRAVICOMPT UNI:** Do not activate the option. Validate Enable→OFF
- **GRAVICOMPT UNI MPLS:** Activate the option. Validate Enable→ON

When MPLS is active, set the parameters that follow.

MPLS Ref: Serial number of the MPLS

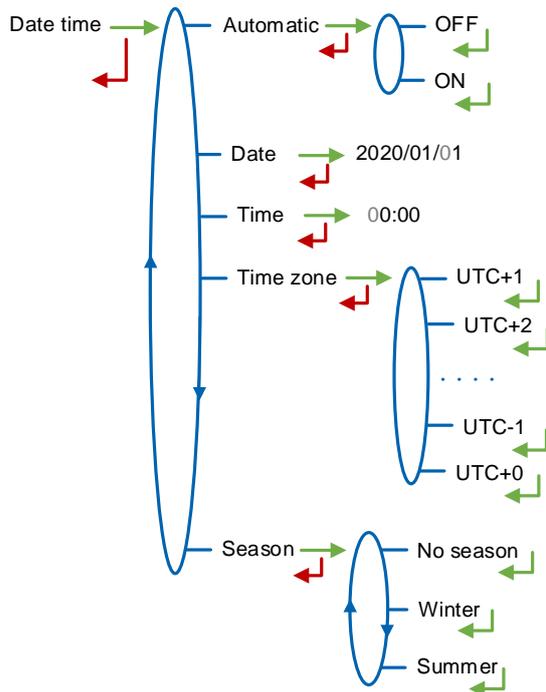
Lic. Plate: Vehicule licence plate

Flow.LF-HF: Flowrate beyond which the UNI-2 switches from low to high flowrate Unit depends on the choice made for the scale interval

Volume HF-LF: Volume beyond which the UNI-2 switches from high to low flowrate. Unit depends on the choice made for the scale interval

6.4 Menu Date time

This menu is used to set date and time according to the destination country.



Automatic:

- **OFF:** Date and time are set manually
- **ON:** Timing recovery with the GPS

Date: Set the date yyyy/mm/dd. You can change the date format in USER mode with the menu Supervisor>Date time>Date format

Time: Set the time hour:minutes (hh:mm)

Time zone: Set the jet lag related to the time zone. E.g.: validate UTC+1 for the Brussels, Copenhagen, Madrid, Paris time zone

Season:

- **OFF:** No time change when the season changed
- **Winter:** Winter-time (at commissioning)
- **Summer:** Summer-time (at commissioning)

Time change is done in USER mode with the menu Supervisor>Date time>Season.

7 MAINTENANCE



Any intervention with broken seals must be carried out by an approved person and under the control of the competent authorities or of one of its representatives. See the certificate of the measuring system and the regulations in force.

7.1 UNI-2 calculator-indicator device

It is made of a box with an intrinsic safety electronic board set by 4 M5 CHC screws installed on the body of the turbine meter or in an independent case. An O-ring is the seal between the

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casing and the turbine meter. Make sure that it is in its groove and well lubricated before tightening the screws.

Apart from calibration operations, there is no adjustment or specific maintenance precautions. See maintenance sheet FM 8513 for temperature adjustment.

7.1.1 Change the setting parameters

The configuration parameters can only be modified by pressing the micro BP Metro on the electronic board.

Only approved persons are permitted to change parameters.

Any other operation must be done by approved person as it could affect the metrological nature of the GRAVICOMPT UNI.

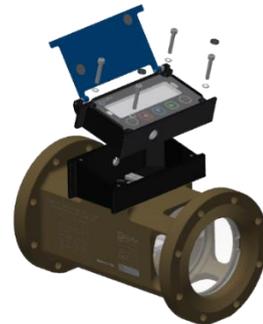
7.2 2-DLA spacer (code 2319)

The 2DLA-spacer is a metallic ring supporting two DLA liquid detectors. Maintenance of the DLA detectors requires replacement of the complete 2DLA-spacer including the following steps

7.2.1 Prepare the operation

GRAVICOMPT UNI FOR COMPACT INSTALLATION

- Switch-off the UNI-2 (battery switch)
- Remove the 2 seals* from the screws of the UNI-2
- Unscrew the 4 CHC screws of the UNI-2
- Carefully lift up the UNI-2; wires are long enough to put it near nearby



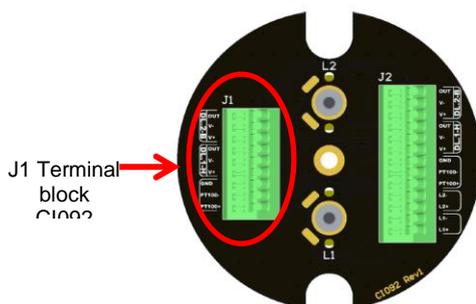
GRAVICOMPT UNI REMOTE VERSION

- Switch-off the UNI-2 (battery switch)
- DO NOT remove the UNI-2
- Remove the turbine cover.



7.2.2 Remove the 2DLA-spacer from the CI092 circuit

- Unplug the 6 wires of the 2DLA-spacer from the CI092 J1 terminal block (interface, coils, GD and T°) according to the Table 1.

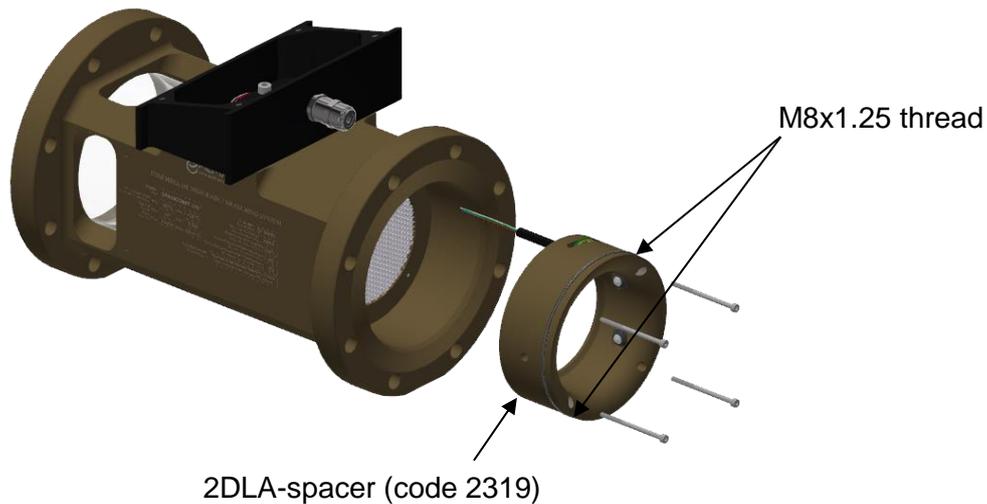


CI092 J1 terminal block	Wires color
J1-4	Yellow
J1-5	Black
J1-6	White
J1-7	Red
J1-8	Blue
J1-9	Green

Table 1

7.2.3 Remove the 2DLA-spacer from the turbine body

- Unscrew the 4 CHC screws of the 2DLA-spacer
- Remove the 2DLA-spacer from the turbine body To make the extraction easier, use 2 screws with M8x1.25 thread

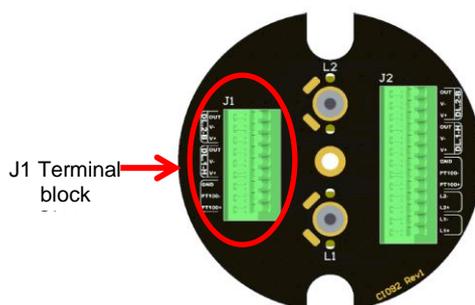


7.2.4 Assembly the new 2DLA-spacer

- Grease the rings of the 2DLA-spacer (translucent grease for food contact)
- Pass the 6 wires through the wires pass through of the turbine body
- Put the spacer on the input of the turbine body so that the cable faces the wires pass through
- Put the CHC M3x50 screws on the spacer
- Tighten the CHR screws in a cross pattern. They must be lubricated with Molybdenum grease.

7.2.5 Connect the 2DLA-spacer to the CI092

- Plug the 6 wires of the 2DLA-spacer on the CI092 J1 terminal block (interface, coils, GD and T°) according to the Table 1.

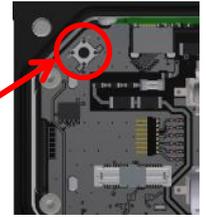


CI092 J1 terminal block	Wires color
J1-4	Yellow
J1-5	Black
J1-6	White
J1-7	Red
J1-8	Blue
J1-9	Green

Table 1

7.2.6 In the UNI-2, make sure the DLA detectors are in operation

- Switch-on the UNI-2 (battery switch)
- Press the micro BP Metro to switch the UNI-2 in METROLOGICAL mode
- Enter the menu Sensors→ON
- Make sure both DLA detectors are dry before validation
- Exit the METROLOGICAL mode by pressing the micro BP Metro.



7.2.7 End the operation

GRAVICOMPT UNI COMPACT VERSION

- Make sure the O-ring is properly positioned in its groove, grease it if necessary (translucent grease for food contact)
- Assembly the UNI-2: put the UNI-2 on the bottom box (with the silica gel dehydrating packet)
- Make sure there is no wire between the UNI-2 box and the bottom box
- Screw the 4 CHC screws of the UNI-2 equipped with SCHNORR washers. Screws must be lubricated with Molybdenum grease
- Seal* both screws of the UNI-2 (if required)

GRAVICOMPT UNI REMOTE VERSION

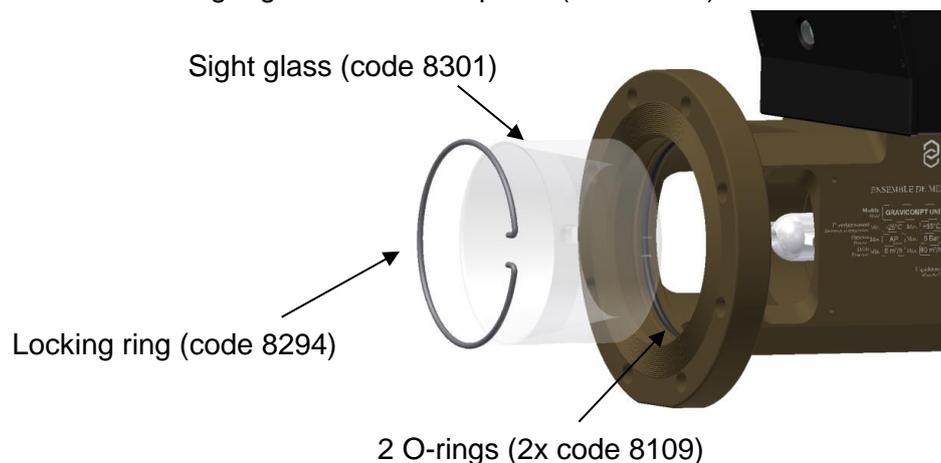
- Assembly the turbine cover

***All these operations must be carried out by approved persons and under the control of the competent authorities. See the certificate of the measuring system and the regulations in force.**

7.3 Sight glass (code 8301)

7.3.1 Remove the sight glass

- Remove the locking ring (code 8294)
- Remove the sight glass with a hub puller (code 8301)



7.3.2 Assembly the sight glass

- Check the status of both O-rings (2x code 8109), replace them if it's necessary
- Grease the O-rings with UNIL OPAL food grease or equivalent
- Put the sight glass on the GRAVICOMPT UNI body, both sight glass drillings must match with the fixing screws of the axle holder
- Push in it till the stop position
- Push the locking ring in its place

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ANNEX

Delivery ticket for measuring system connected to a printer.

(GRAVICOMPT UNI MPLS)

Installation:	AA09C01
Indicateur/Indicator:	000000123
Date (./MM/20.):	19/05/2021
Quantieme/Calendar:	295
Numero/Number:	004
Heure de fin/ End time:	17:00
Produit/Product:	GASOIL
Quantite livree/ Quantity delivered:	0002062 (L)
Totalisateur/Totalizer:	
Index avant/before:	0014133
Index apres/after:	0016195
<p>En cas de litige, les resultats de mesurage memorises par l'indicateur font foi. In case of dispute, the measurement results stored by the indicator are authentic.</p>	

RELATED DOCUMENTS

GU 7081	Operating guide: GRAVICOMPT UNI
GU 7094	Operating guide: INSIDE App
MV 5013	Verification Manual GRAVICOMPT UNI
FM 8512	Maintenance sheet: Adjustment of an ALMA measuring system equipped with a UNI-2
FM 8513	Maintenance sheet: Adjustment of temperature in the UNI-2