USER MANUAL

MU 7051 EN F

LPG TRONIQUE

Issue	Date	Nature of modifications	Written by	Approved by
F	2019/12/10	Connected MICROCOMPT+ *[PJV129]*	DSM	SQS
E	2019/02/26	Conversion menus, software in English *[MDV631]*	DSM	SR
D	2018/09/24	Display of one-tenth volume, calibration VM or VB, volume conversion at 20°C*[MDV622]*	DSM	XS
A	2010/12/06	Creation	DSM	MV

CONTENTS

1 GENERAL PRESENTATION AND DESCRIPTION

The LPG TRONIQUE is a measuring system that must be fitted on road tankers. It measures liquefied gases under pressure.

The LPG TRONIQUE contains these parts:

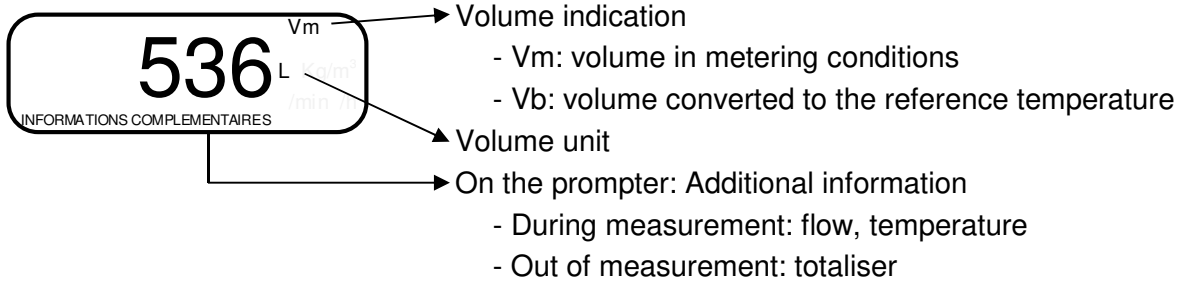
- ⇨ A turbine measuring device for liquefied petroleum gas
- ⇨ A MICROCOMPT+ electronic device
- ⇨ A gas separator
- ⇨ A pump
- ⇨ An automatic pressure control valve
- ⇨ A set of devices by two ways of delivery, controlled by a valve allowing the choice between a full flexible hose delivery or by a direct release
- ⇨ A temperature probe (option)
- ⇨ A printer

There are two models of LPG TRONIQUE: volume at temperature or volume at reference temperature (measure and compensation of the volume at a reference temperature). The LPG TRONIQUE can operate with the embedded computing option. A remote control version of the LPG TRONIQUE is also available (LPG TRONIQUE CD). This document presents all the possibilities. Some menus are the same; others are specific and are differently identified.

Identification of the different models of LPG TRONIQUE in the following pages:

With conversion
Without conversion

The LPG TRONIQUE has one display:



The LPG TRONIQUE has three pushbuttons:

	Increment a blinking figure or letter Come back to the previous step Stop the measurement
	Select a figure, a letter or a menu
	Validate the data

Use the RFID keys:

	RFID blue key: Level1-User: This key is associated to a single MICROCOMPT+. It is used to switch into SUPERVISOR mode
	RFID green key: Level2-Manager Many of these keys can be associated to a single MICROCOMPT+. Likewise, a single key can be associated to one or many MICROCOMPT+. RFID key is used to switch into SUPERVISOR mode. Specific menus are available that allow the manager to configure the MICROCOMPT+ for its communication with the external environment. The specific menus are indicated by green boxes within the ANNEXE 1.
	RFID red key: Level3-Maintenance This key doesn't need to be associated to the MICROCOMPT+. It is used to switch into SUPERVISOR mode. Specific menus are available that allow the maintenance operator to change parameters. The specific menus are indicated by red boxes within the ANNEXE 1.

2 CONNECTED FEATURES

The wireless connection enables the MICROCOMPT+ to communicate with an embedded computer or with a PC/tablet/portable device, in hazardous area (ATEX).

The connected functions of the MICROCOMPT+ are:

- ⇨ Incoming data flow processing
- ⇨ Management of the communication modules below
- ⇨ Updating of the app, tickets and language catalogues as far as the MICROCOMPT+ has been switched into METROLOGICAL mode.

Communication modules are listed below:

- ⇨ Wi-Fi (IEEE 802.11 b/g/n (2.4GHz) **OR** Bluetooth Low Energy 4.1
- ⇨ GSM (2G, 3G, 4G) / GPS
- ⇨ RFID NFC allowing the reading of an RFID key to switch in SUPERVISOR mode
- ⇨ Ethernet Base 10/100

The GSM module associated to the GPS navigation system allows the device tracking. Two antennas are located outside the MICROCOMPT box.

Three tricolor LED on the MICROCOMPT+ front face are showing the wireless connection status as described in the table below:

Left-hand LED: Bluetooth (Blue) or Wi-Fi (Cyan)	***Middle LED: GSM / GPS***	***Right-hand LED: NFC (RFID)***
Steady light: • Blue / Cyan*: Connection OK • Red: Waiting for initialization *Flashing light:* • Blue / Cyan slow flashing: Waiting for connection • Blue / Cyan rapid flashing: Communication in progress • Red: Initialization error	*Steady light:* • Purple: Waiting for internet connection • White: Internet connection OK • Red: Waiting for initialization *Flashing light:* • White: Transfer in progress • Red every 2 seconds: Coordinates not found • Green every 2 seconds: GPS OK • Red: Initialization error	*Flashing light:* • Green: Authentication of the RFID key OK • Red: Authentication error of the RFID key • Green/ Red: RFID key not accepted, but authentication is ok

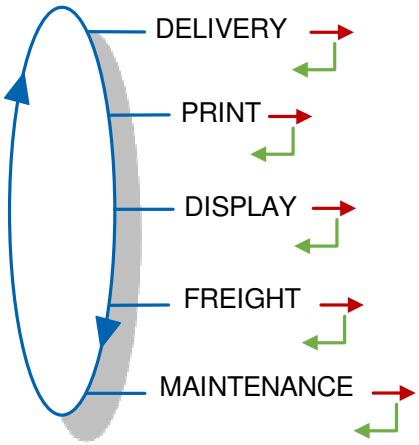
3 OPERATING RECOMMENDATIONS

Safety valves may be incorporated in the LPG TRONIQUE. If they are located downstream of the turbine meter they must open to the atmosphere or be connected to the receiving tank.

4 CONFIGURE, SET AND CALIBRATE THE LPG TRONIQUE

CONFIGURATION: METROLOGICAL mode	SETTINGS: SUPERVISOR mode Menu ICOM MENUS	SETTINGS, CALIBRATION: SUPERVISOR mode
§CONFIGURE THE LPG TRONIQUE: METROLOGICAL MODE	§ANNEXE 1	§SET THE LPG TRONIQUE: SUPERVISOR MODE
You must configure the LPG TRONIQUE during commissioning and sometimes during metrological controls.	You must set the LPG TRONIQUE before any operation and sometimes during metrological controls (specific menus)	You must set the LPG TRONIQUE before any operation Control the accuracy of the LPG TRONIQUE
NOTE: Only approved persons are permitted to remove the seal	**NOTE**: Only approved persons are permitted to change parameters of the specific menus	**NOTE:** Only approved persons are permitted to change parameters or to make calibration.
- Unseal the cup - Remove the seal	- Put the RFID key at the right side of the display 	- Put the RFID key at the right side of the display 
		

5 USE THE LPG TRONIQUE: USER MODE



In USER mode, the LPG TRONIQUE displays a blinking figure which is the latest delivered quantity. On the prompter, you can see the name of the menu.

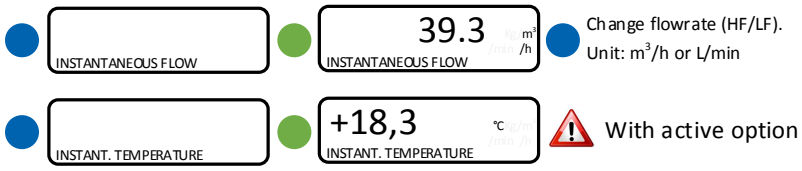
The use of the LPG TRONIQUE depends on the hardware configuration of the truck, the features and the configuration of the equipment carried out during commissioning.

Therefore, the user menu depends on several items:

- ⇨ The number of distribution ways (one or two)
- ⇨ The distribution mode (free or preset)
- ⇨ The temperature control (conversion of the volume).

During measurement, the following information may be displayed:

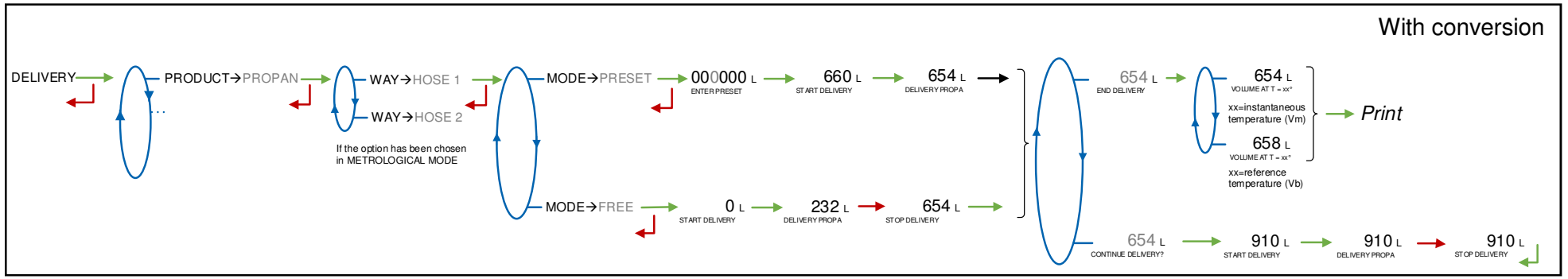
- ⇨ The instantaneous high or low flow rate. The unit is m^3/h or L/min; depending on the display unit set
- ⇨ The temperature (°C) if it is taken into account.

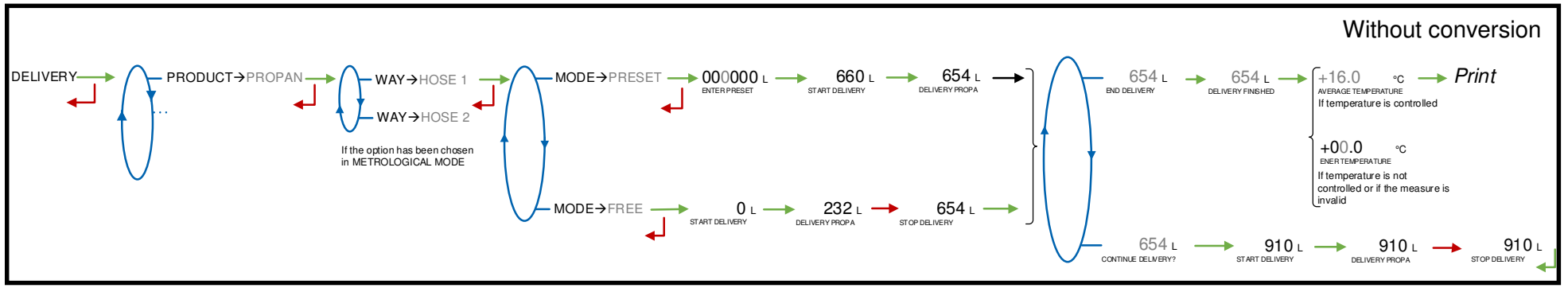


Back to normal display is automatic: DO NOT PRESS RED CLEAR BUTTON TO KEEP FROM INTERRUPTING THE MEASURING OPERATION.

5.1 Menu DELIVERY

If the LPG TRONIQUE is set up with a remote control, some menus do not appear (MODE→PRESET>ENTER PRESET).



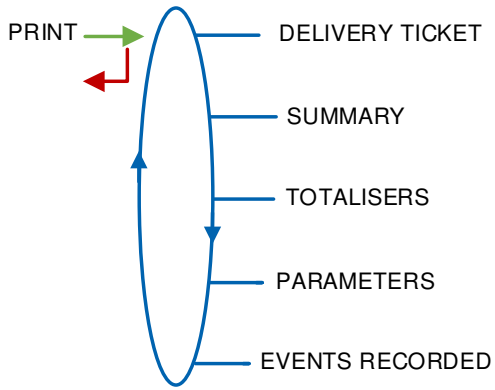


Printing:

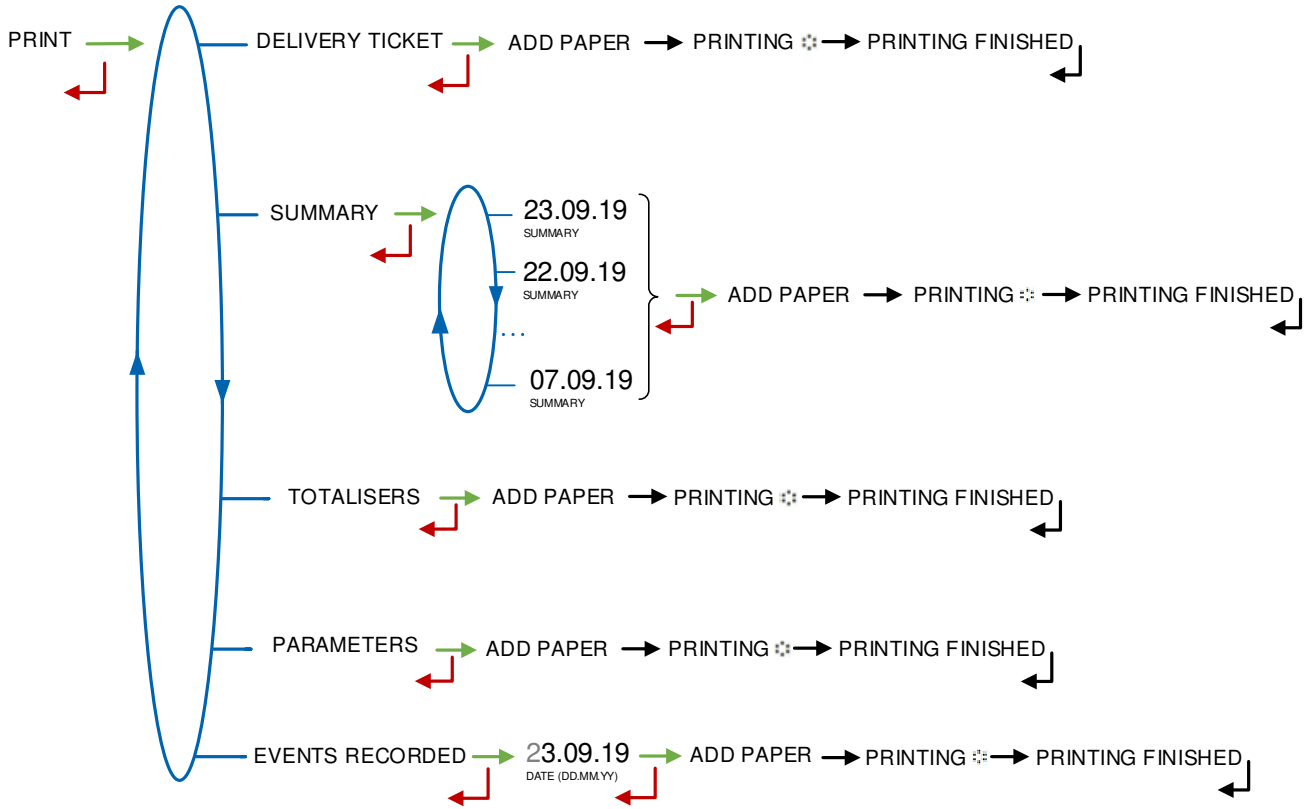
If the menu PRINTER SETTINGS>DELIVERY TICKET→ON is set in SUPERVISOR MODE, the delivery ticket of the last measuring operation is printed:

DELIVERY TICKET → ADD PAPER → PRINTING → PRINTING FINISHED

5.2 Menu PRINT

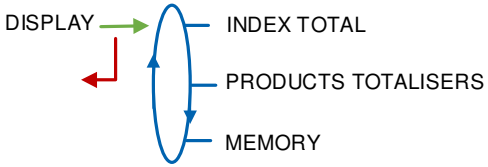


DELIVERY TICKET: Print the ticket of the last measuring operation
SUMMARY: Record a date and validate to print the summary of the measuring operations
TOTALISERS: Print the products totalisers.
PARAMETERS: Print the recorded parameters.
EVENTS RECORDED: Record a date and validate to print the events recorded.


PRINT
DELIVERY TICKET
ADD PAPER
PRINTING
PRINTING FINISHED
SUMMARY
23.09.19
SUMMARY
22.09.19
SUMMARY
...
07.09.19
SUMMARY
ADD PAPER
PRINTING
PRINTING FINISHED
TOTALISERS
ADD PAPER
PRINTING
PRINTING FINISHED
PARAMETERS
ADD PAPER
PRINTING
PRINTING FINISHED
EVENTS RECORDED
23.09.19
DATE (DD.MM.YY)
ADD PAPER
PRINTING
PRINTING FINISHED

5.3 Menu DISPLAY

This menu is available in standby mode or when you stop temporarily the measurement. You can see the totaliser value and the measurement results.

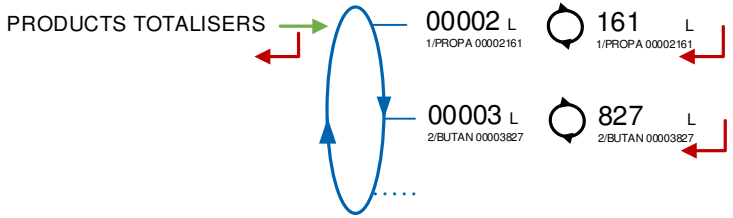


5.3.1 Sub-menu INDEX TOTAL

Displays the main totaliser.

5.3.2 Sub-menu PRODUCTS TOTALISERS

Display the secondary totalisers per product.



5.3.3 Sub-menu MEMORY

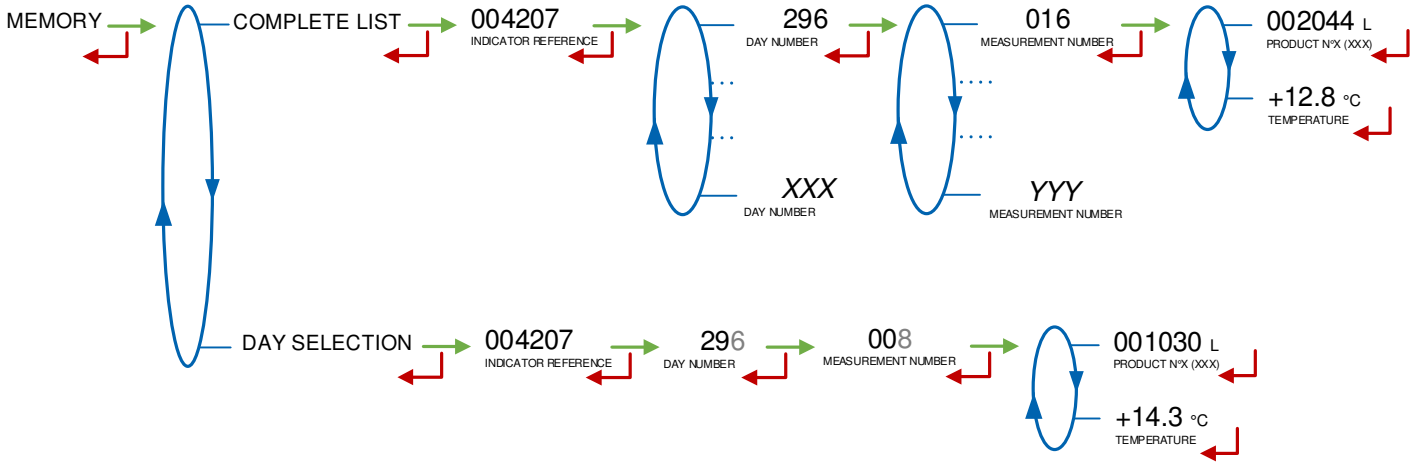
You can read all the measurement results stored by the MICROCOMPT+. That can be done in two ways:

COMPLETE LIST: Display all the measurement details recorded from the newest to the oldest, sorted by day then by measurement number.

DAY SELECTION: Display a specific measurement by selecting the day number and the measurement number.

For each measurement, you can read:

- The measured quantity, the number and the name of the product
- The temperature, with active option



5.4 Menu FREIGHT

This menu depends on the configuration of the LPG TRONIQUE. It is available if the freight control is activated (METROLOGICAL>CONFIGURATION>FREIGHT→ON). The product and the freight quantity are set by the user or automatically. In that case, they cannot be manually changed. The freight quantity is updated as the measuring operations progress.

For the next operation, the LPG TRONIQUE displays the name of the product set for the freight.

The free delivery mode can start if the quantity set for the freight is non-zero. The preset delivery mode can start if the quantity set for the freight is non-zero and if the preset volume is below or equal to this quantity.

When the user enters the preset volume, the MICROCOMPT+ can display the information that follows:

- MINIMUM QUANTITY: The volume set is less than the minimum quantity
- MAXIMUM QUANTITY: The volume set is higher than the quantity set for the freight
- PRESET→NOT POSSIBLE: The freight quantity is null or less than the minimum quantity
- FREE→NOT POSSIBLE: The freight quantity is null.

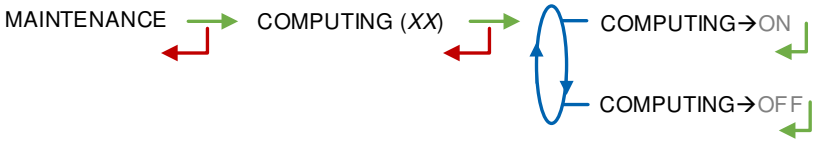
5.5 Menu MAINTENANCE

This menu depends on the configuration of the LPG TRONIQUE.

- If the LPG TRONIQUE controls an embedded computing (menu METROLOGICAL>EMBEDDED COMPUTING): this menu is used to activate or not the operation with embedded computing.

  COMPUTING→ON: Activate the operation with embedded computing

  COMPUTING→OFF: Activate the degraded operation without embedded computing (in case of failure for example)

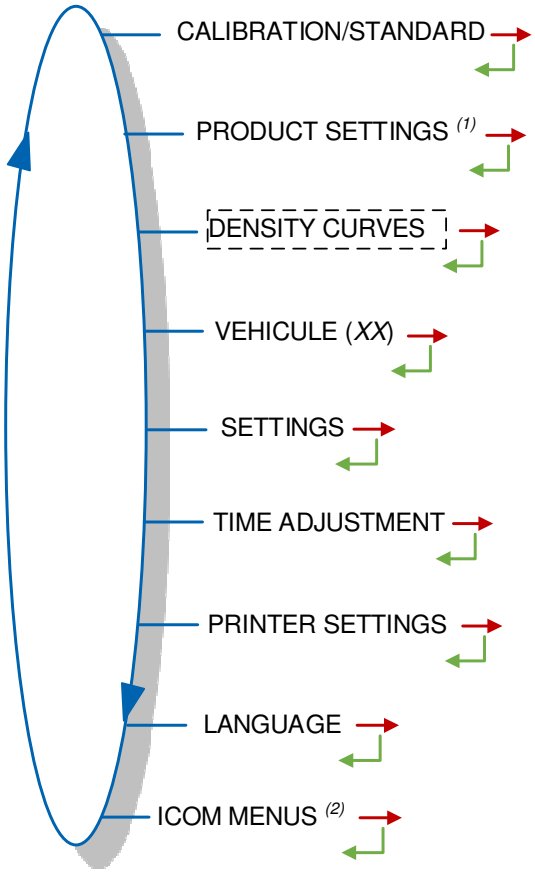


- If the LPG TRONIQUE controls the temperature, this menu is used to display the instantaneous temperature.

5.6 List of alarms

		DISPLAY	MEANING	ACTION
USER		STOP DELIVERY	Intentional interruption of delivery	Continue or end the delivery
		COMMUNICATION FAULT	Communication with the printer lost	Check the connection cable, on-off switch and fuse
		POWER SUPPLY PROBLEM	Power outage during delivery	Check the cause / Restore power supply
		ZERO FLOW DEFAULT	Zero flow	Check if the pulse transmitter is powered (red indicators)
		LOW FLOW DEFAULT	Low flowrate (less than 4m^3/h)	Check the hydraulic system (valve, strainer, nozzle…)
		HIGH FLOW DEFAULT	High flowrate (greater than maximal flowrate)	Check the parameters / Reduce flowrate
		METERING PROBLEM	Metering problem with the measuring device	Check if the pulse transmitter is powered (red indicators)
		PTO DEFAULT	Coherence failure with power take-off	Check the power take-off status in driver's cab
		HOSE BURST	Flowrate variation caused by a hose burst	The delivery is stopped automatically
		DIARY DEFAULT	Reset of the events diary	Acknowledge the alarm, check the date in supervisor mode (RFID key)
		Three tricolour LED on the MICROCOMPT+ front face are showing the wireless connection status as described in the operating manual MU 7051		
REPARATOR	NON BLOCKING	DISPLAY DEFAULT	Problem with display card	If steady alarm, substitution of the display card
		WATCHDOG DEFAULT	Fault with display or power card or AFSEC+ card	Switch on-off the MICROCOPT+ / If steady alarm, substitution of the faulty card
		TOTALISER LOST	Loss of totaliser	Substitution of the backup battery
		TEMPERATURE DEFAULT	Temperature determination failure	Check the temperature probe / If steady alarm, see a reparator for trouble shooting
	BLOCKING	MEMORY LOST (PILE)	Loss of saved memory	Substitution of the backup battery
		MEMORY LOST	Error on SIM memorization	Enter and exit the METROLOGICAL mode / If steady alarm, substitution of the backup battery
		DATE AND TIME LOST	Loss of date and time	Set date and time in supervisor mode (RFID key)
		COEFFICIENTS DEFAULT	Deviation between coefficient LF/HF greater than 0.5%	Modification of the low flow coefficient (K1)
		PROM DEFAULT	Loss of software or resident integrity	Substitution of the AFSEC+ electronic card
		RAM DEFAULT	Saved memory fault	Substitution of the AFSEC+ electronic card
		EEPROM MEMORY LOST	Loss of metrological configuration	Substitution of the AFSEC+ electronic card
		MEMORY OVER LOADED	SIM memory full	Substitution of the AFSEC+ electronic card

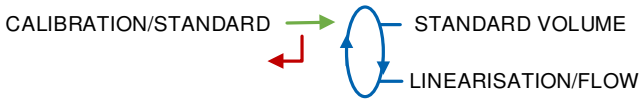
6 SET THE LPG TRONIQUE: SUPERVISOR MODE



PRODUCT SETTINGS *(1)*: Access restricted to permitted persons with RFID key Level2-Manager or Level3-Maintenance.

ICOM MENUS *(2)*: The sub-menus are different according to the level of access: Level1-User, Level2-Manager and Level3-Maintenance.

6.1 Menu CALIBRATION/STANDARD



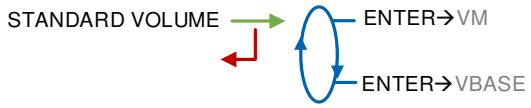
6.1.1 Sub-menu STANDARD VOLUME

This menu allows you to check the accuracy of the measuring system by calculating the measuring device error, the new corrected coefficient and the average flow.

First, fill the gauge (USER mode) in high or low flow with predetermination of the volume.

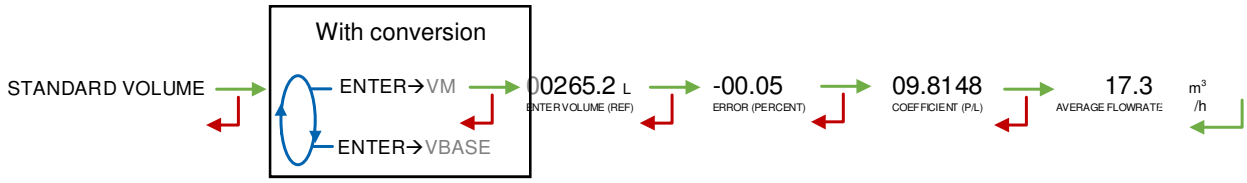
Switch to SUPERVISOR mode, select CALIBRATION/STANDARD>STANDARD VOLUME and validate.

When conversion is active, you can choose to compare volumes with or without temperature-compensation. When conversion is not active, this possibility is not available:



Enter the reference volume and validate. The MICROCOMPT+ displays the information that follows:

- The signed error in %
- The coefficient revised as a function of the error
- The average flow of the delivery.



6.1.2 Sub-menu LINEARISATION/FLOW

This menu is used to make a flow-correction for two measuring points (at low and high flowrate). The MICROCOMPT+ stores flowrate and coefficient calibrated values in order to define both correction points at low and high flowrate.

When you validate the menu LINEARISATION/FLOW, the calibrated values are displayed; you need to unseal the MICROCOMPT+ to switch in METROLOGICAL mode and enter the values via the EMA>METER COEFFICIENT menu.

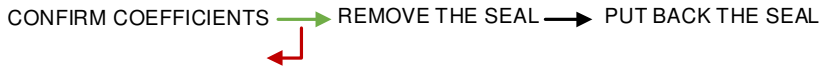
To linearize the curve, two tests are necessary:

- Fill the gauge in high flow [$flow_{min}$x3]≤high flow<[$flow_{max}$], and enter the volume read on the gauge in the menu CALIBRATION/STANDARD>STANDARD VOLUME as described above
- Fill the gauge in low flow [$flow_{min}$]≤flow<[$flow_{min}$x2], and enter the volume read on the gauge in the menu CALIBRATION/STANDARD>STANDARD VOLUME as described above
- Select CALIBRATION/STANDARD>LINEARISATION/FLOW and validate. Then, you can see the coefficients and the flow rates data for the two tests carried out

If the procedure failed, the MICROCOMPT+ can display the information that follows:

- LARGE GAP K1/K2: Correction between both measuring points more than 0.5%
- FLOWS TOO CLOSE: High flowrate value is out of range. It needs to be: [$flow_{min}$x3]≤high flow<[$flow_{max}$].
- LO-FLOW OUT OF RANGE: Low flowrate value is out of range. It needs to be: [$flow_{min}$]≤low flow≤$flow_{min}$x2]
- ONLY ONE GAUGE: One of the tests has not been done (at low or high flowrate)
- NO VALID GAUGE: Both tests have not been done (at low and high flowrate)

When the procedure is completed, the MICROCOMPT+ displays the sequence that follows:



The new coefficient and flow rates values are taken into account.

6.2 Menu PRODUCT SETTINGS

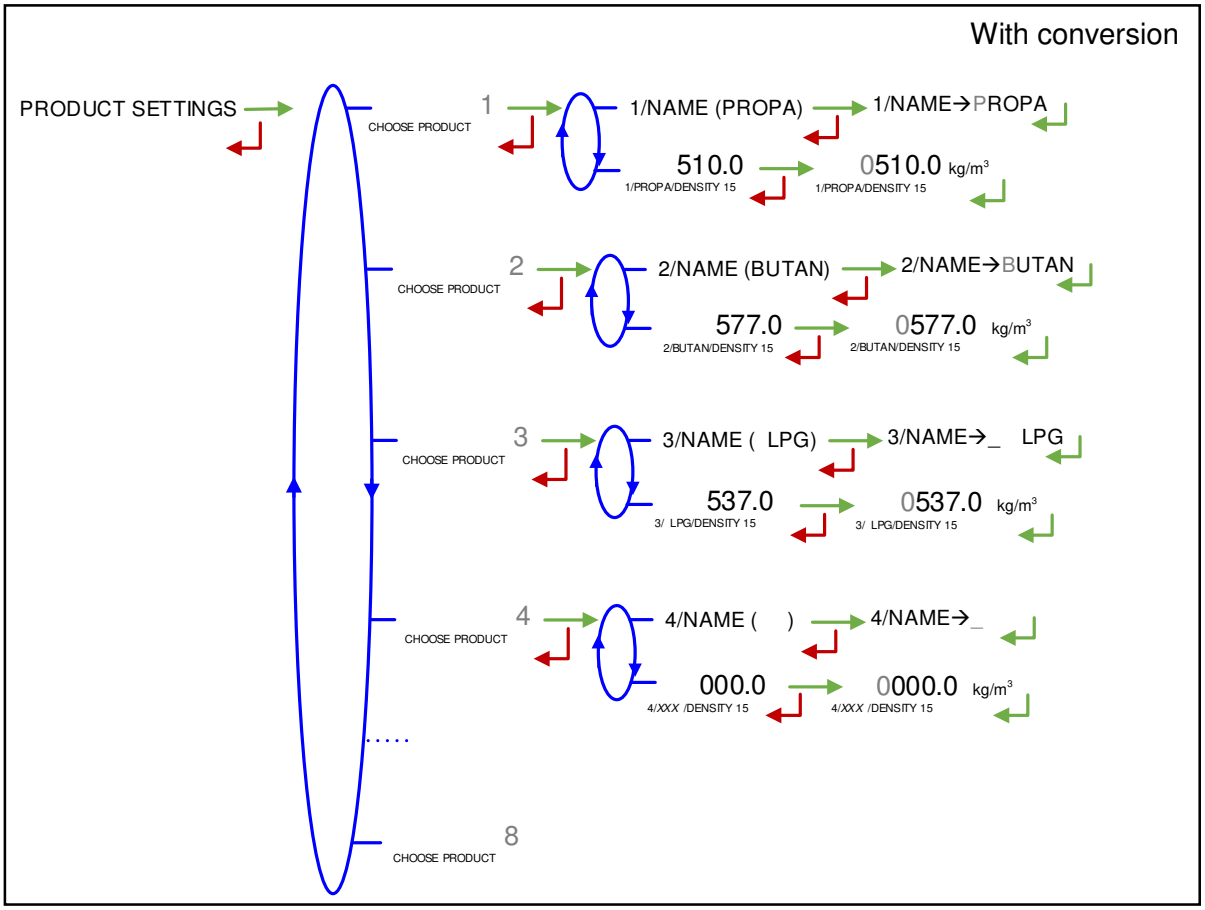
Access restricted to permitted persons with RFID key Level2-Manager, Level3-Maintenance.
It depends on the LPG TRONIQUE metrological configuration.

6.2.1 With conversion

METROLOGICAL configuration:

- CONFIGURATION>CONVERSION – MAIN DISPLAY→VBASE, **or**
- CONFIGURATION>CONVERSION – MAIN DISPLAY→VM

A maximum of 8 products may be configured. Each time, set or validate the name of the product and then the density.



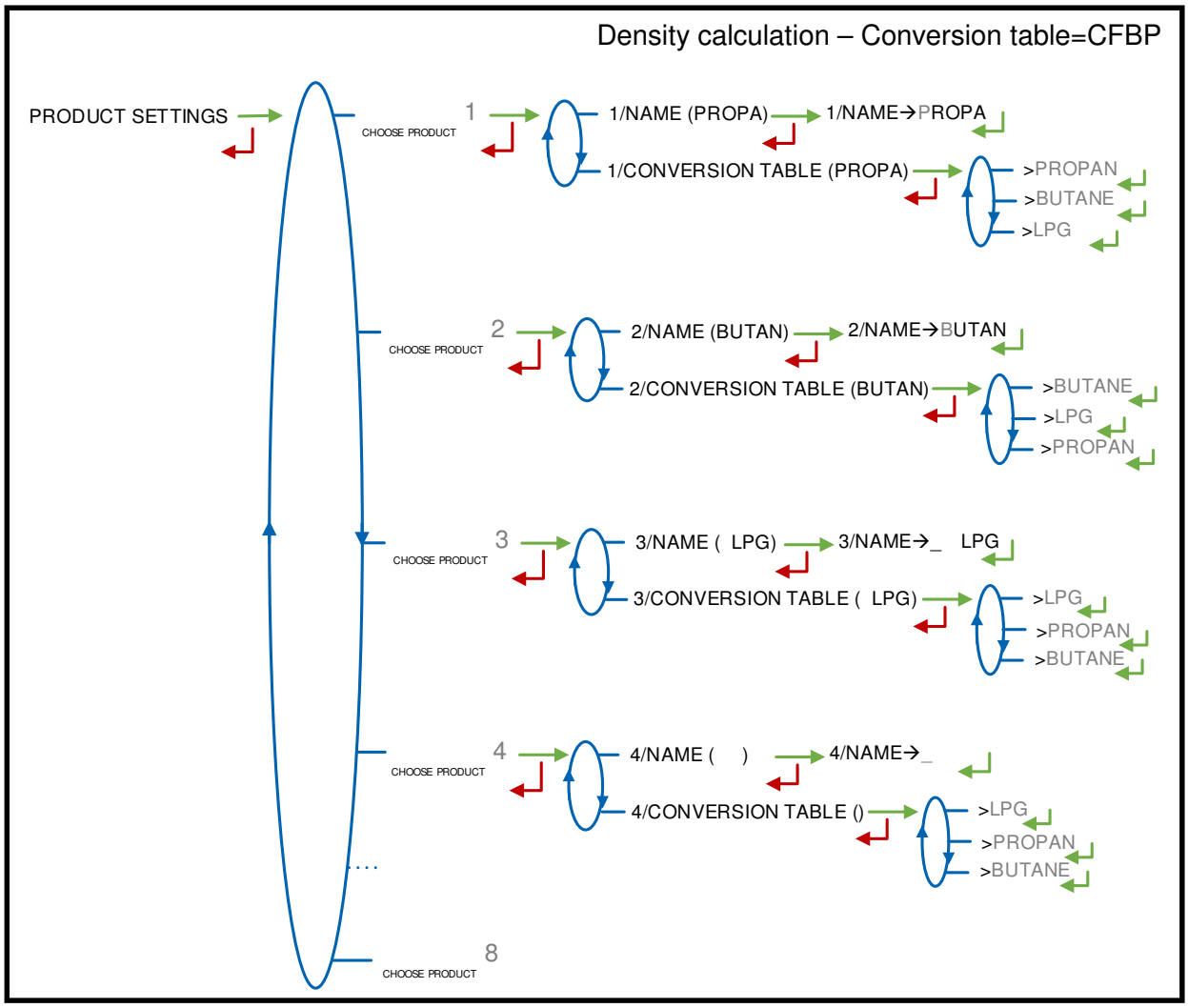
6.2.2 Without conversion

METROLOGICAL configuration:

CONFIGURATION>CONVERSION→ON **and**

CONFIGURATION>DENSITY CALCULATION→CFBP.

A maximum of 8 products may be configured. Each time, set or validate the name and then choose the equivalent product for conversion: PROPANE, BUTANE or LPG.

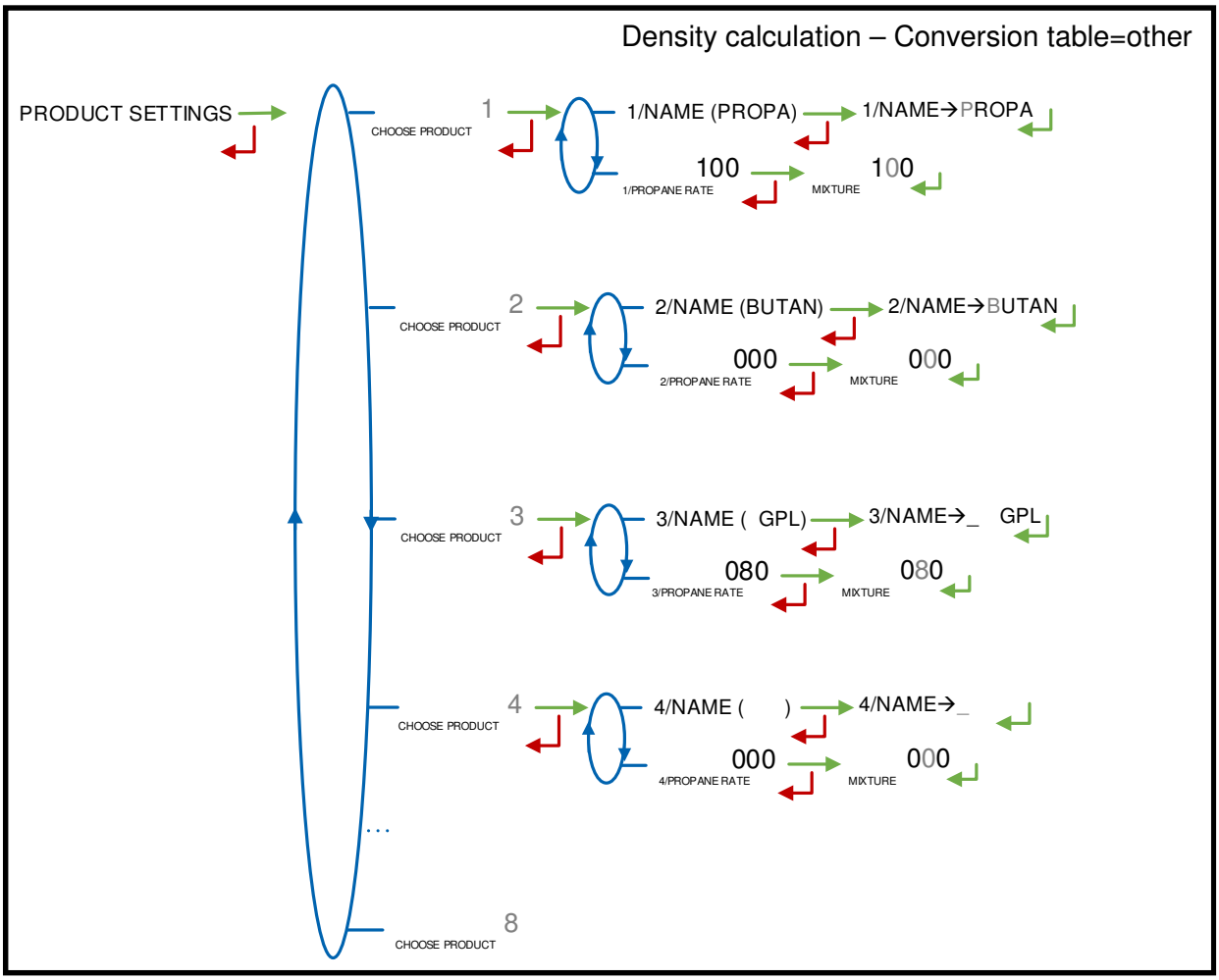


METROLOGICAL configuration:

CONFIGURATION>CONVERSION→OFF **and**

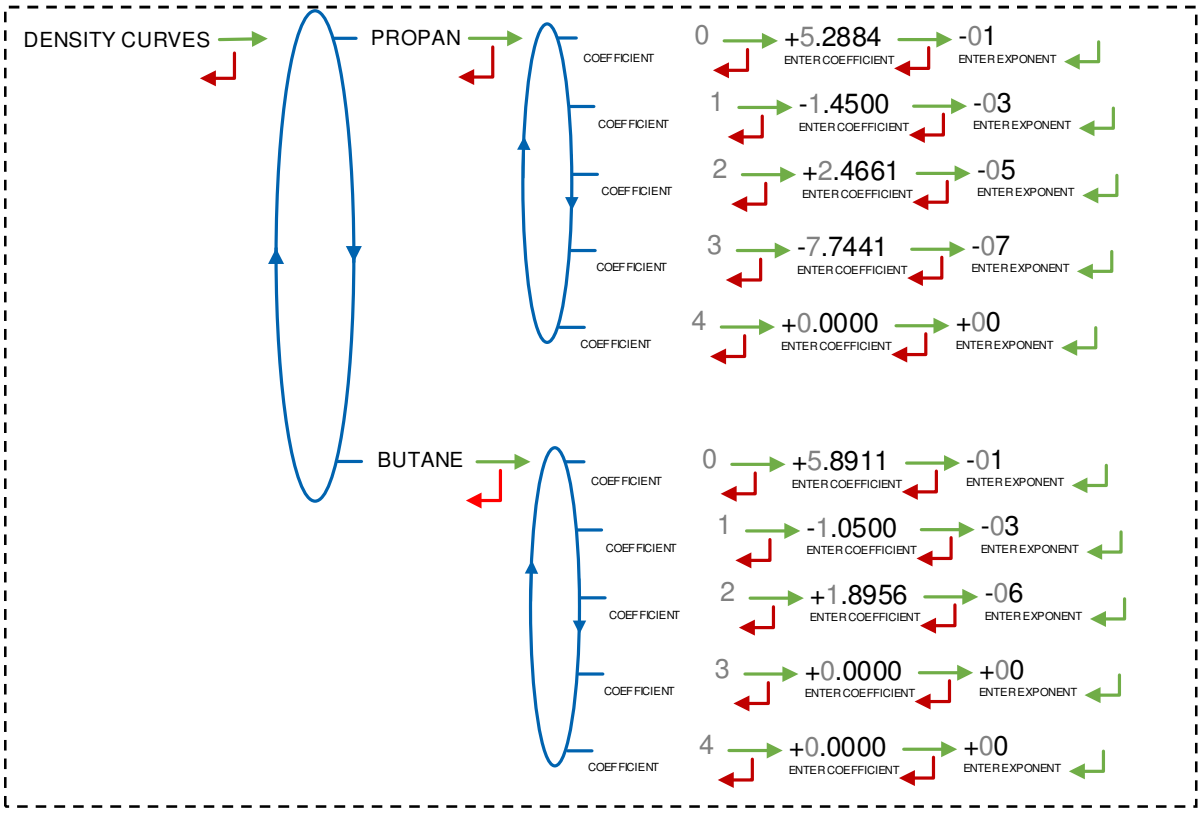
CONFIGURATION>DENSITY CALCULATION→OTHER.

A maximum of 8 products may be configured. Each time, set or validate the name and the propane rate.



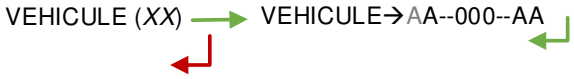
6.3 Menu DENSITY CURVES

This menu is available if conversion is off. The feature is enabled in METROLOGICAL mode (CONFIGURATION>DENSITY CALCULATION→OTHER). The coefficients of the polynomial used for density calculation must be entered in this menu.

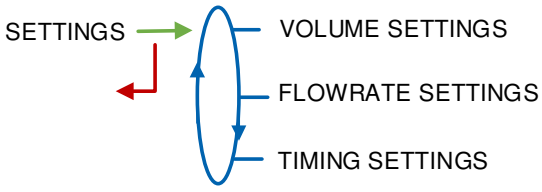


6.4 Menu VEHICLE

Record the vehicle registry number on which the LPG TRONIQUE is installed. This number will be printed on delivery tickets, etc.



6.5 Menu SETTINGS

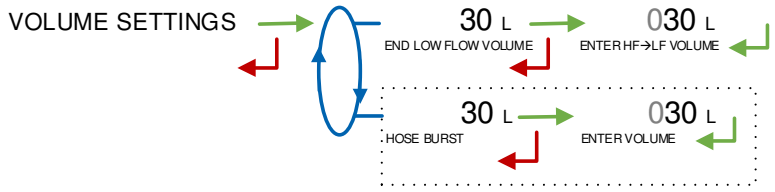


6.5.1 Sub-menu VOLUME SETTINGS

You can set the volume parameters that follow:

END LOW FLOW VOLUME: Record the volume (in liters) delivered in low flowrate to complete the measurement.

HOSE BURST: This menu appears if the option has been activated during the commissioning of the LPG TRONIQUE (CONFIGURATION>HOSE BURST). Volume (litres) beyond which the LPG TRONIQUE controls a material flowrate variation that may happen during a hose burst.

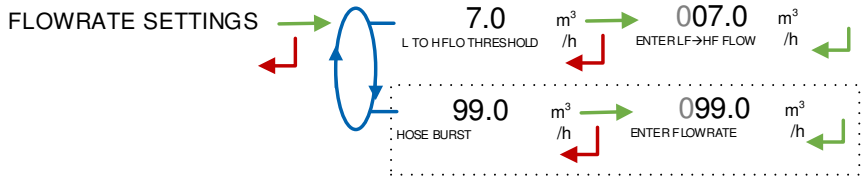


6.5.2 Sub-menu FLOWRATE SETTINGS

You can set the flowrate parameters that follow:

L TO H FLO THRESHOLD: Record the flowrate beyond which the LPG TRONIQUE switches from low to high flowrate.

HOSE BURST: This menu appears if the option has been activated during the commissioning of the LPG TRONIQUE (CONFIGURATION>HOSE BURST). Flowrate gradient (m3/h/sec) beyond which the LPG TRONIQUE stops the delivery.



6.5.3 Sub-menu TIMING SETTINGS

This menu allows setting the duration parameters:

SHORT TIME FLOW_0: Time out in seconds before operating the 'zero flow default' without any flow of liquid

LONG TIME FLOW_0: Time out in seconds before operating the 'zero flow default' after a flow of liquid

T.O DECLUTCHING (S): Time out in seconds between pushing start and declutching

T.O DECLUTCH→PTO (S): Time out in seconds between declutching and PTO switching on

T.O PTO→VALVE (S): Time out in seconds between PTO switching on and the valve opening

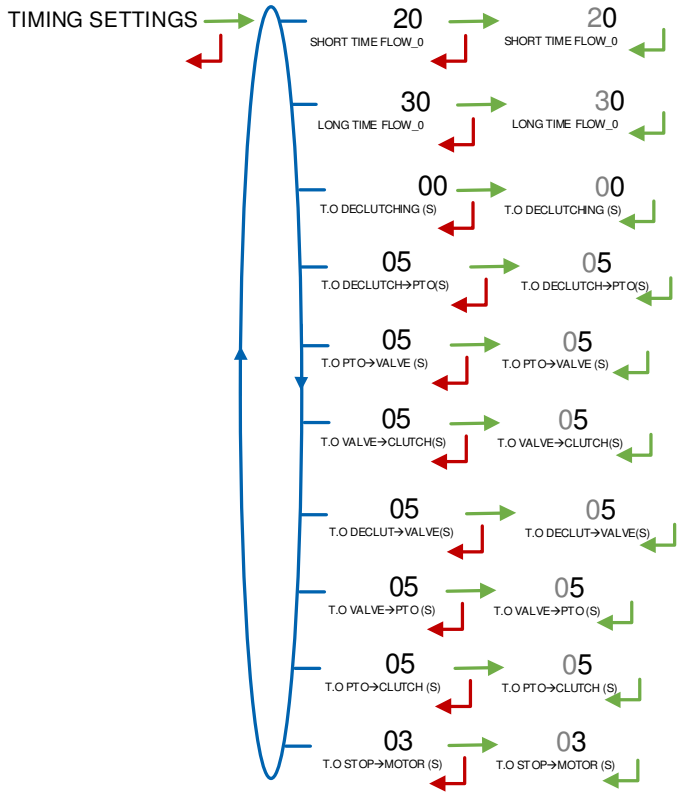
T.O VALVE→CLUTCH (S): Time out in seconds between valve opening and clutching

T.O DECLUTCH→VALVE(S): Time out in seconds between declutching and the valve closing

T.O VALVE→PTO (S): Time out in seconds between the valve closing and the PTO switching off

T.O PTO→CLUTCH (S): Time out in seconds between the PTO switching off and the clutching

T.O STOP→MOTOR (S): Time out in seconds between pushing stop and the engine cut.



6.6 Menu TIME ADJUSTMENT

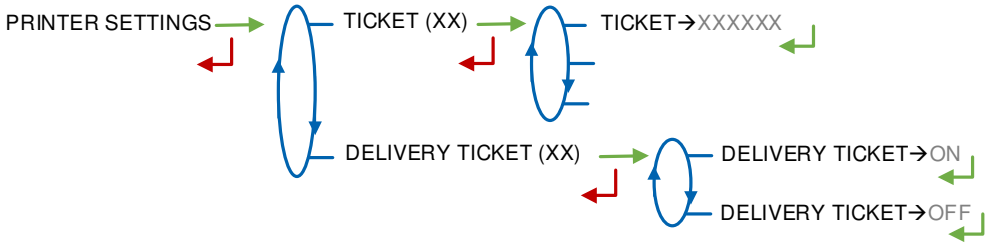
Date and time are set in METROLOGICAL mode. You can adjust time (±2h) one time a day. Use French format, for example: 14.41 means 2.41 pm.

6.7 Menu PRINTER SETTINGS

TICKET: Choose the ticket format for printing the delivery ticket.

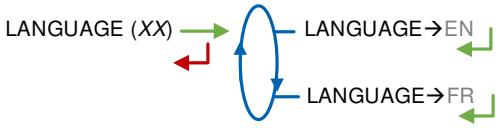
DELIVERY TICKET:

- DELIVERY TICKET>ON: The printing of the delivery ticket is proposed at the end of the delivery
- DELIVERY TICKET>OFF: The printing of the delivery ticket is not proposed at the end of the delivery. It may be printed later through the menu USER>PRINT>DELIVERY TICKET.



6.8 Menu LANGUAGE

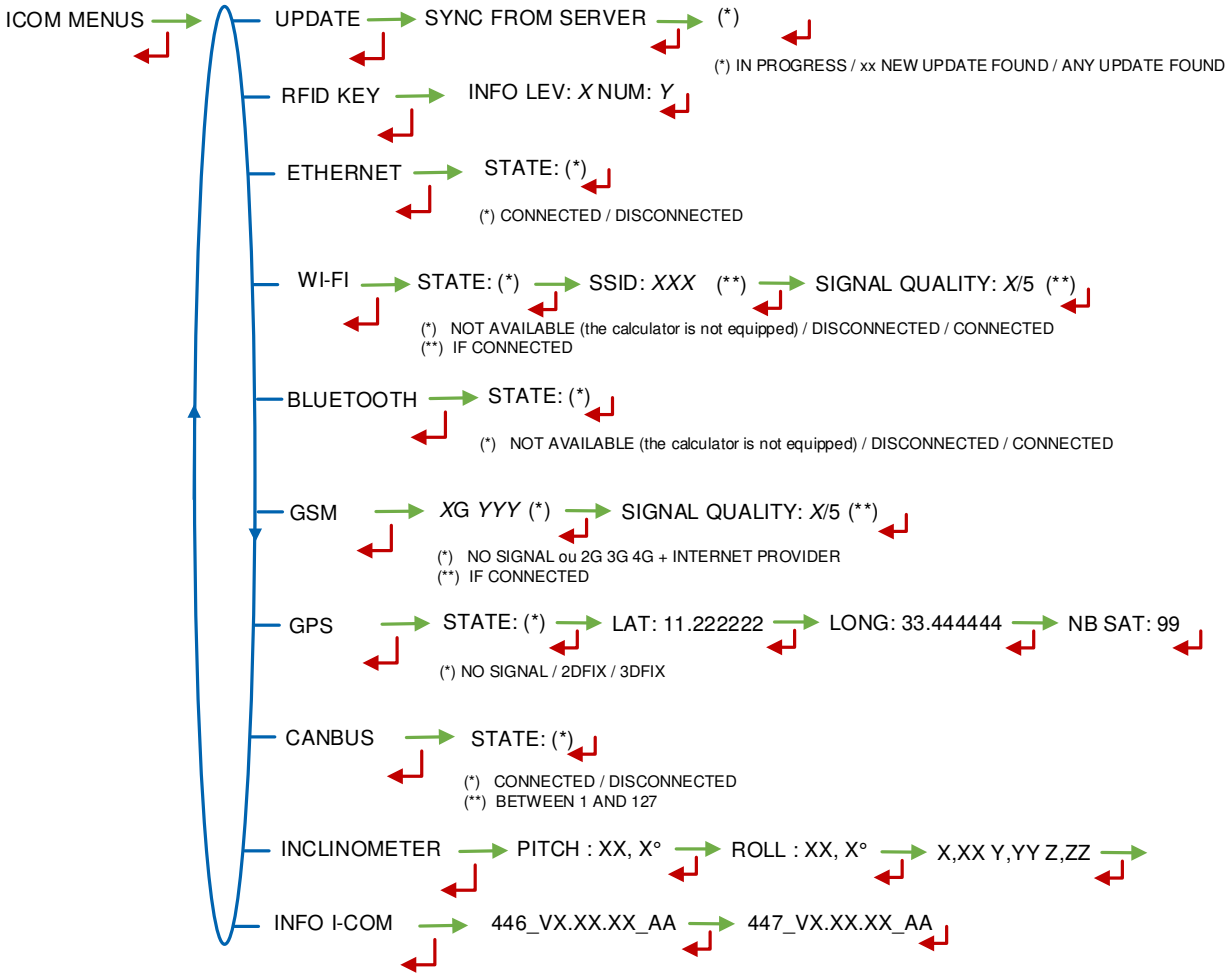
Select the display language. This menu is available if a translation catalogue is uploaded in the MICROCOMPT+.



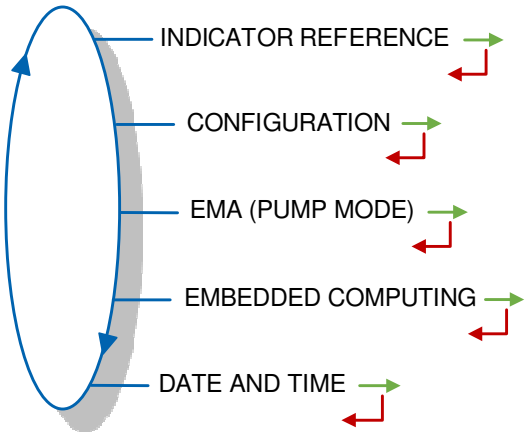
6.9 Menu ICOM MENUS

The sub-menus are different according to the level of access: The parameters available with the RFID key Level1-User are shown below.

The ANNEXE 1 shows all the sub-menus available according to the level of access.



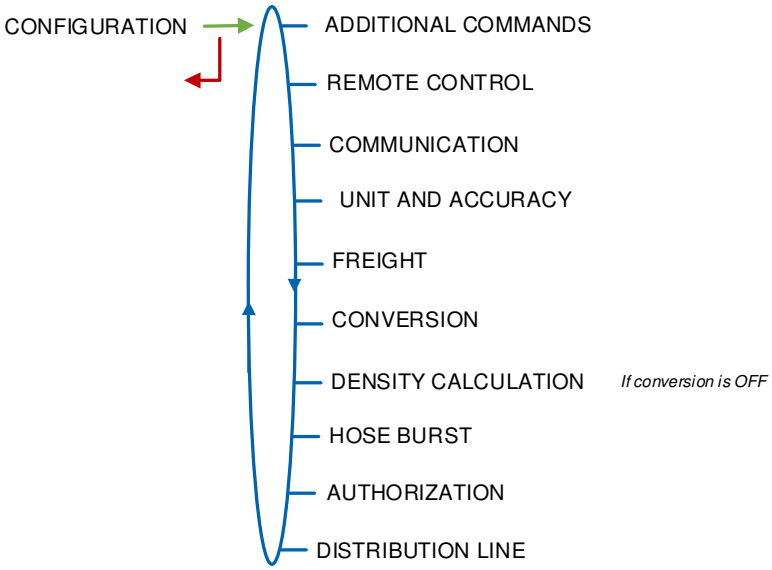
7 CONFIGURE THE LPG TRONIQUE: METROLOGICAL MODE



7.1 Menu INDICATOR REFERENCE

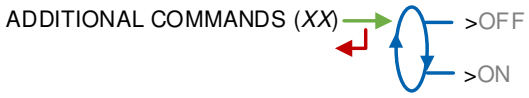
Record the MICROCOMPT+ serial number (alphanumeric value).

7.2 Menu CONFIGURATION



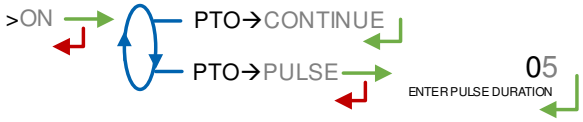
7.2.1 Sub-menu ADDITIONAL COMMANDS

Operation with or without a remote control.



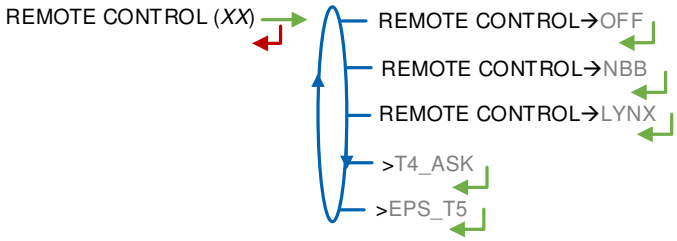
When additional commands is active, this menu allows to select the type of command for power take off.

PTO: Non-stop command PTO→CONTINUE or command by pulse PTO→PULSE.



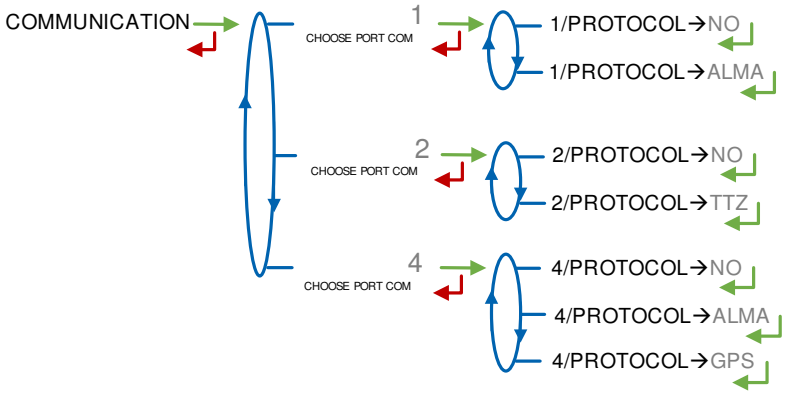
7.2.2 Sub-menu REMOTE CONTROL

This menu allows to choose the remote control model.



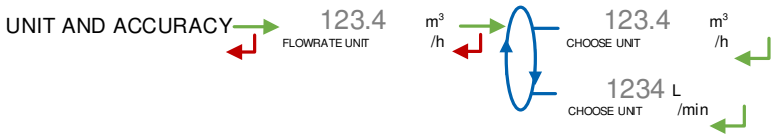
7.2.3 Sous-menu COMMUNICATION

Choose the network communication port: COM 1 (RS232), COM 2 (RS485), COM 4 (RS232) and then for each port, choose the communication protocol.



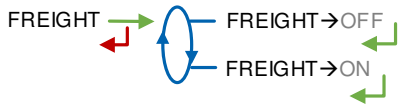
7.2.4 Sub-menu UNIT AND ACCURACY

Choose the unit of the flow rate that will be displayed and printed.



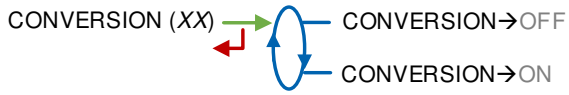
7.2.5 Sub-menu FREIGHT

Operation with or without freight control A freight is associated to a product and a quantity in user mode.



7.2.6 Sub-menu CONVERSION

The LPG TRONIQUE can operate with conversion or without conversion.



Changing the status forces the reset of the metrological diary by causing a MEMORY LOST fault.

When conversion is active, the following parameters must be set:

MAIN DISPLAY: Select the type for displayed quantity

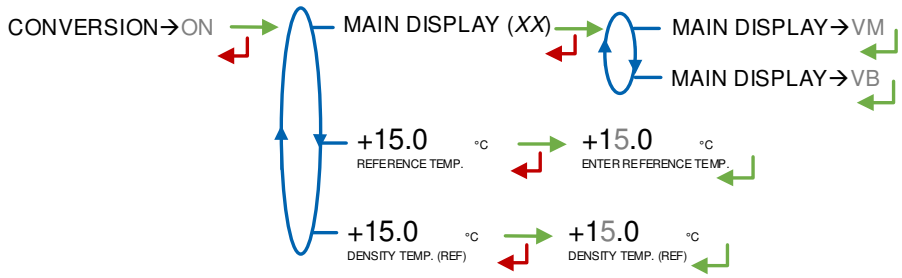
VM: volume in metering conditions

VB: volume converted to the reference temperature

REFERENCE TEMP.: Record the reference temperature for conversion. Default value: 15°C for the most common conversion.

DENSITY TEMP (REF): Record the reference temperature for set up densities. Default value: 15°C for density at 15°C (MV15).

Changing one of the reference temperature values resets the metrological diary by causing a MEMORY LOST fault.

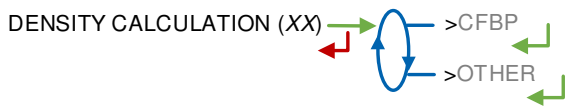


7.2.7 Sub-menu DENSITY CALCULATION

This menu is available if conversion is off. Density can be calculated in two ways:

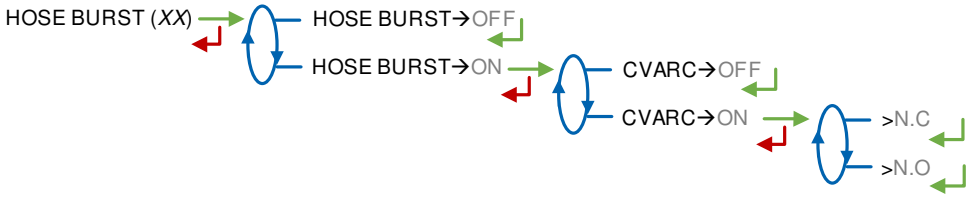
>CFBP: By using the CFBP table

>OTHER: By using another curve. If the option is enabled, the coefficients of the polynomial must be entered in a specific menu of the SUPERVISOR MODE: DENSITY CURVES



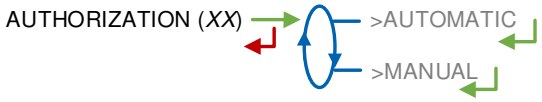
7.2.8 Sub-menu HOSE BURST

This menu is used to configure an emergency stop in case of hose burst.



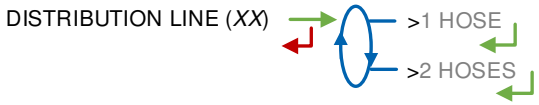
7.2.9 Sub-menu AUTHORIZATION

This menu is used to configure how the delivery starts:
>AUTOMATIC: The delivery starts automatically
>MANUAL: Press the green button OK to start delivery.

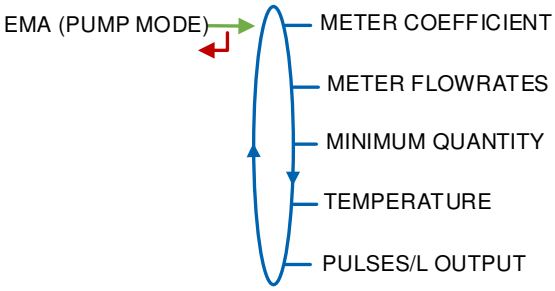


7.2.10 Sub-menu DISTRIBUTION LINE

This menu allows to set the number of distribution ways:
1 HOSE: Operation with one hose
2 HOSES: Operation with two hoses.

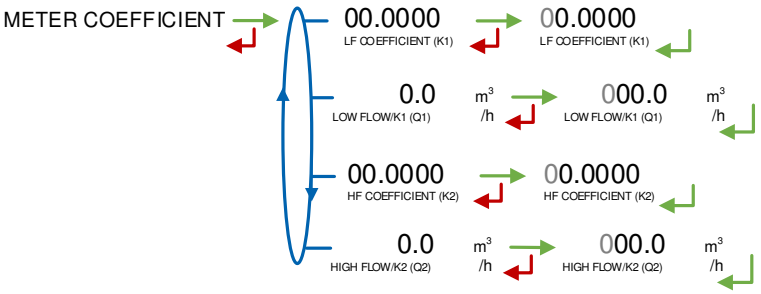


7.3 Menu measuring system EMA (PUMP MODE)



7.3.1 Sub-menu METER COEFFICIENT

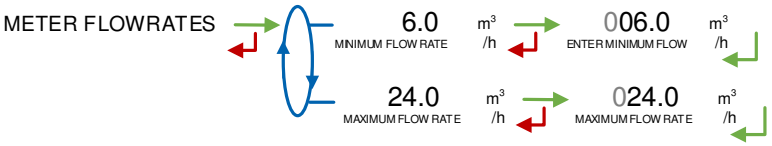
Enter the coefficient of the measuring system meter (pulses/liter).
LF COEFFICIENT (K1): Coefficient for low flow (pulses/liter)
LOW FLOW/K1 (Q1): Low flow reference (m^3/h)
HF COEFFICIENT (K2): Coefficient for high flow (pulses/liter)
HIGH FLOW/K2 (Q2): High flow reference (m^3/h)



7.3.2 Sub-menu METER FLOWRATES

MINIMUM FLOWRATE: Record the metrological minimum flowrate of the LPG TRONIQUE in m^3/h or l/min. You can select the flow unit in the menu CONFIGURATION>UNIT AND ACCURACY.

MAXIMUM FLOWRATE: Record the metrological maximum flowrate of the LPG TRONIQUE in m^3/h or l/min. You can select the flow unit in the menu CONFIGURATION>UNIT AND ACCURACY.

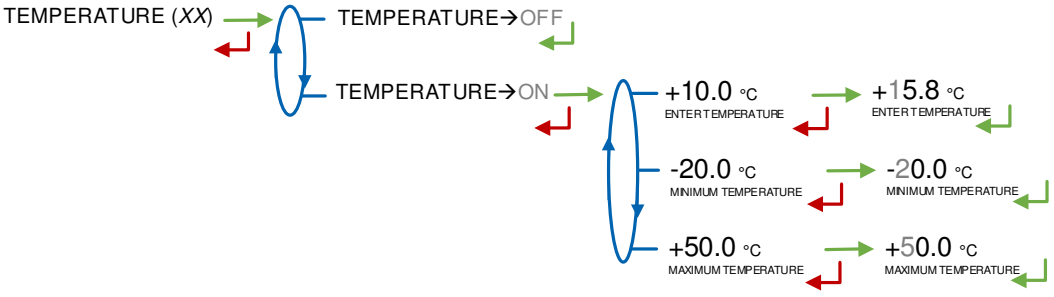


7.3.3 Sub-menu MINIMUM QUANTITY

Record the minimum quantity of the LPG TRONIQUE in liters. This value is given by the association of the turbine meter, the MICROCOMPT+ and other parts of the LPG TRONIQUE.

7.3.4 Sub-menu TEMPERATURE

This menu is an option. It is used to calibrate the temperature into the MICROCOMPT+. See maintenance sheet FM 8510.



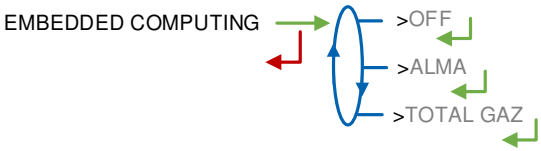
7.3.5 Sub-menu PULSES OUTPUT

Copy out the volume measured by the LPG TRONIQUE.

Record the number of pulses that the MICROCOMPT+ must generate for each display-unit counted in the totaliser. Enter a null value to disable the function.

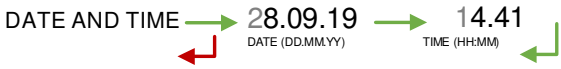
7.4 Menu EMBEDDED COMPUTING

Select the communication protocol of the embedded computing.



7.5 Menu DATE AND TIME

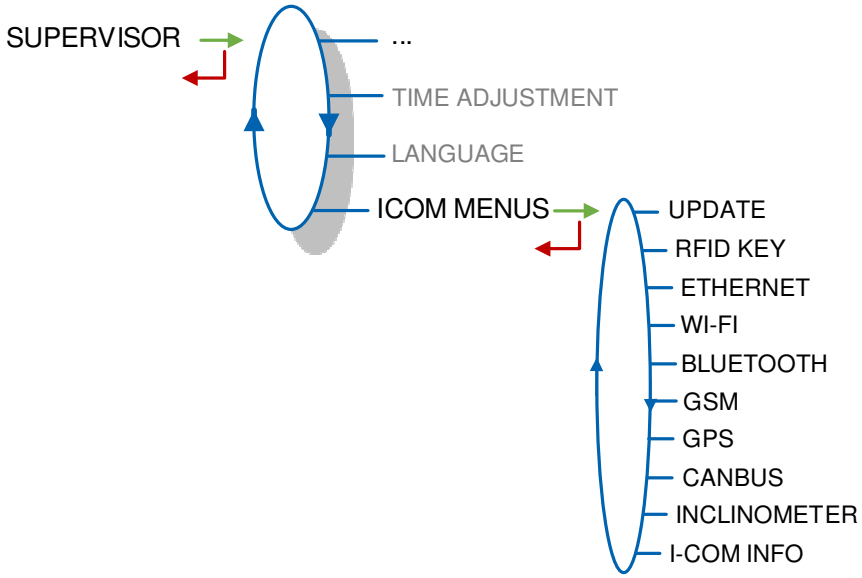
Record the date. Then record the time at French format and validate (e.g. 14.41 means 2.41 pm).



ANNEX 1: PRESENTATION OF THE MENU SUPERVISOR>ICOM MENUS

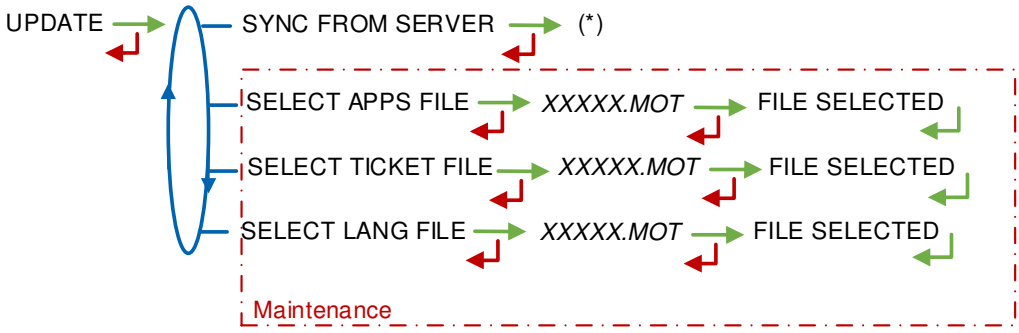
The sub-menus are different according to the level of access:

- ⇨ Level1-User: The sub-menus are not highlighted See Menu ICOM MENUS for simplified presentation
- ⇨ Level2-Manager The sub-menus are indicated in green boxes
- ⇨ Level3-Maintenance The sub-menus are indicated in red boxes



1.1. Menu UPDATE

The MICROCOMPT+ connects to the server via Wi-Fi, Bluetooth, Ethernet or GSM.



(*) IN PROGRESS / xx NEW UPDATE FOUND / ANY UPDATE FOUND

SYNC FROM SERVER: Synchronization of the updated files from ALMA server. If an update of the functions or the communication configuration is uploaded, it will be applied on the next reboot of the MICROCOMPT+.

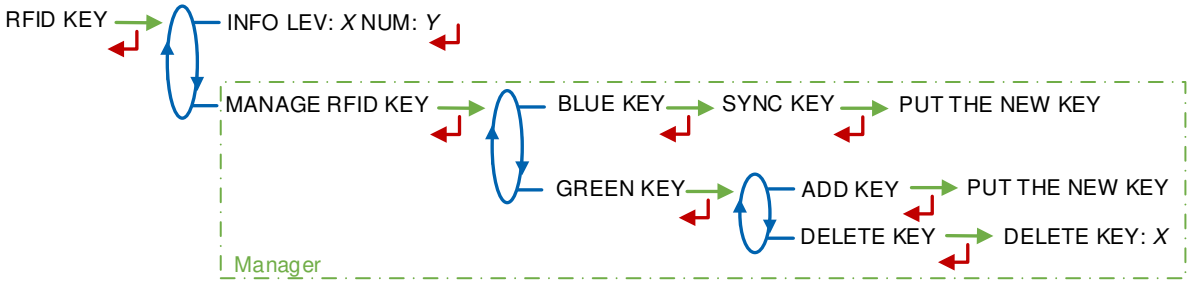
SELECT APPS FILE(*) – *Access restricted to the Maintenance*: Used to display and select the version(s) of the application available on the SD card. NO FILE is displayed if there's no file to download.

SELECT TICKET FILE(*) – *Access restricted to the Maintenance*: Used to display and select the version(s) of the ticket file available on the SD card. NO FILE is displayed if there's no file to download.

SELECT LANG FILE(*) – *Access restricted to the Maintenance*: Used to display and select the version(s) of the translation catalogue available on the SD card. NO FILE is displayed if there's no file to download.

(*) Selected files are automatically downloaded onto the AFSEC board when switching the MICROCOMPT+ into 'Resident' mode. See the operating manual MU 7037 (§2).

1.2. Menu RFID KEY



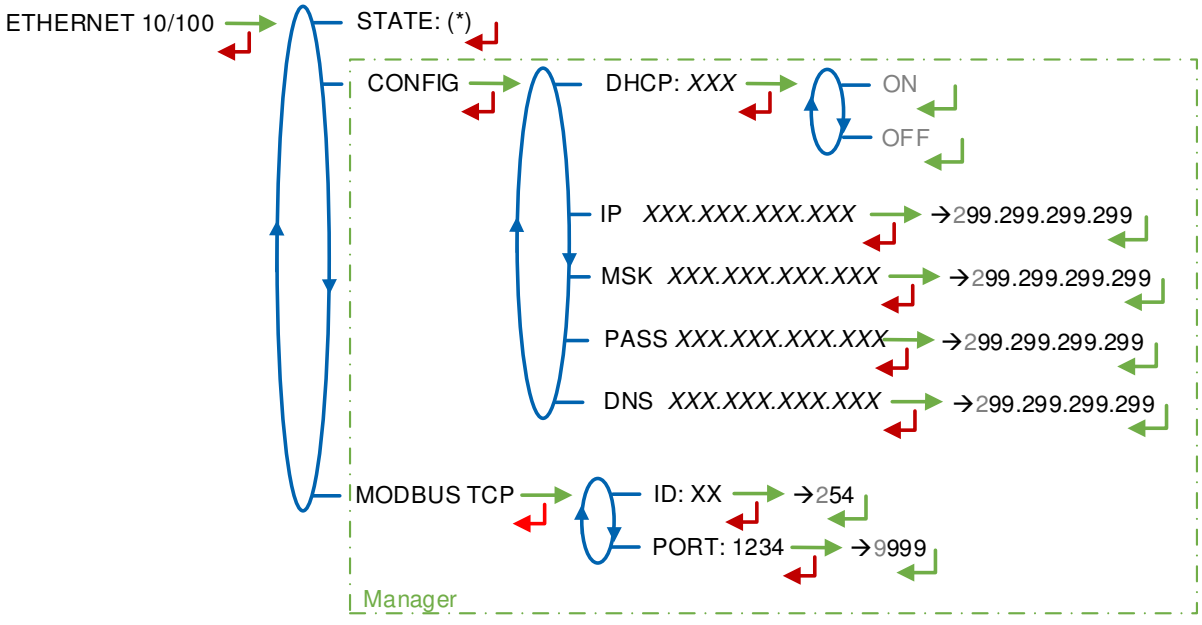
INFO: Display of the level and the identifier of the RFID key (blue key: Level1-User, green key: Level2-Manager, red key: Level3-Maintenance)

MANAGE RFID KEY – *Access restricted to the Manager*:

BLUE KEY: Used to associate an RFID key Level1-User to the MICROCOMPT+

GREEN KEY: Used to associate an RFID key Level2-Manager to the MICROCOMPT+ or to remove keys that have already been associated.

1.3. Menu ETHERNET



(*) CONNECTED / DISCONNECTED

STATE: Status of the Ethernet connection

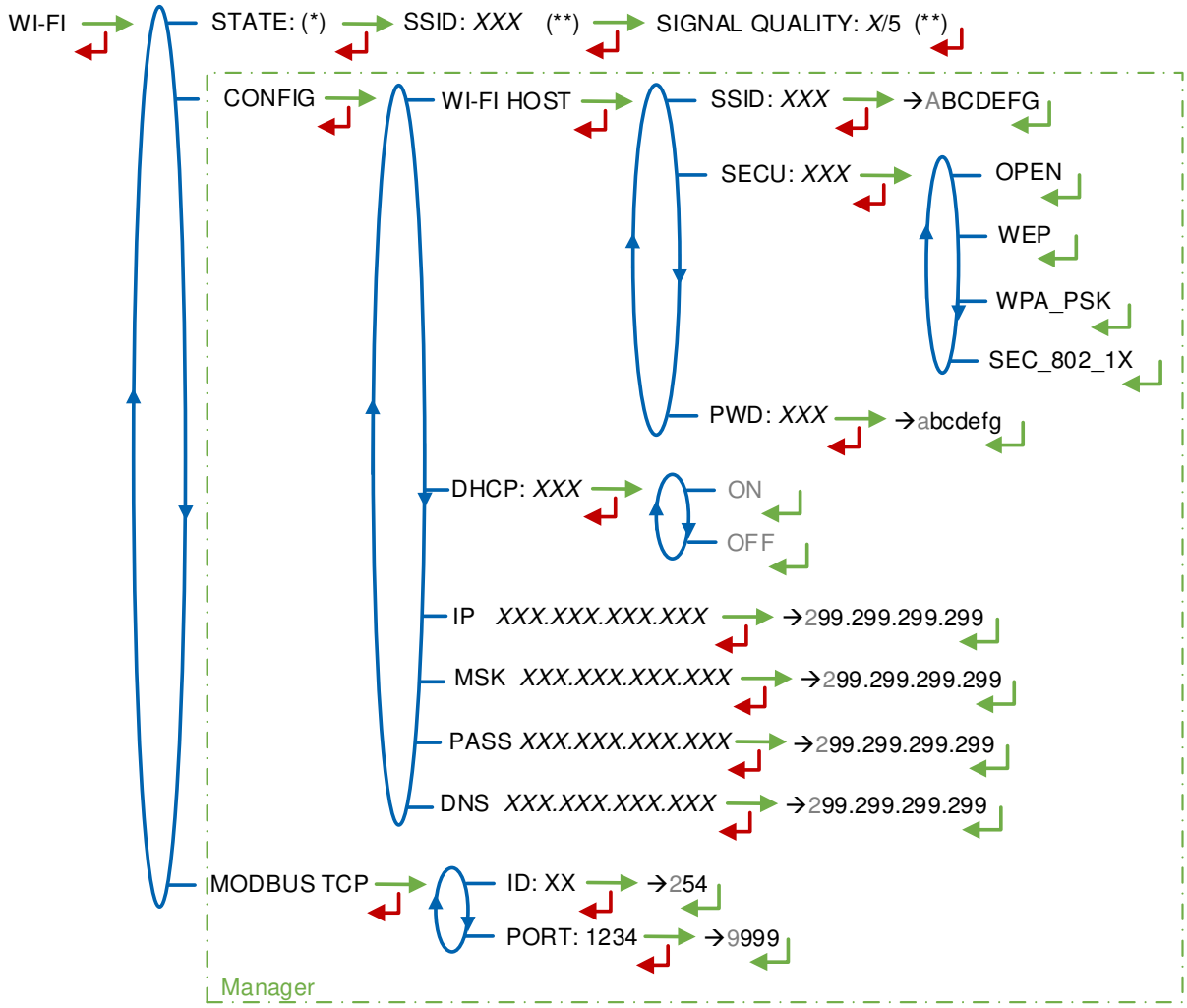
CONFIG – *Access restricted to the Manager*:

DHCP: If ON is enabled, IP parameters can be initialized through the DHCP protocol. If OFF is enabled, parameters are set manually

IP: IP: eMICROCOMPT+ IP address
MSK: Subnet mask (IP mask for the internal IP address allocation)
PASS: Gateway (IP Address for the internet access of the Ethernet interface)
DNS: IP Address to access a DNS server

MODBUS TCP – *Access restricted to the Manager*:
ID: eMICROCOMPT+ Modbus identifier between 0 and 255
PORT: TCP/IP access port for Modbus protocol

1.4. Menu Wi-Fi



(*) NOT AVAILABLE (the calculator is not equipped) / DISCONNECTED / CONNECTED
(**) IF CONNECTED

STATE: Status of the Wi-Fi connection. If connection is successful, you can do a check of SSID and quality

WI-FI HOST: Set the characteristics of the wireless network access point
SSID: 32 characters-alphanumeric key that identifies the wireless network uniquely
SECU: Type of security protocol for the network
OPEN: Free Wi-Fi

WEP: Encryption protocol by a key encoded in 64 or 128 bits

WPA_PSK: Encryption protocol by a 128 bits-dynamic key

SEC_802-1X: Encryption protocol compatible with the standard IEEE 802.1X

PWD: Network password. Permitted character: <space>!"#$%&'()*+,-./ 0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~<DEL> (See §3 visualization on the MICROCOMPT+ display)

DHCP: If ON is enabled, IP parameters can be initialized through the DHCP protocol. If OFF is enabled, parameters are set manually

IP: IP: eMICROCOMPT+ IP address

MSK: Subnet mask (IP mask for the internal IP address allocation)

PASS: Gateway (IP Address for the internet access of the Ethernet interface)

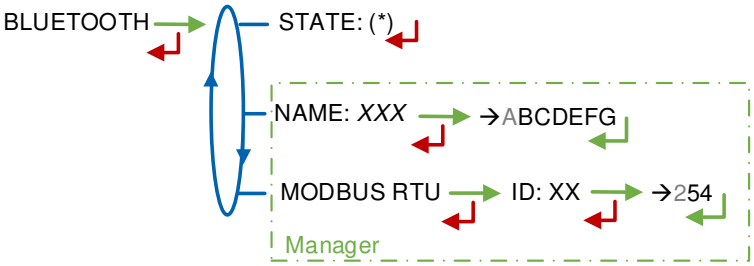
DNS: IP Address to access a DNS server

MODBUS TCP – *Access restricted to the Manager*:

ID: eMICROCOMPT+ Modbus identifier between 0 and 255

PORT: TCP/IP access port for Modbus protocol

1.5. Menu BLUETOOTH



(*) NOT AVAILABLE (the calculator is not equipped) / DISCONNECTED / CONNECTED

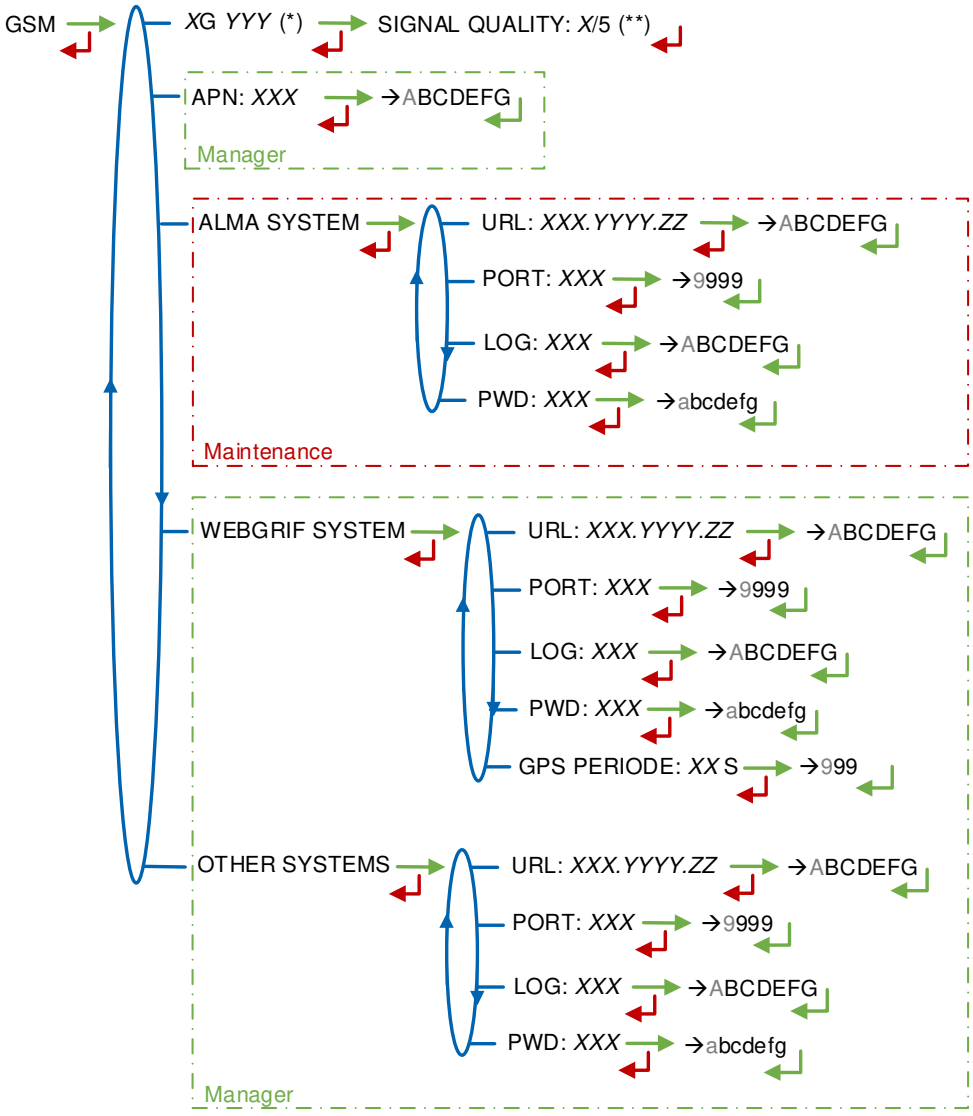
STATE: Status of the Bluetooth connection

NAME – *Access restricted to the Manager*: Set the connection name

MODBUS RTU – *Access restricted to the Manager*:

ID: Modbus identifier via Bluetooth (between 1 and 254)

1.6. Menu GSM



(*) NO SIGNAL ou 2G 3G 4G + INTERNET PROVIDER
(**) IF CONNECTED

XG YYY: The signal is being received: the type of mobile network is displayed (with X=2 for 2G, X=3 for 3G, and X=4 for 4G) according to the protocols GSM / GPRS / EDGE, UMTS / HSPA+ / LTE, followed by the name of the service provider. Otherwise NO SIGNAL is displayed

APN – *Access restricted to the Manager*: Name of the internet access point, only if ALMA does not supply it

ALMA SYSTEM – *Access restricted to the Maintenance*: Information of connection to the ALMA FTP server for files transfer

URL: Web address of the ALMA FTP server (host)

PORT: ALMA FTP server port, default value: 21

LOG: ALMA FTP server identifier

PWD: ALMA FTP server password. Permitted characters: <space>!"#$%&'()*+,-./

0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~<DEL> (See §3 visualization on the MICROCOMPT+ display)

WEBGRIF SYSTEM – *Access restricted to the Manager*: Information of connection to the Webgrif FTP server for files transfer

URL: Web address of the Webgrif FTP server (host)

PORT: Webgrif FTP server port, default value: 21

LOG: Webgrif FTP server identifier

PWD: Webgrif FTP server password. Permitted characters: <space>!"#$%&'()*+,-./

0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~<DEL> (See §3 visualization on the MICROCOMPT+ display)

GPS PERIOD: Backup period of GPS coordinates (from 1 to 999 seconds)

OTHER SYSTEM – *Access restricted to the Manager*: Information of connection to the FTP server for files transfer

URL: Web address of the FTP server (host)

PORT: FTP server port, default value: 21

LOG: FTP server identifier

PWD: FTP server password. Permitted characters: <space>!"#$%&'()*+,-./

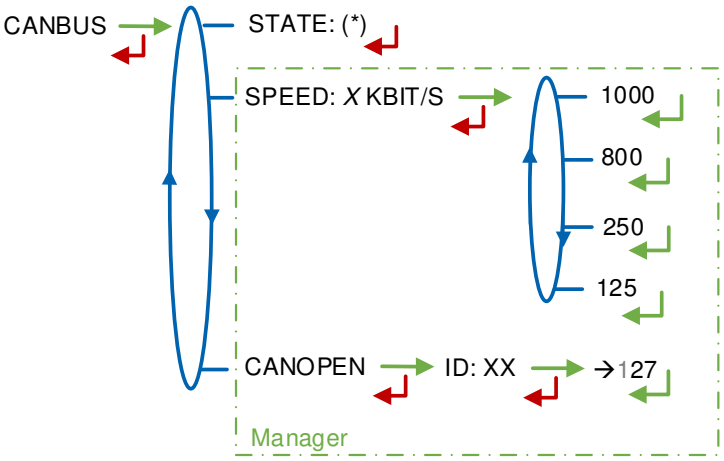
0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~<DEL> (See §3 visualization on the MICROCOMPT+ display)

1.7. Menu GPS

(*) NO SIGNAL / 2DFIX / 3DFIX

STATE: The signal is being received: the type of signal is displayed 2DFIX or 3DFIX. Validating the data makes the GPS coordinates appear (latitude then longitude), and lastly appears the number of satellites which signals are simultaneously received (that gives information about the position accuracy). Otherwise NO SIGNAL is displayed.

1.8. Menu CANBUS



(*) CONNECTED / DISCONNECTED
(**) BETWEEN 1 AND 127

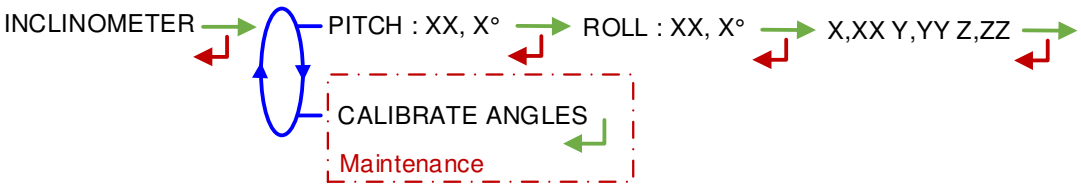
STATE: Status of the CANBus connection

SPEED – *Access restricted to the Manager*: Speed of the CANBus connection

CANOPEN – *Access restricted to the Manager*:

ID: Identifier for the CANopen protocol (between 1 and 127)

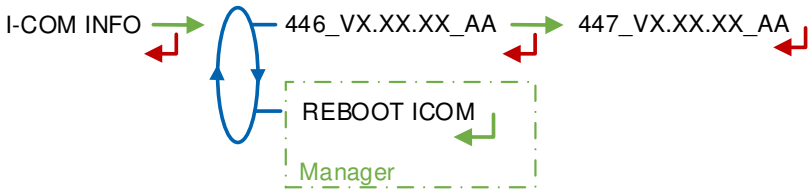
1.9. Menu INCLINOMETER



PITCH…: Used to display the bank angles of the truck and the inclinometer raw data

CALIBRATE ANGLES – *Access restricted to the Maintenance*: Used to reset the angles 'pitch' and 'roll' when the truck has a horizontal position in order to correct the assembly tolerances of the MICROCOMPT+ on the truck.

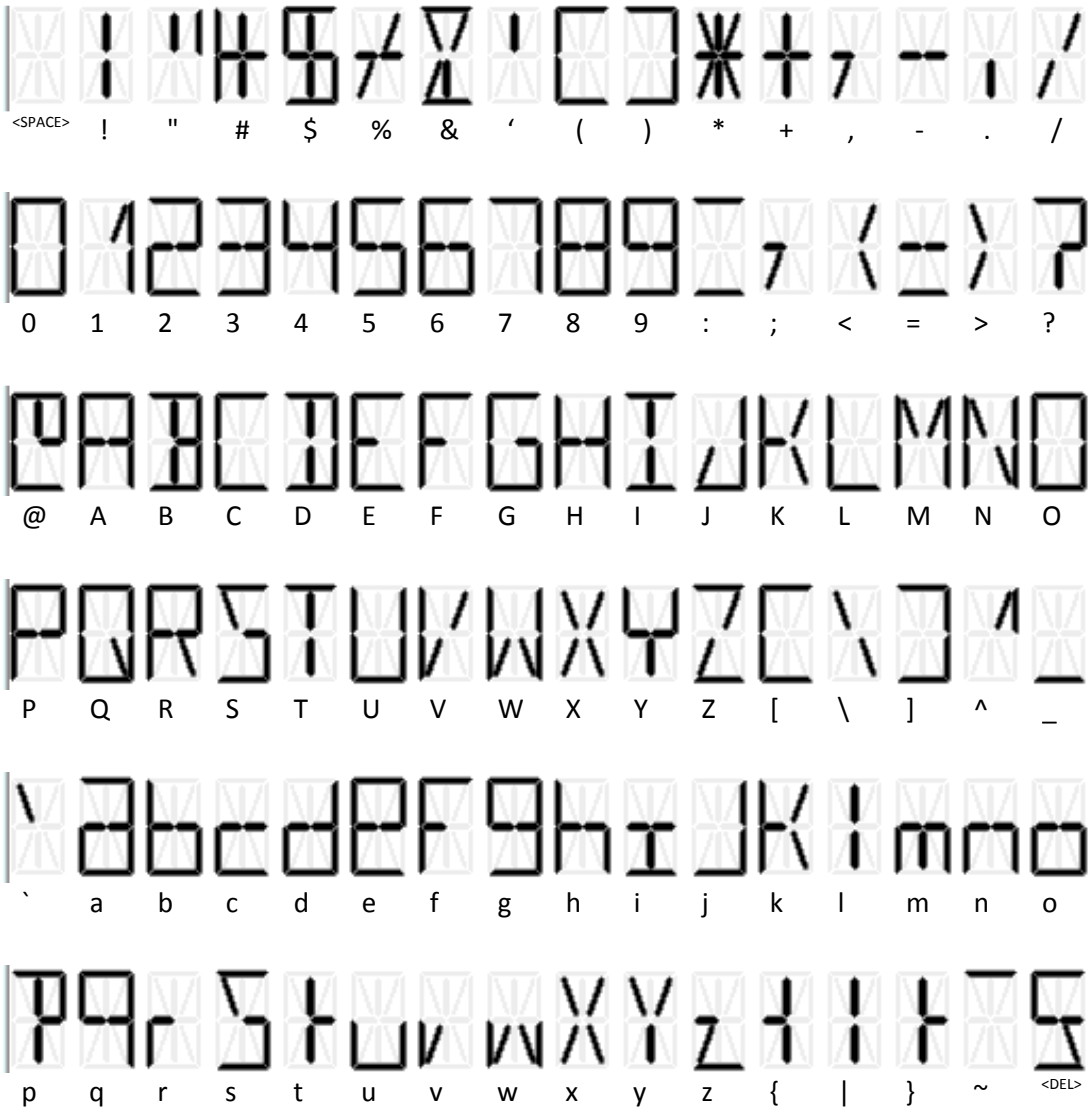
1.10. Menu I-COM INFO



446_V…: Software's number and version

REBOOT COM – *Access restricted to the Manager*: Reset of the 'interface com' board.

ANNEX 2: VIZUALISATION OF THE PERMITTED CHARACTERS ON THE MICROCOMPT+



ANNEX 3: PRINTINGS

SUMMARY

```
GPLTRONIQUE 384+  carte rev8
VERSION 3.05.00 DATED 08/10/19
PRINTED 10/10/19 AT 11h55
VEHICLE :  AA215EL
INDICATOR :  03201

SUMMARY
OF MEASUREMENTS OF 23.09.18 AT 9H03
DAY 266   005 MEMORISED RESULTS

TICKET NUMBER              006

        **** DAILY TOTALISERS ****

PROPA   (1) :          00026000 L
BUTAN   (2) :          00005000 L
LPG     (3) :          00000000 L
        (4) :          00000000 L
        (5) :          00000000 L
        (6) :          00000000 L
        (7) :          00000000 L
        (8) :          00000000 L

TOTAL FROM 1 TO 8: 00031000 L

        ********** SUMMARY **********
HR     HR     NB                 (L)          (°C)
BEG    END    MEASU  PROD   VOLUME TEMP
09:40  09:50  001    PROPA  1400   +11,3
09:51  10:01  002    BUTAN  1200   +11,3
10:02  10:23  003    BUTAN  0500   +10,6
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PARAMETERS

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GPLTRONIQUE 384+  carte rev8
VERSION 3.05.00 DATED 08/10/19
PRINTED 10/10/19 AT 11h55
VEHICLE :  AA215EL
INDICATOR :  03201
************ PARAMETERS *****************

RC OPTION             : OFF
REMOTE CONTROL        : OFF
CONVERSION            : ON
REFERENCE TEMP.       : +15.0°C
DENSITY CURVE         : OFF
HOSE BURST            : ON
 HOSE FLOWRATE        : 99.0 M3/H
 HOSE VFLOWRATE       : 30 L
 VARC                 : OFF
AUTHORIZATION         : MANUAL
TICKET                : xxx
DELIVERY TICKET       : ON
EMA PUMP
  COEFFICIENT K1      : 09.8148P/L
  FLOWRATE Q1 (LF):     5.5M3/H
  COEFFICIENT K2      : 09.7926P/L
  FLOWRATE Q2 (HF):   17.3M3/H
  MIN FLOW: 6.0M3/H / MAX:24.0M3/H
  MINIMUM QUANTITY: 000200 L
  TEMPERATURE         :+12.8 °C
COMPUTING
    COM1  : NO
    COM2  : NO
    COM4  : NO
PULSES OUTPUT         : +1  P/L
 ************ PRODUCTS *****************

 PROPA   (510.0 kg/m3)
 BUTAN   (577.0 kg/m3)
    LPG   (537.0 kg/m3)
 DENSITY TEMP. (REF) : +15.0°C
************ SETTINGS ***************

 END LOW FLOW VOLUME  : 30 L
 FLOW ACTIVATED HF    : 7.0 M3/H
 SHORT TIME FLOW_0    : 20.00
 LONG TIME FLOW_0     : 30.00
 T.O DECLUTCHING (S)  : 0
 T.O DECLUTCH→PTO(S)  : 5
 T.O PTO→VALVE (S)    : 5
 T.O VALVE→CLUTCH(S)  : 5
 T.O DECLUT→VALVE(S)  : 5
 T.O VALVE→PTO (S)    : 5
 T.O PTO→CLUTCH (S)   : 5
 T.O STOP→MOTOR (S)   : 3
 STOP FLOWRATE 5.0M3/H WITH 0.2 L
```

TOTALISERS

GPLTRONIQUE 384+ carte rev8
VERSION 3.05.00 DATED 08/10/19
PRINTED 10/10/19 AT 11h55
VEHICLE : AA215EL
INDICATOR : 03201

********** TOTALISERS**********

GENERAL TOTALISER: 00056638 L

PROPA	(1) :	00028000 L
BUTAN	(2) :	00028000 L
LPG	(3) :	00000000 L
	(4) :	00000000 L
	(5) :	00000000 L
	(6) :	00000000 L
	(7) :	00000000 L
	(8) :	00000000 L

TOTAL FROM 1 TO 8: 00056000 L

EVENTS RECORDED

GPLTRONIQUE 384+ carte rev8
VERSION 3.05.00 DATED 08/10/19
PRINTED 10/10/19 AT 11h55
VEHICLE : AA215EL
INDICATOR : 03201

68 RECORDING(S)

14:33:33 DRIVER MODE
14:30:03 SWITCH ON
14:24:33 RESET APPLICATION
...

09:47:15 PARAM@15= 0
09:47:06 PARAM@ 5= 1
09:42:57 PARAM@16= 2
08:59:02 METROLOGICAL MODE
08:58:57 TEMPERATURE DEFAULT

DELIVERY TICKET (according to customer):

Date	: 23/09/19
Truck N°	: AA-215-EL
Product	: PROPANE
Delivery N°	: 002
Index 008 before	: 00006530
Index 009 after	: 00006829
Quantity	: 00299 L

In case of dispute, the measurement results stored by the main indicating device providing proof.

Freight volume : 00299 L

RELATED DOCUMENTS

GU 7051	User Guide
FM 8001	Diagnostic support for power supply failure
FM 8002	Diagnostic support for a display failure
FM 8003	Diagnostic support for DEB_0 or ZERO FLOW DEFAULT alarm
FM 8005	Diagnostic support for METERING PROBLEM alarm
FM 8006	Diagnostic support for DATE AND TIME LOST alarm
FM 8007	Diagnostic support for MEMORY LOST or DEF MEMO alarm
FM 8010	Diagnostic support for EEPROM MEMORY LOST alarm
FM 8011	Configuration of jumpers and adjustment of metering thresholds on the AFSEC+ electronic board
FM 8013	Replacement of the backup batteries on the AFSEC+ electronic board
FM 8510	Adjustment of a temperature chain in a MICROCOMPT+