

# OPERATING MANUAL

## MU 7111 EN A

### METERING SLEEVE for


### FUEL METERING SYSTEM FMS OEM MTP

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Document applicable for software from version 4048+v1.4.X

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## 1 GENERAL PRESENTATION AND DESCRIPTION

The installer can associate the METERING SLEEVE FMS OEM MTP to a PUMPING GROUP and a HOSE. The whole is a FUEL METERING SYSTEM MID type-approved: MEASURING SYSTEM FMS OEM type MTP.

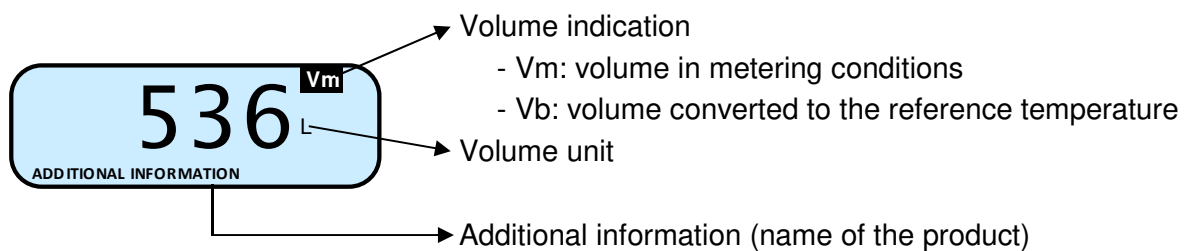
The FMS OEM MTP can measure liquids other than water such as petrol, fuel, diesel or biofuels.

The METERING SLEEVE FMS OEM MTP contains these parts:

- ⇒ A gas separator
- ⇒ A sleeve upstream from the meter
- ⇒ A sight glass
- ⇒ An ALMA ADRIANE turbine meter
- ⇒ An temperature sensor
- ⇒ A downstream sleeve
- ⇒ A non-return valve

A remote MICROCOMPT+ electronic calculator-indicator receives information from the pulse transmitter, the measuring device and the temperature probe.

The METERING SLEEVE FMS OEM MTP has one display:



The MICROCOMPT+ has three pushbuttons:

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

The FMS OEM can:

- ⇒ Measure quantities of products
- ⇒ Control the product temperature
- ⇒ Show volume in metering conditions or volume converted to the reference temperature
- ⇒ Manage measuring operations
- ⇒ Manage faults

An optional function is available:

- ⇒ A printer can print delivery tickets, internal totalisers, parameters, and summary and diary printings.

**NOTE:** The FMS OEM MTP shows the legally-binding information. The information printed by the printer has no metrological value.

## 2 OPERATING RECOMMENDATIONS

For a use of the FMS OEM MTP, make sure to meet the conditions that follow:

- ⇒ If the gas evacuation pipe includes a manually-controlled valve that could reduce the gas separator efficiency, make sure that the valve remains in the open position during operation:
  - By means of a sealing device
  - Or automatically.
- ⇒ Make sure the gas separator operates properly with a sight glass set up onto the separator or the pipe.

## 3 CONFIGURE, SET AND CALIBRATE THE FMS OEM MTP


### 3.1 Configure the FMS OEM MTP

You must configure the FMS OEM MTP during commissioning and sometimes during metrological controls. You must remove the seal as shown below. **NOTE:** Only approved persons are permitted to remove the seal.



Then you enter the METROLOGICAL mode. Details are available in the section CONFIGURE THE FMS OEM MTP: METROLOGICAL MODE.

See the verification manual MV 5015 for further information.

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### 3.2 Set the FMS OEM MTP

You must set the FMS OEM MTP before any operation. To set the FMS OEM MTP, you need an ALMA RFID key that you put on the display as shown below:

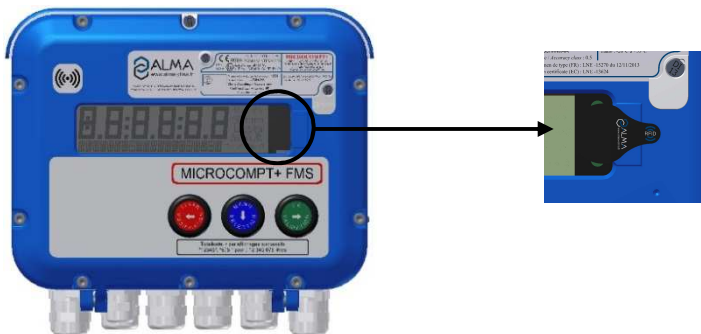


Then you enter the SUPERVISOR mode. Details are available in the section SET THE FMS OEM MTP: SUPERVISOR MODE and annex 1.

See the verification manual MV 5015 for further information.


### 3.3 Calibrate the FMS OEM MTP

To calibrate the FMS OEM MTP, you need an ALMA RFID key that you put on the display as shown below:

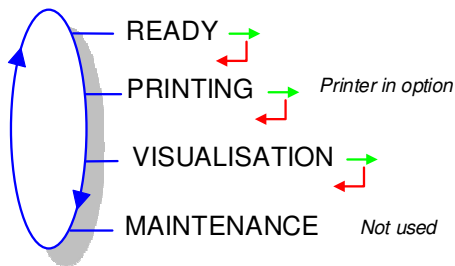


Then you enter the SUPERVISOR mode. Details are available in the section SET THE FMS OEM MTP: SUPERVISOR MODE.

See the verification manual MV 5015 for further information.

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#### 4 USE THE FMS OEM MTP: USER MODE



In USER mode, the MICROCOMPT+ displays a blinking figure which is the latest delivered quantity. The quantity is in liters (L), cubic meters (m<sup>3</sup>) or kilograms (Kg) depending on configuration.

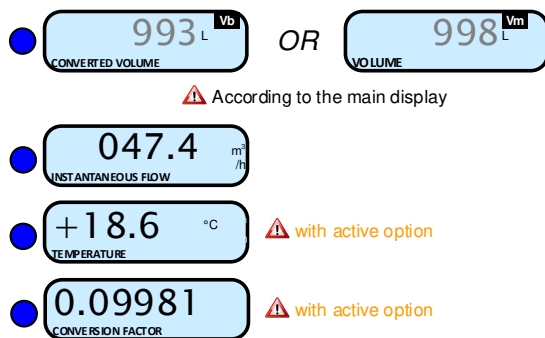
The use of the FMS OEM MTP depends on the hardware configuration of the truck, the features and the configuration of the equipment carried out during commissioning:

Therefore, the user menu depends on several items:

- ⇒ The distribution mode (free or preset)
- ⇒ The temperature control (conversion of the volume)
- ⇒ The optional printer.

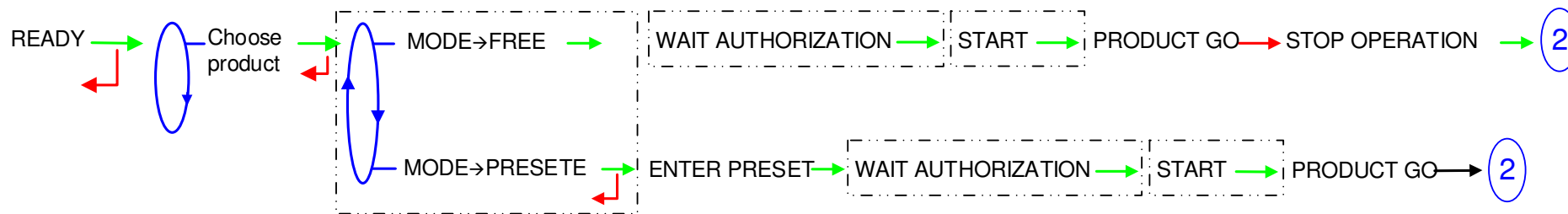
During measurement, you can see the current volume (Vm or Vb, depending on the configuration of the main display in METROLOGICAL mode). During measurement, the following information may be displayed:

- ⇒ The volume: Vb if current volume=Vm or Vm if current volume=Vb
- ⇒ The instantaneous flowrate (m<sup>3</sup>/h or L/min)
- ⇒ The temperature in °C
- ⇒ The conversion factor

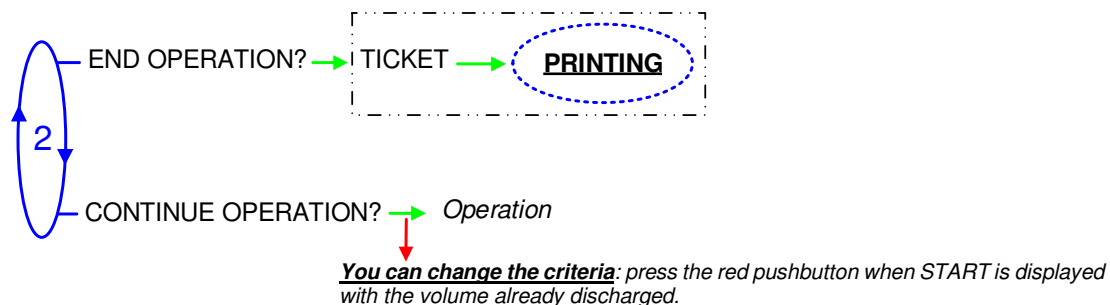


**Back to normal display is automatic: DO NOT PRESS RED CLEAR BUTTON TO KEEP FROM INTERRUPTING THE MEASURING OPERATION.**

### 4.1 Menu DELIVERY



Non-systematic phase: With active option



Non-systematic phase: Only if the FMS OEM MTP operates with a printer



## 4.2 Menu PRINTING

The menu is available if the FMS OEM MTP operates with a printer (METROLOGICAL>PRINTER→ON).

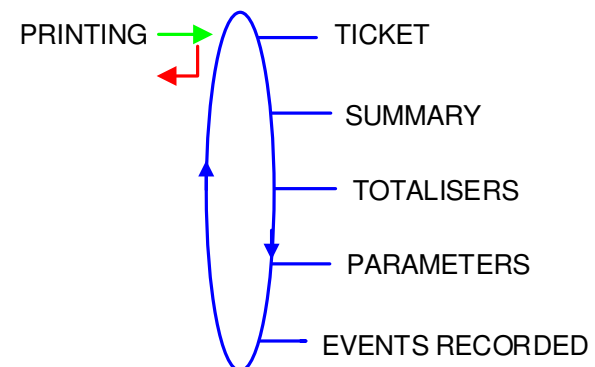
**TICKET:** Print the ticket of the last measuring operation.

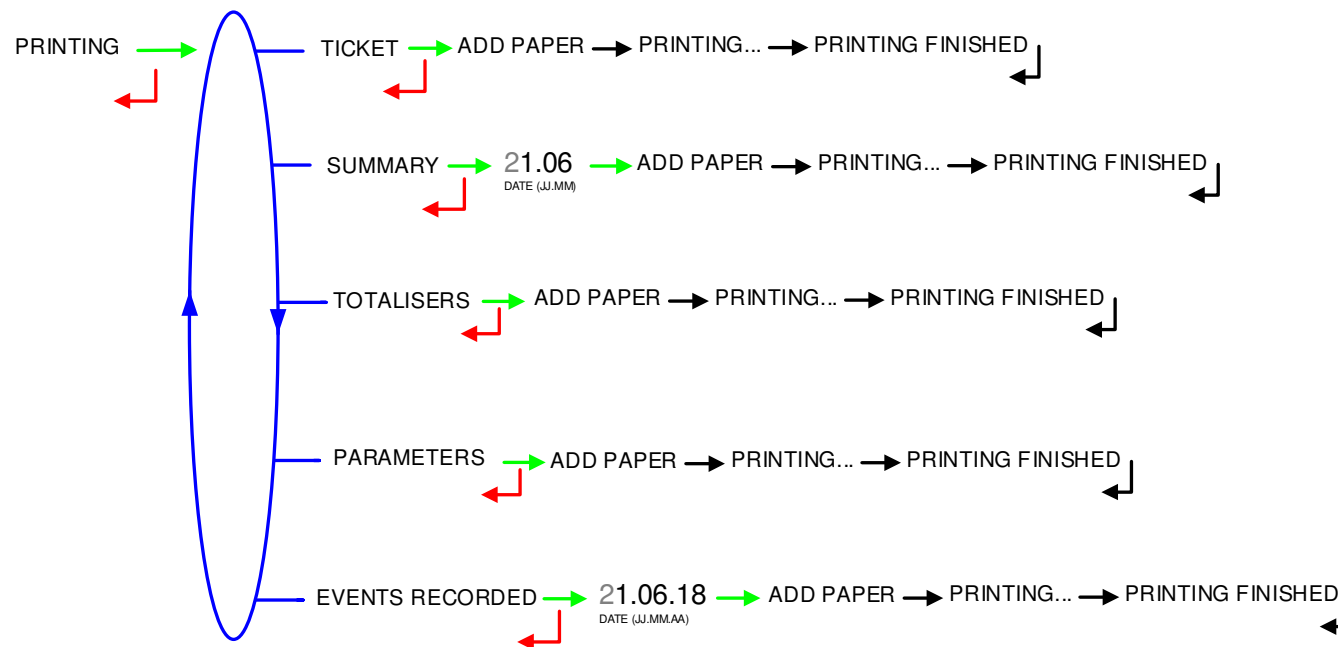
**SUMMARY:** Record a date and validate to print the summary of the measuring operations.

**TOTALISERS:** Print the products totalisers.

**PARAMETERS:** Print the recorded parameters.

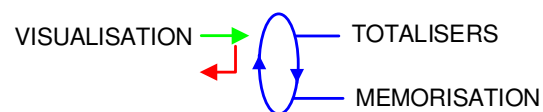
**EVENTS RECORDED:** Record a date and validate to print the events recorded.





### 4.3 Menu DISPLAY

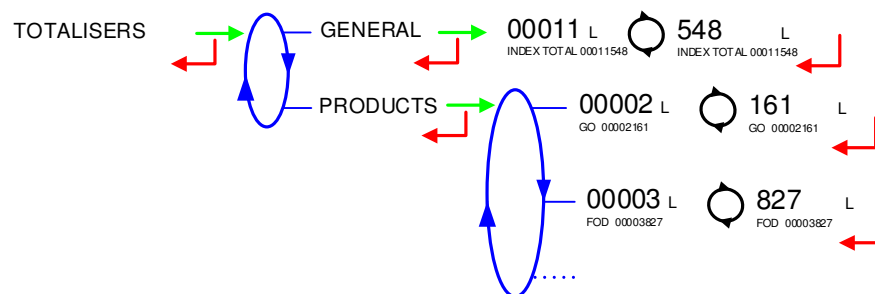
This menu is available in standby mode or when you stop temporarily the measurement. You can see the totaliser value and the measurement results.



#### 4.3.1 Sub-menu TOTALISERS

**GENERAL:** Display the general totaliser

**PRODUCTS:** Display the secondary totalisers per product.



#### 4.3.2 Sub-menu MEMORISATION

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.

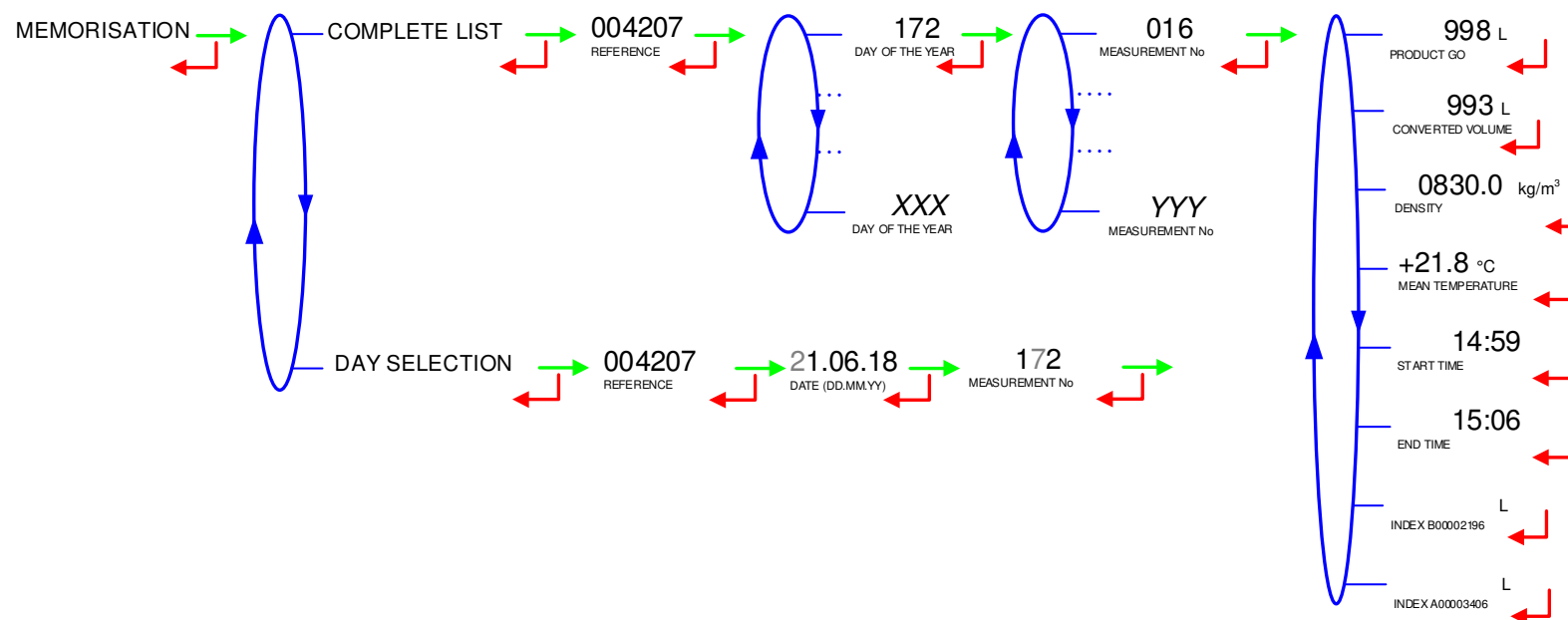
**DAY SELECTION:** Display a specific measurement by selecting the day number and the measurement number.

For each measurement, you can read:

- The name of the product
- The volume in metering conditions (Vm)

- The converted volume (Vb)
- The product density
- The mean temperature of the measurement
- The measurement start time
- The measurement end time
- The index before measurement
- The index after measurement

Example:



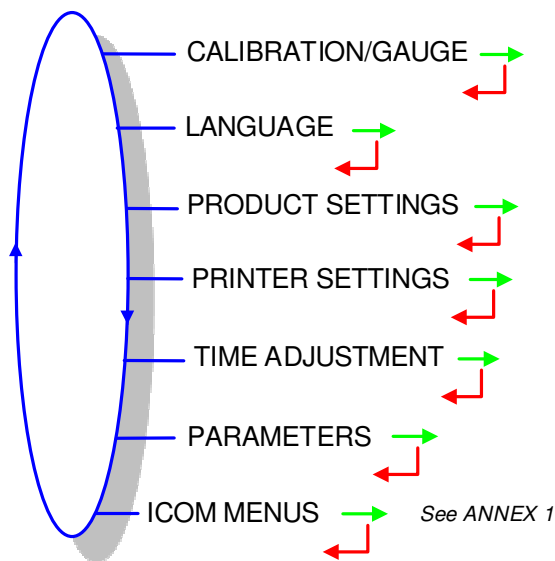
**4.4 Menu MAINTENANCE (Not used)**

4.5 List of alarms

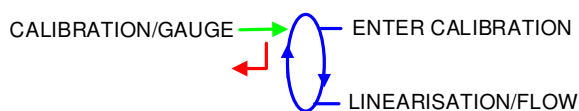
		DISPLAY	MEANING	ACTION
USER		STOP OPERATION	Intentional interruption of operation	Continue or finish the operation
		EMERGENCY STOP	An emergency stop is detected	Check the emergency stop
		COMMUNICATION FAULT	Communication with the printer lost	Check the connection cable, on-off switch and fuse
		POWER SUPPLY PROBLEM	Power outage during operation	Check the cause / Restore power supply
		LOW FLOW FAULT	Low flowrate (less than 15m <sup>3</sup> /h)	Check the hydraulic system (valve, strainer, nozzle...)
		HIGH FLOW FAULT	High flowrate (greater than maximum flowrate)	Check the hydraulic system (valve, pumping...)
		ZERO FLOW DEFAULT	Zero flow	Check the hydraulic system (security valve)
		METERING PROBLEM	Metering problem with the measuring device	Check if the pulse transmitter is powered (red indicators)
		AUTHORIZATION LOST	No more loading authorisation	Check the reason on the control device
		LEAKAGE FAULT	Counting outside a measurement period	Check the tightness of the loading valve
REPARATOR	NON BLOCKING	DIARY FAULT	Reset of the events diary	Acknowledge the alarm, check the date in supervisor mode (supervisor key)
		DISPLAY FAULT	Problem with display card	If steady alarm, substitution of the display card
		WATCHDOG FAULT	Fault with display or power card or AFSEC+ card	If steady alarm, substitution of the faulty card
		VOLUME CONVER FAULT	Problem during conversion of volume	If steady alarm, substitution of the AFSEC+ electronic card
		TOTALISER LOST	Loss of totalizer	Substitution of the backup battery
	BLOCKING	TEMPERATURE FAULT	Temperature determination failure	If steady alarm, see a reparator for trouble shooting
		TEMPERATURE ATEX	Temperature of the pump is out of range	If steady alarm, see a reparator for trouble shooting
		MEMORY LOST (PILE)	Perte de la mémoire secourue	Remplacement de la pile de sauvegarde
		MEMORY LOST	Perte du journal métrologique	Remplacement de la pile de sauvegarde
		COEFFICIENTS FAULT	Ecart entre coefficients PD/GD supérieur à 0,5%	Modification du coefficient petit débit (K1)
BLOCKING	PROM FAULT	Perte de l'intégrité du logiciel ou du résident	Remplacement de la carte AFSEC+	
	RAM FAULT	Défaut de la mémoire secourue	Remplacement de la carte AFSEC+	
	EEPROM MEMORY LOST	Perte de la configuration métrologique	Remplacement de la carte AFSEC+	
	SATURATION MEMOIRE	Saturation du journal métrologique	Remplacement de la carte AFSEC+	
	MEMORY OVER LOADED	Perte de la date et de l'heure	Saisir la date et l'heure en mode métrologique	
	DATE AND TIME LOST	Loss of date and time	Set date and time in supervisor mode (supervisor key)	
DENSITY DEFAULT	Density out of range	Check the metrological configuration		



## 5 SET THE FMS OEM MTP: SUPERVISOR MODE



### 5.1 Menu CALIBRATION/ GAUGE



#### 5.1.1 Menu ENTER CALIBRATION

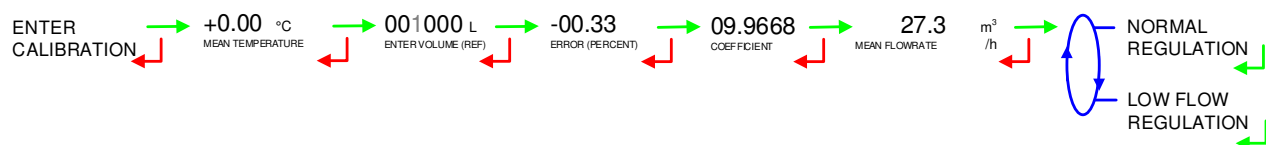
This menu is used to do a check of the accuracy of the measuring system. The MICROCOMPT+ calculates the measuring device error, the new corrected coefficient and the average flow.

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

Switch to SUPERVISOR mode, select CALIBRATION/GAUGE>ENTER CALIBRATION and validate.

Enter the volume read on the gauge 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.



#### 5.1.2 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 record the values via the EMA (PUMP MODE)>METER COEFFICIENT menu.

To linearize the curve, two tests are necessary:

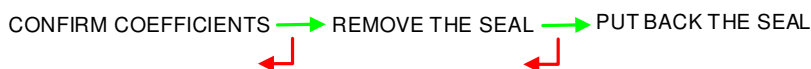
- Fill the gauge in high flow  $[\text{flowmin} \times 3] \leq \text{high flow} < [\text{flowmax}]$ , and enter the volume read on the gauge in the menu CALIBRATION/STANDARD>ENTER CALIBRATION as described above
- Fill the gauge in low flow  $[\text{flowmin}] \leq \text{flow} < [\text{flowmin} \times 2]$ , and enter the volume read on the gauge in the menu CALIBRATION/STANDARD>ENTER CALIBRATION
- Select CALIBRATION/GAUGE>LINEARISATION/FLOW and validate. It is then possible to 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 >0.5%
- FLOWS TOO CLOSE: High flowrate value is out of range. It needs to be:  $[\text{flowmin} \times 3] \leq \text{high flow} < [\text{flowmax}]$ .
- LO-FLOW OUT OF RANGE: Low flowrate value is out of range. It needs to be:  $[\text{flowmin}] \leq \text{low flow} \leq [\text{flowmin} \times 1.5]$
- 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)

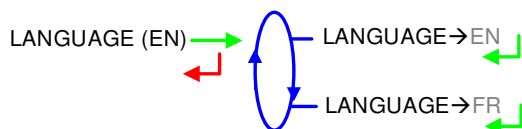
When the procedure is completed, the MICROCOMPT+ displays the sequence that follows:



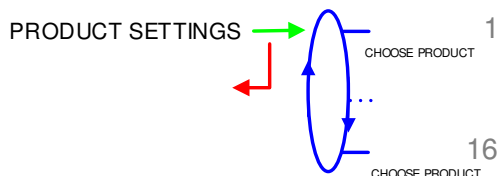
The new coefficient and flow rates values are taken into account.

### 5.2 Menu LANGUAGE

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




### 5.3 Menu PRODUCT SETTINGS



You can configure the parameters that follow for a maximum of 16 products:

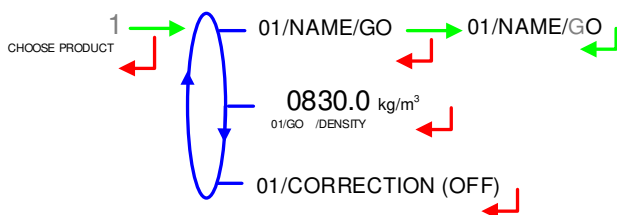
**NAME:** Record the name of the product. Default name for product 1: GO, and for product 2: FOD

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**DENSITY:** Show the product density at 15°C in Kg/m<sup>3</sup> (MV15).

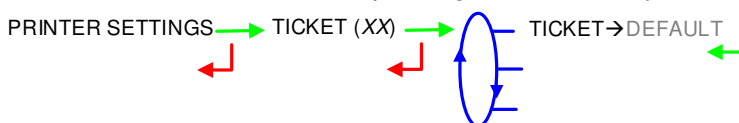
**CORRECTION:** Show if the correction is “ON” or “OFF” for the product (see METROLOGICAL>EMA>PRODUCT CORRECTION).

Example for product 1:



#### 5.4 **Menu PRINTER SETTINGS**

Choose the ticket format for printing of the delivery ticket.



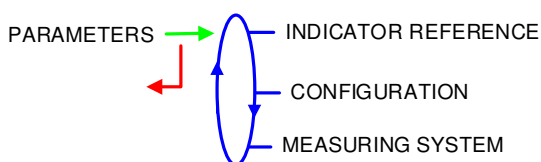
#### 5.5 **Menu TIME ADJUSTMENT**

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.



#### 5.6 **Menu PARAMETERS:**

This menu shows the parameters set in METROLOGICAL mode.



##### 5.6.1 **Sub-menu INDICATOR REFERENCE**

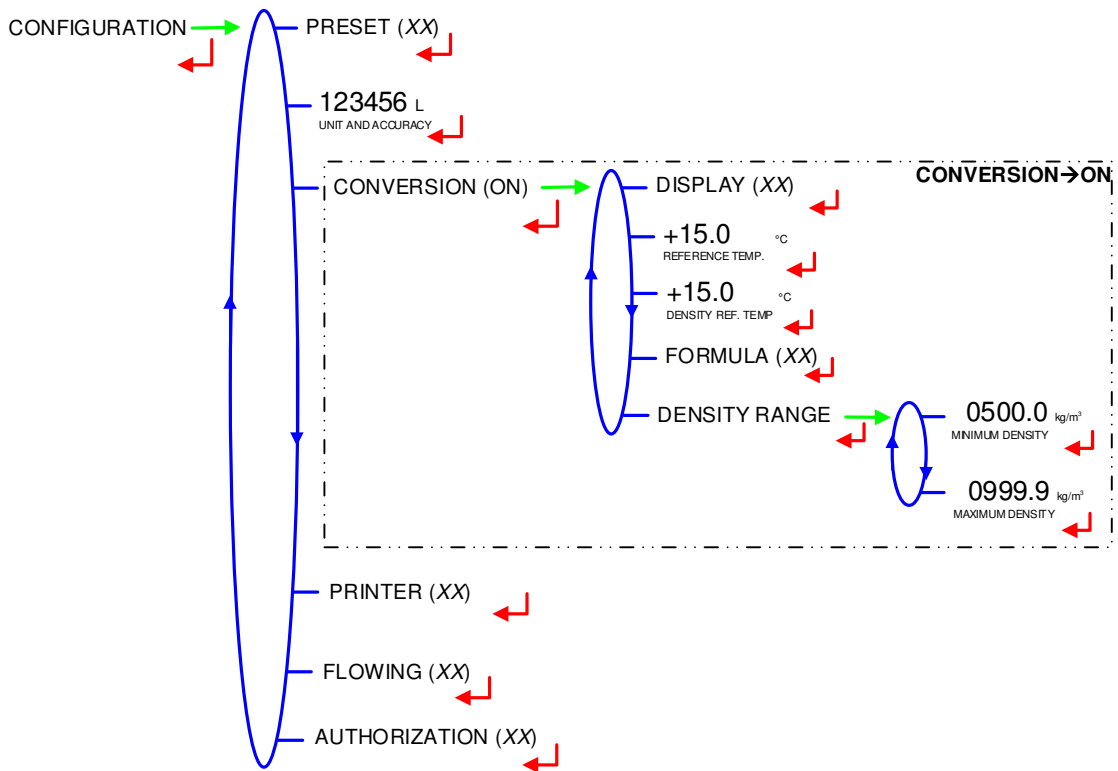
See the METROLOGICAL mode section for meaning of the parameters.





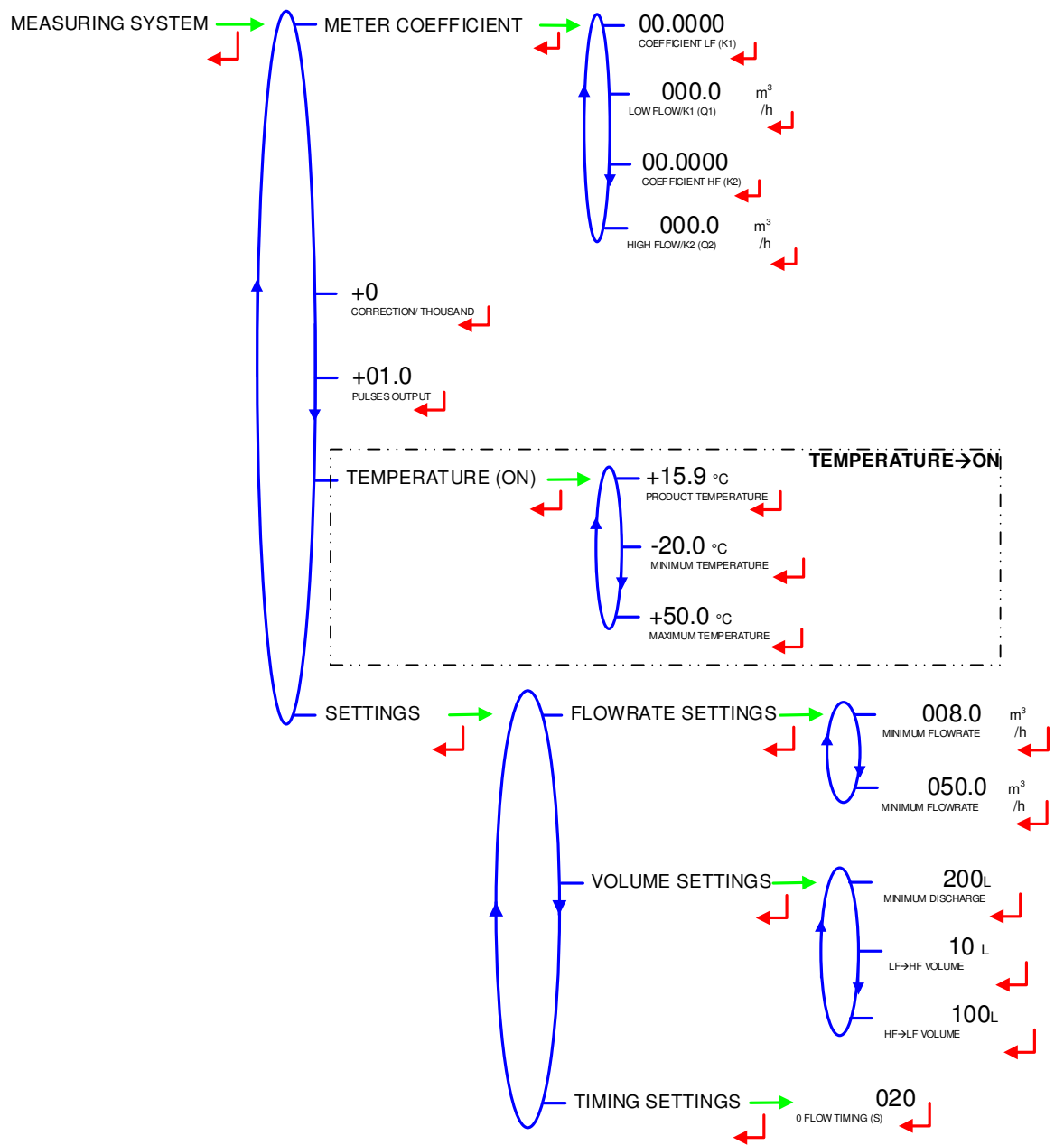
### 5.6.2 Sub-menu CONFIGURATION

See the METROLOGICAL mode section for meaning of the parameters.



### 5.6.3 Sub-menu MEASURING SYSTEM

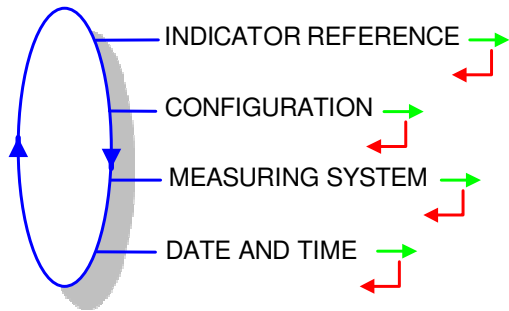
See the METROLOGICAL mode section for meaning of the parameters.



### 5.7 Menu ICOM MENUS

See the ANNEX 1: Features of the connected MICROCOMPT+.

## 6 CONFIGURE THE FMS OEM MTP: METROLOGICAL MODE

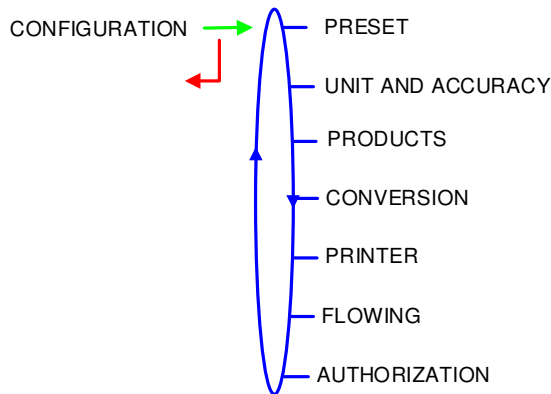


### 6.1 Menu INDICATOR REFERENCE

Record the MICROCOMPT+ serial number (alphanumeric value).



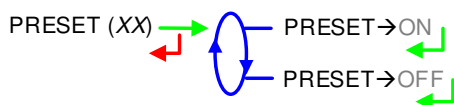
### 6.2 Menu CONFIGURATION



#### 6.2.1 Sub-menu PRESET

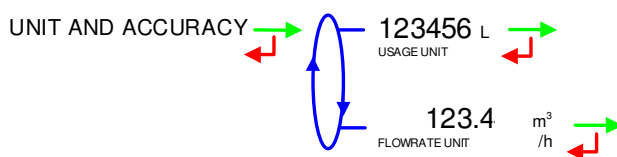
**PRESET→ON:** The user can choose to preset the volume or not (free mode)

**PRESET→OFF:** Preset is not available in USER mode.



#### 6.2.2 Sub-menu UNIT AND ACCURACY

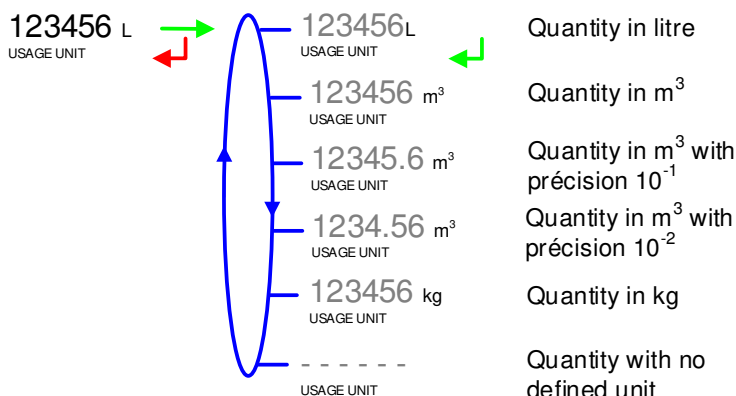
Choose the unit and the accuracy of the quantity that is displayed and printed. This menu is different with or without conversion.



6.2.2.1 With CONVERSION→OFF

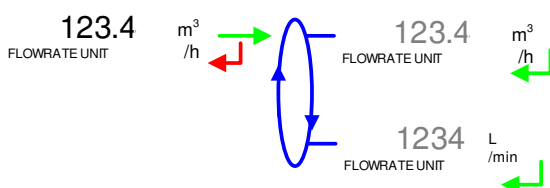
**USAGE UNIT:** Choose the unit and the accuracy of the quantity displayed and printed. Enter a generic quantity: volume (L or m<sup>3</sup>), mass (kg) or no defined unit. If you choose the unit 'kg' or no defined unit, the MICROCOMPT+ counts scale intervals.

For example: with a mass flow meter, choose the unit 'kg' or no defined unit. And affix close to the display a label with the unit 't' for tons.

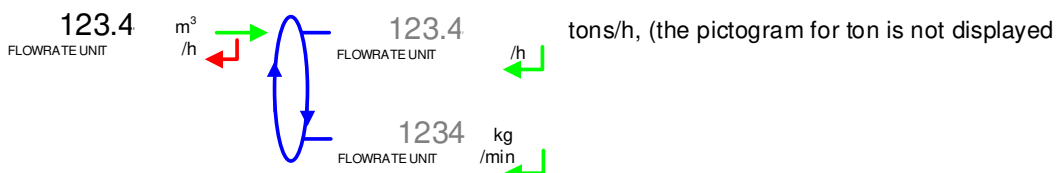


**FLOWRATE UNIT:** Choose the unit of the flow rate that will be displayed and printed. Flowrate units depends on the choice made for the usage unit (scale interval/minute or kilo-scale interval/hour).

Usage unit: L or m<sup>3</sup> or undefined



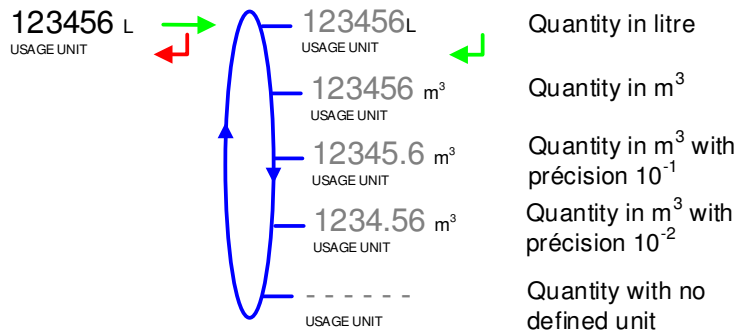
Usage unit: Kg



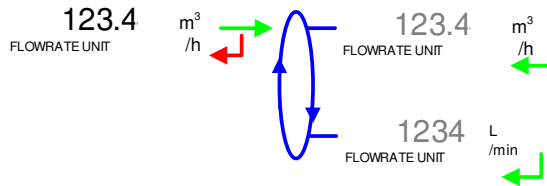
6.2.2.2 With CONVERSION→ON

**USAGE UNIT:** Choose the unit and the accuracy of the quantity displayed and printed. Enter a generic quantity: volume (L or m<sup>3</sup>), mass (kg) or no defined unit. If you choose the unit 'kg' or no defined unit, the MICROCOMPT+ counts scale intervals.

For example: with a mass flow meter, choose the unit 'kg' or no defined unit. And affix close to the display a label with the unit 't' for tons.

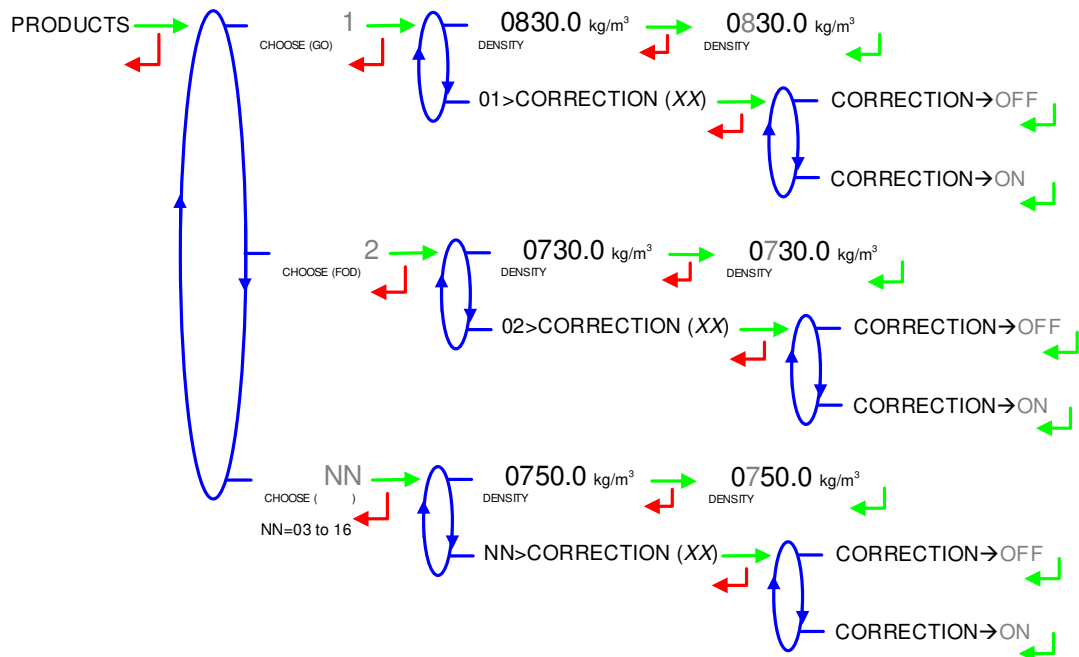


**FLOWRATE UNIT:** Choose the unit of the flow rate that will be displayed and printed.



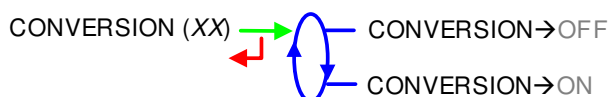
### 6.2.3 Sub-menu PRODUCTS

You can configure the parameters that follow for a maximum of 16 products: For each product: density is displayed and you can change the value if conversion is on (CONVERSION→ON). Products name is set in SUPERVISOR mode. To apply correction, validate CORRECTION→ON.



## 6.2.4 Sub-menu CONVERSION

The FMS OEM MTP can operate with conversion or without conversion.



When conversion is on, you must configure the parameters that follow:

**MAIN DISPLAY:** Select the type for displayed quantity (**VM**: volume in metering conditions, **VB**: volume converted to the reference temperature).

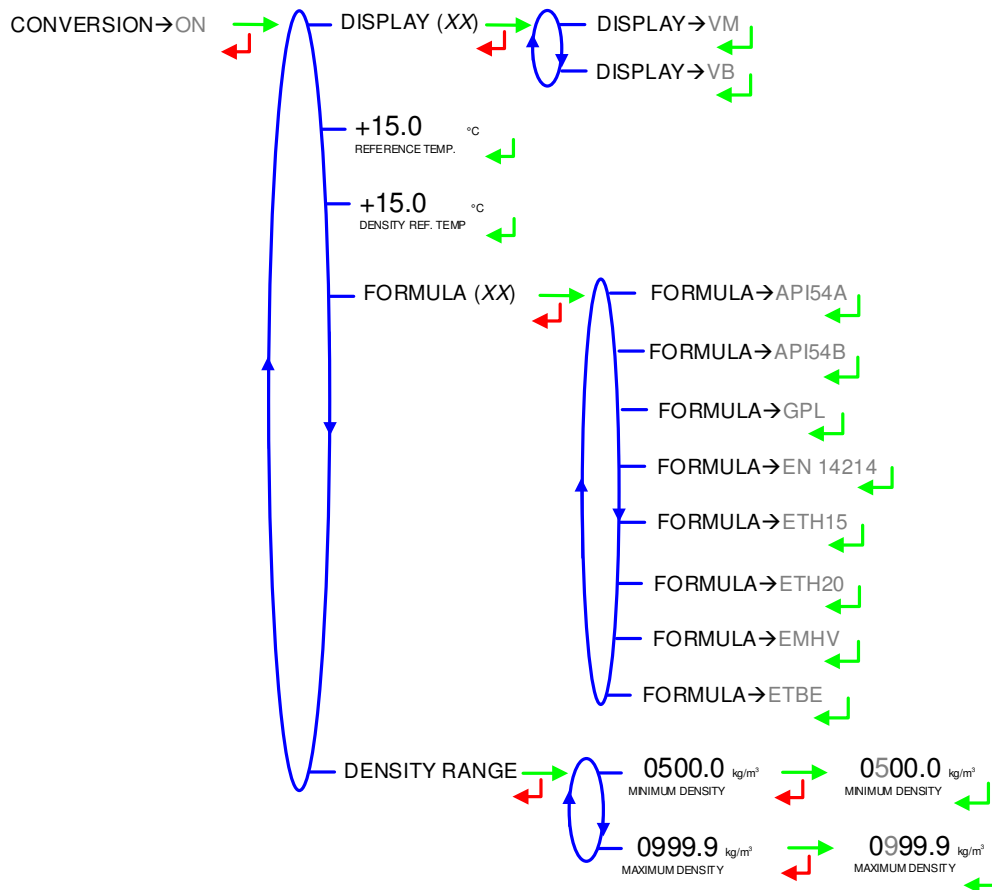
**REFERENCE TEMP.:** Non editable value. Shows the reference temperature used for conversion: 15°C

**DENSITY REF TEMP:** Non editable value. Shows the reference temperature for densities: 15°C

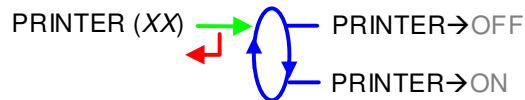
**FORMULA:** The choice of the conversion formula causes an implicit definition of valid density and temperature ranges to guarantee the conversion result. See the table below to select the conversion table that corresponds to the products:

Product	Conversion formula
Crude products	API54A
<b>Refined products</b>	<b>API54B</b>
LPG and bitumen	LPG
<b>Blended biofuels</b>	<b>EN14214</b>
Ethanol at 15°C	ETH15
Ethanol at 20°C	ETH20
<b>Fatty acid methyl esters</b>	<b>FAME</b>
<b>Ethyl tertio butyl ether</b>	<b>ETBE</b>

**DENSITY RANGE:** Enter the minimum and maximum density limits laid down by the owner to control the product quality. The density unit is Kg/m<sup>3</sup>.



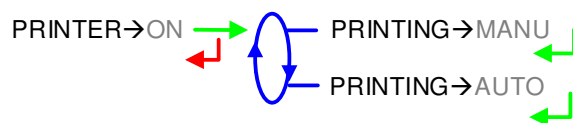
### 6.2.5 Sub-menu PRINTER



If the FMS OEM MTP operates with a printer, select the menu PRINTER→ON. Then, you can configure the parameters that follow:

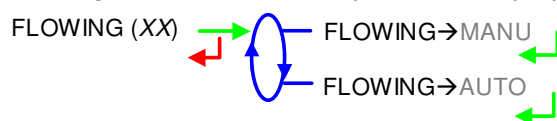
**AUTO PRINT→ON:** The delivery ticket is automatically printed at the end of the measuring operation.

**AUTO PRINT→OFF:** The delivery ticket is not automatically printed. You must push OK to print or CLEAR to cancel.



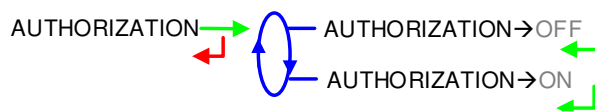
### 6.2.6 Sub-menu FLOWING

Flowing starts automatically or manually by pressing the push button.

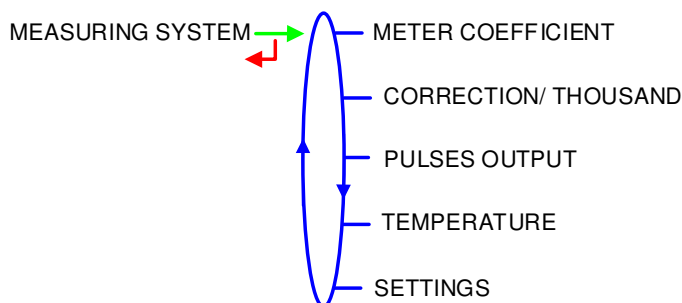


### 6.2.7 Sub-menu AUTHORIZATION

The FMS OEM MTP operates with an external authorization or not.



### 6.3 Menu MEASURING SYSTEM



#### 6.3.1 Sub-menu METER COEFFICIENT

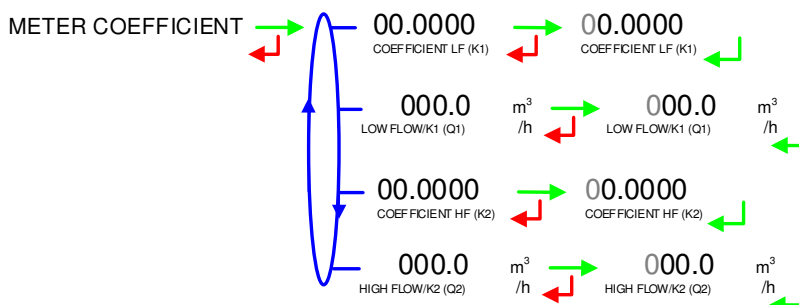
Enter the coefficient of the measuring system meter (pulses/liter).

**LF COEFFICIENT (K1):** Coefficient for low flow (pulses/liter)

**LOW FLOW/K1 (Q1):** Low flow reference (m<sup>3</sup>/h)

**HF COEFFICIENT (K2):** Coefficient for high flow (pulses/liter)

**HIGH FLOW/K2 (Q2):** High flow reference (m<sup>3</sup>/h)



#### 6.3.2 Sub-menu CORRECTION/ THOUSAND

Record the correction factor per thousand (‰) of the FMS OEM MTP for a measurement with low viscosity products. See the marking of the turbine meter or see the ALMA calibration certificate. See the verification manual MV 5015 for further information.





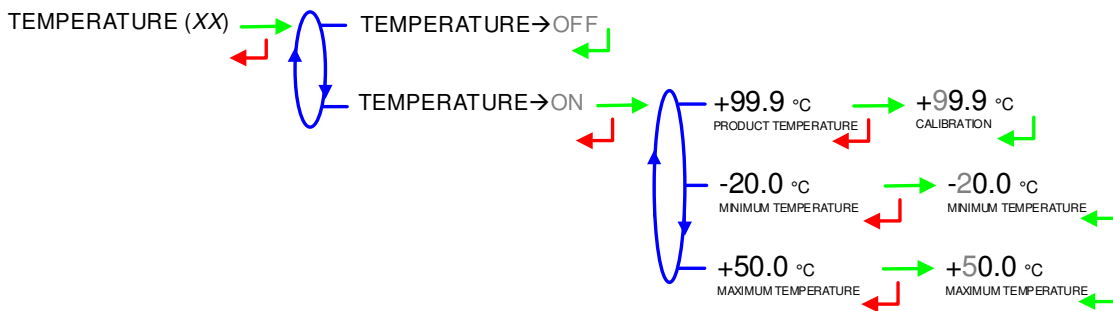
### 6.3.3 Sub-menu PULSES OUTPUT

Record the number of pulses per liter that corresponds to the quantity of liquid that the MICROCOMPT+ counts.

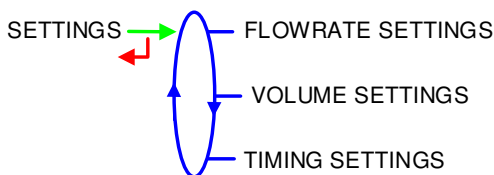


### 6.3.4 Sub-menu TEMPERATURE

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



### 6.3.5 Sub-menu SETTINGS

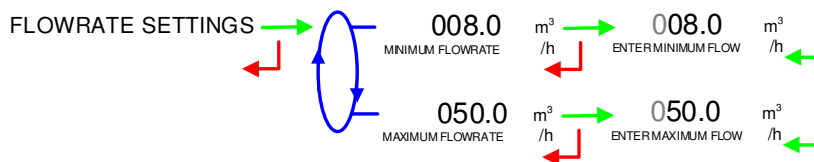


#### 6.3.5.1 Flowrate settings

You can set the flowrate parameters that follow:

**MINIMUM FLOWRATE:** Record the metrological minimum flowrate of the FMS OEM MTP in m<sup>3</sup>/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 FMS OEM MTP in m<sup>3</sup>/h or l/min. You can select the flow unit in the menu CONFIGURATION>UNIT AND ACCURACY.

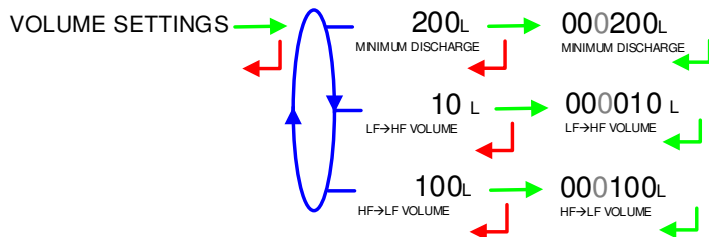


#### 6.3.5.2 Volume settings

**MINIMUM QUANTITY:** Record the minimum quantity of the FMS OEM MTP in liters. This value is given by the association of the turbine meter, the MICROCOMPT+ and other parts of the FMS OEM MTP.

**LF->HF VOLUME:** Enter the volume beyond which the MICROCOMPT+ switches from low to high flowrate.

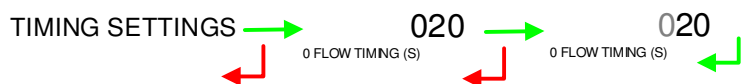
**HF→LF VOLUME:** Enter the volume beyond which the MICROCOMPT+ drives the low flowrate at the end of a preset measurement.



**6.3.5.3 Timing settings**

You can set the timing parameters that follow:

**0 FLOW TIMING (S):** Enter the maximum time before starting of flow (in minutes). Enter zero to disable the timeout.



**6.4 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: FEATURES OF THE CONNECTED MICROCOMPT+

### 1. GENERAL PRESENTATION

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

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:

<b>Left-hand LED: Wi-Fi or Bluetooth</b>	<b>Middle LED: GSM / GPS</b>	<b>Right-hand LED: NFC (RFID)</b>
<p><u>Steady light:</u></p> <ul style="list-style-type: none"> <li>• Blue* / Cyan*: Connection OK</li> <li>• Red: Waiting for initialization</li> </ul> <p><u>Flashing light:</u></p> <ul style="list-style-type: none"> <li>• Blue / Cyan slow flashing: Waiting for connection</li> <li>• Blue / Cyan rapid flashing: Communication in progress</li> <li>• Red: Initialization error</li> </ul>	<p><u>Steady light:</u></p> <ul style="list-style-type: none"> <li>• Purple: Waiting for internet connection</li> <li>• White: Internet connection OK</li> <li>• Red: Waiting for initialization</li> </ul> <p><u>Flashing light:</u></p> <ul style="list-style-type: none"> <li>• White: Transfer in progress</li> <li>• Red every 2 seconds: Coordinates not found</li> <li>• Green every 2 seconds: GPS OK</li> <li>• Red: Initialization error</li> </ul>	<p><u>Flashing light:</u></p> <ul style="list-style-type: none"> <li>• Green: Authentication of the RFID key OK</li> <li>• Red: Authentication error of the RFID key</li> <li>• Green/ Red: RFID key not accepted, but authentication is ok</li> </ul>

(\*): Blue: Bluetooth; Cyan: Wi-Fi

2. MENU SUPERVISOR>ICOM



User RFID key – Blue – Level 1

This key is associated to a single MICROCOMPT+. It is used to switch into SUPERVISOR mode to access the ICOM menu.



Manager RFID key – Green – Level 2

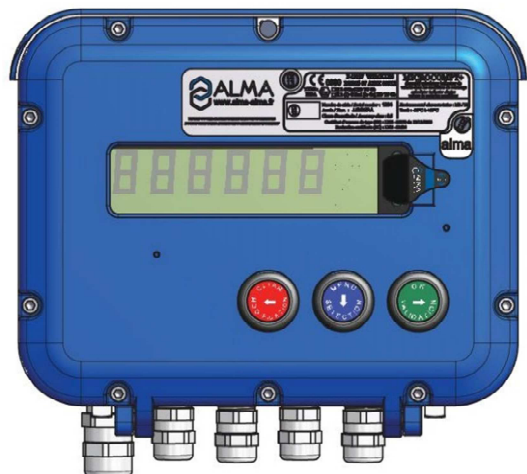
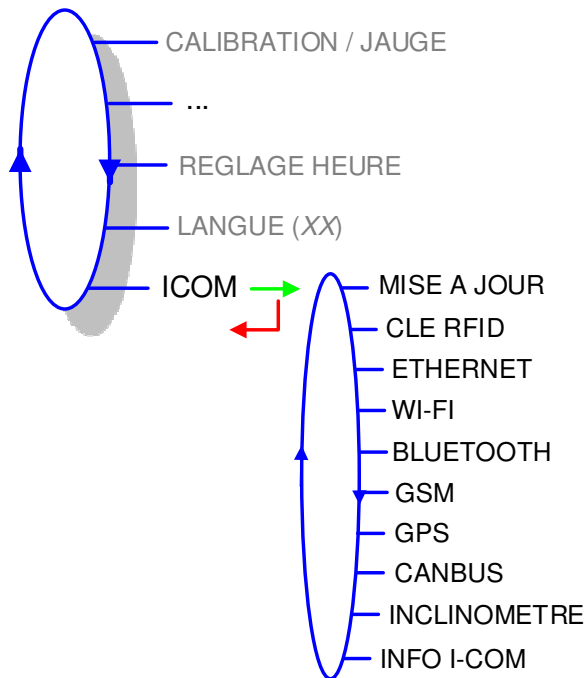
Many of these keys can be associated to a single MICROCOMPT+. Likewise, a single key can be associated to one or many MICROCOMPT+.

RFID key is used to switch into SUPERVISOR mode to access the ICOM menu. 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 document.



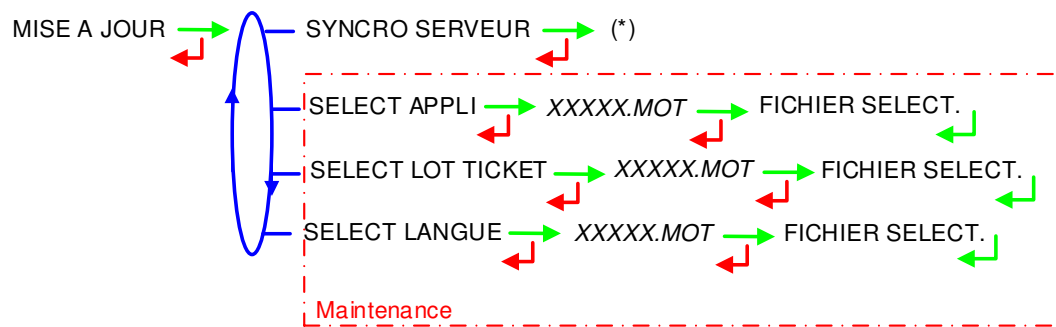
Maintenance RFID key – Red – Level 3

This key doesn't need to be associated to the MICROCOMPT+. It is used to switch into SUPERVISOR mode to access the ICOM menu. Specific menus are available that allow the maintenance operator to change parameters. The specific menus are indicated by red boxes within the document.



### 2.1. Menu UPDATE

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



(\*) EN COURS / xx NOUV. MISE A JOUR / AUCUNE MISE A JOUR

**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+.

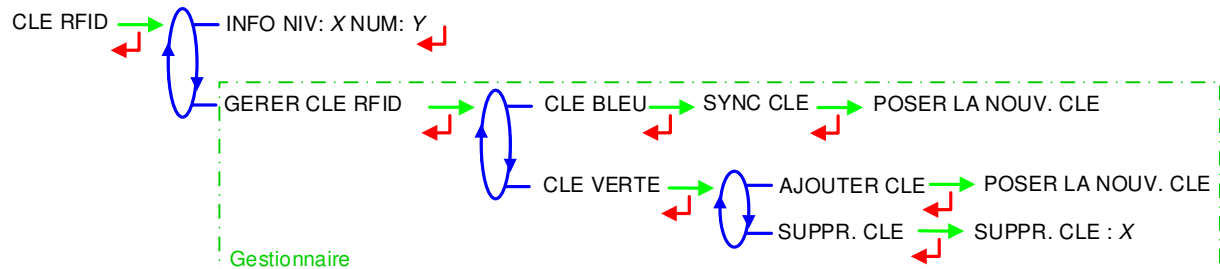
**SELECT APPS FILE(\*)** – Access restricted to the Maintenance: Used to display and select the version(s) of the application available on the SD card. NO FILE is displayed if there’s no file to download.

**SELECT TICKET FILE(\*)** – Access restricted to the Maintenance: Used to display and select the version(s) of the application 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 application 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).

### 2.2. Menu RFID KEY



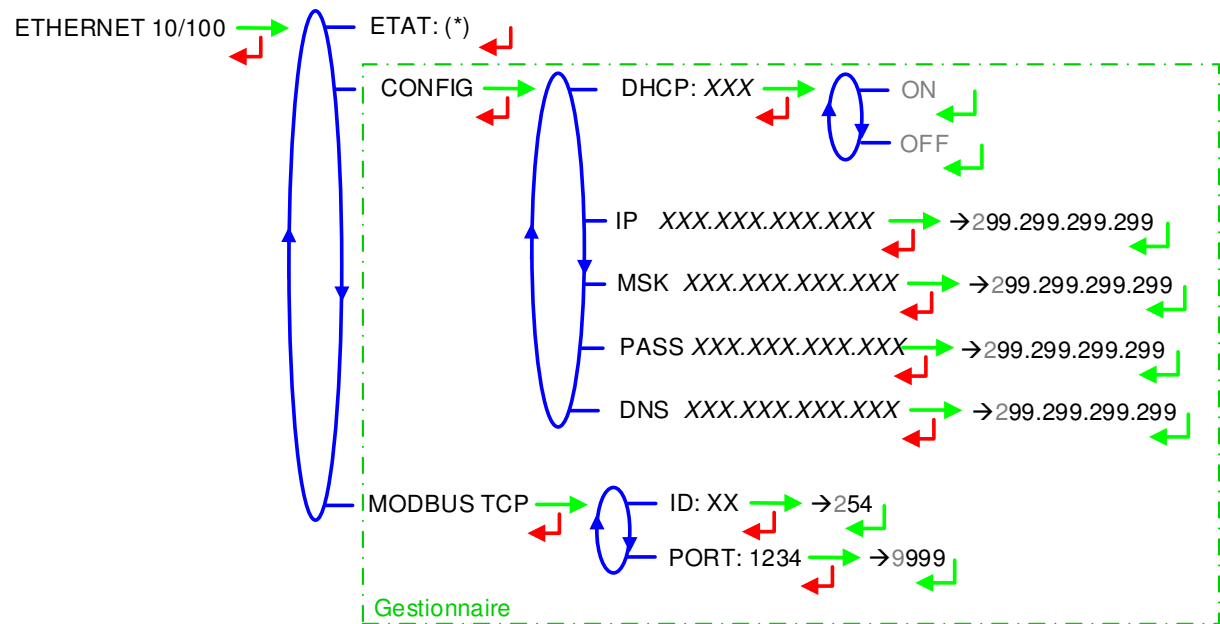
**INFO:** Display of the level and the identifier of the RFID key (Level 1/Blue/User, Level 2/Green/Manager, Level 3/Red/Maintenance)

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

**BLUE KEY:** Used to associate a user RFID key to the MICROCOMPT+

**GREEN KEY:** Used to associate a manager RFID key to the MICROCOMPT+ or to remove keys that have already been associated.

### 2.3. Menu ETHERNET



(\*) CONNECTE / DECONNECTE

**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)

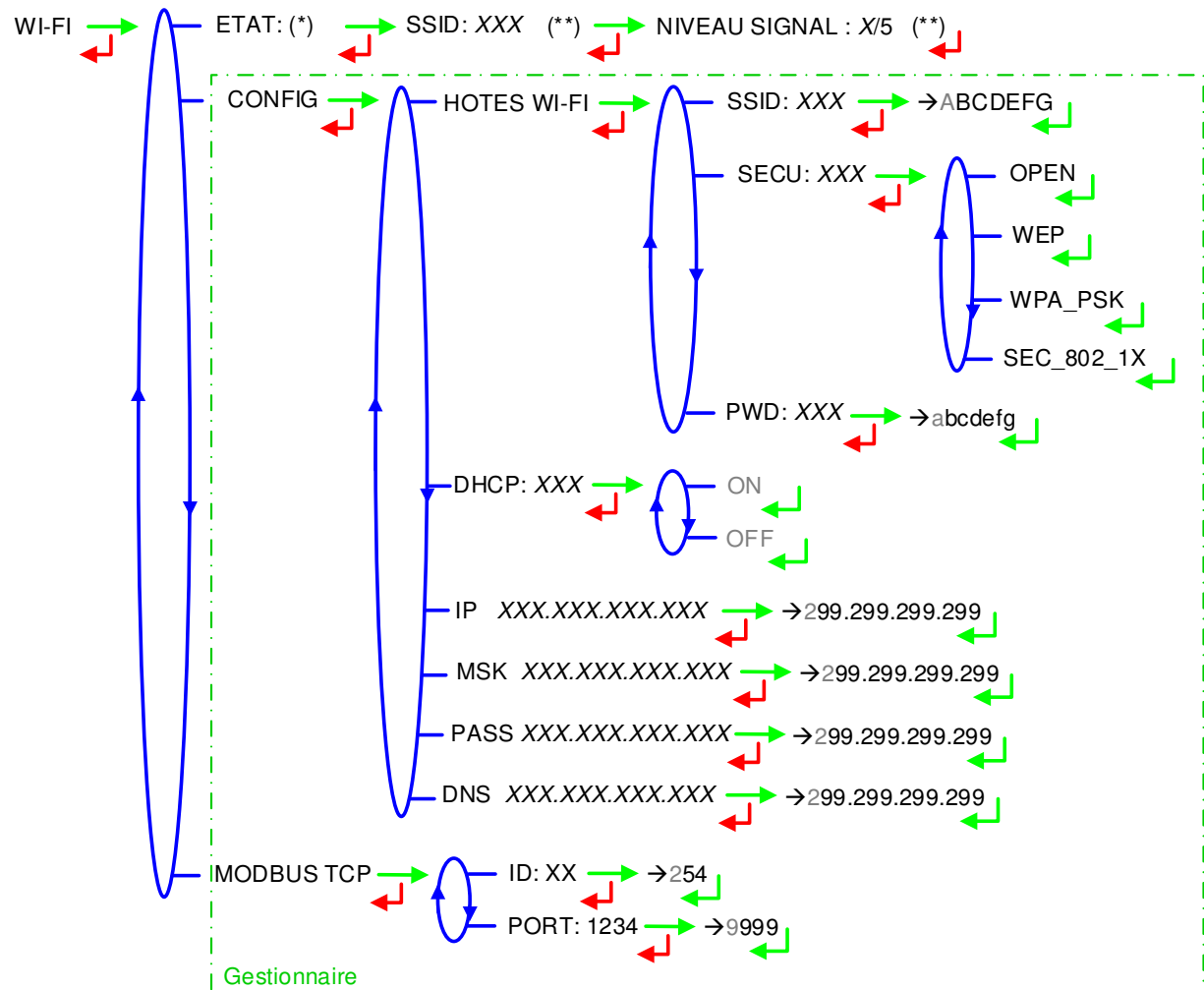
**DNS:** IP Address to access a DNS server

**MODBUS TCP – Access restricted to the Manager:**

**ID:** eMICROCOMPT+ Modbus identifier between 0 and 255

**PORT:** TCP/IP access port for Modbus protocol

### 2.4. Menu Wi-Fi



(\*) NON DISPONIBLE (le calculateur n'est pas équipé) / DECONNECTE / CONNECTE  
 (\*\*) SI CONNECTE

**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;<=>?@ABCDEFGHIJKLMNPOQRSTUVWXYZ[\]^\_`abcdefghijklmnopq  
 rstuvwxyz{|}~<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

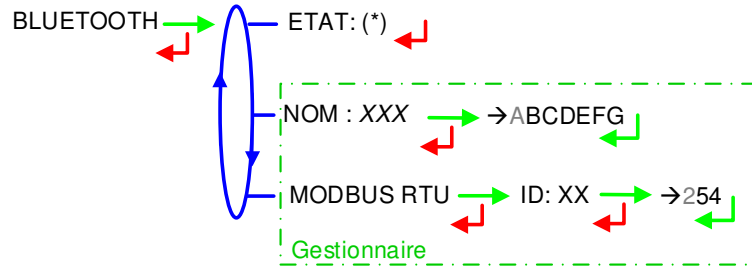
**IP:** IP: eMICROCOMPT+ IP address

**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

2.5. Menu BLUETOOTH



(\*) NON DISPONIBLE (le calculateur n'est pas équipé) / DECONNECTE / CONNECTE

**STATE:** Status of the Bluetooth connection

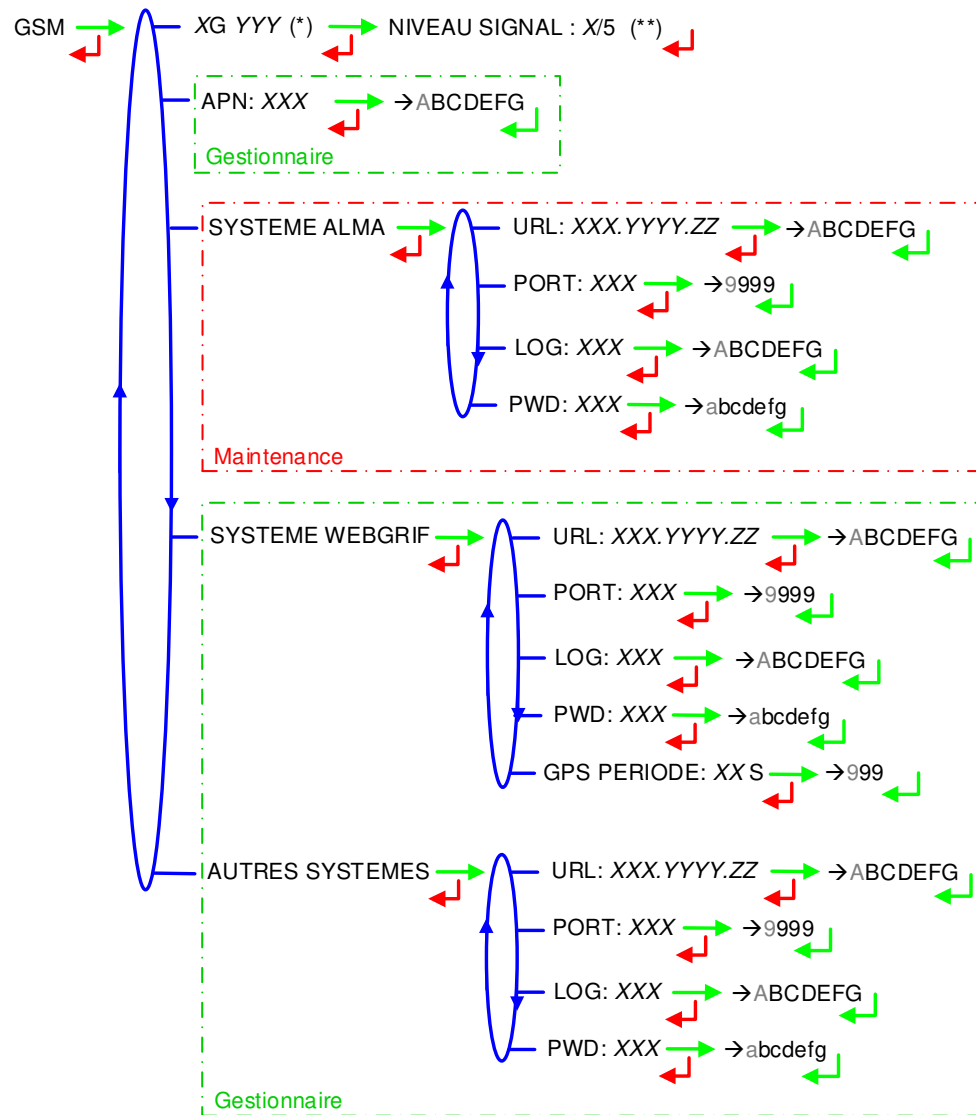
**NAME** – *Access restricted to the Manager.* Set the connection name

**MODBUS RTU** – *Access restricted to the Manager.*

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



2.6. Menu GSM



(\*) PAS DE SIGNAL ou 2G 3G 4G + FOURNISSEUR D'ACCES  
 (\*\*) SI CONNECTE

**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;<=>?@ABCDEFGHIJKLMNPOQRSTUVWXYZ[\]^\_`abcdefghijklmnopqrstuvw  
 xyz[{}~<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 visualisation 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)

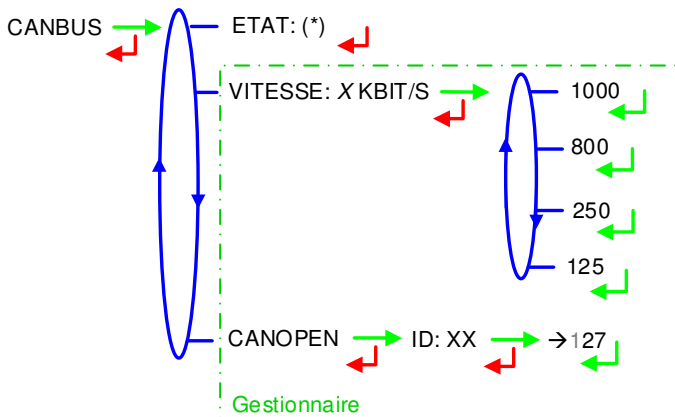
2.7. Menu GPS



(\*) PAS DE 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.

2.8. Menu CANBUS



(\*) CONNEXTE / DISCONNECTE  
 (\*\*) ENTRE 1 ET 127

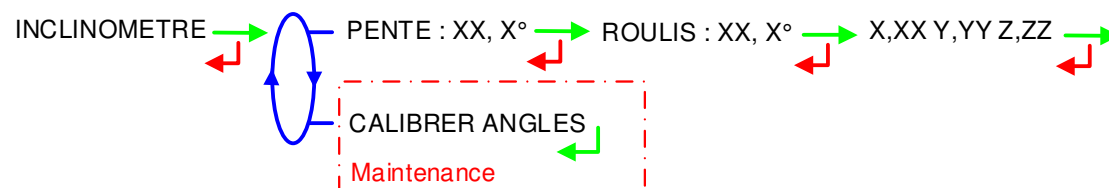
**STATE:** Status of the CANBus connection

**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)

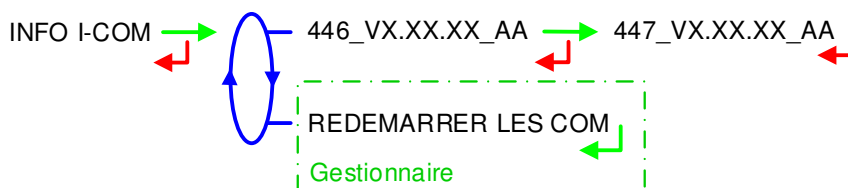
## 2.9. Menu INCLINOMETER



**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.

## 2.10. Menu I-COM INFO

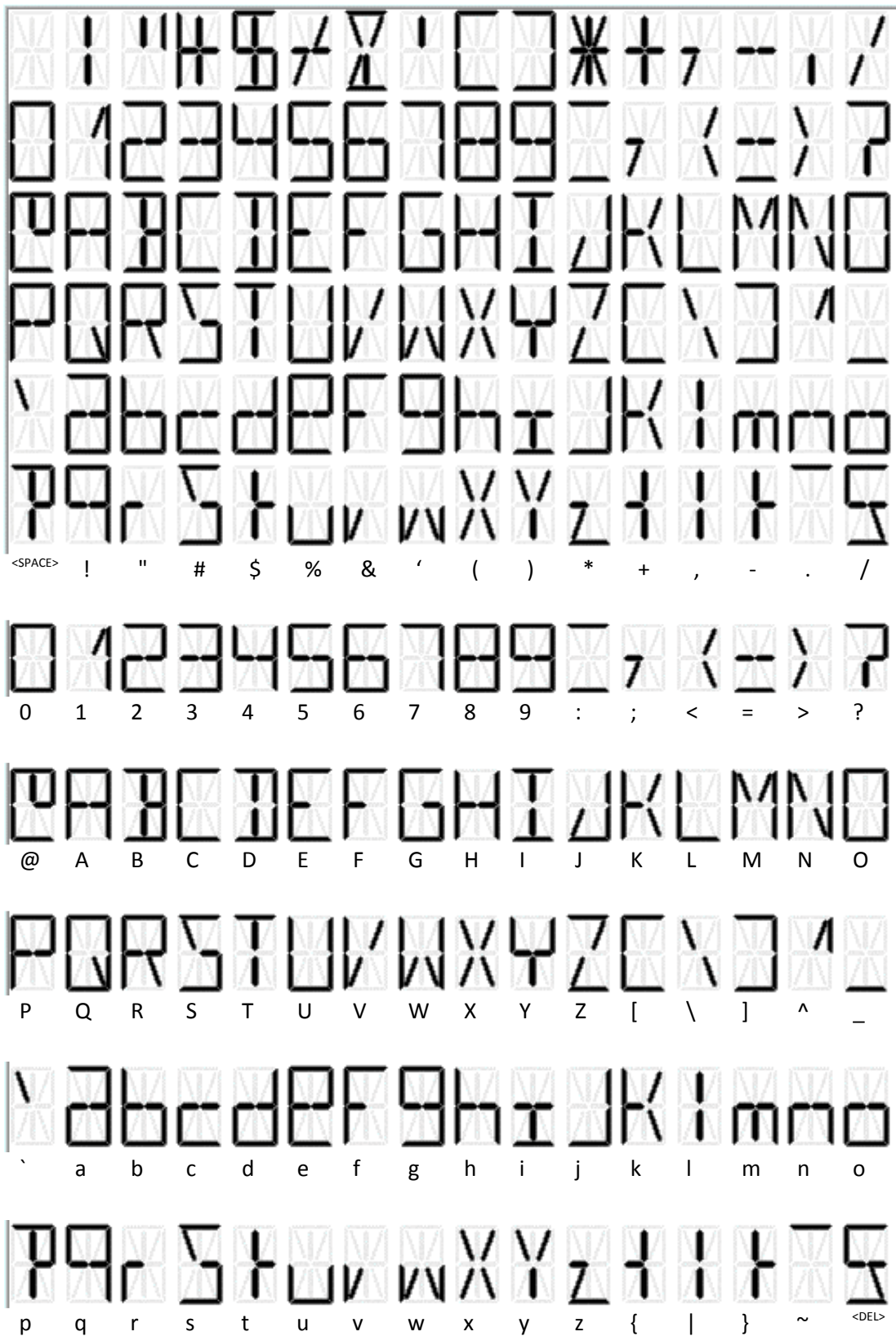


**446\_V...**: Software’s number and version

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

3. VIZUALISATION OF THE PERMITTED CHARACTERS ON THE MICROCOMPT+

Visualization of the permitted characters on the MICROCOMPT+ display:



## ANNEX 2: PRINTINGS

## SUMMARY:

FMS OEM 4048  
VERSION 01.02.05 DATED 20.12.18  
PRINTED ON THE 26.12.18 AT 11:37  
INDICATOR: 04027

SUMMARY  
OF DELIVERIES OF 26.12.18  
DAY 360 - 003 MEMORISED RESULTS

## \*\*\*\* DAILY TOTALISERS \*\*\*\*

GO (01) : 00000998 L +13.0°C  
FOD (02) : 00002408 L +13.0°C

TOTAL FROM 1 TO 2 : 00003406 L +13.0°C

## \*\*\*\*\* SUMMARY \*\*\*\*\*

START TIME	END TIME	MESU No.	PROD	VM (L)	TEMP (°C)
09:40	09:50	01	GO	00998	+12,9
09:51	10:01	02	FOD	01198	+12,9
10:02	10:23	03	FOD	01210	+12,9

## PARAMETERS:

FMS OEM 4048  
VERSION 01.02.05 DATED 20.12.18  
PRINTED ON THE 26.12.18 AT 15:30  
INDICATOR: 04027

## \*\*\*\*\* PARAMETRES \*\*\*\*\*

INDICATEUR : 004027  
UNITE ET PRECISION : 123456 L  
CONVERSION : OUI  
AFFICHAGE : VM  
IMPRIMANTE : OUI  
INFO EMBARQUEE : NON  
ENSEMBLE DE MESURAGE:  
COEFFICIENT PD (K1) : 10.0000 IMP/L  
PETIT DEBIT/K1 (Q1) : 0.0 M3/h  
COEFFICIENT GD (K2) : 10.0000 IMP/L  
GRAND DEBIT/K2 (Q2) : 0.0 M3/h  
CORRECTION : 0  
TEMPERATURE EM : OUI  
TEMPERATURE PRODUIT : 21.8°C  
TEMPERATURE MIN : -20.0°C  
TEMPERATURE MAX : 50.0°C

## \*\*\*\*\* CONSIGNES \*\*\*\*\*

DEBITS:  
DEBIT MINIMAL : 8.0 M3/H  
DEBIT MAXIMAL : 50.0 M3/H  
VOLUME:  
QUANTITE MINIMALE : 200 L  
VOLUME PD→GD : 10 L  
VOLUME GD→PD : 100 L  
TEMPS:  
TEMPO DEBIT 0(S) : 20

## \*\*\*\*\* PRODUITS \*\*\*\*\*

LIBELLE	MASSE	VOLUMI	CORRECTION
GO	0830.0	KG/M3	NON
FOD	0730.0	KG/M3	NON

**TOTALISERS:**

FMS OEM 4048  
 VERSION 01.02.05 DATED 20.12.18  
 PRINTED ON THE 26.12.18 AT 18:17  
 INDICATOR: 04027

\*\*\*\*\* TOTALISERS\*\*\*\*\*

GENERAL TOTALISER : 00004358 L

GO (01) : 00001950 L  
 FOD (02) : 00002408 L

TOTAL : 00004358 L

**EVENTS RECORDED:**

FMS OEM 4048  
 VERSION 01.02.05 DATED 20.12.18  
 PRINTED ON THE 26.12.18 AT 11:45  
 INDICATOR: 04027  
 EVENTS ON 25/07/18

28 RECORDING(S)

11:33:33 STOP OPERATION  
 ...

09:47:25 PARAM@ 1= 0  
 09:47:15 PARAM@ 55= 81  
 09:47:06 PARAM@ 53= 1  
 08:59:02 METROLOGICAL MODE  
 08:58:57 SWITCH ON

**DELIVERY TICKET (according to customer):**

Date 26/12/18 at 15:51

Delivery product: GO

Index 001 before 00000299 at 11:35  
 Index 002 after 00000601 at 11:42

Volume at temperature : 00302 litres  
 Volume at 15°C : 00300 litres  
 Temperature : +20.0°C  
 Density at 15°C : 800.0 Kg/m3

Only the volume and mean  
 temperature indications displayed  
 by the indicator shall be deemed  
 valid.



## RELATED DOCUMENTS

GU 7111	User Guide
MV 5015	Verification Manual
FM 8000	Replacement of the backup batteries on the AFSEC and AFSEC+ electronic board
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 8510	Adjustment of a temperature chain in a MICROCOMPT+