


# USER MANUAL

## MU 7096 EN C CRYO-TRONIQUE LNG



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## 1 GENERAL PRESENTATION AND DESCRIPTION

The CRYO-TRONIQUE is a measuring system. You can install it on tank trucks. It measures liquefied natural gas LNG. There are two types of CRYO-TRONIQUE depending on the model of flowmeter used: CE27-M, CE54-M.

The CRYO-TRONIQUE measuring system comprises:

- ⇒ A MICROCOMPT+ electronic calculator-indicator
- ⇒ An optional printer
- ⇒ A Coriolis flow meter for cryogenic and LNG (Emerson)
- ⇒ Two 3-wires Pt100 temperature sensors
- ⇒ A gas detector
- ⇒ Two 4-20mA pressure transmitters
- ⇒ A 3-way valve
- ⇒ A pumping system
- ⇒ If required, a remote control device

The CRYO-TRONIQUE performs the functions that follow:

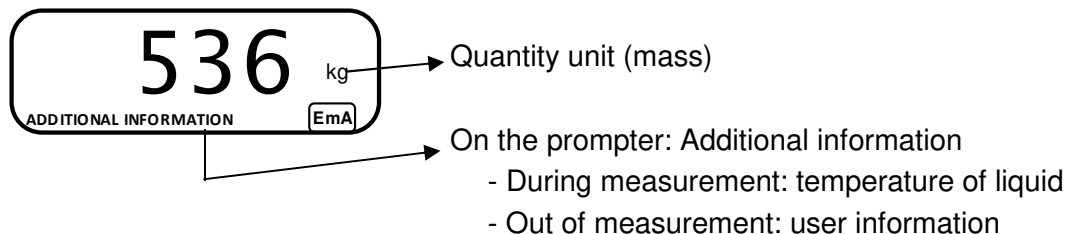
- ⇒ Flow meter acquisition data
- ⇒ Acquisition of mass, mass flowrate and density
- ⇒ Calibration of the flow meter
- ⇒ Gas detector control
- ⇒ Deadman function control
- ⇒ Remote control management
- ⇒ Acquisition of the liquid temperature at the pump by a Pt100 probe
- ⇒ Acquisition of the pump motor seal temperature by a Pt100 probe
- ⇒ The calculation, the display and the storage of the conventional mass
- ⇒ The calculation of the mass flow
- ⇒ The display and memorization of the mass of the balance of the measurement


The optional function is available:

- ⇒ Printing of discharging tickets, internal totalisers, parameters and diary printings.




**NOTE:** The CRYO-TRONIQUE shows the legally-binding information. The information printed by the printer has no metrological value.

The CRYO-TRONIQUE has one display:






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The CRYO-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-Supervisor 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 ANNEX 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 ANNEX 1.

## 2 CONNECTED FEATURES

The wireless connection enables the MICROCOMPT+ to communicate with an embedded computer or with a PC/tablet/portable device.

The connected functions of the MICROCOMPT+ are the following:



















- ⇒ 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:




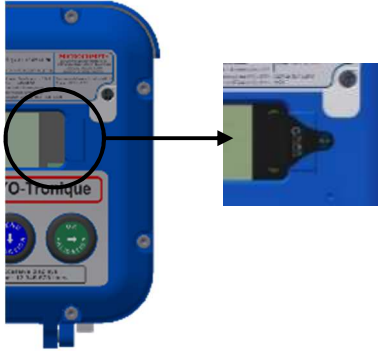

- ⇒ Wi-Fi (IEEE 802.11 b/g/n (2.4GHz) **OR** Bluetooth Low Energy 4.1
- ⇒ GSM (2G, 3G, 4G) / GPS
- ⇒ RFID NFC allowing the reading of an RFID key to switch in SUPERVISOR mode
- ⇒ Ethernet Base 10/100

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

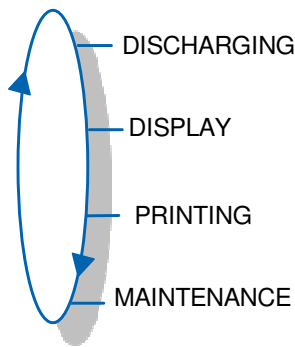
Three tricolor LED on the MICROCOMPT+ front face are showing the wireless connection status as described in the table below:

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

### 3 CONFIGURATION, SETTINGS AND CALIBRATION

CONFIGURATION: METROLOGICAL mode	SETTINGS: SUPERVISOR mode	CALIBRATION USER mode
§CONFIGURE THE CRYO-TRONIQUE: METROLOGICAL MODE	§SET THE CRYO-TRONIQUE: SUPERVISOR MODE §ANNEX 1	§USE THE CRYO-TRONIQUE: USERMODE (Calibration)
You must configure the CRYO-TRONIQUE during commissioning and sometimes during metrological controls.	You must set the CRYO-TRONIQUE before any operation.	
<b>NOTE:</b> Only approved persons are permitted to remove the seal	<b>NOTE:</b> Only approved persons are permitted to change parameters	<b>NOTE:</b> Only approved persons are permitted to make calibration.
<ul style="list-style-type: none"> <li>- Unseal the cup</li> <li>- Remove the seal</li> </ul>	<ul style="list-style-type: none"> <li>- Put the RFID key at the right side of the display</li> </ul> 	<ul style="list-style-type: none"> <li>- Put the RFID key at the right side of the display</li> </ul> 
		

#### 4 USE THE CRYO-TRONIQUE: USER MODE



In USER mode, the CRYO-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 CRYO-TRONIQUE depends on the hardware configuration of the truck, the features and the configuration of the equipment carried out during commissioning:

During an operation, the following information may be displayed by pressing the BLUE MENU BUTTON. Values are displayed during 10 seconds. Example below:

- 15  
INSTANTANEOUS FLOW (T/H)
- +02.2  
DELTA P (BAR)
- +02.0  
PUMP SUCCION
- +04.2  
PUMP OUTLET
- -160.4 °C  
PRODUCT TEMPERATURE
- -169.7 °C  
PUMP TEMPERATURE
- -168.4 °C  
PUMP SEAL TEMP. With active option
- 470 kg/m<sup>3</sup>  
DENSITY
- 12  
DRIVE GAIN

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

● Reset the deadman device With active option: 'Deadman local' or 'Deadman distant degrade'

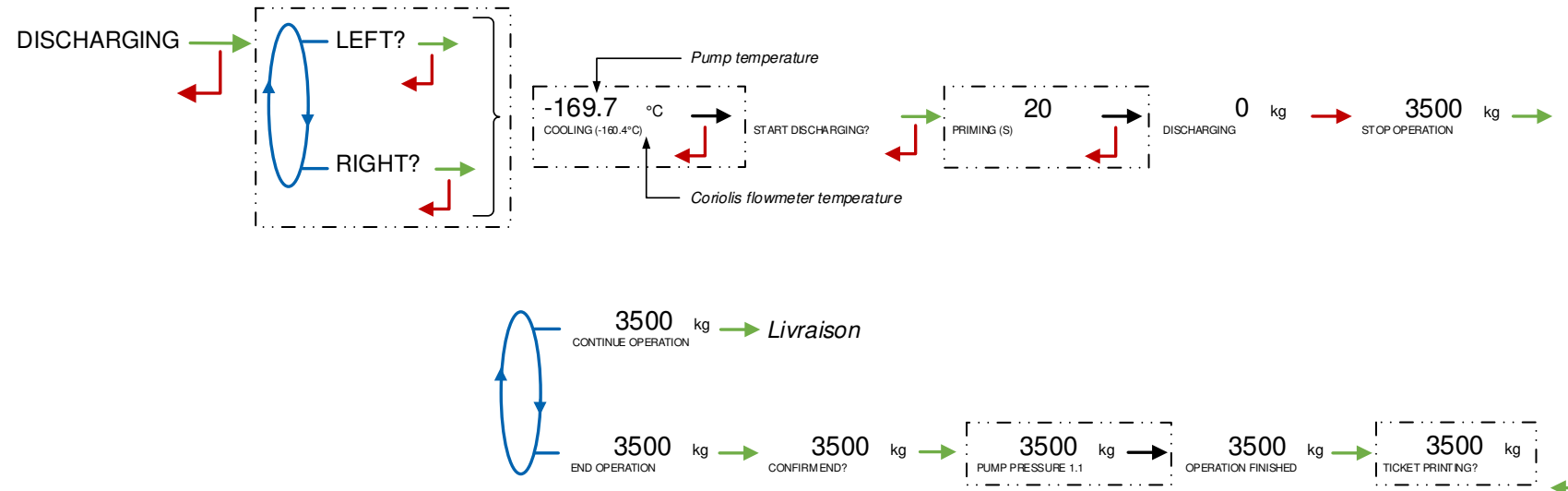


### 4.1 Menu DISCHARGING

This menu is used to deliver the product to the customer.

**LEFT?:** Discharging on left-side of truck (driver side)

**RIGHT?:** Discharging on right-side of truck



Non-systematic phases: If conditions are not met or with active option

Description of pump cooling:

During the pump cooling sequence, the temperatures of the pump and the Coriolis meter must drop below the threshold set in the menu SUPERVISOR>INSTRUMENTATION>TEMPERATURES>PUMP TEMPERATURE>TEMPERATURE TT1 LOW. When the conditions are met, the CRYO-TRONIC displays the countdown timer SUPERVISOR>SETTINGS>TEMPORISATION>PUMP COOLING. In any case, pump cooling requires waiting for the time limit.

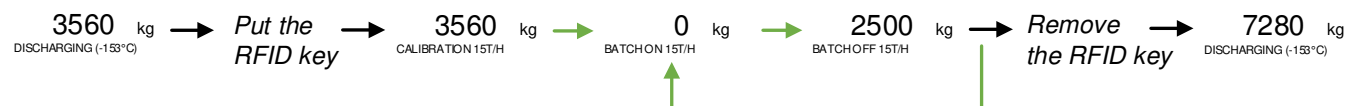
Description of priming:

During the priming sequence, monitoring of  $\Delta P$  that must reach the threshold set in the menu SUPERVISOR>PRESSURE>DELTA P PT2→PT1 before time limit. When the threshold is reached before time limit, the CRYO-TRONIQUE displays the countdown timer. When the threshold is not reached before time limit, the alarm CAVITATION DEFAULT appears.

**4.1.1 Calibration**

Access restricted to permitted persons with RFID red key Level3-Maintenance. It gives access to data display sequences that can be used to calibrate the meter.

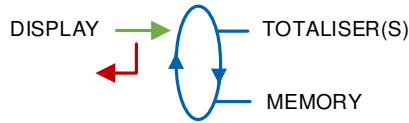
Follow the sequence below. The flowrate unit depends on CONFIGURATION>UNIT AND ACCURACY.



The value indicated between the displays of BATCH ON and BATCH OFF corresponds to an isolated mass. This value is compared with the reference standard. As long as the key is positioned on the display, the operation can be repeated as many times as necessary with or without changing the flowrate.

## 4.2 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.



### 4.2.1 Sub-menu TOTALISER(S)

You can see the mass totaliser value.



### 4.2.2 Sub-menu MEMORY

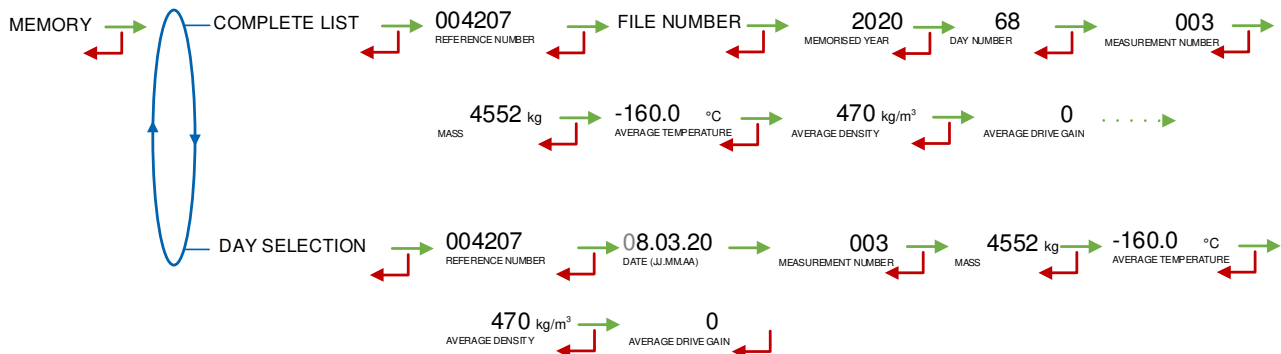
You can read all the measurement results stored by the MICROCOMPT+. That can be done in two ways:

**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.

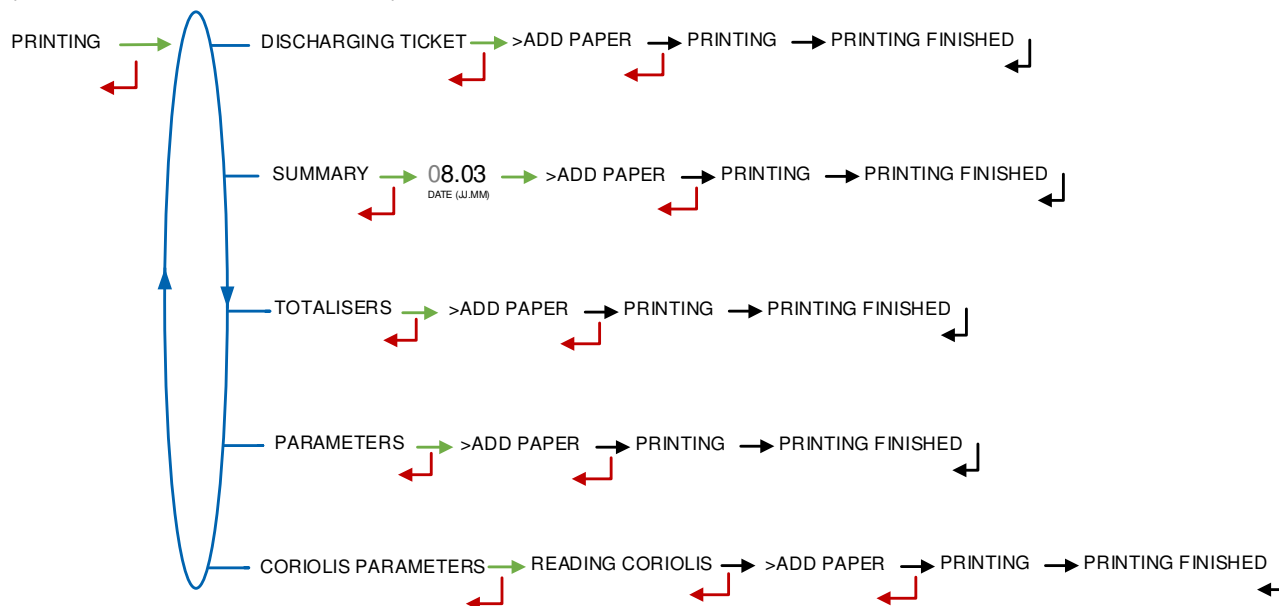
For each measurement, you can read:

- The mass
- The average temperature measured by the Coriolis meter
- The mass-weighted density of product
- The average drive gain



### 4.3 Menu **PRINTING**

This menu is available only if the CRYO-TRONIQUE operates with a printer (SUPERVISOR>PRINTER→ON).



**DISCHARGING TICKET:** Print the ticket of the last discharging

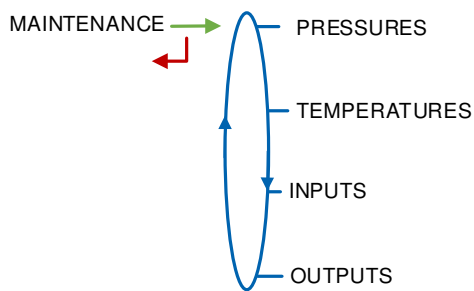
**SUMMARY:** Record a date and validate to print the summary of the measuring operations

**TOTALISERS:** Print the internal totaliser

**PARAMETERS:** Print the MICROCOMPT+ parameters

**CORIOLIS PARAMETERS:** Download and print the parameters of the Coriolis flow meter

### 4.4 Menu MAINTENANCE

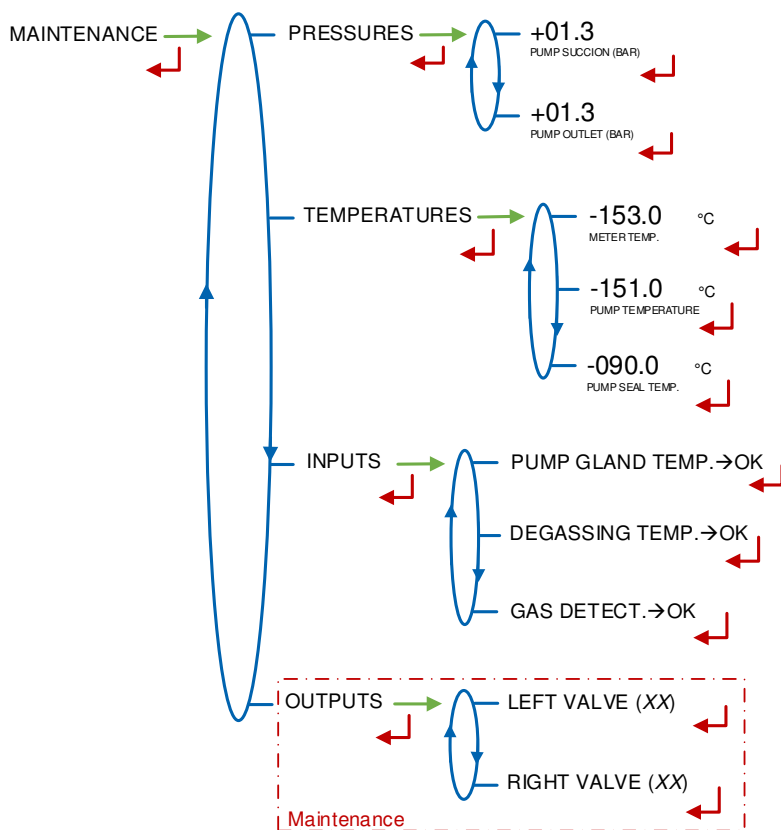


**PRESSURES:** Display the pressures recorded by transmitters PT1 to PT2

**TEMPERATURES:** Display the temperature values for the meter, the pump TT1 and the pump seal TT2

**INPUTS:** Display the status of the inputs to ease maintenance

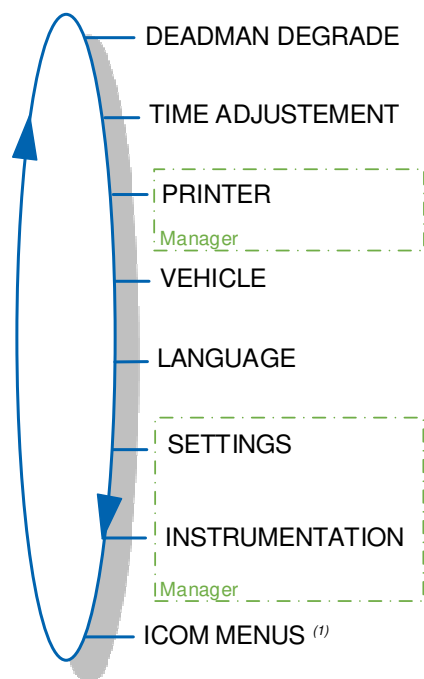
**OUTPUTS – Access restricted to the Maintenance:** Display the status of the outputs to ease maintenance



## 4.5 List of alarms

	DISPLAY	MEANING	ACTION
USER	STOP OPERATION	Intentional interruption of the operation	Continue or end the operation
	EMERGENCY REQUEST	Detection of an emergency request	Check the emergency stop device
	PRINTER DEFAULT	Loss of communication with the printer	Check the connection cable, the status of the switch and the fuse
		Jammed paper in the printer	Use the RELEASE button to eject the paper
	POWER SUPPLY PROBLEM	Power outage during the operation	Check the cause
	LOW FLOW DEFAULT	Low flowrate (lower than minimum flowrate)	Check the hydraulic system
	HIGH FLOW DEFAULT	High flowrate (greater than maximum flowrate)	Reduce flowrate
	REMOTE CONTROL DEF.	No authorization	Check the function of the remote control
REPARATOR BLOCKING	DEADMAN DEFAULT	The deadman device is not connected	Check the deadman device
	METER COMM DEFAULT	Loss of communication with the meter	Check the connections and the status of the meter
	TT1 PUMP DEFAULT	The temperature probe is not connected	Check the connections and the status of the temperature probe
	TT2 SEAL DEFAULT	The temperature probe is not connected	Check the connections and the status of the temperature probe
	PUMP SEAL DEFAULT	The pump seal temperature threshold is exceeded	If steady alarm, see a reparator for trouble shooting
	PUMP GLAND TEMP DEF.	The temperature measurement of the pump cable gland is not correct	If steady alarm, see a reparator for trouble shooting
	DEGASSING TEMP. DEF.	The temperature measurement of the degassing pot is not correct	If steady alarm, see a reparator for trouble shooting
	COOLING DEFAULT	The temperature of the pump and the Coriolis are greater than the set threshold	Analyze the cause Repeat the cooling sequence if required
	CAVITATION DEFAULT	The pump pressure delta is not correct	Check the circuit pressure, If steady alarm, see a reparator for trouble shooting
	DEFAUT DRIVE GAIN	The drive gain threshold is exceeded	If steady alarm, see a reparator for trouble shooting
	PT1 PRESSURE DEFAULT	Problem with the PT1 pressure transmitter	Check the PT1 pressure transmitter status
	PT2 PRESSURE DEFAULT	Problem with the PT2 pressure transmitter	Check the PT2 pressure transmitter status
	PUMP GAS DEFAULT	Gas detection in the engine compartment of the pump	If steady alarm, see a reparator for trouble shooting
	MIN DENSITY DEFAULT	Measured value lower than the minimum value set in metrological mode	Check the metrological settings
	MAX DENSITY DEFAULT	Measured value greater than the maximum value set in metrological mode	Check the metrological settings
	TOTALISER LOST	Problem with the totalisers integrity	Substitution of the backup battery
	DISPLAY DEFAULT	Mismatch between displayed data and re-reading of the display memory	If steady alarm, substitution of the display board
	WATCHDOG DEFAULT	The watchdog function is triggered	Switch off-on the MICROCOMPT+ If steady alarm, substitution of the faulty board
	DATE AND TIME LOST	Problem with the clock	Set new date and time
	DIARY FAULT	Reset of the events diary	Acknowledge the alarm and check the date If steady alarm, substitution of the backup battery
	MEMORY LOST	Loss of measurements diary	Acknowledge the alarm (enter and exit the METRO mode) If steady alarm, substitution of the AFSEC+ electronic board
	MEMORY OVER LOADED	The measurement storage is saturated (too many records over the last 90 days)	Acknowledge the alarm (enter and exit the METRO mode) If steady alarm, substitution of the AFSEC+ electronic board
	BOOT LOADER DEFAULT	Mismatch between the application software and the resident software version	Matching the application software with the resident software
	PARAMETER LOST (BAT)	Loss of supervisor parameters	Acknowledge the alarm If steady alarm, substitution of the backup battery
	EEPROM MEMORY FAIL	Loss of metrological parameters	Substitution of the AFSEC+ electronic board
	RAM DEFAULT	Problem with the integrity of the saved memory data	Substitution of the AFSEC+ electronic board

## 5 SET THE CRYO-TRONIQUE: SUPERVISOR MODE

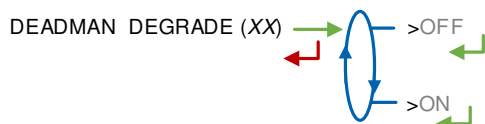


**ICOM MENUS (1):** The sub-menus are different according to the level of access: Level1-Supervisor, Level2-Manager and Level3-Maintenance. See §5.8 and Annex.

### 5.1 Menu DEADMAN DEGRADE

This menu is available when the CRYO-TRONIQUE is used with a remote control (see menu INSTRUMENTATION>DEADMAN→DISTANT).

If the remote control fails, it is possible to operate locally. The CRYO-TRONIQUE manages the time delay and the pressing of the GREEN OK button.



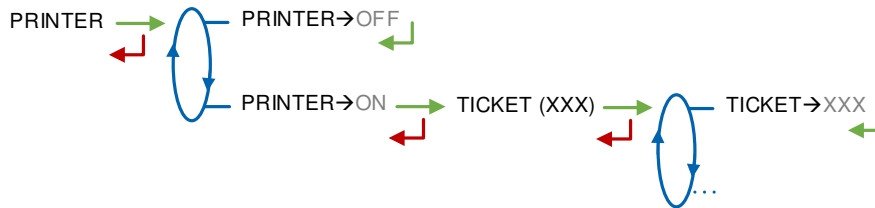
### 5.2 Menu TIME ADJUSTMENT

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



### 5.3 Menu **PRINTER**

*Access restricted to the Manager and the Maintenance:* This menu is used to enable or disable printer operation and to select the ticket.



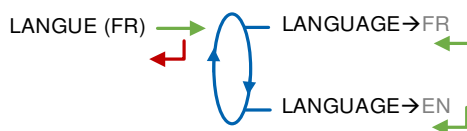
### 5.4 Menu **VEHICLE**

Record the vehicle registry number on which the CRYO-TRONIQUE is installed.



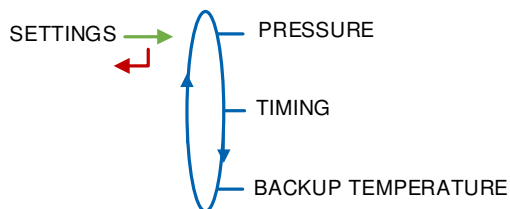
### 5.5 Menu **LANGUAGE**

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



### 5.6 Menu **SETTINGS**

*Access restricted to the Manager and the Maintenance:*



#### 5.6.1 Sub-menu **PRESSURES**

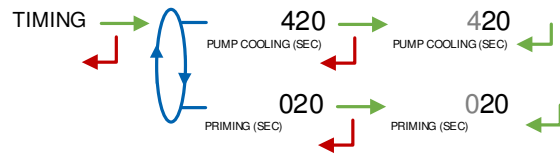
*Access restricted to the Manager and the Maintenance:* Set the parameters of the pressure transmitters in order to hold the hydraulic system under pressure.





### 5.6.2 Sub-menu TIMING

Access restricted to the Manager and the Maintenance.



**PUMP COOLING (SEC):** Estimated time out in seconds for cooling the pump

**PRIMING (SEC):** Estimated time out in seconds for priming the pump

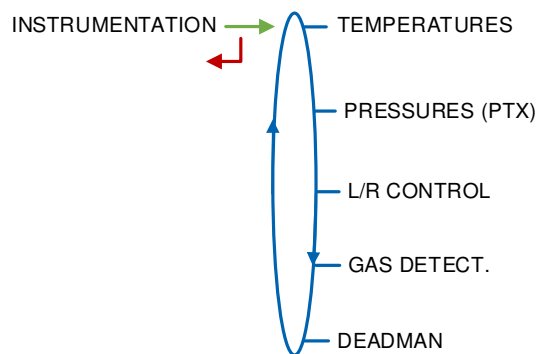
### 5.6.3 Sub-menu BACKUP TEMPERATURE

Access restricted to the Manager and the Maintenance: Record the backup value for temperature.



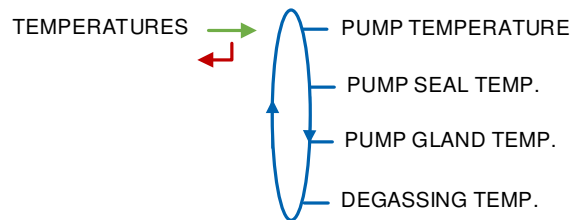
## 5.7 Sub-menu INSTRUMENTATION

Access restricted to the Manager and the Maintenance.



### 5.7.1 Sub-menu TEMPERATURES

Access restricted to the Manager and the Maintenance.



#### 5.7.1.1 Sub-menu PUMP TEMPERATURE

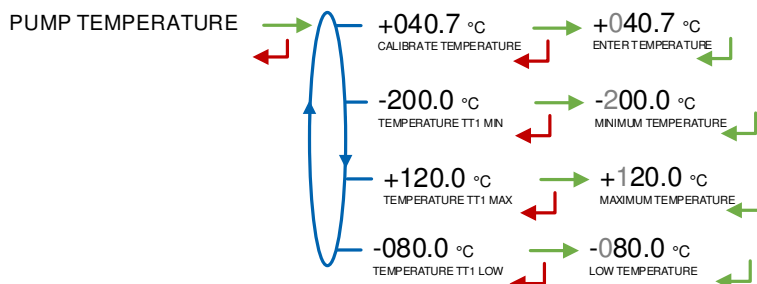
This menu is used to control the temperature of the product in the pump (cooling of the pump).

**CALIBRATE TEMPERATURE:** This menu is used to calibrate the temperature of the pump. The calibration is done on two measuring points at least

**TEMPERATURE TT1 MIN:** Minimum value of the pump temperature

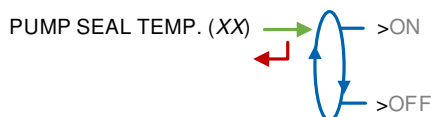
**TEMPERATURE TT1 MAX:** Maximum value of the pump temperature

**TEMPERATURE TT1 LOW:** To validate the cooling process and authorize discharging, the temperature of the pump and the meter must be below this threshold.



### 5.7.1.2 Sub-menu PUMP SEAL TEMP.

This menu is used to enable or disable the pump seal temperature control.



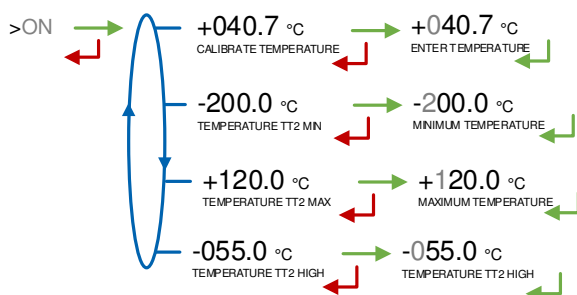
When pump seal temperature control is activated, the following menus must be filled in:

**CALIBRATE TEMPERATURE:** This menu is used to calibrate the temperature of the pump seal. The calibration is done on two measuring points at least

**TEMPERATURE TT2 MIN:** Minimum value of the pump seal temperature

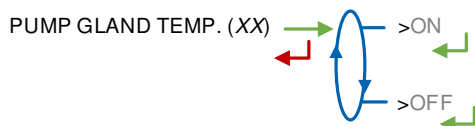
**TEMPERATURE TT2 MAX:** Maximum value of the pump seal temperature

**TEMPERATURE TT2 HIGH:** Monitoring of the temperature of the seal which must not exceed the entered value.



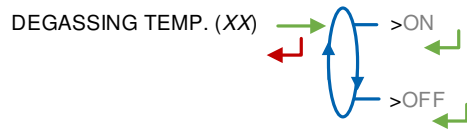
### 5.7.1.3 Sub-menu PUMP GLAND TEMP.

This menu is used to enable or disable the pump cable gland temperature control.



5.7.1.4 Sub-menu DEGASSING TEMP.

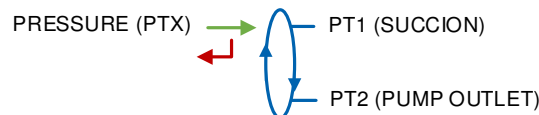
This menu is used to enable or disable the degassing pot temperature control.



5.7.2 Sub-menu PRESSURES

Access restricted to the Manager and the Maintenance.

This menu is used to calibrate and set both 4-20mA pressure transmitters in order to control the absence of cavitation.

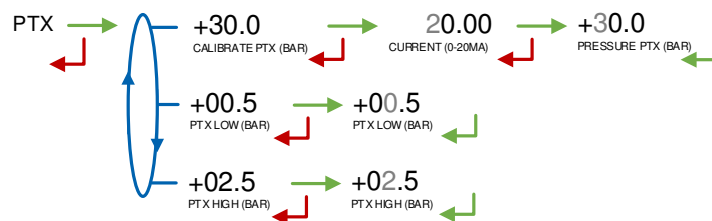


For each pressure transmitter, the menu is the same (X=1 to 2):

**CALIBRATE PTX (BAR):** This menu is used to calibrate the pressure transmitter. Enter the value of the pressures associated with both current values: 4mA and 20mA.

**PTX LOW (BAR):** The pressure must be less than this value to ensure that the discharging or resume sequence runs smoothly

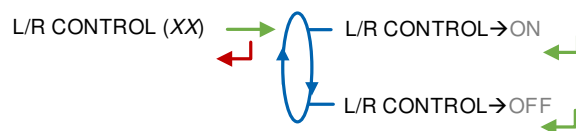
**PTX HIGH (BAR):** The pressure must be greater than this value to ensure that the discharging or resume sequence runs smoothly



5.7.3 Sub-menu CONTROL L/R

Access restricted to the Manager and the Maintenance.

This left/right control menu is used to validate the presence of a 3-way valve supplied by the Customer. The use of this valve is optional, it allows to choose the side of the tank for discharging.

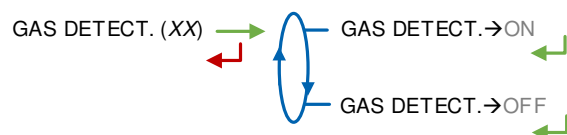


### 5.7.4 Sub-menu GAS DETECT. GAZ

*Access restricted to the Manager and the Maintenance.*

This menu is used to control the presence of gas in the pump compartment. The gas detector is supplied by the Customer.

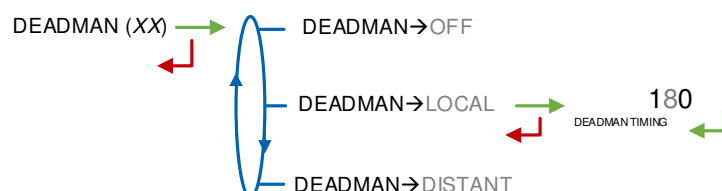
When the pump gas detection threshold is reached, a fault is triggered and discharging is stopped. The discharging resumes when the value falls below the threshold. This threshold depends on the detector used.



### 5.7.5 Sub-menu DEADMAN

*Access restricted to the Manager and the Maintenance.*

This menu is used to indicate whether or not the dead-man device is taken into account and, if required, to define its type.



**DEADMAN→OFF:** The CRYO-TRONIQUE does not take the deadman device into account

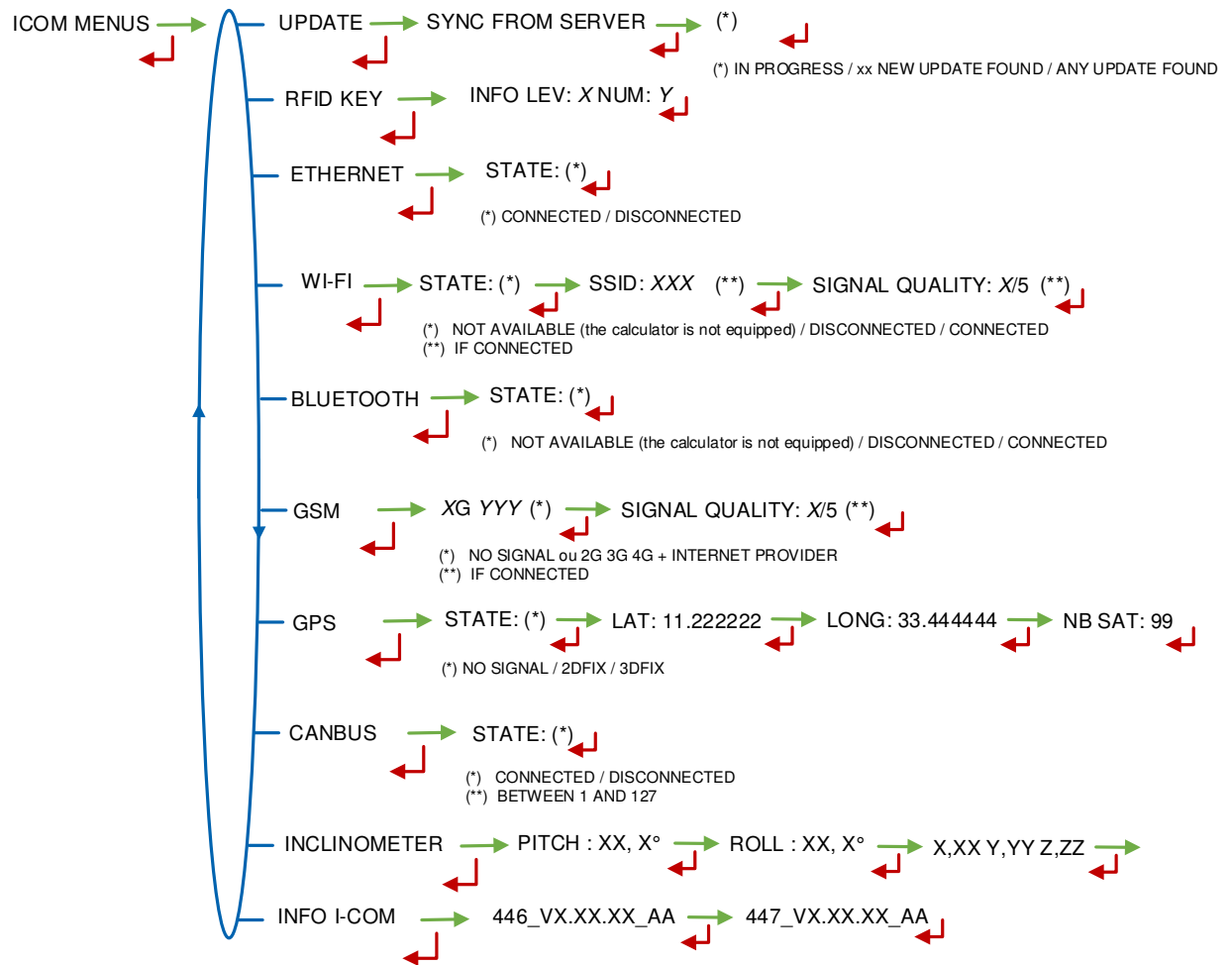
**DEADMAN→LOCAL:** Set the timing in seconds. You must press regularly the OK GREEN BP during discharging. This menu is used to set the delay before triggering an audible or visual signal that reminds you of this obligation. If the GREEN switch is not actuated within 30 seconds after the signal, a fault is triggered and the discharging is stopped. Set a value is required even if the CRYO-TRONIQUE is used with a remote control to remedy its possible malfunction.

**DEADMAN→DISTANT:** The CRYO-TRONIQUE is used with a remote control that manages the deadman function. In case the remote control fails, a degraded mode allows to switch in local mode. (menu DEADMAN DEGRADE→ON).

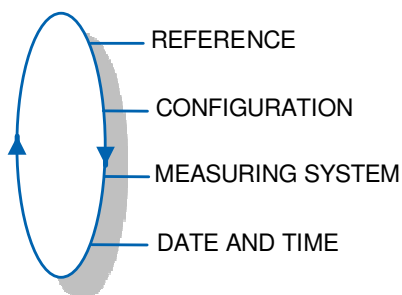
### 5.8 Menu ICOM MENUS

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

The parameters available with the RFID blue key Level1-Supervisor are shown below.




## 6 CONFIGURE THE CRYOTRONIQUE: METROLOGICAL MODE



### 6.1 Menu REFERENCE

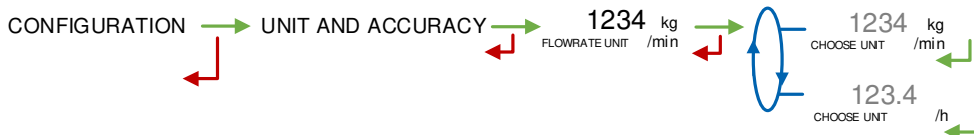
Record the MICROCOMPT+ serial number and then the slave number. It is useful for commissioning and maintenance operations with the µConfig tool.

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	This document is available on <a href="http://www.alma-alma.fr">www.alma-alma.fr</a>	

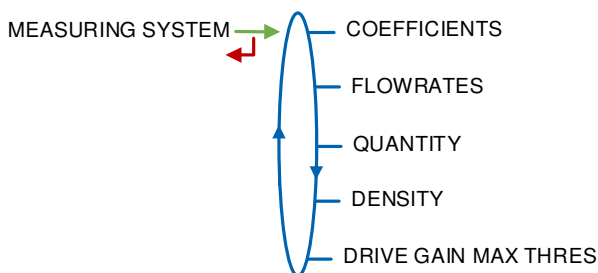


### 6.2 Menu CONFIGURATION

This menu is used to choose the flowrate unit: kg/min or t/h.



### 6.3 Menu MEASURING SYSTEM



#### 6.3.1 Sub-menu COEFFICIENTS

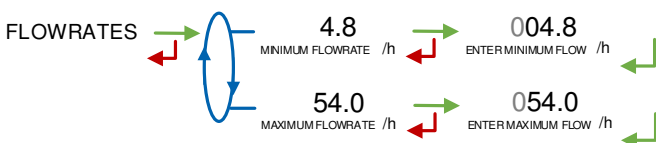
This correction is used in the Coriolis meter to correct an error observed during verification campaigns.



#### 6.3.2 Sub-menu FLOWRATES

**MINIMUM FLOWRATE:** Record the metrological minimum flowrate of the CRYO-TRONIQUE (unit according to CONFIGURATION>UNIT AND ACCURACY).

**MAXIMUM FLOWRATE:** Record the metrological maximum flowrate of the CRYO-TRONIQUE (unit according to CONFIGURATION>UNIT AND ACCURACY).



#### 6.3.3 Sub-menu QUANTITY

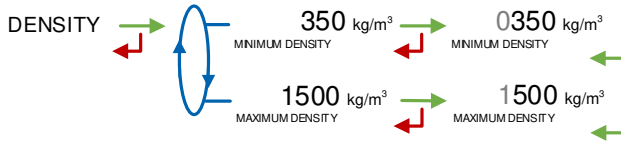
Record the measured minimum quantity of the CRYO-TRONIQUE (unit according to CONFIGURATION>UNIT AND ACCURACY). This value is given by the EU examination certificate of the CRYO-TRONIQUE.



### 6.3.4 Sub-menu DENSITY

**MINIMUM DENSITY:** Enter the LNG minimum density. When the measured density is less than this value, a fault is triggered. Discharging is stopped.

**MAXIMUM DENSITY:** Enter the LNG maximum density. When the measured density is greater than this value, a fault is triggered. Discharging is stopped.



### 6.3.5 Sub-menu DRIVE GAIN MAX THRES

This parameter indicates the presence of gas vapor in the measuring device (in %). This menu is used to set the drive gain maximum threshold. When the threshold is reached a fault is triggered. Discharging is stopped.



## 6.4 Menu DATE AND TIME

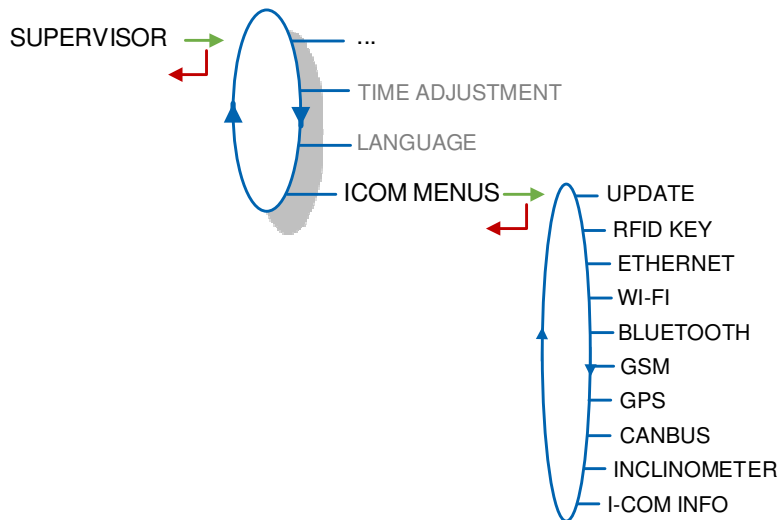
Record date and time.



## ANNEX 1: PRESENTATION OF THE MENU SUPERVISOR>ICOM MENUS

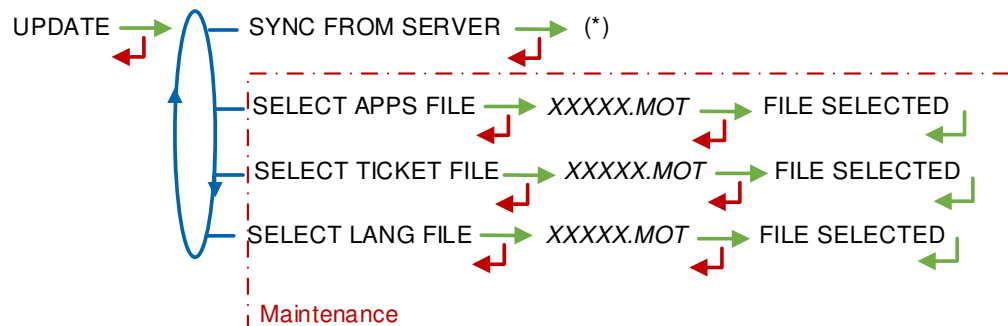
The sub-menus are different according to the level of access:

- ⇒ Level1-Supervisor: Use the RFID blue key to display the non-highlighted menus (see simplified presentation § Menu ICOM MENUS)
- ⇒ Level2-Manager: Use the RFID green key to see 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.

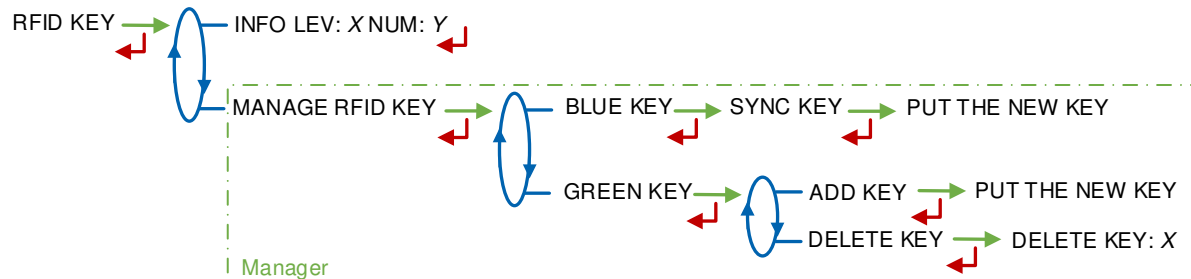
	MU 7096 EN C CRYO-TRONIQUE LNG	Page 24/32
	This document is available on <a href="http://www.alma-alma.fr">www.alma-alma.fr</a>	



**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**



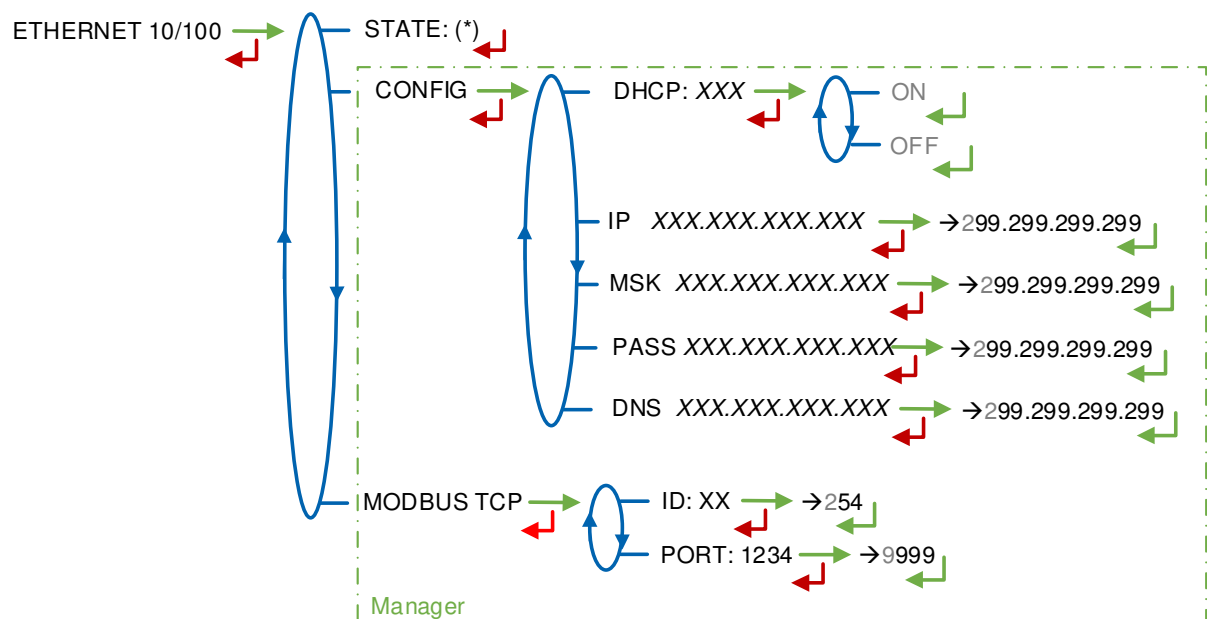
**INFO:** Display of the level and the identifier of the RFID key (blue key: Level1-Supervisor, green key: Level2-Manager, red key: Level3-Maintenance)

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

**BLUE KEY:** Used to associate an RFID key Level1-Supervisor 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)

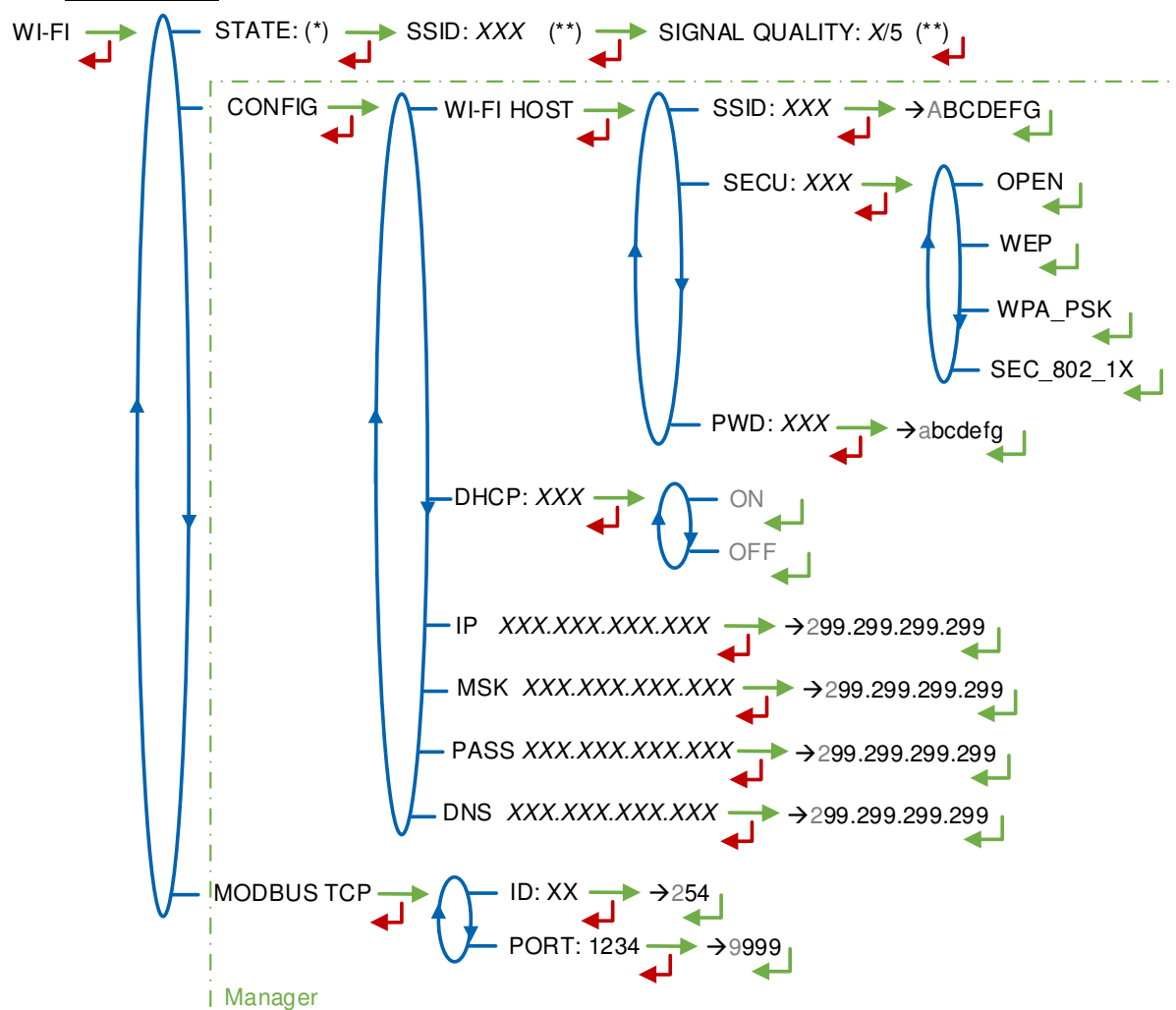
**DNS:** IP Address to access a DNS server

**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

**CONFIG – Access restricted to the Manager:**

**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)

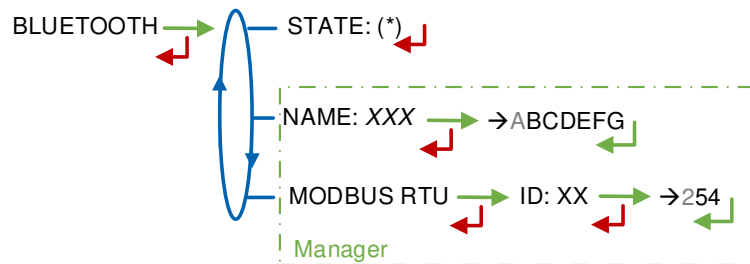
**DNS:** IP Address to access a DNS server

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

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

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

### 1.5. Menu **BLUETOOTH**



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

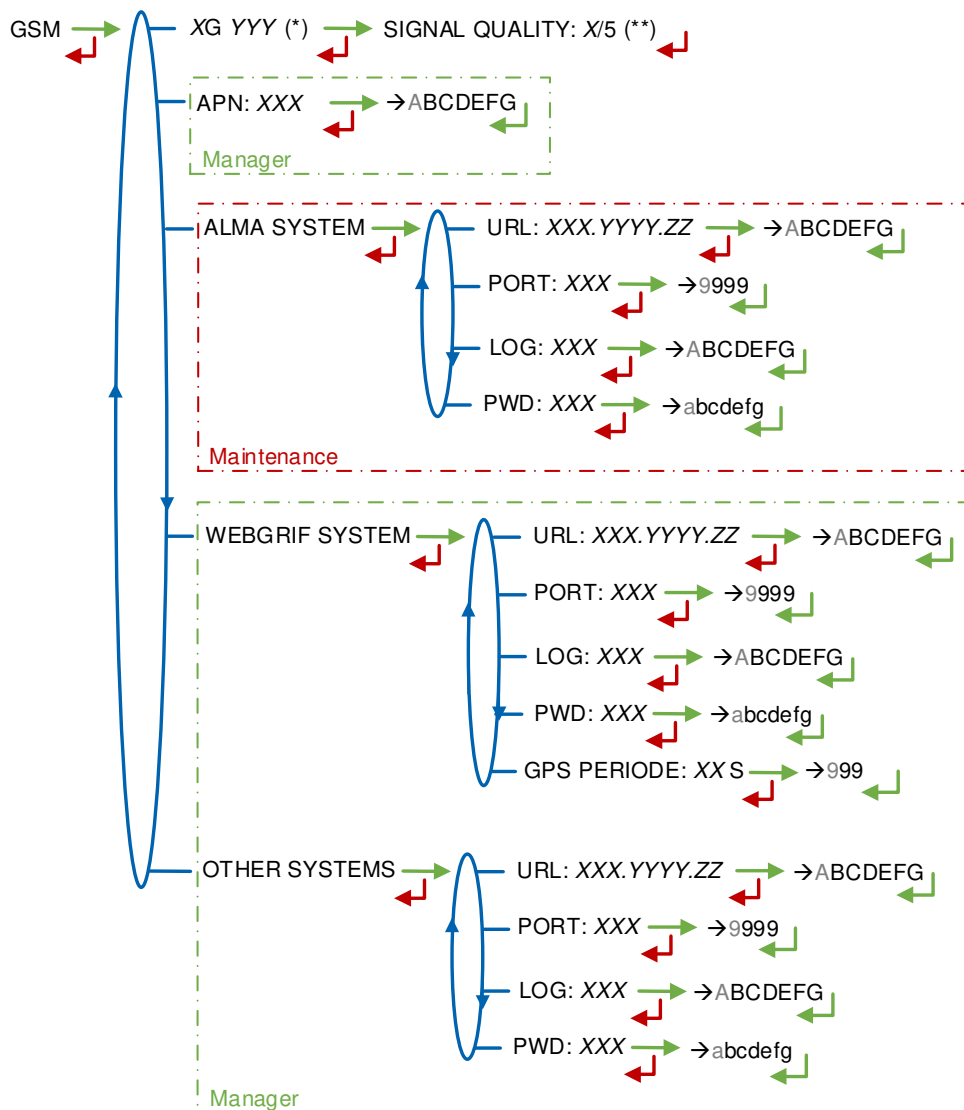
**STATE:** Status of the Bluetooth connection

**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[ ]^\_`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[ ]^\_`abcdefghijklmnopqrstuvw  
yz{ }~<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[ ]^\_`abcdefghijklmnopqrstuvw  
xyz{ }~<DEL> (See §3 visualization on the MICROCOMPT+ display)

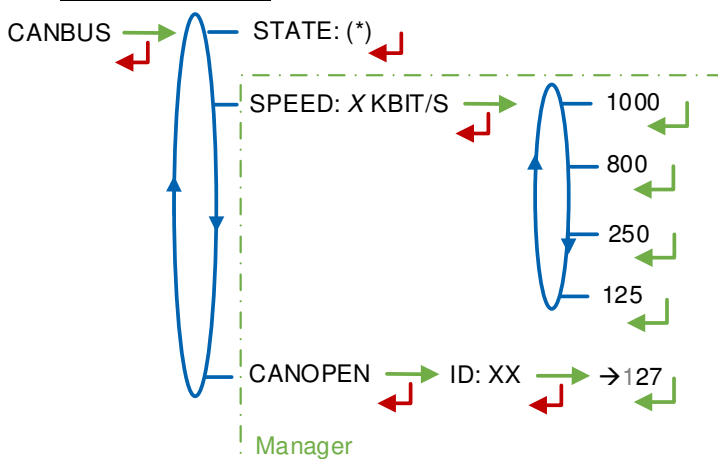
### 1.7. Menu GPS



(\*) 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

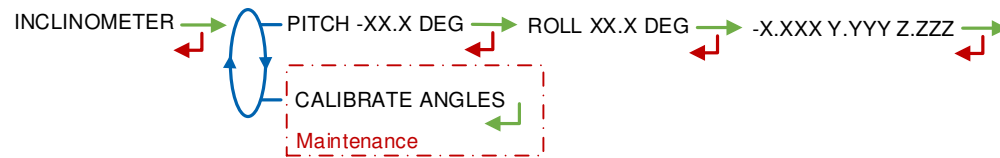
**STATE:** Status of the CANBus connection

**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.

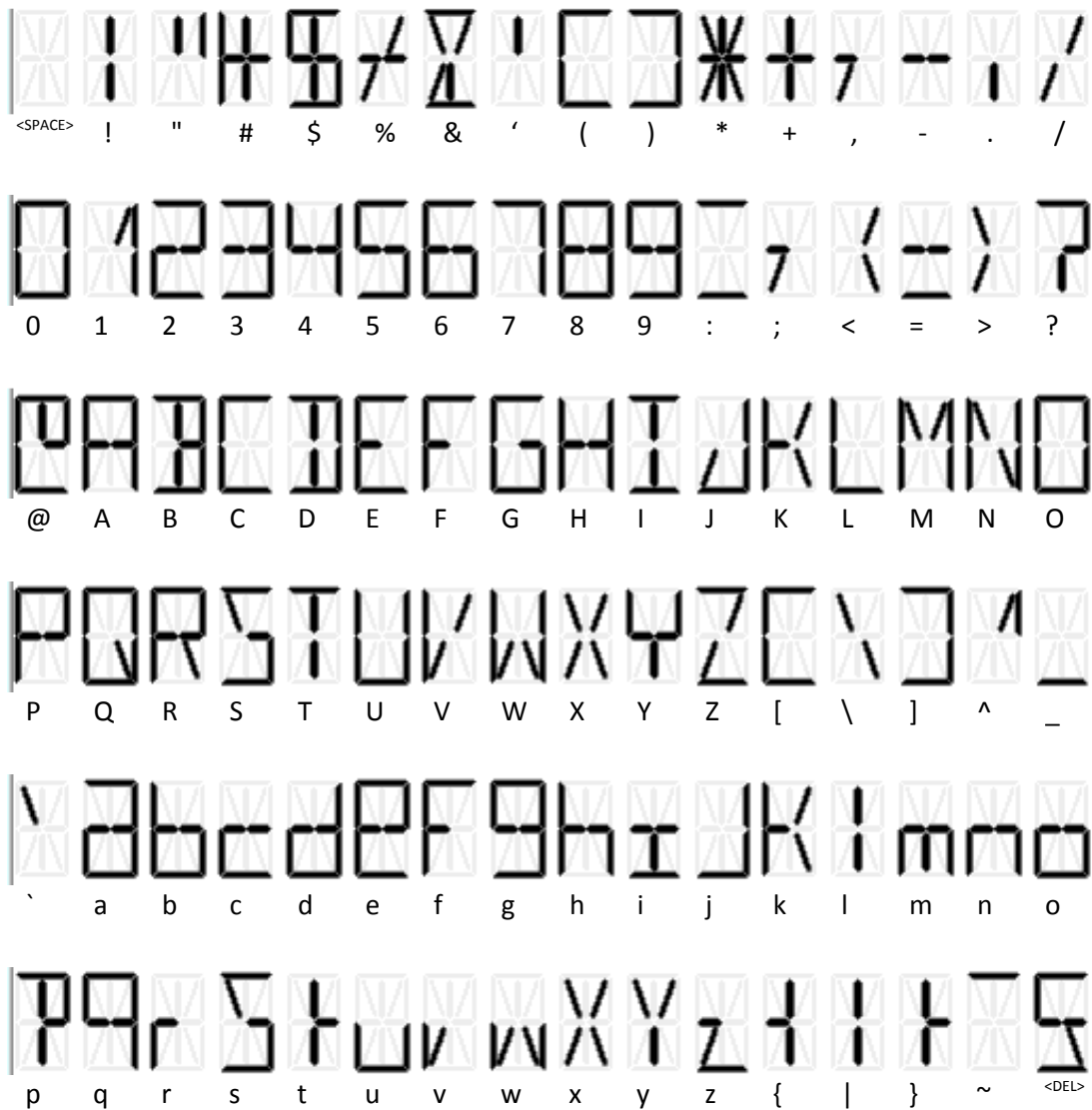
**1.10. Menu I-COM INFO**



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

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

**ANNEXE 2: VIZUALISATION OF THE PERMITTED CHARACTERS ON THE MICROCOMPT+**



## RELATED DOCUMENTS

GU 7096	Operating guide
DI 027	Installation guide
MV 5014	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+