OPERATING MANUAL

MU 7051 EN B

GPL TRONIQUE

Issue	Date	Nature of modifications	Written by	Approved by
A	2010/12/06	Creation	DSM	MV
A	2012/09/20	New software ergonomics, internationalization, linearization, delivery ways menu, V15, V20, Vm/Vb display, events recorded	DSM	AH

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1 GENERAL PRESENTATION AND DESCRIPTION:

The GPL TRONIQUE measuring system must be fitted on road tankers only for measurement of quantities of liquefied gases under pressure.

The GPL TRONIQUE measuring system comprises:

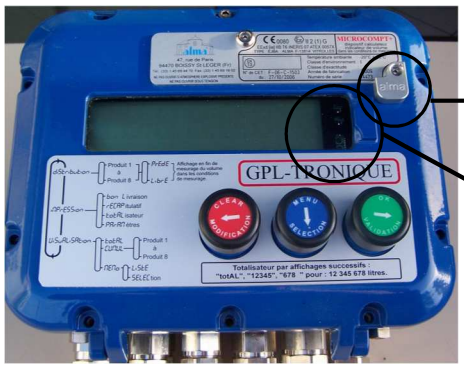
- ⇨ A turbine meter
- ⇨ A MICROCOMPT+ electronic calculator-indicator
- ⇨ A gas separator
- ⇨ A pump
- ⇨ An automatic pressure control valve
- ⇨ A set of devices by two ways of delivery, controlled by a valve which allows the choice between a full flexible hose or a direct release
- ⇨ If required, a PT100 temperature sensor
- ⇨ A printer

There are two models of GPL TRONIQUE: volume at temperature or volume at 15°C or 20°C (measure and compensation of temperature at 15°C or at 20°C). The “embedded computing” and “remote control” (GPL TRONIQUE CD) options are also available. 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 TRONIC in the following pages:

V15 or V20 model (Vb)	
Vt model (Vm)	Embedded computing option

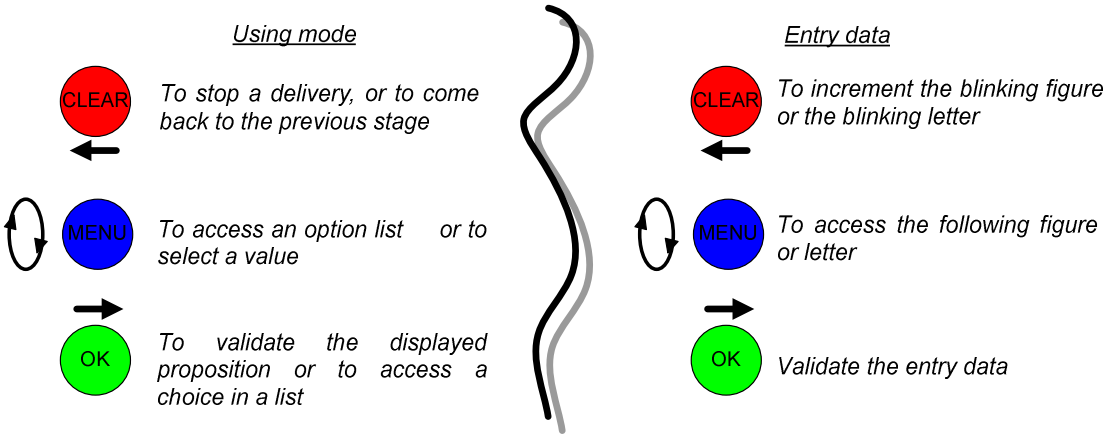
Presentation of the MICROCOMPT+ calculator-indicator:



Sealed cup protecting access to metrological functions

SUPERVISOR magnetic key to access configuration and calibration menu

Buttons function:



The MICROCOMPT+ calculator-indicator manages measuring operation and computerizes the measuring system defaults.

2 OPERATING RECOMMENDATIONS:

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

3 OPERATION MODES OF THE INDICATOR DEVICE:

Driver mode

This is the normal using mode in exploitation.

Refer to DRIVER MODE

Supervisor mode

To access the supervisor mode, the key must be put at the right of the MICROCOMPT display. This mode is used to set the measuring system and to access the calibration menu. Before using the GPL TRONIQUE, enter the value of the parameters such as.

- ⇨ Products
- ⇨ Vehicle identification
- ⇨ Volumes and duration settings
- ⇨ Date and time

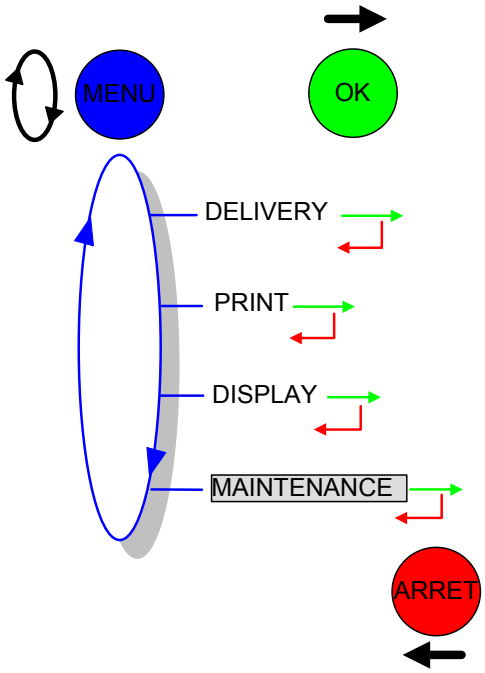
Refer to SUPERVISOR MODE for setup.

Metrological mode

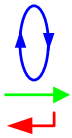
To access the METROLOGICAL mode, the MICROCOMPT+ has to be unsealed. Only an authorized person can remove the seal. This mode allows setting all metrological parameters. It's done at the putting into use of the measuring system and sometimes during metrological controls.

Refer to METROLOGICAL MODE for configuration.

4 DRIVER MODE:



LEGEND:



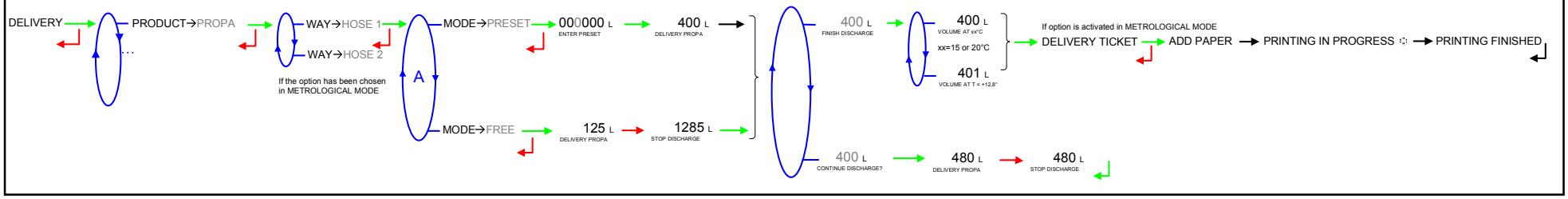
Press the button (red, blue or green) as many times as necessary to display the next message

4.1 Menu DELIVERY

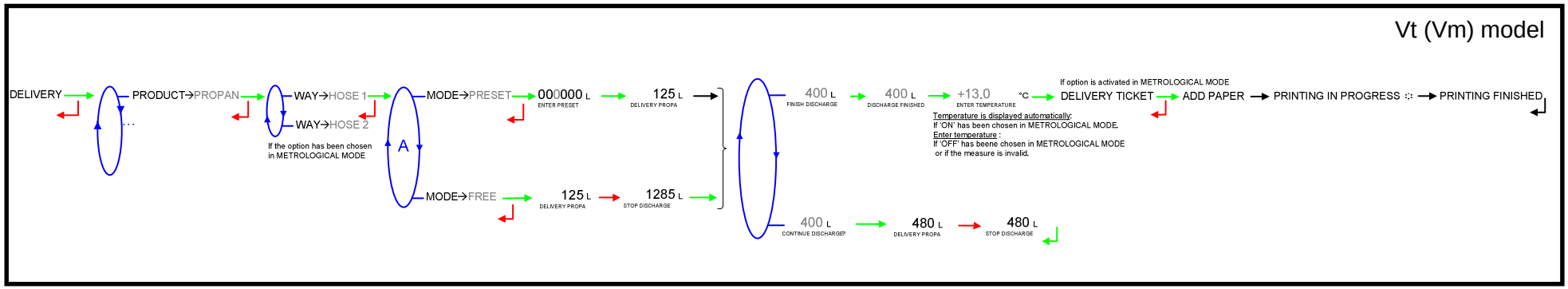
During delivery, press blue pushbutton then green button to visualize instantaneous flow rate. It's possible to switch high and low flow by pressing the blue button.

Press a second time to display the temperature (°C) if it is used

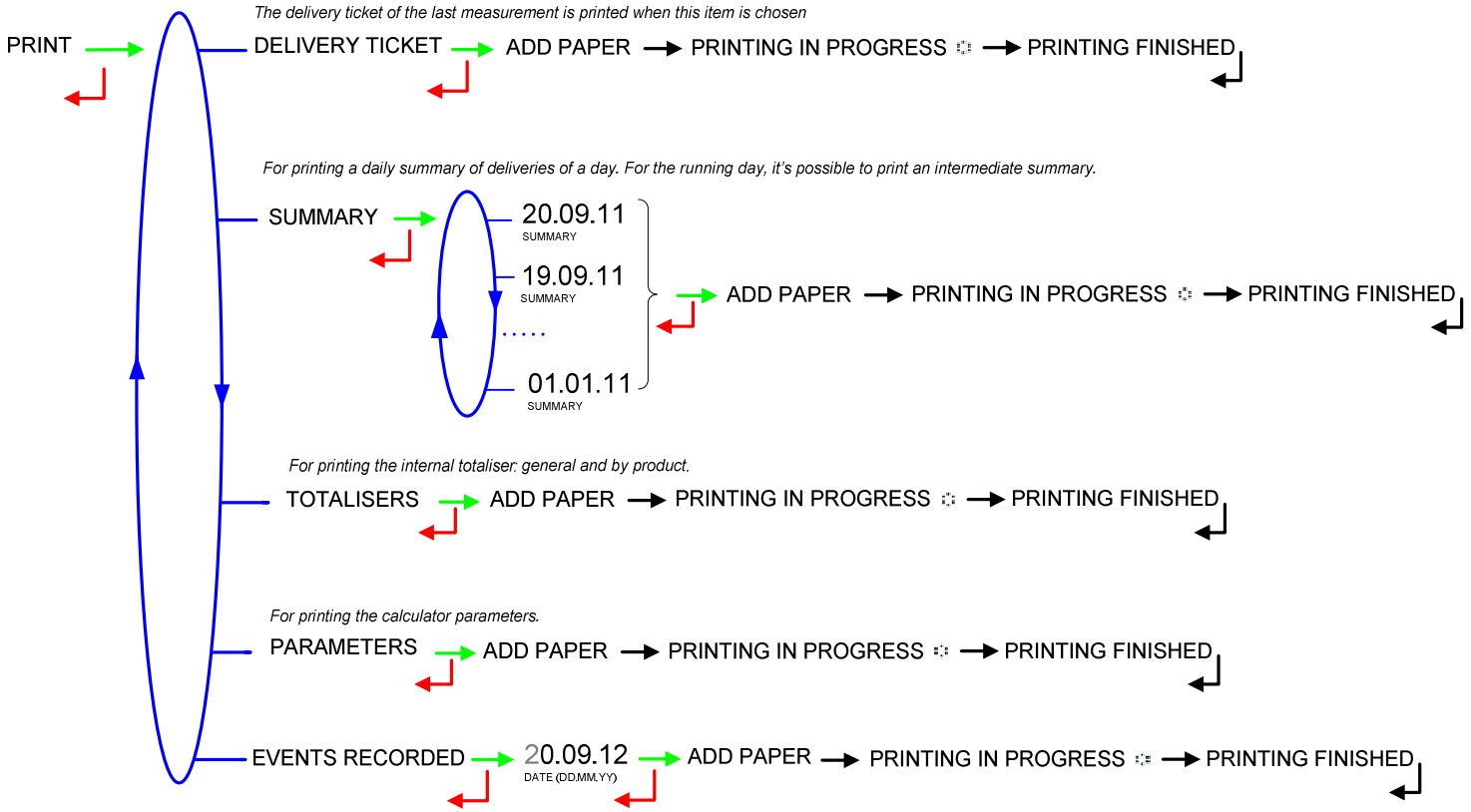
V15/V20 (Vb) model



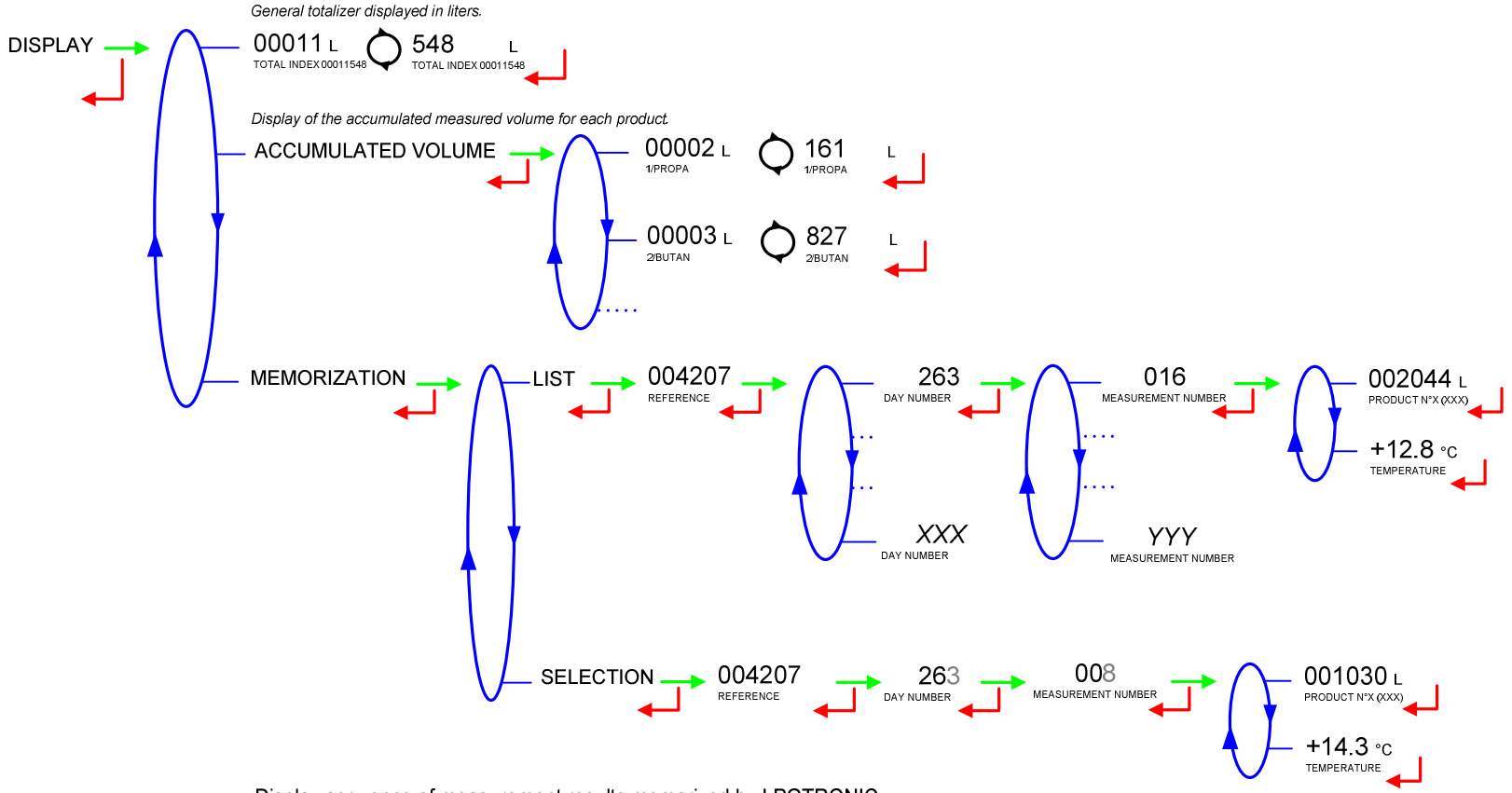
Vt (Vm) model



4.2 Menu PRINT



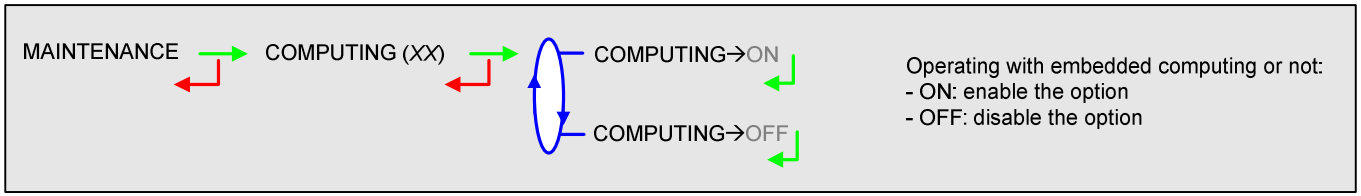
4.3 Menu DISPLAY



Display sequence of measurement results memorized by LPGTRONIC.
- LIST: all measurements results, from the last to the first one, sorted by day number and then by measurement number in the day,
- SELECTION: a particular measurement that is chosen by setting the day number and the measurement number.

4.4 Menu MAINTENANCE

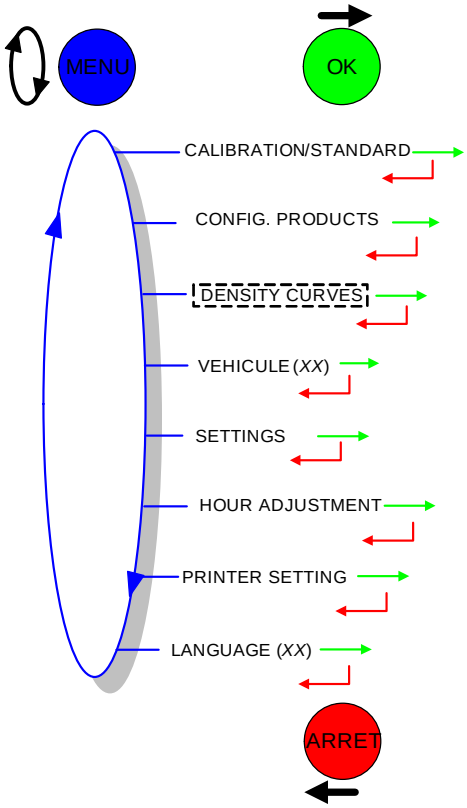
This menu appears if the 'EMBEDDED COMPUTING' option has been configured in METROLOGICAL mode and activated in SUPERVISOR mode. It allows to work without embedded computing in case of failure (degraded mode).



4.5 List of alarms

		DISPLAY	MEANING	ACTION
USER		STOP DISCHARGE	Intentional interruption of discharge	Continue or end the delivery
		COMMUNICATION DEFAULT	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 (lower than minimal flowrate)	Check if the pulse transmitter is powered (red indicators)
		HIGH FLOW DEFAULT	High flowrate (greater than maximal flowrate)	Check the parameters / Reduce flowrate
		DATE AND TIME LOST	Loss of date and time	Set date and time in SUPERVISOR MODE
		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 (supervisor key)
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
		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

5 SUPERVISOR MODE:



5.1 Menu CALIBRATION/STANDARD

This menu allows you to check the accuracy of the measuring system by calculating the measuring device error and the new corrected coefficient. It is possible then to linearise the curve on 2 points of measurement.

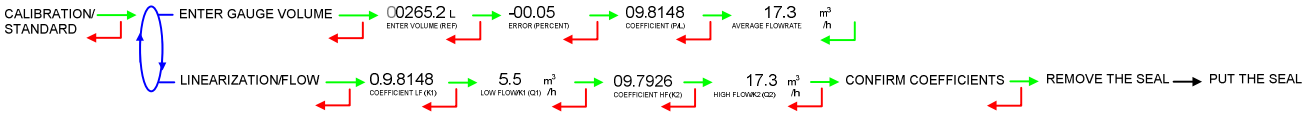
First, fill the gauge (DRIVER mode) with predetermination of the volume. Switch to SUPERVISOR mode, choose 'CALIBRATION/STANDARD > ENTER GAUGE VOLUME' and validate. Enter the reference volume and validate. The following information is then displayed:

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

To linearise the curve, follow these instructions:

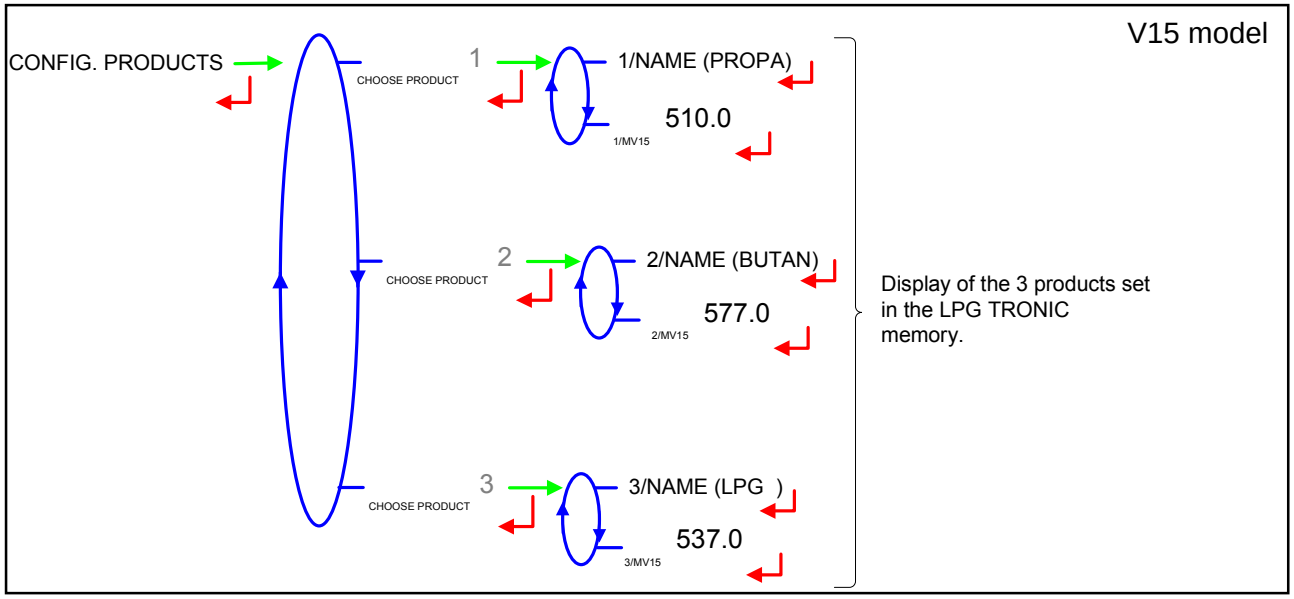
- Fill the gauge in high flow [$flow_{min} \times 3$]≤high flow<[$flow_{max}$], and enter the volume read on the gauge in the menu 'CALIBRATION/ STANDARD > ENTER GAUGE VOLUME' as described above
- Fill the gauge in low flow [$flow_{min}$]≤low flow≤[$flow_{min} \times 2$], enter the volume read on the gauge in the menu 'CALIBRATION/ STANDARD > ENTER GAUGE VOLUME' as described above
- Choose 'CALIBRATION/ STANDARD > LINEARIZATION/FLOW' and validate. It is then possible to read the coefficients and the flow rates data for the two tests carried out.

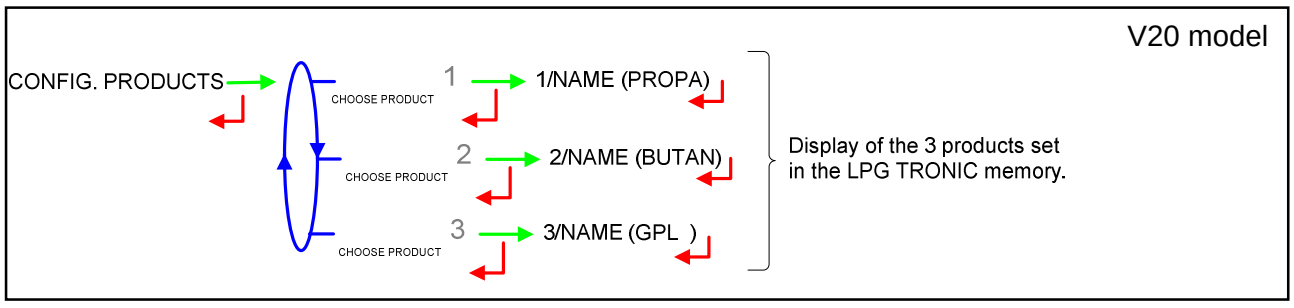
If the difference between the coefficients calculated by the MICROCOMPT is too important, the message "BAD DEVIATION (K1/K2)" is displayed. If the difference between the flowrates of the two tests carried out is too low, the message "FLOWRATES TOO CLOSED" is displayed.

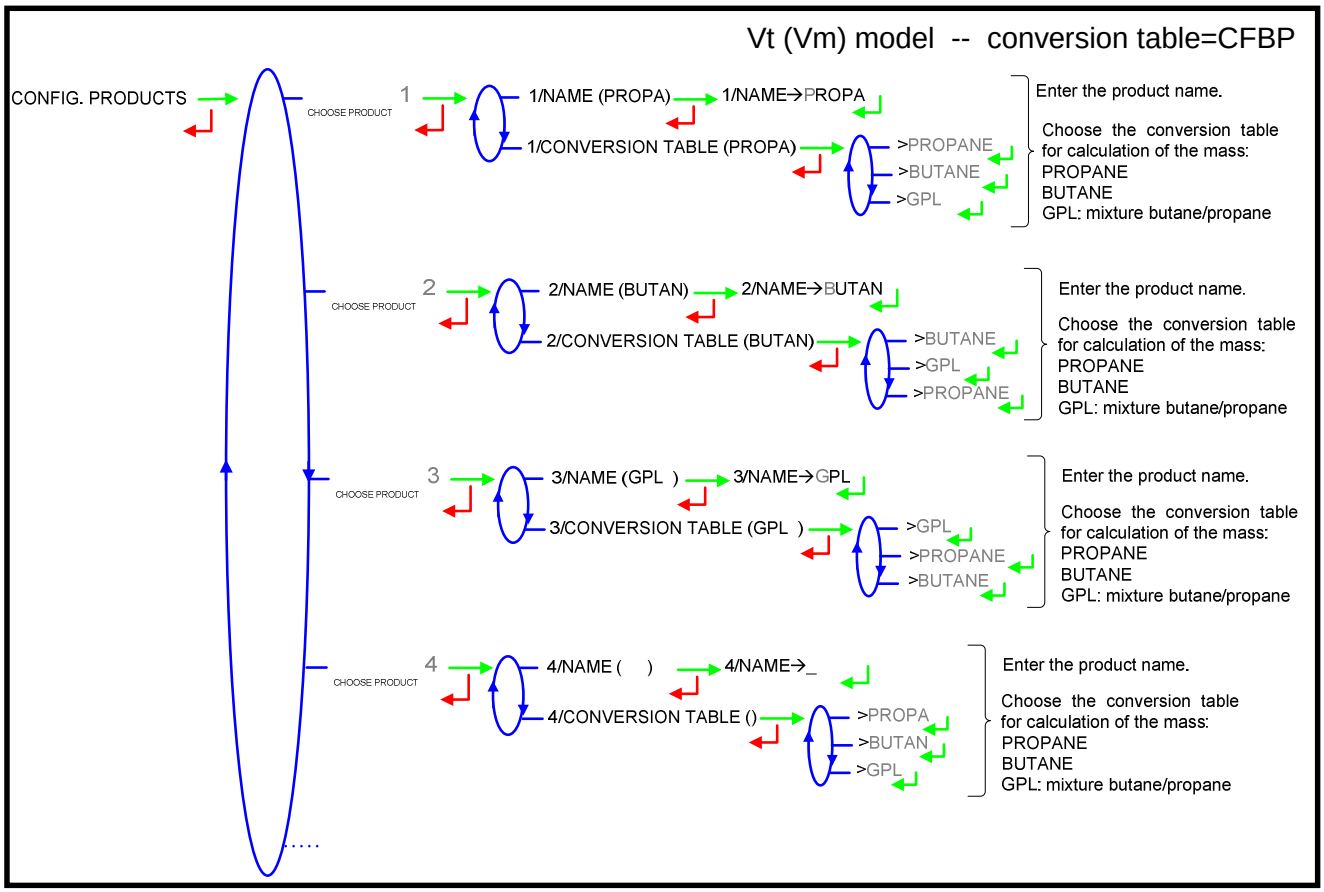


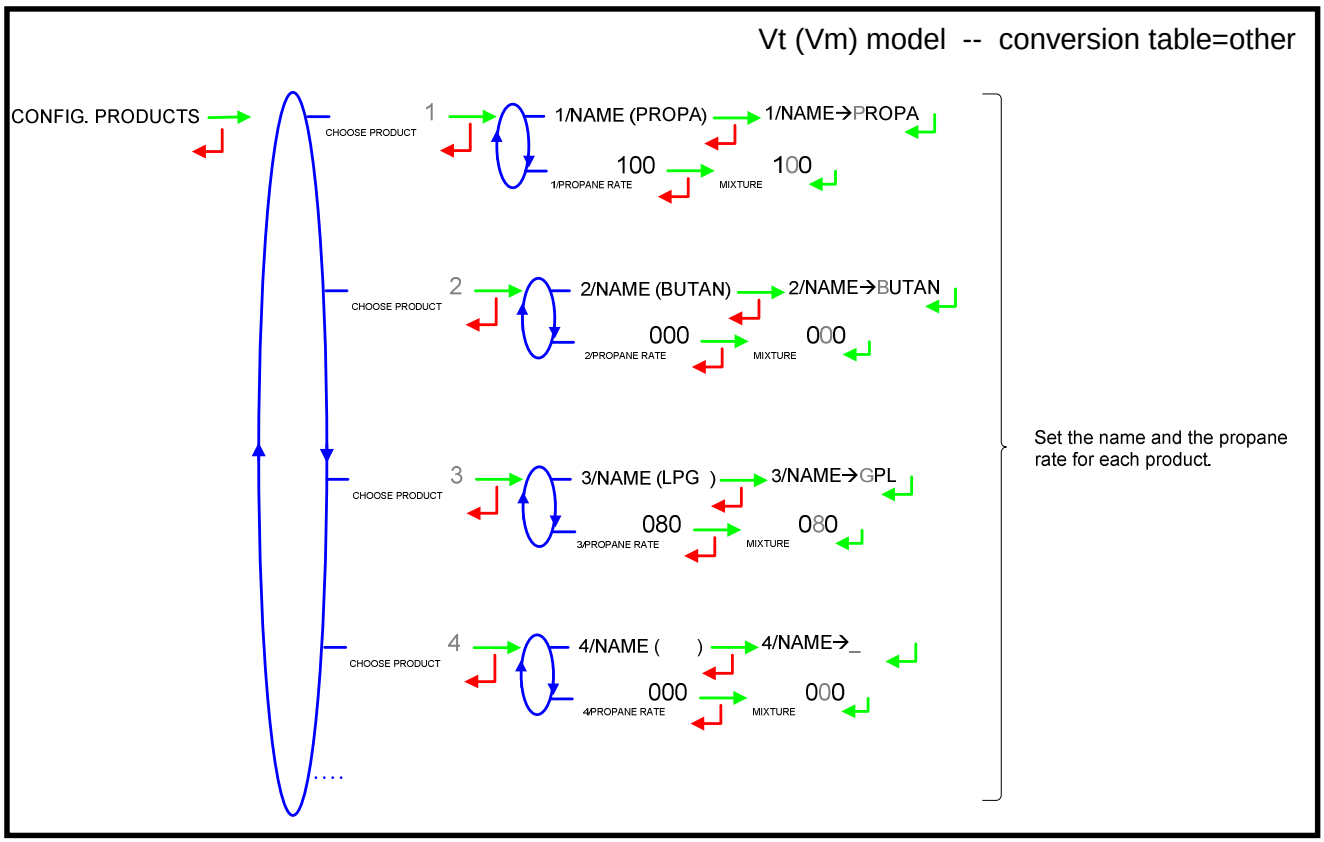
5.2 Menu CONFIG. PRODUCTS

This menu depends on the GPL TRONIQUE model (V15, V20 or Vt) and on the conversion table used (METROLOGICAL configuration)



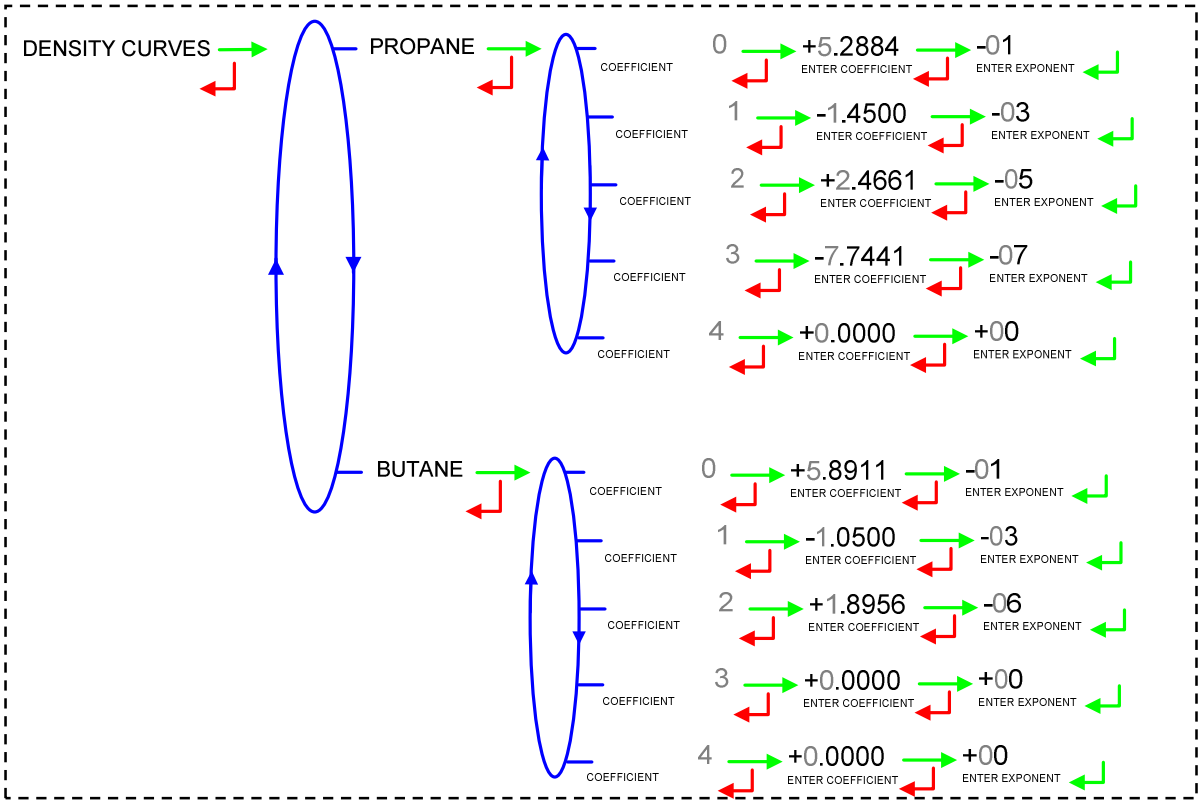



Vt (Vm) model -- conversion table=CFBP
CONFIG. PRODUCTS
CHOOSE PRODUCT
1
1/NAME (PROPA)
1/NAME→PROPA
1/CONVERSION TABLE (PROPA)
>PROPANE
>BUTANE
>GPL
Enter the product name.
Choose the conversion table for calculation of the mass:
PROPANE
BUTANE
GPL: mixture butane/propane
2
2/NAME (BUTAN)
2/NAME→BUTAN
2/CONVERSION TABLE (BUTAN)
>BUTANE
>GPL
>PROPANE
Enter the product name.
Choose the conversion table for calculation of the mass:
PROPANE
BUTANE
GPL: mixture butane/propane
3
3/NAME (GPL)
3/NAME→GPL
3/CONVERSION TABLE (GPL)
>GPL
>PROPANE
>BUTANE
Enter the product name.
Choose the conversion table for calculation of the mass:
PROPANE
BUTANE
GPL: mixture butane/propane
4
4/NAME ( )
4/NAME→_
4/CONVERSION TABLE ()
>PROPA
>BUTAN
>GPL
Enter the product name.
Choose the conversion table for calculation of the mass:
PROPANE
BUTANE
GPL: mixture butane/propane


Vt (Vm) model -- conversion table=other
CONFIG. PRODUCTS
CHOOSE PRODUCT
1
1/NAME (PROPA)
1/NAME→PROPA
100
1/PROPANE RATE
100
MIXTURE
2
2/NAME (BUTAN)
2/NAME→BUTAN
000
2/PROPANE RATE
000
MIXTURE
3
3/NAME (LPG)
3/NAME→GPL
080
3/PROPANE RATE
080
MIXTURE
4
4/NAME ( )
4/NAME→_
000
4/PROPANE RATE
000
MIXTURE
Set the name and the propane rate for each product.

5.3 Menu DENSITY CURVES

This feature is specific: a manual curve is used for density calculation in the place of onversion tables. If the option is enabled in METROLOGICAL mode, the coefficients of the polynomial must be entered in the menu below.

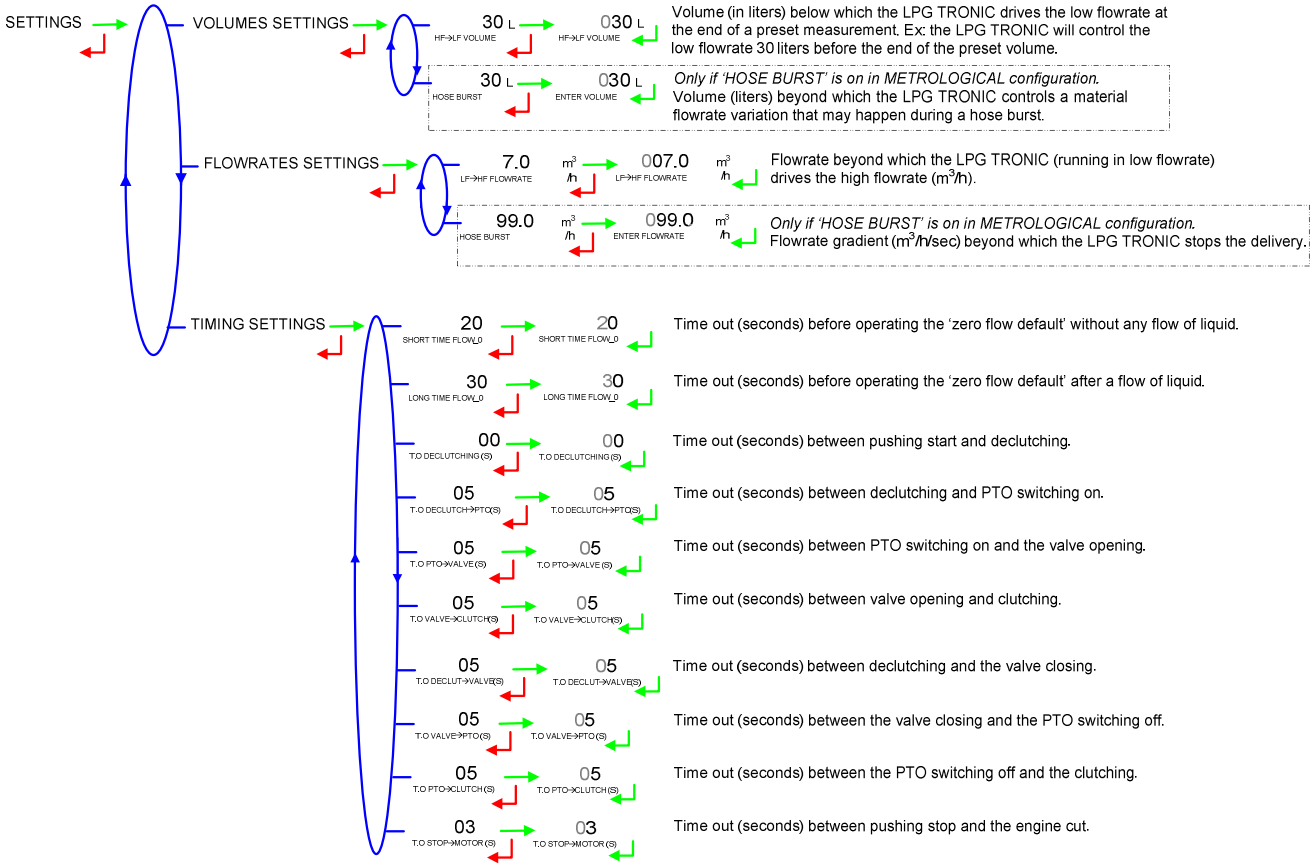


5.4 Menu VEHICULE

Set the vehicle registry number on which the LPG TRONIC is installed. This number will be printed on delivery tickets, invoices…

5.5 Menu SETTINGS

The "HOSE BURST" menu appear if the option has been activated during the commissioning of the measuring system (CONFIGURATION>HOSE BURST menu).



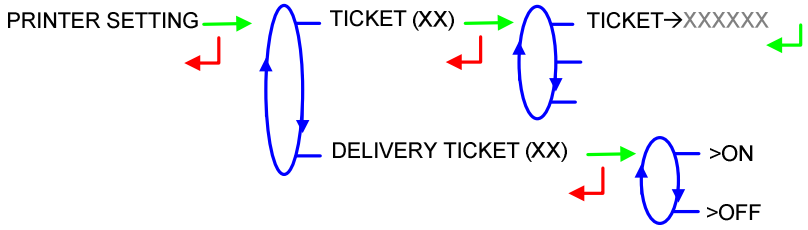
5.6 Menu HOUR ADJUSTMENT

Date and time are set in METROLOGICAL mode. The hour may be adjusted (±2h) one time a day through this menu.

e.g. 14.41 means 2.41 pm

5.7 Menu PRINTER SETTING

Choose the format for the delivery ticket.



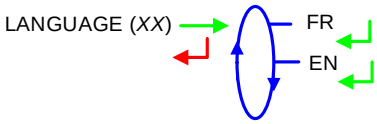
Choose the ticket format for printing the delivery ticket.

The printing of the delivery ticket is proposed at the end of the delivery.

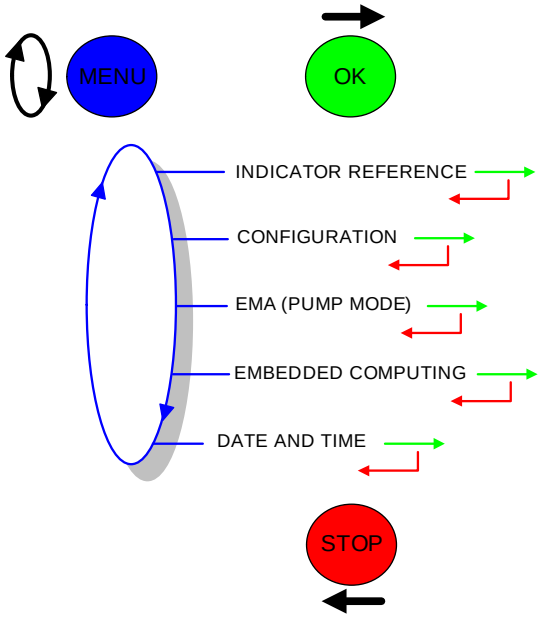
The printing of the delivery ticket is not proposed at the end of the delivery. It may be printed later through DRIVER/ PRINTING/DELIVERY TICKET menu.

5.8 Menu LANGUAGE

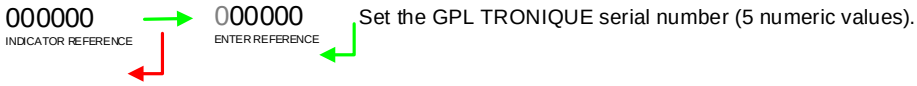
This menu is available if a translation catalogue has been uploaded in the MICROCOMPT+.



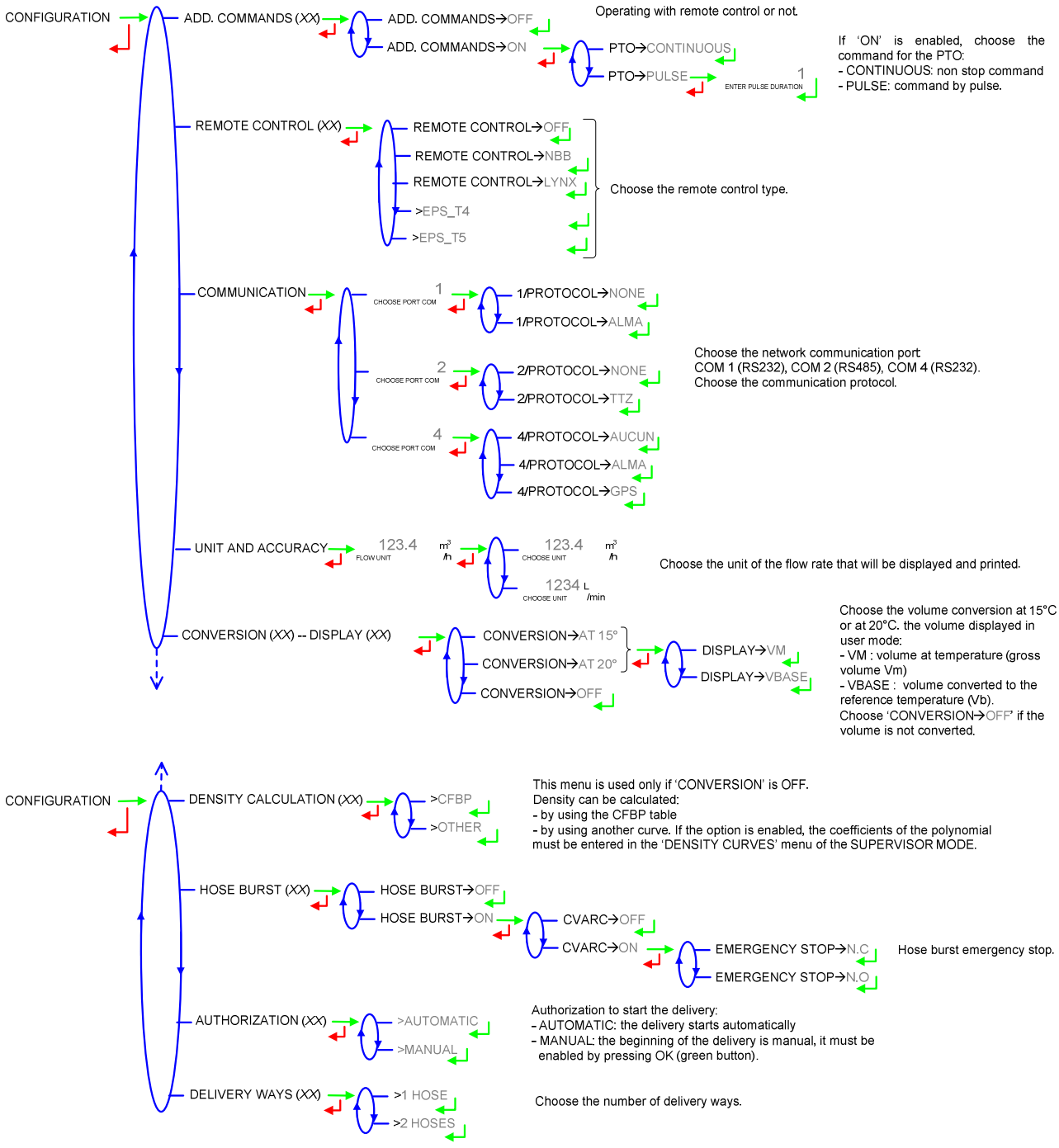
6 METROLOGICAL MODE:



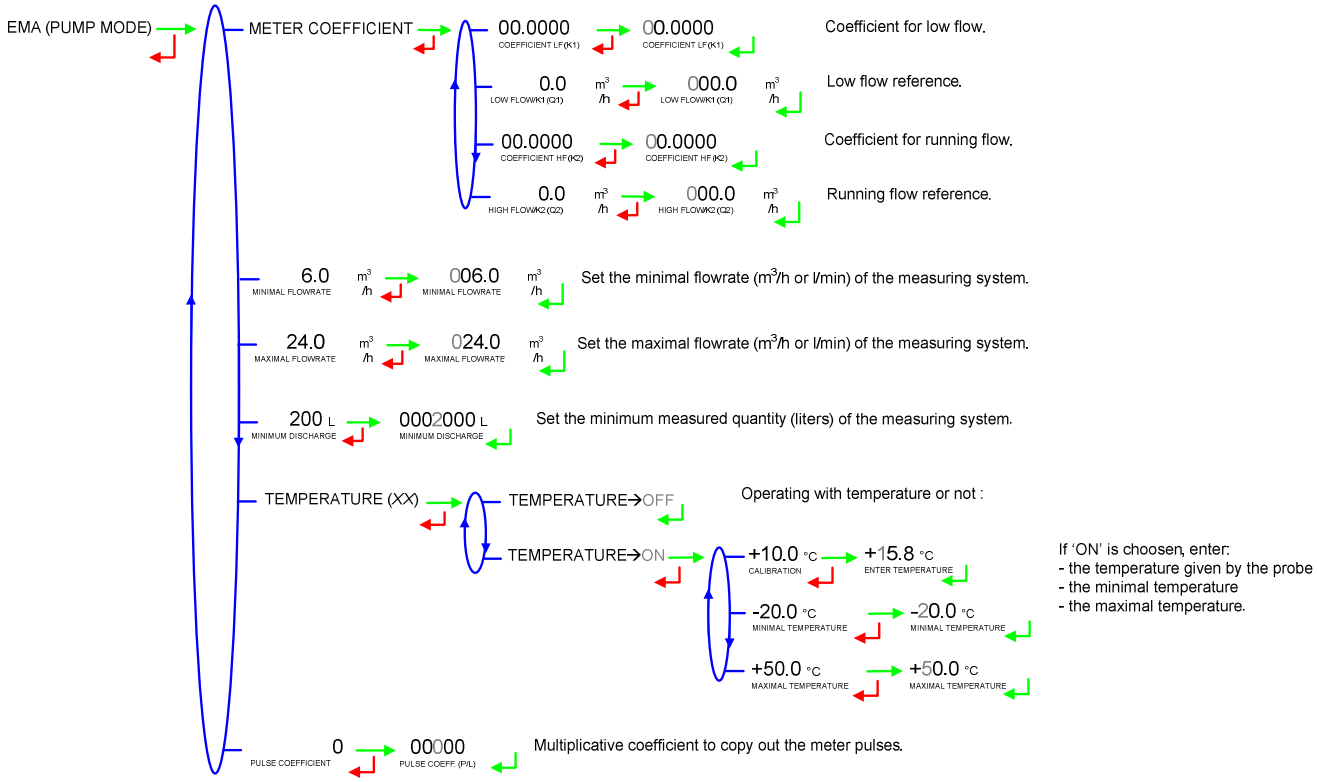
6.1 Menu INDICATOR REFERENCE



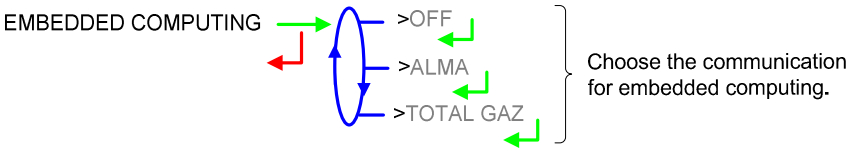
6.2 Menu CONFIGURATION



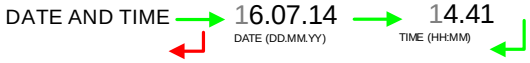
6.3 Menu measuring system EMA (PUMP MODE)



6.4 Menu EMBEDDED COMPUTING



6.5 Menu DATE AND TIME



Enter the day, the month and the year, and then enter hour and minutes (e.g.14.41 means 2.41 pm).

ANNEXE

SUMMARY

GPLTRONIQUE 384+ carte rev8
Version 3.00.00 dated 17/09/12
Printed 20/09/12 at 11h55
Vehicule : AA215EL
Indicator : 03201

Summary
of measurements of 20.09.12
Day 264 003 memorised results

Ticket number: 005

*** DAILY TOTALISERS ****

PROPA (1) : 00026000 L
BUTAN (2) : 00005000 L
LPG (3) : 00000000 L

Total from 1 to 8: 00031000 L

********** SUMMARY **********

hr beg	hr end	Nb measu	prod	(L) volume	(°C) temp
09:40	09:50	001	propa	1400	+11,3
09:51	10:01	002	buta	1200	+11,3
10:02	10:23	003	buta	0500	+10,6

TOTALISERS

GPLTRONIQUE 384+ carte rev8
Version 3.00.00 dated 17/09/12
Printed 20/09/12 at 11h55
Vehicule : AA215EL
Indicator : 03201

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

General totaliser: 00056638 L

PROPA (1) : 00028000 L
BUTAN (2) : 00028000 L
LPG (3) : 00000000 L

Total from 1 to 8: 00056000 L

PARAMETERS

```
GPLTRONIQUE 384+  carte rev8
Version 3.00.00 dated 17/09/12
Printed 20/09/12 at 11h55
Vehicule :  AA215EL
Indicator :  03201

********** PARAMETERS **********
EC option          : off
Remote control     : off
Conversion         : V20
Density curve      : off
Hose burst         : on
  Hose flowrate    : 99.0 m3/h
  Hose vflowrate   : 30 L
  VARC             : N.C
Authorization      : Automatic
Ticket             : xxx
EMA pompe
  Coefficient K1   : 09.8148p/l
  Flowrate Q1 (PD):    5.5m3/h
  Coefficient K2   : 09.7926imp/l
  Flowrate Q2 (GD):  17.3m3/h
  Min flow: 6.0m3/h / Max:24.0m3/h
  Minimum quantity  : 000200 L
  Temperature       :+12.8 °C
Computing
    COM1  : None
    COM2  : None
    COM4  : None
Pulse coefficient   :    +1  imp/L

  ********** PRODUCTS **********

  PROPA   (510.0 kg/m3)
  BUTA    (577.0 kg/m3)
  GPL     (537.0 kg/m3)

  ********** SETTINGS **********

  LF end volume              : 30 L
  Flowrate for 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)         : 5
  Stop flowrate  5.0m3/h with 0.21 L
```

EVENTS RECORDED

```
GPLTRONIQUE 384+  carte rev8
Version 3.00.00 dated 17/09/12
Printed 20/09/12 at 11h55
Vehicule :  AA215EL
Indicator :  03201
Events of            20/09/12


137 recordings(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
```