OPERATING MANUAL

MU 7034 EN G

CMA TRONIQUE

Issue	Date	Nature of modifications	Written by	Approved by
G	2017/11/27	Purge operation with DSPGI *[MDV570]*	DSM	AH
F	2017/06/06	Ticket printing through Touchstar *[MDV540]*, Protocol choice for embedded computing *[MDV494]*, Control of products codes by the EC, New parameters 'manifold drip time' (supervisor) and 'hysteresis' (metrological)	DSM	XS
E	2016/11/14	DSPGI device *[MDV483]*, , 9 compartments *[MDV488]*, PRESET+PURGE only with full hose No.1	DSM	AH/SR
A	2009/06/30	Creation	DSM	XS

CONTENTS

1 GENERAL PRESENTATION AND DESCRIPTION

The CMA TRONIQUE measuring system must be fitted on road tankers to measure liquids other than water such as fuel, diesel, off-road diesel (GNR), ethanol and ad-blue. It is designed to operate without any gas elimination device.

It performs the following functions:

- ⇨ Measure products when they are delivered to the station
- ⇨ Monitor the reception of products (lorry/wagon)
- ⇨ Split compartments
- ⇨ Measure product returns.

Le CMA TRONIQUE is designed to measure volumes of liquid (pre-set or not).

It controls up to 9 compartments with a maximum of 16 products which names are configurable.

It can be connected to a gauging system (DSPGI) that provides product identification for each compartment and updates the MICROCOMPT+. This eliminates any mixture of product during delivery operations and product movements. Each compartment is equipped with a DSPGI.

Depending on the configuration, the CMA TRONIQUE can control one or two distribution ways.

The CMA TRONIQUE can be equipped with an additive injection device. This injection has to occur upstream the meter.

The volume displayed by the CMA TRONIQUE depends on the METROLOGICAL configuration. On the right side of the display screen, the pictogram ‘Vm’ indicates a volume at temperature whereas the pictogram ‘Vb’ indicates a volume converted to the reference temperature.

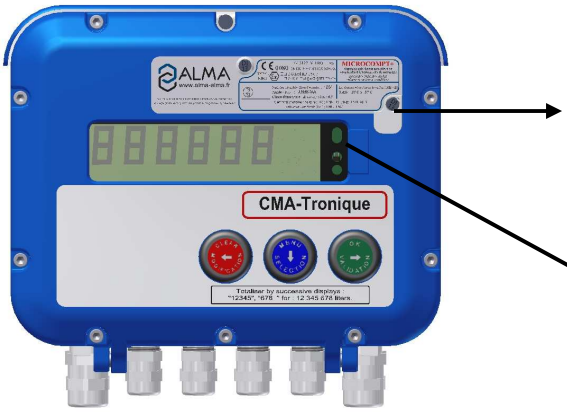
In option, the CMA TRONIQUE controls the product temperature. In addition, it may be connected to a printer for delivery tickets, internal totalisers, parameters or diary printings.

NOTA: The information printed by the printer has no metrological value. Only the indications displayed by the indicator shall be considered legally valid.

The CMA TRONIQUE measuring system comprises:

- ⇨ A meter
- ⇨ A MICROCOMPT+ electronic calculator-indicator
- ⇨ A pump (rotary vane pump for example)
- ⇨ A relative pressure sensor with its associated hydraulic shock absorber
- ⇨ A sight glass just downstream the meter
- ⇨ If required, a temperature sensor
- ⇨ If required, a printer
- ⇨ *Either one or two full hoses, an empty hose or a combination of a full hose and an empty hose*
- ⇨ *A pneumatic valve in case of double delivery way*
- ⇨ *If required, overfill probes*

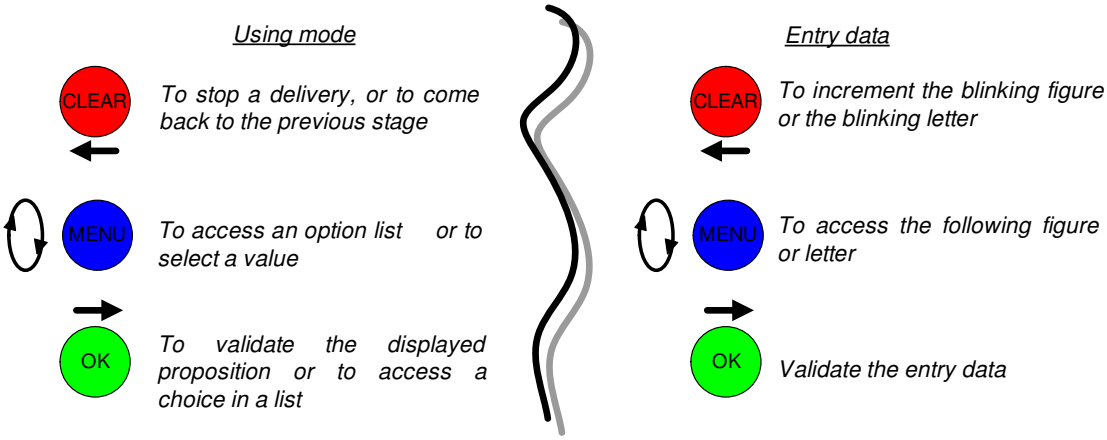
Presentation of the MICROCOMPT+ calculator-indicator:



Sealed cup protecting access to metrological functions

SUPERVISOR key – magnetic or RFID – to access configuration and calibration menu

Buttons function:



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

2 OPERATING RECOMMENDATIONS

For a use of the CMA TRONIQUE, the operator must make sure that all of the following conditions are met:

⇨ The operator must remain beside the metering system during delivery to stop the flow, if necessary, by closing the API valve on the outlet of the tank compartment.

Specifically for gravity measurements:

⇨ The tank operating position does not differ by ± 2% from the horizontal reference position (to avoid product retention)

⇨ The unloading hose must be installed to ensure an easy outflow during delivery; the maximum length of the discharge DN80 hose, is 12 metres.

3 CONFIGURATION, SETTING AND CALIBRATION

3.1 Configuration

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 and to the verification manual MV5010.

3.2 Setting

To access the SUPERVISOR mode, the magnetic or RFID key must be set 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 calculator-indicator, enter the value of the parameters such as:

- Products: name, type of product, price, additivation, correction
- Distribution lines or ways
- The vehicle identification
- Volumes, flowrates and timing settings
- Printing conditions
- DSPGI operation
- Choose the language display

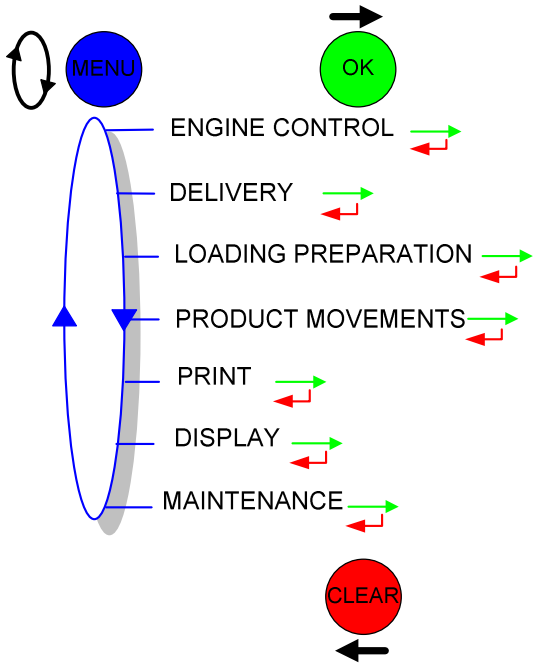
Refer to SUPERVISOR MODE and to the verification manual MV5010.

3.3 Calibration

Having made the proving of the metering, this menu CALIBRATION/GAUGE allows calculating the error and the new coefficient

Refer to SUPERVISOR MODE and to the verification manual MV5010 for details on the gauging procedure.

4 USER MODE



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

The use of measuring system depends on the hardware configuration of the truck, the features and the configuration of the equipment carried out during commissioning:

Therefore, the user menu depends on several items:

- ⇨ The number of distribution ways (one or two)
- ⇨ The remote control
- ⇨ The number of compartments
- ⇨ The control of the compartments flaps
- ⇨ The control of the return product system (SRP)
- ⇨ The delivery mode (counted pumped, uncounted pumped, gravity)
- ⇨ The temperature control (conversion of the volume).

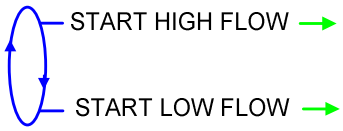
In USER mode, the calculator-indicator displays a blinking volume which is the latest delivered volume.

There are several distribution modes:

- ⇨ PRESET of the volume
- ⇨ PRESET of the volume + hose PURGE. This delivery mode can only be used with the hose No1 (full hose); it is available if the compartment flap control is activated.

  In addition, this distribution mode is not proposed:
  - For a delivery with hose No1 if it's an empty hose, with hose No2 or for uncounted pumped or gravity distribution mode
  - In case of pollution of the hose
- ⇨ FREE mode (in low or high flow rate)
- ⇨ BARRELS mode (only in low flow rate).

Delivery can be performed in high or low flow (except with BARRELS mode). This choice is made for pumped deliveries at the display of the message START HIGH FLOW. The blue MENU BUTTON switches on the display START LOW FLOW.

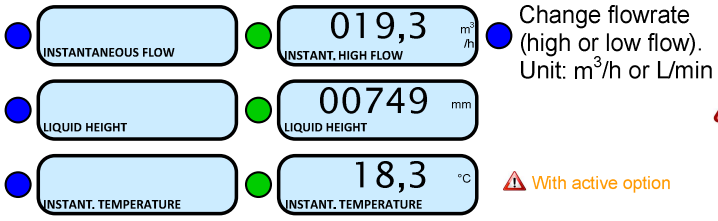


The choice is made by pressing the green OK BUTTON. Switching is possible during the delivery.

During delivery, the following information may be displayed:

- ⇨ The instantaneous flow rate in high or low flowrate (m³/h or L/min; depending on the display unit set)
- ⇨ The product height (mm)
- ⇨ The temperature (°C) if it is taken into account.

Simply follow the indications below:



Change flowrate (high or low flow). Unit: m^3/h or L/min

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

<u>Use with DSPGI device:</u>

If compartments are equipped with DSPGI devices, the name of the product that is supposed to be in the hose, is displayed in brackets at the right hand of DELIVERY, for example: DELIVERY (GO+). The product's name given by the DSPGI device is also displayed at the compartment selection (origin or return) or in case of contamination.

In case of communication failure with the DSPGI device, you can switch in manual mode without DSPGI by pressing the red CLEAR BUTTON.

The product's name is replaced by warning messages in the following cases (refer to the alarms table):

- ⇨ FAIL: The DSPGI is ON and there is a communication problem
- ⇨ ?????: The DSPGI is ON and its drum is located between two positions
- ⇨ UNDEF: The DSPGI is ON and the product has not been set in SUPERVISOR mode.

To start the measuring system with the option DSPGI→ON>BLOCKING, it may be required to make a purge in an empty compartment to define the contents of the hose.

According to the metrological configuration there are 2 different ways for operation:

- ⇨ With SUPERVISOR>DSPGI→ON>BLOCKING: a delivery, occurring after a hose purge (product movement), should start on condition that the purge has been completed.
- ⇨ With SUPERVISOR>DSPGI→ON>BLOCKING OFF: a delivery, occurring after a hose purge (product movement), should start regardless of whether the purge is completed or not. In that

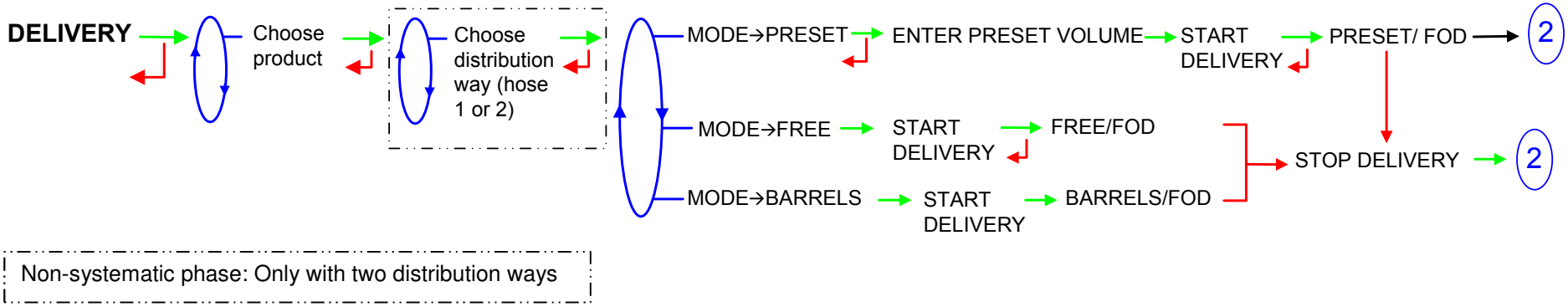
case, the MICROCOMPT+ will display the message ‘PURGE NOT FINISHED’ and will give the user the possibility to end the purge or to start a new delivery by pressing the red pushbutton.

4.1 Menu DELIVERY

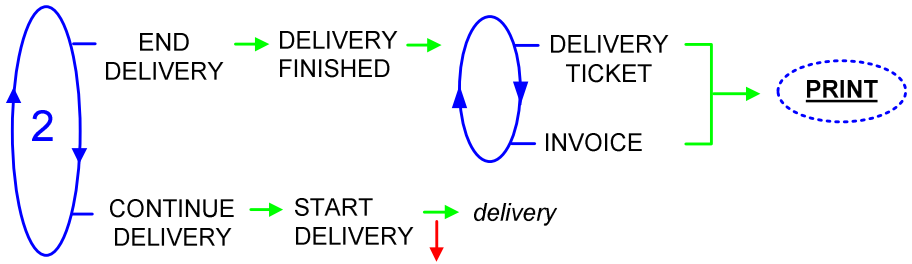
Configuration	Paragraph
One or two distribution ways	4.1.1
One or two distribution ways + compartment selection	4.1.2
One or two distribution ways + engine control	4.1.3
One or two distribution ways + compartment selection + engine control	4.1.4
Pumped counted/not counted rule	4.1.5
Pumped counted/not counted rule + compartment selection	4.1.6
Pumped counted/not counted rule + engine control	4.1.7
Pumped counted/not counted rule + compartment selection + engine control	4.1.8

4.1.1 One or two distribution ways

4.1.1.1 Delivery



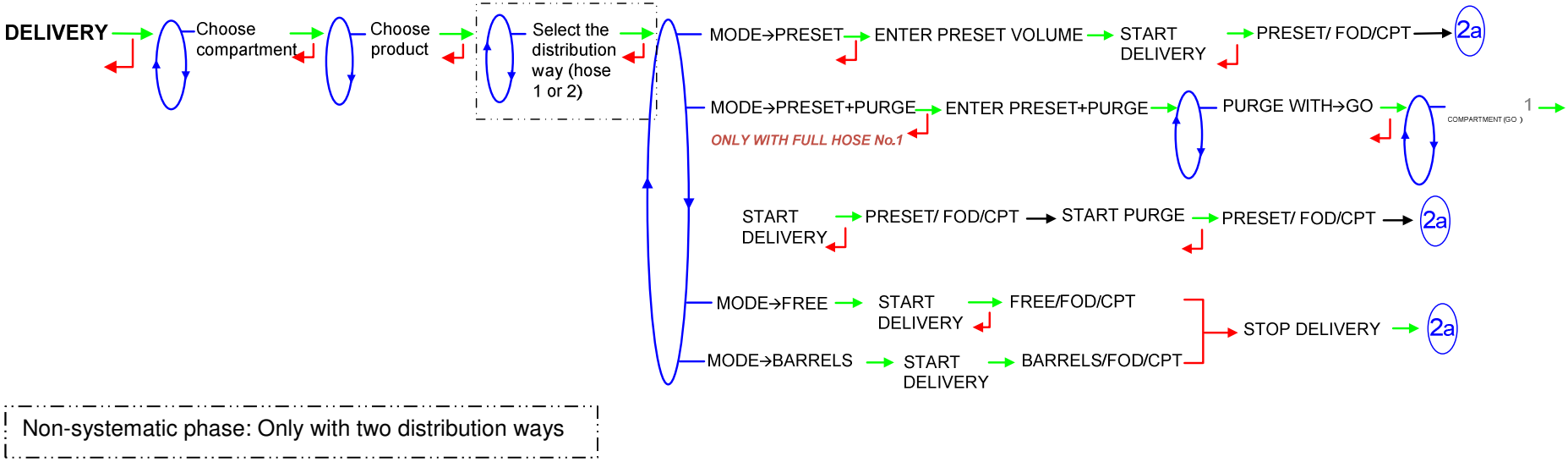
4.1.1.2 Finish/Continue



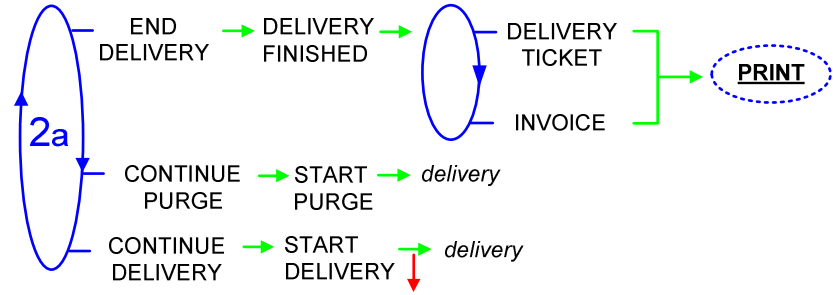
***To change the delivery criteria**: press the red pushbutton when START DELIVERY is displayed with the volume already discharged.*

4.1.2 One or two distribution ways + compartment selection

4.1.2.1 Delivery



4.1.2.2 Finish/Continue

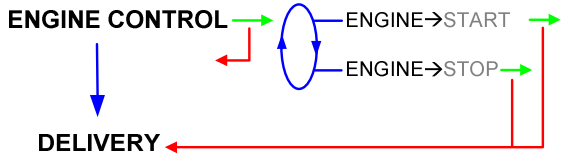


***To change the delivery criteria**: press the red pushbutton when START DELIVERY is displayed with the volume already discharged.*

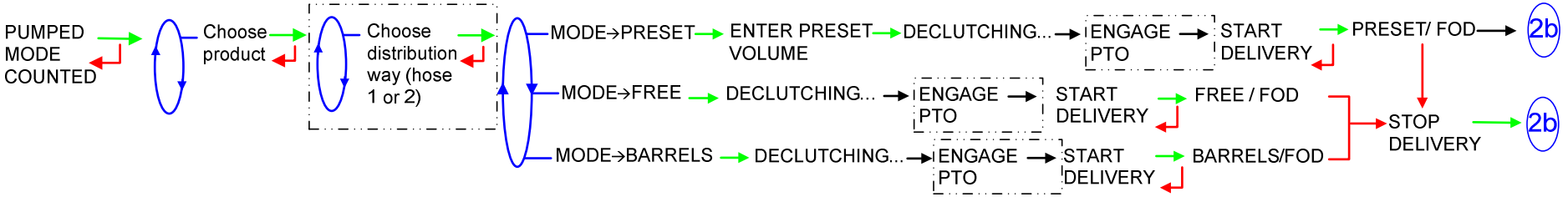
4.1.3 One or two distribution ways + engine control

To access a pumped or a gravity delivery, the distribution mode must have been set to CONFIGURATION>MODE>PUMPED+GRAVITY in METROLOGICAL mode.

The commands for the pump clutching/declutching and for the power take-off control are realised by the calculator-indicator at the beginning and at the end of distribution.

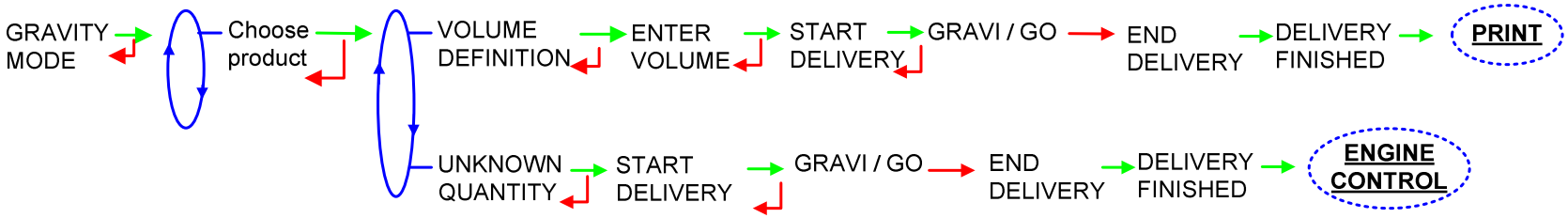


4.1.3.1 Pumped mode counted



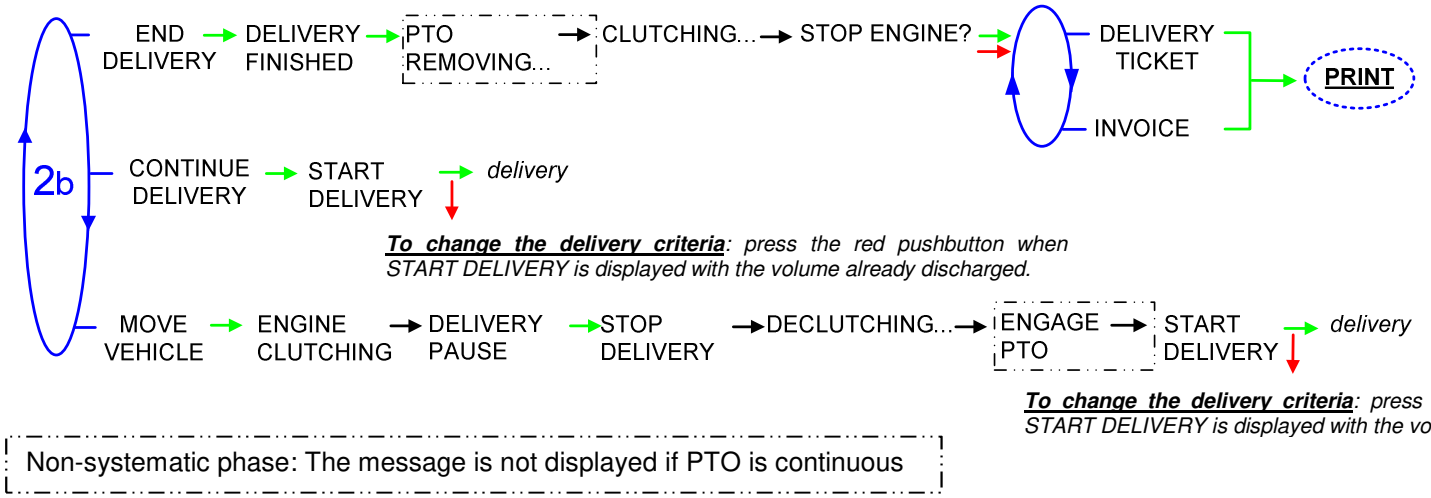
Non-systematic phase: Only with two distribution ways
Non-systematic phase: The message is not displayed if PTO is continuous

4.1.3.2 Gravity mode



4.1.3.3 Finish/Continue

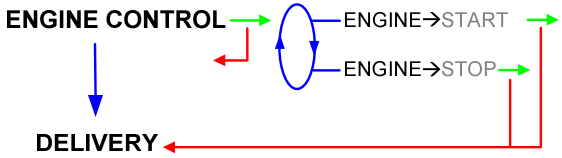
If it's necessary to move the vehicle, the distribution has to be stopped for a moment, then choose the MOVE VEHICLE item. The calculator-indicator switches off the power take-off, clutches the engine and freezes the MICROCOMPT+ indicator on DELIVERY PAUSE. Press the green OK BUTTON to continue distribution.



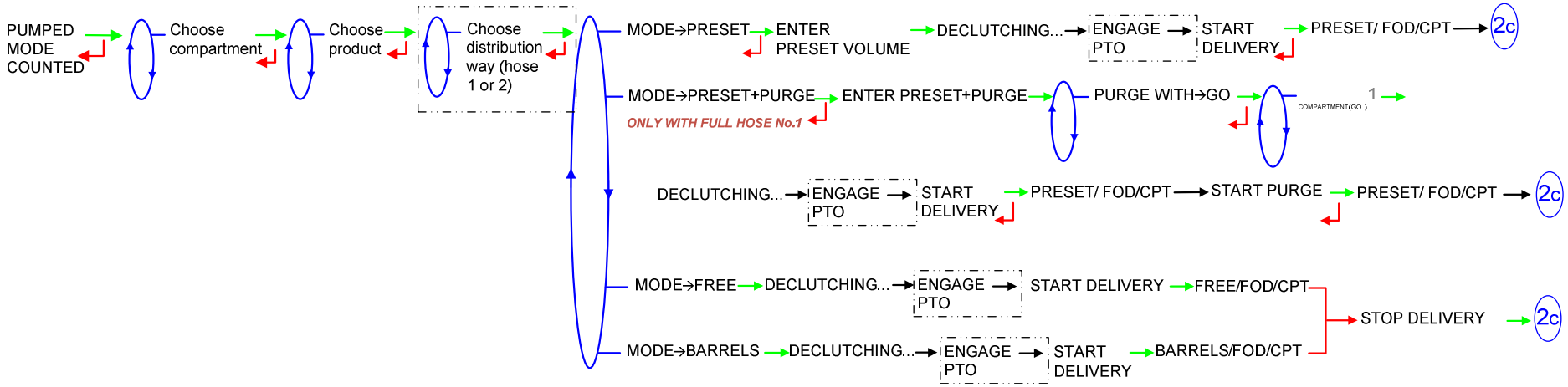
4.1.4 One or two distribution ways + compartment selection + engine control

To access a pumped or a gravity delivery, the distribution mode must have been set to CONFIGURATION>MODE>PUMPED+GRAVITY in METROLOGICAL mode.

The commands for the pump clutching/declutching and for the power take-off control are realised by the calculator-indicator at the beginning and at the end of distribution.

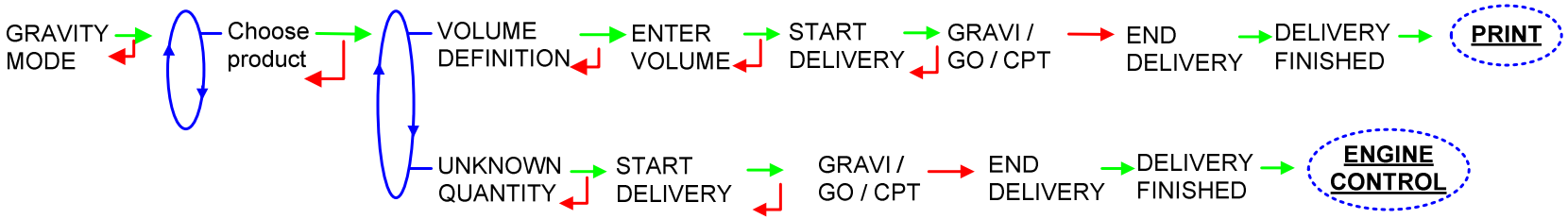


4.1.4.1 Pumped mode counted



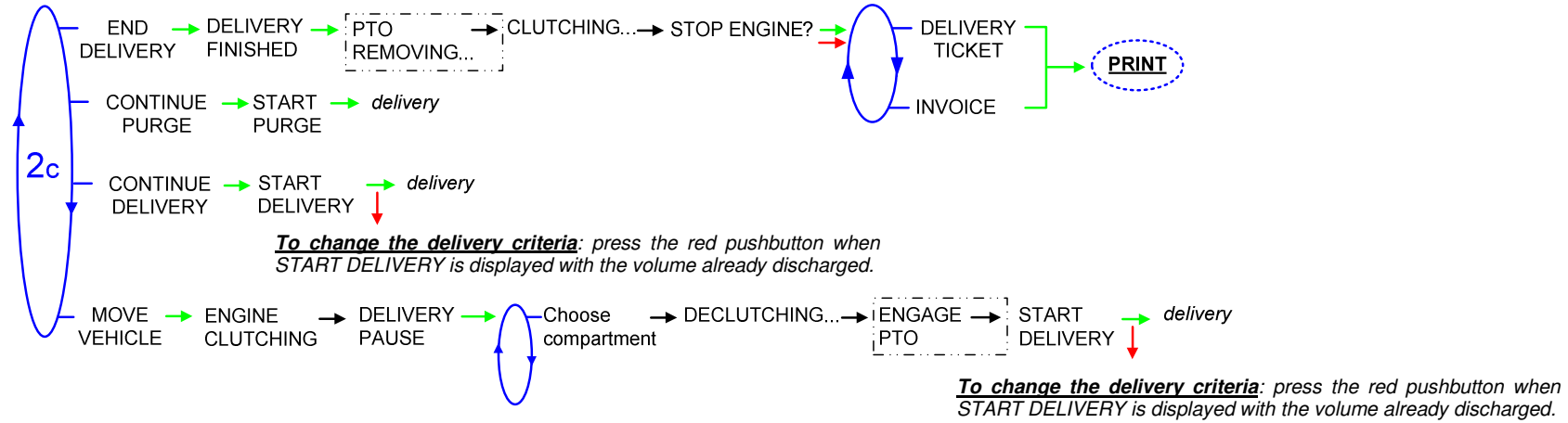
Non-systematic phase: Only with two distribution ways
Non-systematic phase: The message is not displayed if PTO is continuous

4.1.4.2 Gravity mode



4.1.4.3 Finish/Continue

If it's necessary to move the vehicle, the distribution has to be stopped for a moment, then choose the MOVE VEHICLE item. The calculator-indicator switches off the power take-off, clutches the engine and freezes the MICROCOMPT+ indicator on DELIVERY PAUSE. Press green OK BUTTON to continue distribution.

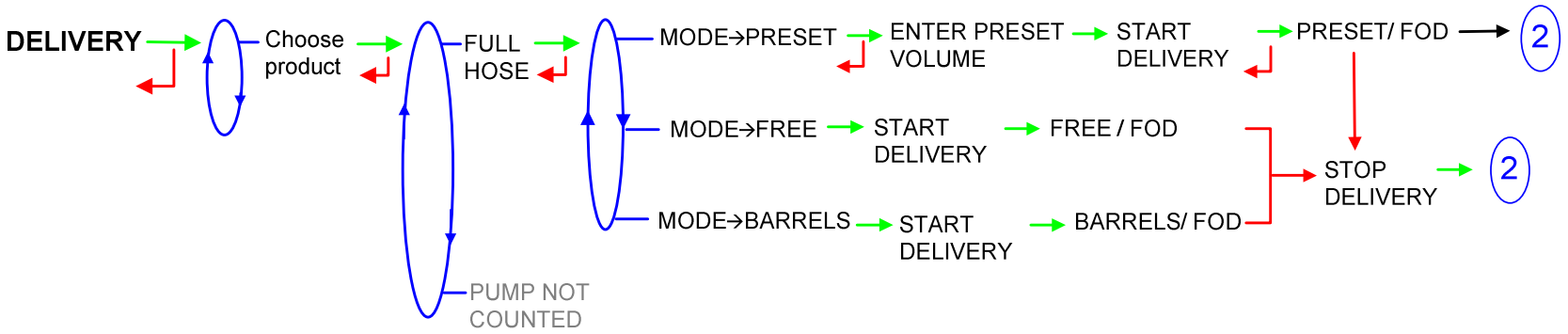


Non-systematic phase: The message is not displayed if PTO is continuous

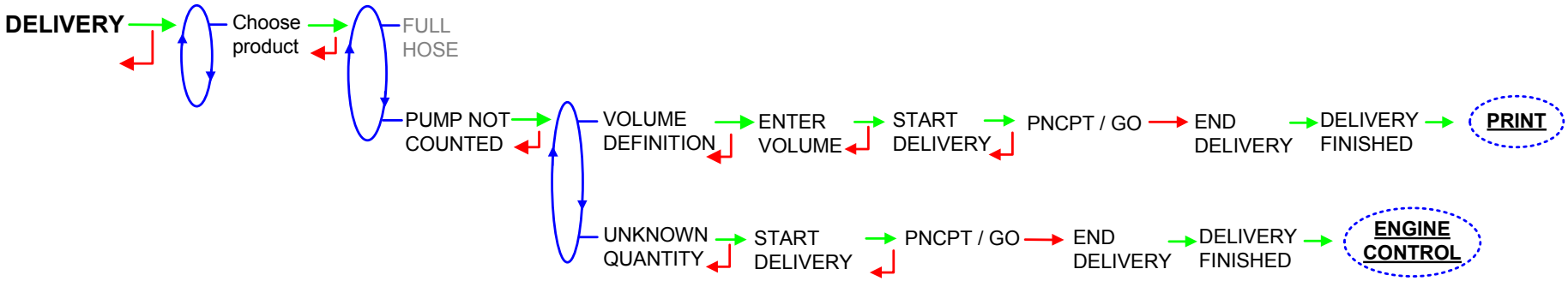
4.1.5 Pumped counted/not counted rule

This delivery mode is used with two distribution outlets: upstream and downstream the meter. The menu must have been set to CONFIGURATION>DISTRIBUTION LINE>PUMPED NC RULE in METROLOGICAL mode.

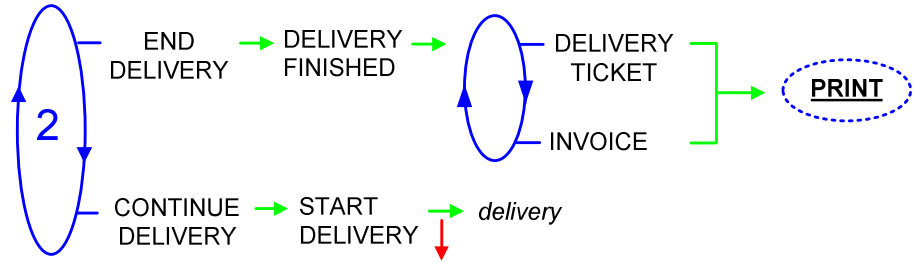
4.1.5.1 Full hose (pumped counted)



4.1.5.2 Pumped not counted



4.1.5.3 Finish/Continue

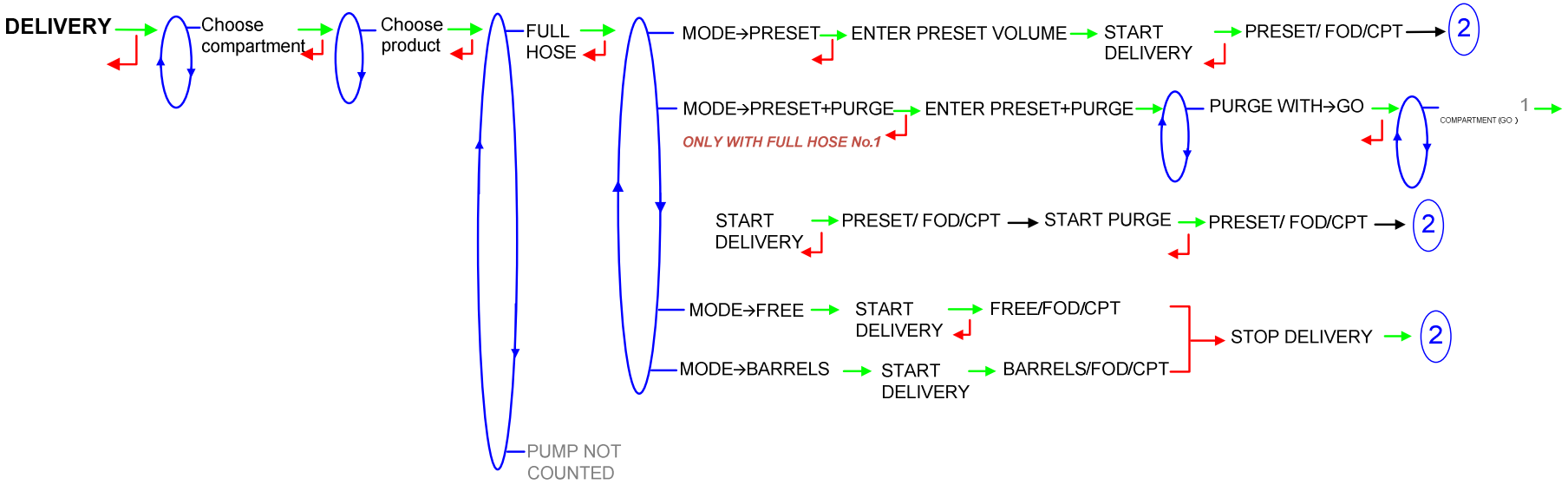


***To change the delivery criteria**: press the red pushbutton when START DELIVERY is displayed with the volume already discharged.*

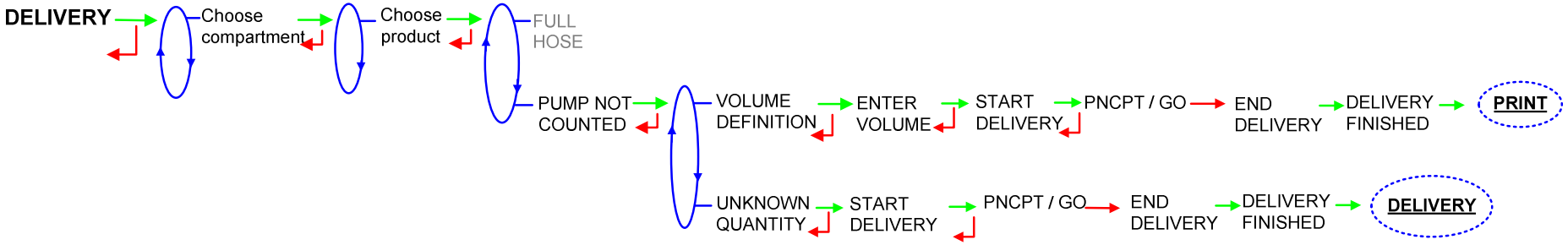
4.1.6 Pumped counted/not counted rule + compartment selection

This delivery mode is used with two distribution outlets: upstream and downstream the meter. The menu must have been set to CONFIGURATION>DISTRIBUTION LINE>PUMPED NC RULE in METROLOGICAL mode.

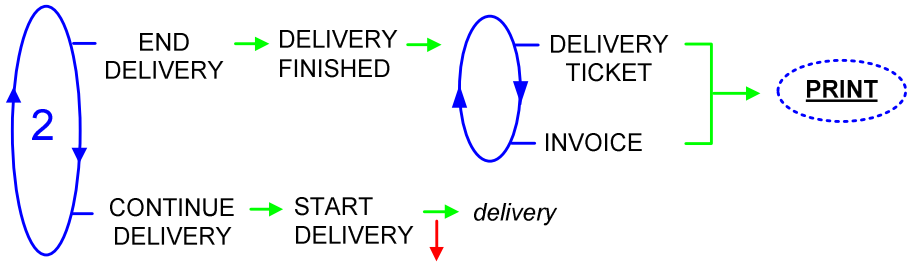
4.1.6.1 Full hose (pumped counted)



4.1.6.2 Pumped not counted



4.1.6.3 Finish/Continue

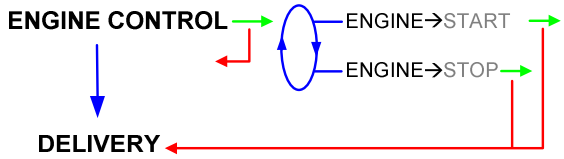


***To change the delivery criteria**: press the red pushbutton when START DELIVERY is displayed with the volume already discharged.*

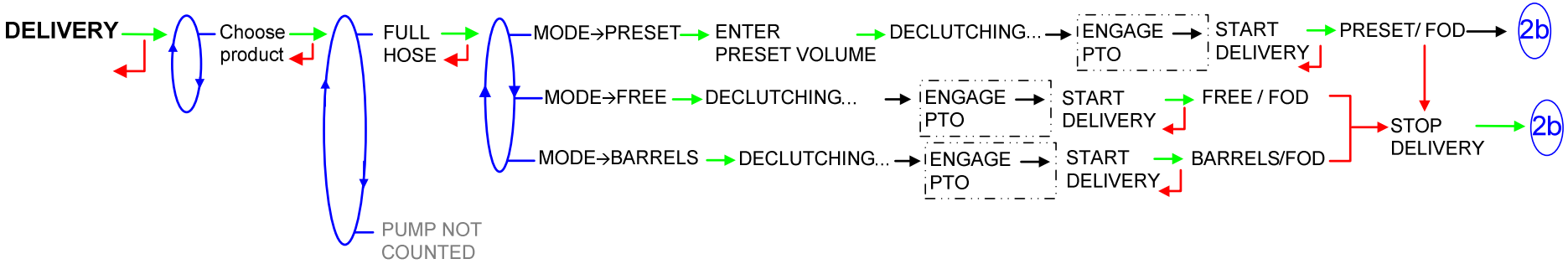
4.1.7 Pumped counted/not counted rule + engine control

This delivery mode is used with two distribution outlets: upstream and downstream the meter. The menu must have been set to CONFIGURATION>DISTRIBUTION LINE>PUMPED NC RULE in METROLOGICAL mode.

The commands for the pump clutching/declutching and for the power take-off control are realised by the calculator-indicator at the beginning and at the end of distribution.

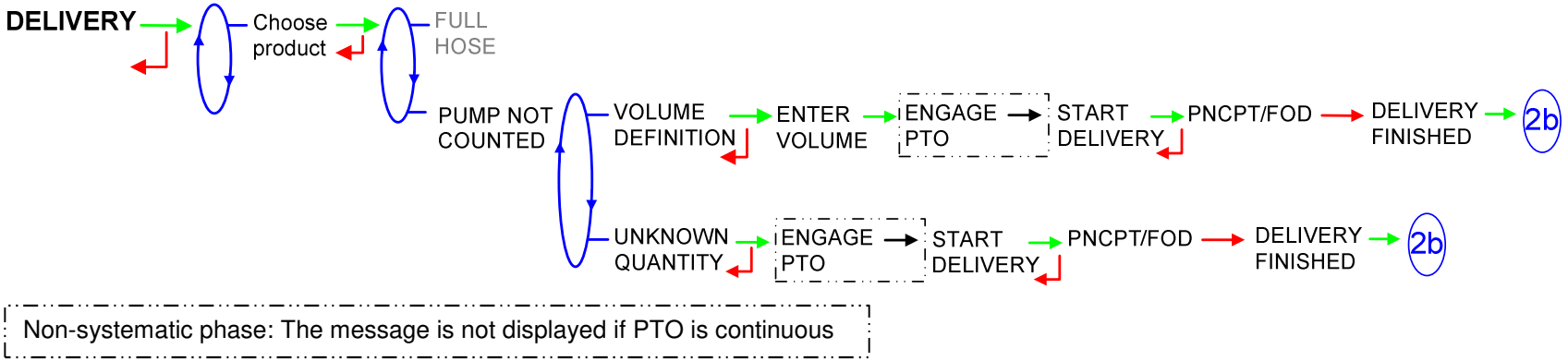


4.1.7.1 Full hose (pumped counted)



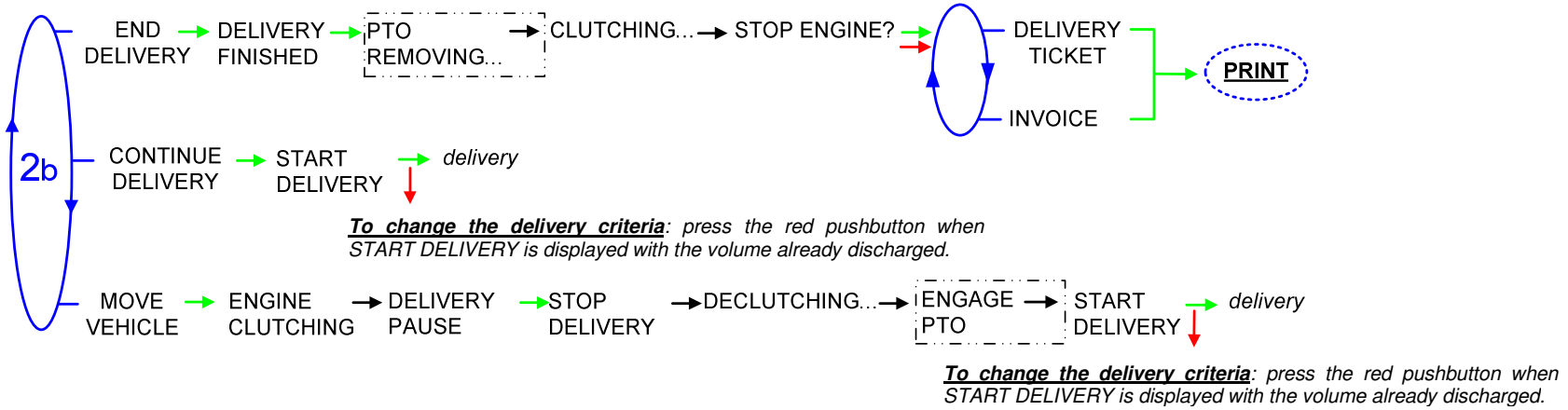
Non-systematic phase: The message is not displayed if PTO is continuous

4.1.7.2 Pumped not counted



4.1.7.3 Finish/Continue

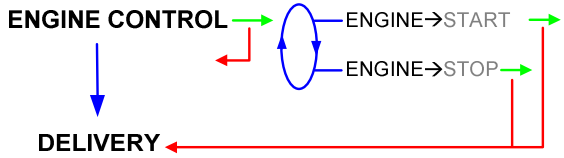
If it's necessary to move the vehicle, the distribution has to be stopped for a moment, then choose the MOVE VEHICLE item. The calculator-indicator switches off the power take-off, clutches the engine and freezes the MICROCOMPT+ indicator on DELIVERY PAUSE. Press green OK BUTTON to continue distribution.



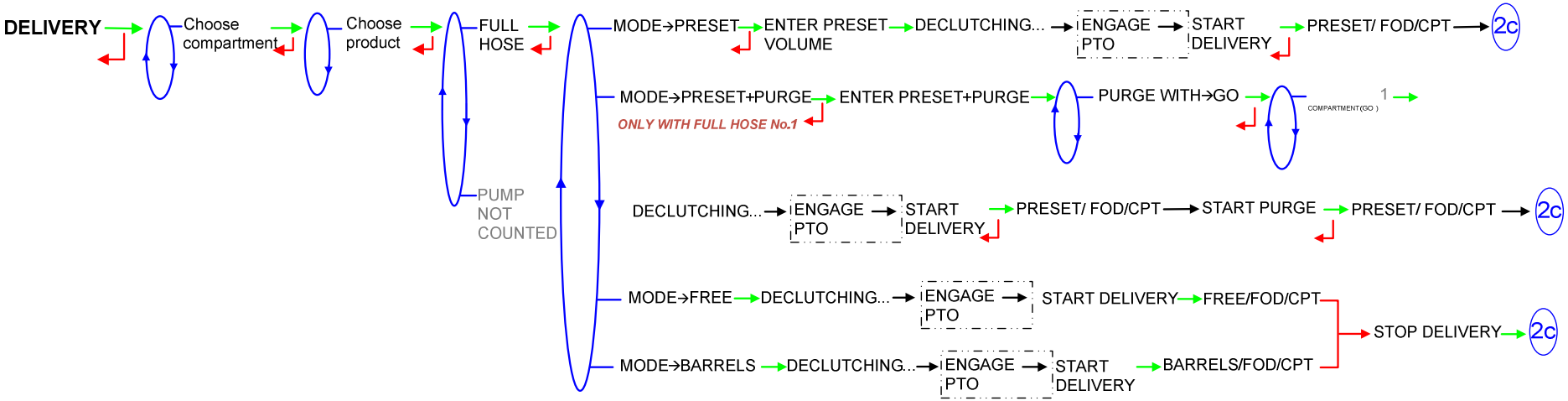
4.1.8 Pumped counted/not counted rule + compartment selection + engine control

This delivery mode is used with two distribution outlets: upstream and downstream the meter. The menu must have been set to CONFIGURATION>DISTRIBUTION LINE>PUMPED NC RULE in METROLOGICAL mode.

The commands for the pump clutching/declutching and for the power take-off control are realised by the calculator-indicator at the beginning and at the end of distribution.

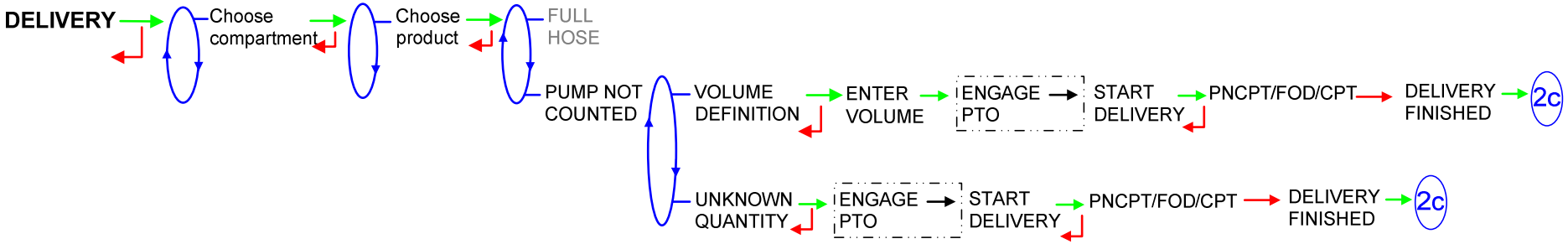


4.1.8.1 Full hose (pumped counted)



Non-systematic phase: The message is not displayed if PTO is continuous

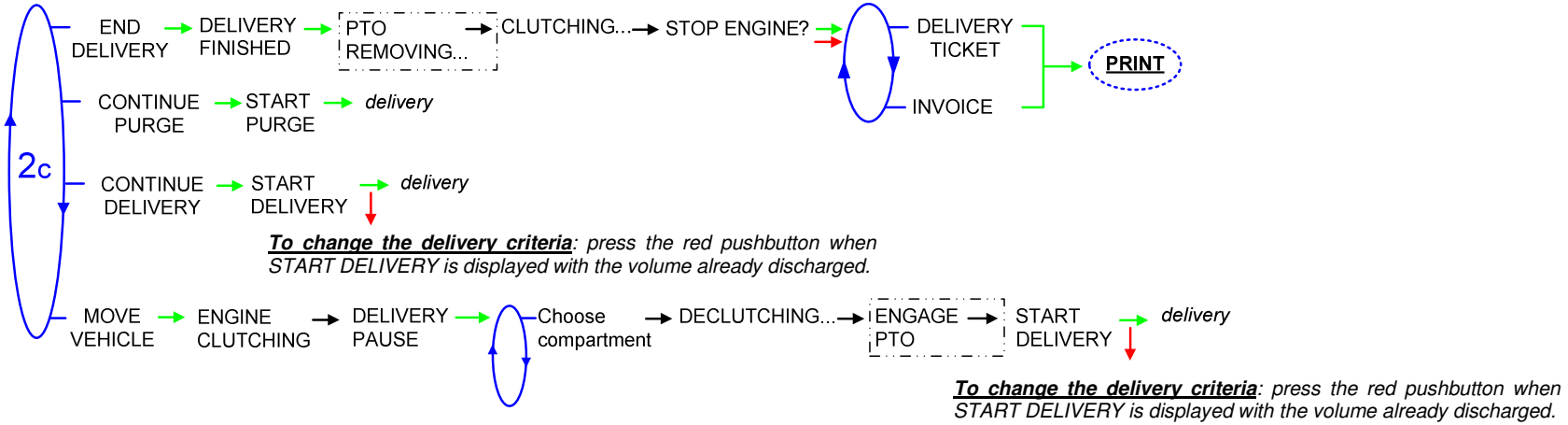
4.1.8.2 Pumped not counted



Non-systematic phase: The message is not displayed if PTO is continuous

4.1.8.3 Finish/Continue

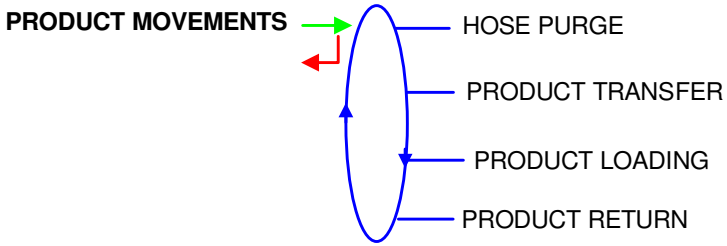
If it's necessary to move the vehicle, the distribution has to be stopped for a moment, then choose the MOVE VEHICLE item. The calculator-indicator switches off the power take-off, clutches the engine and freezes the MICROCOMPT+ indicator on DELIVERY PAUSE. Press green OK BUTTON to continue distribution.



4.2 Menu LOADING PREPARATION (not used)

4.3 Menu PRODUCT MOVEMENTS

Product movements PRODUCT TRANSFER, PRODUCT LOADING, and PRODUCT RETURN are performed in low flow rate. They are available when at least one product return with overfill probe is set in METROLOGICAL mode: CONFIGURATION>COMPARTIMENT OPTIONS>RETURN→ON>PROBE→ON.

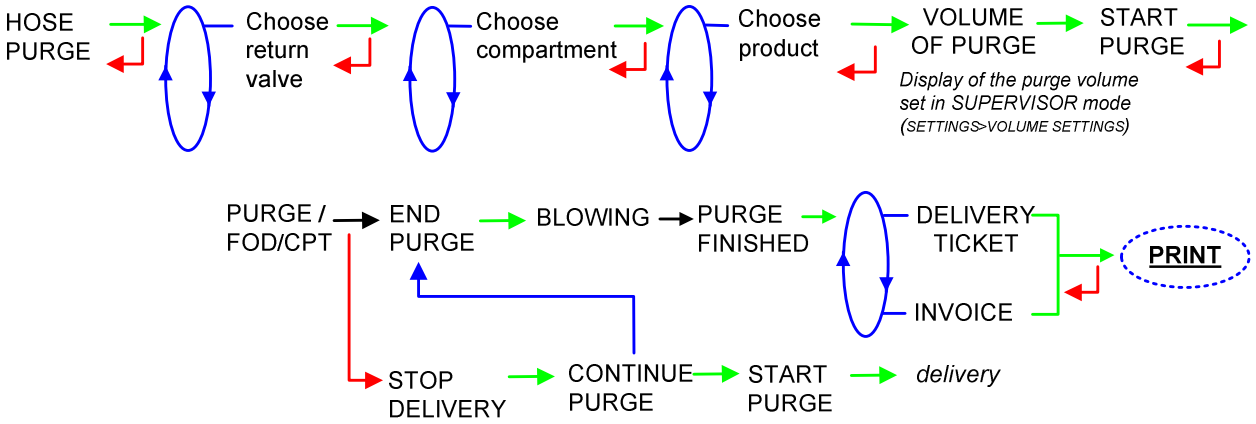


4.3.1 Sub-menu HOSE PURGE

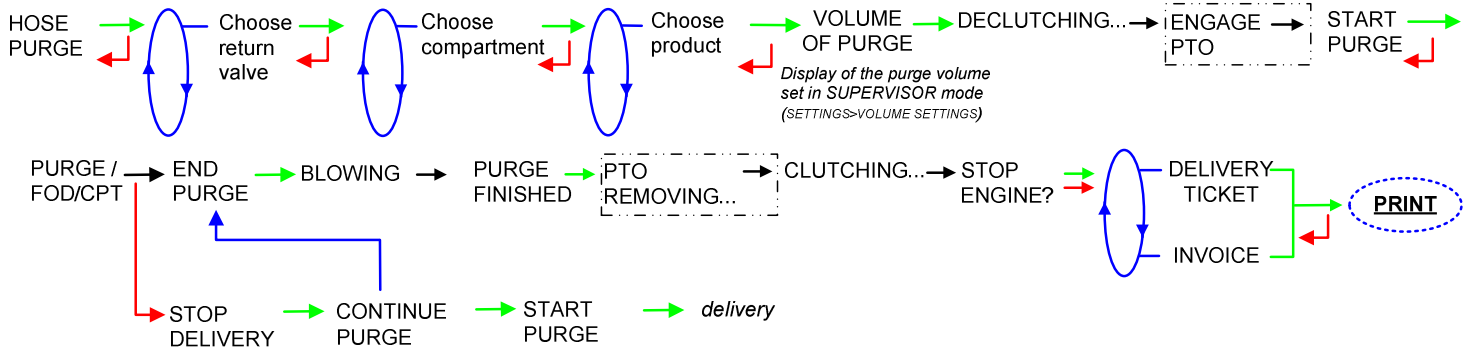
This menu allows purging the hose in order to change the quality of the product. It is available with at least one product return set.

Operating with blocking DSPGI (configuration SUPERVISOR>DSPGI→ON>BLOCKING), the hose purge must have been completed before starting a new delivery.

4.3.1.1 Without engine control

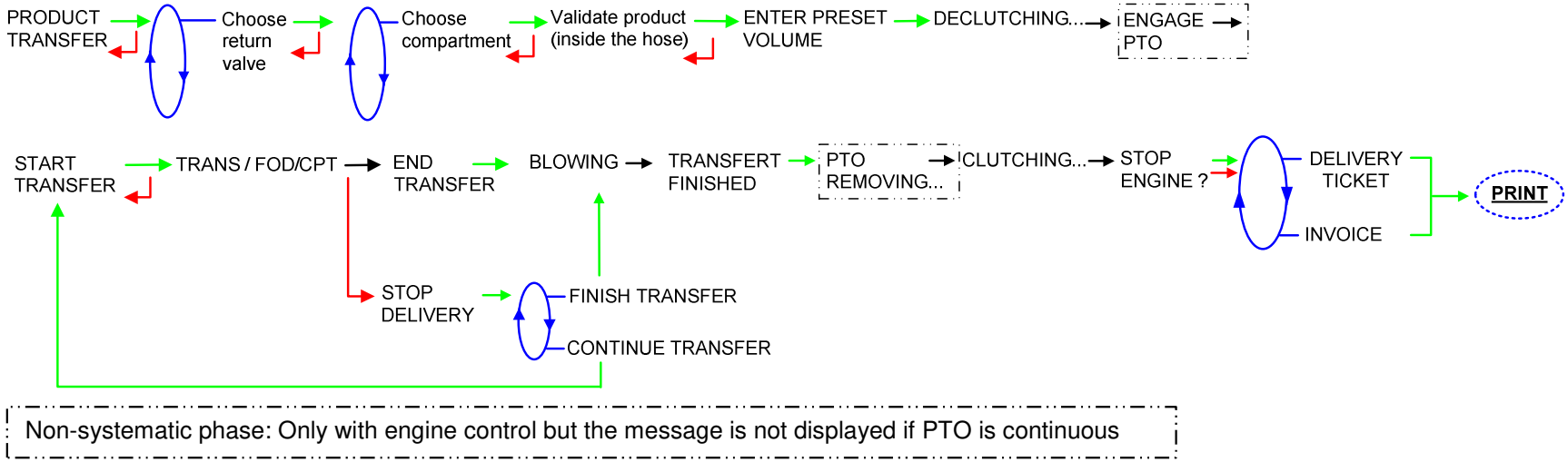


4.3.1.2 With engine control



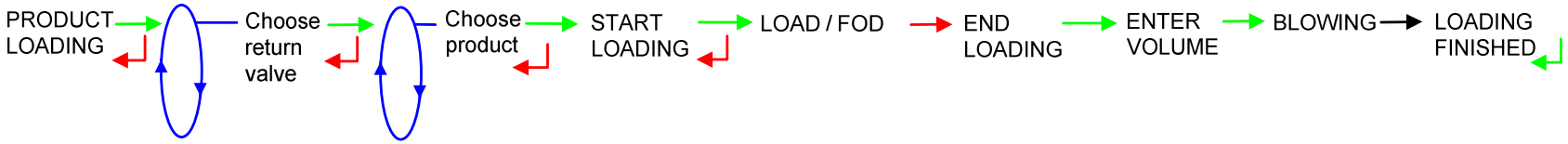
4.3.2 Sub-menu PRODUCT TRANSFER

This menu allows unloading the product from one compartment either to another compartment or to a compartment of another truck or to a loading terminal; transfer is performed in low flow rate. It is available when at least one product return with overfill probe is set in METROLOGICAL mode.



4.3.3 Sub-menu PRODUCT LOADING

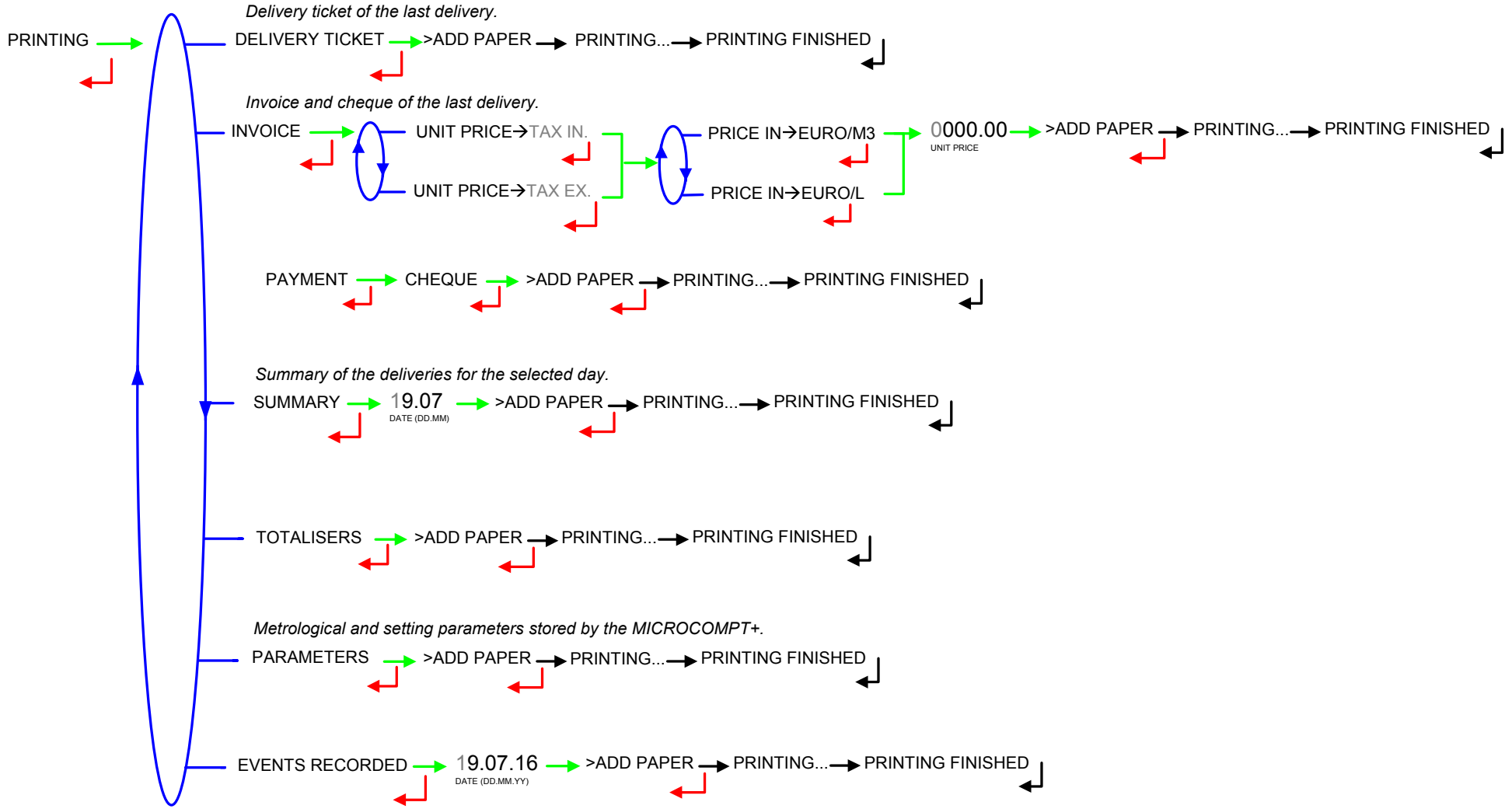
This menu allows shifting product from one truck to another truck; loading is performed in low flow rate. It is available when at least one product return with overfill probe is set in METROLOGICAL mode.



4.3.4 Sub -menu PRODUCT RETURN

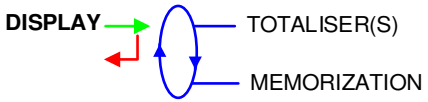
Product return is performed in low flow rate. It is available when at least one product return with overfill probe is set in METROLOGICAL mode.

4.4 Menu PRINT



4.5 Menu DISPLAY

This menu is available in stand-by mode or during an intermediate stop. It allows the proofreading of totaliser and measurement results.



4.5.1 Sub-menu TOTALISER(S)

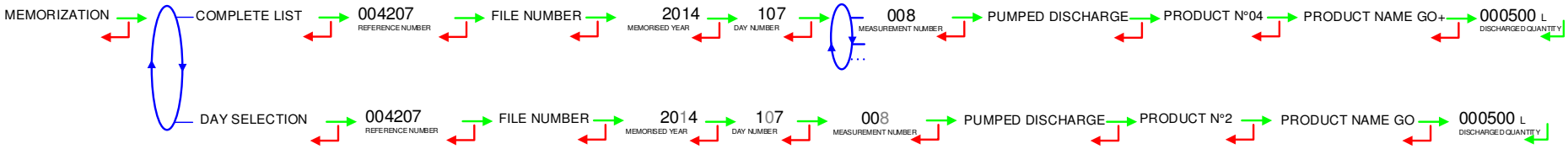
4.5.2 Sub-menu MEMORIZATION

Memorization allows the proofreading of all the measurement results stored by the calculator-indicator. 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.

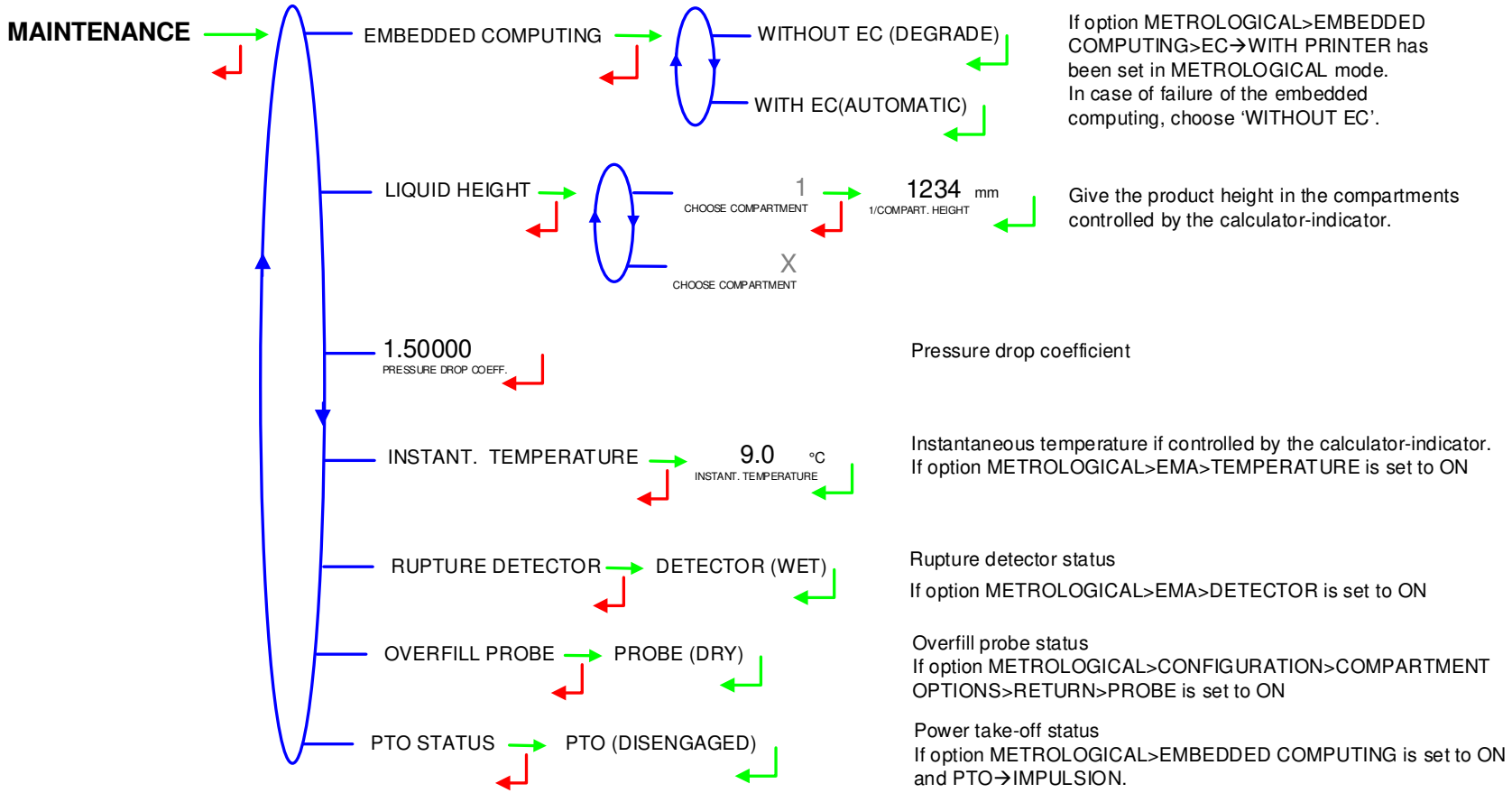
DAY SELECTION: Display a specific measurement by selecting the day number.

For each measurement, are displayed: the product number, the name of the product, the measured quantity.



4.6 Menu MAINTENANCE

Display depends on the configuration of the measuring system.

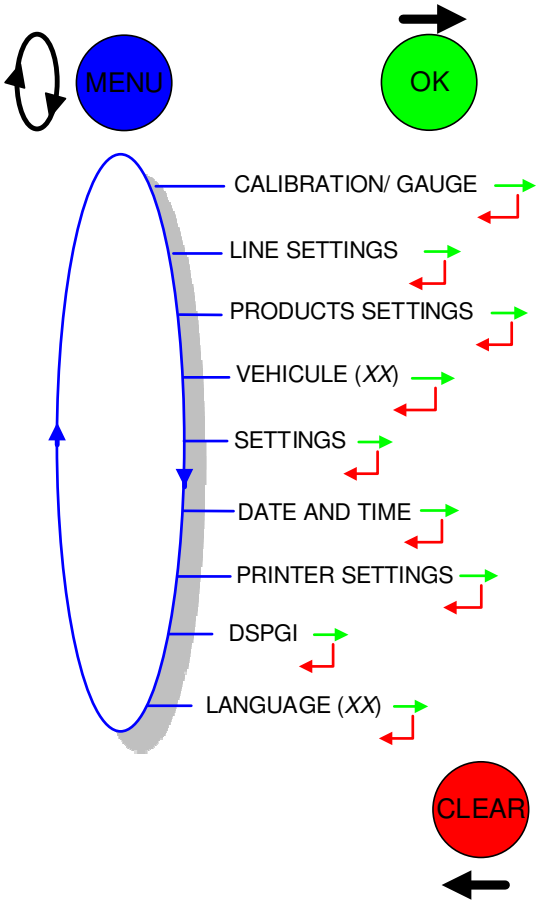


NOTE: indication on the gas detector LED diodes
GREEN LED ON: gas detector powered on
RED LED ON: gas detector dry / RED LED OFF: gas detector wet

4.7 List of alarms

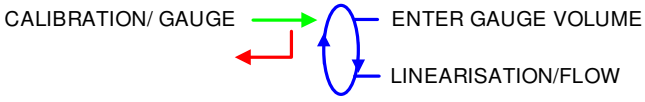
		DISPLAY	MEANING	ACTION
USER	ALL	STOP DISCHARGE	Intentional interruption of discharge	Continue, stop or finish the discharge
		PRINTER FAILURE	Communication with the printer lost	Check the connection cable, on-off switch and fuse
			Jammed paper in the printer	Use the RELEASE button to eject the paper
		POWER SUPPLY PROBLEM	Power outage during discharge	Check the cause / Restore power supply
		ZERO FLOW DEFAULT	Zero flow	Check if the pulse transmitter is powered (red indicators)
		LOW FLOW DEFAULT	Low flowrate (less than 4m^3/h)	Check the parameters / Check the hydraulic system (valve, strainer, nozzle…)
		HIGH FLOW DEFAULT	High flowrate (greater than maximum flowrate)	Check the parameters / Reduce flowrate
		DIARY DEFAULT	Reset of the events diary	Acknowledge the alarm, check the date in supervisor mode (supervisor key)
	PUMPED	INCOHERENT SIGNAL	Coherence failure in metering lines	Check the position of the manual selection valves
		EMA METERING PROBLEM	Metering problem with the measuring device	Check if the pulse transmitter is powered (red indicators), if not check the wiring / Change the sensor if required
		PTO DEFAULT	Coherence failure with power take-off	Check the power take-off status in driver's cab
		OVERFILL DEFAULT	Overfilling during a product movement	Transfer product in another compartment
		RUPTURE DG DEFAULT	Rupture detector failure	Use the maintenance mode to check the status of the detector
		PURGE NOT FINISHED	Purge of manifold (and/or hose) not finished	Finish the purge
		FAIL	DSPGI ON, communication failure	Check the DSPGI device
		?????	DSPGI ON, drum located between 2 positions	Check the drum position of the related compartment
		UNDEF	DSPGI ON, product not set in SUPERVISOR mode	Check the products setting
	FLEXI TRONIQUE	EMB METERING PROBLEM	Metering problem with the measuring device	Check if the pulse transmitter is powered (red indicators), if not check the wiring / Change the sensor if required
		GAS DETECTOR DEFAULT	Gas detector failure	Use the maintenance mode to check the status of the detector
REPARATOR	ALL	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 Microcompt+ / If steady alarm, substitution of the faulty card
		VOLUME CONVER DEFAULT	Problem during conversion of volume	If steady alarm, substitution of the AFSEC+ electronic card
	PUMPED	TOTALISER 1 LOST	Loss of totalizer	Substitution of the backup battery
		PRESSURE DEFAULT	Pressure determination failure	If steady alarm, see a reparator for trouble shooting
		TEMPERATURE 1 DEFAULT	Temperature determination failure	If steady alarm, see a reparator for trouble shooting
	FLEXI TRONIQUE	TOTALISER 2 LOST	Loss of totalizer	Substitution of the backup battery
		TEMPERATURE 2 DEFAULT	Temperature determination failure	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 METRO mode / If steady alarm, substitution of the backup battery
		DATE AND TIME LOST	Loss of date and time	Set date and time in supervisor mode (supervisor key)
		COEFFICIENTS DEFAULT	Deviation between coefficient LF/HF greater than 0.5%	Modification of the low flow coefficient (K1)
		PROM DEFAULT	Loss of software or resident integrity	Substitution of the AFSEC+ electronic card
		RAM DEFAULT	Saved memory fault	Substitution of the AFSEC+ electronic card
		EEPROM MEMORY LOST	Loss of metrological configuration	Substitution of the AFSEC+ electronic card
		MEMORY OVER LOADED	SIM memory full	Substitution of the AFSEC+ electronic card

5 SUPERVISOR MODE



SUPERVISOR key, magnetic or RFID

5.1 Menu CALIBRATION/ GAUGE



5.1.1 Sub-menu ENTER GAUGE VOLUME

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

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

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

Enter the volume read on the gauge 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.

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

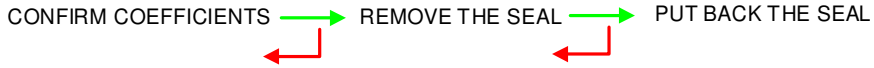
To linearize the curve, two tests are necessary. Follow the instructions:

- Fill the gauge in high flow $[flow_{min} \times 3] \leq$ 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 $[flow_{min}] \leq$ low flow $\leq flow_{min} \times 2]$, enter the volume read on the gauge in the menu CALIBRATION/GAUGE>ENTER GAUGE VOLUME as described above
- Choose CALIBRATION/GAUGE>LINEARISARION/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 following alarms may be displayed:

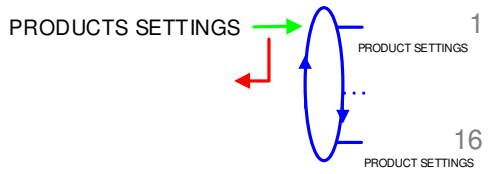
- 'LARGE GAP K1/K2': correction between both measuring points >0.5%
- 'FLOWS TOO CLOSE': High flowrate value is out of range. It needs to be: $[flow_{min} \times 3] \leq$ high flow $< [flow_{max}]$
- 'LO-FLOW OUT OF RANGE': Low flowrate value is out of range. It needs to be: $[flow_{min}] \leq$ low flow $\leq flow_{min} \times 2]$
- '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 following sequence is displayed:



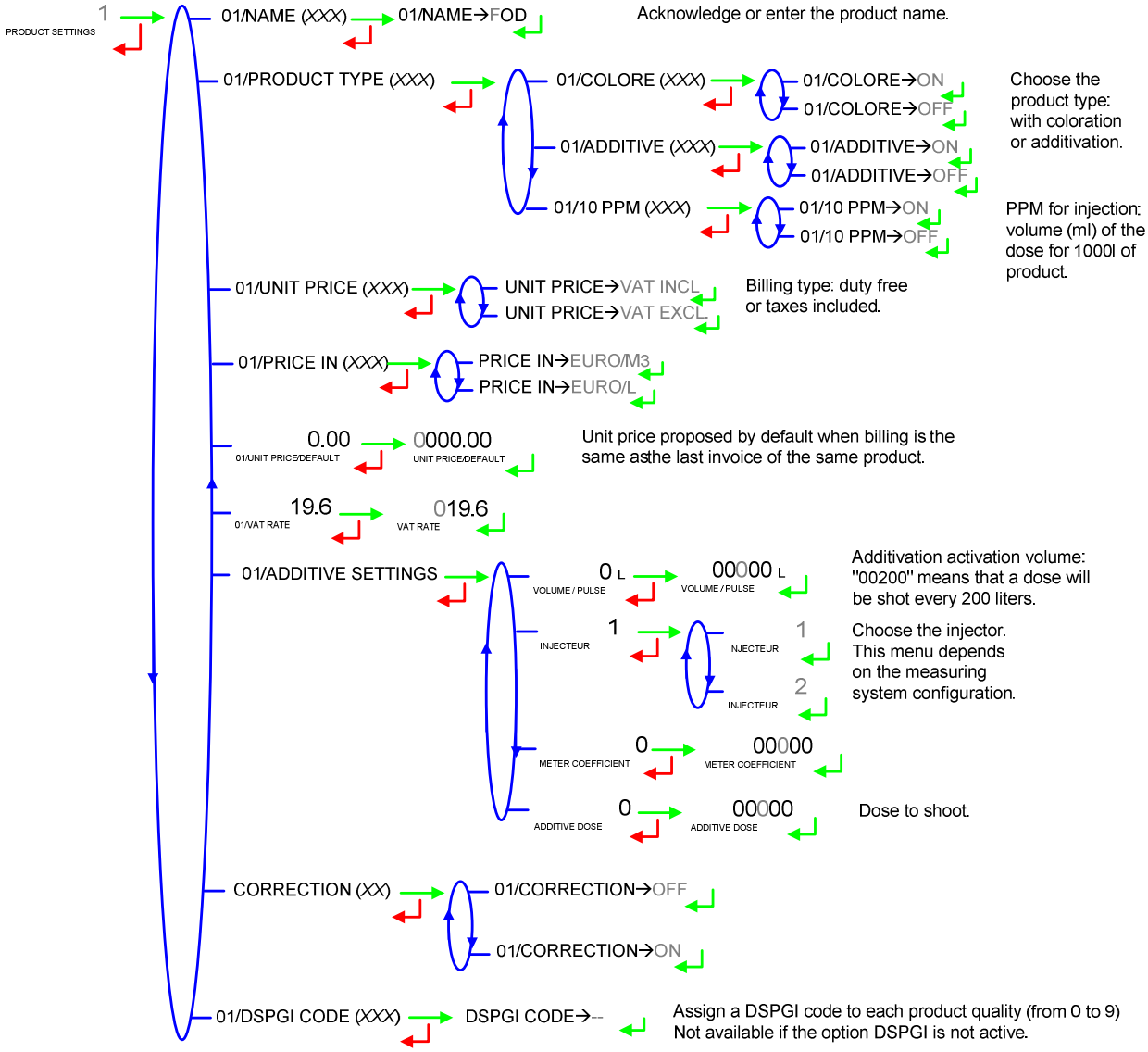
The new coefficient and flow rates values are taken into account.

5.2 Menu PRODUCTS SETTINGS



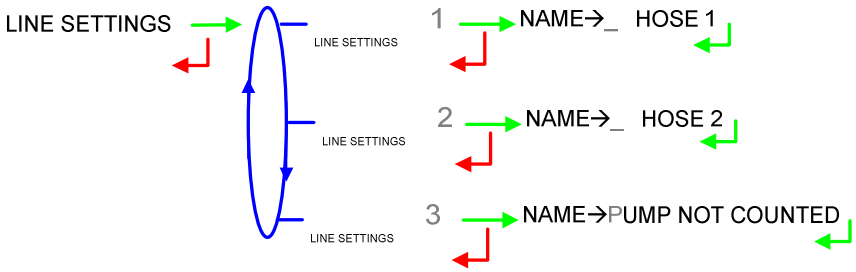
Definition of products: names (for the 6 first products, default names are proposed), product type, price, tax, configuration of additive, correction, the DSPGI code assigned to the product quality (only with active option: SUPERVISOR>DSPGI→ON).

One of the product must be assigned with the name EMPTY and the DSPGI code related to the position of the DSPGI device named 'empty'.



5.3 Menu LINE SETTINGS

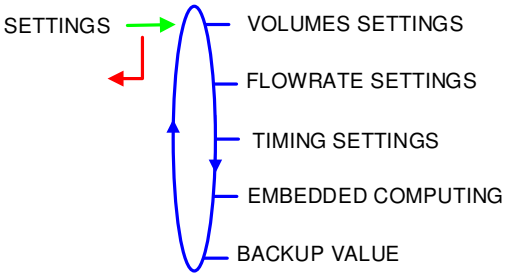
Validate or set the name related to the selected distribution way. The number of distribution ways depends on the hydraulic configuration of the installation (see METROLOGICAL mode: menu CONFIGURATION>DISTRIBUTION LINE).



5.4 Menu VEHICLE

Enter vehicle identification: set the vehicle registry number on which the measuring system is installed. This number will be printed on delivery tickets, invoices …

5.5 Menu SETTINGS



5.5.1 Sub-menu VOLUMES SETTINGS

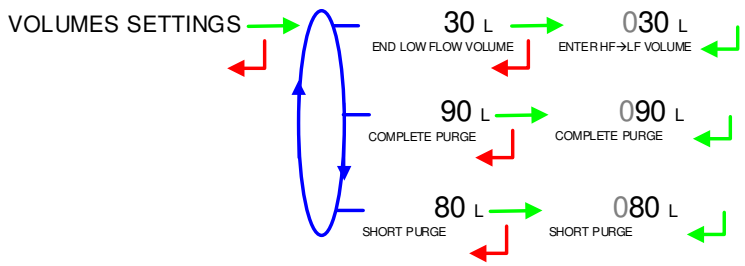
This menu allows you to configure the volume parameters:

END LOW FLOW VOLUME: Set the volume (in liters) delivered in low flowrate to finish the delivery

The volume of purge (liters) depends on the truck (manifold, hose...); it is given when putting into use. If the volume is at 0, the manifold is not drained, the flap is directly opened.

COMPLETE PURGE: Purge of the manifold and the hose (delivery of FOD then GO).

SHORT PURGE: To avoid polluting the line (delivery of GO then FOD). This volume must be between 80 and 95% of the complete purge volume.

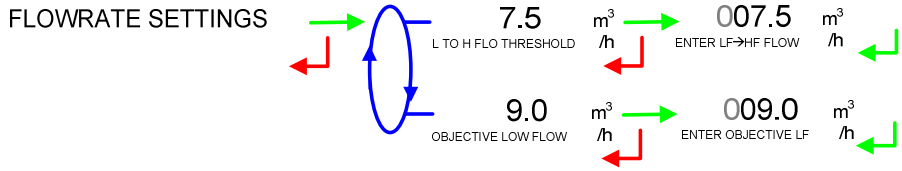


5.5.2 Sub-menu FLOWRATES SETTINGS

This menu allows you to configure the flowrates parameters:

L TO H FLO THRESHOLD: Set the flowrate beyond which the MICROCOMPT (running in low flowrate) controls the high flowrate.

OBJECTIVE FLOWRATE: Set the objective flowrate to regulate the low flowrate. Enter 80 if the measuring system regulates the flowrate with an ALL or NOTHING device.



5.5.3 Sub-menu TIMING SETTINGS

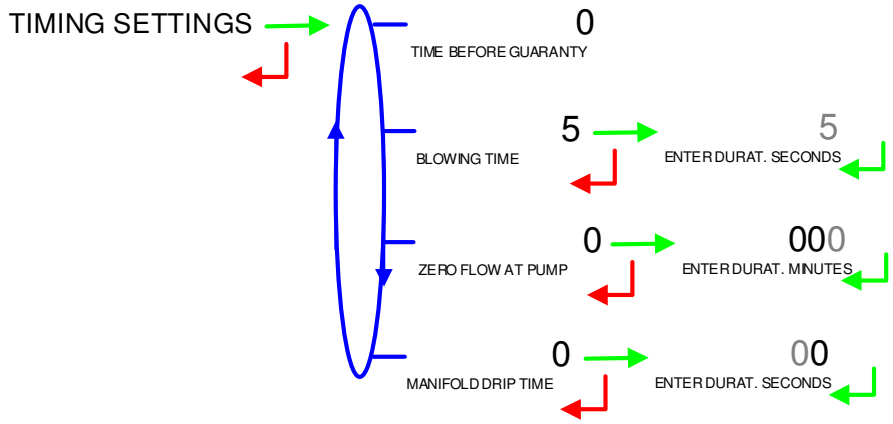
This menu allows setting the duration parameters:

TIME BEFORE GUARANTY: Not used

BLOWING TIME: Set the blowing time (in seconds).

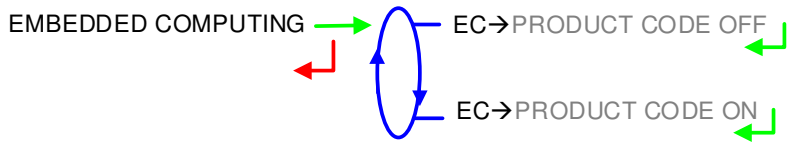
ZERO FLOW AT PUMP: Enter the maximum time before starting of flow (in minutes). Recorded as 'Flow timing' on the parameters printing.

MANIFOLD DRIP TIME: Set the manifold drip time (in seconds).



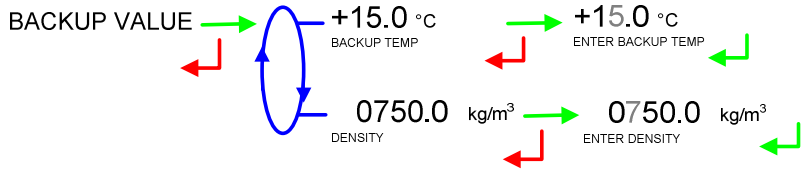
5.5.4 Sub-menu EMBEDDED COMPUTING

This menu allows activating or not the control of the product by the embedded computing. It is available when the option METROLOGICAL>EMBEDDED COMPUTING>EC→WITH PRINTER is set.



5.5.5 Sub-menu BACKUP VALUE

This menu allows setting the backup values for temperature and density. It is available when the menu METROLOGICAL>CONFIGURATION>CONVERSION is ON.



5.6 Menu TIME ADJUSTMENT

Date and time are set in METROLOGICAL mode. The hour may be adjusted (±2h) one time a day through this menu (use French format: 14.41 means 2.41 pm).

5.7 Menu PRINTER SETTINGS

This menu is used to configure printing options.

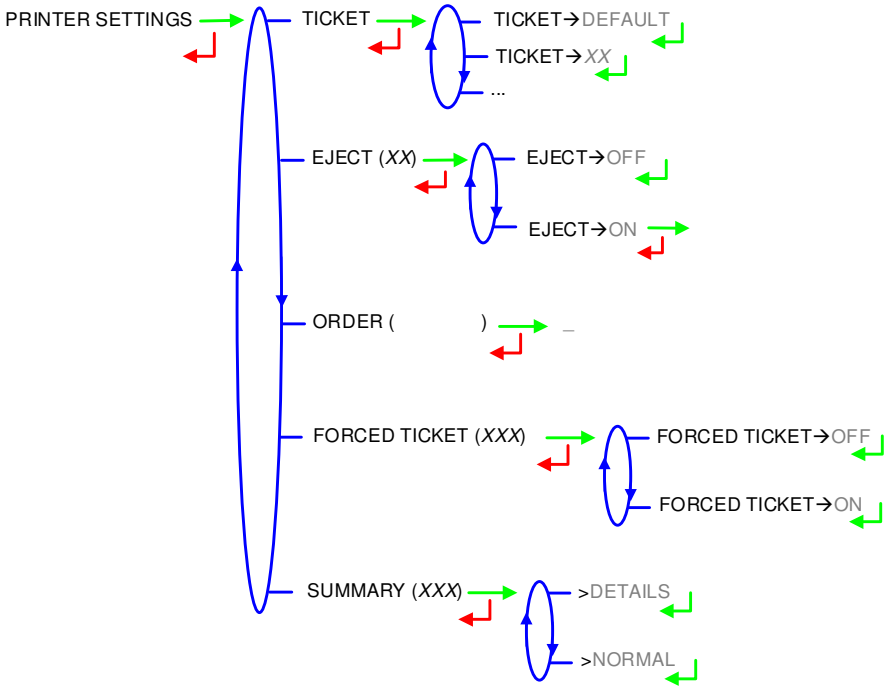
TICKET: Choose the ticket format for printing the delivery ticket.

EJECT: Choose to eject or not the sheet of paper at the end of printing (allowing the embedded computing to print its part). In case of printing default, use the 'RELEASE' button of the printer device to eject the sheet manually.

ORDER: At the end of the delivery the printing of the delivery ticket or invoice is proposed by default. If this field is filled in, the printing of the invoice will be proposed first (the cheque printing is proposed as a result). The order for payment shall not exceed 20 characters. The delivery ticket can be printed through DRIVER/PRINTING/DELIVERY TICKET menu.

FORCED TICKET: At the end of delivery the printing of the delivery ticket or invoice printing is proposed. It is possible to force the printing by choosing FORCED TICKET→ON.

SUMMARY: Choose to make appear or not details of the deliveries when printing the summary.



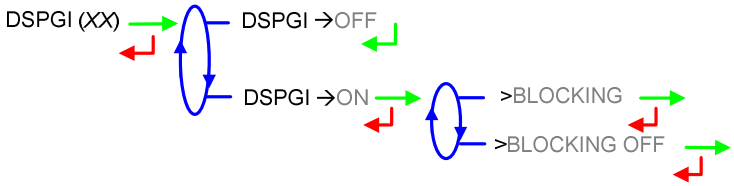
5.8 Menu DSPGI

This menu is used when the MICROCOMPT+ is connected to a DSPGI device.

DSPGI→ON: The option is activated. The product name is given by the DSPGI device to the MICROCOMPT+ which will display it after the selection of the compartment at the beginning of a DELIVERY.

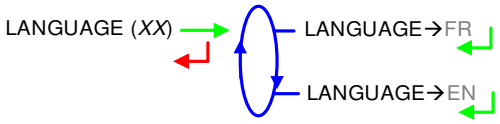
BLOCKING: Make this choice to make any mixture of product impossible. Requires to complete the hose purge before starting a new delivery.

BLOCKING OFF: Make this choice to allow the user to discharge a product different from those in the pipe. Allows to start a new delivery regardless of whether the purge is completed or not.

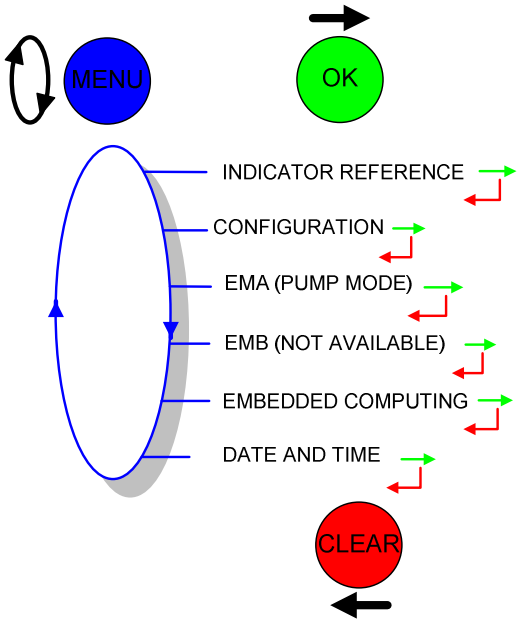


5.9 Menu LANGUAGE

This menu allows you to choose the display language. It is available if a translation catalogue has been uploaded in the MICROCOMPT+.

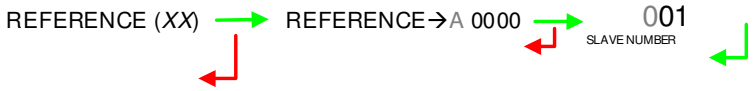


6 METROLOGICAL MODE

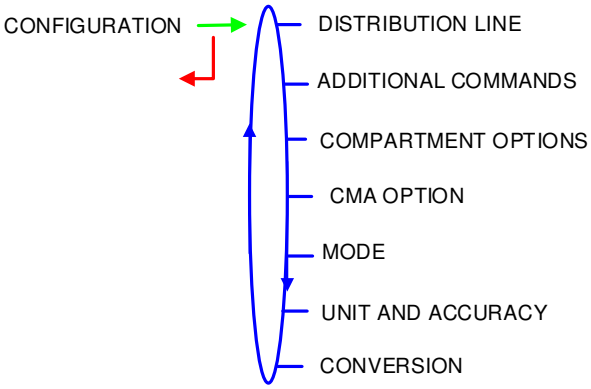


6.1 Menu INDICATOR REFERENCE

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



6.2 Menu CONFIGURATION



6.2.1 Sub-menu DISTRIBUTION LINE

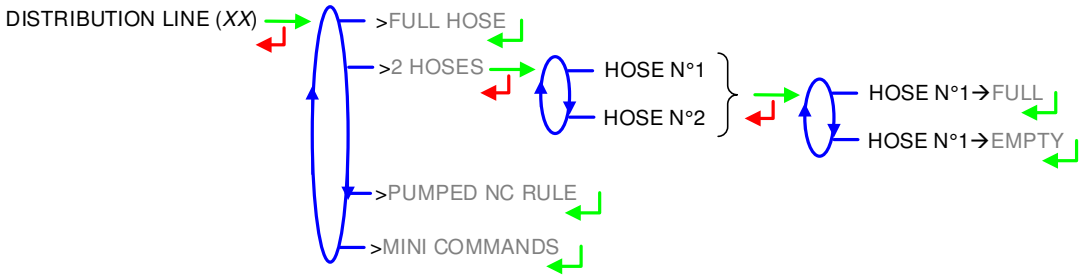
This menu allows the distribution ways:

FULL HOSE: Full hose with authorisation valve operation

2 HOSES: Operation with 2 hoses. Each may be full or empty hose

PUMPED NC RULE: Operation with distribution ways, upstream and downstream the meter

MINI COMMANDS: Operation with power take-off and clutch as an authorisation device. Available for old versions of the calculator-indicator.



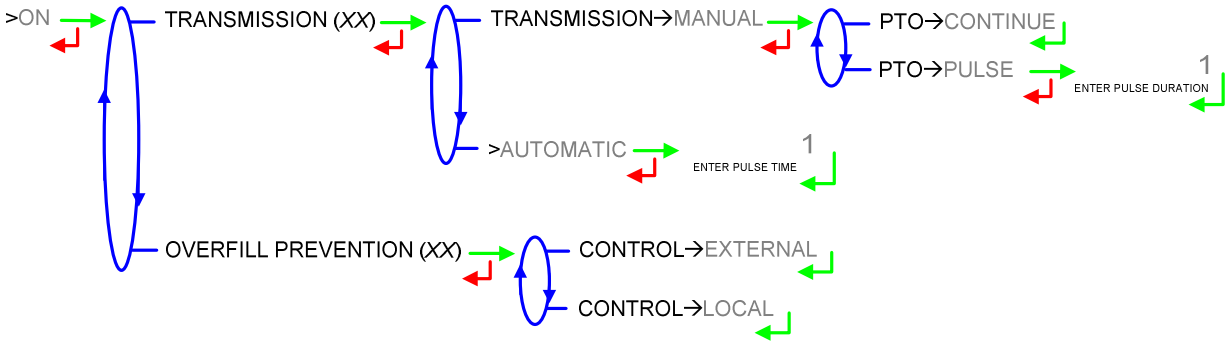
6.2.2 Sub-menu ADDITIONAL COMMANDS

This menu allows to operating with or without remote control.

When additional commands is active, this menu allows to choose the transmission type and to take into account the engine start and stop, clutching and power take off.

TRANSMISSION: Choose the type of transmission (automatic or manual) and the type of command: non-stop command or by pulse

OVERFILL PREVENTION: Control of the overfill protection.



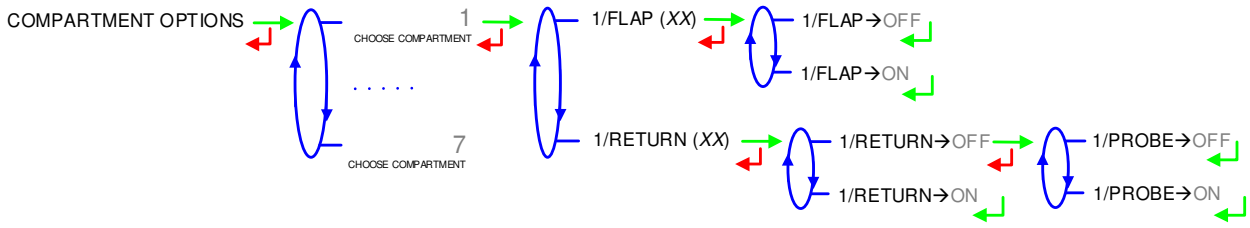
6.2.3 Sub-menu COMPARTMENT OPTIONS

This menu is used to set the configuration of the compartments:

FLAP: Operation with or without flap control

RETURN: Operation with or without product return

PROBE: Overfill protection probe of the compartment



6.2.4 Sub-menu CMA OPTION

Specific operating mode of a CMA TRONIQUE. Choose **CMA OPTION→ON**

LOW FLOW HEIGHT: Geometric height to command low flow (mm)

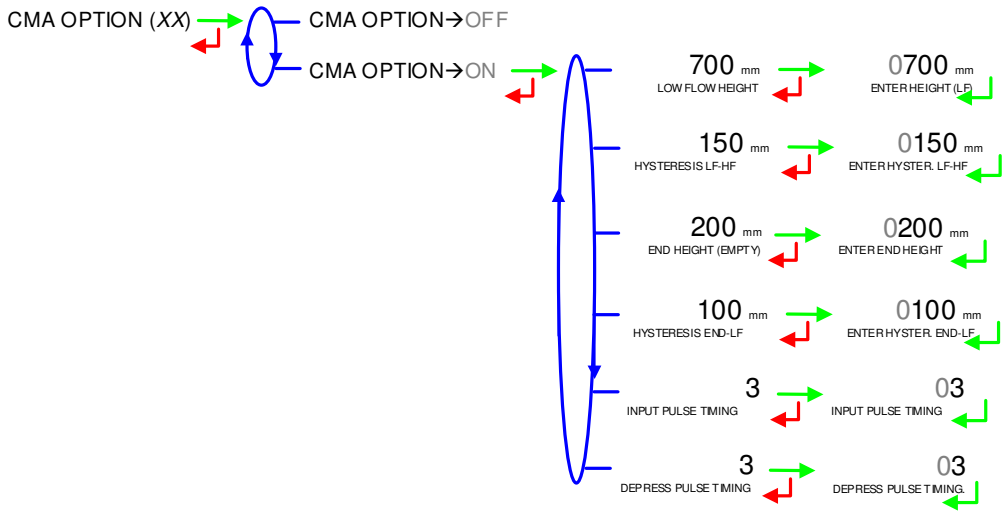
HYSTERESIS LF-HF: At the beginning of a measurement or following an intermediate stop. Before switching again from low to high flowrate, the calculator-indicator checks both parameters LOW FLOW HEIGHT and HYSTERIS LF-HF

END HEIGHT: Height for which the compartment is considered as empty (mm)

HYSTERESIS END-LF: To allow pouring, the product height shall be equal to or greater than the sum of parameters END HEIGHT and HYSTERIS END-LF

INPUT PULSE TIMING: Increment of air admission to bypass. Integer number of 32ms, ranging between 1 and 9

DEPRESS PULSE TIMING: Increment of air exhaust to bypass. Integer number of 32ms, ranging between 1 and 9.

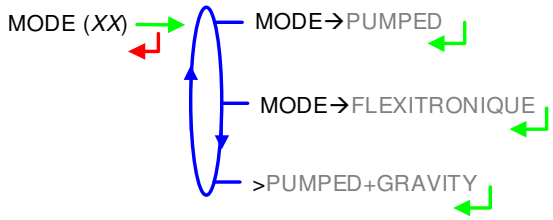


6.2.5 Sub-menu MODE

MODE→PUMPED: Operation for pumped distribution

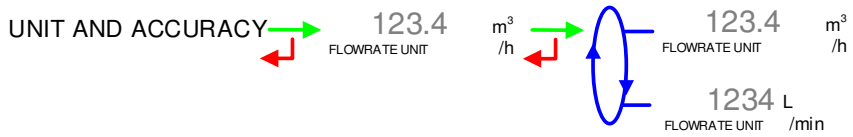
MODE→FLEXITRONIQUE: Operation with FLEXITRONIQUE measuring system

>PUMPED+GRAVITY: Operation for pumped or gravity distribution.



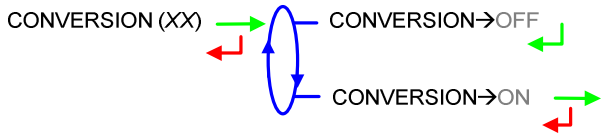
6.2.6 Sub-menu UNIT AND ACCURACY

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

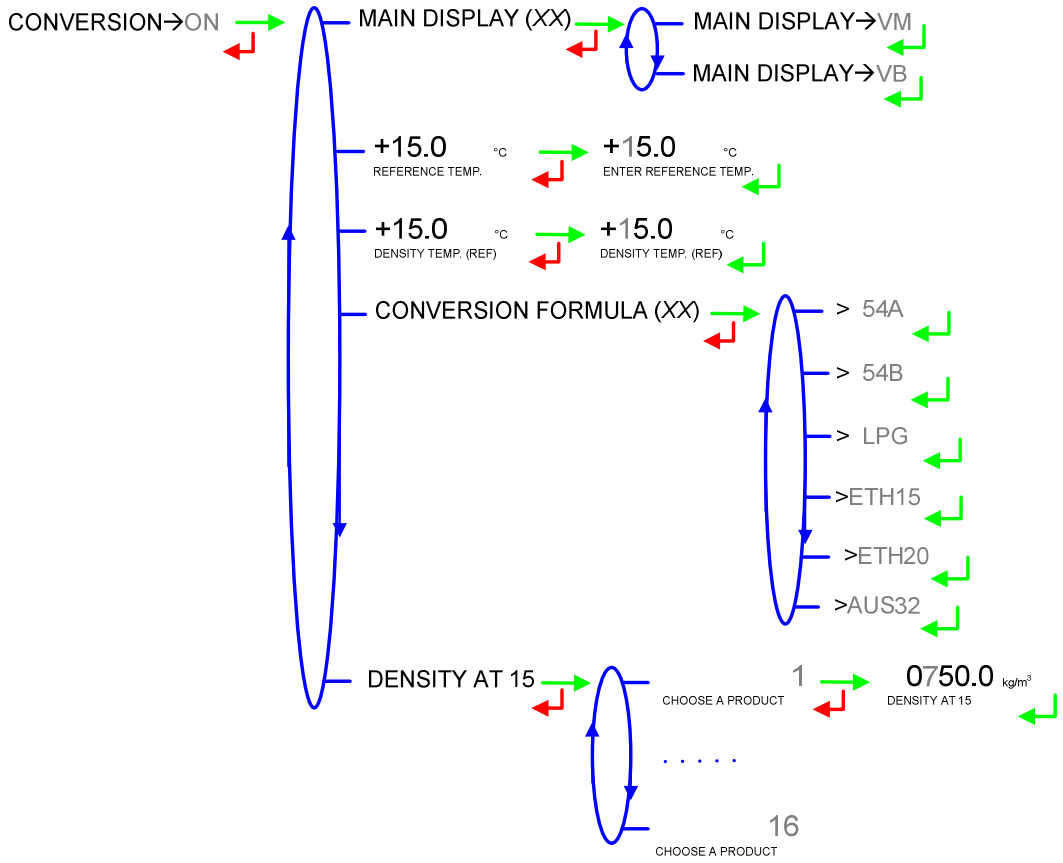


6.2.7 Sub-menu CONVERSION

This menu is used to operate with conversion or not.



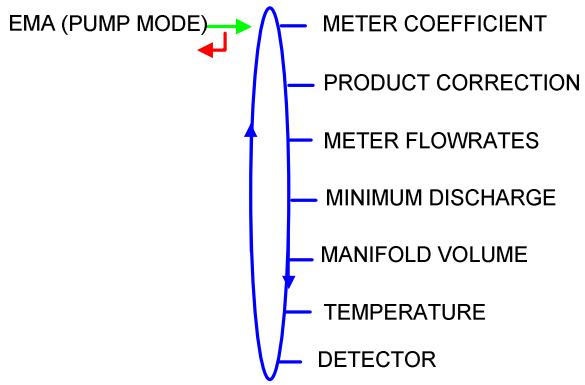
When conversion is active, the following parameters must be set:



Choose the conversion table according to the product:

Conversion formula	Product
54A	Crude products
54B	Refined products
LPG	LPG and bitumen
ETH15	Ethanol at 15°C
ETH20	Ethanol at 20°C
AUS32	Ad-Blue

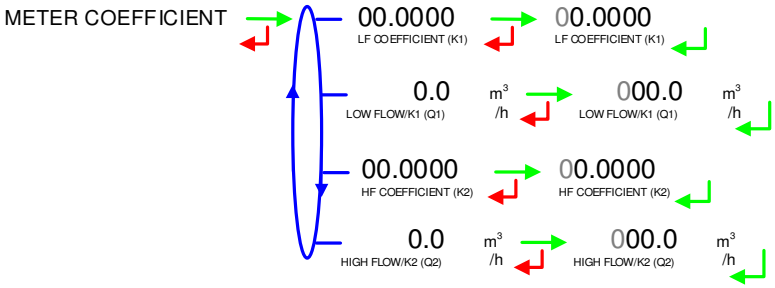
6.3 Menu measuring system EMA (PUMP MODE)



6.3.1 Sub-menu METER COEFFICIENT

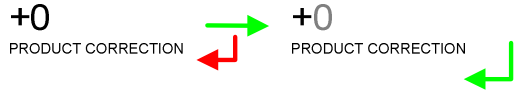
This menu is used to set the coefficient of the measuring system meter (pulses/litre)

LF COEFFICIENT (K1): Coefficient for low flow (pulses/litre)
LOW FLOWRATE/K1 (Q1): Low flow reference (m^3/h)
HF COEFFICIENT (K2): Coefficient for high flow (pulses/litre)
HIGH FLOWRATE /K2 (Q2): High flow reference (m^3/h)



6.3.2 Sub-menu PRODUCT CORRECTION

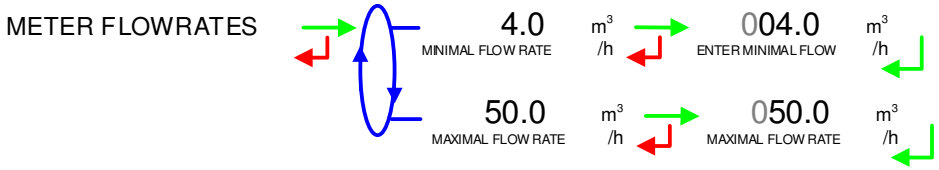
Set the correction factor per thousand (‰) of the measuring system for a measurement with low viscosity products. Refer to the marking of the turbine meter or refer to the ALMA calibration certificate. Refer to the verification manual MV5010 for any further information.



6.3.3 Sub-menu METER FLOWRATES

MINIMUM FLOWRATE: Set the metrological minimum flowrate of the measuring system in m^3/h or l/min, depending on the configured flow unit

MAXIMUM FLOWRATE: Set the metrological maximum flowrate of the measuring system in m^3/h or l/min, depending on the configured flow unit.



6.3.4 Sub-menu MINIMUM DISCHARGE

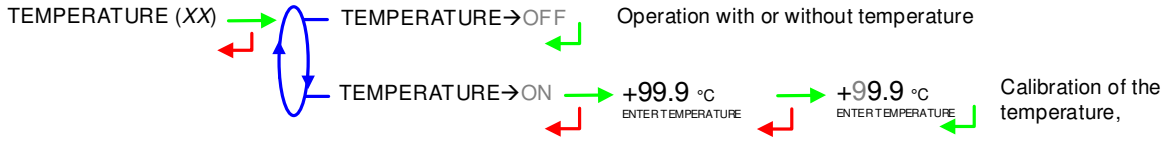
This menu is used to set the minimum quantity of the measuring system in litres, given by the association of the meter device, the MICROCOMPT+ indicating device and other parts of the measuring system.

6.3.5 Sub-menu MANIFOLD VOLUME

This menu is used to set the manifold volume (in litres) that guarantees the emptiness of a compartment. If this volume is set to zero, there's no manifold drain, the flap is directly opened. Maximum value: 29

6.3.6 Sub-menu TEMPERATURE

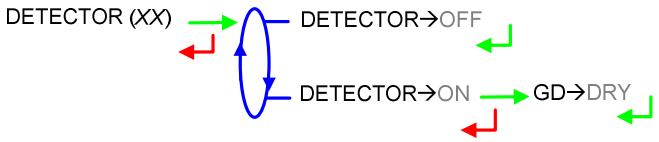
Ce menu is an option. It is used to calibrate the temperature into the MICROCOMPT+. Refer to FM 8510.



6.3.7 Sub-menu DETECTOR

Operation with or without a rupture detector.

DETECTOR→DRY : Check that the gas detector is dry and validate.



6.4 Menu EMBEDDED COMPUTING

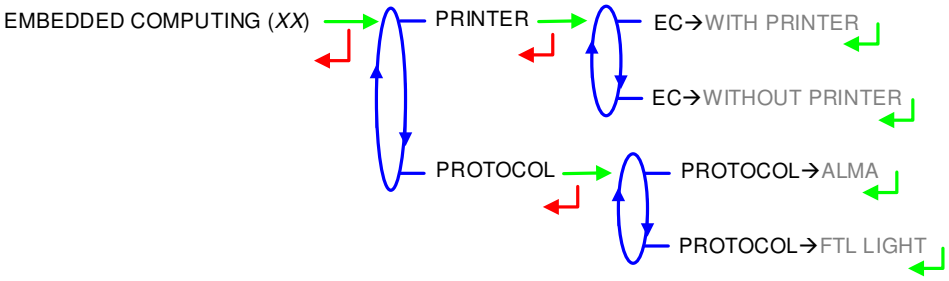
Operating with embedded computing allows to choose the printing and the communication protocol:

PRINTER→ON: The delivery ticket and the invoice must be printed via the embedded computing. They cannot be printed via the MICROCOMPT+ device

PRINTER→OFF: The delivery ticket and the invoice cannot be printed via the embedded computing, they must be printed via the MICROCOMPT+ device

PROTOCOL→ALMA: Embedded computing with protocol ALMA v1.10

PROTOCOL→FTL LIGHT: Embedded computing with protocol FTL Light (a limited version of the Fuel Truck Link protocol).



6.5 Menu DATE AND TIME

Enter the day, the month and the year and then enter the time at French format (e.g. 14.41 means 2.41 pm).

ANNEXE

SUMMARY:

```
X.TRONIQUE 341+.001  CARD REV8
VERSION 09.12.05 DATED 13.10.17
PRINTED ON THE 08.11.17 AT 15:30
VEHICULE  :  AA-215-EL
INDICATOR :  03201

SUMMARY
OF DELIVERIES OF 08.11.17
DAY 312 - 003 MEMORISED RESULTS


**** DAILY TOTALISERS ****

FOD      (01) :      00026000 L    +11,3°C
FOD+     (02) :      00005000 L    +10,6°C
GO       (03) :      00000000 L    +00,0°C
GO+      (04) :      00000000 L    +00,0°C
GNR      (05) :      00000000 L    +00,0°C
GNR+     (06) :      00000000 L    +00,0°C

TOTAL FROM 1 TO 6:00031000 L    +11,2°C



********** DAILY SUMMARY **********
HR      HR     NO              (L)         (°C)
START  END  MESUR  PROD  VOLUME  TEMP
09:40  09:50  S01    FOD   14000    +11,3
09:51  10:01  F02    FOD   12000    +11,3
10:02  10:23  F03    GO    05000    +10,6
PRE(S)ET; (F)REE; (B)ARRELS; (P)URGE;
FLE(X)I; (T)RANS; (D)RAIN;
(A)NTICIPATORY PURGE.
```

PARAMETERS:

```
X.TRONIQUE 341+.001  CARD REV8
VERSION 09.12.05 DATED 13.10.17
PRINTED ON THE 08.11.17 AT 15:02
VEHICULE  :  AA-215-EL
INDICATOR :  03201

********** PARAMETERS **********
OUTLETS/VALVE:                HOSE1FULL-
                              HOSE2EMPTY
CD OPTION:                    ON
AUTOMATIC TRANSMISSION        CONTINUE
OVERFILL PROBE                EXTERNAL
FLAP/RETURN/PROBES:
 CPT NB :   1   2   3   4   5   6   7   8   9
 FLAP    :  0   0   0   0   0   0   0   0   0
 RETURN :  0   0   0   0   0   0   0   0   0
 PROBES :  0   0   0   N   N   N   N   N   N
 CPT PLEXMI: N, RETURN PLEXMI: Y
CMA OPTION :
 LF HEIGHT:  700 MM
 HYSTERESIS LF-HF:  150 MM
 END HEIGHT: 200 MM
 HYSTERESIS END-LF:  100 MM
 TPSIA:  3 UT  /  TPSID:  3 UT
 HEIGHT:4035 MM / COEF PD: 1.50000
MODE:                         TRONIQUE
EMBEDDED COMPUTING:           OFF
TICKET:                       OFF
LANGUAGE CATALOGUE:           ENV9.12.xx
EM1 PUMP:
  COEFFICIENT K1:             10.0000 IMP/L
  FLOWRATE Q1 (LF):           0.0 M3/h
  COEFFICIENT K2:             10.0000 IMP/L
  FLOWRATE Q2 (HF):           0.0 M3/h
  MIN FLOWRATE: 4.0 / MAX:  50.0 M3/h
  MINIMUM DISCHARGE:          00200 L
  TEMPERATURE:                OFF
  VACUITY SENSOR:             OFF

  FOD   (01/-)  CO+NA+BA  OFF INJ2 00300 L
  FOD+ (02/-)  CO+A+BA    OFF INJ   OFF
  GO    (03/-)  NC+NA+10   OFF INJ1 00500 L
  GO+   (04/-)  NC+A+10     OFF INJ   OFF
  GNR   (05/-)  CO+NA+10  OFF INJ   OFF
  GNR+ (06/-)  CO+A+10     OFF INJ   OFF

 LINE NAMES:
  LINE 1:              HOSE 1
  LINE 2:              HOSE 2
 END LOW FLOW VOLUME:     30 L
 FLOW ACTIVATED HF:       7.5 M3/h
 OBJECTIVE LOW FLOW:      9.0 M3/h
 COMPLETE PURGE VOLUME:90 L
 SHORT PURGE VOLUME:      80 L
 MANIFOLD VOLUME:         20 L
 TIME: BLOWING 5S /GUARANTY 0MIN
 FLOW TIMING: 0S / MANIFOLD DRIP: 0S
 STOP FLOW AT 7.5 M3/H WITH 0.6 L
 PRESET END COEFF.:       0.0800
```

TOTALISERS:

X.TRONIQUE 341+.001 CARD REV8
VERSION 09.12.05 DATED 13.10.17
PRINTED ON THE 08.11.17 AT 17:38
VEHICULE : AA-215-EL
INDICATOR : 03201

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

GENERAL TOTALISER 1: 00056638 L

FOD	(01) :	00028000 L
FOD+	(02) :	00028000 L
GO	(03) :	00000000 L
GO+	(04) :	00000000 L
GNR	(05) :	00000000 L
GNR+	(06) :	00000000 L
	(07) :	00000000 L
	(08) :	00000000 L
	(09) :	00000000 L
	(10) :	00000000 L
	(11) :	00000000 L
	(12) :	00000000 L
	(13) :	00000000 L
	(14) :	00000000 L
	(15) :	00000000 L
	(16) :	00000000 L

TOTAL FROM 1 TO 16 : 00056000 L
NO ALLOCATED VOLUME: 00000008 L

EVENTS RECORDED:

X.TRONIQUE 341+.001 CARD REV8
VERSION 09.12.05 DATED 13.10.17
PRINTED ON THE 08.11.17 AT 17:38
VEHICULE : AA-215-EL
INDICATOR : 03201
EVENTS ON 30/05/17

137 RECORD(S)

14:33:33 STOP DISCHARGE
14:30:03 PTO DEFAULT
14:24:33 DRIVER MODE
...

09:47:15 PARAM@ 8=750.000000
09:47:06 PARAM@ 3=1.000000
08:59:02 METROLOGICAL MODE
08:58:57 SWITCH ON

DELIVERY TICKET (according to customer):

Truck N°	AA-215-EL
Delivery N°	002
Register N°	03201
Delivery date	08/11/17
Day number	105
Starting	12:23
Ending	12:35
Product	GO
Quantity	00329 liters

Total before and after

Index	034 before	00000449
Index	035 after	00000778

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

RELATED DOCUMENTS

GU 7034	User Guide
MV 5010	Verification Manual
FM 8000	Replacement of the backup batteries on the 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 8004	Diagnostic support for GAS or PRESENCE GAS alarm
FM 8005	Diagnostic support for METERING PROBLEM alarm
FM 8006	Diagnostic support for DATE AND TIME LOST alarm
FM 8007	Diagnostic support for MEMORY LOST or DEF MEMO alarm
FM 8010	Diagnostic support for EEPROM MEMORY LOST alarm
FM 8011	Configuration of jumpers and adjustment of metering thresholds on the AFSEC+ electronic board
FM 8013	Replacement of the backup batteries on the AFSEC+ electronic board
FM 8501	Adjustment of a DMTRONIQUE
FM 8510	Adjustment of a temperature chain into the MICROCOMPT+ by software settings