


OPERATING MANUAL

MU 7078 EN B
ETALCOMPT BLENDER



B	2018/01/23	Conformity with the latest software version and French issue of the manual [MDV565]	DSM	SH
A	2016/05/03	Creation	DSM	AH
Issue	Date	Nature of modifications	Written by	Approved by

	MU 7078 EN B ETALCOMPT BLENDER	Page 1/19
	This document is available at www.alma-alma.fr	

CONTENTS

1	GENERAL PRESENTATION AND DESCRIPTION.....	4
2	REQUIREMENTS OF USE	5
2.1	General.....	5
2.2	Restriction on use	5
3	OPERATING PRINCIPLE	5
4	CONDITIONING	5
5	USING THE ETALCOMPT BLENDER	6
5.1	Control of an injection device with menu METERING – MEtErin	6
5.2	Control of an injection device with menu CAMPAIGN - CAMPAiG	7
5.3	Menu VISUALISATION – ViSuAli.....	8
5.3.1	Sub-menu METERING – MEtErin	8
5.3.2	Sub-menu TOTALISER – totALiS.....	8
5.3.3	Sub-menu MEMORISATION – MEMoriS.....	9
5.4	Menu SUPERVISER – SuPERVi	10
5.4.1	Sub-menu CALIBRATION – CALibrA.....	10
5.4.2	Sub-menu SEASON – SEASon	10
5.4.3	Sub-menu PARAMETERS – PARAMet.....	11
5.4.4	Sub-menu MAINTENANCE – MAintEn.....	12
5.4.5	Sub-menu TRANSFER – trAnSFr.....	12
6	REMOVE THE ETALCOMPT BLENDER.....	13
7	EXPLOITATION OF RESULTS	13
8	METROLOGICAL CONFIGURATION	14
8.1	Menu REFERENCE – rEFErEn	14
8.2	Menu TURBINE – turbinE	14
8.3	Menu CONFIGURATION – ConFiGu.....	14
8.3.1	Sub-menu UNIT AND ACCURACY – uni_ACC	15
8.3.2	Sub-menu CLASS – CLASS	15
8.3.3	Sub-menu VOLUME DISPLAY – V_diSPL	15
8.4	Menu COEFFICIENT – CoEFFiC	15
8.5	Menu PRODUCT – Product	16
8.6	Menu FLOWRATES – FLoWrAt.....	16
8.7	Menu VOLUMES – VoLuMES	16
8.8	Menu CTD+ KEY – Ctd	16

8.9	Menu THRESHOLDS – V_tHrES	16
8.10	Menu DATE AND TIME – dAt_tiM.....	16
	ANNEXE	17
	RELATED DOCUMENTS	19

1 GENERAL PRESENTATION AND DESCRIPTION

The ETALCOMPT BLENDER is a master meter for the non-metrological checking of the accuracy of blending doses injected into loading arms (Ethanol or FAME. The product name is factory set).

The checking is performed on site during the operation.

The meter has a mode of protection for safe use in ATEX zone, and is designed to be resistant to aggressive chemicals.

This operation must be performed by personnel previously trained in the use of this material.

Before use, check that the ETALCOMPT BLENDER is in perfect condition.

The ETALCOMPT BLENDER is made of:

- ⇒ An ADRIANE turbine meter DN50-50
- ⇒ An intrinsic security indicator-calculator device, UNI type, powered by 2 lithium batteries
- ⇒ A data transfer key CTD+ (**use it outside potentially explosive area**)
- ⇒ Set of steel flange adaptors to be welded to the upstream or downstream sleeve (as required)
- ⇒ A protective transport suitcase.

Data can be transferred to the CTD+ key: parameters, measurements results (CRM) and calibration results (CRE). Then, files may be downloaded from the key to a PC through USB cable. See ANNEXE.

On the front of the electronic indicator-calculator UNI, you can see five buttons:



Light the display during 10 seconds



Normal mode: return to previous menu

METROLOGICAL mode and Supervision: increment the flashing figure when imputing a value or return to previous menu



Normal mode, metering off: select the menu

Normal mode, metering on: display the immediate flow

METROLOGICAL mode and Supervision: select the figure to be modified or the menu




Normal mode: validate the selected menu or value

METROLOGICAL mode and Supervision: validate the displayed value or validate the selected menu

In case of default: acknowledge the default



Reset the volume to zero before a new measurement. The data of the last measurement are then recorded

	MU 7078 EN B ETALCOMPT BLENDER	Page 4/19
	This document is available at www.alma-alma.fr	

2 REQUIREMENTS OF USE

2.1 General

The ETALCOMPT BLENDER must always be transported in the transport case provided by Alma, without any product.

It is recalled that in addition to the general precautions, the permanent wearing of Personal Protective Equipment is mandatory during its use (fireproof and anti-static cover clothing, suitable gloves, and eye protection goggles).

The use of any non-ATEX electronic device in the safety area is prohibited.

2.2 Restriction on use

The ETALCOMPT BLENDER must be used on installations where injection is made upstream of the main meter.

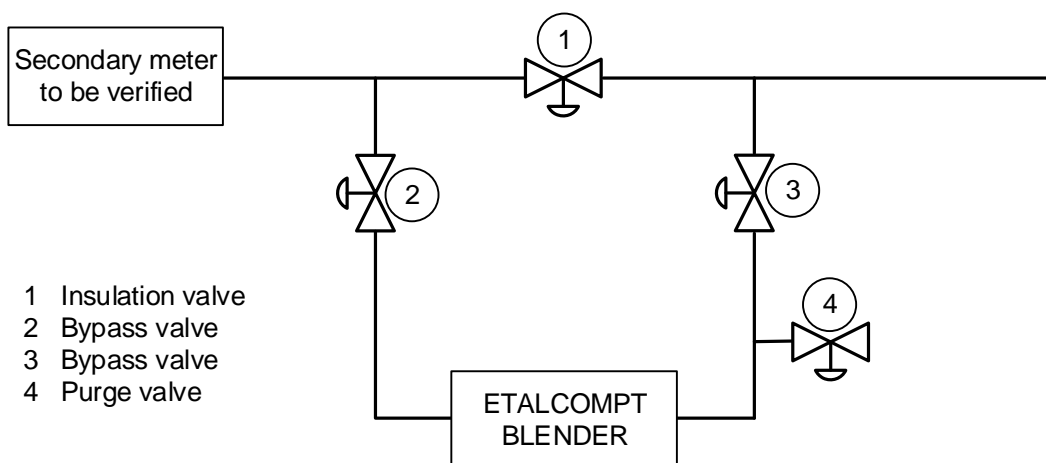
The ETALCOMPT BLENDER may be installed in series upstream or downstream the meter to be verified.

3 OPERATING PRINCIPLE

Plug the ETALCOMPT BLENDER in series on the injection line. After conditioning, the operator initializes the calculator and follows the measurement operations.

When the injection is complete, the operator compares the error between the volume of blending measured by the meter to be verified and the volume of the ETALCOMPT BLENDER.


Diagram of the installation:



4 CONDITIONING

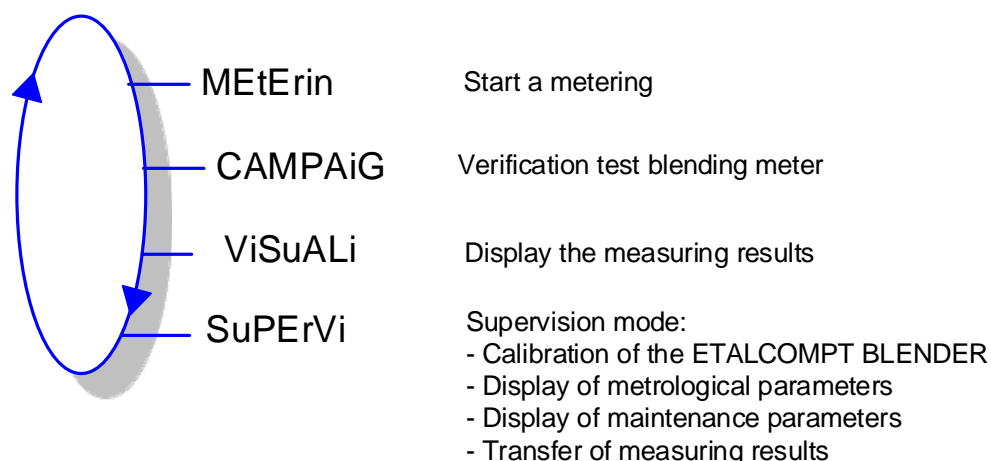
Before starting the accuracy checking of a secondary injector, the ETALCOMPT BLENDER and the injection line must be under operating conditions.

Follow the chronological sequence below:

	MU 7078 EN B ETALCOMPT BLENDER	Page 5/19
	This document is available at www.alma-alma.fr	

- ⇒ Make sure there's no measurement in operation, secure the line according to the procedure, then close the insulation valve #1
- ⇒ Carefully remove the blank flanges from the upstream and downstream bypass flanges and make sure that valves #2 and 3 are closed. Recover the drops cleanly and avoid any product projection
- ⇒ Get out the tools from the suitcase, install it on the injection line and tighten the upstream and downstream flanges
- ⇒ Open the upstream bypass valve #2
- ⇒ Open the downstream bypass valve #3
- ⇒ Open slowly and cautiously the purge valve #4 until there's no more air
- ⇒ Close the purge valve #4
- ⇒ Re-open the line according to the procedure, take an initial measurement from a tank without taking into account the results in order to avoid skewing of measure (in case of residual air into the tools)
- ⇒ Reset the ETALCOMPT BLENDER: the device is ready to use. The hydraulic conditioning has been done with the first measurement operation.

5 USING THE ETALCOMPT BLENDER




The arrow located next to 'Vm' on the right of the display screen is used to indicate that the displayed volume is the volume in metering conditions:



Use the Menu button to display flow rate during measuring (flow>0). Display returns automatically to the current volume.

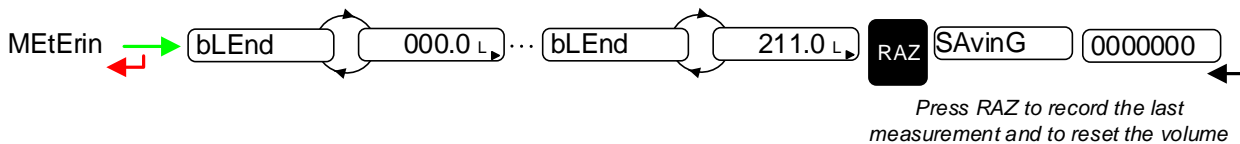
5.1 Control of an injection device with menu METERING – MEtErin

This menu is used to perform a measurement operation and to record the measurement results. At the end of measurement, press RAZ to record the last measurement and to reset the volume.

	MU 7078 EN B ETALCOMPT BLENDER	Page 6/19
	This document is available at www.alma-alma.fr	

Follow the operating rules below:

- Make sure the ETALCOMPT BLENDER is in metering mode: 'MEtErin'. The factory-set product name is displayed
- Make sure the volume is reset. Press RAZ if necessary
- Make an injection request (manually or automatically)
- Record those figures by pressing RAZ.

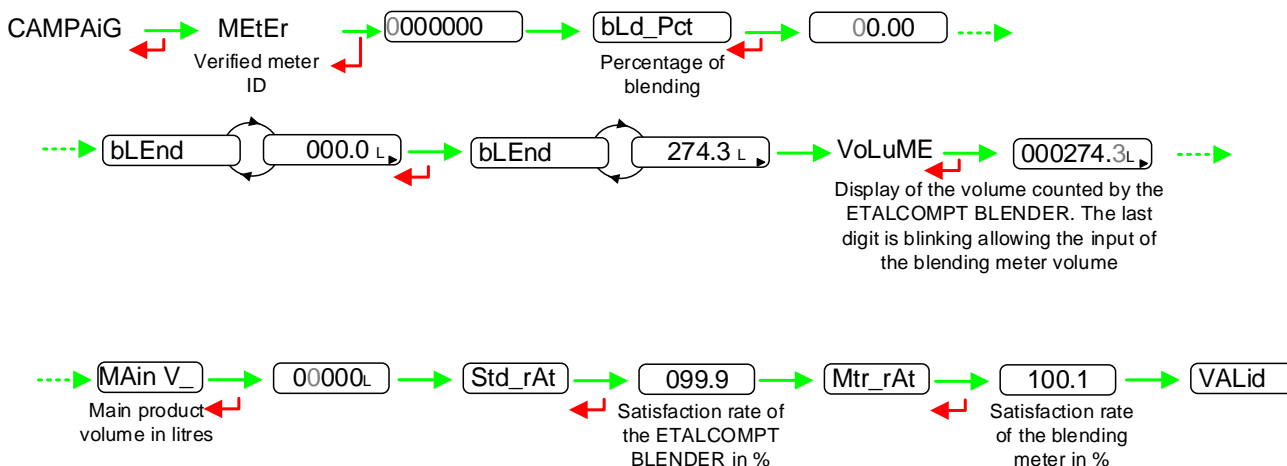


After a measurement sequence, it is possible to calibrate the ETALCOMPT BLENDER with the menu SuPErVi>CALibrA.

5.2 Control of an injection device with menu CAMPAIGN - CAMPAiG

This menu is used to perform the non-metrological calibration of a blending meter.

- Enter the menu 'MEtErin'. Make sure the volume is reset: the blending name must be displayed alternately with zero. Press RAZ if necessary
- Enter the menu 'CAMPAiG'
- Enter the verified meter ID
- Enter the blending percentage
- Choose the blending for the test
- Make an injection request (manually or automatically)
- When injection is complete, set the blending meter volume
- Set the volume of main product
- The ETALCOMPT BLENDER displays its satisfaction rate and the satisfaction rate of the verified blending meter



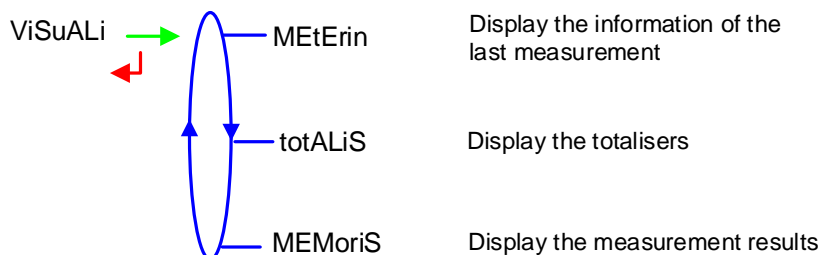
At the end of the operation, wait till the ETALCOMPT BLENDER displays VALid. Then:

- Press BP2 Valid. to record **measurement results (CRM)** and **calibration results (CRE)** and to reset the volume
- Press BP1 RAZ to record the **measurement results (CRM)** and to reset the volume

- Press BP4 Modif. to return to the volume-input step without recording.

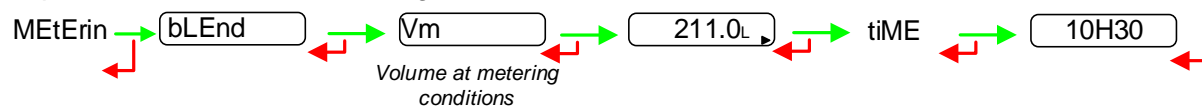
5.3 Menu VISUALISATION – ViSuALi

This menu allows to display measurement results and totalisers.



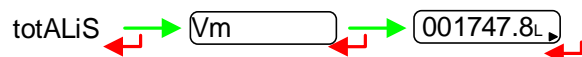
5.3.1 Sub-menu METERING – MEtErin

This menu displays the information of the last measurement. Information displayed depends on the calculator configuration.



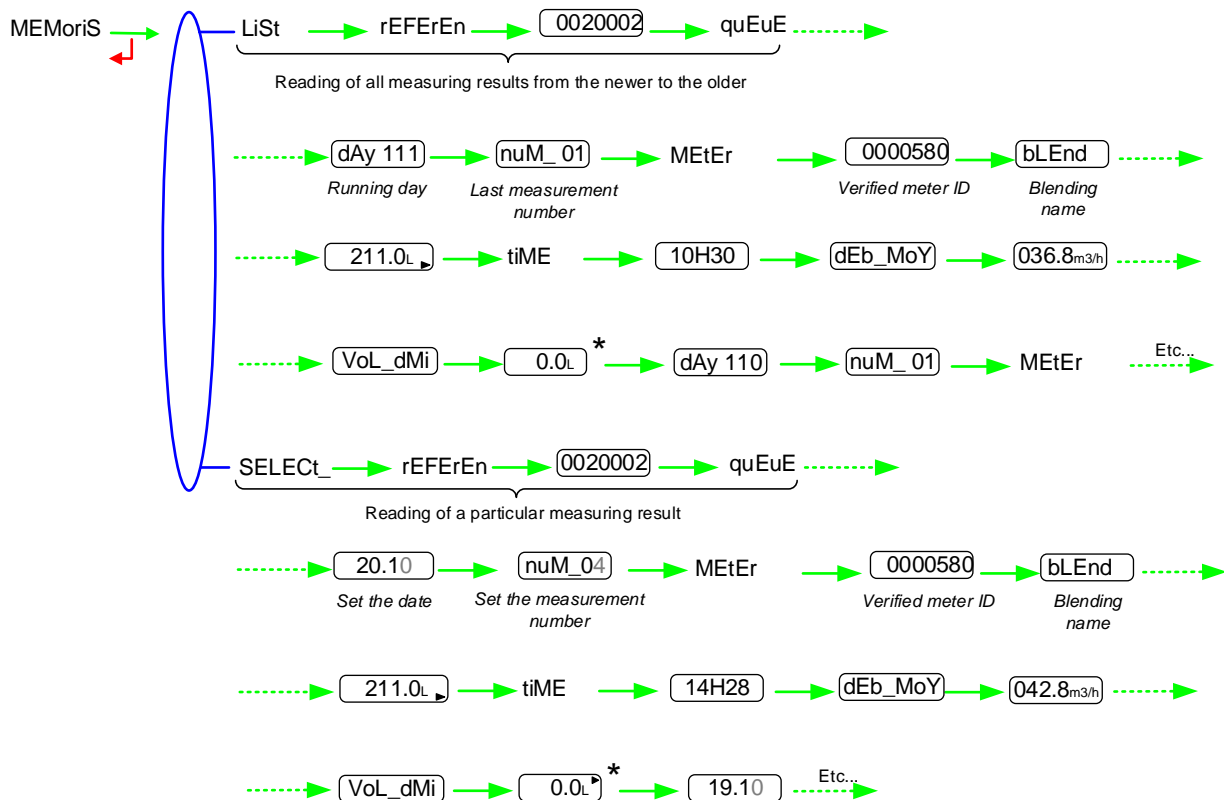
5.3.2 Sub-menu TOTALISER – totALiS

This menu displays the totaliser of volume in metering conditions.



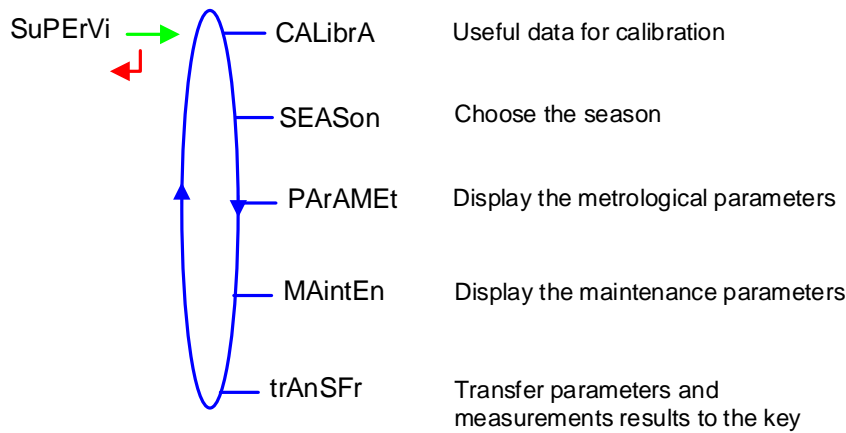
5.3.3 Sub-menu MEMORISATION – MEMoriS

This menu displays the measurements results. Information displayed depends on the calculator configuration.



* These values may be preceded by this display: -----
 Its means they are no longer guaranteed

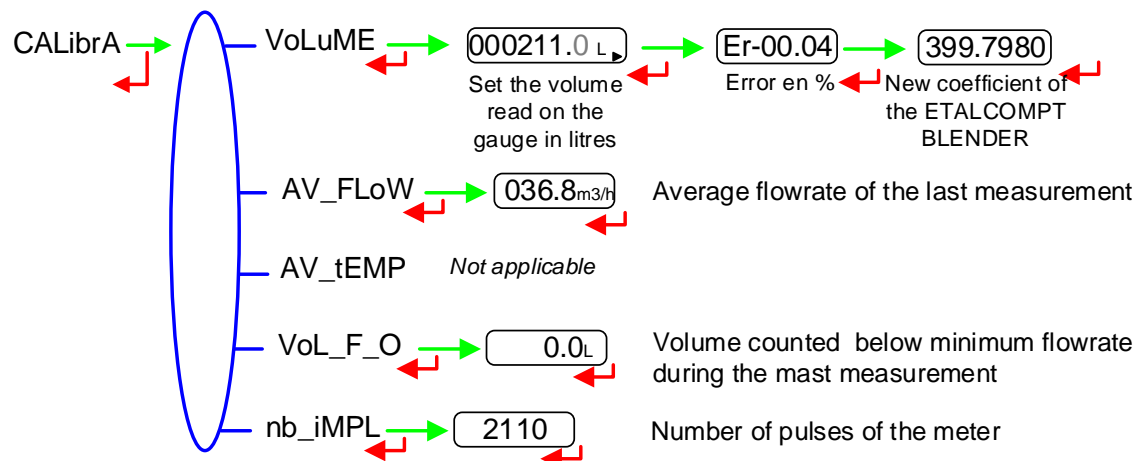
5.4 Menu SUPERVISER – SuPERVi



5.4.1 Sub-menu CALIBRATION – CALibrA

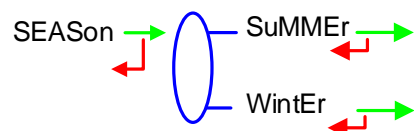
This menu is available after a measurement sequence to calibrate the ETALCOMPT BLENDER. It is used during the verification of the instrument exclusively when it's connected to calibration means on site (not used in laboratory).

Access the calibration menu by the following steps:



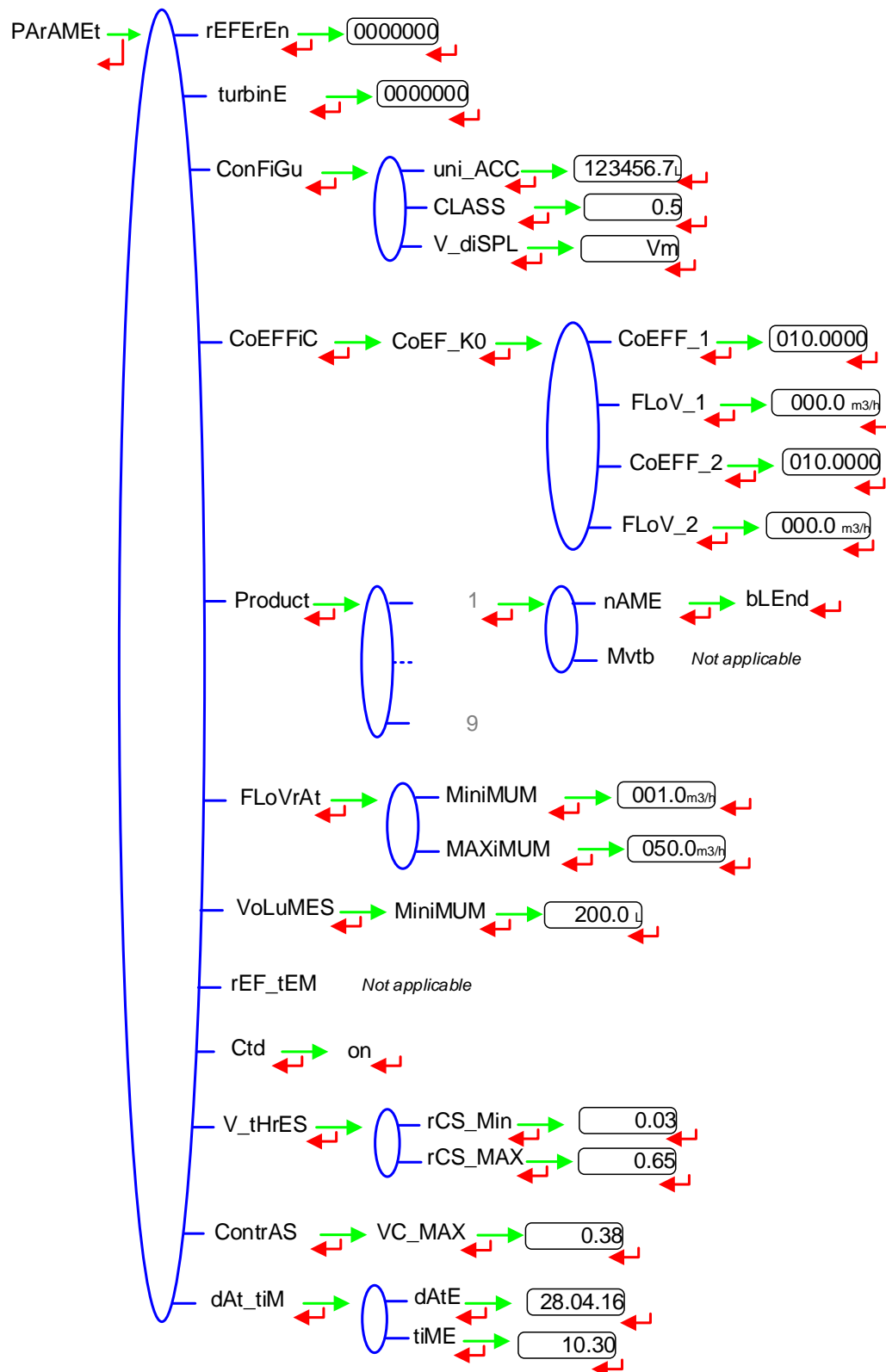
5.4.2 Sub-menu SEASON – SEASon

Choose the season in order to change from summer to winter time (and back again).



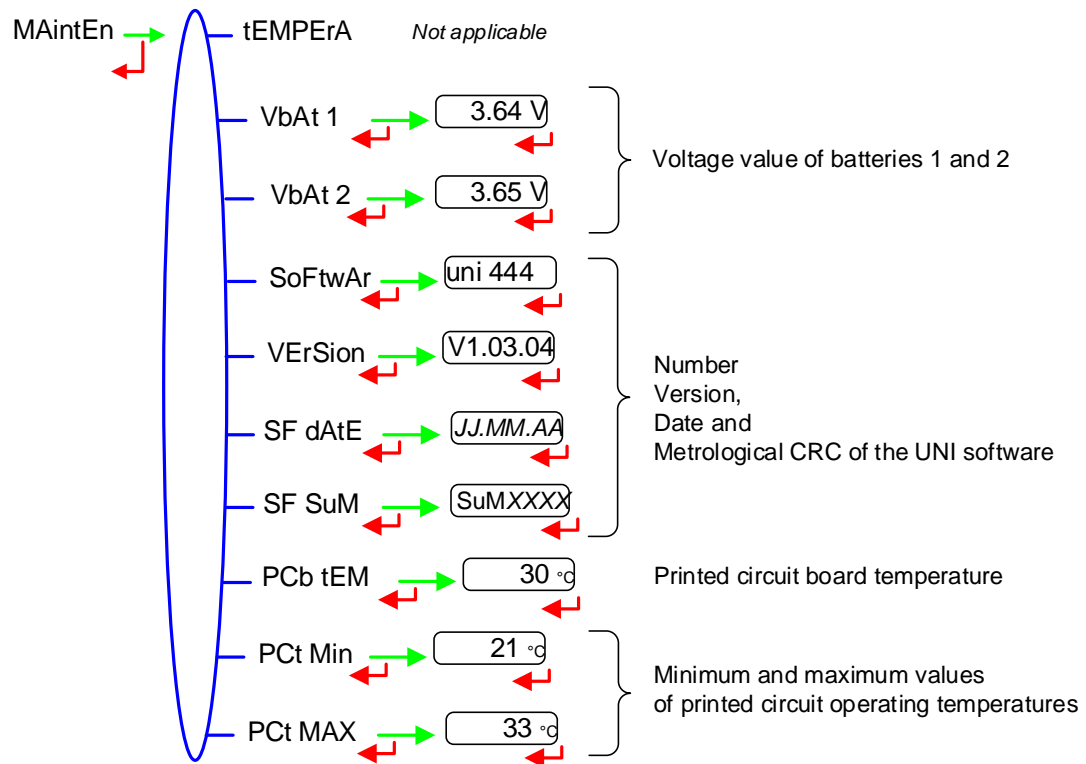
5.4.3 Sub-menu PARAMETERS – PArAMeT

This menu displays the parameters set in METROLOGICAL mode.



5.4.4 Sub-menu MAINTENANCE – MAIntEn

This menu is used to display the maintenance parameters.



5.4.5 Sub-menu TRANSFER – trAnSFr



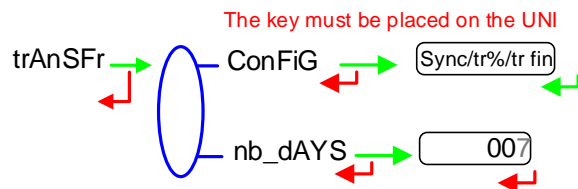
Since the CTD+ key is not ATEX, this operation must be done outside potentially explosive area.

This menu is used to transfer to the CTD+ key the measurement and calibration results and also the parameters set in METROLOGICAL mode.

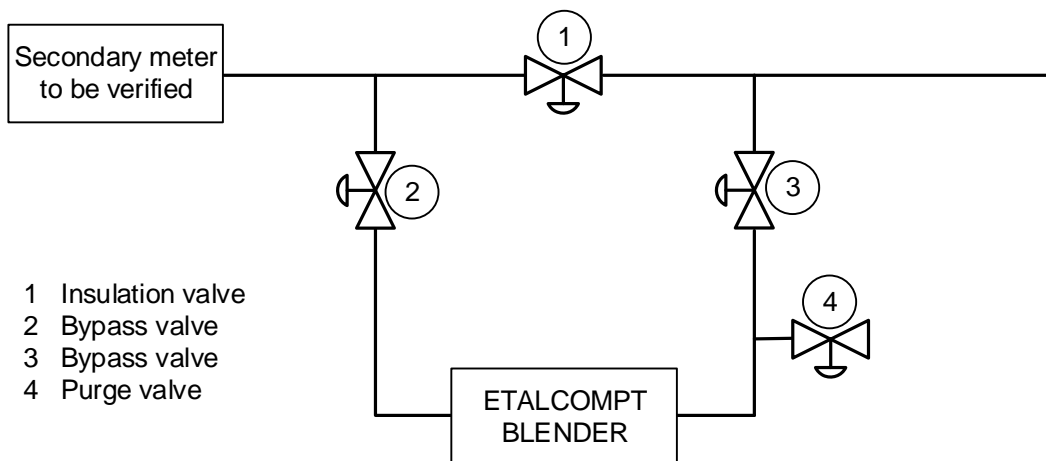
Refer to the Operating guide GU 7110 about transferring the measurement results of the UNI indicator device to a computer.

CONFIG: Transfer the parameters and the measurement results to the key

NB_DAYS: Set the number of days N for the transfer of the measurement results. If N=7, the measurement results of the last 7 days will be transferred.



6 REMOVE THE ETALCOMPT BLENDER



- ⇒ Secure the line according to the procedure
- ⇒ Close the insulation valve #1 on the injection line
- ⇒ Close the upstream bypass valve #2
- ⇒ Close the downstream bypass valve #3
- ⇒ Open slowly and carefully the purge valve #4 and recover cleanly the volume of liquid into the tools
- ⇒ Disconnect the inlet and outlet flanges of the tools on the injection line
- ⇒ Put the tools into the suitcase and seek it shelter until next use
- ⇒ Put back the blank flanges on the connection flanges
- ⇒ Open the insulation valve #1
- ⇒ Re-open the line according to the procedure, then the loading arm is ready to use.

7 EXPLOITATION OF RESULTS

Results must be transferred to the CTD+ key thanks to the menu SuPERVi>trAnSFr described above. Transfer is possible when flow rate is zero.



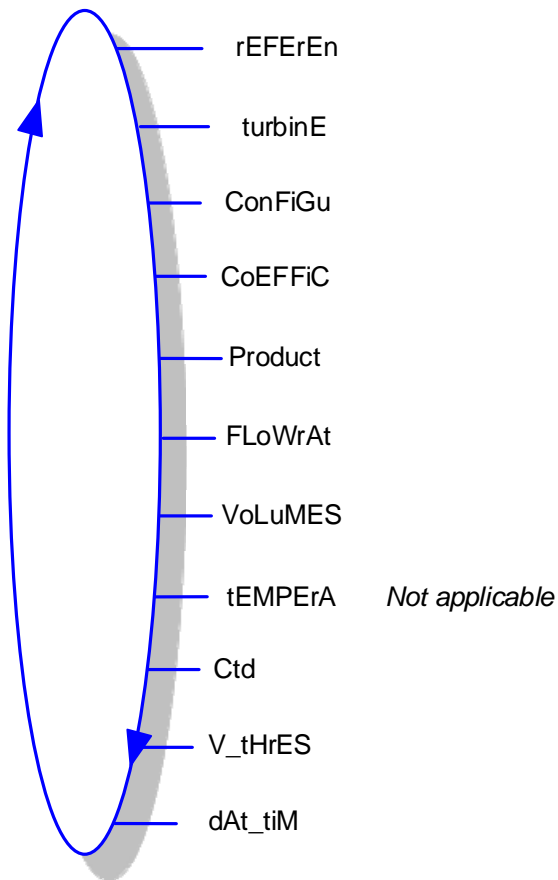
Since the CTD+ key is not ATEX, this operation must be done outside potentially explosive area.

Data can be used on a PC. Refer to the Operating manual MU 7076 and Annexe.

At the end of the control campaign, the verification table data can be analysed.

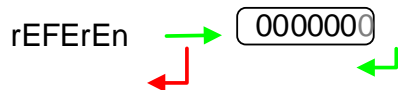
It's up to each user to evaluate the results of this control in accordance with its adjustment tolerance and its quality management system.

8 METROLOGICAL CONFIGURATION



8.1 Menu REFERENCE – rEFErEn

Set the serial number of the ETALCOMPT BLENDER indicator.

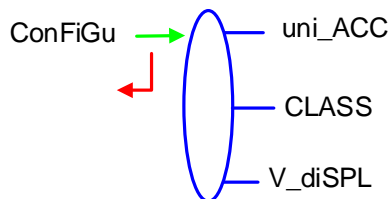


8.2 Menu TURBINE – turbinE

Set the serial number of the turbine meter.

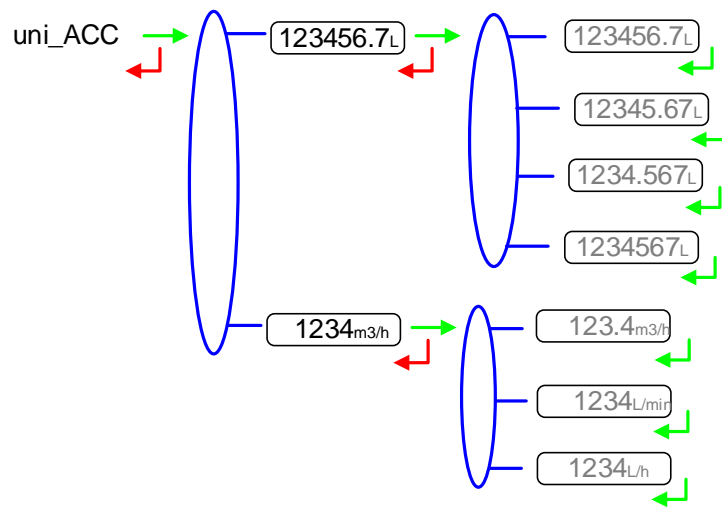


8.3 Menu CONFIGURATION – ConFiGu



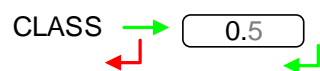
8.3.1 Sub-menu UNIT AND ACCURACY – uni_ACC

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



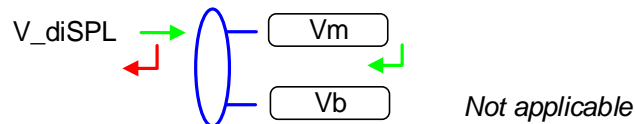
8.3.2 Sub-menu CLASS – CLASS

This menu is used to choose the accuracy class of the measuring system.

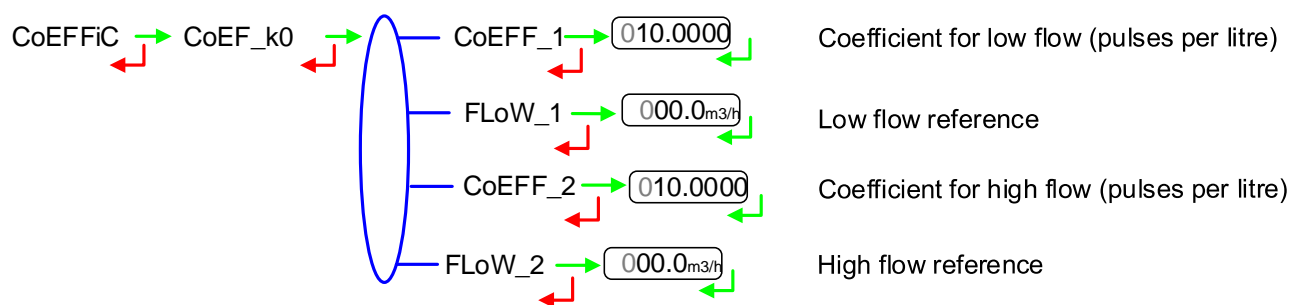


8.3.3 Sub-menu VOLUME DISPLAY – V_diSPL

Choose **V_diSPL**→**Vm** to display the volume in metering conditions in USER mode.

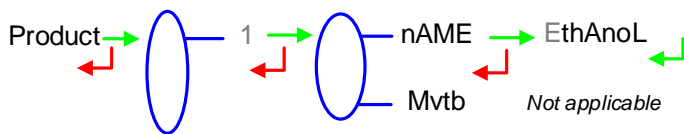


8.4 Menu COEFFICIENT – CoEFFiC

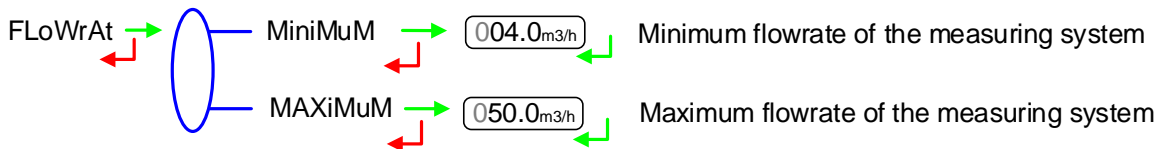


8.5 Menu PRODUCT – Product

Name of product is factory set.



8.6 Menu FLOWRATES – FLoWrAt

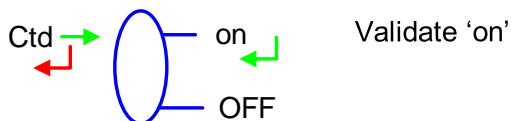


8.7 Menu VOLUMES – VoLuMES



8.8 Menu CTD+ KEY – Ctd

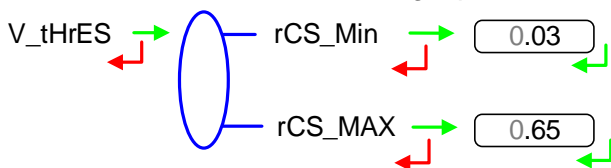
Choose **on**. The menu CAMPAIGN is available to the user, it allows the user to determine the satisfaction rate of the verified meter. Calibration results (CRE) should be transferred to the key as well as measurements results (CRM) and parameters.



Since the CTD+ key is not ATEX, this operation must be done outside potentially explosive area.

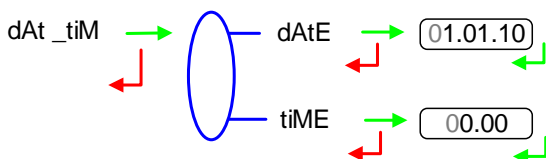
8.9 Menu THRESHOLDS – V tHrES

Detection thresholds of metering inputs at zero flow and at maximal flow.



8.10 Menu DATE AND TIME – dAt tiM

Enter date and time.



ANNEXE

Files transferred to the CTD+ key.

Table of verification of blender measuring systems with an ETALCOMPT: 'MEL0020002.xls'

Date	Time (hh:mm)	Terminal blender ID	Main product volume (L)	Expected blending rate (%)	Terminal blender indicator volume (L)	Etalcompt volume (L)	Terminal blender satisfaction rate /theoretical (%)	Etalcompt satisfaction rate /theoretical (%)	Observations
03/05/2016	16:41	0P3H00	2000	10	221.9	210.9	95.1	95.5	
03/05/2016	16:40	053AF00	2800	10	271.2	279.2	96.3	99.3	
03/05/2016	16:39	053AF00	2540	10	225.7	215.4	95.3	94.9	
03/05/2016	15:14	053AF00	2700	10	255.5	241.5	94.5	87.4	
03/05/2016	15:12	114200	2003	10	208.2	201.9	96.9	96.8	
03/05/2016	15:07	114200	2300	10	295	293.8	99.7	99.3	

Measurement results CRM: 'M0020002.csv'

Day number	Measurement number	Date	Time	Meter Id	Product	Measured volume (L)	Displayed defaults:
124	7	03/05/2016	15:15	0	BLEND	00261.1	DEF_MEM DOG OVERFLOW METER LOW_FLO HIGH_FL LF_HIGH GAS SENSOR1 BOBINE DEF
124	6	03/05/2016	15:15	0	BLEND	00306.0	
124	5	03/05/2016	15:14	053AF00	BLEND	00241.5	
124	4	03/05/2016	15:12	114200	BLEND	00201.9	
124	3	03/05/2016	15:07	114200	BLEND	00293.8	
124	2	03/05/2016	15:02	0	BLEND	00236.3	
124	1	03/05/2016	14:58	0	BLEND	00000.4	

Calibration results CRE: 'E0020002.csv'

Day number	Calibration number	Date	Time	Meter id	Product	Average flow rate	Flow rate units	Under low flow rate volume (L)	Standard volume (L)	Meter volume (L)	Main product volume (L)	Blending rate (%)	Meter rate (%)	Standard rate (%)
124	5	03/05/2016	15:14	053AF00	BLEND	47.0	m3/h	00000.0	00241.5	00255.5	2700	10.00	89.4	94.6
124	4	03/05/2016	15:12	114200	BLEND	44.7	m3/h	00000.0	00201.9	00208.2	2003	10.00	100.8	103.9
124	3	03/05/2016	15:07	114200	BLEND	47.1	m3/h	00000.0	00293.8	00295.0	2900	10.00	101.3	101.7

@@SOFT=444&CFG=03&VER=01.03.03&LANG=EN

Parameters: 'P0020002.csv'

UNI Parameters n° 20002 edited 2016/05/03 at 15:16														
UNI software version	444 V01.03.03													
UNI software date	14/12/2015													
Vm UNI totaliser	01541.0	L												
Vb UNI totaliser	01541.0	L												
UNI battery voltages	3.65	V	3.64	V										
UNI PCB temperatures (min. and max.)	+26.0	°C	+26.0	°C										
Meter serial number	132													
Volume units and precision	123456.7	L												
Flow rate units and precision	123.4	m3/h												
Accuracy class	0.5													
Displayed volume	Measured volume													
K0_1 coefficient (low flow)	010.0000	pulse/L Low flow Q1	00.0	m3/h										
K0_2 coefficient (high flow)	010.0000	pulse/L High flow Q2	00.0	m3/h										
Rcsmin (%)	0.03													
Rcsmax (%)	0.65													
Product 1	BLEND	Basic density	999	Kg/m3										
Product 2	UNLE-LS	Basic density	0	Kg/m3										
Product 3	UNLEAD	Basic density	0	Kg/m3										
Product 4	DIESEL	Basic density	0	Kg/m3										
Product 5	PETROL	Basic density	0	Kg/m3										
Product 6	JET	Basic density	0	Kg/m3										
Product 7	PROPANE	Basic density	0	Kg/m3										
Product 8	BUTANE	Basic density	0	Kg/m3										
Product 9	LPG	Basic density	0	Kg/m3										
Minimum flow rate	01.0	m3/h												
Maximum flow rate	50.0	m3/h												
Minimum Measured Quantity	200.0	L												
Basic temperature	+15.0	°C												
Temperature	OFF													
PT100 slope	0.007770													
PT100 Y intercept	89.432001	Ohm												
Ctd+	ON													

@@SOFT=444&CFG=03&VER=01.03.03&LANG=EN



MU 7078 EN B
ETALCOMPT BLENDER


This document is available at www.alma-alma.fr

Parameters of the CTD+ key: 'P00__CTD.csv'

	A	B	C	D	E	F	G	H
1	CTD+ USB key parameters							
2	CTD+ USB key software version	438 V01.00.08						
3	CTD+ USB key software date (mm.dd.yyyy)	06.10.2015						
4	CTD+ USB key battery voltage	3.51	V	OK				
5	@@SOFT=438&CFG=00&VER=01.00.08&LANG=EN							
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								

RELATED DOCUMENTS

GU 7110	Operating guide: Transfer the measurement results of the UNI indicator to a computer
FM 8014	Replacement of the battery on the CTD+ key
MU 7076	Operating manual: Excel files of master meter applications

	MU 7078 EN B ETALCOMPT BLENDER	Page 19/19
	This document is available at www.alma-alma.fr	