OPERATING MANUAL

MU 7033 EN J

FLEXICOMPT AUTONOME+

Issue	Date	Nature of modifications	Written by	Approved by
J	2016/12/13	FA+ Adblue *[MDV465]* + Drawings update +Software improvement + recommendations for use of the key CTD+	DSM	SR
I	2015/12/10	Merged with MM9003 - Creation of maintenance sheets	DSM	XS
H	2014/01/13	Use of the key CTD+ during data transfer	DSM	XS
G	2013/09/24	Software evolution (DIM)	DSM	XS
A	2009/02/26	Creation – replace MM5014-EN-4	FM	DSM

CONTENTS

1 GENERAL PRESENTATION AND DESCRIPTION

The FLEXICOMPT AUTONOME+ is a measuring system intended to the gravity measurement of products other than water on various installations. Depending on the model, it may be used for measurement of Adblue.

It can:

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

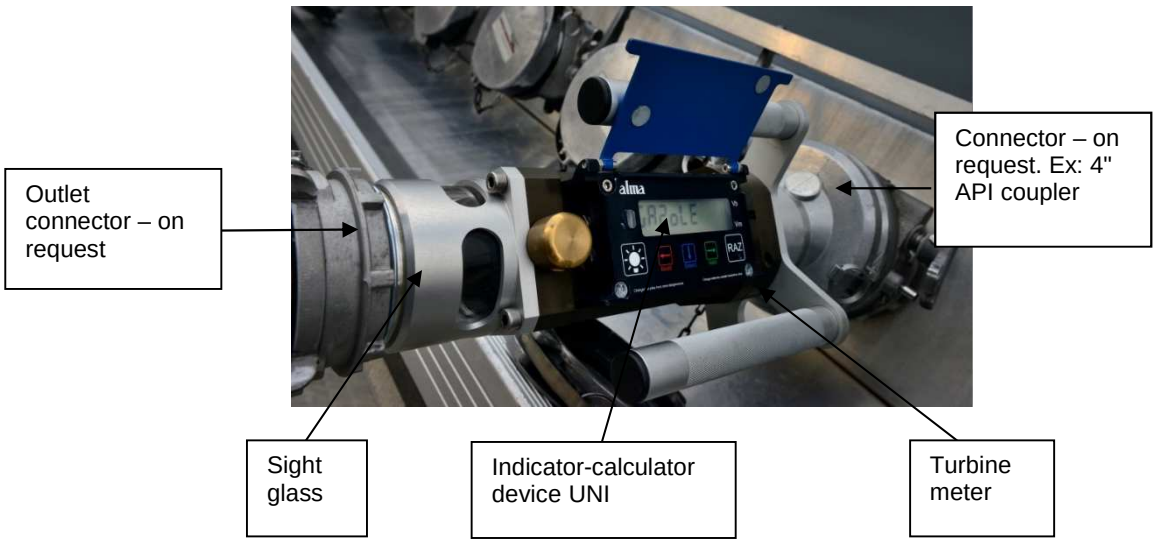
The FLEXICOMPT AUTONOME+ includes:

- ⇨ An intrinsic security indicator-calculator device, type UNI, powered by 2 lithium batteries (battery life 1 to 2 years) fastened to the hydraulic sleeve,
- ⇨ A hydraulic measuring sleeve composed of:
- ⇨ An ALMA turbine meter, type ADRIANE DN80-80,
- ⇨ A sight glass located downstream of the turbine meter,
- ⇨ A vacuum breaker valve,
- ⇨ An appropriate connector: a 4" coupler to connect onto the API adapter, a DN80 quick coupling to connect the unloading hose or any other connector (CAMLOCK, TODO, aviation…),
- ⇨ An appropriate unloading connector: a quick coupling to connect the unloading hose or any other connector (CAMLOCK, TODO, aviation…).

The FLEXICOMPT AUTONOME+ may be connected to a temperature sensor.

The ‘Transfer Key CTD+’ option is used to transfer measurements results to a key thanks to an infrared communication between the FLEXICOMPT AUTONOME+ and the key. The data may be downloaded from the key to a PC through USB cable. **CAUTION: the key is not an ATEX device**

The metrological parameters file and the configuration file of the FLEXICOMPT AUTONOME+ may be uploaded separately in order to make an easier monitoring of the instrument (periodic inspection, identification and diagnosis).



The indicator-calculator device, type UNI guarantees the metering operations and manages the faults linked with the metering system.

The operating temperature for the UNI is between -25°C and +55°C.

On the front of the UNI, you can see five buttons:

BP5 Light the display during 10 seconds

BP4 Normal mode: return to previous menu

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

BP3 Normal mode, metering off: select the menu

Normal mode, metering on: display the values (immediate flow, temperature)

Supervisor and Metrological mode: select the figure to be modified or select the menu

BP2 Normal mode: validate the selected menu or value

Supervisor and Metrological mode: validate the displayed value or validate the selected menu

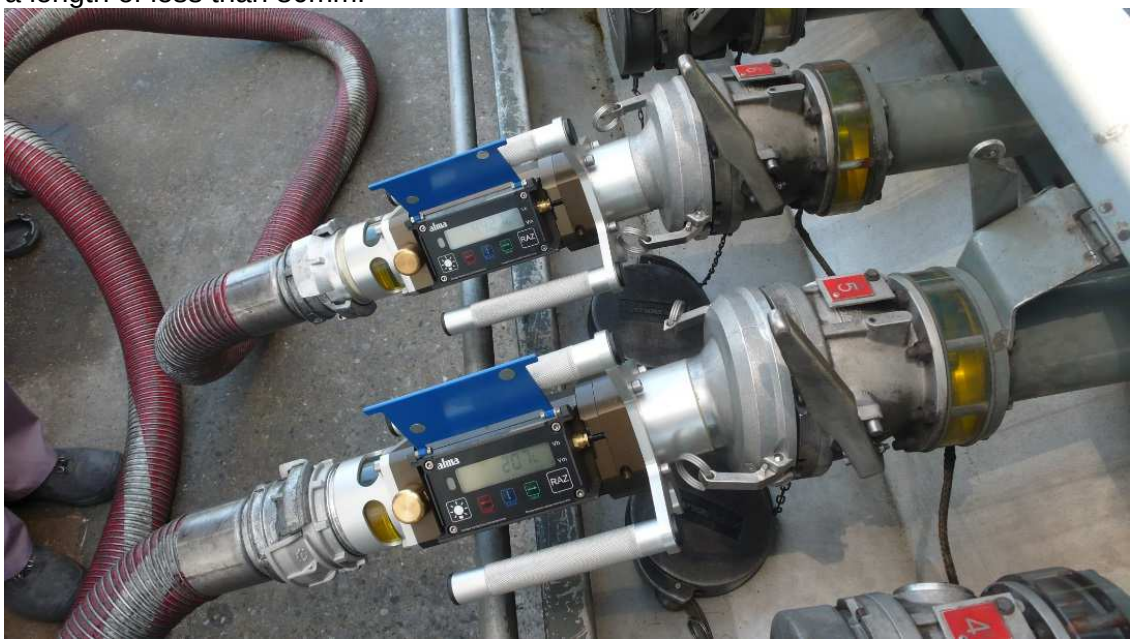
In case of default: acknowledge the default

BP1 Reset the volume to zero before a new measurement. The data of the last measurement are then recorded

2 USER RECOMMENDATIONS

2.1 Mobile installation

The vacuum between the connecting device and stripping valve on the FLEXICOMPT AUTONOME+ device must be rigid with a 15 degree angle, an 80mm minimum diameter and a length of less than 80mm.



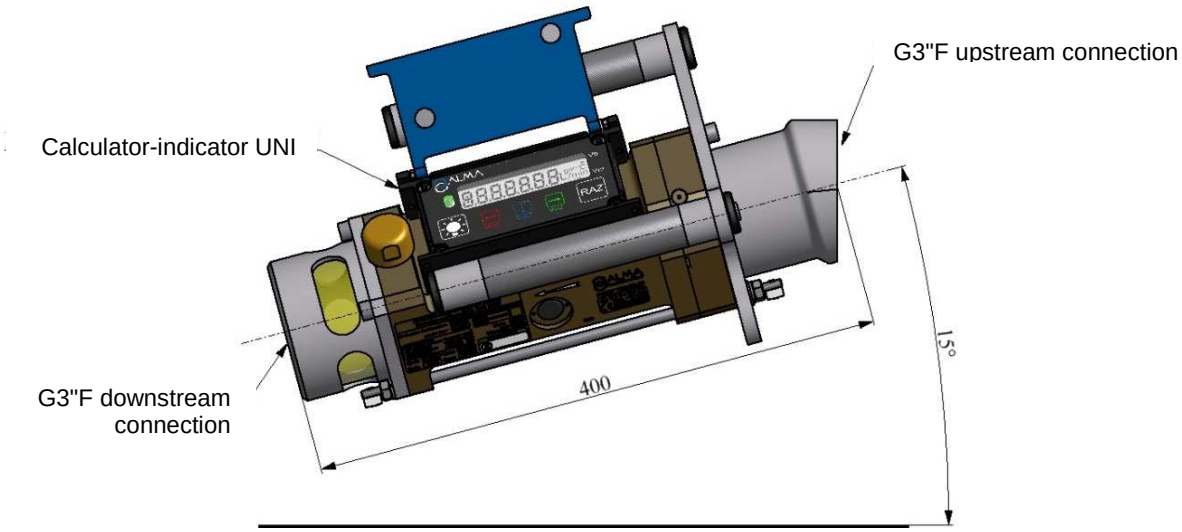
2.2 Stationary installation

The FLEXICOMPT AUTONOME+ is usually directly connected to the valves of a semi-trailer for gravity dicharge (without using pump).

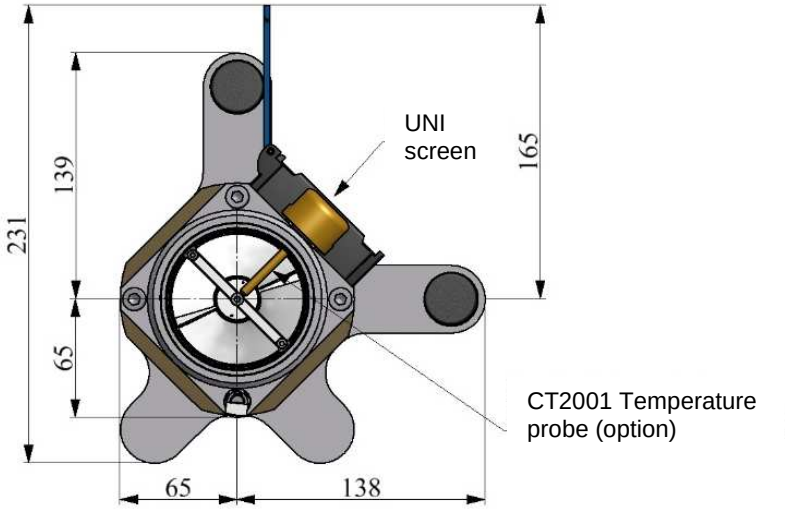
It also may be fixed on a dicharge pipe. In that case, it must be used in the closest conditions to those required for its common use. This is crucial to ensure a satisfactory accuracy of counting

The following conditions must be met:

- The connecting pipe to the discharge valve must have an 80mm minimum diameter and a length of less than 80mm. If the length of the pipe exceeds 80mm, only complete discharges of the tank are guaranteed
- The flexible or rigid hose, placed between the FLEXICOMPT AUTONOME+ and the collecting tank must have an 80 mm minimum nominal diameter and an 8 m maximum length. It must allow an easy flow product when delivery
- The FLEXICOMPT AUTONOME+ measuring system device must be placed within a vertical plan and with a 15 degree angle between his axis and the horizontal axis to avoid product retention



- The screen of the calculator UNI must be tilted upwards, ideally at an angle of 45 degrees from the horizontal



- Being used, the discharge hose must be short in order to reduce siphon and to avoid product retention (no lower point). It must be tilted by minimum 3 degrees, ideally with a rigid pipe that will be connected to the discharge valve
- During the measurement, the FLEXICOMPT AUTONOME+ is placed according to a vertical plan on a horizontal discharge valve. This requirement has been considered as satisfactory when the FLEXICOMPT AUTONOME+ downstream connector is on the lowest position than the upstream connector
- The FLEXICOMPT AUTONOME+ must be mechanically protected with a folding box if the discharge pipe is not located in a cap
- When draining the hose, the user must avoid product blasting on the FLEXICOMPT AUTONOME+

Examples of proper stationary installation of the FLEXICOMPT AUTONOME+:

Examples of improper stationary installation of the FLEXICOMPT AUTONOME+:

Improper rotation/longitudinal axis

Improper tilting and rotation/longitudinal axis

The Alma FLEXICOMPT AUTONOME+ measuring system is a non-interruptible device, so direct sale to the public is prohibited.

NB: the FLEXICOMPT AUTONOME+ must not be used for pumped applications.

2.3 FLEXICOMPT AUTONOME+ Adblue

The FLEXICOMPT AUTONOME+ Adblue must be rinsed with water after use in order to clean it and to ensure it works properly.

3 IGNITION AND OPERATION

The FLEXICOMPT AUTONOME+ measuring system operates with an empty hose. The operator connects it to the API adaptor and then connects the hose to the FLEXICOMPT AUTONOME+ outlet.

The operating procedure is as follows:

⇨ After having reset the indicator to 0 (BP1 RAZ), the operator opens the tank valve. The metering starts as soon as the UNI indicator – calculator device records impulses coming from the turbine. The metered volume is continually displayed on the UNI indicator-calculator device.

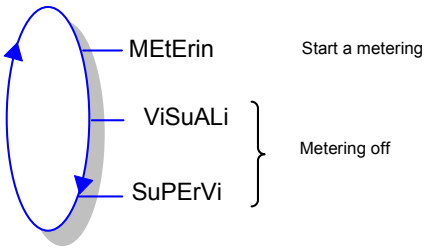
⇨ For partial emptying:

The operator stops metering by closing the tank valve. The metering stops when the UNI indicator-calculator device notes that both gas detectors are wet and flow rate is to zero.

⇨ For complete emptying:

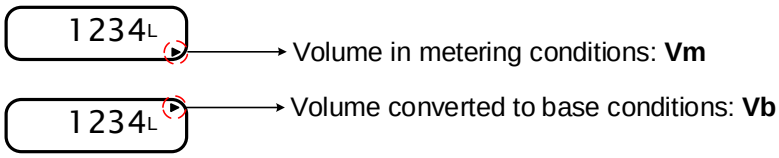
The operating procedure is identical to the partial emptying procedure but there is no voluntary action on the tank valve.

4 USER MODE



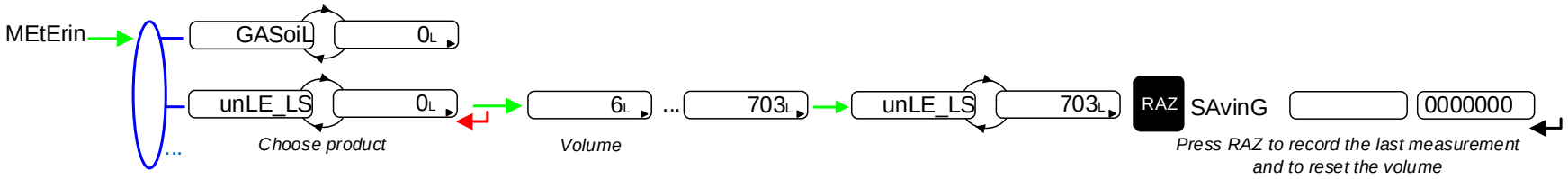
The UNI metering can be either ON or OFF. Metering is ON between the first command level after initialisation or resetting the current volume to zero, and resetting the current volume to zero.

The displayed quantity depends on the configuration set in METROLOGICAL mode. The arrow-pictogram located on the right hand of the display screen is used to point out Vm or Vb such as shown below:



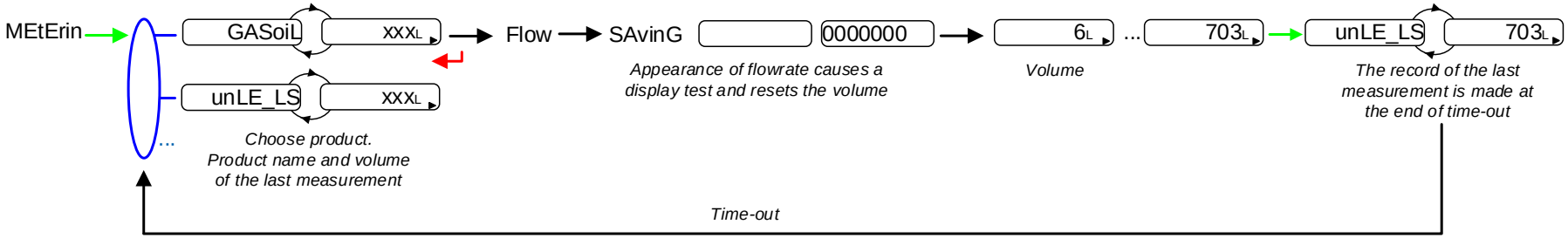
4.1 Menu METERING – MEtErin

If data recording is not automatic, press RAZ at the end of measurement. The last measurement data is then recorded and the volume is set to zero.



If data recording is automatic, the time required at the end of measurement before recording must be set in METROLOGICAL mode (menu 'Aut SAV').

At the beginning of measurement, appearance of flowrate causes a display test and resets the volume to zero. The last measurement data is recorded at the end of measurement at zero flow and when the time-out is up.



4.1.1 Visualisation of values during delivery

Use BP3 to display flow rate and temperature during measuring (flow>0). Press:

- One time for flow rate,
- Two times for temperature.

Display returns automatically to the current volume within 5 seconds.

4.1.2 Data recording and volume reset

Data recording and volume reset depend on the configuration of the calculator:

- Manual recording sequence: volume reset and recording of the last measurement data are triggered by pressing RAZ at zero flow conditions
- Automatic recording sequence: the appearance of flowrate resets the volume to zero. Withdrawal of flowrate causes recording of the last measurement data at zero flow conditions.

4.1.3 Transfer the measurement results to a computer – option

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

The ‘CTD+’ option allows to transferring parameters and measurements results to the key. Then, data may be downloaded from the key to a PC through USB cable.

The transfer of the measurement results of the N last days is possible when flow rate is zero. N has to be set in SUPERVISOR menu

Refer to the maintenance sheet FM 8012 about transferring the measurement results of the UNI indicator device to a computer.

4.1.4 Printing of the parameters and the measurement results – option

Parameters and measurement results can be printed if the FLEXICOMPT AUTONOME+ is equipped with the ‘Transfer Key CTD+’ option and the printer kit. Refer to the Operating manual for printer.

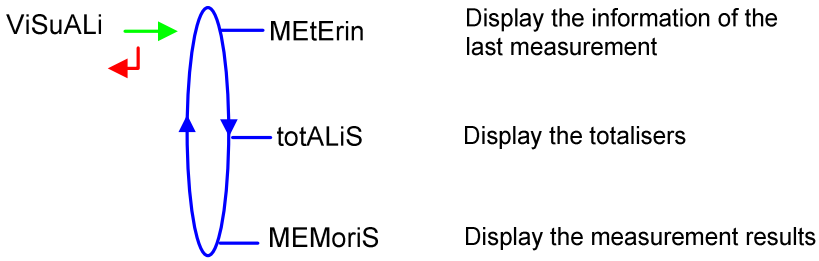
4.2 Menu VISUALISATION – ViSuALi

The operator can access various menus and sub-menus by using:

BP3 Select the menu,

BP2 Validate the displayed menu or value

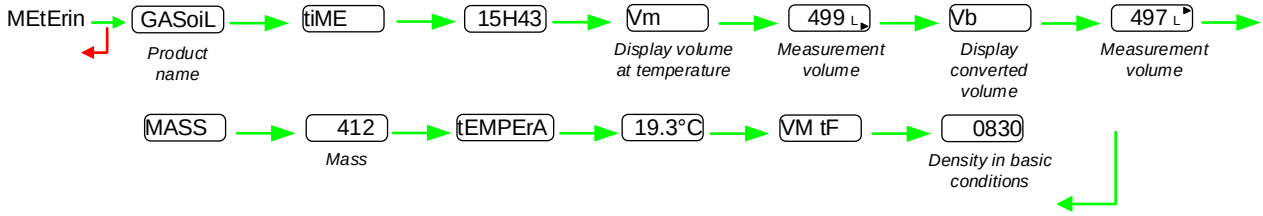
BP4 Return to the previous menu.



If the values are preceded by this display '-------'; it means they are no longer guaranteed.

4.2.1 Sub-menu METERING – MEtErin

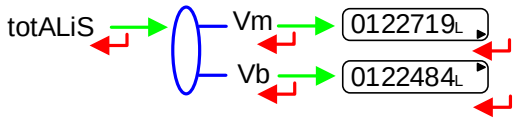
This menu displays the information of the last measurement. Information displayed depends on the calculator configuration.



4.2.2 Sub-menu TOTALISER – totALiS

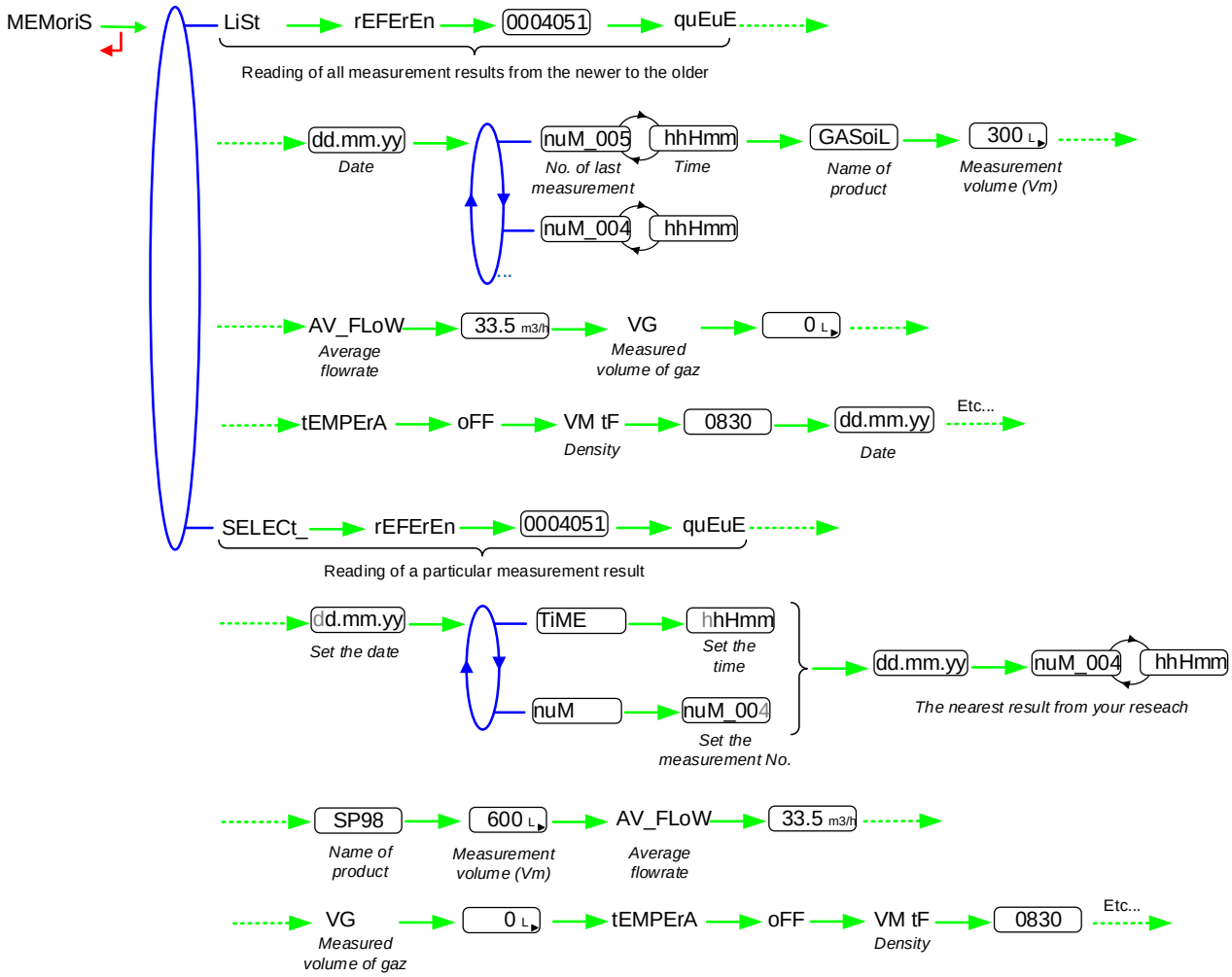
This menu displays:

- The totaliser of volume in metering conditions (Vm)
- The totaliser of volume converted to base conditions (Vb) if the temperature option is activated.



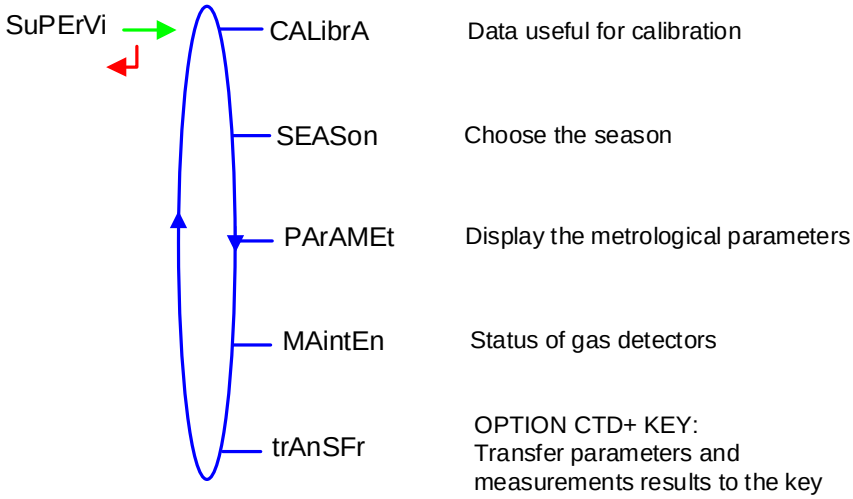
4.2.3 Sub-menu MEMORISATION – MEMoriS

This menu displays the measurements results. Information displayed depends on the calculator configuration. Temperature, converted volume (Vb), and mass are only displayed if the temperature option is activated.



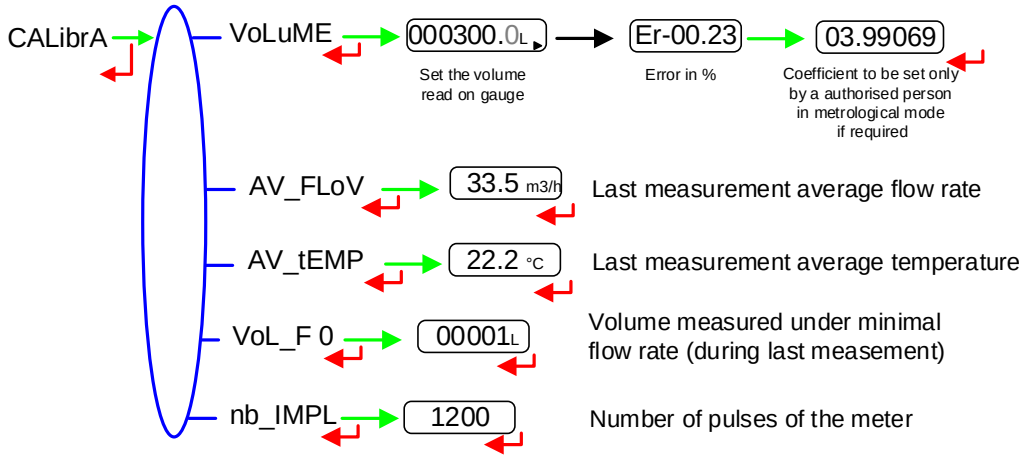
The measured gas volume VG is displayed for information only, it has no metrological value.

4.3 Menu SUPERVISOR – SuPErVi



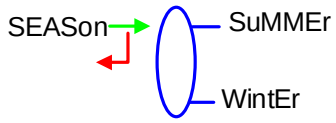
4.3.1 Sub-menu CALIBRATION – CALibrA

Check the measuring system accuracy during the calibration with a gauge. Data of the last measurement are available.



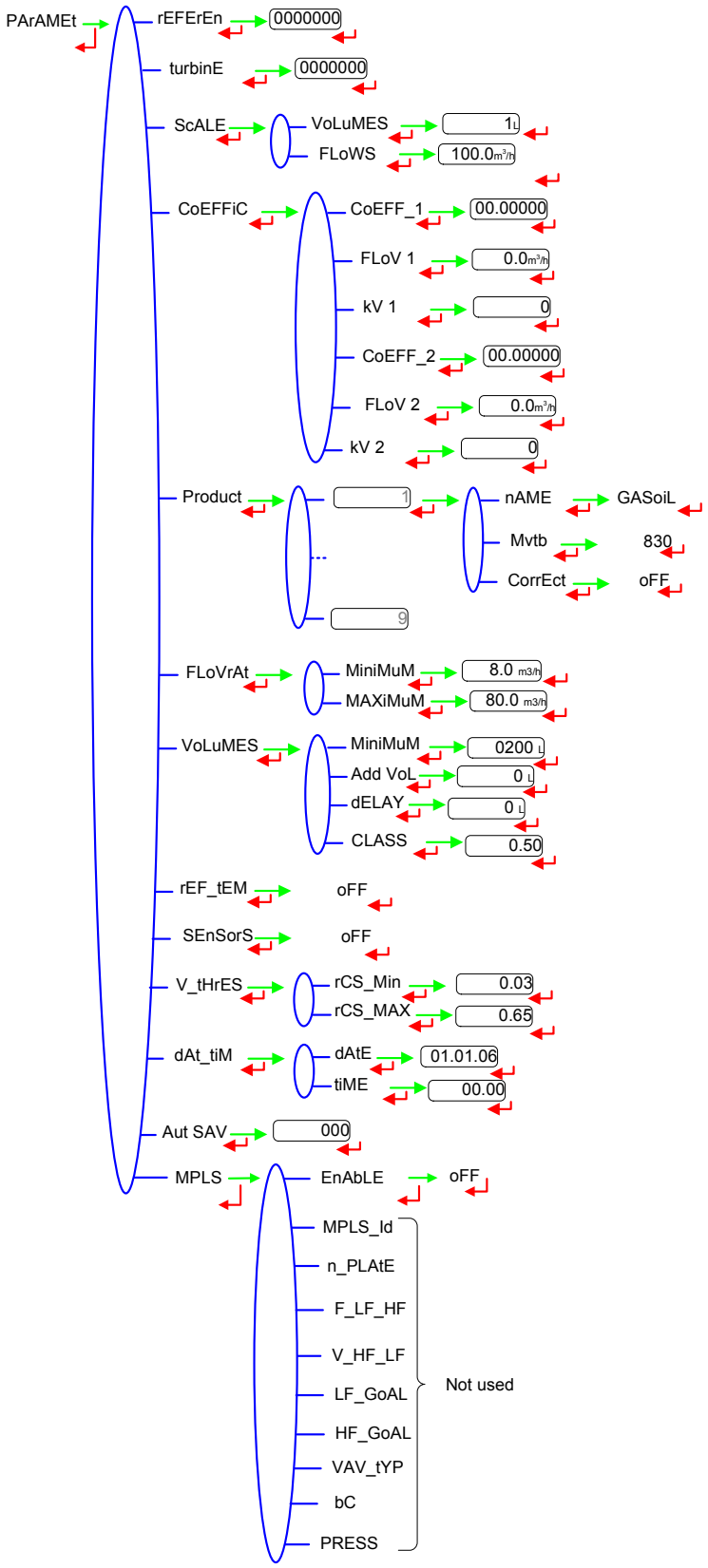
4.3.2 Sub-menu SEASON – SEASon

Season is set in METROLOGICAL mode. This menu is used to change from summer to winter time (and back again).



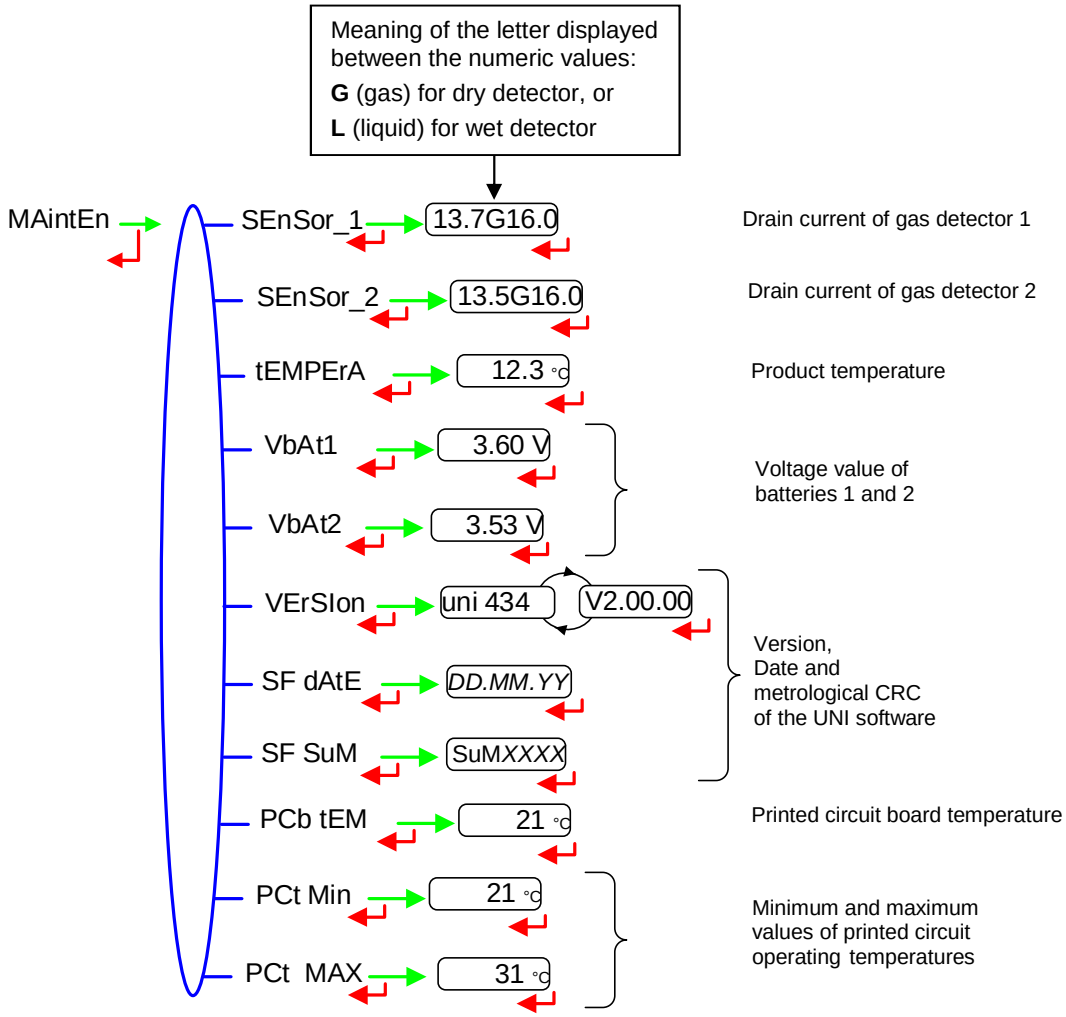
4.3.3 Sub-menu PARAMETERS – PArAMEt

This menu displays the parameters set in METROLOGICAL mode.



4.3.4 Sub-menu MAINTENANCE – MAintEn

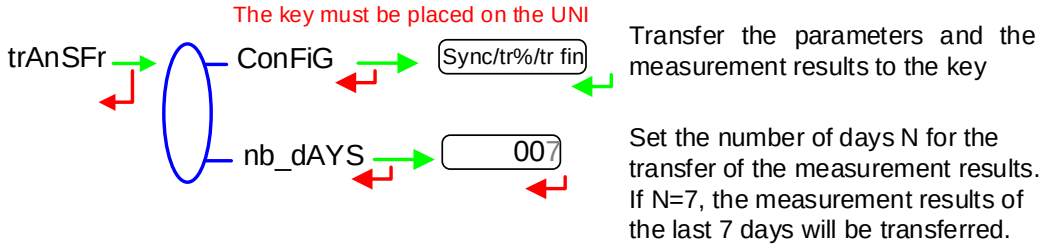
This menu displays the drain current (mA) of the gas detectors and the reference current set in METROLOGICAL mode, as well as the product temperature.



4.3.5 Sub-menu TRANSFERT – trAnSFr

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

This sub-menu is available with the 'Transfer Key CTD+' option. It is used to transfer to the key the parameters set in METROLOGICAL mode and the measurement results and to download it to a PC. The file format is '.csv'. Refer to the maintenance sheet FM 8012.



NOTE: Do not plug the USB cable during data transfer

4.4 List of alarms

Should a fault occur, the UNI displays the word "ALArM" and the fault title on the display (using some or all of the seven digits) followed by the displayed value. The operator acknowledges the fault by pressing down BP2 (even when pouring). Apart from battery related faults, persistent faults cannot be acknowledged.

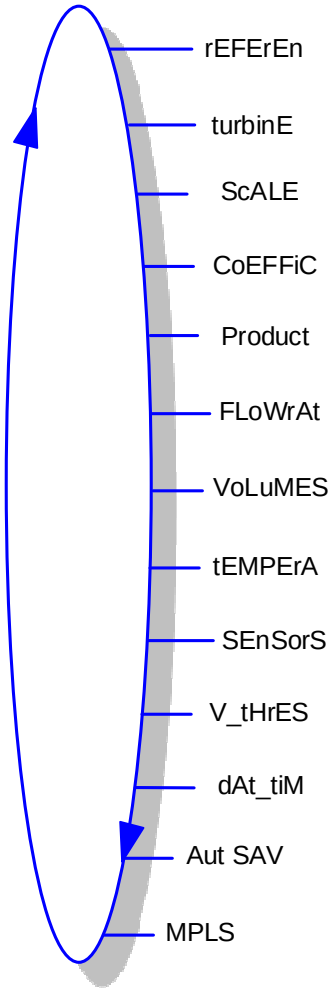
Once the fault is acknowledged, the selected value is displayed alternately with "-------" to indicate that the measured values are no longer guaranteed.

	DISPLAY	MEANING	ACTION
USER	oVErFLo	Volume greater than 4 194 304 liters	Reset the device
	LoW_FLo	Flow rate less than the setting minimal flow rate	Check the hydraulic configuration and the flowing
	SEnSor1	High gas detector fault (GDh)	Use the maintenance menu to check the status of the detector
	SEnSor2	Low gas detector fault (GDl)	Use the maintenance menu to check the status of the detector
REPARATOR	FLoV_	Flow setting fault	Check the parameters
	FrEQ_	Frequency fault	Check the parameters
	COEFF_	Difference between two coefficients is greater than 0,5%	Check the coefficients setup
	MEtEr	Problem of metering with the meter	Check the setup
	HiGH_FL	Flow rate greater than the setting maximal flowrate	Check the setup
	dAtE	Loss of date and time	Set date and time in metrological mode
	GAS	GDh is wet but GDl is dry	Check the hydraulic configuration / Check the detector status
	bobinE	Loss of pulse transmitter signal	Check the connection with the pulse transmitter
	tEMPErA	Temperature less than -20°C or greater than 50°C	Check the temperature sensor (measure and calibration)
	diSPLAY	LCD display fault	If steady alarm, substitution of the UNI
	doG	Fault with card	If steady alarm, substitution of the UNI
	ProGrAM	Error on the checksum of the metrological data	If steady alarm, substitution of the UNI
	rAM	Saved memory fault	If steady alarm, substitution of the UNI
	MEMoriS	Bad writting into the memory	If steady alarm, substitution of the UNI
	FuLL	SIM memory full	If steady alarm, substitution of the UNI
	MEtro_	Configuration loss	If steady alarm, substitution of the UNI
	bAttErY	Low battery	Substitution of the batteries
	totAL_	Totaliser fault	If steady alarm, substitution of the UNI
	dEF_MEM	Loss of backup data concerning the last measurement	If steady alarm, substitution of the UNI

5 METROLOGICAL MODE

IMPORTANT

Setup should be done under cover, metering off, with dry gas detectors (see § 5.9).



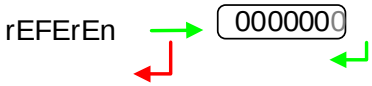
The configuration parameters can only be modified after the processor configuration switch on the electronic card has been switched over. Only authorized personnel can modify these parameters.

Exit the METROLOGICAL mode thanks to the switch; the device is then reset.

The option to display the volume in metering conditions (Vm) or the volume converted to base conditions (Vb) is made in METROLOGICAL mode when the temperature menu is activated.

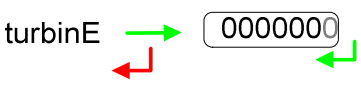
5.1 Menu REFERENCE – rEFErEn

Set the serial number of the electronic calculator-indicator UNI.



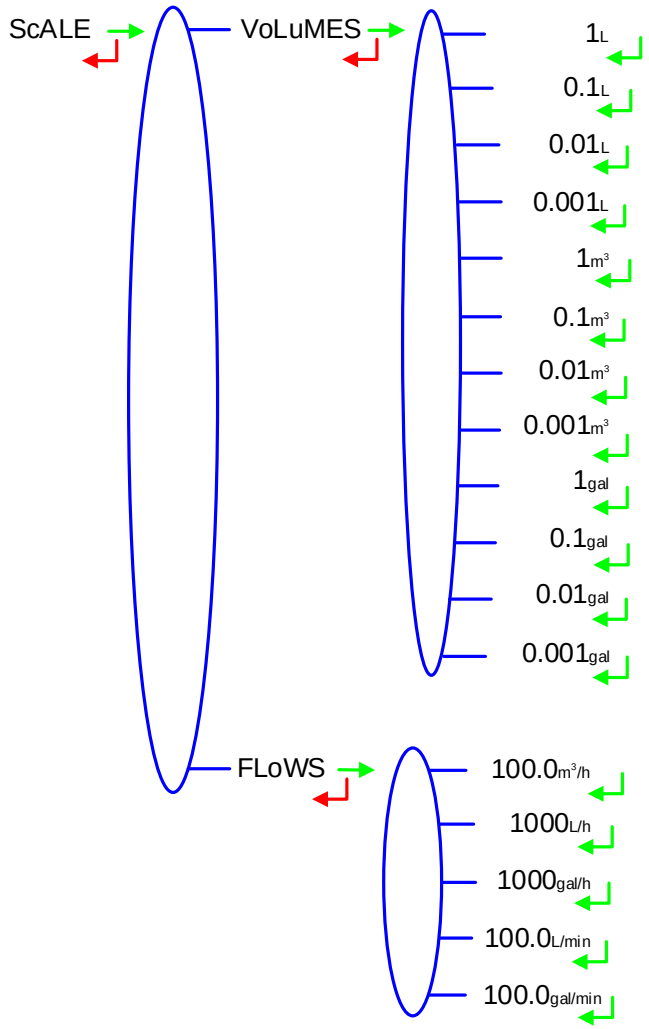
5.2 Menu TURBINE – turbinE

Set the serial number of the turbine meter.

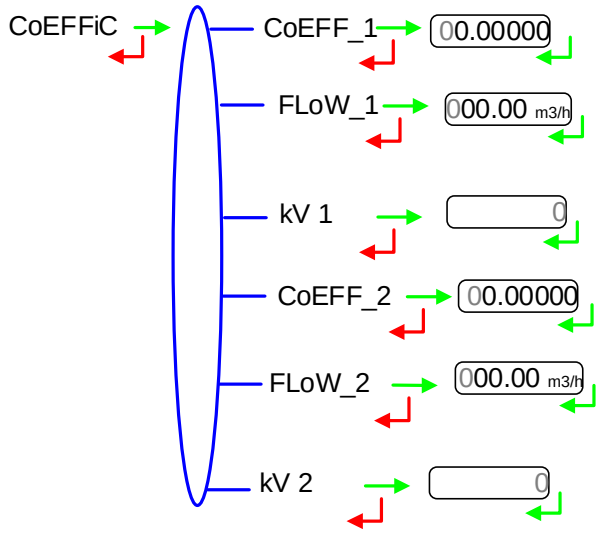


5.3 Menu SCALE – ScALE

Choose the unit and accuracy for volume and flowrate.



5.4 Menu COEFFICIENT – CoEFFiC



Meter coefficient for low flowrate
Expressed in pulses per liter.

Flowrate corresponding to COEFF_1.
Unit depends on the choice made for the accuracy.

Correction coefficient (‰) at 'FLoW_1' for low viscosity products

Meter coefficient for high flowrate
Expressed in pulses per liter.

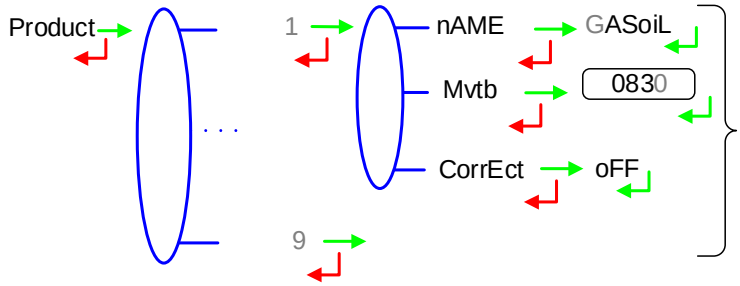
Flowrate corresponding to COEFF_2
Unit depends on the choice made for the accuracy.

Correction coefficient (‰) at 'FLoW_2' for low viscosity products

When parameters FLoW_1 and FLoW_2 are set to zero, parameters CoEFF_2 and kV 2 are not applied.

5.5 Menu PRODUCTS – Product

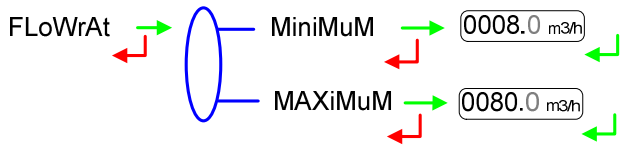
Definition of products.



Definition of products (from 1 to 9):
- Name
- Density in kg/m^3 in base conditions. Set '0000' to remove the product from the list displayed in USER mode
- Correction display:
  If Mvtb ≤ 750, CorrEct='on'
  otherwise, CorrEct='oFF'

Names and MVTB at 15°C displayed are default values.

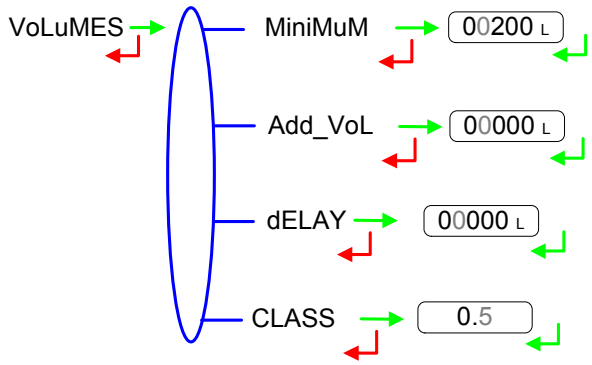
5.6 Menu FLOWRATES – FLoWrAt



Minimum flowrate of the FLEXICOMPT AUTONOME+
Unit depends on the choice made for the accuracy.

Maximum flowrate of the FLEXICOMPT AUTONOME+
Unit depends on the choice made for the accuracy.

5.7 Menu VOLUMES – VoLuMES



Minimum quantity to garanty the measurement
Unit depends on the choice made for the accuracy.

Set the end of metering volume in liters.
Unit depends on the choice made for the accuracy.

Set the delay for the additional volume (GDI dry).
Unit depends on the choice made for the accuracy.

Accuracy class of the FLEXICOMPT AUTONOME+: 0.5

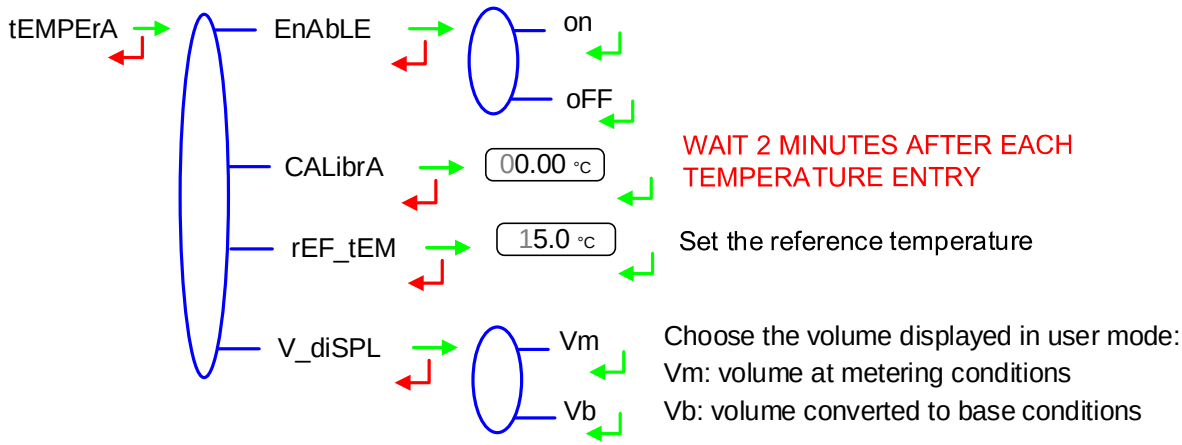
5.8 Menu TEMPERATURE – tEMPErA

The temperature calibration can be done either on two measuring points or on a single measuring point (menu CALibrA).

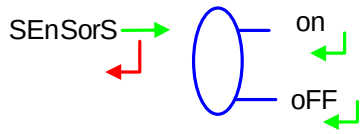
- Two temperature measuring points:

  The measure must be done outside the range -20 to +50°C. Adjust the PT100 simulator to a value<-20°C, wait for 15 seconds before setting the temperature into the calculator. Then do the same for a value>+50°C.
- Single temperature measuring point:

  The measure must be done in the range -20 to +50°C.



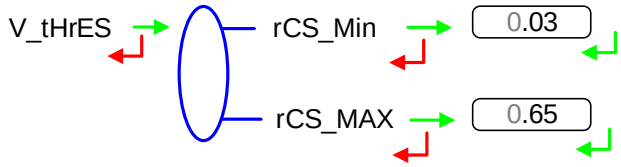
5.9 Menu GAS SENSORS – SEnSorS



Both gas sensors are connected to the UNI device.
BEFORE VALIDATION:
Check that gas detectors are CONNECTED and DRY

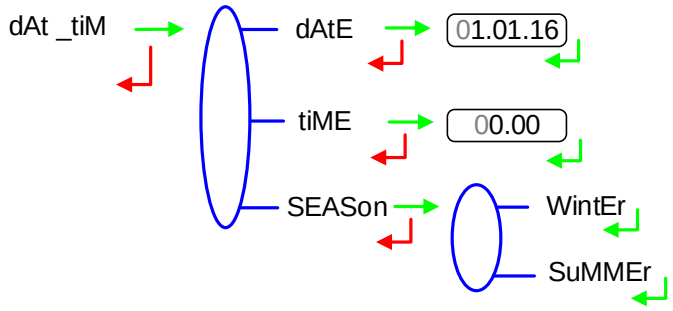
5.10 Menu THRESHOLDS – V_tHrES

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



5.11 Menu DATE AND TIME – dAt_tiM

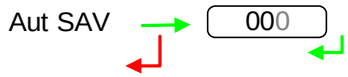
This menu is used to set date and time of the day and select the season. The menu SuPErVi>SEASon of USER mode can also be used to change from summer to winter time (and back again).



When you validate the season, ‘dEL yES’ then ‘dEL Ok’ appear to indicate that the measurement results have been deleted from flash memory.

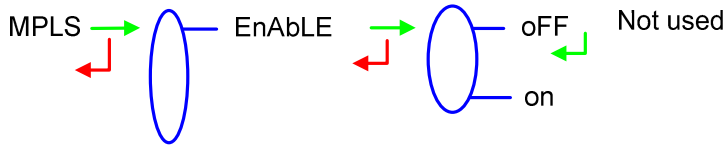
5.12 Menu AUTOMATIC RECORDING – Aut SAV

Set the time required at the end of measurement before automatic recording of the measurement data (in seconds). A value other than zero disables the RAZ key. Manual reset is no more possible.



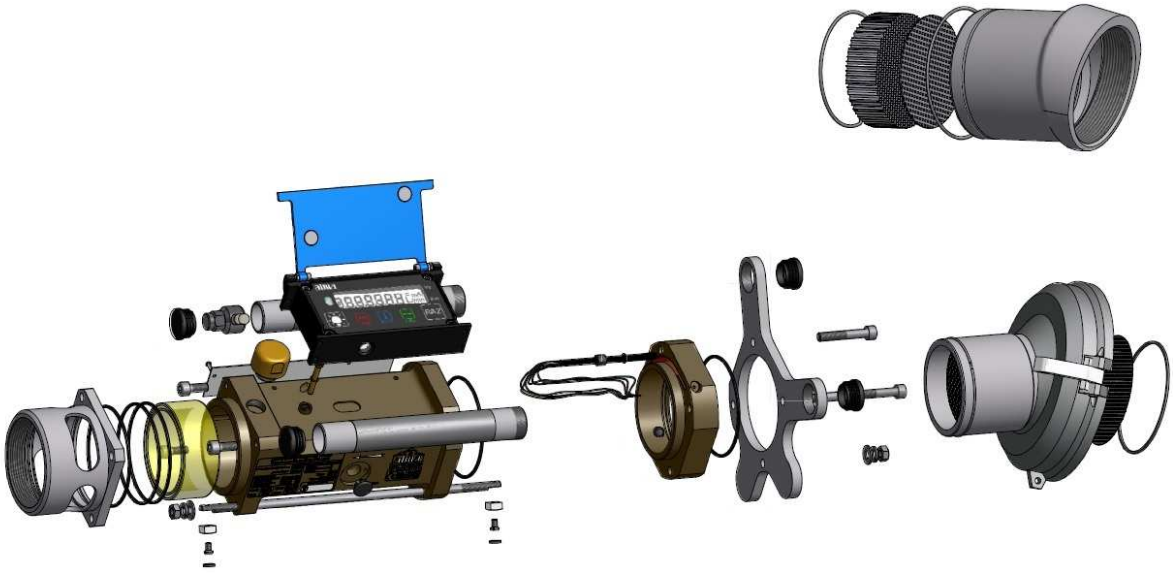
5.13 Menu MPLS – MPLS

This menu must not be activated.



6 MAINTENANCE

Any intervention with broken seals must be carried out by authorised personnel and under the control of the competent authorities or of one of its representatives.



6.1 UNI indicator-calculator device

It is made of a box with an intrinsic safety electronic board set by 4 CHC screws (diameter of 4 mm) on the body of the turbine meter. An o-ring is the seal between the casing and the turbine meter. Make sure that it is in its groove and well lubricated before tightening the screws.

Apart from metering calibration operations, there is no adjustment or specific preventive maintenance. Refer to Maintenance sheet FM 8509 for adjustment of temperature in the UNI indicator device.

6.1.1 Replacement of batteries

The UNI device is powered by 2 batteries that must be changed during each regulatory control or when voltage is under 3.2V. The display "Battery" indicates that they have to be changed. It must be done in a non-explosive area. The verification seals have to be broken by authorised personnel only. Refer to Maintenance sheet FM 8009 for replacement of the batteries.

6.1.2 Modification of the setting parameters

The modification of the setting parameters is made after entering the METROLOGICAL mode with the red switch on the electronic board.

Only authorized personnel can change the parameters.

Any other operation must be done by authorized personnel as it could affect the metrological nature of the FLEXICOMPT AUTONOME+.

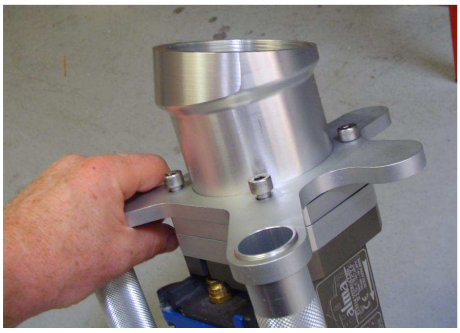
6.2 Hydraulic sleeve

The downstream and upstream sleeves allow the setting of suitable fittings (4” coupler, ½ snap coupling, etc.).

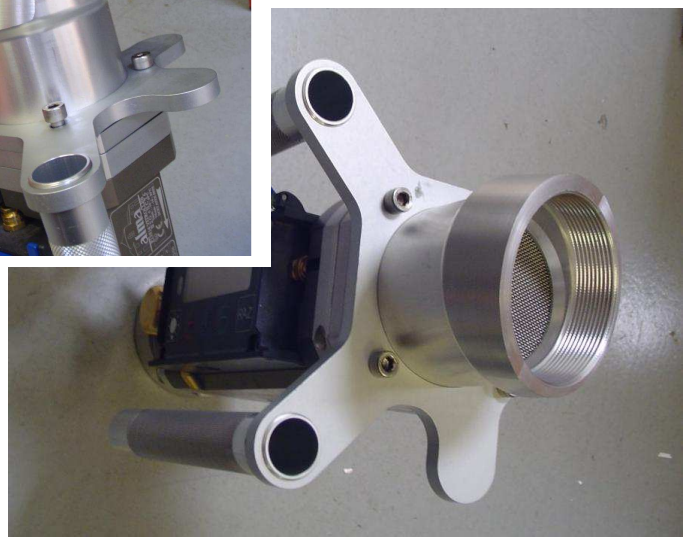
These sleeves are fastened with 4 screws on the turbine meter and can be removed to check the status of the turbine.

- Position the upstream coupling so that in use the downstream coupling is in the lowest position than the upstream coupling
- Position the upstream coupling as laid down the drawing and the pictures below
- Ensure a good sealing
- Check that the straining sieve and honeycombs are clean (at the entrance of the turbine and after the sieve)
- To ensure electrical continuity, the upstream and downstream couplings of the FLEXICOMPT AUTONOME+ must be sealed with conductor such as Loctite 577.

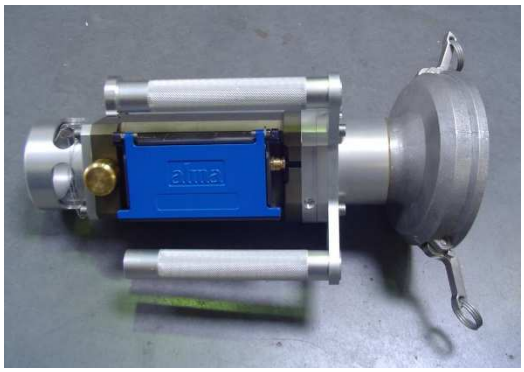
Any other operation must be done by authorized personnel as it could affect the metrological nature of the FLEXICOMPT AUTONOME+.



Positioning upstream bent sleeve



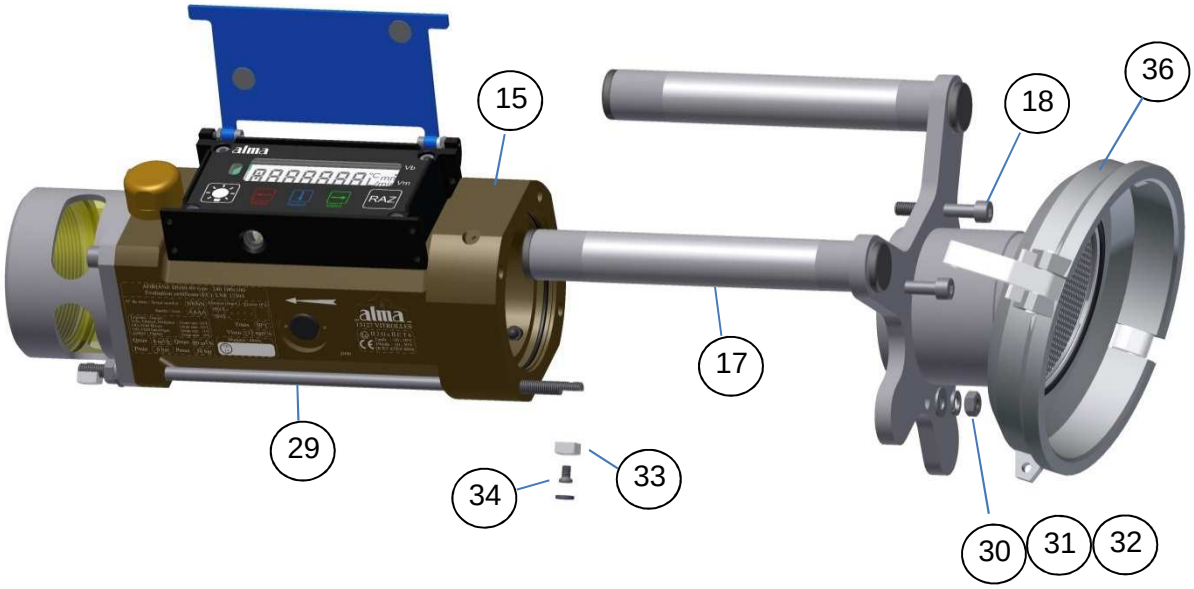
Positioning the API coupler



6.3 2DG-spacer

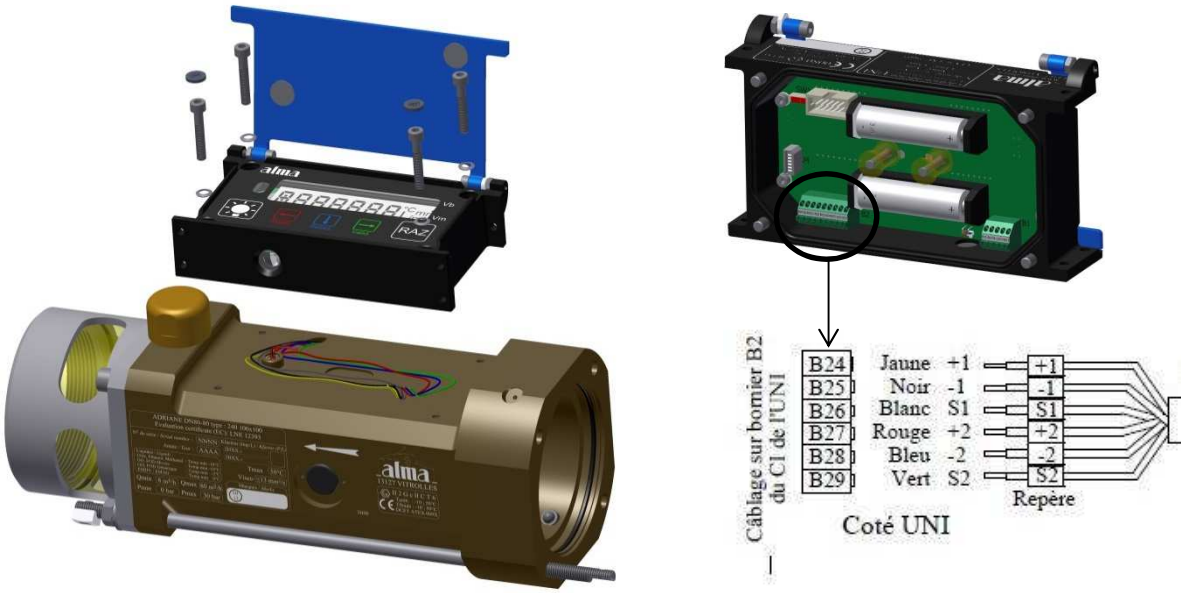
6.3.1 Removing the upstream coupling

- Remove the seal* from the upstream end of the threaded rod (29)
- Unscrew the screw (34) and remove the lead seal cup (33)
- Unscrew the nut (30) from the threaded rod (29) and remove the washers (31) and (32)
- Unscrew the 3 screws (18)
- Remove from the 2DG-spacer (15) the API coupler set (36) with handle seat and handles (17)



6.3.2 Removing the 2DG-spacer from the UNI

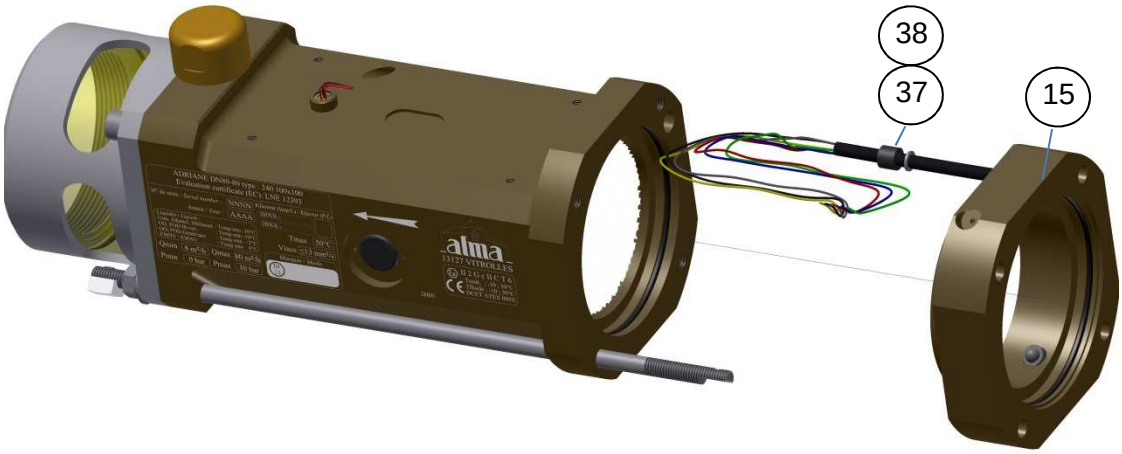
- Remove the 2 seals* from the screws of the calculator-indicating device UNI
- Unscrew the 4 CHC screws of the UNI
- Carefully lift up the UNI to find the terminal block B2. Wires are long enough to put the UNI near the FLEXICOMPT AUTONOME+
- Remove both batteries
- Unplug the 6 wires of the 2DG-spacer from the terminal block B2 (see *Picture A*)



Picture A

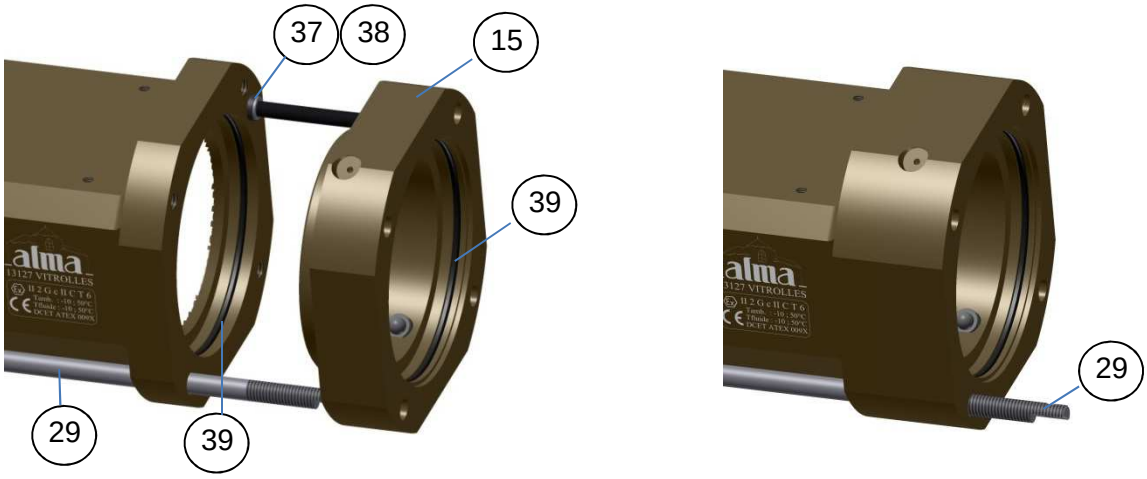
6.3.3 Removing the 2DG-spacer from the turbine

- Remove the 2DG-spacer (15) from the turbine body
- Keep by your side the ring (37) and the washer (38) of the 2DG-spacer cable



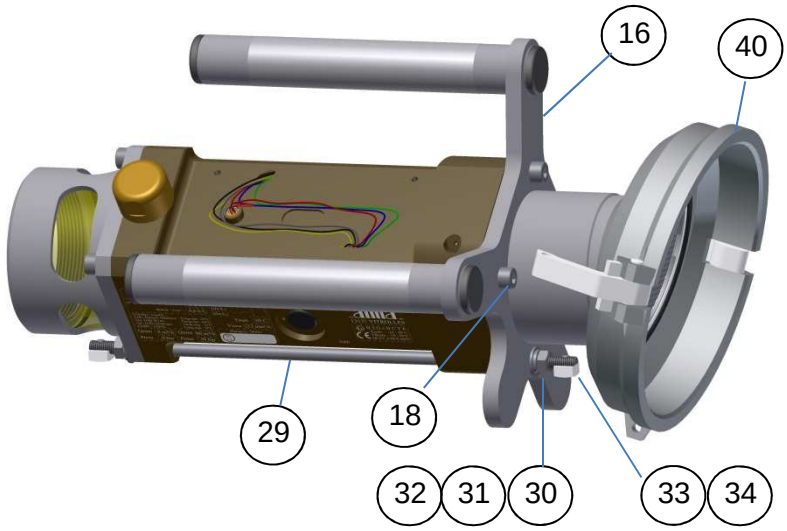
6.3.4 Setting of the new 2DG-spacer

- Grease the rings (39) of the turbine body and the 2DG-spacer (translucent grease for food contact)
- Put back the washer (38) and the ring (37) on the cable of the new 2DG-spacer
- Pass the 6 wires and then the cable through the wires pass through of the turbine body
- Put the grain (37) in its place on the turbine body and press the washer (38) against the grain (37)
- Put the spacer on the input of the turbine body so that the cable faces the wires pass through and that the threaded rod (29) goes through the 2DG-spacer



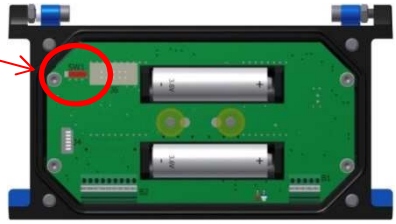
6.3.5 Assembling the upstream coupling

- Put the upstream coupling (40) with the handle seat (16) on the 2DG-spacer
- Position the upstream coupling (40) so that in use the downstream coupling is in the lowest position than the upstream coupling
- Screw the 3 screws (18). They must be lubricated with Molybdene grease
- Put the washers (31) and (32) on the threaded rod (29) and screw the nut (30)
- Put the lead seal cup (33) and the screw (34) on the threaded rod (29)
- Seal the lead seal cup* (if necessary)



6.3.6 Wiring and operational chek of the DG in the UNI

- Check there's no battery
- Plug on the UNI the 6 wires of the 2DG-spacer according to *Picture A*
- Put the batteries (respect polarization)
- Put the UNI red switch SW1 in METROLOGICAL mode position
- Enter the menu SENSORS→ON
- Make sure both sensors are dry before validation
- Switch back SW1 to exit METROLOGICAL mode



6.3.7 Assembling the UNI on the FLEXICOMPT AUTONOME+

- Check the O-ring is properly positioned in its groove, grease it if necessary (translucent grease for food contact)
- Put the UNI (with the silica gel dehydrating packet) on the FLEXICOMPT AUTONOME+ body
- Make sure there's no wire between the UNI box and the FLEXICOMPT AUTONOME+ body
- Screw the 4 CHC screws of the UNI equipped with SCHNORR washers. Screws must be lubricated with Molybdene grease
- Seal* both screws of the calculator-indicating device UNI (if necessary)

All these operations must be carried out by authorised personnel and under the control of the competent authorities. Refer to the certificate of the measuring instrument and the regulations in force.

6.4 Transfer key CTD+

Remove the battery in a non-explosive area. The key must not be plugged.

The level of the key battery is indicated in the parameters file (file P0000123). It can be read out, even if the battery is worn, by following the procedure of transfer of the data on a PC described in see Maintenance sheet FM 8012.

6.4.1 Removing the top cover (on the cable plug side)

- Unplug the cable if necessary
- Unscrew and remove the 4 screws from the top cover
- Remove the holder and the cover
- Remove the sheet on the battery
- If necessary slightly unscrew the screws of the base plate to make the removal of the sheet easier

6.4.2 Replacement of the battery

- Proceed to the substitution of the battery and respect polarization (3.6V type SAFT Lithium battery SAFT LS 14500 C or Lithium battery SONNENSCHEIN SL-760)

6.4.3 Assembling the cover

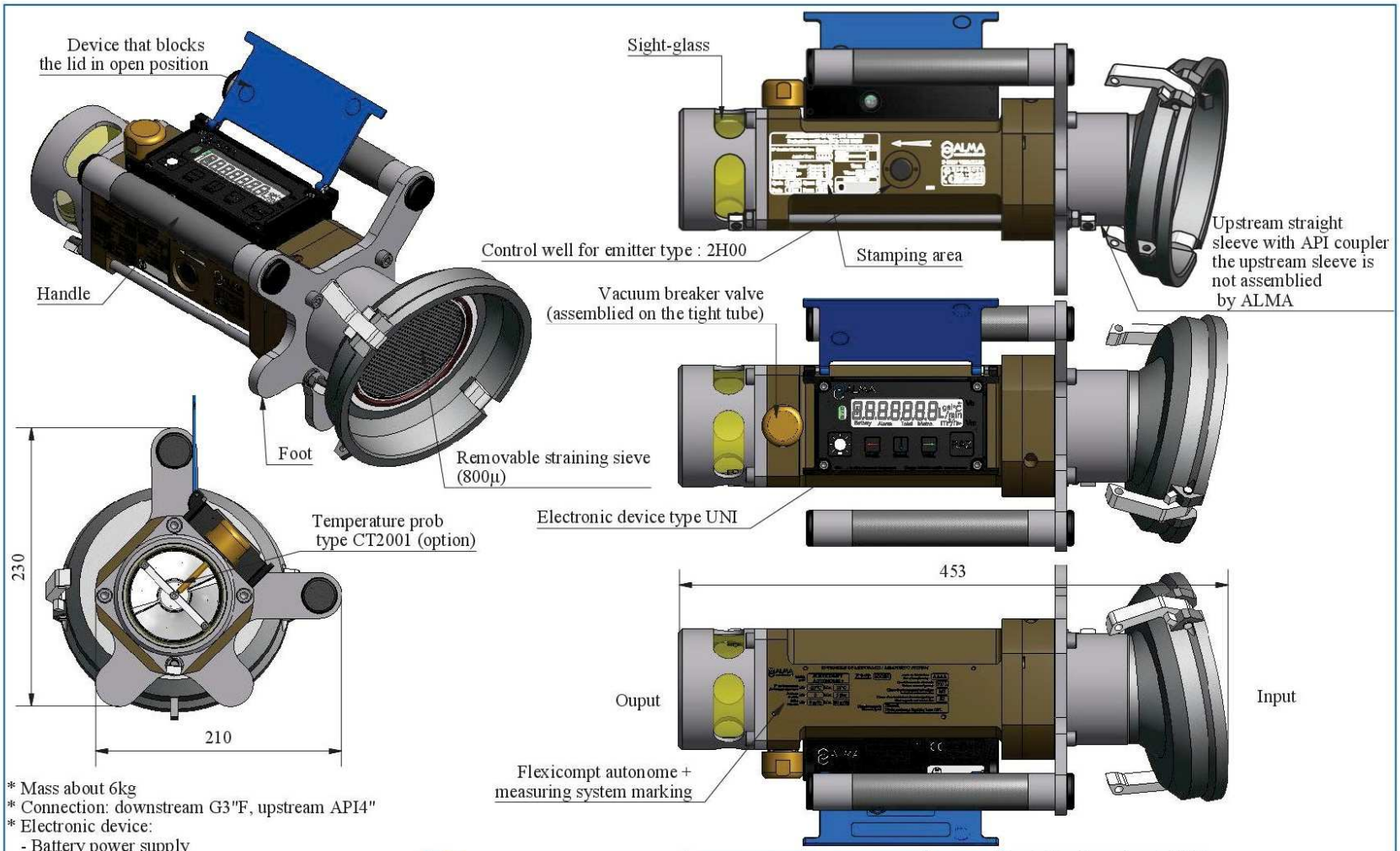
- Put the sheet back on the battery and make sure it‘s well-positioned in the base holder
- Put back the holder and the top cover
- Screw the 4 screws

7 DRAWINGS AND PART LISTS

FLEXICOMPT AUTONOME+ according to drawings PPV077 and part list DFV077 below.
The hydraulic sleeve can be:

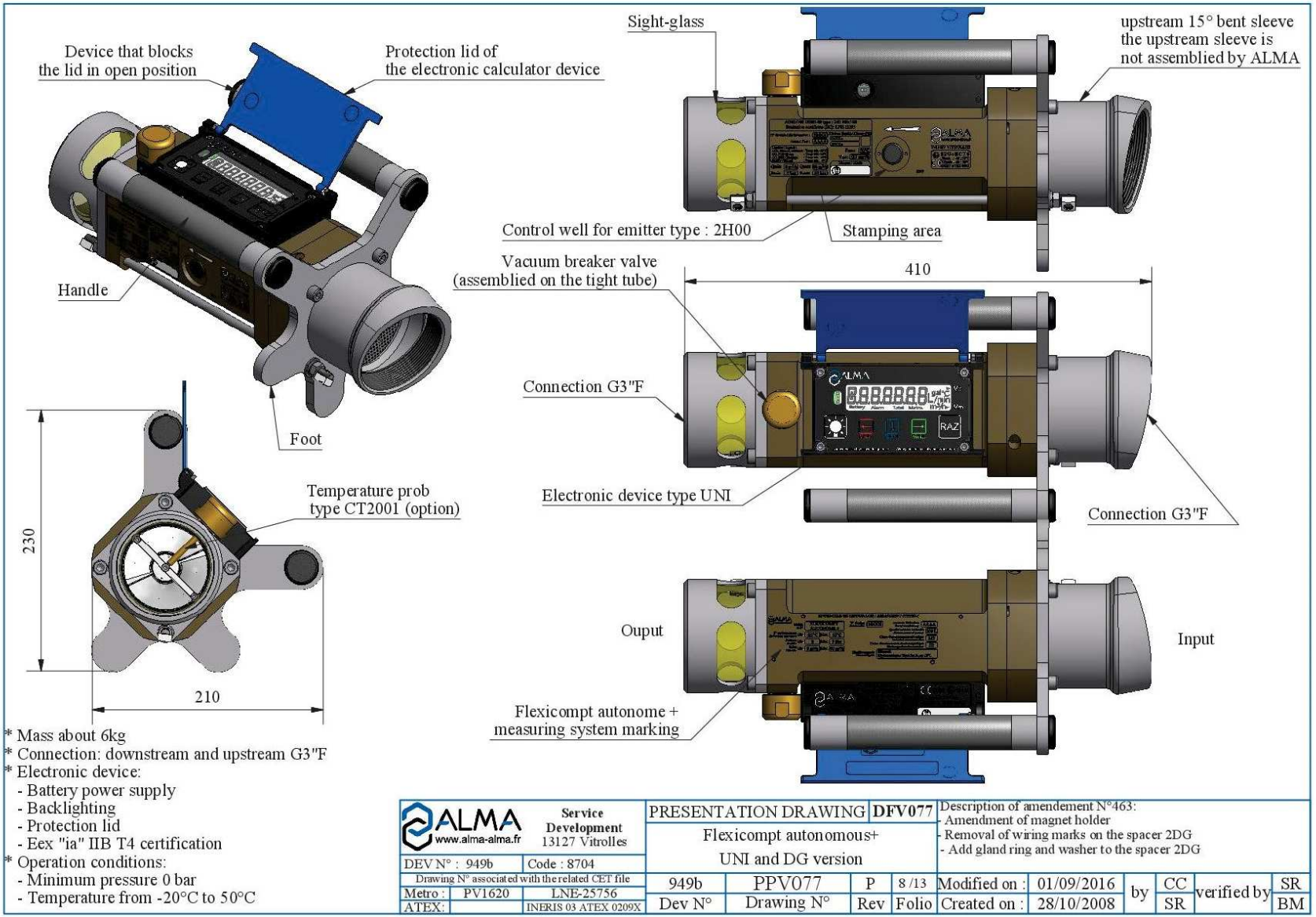
- ⇨ Either upstream straight sleeve with API coupler
- ⇨ Or upstream 15° bent sleeve

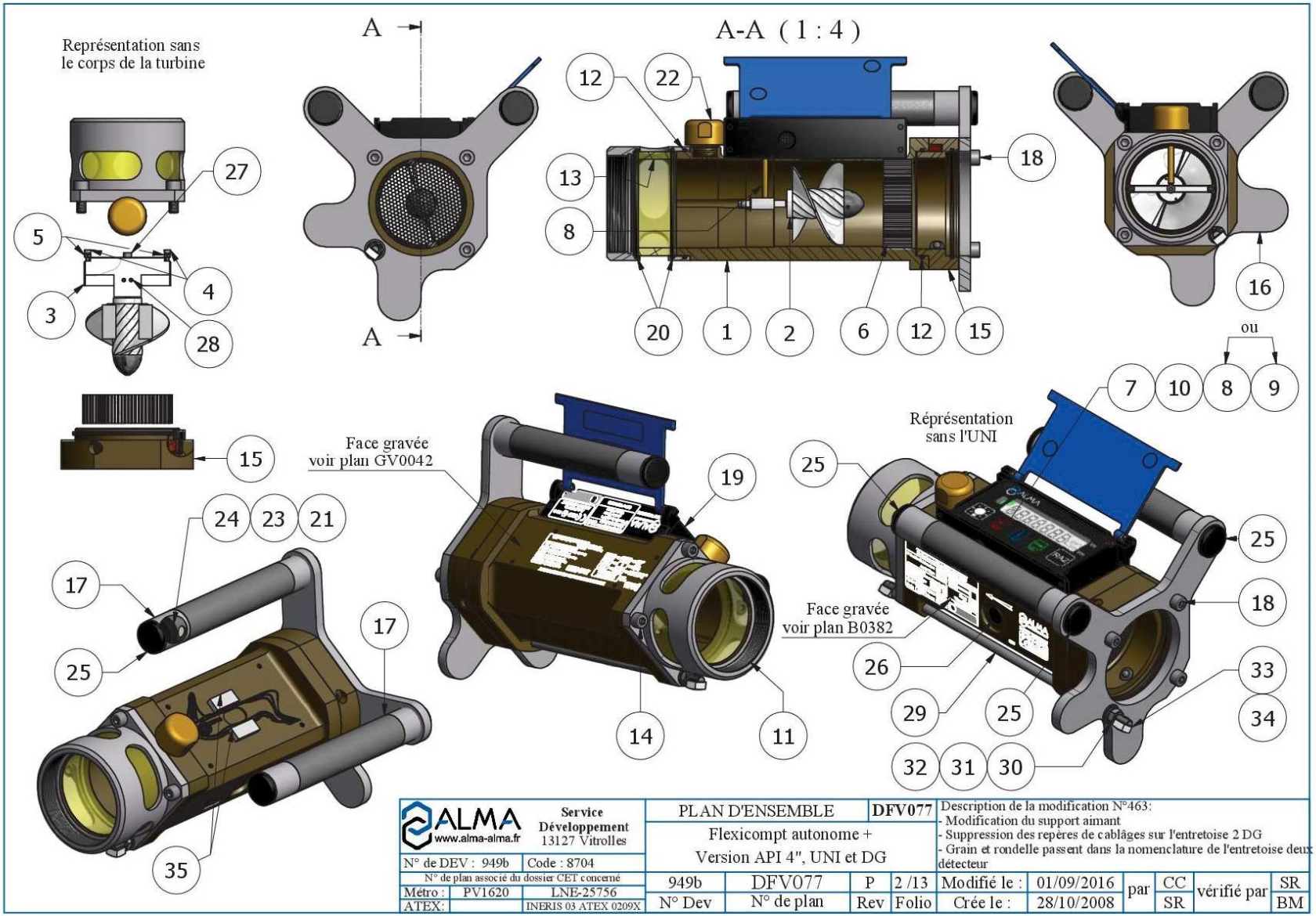
FLEXICOMPT AUTONOME+ ADBLUE according to drawings PPV127 and part list DFV127 below.
The hydraulic sleeve is with an upstream 15° bent sleeve



* Mass about 6kg
* Connection: downstream G3"F, upstream API4"
* Electronic device:
  - Battery power supply
  - Backlighting
  - Protection lid
  - Eex "ia" IIB T4 certification
* Operation conditions:
  - Minimum pressure 0 bar
  - Temperature from -20°C to 50°C

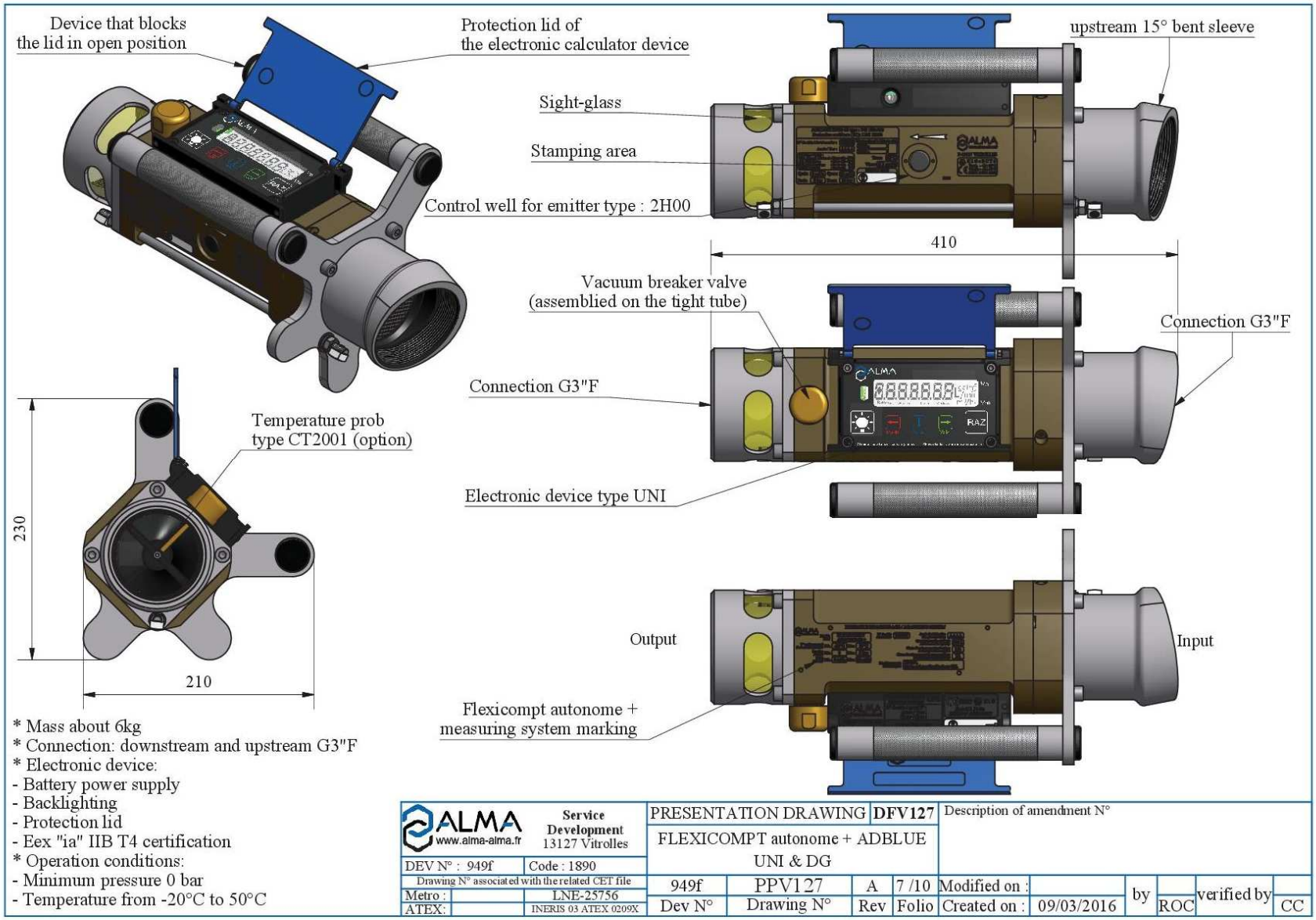
ALMA www.alma-alma.fr	Service Development 13127 Vitrolles	PRESENTATION DRAWING	DFV077			Description of amendement N°463: - Amendment of magnet holder - Removal of wiring marks on the spacer 2DG - Add gland ring and washer to the spacer 2DG						
DEV N° : 949b	Code : 8704	Flexicompt autonomous+ UNI and DG version										
Drawing N° associated with the related CET file		949b	PPV077	P	7 /13	Modified on :	01/09/2016	by	CC	verified by	SR
Metro : PV1620	LNE-25756	Dev N°	Drawing N°	Rev	Folio	Created on :	28/10/2008		SR		BM
ATEX:	INERIS 03 ATEX 0209X										


Device that blocks
the lid in open position
Protection lid of
the electronic calculator device
Handle
Foot
Temperature prob
type CT2001 (option)
230
210
Sight-glass
upstream 15° bent sleeve
the upstream sleeve is
not assemblied by ALMA
Control well for emitter type : 2H00
Stamping area
Vacuum breaker valve
(assemblied on the tight tube)
410
Connection G3"F
Electronic device type UNI
Connection G3"F
Ouput
Input
Flexicompt autonome +
measuring system marking
* Mass about 6kg
* Connection: downstream and upstream G3"F
* Electronic device:
- Battery power supply
- Backlighting
- Protection lid
- Eex "ia" IIB T4 certification
* Operation conditions:
- Minimum pressure 0 bar
- Temperature from -20°C to 50°C
ALMA
www.alma-alma.fr
Service
Development
13127 Vitrolles
DEV N° : 949b
Code : 8704
Drawing N° associated with the related CET file
Metro : PV1620
LNE-25756
ATEX:
INERIS 03 ATEX 0209X
PRESENTATION DRAWING DFV077
Flexicompt autonomous+
UNI and DG version
949b
Dev N°
PPV077
Drawing N°
P
Rev
8 /13
Folio
Description of amendement N°463:
- Amendment of magnet holder
- Removal of wiring marks on the spacer 2DG
- Add gland ring and washer to the spacer 2DG
Modified on : 01/09/2016
by CC
Created on : 28/10/2008
SR
verified by
SR
BM



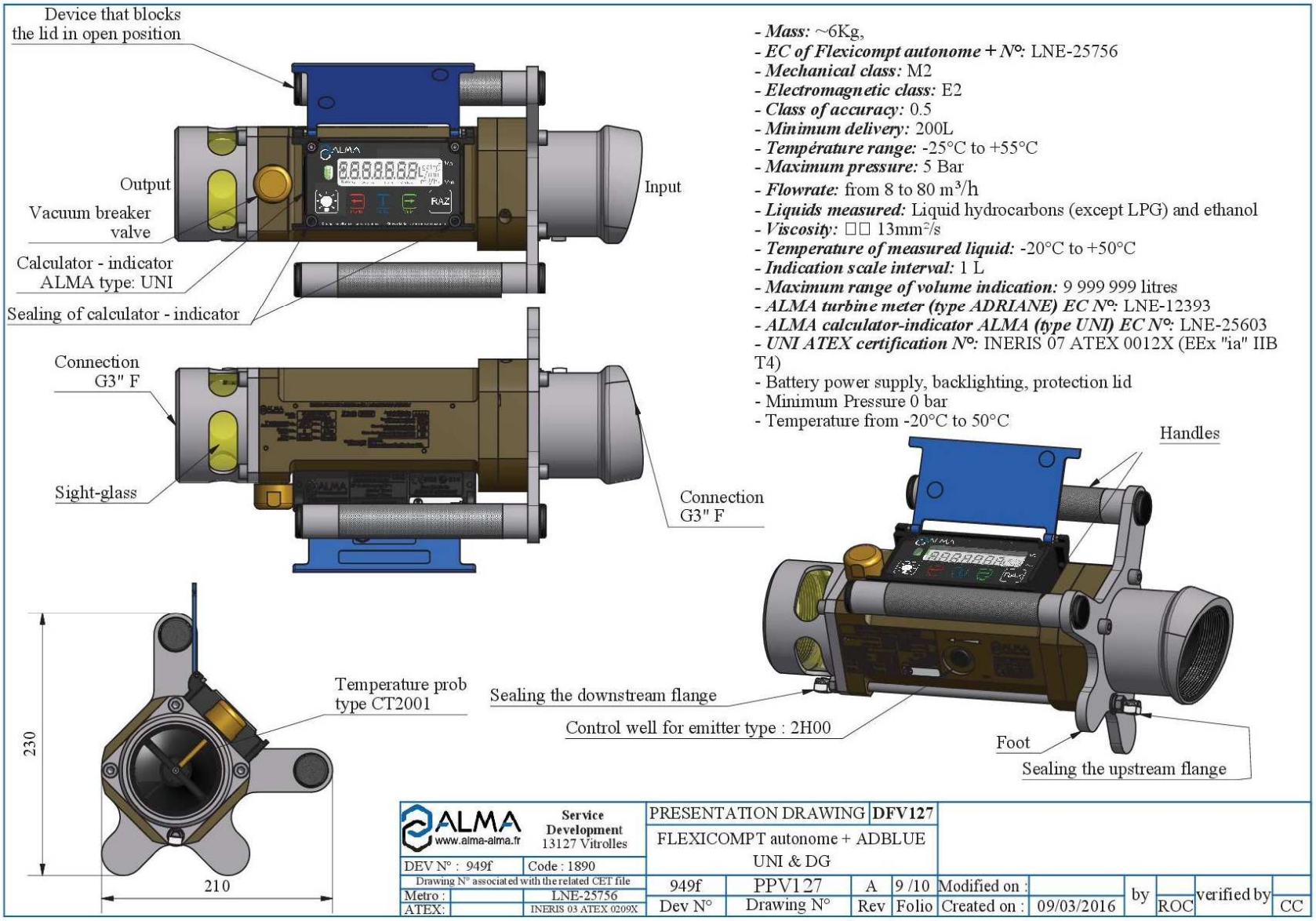
ALMA www.alma-alma.fr	Service Développement 13127 Vitrolles	PLAN D'ENSEMBLE	DFV077	Description de la modification N°463: - Modification du support aimant - Suppression des repères de cablâges sur l'entretoise 2 DG - Grain et rondelle passent dans la nomenclature de l'entretoise deux détecteur								
N° de DEV : 949b	Code : 8704	Flexicompt autonome + Version API 4", UNI et DG										
N° de plan associé du dossier CET concerné		949b	DFV077	P	2 /13	Modifié le :	01/09/2016	par	CC	vérifié par	SR
Métro : PV1620	LNE-25756	N° Dev	N° de plan	Rev	Folio	Crée le :	28/10/2008		SR		BM
ATEX:	INERIS 03 ATEX 0209X										

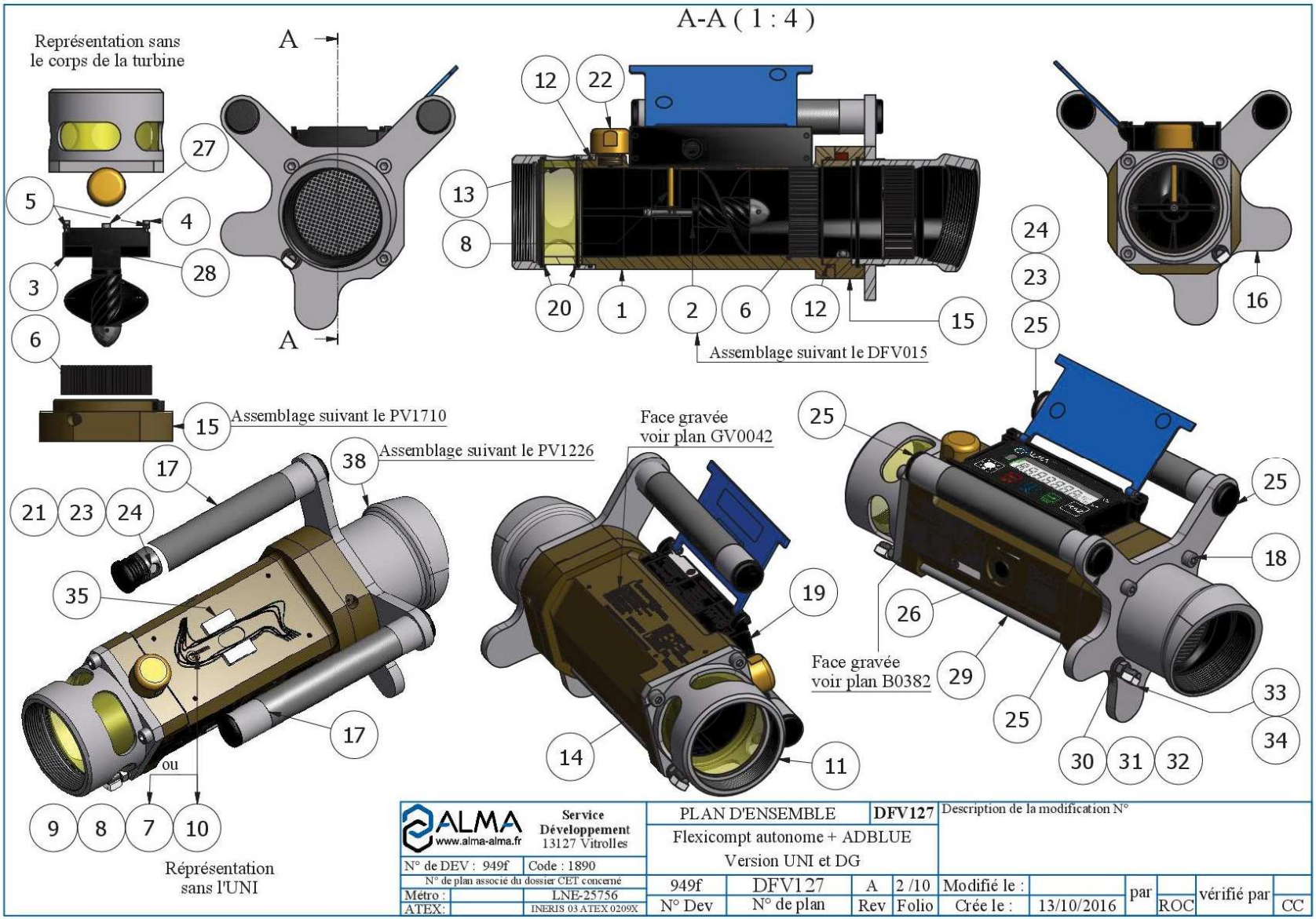
Rep.	Designation
1	FLEXICOMPT+ body: turbine meter ADRIANE DN80-80 machined, anodized and engraved
2	Propeller D=73 version SP, JET, GO, FOD
3	Light alloy axis seat for propeller D=73
4	Screw HCPL M3x12 (ISO 4026)
5	Nut H M3 (ISO 4032)
6	Flow straightener D=78.8, strip 158µ
7	O-ring 5.5x1.2
8	Temperature probe CT2001
9	Plug for temperature probe option D=8
10	Inner retaining ring D=8 steel
11	Downstream sleeve
12	O-ring 92x2.5
13	Plexiglas sight glass, Dext=91.5, Dint=78, L=37.5
14	Screw CHC M8x20 (ISO 4762)
15	2DG-wired-spacer
16	Handle seat
17	Knurled handle D=30, L=210,
18	Screw CHC M8x50 (ISO 4762)
19	Electronic device UNI in box without tap
20	O-ring 91x3
21	O-ring 22.22x2.62
22	ALMA vacuum breaker G1/2"
23	Neodymium magnet N35 D=1, thickness=4
24	Magnet seal
25	Plug for tube D=30 black polyethylene
26	Closing plug D=14
27	Screw CHC M4x16 (ISO 4762)
28	Split spring thick pin 3x6 A (ISO 8752)
29	Sealing threaded rod
30	Nut H M8 (ISO 4032)
31	Washer W M8 (DIN 127)
32	Washer M M8 (NFE 25-514)
33	Brass square lead seal cup 12x12 for M5 pan head screw
34	Screw FS M 5X10 A4 70 for cylindrical lead seal
35	Adhesive foam gasket 15x30 thickness =3.6



* Mass about 6kg
* Connection: downstream and upstream G3"F
* Electronic device:
- Battery power supply
- Backlighting
- Protection lid
- Eex "ia" IIB T4 certification
* Operation conditions:
- Minimum pressure 0 bar
- Temperature from -20°C to 50°C

ALMA www.alma-alma.fr	Service Development 13127 Vitrolles		PRESENTATION DRAWING	DFV127				Description of amendment N°				
			FLEXICOMPT autonome + ADBLUE UNI & DG									
DEV N° : 949f	Code : 1890											
Drawing N° associated with the related CET file			949f	PPV127	A	7 /10	Modified on :		by		verified by	
Metro :		LNE-25756	Dev N°	Drawing N°	Rev	Folio	Created on :	09/03/2016		ROC		CC
ATEX:		INERIS 03 ATEX 0209X										


Device that blocks the lid in open position
Output
Vacuum breaker valve
Calculator - indicator ALMA type: UNI
Sealing of calculator - indicator
Input
Connection G3" F
Sight-glass
Connection G3" F
- Mass: ~6Kg,
- EC of Flexicompt autonome + N°: LNE-25756
- Mechanical class: M2
- Electromagnetic class: E2
- Class of accuracy: 0.5
- Minimum delivery: 200L
- Température range: -25°C to +55°C
- Maximum pressure: 5 Bar
- Flowrate: from 8 to 80 m³/h
- Liquids measured: Liquid hydrocarbons (except LPG) and ethanol
- Viscosity: □□ 13mm²/s
- Temperature of measured liquid: -20°C to +50°C
- Indication scale interval: 1 L
- Maximum range of volume indication: 9 999 999 litres
- ALMA turbine meter (type ADRIANE) EC N°: LNE-12393
- ALMA calculator-indicator ALMA (type UNI) EC N°: LNE-25603
- UNI ATEX certification N°: INERIS 07 ATEX 0012X (EEx "ia" IIB T4)
- Battery power supply, backlighting, protection lid
- Minimum Pressure 0 bar
- Temperature from -20°C to 50°C
Handles
230
210
Temperature prob type CT2001
Sealing the downstream flange
Control well for emitter type : 2H00
Foot
Sealing the upstream flange
ALMA www.alma-alma.fr
Service Development 13127 Vitrolles
PRESENTATION DRAWING DFV127
FLEXICOMPT autonome + ADBLUE
UNI & DG
DEV N° : 949f
Code : 1890
Drawing N° associated with the related CET file
Metro : LNE-25756
ATEX: INERIS 03 ATEX 0209X
949f Dev N°
PPV127 Drawing N°
A Rev
9 /10 Folio
Modified on :
Created on : 09/03/2016
by ROC
verified by CC


A-A (1 : 4)
Représentation sans le corps de la turbine
A
A
27
5
4
28
3
6
15
Assemblage suivant le PV1710
12
22
13
8
20
1
2
6
12
15
Assemblage suivant le DFV015
24
23
25
16
17
38
Assemblage suivant le PV1226
21
23
24
35
17
ou
9
8
7
10
Réprésentation sans l'UNI
Face gravée voir plan GV0042
19
14
11
25
25
18
26
Face gravée voir plan B0382
29
25
33
34
30
31
32
ALMA www.alma-alma.fr
Service Développement 13127 Vitrolles
PLAN D'ENSEMBLE
DFV127
Flexicompt autonome + ADBLUE
Version UNI et DG
Description de la modification N°
N° de DEV : 949f
Code : 1890
N° de plan associé du dossier CET concerné
Métro :
LNE-25756
ATEX:
INERIS 03 ATEX 0209X
949f
N° Dev
DFV127
N° de plan
A
Rev
2 /10
Folio
Modifié le :
Crée le :
13/10/2016
par
ROC
vérifié par
CC

Rep.	Designation (DFV127)
1	FLEXICOMPT+ body : turbine meter ADRIANE DN80-80 machined, anodized and engraved with PVDF coating
2	Propeller body D=73 with PVDF coating
3	O-ring 92x2.5
4	Axis seat for propeller D=73 with PVDF coating
5	Nut H M3 (ISO 4032)
6	Flow straightener D=78.8, strip 158µ with PVDF coating
7	O-ring 5.5x1.2
8	Temperature probe CT2001
9	Plug for temperature probe option D=8
10	Inner retaining ring D=8 steel
11	Downstream sleeve
12	O-ring 92x2.5
13	Plexiglas sight glass, Dext=91.5, Dint=78, L=37.5
14	Screw CHC M8x20 (ISO 4762)
15	2DG-spacer with PVDF coating
16	Handle seat
17	Knurled handle D=30, L=210
18	Screw CHC M8x50 (ISO 4762)
19	Electronic device UNI in box without tap
20	O-ring 91x3
21	O-ring 22.22x2.62
22	ALMA vacuum breaker G1/2"
23	Neodymium magnet N35 D=1, thickness=4
24	Magnet seal
25	Plug for tube D=30 black polyethylene
26	Closing plug D=14
27	Screw CHC M4x16 (ISO 4762)
28	Thick split spring pin 3x6A (ISO 8752)
29	Sealing threaded rod
30	Nut H M8 (ISO 4032)
31	Washer W M8 (DIN 127)
32	Washer M M8 (NFE 25-514)
33	Brass square lead seal cup 12x12 for M5 pan head screw
34	Screw FS M 5X10 A4 70 for cylindrical lead seal
35	Adhesive foam gasket 15x30 thickness=3.6
38	Upstream 15°-bent sleeve with PVDF coating

RELATED DOCUMENTS

GU 7033	Operating guide
MV 5011	Verification manual
FM 8009	Replacement of the batteries of the UNI indicator device
FM 8012	Transfer the measurement results of the UNI indicator device to a computer
FM 8505	Adjustment of an ALMA measuring system equipped with a UNI indicator device
FM 8509	Adjustment of temperature in the UNI indicator device
	Operating manual for printer