

ARPEGE MASTERK

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**OPERATING AND
MAINTENANCE MANUAL**

**IDE 250 SOFTWARE FOR
MULTICOMPONENT FLOW
CONTROL**

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OPERATING AND MAINTENANCE MANUAL

IDE 250 SOFTWARE FOR MULTICOMPONENT FLOW CONTROL

Date	Edition No.	Subject of the modification
02/09/2011	00	First release
06/09/2011	01	Addition of updating instruction for batch number by protocol and protocol functionalities on fieldbus.
09/05/2012	02	Miscellaneous (IDe250 keys, XPort setup display, ...)
01/06/2012	03	Addition: parameter " OP. SUSPENDED ", parameter " WEIGHT TYP RD ", addition function and TSI3 management.
11/06/2012	04	Update of the manual. Fixed input I16 designation error on the 16E/24S optional board. (See 7.5.) Added access to the ETHERNET XPORT setting from the front panel.

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1. INTRODUCTION

The weight indicator IDé 250, when equipped with the "Multicomponent Flow Control" software, has been designed to control the weighing/dosage operation of a scale performing compositions from a file allowing 99 Formula up to 30 products.

With its inputs and outputs, the IDé250 is able to manage a complete dosage cycle without using any external automation/PLC.

The PC link allows a computer control of the entire process by an external computer system.

1.1. Hardware

1.1.1. Specifications

Maximum number of scale (regulated mode)	: 6000
Minimum input level	: 0.75 μ V
Supply of the load cell voltage	: 7.5V square wave signal
Number of measurements / second (fast)	: 40 - 990
Load impedance (analog load cells)	: \geq 45 ohms

Conversational settings on front panel

AC 230 V / 50 Hz or 60 Hz + earth <5 ohms

12V DC supply. (Or 24V optional)

Consumption: 15 to 25VA max, depending on configuration

Internal clock and memory saved by battery

LCD screen 320x240 pixels including weight display on 6 digits of 14 mm high and user guide

20 key keyboard: - 3 keys for metrology

- 17 keys for operation

1.1.2. Devices

In standard version, IDé 250 is supplied with:

❖ 2 serial links:

COM1 : RS232 and / or RS485 (Short distance connection: 10 meters max.)

COM2 : Passive Current Loop, RS232 or optional RS485, active or passive current loop, 4-20 mA or 0/10V analog output, Modbus TCP Ethernet (XPort) (Long distance connection: Max length will depend on the type of connection)

❖ 1 USB slave interface:

USB : Reserved for future use (Short distance connection: 3 meters max.)

❖ 1 parallel interface:

LPT : For parallel printer (Short distance connection: 3 meters max.)

❖ 1 connector for analog load cells: (For analog versions of the IDé250)

M1 : 6 wire analog load cells (Long distance connection: 150 meters max.)



Reminder: Only one cable must be connected to M1. The load cells being connected separately in a junction box

❖ 1 CAN bus interface:

MASTER CAN : Digital(s) load cell(s), repeater, multiscale system. (Long distance connection: 1000 meters max.)

1.1.3. Optional devices

- ❖ One optional board galvanically isolated: 8E/24S (8 inputs / 24 outputs) or 16E/24S (16 inputs / 24 outputs).
(**⚠Not combinable with optional fieldbus board**)

Detail of the inputs/outputs:

I1	⇒ Start cycle (SCY) / Resume cycle	O1	⇒ Tank 1 or 16 if O15=1
I2	⇒ Cancel cycle	O2	⇒ Tank 2 or 17 if O15=1
I3	⇒ Hold cycle	O3	⇒ Tank 3 or 18 if O15=1
I4	⇒ Off-tolerance acknowledgement	O4	⇒ Tank 4 or 19 if O15=1
I5	⇒ Acknowledgement of manual flow control of 1 product	O5	⇒ Tank 5 or 20 if O15=1
I6	⇒ Flow control acknowledgement	O6	⇒ Tank 6 or 21 if O15=1
I7	⇒ Drain acknowledgement	O7	⇒ Tank 7 or 22 if O15=1
I8	⇒ Pump pulse input	O8	⇒ Tank 8 or 23 if O15=1
I9	} Formula number codification in binary ⁽¹⁾	O9	⇒ Tank 9 or 24 if O15=1
I10		O10	⇒ Tank 10 or 25 if O15=1
I11		O11	⇒ Tank 11 or 26 if O15=1
I12		O12	⇒ Tank 12 or 27 if O15=1
I13		O13	⇒ Tank 13 or 28 if O15=1
I14		O14	⇒ Tank 14 or 29 if O15=1
I15		O15	⇒ Tank 15 or decoding tank 16 to 29.
I16		O16	⇒ End of flow control / Batch ready ⁽²⁾
		O17	⇒ Flow control default
		O18	⇒ Off-tolerance default
		O19	⇒ Scale alarm / Shaker ⁽³⁾
		O20	⇒ Scale low threshold
		O21	⇒ Scale high threshold
		O22	⇒ Drain
		O23	⇒ High speed. (High flow)
		O24	⇒ Low speed. (Low flow)

⁽¹⁾: Only with 16E/24S board.

⁽²⁾: Depends on parameter "OP MODE O16", see 2.6.2.

⁽³⁾: Depends on parameter "OP MODE O19", see 2.6.2.

- ❖ One optional fieldbus board (FB board S type), available fieldbus protocols: Profibus-DP, DeviceNet, Ethernet Modbus TCP. (**⚠Not combinable with optional I/O board**)

- ❖ 2 models of printers are available:

- ILA 80: Printouts printer, 80 columns
- IBA 40: Printer for caroll listings, 40 columns

- ❖ 3 models of remote weight repeaters may be connected:

- RP 15 : 15 mm high digits
- RP 75 : 75 mm high digits
- RP 75HL : High brightness 75 mm high digits

- ❖ TSI3 terminal.

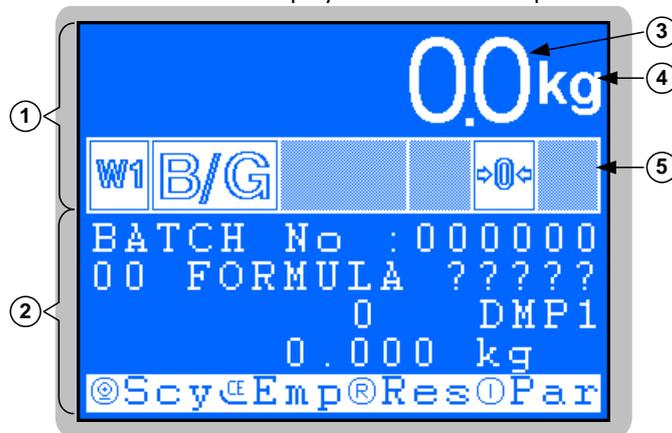
- ❖ Analog output: 0/10 V or 4/20 mA. (On **COM2**)

- ❖ Extended memory storage:

EXT. MEM : Memory extension (USB stick)

1.1.4. LCD display and signals

IDé 250 has a LCD graphic display offering a great flexibility to the operator when using the equipment. The weight on the scale is displayed in real time with its status in the upper part of the display. Signals from the user guide facilitating the use of the indicator is displayed on the bottom part.



Legend:

- 1 ⇒ Metrologic part (Weight, metrologic indications, ...)
- 2 ⇒ Operating part (Menu, setup, informations, ...)
- 3 ⇒ Weight on 6 x 14 mm high digits
- 4 ⇒ Weight unit : **kg** or **t** .
- 5 ⇒ Six-status signals (see detail below)

Status signals:

Signals	#1	#2	#3	#4	#5	#6
Displays	w1	B/G				
	w2	Net	DATA	HP	↔0↔	~
		PT				

- Signal #1 : ⇒ The weight is displayed in the span number 1
- ⇒ The weight is displayed in the span number 2

- Signal #2 : ⇒ The Gross Weight is displayed
- ⇒ The Net Weight is displayed
- ⇒ The "Preset Tare" is displayed

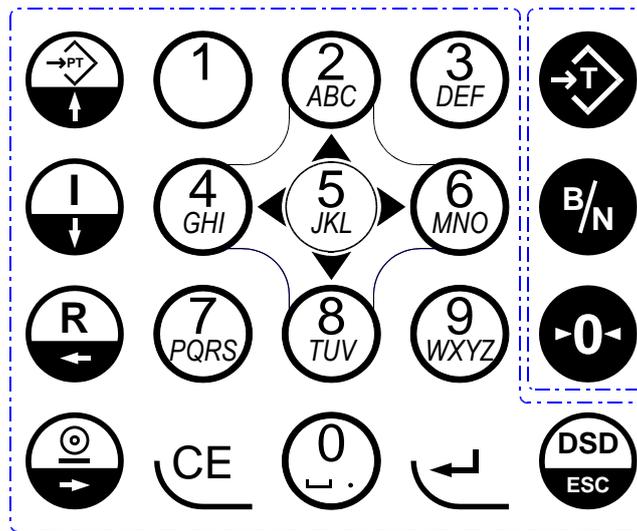
- Signal #3 :
 -  ⇒ No data
 -  ⇒ The screen displays data
 -  ⇒ The backup battery needs to be replaced

- Signal #4 :
 -  ⇒ Weight is displayed in normal mode
 -  ⇒ Weight is displayed in "high precision (HP)" mode (1/10th mode)

- Signal #5 :
 -  ⇒ Gross weight is **not** null at ¼ scale division
 -  ⇒ Gross weight is null at ¼ scale division

- Signal #6 :
 -  ⇒ Displayed weight is **stable**
 -  ⇒ Displayed weight is **unstable**

1.1.5. Keyboard



17 operation and 3 metrological keys.

Metrological keys:

-  ⇒ "Tare weight" key: Allows the Tare calibration of the indicator with the current gross weight.
-  ⇒ "Brut/Net" key: Switches weight display from Net weight to Gross weight and vice versa.
-  ⇒ "Zero setting" key: Allows the zero setting of the indicator with the current gross weight.

Nota: These keys are active only when the indicator is not in dosing cycle.

Operation keys:

-  to  ⇒ Alphanumeric keys for typing numerical and alphanumeric data.

 &  ⇒ 2 key directional keypad to move through the menus:
 = ↑
 = ↓

-  ⇒ Input a "Preset Tare", or back to the previous data or previous menu function.
-  ⇒ Access to indicator setup, or move to the next data or next menu function.
-  ⇒ Access to the printing menu, or back to the previous character in the alphanumeric input.
-  ⇒ Start or continue a dosing cycle, or move to the next character in the alphanumeric input.
-  ⇒ "Correction" key to suspend the dosing cycle, or erase/set to zero the data currently entered.
-  ⇒ "Validation" key to acknowledge a default, or restart the current cycle after a power failure, or confirm a data, or access to a function and display the software version.
-  ⇒ Access to the file menu of the Data Storage Device (DSD), or exit/cancel while entering a data.

1.2. Software description

The files implement a straightforward and structured coding, enabling a set of information to be recalled from their call code.

1.2.1. Product file

Capacity: 99 products maximum (from 1 to 99)
Call code: 2-digit number
Data: Product name.....(15 characters)
 Tank number(2 numbers)
 Product type(1 character: **A/M/T/I/B**)
 Rate in kg/mn.....(6 numbers)
 Unit pulse value in g.....(6 numbers)

1.2.2. Formula file

Capacity: 99 formulas as a maximum (from 1 to 99) with 30 products as a maximum per formula
Call code: 2-digit number
Data: Formula name(15 characters)
 Data for rank 1 product(7 data)
 Product code(2 numbers)
 Dosage set point.....(8 numbers)
 Slow speed.....(8 numbers)
 Feed error(8 numbers)
 Tolerance (%).....(4 numbers)
 Scale number(1 figure)
 Data for rank 2 product(7 data, same as rank 1 product)
 Data for rank 3 product(7 data, same as rank 1 product)
 ...
 Data for rank 30 product(7 data, same as rank 1 product)

1.2.3. Dosage result

The dosage result may be printed with:

- A ticket for each Formula according to different forms
- A ticket result of the last Formula
- Product inventory
- Two totalizations per Formula.
- Daily and monthly totalizations per component.

Nota: The two last forms having each two totalizations, it is possible to have daily, weekly, yearly, etc reports with the appropriate use.

1.2.4. Data Storage Device (DSD) file

The DSD file records the last 90 000 weightings done with the equipment. (See chapter 4.)

<u>Capacity:</u>	90 000 records
<u>Data:</u>	DSD number (6 numbers)
	Weighing date (10 characters)
	Weighing time (8 characters)
	Batch number (6 numbers)
	Formula code (2 numbers)
	Product code (2 numbers)
	Weighed product rank / Scale number (2 numbers /1 number)
	Set point (8 numbers)
	Net weight (8 numbers)
	Weighing status (4 characters)

1.2.5. Unlocking codes

Some submenus or functions are locked and need to be unlocked by a code. The operator must enter this 4-digit code to access the desired function. There are 2 unlocking codes corresponding to 2 protection levels:

- Unlocking code #1 : **7806**
- Unlocking code #2 : **2110**



Remember :

You have 10 seconds to enter the unlocking code

Unlocking code #1 is necessary to:

- Access to the files

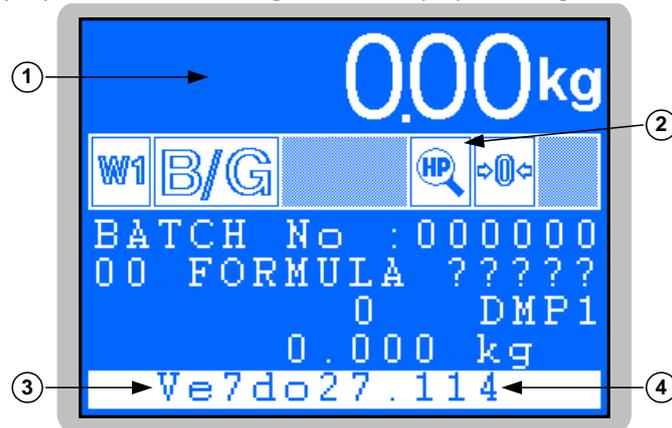
Unlocking code #2 is necessary to:

- Erase a file
- Access to the setup menu

1.2.6. Software version and high precision weight displays

Press key  to display the software version and the weight in high precision (1/10th division) mode. This operation is not possible when running the dosing cycle.

Once the  key is pressed, the following screen is displayed during 4 seconds:

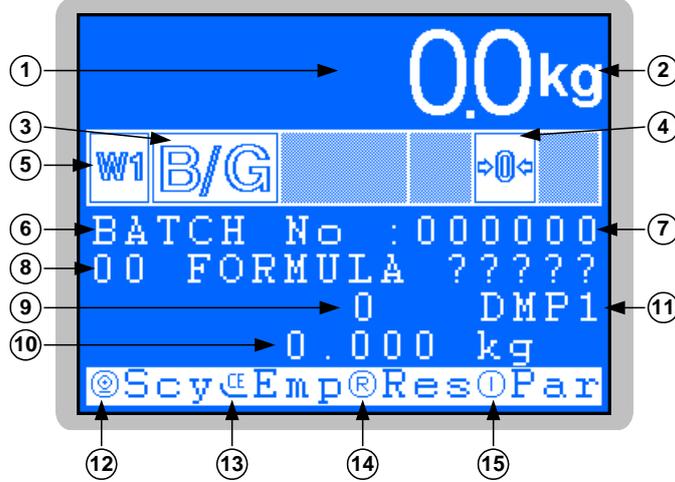


Legend:

- 1 ⇒ Display of the weight in high precision mode.
- 2 ⇒ Signal for high precision mode display
- 3 ⇒ Software release number: **Ve7do27.11.**
- 4 ⇒ Software version : **4.**

2. SETUP MENU:

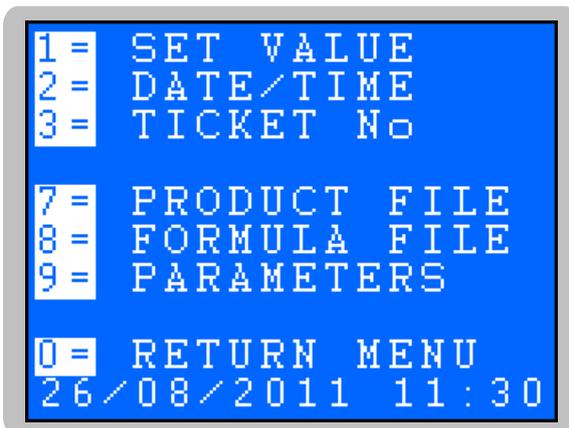
In the operation mode, when the cycle is not running (off-cycle), the following screen is displayed:



Legend:

- 1 ⇒ Weight on 6 x 14 mm high digits
- 2 ⇒ Weight unit :  or 
- 3 ⇒ Displayed weight is Gross weight
- 4 ⇒ Weight is null at ¼ scale division
- 5 ⇒ Displays the current measurement range
- 6 ⇒ Name of basic data #1 (standard : "BATCH No")
- 7 ⇒ Value of basic data #1 during last cycle
- 8 ⇒ Name and code of the Formula during last cycle
- 9 ⇒ Total number of cycles during last run
- 10 ⇒ Total weight of product dosed during last run
- 11 ⇒ Scale number
- 12 ⇒ Cycle start : 
- 13 ⇒ Manual drain : 
- 14 ⇒ Access to results:  (See 3.)
- 15 ⇒ Access to setup : 

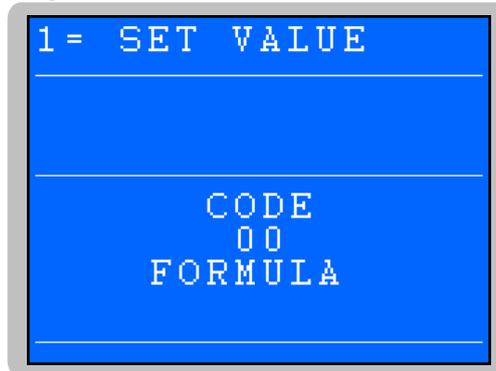
Press key  to display the following menu:



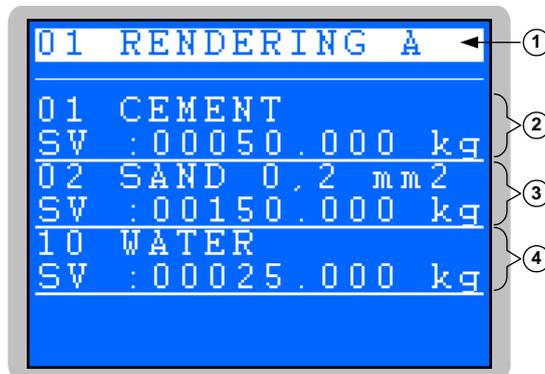
- ⇒ To change the set points of the products (See 2.1.)
- ⇒ Update date and time (See 2.2.)
- ⇒ Update ticket number (See 2.3.)
- ⇒ Access to product file, unlocking code: **7806** (See 2.4.)
- ⇒ Access to Formula file, unlocking code: **7806** (See 2.5.)
- ⇒ Access to setup menu, unlocking code: **2110** (See 2.6.)
- ⇒ Return to operation (See 2.7.)
- ⇒ Current date and time

2.1. Set point modification: ①

Press key ① to get to the following screen:



Enter the Formula call code number to be modified, then press ↵ key, then the following screen is displayed if the Formula call code already exists in the product file (if not, an error message "UNKNOWN ! (ESC)" is displayed):



Legend:

- 1 ⇒ Call code and name of the Formula (Cannot be modified)
- 2 ⇒ Call code, name et set point value of the rank 1 component in the Formula (Only the set point value can be modified)
- 3 ⇒ Call code, name et set point value of the rank 2 component in the Formula (Only the set point value can be modified)
- 4 ⇒ Call code, name et set point value of the rank 3 component in the Formula (Only the set point value can be modified)

Key allocation:



⇒ Move to the set point value of the next rank component



⇒ Back to the set point value of the previous rank component



⇒ Quit the set point modification screen

Enter the set point value of one component, then press ↵ key to valid and get to the next rank set point until the last component set point.

Once the last component value is set, one gets back to the setup menu.

2.2. Date and time setup:

Press the  key to display the following setup:

DAY	: XX	Enter the day and confirm with key  (i.e.: 25 for August 25th, 2014)
MONTH	: XX	Enter the month and confirm with key  (i.e.: 08 for August 25th, 2014)
YEAR	: 20XX	Enter the year and confirm with key  (i.e.: 14 for August 25th, 2014)
HOURS	: XX	Enter the hours and confirm with key  (i.e.: 16 for 16:31:00)
MINUTES	: XX	Enter the minutes and confirm with key  (i.e.: 31 for 16:31:00)

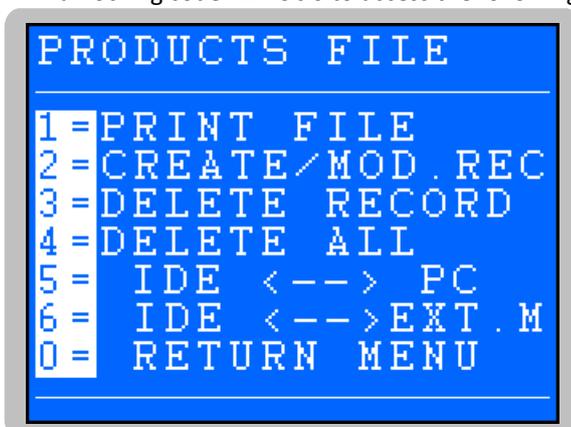
Then back to the setup menu.

2.3. Setup of ticket number:

Press the  key to display the "**TICKET NUMBER: XXXXXXX**" parameter, then enter the requested ticket number and press key . Then back to the setup menu.

2.4. Product file management:

Press the  key to display the message "**TYPE KEY CODE**" and, in the next 10 seconds, enter the unlocking code #1 **7806** to access the following menu :



- ⇒ Print the file (See 2.4.1.)
- ⇒ Create or modify one product record (See 2.4.2.)
- ⇒ Erase one product record (See 2.4.3.)
- ⇒ Erase file, unlocking code: 2110. (See 2.4.4.)
- ⇒ File transfer to PC. (See 2.4.5.)
- ⇒ File transfer to memory extension. (See 2.4.6.)
- ⇒ Back to setup menu (See 2.4.7.)

2.4.1. Print file

Press  key to print the file.

Example of hard copy:

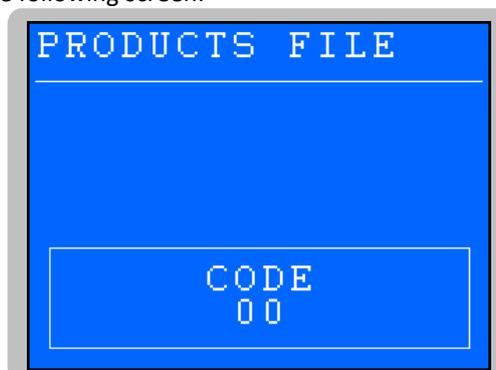
PRODUCTS FILE			
26/08/2013		14:41:25	
PRODUCT CODE	:Ta:T:	kg/mn	:Pulse g:
01 CEMENT	:01:A:	0.000:	0.0:
02 SAND 0,2 mm2	:05:A:	0.000:	0.0:
03 SAND 0,5 mm2	:06:A:	0.000:	0.0:
04 LIME	:02:A:	0.000:	0.0:
10 WATER	:03:I:	0.000:	10.0:
20 ANTIFREEZE ADJ.	:00:T:	0.000:	0.0:
21 DAMP-PROOF ADJ.	:00:T:	0.000:	0.0:
22 PLASTICIZER.ADJ.	:00:T:	0.000:	0.0:
23 HARDENER ADJ.	:00:T:	0.000:	0.0:
30 GREY DYE	:00:T:	0.000:	0.0:
31 BLUE DYE	:00:T:	0.000:	0.0:
32 RED DYE	:00:T:	0.000:	0.0:
33 YELLOW DYE	:00:T:	0.000:	0.0:

- Field #1 is the product call code
- Field #2 is the product name
- Field #3 is the tank number of the product (from 1 to 29) or the source scale number for product types "Transfer from previous scale". (from 91 to 98)
- Field #4 is the product type (**A/M/T/I/B**)
- Field #5 is the product flow set point in kilograms per second (If set to 0, no flow control for this product)
- Field #6 is the set point of the pump pulse input in grams for "Pulse (pump)" product type.

After printing, the display gets back to the file menu.

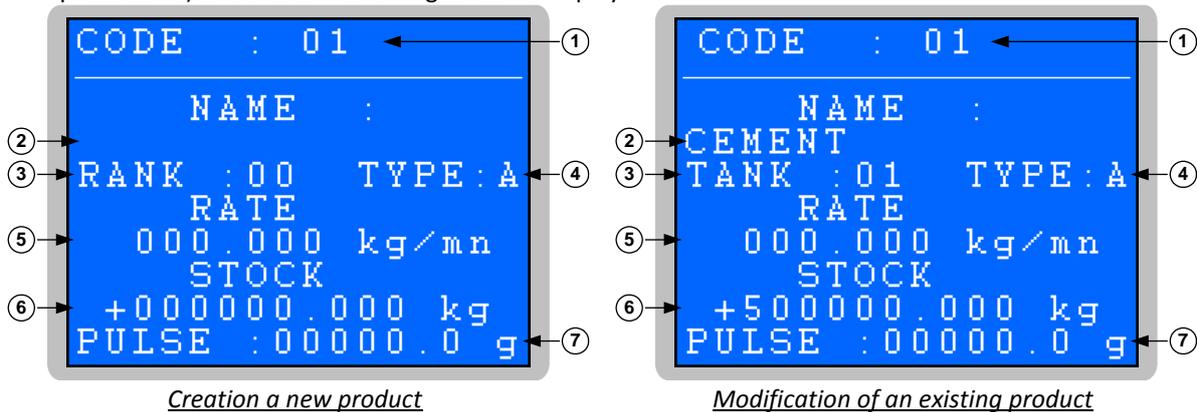
2.4.2. Creation or modification of a product record

Press the  key to display the following screen:



Enter the call code of the product record to be created or modified then press the  key.

Whether you are creating a new record (new call code) or modifying an existing one (call code already existing in the product file) one of the 2 following screen is displayed:



Legend:

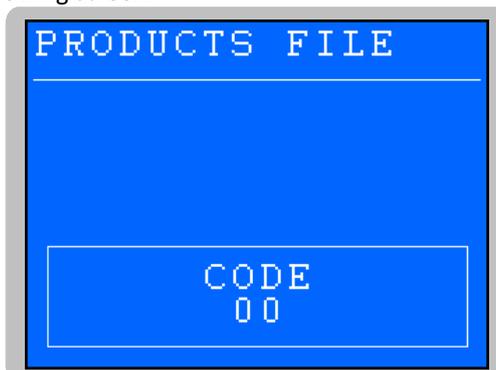
- 1 ⇒ Product call code
- 2 ⇒ Product name
- 3 ⇒ Product tank number (from 1 to 29) or source scale number for product types "Transfer from previous scale" (From 91 to 98 for scales from 1 to 8)
- 4 ⇒ Product type (A/M/T/I/B)
- 5 ⇒ Flow value of the product
- 6 ⇒ Inventory level of the product
- 7 ⇒ value of the pump pulse input in grams for "Pulse (pump)" product type.

Following parameters must be entered:

- NAME** : XXX...XXX Enter the product name then press key (15 characters)
- TANK** : XX Enter the product tank number (from 1 to 29) than press the key - or source scale number for "Transfer from previous scale" product type (from 91 to 98 for scales #1 to #8)
- TYPE** : X Enter the product type than press the key.
 - A** = Automatic dosage of the product
 - M** = Real manual dosage of the product
 - T** = Theoretical manual dosage of the product
 - I** = Dosage of the product by Pulse (pump)
 - B** = Product transfer from another scale
- RATE** XXX.XXX kg/mn Enter the flow set point for the product then press the key (If set to 0, no flow control for this product)
- STOCK** +XXXXXX.XXX kg Enter the product inventory than press the key.
- PULSE** :XXXX.X g Enter the set point of the pump pulse input in grams for "Pulse (pump)" product type then press the key.

2.4.3. Delete a product

Press key to display the following screen:



Enter the call code of the product to be deleted (2 numbers), then press the  key, to display the record:

```

CODE   : 01
-----
NAME   :
CEMENT
TANK   : 01   TYPE: A
RATE
      000.000 kg/mn
STOCK
+500000.000 kg
DEL? Yes=1 No=0

```

Confirm or not by pressing key  or key .

When the record is deleted the "OK RECORD ERASED" message is displayed before getting back to the file menu screen.

2.4.4. Delete the product file

Press the  key to display "PRODUCTS FILE" and "TYPE KEY CODE" messages.

During the next 10 seconds, enter the unlocking code "2110" to delete the file (the "INITIALIZE (ESC)" message is displayed, to confirm that the file has been deleted.

Go back to the file menu screen by pressing the  key.

2.4.5. File transfer between the indicator and a PC

Press the  key to display the following menu:

```

PRODUCTS FILE
-----
COM1 : 9600/8/N/1
1 = TRANSMIT TO PC
2 = RECEIV FROM PC
0 = RETURN MENU

Your choice ?

```

2.4.5.1. File transfer from the indicator the a PC

To proceed to the transfer, you need to:

- Connect the **PC** (on **COM1**) to the **IDE** (on **COM1**).
- Start HyperTerminal software ("C:\Program_Files\Accessoires\HyperTerminal\HYPERTRM.EXE")
- Name this connection and confirm (TERMINAL.IDE).
- Go to the "**Connect using**" parameter, and select "**Direct to Com1**".
- Set the protocol parameters at **9600 Bauds, 8 bits, no parity, one stop, and no flow control**.
- Start the data reception by selecting the "**Transfer**" option, then "**Capture Text**", enter the backup filename and confirm with "**Start**".
- The **PC** is now ready to receive data from the indicator.

- Press the **1** key of the indicator to start the transfer. If the file is not displayed on the PC screen, then press the « **Enter** » key of the PC :
 - Put **Hyperterminal** in **CAPTURE THE TEXT** mode then **START ENTER** key to start the transfer
 - At the end of the transfer put in **CAPTURE** mode then **STOP ENTER** key to return to **MENU**
- During the data transfer, the "**HYPERTERMINAL tr**" message is displayed on the indicator and the file scrolls on the PC screen.
- When the transfer is over, the file capture needs to be finalized. Go in the "**Transfer**" option, then "**Capture Text**" and "**Stop**".
- Then the file menu should be displayed, if not, press the ENTER key on the PC.

Remember: The .TXT file format may be used immediately used with EXCEL or similar software.

2.4.5.2. File transfer from a PC to the indicator

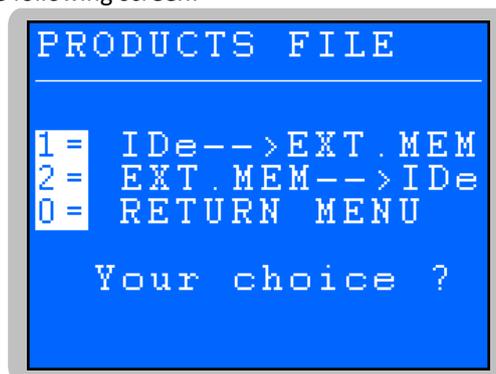
To proceed to the transfer, you need to:

- Connect the **PC** (on **COM1**) to the **IDE** (on **COM1**).
- Start HyperTerminal software ("**C:\Program_Files\Accessoires\HyperTerminal\HYPERTRM.EXE**")
- Name this connection and confirm (**TERMINAL.IDE**).
- Go to the "**Connect using**" parameter, and select "**Direct to Com1**".
- Set the protocol parameters at **9600 Bauds, 8 bits, no parity, one stop, and no flow control**.
- The **PC** is now ready to send data to the indicator.
- Press the **2** key on the indicator to display the "**HYPERTERMINAL re**" message. The indicator is now ready to receive data from the PC.
- Disconnect HyperTerminal and go to "**File**", "**Proprieties**", then "**Configure**", switch the "**Flow control**" parameter to "**XON/XOFF**" mode. Confirm twice with "**OK**" and connect HyperTerminal.
- Go to "**Transfer**" then "**Send text file**", choose the backup file to be loaded and confirm with "**Open**".
- When the transfer is over, and the file being recorded, the indicator displays the file menu again.

Remember: Set back the "**Flow control**" parameter to the "**None**" mode.

2.4.6. File transfer between the indicator and the EXT. MEM. (USB stick)

Press the **6** key to display the following screen:



2.4.6.1. Transfer from the indicator to the EXT. MEM. (USB stick)

Press the key **1** of the indicator to start the transfer, the "**WRITE . .**" message is displayed during the transfer.

Once the transfer is over, the indicator goes back to the setup menu.

Remember: The .TXT file format may be used immediately used with EXCEL or similar software.

2.4.6.2. Transfer from the EXT. MEM (USB stick) to the indicator

Press the key  of the indicator to start the transfer, the "READ . . ." message is displayed during the transfer.

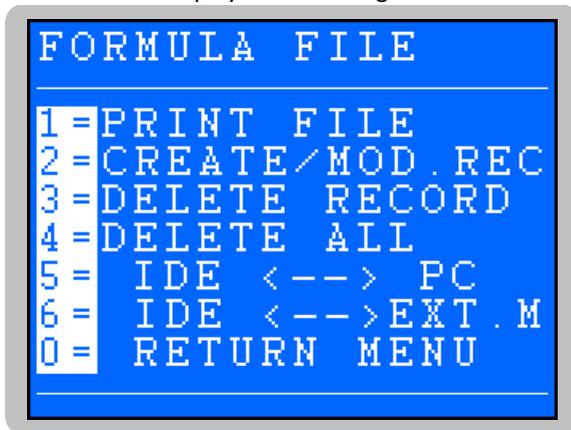
Once the transfer is over, the indicator goes back to the setup menu.

2.4.7. Return to Setup Menu

Press the  key to return to the Setup Menu.

2.5. Formula file management: 

Press the  key to display the "TYPE KEY CODE" message, then enter the unlocking code#1: 7806 within 10 seconds to display the following menu:



- ⇒ Print the file (See 2.5.1.)
- ⇒ Create or modify a Formula (See 2.5.2.)
- ⇒ Delete a Formula (See 2.5.3.)
- ⇒ Delete the file, unlocking code: 2110 (See 2.5.4.)
- ⇒ Transfer the file with a PC (See 2.5.5.)
- ⇒ Transfer the file with the memory extension (See 2.5.6.)
- ⇒ Back to setup menu (See 2.5.7.)

2.5.1. Printing of the Formula file

Press the  key to print the file content.

Some examples of hard copies: (3 formula, with respectively 3, 5 and 6 components)

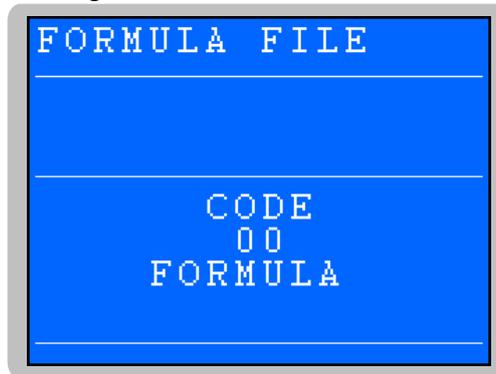
Formula Name	Components
01 RENDERING A	3
02 RENDER. A C12272	5
03 RENDER.AHC12272	6

- Heading with Formula call code and name, example: "01 RENDERING A".
- Call code and name of every component in the Formula (from 1 to 30 components), example : "01 CEMENT / 02 SAND 0,2 mm2 / 10 EAU", with the following data for every component :
 - Dosage set point in kilograms, example: "SV : 50.000 kg".
 - Dosage set point in kilograms to be operated in slow speed, example: "LS : 5.000 kg".
 - Feed error in kilograms, example: "FE : 0.060 kg".
 - Tolerance value in percentage, example: "TOL: 1.00 %".
 - Instruction code for dosage, example: "CMD:0000".
 - Scale number, example: "SCALE No : 1".

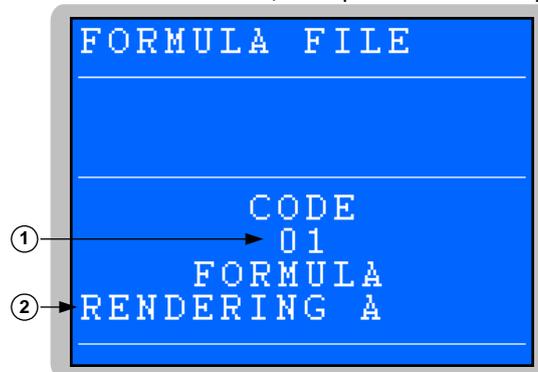
After printing, the screen comes back to the file menu.

2.5.2. Creation or modification of a Formula

Press the  key to get to the following screen:



Enter the formula call code to be created or modified, then press the  key to display the following screen:



Legend:

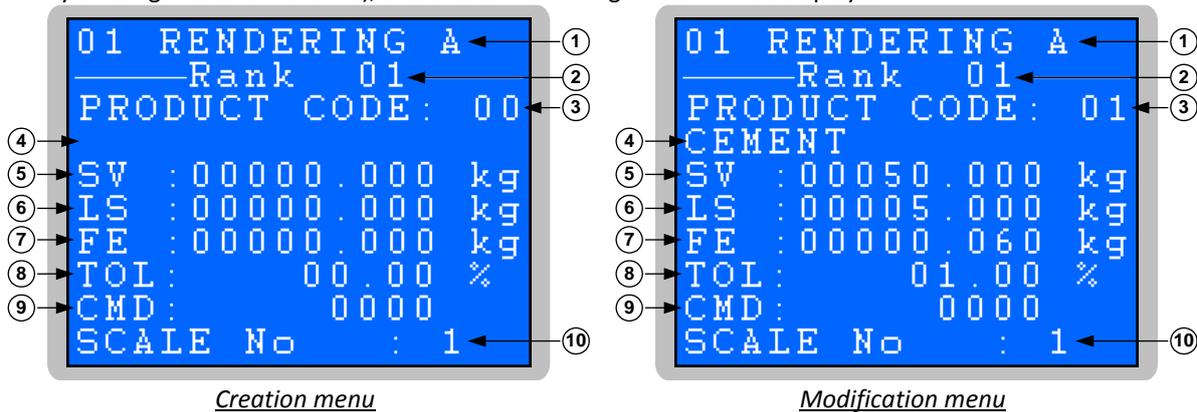
- 1 ⇒ Formula call code
- 2 ⇒ Formula name (in creation mode, then this field is only filled with space characters).

Enter the Formula name:

FORMULA XXX...XXX

Create or modify the formula name (15 characters), then confirm with .

Whether you are creating a new record (new formula call code) or modifying an existing one (formula call code already existing in the formula file), one of the 2 following screen will be displayed:



Legend:

- 1 ⇒ Formula call code and name
- 2 ⇒ Rank level of the component in the Formula (From 1 to 30)
- 3 ⇒ Component code number
- 4 ⇒ Component name according its code number. If the product component number is unknown in the product file, the field remains empty
- 5 ⇒ Dosage set point
- 6 ⇒ Slow speed set point
- 7 ⇒ Feed error value
- 8 ⇒ Tolerance
- 9 ⇒ Instruction code for dosage
- 10 ⇒ Scale number

From rank level #1 to 30:

- PRODUCT CODE: XX** Enter component call code for the current rank (2 characters) and confirm with
 - SV :XXXXX.XXX kg** Enter the dosage set point for this component (8 characters) and press
 - LS :XXXXX.XXX kg** Enter the slow speed dosage value for the current component (8 characters) and press
 - FE :XXXXX.XXX kg** Enter the feed error of the current component (8 characters) and press
 - TOL: XX.XX %** Enter the tolerance of the current component (4 characters) and press If set to 0 then no tolerance control.
 - CMD: XYYY** Enter the instruction code of dosage for the component (4 characters) and press
- X** ⇒ Instruction number
- 0 = No action
 - 1 = Intermediary drain after dosage of this component
 - 2 = Shaking during the high speed dosage of this component
 - 3 = Instruction 2 then 1
 - 4 = Cycle on hold after dosage of this component (Analysis of the mixing with optional adjustments, see 5.6.)
 - 5 = Instruction 4 then 1
 - 6 = Instruction 2 then 4
 - 7 = Instruction 2 then 4 then 1
- YYY** ⇒ Shaking duration after dosage of this component
- 000 = No shaking after dosage of this component
 - 001 = Shaking during 10 seconds (001 x 10s) after dosage of this component
 - ...
 - 999 = Shaking during 9990 seconds (999 x 10s) after dosage of this component
- SCALE No : X** Enter the scale number (1 character) of the current component then press

Once the last field is filled, the next rank component is displayed.

When all parameters have been entered for all the components, press the  key to quit, and the "RECORD MEMORIZED" message is displayed before getting back to the file menu.

2.5.3. Delete of a file record

Same as deleting a product record, see 2.4.3.

2.5.4. Delete of the Formula file

Same as deleting the product file, see 2.4.4.

2.5.5. File transfer between the indicator and a PC

Same as the product file transfer, see 2.4.5.

2.5.6. File transfer between the indicator and the EXT. MEM. (USB stick)

Same as the product file transfer between the indicator and the EXT. MEM, see 2.4.6.

2.5.7. Return to Menu

Press the  key to return to the setup menu.

2.6. Setup Menu:

Press the  key will display the "TYPE KEY CODE" message, then enter the unlocking code#2 : 2110 within 10 seconds to display the Setup Menu:

1 =	COMPANY NAME	⇒ Company name and ticket footer (see 2.6.1.)
2 =	OP MODE	⇒ Running mode (see 2.6.2.)
3 =	THRESHOLDS	⇒ Low, Formula and high thresholds (see 2.6.3.)
4 =	TEMPOS	⇒ Dosage timer (see 2.6.4.)
5 =	COM1/COM2/LPT	⇒ COM1 / COM2 / LPT connections (see 2.6.5.)
6 =	I/O BOARD	⇒ Input/output boards (see 2.6.6.)
7 =	IDE No / CAN	⇒ Indicator number/ CAN protocol (see 2.6.7.)
8 =	PAR<->EXT.MEM	⇒ Transfer setup for extended memory storage (see 2.6.8.)
9 =	HYPERTERMINAL	⇒ Setup access through HYPERTERMINAL (see 2.6.9.)
0 =	RETURN MENU	⇒ Return to operation menu (see 2.6.10.)

2.6.1. Company name and ticket footer

Press the  key to access to the following settings:

Enter the first line of the company name (20 bold characters), then press 
>*****

Enter the second line of the company name (39 characters), then press 
>-----

Enter the third line of the company name (39 characters), then press 
>-----

Enter the fourth line of the company name (39 characters), then press 
>-----

Enter the first line of the ticket footer (39 characters), then press 
>-----

Enter the second line of the ticket footer (39 characters), then press 
>-----

Then the display returns to the setup menu.

2.6.2. Operating mode

Press the  key to access to the following settings:

DOSING MODE : X Select the dosage mode, then press 
0 = "Cycle per cycle" mode (1 cycle per run)
1 = "Number of cycles" mode (1 to 9999 cycles depending on setting)
2 = "Weight set point" mode.

TICKET TYPE : XX Select the type of ticket, then press  (see 7.1.)
00 = None
01 = Print results after every dosage of product (Ticket type #1)
02 = Print results after every dosage cycle (Ticket type #2)
04 = Print results after final dosage cycle (Ticket type #4)

POWER FAILURE : X Select the cycle restart after a power failure
0 = Not recording the cycle status before the power failure, the indicator restarts as normal
1 = Recording the cycle status before the power failure and need of operator acknowledgement (by pressing the  key) to resume the current cycle
2 = Recording the cycle status before the power failure and resuming current cycle after a 5 second temporization

FE CORRECTION : X Select the automatic running mode for the feed error, then press 
0 = Disabled
1 = Only active when the batch is within the tolerance of the net weight
2 = Always active whatever the batch net weight is

- CODE ModifSET:** X Select whether the access to the set point values is free or limited, then press 
 (Available for: "2.1. Set point modification: " , "3.2. Increase product inventory: " and "3.3. Decrease product inventory: "")
 0 = Free access to the set points
 1 = Limited access with unlocking code #1 (7806)
- OP. SUSPENDED:** X Select the available options when cycle is on hold, then confirm with  key
 0 = No option
 1 = Tank number may be modified
 2 = Some component quantity may be added
 3 = Both 1 and 2 options
- NUM. FILTER:** XX Hz Enter the digital filter frequency cut-off, then press  (Filtering used both for both high and slow speed dosages)
- AV. FILTER :** XXX Enter the number of measures to be included in the averaging filter, then press  (Filtering used both for high and slow speed dosages)

Back to setup menu.

2.6.3. Thresholds

Press the  key to access to the following settings:

- L. TH. :** XXXX.X kg Enter the low level threshold, then press 
- FOR TH:** XXXX.X kg Enter the higher weight set point for the formula, then press 
- H. TH. :** XXXX.X kg Enter the high level threshold, then press 
 Back to setup menu.

2.6.4. Dosage timer

Press the  key to access to the following settings:

- TPS LS STR:** X.X s Set the slow speed starting time, then press 
 Duration time while there is no monitoring of the dosage when low speed is activated (Blind time)
- TPS FE :** XX s Enter the end of the duration time for the feed error monitoring, then press 
 Duration after the feed error monitoring. The weight of the tank is recorded after stabilization at the end of this time.
- TPS PROD. :** XX s Enter the duration time between 2 dosages of products, then press 
 Delay time between the end of one dosage of product and the start of the next one.
- TPS EMPTY.:** XX s Enter the drain duration time, then press 
 Duration time with drain outlet kept opened after the tank weight as reached the low threshold set point (final evacuation of the product)

EMPTYING RATE Enter the drain flow set point, then press 
 XXXX.X kg/mn If value is set to 0, then flow control is disabled
 Back to setup menu.

2.6.5. COM1 / COM2 / LPT connections

Press the  key to access to the following settings (to be done for each connection):

DRIVER : XX Select the driver type for **COM1**, **COM2** and **LPT**, then press 
 00 = None
 01 = Weight remote display (Only with **COM1** or **COM2**)
 02 = JBUS/MODBUS protocol (Only with **COM1** or **COM2**, see 6.1.)
 03 = Send results of weight log file frame (Only with **COM1** or **COM2**)
 04 = Send results of weight log file frame, ACK/NACK protocol (Only with **COM1** or **COM2**)
 05 = TS13 terminal (TS13 current loop connection, 9600 bauds, 8 bits, no parity, and 1 stop)
 06 = Reserved
 07 = 40 column printer **without** paper length control
 08 = 40 column printer **with** paper length control
 09 = Weight log file printer (FDE, only 80 columns, see 7.1.)
 20 = MODBUS TCP protocol (Only with **COM2** with optional ETHERNET XPORT BOARD, see 6.1.)
 40 = Gross weight output (Only with **COM2** with optional analog BOARD)
 41 = Net weight output (Only with **COM2** with optional analog BOARD)

TYPE 0/././4 : X Select **COM1** and **COM2** connection type then press 
 0 = RS232 **without** DTR control
 1 = RS232 **with** DTR control
 2 = RS485 - 2 wires
 3 = Current loop (Only with **COM2**)
 4 = RS485 - 4 wires (Only with **COM2**)

SPEED : X Select the communication speed for **COM1** and **COM2**, then press 
 1 = 1200 bauds
 2 = 2400 bauds
 4 = 4800 bauds
 9 = 9600 bauds
 0 = 19200 bauds
 3 = 38400 bauds
 5 = 57600 bauds
 6 = 115200 bauds

BITS 8/7 : X Select the number of bits for **COM1** and **COM2**, then press 
 7 = 7 bits.
 8 = 8 bits.

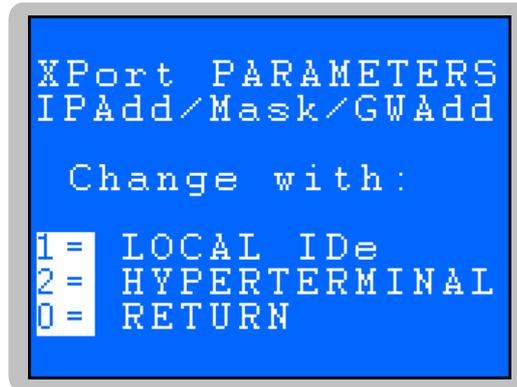
PARITY 0/1/2 : X Select the parity type for **COM1** and **COM2**, then press 
 0 = No parity
 1 = Odd
 2 = Even

STOP 1/2 : X Select the number of stop bits for **COM1** and **COM2**, then press 
 1 = 1 stop bit
 2 = 2 stop bits

PAPER LENGTH : XX Enter the paper length in number of line feeds, then press 
 Return to the setup menu.

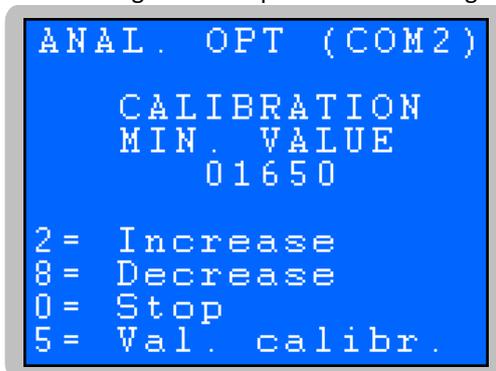
Remember:

- Some setting combinations do not work. When possible set to 8 bits, without parity, and 1 stop bit.
- If the settings are not accepted, one cannot leave the setup menu. Then modify with the correct settings.
- If the ETHERNET XPORT board is set on **COM2** then a dedicated additional menu is displayed before returning to the setup menu:

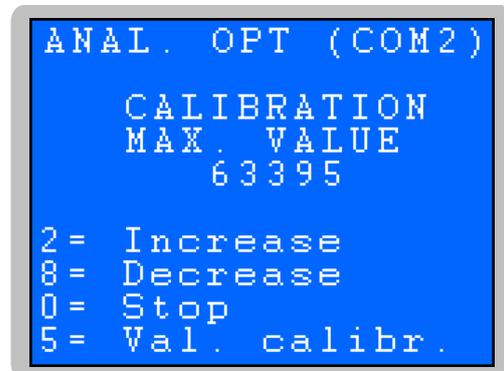


To return to the setup menu press the key  otherwise for *Access to the ETHERNET XPORT board setup* see 2.6.11.

- When an optional analog board is set on **COM2**, two additional screens are displayed as below to set the low level and high level set points of the analog output.



Low level setting screen



High level setting screen

Keys:

-  ⇒ To increment the level value, the more the key is pressed the greater the incrementing speed is.
-  ⇒ To decrement the level value, the more the key is pressed the greater the decrementing speed is.
-  ⇒ To stop the value incrementing or decrementing.
-  ⇒ To valid the value and go to next setting.

Once the high level set point is entered, return to the setup menu.

2.6.6. Input/output boards

Press the  key to access to the I/O settings:

- I/O BOARD** : XX Select the I/O board type, then press 
 00 = No I/O board
 01 = 8E/24S (8 inputs / 24 outputs) optional board (24SX)
 02 = 16E/24S (16 inputs / 24 outputs) optional board (BCE)
 07 = BDT ANYBUS S type Profibus-DP or DeviceNet (see 6.2.)
 08 = BDT ANYBUS S type Ethernet Modbus TCP (see 6.2.)
- I6 MANAGEMENT** : X Select the running mode with **I6** input, then press 
 (Dosage validation monitoring)
 0 = Dosage validation through **I6** is **not activated**
 1 = Dosage validation through **I6** is **activated**
- I7 MANAGEMENT** : X Select the running mode with **I7** input, then press 
 (Drain validation monitoring)
 0 = Drain validation through **I7** is **not activated**
 1 = Drain validation through **I7** is **activated**
- INP. PROD CODE** : X Activate or not the control of the code number of the dosage Formula through **I9**
 to **I15** inputs then press  (Only available with 16E/24S board)
 0 = the monitoring of the code number through the inputs is **not activated**
 1 = the monitoring of the code number through the inputs is **activated**
- OP MODE O16** : X Select the operating mode for **O16** output, then press 
 0 = The output is used for "End of dosage", it is activated when the cycle is finished (Dosage and drain both finished)
 1 = The output is used for "Batch ready", it is activated when the cycle is waiting for the drain, and not active when the signal "Drain validation" is active.
- OP MODE O19** : X Select the running mode with **O19** output, then press 
 0 = The output is used for "Scale default", it is activated when the weight on the indicator is out of range
 1 = The output is used for monitoring a shaker in the weighing tank during a preset duration time
- HS = HS+LS** : X Select the Slow Speed mode during the High Speed dosage, then press 
 0 = No, dosage only with High Speed, then Low Speed only
 1 = Yes, dosage only with High Speed + Low Speed, then Low Speed only

If a BDT ANYBUS S type Ethernet Modbus TCP is set, then enter the following settings:

- IP ADDRESS** Enter the IP address, then press 
 XXX.XXX.XXX.XXX
- SUBNET MASK** Enter the subnet mask, then press 
 XXX.XXX.XXX.XXX
- GATEWAY ADDRESS** Enter the gateway address, then press 
 XXX.XXX.XXX.XXX
 Then return to setup menu.

2.6.7. Indicator Number/ CAN connection

Press the  key to set the parameters:

IDE No : *XX* Enter the slave station ID number (scale number), then press 
(For JBUS/MODBUS protocol)

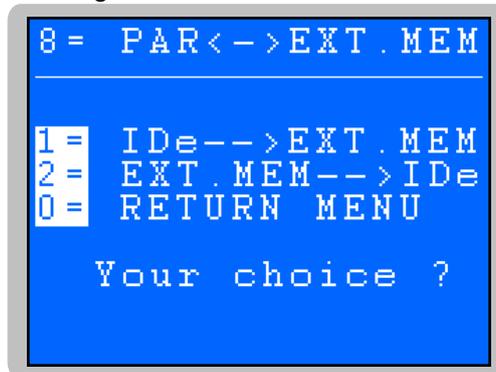
DRIVER CAN : *X* Enter the driver for the bus CAN link (MASTERCAN), then press 
0 = No scale network on the CAN bus
1 = Scale network on the CAN bus

WEIGHT TYP RD: *X* Select the weight type on the remote display/TSI3 during the cycle, then press 
0 = Weight display of the batch in progress
1 = Display of the remaining weight to get to the set point

Return to the setup menu.

2.6.8. Settings transfer between the indicator and the extended memory storage

Press the  key to display the following screen:



2.6.8.1. Settings transfer from the indicator to the EXT. MEM. (USB stick)

Press the  key on the indicator panel to transfer data. The "**WRITE** . ." message is displayed during the transfer, then return to the setup menu.

2.6.8.2. Settings transfer from the EXT. MEM. (USB stick) to the indicator

Press the  key on the indicator panel to retrieve data. The "**READ** . . ." message is displayed during the transfer, then return to the setup menu.

2.6.8.3. Return to setup menu

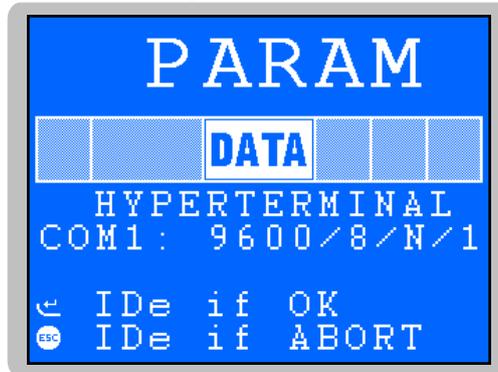
Press the  key to return to the setup menu.

2.6.9. Setup via HYPERTERMINAL

An alternative menu is available to update the company name, the ticket form settings and the product and Formula files.

To proceed to the transfer, you need to:

- Connect the **PC** (on **COM1**) to the **IDe** (on **COM1**).
- Start HyperTerminal software ("C:\Program_Files\Accessoires\HyperTerminal\HYPERTRM.EXE")
- Name this connection and confirm (TERMINAL.IDE).
- Go to the "**Connect using**" parameter, and select "**Direct to Com1**".
- Set the protocol parameters at **9600 Bauds, 8 bits, no parity, one stop, and no flow control**.
- The **PC** is now ready to receive data from the indicator.
- Press the  key to display the following setup menu :



- Press the  key to select the setup via HYPERTERMINAL, or return to setup menu by pressing the  key. The setup via HYPERTERMINAL is displayed as below :
- | | |
|--------------------------|--|
| 1= COMPANY NAME | ⇒ Company name and ticket footer (see 2.6.9.1.) |
| 2= START TICKET | ⇒ Header settings for the dosage ticket (see 2.6.9.2.) |
| 3= WEIGHT TICKET | ⇒ Ticket settings for the batch weight (see 2.6.9.3.) |
| 4= END TICKET | ⇒ Footer settings for the dosage ticket (see 2.6.9.4.) |
| P= MODIF. PRODUCT | ⇒ Modification of the product file (see 2.6.9.5.) |
| F= MODIF. FORMULA | ⇒ Modification of the Formula file (see 2.6.9.6.) |
| 0= RETOUR MENU | ⇒ Return to setup menu of the indicator (see 2.6.9.7.) |

Select the requested option number on the PC keyboard.

2.6.9.1. Company name and ticket footer: 1

Press the "1" key on the PC keyboard to access to the following settings:

Enter the first line of the company name (20 bold characters), then press 
>*****

Enter the second line of the company name (39 characters), then press 
>-----

Enter the third line of the company name (39 characters), then press 
>-----

Enter the fourth line of the company name (39 characters), then press 
>-----

Enter the first line of the ticket footer (39 characters), then press 
>-----

Enter the second line of the ticket footer (39 characters), then press 
>-----

Enter the name of basic data #1 (16 characters, standard: "BATCH No"), then press 
NAME DS1: BATCH No

Return to the setup menu of HYPERTERMINAL.

2.6.9.2. Header settings of the ticket: 2

Only available for ticket type#1 (see 2.6.2., "TYPE TICKET" settings)

Press the "2" key to access the following setting:

STD START TICKET (0/1) : 1

Press "1" (yes) to print the header of the ticket according the standard form of the indicator

Press "0" (no) to print the header of the ticket according the configurable form (see "2.8. Configurable tickets")

Then press  to confirm your choice.

2.6.9.3. Ticket form settings after the dosage cycle: 3

Only available for ticket type#1 (see 2.6.2., "TYPE TICKET" settings)

Press the "3" key to access the following setting:

STD WEIGHT TICKET (0/1) : 1

Press "1" (yes) to print the ticket after dosage according the standard form of the indicator

Press "0" (no) to print the ticket after dosage according the configurable form (see "2.8. Configurable tickets")

Then press  to confirm your choice.

2.6.9.4. Ticket form settings at end of dosage: 3

Only available for ticket type#1 (see 2.6.2., "TYPE TICKET" settings)

Press the "4" key to access the following setting:

STD END TICKET (0/1) : 1

Press "1" (yes) to print the ticket at end of dosage according the standard form of the indicator

Press "0" (no) to print the ticket at end of dosage according the configurable form (see "2.8. Configurable tickets")

Then press  to confirm your choice.

2.6.9.5. Product file modification: P

Press the "P" key to access the following setting:

PRODUCT CODE : XX Enter the product code call (2 characters) to be modified or created, then press 

Then enter the settings accordingly to paragraph "2.4.2. Creation or modification of a product record" except for the product inventory.

Return to the setup menu of HYPERTERMINAL.

2.6.9.6. Formula file modification: F

Press the "F" key to access the following setting:

CODE FORMULA : XX Enter the Formula code call (2 characters) to be modified or created, then press 

Then enter the settings accordingly to paragraph "2.5.2. Creation or modification of a Formula".

Return to the setup menu of HYPERTERMINAL, or quit with the "Ech" key

2.6.9.7. Return to setup menu of the indicator: 0

Press the "0" key to return to the setup menu of the indicator.

2.6.10. Exit from setup menu

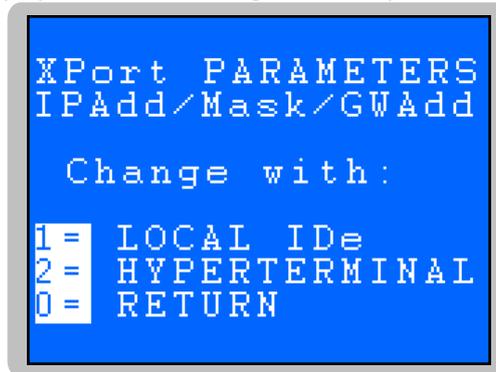
Press the  key to finalize the setup, the indicator displays the following messages: "SAVING . . . WAIT" and "PRN . PARAMETERS 0=NO 1=YES".

Press the  key to skip the printing, or key  to get the hard copy of the settings.

Then return to the operation mode (off-cycle)

2.6.11. Access to the ETHERNET XPORT board setup

If the ETHERNET XPORT BOARD is set on **COM2** (see 2.6.5. *COM1 / COM2 / LPT connections*) then a dedicated additional menu is displayed before returning to the setup menu:



2.6.11.1. Ethernet XPORT board setup via the indicator's front panel

Press the **1** key in the XPORT board setup access menu, the message «**XPORT RESET XPort WAIT...**» will be displayed then the followings settings are required:

IP Add Enter the IP address, then press **↵**.
 XXX.XXX.XXX.XXX

Mask Enter the subnet mask, then press **↵**.
 XXX.XXX.XXX.XXX

GW Add Enter the gateway address, then press **↵**.
 XXX.XXX.XXX.XXX

The indicator display «**XPORT *** OK *****» then we return to the setup menu of the indicator.

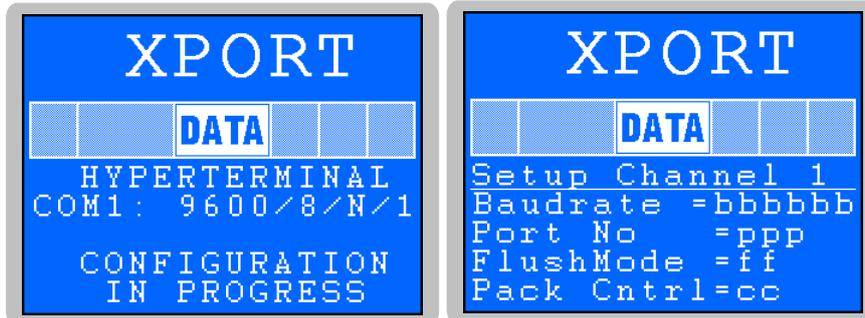
2.6.11.2. Ethernet XPORT board setup via HYPERTERMINAL

To access to the setup, you need to:

- Connect the **PC** (on **COM1**) to the **IDe** (on **COM1**).
- Start HyperTerminal software ("C:\Program_Files\Accessoires\HyperTerminal\HYPERTRM.EXE")
- Name this connection and confirm (TERMINAL.IDE).
- Go to the "**Connect using**" parameter, and select "**Direct to Com1**".
- Set the protocol parameters at **9600 Bauds, 8 bits, no parity, one stop, and no flow control**.
- The **PC** is now ready to receive data from the indicator.
- Press the **2** key to display the following XPORT board setup menu:



- To access to the setup via HYPERTERMINAL press the  key (or to skip this step and return to the setup menu press the  key) and display two screens: the first one displaying the current XPORT settings, then a second one with the list of the parameters to be set in the XPORT BOARD.



XPORT current settings display and second screen with the list of parameters to be set: "bbbbbb", "ppp", "ff" and "cc"

- The followings information are displayed on the terminal:

```

RESET XPort IN PROGRESS WAIT ..
MAC address .....
.....
.....
Change Setup:
 0 Server
 1 Channel 1
 3 E-mail
 5 Expert
 6 Security
 7 Defaults
 8 Exit without save
 9 Save and exit           Your choice ?
Parameters stored ...
    
```

Enter Ethernet link parameters (IP address, ...) in the menu "0 Server", "1 Channel 1" then we can leave the Ethernet link setting "9 Save and exit". (Refer to the ETHERNET XPORT BOARD user manual for more information)

The message "Parameters stored ..." will be displayed before to return to the setup menu.

2.6.11.3. Return to setup menu

Press the  key to return to the setup menu.

2.7. Exit from setup menu:

Press the  key to return to the operation mode (off-cycle)

2.8. Configurable tickets

The standard forms of the tickets are always available in the indicator. They are designed for printing on the IBA40 (or equiv.) on 40 columns. All the weighing data of the dosage cycle are listed.

If the configurable ticket is set instead of the standard one, then the ticket settings and listed data may be configured with user-friendly instructions.

Remember: It is highly recommended to set the configurable ticket step by step. Set a few lines of the ticket, then proceed to a printing test to check about the result, then set some more lines, and so on.

2.8.1. Instructions for the configurable ticket settings

8 instructions are available for the printer driver. An instruction is always made of 3 characters: 1 semicolon, one letter, one semicolon. The semicolon makes the separation between 2 instructions, it may also be used at the end of a line, and may later be replaced by an instruction.

;A; = Number of line feeds
 ;B; = Number of space characters
 ;G; = Change to **bold** characters
 ;P; = Change to standard characters
 ;T; = Text
 ;E; = System data
 ;S; = Standard ticket
 ;C; = Check character
 ;?; = Ticket end (no data)

The syntax should be:

Instruction ;A; always followed by 2 figures (Number of line feeds) Ex: ;A;02;

Instruction ;B; always followed by 2 figures (Number of space characters) Ex: ;B;09;

Instruction ;G; always alone

Instruction ;P; always alone

Instruction ;T; always followed by text to be printed (variable length) Ex: ;T; **HERE IS THE TEXT** ;

Instruction ;E; always followed by 2 characters (name of system data) Ex: ;E;RS1;

Instruction ;S; always alone

Instruction ;C; always followed by 2 characters (Value in hexadecimal) Ex: ;C;1B;

Instruction ;?; always alone

2.8.2. Special keys for the configurable ticket editor

CTR / E = delete current line
 CTR / D = delete current character
 CTR / I = insert one space character
 CTR / A = go to next character
 BACK SPACE = go back to previous character
 ENTER = carriage return

2.8.3. System data instructions

All the data recorded in the system may be printed with these instructions:

RS1 : 1st line of the company name (20 characters)
 RS2 : 2nd line of the company name (39 characters)
 RS3 : 3rd line of the company name (39 characters)
 RS4 : 4th line of the company name (39 characters)
 FT1 : 1st line of the ticket footer (39 characters)
 FT2 : 2nd line of the ticket footer (39 characters)
 DDA : Date (current date 10 characters: DD/MM/YYYY)
 DHE : Time (current time 8 characters: HH:MM:SS)
 DNL : Batch number (6 figures)
 DP1 : Product call code (2 figures)
 DP2 : Product name (15 characters)
 DP3 : Weighing set point of the product (8 figures + weight unit and comma: XXXXXX,XXX kg)
 DP4 : Product type (1 character)
 DF1 : Formula call code (2 figures)
 DF2 : Formula name (15 characters)

DPN : Net weight of the product (8 figures + weight unit and comma: **XXXXXX ,XXX kg**)
DNB : Number of cycles already done (6 figures)
DCN : Net weight totalization of the products (10 figures + weight unit and comma: **XXXXXXXX ,XXX kg**)
DDS : DSD number (6 numbers)
DRD : Dosage rank# (2 figures)
DED : Dosage status (3 characters, see 4.1.)
DBA : Scale number (1 figure)

3. RESULT OPTIONS:

In the operation mode, off-cycle, press the  key to display the following menu:

1 = DOSING TICKET	⇒ Print last cycle totalization (see 3.1.)
2 = STOCK +	⇒ Increase product inventory (see 3.2.)
3 = STOCK -	⇒ Decrease product inventory (see 3.3.)
4 = PRN STOCK PROD	⇒ Print the inventory level of the product (see 3.4.)
5 = PRN PROD TOTAL	⇒ Print the totalizations per product (see 3.5.)
6 = PRN FORM TOTAL	⇒ Print the totalizations per Formula (see 3.6.)
0 = RETURN MENU	⇒ Return to the operation mode (see 3.7.)

3.1. Print last cycle totalization:

Press the  key to display message "PRINT IN PROG." and print the last cycle totalization, then back to operation mode (off-cycle)

Printing example:

```

ARPEGE MASTER-K

15 RUE DU DAUPHINE
CS 40216
69808 St PRIEST CEDEX

No : 000002    29/08/2013  16:42:08
BATCH No      :123456

01 RENDERING A
-----
: 01 CEMENT           :      250.100 kg:
: 02 SAND 0,2 mm2    :      750.100 kg:
: 10 WATER            :      125.000 kg:
-----
:   TOTAL:           :      1125.200 kg:
-----

TEL:04-72-22-92-22 / FAX:04-78-90-84-16
www.masterk.com

```

3.2. Increase product inventory:

Press the  key to display the following screen:

```

2 = STOCK +
-----
PRODUCT CODE: 00
REGULARISATION
= +000000.000 kg
-----
PRODUCT
      STOCK
+      0.000 kg
  
```

Enter the requested product call code, then press  to get to the following screen:

```

2 = STOCK +
-----
PRODUCT CODE: 01 ← ①
REGULARISATION
= +000000.000 kg ← ②
-----
PRODUCT
CEMENT ← ③
      STOCK ← ④
+ 499349.800 kg
  
```

Legend:

- 1 ⇒ Product call code
- 2 ⇒ Product quantity to be added
- 3 ⇒ Product name
- 4 ⇒ Current inventory level

Enter the quantity to be added, then press the  key, the inventory level is updated and the display returns to previous screen whether to add inventory for this product or another or exit the function by pressing the

 key.

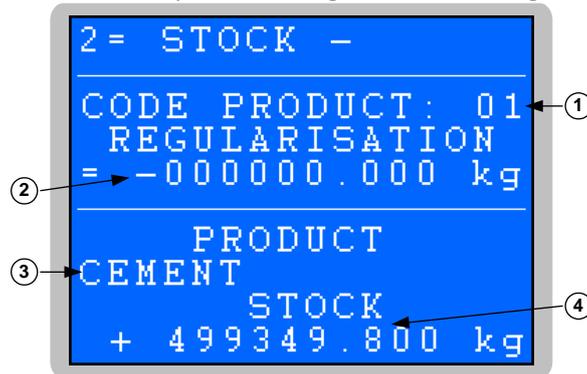
3.3. Decrease product inventory:

Press the  key to display the following screen:

```

2 = STOCK -
-----
CODE PRODUCT: 00
REGULARISATION
= -000000.000 kg
-----
PRODUCT
      STOCK
+      0.000 kg
  
```

Enter the requested product call code, then press  to get to the following screen:



Legend:

- 1 ⇒ Product call code
- 2 ⇒ Product quantity to be reduced
- 3 ⇒ Product name
- 4 ⇒ Current inventory level

Enter the quantity to be reduced, then press the  key, the inventory level is updated and the display returns to previous screen whether to decrease inventory for this product or another or exit the function by pressing the  key.

3.4. Print the inventory level of the product:

Press the  key to print the inventory level, then back to previous display.

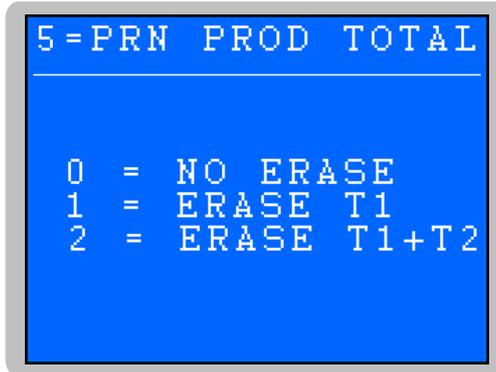
Printing example:

30/08/2013		09:43:44	
: PRODUCT CODE	:	STOCK	:
: 01 CEMENT	:	+ 499349.800 kg	:
: 02 SAND 0,2 mm2	:	+ 498049.800 kg	:
: 03 SAND 0,5 mm2	:	+ 510000.000 kg	:
: 04 LIME	:	+ 500000.000 kg	:
: 10 WATER	:	+ 499675.000 kg	:
: 20 ANTIFREEZE ADJ.	:	+ 5000.000 kg	:
: 21 DAMP-PROOF ADJ.	:	+ 5000.000 kg	:
: 22 PLASTICIZER.ADJ	:	+ 5000.000 kg	:
: 23 HARDENER ADJ.	:	+ 5000.000 kg	:
: 30 GREY DYE	:	+ 4999.200 kg	:
: 31 BLUE DYE	:	+ 4999.200 kg	:
: 32 RED DYE	:	+ 5000.000 kg	:
: 33 YELLOW DYE	:	+ 5000.000 kg	:

3.5. Print the totalizations per product:

Press the  key to display the "PRINT IN PROG." message and print the totalizations.

And then access to the following screen:



Select one of the option to delete or not the totalization results:

- **0** : No delete
- **1** : Delete only "T1" / "C1" totalizations
- **2** : Delete "T1" / "C1" and "T2" / "C2" totalizations

Then return to previous screen.

Printing example:

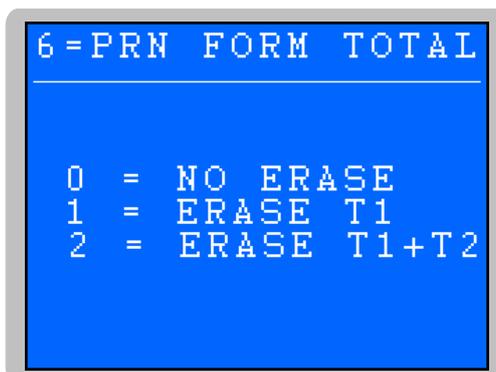
PRODUCT	
30/08/2013	09:45:21

:01 CEMENT	: T1= 650.200 kg :
:	: T2= 650.200 kg :
:02 SAND 0,2 mm2	: T1= 1950.200 kg :
:	: T2= 1950.200 kg :
:10 WATER	: T1= 325.000 kg :
:	: T2= 325.000 kg :
:30 GREY DYE	: T1= 0.800 kg :
:	: T2= 0.800 kg :
:31 BLUE DYE	: T1= 0.800 kg :
:	: T2= 0.800 kg :

C1= 2927.000 kg	C2= 2927.000 kg

3.6. Print Formula totalizations: **6**

Press the **6** key to display the "PRINT IN PROG." message and print the totalizations, and then access to the following screen:



Select one of the option to delete or not the Formula totalization results:

-  : No delete
-  : Delete only "T1" / "C1" totalizations
-  : Delete "T1" / "C1" and "T2" / "C2" totalizations

Then return to previous screen.

Printing example:

30/08/2013	09:58:40
01 RENDERING A	

:01 CEMENT	: T1= 250.100 kg :
:	: T2= 250.100 kg :
:02 SAND 0,2 mm2	: T1= 750.100 kg :
:	: T2= 750.100 kg :
:10 WATER	: T1= 125.000 kg :
:	: T2= 125.000 kg :

C1= 1125.200 kg	C2= 1125.200 kg
30/08/2013	09:58:40
02 RENDER.A C12272	

:01 CEMENT	: T1= 400.100 kg :
:	: T2= 400.100 kg :
:02 SAND 0,2 mm2	: T1= 1200.100 kg :
:	: T2= 1200.100 kg :
:10 WATER	: T1= 200.000 kg :
:	: T2= 200.000 kg :
:30 GREY DYE	: T1= 0.800 kg :
:	: T2= 0.800 kg :
:31 BLUE DYE	: T1= 0.800 kg :
:	: T2= 0.800 kg :

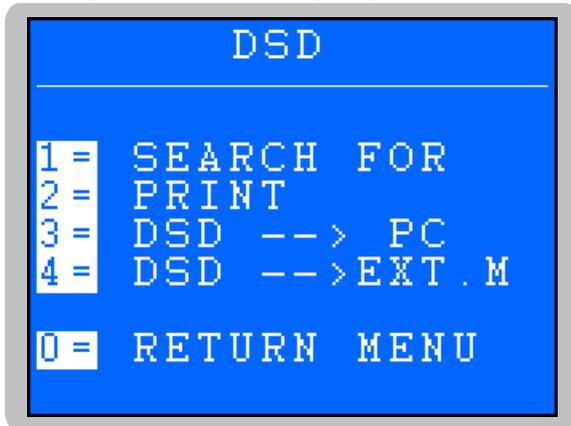
C1= 1801.800 kg	C2= 1801.800 kg

3.7. Return to operation mode:

Press the  key to exit and return to the operation mode, off-cycle.

4. ACCESS TO DSD FILE:

In the operation mode, off-cycle, press the  key to access to the DSD and display the following screen:

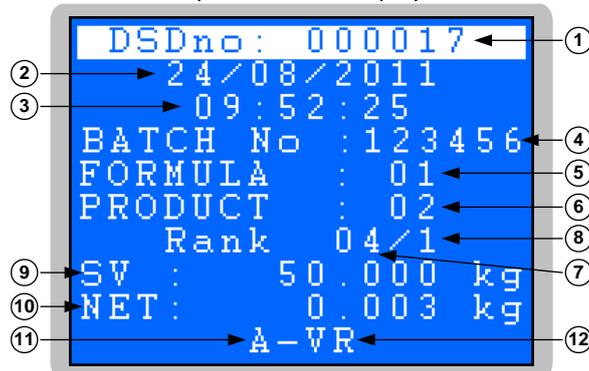


- ⇒ Display a DSD record (see 4.1.)
- ⇒ Print the DSD (see 4.2.)
- ⇒ Upload the DSD to a PC (see 4.3.)
- ⇒ Upload the DSD to the EXT. MEM. (see 4.4.)
- ⇒ Return to operation mode (see 4.5.)

4.1. Display a DSD record:

Press the  key to display the "DSDno: xxxxxx" message. Field "xxxxxx" is the latest DSD record number.

Enter the requested DSD record number then press  to display the record data as below:



Legend:

- | | |
|-------------------------|---|
| - 1 ⇒ DSD record number | - 7 ⇒ Product rank# in the Formula |
| - 2 ⇒ Dosage date | - 8 ⇒ Scale number |
| - 3 ⇒ Dosage time | - 9 ⇒ Dosage set point |
| - 4 ⇒ Batch number | - 10 ⇒ Net weight value |
| - 5 ⇒ Formula call code | - 11 ⇒ Product type (A/M/T/I/B, see 2.4.2.) |
| - 6 ⇒ Product call code | - 12 ⇒ Dosage status (3 characters) |

Press any key to return to previous screen.

Dosage status:

The dosage status is built with 3 characters:

- ❖ 1st character : Tolerance
 - " " ⇒ Batch weight is within tolerance
 - "+" ⇒ Batch weight is over the tolerance +
 - "-" ⇒ Batch weight is over the tolerance -

- ❖ 2nd and 3rd characters: Final state of the batch weight.
- " " ⇒ Dosage ended normally
- "AN" ⇒ Dosage cycle was cancelled
- "VR" ⇒ The batch was discharged during cycle

4.2. DSD printing:

Press the  key to access to the following menu:

Begin date Enter the starting date of the DSD hard copy, then press 
JJ/MM/20AA

End date Enter the ending date of the DSD hard copy, then press 
JJ/MM/20AA

Messages "DSD", "PRINT IN PROG." are displayed and the printing starts. At the end of the printing, the previous screen is displayed.

Printing example:

The 30/08/2013 10:41:49		DSD		Frm 30/08/2013 To 30/08/2013				
000040	30/08/13 09:02:09	078512	02	01	01/1	50.000 kg	50.000 kg	A
000041	30/08/13 09:02:55	078512	02	02	02/1	150.000 kg	150.000 kg	A
000042	30/08/13 09:03:04	078512	02	10	03/1	25.000 kg	25.000 kg	I
000043	30/08/13 09:04:37	078512	02	30	04/1	0.100 kg	0.100 kg	T
000044	30/08/13 09:04:40	078512	02	31	05/1	0.100 kg	0.100 kg	T
000045	30/08/13 09:08:42	078512	02	01	01/1	50.000 kg	50.000 kg	A
000046	30/08/13 09:09:29	078512	02	02	02/1	150.000 kg	150.000 kg	A
000047	30/08/13 09:09:37	078512	02	10	03/1	25.000 kg	25.000 kg	I
000048	30/08/13 09:09:42	078512	02	30	04/1	0.100 kg	0.100 kg	T
000049	30/08/13 09:09:46	078512	02	31	05/1	0.100 kg	0.100 kg	T
000050	30/08/13 09:10:16	078512	02	01	01/1	50.000 kg	50.000 kg	A
000051	30/08/13 09:11:02	078512	02	02	02/1	150.000 kg	150.000 kg	A
000052	30/08/13 09:11:11	078512	02	10	03/1	25.000 kg	25.000 kg	I
000053	30/08/13 09:13:58	078512	02	30	04/1	0.100 kg	0.100 kg	T
000054	30/08/13 09:14:01	078512	02	31	05/1	0.100 kg	0.100 kg	T
000055	30/08/13 10:51:39	078512	02	01	01/1	50.000 kg	50.000 kg	A
000056	30/08/13 10:52:26	078512	02	02	02/1	150.000 kg	150.000 kg	A
000057	30/08/13 10:52:34	078512	02	10	03/1	25.000 kg	25.000 kg	I
000058	30/08/13 10:52:39	078512	02	30	04/1	0.100 kg	0.100 kg	T
000059	30/08/13 10:52:44	078512	02	31	05/1	0.100 kg	0.100 kg	T
000060	30/08/13 10:53:00	078512	02	01	01/1	50.000 kg	12.100 kg	A VR

4.3. Upload the DSD to a PC:



WARNING: DSD data on another device than the indicator are not complying with legal-for-trade regulations. They should be only considered as information data for internal use.

To proceed to the transfer, you need to:

- Connect the **PC** (on **COM1**) to the **IDE** (on **COM1**).
- Start HyperTerminal software ("C:\Program_Files\Accessoires\HyperTerminal\HYPERTRM.EXE")
- Name this connection and confirm (TERMINAL.IDE).
- Go to the "**Connect using**" parameter, and select "**Direct to Com1**".

- Set the protocol parameters at **9600 Bauds, 8 bits, no parity, one stop, and no flow control**.
- Start the data reception by selecting the "**Transfer**" option, then "**Capture Text**", enter the backup filename and confirm with "**Start**".
- The **PC** is now ready to receive data from the indicator.

- Press the  key, and enter the requested parameters :

Begin date Enter the starting date of the DSD upload, then press 
JJ/MM/20AA

End date Enter the ending date of the DSD upload, then press 
JJ/MM/20AA

- The "OK ? Yes=1 No=0" message is displayed
- Press the  key to confirm the DSD upload, or press key  to cancel
- The DSD file scrolls on the PC screen during the transfer
- When the transfer is over, the file capture needs to be finalized. Go in the "**Transfer**" option, then "**Capture Text**" and "**Stop**"
- Then return to the DSD display

Remember: *.TXT file format is compatible with EXCEL software.

4.4. Upload the DSD to the EXT. MEM: (USB stick)



WARNING: DSD data on another device than the indicator are not complying with legal-for-trade regulations. They should be only considered as information data for internal use.

Press the  key of the indicator to enter the following parameters:

Begin date Enter the starting date of the DSD upload, then press 
JJ/MM/20AA

End date Enter the ending date of the DSD upload, then press 
JJ/MM/20AA

Transfer starts and the "**WRITE . .**" message is displayed until the transfer is over, then return to the DSD display.

Remember: *.TXT file format is compatible with EXCEL software.

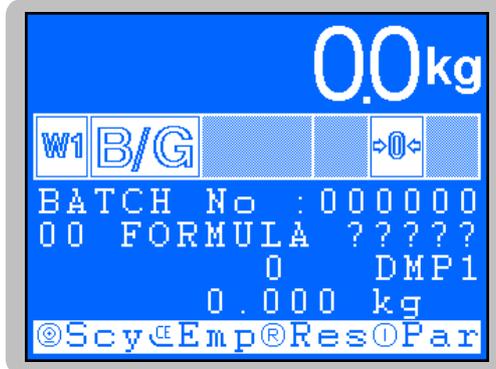
4.5. Return to operation mode:

Press the  key to return to the operation mode, off-cycle.

5. OPERATIONS

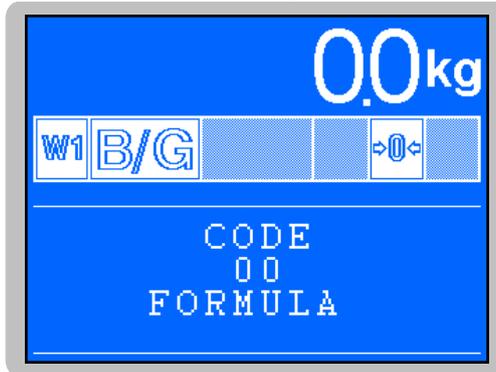
5.1. Dosage cycle start: (Or on TSI3 device)

The following screen is displayed in the operation mode, off-cycle:



Legend: See page 13

Press key  /  (TSI3) to start the cycle, the following screen is displayed:

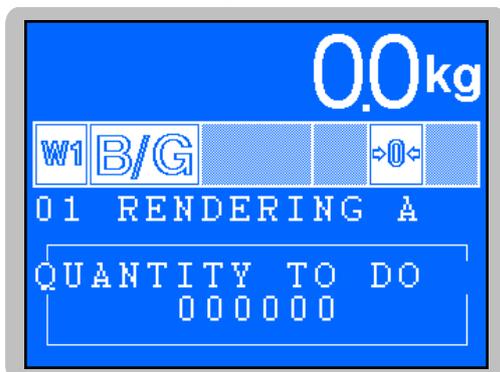


The Formula call code displayed is the one for the latest cycle.

Enter the Formula call code to be used (2 figures), and press  (or  for TSI3 device)

Then if the "DOSING MODE" parameter is not "0", the following screen is displayed.

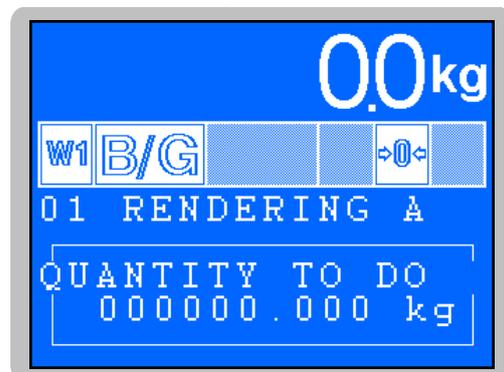
"DOSING MODE" = "1"



The displayed quantity is the one for the latest cycle.

Enter the number of cycles to be done (6 figures),
then press  (or  for TSI3)

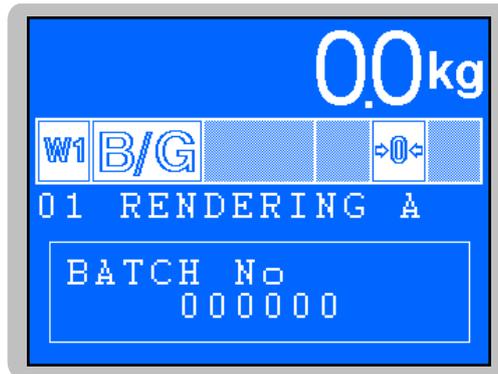
"DOSING MODE" = "2"



The displayed quantity is the one for the latest cycle.

Enter the quantity to be weighted to be done (6 figures), then press  (or  for TSI3)

Then get to the following screen:



The displayed batch number is the one for the latest cycle.

Enter the batch number (6 figures), then press \leftarrow (or \downarrow for TSI3) to display the following message "OK ? Yes=1 No=0".

Press the \leftarrow key (or \downarrow on TSI3) to cancel the cycle start or cycle start may be launched later on whether by pressing key \leftarrow / \downarrow (TSI3) or via the **E1** input.

Otherwise press keys \leftarrow / \downarrow (TSI3) or \leftarrow / \downarrow (TSI3)

Remember:

- If the cycle number is set to 9999, no limitation will be considered (no countdown), and process will run infinitely. A cancel instruction will be mandatory to stop the process.
- If the weight indication is out of range, cycle start will be automatically cancelled.
- The indicator will do the automatic tare calibration and allow the High Speed dosage only if the scale is stable.
- The dosage data update may be done via an external device (see "6. EXTERNAL COMMUNICATION LINK ")

5.2. Hold, cancel a cycle

A cycle can be interrupted at any time in different ways, all output contacts are deactivated.

The following options are available for suspending or cancelling a cycle:

\leftarrow + \leftarrow \Rightarrow Cancelling a suspended cycle. A 1 second pulse on **I2** input has the same effect on a suspended cycle (for TSI3: \leftarrow + \leftarrow)

\leftarrow + \leftarrow \Rightarrow Suspension of the cycle when the scale is empty (Cycle and drain completed, for TSI3: \leftarrow + \leftarrow)

\leftarrow + \leftarrow \Rightarrow Suspension of the cycle when the scale is full (Cycle completed and drain waiting, for TSI3: \leftarrow + \leftarrow)

\leftarrow + \leftarrow \Rightarrow End of the cycles, the current cycle is completed normally then the unit switches off cycle (for TSI3: \leftarrow + \leftarrow)

\leftarrow + \leftarrow \Rightarrow Stop and drain of the remaining quantity (VDR), to be used when there is no more product to dose (for TSI3: \leftarrow + \leftarrow)

$\text{CE} + \text{5}_{JKL} \Rightarrow$ Immediate suspension of the current cycle. A 1 second pulse on **I3** input has the same effect, a second pulse on the **I2** input will cancel the current cycle (for TSI3: $\text{CE} + \text{5}$)

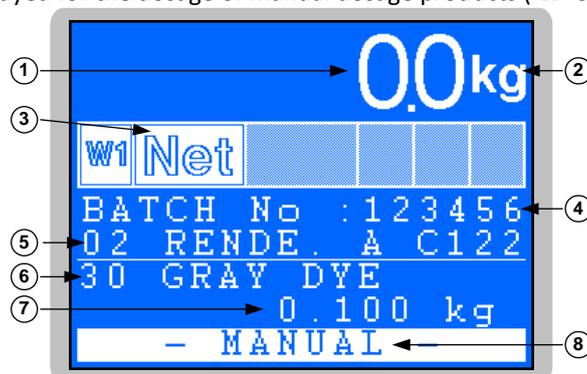
Press the  key (D key on TSI3) or  /  (TSI3) to resume the suspended cycle.

A 1 second pulse on **I1** input has the same effect.

Remember: cycle suspension and cancellation may be done by an external device (see "6. EXTERNAL COMMUNICATION LINK")

5.3. Acknowledging a manual dosage ("M" / "T" types)

The following screen is displayed for the dosage of manual dosage products ("M" or "T" types):



Legend:

- | | |
|---|--|
| - 1 \Rightarrow Weight on 5 x 14 mm high digits | - 5 \Rightarrow Call code and name of the current Formula |
| - 2 \Rightarrow Weight unit : kg or t | - 6 \Rightarrow Call code et name of the current component in dosage |
| - 3 \Rightarrow Displayed weight is Net weight | - 7 \Rightarrow Weight |
| - 4 \Rightarrow Batch number for the current cycle | - 8 \Rightarrow product is in manual dosage |

The operator weights the component manually, then acknowledges to resume the cycle:

- Either via the keyboard by pressing key  ( for TSI3)
- Either via a 1 second pulse on the **I5** input

The weight is recorded and the cycle is resumed.

Remember: the acknowledgement may be done by an external device (see "6. EXTERNAL COMMUNICATION LINK")

5.4. Acknowledgement of a batch weight out of range

At the end of each dosage, the system waits for the stability of the scale, then checks that the net weight is determined within the set point tolerances.

In case a batch is measured outside the tolerance (+ or -) the cycle is automatically suspended and the default contact is activated.

The operator may add or remove some product, then acknowledge the default to resume the dosage:

- Either by pressing key  /  (TSI3) or  /  (TSI3)
- Either with a 1 second pulse on input **E4**.

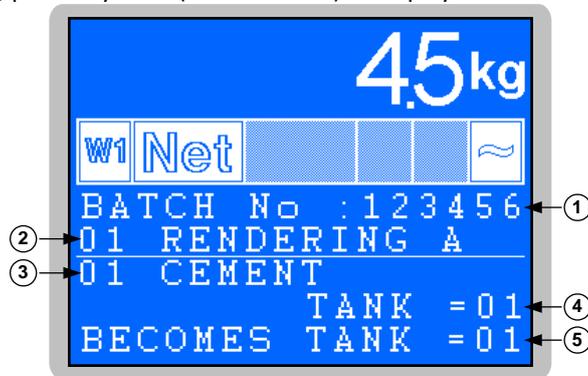
Weight is recorded and the default contact is opened to resume the cycle.

Remember: The acknowledgement may be obtained via an external system (see "6. EXTERNAL COMMUNICATION LINK")

5.5. Modification of the tank # of a component currently in dosage

The tank# of a component may be changed during the dosage cycle (Tank empty or almost empty), by operating an immediate suspension of the current cycle:  +  ( +  for TSI3) while the dosage of the considered component is running.

Once the cycle is suspended, press key  ( for TSI3) to display the following screen:



Legend:

- 1 ⇒ Batch number of the current cycle
- 2 ⇒ Call code and name of the current Formula
- 3 ⇒ Call code et name of the current component
- 4 ⇒ Current tank # to be changed
- 5 ⇒ New tank # of the current component in dosage (Data to be entered)

Enter the requested tank# for the current component, then press  ( for TSI3), then resume the cycle.

5.6. Addition of component after a cycle suspension and composition analysis

After an automatic suspension of the cycle (instruction "4YYY" in the Formula, see 2.5.2.) and after the "OP . SUSPENDED" instruction (see 2.6.2.) it is possible to add some component.

Press key  ( for TSI3), enter the call code and the quantity to be added for the component. The weighing of the requested quantity is done in slow speed, then back to cycle suspension. Another addition may then be done, or cycle may be resumed in the current Formula.

Remember: If the total quantity summing the requested quantity and the sum of the set point values is exceeding the high level threshold (see 2.6.3.), the default message "ERROR No 05 ESC" is displayed.

5.7. Manual drain

In the operation mode, off-cycle, press key \overline{CE} (\overline{CE}) for TSI3) to launch a manual drain. The "EMPTY SCALE ? 0=NO 1=YES" message is displayed.

Press key $\textcircled{1}$ ($\overline{1}$) for TSI3) to launch the manual drain (or $\textcircled{0}$ / $\overline{0}$) to cancel) and display the "MAN-EMPTYING-" message.

Press key \overline{CE} (\overline{CE}) for TSI3) once again to stop the manual drain and return to the operation mode, off-cycle.

5.8. Communication protocol for dosage via an external device

It is possible to control and monitor the dosage via an external device using one of the available protocol (see"6. EXTERNAL COMMUNICATION LINK")

5.9. Default codes

Default codes are displayed during few seconds or until the default acknowledgement by the operator.

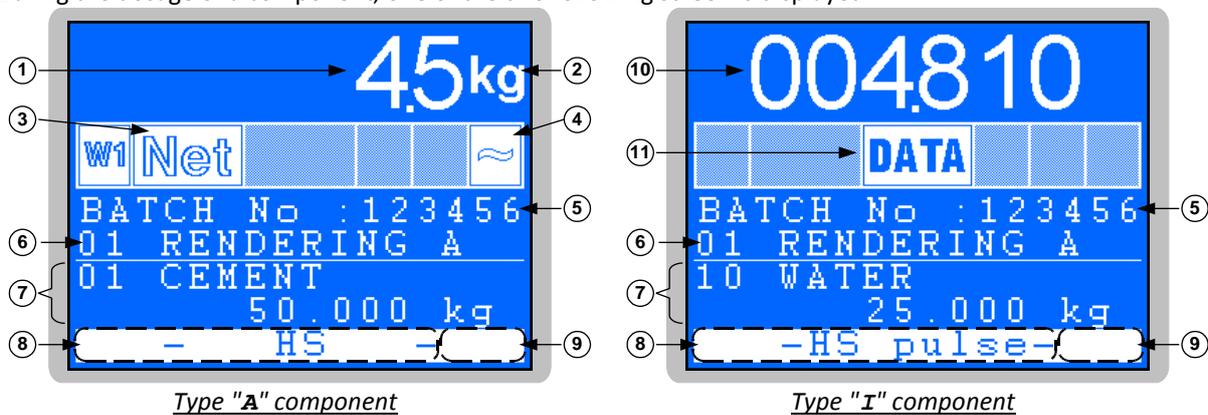
- ERROR No 01 ESC ⇒ Formula call code is unknown (doesn't exist in the file)
- ERROR No 02 ESC ⇒ Quantity set point is null
- ERROR No 03 ESC ⇒ Incorrect scale number
- ERROR No 04 ESC ⇒ Le component call code is unknown (doesn't exist in the file)
- ERROR No 05 ESC ⇒ Total of the dosage set points is exceeding the high level threshold of the Formula (Formula maximum weight, see 2.6.3.)
- ERROR No 06 ESC ⇒ The feed error (EDJ) is greater than or equal the set point
- ERROR No 07 ESC ⇒ Default on the CAN bus communication
- ERROR No 08 ESC ⇒ Slave scale not ready
- ERROR No 09 ESC ⇒ No cycle start on the slave scales
- ERROR NoB/1 ESC ⇒ Time out default on slave scale (CAN bus)
- ERROR NoB/2 ESC ⇒ Slave scale not ready for dosage
- ERROR NoB/3 ESC ⇒ Weight default on slave scale
- ERROR NoB/4 ESC ⇒ Slave scale not empty (low level threshold)

Remember:

For those default codes, the "B" character stands for the slave scale number involved with the default (From 2 to 8)

5.10. Available information in dosage mode

During the dosage of a component, one of the two following screen is displayed:



Legend:

- 1 ⇒ Weight on 5 x 14 mm high digits
- 2 ⇒ Weight unit : **kg** or **t**
- 3 ⇒ Displayed weight is Net weight
- 4 ⇒ Indicates that the weight is varying.
- 5 ⇒ Batch number for the current cycle
- 6 ⇒ Call code and name of the current formula
- 7 ⇒ Display field of the cycle data (see 5.10.1.)
- 8 ⇒ Display field of the cycle status (see 5.10.2.)
- 9 ⇒ Display field of keyboard instructions (see 5.2.)
- 10 ⇒ Counted weight (Per pump pulse)
- 11 ⇒ States that displayed weight is a data

5.10.1. Display field of the cycle data

During the various steps of the dosage cycle, the dosage information of the current component are displayed. During the drain operation, the summary of the dosage cycles since the cycle start are displayed.

Dosage example with a 3 component formula:

Dosage step	Display	Designation
Dosage of rank#1 component		
Dosage of rank#2 component		- 1 ⇒ Call code and name of the component in dosage - 2 ⇒ Dosage set point
Dosage of rank#3 component		
Drain		- 1 ⇒ Number of cycles done since cycle start - 2 ⇒ Total weight since cycle start

5.10.2. Display field of the cycle status

The dosage cycle is described according the following steps:

- **HS** - ⇒ High speed dosage in progress
- HS pulse**- ⇒ High speed dosage in progress (Pulse count)
- **TSLS** - ⇒ Timer for Dosage start in low speed
- **LS** - ⇒ Low speed dosage in progress
- PV pulse**- ⇒ Low speed dosage in progress (Pulse count)
- **FE** - ⇒ Feed error adjustment
- EMPTYING**- ⇒ Drain in progress
- INT. EMPT**- ⇒ Intermediate drain in progress
- **T EMPT** - ⇒ Drain end timer
- **STABLE** - ⇒ Waiting for the weight stability
- WEI ERR** - ⇒ Weight fault during tare
- WAIT I6** - ⇒ Waiting for input **I6** activation (Dosage acknowledgement)
- WAIT I7** - ⇒ Waiting for input **I7** activation (Drain acknowledgement)

- **T. PRO** - ⇒ Current component timer
- **THRESH.** - ⇒ Waiting for low level threshold (Scale not empty)
- **TARING** - ⇒ Tare calibration of the scale in progress (Stability for calibration)
- **MANUAL** - ⇒ Manual dosage of the component
- **TRANSF** - ⇒ Dosage transfer from another scale

- SUSPEND.** - ⇒ Cycle on hold: $\text{CE} + \text{5}_{JKL} (\text{CE} + \text{5})$ for TSI3)
- **OT-** - ⇒ Default, batch out of tolerance -
- **OT+** - ⇒ Default, batch out of tolerance +
- **POWER !** - ⇒ Power default
- AG.XXXXs**- ⇒ Shaking on progress, "XXXX" is the remaining shaking time

- EMP-SUSPEND.** - ⇒ Cycle on hold, scale empty: $\text{CE} + \text{1} (\text{CE} + \text{1})$ for TSI3)
- FUL-SUSPEND.** - ⇒ Cycle on hold, scale full: $\text{CE} + \text{2}_{ABC} (\text{CE} + \text{2})$ for TSI3)

6. EXTERNAL COMMUNICATION LINK

6.1. [JBUS/MODBUS/MODBUS TCP protocol \(on Ethernet XPort\)](#)

An external system can communicate with the indicator by serial link and can control the process or collect dosage data in real time. This is transparent to the user as this function is run in multi-tasking by the indicator. This functionality is activated if the "PILOT" setting for **COM1** or **COM2** is "02", or if the "PILOT" setting for **COM2** is "20" with the optional Ethernet Modbus TCP (XPort) board, see 2.6.5.

Remember:

- In standard, **COM1** can be used in RS232 or RS485 2 wires (Selection by setting)
- In standard, **COM2** is in passive current loop. List of available optional boards on **COM2** (These boards are galvanically isolated) :
 - RS485 board, with 2 or 4 wires
 - RS232 board
 - Current loop board, active or passive
 - ETHERNET XPORT board

6.1.1. [JBUS/MODBUS/MODBUS TCP link \(on Ethernet XPort\)](#)

Format: Communication must be set with 9600 bauds, 8 bits, no parity, 1 stop.

Memory space: Data exchange is done via memory spaces named 'tables' which are available both from the indicator or the external device:

- ❖ The first 'table' is meant for the dosage monitoring, only available in read-only mode from the external device.
- ❖ The first 'table' is meant for the process control and is available in read and write from the external device. It allows writing dosage instructions.



Remember :

- An 8 bit protocol is mandatory (RTU mode)
- 'Table' address are byte codes (1 word = 2 bytes)
- Following addresses are available for the JBUS and MODBUS TCP protocols. For MODBUS protocol, increment with 1 to these values.

6.1.2. [Dosage data mapping/encoding table](#)

Address		Size (words)	Encoding	Designation	Status
Hex.	Decimal				
47D0 H	18 384 d	2	32 Bits	Weight status and default codes, 32 bits, see below detail	
47D4 H	18 388 d	2	Signed long integer	Batch number	
47D8 H	18 392 d	2	Signed long integer	Call code of the current Formula	
47DC H	18 396 d	2	Signed long integer	Call code of the current component	
47E0 H	18 400 d	2	Signed long integer	Current component set point (value in grams)	
47E4 H	18 404 d	2	Signed long integer	Set quantity (Cycle number or weight)	
47E8 H	18 408 d	2	Signed long integer	Remaining quantity (Cycle number or weight)	
47EC H	18 412 d	2	32 Bits	Input + instructions status, 32 bit, see below detail	
47F0 H	18 416 d	2	32 Bits	Outputs status, 32 bits, see below detail	
47F4 H	18 420 d	2	Signed long integer	Gross weight (value in grams)	
47F8 H	18 424 d	2	Signed long integer	Tare value (value in grams)	
47FC H	18 428 d	2	Signed long integer	Net weight (value in grams)	

Address		Size (words)	Encoding	Designation
Hex.	Decimal			
4800	H 18 432	d 2	Long signed integer	Call code of the 1 st component (-1 , not yet weighted)
4804	H 18 436	d 2	Long signed integer	Net weight of the 1 st component (-1 , not yet weighted)
4808	H 18 440	d 2	Long signed integer	Call code of the 2 nd component (-1 , not yet weighted)
480C	H 18 444	d 2	Long signed integer	Net weight of the 2 nd component (-1 , not yet weighted)
4810	H 18 448	d 2	Long signed integer	Call code of the 3 rd component (-1 , not yet weighted)
4814	H 18 452	d 2	Long signed integer	Net weight of the 3 rd component (-1 , not yet weighted)
4818	H 18 456	d 2	Long signed integer	Call code of the 4 th component (-1 , not yet weighted)
481C	H 18 460	d 2	Long signed integer	Net weight of the 4 th component (-1 , not yet weighted)
4820	H 18 464	d 2	Long signed integer	Call code of the 5 th component (-1 , not yet weighted)
4824	H 18 468	d 2	Long signed integer	Net weight of the 5 th component (-1 , not yet weighted)
4828	H 18 472	d 2	Long signed integer	Call code of the 6 th component (-1 , not yet weighted)
482C	H 18 476	d 2	Long signed integer	Net weight of the 6 th component (-1 , not yet weighted)
4830	H 18 480	d 2	Long signed integer	Call code of the 7 th component (-1 , not yet weighted)
4834	H 18 484	d 2	Long signed integer	Net weight of the 7 th component (-1 , not yet weighted)
4838	H 18 488	d 2	Long signed integer	Call code of the 8 th component (-1 , not yet weighted)
483C	H 18 492	d 2	Long signed integer	Net weight of the 8 th component (-1 , not yet weighted)
4840	H 18 496	d 2	Long signed integer	Call code of the 9 th component (-1 , not yet weighted)
4844	H 18 500	d 2	Long signed integer	Net weight of the 9 th component (-1 , not yet weighted)
4848	H 18 504	d 2	Long signed integer	Call code of the 10 th component (-1 , not yet weighted)
484C	H 18 508	d 2	Long signed integer	Net weight of the 10 th component (-1 , not yet weighted)
4850	H 18 512	d 2	Long signed integer	Call code of the 11 th component (-1 , not yet weighted)
4854	H 18 516	d 2	Long signed integer	Net weight of the 11 th component (-1 , not yet weighted)
4858	H 18 520	d 2	Long signed integer	Call code of the 12 th component (-1 , not yet weighted)
485C	H 18 524	d 2	Long signed integer	Net weight of the 12 th component (-1 , not yet weighted)
4860	H 18 528	d 2	Long signed integer	Call code of the 13 th component (-1 , not yet weighted)
4864	H 18 532	d 2	Long signed integer	Net weight of the 13 th component (-1 , not yet weighted)
4868	H 18 536	d 2	Long signed integer	Call code of the 14 th component (-1 , not yet weighted)
486C	H 18 540	d 2	Long signed integer	Net weight of the 14 th component (-1 , not yet weighted)
4870	H 18 544	d 2	Long signed integer	Call code of the 15 th component (-1 , not yet weighted)
4874	H 18 548	d 2	Long signed integer	Net weight of the 15 th component (-1 , not yet weighted)
4878	H 18 552	d 2	Long signed integer	Call code of the 16 th component (-1 , not yet weighted)
487C	H 18 556	d 2	Long signed integer	Net weight of the 16 th component (-1 , not yet weighted)
4880	H 18 560	d 2	Long signed integer	Call code of the 17 th component (-1 , not yet weighted)
4884	H 18 564	d 2	Long signed integer	Net weight of the 17 th component (-1 , not yet weighted)
4888	H 18 568	d 2	Long signed integer	Call code of the 18 th component (-1 , not yet weighted)
488C	H 18 572	d 2	Long signed integer	Net weight of the 18 th component (-1 , not yet weighted)
4890	H 18 576	d 2	Long signed integer	Call code of the 19 th component (-1 , not yet weighted)
4894	H 18 580	d 2	Long signed integer	Net weight of the 19 th component (-1 , not yet weighted)
4898	H 18 584	d 2	Long signed integer	Call code of the 20 th component (-1 , not yet weighted)
489C	H 18 588	d 2	Long signed integer	Net weight of the 20 th component (-1 , not yet weighted)
48A0	H 18 592	d 2	Long signed integer	Call code of the 21 st component (-1 , not yet weighted)
48A4	H 18 596	d 2	Long signed integer	Net weight of the 21 st component (-1 , not yet weighted)
48A8	H 18 600	d 2	Long signed integer	Call code of the 12 th component (-1 , not yet weighted)
48AC	H 18 604	d 2	Long signed integer	Net weight of the 12 th component (-1 , not yet weighted)
48B0	H 18 608	d 2	Long signed integer	Call code of the 22 nd component (-1 , not yet weighted)
48B4	H 18 612	d 2	Long signed integer	Net weight of the 22 nd component (-1 , not yet weighted)
48B8	H 18 616	d 2	Long signed integer	Call code of the 23 rd component (-1 , not yet weighted)
48BC	H 18 620	d 2	Long signed integer	Net weight of the 23 rd component (-1 , not yet weighted)

Dosage results

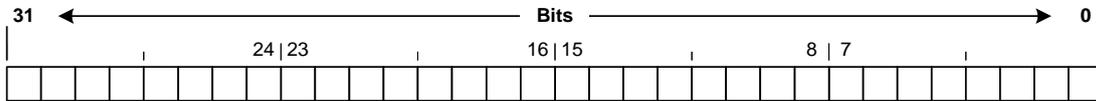
Address		Size (words)	Encoding	Designation
Hex.	Decimal			
48C0 H	18 624 d	2	Long signed integer	Call code of the 24 th component (-1, not yet weighted)
48C4 H	18 628 d	2	Long signed integer	Net weight of the 24 th component (-1, not yet weighted)
48C8 H	18 632 d	2	Long signed integer	Call code of the 25 th component (-1, not yet weighted)
48CC H	18 636 d	2	Long signed integer	Net weight of the 25 th component (-1, not yet weighted)
48D0 H	18 640 d	2	Long signed integer	Call code of the 26 th component (-1, not yet weighted)
48D4 H	18 644 d	2	Long signed integer	Net weight of the 26 th component (-1, not yet weighted)
48D8 H	18 648 d	2	Long signed integer	Call code of the 27 th component (-1, not yet weighted)
48DC H	18 652 d	2	Long signed integer	Net weight of the 28 th component (-1, not yet weighted)
48E0 H	18 656 d	2	Long signed integer	Call code of the 29 th component (-1, not yet weighted)
48E4 H	18 660 d	2	Long signed integer	Net weight of the 29 th component (-1, not yet weighted)
48E8 H	18 664 d	2	Long signed integer	Call code of the 30 th component (-1, not yet weighted)
48EC H	18 668 d	2	Long signed integer	Net weight of the 30 th component (-1, not yet weighted)

Dosage results

Remember:

- 'Table' length in word number : 144 words (24 words in the status table + 120 words in the dosage status table)
- Starting address : 47D0 hexadecimal / 18 384 decimal
- These addresses are available for the JBUS and MODBUS TCP protocols. For MODBUS protocol, increment 1 more to these values
- The indicator memory and its allocation are byte-based
- Access : **R** ⇒ Read-only access mode, writing not allowed
- Read-only table ⇒ **NEVER WRITE IN THIS TABLE** (This would cause unpredictable operations from the indicator)
- The dosage results table is initialized at FFFF H (-1 D) at dosage start

Image definition of weight status and default codes: (Double word at 47D0 H address)



❖ **Default codes:** Default codes are in ASCII encoding, and are detailed in paragraph "5.9. Default codes".

➤ b0 to b15

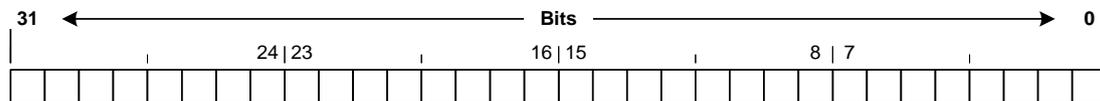
- 01 ⇒ stands for "ERROR No 01 ESC".
- 02 ⇒ stands for "ERROR No 02 ESC".
- 03 ⇒ stands for "ERROR No 03 ESC".
- 04 ⇒ stands for "ERROR No 04 ESC".
- 05 ⇒ stands for "ERROR No 05 ESC".
- 06 ⇒ stands for "ERROR No 06 ESC".
- 07 ⇒ stands for "ERROR No 07 ESC".
- 08 ⇒ stands for "ERROR No 08 ESC".
- 09 ⇒ stands for "ERROR No 09 ESC".
- B1 ⇒ stands for "ERROR NoB/1 ESC".
- B2 ⇒ stands for "ERROR NoB/2 ESC".
- B3 ⇒ stands for "ERROR NoB/3 ESC".
- B4 ⇒ stands for "ERROR NoB/4 ESC".

Remember:

For those default codes, the "B" character stands for the slave scale number involved with the default (From 2 to 8)

❖ Status bits :

- b16 ⇒ if bit value = 1, weight is out of range 'Out of range -'. (⚠ default !)
- b17 ⇒ if bit value = 1, weight is out of range 'Out of range +'. (⚠ default !)
- b18 ⇒ if bit value = 1, metrological default on EEPROM CRC (⚠ default !)
- b19 ⇒ states the current weighing range :
 - 0 ⇒ W1 range
 - 1 ⇒ W2 range
- b20 ⇒ unused
- b21 ⇒ states the zero status (same as ) :
 - 0 ⇒ Zero not OK
 - 1 ⇒ Zero OK
- b22 ⇒ states which weight is displayed,
 - 0 ⇒ Net weight displayed
 - 1 ⇒ Gross weight displayed
- b23 ⇒ unused
- b24 ⇒ if bit value = 1, weight is out of scale range 'Off scale -'. (⚠ default !)
- b25 ⇒ unused
- b26 ⇒ unused
- b27 ⇒ if bit value = 1, reference default on measuring channel (⚠ default !)
- b28 ⇒ if bit value = 1, calculation 'Overflow'. (⚠ default !)
- b29 ⇒ if bit value = 1, weight is out of scale range 'Off scale -'. (⚠ default !)
- b30 ⇒ states if displayed weight is still weight or not,
 - 0 ⇒ weight not still
 - 1 ⇒ still weight
- b31 ⇒ unused

Image definition of the instructions + inputs: (Double word at 5025 H address)❖ Inputs status :

- b0 ⇒ input 1 status (start / resume cycle)
- b1 ⇒ input 2 status (cycle cancellation)
- b2 ⇒ input 3 status (cycle suspension)
- b3 ⇒ input 4 status (out of tolerance acknowledgement)
- b4 ⇒ input 5 status (manual product acknowledgement)
- b5 ⇒ input 6 status (dosage acknowledgement)
- b6 ⇒ input 7 status (drain acknowledgement)
- b7 ⇒ input 8 status (pump pulse)

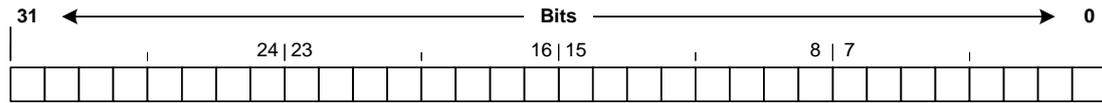
❖ Formula call code :

- b8 to b15 ⇒ Formula call code in binary encoding

❖ Instruction images :

- b16 à b31 ⇒ unused

Definition of the outputs images: (Double word at 47F0 H address)



❖ **Outputs status :**

- b0 ⇒ output 1 status (Tank 1 or 16 if b15=1)
- b1 ⇒ output 2 status (Tank 2 or 17 if b15=1)
- b2 ⇒ output 3 status (Tank 3 or 18 if b15=1)
- b3 ⇒ output 4 status (Tank 4 or 19 if b15=1)
- b4 ⇒ output 5 status (Tank 5 or 20 if b15=1)
- b5 ⇒ output 6 status (Tank 6 or 21 if b15=1)
- b6 ⇒ output 7 status (Tank 7 or 22 if b15=1)
- b7 ⇒ output 8 status (Tank 8 or 23 if b15=1)
- b8 ⇒ output 9 status (Tank 9 or 24 if b15=1)
- b9 ⇒ output 10 status (Tank 10 or 25 if b15=1)
- b10 ⇒ output 11 status (Tank 11 or 26 if b15=1)
- b11 ⇒ output 12 status (Tank 12 or 27 if b15=1)
- b12 ⇒ output 13 status (Tank 13 or 28 if b15=1)
- b13 ⇒ output 14 status (Tank 14 or 29 if b15=1)
- b14 ⇒ output 15 status (Tank 15 or decoding tank 16 to 29)
- b15 ⇒ output 16 status (Dosage end/ batch ready, see "OP MODE O16" at 2.6.2.)
- b16 ⇒ output 17 status (flow default)
- b17 ⇒ output 18 status (out of tolerance default)
- b18 ⇒ output 19 status (scale default / shaking, see "OP MODE O19" at 2.6.2.)
- b19 ⇒ output 20 status (scale low level threshold)
- b20 ⇒ output 21 status (scale high level threshold)
- b21 ⇒ output 22 status (drain)
- b22 ⇒ output 23 status (HS : high speed)
- b23 ⇒ output 24 status (LS : low speed)

- b24 ⇒ dosage cycle in progress
- b25 ⇒ intermediate drain
- b26 ⇒ dosage acknowledgement timer
- b27 ⇒ drain acknowledgement timer
- b28 ⇒ power default
- b29 ⇒ ready for cycle start
- b30 ⇒ cycle on hold
- b31 ⇒ cycle cancelled

6.1.3. Write/read table of process control data

Address		Size (words)	Encoding	Designation	
Hex.	Decimal				
2000 H	8 192 d	1	ASCII	Instruction word	
2002 H	8 194 d	1	Long integer	Answer word	
2004 H	8 196 d	1	-	Data word #1	Data mailbox for instructions Max size : 310 words
2006 H	8 198 d	1	-	Data word #2	
226C H	8 812 d	1	-	Data word #309	
226E H	8 814 d	1	-	Data word #310	

Remember:

- Table size : 312 words
- Start address : 2000 in hexadecimal / 8 192 in decimal
- Those addresses are available for the JBUS and MODBUS TCP protocols. For MODBUS protocol, increment with 1 to these values.
- The indicator memory and its allocation are byte-based
- Access : **R/W** ⇒ read/write access

6.1.3.1. Writing principles of the various instructions

	Instruction	Size (words)	Designation
(1)	AN	2	Cycle cancellation (after SU)
(1)	SU	2	Cycle suspended
(2)	dc	2	Start cycle / Resume suspended cycle
(1)	HT	2	Product out of tolerance acknowledgement
(1)	AM	2	Manual product acknowledgement
(1)	AD	2	Dosage acknowledgement
(1)	AV	2	Drain acknowledgement
(1)	FC	2	Cycle end
(1)	SV	2	Cycle suspended with empty scale
(1)	SP	2	Cycle suspended with full scale
(1)	VR	2	Cycle cancellation with drain of remaining batch (VDR)
(3)	NL	2+2	Batch number modification.
(2)	CB	2	Initializing the data mailbox for instructions
(3)	DC	2 + 4	Loading Formula + quantity with cycle start
(3)	DD	2 + 4	Loading Formula + quantity without cycle start
(3)	CP	2 + 6	Product set point modification
(3)	Rp	2 + 36	Read product record
(3)	Wp	2 + 36	Write product record
(3)	Rf	2 + 309	Read Formula record
(3)	Wf	2 + 309	Write Formula record

(1): instruction sent with cycle in progress

(2): instruction sent with cycle in progress or not

(3): instruction sent off-cycle

All instructions must be written in at least 2 words at address 2000H (8192 d)

The first word is the instruction code and the second word is the answer word which must be set to 0 and should be read after writing to check the proper execution of the instruction.

The instruction and answer words must be written at the same time to ensure that the words of the mailbox data are updated before or are written at the same time as the instruction and answer words (1 single frame)

6.1.3.2. Answer word status

After launching an instruction, the answer word may be read at address 2002 H (8194 d for JBUS, and 8195 d for MODBUS) to check the proper execution of the instruction.

Possible values:

- 0000 H → instruction in progress
- 0001 H → instruction achieved OK
- 9996 H → File is full (Formula or product file)
- 9997 H → unknown call code (Formula or product)
- 9998 H → impossible to operate the instruction
- 9999 H → unknown instruction

6.1.3.3. Instructions with no related data

Inst	Inst word	Answer word	Data mailbox
(1) AN	414E H 16 718 d	0	No data
(1) SU	5355 H 21 333 d	0	No data
(2) dc	6463 H 25 699 d	0	No data
(1) HT	4854 H 18 516 d	0	No data
(1) AM	414D H 16 717 d	0	No data
(1) AD	4144 H 16 708 d	0	No data
(1) AV	4156 H 16 726 d	0	No data
(1) FC	4643 H 17 987 d	0	No data
(1) SV	5356 H 21 334 d	0	No data
(1) SP	5350 H 21 328 d	0	No data
(1) VR	d H 22 098 d	0	No data
(2) CB	4342 H 17 218 d	0	No data

(1): instruction sent with cycle in progress

(2): instruction sent off-cycle or with cycle in progress

Example: Suspended cycle while in progress, instruction "SU"

Instruction address: 2000 H. (8192 d for JBUS, and 8193 d for MODBUS)

Number of words to be written: 2 words

Words description:

- word 1 = instruction word : 5355 H (21 333 d)
- word 2 = answer word : 0000 H (0 d)

2000 H 8 192 d	5355 H	Instruction word SU (21 333 d)
2002 H 8 194 d	0000 H	Answer word set at null (0 d)

After launching an instruction, the answer word may be read at address 2002 H (8194 d for JBUS, and 8195 d for MODBUS) to check the proper execution of the instruction (see "6.1.3.2. Answer word status")

6.1.3.4. Instructions with related data: "NL" / "DC" / "DD" / "CP"

Inst	Inst word	Answer word	Data mailbox					
			1 st word	2 nd word	3 rd word	4 th word	5 th word	6 th word
(1) NL	4E4C H 20 044 d	0	Requested batch number		Unused	Unused	Unused	Unused
(2) DC	4443 H 17 475 d	0	Formula call code		Quantity to be produced		Unused	Unused
(2) DD	4444 H 17 476 d	0	Formula call code		Quantity to be produced		Unused	Unused
(2) CP	4350 H 17 232 d	0	Formula call code		Call code of product to be modified		Product new set point	

(1): instruction sent only off-cycle

(2): instruction sent with cycle in progress

Example: loading of Formula call code + quantity without cycle start, instruction "DD"

Loading of Formula#1 with quantity of 450,000 kg to be produced.

Instruction address: 2000 H (8192 d for JBUS, and 8193 d for MODBUS)

Number of words: 6 words

Words description:

- word 1 = instruction code : 4444 H (17 476 d)
- word 2 = answer word : 0000 H (0 d)
- words 3 to 4 = Formula call code
- words 5 to 6 = Quantity to be produced in grams or cycle numbers(according settings)

2000 H 8 192 d	4444 H	Instruction word DD (17 746 d)
2002 H 8 194 d	0000 H	Answer word set at null (0 d)
2004 H 8 196 d	0000 H	} Formula call code (1 d)
2006 H 8 198 d	0001 H	
2008 H 8 200 d	0006 H	} Quantity = 450,000kg = 450 000g (450 000 d)
200A H 8 202 d	DDD0 H	

After launching an instruction, the answer word may be read at address 2002 H (8194 d for JBUS, and 8195 d for MODBUS) to check the proper execution of the instruction (see "6.1.3.2. Answer word status")

Example: product set point modification in the Formula, instruction "CP"

Set point modification of the 3rd product in Formula#1, new set point is 28,000 kg.

Instruction address: 2000 H (8 192 d for JBUS, and 8 193 d for MODBUS)

Number of words to be written: 8 words

Words description:

- word 1 = instruction word : 4350 H. (17 232 d)
- word 2 = answer word : 0000 H. (0 d)
- words 3 to 4 = Formula call code
- words 5 to 6 = Product call code in the Formula
- words 7 to 8 = new set point in grams

2000 H 8 192 d	4350 H	Instruction word CP . (17 232 d)
2002 H 8 194 d	0000 H	Answer word set at null (0 d)
2004 H 8 196 d	0000 H	} Formula call code (1 d)
2006 H 8 198 d	0001 H	
2008 H 8 200 d	0000 H	} Product call code (3 d)
200A H 8 202 d	0003 H	
200C H 8 204 d	0000 H	
200E H 8 206 d	6D60 H	} New set point = 28,000kg = 28 000g (28 000 d)

After launching an instruction, the answer word may be read at address 2002 H (8194 d for JBUS, and 8195 d for MODBUS) to check the proper execution of the instruction (see "6.1.3.2. Answer word status")

6.1.3.5. Read / write instructions of a product record: "Rp" / "Wp"

Inst	Inst word	Answer word	Data mailbox
(1) Rp	5270 H 21 104 d	0	18 words : Word 1 = product call code (non-signed integer, from 1 to 99) Words 2 to 9 = product name (15 ASCII characters + 1 null) Word 10 = tank number for the product (non-signed integer) Words 11 to 12 = flow in g/min (non-signed integer) Word 13 = Sign of inventory level (ASCII characters "+" or "-" + 1 null) Words 14 to 15 = inventory level in grams (non-signed integer) Word 16 = product type (ASCII characters "A"/"M"/"T"/"I"/"B" + 1 null) Words 17 to 18 = pulse value (pump) in decigrams (non-signed integer)
(2) Wp	5770 H 22 384 d	0	

(1): instruction sent only off-cycle



Remember :

Always run instruction "CB" (data mailbox initialization) before launching one of those 2 instructions.

Example: write a product record, instruction "Wp"

Download the "01" "CEMENT" record, tank# "01", flow at "0" g/min, inventory at "+5000000" g, "A" type product and pulse value set at "0" dg.

Instruction address: 2000 H. (8 192 d for JBUS, and 8 193 d for MODBUS)

Number of words to be written: 20 words

Words description:

- word 1 = instruction word : 5770 H (22 384 d)
- word 2 = answer word : 0000 H (0 d)
- word 3 =product call code
- words 4 to 11 = product name
- word 12 = product tank#
- words 13 to 14 = flow value
- word 15 = inventory value sign
- words 16 to 17 = inventory level
- word 18 = product type
- word 19 to 20 = pulse value (Pump

2000 H 8 192 d	5770 H	Instruction word wp (22 384 d)
2002 H 8 194 d	0000 H	Answer word set at null (0 d)
2004 H 8 196 d	0001 H	Product call code (1 d) Product name " CEMENT "
2006 H 8 198 d	4349 H	
2008 H 8 200 d	4D45 H	
200A H 8 202 d	4E54 H	
200C H 8 204 d	2020 H	
200E H 8 206 d	2020 H	
2010 H 8 208 d	2020 H	
2012 H 8 210 d	2020 H	
2014 H 8 212 d	2000 H	
2016 H 8 214 d	0001 H	
2018 H 8 216 d	0000 H	flow (0 d)
201A H 8 218 d	0000 H	
201C H 8 220 d	2B00 H	Inventory level sign : + (11 008 d)
201E H 8 222 d	004C H	Inventory level (5 000 000 d)
2020 H 8 224 d	4B40 H	
2022 H 8 226 d	4100 H	Product type (16 640 d)
2024 H 8 228 d	0000 H	Pulse value (0 d)
2026 H 8 230 d	0000 H	

After launching an instruction, the answer word may be read at address 2002 H (8194 d for JBUS, and 8195 d for MODBUS) to check the proper execution of the instruction (see "6.1.3.2. Answer word status")

6.1.3.6. Read/write instructions of a Formula record: "Rf" / "Wf"

Inst	Inst word	Answer word	Data mailbox
(1) Rf	5266 H 21 094 d	0	<p><u>309 words :</u></p> <p>word 1 = Formula call code (non-signed integer, from 1 to 99)</p> <p>words 2 à 9 = Formula name (15 ASCII characters + 1 null)</p> <p><u>Data for the rank#1 product :</u></p> <p>word 10 = Product call code (non-signed integer, from 1 to 99)</p> <p>words 11 to 12 = product set point in grams (non-signed integer)</p> <p>words 13 to 14 = slow speed set point in grams (non-signed integer)</p> <p>words 15 to 16 = feed error set point in grams (non-signed integer)</p> <p>word 17 = Tolerance in % (non-signed integer, fix decimal point, format: xx,xx%)</p> <p>word 18 = Instruction word (non-signed integer)</p> <p>word 19 = Scale number (non-signed integer, from 1 to 8)</p> <p><u>Data for the rank#2 product :</u></p> <p>Same data as rank#1 product</p> <p>Etc....</p> <p><u>Data for the rank#30 product :</u></p> <p>word 300 = Product call code (non-signed integer, from 1 to 99)</p> <p>words 301 to 302 = product set point in grams (non-signed integer)</p> <p>words 303 to 304 = Slow speed set point in grams (non-signed integer)</p> <p>words 305 to 306 = feed error set point in grams (non-signed integer)</p> <p>word 307 = Tolerance in % (non-signed integer, fix decimal point, format: xx,xx%)</p> <p>word 308 = Instruction word (non-signed integer)</p> <p>word 309 = Scale number (non-signed integer, from 1 to 8)</p>
(2) Wf	5766 H 22 374 d	0	

(1): instruction sent only off-cycle



Remember :

Always run instruction "CB" (data mailbox initialization) before launching one of those 2 instructions.

Example: Formula writing, instruction "Wf"

Load the "01" "RENDERING A" Formula, including 3 components.

Rank#1 product data : product "01" "CEMENT", set point "50000" g, slow speed value "5000" g, feed error "60" g, tolerance "1.00" %, instruction word "0" and scale number "1".

Rank#2 product data : product "02" "SAND 0,2 mm2", set point "150000" g, slow speed value "5000" g, feed error "60" g, tolerance "1.00" %, instruction word "0" and scale number "1".

Rank#3 product data : product "10" "EAU", set point "25000" g, slow speed value "1000" g, feed error "0" g, tolerance "1.00" %, instruction word "0" and scale number "1".

Instruction address: 2000 H (8 192 d for JBUS, and 8 193 d for MODBUS)

Number of words to be written: 41 words (2 + 1 + 8 + 3 x 10)

Words description:

- word 1 = instruction word : 5766 H (22 374 d)
- word 2 = answer word : 0000 H. (0 d)
- word 3 = formula call code
- words 4 to 11 = formula name
 - Rank#1 product data :
 - word 12 = product call code
 - words 13 to 14 = set point
 - words 15 to 16 = slow speed value
 - words 17 to 18 = feed error
 - word 19 = Tolerance in %
 - word 20 = instruction word
 - word 21 = scale number
 - Rank#2 product data :
 - word 22 = product call code
 - words 23 to 24 = set point
 - words 25 to 26 = slow speed value
 - words 27 to 28 = feed error
 - word 29 = Tolerance in %
 - word 30 = instruction word
 - word 31 = scale number
 - Rank#3 product data :
 - word 32 = product call code
 - words 33 to 34 = set point
 - words 35 to 36 = slow speed value
 - words 37 to 38 = feed error
 - word 39 = Tolerance in %
 - word 40 = instruction word
 - word 41 = scale number.

2000 H 8 192 d	5766 H	instruction word WF. (22 374 d)
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2002 H 8 194 d	0000 H	Answer word set at null (0 d)
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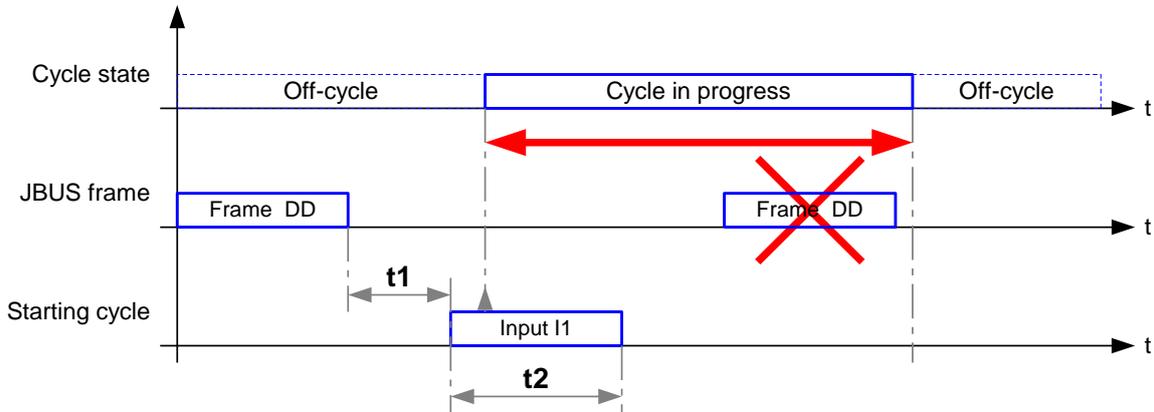
2004 H 8 196 d	0001 H	Formula call code (1 d) Formula name " RENDERING A "
2006 H 8 198 d	5245 H	
2008 H 8 200 d	4E44 H	
200A H 8 202 d	4552 H	
200C H 8 204 d	494E H	
200E H 8 206 d	4720 H	
2010 H 8 208 d	4120 H	
2012 H 8 210 d	2020 H	
2014 H 8 212 d	2000 H	

<i>Rank#1 product data</i>		
2016 H	0001 H	Product call code (1 d)
8 214 d		
2018 H	0000 H	Set point (50 000 d)
8 216 d		
201A H	C350 H	
8 218 d		
201C H	0000 H	Slow speed value (5 000 d)
8 220 d		
201E H	1388 H	
8 222 d		
2020 H	0000 H	Feed error (60 d)
8 224 d		
2022 H	003C H	
8 226 d		
2024 H	0064 H	Tolerance in % (100 d)
8 228 d		
2026 H	0000 H	Instruction word (0 d)
8 230 d		
2028 H	0001 H	Scale number (1 d)
8 232 d		
<i>Rank#2 product data</i>		
202A H	0002 H	Product call code (2 d)
8 234 d		
202C H	0002 H	Set point (150 000 d)
8 236 d		
202E H	49F0 H	
8 238 d		
2030 H	0000 H	Slow speed value (5 000 d)
8 240 d		
2032 H	1388 H	
8 242 d		
2034 H	0000 H	Feed error (60 d)
8 244 d		
2036 H	003C H	
8 246 d		
2038 H	0064 H	Tolerance in % (100 d)
8 248 D		
203A H	0000 H	Instruction word (0 d)
8 250 d		
203C H	0001 H	Scale number (1 d)
8 252 d		
<i>Rank#3 product data</i>		
203E H	000A H	Product call code (10 d)
8 254 d		
2040 H	0000 H	Set point (25 000 d)
8 256 d		
2042 H	61A8 H	
8 258 d		
2044 H	0000 H	Slow speed value (1 000 d)
8 260 d		
2046 H	03E8 H	
8 262 d		
2048 H	0000 H	Feed error. (0 d)
8 264 d		
204A H	0000 H	
8 266 d		
204C H	0064 H	Tolerance in % (100 d)
8 268 d		
204E H	0000 H	Instruction word (0 d)
8 270 d		
2050 H	0001 H	Scale number (1 d)
8 272 d		

After launching an instruction, the answer word may be read at address 2002 H (8194 d for JBUS, and 8195 d for MODBUS) to check the proper execution of the instruction (see "6.1.3.2. Answer word status")

6.1.4. Sequencing of "DD" instruction with cycle start via I1 input

Select the Formula and the quantity to be produced via JBUS, then start the cycle via the TOR input (All or Nothing)



X ⇒ Not allowed to send the "DD" frame for the duration of the dosing cycle.

t1Mini ⇒ 500 milliseconds

t1Maxi ⇒ -

t2Mini ⇒ 500 milliseconds

t2Maxi ⇒ Should not be maintained because it causes an inability to suspend or cancel a cycle and to execute the automatic off-tolerance acknowledgment.

6.2. Field bus: Profibus-DP, DeviceNet, Ethernet Modbus TCP (ANYBUS S type)

An external system can communicate via the indicator fieldbus connection. It can control the process or collect data of the dosage in real time. This is transparent to the user (Function executed in multi-tasking by the indicator)

This functionality is activated if parameter "I/O BOARD" is set to "07" or "08", field bus board ANYBUS S type, Profibus-DP, DeviceNet or Ethernet Modbus TCP (see 2.6.6.)

Memory mapping:

With JBUS/MODBUS, information is exchanged via memory areas known as 'tables', accessible by the readout unit and external system:

- ❖ A first table is dedicated to the dosage execution, sent by the indicator to the external system. Size is 230 bytes so 115 words.
- ❖ A second table is reserved for process control, sent by the external device to the indicator. Size is 66 bytes (2+64) so 33 words. It allows to write dosage instructions.

6.2.1. Encoding/Mapping table of dosage data (Indicator → External device)

The data frame sent by the indicator allows the external device (PLC, PC) to read the process control and dosage data.

Offset (bytes)	size (bytes)	Encoding	Designation	
0	2	Non signed integer	Life counter (is incremented for each update of this table, ≈ 10ms)	Dosage control data
2	4	32 Bits	Weight status and default code, 32 bits as detailed below	
6	4	Long signed integer	Batch number	
10	4	Long signed integer	Current Formula call code	
14	4	Long signed integer	Current product call code	
18	4	Long signed integer	Product set point (value in grams)	
22	4	Long signed integer	Set quantity (Number of cycles or weight)	
26	4	Long signed integer	Remaining quantity (Number of cycles or weight)	
30	2	Integer	Field bus answer word status as detailed below	
32	2	16 Bits	Inputs image, 16 bits as detailed below	
34	4	32 Bits	Outputs image, 32 bits as detailed below	
38	4	Long signed integer	Gross weight (value in grams)	
42	4	Long signed integer	Tare weight (value in grams)	
46	4	Long signed integer	Net weight (value in grams)	
50	2	Signed integer	Call code of the 1 st component (-1, not yet weighted)	Dosage data
52	4	Long signed integer	Net weight of the 1 st component (-1, not yet weighted)	
56	2	Signed integer	Call code of the 2 nd component (-1, not yet weighted)	
58	4	Long signed integer	Net weight of the 2 nd component (-1, not yet weighted)	
62	2	Signed integer	Call code of the 3 rd component (-1, not yet weighted)	
64	4	Long signed integer	Net weight of the 3 rd component (-1, not yet weighted)	
68	2	Signed integer	Call code of the 4 th component (-1, not yet weighted)	
70	4	Long signed integer	Net weight of the 4 th component (-1, not yet weighted)	
74	2	Signed integer	Call code of the 5 th component (-1, not yet weighted)	
76	4	Long signed integer	Net weight of the 5 th component (-1, not yet weighted)	
80	2	Signed integer	Call code of the 6 th component (-1, not yet weighted)	
82	4	Long signed integer	Net weight of the 6 th component (-1, not yet weighted)	
86	2	Signed integer	Call code of the 7 th component (-1, not yet weighted)	
88	4	Long signed integer	Net weight of the 7 th component (-1, not yet weighted)	
92	2	Signed integer	Call code of the 8 th component (-1, not yet weighted)	
94	4	Long signed integer	Net weight of the 8 th component (-1, not yet weighted)	
98	2	Signed integer	Call code of the 9 th component (-1, not yet weighted)	
100	4	Long signed integer	Net weight of the 9 th component (-1, not yet weighted)	
104	2	Signed integer	Call code of the 10 th component (-1, not yet weighted)	
106	4	Long signed integer	Net weight of the 10 th component (-1, not yet weighted)	
110	2	Signed integer	Call code of the 11 th component (-1, not yet weighted)	
112	4	Long signed integer	Net weight of the 11 th component (-1, not yet weighted)	
116	2	Signed integer	Call code of the 12 th component (-1, not yet weighted)	
118	4	Long signed integer	Net weight of the 12 th component (-1, not yet weighted)	
122	2	Signed integer	Call code of the 13 th component (-1, not yet weighted)	
124	4	Long signed integer	Net weight of the 13 th component (-1, not yet weighted)	
128	2	Signed integer	Call code of the 14 th component (-1, not yet weighted)	
130	4	Long signed integer	Net weight of the 14 th component (-1, not yet weighted)	

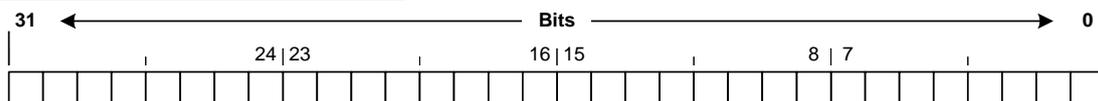
Offset (bytes)	Size (bytes)	Encoding	Designation
134	2	Signed integer	Call code of the 15 th component (-1 , not yet weighted)
136	4	Long signed integer	Net weight of the 15 th component (-1 , not yet weighted)
140	2	Signed integer	Call code of the 16 th component (-1 , not yet weighted)
142	4	Long signed integer	Net weight of the 16 th component (-1 , not yet weighted)
146	2	Signed integer	Call code of the 17 th component (-1 , not yet weighted)
148	4	Long signed integer	Net weight of the 17 th component (-1 , not yet weighted)
152	2	Signed integer	Call code of the 18 th component (-1 , not yet weighted)
154	4	Long signed integer	Net weight of the 18 th component (-1 , not yet weighted)
158	2	Signed integer	Call code of the 19 th component (-1 , not yet weighted)
160	4	Long signed integer	Net weight of the 19 th component (-1 , not yet weighted)
164	2	Signed integer	Call code of the 20 th component (-1 , not yet weighted)
166	4	Long signed integer	Net weight of the 20 th component (-1 , not yet weighted)
170	2	Signed integer	Call code of the 21 st component (-1 , not yet weighted)
172	4	Long signed integer	Net weight of the 21 st component (-1 , not yet weighted)
176	2	Signed integer	Call code of the 12 th component (-1 , not yet weighted)
178	4	Long signed integer	Net weight of the 12 th component (-1 , not yet weighted)
182	2	Signed integer	Call code of the 22 nd component (-1 , not yet weighted)
184	4	Long signed integer	Net weight of the 22 nd component (-1 , not yet weighted)
188	2	Signed integer	Call code of the 23 rd component (-1 , not yet weighted)
190	4	Long signed integer	Net weight of the 23 rd component (-1 , not yet weighted)
194	2	Signed integer	Call code of the 24 th component (-1 , not yet weighted)
196	4	Long signed integer	Net weight of the 24 th component (-1 , not yet weighted)
200	2	Signed integer	Call code of the 25 th component (-1 , not yet weighted)
202	4	Long signed integer	Net weight of the 25 th component (-1 , not yet weighted)
206	2	Signed integer	Call code of the 26 th component (-1 , not yet weighted)
208	4	Long signed integer	Net weight of the 26 th component (-1 , not yet weighted)
212	2	Signed integer	Call code of the 27 th component (-1 , not yet weighted)
214	4	Long signed integer	Net weight of the 28 th component (-1 , not yet weighted)
218	2	Signed integer	Call code of the 29 th component (-1 , not yet weighted)
220	4	Long signed integer	Net weight of the 29 th component (-1 , not yet weighted)
224	2	Signed integer	Call code of the 30 th component (-1 , not yet weighted)
226	4	Long signed integer	Net weight of the 30 th component (-1 , not yet weighted)

Dosage data

Remember:

- Table length : 230 bytes / 115 words, 50 bytes / 25 words for dosage control data + 180 bytes (30 x 6) / 90 words for dosage data
- Dosage results table is initialized at FFFF H (-1 D) at dosage start.

Weight status and default code definition:



❖ Default codes: Default codes are in ASCII encoding, and are detailed in paragraph "5.9. Default codes".

➤ b0 to b15

- 01 ⇒ stands for "ERROR No 01 ESC".
- 02 ⇒ stands for "ERROR No 02 ESC".
- 03 ⇒ stands for "ERROR No 03 ESC".

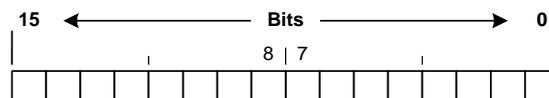
- 05 ⇒ stands for "ERROR No 05 ESC".
- 06 ⇒ stands for "ERROR No 06 ESC".
- 07 ⇒ stands for "ERROR No 07 ESC".
- 08 ⇒ stands for "ERROR No 08 ESC".
- 09 ⇒ stands for "ERROR No 09 ESC".
- B1 ⇒ stands for "ERROR NoB/1 ESC".
- B2 ⇒ stands for "ERROR NoB/2 ESC".
- B3 ⇒ stands for "ERROR NoB/3 ESC".
- B4 ⇒ stands for "ERROR NoB/4 ESC".

Remember:

For those default codes, the "B" character stands for the slave scale number involved with the default (From 2 to 8)

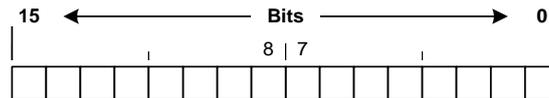
❖ **Status bits :**

- b16 ⇒ if bit value = 1, weight is out of range 'Out of range -'. (⚠ default !)
 - b17 ⇒ if bit value = 1, weight is out of range 'Out of range +'. (⚠ default !)
 - b18 ⇒ if bit value = 1, metrological default on EEPROM CRC (⚠ default !)
 - b19 ⇒ states the current weighing range :
 - 0 ⇒ W1 range
 - 1 ⇒ W2 range
 - b20 ⇒ unused
 - b21 ⇒ states the zero status (same as  - 0 ⇒ Zero not OK
 - 1 ⇒ Zero OK
- b22 ⇒ states which weight is displayed,
 - 0 ⇒ Net weight displayed
 - 1 ⇒ Gross weight displayed
- b23 ⇒ unused
- b24 ⇒ if bit value = 1, weight is out of scale range 'Off scale -'. (⚠ default !)
- b25 ⇒ unused
- b26 ⇒ unused
- b27 ⇒ if bit value = 1, reference default on measuring channel (⚠ default !)
- b28 ⇒ if bit value = 1, calculation 'Overflow'. (⚠ default !)
- b29 ⇒ if bit value = 1, weight is out of scale range 'Off scale -'. (⚠ default !)
- b30 ⇒ states if displayed weight is still weight or not,
 - 0 ⇒ weight not still
 - 1 ⇒ still weight
- b31 ⇒ unused

Image definition of the field bus answer words:

Possible values:

- 0000 H → free instruction word, no instruction in progress
- 0001 H → instruction in progress
- 0002 H → instruction executed properly
- 9996 H → File is full (Formula or product file)
- 9997 H → unknown call code (Formula or product)
- 9998 H → impossible to operate the instruction
- 9999 H → unknown instruction

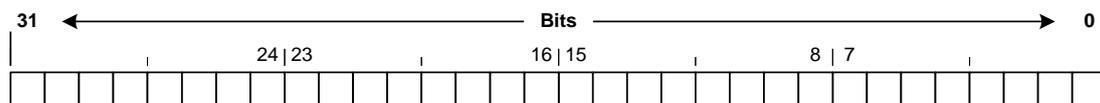
Image definition of the inputs:❖ Inputs status :

- b0 ⇒ input 1 status (start / resume cycle)
- b1 ⇒ input 2 status (cycle cancellation)
- b2 ⇒ input 3 status (cycle suspension)
- b3 ⇒ input 4 status (out of tolerance acknowledgement)
- b4 ⇒ input 5 status (manual product acknowledgement)
- b5 ⇒ input 6 status (dosage acknowledgement)

- b6 ⇒ input 7 status (drain acknowledgement)
- b7 ⇒ input 8 status (pump pulse)

❖ Product call code :

- b8 to b15 ⇒ Formula call code in binary encoding

Image definition of the outputs:❖ Outputs status :

- b0 ⇒ output 1 status (Tank 1 or 16 if b15=1)
- b1 ⇒ output 2 status (Tank 2 or 17 if b15=1)
- b2 ⇒ output 3 status (Tank 3 or 18 if b15=1)
- b3 ⇒ output 4 status (Tank 4 or 19 if b15=1)
- b4 ⇒ output 5 status (Tank 5 or 20 if b15=1)
- b5 ⇒ output 6 status (Tank 6 or 21 if b15=1)
- b6 ⇒ output 7 status (Tank 7 or 22 if b15=1)
- b7 ⇒ output 8 status (Tank 8 or 23 if b15=1)
- b8 ⇒ output 9 status (Tank 9 or 24 if b15=1)
- b9 ⇒ output 10 status (Tank 10 or 25 if b15=1)
- b10 ⇒ output 11 status (Tank 11 or 26 if b15=1)
- b11 ⇒ output 12 status (Tank 12 or 27 if b15=1)
- b12 ⇒ output 13 status (Tank 13 or 28 if b15=1)
- b13 ⇒ output 14 status (Tank 14 or 29 if b15=1)
- b14 ⇒ output 15 status (Tank 15 or decoding tank 16 to 29)
- b15 ⇒ output 16 status (Dosage end/ batch ready, see "OP MODE O16" at 2.6.2.)
- b16 ⇒ output 17 status (flow default)
- b17 ⇒ output 18 status (out of tolerance default)
- b18 ⇒ output 19 status (scale default / shaking, see "OP MODE O19" at 2.6.2.)
- b19 ⇒ output 20 status (scale low level threshold)
- b20 ⇒ output 21 status (scale high level threshold)
- b21 ⇒ output 22 status (drain)
- b22 ⇒ output 23 status (HS: high speed)
- b23 ⇒ output 24 status (LS : low speed)
- b24 ⇒ dosage cycle in progress
- b25 ⇒ intermediate drain
- b26 ⇒ dosage acknowledgement timer
- b27 ⇒ drain acknowledgement timer
- b28 ⇒ power default
- b29 ⇒ ready for cycle start
- b30 ⇒ cycle on hold
- b31 ⇒ cycle cancelled

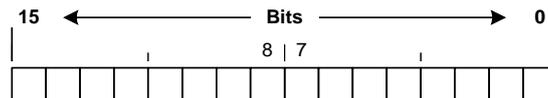
6.2.2. Process control sheet (External device → Indicator)

The frame received by the indicator allows the external system (PLC, PC) to do the process control.

Offset (bytes)	Size (bytes)	Encoding	Designation
0	2	16 Bits	Instruction word BDT, 32 bits as detailed below
2	64	-	Data buffer (instruction data)

Remember: Table length in number of words: 66 bytes / 33 words.

Image definition of the field bus instruction word:



6.2.2.1. Instructions list

Hex.	Value		Designation	
	Hex.	Decimal		
0000	H	0	d	No instruction / instruction initialization. No data
0001	H	1	d	Cycle start / Resume suspended cycle: "dC". No data ⁽²⁾
0002	H	2	d	Cycle cancelled: "AN" (after "SU"). No data ⁽¹⁾
0004	H	4	d	Cycle suspended: "SU". No data ⁽¹⁾
0008	H	8	d	Acknowledgement product out of tolerance: "HT". No data ⁽¹⁾
0010	H	16	d	Acknowledgement manual product: "AM". No data ⁽¹⁾
0020	H	32	d	Dosage acknowledgement: "AD". No data ⁽¹⁾
0040	H	64	d	Drain acknowledgement: "AV". no data ⁽¹⁾
0080	H	128	d	Cycle cancellation with remaining product drain: "VR" (VDR). No data ⁽¹⁾
0100	H	256	d	Cycle end: "FC". No data ⁽¹⁾
0200	H	512	d	Change Formula call code + quantity without cycle start: "DD". 4 data words ⁽³⁾
0400	H	1024	d	Product set point modification: "CP". 6 data words ⁽³⁾
0800	H	2048	d	Writing product record: "Wp". 18 data words ⁽³⁾
1000	H	4096	d	Writing Formula ⁽³⁾ – Header writing, open Formula. 9 data words ⁽⁴⁾
2000	H	8192	d	Writing Formula ⁽³⁾ – add a product in the Formula. 10 data words ⁽⁵⁾
4000	H	16384	d	Writing a Formula ⁽³⁾ – writing finished, close the Formula. No data ⁽⁶⁾
8000	H	32768	d	Batch number modification: "NL". 2 data words ⁽³⁾

⁽¹⁾: instruction sent with cycle in progress

⁽²⁾: instruction sent with cycle in progress or not

⁽³⁾: instruction sent off-cycle

⁽⁴⁾: instruction sent before instructions "2000 H" and "4000 H", starts the Formula writing

⁽⁵⁾ : instruction sent after instruction "1000 H" and before "4000 H", repeated as many times as number of products have to be added to the Formula

⁽⁶⁾: instruction sent after last instruction "2000 H, ends the Formula writing

6.2.2.2. Detail of instruction related data❖ Loading Formula call code + quantity without cycle start : "DD", 4 data words

- word 0 = instruction code : 0200 H (512 d)
- word 1 et 2 = formula call code
- word 3 et 4 = set point of weight in grams or number of cycles (depending on setting)

❖ Modify product set point: "CP", 6 data words

- word 0 = instruction code : 0400 H (1 024 d)
- word 1 et 2 = formula call code
- word 3 et 4 = product call code in the Formula
- word 5 et 6 = new set point in grams

❖ Writing a product record : "WP", 18 data words

- word 0 = instruction code : 0800 H (2 048 d)
- word 1 = product call code
- words 2 to 9 = product name
- word 10 = product tank#
- words 11 to 12 = flow value
- word 13 = inventory value sign
- words 14 to 15 = inventory level
- word 16 = product type
- words 17 to 18 = pulse value (Pump)

❖ Writing a Formula – Header writing, open a Formula, 9 data words

- word 0 = instruction code : 1000 H (4 096 d)
- word 1 = formula call code
- words 2 to 9 = formula name

❖ Writing a Formula – Add a product in the Formula, 9 data words

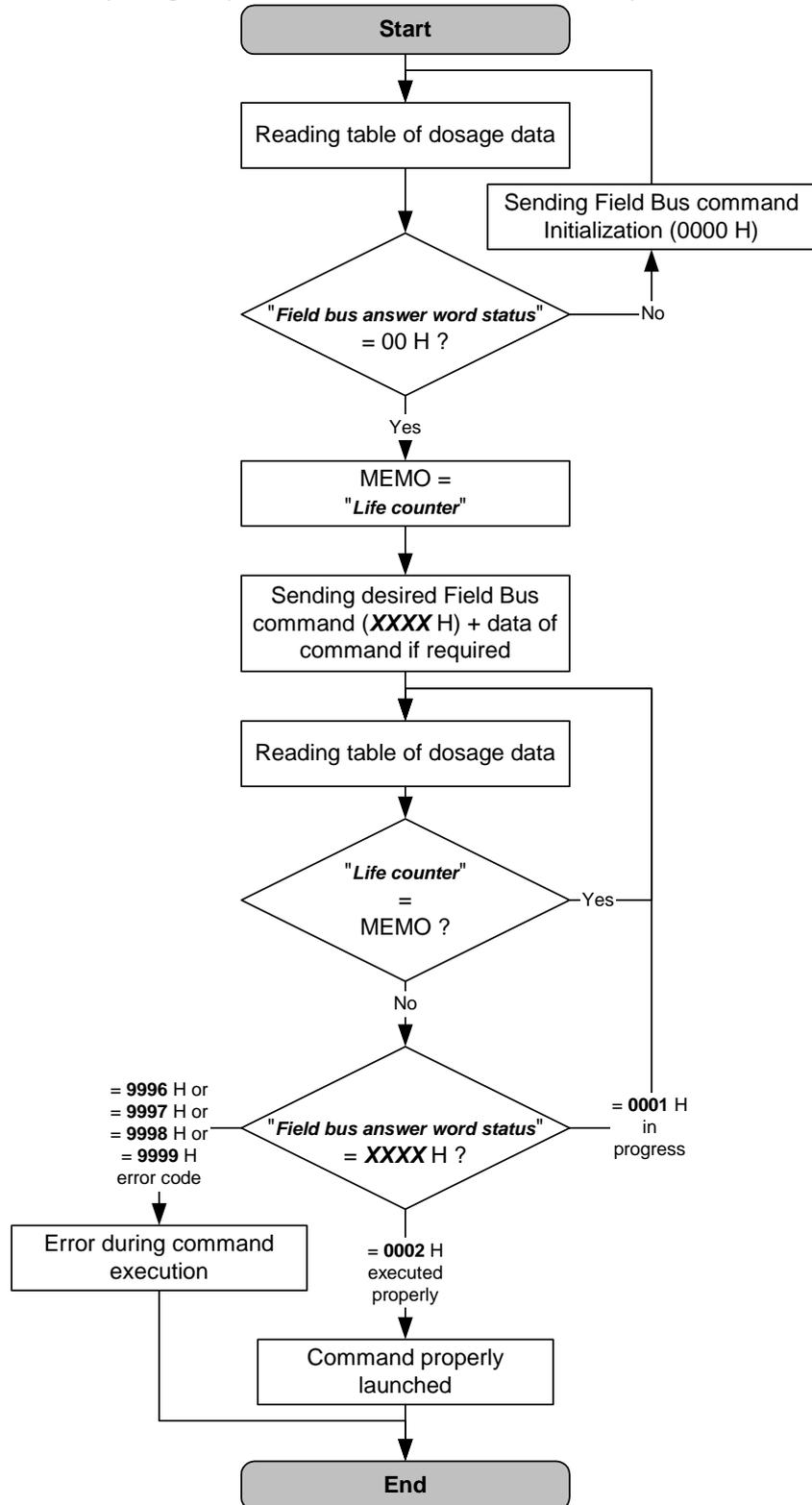
- word 0 = instruction code : 2000 H (8 192 d)
- word 1 = component call code
- words 2 to 3 = weight set point
- words 4 to 5 = slow speed value
- words 6 to 7 = feed error value
- word 8 = Tolerance in %
- word 9 = instruction code
- word 10 = Scale number

❖ Batch number modification : "NL", 2 words data

- word 0 = instruction code : 8000 H (32 768 d)
- words 1 and 2 = requested batch number

6.2.3. Launching an instruction

It is possible to send instructions to the indicator by writing the control word BDT. To be certain of the validity and good performance of the instruction, it is important to follow the below chart.



7. APPENDIX

7.1. Hard copy examples

According to the "TYPE TICKET" setting (see 2.6.2.) the following tickets are available:

ARPEGE MASTER-K

15 RUE DU DAUPHINE
CS 40216
69808 St PRIEST CEDEX

01/09/2013 08:25:41
BATCH No :123456

01 RENDERING A

: DSDno:	PRODUCT	:	NET	:
:001806:	01 CEMENT	:	50.000 kg:	
:001807:	02 SAND 0,2 mm2	:	150.000 kg:	
:001808:	10 WATER	:	25.000 kg:	
01/09/2011 08:26:04		225.000 kg		

TEL:04-72-22-92-22 / FAX:04-78-90-84-16
www.masterk.com

"TYPE TICKET" = "01"

ARPEGE MASTER-K

15 RUE DU DAUPHINE
CS 40216
69808 St PRIEST CEDEX

01/09/2013 08:26:04
BATCH No :123456

01 RENDERING A

: 01 CEMENT	:	50.000 kg:	:
: 02 SAND 0,2 mm2	:	150.000 kg:	:
: 10 WATER	:	25.000 kg:	:
: TOTAL:		225.000 kg:	

TEL:04-72-22-92-22 / FAX:04-78-90-84-16
www.masterk.com

"TYPE TICKET" = "02"

ARPEGE MASTER-K

15 RUE DU DAUPHINE
CS 40216
69808 St PRIEST CEDEX

No : 133151 01/09/2013 08:26:12
BATCH No :123456

01 RENDERING A

: 01 CEMENT	:	50.000 kg:	:
: 02 SAND 0,2 mm2	:	150.000 kg:	:
: 10 WATER	:	25.000 kg:	:
: TOTAL:		225.000 kg:	

TEL:04-72-22-92-22 / FAX:04-78-90-84-16
www.masterk.com

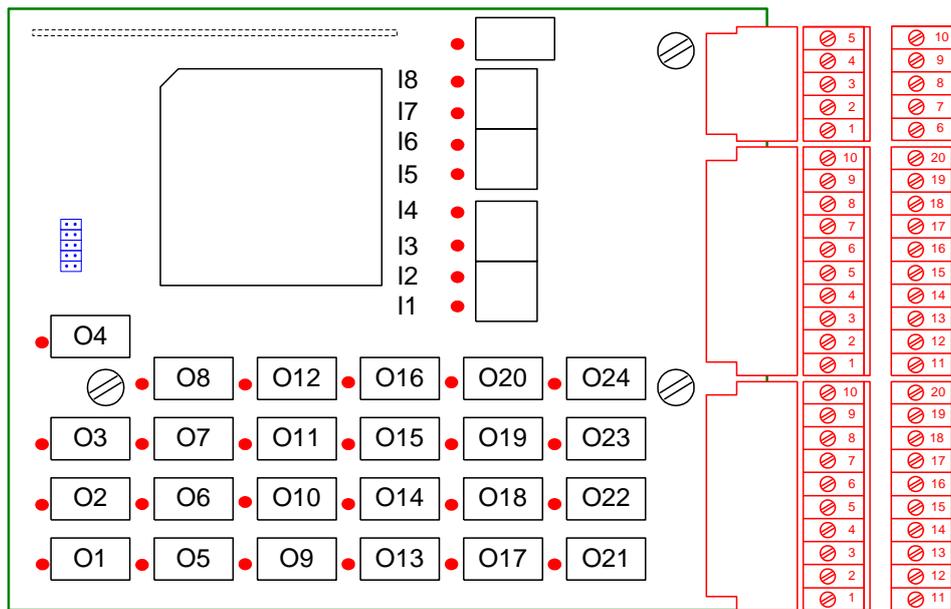
"TYPE TICKET" = "04"

Remember : If the 2 first characters of the company name are "**", then the 4 lines of the company name and the 2 lines of the footer won't be printed for "TYPE TICKET" set to "01" and "02".

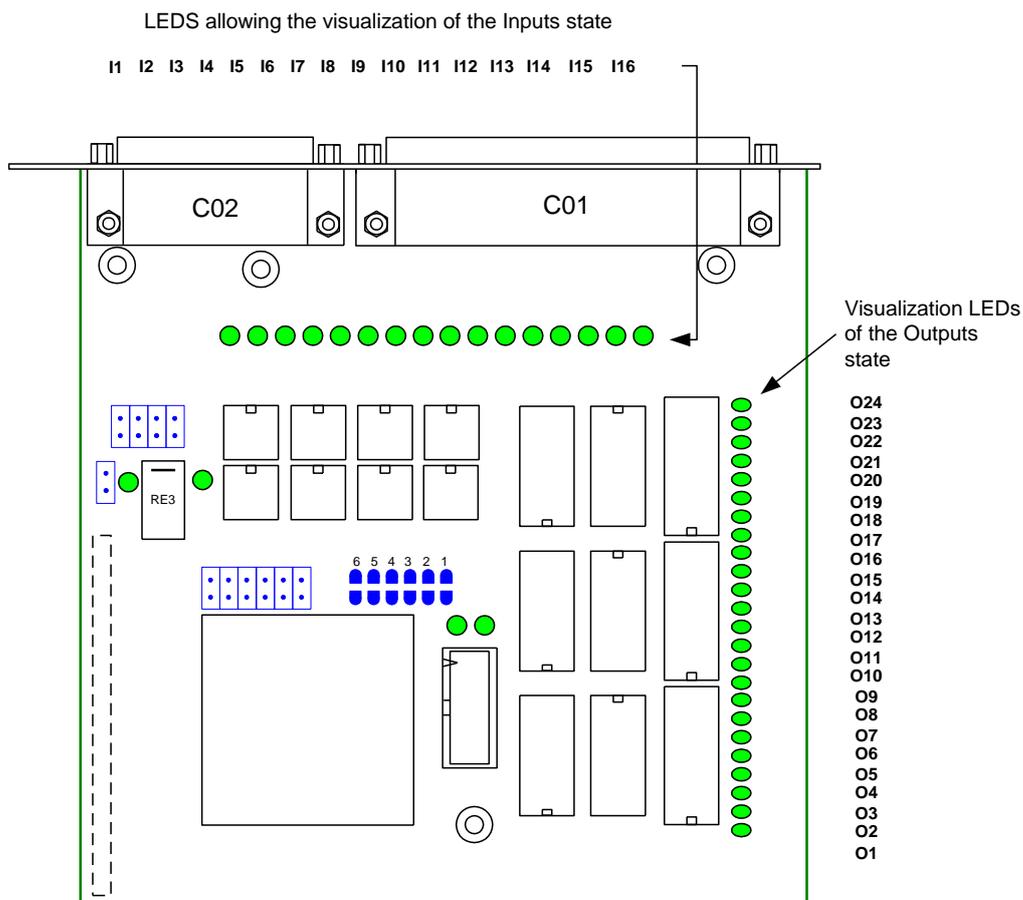
If the "PILOTE" setting of the **COM1**, **COM2** or **LPT** port (see 2.6.5.) is "09", the following log ticket is printed:

01/09/2013 09:09:38			BATCH No :123456				
FORMULA : 01 RENDERING A			QUANTITY TO DO :000002				
001809	01/09/11	09:09:42	01 CEMENT	01/1	50.000kg	50.000kg	A
001810	01/09/11	09:09:52	02 SAND 0,2 mm2	02/1	150.000kg	150.000kg	A
001811	01/09/11	09:10:00	10 WATER	03/1	25.000kg	25.000kg	I
001812	01/09/11	09:10:13	01 CEMENT	01/1	50.000kg	50.000kg	A
001813	01/09/11	09:10:23	02 SAND 0,2 mm2	02/1	150.000kg	150.000kg	A
001814	01/09/11	09:10:31	10 WATER	03/1	25.000kg	25.000kg	I
01/09/2013 09:10:39			BATCH No :123456				
FORMULA : 01 RENDERING A			TOTAL:000002 NET: 450.000 kg				

7.2. Layout of the 8E/24S board

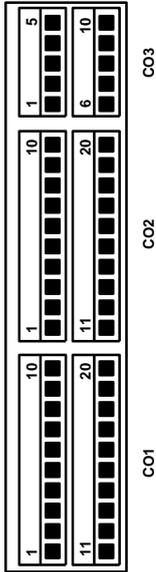


7.3. Layout of the 16E/24S board



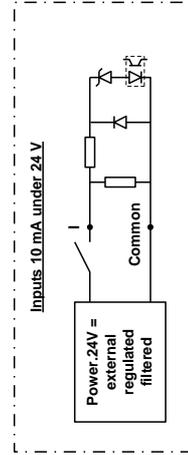
7.4. 8E/24S optional board connections

8E/24S option... (8/240)



CO3		Pin	I/O	DEFINITION
		CO3-1	+V	RESERVED USE
		CO3-2	+V	RESERVED USE
		CO3-3	0V	RESERVED USE
		CO3-4	-V	RESERVED USE
		CO3-5	-V	RESERVED USE
		CO3-6	+V	RESERVED USE
		CO3-7	0V	RESERVED USE
		CO3-8	1	Watch dog
		CO3-9	2	Contact Closed I/O operational
		CO3-10	-V	RESERVED USE

Rated power of the relays		
	AC	DC
- Max. voltage :	48V	48V
- Max. current :	1A	0.5A



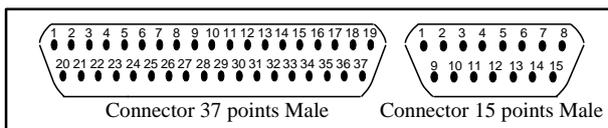
CO1		DEFINITION	
Pin	I/O	Pin	I/O
CO1-11	C1	COMMON 1	
CO1-12	O1	Tank 1 or 16	
CO1-13	O2	Tank 2 or 17	
CO1-14	O3	Tank 3 or 18	
CO1-15	O4	Tank 4 or 19	
CO1-16	C2	COMMON 2	
CO1-17	O5	Tank 5 or 20	
CO1-18	O6	Tank 6 or 21	
CO1-19	O7	Tank 7 or 22	
CO1-20	O8	Tank 8 or 23	
CO1-1	C3	COMMON 3	
CO1-2	O9	Tank 9 or 24	
CO1-3	O10	Tank 10 or 25	
CO1-4	O11	Tank 11 or 26	
CO1-5	O12	Tank 12 or 27	
CO1-6	C4	COMMON 4	
CO1-7	O13	Tank 13 or 28	
CO1-8	O14	Tank 14 or 29	
CO1-9	O15	Tank 15 or decoding Tank 16 à 29	
CO1-10	O16	End of dosing / Dose ready (According parameter)	
24 Relays Outputs			
CO2		DEFINITION	
CO2-1	C5	COMMON 5	
CO2-2	O17	Rate default	
CO2-3	O18	Off tolerance default	
CO2-4	O19	Scale default / Agitation (According parameter)	
CO2-5	O20	Scale low threshold	
CO2-6	C6	COMMON 6	
CO2-7	O21	Scale high threshold	
CO2-8	O22	Emptying	
CO2-9	O23	HS. (High Speed)	
CO2-10	O24	LS. (Low Speed)	
CO2-11	C1	COMMON 1	
CO2-12	I1	Start cycle / Resume cycle	
CO2-13	I2	Cancel	
CO2-14	I3	Suspend	
CO2-15	I4	Off tolerance acknowledgment	
CO2-16	C2	COMMON 2	
CO2-17	I5	Manual product acknowledgment	
CO2-18	I6	Dosing authorization	
CO2-19	I7	Emptying authorization	
CO2-20	I8	Pump pulse input	
8 Isolated Inputs			

7.5. 16E/24S optional board connections

Connector 37 points female

PINOUT 16E/24S	I / O	DEFINITION
3	O1	Tank 1 or 16
22	O2	Tank 2 or 17
4	O3	Tank 3 or 18
23	O4	Tank 4 or 19
5	O5	Tank 5 or 20
24	O6	Tank 6 or 21
6	O7	Tank 7 or 22
25	O8	Tank 8 or 23
7	O9	Tank 9 or 24
26	O10	Tank 10 or 25
8	O11	Tank 11 or 26
27	O12	Tank 12 or 27
9	O13	Tank 13 or 28
28	O14	Tank 14 or 29
10	O15	Tank 15 or decoding Tank 16 à 29
29	O16	End of dosing / Dose ready (According parameter)
11	O17	Rate default
30	O18	Off tolerance default
12	O19	Scale default / Agitation (According parameter)
31	O20	Scale low threshold
13	I1	Start cycle / Resume cycle
32	I2	Cancel
14	I3	Suspend
33	I4	Off tolerance acknowledgment
15	I5	Manual product acknowledgment
34	I6	Dosing authorization
16	I7	Emptying authorization
35	I8	Pump pulse input
18 - 19 - 37	INP	+V ext. power
1 - 2 - 20	INP	0V ext. power
17 - 21 - 36	-	Not connected

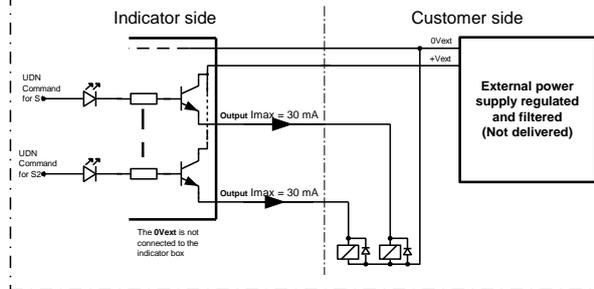
16E/24S Option : (16/240)



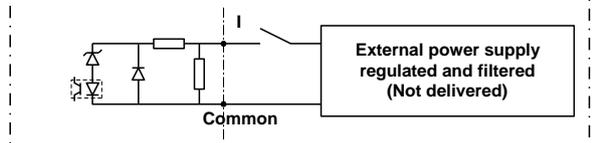
Connector 15 points female

PINOUT 16E/24S	I / O	DEFINITION
2	O21	Scale high threshold
15	O22	Emptying
3	O23	HS. (High Speed)
14	O24	LS. (Low Speed)
13		
4	I9	Bit 0
12	I10	Bit 1
5	I11	Bit 2
11	I12	Bit 3
6	I13	Bit 4
10	I14	Bit 5
7	I15	Bit 6
9	I16	Bit 7
8	Out	+V ext. power. (Not used)
1	Out	0V ext. power. (Not used)

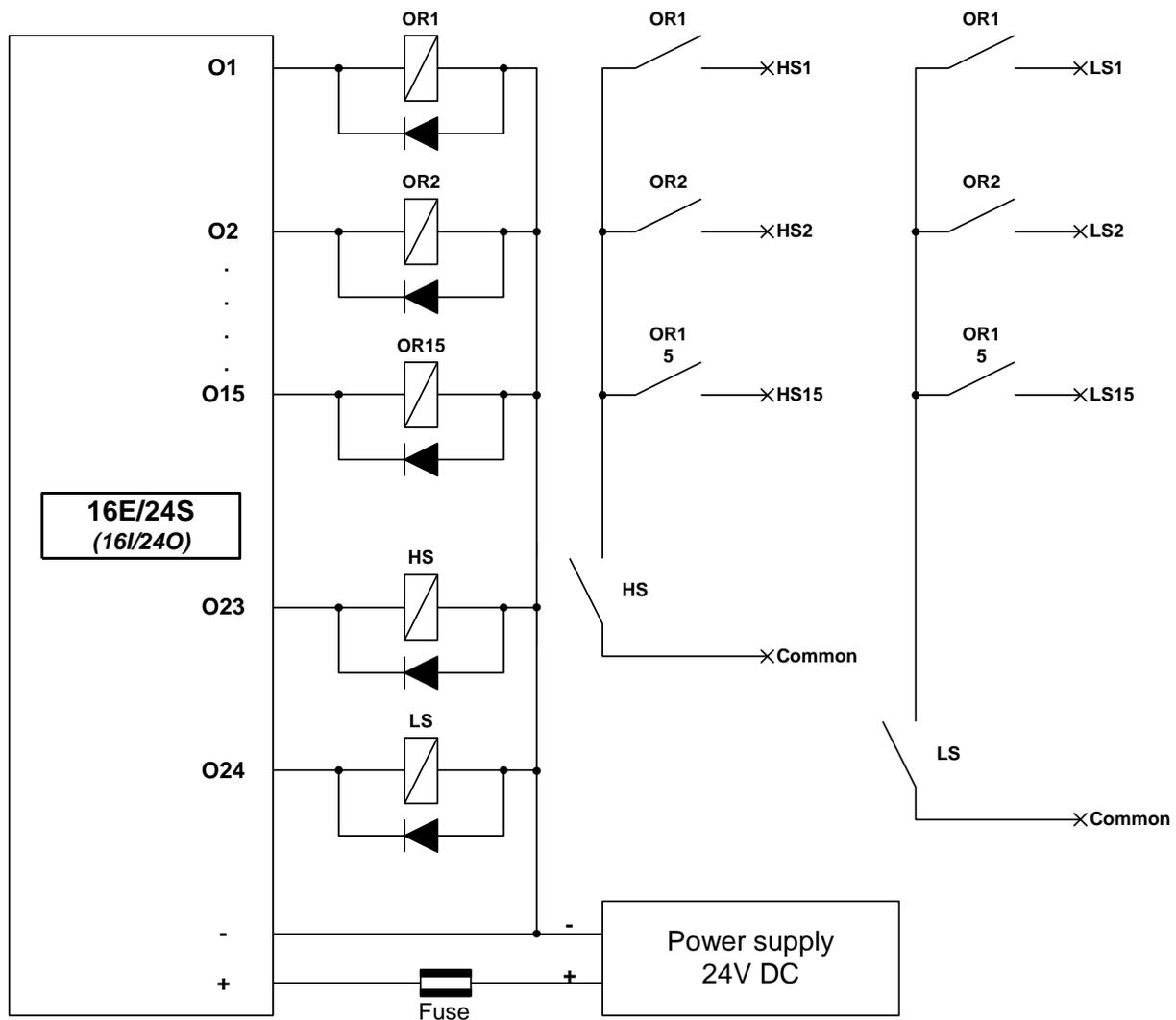
Outputs 30 mA Max under 24 V



Inputs 10 mA under 24 V



7.6. Connection example with 15 tanks at 2 speeds



Remember:

- Maximum current output with 16E/24S board: 25 mA.
- Maximum distance between 16E/24S board and relays : < 2 m with shielded wire
- Separated wiring between relays and contacts
- Foresee a protection (RC circuit in AC or reversed diode in DC) on the load

7.7. Coding sheet: Number of tanks > 15

OUTPUT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Tank 1	1														
Tank 2		1													
Tank 3			1												
Tank 4				1											
Tank 5					1										
Tank 6						1									
Tank 7							1								
Tank 8								1							
Tank 9									1						
Tank 10										1					
Tank 11											1				
Tank 12												1			
Tank 13													1		
Tank 14														1	
Tank 15															1
Tank 16	1														1
Tank 17		1													1
Tank 18			1												1
Tank 19				1											1
Tank 20					1										1
Tank 21						1									1
Tank 22							1								1
Tank 23								1							1
Tank 24									1						1
Tank 25										1					1
Tank 26											1				1
Tank 27												1			1
Tank 28													1		1
Tank 29														1	1

Remember: Tank #15 not used with relay decoding, may be used with PLC decoding.

