CRAIND IMPIANTI srl

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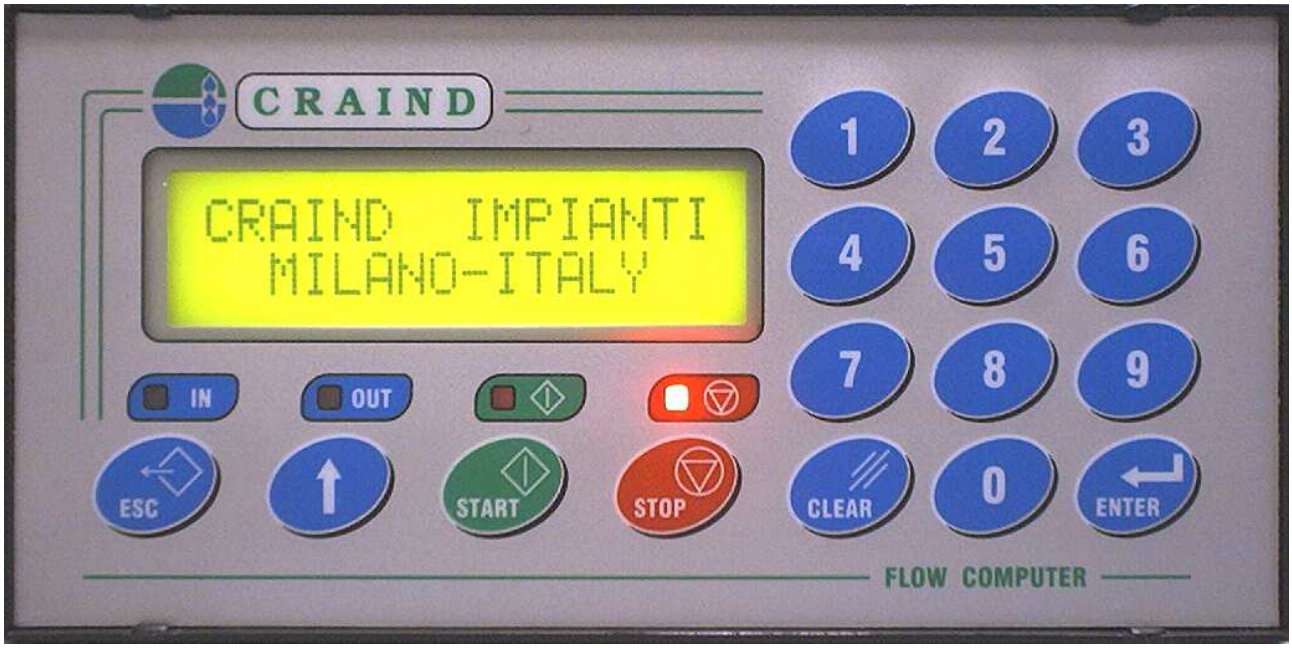
MICROPROCESSOR BATCH CONTROLLER

MOD. DOSAX 2010



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THE APPLIANCE DESCRIBED HEREIN CONFORMS TO STANDARDS EN55011, EN61000-3-2, IEC 1000-4-2, IEC1000-4-4

19/04/2005 VERSION 3.0

INTRODUCTORY NOTE

The operations described in this manual are applicable to both batch controller panels supplied ready wired and panel fronts wired by the client, however slight differences may occur according to the applications required.

CAUTION

Before switching the panel on, ensure that the power supply conforms to that indicated on the terminal board diagram or on the rear of the appliance, a variation in voltage of ± 10% is permitted, operating temperature: –10° +45° C.

POWERING UP

Use the master switch to switch the panel on, the appliance's display or the line pilot light will indicate that it has been switched on.

ASSEMBLY

The panel has been designed to be wall-mounted.
In order for the appliance to function properly, the operating temperature must be – 10° to +45°C and the surrounding atmosphere must not be corrosive or excessively damp.
Do not install in areas subject to intense vibrations.

When the appliance is switched on, the following page will appear on the display for approximately 5 seconds.

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The following page will then appear for approximately 2 seconds:

CUSTOMER SERVICE
TEL.02-5462113

IN THE FOLLOWING DESCRIPTIONS, THE VALUES GIVEN ARE FOR EXAMPLE USE ONLY.

PRESS THE ESC KEY TO QUIT A PAGE, (FUNCTION DISABLED DURING DOSAGE PHASE FOR SAFETY REASONS)

Press the **ENTER** key in the following page to proceed with dosage:

BATCH CONTROLLER
← QUIT ENTER:YES

DOSAGE

Dosage page:

In the example above a quantity of 450 litres (**SET**) has been requested. In order to set a different quantity, proceed as follows:

Digit the desired value using the number keypad.

In the event of errors, use the **CLEAR** key to erase the numbers entered incorrectly.

Press the **ENTER** key to confirm the value entered.

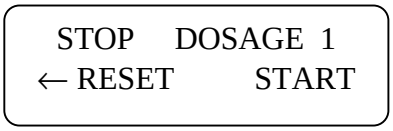
DOSAGE START

Press the **START** key to commence the dosage cycle. When the quantity set has been reached, the cycle will stop automatically and the following page will appear:

Press the **ENTER** key to start a new dosage cycle. Press the **ESC** key to return to the main menu.

TEMPORARY OR EMERGENCY DISPENSING STOPPAGE

If necessary, press the **STOP** key to stop dosage. The following page will appear:



The User has the following options:

a) Complete interrupted dosage: press the **START** key (you will return to the page relative to the dosage cycle that was interrupted); press the **START** key once more to start dosage.

b) Proceed with a new dosage cycle: press the **ESC** key to return to the main menu, press the **ENTER** key (in order to return to the dosage page) and then press the **START** key to commence dosage (which will start from 000000)

c) Press the **ESC** key once more to view the parameter/totalisators selection page.

MAIN MENU

By pressing the **ESC** key from the following page:

```
BATCH CONTROLLER
← QUIT    ENTER:YES
```

The parameters/totalisators selection page appears:

```
1= TOTALISATORS
2= PARAMETERS
```

Press the **1** key to view the TOTALISATORS

The RESETABLE PARTIAL TOTALISATOR will be shown:

```
TOT.1          16900283
CL=RESET       ENTER
```

The totalisator can be reset by pressing the **CLEAR** key:

```
TOT.1=         00000000
CL=RESET       ENTER
```

By pressing the **ENTER** key the NON RESETABLE HISTORICAL TOTALISATOR will be shown
Press the **ESC** key to quit page viewing and return to the main menu

```
HISTORICAL 1
← QUIT  0016900283
```

By pressing the **ESC** key the selection page will appear:

```
1= TOTALISATORS
2= PARAMETERS
```

Press the **2** key to view the PARAMETERS.

The ERROR PERCENTAGE COEFFICIENT will be shown:

```
ERROR %        00.00
← QUIT    ENTER:YES
```

Any dosage errors can be corrected in this page:

Perform three identical and consecutive dosage tests (with full line)

Set the average error value detected using the number keypad:

Press the **STOP** key to enter a minus sign,
Press the ↑ key to enter a decimal point

Press the **ENTER** key to return to the following menu page:
Press the **ESC** key to quit page viewing and return to main menu.

```
K=                0,000001
← QUIT    ENTER:YES
```

Litre-counter factorisation coefficient: this value is normally set in the CRAIND workshops.
If the value requires changing, take note of the litre-counter registration number (assembled on the dosage line) and contact CRAIND staff, you will be given the initial calibration value.

In order to alter the value:

Digit the desired value using the number keypad.

In the event of errors, use the **CLEAR** key to erase the numbers entered incorrectly.

Press the **ENTER** key to confirm the value entered.

By pressing the **ENTER** key the following menu page will appear:
By pressing the **ESC** key one quits page viewing and returns to the main menu.

```
N° DECIMALS          0
← QUIT     ENTER:YES
```

In this page it is possible to enable a decimal point in the viewing of batch controlling and totalisation according to the following order:

0 = decimal point disabled
1 = 1 decimal figure enabled
2 = 2 decimal figures enabled

In order to change the value:

Digit the desired value using the number keypad.

In the event of errors, use the **CLEAR** key to erase the numbers entered incorrectly.

Press the **ENTER** key to confirm the value entered.

By pressing the **ENTER** key the following menu page will appear:
By pressing the **ESC** key one can quit page viewing and return to the main menu

```
COUNT TYPE     0
← QUIT    ENTER:YES
```

In this page, the user can alter the type of count as follows:

0 = increasing count
1 = decreasing count

In order to alter the value:

Digit the desired value using the number keypad.

In the event of errors, use the **CLEAR** key to erase the numbers entered incorrectly.

Press the **ENTER** key to confirm the value entered.

By pressing the **ENTER** key the following menu page will appear:
By pressing the **ESC** key one quits page viewing and returns to the main menu.

```
COUNT BLOCK1       0
← QUIT    ENTER:YES
```

In this page it is possible to change the type of totalisator count as follows:

0 = when the batch controller is in stoppage phase any input pulses are counted by the totalisators.
1 = when the batch controller is in stoppage phase input pulses are not counted by the totalisators

In order to alter the value:

Digit the desired value using the number keypad.

In the event of errors, use the **CLEAR** key to erase the numbers entered incorrectly.

Press the **ENTER** key to confirm the value entered.

By pressing the **ENTER** key the following menu page will appear:
By pressing the **ESC** key one quits page viewing and returns to the main menu.

In this page, it is possible to enable the monostable start/stop function as follows:

0 = monostable start/stop function disabled:
input from terminal board 1 (pin no. 2) only works from the remote operation button.

1 = monostable start/stop function enabled:
input from terminal board 1 (pin n°2) functions alternatively from the running/stop button.

N.B.: for safety reasons, when using the operation command from the remote button, after the first stoppage, the remote operation button must be pressed twice to start dosage.

To change the value:

Digit the desired value using the number keypad.

In the event of errors, use the **CLEAR** key to erase the numbers entered incorrectly.

Press the **ENTER** key to confirm the value entered.

By pressing the **ENTER** key the following menu page will appear:
By pressing the **ESC** key one quits page viewing and returns to the main menu.

By enabling this function, it is possible to have a factorised pulses output corresponding to the quantity of product measured on the terminal board.

0 = output disabled
1 = output always enabled (irrespective of the appliance's operating/stoppage status)
2 = output only enabled during operation, when the batch controller stops the output will emit any pulses stored to complete remote counting.
3 = output only enabled during operation, when the batch controller stops the output is interrupted and erases any stored pulses.

In order to change the value:

Digit the desired value using the number keypad.

In the event of errors, use the **CLEAR** key to erase the numbers entered incorrectly.

Press the **ENTER** key to confirm the value entered.

If output is enabled by pressing the **ENTER** key the following menu page will appear:
By pressing the **ESC** key or leaving the parameter at 0, one quits page viewing and returns to the main menu.

In this page, it is possible to set the duration (in seconds) of single output factorised pulses.

In order to change the value:

Digit the desired value using the number keypad.

In the event of errors, use the **CLEAR** key to erase the numbers entered incorrectly.

By pressing the **ENTER** key the following menu page will appear:
By pressing the **ESC** key one quits page viewing and returns to the main menu.

Overflow alarm activation

In this page it is possible to set a delay between the end of dosage arrest and the start of the excess impulse control. The settable values range from 000 to 127 seconds. The alarm is disabled when set at 000.

NOTE:
Always enter a value greater than the system inertia (stop in normal conditions).

The successive parameters (IM. OVERFLOW and T. OVERFLOW) are used in order to prevent undesired alarm interventions. Various tests may be necessary in order to set the correct values, depending on the dosage system.

Overflow impulses (to be set in order to activate the alarm)

In this page it is possible to set the number of excess impulses (from 0000 to 9999 – at least 0001 must be set for the control to be enabled)

Overflow impulse time (obligatory)

In order to alter the value:

Digit the desired value using the number keypad.

In the event of errors, use the **CLEAR** key to erase the numbers entered incorrectly.

Press the **ENTER** key to confirm the value entered.

By pressing the **ENTER** key, the following page of the menu will appear:
By pressing the **ESC** key one will quit page viewing and return to the main menu

In this page it is possible to set the time necessary for the excess impulses to be reached (from 00.0 to 12.7 seconds).

On this page it is possible to enter the minimum alarm in seconds, tenths and hundredths of a second. Attention: any dispensing blocks that occur the first time the system is set running are normal as more time than that set is required to fill the line.

In order to alter the value:

Digit the desired value using the number keypad.

In the event of errors, use the **CLEAR** key to erase the numbers entered incorrectly.

Press the **ENTER** key to confirm the value entered.

By pressing the **ENTER** key, the following page of the menu will appear:
By pressing the **ESC** key one will quit page viewing and return to the main menu

In order to change the value:

Digit the desired value using the number keypad.

In the event of errors, use the **CLEAR** key to erase the numbers entered incorrectly.

Press the **ENTER** key to confirm the value entered.

By pressing the **ENTER** key the following page of the menu will appear:
By pressing the **ESC** key one quits page viewing and returns to the main menu

Valve opening control

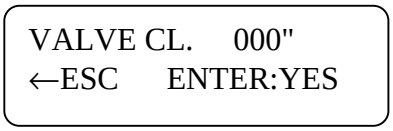
In this page it is possible to activate the valve opening control timer.
A value between 0 (timer off) and 127 seconds can be set.

In order to modify the value:
Use the numerical keyboard to type in the desired value

In the case of an error, use the **CLEAR** key to cancel the incorrect figures

Press the **ENTER** key in order to confirm the entered value
After pressing the **ENTER** key, the following page of the menu will be displayed:
Pressing the **ESC** key will cause you to exit the page and return to the main menu

Valve closure control



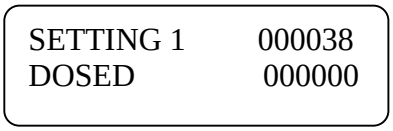
In this page it is possible to activate the valve closure control timer.
A value between 0 (timer off) and 127 seconds can be set.

In order to modify the value:
Use the numerical keyboard to type in the desired value

In the case of an error, use the **CLEAR** key to cancel the incorrect figures

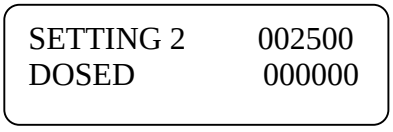
Press the **ENTER** key in order to confirm the entered value
After pressing the **ENTER** key, the following page of the menu will be displayed:
Pressing the **ESC** key will cause you to exit the page and return to the main menu

SETTING 1 (low input)



Use the numerical keyboard to type in the desired value
In the case of an error, use the **CLEAR** key to cancel the incorrect figures
Press the **ENTER** key in order to confirm the entered value

SETTING 2 (high input)



In order to modify the value:

Use the numerical keyboard to type in the desired value
In the case of an error, use the **CLEAR** key to cancel the incorrect figures
Press the **ENTER** key in order to confirm the entered value
Pressing the **ESC** key will cause you to exit the page and return to the main menu

DESCRIPTION OF OVERFLOW ALARM

The overflow alarm is used to make sure that the system stops correctly at the end of the dosage cycle.

For example:

1. setting 1 dosage start
2. the predeterminer reaches setting 1
3. the predeterminer output stops
4. the pneumatic dosage valve remains open (due to a fault)
5. the product continues to pass and the counter continues to emit impulses
6. the alarm intervenes and the following message appears on the screen

OVERFLOW ALARM 1 ←RESET

press the ←ESC key to reset the alarm
the alarm uses the same output as the minimum and maximum capacity alarms.

DESCRIPTION OF ALARM FUNCTION

Minimum alarm
Used to automatically interrupt product dispensing (after a set time). When it operates, the following page appears:

MINIMUM ALARM 1 ← QUIT START

The batch controller automatically passes to the stop phase. The User has the following options:

a. Complete interrupted dosage: press the **START** key (one will return to the page of dosage that was interrupted) press the **START** key again to start dosage.

b. Proceed with a new dosage cycle: press the **ESC** key to return to the main menu, press the ENTER key (to return to the dosage page) and then press the **START** key to commence dosage (which will start again from 000000).

c. Press the **ESC** key again in order to view the parameters/totalisators selection page.

Maximum alarm
Used in order to prevent excessive load damaging the dosage system.
When it operates, the batch controller does not stop dosage and the following page appears cyclically:

MAXIMUM ALARM 1 EXCESSIVE LOAD

When dosage is completed, the alarm message appears again, reduce the load in order to protect the dosage system's measuring elements.

DESCRIPTION OF VALVE OPENING / CLOSURE CONTROL

The valve opening / closure control prevents the pump from starting in the case of valve malfunctions.
The alarms are automatically reset when normal conditions are restored.
The two controls are differentiated and can be used separately or simultaneously.

The necessary electrical requirements are as follows:

1) microswitch with n.o. contact assembled on the valve and activated (contact closed) when the valve is in the open position
2) microswitch with n.o. contact assembled on the valve and activated (contact closed) when the valve is in the closed position
3) supplementary pump command relay on the DOSAX instrument (contacts D – terminals 13 and 15)

VALVE OPENING CONTROL

After START the valve opening control is activated. If the valve does not open (once the set time in the set-up has passed), the pump does not start and the following message appears on the display:

VALVE NOT COMPLETELY OPEN

NOTE:
the control also remains active during the dosage phase

VALVE CLOSURE CONTROL

After the START, the valve closure control from the last dosage cycle is carried out (once the set time in the set-up has passed). If the microswitch does not open, the pump does not start and the following message appears on the display:

VALVE CLOSED

DESCRIPTION OF DOUBLE SETTING

Two independent predetermination settings are available for the same product

To change the setting, activate input 5 (terminal No. 7)

low input = setting 1

high input = setting 2

The setting values can be made directly on the predetermination pages:

Use the numerical keyboard to type in the desired value
In the case of an error, use the **CLEAR** key to cancel the incorrect figures
Press the **ENTER** key in order to confirm the entered value

low input

SETTING 1	000038
DOSED	000000

high input

SETTING 2	002500
DOSED	000000

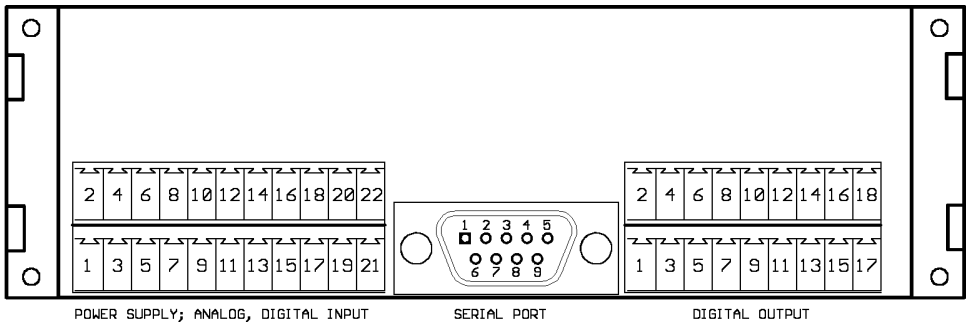
NOTE:
settings can also be made using the PARAMETERS menu
The settings can only be changed when the instrument is stationary
After changing the settings, the DOSED quantity is reset

it is advisable to use a separation transformer dedicated to the instrument power supply.

TECHNICAL CHARACTERISTICS:

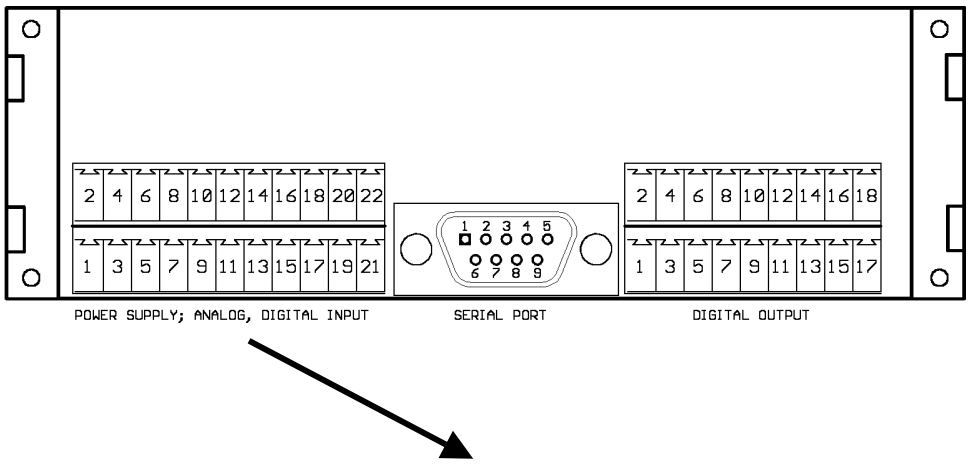
Power supply	24 Vca 50/60 Hz
Max. absorption	10 VA
Relay outputs	110 Vac/dc 1 A max
Static Mos-fet outputs	12 - 48 V dc 1 A max
Voltage supplied to power sensors	12 Vdc 80 mA max
Degree of protection	IP 64
Operating temperature	-10 +45 °C

Power supply description:
(2x11 pole 3.81 pitch phoenix MCD cable connector)



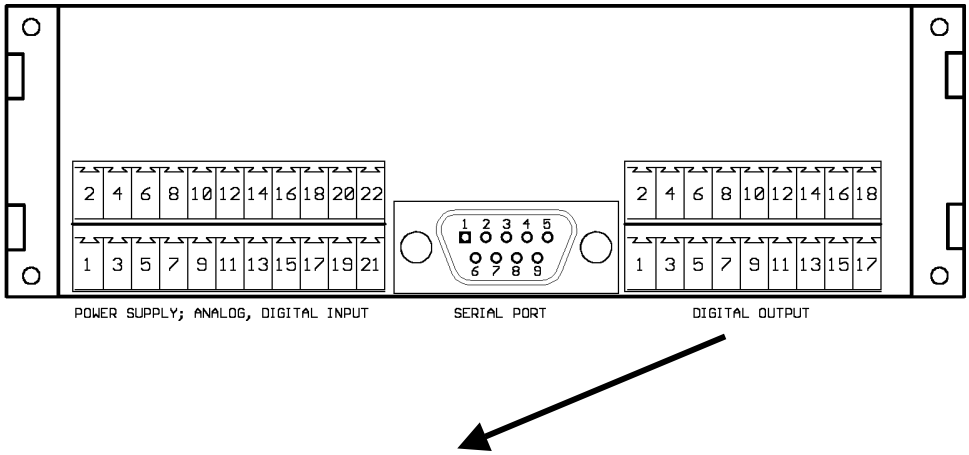
Pin N°	Description
1	24 Vac
3	0 Vac

Description of digital input connections:
(2x11 pole 3.81 pitch phoenix MCD cable connector)



Input N°	Pin N°	Description
Com-in	21	Common input +12 Vdc
1	2	Digital input 1 (remote start)
2	4	Digital input 2 (remote stop)
3	5	Digital input 3 (pulses from litre-counter)
4	6	Digital input 4 (reset dispensed quantity – may only be performed in stoppage phase)
5	7	Set control: 0 = set 1 - 1 = set 2
6	8	Limit switch N.A. valve open
7	9	Limit switch N.A. valve close

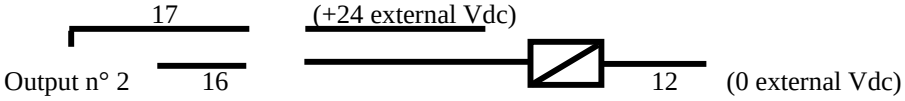
Description digital output connections:
(2x9 pole 3.81 pitch phoenix MCD cable connector)



Connection with Mos-fet outputs and relays:

Output No.	Pin No.	Description
Com-out +	17	Common outputs +24 Vdc
Com-out -	12	Common outputs 0Vdc
1	18	Out 1Ampere (factorised pulses output)
2	16	Out 1Ampere (remote operation lamp output)
3	14	Out 1Ampere (remote stoppage lamp output)
4	1	Clean contact A (valve command)
4	3	Clean contact A (valve command)
4	5	Clean contact B (pump command without valve control)
4	7	Clean contact B (pump command without valve control)
5	9	Clean contact C (minimum and maximum alarm output)
5	11	Clean contact C (minimum and maximum alarm output)
6	13	Clean contact D (pump command with valve control)
6	15	Clean contact B (pump command with valve control)

Digital outputs :



CUTTING FREQUENCY

The CUTTING FREQUENCY parameter has been included in the set-up menu. Using this function it is possible to filter any recoils of mechanical contacts or disturbed signals. All signals that exceed the cutting frequency are not considered.

To set the parameter correctly, enter a value (expressed in Hz) that is 10-20% higher than the incoming signal at maximum capacity.

Example:

pulses coming from a meter that issues 20 pulses/litre

maximum meter capacity = 2000 litres/hour

$\frac{20 \times 2000}{3600}$ = 11.11 Hz (frequency at maximum capacity)

enter a minimum value of 13 Hz and confirm with the ENTER key

PRINTER

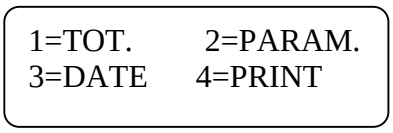
Using the menus described, it is possible to print out the following data:

1. time and date
2. 2 lines of text (for example, company name or production department)
3. the name of the dosed product
4. the dosed product quantity
5. the instantaneous load value
6. progressive printing No., max. 8 figures (automatically reset in overflow)
7. operator code (from 01 to 99)

NOTE:

2 and 3 can only be memorized in CRAIND laboratories
5 can only be printed by a predeterminer instrument mod. DOSAX 2010 I.F.
6 and 7 can only be printed by a DOSAX 2010 instrument with password (only upon request)
the operator codes can include up to 99 users, but only 10 passwords can be assigned. Therefore a maximum of 10 operators can be effectively enabled.

The "PARAMETER / TOTALIZATOR SELECTION" page, described in the MICROPROCESSOR PREDETERMINER MOD. DOSAX 2010 manual (page 3), is replaced by the following

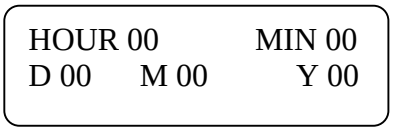


Options 1 (totalizators) and 2 (parameters) are the same as those described in the PREDETERMINER manual.
It is possible to exit the pages (i.e. in the case of an error) by using the **ESC** key.
Incorrect data can be cancelled by pressing the **CLEAR** button

PRINTING MENU

Option 3 = DATE

Pressing key **3** displays the following page, where it is possible to enter the time and date using the numerical keyboard



After having introduced that last piece of information (year), press the **ENTER** key to return to the main menu
Each time this page is displayed, the data is reset to 0 (as in the figure above)

Option 4 = PRINTING

Pressing key **4** displays the following page:

PRINT CAPACITY	1
PRINT TEXT	0

PRINT CAPACITY
If the instrument has the capacity indicator function (MOD. DOSAX 2010 I.F.), it is possible to choose whether to print this value

By typing 1 and pressing the **ENTER** key to confirm, the capacity will be printed along with the other values
By typing 0 and pressing the **ENTER** key to confirm, the capacity will not be printed

Note: the capacity value is the one measured in the moment preceding the print-out.

PRINT TEXT
If the instrument has any memorized text (for example company name or production department), it is possible to choose whether to print this information.

by typing 1 and pressing the **ENTER** key to confirm, the text will be printed along with the other values
by typing 0 and pressing the **ENTER** key to confirm, the text will not be printed

Pressing the **ESC** takes you onto the next page:

0 = END OF CYCLE
1 = INPUT

This page makes it possible to establish when the print out will take place

by pressing **0** and then the **ENTER** key to confirm (END OF CYCLE), the print-out will take place in the following cases:

1) When the dosage has taken place normally and the predeterminer has automatically passed to the stop phase
2) When the **STOP** button is pressed (the phrase "EMERGENCY STOP" will also be printed)
3) When the predeterminer stops due to the intervention of the minimum alarm (the phrase "MINIMUM ALARM STOP" will also be printed)

by pressing **1** and then **ENTER** to confirm (INPUT), the print-out will only take place through input No. 9 – terminal 11 of the input terminal box. For connections, consult the MICROPROCESSOR PREDETERMINER MOD. DOSAX 2010 manual (page 9)

Press the **ESC** key to exit the printing menu

PASSWORD

RESERVED FOR PASSWORD ALLOCATION PERSONNEL

In order to enter operator code and password:

8. switch the instrument (or the panel) on
9. the following will appear on the display (for a few seconds)

CRAIND IMPIANTI MILAN - ITALY

10. this will automatically be replaced by the following

CUSTOMER SERVICE TEL. 02-5462113

11. press and release keys 3 and 7 simultaneously

12. the parameters password introduction page will be displayed. This function makes it possible to prevent unauthorized personnel access to the parameters menu (see MICROPROCESSOR PREDETERMINER MOD. DOSAC 2010 manual). If you enter the password = 000000 and press the **ENTER** key to confirm, the parameters menu will be accessible to everyone.

PARAMETERS PASSWORD 123456

13. type in the password using the numerical keys and press the **ENTER** key to confirm

14. the operator code and password introduction page will be displayed
    for example:

OP CODE 01 15 PASSWORD 123456

15. type in an operator code (Max. 99) using the numerical keys and press the **ENTER** key to confirm
16. allocate a password (Max. 999999) using the numerical keys and press the **ENTER** key to confirm
17. the page displays the following operator code
18. press the **ESC** key to exit and memorize
19. after the **memorization in process** message, the instrument will display the initial predetermination page

NOTE:
If one or more passwords are allocated, the instrument will not be able to make any dosages unless the correct password is introduced by the operator
To cancel a password assign the value 000000
The password is requested after all automatic and emergency stops
If you forget the passwords, it is always possible to memorize new ones using the aforementioned procedure.
If the predeterminer instrument is connected to a DOSAX printer, the operator code (together with the password used) will be printed at the bottom of the print-out at the end of the dosage operation

MENU' IN ENGLISH AND FRENCH

WARNING: FOLLOW THE DESCRIBED PROCEDURE METICULOUSLY. THE INSTRUMENT COULD BLOCK IF THE FOLLOWING PARAMETERS ARE MODIFIED WRONGLY.

Switch on the power supply to the instrument by keeping the ESC key pressed.
The display shows:

Main menu
- Automatic

Release the ESC key
Press the ↑ arrow key

The display shows:

Main menu
- PLC Program.

Press the ↑ arrow key
The display shows:

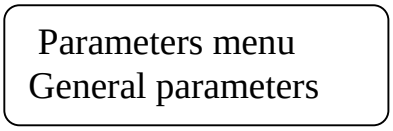
Main menu
- Hardware test

Press the ↑ arrow key
The display shows:

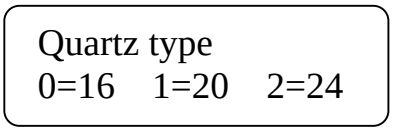
Main menu
- NEC1 Parameters

Press the ENTER key
The display shows:

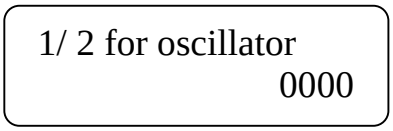
Enter the code 432123 using the numerical keyboard
The display shows:



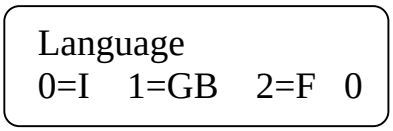
Press the ENTER key
The display shows:



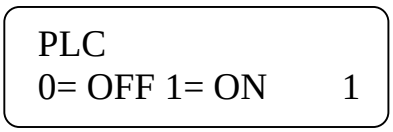
Press the ENTER key
The display shows:



Press the ENTER key
The display shows:



Select the required language, using the numerical keyboard
0 = ITALIAN
1= ENGLISH
2= FRENCH
Confirm with the ENTER key. The display shows the following page:



Press the START key
The display will show the following in sequence :

Data storage under way

Data storage OK

Quartz type
0=16 1=20 2=24 1

Press the ESC key
The display shows:

Parameters menu
General parameters

Press the ESC key
The display shows:

Main Menu
- NEC1 parameters

Press the ESC key
The display shows:

Main menu
- Automatic

Switch off the power supply to the instrument, wait for a few moments. When you switch the instrument on the next time, the menu language will be the one you have selected.

FLOW

During the dosage phase it is possible to view flow by pressing ↑:

Press ↑ again to return to previous screen.

The parameter menu pages for configuring flow are described below:

In this page it is possible to define the flow scale shown according to the following order:

0 = litres/second
1 = litres/minute
2 = litres/hour

To modify the value:

Use the keypad to type in the desired value

In the event of errors, use **CLEAR** to erase any incorrect numbers

Press **ENTER** to confirm the value typed in

By pressing **ENTER** the following menu page will appear:

Press **ESC** to quit page visualisation and return to main menu

In this page it is possible to introduce a value (from 1 to 100) of flow reading means; this parameter can be used when flow reading is particularly unstable. Consider that:

001 = reading quick in increasing or decreasing, but less stable
100 = reading slow in increasing or decreasing, but more stable

To modify the value:

Use the keypad to type in the desired value

In the event of errors, use **CLEAR** to erase any incorrect numbers

Press **ENTER** to confirm the value typed in

By pressing **ENTER** the following menu page will appear:
Press **ESC** to quit page visualisation and return to main menu

In this page it is possible to introduce the minimum flow alarm (the alarm output is shown on the terminal board). The minimum alarm is used to signal malfunctions during dosage (for example, product shortage, tube ruptures, etc.), when it triggers, the display will show the following message at regular intervals.

To modify the value:

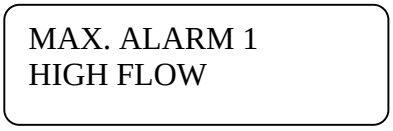
Use the keypad to type in the desired value

In the event of errors, use **CLEAR** to erase any incorrect numbers

Press **ENTER** to confirm the value typed in

By pressing **ENTER** the following menu page will appear:
Press **ESC** to quit page visualisation and return to main menu

In this page it is possible to introduce the maximum flow alarm (the alarm output is shown on the terminal board). The maximum alarm serves to prevent excessive flow from damaging the dosage system.
When the alarm triggers, the display will show the following message at regular intervals.



Reduce flow to conserve the dosage system measurement elements.

To modify the value:

Use the keypad to type in the desired value

In the event of errors, use **CLEAR** to erase any incorrect numbers

Press **ENTER** to confirm the value typed in

By pressing **ENTER** the following menu page will appear:
Press **ESC** to quit page visualisation and return to main menu

In this page it is possible to introduce a value expressed in seconds (max. 127) in order to delay the minimum flow alarm triggering. This parameter is used in order to prevent blocks in supply when the plant is started up with the line empty.

N.B.:
Minimum and maximum flow alarms are expressed in the chosen unit of measurement (for example litres/hour) and they replace those described on page 8 of the DOSAX 2010 MICROPROCESSOR BATCH CONTROLLER manual.