



SOCIETA' COOPERATIVA

**BILANCI**

# Manual and semi-automatic dosing FLYNET

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# Contents

|       |  |    |
|-------|--|----|
| 1     | INTRODUCTION .....   | 7  |
| 2     | MAIN WINDOW AND BASIC OPERATIONS.....                        | 9  |
| 2.1   | Icons.....   | 9  |
| 2.2   | Scale.....   | 9  |
| 2.3   | Keys.....  | 9  |
| 2.4   | Using the touch screen .....                                 | 10 |
| 2.5   | Setting a text.....  | 10 |
| 3     | TERMINAL CONFIGURATION .....                                 | 11 |
| 3.1   | WEIGHING OPERATION .....                                     | 12 |
| 3.2   | PRINTER .....  | 16 |
| 3.2.1 | Serial configuration.....                                    | 16 |
| 3.2.2 | Printer configuration .....                                  | 17 |
| 3.2.3 | Parameter configuration .....                                | 18 |
| 3.2.4 | Layout configuration.....                                    | 18 |
| 3.2.5 | Head text configuration.....                                 | 18 |
| 3.2.6 | Queue text configuration .....                               | 18 |
| 3.2.7 | Printer test.....  | 18 |
| 3.2.8 | Import layouts .....   | 19 |
| 3.3   | DATABASE.....  | 20 |
| 3.4   | AUTOMATIC EXPORT OF WEIGHTS.....                             | 21 |
| 3.4.1 | Elimination of obsolete dosing cycles .....                  | 23 |
| 3.4.2 | Automatic archiving with deletion of old dosing cycles ..... | 23 |
| 3.4.3 | Sending csv dosage cycles by Email.....                      | 24 |
| 3.4.4 | Sending csv dosing cycles to FTP server .....                | 24 |
| 3.5   | INPUT - Input configuration.....                             | 25 |
| 3.5.1 | Dosing input.....  | 25 |
| 3.5.2 | Transmission request input configuration .....               | 26 |
| 3.5.3 | Input configuration Select scale .....                       | 26 |
| 3.5.4 | Reset weight input configuration .....                       | 26 |
| 3.5.5 | Self-weighted tare (acquire/delete tare).....                | 27 |
| 3.5.6 | Reset Tare .....   | 27 |
| 3.5.7 | Acquire tare .....   | 28 |
| 3.6   | OUTPUT - Output configuration .....                          | 28 |

|       |  |    |
|-------|--|----|
| 3.6.1 | Dosing output configuration.....   | 28 |
| 3.6.2 | Terminal output configuration ready .....  | 30 |
| 3.6.3 | Selected Scale Output Configuration.....   | 31 |
| 3.6.4 | Scale Output configuration active .....  | 31 |
| 3.6.5 | Output configuration Successful transmission.....  | 31 |
| 3.7   | ACCESS LEVELS.....   | 32 |
| 3.7.1 | Selection of the current access level .....  | 33 |
| 3.7.2 | Functions associated with access levels .....  | 33 |
| 4     | ARCHIVE MANAGEMENT .....   | 34 |
| 4.1   | Creating a new element .....   | 34 |
| 4.2   | Modifying an existing element .....  | 35 |
| 4.3   | Deleting all elements .....  | 35 |
| 4.4   | Deleting an element .....  | 35 |
| 4.5   | Print all elements.....  | 35 |
| 4.6   | Print an element.....  | 35 |
| 4.7   | Search for elements.....   | 35 |
| 4.8   | Ordering elements.....   | 36 |
| 4.9   | Archive output.....  | 36 |
| 4.10  | First element.....   | 36 |
| 4.11  | Last element .....   | 36 |
| 4.12  | Next element .....   | 36 |
| 4.13  | Previous element.....  | 36 |
| 5     | MODE OF USE - OPERATION.....   | 37 |
| 5.1   | Products.....  | 37 |
| 5.1.1 | Inserting a product .....  | 37 |
| 5.1.2 | Assigning the extraction type to a product (manual extraction or automatic extraction) ..... | 38 |
| 5.1.3 | Zeroing the product total .....  | 39 |
| 5.2   | Formulas .....   | 39 |
| 5.2.1 | Entering a formula .....   | 39 |
| 5.3   | Formula ingredients .....  | 40 |
| 5.3.1 | Inserting an ingredient .....  | 41 |
| 5.3.2 | Copying a formula.....   | 42 |
| 5.3.3 | Reset total formula .....  | 43 |
| 5.4   | Programs.....  | 43 |
| 5.4.1 | Entering a program.....  | 43 |

|       |   |    |
|-------|---|----|
| 5.4.2 | Program Cycles .....  | 44 |
| 5.4.3 | Entering a Program Cycle .....                                      | 45 |
| 5.5   | Operators.....  | 46 |
| 5.5.1 | Entry of an operator .....  | 46 |
| 5.5.2 | Selecting an operator .....   | 46 |
| 5.6   | Dosing archive .....  | 47 |
| 5.6.1 | CSV file generated by manual or automatic export of an assay.....   | 50 |
| 5.7   | Dosing .....  | 51 |
| 5.7.1 | Example of a machining page with MANUAL EXTRACTION product.....     | 53 |
| 5.7.2 | Example of a machining page with AUTOMATIC EXTRACTION product ..... | 56 |
| 5.8   | Selecting a Formula or Dosing Program .....                         | 57 |
| 5.8.1 | Set Program .....   | 57 |
| 5.8.2 | Set Formula.....  | 58 |
| 5.8.3 | Dosing Reset .....  | 58 |
| 5.8.4 | Data Setting .....  | 58 |
| 5.8.5 | Suspended dosages .....   | 59 |
| 6     | DOSING CYCLE .....  | 60 |
| 6.1   | Dosing cycle description .....                                      | 61 |
| 6.1.1 | Start phase.....  | 61 |
| 6.1.2 | Extraction phase .....  | 62 |
| 6.1.3 | Printing phase.....   | 66 |
| 6.1.4 | Unloading phase .....   | 68 |
| 6.1.5 | Additional unloading time phase.....                                | 68 |
| 6.2   | Prerequisites at the start of dosing .....                          | 68 |
| 7     | REMOTE CONTROLS.....  | 69 |
| 7.1   | Program Code Request.....   | 70 |
| 7.2   | Setting of the Program Code for Execution.....                      | 70 |
| 7.3   | Requesting the Code of the Executing Formula .....                  | 70 |
| 7.4   | Setting the Formula Code for Execution .....                        | 70 |
| 7.5   | Requesting the Batch of the Executing Formula .....                 | 71 |
| 7.6   | Setting the Formula batch for Execution.....                        | 71 |
| 7.7   | Requesting the Product of the Executing Formula.....                | 71 |
| 7.8   | Message display.....  | 72 |
| 7.9   | Requesting the Carriage Code in use.....                            | 73 |
| 7.10  | Setting the Carriage Code in use .....                              | 73 |

|       |  |    |
|-------|--|----|
| 7.11  | Batch number request (#Batch) .....        | 73 |
| 7.12  | Setting the Batch Number (#Batch).....     | 73 |
| 7.13  | Sequence number request .....              | 74 |
| 7.14  | Setting the Sequence number .....          | 74 |
| 7.15  | Start dosing.....                          | 74 |
| 8     | TOTALS.....                                | 74 |
| 9     | CSV FILE MANAGEMENT.....                   | 75 |
| 9.1   | Import data .....                          | 75 |
| 9.2   | Export data .....                          | 75 |
| 9.2.1 | Export the selected archives .....         | 75 |
| 9.3   | Copy .....                                 | 76 |
| 9.3.1 | Copy selected files .....                  | 76 |
| 9.3.2 | Copy all files.....                        | 76 |
| 9.4   | Data cancellation .....                    | 76 |
| 9.4.1 | Delete the selected files .....            | 76 |
| 9.4.2 | Delete all files .....                     | 76 |
| 10    | DATA TRANSMISSION MANAGEMENT .....         | 77 |
| 11    | DATABASE MANAGEMENT IN OFF-LINE MODE ..... | 78 |
| 12    | RELATIONAL SCHEME OF DATABASE TABLES.....  | 79 |

## 1 INTRODUCTION

This Flynet terminal is equipped with a dosing program capable of managing products, formulas and programs.

It is possible to manage up to 4 scales, which must be exclusively parallel; the final figure of all the various forms of totalisation is expressed to three decimal places and in the smallest unit of measurement of the scales in the system (regardless of whether the scale is part of the production formula or not).

The terminal can handle manual, automatic or semi-automatic dosing:

- Manual dosing: all ingredients in the formula are produced by manual extraction.
- Automatic dosing: all ingredients in the formula are produced by automatic extraction.
- Semi-automatic dosing: the formula consists of both manual and automatic extraction products.

While in the former case, the presence of the I/O board is optional and can be used to give the input contacts the same functionality as some control keys, in the latter two cases it becomes necessary for the terminal to mount one or two 8 Input/ 12 Output boards (depending on the number of automatic products to be obtained, the need to perform one- or two-speed extractions, and any additional signalling).

In fact, if for a product at least one output is defined between Start, Slow and Fast, the terminal will handle it as an automatic extraction product (the “closing” of the product is done by the terminal when the product extract reaches the product's demand); otherwise it will be handled as a manual extraction product (the “closing” of the product must be done by the operator when the product extract is within the range of its demand). When a product is part of a formula, it is referred to as an ingredient; for each ingredient, it is necessary to define the scale on which it is to be weighed, the quantity to be extracted, the cycles, and whether it is an ingredient to be weighed (i.e. put on the scale) or not (i.e. added off the scale because it is perhaps pre-packaged).

On the formula selection page for the dosing, the formula demand can be increased or decreased from the original value, the new value will be used as the Production Request and all ingredients will be automatically recalculated to maintain the same proportionality as the original formula (a printout of the recalculated formula can be requested on the spot so that the operator can eventually retrieve the correct product quantities from the stock); the original request remains in the formula table.

It is possible to enable the printing of the dosing cycle and/or its automatic export.

A suspended dosing (either voluntarily by the operator or by a power failure) can be retrieved and resumed from the point of interruption; however, please note that it is not possible to have more than one dosing in the “Suspended dosages” table referring to the same formula code or the same program code with the same terminal serial number.

The terminal is able to manage a database for storing sensitive terminal data. Archives are managed:

- Operator archive
- Product archive
- Formula archive
- Production program archive
- Finished dosing archive
- Suspended dosages archive (suspended dosages that can be resumed from the point of interruption)

Archives can be exported in csv format.

Archives may reside on SQL-Server.

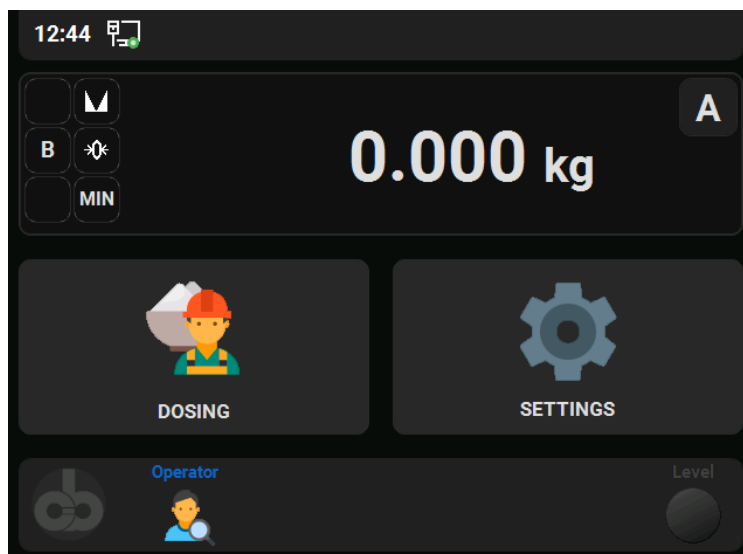
**\*\*\* ATTENTION \*\*\***

For all other information, please refer to the “Flynet50 Use, maintenance and installation manual”.



## 2 MAIN WINDOW AND BASIC OPERATIONS

When switched on, the terminal presents the following main screen:



(fig.1)

### 2.1 Icons

The icons displayed at the top of the touch screen provide information on the status of the device.



Network connection enabled



Network connection disabled

11:39

Daylight Saving Time

### 2.2 Scale

The part of the display immediately below the icons is dedicated to displaying the weight and its metrological indications. The letter at the top, to the right of the weight, indicates which scale is selected. In the case of a multi-scale terminal, the letters corresponding to the scales present are displayed on the right-hand side of the icon bar; touching the weight display switches between the scales.

### 2.3 Keys



The key gives access to the “Processing page” from which you can either select the formula or the program to be sent into production, or visually follow the progress of the extractions of the various ingredients and, if necessary, intervene to solve certain problems.



The key gives access to both the data setting and terminal configuration menus.



The key gives access to the “Operators” table. From here it is possible to either edit the table by adding one or more operators, or select the operator who will perform the machining. If the operator needs to be changed within a dosage, simply stop dosing, select the new operator and resume dosing.



The key (bottom right), enabled only if “Access Levels” have been enabled, allows selection of the current access level. If levels are enabled, the number of the current level is displayed inside the circle. Enabling access levels allows more “sensitive” operations to be reserved for authorised personnel only.

## 2.4 Using the touch screen

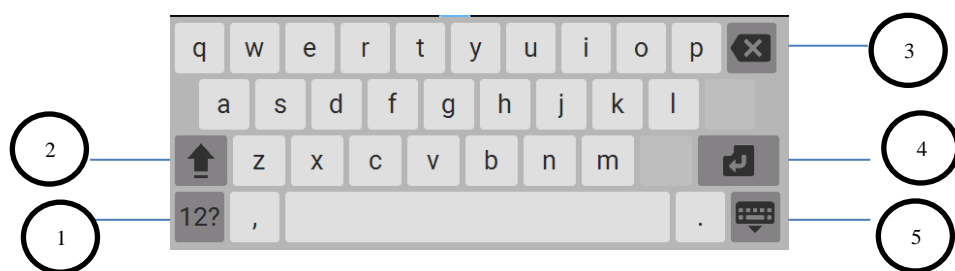
The touch screen allows you to easily select items and to control operations. Touch the screen once to select an option or to start an application.

### **CAUTION**

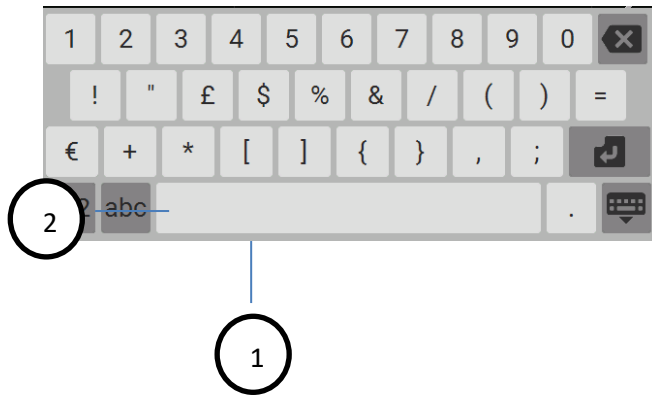
To avoid damaging the touch screen, do not touch it with sharp objects.

## 2.5 Setting a text

A text can be set by pressing the characters on the virtual keyboard. If you touch a key and keep it pressed, the character displayed at the top of that key will be selected.



- 1 Toggles between Alphanumeric mode and Numbers/Symbols mode.
- 2 Changes Uppercase/Lowercase mode.
- 3 Clears the setting.
- 4 Confirms the set key and hides the virtual keyboard.
- 5 Undoes the setting, recovering the initial text and hides the virtual keyboard.



- 1 Toggles between Numbers/Symbols mode and Alphanumerical mode.
- 2 Shows more symbols.

### 3 TERMINAL CONFIGURATION

Below is the list of parameters that characterise the dosage application.

To access the configuration, press the key:



(Path: SETTINGS - TOOLS - CONFIGURATION - APPLICATION)

Using the bottom bar or the individual key, select the desired parameter section.


### 3.1 WEIGHING OPERATION



Dosing configuration parameters.

| WEIGHING OPERATION   |  |
|--|--|
| <i>Parameter</i>   | <i>Description</i>   |
| Zero scale tolerance "A"   | Weight value within which Scale "A" can be considered unloaded.<br><br>(in the case of a multi-scale terminal, there will be one parameter for each scale).<br><br><b>N.B:</b> Ensure that the metrological parameter "Reading time" in the "Scales/Specific parameters" menu is equal to 5. |
| Progressive use  | If checked, each dosage is assigned a progressive number.  |
| Progressive  | Current progressive number.  |
| Enable dosage archive<br>(storage of individual dosages in the database) | If checked, an entry is made in the dosage archive each time a formula is processed.   |
| Totals per formula<br>(saving the total to the database by formula)      | If checked, following each formula processing, the archive is updated with the total quantity processed for each formula.  |
| Totals per product<br>(saving the total per product to the database)     | If checked, following each formula processing, the archive is updated with the total quantity processed for each product.  |
| Automatic formula advancement  | If checked, at the end of each dosage, when the scale has been unloaded, the system automatically starts dosing the next formula (if any) without the operator having to press start.  |

|   |  |
|---|--|
| Production demand<br>see example (1)      | <p><b>Sum of ingredients:</b> the production demand equals the sum of the requirements of the products that make up the formula.</p> <p><b>Total Dough:</b> the production demand is set equal to 100% of the formula, and the quantities of the products refer to this quantity.</p> <p>Following the setting of a production demand for a formula, the terminal reparameterises the ingredient quantities based on this parameter.</p>   |
| Enable recalculation of product tolerance | If ticked, when reparameterising a production demand for a formula, tolerances are also recalculated.  |
| Valid weight waiting time (s)             | Maximum stable weight waiting time of the scale. Set the time in seconds.  |
| Additional unloading time (s)             | Time added to the unloading phase before the next phase is enabled.<br>Set the time in seconds.  |
| Start of out of zero tolerance            | If ticked, a dosing cycle can be started <u>even</u> if there is a weight on the scale that is above the set zero tolerance.   |
| Waiting time for alarm (s)                | Time after which the possible Alarm contact is activated in the event of a failure to extract material, i.e.: if during an active extraction the quantity of extracted material does not change for more than the time indicated in the parameter, the terminal activates the possible "Alarm" output contact. This management is applied to automatic products only. Set the time in seconds  |
| Slow additional time (s)                  | When an "automatic" product being extracted has momentarily reached its Demand-Fall value, the terminal deactivates the extraction contacts relating to the product and waits to acquire the quantity extracted for that product; if, when stable weight occurs, the dosed quantity of the product is less than its Demand, the terminal reactivates the Start and Slow contacts relating to the product in impulsive mode until a dosed value at least equal to the Demand is obtained. The duration of each pulse is as set in this parameter. Set the time in seconds. If the value is left equal to 0 (zero) tap management is not enabled, if when the stable weight occurs the dose is lower than requested, the terminal will ask the operator whether to |

|                                     |  |
|-------------------------------------|--|
|                                     | acquire it anyway or wait for the operator to manually correct the weight bringing it back within the tolerance interval on the Requested one.   |
| Mandatory operator                  | When this option is enabled, it is not possible to send a formula or program for processing if the operator working on the terminal has not first been identified.   |
| Mandatory product batch             | When this option is enabled, the entry of the batch associated with the Product is made compulsory during processing if it is not already present.   |
| Tolerance expressed as a percentage | When this option is enabled, the tolerance indicated on the individual ingredients is interpreted as a percentage of the ingredient Demand. In the case of reparameterization of all ingredients, if the tolerance is expressed as a percentage, it is never recalculated.   |
| Ingredient forcing enabling         | When this option is enabled, the button  ("Force Next") is present when dosing a product with manual extraction, which acquires the extract for the selected product and switches to the next product in the dosing cycle even if the weight of the current product is below the required tolerance.  |
| Enable Skip unloading key           | When this option is enabled, the unloading phase of a dosage can end either because all the scales used for the production of the formula are within their zero tolerance or because the operator presses the "Skip unloading" key to each balance. In both cases, the dosage passes to the Unloading Additional Time phase. (This option can be useful in the case of a multi-scale terminal when all the ingredients of a formula are extracted on the same scale, because it allows you to leave the material on the scale for possible mixing and at the same time be able to start a new dosage on a different scale. The actual unloading of the scale, however, will no longer be handled by the terminal). |

#### (1) EXAMPLE OF INGREDIENT SUM REPARAMETERIZATION

Suppose we have the F1 formula composed as follows:

Product 2: demand 100 kg, tolerance 5 kg

Product 5: demand 50 kg, tolerance 2 kg

Suppose then that we set a production demand of 180 kg (i.e. 30 kg more than would result from adding the requirements of the two products that make up the formula); the difference between the set quantity and the original quantity is 30 kg, which is divided between the ingredients:

Product 2: demand 120 kg, tolerance 6 kg

Product 5: demand 60 kg, tolerance 2.4 kg

These new values are only valid for as long as the formula is in production and only if the operator does not set the formula code again.

#### **EXAMPLE OF REPARAMETERIZATION ON TOTAL DOUGH**

Suppose we have the F1 formula composed as follows:

Product 2: demand 100 kg, tolerance 5 kg

Product 5: demand 50 kg, tolerance 2 kg

Suppose we then set a production demand of 180%; the difference between the set quantity and the original quantity is distributed among the ingredients:

Product 2: demand 180 kg, tolerance 9 kg

Product 5: demand 90 kg, tolerance 3.6 kg

These new values are only valid for as long as the formula is in production and only if the operator does not set the formula code again.

## 3.2 PRINTER



Printer configuration parameters.

All sub-menus are present to correctly set up the serial printer, if any, to be connected to the terminal.

### 3.2.1 Serial configuration



Select the desired COM and set the required parameters. Only the serial numbers that are correctly installed in the terminal when accessing the machine setup are displayed.

| SERIAL PORTS / COM4 |                                   |
|---------------------|-----------------------------------|
| <i>Parameter</i>    | <i>Description</i>                |
| Baudrate            | Select the speed                  |
| Bits                | Select data bits                  |
| Stop                | Select stop bit                   |
| Parity              | Select parity                     |
| Handshake           | Select handshake (none, hardware) |
| Protocol            | RS232                             |

| SERIAL PORTS / COM6 |                                   |
|---------------------|-----------------------------------|
| <i>Parameter</i>    | <i>Description</i>                |
| Baudrate            | Select the speed                  |
| Bits                | Select data bits                  |
| Stop                | Select stop bit                   |
| Parity              | Select parity                     |
| Handshake           | Select handshake (none, xon/xoff) |
| Protocol            | RS232                             |



| SERIAL PORTS / COM7 |                         |
|---------------------|-------------------------|
| <i>Parameter</i>    | <i>Description</i>      |
| Baudrate            | Select the speed        |
| Bits                | Select data bits        |
| Stop                | Select stop bit         |
| Parity              | Select parity           |
| Handshake           | Select handshake (none) |
| Protocol            | RS422                   |

### 3.2.2 Printer configuration



To add a printer, a printer instance must be created:

- Click on Printers.



- Press the button Add to add a printer.
- Set the desired name for the printer instance and press the Enter key.

(A new instance with a different name must be created for each connected printer.)



- Select the model and connection COM and press Save to save the configuration.

| PRINTER CONFIGURATION |   |
|-----------------------|---|
| <i>Parameter</i>      | <i>Description</i>  |
| Model                 | It contains the list of printers that can be connected.<br><br>To the right of the model is the button to open the specific parameters of the selected model. |
| COM                   | Select the connection com.  |

### 3.2.3 Parameter configuration



| PRINTER                   |   |
|---------------------------|---|
| Parameter                 | Description   |
| Printer Alias             | Select the name of the printer instance you wish to use for printing the dosages.   |
| Number of copies          | Number of copies of the dosage summary printed in addition to the first. (Default "0").   |
| Print cycle               | If ticked, a summary receipt is printed with each finished dosage.  |
| Print product description | If ticked, this option in the dosage summary printout also shows the description of the products. If it is not enabled, only the code is shown. |

### 3.2.4 Layout configuration



Menu NOT managed.

### 3.2.5 Head text configuration



Menu NOT managed.

### 3.2.6 Queue text configuration



Menu NOT managed.

### 3.2.7 Printer test



It allows you to check the correct connection and operation of the printer: select one of the printer instances created and one of the layouts on the terminal (e.g. testlayout.xml), then press the Print button.

### 3.2.8 Import layouts



The dosing application uses only two print layouts: the print of the recalculated formula for production and the print of the dosing cycle; the names of these layouts are fixed and are “FormulaPerProduction.xml” and “DosingCycle.xml” respectively.

Attention should be paid to importing modified layouts as erroneous changes could lead to malfunctions in the handling of the dosing cycle.

### 3.3 DATABASE



Allows you to configure the management of the Database.

|            |                       |
|------------|-----------------------|
| Connection | Legacy Local (SQLCE)  |
|            | Legacy Remote (SQLCE) |
|            | Microsoft SQL Server  |
|            | Local (SQLite)        |
|            | Remote (SQLite)       |

#### **Legacy Remote(SQLCE) or Remote(SQLite):**

|                   |   |
|-------------------|---|
| Device IP Address | Enter the IP address of the remote terminal the database of which you wish to use |
|-------------------|---|

#### **Microsoft SQL Server:**

|                         |  |
|-------------------------|--|
| Server name             | Enter the name of the SQL instance on PC or IP address of the PC<br><br>(example: MROSSI-SQLEXPRESS or 192.168.10.102) |
| Connect to database     | Enter the name of the database previously created on SQL server<br><br>(example: Flynet-DB)                            |
| Access account name     | Enter the user name to be used to access the SQL server database motor<br><br>(example: sa)                            |
| Access account password | Enter the password for the user name to access the SQL server database motor   |

To check correct connection with the SQL server, try accessing the archives on the Flynet terminal. If it is not possible to do so, check the network settings of the indicator (IP address, subnet mask) and configuration of your SQL server instance.

### 3.4 AUTOMATIC EXPORT OF WEIGHTS



(default values in bold)

|                                    |                            |  |
|------------------------------------|----------------------------|--|
| <b>CSV Automatic Export</b>        |                            |  |
| <i>Parameter</i>                   | <i>Value</i>               | <i>Description</i>   |
| Automatic export                   | YES<br><b>NO</b>           | If ticked, the export of the dosing cycle to a file with csv format is enabled.<br>Below are the 3 export modes with exclusion |
|                                    | Export every (weights)     | <b>1</b><br>It is possible to define every how many dosing cycles to perform the export  |
|                                    | Export every (hours)       | <b>1</b><br>It is possible to define every how many hours to export  |
|                                    | Export at (time)           | <b>hh:mm</b><br>It is possible to define at what time the export should take place   |
| File export device                 | <b>\NAND_Flash\Extern\</b> | Select location to export to   |
| Delete exported weights            | YES<br><b>NO</b>           | It is possible to define whether or not to delete dosing cycles from the DB after export                                       |
| Split csv file every (no. exports) | <b>1</b>                   | It is possible to create several csv files by defining the number of dosing  |

|  |          |   |
|--|----------|---|
|  |          | cycles per file. <b>(A)</b>   |
| Delete weighing operations older than (days) | <b>0</b> | Allows automatic elimination of dosing cycles older than the indicated number of days. <b>(B)</b> |

### **(A)**

The following examples are given with “weighted” exports for the sake of clarity, but the same reasoning also applies to “time-based” exports.

#### **Example 1**

"Export every (weighed) = 1"

"Split the csv file every (no. Exports) = 1"

Result: At the end of each dosing cycle, a different .csv file is created with the format “yyyy\_mm\_dd\_hh\_mm\_ss\_Full Dosing File.csv” (may differ depending on the language in use).

#### **Example 2**

"Export every (weighed) = 1"

"Split the csv file every (no. Exports) = 0"

Result: At the end of each dosing cycle, the cycle is added to the “Complete Dosing Archive.csv” file (may differ depending on the language in use). Functioning reinserted for compatibility with older releases where only one file was used for exports.

#### **Example 3**

"Export every (weighed) = 1"

"Split the csv file every (no. Exports) = 100"

Result: At the end of each dosing cycle, the cycle is added to the “Complete Dosing Archive.csv” file (may differ depending on the language in use). On the 101st export (corresponding to the 101st cycle), a new “Complete Dosing Archive.csv” file is created with cycle 101 and the old one with the previous 100 cycles is renamed with the date and time of that instant.

#### **Example 4**

"Export every (weighed) = 10"

"Split the csv file every (no. Exports) = 5"

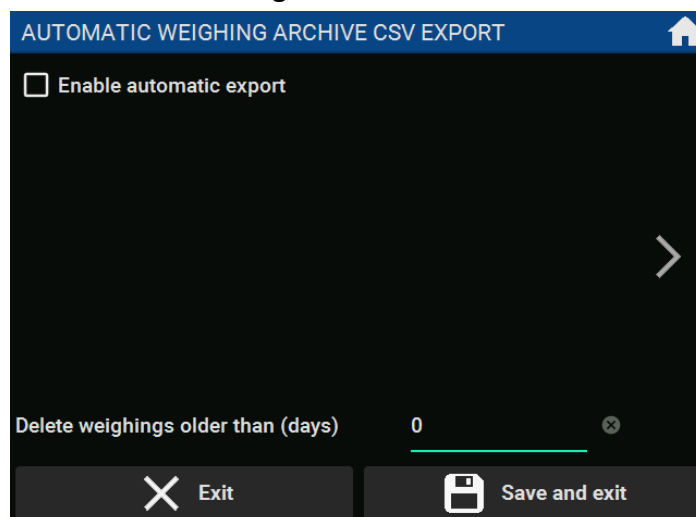
Result: For every 10 dosing cycles, 10 cycles are added to the “Complete Dosing Archive.csv” file. At the sixth export (corresponding to the 60th cycle), a new “Complete Dosing Archive.csv” file is created with the last 10 cycles and the old one with the previous 50 cycles is renamed with the date and time of that instant.

(B)

### 3.4.1 Elimination of obsolete dosing cycles

If a value other than 0 (zero) days is set, a search will be made at the end of each dosing cycle for cycles older than the specified days; these cycles will be deleted.

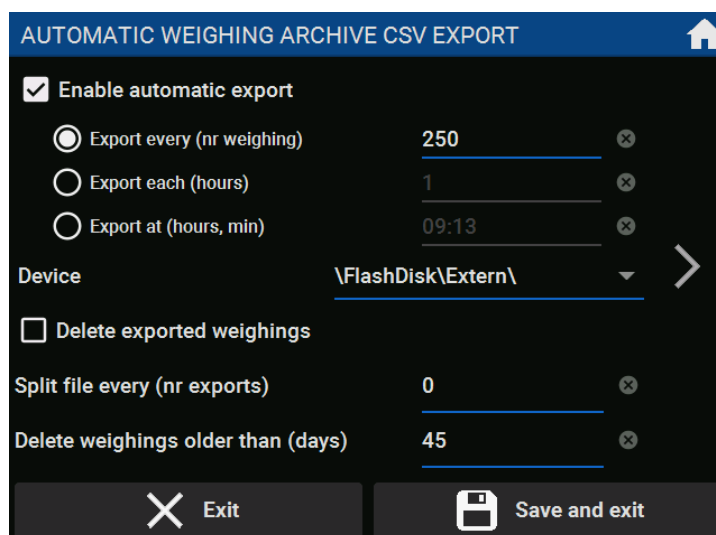
Deletion is unrelated to automatic archiving.



(fig.2)

### 3.4.2 Automatic archiving with deletion of old dosing cycles.

Example of operation with the parameters below.



(fig.3)

If you have 1000 cycles in memory and 500 of them are older than 45 days, when you go to export the 250th, the 500 obsolete ones will be deleted. The 500 recent cycles will remain in memory.

When + 250 new cycles are reached, the new 250 cycles will be exported and if there are cycles older than 45 days, they will be deleted.

If "Delete exported weighings" is activated, the dosage archive will be completely emptied after export.

### 3.4.3 Sending csv dosage cycles by Email

| Sending csv by Email |               |  |
|----------------------|---------------|--|
| <i>Parameter</i>     | <i>Value</i>  | <i>Description</i>   |
| Email sending        | YES<br><br>NO | Enable/disable e-mail sending with csv file of dosing cycles |
| Mail To:             |               | Recipient's e-mail address                                   |
| Mail Cc:             |               | Recipient's e-mail address for carbon copy                   |
| Mail Bcc:            |               | Recipient's e-mail address for blind carbon copy             |
| Subject              |               | Subject of the e-mail  |
| Text                 |               | Text of the email  |

### 3.4.4 Sending csv dosing cycles to FTP server

| Send csv to FTP Server                       |               |   |
|--|---------------|---|
| <i>Parameter</i>                             | <i>Value</i>  | <i>Description</i>  |
| Send to FTP server                           | YES<br><br>NO | Enable/disable sending of dosing cycle csv file to FTP server |
| Host Folder                                  |               |   |
| Delete transmitted CSVs after number of days |               |   |
| FTP client configuration                     |               |   |
| <i>Parameter</i>                             | <i>Value</i>  | <i>Description</i>  |
| Host   |               |   |
| UserName                                     |               |   |
| Password                                     |               |   |
| Port   | 21            |   |



## 3.5 INPUT - Input configuration



### 3.5.1 Dosing input



| Dosing parameters      |  |
|------------------------|--|
| Parameter              | Description  |
| Enable dosing          | <p>If configured, the contact must be active at time of dosing start request or of dosing re-start after a stop, and it must be kept active throughout the ejection phase.</p> <p>Set the line number (e.g. 101).</p>  |
| Start/Stop             | <p>If configured, it is equivalent to the “START” and “STOP” keys on the terminal display. If activated with dosing not active, it is equivalent to the START key; if activated with dosing active, it is equivalent to the PAUSE key.</p> <p>Set the line number (e.g. 102)</p> |
| Start                  | <p>If configured, it is equivalent to the “START” button on the terminal display. If active dosing is activated, it is not performed.</p> <p>Set the line number.</p>  |
| Stop                   | <p>If configured, it is equivalent to the “PAUSE” (Stop) key on the terminal display. If the dosing is not activated, it is not executed.</p> <p>Set the line number.</p>  |
| Exclude cycle printing | <p>If configured, the contact is active when the terminal starts the printing phase, the dosing data is not printed but only the totalisation and increase of the number of cycles are executed.</p> <p>Set the line number (e.g. 103)</p>                                       |

### 3.5.2 Transmission request input configuration



Upon activation of the input, the terminal sends a string of the selected format.

| Transmission request |              |                        |
|----------------------|--------------|------------------------|
| <i>Parameter</i>     | <i>Value</i> | <i>Description</i>     |
| Input number         |              | Line number (e.g. 101) |

### 3.5.3 Input configuration Select scale



Selection of the scale associated with the input.

| Scale selection  |              |                                    |
|------------------|--------------|------------------------------------|
| <i>Parameter</i> | <i>Value</i> | <i>Description</i>                 |
| ID               |              | Instance number                    |
| Input Number     |              | Line number (e.g. 101)             |
| Scale Alias      |              | Reference scale name (example "A") |

### 3.5.4 Reset weight input configuration



Zeroing the weight upon activation of the input, simulates pressing the zeroing key on the terminal display; only affects the scale with which it is associated.

| Reset Weight     |              |                                    |
|------------------|--------------|------------------------------------|
| <i>Parameter</i> | <i>Value</i> | <i>Description</i>                 |
| ID               |              | Instance number                    |
| Input Number     |              | Line number (e.g. 101)             |
| Scale Alias      |              | Reference scale name (example "A") |

### 3.5.5 Self-weighted tare (acquire/delete tare)



Upon activation of the input, it allows the gross weight to be loaded in tare if a stable weight is present and there is no tare already entered, or it allows a tare to be deleted if already present; it only affects the scale with which the input is associated.

| Acquire tare     |              |                                    |
|------------------|--------------|------------------------------------|
| <i>Parameter</i> | <i>Value</i> | <i>Description</i>                 |
| ID               |              | Instance number                    |
| Input Number     |              | Line number (e.g. 101)             |
| Scale Alias      |              | Reference scale name (example "A") |

### 3.5.6 Reset Tare



When the input is activated, it allows any inserted tare to be reset to zero; it only concerns the scale with which the input is associated.

| Reset tare       |              |                                    |
|------------------|--------------|------------------------------------|
| <i>Parameter</i> | <i>Value</i> | <i>Description</i>                 |
| ID               |              | Instance number                    |
| Input Number     |              | Line number (e.g. 101)             |
| Scale Alias      |              | Reference scale name (example "A") |

### 3.5.7 Acquire tare



Upon activation of the input, it allows the gross tare weight to be loaded if the stable weight is present; it only affects the scale with which the input is associated.

| Auto tare    |       |                                     |
|--------------|-------|-------------------------------------|
| Parameter    | Value | Description                         |
| ID           |       | Instance number                     |
| Input Number |       | Line number (e.g. 101)              |
| Scale Alias  |       | Name of reference scale (example A) |

## 3.6 OUTPUT - Output configuration



### 3.6.1 Dosing output configuration



| Dosing output          |       |   |
|------------------------|-------|---|
| Parameter              | Value | Description   |
| Zero scale             |       | It is active when the gross weight of the selected scale is within zero tolerance set for the scale itself.<br><br>The contact is continuously managed.<br><br>Set output number (e.g. 101)   |
| Weight below tolerance |       | The contact is only managed with dosing active and in ejection phase. It is active when the net weight present on the selected scale is below the lower limit of the tolerance interval.<br><br>Remember that the lower tolerance limit is the result of the demand-tolerance difference, rounded-off upon weight dividing of the scale in use; the demand and tolerance data is that set for the product being extracted or, in the event the production demand of |

|                        |  |  |
|------------------------|--|--|
|                        |  | <p>the formula is different from its original demand, is that calculated after re-parameterisation.</p> <p>Set output number (e.g. 102)</p>  |
| Weight in tolerance    |  | <p>The contact is only managed with dosing active and in ejection phase. It is active when the net weight present on the selected scale is the same or above the lower limit of the tolerance interval and is equal or below the upper limit of the said interval.</p> <p>Please note that the lower limit of the tolerance is the result of the demand-tolerance difference rounded to the weight division of the scale in use, while the upper limit of the tolerance is the result of the sum of demand + tolerance rounded to the weight division of the scale in use; the demand and tolerance data are those set for the product being extracted, or in the event that the formula's production demand differs from the original demand, they are those calculated after reparameterization.</p> <p>Set output number (e.g. 103)</p> |
| Weight above tolerance |  | <p>The contact is only managed with dosing active and in ejection phase. It is active when the net weight present on the selected scale is above the upper limit of the tolerance interval.</p> <p>Remember that the upper tolerance limit is the result of the demand+tolerance sum, rounded-off upon weight dividing of the scale in use; the demand and tolerance data is that set for the product being extracted or, in the event the production demand of the formula is different from its original demand, is that calculated after re-parameterisation.</p> <p>Set output number (e.g. 104)</p>   |
| Dosing end             |  | <p>The contact is only managed with dosing active and in print, unload and unload additional time phase.</p> <p>It is activated when changing to print phase and is deactivated when, upon completion of the unload additional time, it goes back to the start phase.</p>  |

|                        |  |  |
|------------------------|--|--|
|                        |  | Set output number (e.g. 105)   |
| Unloading phase        |  | <p>The contact is only handled during unloading. It is active when the message “Please unload the scale” is displayed on the screen.</p> <p>Set output number (e.g. 106)</p>   |
| Alarm (non-extraction) |  | <p>The contact is only managed at active dosing.</p> <p>It is activated if no weight change is detected during the time defined in the terminal configuration. This makes it possible to signal a possible lack of material on the belts upstream of the scale.</p> <p>Set output number (e.g. 107)</p>  |
| Start                  |  | <p>The contact is only handled when the dosing is active, it represents the General Start.</p> <p>It is normally active from the beginning of dosing until the last ingredient in the formula is extracted. It is deactivated in the case of non-enabled dosing, in the case of paused dosing, in the case of premature termination of dosing.</p> <p>Set output number (e.g. 108)</p> |
| Manual product dosage  |  | <p>The contact is managed only when the dosage is active, it signals to the operator that the formula being processed requires his presence as the product to be extracted is a product with manual dosage.</p> <p>Set the output number (e.g. 109)</p>  |

### 3.6.2 Terminal output configuration ready



Output always active once the terminal has completed start-up.

| Terminal Ready |       |               |
|----------------|-------|---------------|
| Parameter      | Value | Description   |
| ID             |       | Instance name |

|               |  |                        |
|---------------|--|------------------------|
| Output Number |  | Line number (e.g. 101) |
|---------------|--|------------------------|

### 3.6.3 Selected Scale Output Configuration



Activation of output when the set scale is selected.

| Selected Scales |       |                                     |
|-----------------|-------|-------------------------------------|
| Parameter       | Value | Description                         |
| ID              |       | Instance name                       |
| Output Number   |       | Line number (e.g. 101)              |
| Scale Alias     |       | Name of reference scale (example A) |

### 3.6.4 Scale Output configuration active



Activation of output when you are on the processing page and the scale is valid, without errors and with a valid weight.

| Active Scales |       |                        |
|---------------|-------|------------------------|
| Parameter     | Value | Description            |
| ID            |       | Instance name          |
| Output Number |       | Line number (e.g. 101) |

### 3.6.5 Output configuration Successful transmission



Activation of output upon receipt of the ACK character.

| Successful transmission |       |                        |
|-------------------------|-------|------------------------|
| Parameter               | Value | Description            |
| Output number           |       | Line number (e.g. 101) |
| Activation time (sec)   |       | Output duration time   |

### 3.7 ACCESS LEVELS

The user of the software is associated with an “Access Level”, which defines the functionalities the user can access.

If access level management is enabled, you must set the required level to perform an operation. When configuring the device, you may set a password for each level. The higher the access level the more functions can be used.

When the terminal is started for the first time, access levels are disabled by default. If you wish to use them, you must enable them from configuration.

If level management is enabled, the password for level 4 must be set.

The other levels are optional and will only be selectable if the respective password is set.

To enable password management, press in sequence:




(default values in bold)

| Setting Access Levels        |                         |   |
|------------------------------|-------------------------|---|
| <i>Parameter</i>             | <i>Value</i>            | <i>Description</i>  |
| <b>Access levels</b>         | <b>OFF</b>              | OFF: access levels disabled.  |
|                              | ON                      | ON: access levels enabled.  |
| <b>Start-up access level</b> | <b>1</b>                | Set a level, default is <b>1</b>  |
| <b>Level 2 password</b>      | <b>[Not configured]</b> | Set a password if you want to enter level 2   |
| <b>Level 3 password</b>      | <b>[Not configured]</b> | Set a password if you want to enter level 3   |
| <b>Level 4 password</b>      | <b>[Not configured]</b> | Set a password if you want to enter level 4.<br>This password is mandatory if the Access Level is “ON”. |
| <b>Allow empty passwords</b> | <b>OFF</b>              | OFF: empty passwords are not acceptable.  |
|                              | ON                      | ON: empty passwords are also acceptable.  |



### 3.7.1 Selection of the current access level

In order to select a different access level from the one currently in use, you can proceed in two different ways:

- From the main window, press the  button shown at the bottom right of the display (please note that any numerical value inside the circle represents the currently selected level).

- From the main window, press the buttons in sequence: , , .

The window that opens presents the current access level.

A different access level can be selected from this window. A password may be required to activate an access level.



#### **NOTE**

*In the manual, all the functionalities of the various windows will be described, regardless of the access level, i.e. assuming access to all system functionalities.*

### 3.7.2 Functions associated with access levels

#### **ACCESS LEVEL 1**

- Export, Copy, Delete one or more .csv files
- Resetting the scale, acquiring or deleting a tare
- Selection, sorting or searching within an archive (product, formula, etc.)
- Activation of a service
- Selecting the display colour
- Stand-by
- Selecting the current access level

#### **ACCESS LEVEL 2**

- Select a formula or program, vary the production demand, set the number of cycles required, retrieve a pending dosage.
- Manage a dosage with the display buttons (Start, Pause, End, Others, Force Next, etc.)
- Adding a product, formula, ingredient, program, program cycle

### ACCESS LEVEL 3

- Change or delete a product, formula, ingredient, program, program cycle
- Reset the total of a product or formula
- Copying a formula
- Deleting one or more lines from the Dosage Archive
- Deleting the list of suspended dosages
- Importing one or more .csv files





### ACCESS LEVEL 4

- Changing Dosing Settings (Weighing Operation)
- Change print-related settings (Printer)
- Changing Database Settings
- Change settings for automatic export of dosing cycles (Auto. Export Weights)
- Modifying Inputs
- Modifying Outputs
- Access the System Configuration window
- Access the Transmission configuration window
- Access the PDF configuration window/Network Printer
- Access the analogue output configuration window (option card)

## 4 ARCHIVE MANAGEMENT

The actions that can be performed in the tables Products, Formulas, Ingredients, Programs, Program Cycles are explained below.

### 4.1 Creating a new element

1. Press  to add a new element.
2. Set the data.
3. Press  to store the data in the database and exit or  
Press  to store the data in the database and remain in the setting or  
Press  to exit.

## 4.2 Modifying an existing element

1. Touch the element to be edited.


2. Press 

3. Set the data.

4. Press  to store the data in the database or

Press  to exit.

## 4.3 Deleting all elements


1. Press 
2. Select the option **Yes**.

## 4.4 Deleting an element


1. Touch the element you wish to delete.

2. Press 



## 4.5 Print all elements

1. Press  (N.B: not managed by this application)

## 4.6 Print an element

1. Touch the element you wish to print.
2. Press  (N.B: not managed by this application)

## 4.7 Search for elements

1. Press 
2. Press 
3. Select the option associated with the search you must make.

4. Set what you want to look for.

5. Press 

#### 4.8 Ordering elements


1. Press 

2. Select the option associated with the order you must make.


3. Select the option associated with the order direction.

4. Press 


#### 4.9 Archive output

1. Press  to exit the archive and return to the previous page.


#### 4.10 First element

1. Press  to position yourself on the first element in the archive


#### 4.11 Last element

1. Press  to position yourself on the last element in the archive

#### 4.12 Next element

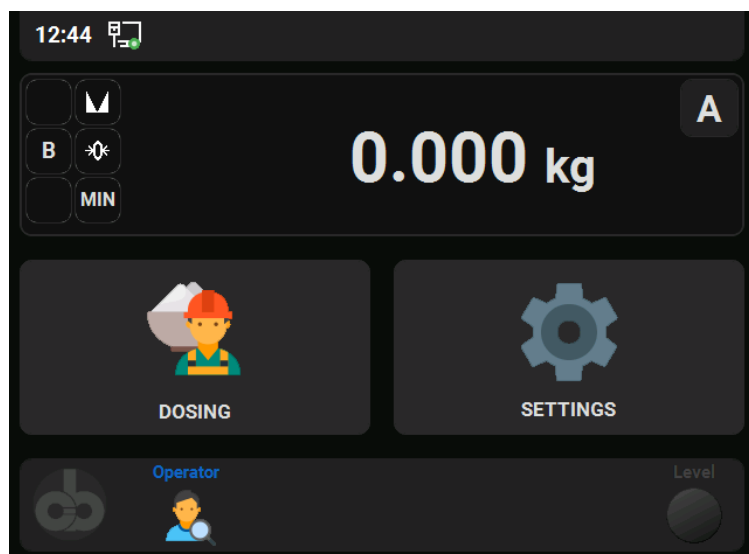
1. Press  to move to the next element in the archive

#### 4.13 Previous element

1. Press  to move to the previous archive element



## 5 MODE OF USE - OPERATION

As mentioned earlier, this is the main screen of the terminal:



(fig.4)

### 5.1 Products

From the main screen, pressing the buttons:  ,  opens the list of products catalogued in the system; code and description are displayed for each. Next to the window title, the current page number is shown on the total number of pages.

#### 5.1.1 Inserting a product

For each product, it is possible to set:

| Field specifications: |                |
|-----------------------|----------------|
| Code                  | 25 characters  |
| Description           | 100 characters |
| Batch                 | 50 characters  |
| Belt                  | 10 characters  |

**N.B:** To insert, modify or delete a product, please refer to the chapter “Archive Management”.



#### NOTE

*Deleting a Product will also delete all Ingredients that refer to that product, and consequently all formulas that contained those ingredients will no longer have them.*

**NOTE**

*Instead of manually setting the code for a new Product, it can be obtained by reading a barcode (from a reader) corresponding to the desired Product code.*

### 5.1.2 Assigning the extraction type to a product (manual extraction or automatic extraction)

For each product entered, it is possible to define whether it is to be extracted manually (the operator takes care of the acquisition of the extracted weight) or automatically (the acquisition of the extracted weight is performed automatically by the terminal when the dosed quantity reaches at least the required quantity within the tolerance range). To insert a product with manual extraction, simply proceed as described in the previous paragraph "Inserting a product"; to insert a product with automatic extraction, you must, in addition to the procedure described in the previous paragraph, also carry out these steps:

- Select the product you want to extract automatically and this window will open:

The screenshot shows a window titled 'INGREDIENT' with a '[1/1]' indicator. It contains the following fields:

|             |            |  |
|-------------|------------|--|
| Code        | p3salt     |  |
| Description | sweet salt |  |
| Batch       | S0544      |  |
| Conveyor    | N001       |  |
| Total       | 0          |  |

At the bottom, there is a navigation bar with icons for: Back, Add, Modify, Delete, Sort, Forward, and Close.

(fig.5)




- Press the button and a window will open where you can set:



| Field specifications: |  |
|-----------------------|--|
| Start output          | No. output line <u>(set only for automatic dosing)</u> |
| Slow output           | No. output line (set only for automatic dosing)        |
| Fast output           | No. output line (set only for automatic dosing)        |

- Set at least one of the three output contacts and the product will be interpreted as an automatic extraction product (leave all three contacts empty and the product will be interpreted as a manual extraction product).

### 5.1.3 Zeroing the product total

After selecting the product whose total you wish to reset, press the  button.

## 5.2 Formulas

From the main screen, pressing the buttons:  ,  opens the list of formulas catalogued in the system; code and description are displayed for each.

Next to the window title, the current page number is shown on the total number of pages.

### 5.2.1 Entering a formula

For each formula, it is possible to set:

|                       |                |
|-----------------------|----------------|
| Field specifications: |                |
| Code                  | 25 characters  |
| Description           | 100 characters |

**N.B:** To insert, modify or delete a formula, please refer to the chapter on “Archive Management”.

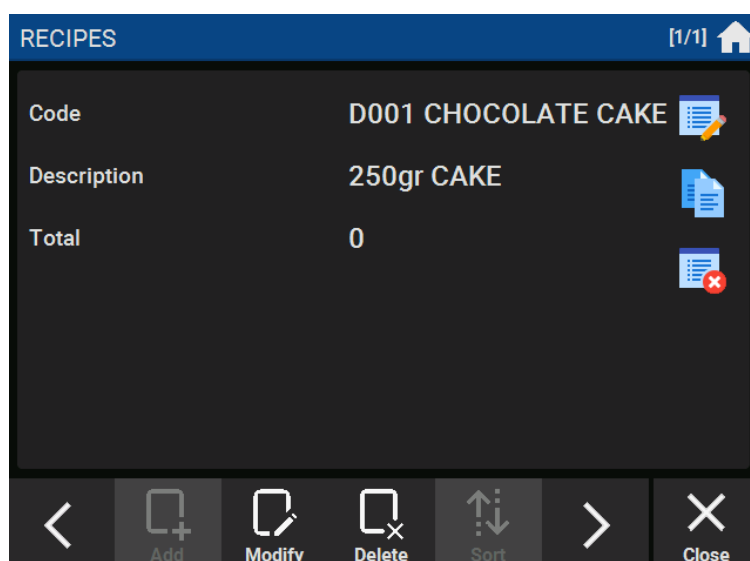


#### **NOTE**




*Deleting a Formula will also delete all its Ingredients and all Program Cycles that refer to that formula, consequently all Programs that contained that formula will no longer have it. Any suspended dosages referring to that formula will also be automatically deleted.*

### 5.3 Formula ingredients

After setting a formula, selecting it allows you to set its ingredients. When a formula is selected, the following window appears:



The screenshot shows a window titled "RECIPES" with a home icon and "[1/1]" in the top right. The main content area displays the following information:

|             |                     |   |
|-------------|---------------------|---|
| Code        | D001 CHOCOLATE CAKE |  |
| Description | 250gr CAKE          |  |
| Total       | 0                   |  |

The bottom navigation bar contains the following icons and labels: < (Back), Add (+), Modify (pencil), Delete (trash), Sort (up/down arrows), > (Forward), and Close (X).

(fig.6)

To access the ingredients, press the  button and the following window will appear:



The screenshot shows a window titled "PRODUCT INGREDIENTS [D001 CHOCOLATE C...]" with "[1/1]" in the top right. The table below lists the ingredients:

|                  |          |              |
|------------------|----------|--------------|
| <b>1 CODE 1</b>  | Scale A  | 30 ± 0.5 kg  |
| CLARIFIED BUTTER | Cycles 1 |              |
| <b>2 CODE 3</b>  | Scale A  | 40 ± 0.5 kg  |
| MEDIUM EGGS      | Cycles 1 |              |
| <b>3 CODE 4</b>  | Scale A  | 112 ± 0.5 kg |
| TYPE 00 FLOUR    | Cycles 1 |              |
| <b>4 CODE 5</b>  | Scale A  | 20 ± 0.5 kg  |
| BITTER COCOA     | Cycles 1 |              |



The bottom navigation bar contains the following icons and labels: Search (magnifying glass), First (left arrow), Prev (double left arrow), Next (double right arrow), Last (right arrow), and Close (X).

(fig.7)

Reported for each ingredient:

- Product code to which it refers and its description
- Scales to be used for extraction
- Number of extraction cycles
- Demand and Tolerance (if the tolerance is in weight, the unit of measurement expressed applies to both data; if the tolerance is in percentage (%), each data has its own unit of measurement)



**N.B:** The number to the left of the product code represents the order in which the ingredients are extracted within the formula. A new ingredient is always inserted in the queue. To change the position of an ingredient, select it and then use  or .

### 5.3.1 Inserting an ingredient

For each ingredient, it is possible to set:

**Product:** select the product code corresponding to the material to be extracted.

**Position:** indicates the position of the product in the formula extraction sequence (cannot be set).

**Scale:** select the scale on which the product is to be extracted (Default = "A").

**Demand:** set the total amount of product to be extracted.

**Tolerance:** set the tolerance value to be applied plus and minus to the Demand to establish the tolerance range of the product.

**Slow:** set the amount of product to be extracted at a reduced speed to better refine extraction.

**Flight:** set the amount of "falling" product, i.e. the amount of product that will reach the scale after the deactivation of the extraction outputs related to the product itself (compensates for mechanical delays between the deactivation of the outputs and the actual closing of the extraction "mouth").

**Flight Time:** set the seconds of delay between deactivating the product's Demand output and waiting for the stable weight. If the product drops onto the scales in small quantities, there is a risk that the terminal will detect the stable weight when the Flight has not yet finished; this delay time, if set appropriately, serves to have the stable weight checked only after the Flight quantity has actually arrived on the scales.

**Ingredient Cycles:** set the number of times the product is to be extracted; the same Demand set will be extracted for each cycle. If the product is to be extracted several times but with different quantities of the Demand amount, enter the same product several times in the formula, putting the desired Demand amount and Ingredient Cycles equal to 1 (one) for each.

**Unweighed:** by enabling the "Unweighed" option, the ingredient must NOT be loaded onto the scales. The terminal will display the Demand quantity of the ingredient and the operator simply needs to confirm that the value to be acquired is correct. An "Unweighed" ingredient must refer to a product that has no associated output, i.e. a manually extracted product.

**Untraced:** by enabling the “Untraced” option, the ingredient will NOT be totalised, printed or even stored in the Dosage Archive. However, the ingredient will be presented both in the eventual printing of the formula for production and in processing.

By clicking in the product entry box  , a product list will appear from which the desired product can be selected.



**NOTE**

*It is possible to call up a product, already encoded in the product archive, by reading a barcode (from a reader) corresponding to the desired product code.*




**WARNING**



*In the case of ingredients to be weighed, the Demand and Tolerance values must be consistent with the scale division.  
The Tolerance value must be at least equal to one division.*

**N.B:** To insert, modify or delete an ingredient, please refer to the chapter on “Archive Management”.

### 5.3.2 Copying a formula

If two formulas differ from each other only by a few ingredients or only by ingredient quantities, instead of inserting two new formulas, it is possible to make one, copy it into another, and then change only what is needed.

After selecting the formula “to copy” (original formula), press  and the following window appears:

| COPY FORMULA  |                           | [1/1]  |
|---|---------------------------|--|
| Product Code (Original)   | D001 CHOCOLATE CAKE       |  |
| Recipe description (Original)   | 250gr CAKE                |  |
| Product Code (Destination)  | D001 WHITE CHOCOLATE CAKE | ✕  |
| Recipe description (Destination)  | 200gr CAKE                | ✕  |
|  Close |                           |  Save and close |

(fig.8)

(as already done in the example)

- Set the formula code to be assigned to the new formula (target formula)
- Set the description to be assigned to the new formula
- save and exit: all the ingredients of the original formula will be copied into the target formula.

At this point, you must return to the page showing the list of formulas catalogued in the system, select the new formula you have just created and access its ingredients to replace different ingredients and/or quantities.

### 5.3.3 Reset total formula



After selecting the formula whose total you wish to reset, press the button.

## 5.4 Programs

A program is the set of a series of program cycles (formulas) to be executed in sequence. For each program cycle specify the formula to be used, the quantity to be produced, the number of repetitions of the formula and the batch code to be associated with each cycle.



From the main screen, pressing the buttons: , opens the list of programs catalogued in the system; code and description are displayed for each one.

### 5.4.1 Entering a program

For each program, it is possible to set:

| Field specifications: |                |
|-----------------------|----------------|
| Code                  | 25 characters  |
| Description           | 100 characters |

**N.B:** To insert, modify or delete a program, please refer to the chapter on “Archive Management”.

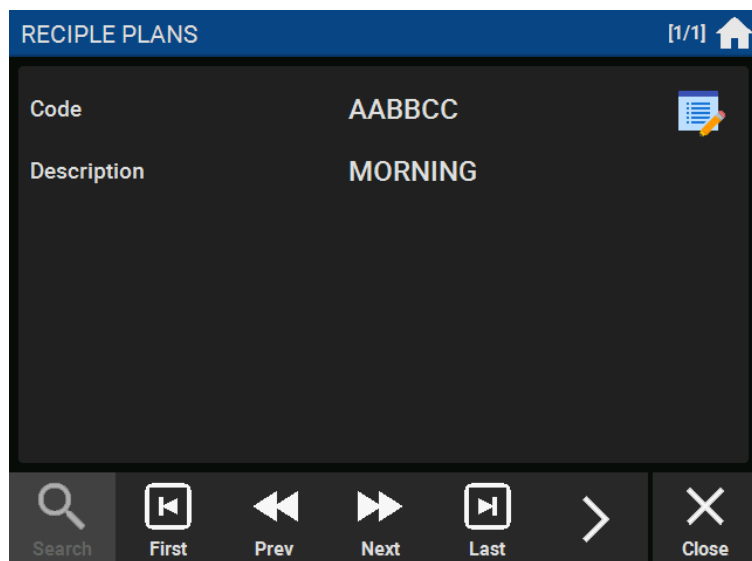


#### **NOTE**

*Deleting a Program will also delete all its Program Cycles. Any suspended dosages related to that program will also be automatically deleted.*

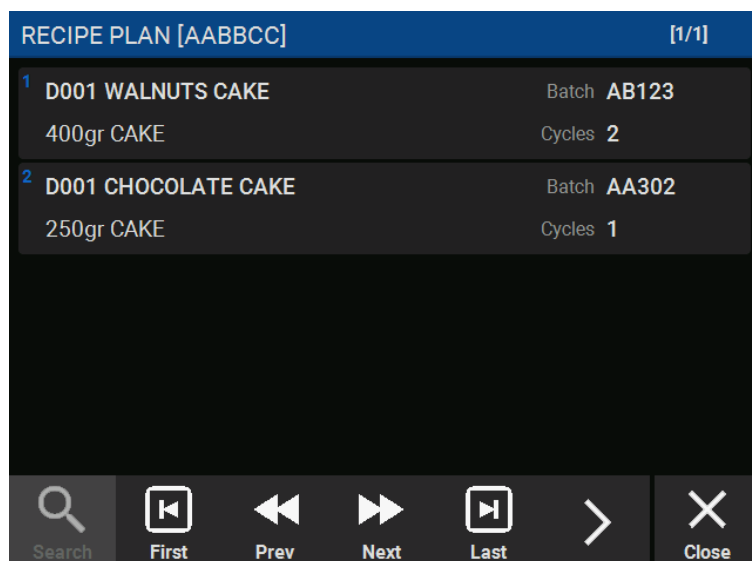
### 5.4.2 Program Cycles

After setting up a Program, by selecting it, it is possible to set up its Program Cycles (i.e. the list of its formulae). When a program is selected, the following window appears:



(fig.9)

To access Program Cycles, press the  button and the following window will appear:





(fig.10)

For each Program cycle the following is reported:

- Formula code to which it refers and its description
- Batch of the formula to be used for its cycles
- Number of formula extraction cycles

**N.B:** The number to the left above the formula code represents the order in which the formulae are produced within the program cycle. A new Program Cycle is always inserted in the queue.


To change the position of a Program Cycle, select it and then use  or .

### 5.4.3 Entering a Program Cycle

A Program cycle foresees the entering of:

- a formula to be used in dosing
- the quantity of the formula production demand
- the batch number to be assigned to the production cycle
- the number of times dosing must be executed with the selected formula



By clicking in the formula entry box , a list of formulas will appear from which the desired formula can be selected.

Upon selecting of a formula, the quantity to be produced for the said formula is automatically set, based on the "Production demand" parameter, or:

- If the system is configured for managing the production demand as "Sum of ingredients", the overall amount of the various products demands composing the formula is proposed.
- If the system is configured to manage the production demand as "Total Dough", a quantity of weight is not proposed, but rather the value 100%, indicating that the formula relates to the quantity of Total Dough that the operator used as a reference when entering the formula.



#### NOTE

*The batch specified is used for each dosing execution of the formula entered here.*

*If you wish to have a different batch for each dosing execution of a formula, create a different dosing cycle for each formula execution, indicating a cycle number of 1 in each.*

#### Example:

Entering a single program entry configured as follows:

- Formula = F1
- Quantity = 150 kg
- **Number of cycles = 3;**
- **Batch = L001**

You will get 3 program entries (dosages) of the F1 formula, all labelled L001

Instead, enter 3 program entries (dosages) configured as follows:

- Formula = F1
- Quantity = 150 kg
- **Number of cycles = 1;**
- **Batch = L001**
  
- Formula = F1
- Quantity = 150 kg
- **Number of cycles = 1;**
- **Batch = L002**

- Formula = F1
- Quantity = 150 kg
- **Number of cycles = 1;**
- **Batch = L003**

This will result in the execution of a program cycle (dosage) with the F1 formula associated with batch L001, a dosage with the F1 formula associated with batch L002 and a dosage with the F1 formula associated with batch L003.

**N.B:** To insert, modify or delete a Program Cycle, please refer to the chapter “Archive Management”.

## 5.5 Operators



From the main screen, pressing the buttons:  ,  opens the list of operators listed in the system; code and description are displayed for each.

### 5.5.1 Entry of an operator


For each operator, it is possible to set:

|                       |               |
|-----------------------|---------------|
| Field specifications: |               |
| Code                  | 20 characters |
| Description           | 40 characters |

**N.B:** To insert, modify or delete an operator, please refer to the chapter “Archives Management”.

### 5.5.2 Selecting an operator



From the main screen, pressing the  button displays the list of operators listed in the system. Select the operator who will do the dosing.


## 5.6 Dosing archive



From the main page to view the list of all dosages performed by the terminal, press:  and



Page example

| RECIPE ARCHIVE      |                      |       | [1/1]  |
|---------------------|----------------------|-------|---|
| D001 WHITE CHOCOLAT | AB123                | 38    |   |
| AABBCC              | 9/21/2022 8:24:27 AM | 38.3  |   |
| D001 WHITE CHOCOLAT | B018                 | 53.5  |   |
|                     | 9/21/2022 8:32:28 AM | 53.64 |   |

(fig.11)

For each dosage, the following are displayed: formula code, formula batch, demand total, program code if applicable, date, time, extract total.

To get the details of the formula, select an element and a window will open showing the following data:

|                       |   |
|-----------------------|---|
| <b>Date</b>           | Date and time recorded at the end of the formula dosage   |
| <b>Serial number</b>  | Terminal serial number  |
| <b>Program Code</b>   | Processed program code (optional)   |
| <b>Program Descr.</b> | Description of the processed program (optional)   |
| <b>Formula Code</b>   | Processed formula code  |
| <b>Formula Descr.</b> | Description of the processed formula  |
| <b>Batch</b>          | Batch of processed formula (optional)   |
| <b>Demand</b>         | Total dosage demand obtained as the sum of the requirements of all ingredients (products to be weighed are rounded to the scale division with the smallest main unit of measurement, products not to be weighed are converted to the smallest |





|                            |   |
|----------------------------|---|
| <b>Batch</b>               | Product batch   |
| <b>Belt</b>                | Product belt  |
| <b>Demand</b>              | Product demand value (possibly rounded to the scale unit)           |
| <b>Tolerance</b>           | Tolerance value of the product (possibly rounded to the scale unit) |
| <b>Extracted</b>           | Actual dosed weight value of the product                            |
| <b>Unweighed</b>           | Indication of unweighed product                                     |
| <b>Unit of measurement</b> | Unit of measurement of ingredient weights (e.g.: kg)                |

### 5.6.1 CSV file generated by manual or automatic export of an assay



The key allows you to export the selected dosage in CSV format.


The name of the CSV file consists of the date and time of the export followed by the text "Complete Dosage Archive", therefore it will appear as "yyyy\_mm\_dd\_hh\_mm\_ss\_Complete Dosing Archive.csv"

Each line of the CSV file contains the following information (separated by a semicolon):

| COLUMN NAME             | MEANING  |
|-------------------------|--|
| Recipe Archive Id       | Index of the dosage in the Dosage Archive table      |
| Date                    | Dosage end date and time                             |
| Serial number           | Serial number of the terminal                        |
| Code Recipe plan        | Program Code   |
| Description Recipe plan | Description called by the program code               |
| Code Product            | Code of the formula                                  |
| Description Product     | Description called by the formula code               |
| Batch Product           | Batch associated with the formula                    |
| Required Product        | Total quantity required for the formula              |
| Extract Product         | Total amount extracted for the formula               |
| Gross Product           | Gross present in the scale at the end of the formula |
| Id                      | Product index in the DetailsArchiveDosage table      |
| Code Ingredient         | Product code   |
| Description Ingredient  | Description referred to by the product code          |
| Batch Ingredient        | Batch associated with the product                    |
| Required                | Quantity required for the ingredient                 |
| Tolerance               | Tolerance on the required ingredient                 |
| Extract                 | Extracted quantity for the product                   |
| Operator Code           | Code of the operator who dosed the product           |
| Operator description    | Description called up by the operator code           |
| Unit of measurement     | Unit of weight measurement                           |

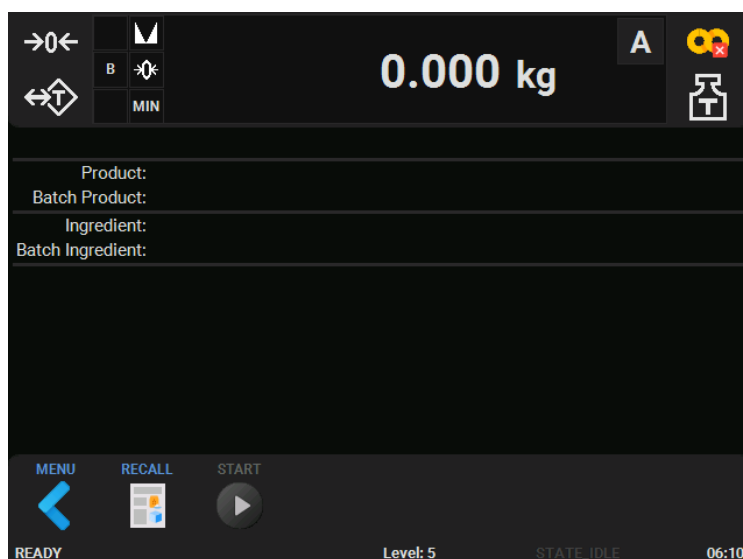
**N.B:** The CSV file described here has the same characteristics as the one generated with automatic export.

## 5.7 Dosing

From the main screen, the  button opens the window for managing dosing operations.

For a better understanding of the text, bear in mind the meaning of these terms:




1. **DOSAGE OPERATION:** set of processing operations necessary to carry out product extraction, printing and/or totalisation of weighing data and scale unloading.
2. **ACTIVE DOSAGE:** is when the dosing operation has been started and is currently running.
3. **SUSPENDED DOSAGE:** occurs when the dosing operation has been started but is currently not running.










(fig.13)

The window shows the selected scale, the weight detected and other metrological indications (stable weight, minimum weighing, etc.)

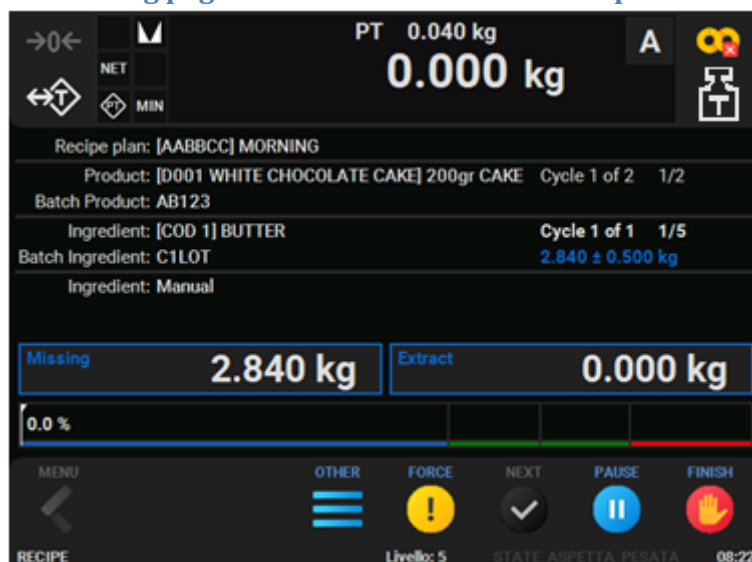
The keys have the following meaning:

|   |  |
|---|--|
|  | SELECTED SCALE: letter indicating the current scale.   |
|  | SCALE RESET: allows the scale to be reset to zero. It is only enabled when no filling cycle is started on the scale to which it refers. This button is only enabled when dosing is not active.   |
|  | <p>SELF-WEIGHED TARE: If no tare is set, it allows the current net to be added to the tare. The button is only active when dosing is completed. The assignment of a self-weighed tare must be carried out carefully when dosing is in progress (both with active and inactive dosing), as it changes the net weight detected; for correct operation, it must be carried out immediately after a product change, if necessary.</p> <p>RESET TARE: If a tare weight is set, it allows the tare weight to be set to zero, resulting in the entire value being recorded as the net weight. The button is only active when dosing is completed. Tare zeroing must be carried out carefully when dosing is in progress (both with active and inactive dosing), as it changes the net</p> |





|   |   |
|---|---|
|   | weight detected.  |
|    | <p>PREDETERMINED TARA: It allows to set a weight value which will be memorized as tare of the selected scale. The key is active only when the dosage is active and when the dosage is complete. The assignment of a predetermined tare must be carried out carefully in the event of a dosage in progress (both with active and inactive dosage), as it modifies the net weight detected; for correct operation, it must possibly be carried out immediately after having made a product change.</p>  |
|    | <p>These icons indicate whether the management of continuous formula cycles has been enabled or disabled in the terminal configuration (Formula Feed parameter). ATTENTION: Pressing the button reverses the parameter value.</p>   |
|    | <p>These icons indicate whether cycle printing is currently enabled or disabled; disabling cycle printing is only possible from input.<br/>*** Since version 2.0.6.0 these signal icons have been removed ***</p>   |
|    | Allows you to return to the main screen.  |
|    | <p>Allows access to the window for selecting the formula or program to be sent for processing. If a formula or program is selected that also exists in the suspended dosage archive (Backup), the terminal will ask which one to send for processing; the selected one will overwrite the other.</p> <p><b>N.B:</b> Please note that in case access levels are enabled, the button is enabled when the current level is at least equal to 2.</p>  |
|  | <p>Button displayed if there is no dosing operation in progress or if the current dosing operation is currently suspended (i.e. not active).<br/>In the first case, pressing it makes a “request to start dosing”, while in the second case it makes a request to “resume dosing after a stop”.</p> <ul style="list-style-type: none"> <li> <p><u>DOSAGE START REQUEST</u></p> <p>The terminal checks that all preconditions for dosing are met; if they are not, the start request is rejected and an error message indicates to the operator the reason for the rejection. If at the time of the start request all conditions are fulfilled, the terminal acquires the weight on the scale as the tare weight, then goes into the “extraction phase” and the DOSAGE becomes “ACTIVE”: the first product making up the formula selected for production is in extraction.</p> </li> <li> <p><u>DOSAGE RESUMPTION AFTER A BREAK</u></p> <p>The terminal is about to resume a dosage momentarily suspended by the operator. When the button is pressed in this situation, the 'suspended dosage' becomes an “ACTIVE DOSAGE” again and any contacts present at the time of the interruption are reactivated.</p> </li> </ul> <p><b>N.B:</b> Please note that in case access levels are enabled, the button is enabled when the current level is at least equal to 2.</p> |

**N.B:** After pressing the  button, depending on whether the ingredient in the formula is a product to be dosed manually or automatically, the processing page displays different buttons.

### 5.7.1 Example of a machining page with MANUAL EXTRACTION product



(fig.14)

|   |  |
|---|--|
|  | <p>Select a page from which you can select:</p> <ul style="list-style-type: none"> <li> <b>Product batch change</b><br/>           Button to change the batch of the current product. It is possible to associate different batches with partial weighings of the same product. When this button is pressed, a window is opened that shows the current batch of the product and allows it to be changed; the new batch only applies to the current production.         </li> </ul> <p><u>Example of use</u></p> <p>The formula indicates a dosing quantity of Product1 with Batch “123” of 10 kg. However, only 8 kg of Product1 with Batch “123” are available. To complete the formula, a further 2 kg of Product1 Batch “124” can be dosed together with the 8 kg of Product1 Batch “123”. To do so, you must follow this procedure:</p> <ol style="list-style-type: none"> <li>1) Dose the 8 kg of Product1 Batch “123”.</li> <li>2) Press the key  to acquire the weight for Product1 Batch “123”.</li> <li>3) Press the  button, select “Change Product Batch” and enter the new Product batch1, in this case “124”.</li> <li>4) Dose the remaining 2 kg of Product1 Batch “124”.</li> <li>5) Press the key  to acquire the weight for Product1 Batch “124”.</li> </ol> <p><b>N.B:</b> If it is necessary to change the product batch more than once, repeat the procedure.</p> |
|---|--|

- **Formula batch change**

Button to change the batch of the current formula. When this button is pressed, a window is opened that shows the current batch of the formula and allows it to be changed; the new batch only applies to the current production.

- **Add ingredient**

Button to add a product not present within the running formula. Pressing this button opens the window for adding a new ingredient in the same way as adding it when compiling a formula. The added ingredient will not be permanently saved within the formula, but will be presented in the process as the last ingredient to be dosed and, if defined as traceable, will be returned to the dosing archive to maintain traceability.



**NOTE**

*Instead of manually setting the product code to be added, it can be obtained by reading a barcode (from a reader) corresponding to the desired product code.*


- **Current product change**


Key for changing the product to be weighed. When this button is pressed, the window displaying the ingredient information is opened and a new component can be selected from the Product table.

Example of use


The formula indicates a dosing quantity of Product1 of 10 kg. However, you only have 8 kg of Product1 available. To complete the formula, it is possible to dose together with the 8 kg of Product1 another 2 kg of Product2, which must be equivalent. To do so, you must follow this procedure:

1) Dose the 8 kg of Product1.

2) Press the key  to acquire the weight for Product1.

3) Press the  button, select "Change Current Product" and select Product2.








4) Dose the remaining 2 kg of Product2.

5) Press the key  to acquire the weight for Product2.

N.B.: If it is necessary to replace the product more than once, repeat the procedure.

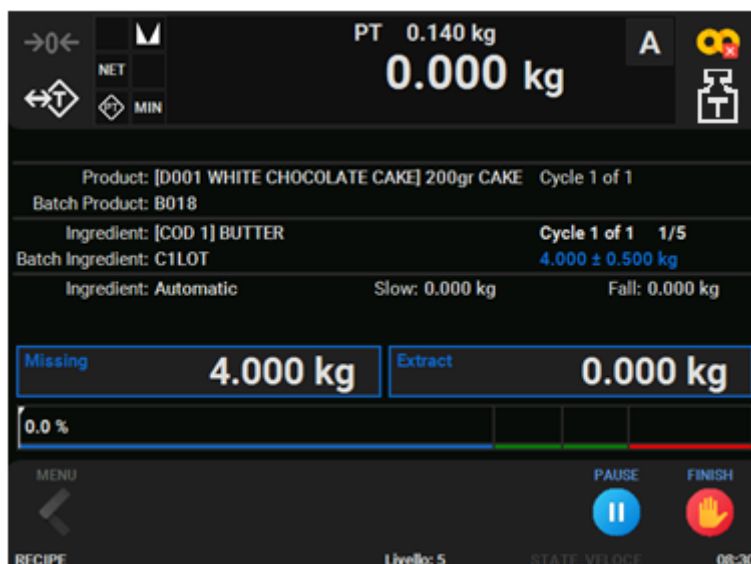
- **Real weight change**

Key to change the value that is stored in the dosage archive as "weighed" for the components not to be weighed. Pressing this button displays the window for changing the weight value of the current ingredient. The button is only displayed if the current ingredient is not to be weighed.

|  |  |
|--|--|
|  | <ul style="list-style-type: none"> <li>• <b>Intermediate unloading</b><br/>Allows automation of scale unloading during an active dosing operation. Intermediate unloading is only possible if the net of the selected scale does not exceed the value of the scale zero tolerance.</li> </ul>  |
|   | <p>Make a request to switch to the next product to be extracted. The button is only enabled if dosing is active.</p> <p>Pressing this button is interpreted as “product change force”, i.e. closing the extraction for the current product and forcing a change to the next product even if the dosed product is below its tolerance range.</p>  |
| <br>(dis. if in tolerance)<br><br><br>(dis. if under tolerance) | <p>Make a weighing request for the current product. The button is only enabled if the current dosing operation is active and the dosing is in the “extraction phase”.</p> <p>Four alternatives are possible when this button is pressed:</p> <ul style="list-style-type: none"> <li>• If the product is to be weighed and the dosage is within its tolerance range, the weight of the current product is acquired and the next ingredient is loaded.</li> <li>• If the product is to be weighed and the batching is below its tolerance range, the weight of the current product is acquired (partial weighing). After weight acquisition, the intermediate unloading key is enabled, which makes it possible to empty the scale (below the OTHERS key).</li> <li>• If the product is to be weighed and the dosage is above its tolerance range, the key is not enabled. At this point, the operator has two options: remove the excess quantity from the scale by bringing the product back within its tolerance range so as to re-enable the key, or carry out weight acquisition using the key .</li> <li>• If the product is not to be weighed, pressing the key only serves as confirmation of product entry, as the net weight of the product is NOT acquired, but rather the quantity expressed in the “Real Weight” data. This type of product is always considered within tolerance, therefore any tolerance value associated with the product is not displayed as it is irrelevant.</li> </ul> <p>The following data is saved with each weighing, which is then stored in the Dosage Archive and allows traceability to be maintained: Product, Batch, Acquired weight, Operator.</p> |
|   | <p>When this key is pressed, the terminal suspends dosing: the dosing operation is still in progress, but the DOSAGE is SUSPENDED. To reactivate the dosage and resume it from the point of interruption, press .</p> <p><b>N.B:</b> Please note that in case access levels are enabled, the button is enabled when the current level is at least equal to 2.</p>   |
|   | <p>When this button is pressed, the terminal switches to the dosage print phase, then proceeds to the actual data print if necessary. The dosed quantity for the product being extracted at the time of interruption is equal to the last valid weight recorded during the extraction phase if it is a product “to be weighed”, and is set to zero if it is a product “not to be weighed”.</p> <p>Upon successful completion of any printing, all totalisations and the cycle number increment are performed, then the terminal goes into the “unloading phase”.</p> <p>This button is enabled if the dosage is in the “extraction phase” (active or suspended)</p>  |



|  |  |
|--|--|
|  | <p>dosage).</p> <p><b>N.B:</b> If the button is pressed while the dosing formula is still on the first product, the terminal goes directly to the final unloading phase.</p> <p><b>N.B:</b> Please note that in case access levels are enabled, the button is enabled when the current level is at least equal to 2.</p> |
|--|--|


### 5.7.2 Example of a machining page with AUTOMATIC EXTRACTION product



(fig.15)

The keys , , and  are NOT managed.

The buttons  and  are managed and have the same functionality as described in the previous paragraph.

The  button appears only following these two conditions:

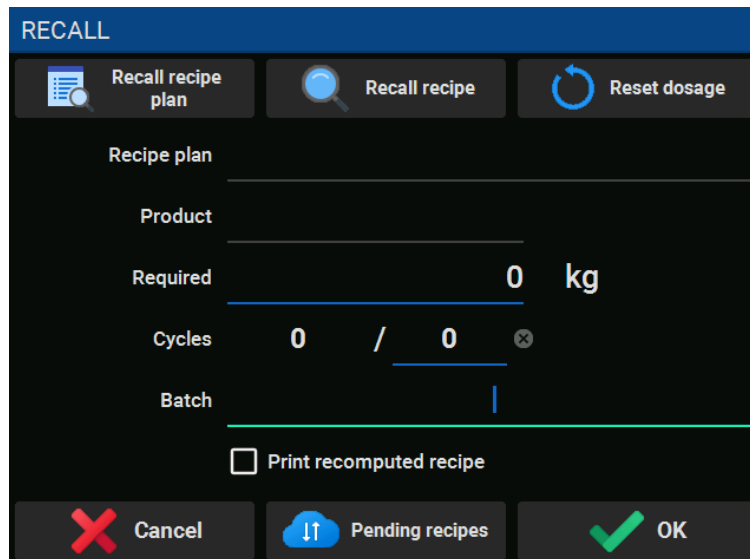
- 1) the product being extracted has exceeded its demand by a quantity of more than the tolerance, and following the terminal's query, the operator has confirmed that he will only proceed with the acquisition of the material if it is within tolerance. When the operator has removed enough material from the selected scale to be within product tolerance, the terminal will display this key to allow the operator to acquire the new weight.
- 2) the product being extracted has reached its required value but the weight has stabilized below the tolerance interval, the "Slow additional time" parameter is equal to zero and following the question proposed by the terminal, the operator has confirmed that he wants to proceed with the acquisition of the material only in the event of a return to tolerance. When the operator has added a quantity of material to the selected scale that



falls within the product tolerance, the terminal will display this key to allow the operator to acquire the new weight.

## 5.8 Selecting a Formula or Dosing Program

From the dosing window, pressing the  button will open the following window:



(fig.16)

Below is the meaning of the buttons and data in the window.

### 5.8.1 Set Program

Button .

Allows you to select a dosing program, i.e. a list of formulas to be produced sequentially (see chapter on dosing programs).

When a dosing program is selected, the relevant information is loaded and the first formula to be executed is set; the following data will then be visible on the window:

- Code of the selected program and its description
- Formula code to be produced, its description and position of the formula within the program (e.g.: 1/3 → is the first formula of the three in the program).
- Formula production demand
- Number of cycles to be executed for the formula
- Formula production batch

### 5.8.2 Set Formula



Button

It allows you to select the formula to be produced, associating with it a number of repetition cycles and a production batch.

Upon selecting of a formula, the quantity to be produced for the said formula is automatically set, based on the "Production demand" parameter.

### 5.8.3 Dosing Reset



Button

It resets the number of executed cycles back to one, and reloads the original formula from scratch (i.e. without any ingredients added during production) by repartitioning it to the current production demand. If the button is pressed when a program is selected, the original program is reloaded from scratch (its formulas are loaded in the original and retain the production demand set during program creation).

### 5.8.4 Data Setting

After setting a formula or dosing program, the parameters Production demand, Number of cycles and Batch can be changed.

If the Production demand is changed, the terminal recalculates the quantities of the ingredients in the formula, and if the relevant option was enabled during system configuration, it also recalculates their tolerances.

By ticking the PRINT RECALCULATED FORMULA option, the selected formula for dosing (reparameterized or not) is printed out.

The printout consists of the following data:

- Header "Formula for Production", date and time.
- Total Dough (only if the Production demand has been configured as Total Dough)
- Production batch.
- Description of the formula.
- Formula demand (sum of requirements possibly repartitioned by ingredients).
- List of products that make up the formula; for each one, the code and associated description are printed, the indication of the scale on which the product is to be weighed, the demand and tolerance quantities calculated with any reparameterization, the number of cycles of the product, the percentage incidence of the required product on the required formula (and, if multi-cycle, the percentage incidence of the single cycle of the product) and any indication of "Unweighed" product.

N.B: If the tolerances are defined as a percentage, the tolerance value in weight is preceded by the corresponding percentage value.


N.B: For products defined as " Unweighed ", the tolerance is not printed.

If the lower limit of the demand of an individual product becomes greater than the maximum capacity of the scale, the print line indicating the demand and tolerance values of the product in question is followed by the line "Quantity over capacity".

### 5.8.5 Suspended dosages


Button  .

Displays the window containing the list of unfinished dosages; for each one, the formula code, the batch of the formula, the program code (if any) to which the formula "belongs", and the date and time it was discontinued are displayed.

After selecting the dosage you wish to resume, press the  button to send it to processing.



#### NOTES


*It is currently possible to delete the entire archive of suspended dosages, but not a single element. If there is such a need, select the dosage to be deleted and press the  key to terminate it permanently.*



#### NOTES

*In the case of shared database, a terminal may only act on its own suspended doses as the table is filtered by Serial Number (which is different for each terminal).*

## 6 DOSING CYCLE

After setting the dosing formula/program, press the  button.

Example of a machining window:



(fig.17)

The data displayed for the current processing are:

|                   |   |
|-------------------|---|
| <b>PROGRAM</b>    | Code, description. (Only if a program is selected)  |
| <b>FORMULA</b>    | Code, description, current formula cycle, number of formula cycles, formula batch.<br>E.g.: Cycle 1 of 2 indicates that the first cycle of the two foreseen for the formula is running.<br>If the formula is part of a program, the index of the formula is also displayed on the number of formulae in the extraction.<br>E.g.: 1/2 indicates that the first formula of the two in the program is being executed.  |
| <b>PRODUCT</b>    | Code, description, current product cycle, number of product cycles, product index on the number of products in the formula, product batch.<br>E.g.: Cycle 1 of 1 indicates that the first and only product cycle within the formula is running.<br>E.g.: 1/3 means that the current product is the first of the three provided by the formula.<br>The product batch is also present, with the Demand and Tolerance values of the product next to it (the latter only for products to be weighed). |
| <b>INGREDIENT</b> | Indicates the type of ingredient (e.g.: Automatic, Manual, Non-weighing)<br>In the case of automatic products, the quantities of Slow and Flight are also displayed next to the type of ingredient.   |
| <b>MISSING</b>    | Indicates the difference between the Demand quantity and the extracted weight (only for products to be weighed). If the Extract is higher than the Demand, the difference will have a negative sign.  |

|                       |   |
|-----------------------|---|
| <b>EXTRACTED</b>      | Indicates the amount of product already dosed on the scale (only for products to be weighed)              |
| <b>REAL WEIGHT</b>    | Weight value that will be totalled for products not to be weighed (only for products not to be weighed)   |
| <b>EXTRACTION BAR</b> | It provides a progressive indication of product extraction by also showing the percentage value achieved. |

The indication of the tolerance or non-tolerance status of the weight detected is also shown by the colour of the labels “Missing” and “Extracted” or “Real Weight”, as well as by the colour of the extraction bar:

- in case of weight below tolerance → colour according to the chosen theme
- in case of weight tolerance → Green
- in case of weight over tolerance → Red


**N.B: A product not to be weighed is always considered to be in tolerance.**

## 6.1 Dosing cycle description

The dosing operation consists of the following steps:

- 1) Start phase
- 2) Extraction phase
- 3) Printing phase
- 4) Unloading phase
- 5) Additional unloading time phase

### 6.1.1 Start phase

Phase triggered by pressing the  button meaning “DOSAGE START REQUEST”. In this phase, the terminal checks that all the conditions required to perform a dosage are present. Once suitability has been ascertained, the weight on all scales used in the selected formula is stored as the tare value, then the tolerance range is calculated using the “demand” and “tolerance” values associated with the first product in the selected dosing formula.

In the event that the production demand differs from the original formula demand, the demand and, if applicable, the tolerance of the various products making up the formula are those calculated after reparameterization.

The terminal gives the “weight below tolerance” signal both on the display and on the appropriate output contact, if any, then switches to “EXTRACTION PHASE”.


### 6.1.2 Extraction phase


This phase is automatically triggered by the instrument at the end of the start phase and ends after the last product of the formula has been extracted.

During this phase, the terminal continuously monitors the net weight on the selected scale with the lower and upper limits of the tolerance range for the product being extracted, signalling both on the display and on the appropriate output contacts, if any, the under/over tolerance weight status.


#### 6.1.2.1 Extraction phase for a manual extraction product

If the product being extracted is a manual extraction product and the system conditions are correct, the general START contact is provided. It is up to the operator to decide when and how to acquire the weight of the dosed material.


If the net weight is less than the lower tolerance limit, pressing the  key will cause the terminal to store the weighed quantity (partial acquisition) and remain on the same product waiting for a weight in tolerance.

If the net weight is between the lower and upper tolerance limits, pressing  stores the weighed quantity for the ingredient and proceeds to extract the next product in the formula.

If for some reason the operator needs to acquire the net weight of the product regardless of its tolerance condition (e.g. because the material is finished, or because the product is greater than the upper tolerance limit and there is no way to reduce the quantity extracted to bring it back

within the range), he/she can press the key  : the terminal will force the storage of the weighed quantity for the ingredient and will proceed to the extraction of the next product in the formula.

If the product being extracted is a “not to be weighed” product, the operator can ignore the

above-within-below signals and press the  key directly, as the product is pre-packaged in a known quantity. The terminal acquires the same quantity as the dosed quantity in the Real Weight data.




#### NOTES

*If the product being extracted is larger than the scale capacity, weighing can be split as follows:*

*Load any amount of the product onto the scale, without overloading the scale.*

Press the  key to store the loaded quantity.

Press the  key and select “Intermediate unloading”: the terminal resets the tare to zero and waits for the scale to be unloaded. When the scale is within the zero tolerance range, the terminal reactivates dosing and further product can be extracted.

*The previous steps can be repeated until a quantity remains below the maximum capacity of the scale.*

*The stable condition is waited for a maximum time defined during installation of the terminal, after which it is considered a stable weight.*

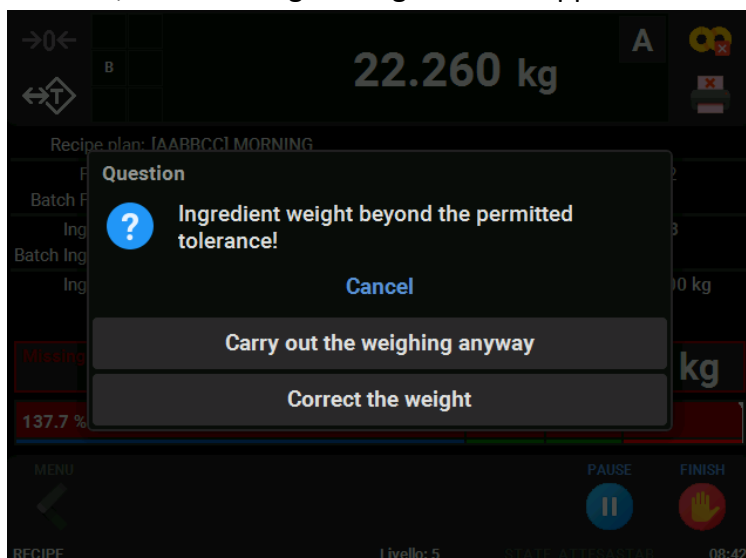
#### 6.1.2.2 Extraction phase for an automatic extraction product

If the product being extracted is a self-extracting product, if the system conditions are correct, the general START and FAST contacts associated with the product are provided. The scale starts receiving the material and checking it against the set values for the product itself.

When the weight value set as FAST (Demand - Slow - Flight) is reached, the contact for FAST is removed and the contact for SLOW is provided. The scale continues to receive material but with reduced speed.

When the FLIGHT value (Demand - Flight) is reached, the product's SLOW and START contacts are removed and the system waits a few moments (Flight Time) until the stable weight is reached in order to determine whether the value is below/within/above the tolerance range (Demand +/- Tolerance):


- If, at the end of the Flight Time, the product weight stabilises above the tolerance range on the Demand, the following message window appears:



(fig.18)

By choosing “Perform weighing anyway”, the terminal acquires the weight on the scale even if the product is above its tolerance, and then proceeds further.

By choosing “Cancel” or “Correct weight”, the operator will have to manually remove the required amount of product from the scale to bring the product back within the tolerance

range; once the weight is back within the permitted tolerance range, the  button will be displayed for the operator to press to acquire the weight and proceed further.

- If, after the Flight Time, the product weight stabilises within the tolerance range on the Demand and is at least equal to the Demand value, the terminal automatically performs the weight acquisition, closes the product extraction and proceeds further.



- If after the Flight Time the weight of the product stabilises below the tolerance range and the time defined in the configuration parameter "Additional slow time (s)" is greater than zero, the SLOW and START contact of the product is reactivated for the time defined in the parameter so that some more product can arrive on the scale. At the end of this time, the weight on the scale is checked again: if the product is still below the tolerance range, the terminal repeats the procedure just described; if the product is within the tolerance range, the terminal acquires the weight on the scale and then proceeds further.

On the other hand, if after the Flight Time the weight of the product stabilizes below the tolerance range and the time defined in the configuration parameter "Slow additional time (s)" is equal to zero, the same window shown above appears (fig.18) but with an appropriate under-tolerance message. The options available to the operator remain the same, but obviously if he chooses to correct the weight, this time he will have to manually add the quantity of product on the scale necessary to bring the product back within the tolerance range.

If the formula being run involves only one ingredient, when the Demand value is reached and the weight is acquired, the general START contact is also removed. If the formula being run has more than one ingredient, once the Demand for the first product has been reached and the weight has been acquired, the FAST and START contacts associated with the next product are provided using the same operating principle as described above.

Once the Demand value for the last product in the formula has been reached and the weight has been acquired, the general START contact is removed.

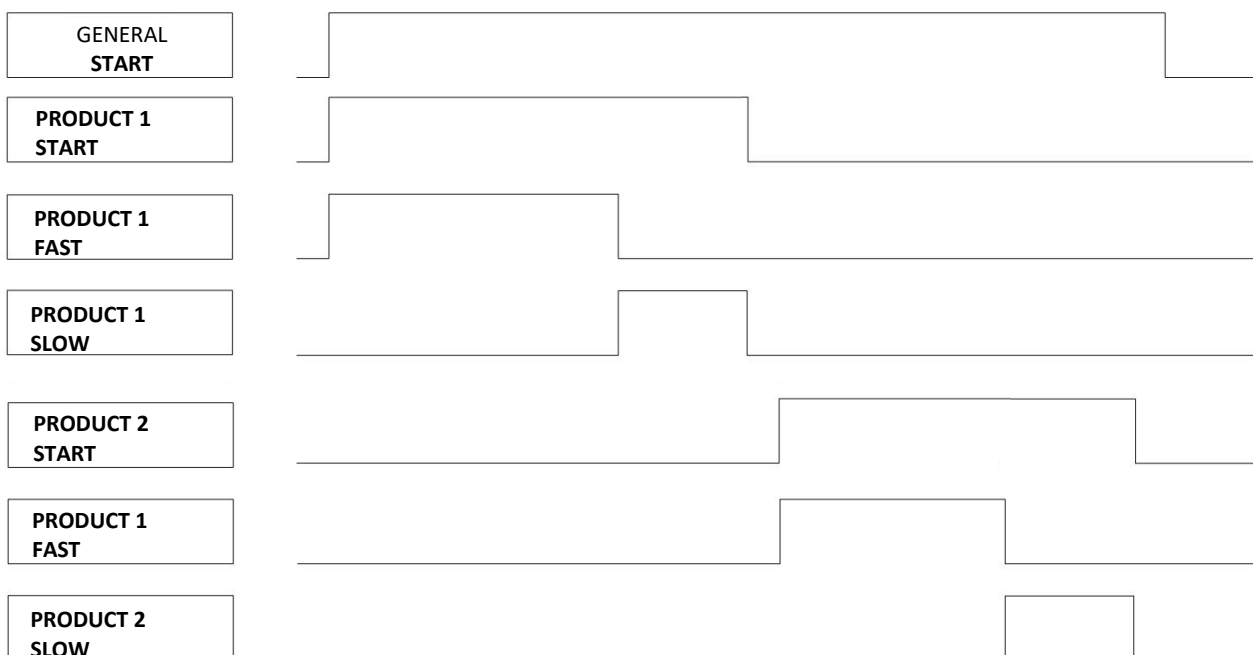


#### **NOTES**

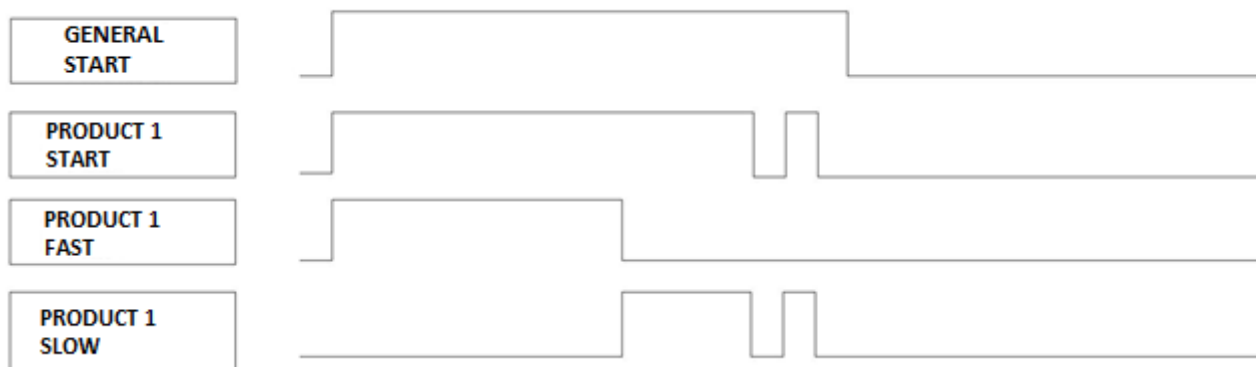
*The general START contact is active from the beginning to the end of the dosage, even during Flight Time and stable weight wait.*

Examples of dosing cycles:

#### EXAMPLE OF WEIGHT ACHIEVED



#### EXAMPLE OF WEIGHT NOT ACHIEVED






#### NOTES

*If you enable the management foreseen by the use of Slow Additional Time, all automatic products must have their own Slow output associated with them, otherwise only the possible Start output associated with the product will be activated.*

### 6.1.3 Printing phase

This phase can be triggered:

- automatically by the instrument if some problem occurs during the extraction phase, e.g. the selected scale becomes unreadable.

- by the operator, either by pressing the  or the  button on the last product in the formula being dosed, or by pressing the  button, which implies a request to stop dosing permanently.

The transition to the printing phase involves the possible printing of dosage data, the possible totalisation by product and/or formula and the updating of database data.

Should a printer failure condition occur (even if only due to a lack of paper), the terminal automatically performs a momentary pause in dispensing to allow the operator to solve the

problem that caused the failure and, by pressing , resume dosing from the printing phase.

N.B.: If the switch to the print phase was caused by a problem in extraction or a request to stop dosing permanently, the line “- - DOSAGE STOPPED - -” appears at the bottom of the cycle data printout.

The dosage cycle printout consists of the following data:

- “Dosing cycle” header, date and time.
- Operator Code and Description (only if the formula was produced by a single operator)
- Terminal serial number.
- Progressive (if enabled).
- Total Dough (only if the Production demand has been configured as Total Dough)
- Formula production batch.
- Code and Formula Description.
- Total demand (sum of ingredient production requirements).
- Total extract (sum of the actually extracted weights of the ingredients)
- List of the ingredients that make up the formula: for each acquisition relating to each of them, the operator code that performed the acquisition and the associated description (only if operator different from the previous one), the product code with the scale and the associated description, the demand and tolerance quantities calculated with any reparameterization, the batch used as the product batch, the weight actually extracted, the percentage incidence of the product extract on the formula extract, any indication of product "Not weighed" and any "Out of tolerance" reporting line are printed.

N.B: If the tolerances are defined as a percentage, the tolerance value in weight is preceded by the corresponding percentage value.

N.B: For products defined as " Unweighed ", the tolerance is not printed.

N.B: If one or more partial acquisitions are made for an ingredient, those performed with the same product code, same lot code and same operator (even if not consecutive) are 'merged' into a single printout. (In the dosage databases, on the other hand, each partial acquisition is always stored individually).

#### 6.1.4 Unloading phase

The phase is triggered by the instrument at the end of the printing phase. The terminal waits for the selected scale to come within its zero tolerance; when this happens, it goes into the ADDITIONAL UNLOADING TIME PHASE.

N.B.: If several scales are used in the formula, the terminal waits for them all to be unloaded.

N.B: If the "Skip unloading" parameter has been enabled in the configuration, the unloading phase of the scale can be skipped by pressing the appropriate key.

#### 6.1.5 Additional unloading time phase

This phase is automatically triggered by the instrument at the end of the unloading phase. The terminal waits for the additional unloading time defined in the terminal configuration to elapse; once this time has elapsed, the dosing operation is considered complete and the terminal returns to the START PHASE ready to handle a subsequent dosing operation.

### 6.2 Prerequisites at the start of dosing

- set a formula for dosage;
- production demand of the formula other than zero;
- non-zero cycle number;
- formula consisting of at least one product;
- formula consisting of at least one product with non-zero demand and non-zero cycle number;
- the product, if self-extracting, cannot be defined as "Do Not Weigh";
- there must be no errors on the weight converter;
- the weight must not be overloaded;
- the selected scale must be within the zero tolerance range set for it (or even above the range, depending on what is defined when installing the terminal);
- the weight must be stable. The stable condition is waited for a maximum time defined during installation of the terminal, after which timeout it is still considered stable weight.
- possible "Enable dosing" input contact active.
- current access level at least equal to 2 (only if access levels are enabled)

As long as all the above conditions are not met, the dosing operation is not started.

## 7 REMOTE CONTROLS

In order to be able to use remote commands, an “Extended String” transmission with “To Remote Commands” protocol must be enabled during installation of the Flynet terminal, either via serial or network.

### ADOPTED SYMBOLOGY

The symbols employed to describe the characters on serial line or network are provided below:

- Normal characters are described by simply providing their symbol.
- Command characters are between brackets and expressed in capital letters.  
For example:  
<CR> stands for carriage return.  
<SP> stands for the space character.
- If necessary the hexadecimal value of the character is provided in numbers and upper case letters.  
For example: <CR>(0DH) or \$(24H).
- The variables are provided in lower case in brackets.  
For example:  
<um>=unit of measurement of weight.  
This can be in the values:  
kg = kilograms  
<SP>g = grams  
lb = pounds  
<SP>t = tons
- With n and y number fields are provided with spaces at the beginning, decimal separator and minus sign.
- If the terminal is the version with several scales, b indicates the letter (A, B, C or D) that identifies the scale in question.

### REMOTE COMMANDS IN THE VERSION FOR TERMINAL WITH MULTIPLE SCALES

With the multiple scale terminal version, some remote commands change their syntax to indicate what scale they refer to.

For example, to request the gross weight, the syntax is changed as follows:

XBb<CR>

where b indicates the letter (A, B, C or D) of the scale in question.

For these commands, the syntax will be provided in brackets next to the standard command.

### RESPONSE TO INCORRECT COMMAND

??<CR><LF>

This response string is sent:

- if the command syntax is not correct;
- if the command cannot be carried out.

### RESPONSE TO CORRECT COMMAND

If the command is accepted, and if it involves the transmission of information, the response will be represented by sending the requested data; if not, the response will be represented by the following string:

OK<CR><LF>

## 7.1 Program Code Request

**PC<CR>**

This command can be used to read the code of the program currently running or selected for production.

If there is no program running or selected for execution, the terminal responds with the string:

**??<CR><LF>**

If there is a program running or selected for execution, the terminal responds with the string:

**<program code><CR><LF>**

## 7.2 Setting of the Program Code for Execution

**<program code>PC<CR>**

Where <program code> is the code of the program you wish to select for production (max. 25 characters).

If the setting could not be made, the terminal responds with the string:

**??<CR><LF>**

If the setting is successful, the terminal responds with the string:

**OK<CR><LF>**

The setting is never accepted if the terminal is being worked on.

## 7.3 Requesting the Code of the Executing Formula

**FC<CR>**

This command can be used to read the code of the formula being executed or selected for production.

If there is no formula running or selected for production, the terminal responds with the string:

**??<CR><LF>**

If there is a formula running or selected for execution, the terminal responds with the string:

**<formula code><CR><LF>**

## 7.4 Setting the Formula Code for Execution

**<formula code>FC<CR>**

Where <formula code> is the code of the formula you wish to select for production (max. 25 characters).

If the setting could not be made, the terminal responds with the string:

**??<CR><LF>**

If the setting is successful, the terminal responds with the string:

**OK<CR><LF>**

The setting is never accepted if the terminal is being worked on.

## 7.5 Requesting the Batch of the Executing Formula

**FL<CR>**

This command can be used to read the batch of the formula being executed or selected for production.

If there is no formula running or selected for production, the terminal responds with the string:

**??<CR><LF>**

If there is a formula running or selected for execution, the terminal responds with the string:

**<batch><CR><LF>**

## 7.6 Setting the Formula batch for Execution

**<batch>FL<CR>**

Where <batch> is the batch you wish to select for production (max. 50 characters).

If the setting could not be made, the terminal responds with the string:

**??<CR><LF>**

If the setting is successful, the terminal responds with the string:

**OK<CR><LF>**

The setting is never accepted if the terminal is in the process of being extracted.

## 7.7 Requesting the Product of the Executing Formula

**PP<CR>**

This command can be used to read the product of the formula being executed or selected for production.

If there is no formula running or selected for production, the terminal responds with the string:

**??<CR><LF>**

If there is a formula running or selected for execution, the terminal responds with the string:

**<product code><CR><LF>**

## 7.8 Message display

**<message><batch><seq><dosing enabling><carriage code>SM<CR>**

Where:

|                   |   |
|-------------------|---|
| <message>         | No. characters<br>The first 4 characters identify the background colour of the message to be displayed:<br>ST1_ → White<br>ST2_ → Green<br>ST3_ → Yellow<br>ST4_ → Red<br>The remaining characters contain the message to be displayed. |
| <batch>           | 4 characters (possibly filled with blanks)<br>Batch number identifier.<br>E.g. "0004" or " 4".  |
| <seq>             | 3 characters (possibly filled with blanks)<br>Identifier of the sequence number.<br>E.g. "03A" or " 3A".  |
| <enabling dosage> | 1 character (0 or 1)<br>Enabling dosage start:<br>0 → Start disabled<br>1 → Start enabled   |
| <carriage code>   | 10 characters<br>They identify the carriage code received from the supervisor.  |

Using this command, it is possible to have a message displayed by the terminal.

When, for both "batch" (#Batch) and "sequence", "000" is sent, the terminal ignores the setting and does not overwrite the values for "carriage code", "batch" (#Batch) and "sequence" that it already had in memory.

The terminal responds with the string:

**OK<CR><LF>**

If the activation was successful.

**??<CR><LF>**

If the command is wrong.



## 7.9 Requesting the Carriage Code in use

**CN<CR>**

This command can be used to read the code of the carriage in use.

If the command is incorrect, the terminal responds with the string:

**??<CR><LF>**

If the command is correct, the terminal responds with the string:

**<carriage code><CR><LF>**

## 7.10 Setting the Carriage Code in use

**<carriage code>CN<CR>**

Where <carriage code> is the carriage code you wish to set (max. 10 characters).

If the setting could not be made, the terminal responds with the string:

**??<CR><LF>**

If the setting is successful, the terminal responds with the string:

**OK<CR><LF>**

The setting is never accepted if the terminal is in the process of being extracted.

## 7.11 Batch number request (#Batch)

**BN<CR>**

Using this command, the current batch number can be read.

If the command is incorrect, the terminal responds with the string:

**??<CR><LF>**

If the command is correct, the terminal responds with the string:

**<batch number><CR><LF>**

## 7.12 Setting the Batch Number (#Batch)

**<batch number>BN<CR>**

Where <batch number> is the batch number you wish to set.

If the setting could not be made, the terminal responds with the string:

**??<CR><LF>**

If the setting is successful, the terminal responds with the string:

**OK<CR><LF>**

### 7.13 Sequence number request

**SN<CR>**

This command can be used to read the current sequence number.

If the command is incorrect, the terminal responds with the string:

**??<CR><LF>**

If the command is correct, the terminal responds with the string:

**<sequence number><CR><LF>**

### 7.14 Setting the Sequence number

**<sequence number>SN<CR>**

Where <sequence number> is the sequence number you wish to set.

If the setting could not be made, the terminal responds with the string:

**??<CR><LF>**

If the setting is successful, the terminal responds with the string:

**OK<CR><LF>**

### 7.15 Start dosing

**ST<CR>**

If the dosing start command cannot be accepted, the terminal responds with the string:

**??<CR><LF>**

If the dosing start command can be accepted, the terminal responds with the string:

**OK<CR><LF>**

## 8 TOTALS

Totalisations are performed at the correct end of the dosing operation.

The terminal, if provided for in the configuration, manages totals separated by product and separated by formula; the value of the total is present in each individual product or formula contained in the respective archives.

## 9 CSV FILE MANAGEMENT

From the main screen, pressing the buttons



opens the window for managing CSV files.

### 9.1 Import data



Copies the data from a CSV file to the database.

Available data are: operator, product, formula code, ingredient, program code and program cycle.

1. Select the storage device where the file is found.
2. Select which file must be imported.
3. Select the archive where the data must be stored.

4. Press



### 9.2 Export data



Copy the data from the database to a storage device in CSV format.

The data available are: operator, product, formula code, ingredient, program code, program cycle, dosing archive and dosing archive details.

#### 9.2.1 Export the selected archives

1. Select the memory device where the data is to be exported (FlashDisk, USB1 or USB2).
2. Select which archives must be exported.

3. Press



## 9.3 Copy



Copy the CSV files on an external storage device.

### 9.3.1 Copy selected files

1. Select the storage device where the copy must be carried out.
2. Select which files must be copied.

3. Press 

### 9.3.2 Copy all files

Select the storage device where the copy must be carried out.

1. Press 

## 9.4 Data cancellation



Delete the files stored on the device.

### 9.4.1 Delete the selected files

Select which files must be deleted.

1. Press 

### 9.4.2 Delete all files

1. Press 

## 10 DATA TRANSMISSION MANAGEMENT




From the main screen, press the buttons to access the window for configuring any transmissions.

For all other information, please refer to the “Flynet50 Use, Maintenance and Installation Manual”.

## 11 DATABASE MANAGEMENT IN OFF-LINE MODE

This type of mode is only possible if it has been defined in the terminal configuration that the database is of the SQL-Server type (i.e. resides on a PC).

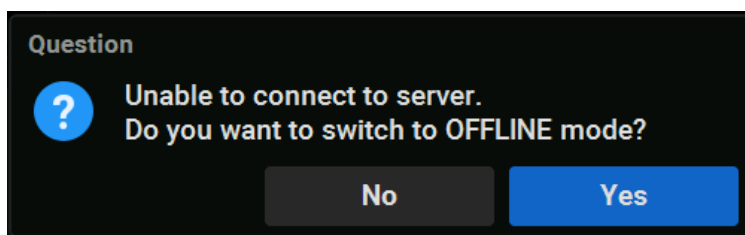
If the connection to the database is working when the terminal is switched on, the “Synchronise” button is also present on the terminal's main page .

This button allows you to:

- synchronise SQL data with local data.
- move any doses terminated locally into appropriate SQL-Server tables; the name of each table will end with the serial number of the terminal preceded by \_ (sub-terminal).


Should there be a problem connecting to the SQL-Server database, the operator can continue to work locally using the tables that were present at the time of the last synchronisation.

When the terminal realises that access to the database is no longer available, it displays the window on the page:



(fig.19)

By pressing “NO”, the terminal displays a further error message referring to the failed operation and remains configured for SQL access.

By pressing “Yes”, the terminal switches to the use of local tables and the “Synchronise” button is replaced by the “Reconnect” button .

Once the user has solved the connection problems, he or she must press the “Reconnect” button: the terminal replaces the “Reconnect” button with the “Synchronise” button and returns to being ready to access SQL.

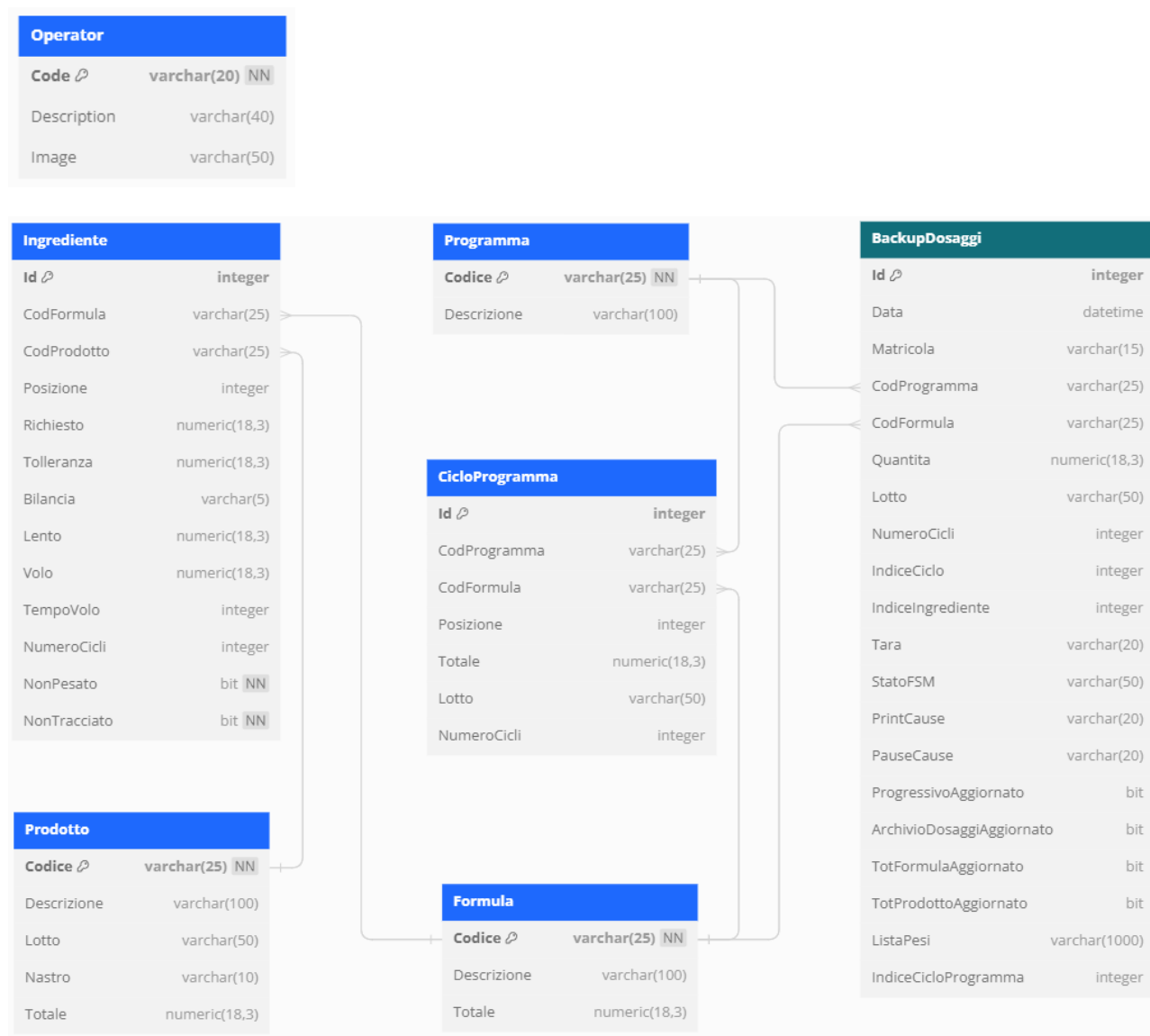
It will be up to the user to decide when to perform the new synchronisation between the two databases.

**N.B:** Synchronisation between the two databases is performed automatically when the terminal is switched on.



**N.B:** If the connection to the SQL-Server database drops during a dosage, the dosage is automatically suspended; this specific dosage can only be recovered after the SQL-Server connection has been restored.

## 12 RELATIONAL SCHEME OF DATABASE TABLES

### Input tables



**Output tables**

| ArchivioDosaggi  |               | DettagliArchivioDosaggi  |                   |
|--|---------------|--|-------------------|
| Id  | integer       | Id  | integer           |
| Data   | datetime      | IdArchivioDosaggi  | integer           |
| Matricola  | varchar(15)   | CodProdotto  | varchar(25)       |
| Stato  | integer       | DescProdotto   | varchar(100)      |
| CodProgramma   | varchar(25)   | CodOperatore   | varchar(20)       |
| DescProgramma  | varchar(100)  | DescOperatore  | varchar(40)       |
| CodFormula   | varchar(25)   | Lotto  | varchar(50)       |
| DescFormula  | varchar(100)  | Nastro   | varchar(10)       |
| Lotto  | varchar(50)   | CicloProdotto  | integer           |
| CartCode   | varchar(10)   | Richiesto  | numeric(18,3)     |
| Richiesto  | numeric(18,3) | Tolleranza   | numeric(18,3)     |
| Lordo  | numeric(18,3) | Estratto   | numeric(18,3)     |
| Estratto   | numeric(18,3) | NonPesato  | boolean <b>NN</b> |