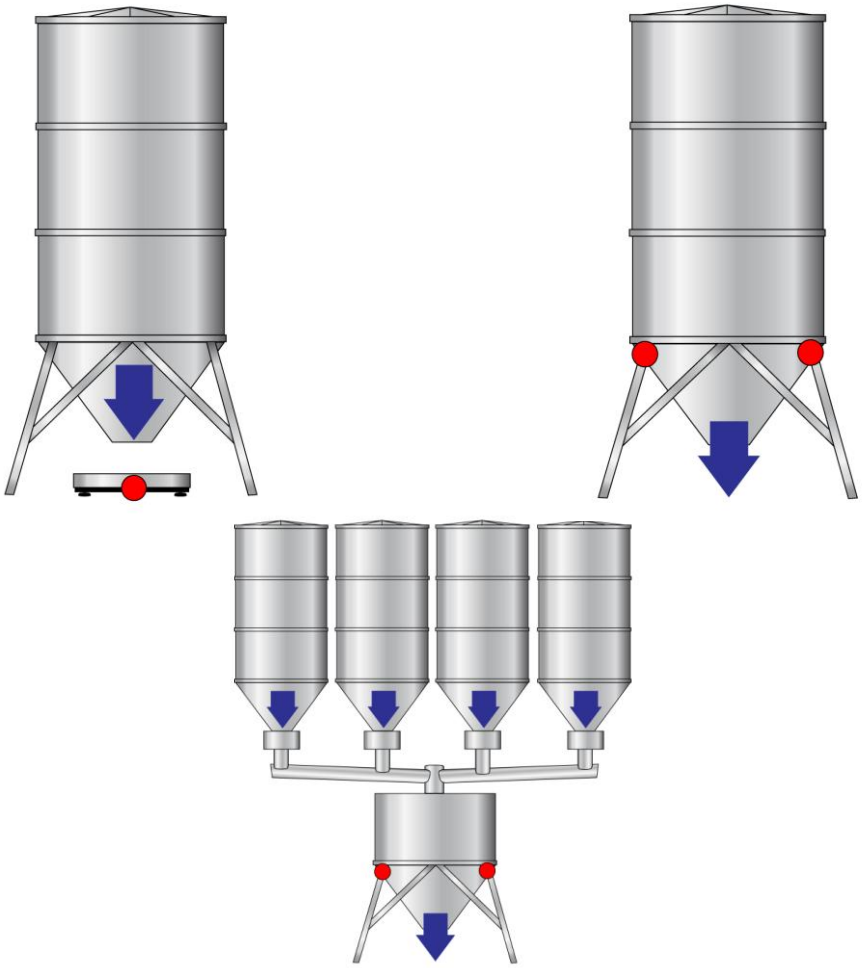
USER MANUAL
WEIGHT INDICATOR

DGTPKF: MICROCONTROLLER FOR INDUSTRIAL DOSAGE SYSTEMS WITH EXTENDED KEYBOARD



```
**********************
FORMULA       000
CYCLE REPORT 001
27/12/07 11:15:13
**********************
00 AUTOM. DOSAGE
DOSE              50kg
DOSED             50kg
01 MANUAL DOSAGE
DOSE              50kg
DOSED             50kg
02 UNLOAD  SPLIT
DOSE              30kg
UN. 001           30kg
UN. 002           30kg
UN. 003           30kg
03 UNLOAD  TOTAL
**********************
TARGET           100kg
DOSED            100kg
27/12/07 11:16:03
* IN TOLERANCE     *
```

DGTPKF series indicator

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1. INTRODUCTION

The purpose of this manual is to help the user get to know the weight indicator's various functioning modes, the keys' functions and the display indications.

It is possible that one may incur into the phrase **"TECH.MAN.REF."**: this means that an advanced function is being described (therefore, for the technical personnel) and which is further explained in the corresponding technical manual.

We advise to carefully follow the instructions for programming the weight indicator; by taking actions not indicated this manual, one could cause the scale to not work properly.

In addition to having all the characteristics of a high precision scale, the indicator allows the execution of single component dosage in loading and in unloading and multicomponent dosage.

These features make it suitable for industrial use as well as for legal for trade use in relation with third parties and in commerce, satisfying the frequently needed ability to transmit and print the data through its two bidirectional serial ports.

⚠ WARNING ⚠

Any attempt to repair or alter the unit can expose the user to the danger of electric shock and it will void our warranty. This instrument is covered under warranty provided that **IT HAS NOT BEEN OPENED BY THE USER** for any reason. If any problem with the unit or system has been experienced please notify the manufacturer or the dealer from which the instrument was acquired.
In any case, **DISCONNECT THE POWER SUPPLY** before taking any action.

Do not pour liquids on the indicator!

Do not use solvents to clean the indicator!

Do not expose instrument to either direct sun light or any heat sources!

Always mount the indicator and platform in a vibration free setting!

All indicator connections must be made respecting the norms applicable in the zone and in the installing environment.

Everything not expressly described in this manual has to be considered as improper use of the equipment.

READ CAREFULLY & APPLY WHAT DESCRIBED IN THE POWER SUPPLY & START-UP SECTION!

Do not install in an environment with any risk of explosion!

The crossed-out wheeled bin on the product means that at the product end of life, it must be taken to separate collection or to the reseller when a new equivalent type of equipment is purchased. The adequate differentiated refuse collection in having the product recycled, helps to avoid possible negative effects on the environment and health and supports the recycling of the materials of which the equipment is made. The unlawful disposal of the product by the user will entail fines foreseen by the current regulations.

2. MAIN TECHNICAL SPECIFICATIONS

POWER SUPPLY	12÷24 Vdc (± 10%)
MAXIMUM ABSORPTION	**DGTPKF**: 100 mA a 12 V; 70 mA a 24 V **DGTPKFAN**: 185 mA a 12 V; 90 mA a 24 V
OPERATING TEMPERATURE	From -10 to +40 °C (with even temperature).
DISPLAY DIVISIONS	10000e, 2 x 3000e for legal weighing, expandable up to 800.000 for internal use (with **minimum** signal coming from a 1,6mV/V cell).
CONVERSION SPEED	200 conv./sec with automatic selection.
MINIMUM VOLTAGE PER DIVISION	0.3 μV (approved instrument); 0.03 μV (non approved instrument).
COUNTING RESOLUTIONS	1'500'000 points (with input signal equal to 3mV/V).
DISPLAY	6 digits, h 20 mm
INDICATIONS	6 status indicator LEDs.
KEYBOARD	Waterproof 20-key keyboard
TARE FUNCTION	Subtractive possible on the entire capacity.
LOAD CELL POWER SUPPLY	5Vdc ± 5%, 120mA (up to 8 cells of 350 Ω each).
LOAD CELL CONNECTION	6 wires with Remote Sense or 4 wires.
CASE	PAINTED STEEL case with adjustable bracket (standard fitting) or fixed bracket (OPTIONAL) for mounting on the wall.
SERIAL OUTPUTS	1 RS485/RS232 bidirectional port configurable for connection to a PC/PLC or WEIGHT REPEATER. 1 RS232 bidirectional port configurable for connection to a printer.
OUTPUTS / INPUTS	6 photomosfet outputs: 48 Vac 0,15A max (or 60 Vdc 0,15 A max) 4 configurable inputs (optoisolator Photocouplers): 12÷24 Vdc, 5 mA min - 20 mA max; input reading time and output refreshing time: 1msec. Analogue output (optoisolated) at 16 bit (at choice 4÷20 mA, 0÷5 Vdc or 0÷10 Vdc) ; the maximum resistance applicable on the output current is 350 Ω and the minimum resistance applicable on the output voltage is 10 kΩ.

3. SYMBOLS

Below are the symbols used:
- in the manual to recall the reader's attention
- on the instrument to recall the user's attention

WARNING! This operation must be performed only by qualified personal

CE CONFORMITY

IDENTIFIES THE CLASS OF PRECISION

"TECH.MAN.REF." means that an advanced function is being described (therefore for the technical personnel) which will be further explained in the corresponding technical manual.

4. INSTALLATION

4.1 CASE AND DIMENSIONS

The indicator has a PAINTED STEEL case, whose external dimensions are shown in FIGURE 4.1

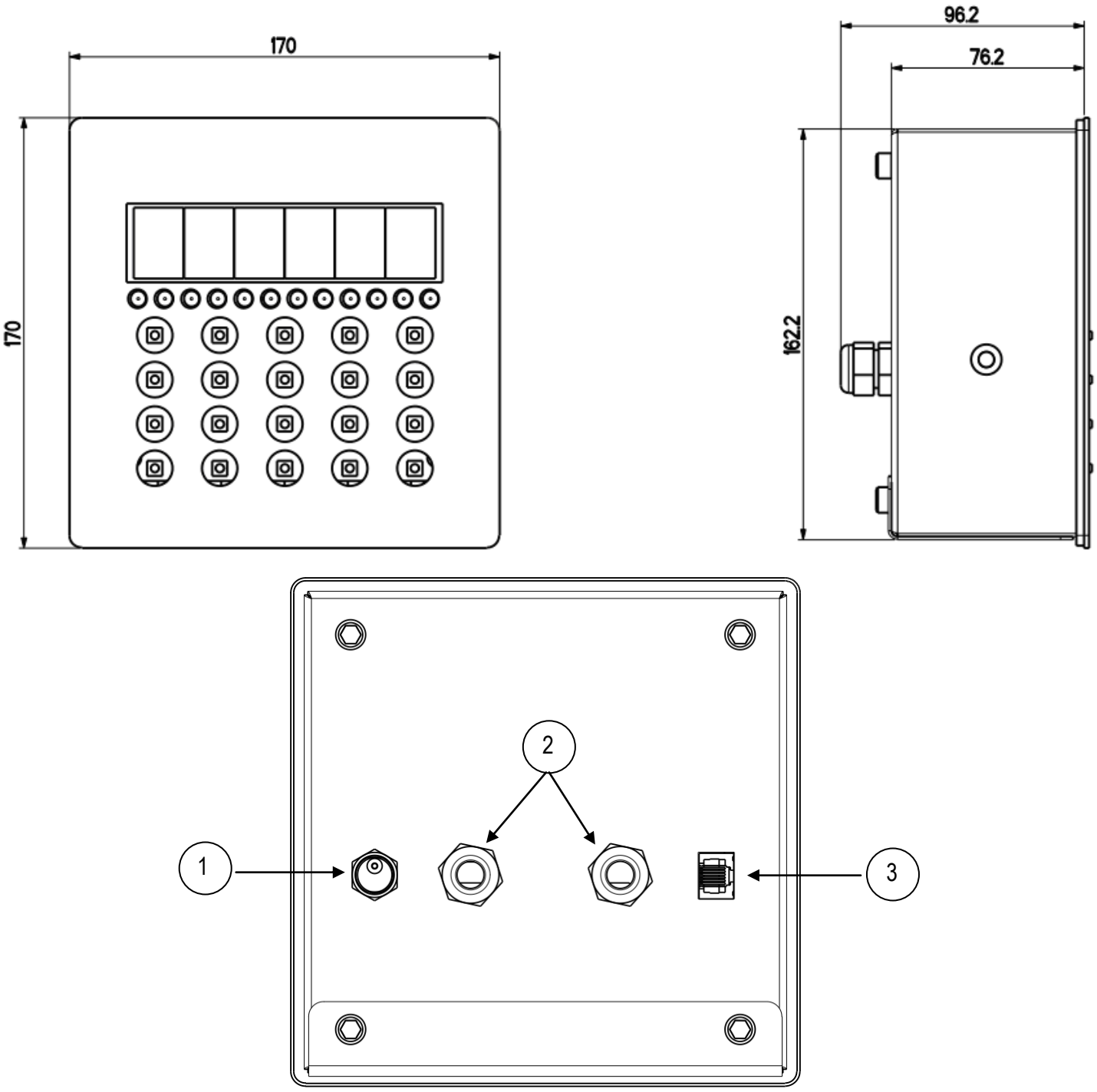


Figure 4.1 – *Measurements and dimensions in mm*
1) (+) 12V / 24 Vdc power supply input.
2) Connections for serial lines / inputs / outputs.
3) RJ45 connector

The instrument may be installed on the panel.
NOTE: When the identification plate is supplied separately (therefore not attached to the front panel) it is advisable to attach it in the appropriate space on the indicator, so that it can be identified.

5. POWER SUPPLY & START UP

INSTRUMENT POWER SUPPLY:

The instrument must be powered with stabilized voltage at 12 Vdc or 24 Vdc supplied from an AC/DC external charger which should be connected to the 220 Vac mains voltage.

TO POWER the instrument, connect the two power supply cables (+ and -) in the appropriate terminal board (chapter 4 "INSTALLATION") on the rear of the instrument-

Safety norms must be respected for the connection to the mains voltage including the use of a line which has to be free from noise generated by other electronic equipment.

Do not connect other equipment to the same socket as the one that the adapter is in!
Do not step on or crush the power supply cable!

The display shows:

XX.YY is the installed software version.
After this the instrument executes a countdown (self-check).

The indicator has an "auto zero at start-up" function: in other words it means that if at start-up a weight within +/- 10% of the capacity is detected, it will be zeroed; if the weight is not within this tolerance, with a non approved instrument the display shows the present weight after a few instants, while with an approved instrument "ZErO" is shown continuously on the display, until the weight is made to re-enter within this tolerance.
Normally in the DGTPK- F the auto zero function at start-up is disabled; it may be enabled in the set-up environment (only with non approved instrument): see the **SEtuP >> ConFiG >> Param. >> Auto-0 (TECH.MAN.REF.)** parameter.

By pressing the **ZERO** key for an instant while the version is shown in the display, the indicator will show the following in this order:

CLoCK	if there is the board with date and time.
XX.YY	in which XX indicates the type of the instrument, YY indicates the metrological software version.
XX.YY.ZZ	is the installed software version.
dGtPKF	is the name of the installed software.
XXXXXX	capacity and division of channel 1.
LEGAL or **hi rES**	if the instrument is APPROVED or UNAPPROVED, respectively.
9.XXXXX	is the g gravity value.

NOTE: the display of the other information is described in section 7.4 "DISPLAY OF METRIC DATA (inFO)".

- **TO PUT THE INSTRUMENT IN STANDBY:** keep the **C – ON/Stb** key pressed until the message "- OFF -" appears on the display and then release the key; just the point at the extreme left of the display remains on.

- **TO RESET THE INSTRUMENT:** keep the **C – ON/Stb** key pressed until the instrument executes the start-up procedure. It is possible to reset the instrument also in the dosage cycle.

- **TO TURN OFF THE INSTRUMENT:** take away the power supply.

6. FRONT PANEL KEYS AND INDICATORS

The front panel of the DGTPK consists of a display with 6 digits, 20 mm high, 12 LED function indicators and a 20-key keyboard.

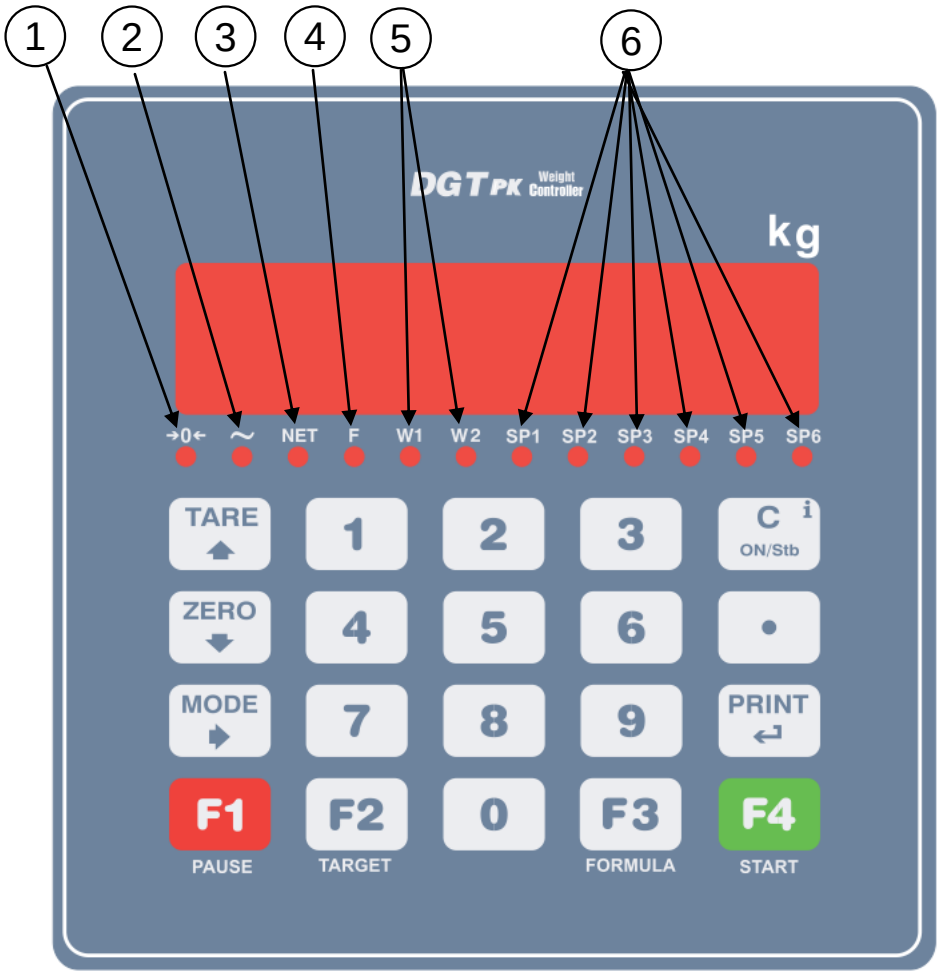


Figure 6.1 – *Keys and indicators of the DGTPK front panel*

6.1 FUNCTION OF THE INDICATORS

NUMBER	FUNCTION
(1)	Indicates that the weight detected by the weighing system is near zero, specifically within - ¼ ÷ ¼ of the division.
(2)	Indication of UNSTABLE WEIGHT.
(3)	Indication that the displayed value is a NET WEIGHT.
(4)	Indication that a key is pressed.
(5)	*If instrument in dual range and approved:* one's within the 1st weighing range (*w1*) *If instrument in dual range and approved:* one's within the 2nd weighing range (*w2*)
(6)	The relays nr. 1,2,3,4,5,6 has been enabled

6.2 FUNCTIONS OF THE KEYS

DGTPK KEYS	FUNCTION
ZERO ▼	- Displayed gross weight zeroing (see section 7.1).
TARE ▲	- Execution of the tare (see section 7.2).
MODE ►	- Enter the User Menu.
PRINT <┘	- In NUMERIC INPUT: confirms the entry made. - In SETUP: allows to enter a step or to confirm a parameter inside a step. - Executes a PRINTOUT or transmission of the data from the serial port dedicated to the printer.
C ON/Stb	- Instrument ON / STANDBY / RESET. - Visualisation of *Metric information* of the scale
F1 PAUSE	- Dosage PAUSE/RESET - Reset cycles number
F2 TARGET	- Quick entry of the TARGET.
F3 FORMULA	- Selecting a formula.
F4 START	- Dosage START / RESTART
NUMERIC KEYBOARD	- In the numeric input phase it allows to enter the desired value

7. BASIC FUNCTIONS

7.1 SCALE ZEROING

Out of the dosage cycle, by pressing the **ZERO** key, it is possible to clear a gross weight value which is within ±2% of the capacity; after the zeroing, the display shows 0 weight and the relative pilot lights turn on.

7.2 TARE OPERATIONS

The tare operation is only possible out of the dosage cycle; it's never possible in any case in the "SINGLE-COMPONENT DOSAGE IN UNLOADING" mode.

7.2.1 SEMIAUTOMATIC TARE

By pressing the **TARE** key any weight value present on the display is tared: the display shows "tArE" for an instant and then 0 (net weight); the relative keys turn on.

NOTE: the semiautomatic tare will be acquired only if the weight is AT LEAST A DIVISION, STABLE (instability **~** led off) and VALID (in other words, the OVERLOAD condition should not be created).

7.2.2 MANUAL TARE FROM KEYBOARD

- Type the desired value through the numeric keys
- confirm with **TARE** key

If the entered value is not a multiple of the scale's minimum division, it will be rounded off.

7.2.3 DELETION OF A TARE

One can manually cancel the tare value in different ways:
- unload the scale and press the **TARE** or **ZERO** key.
- carry out the tares in deduction, partially unloading the scale and pressing **TARE** to zero the display.
- enter a manual tare equal to 0.

NOTE: it is possible to automatically cancel the tare value by doing the following:

7.2.4 LOCKED/UNLOCKED/DISABLED TARE

Normally, when a tare value is entered (semiautomatic or manual) by unloading the scale plate, the display shows the tare value with a negative sign (LOCKED TARE). For one's convenience it is also possible to choose that the tare value cancels itself automatically each time that the scale is unloaded (UNLOCKED TARE), or disable the tare functions.
With the UNLOCKED tare:

- **In case of SEMIAUTOMATIC TARE the net weight, before unloading the scale, may also be 0.**
- **In case of MANUAL TARE the net weight before unloading the scale must be greater than 2 divisions and stable.**

7.3 MULTI RANGE FUNCTIONING (for legal for trade approved instruments)

The multirange functioning allows to subdivide the scale capacity in two ranges, each which is up to 3000 divisions, improving in this way the first range division in the dual range.
For example, with a 10 kg cell platform it is possible to approve the weighing system with:

- A single range: 6 kg capacity and 2 g division (3000 div.).
- Dual range: 6 / 3 kg capacity and 2/1 g division (3000 + 3000 div.).

NOTES:

- For the approval of the weighing system in dual range the cell must have better technical features in comparison to the cell used for the approval in a single range. The multirange functioning is shown by the turning on of the relative LED which identifies the range in which one is operating; by passing to the second range, the second range division is enabled.
  At this point the first range division is restored **only by passing by the gross zero of the scale.**
- The selection of the range number with multirange functioning is made during the indicator's calibration (**TECH.MAN.REF.).**

7.4 DISPLAY OF METRIC DATA (inFO)

The indicator is fitted with a function named "INFO", thanks to which it is possible to view the metric data and other configuration data:

- First range capacity, first range minimum weigh, first range division;
- Second range capacity, second range minimum weigh, second range division;
- Gravitational Acceleration Value.

NOTES:

- The minimum weigh corresponds to 20 net weight divisions.
- The data of the second and third range appears only if actually configured.

To view the metric data:

- Keep the **C – ON/Stb** key pressed until the display shows "inFO", and release.
- The capacity value of the first range will appear.
- Press the **ZERO** or **TARE** key to scroll the following data, in the order:
  1st range capacity ("MAX") ⇨ 1st range minimum weigh ("Min") ⇨ 1st range division ("E") ⇨ Gravitational Acceleration Value ("GrAVit.") (*⇨ 2nd range capacity ("MAX") ⇨ 2nd range minimum weigh ("Min") ⇨ 2nd range division ("E") ⇨ Gravitational Acceleration Value ("GrAVit.")*).
- Press the **PRINT** or **C – ON/Stb** key to return to weighing.

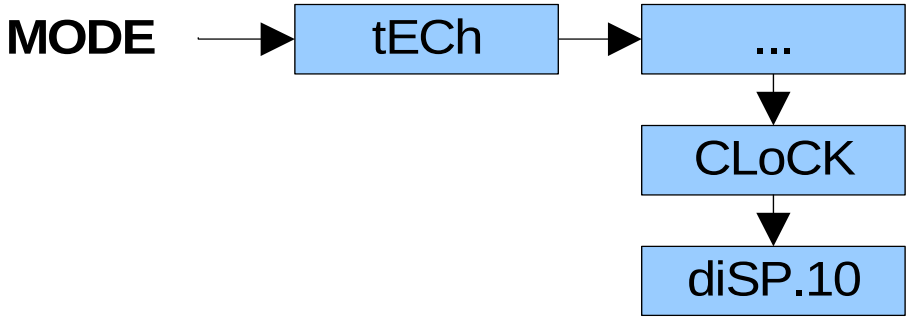
7.5 DATE/TIME ADJUSTMENT

To set the date/time follow the procedure below:

- Press the **MODE** key. The display shows "teCh" ("oinL", in case of approved instrument).
- Press **ZERO** many times (to scroll forwards through the parameters) or **TARE** (to scroll backwards) to find the **<<CLoCK>>** parameter.
- Confirm with **PRINT** in this order one will be asked to enter the DAY ("dAy"), MONTH ("Month"), YEAR ("yEAr"), HOUR ("hour"), MINUTES ("MinutE"). The entry of each parameter must be confirmed with **PRINT**.
- Once finished the setting, one exits this step.

7.6 DISPLAY WITH SENSITIVITY X 10

Follow the procedure below in order to obtain the function of switching the weight for display with sensitivity increased 10 times:



- Press the **MODE** key. The display shows "teCh" ("oinL", in case of approved instrument).
- Press **ZERO** many times (to scroll forwards through the parameters) or **TARE** (to scroll backwards) to find the **<<disP.10>>** parameter.
- Confirming with **PRINT** one switches from the weight display with normal sensitivity to a sensitivity ten times greater; in fact, one will note that the last digit on the right of the display will have a sensitivity equal to the scale's division divided by 10.
- Press many times the **C–ON/Stb** key to return to the weight display with normal sensitivity.

NOTA: In case of an APPROVED instrument the sensitivity times 10 is displayed for five seconds.

8. DEFINITION OF "PHASE"

A **"Phase"** is each single part that makes up the dosage. It is possible to assign one of the available relay outputs to each phase.

NOTE: the instrument's relay outputs start from 1; as a matter of fact, output 0 serves to create an activity without linked outputs.

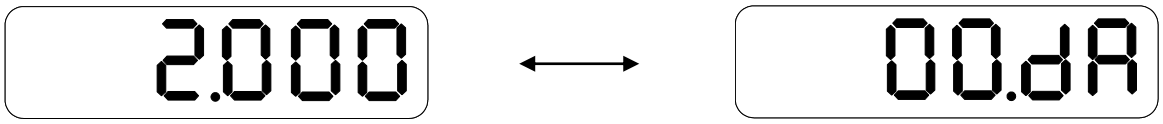
The available phases are:

- AUTOMATIC DOSAGE
- MANUAL DOSAGE
- UNLOADING
- TIMER
- PAUSE
- MANUAL WEIGHT

Each phase executes a specific function, shown in the following sections.

8.1 AUTOMATIC DOSAGE (Aut.doS)

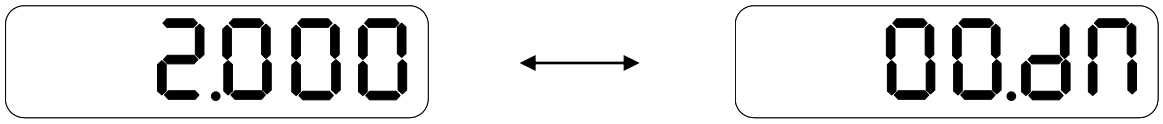
- If the dosage can start (i.e. the possible tare is present and the weight is stable), the programmed product output is enabled, along with the fast dosage output, if configured; the dosage therefore starts at the maximum speed.
- During the dosage, the weight message is alternated with the message of the type of phase under way:



- When a weight value is reached in which the SLOW WEIGHT and FLIGHT WEIGHT is missing from the TARGET, the indicator reduces the dosage speed disabling the relative output;
- When the TARGET minus the FLIGHT WEIGHT is reached, the indicator disables the programmed product output;
- The instrument waits for the fall of flying material as long as the set time and starts the test of tolerance, if enabled: if the weight of the dosed material is within the set tolerance, the instrument will pass to the following phase, otherwise a weight correction is required.

8.2 MANUAL DOSAGE (MAn.doS)

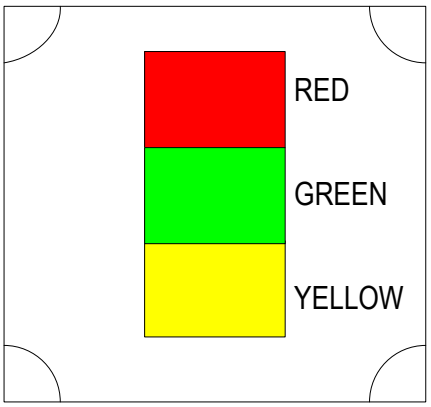
- If the dosage can start (i.e. the possible tare is present and the weight is stable), the programmed product output is enabled, along with the fast dosage output, if configured; the dosage therefore starts at the maximum speed.
- During the dosage, the weight message is alternated with the message of the type of phase under way:



- When a weight value is reached in which the SLOW WEIGHT is missing from the TARGET, the indicator reduces the dosage speed disabling the relative output;
- When the TARGET is reached, the indicator disables the programmed product output;
- The instrument waits for the operator's assent or waits for the manual dosage end time, if configured, and starts the test of tolerance, if enabled: if the weight of the dosed material is within the set tolerance, the instrument will pass to the following phase, otherwise a weight correction is required.

8.2.1 FUNCTIONING WITH CONTROL LIGHT

In order to simplify the work of the operator during the manual dosage activity, it is possible to connect a control light to the instrument relays:



RED → OUTPUT LINKED TO THE DOSAGE ERROR

GREEN → OUTPUT LINKED TO THE CORRECT DOSAGE

YELLOW → OUTPUT LINKED TO THE ACTIVITY

FUNCTIONING:

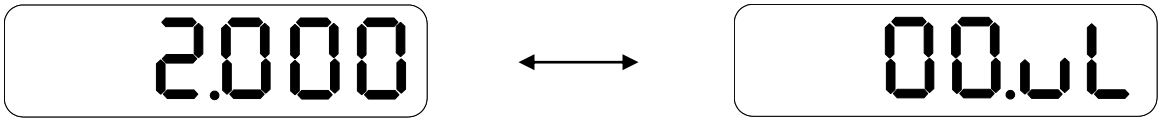
- The operator gives the START impulse: the yellow light is enabled;
- The operator starts dosing
- Once the TARGET – TOLLERANCE weight is reached, also the GREEN light is enabled.
- Once the TARGET weight is reached, the Yellow light is disabled and only the GREEN light remains active.
- Once the TARGET weight is exceeded, also the RED light is enabled.
- If the weight exceeds the TARGET + TOLERANCE weight, the GREEN light is disabled and only the RED light remains active.

8.3 UNLOADING (unLoAd)

It is possible to execute 3 different unloading methods:

- **TOTAL UNLOADING**
  This phase **allows to completely unloading the scale**; for instance, it is entered at the end of a loading formula or at the end of a partial unloading phase, so that the remaining material is unloaded.

  - If the dosage can start (i.e. the weight is stable), the programmed product output is enabled, along with the fast dosage output, if configured; the dosage therefore starts at the maximum speed.
  - During the dosage, the weight message is alternated with the message of the type of phase under way:



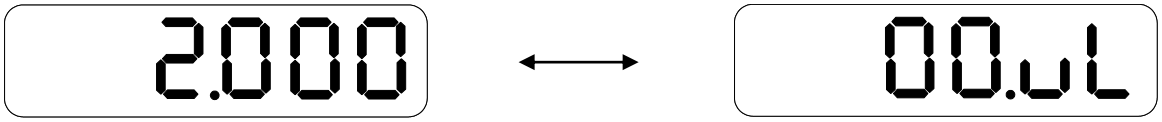
  - The total unloading phase ends as soon as the weight reaches the TOTAL UNLOADING END threshold; once the UNLOADING END WAIT TIME has passed.

- **SPLIT UNLOADING**
  This phase **allows to completely unloading the scale, splitting the dosage in various partial unloadings** which have a fixed target.

  It is possible to decide how the split unloading should start: manually or automatically (through start command); each following unloading will be manually enabled, supplying a start command.

  In this way the operator, for example, can change the container with each partial unloading or perform any operation.

  - If the dosage can start (i.e. the weight is stable), the programmed product output is enabled, along with the fast dosage output, if configured; the dosage therefore starts at the maximum speed.
  - During the dosage, the weight message is alternated with the message of the type of phase under way:



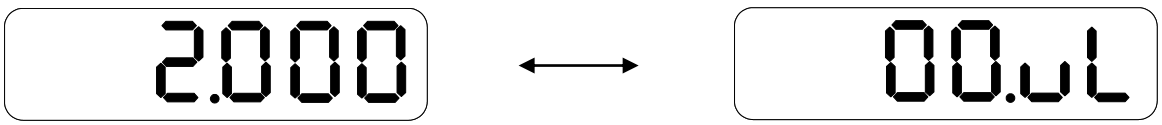
  - When a weight value is reached in which the SLOW WEIGHT and FLIGHT WEIGHT is missing from the TARGET the indicator reduces the dosage speed disabling the relative output;
  - When the TARGET minus the FLIGHT WEIGHT is reached, the indicator disables the programmed product output;
  - The instrument waits for the fall of flying material as long as the set time and, if the instrument is enabled, starts the test of tolerance: if the weight of the dosed material is within the set tolerance, the instrument proceed with the next phase, otherwise a weight correction is required.
  - The split unloading activity ends as soon as the weight reaches the TOTAL UNLOADING END + PHASE TARGET threshold: the unloading under way will be terminated, and the instrument will automatically pass to the following phase.

  NOTA: The instrument checks, at the end of each unloading dosage, if the material is sufficient for executing a new partial unloading, otherwise it automatically passes to the following phase.

  In order to obtain a total unloading and to subdivide the material in equal parts, one should enter a split unloading in the formula, followed by a total unloading activity.

- **PARTIAL UNLOADING**
  This activity **allows to execute a single unloading of a fixed quantity of material**; therefore the instrument gives the possibility to load the silo and to unload the desired quantity from it.

  - If the dosage can start (i.e. the weight is stable), the programmed product output is enable, along with the fast dosage output, if configured; the dosage therefore starts at the maximum speed
  - During the dosage, the weight message is alternated with the message of the type of phase under way:



  - When a weight value is reached in which the SLOW WEIGHT and FLIGHT WEIGHT is missing from the TARGET the indicator reduces the dosage speed disabling the relative output;
  - When the TARGET minus the FLIGHT WEIGHT is reached, the indicator disables the programmed product output;
  - The instrument waits for the fall of flying material as long as the set time and, if the instrument is enabled, starts the test of tolerance: if the weight of the dosed material is within the set tolerance, the instrument proceed with the next phase, otherwise a weight correction is required.

  If the weight on the scale is lower than the TOTAL UNLOADING END + PHASE TARGET threshold, it's not possible to perform a partial unloading.

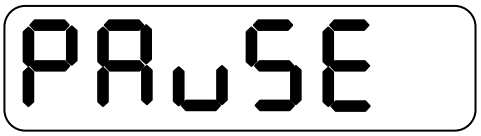
8.4 PAUSE

The pause phase consists in clearing the weight on the scale and enabling the eventual linked output; this output will be enabled at the beginning of the phase and will be disabled by a start command.

The pause phase automatically starts at the end of the previous phase, and is disabled only in the manual mode, giving a start command; the duration of this phase is therefore not programmable.

In any way, during the PAUSE phase, it is possible to pause the dosage (through IN2 input) disabling all the active outputs.

The display, during the pause phase, will show the message:



8.5 TIMER

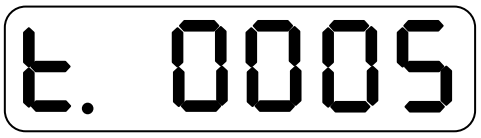
The timer phase automatically starts at the end of the previous phase, and automatically ends when the set time has passed; during this time one of the available outputs can be enabled.

It is possible to set the type of time which one wants to use, in other words **stoppable** or **not stoppable:**

- **stoppable:** the timer phase is automatically enabled and may be terminated at any time manually, by a start command. Moreover, by pressing the **C-ON/Stb** key, it is possible to stop the timer, until the next start command.

- **not stoppable:** the timer phase is automatically enabled and automatically ends when the set time has passed. It's not possible to stop the timer before the set end.

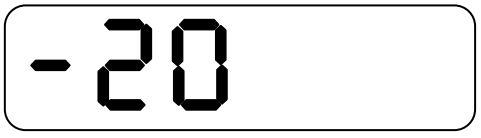
The display, during the timer phase, will show the timer countdown:



8.6 MANUAL WEIGHT

This phase is useful when one wants to add to the dosage an amount of material having a known fixed weight, which is set when entering the activity in the database.
Therefore it may be set at the dosage end, for example, to remind the operator to add this material to the formula in hand.
The MANUAL WEIGHT phase automatically starts; the end of the phase must be terminated by a start command.

The display, during the manual weight phase, will show the weight that is still to be loaded:



In the formula report printout, the manual weight amount is not considered in the weight to be dosed, but it is calculated in the total weight dosed (see section "17.3 PHASES / FORMULAS AND TOTAL DATA PRINTING").

NOTE: for the loading phases it is possible to choose (**<<ShoW.t.>>**, **RIF.MAN.T.** step) whether to view the weight actually dosed during the phase, or whether to view the remaining weight upon reaching the TARGET weight.

9. DEFINITION OF "FORMULA"

A **"Formula"** is the sequence of the phases which allows to execute the desired dosage.

FORMULA 1
PHASE 1
PHASE 2
PHASE 3
PHASE 4
…

IMPORTANT: In order to execute a dosage, one must first of all identify which are the single phases that have to be carried out and enter these in the phases database; after this one must enter a formula in the formulas database, which must contain, in order, all the phases which must be carried out in order to execute the desired dosage.

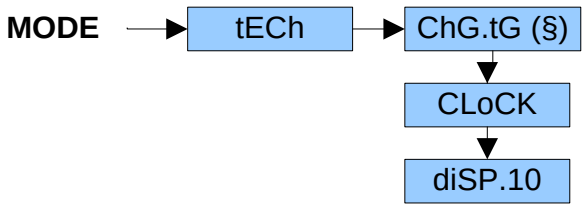
The execution order of the phases depends on the order in which these are entered when programming the formula: the first entered phase will be the first executed one, etc.

See an example in the section 10.11.2.

9.1 SETTING THE NUMBER OF DOSAGE CYCLES

One can program a series of automatic repetitions of the dosage cycles using a formula to select.
One should:

1. Out of the dosage cycle, press at length the **MODE** key. The display shows "teCh" ("oinL", in case of approved instrument).



(§) The parameter is displayed only if a formula is selected and with the WGT.FOR functioning mode

2. Scroll the steps with the **ZERO** and **TARE** key until the **<<n.CyCLE>>** parameter and press the **PRINT key**.
3. Enter the number of repetitions to be executed (value which is between 1 and 999) and confirm by pressing **PRINT.**
   By setting n.CyCLE = 1 , the number of repetitions becomes infinite and the passage to the following cycle is manual.
   By setting n.CyCLE = 999, the number of repetitions becomes infinite and the passage to the following cycle is automatic.
4. Press the **C-ON/Stb** key. If the number of cycle was not modified, one return in weighing mode, otherwise is asked to save the modifications ("SAVE ?"). Press **PRINT** to confirm, **C-ON/Stb** to exit without making modifications.

   (!) 001

The number of repetitions can be modified also during the dosage cycle by pressing the **MODE** key in the Pause state (see chapter 13).

10. MULTICOMPONENT DOSAGE

Premise: one must have set **<< bAtCh >>** in the **F.ModE >> doSAgE >> doS.tyP** step **(TECH.MAN.REF.)** of the setup environment.

In the multicomponent dosage, the instrument has two different database:

- Phases database (up to a maximum of 16);
- Formulas database (up to a maximum of 15, each consisting of up to a maximum of 8 phases).

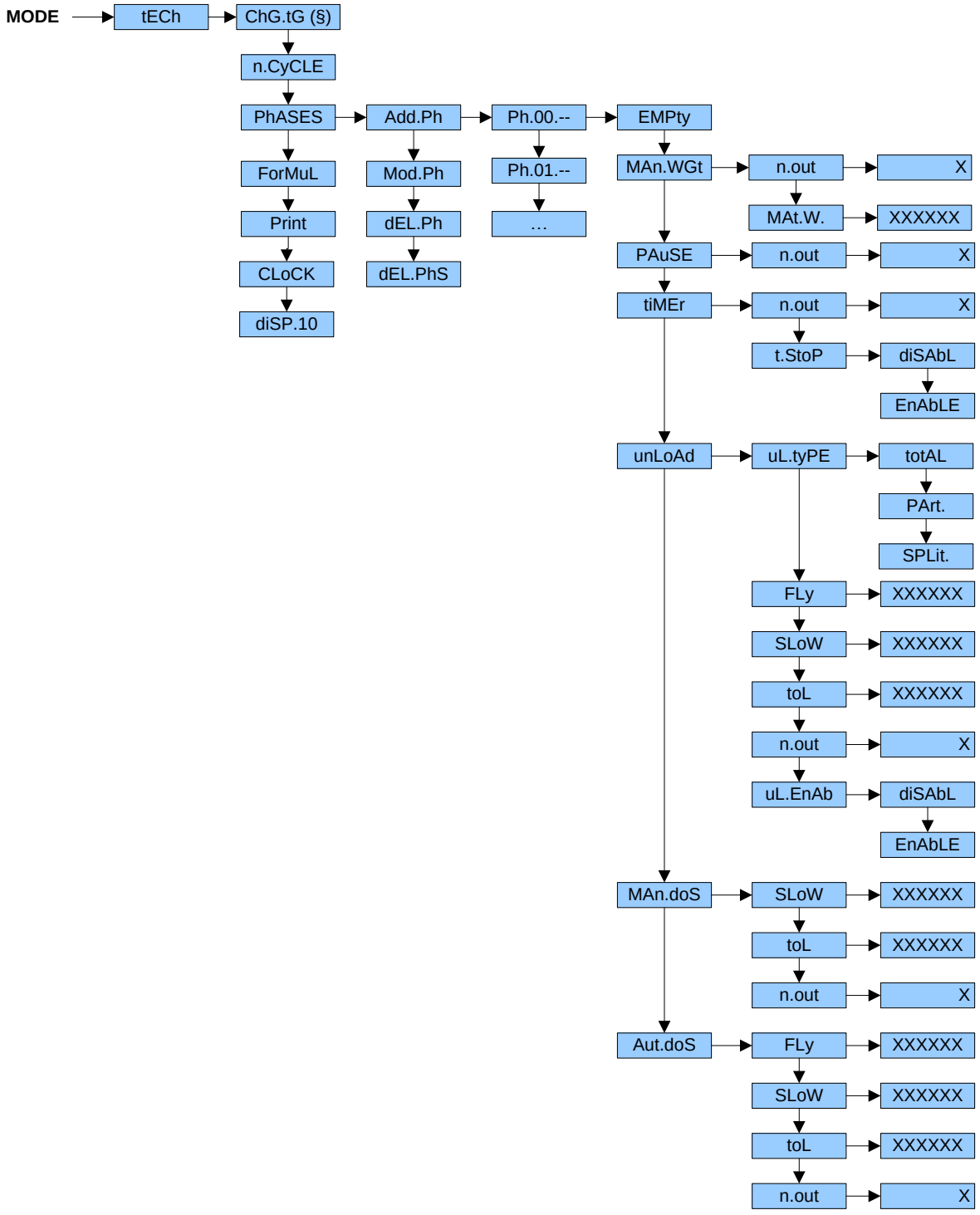
One can program phases and formulas also through a PC software.

The maximum dosable weight in a single dosage (for the automatic or manual loading phases) is given by (**<<MAX.WGt>> - <<toL.0>>**) or by (**<<MAX.WGt>>** - **<<MAX.tAr>>**), if a maximum tare values has been entered **(TECH.MAN.REF.)**.
If there is an unload phase in the FORMULA, the maximum dosable weight is calculated in the following way:
MAX.WGT = 1000kg
MAX.TAR = 100kg
Maximum dosable weight = 1000 – 100 = 900kg

PHASE 1 = dos.aut 100kg
PHASE 2 = dos.aut 500kg
PHASE 3 = dos.aut 200kg
PHASE 4 = dos.aut 100kg
PHASE 5 = partial unload 600kg
PHASE 6 = dos.aut 500Kg
The sum of the weights is equal to: 100 + 500 + 200 + 100 – 600 + 500 = 800kg

10.1 ENTERING A PHASE IN THE DATABASE

1. Press the **MODE** key. The display shows "teCh" ("oinL", in case of approved instrument).



(§) The parameter is displayed only if a formula is selected and with the WGT.FOR functioning mode

2. Press the **ZERO** key or **TARE** many times to find the **<<PhASES>>** step. Then press the **PRINT key**.
3. Select the **<<Add.Ph>>** parameter and press **PRINT**: the instrument shows the first empty memory storage available (for instance, Ph.00.- -); press the **PRINT key**; the selectable phase are proposed (use the **ZERO** or **TARE** keys to scroll the list):

- **<< Empty >>:** empty memory storage (no phase associated);
- **<< MAn.WGt >>:** manual weight;
- **<< PAuSE >>:** dosage pause;
- **<< tiMEr >>:** timer;
- **<< unLoAd >>:** total, partial or split unloading;
- **<< MAn.doS >>:** manual dosage;
- **<< Aut.doS >>:** automatic dosage;

Select the desired one and press the **PRINT** key;

4. Enter the characteristic parameters of the selected phase:

- **<< MAn.WGt >>:** manual weight;
  - **<<n.out>>:** select the instrument's output to be linked to the phase and press **PRINT**;
  - **<<MAt.W>>:** enter the weight of the material to be added to the formula and press **PRINT**;

  continue on step **5**.

- **<< PAuSE >>:** dosage pause;
  - **<<n.out>>:** select the instrument's output to be linked to the phase and press **PRINT**;

  continue on step **5**.

- **<< tiMEr >>:** timer
  - **<<n.out>>:** select the instrument's output to be linked to the phase and press **PRINT**;
  - **<<t.StoP>>:** manual stop of timer phase:

    <<EnAbLE>>: at any time the timer phase can be manually stopped or finished before its configured end by a start command; the indicator will pass to the next phase;

    <<diSAbL>>: the timer phase automatically stops at the end of the set time;

  Select the type of manual stop using the **PRINT** key and continue on step **5**.

- **<< unLoAd >>:** total, partial or spilt unloading;
  - **<<uL.tyPE>>:** select the unloading type, among:

    <<totAL>>: total unloading;

    <<PArt.>>: partial unloading;

    <<SPLit.>>: split unloading.

  Press **PRINT** to continue:
  - **<<FLy>>:** enter the flight material weight (in case of non total unloading) and press **PRINT**;
  - **<<SLoW>>:** enter the slow material weight (in case of non total unloading), in other words the weight subtracted from the TARGET that define the slow dosage threshold; then press the **PRINT** key;

  (this step is available only if the double dosage speed is enabled);
  - **<<toL>>:** enter the tolerance weight (in case of non total unloading) and confirm with **PRINT**; this weight define the tolerance range (**<<tArGEt>> ± <<toL>>**) within that the dosage weight must falls into, at the end of the partial or split unloading;

  (this step is available only if the tolerance test is enabled);
  - **<<n.out>>:** select the instrument's output to be linked to the phase and press **PRINT**;
  - **<<uL.EnAb>>:** one can qualify the start of the unloading phase with the reception of the start command:

    <<EnAbLE>>: the unloading phase starts only if the start command is received;

    <<diSAbL>>: the unloading phase starts automatically at the end of previous phase;

  Select the desired type using the **PRINT** key and continue on step **5**.
- **<< MAn.doS >>:** manual dosage;
  - **<<SLoW>>:** enter the slow weight, in other words the weight subtracted from the TARGET that define the slow dosage threshold and press the **PRINT** key;

  (this step is available only if the double dosage speed is enabled).
  - **<<toL>>:** enter the tolerance weight and confirm with **PRINT**; this weight define the tolerance range (**<<tArGEt>> ± <<toL>>**) within that the dosage weight must falls into, at the end of the dosage in loading;

  (this step is available only if the tolerance test is enabled);
  - **<<n.out>>:** select the instrument's output to be linked to the phase and press **PRINT**;

  continue on step **5.**

- **<< Aut.doS >>:** automatic dosage;
  - **<<FLy>>:** enter the flight material weight and press **PRINT**;
  - **<<SLoW>>:** enter the slow weight, in other words the weight subtracted from the TARGET that define the slow dosage threshold and press the **PRINT** key;

  (this step is available only if the double dosage speed is enabled.
  - **<<toL>>:** enter the tolerance weight and confirm with **PRINT**; this weight define the tolerance range (**<<tArGEt>> ± <<toL>>**) within that the dosage weight must falls into, at the end of the dosage in loading;

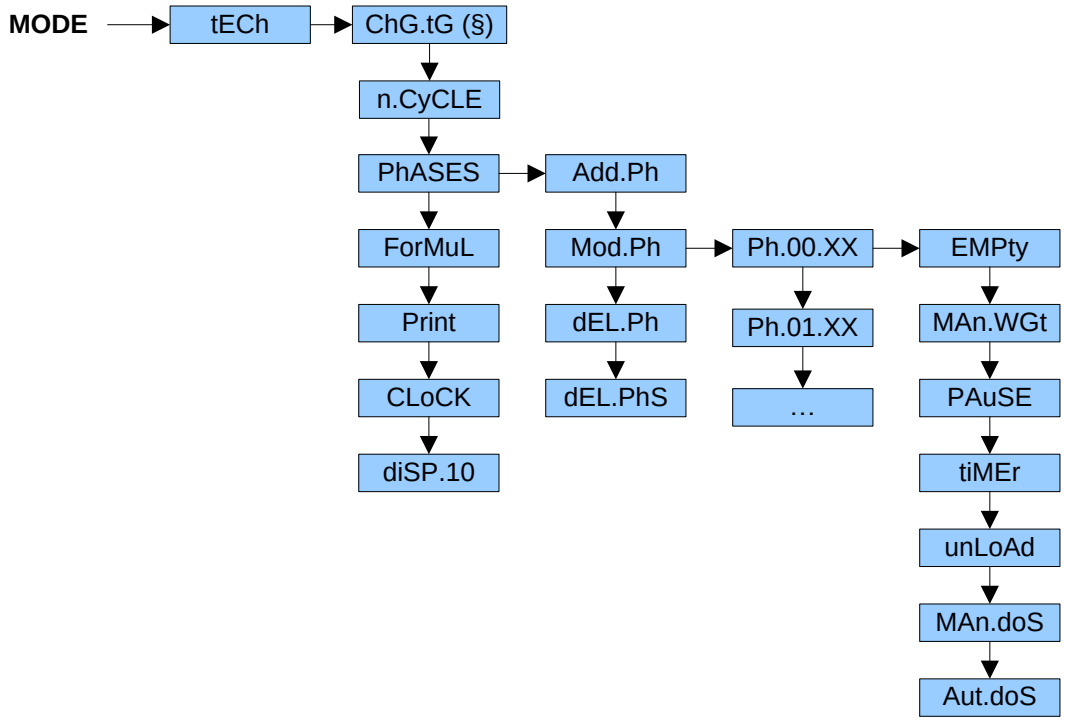
  (this step is available only if the tolerance test is enabled);
  - **<<n.out>>:** select the instrument's output to be linked to the phase and press **PRINT**;

  continue on step **5.**

5. At the end of phase parameter programming, press the **C-ON/Stb** key: in order to enter a new phase, repeat the procedure from point **3.**; in order to return in weighing mode, press the **C-ON/Stb** key many times.

10.2 MODIFYING A PHASE

1. Press the **MODE** key:



(§) The parameter is displayed only if a formula is selected and with the WGT.FOR functioning mode

2. Press the **ZERO** key or **TARE** many times to find the **<< PhASES >>** parameter and press **PRINT**: the display shows the **<< Add.Ph>>** step;

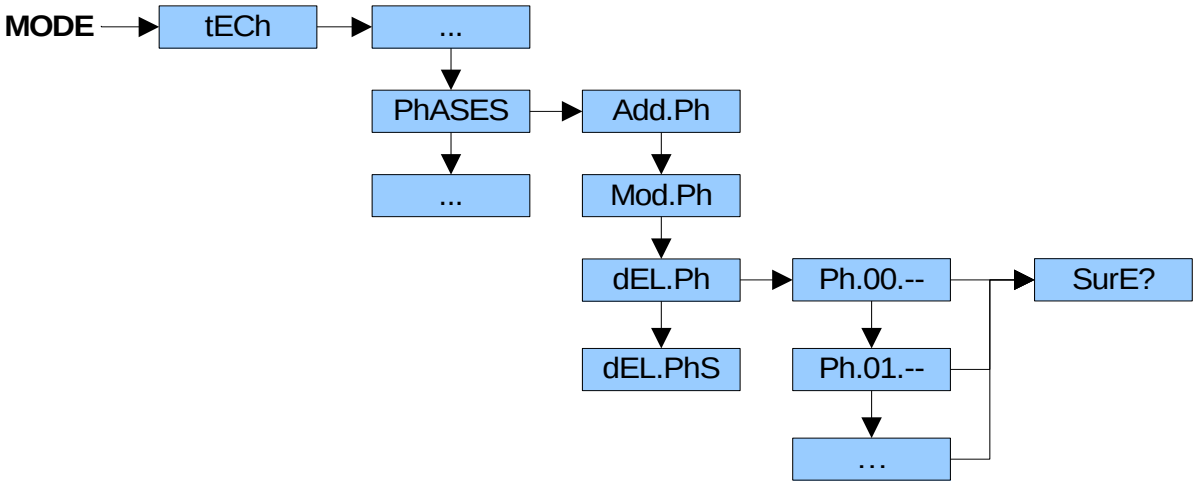
3. Press the **ZERO** key or **TARE** many times to find the **<< Mod.Ph >>** parameter and press **PRINT**: the list of stored phases are proposed; use the **ZERO** or **TARE** keys to select the phase to be modified using the **ZERO** or **TARE** key and press **PRINT**;

4. Modify the desired parameters;

5. Once the operation has ended, press many times the **C-ON/Stb** key until the instrument requests to save data, "SAVE?": press **PRINT** to confirm, **C-ON/Stb** to exit without making modifications.

10.3 DELETING A PHASE

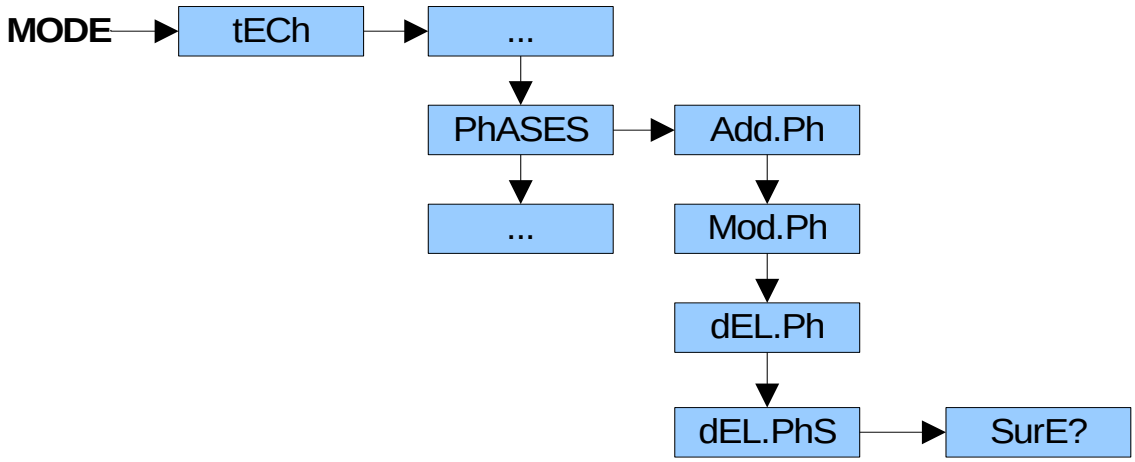
1. Press the **MODE** key:



2. Press the **ZERO** key or **TARE** many times to find the **<< PhASES >>** parameter and press **PRINT**: the display shows the **<< Add.Ph>>** step;
3. Press the **ZERO** key or **TARE** many times to find the **<< dEL.Ph >>** parameter and press **PRINT**: the list of stored phases are proposed; use the **ZERO** or **TARE** keys to select the phase to be deleted and press **PRINT**; the instrument requests a confirmation, "SurE?": press **PRINT** to confirm, **C-ON/Stb** to exit without making modifications.
4. Press many times the **C-ON/Stb** key until the instrument requests to save data, "SAVE?": press **PRINT** to confirm, **C-ON/Stb** to exit without making modifications.

10.4 DELETING ALL THE PHASES

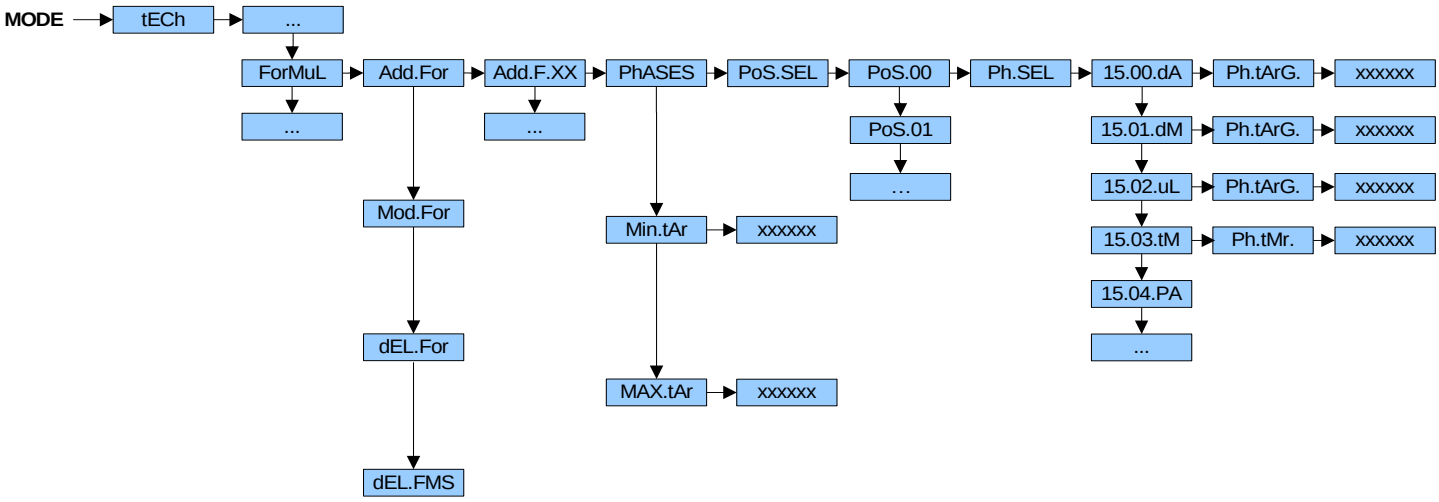
1. Press the **MODE** key:



2. Press the **ZERO** key or **TARE** many times to find the **<< PhASES >>** parameter and press **PRINT**: the display shows the **<< Add.Ph>>** step;
3. Press the **ZERO** key or **TARE** many times to find the **<< dEL.PhS >>** parameter and press **PRINT**: the instrument requests a confirmation, "SurE?": press **PRINT** to confirm the deletion of all the phases in the database, **C-ON/Stb** to abort.
4. Press many times the **C-ON/Stb** key until the instrument requests to save data, "SAVE?": press **PRINT** to confirm, **C-ON/Stb** to exit without making modifications.

ATTENTION : it is not possible to delete a phase included in a formula which is still present in the database. If one tries to do it, the instrument shows the "Err.dEL" message, and then "Ph.in.FM.". To delete the desired phase, it is necessary to first delete all the formulas that include it.

10.5 ENTERING A FORMULA IN THE DATABASE



1. Press the **MODE** key;

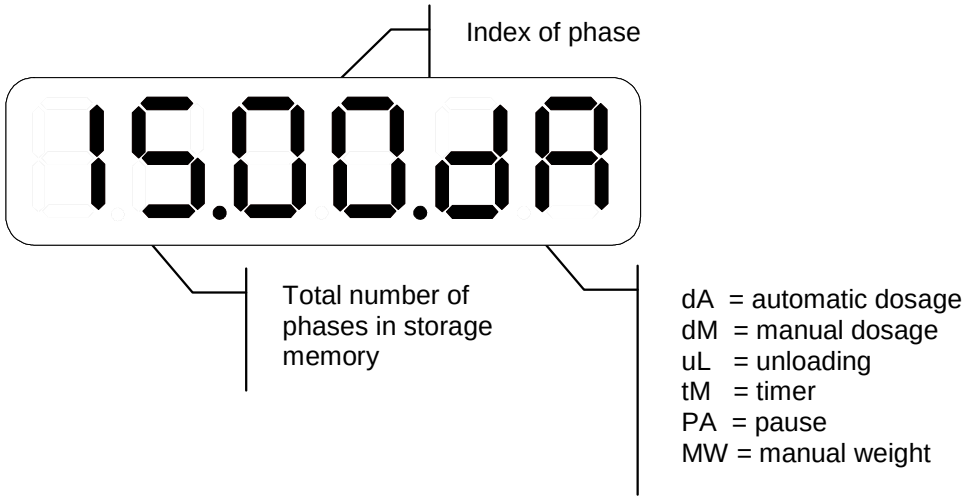
2. With the **ZERO** or **TARE** keys scroll the suggested steps up to **<<ForMuL>>** and press **PRINT;**

3. Select the step **<<Add.For>>** and press **PRINT**. If no formula was inserted before, the display shows "no.PhAS", otherwise the instrument shows the first empty memory storage available for the formula entry (Add.F.XX).

4. Select the step **<<PhASES>>** and press **PRINT**;

5. The display shows the "Pos.SEL" message. Select the position where entering the phase (for instance, Pos.00) and press the **PRINT** key;
NOTE: the positions increase with the increasing of the formula selected phases; so it's possible to select a new position or modify a phase already inserted.
For instance, if a phase in the position PoS.00 was inserted, the instrument is ready for the next selection in PoS.01; anyway, it's possible to choose the position 0 and modify the selection made.

6. The display shows the "Ph.SEL" message. One can scroll the list of the inserted phases, each of which is characterized by the following abbreviation:



Select the desired phase and press the **PRINT** key.

7. Depending on the phase type, a different parameter is required, like shown below:

dA – automatic dosage **<<Ph.tArG>>**: enter the dosable weight and press **PRINT** (the value greater than the maximum dosable weight in a single dosage cannot be entered);

dM – manual dosage **<<Ph.tArG>>**: enter the dosable weight and press **PRINT** (the value greater than the maximum dosable weight in a single dosage cannot be entered);

uL - unloading **<<Ph.tArG>>**: enter the unloading weight and press **PRINT** (only for partial or split unloading);

tM - timer **<<Ph.tMr>>**: enter the timer length and press **PRINT**;

NOTA: the **PA** (pause) e **MW** (manual weight) phases don't require any parameter entry.

8. For any phase in the formula, repeat the procedure from point **4.**; once all the phases programming has been executed, press the **C-ON/Stb** key.

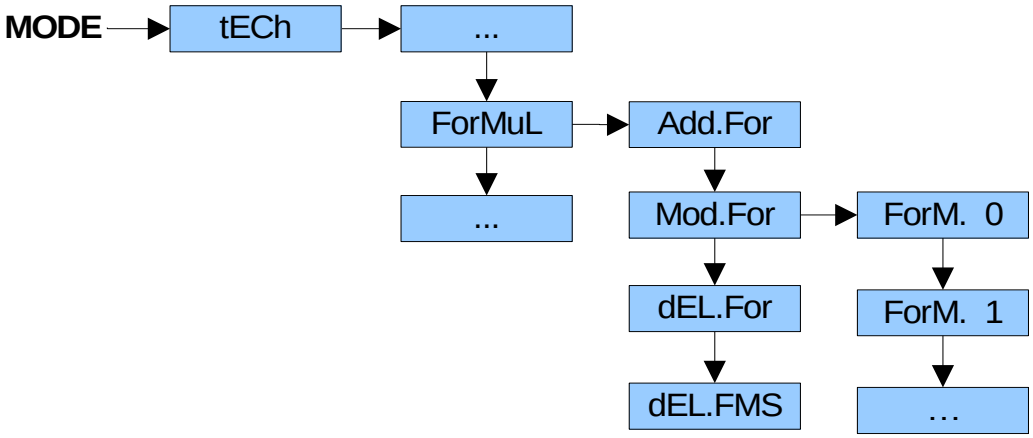
9. **<<Min.tAr>>** minimum tare: enter the tare minimum tare value present on the scale at the dosage start; if the weight is less than this value, the dosage cannot start.

10. **<<MAX.tAr>>** maximum tare: enter the maximum possible tare value present on the scale at the dosage start; if the weight exceeds this value, the dosage cannot start.

NOTE: if neither **<<Min.tAr>>** nor **<<MAX.tAr>>** are inserted, the initial weight must not exceeds the **<<toL.0>>** parameter (**TECH.MAN.REF**.).

10.6 MODIFYING A FORMULA

1. Press the **MODE** key:



2. Press the **ZERO** key or **TARE** many times to find **<<ForMuL>>** and press **PRINT**: the display shows the **<<Add.For>>** step;

3. Press the **ZERO** key or **TARE** many times to find **<<Mod.For>>** and press **PRINT**: the list of stored formulas are proposed; use the **ZERO** or **TARE** keys to select the formula to be modified and press **PRINT**;

4. Select the **<<PhASES>>** step and press **PRINT**;

5. The instrument display a series of possibilities:

A.Ph.Fo : the "Pos.SEL" message is shown on the display. Select the position in the formula in which the phase has to be inserted and press **PRINT**. The possible following phases will be shifted ahead of one position.

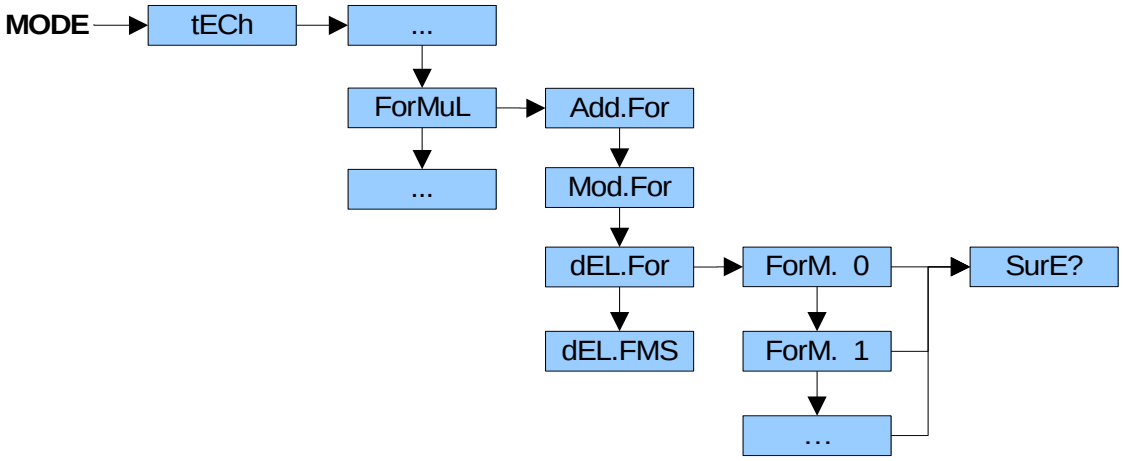
M.Ph.Fo : the "Pos.SEL" message is shown on the display. Select the position in the formula in which the phase has to be modified and press **PRINT**;

d.Ph.Fo : select the position in the formula in which the phase has to be deleted and press **PRINT**. The possible following phases will be shifted behind of one position.

6. Once the operation has ended, press many times the **C-ON/Stb** key until the instrument requests to save data, "SAVE?": press **PRINT** to confirm, **C-ON/Stb** to exit without making modifications.

10.7 DELETING A FORMULA

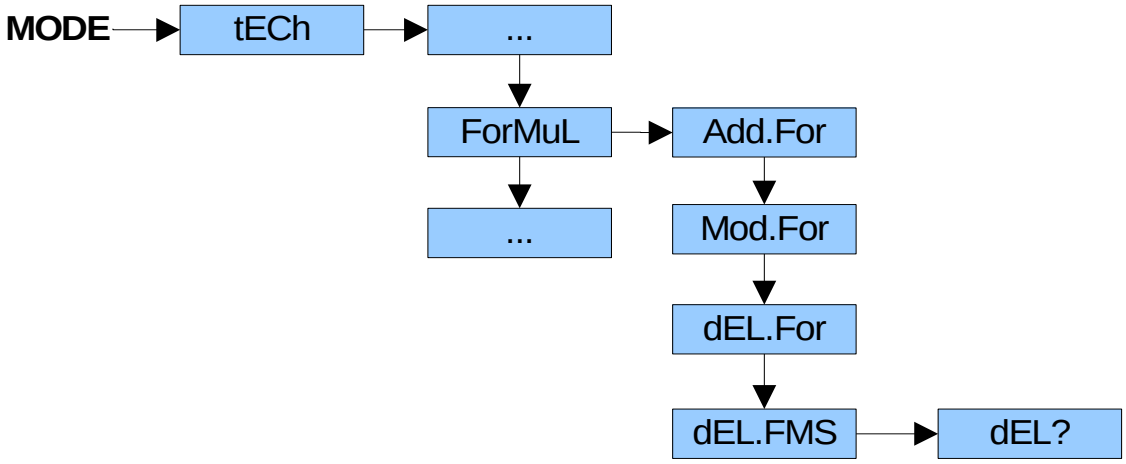
1. Press the **MODE** key:



2. Press the **ZERO** or **TARE** key many times to find the **<< ForMuL >>** parameter and press **PRINT**: the display shows the **<< Add.For >>** step;
3. Press the **ZERO** key or **TARE** many times to find the **<< dEL.For >>** parameter and press **PRINT**: the list of stored formulas are proposed; use the **ZERO** or **TARE** keys to select the formula to be deleted and press **PRINT**; the instrument requests a confirmation, "SurE?": press **PRIN** to confirm, **C-ON/Stb** to exit without making modifications;
4. Press many times the **C-ON/Stb** key until the instrument requests to save data, "SAVE?": press **PRINT** to confirm, **C-ON/Stb** to exit without making modifications.

10.8 DELETING ALL THE FORMULAS

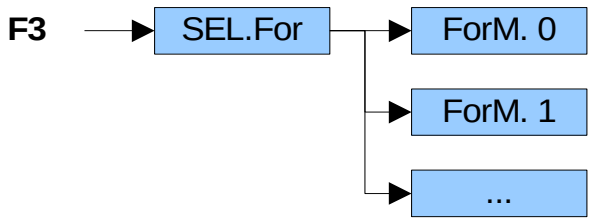
1. Press the **MODE** key:



2. Press the **ZERO** or **TARE** key many times to find the **<< ForMuL >>** parameter and press **PRINT**: the display shows the **<< Add.For >>** step;
3. Press the **ZERO** key or **TARE** many times to find the **<< dEL.FMS >>** parameter and press **PRINT**: the instrument requests a confirmation, "dEL?": press **PRINT** to confirm the deletion of all the formulas in the database, or **C-ON/Stb** to abort.
4. Press many times the **C-ON/Stb** key until the instrument requests to save data, "SAVE?": press **PRINT** to confirm, **C-ON/Stb** to exit without making modifications.

10.9 SELECTING A FORMULA

Press the **F3** key: the instrument shows either the first stored formula or the already selected formula; by using the **ZERO** or **TARE** key choose the new formula to be executed and confirm with **PRINT**.



If the formulas database is empty, the instrument displays the "no.ForM" message.

Note: it's also possible to select a formula by typing in sequence the index of a formula (with the numeric keyboard) and the **F3** key: "FORM.XX" is displayed for an instant, in which XX is the index of a selected formula.

10.10 DESELECTING A FORMULA

Press the **F3** key: the instrument shows the selected formula. Press **C-ON/Stb** to return in simple weighing mode.

10.11 "FORMULA TARGET" FUNCTIONING MODE

Premise: one must have set **<< WGt.For >>** in the **F.ModE >> doSAgE >> doS.PAr >> EXE.For** step **(TECH.MAN.REF.)** of the setup environment.

This functioning mode requires, in every dosage type, the use of instrument's formulas database; in fact, in order to dose different material quantity, it's necessary to select different formulas in the database.

The selection of a formula involves the start of the linked dosage cycle. In order to exit the dosage cycle is required to deselect the formula.

10.11.1 QUICK CHANGE TARGET ACTIVITIES

Only for WGT.FOR functioning mode, TECH.MAN.REF

Through this function one can quickly modify all targets of each activity of the selected formula, in two ways:

1) BY SELECTING THE ACTIVITY TO MODIFY

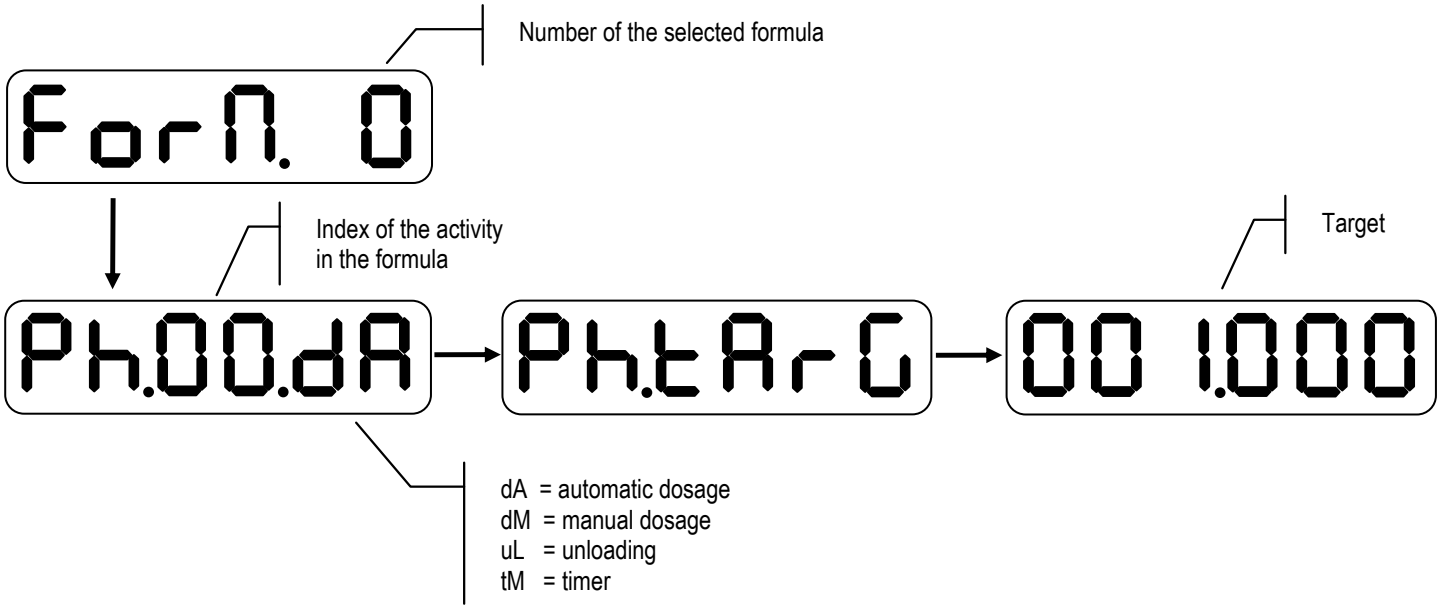
By pressing the **F2** key, one can access at the menu to change quickly the activities target.

- If there is only one activity, "TARGET" is displayed for an instant and then the target of the activity; modify the value and press PRINT key; press **C** key for clear.
  Note: it's also possible to set the target by typing in sequence the value (with the numeric keyboard) and the **F2** key.
- If there is more than one activity, "TARG.XX" is displayed, in which XX is the number of the activity of the formula. Select the activity by using the **TARE** and **ZERO** keys and press the **PRINT** key for change the activity target; press **C** key for clear.

2) BY ENTERING ONE BY ONE THE TARGETS OF THE ACTIVITIES THAT COMPOSING THE FORMULA

Unlike the other method described above, it's possible to automatically modify one by one the targets of the activities that composing the selected formula:

- Press the **MODE** key: the display shows CHG.TG.
- Press the **PRINT** key: the display shows:



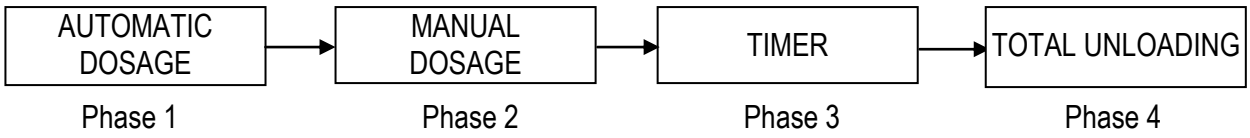
Note: the activities of PAUSE, MANUAL WEIGHT and TOTAL UNLOADING are not displayed

- Enter the target of the first activity and press **PRINT**
- Now the display shows:

- Enter the target of the second activity and so on for all the activities.
- When all the activities are entered, press the **C-ON/Stb** key: the instrument requests to save data, "SAVE?": press **PRINT** to confirm, **C-ON/Stb** to exit without making modifications.

10.11.2 EXAMPLE OF FORMULA AND DESCRIPTION OF EXECUTED CYCLE

FORMULA: **FORM.0**



In the suggested example, the instrument will execute an automatic dosage as first phase, and then a manual dosage, then a timer phase, and then, the total unloading of the silo.

MIN TARE	**2 kg**
MAX TARE	**6 kg**
R2	**Error relay**

PHASE 1 - Pos00			
AUTOMATIC DOSAGE		TARGET WEIGHT	**70 kg**
FLIGHT WEIGHT	**7 kg**		
TOLERANCE WEIGHT	**2 kg**		
n.out	**1**		
PHASE 2 - Pos01			
MANUAL DOSAGE		TARGET WEIGHT	**20 kg**
TOLERANCE WEIGHT	**2 kg**		
n.out	**2**		
PHASE 3 - Pos02			
TIMER		LENGTH	**10,00 sec.**
t.STOP	**DISABLE**		
n.out	**3**		
PHASE 4 - Pos03			
TOTALE UNLOADING			
AB.START	**DISABLE**		
n.out	**4**		

In order to execute the formula one should:

a) Select the formula.

b) Once the relay R1 is enable, put the initial tare on the plate, which must have a weight greater than 2 kg and less than 6 kg (the instrument display "undEr" o "oVEr" to indicate respectively to increase and decrease the weight on the plate until it falls in this range). This weight includes also any possible semiautomatic or manual tare values.

The instrument:

c) Puts itself in WAIT START status ("W.StArt" message); the operator can give a start command (i.e. press the **F4** key or activate IN1), in order to start dosage; the weight must be stable or, in any case, it must stabilise by the set time in the **<<W.StArt>>** parameter (**TECH.MAN.REF.**); if this is not so, the error message "Err.05" is given, and the dosage will not begin. In any case, the operator can exit the error state by a start command.

d) Resets the tare weight present (if no semiautomatic or manual tare value was entered previously), enables relay R3 linked to Phase 1 (n.out=1) and starts to dose. Once the TARGET WEIGHT – FLIGHT WEIGHT (in other words 70 - 7 = 63 kg) is reached, the instrument disables R3 and waits for the falling of the material in flight for the set time (**<<Wt.Fly>>**, **TECH.MAN.REF.**).

e) Carries out the tolerance test, if enabled (**<<tSt.toL>>**, **TECH.MAN.REF.**), and then:
   - will pass to the following phase if the weight is within tolerance, or
   - signals the weight out of tolerance error (showing the messages "LoW" o "hiGh" on the led display, enabling the relay R2): the operator must manually adjust the dosed weight bringing it into tolerance (the display show the "oK" message) and give a start command. In this way the instrument acquires the new dosed weight and will pass to the following phase.

   If the tolerance test is not enabled, after the **<<Wt.Fly>>** time, the instrument will pass to the following phase independently of the weight on the scale.

f) Clears the weight, enables relay R4 linked to Phase 2 (n.out=2) and the operator starts to manually dose the material on the scale.

g) Keeps R4 enable under the TARGET WEIGTH (in other words 20 kg), disables it if the weight exceeds this threshold.

h) Carries out the tolerance test, if enabled (**<<tSt.toL>>**, **TECH.MAN.REF.**), and then:
   - shows the message "oK" if the weight is within tolerance: with a start command the instrument will pass to the following phase; or
   - signals the weight out of tolerance error (by the "LoW" or "hiGh" messages): in order to pass to the following phase it's necessary a further impulse after the "SurE?" request.

   If the tolerance test is not enabled, a start command with weight upper than the TARGET WEIGHT allows to pass to the following phase; otherwise it is necessary a further impulse after the "SurE?" request

i) Disables R4, enables R5 linked to Phase 3 (n.out=3) and waits for 10 seconds.

l) Disables R5, enables relay R6 linked to Phase 4 (n.out=4) and commands the complete unloading. When the weight is lower than the **<<End.unL>>** threshold, the instrument waits for **<<W.u.LoAd>>** seconds and disables R6.

m) Once the complete unloading is executed, continues:
   - on step d) if the number of dosage cycles set in n.Cycle is not finished
     if the "tar.min" and "tar.max" parameters are set and the weight is under the "tar.min" or over "tar.max" at the dosage start, the "error" output is enabled and waits for the start command. Otherwise the dosage starts automatically.
   - on step b) if the number of dosage cycles set in n.Cycle is finished, till the formula is not deselected.

NOTA: At any time it's possible to pause or reset the dosage by pressing the **F1** key or supplying an impulse by IN2 (see chapters 13 and 14).

10.12 "RECALCULATION OF WEIGHTS IN RESPECT TO TOTAL" FUNCTIONING MODE

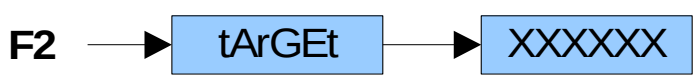
Premise: one must have set **<< tot.WGt >>** in the **F.ModE >> doSAgE >> doS.PAr >> EXE.For** step **(TECH.MAN.REF.)** of the setup environment.

In this functioning mode one must enter a basic formula, in which each phase covers a certain percentage in respect to the target in every dosage type.
Entering the total weight which one wants to dose, the instrument automatically recalculates the target for each phase of the selected formula, on the basis of the percentage which these have in respect to the formula's target.

The selection of a formula involves the start of the linked dosage cycle. In order to exit the dosage cycle is required to deselect the formula.

10.12.1 ENTERING THE TOTAL WEIGHT

After a formula selection, one can quickly enter the total weight to be dosed in the dosage cycle by pressing the **F2** key.
The entry will be made modifying the proposed value, made up of the last total weight inserted.
By entering a zero value, the formula target in the database is taken into consideration in the dosage cycle.



10.12.2 EXAMPLE OF FORMULA AND DESCRIPTION OF EXECUTED CYCLE

FORM.0 made up of 4 activities with the following targets:

Component 1: 20kg
Component 2: 15kg
Component 3: 40kg
Component 4: 25kg

NOTA: in this operating mode it is advisable to enter, for each activity, a target equal to the percentage which that activity should have in respect to 100%.

After this, one enters the total weight which one wants to dose:
EXAMPLE: 1000kg

The instrument automatically recalculates the weight to be dosed for each activity of the selected formula, on the basis of the percentage which these have in respect to the formula's target.

Basic formula		Weight recalculation	
Component 1:	20kg	Component 1:	200kg
Component 2:	15kg	Component 2:	150kg
Component 3:	40kg	Component 3:	400kg
Component 4:	25kg	Component 4:	250kg

Also, if the dosed weight exceeds the maximum dosable weight in a single dosage, the instrument calculates the number of consecutive repetitions which it must execute in order to reach the set total.

EXAMPLE:
By examining the previous example, if the maximum dosable weight would have been equal to 800kg, the instrument would have executed 2 consecutive repetitions of the following formula:

Component 1: 100kg
Component 2: 75kg
Component 3: 200kg
Component 4: 125kg

NOTE: With various dosage cycles, the instrument executes n repetitions of the same quantity of material.

ATTENTION: The recalculation of the weights has no effect on the partial unloading single component formulas and on the single unloading activities.

11. SINGLE-COMPONENT DOSAGE IN LOADING

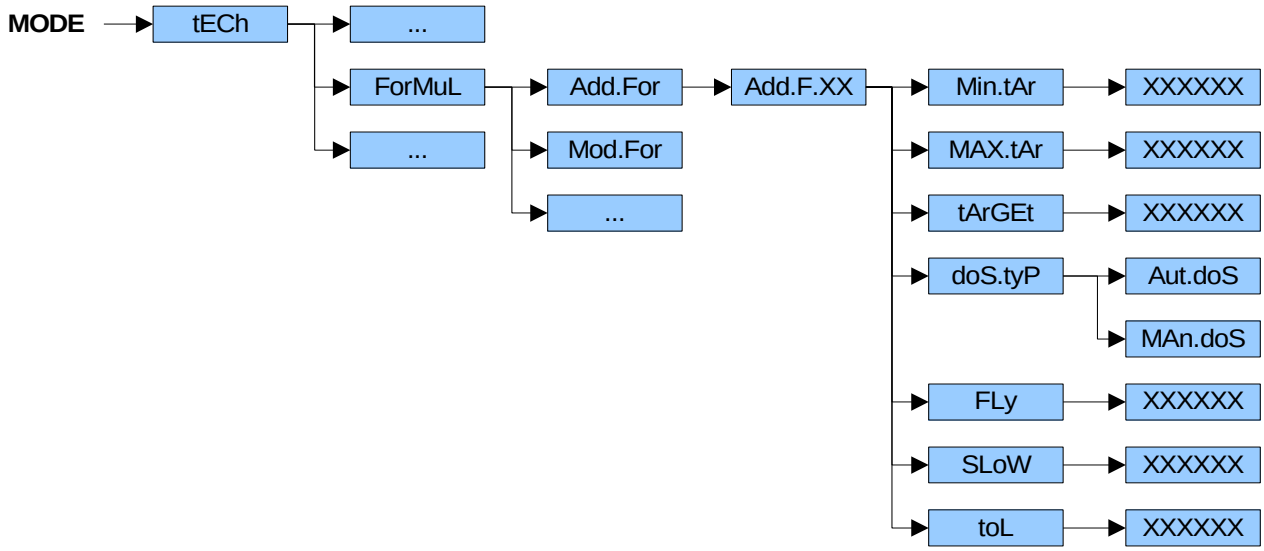
Premise: one must have set **<< btC.1-L >>** in the **F.ModE >> doSAgE >> doS.tyP** step **(TECH.MAN.REF.)** of the setup environment.

In the single-component dosage in loading, the instrument has a database of 40 formulas.
The formula consists of a single phase which may be either an automatic or manual dosage, followed by a total unloading.
One can program the formulas also through a PC software.

The maximum dosable weight in a single dosage is given by (**<<MAX.WGt>> - <<toL.0>>**) or by (**<<MAX.WGt>>** - **<<MAX.tAr>>**), if a maximum tare values has been entered **(TECH.MAN.REF.)**.

11.1 ENTERING A FORMULA IN THE DATABASE

1. Press the **MODE** key. The display shows "teCh" ("oinL", in case of approved instrument).



2. Press the **ZERO** or **TARE** key many times to find the **<<ForMuL>>** parameter and press **PRINT**: the display shows the **<<Add.For>>** step;

3. Press the **PRINT** key: the instrument shows the first empty memory storage available (for instance, "Add.F.00") and automatically allows the parameters programming:

   - **<<Min.tAr>>:** enter the minimum tare value and confirm with **PRINT**; when the dosage starts, the weight on the scale must be equal or greater than this value;

   - **<<MAX.tAr>>:** enter the maximum tare value and confirm with **PRINT**; when the dosage starts, the weight on the scale must be minus or equal than this value;
     NOTE: if neither **<<Min.tAr>>** nor **<<MAX.tAr>>** are inserted, the initial weight mustn't exceeds the **<<toL.0>>** parameter (**TECH.MAN.REF**.).

   - **<< tArGEt >>:** enter the weight to be dosed and confirm with **PRINT** (a value grater than the maximum dosable weight in a single dosage cannot be inserted);

   - **<<doS.tyP>>:** select the dosage type (automatic or manual);

   - **<< FLy >>:** enter the flight weight and confirm with **PRINT**; this weight, subtracted from the **<<tArGEt>>** value, define the slow dosage deactivation threshold;

   - **<< SLoW >>:** enter the slow dosage weight and confirm with **PRINT**; this weight, subtracted from the (**<<tArGEt>>** - **<<FLy>>**) value define the fast dosage deactivation threshold;

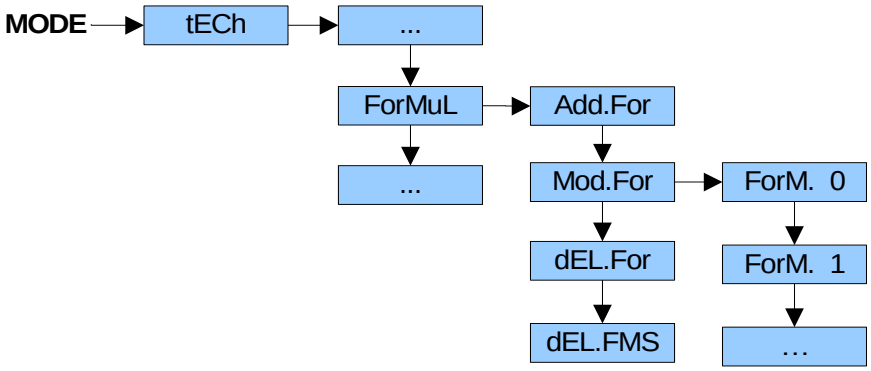
   - **<< toL >>:** enter the tolerance weight and confirm with **PRINT**; this weight define the tolerance range (**<<tArGEt>> ± <<toL>>**) within that the dosage weight must falls into, at the end of the dosage in loading.

   Each one of these parameters can be selected with the **ZERO** or **TARE** key, modified and confirmed with the **PRINT** key.

4. At the end of the programming, press the **C-ON/Stb** key: in order to enter a new formula, select the **<<Add.For>>** steps and repeat the procedure from point **3.**, otherwise press many times the **C-ON/Stb** key until the instrument requests to save data, "SAVE?": press **PRINT** to confirm, **C-ON/Stb** to exit without making modifications.

11.2 MODIFYING A FORMULA

1. Press at length the **MODE** key:



2. Press the **ZERO** key or **TARE** many times to find **<<ForMuL>>** and press **PRINT**: the display shows the **<<Add.For>>**;
3. Press the **ZERO** key or **TARE** many times to find **<<Mod.For>>** and press **PRINT**: the list of storage formula are proposed; use the **ZERO** or **TARE** keys to select the formula to be modified and press **PRINT**; the display shows "Mod.F.XX";
4. Modify the desired parameter;
5. Once the operation has ended, press many times the **C-ON/Stb** key until the instrument requests to save data, "SAVE?": press **PRINT** to confirm, **C-ON/Stb** to exit without making modifications.

11.3 DELETING A FORMULA / ALL THE FORMULAS

In order to carry out this operation, see sections 10.7 and 10.8.

11.4 "FORMULA TARGET" FUNCTIONING MODE

Premise: one must have set **<< WGt.For >>** in the **F.ModE >> doSAgE >> doS.PAr >> EXE.For** step (**TECH.MAN.REF.)** of the setup environment.

This functioning mode requires, in every dosage type, the use of instrument's formulas database; in fact, in order to dose different material quantity, it's necessary to select different formulas in the database.

The selection of a formula involves the start of the linked dosage cycle. In order to exit the dosage cycle is required to deselect the formula (see sections 10.9, 10.10).

11.4.1 QUICK CHANGE FORMULA TARGET

In order to carry out this operation, see section 10.11.1 point 1)

11.4.2 EXAMPLES OF FORMULA AND DESCRIPTION OF EXECUTED CYCLE

AUTOMATIC DOSAGE

The formula with:

MIN TARE	**2 kg**	R1	Dosage
MAX TARE	**6 kg**	R2	FASt
TARGET WEIGHT	**50 kg**	R3	un.LoAd
FLIGHT WEIGHT	**5 kg**	R4	ok.doS
SLOW WEIGHT	**5 kg**	R5	toL.Err
TOLERANCE WEIGHT	**2 kg**	R6	Error

will execute an automatic dosage of 50 kg in loading.

In order to execute the formula one should:

a) Select the formula;

b) Put the initial tare on the plate, which must have a weight greater than 2 kg and less than 6 kg (the instrument display "undEr" o "oVEr" to indicate respectively to increase and decrease the weight on the plate until it falls in this range). This weight includes also any possible semiautomatic or manual tare values.
The instrument:

c) Puts itself in WAIT START status ("W.StArt" message); the operator can give a start command (i.e. press the **F4** key or activate IN1), in order to start dosage; the weight must be stable or, in any case, it must stabilise by the set time in the **<<W.StArt>>** parameter (**TECH.MAN.REF.**); if this is not so, the error message "Err.05" is given and the output R6 is enabled: the dosage will not begin. In any case, the operator can exit the error state by a start command.

d) Resets the tare weight present (if no semiautomatic or manual tare value was entered previously), and starts to dose at maximum speed (approximate dosage), enabling both R1 and R2.

e) Once the TARGET WEIGHT – FLIGHT WEIGHT – SLOW WEIGHT (in other words 50 - 5 - 5 = 40 kg) is reached, it slows down the dosage speed (fine dosage): the instrument disables R2 and maintains active only R1.
If the tapping function has been enabled (**<<d.CY.on>>** and **<<d.CY.oFF>>** steps, **TECH.MAN.REF.**), R1 can be enabled intermittently with the configured time periods.

f) Once the TARGET WEIGHT – FLIGHT WEIGHT (in other words 50 - 5 = 45 kg) is reached the instrument ends the dosage activity disabling also R1 and waits for the falling of the material in flight for the set time (**<<Wt.Fly>>**, **TECH.MAN.REF.**).

g) Carries out the tolerance test, if enabled (**<<tSt.toL>>**, **TECH.MAN.REF.**), and then:
   - enables R4 if the weight is within tolerance, then commands the complete unloading of the scale (enabling R3); or:
   - signals the weight error out of tolerance (with the "LoW" or "hiGh" messages on the led display; R5 e R6 are enabled): the operator must manually adjust the dosed weight bringing it into tolerance ("oK" message, R4 is enabled) and give a start command. In this way the instrument acquires the new dosed weight and commands the complete unloading (enabling R3).

   If the tolerance test is not enabled, commands the complete unloading of the scale (enabling R3).

h) Once the complete unloading is executed, continues :
   - on step d) if the number of dosage cycles set in n.Cycle is not finished;
   - on step b) if the number of dosage cycles set in n.Cycle is finished, till the formula is not deselected.

MANUAL DOSAGE

The formula with:

MIN TARE	**2 kg**	R1	Dosage
MAX TARE	**6 kg**	R2	FASt
TARGET WEIGHT	**50 kg**	R3	Un.Load
SLOW WEIGHT	**5 kg**	R4	Ok.Dos
TOLERANCE WEIGHT	**2 kg**	R5	Error
		R6	toL.Err

will execute a manual dosage of 50 kg in loading.

In order to execute the formula one should:

a) Select the formula;
b) Put the initial tare on the plate, which must have a weight greater than 2 kg and less than 6 kg (the instrument display "undEr" o "oVEr" to indicate respectively to increase and decrease the weight on the plate until it falls in this range). This weight includes also any possible semiautomatic or manual tare values.
c) The instrument puts itself in WAIT START status ("W.StArt" message); the operator can give a start command (i.e. press the **PRINT** key or activate IN1), in order to start dosage; the weight must be stable or, in any case, it must stabilise by the set time in the **<<W.StArt>>** parameter (**TECH.MAN.REF.**); if this is not so, the error message "Err.05" is given and the output R6 is enabled: the dosage will not begin. In any case, the operator can exit the error state by a start command.
d) The instrument resets the present tare weight (if no semiautomatic or manual tare value was entered previously), and starts to dose at maximum speed (approximate dosage), enabling both R1 (YELLOW RIGHT) and R2;
e) The operator starts to manually dose the material on the scale;
f) Once the TARGET WEIGHT – SLOW WEIGHT (in other words 50 - 5 = 45 kg) is reached, the instrument disables R2 and maintains active only R1 (YELLOW LIGHT); the operator will continue the dosage at minimum speed.
g) In the lower tolerance range (in other words, from 50 – 2 = 48 kg to 50 kg), the instrument enables both the YELLOW LIGHT (R1) and the GREEN LIGHT (R4);
h) Once the set TARGET WEIGHT (in other words 50 kg) is reached, the instrument disables the YELLOW LIGHT (R1) and maintains active only the GREEN LIGHT (R4);
i) In the upper tolerance range (in other words, from 50 kg to 50 + 2 = 52 kg), with the GREEN LIGHT (R4) is active also the RED LIGHT (R5);
l) When the weight exceeds the upper tolerance (in other words 52 kg), the instrument disables the GREEN LIGHT (R4), maintains active the RED LIGHT (R5) and is active also the R6 output;
   Moreover, once the TARGET WEIGHT is reached and the tolerance test is enabled, the instrument:
   - displays the "oK" message if the weight is within tolerance; the operator can finish the dosage phase by a command start; or:
   - signals the weight error out of tolerance (with the "LoW" or "hiGh" messages).

   With a start command if the weight is within tolerance, the instrument commands the complete unloading (enabling R3); if the weight is out of tolerance, it is necessary a further impulse after the "SurE?" request.
   If the tolerance test is not enabled, a start command with weight upper than the TARGET allows to pass to complete unloading; otherwise it is necessary a further impulse after the "SurE?" request
m) Once the complete unloading is executed, the instrument continues:
   - on step d) if the number of dosage cycles set in n.Cycle is not finished;
   - on step b) if the number of dosage cycles set in n.Cycle is finished, till the formula is not deselected.

NOTE: If the tolerance test is not enabled, both GREEN LIGHT (R4) and RED LIGHT (R5) are disabled.

NOTE: At any time it's possible to pause or reset the dosage by pressing the **C-ON/Stb** key or supplying an impulse by IN2 (see chapters 13 and 14).

11.5 "RECALCULATION OF WEIGHTS IN RESPECT TO TOTAL" FUNCTIONING MODE

Premise: one must have set **<< tot.WGt >>** in the **F.ModE >> doSAgE >> doS.PAr >> EXE.For** step **(TECH.MAN.REF.)** of the setup environment.

In this mode one must enter a basic formula, then the total weight which one wants to dose (see section 10.12.1).

The selection of a formula involves the start of the linked dosage cycle. In order to exit the dosage cycle is required to deselect the formula (see sections 10.9, 10.10).

11.5.1 NUMBER OF REPETITIONS AND TARGET CORRECTION

In the single-component dosage in loading in **tot.WGt** mode, if one enters a target greater than the maximum dosable weight in a single dosage, the instrument calculates the number of consecutive repetitions which it must execute and the partial targets for each repetition in order to reach the total set weight.
If the weight dosed during a repetition doesn't match the partial target, the following targets will be recalculated in order to reach the set total minus the dosed weight up to this moment.
At the end of all the repetitions, if the total dosed weight is within the set tolerance, the dosage is considered correct.

11.5.2 FORMULA EXAMPLE AND DESCRIPTION OF THE EXECUTED CYCLE

AUTOMATIC DOSAGE

The formula with:

MIN TARE	**2 kg**
MAX TARE	**6 kg**
TARGET WEIGHT	**50 kg**
FLIGHT WEIGHT	**5 kg**
SLOW WEIGHT	**5 kg**
TOLERANCE WEIGHT	**2 kg**

TOLERANCE TEST ENABLED
will execute an automatic dosage of 50 kg in loading.

In order to execute the formula one should:

a) Press the **F3** key and select the formula.
The instrument:
b) displays "W.Start". Put the initial tare on the plate, which must have a weight greater than 2 kg and less than 6 kg (the instrument display "undEr" o "oVEr" to indicate respectively to increase and decrease the weight on the plate until it falls in this range). At this moment it's possible to enter the total weight to be dosed pressing **F2** and entering, when asked, the new TARGET formula.
c) Starts with the dosage cycle, in the way shown for automatic dosage.

NOTE : If the maximum dosable weight is equal to 80 kg, by entering a TARGET equal to 100 kg the instrument executes two consecutive repetitions of the formula with partial TARGETS of 50 kg.
If in the first repetition the dosed weight is 52 kg, the second partial target will be corrected to 48 kg.

NOTE : **-** With various dosage cycles, the instrument executes n repetitions of the same quantity of material (so it resumes procedure from point b)).
- if the "tar.min" and "tar.max" parameters are set, and, after the first dosage, the weight is under the "tar.min" or over "tar.max" at the dosage start, the "error" output is enabled and waits for the start command. Otherwise the dosage starts automatically

12. SINGLE-COMPONENT DOSAGE IN UNLOADING

Premise: one must have set **<< btC.1-u >>** in the **F.ModE >> doSAgE >> doS.tyP** step **(TECH.MAN.REF.)** of the setup environment.

In the single-component dosage in unloading, the instrument has a database of 40 formulas.
The formula consists of a single phase of partial unloading.
One can program the formulas also through a PC software.

Furthermore, during the instrument configuration, can be important to enter the silo refill beginning and end weights:

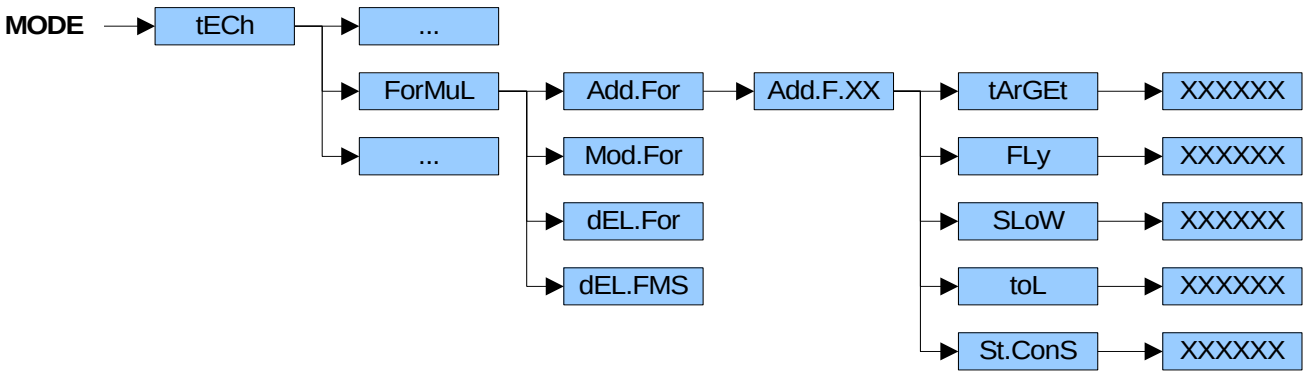
- REFILL START WEIGHT (**<<ini.Ld>>**, **(TECH.MAN.REF.)**)
- REFILL END WEIGHT (**<<End.Ld>>**, **(TECH.MAN.REF.)**)
- SILO REFILLING AT DOSAGE START OR AT DOSAGE END (**<<FiLL.Md>>** set at **<<doS.Str>>** or set at **<<doS.End>>**, **(TECH.MAN.REF.)**)

In case of incorrect parameter setting (for instance, **<<ini.Ld>>** = **<<End.Ld>>** = 0 leaving the default values), the "Err.13" error message is given and one will need to correct the parameter values in the setup.

The maximum dosable weight in a single dosage is given by (**<<End.Ld>> – <<ini.Ld>>**) **(TECH.MAN.REF.)**.

12.1 ENTERING A FORMULA IN THE DATABASE

1. Press at length the **MODE** key. The display shows "teCh" ("oinL", in case of approved instrument).



2. Press the **ZERO** or **TARE** key many times to find the **<<ForMuL>>** parameter and press **PRINT**: the display shows the **<<Add.For>>** step;

3. Press the **PRINT** key: the instrument shows the first empty memory storage available (for instance, "Add.F.00") and automatically allows the parameters programming:

   - **<< tArGEt >>:** enter the weight to be dosed and confirm with **PRINT** (the weight cannot be greater than the maximum dosable weight in a single dosage);

   - **<< FLy >>:** enter the flight weight and confirm with **PRINT**; this weight, subtracted from the **<<tArGEt>>** value, define the slow dosage deactivation threshold;

   - **<< SLoW >>:** enter the slow dosage weight and confirm with **PRINT**; this weight, subtracted from the (**<<tArGEt>>** - **<<FLy>>**) value define the fast dosage deactivation threshold;

   - **<< toL >>:** enter the tolerance weight and confirm with **PRINT**; this weight define the tolerance range (**<<tArGEt>> ± <<toL>>**) within that the dosage weight must falls into, at the end of the dosage in unloading.

- **<< St.ConS >>:** enable (W.Con) or disable (dirEct) the operator's approval between one dosage and another, with various dosage cycles.

Each one of these parameters can be selected with the **ZERO** or **TARE** key, modified and confirmed with the **PRINT** key.

4. At the end of the programming, press the **C-ON/Stb** key: in order to enter a new formula, select the **<<Add.For>>** step and repeat the procedure from point **3.**, otherwise press many times the **C-ON/Stb** key until the instrument requests to save data, "SAVE?": press **PRINT** to confirm, **C-ON/Stb** to exit without making modifications.

12.2 MODIFYING A FORMULA

In order to carry out this operation, see section 11.2.

12.3 DELETING A FORMULA / ALL THE FORMULAS

In order to carry out this operation, see sections 10.7 and 10.8.

12.4 "FORMULA WEIGHTS" FUNCTIONING MODE

Premise: one must have set **<< WGt.For >>** in the **F.ModE >> doSAgE >> doS.PAr >> EXE.For** step of the setup environment **(TECH.MAN.REF.)**.

This functioning mode requires, in every dosage type, the use of instrument's formulas database; in fact, in order to dose different material quantity, it's necessary to select different formulas in the database.

The selection of a formula involves the start of the linked dosage cycle. In order to exit the dosage cycle is required to deselect the formula (see sections 10.9, 10.10).

12.4.1 QUICK CHANGE FORMULA TARGET

In order to carry out this operation, see section 10.11.1 point 1)

12.4.2 EXAMPLES OF FORMULA AND DESCRIPTION OF EXECUTED CYCLE

The formula with:

TARGET WEIGHT	**50 kg**	R2	FASt
FLIGHT WEIGHT	**5 kg**	R1	Dosage
SLOW WEIGHT	**5 kg**	R3	un.LoAd
TOLERANCE WEIGHT	**2 kg**	R4	ok.doS
REFILL START WEIGHT	**20 kg**	R5	toL.Err
REFILL END WEIGHT	**150 kg**	R6	Error

SILO REFILLING AT THE DOSAGE START
CONSENT ENABLED
will execute a dosage of 50 kg in unloading.

In order to execute the formula one should:

a) Select the formula.
   The instrument:
b) Puts itself in WAIT START status ("W.StArt" message); the operator can give a start command (i.e. press the **F4** key or activate IN1), in order to start dosage; the weight must be stable or, in any case, it must stabilise by the set time in the **<<W.StArt>>** parameter (**TECH.MAN.REF.**); if this is not so, the error message "Err.05" is given and the output R6 is enabled: the dosage will not begin. In any case, the operator can exit the error state by a start command.
c) Checks that the residual weight in the silo allows to execute a new dosage.
   The weight must be greater or equal to **<<ini.Ld>>** + FORMULA TARGET (in other words 20 + 50 = 70 kg):

- if the weight is the same or greater than this threshold, the new dosage can start.
- if the weight is less than this threshold, the instrument commands the filling of the silo (the display shows the "FiLL" message, R3 is enabled). The refilling ends when the weight exceeds the **<<End.Ld>>** threshold (in other words 150 kg).

d) Starts to dose in unloading at maximum speed (approximate dosage), enabling both R1 and R2. Once reached the TARGET WEIGHT – FLIGHT WEIGHT – SLOW WEIGHT (in other words 50 - 5 - 5 = 40 kg), it slows down the dosage speed (fine dosage). The instrument disables R2 and maintains active only R1.

e) once reached the TARGET WEIGHT – FLIGHT WEIGHT (in other words 50 - 5 = 45 kg), the instrument ends the unloading activity and attends the falling of the flight material for the set time (**<<Wt.Fly>>**, **TECH.MAN.REF**).
If the tapping function has been enabled (**<<d.CY.on>>** and **<<d.CY.oFF>>** steps, **TECH.MAN.REF.**), R1 can be enabled intermittently with the configured time periods.

f) Carries out the tolerance test, if enabled (**<<tSt.toL>>**, **TECH.MAN.REF**), and then:
- if the executed dosage is within tolerance enables R4 and shows the residual weight in the silo; then, by a command start one can continue on the next step (because **<<St.ConS>>** is set as **W.Con**, if **<<St.ConS>>** is set as **dirEct**, one can continue on the next step without pressing any key); or:
- indicates the out of tolerance weight error (with the "LoW" or "hiGh" message on the led display and the activation of R5 and R6): the operator can manually adjust the dosed weight bringing it within tolerance ("oK" message, activation of R4 and deactivation of R5 and R6) and give a start command.

g) Continues:
- on step c) if the number of dosage cycles set in n.Cycle is not finished;
- on step b) if the number of dosage cycles set in n.Cycle is finished, till the formula is not deselected.

NOTE: By setting **<<FiLL.Md>>** at **<<doS.End>>** (**TECH.MAN.REF**), after the possible tolerance test the instrument checks that the residual weight in the silo allows to execute a new dosage; so when the operator press the **F4** key or activate IN1, the instrument continues on step d) if the number of dosage cycles is not finished, or on step b) if it's finished.

NOTE: At any time it's possible to pause or reset the dosage by pressing the **C-ON/Stb** key or supplying an impulse by IN2 (see chapters 13 and 14).

12.5 "RECALCULATION OF WEIGHTS IN RESPECT TO TOTAL" FUNCTIONING MODE

Premise: one must have set **<< tot.WGt >>** in the **F.ModE >> doSAgE >> doS.PAr >> EXE.For** step **(TECH.MAN.REF.)** of the setup environment.

In this mode one must enter a basic formula, then the total weight which one wants to dose (see section 10.12.1).

The selection of a formula involves the start of the linked dosage cycle. In order to exit the dosage cycle is required to deselect the formula (see sections 10.9, 10.10).

12.5.1 NUMBER OF REPETITIONS AND TARGET CORRECTION

In the single-component dosage in loading in **<< tot.WGt >>** mode, if one enters a target greater than the maximum dosable weight in a single dosage, the instrument calculates the number of consecutive repetitions which it must execute and the partial targets for each repetition in order to reach the total set weight.
If the weight dosed during a repetition doesn't exactly match the partial target, the following targets will be recalculated in order to reach the set total minus the dosed weight up to this moment.
At the end of all the repetitions, if the total dosed weight is within the set tolerance, the dosage is considered correct.

13. PAUSE – MOMENTARY INTERRUPTION OF THE DOSAGE CYCLE

To pause the dosage press for an instant the **F1** key or activate IN2: on the display the message "PAuSE" appears and all the instrument's outputs are disabled.

To exit the pause condition, give a start command (i.e. press the **F4** key or activate IN1).

If during the dosage the mains voltage goes missing, when it is restored, the instrument will turn on automatically into dosage pause. Give a start command to continue with the interrupted dosage. The dosage will start again in the condition in which the instrument was in when it was turned off.
If the instrument turns off during the timer phase, when the instrument turns back on, it goes into the dosage pause status; by a start command, the timer is reset and the counting restarts from zero.

In the pause condition it is possible to change the number of foreseen dosage cycles by pressing the **MODE** key.
By inserting a value greater than the current cycle number, at the end the number of repetitions will be automatically updated.
By inserting a value lower than the current cycle number, at its end the repetitions will be immediately interrupted.
In any case the inserted value replaces the previous one starting from the next cycle.

Furthermore it is possible to turn off the instrument by pressing the **C-ON/Stb** key at length.

14. RESET OF THE DOSAGE CYCLE

Press the **F1** key or activate IN2 to pause the dosage. At this point it's possible to cancel the dosage under way:

- by an additional impulse in IN2; or:
- by pressing again the **F1** key, then confirm with **PRINT** when the "rESEt ?" message is shown on the display.

By pressing the **C-ON/Stb** key after the "rESEt ?" message, one can exit without cancelling the dosage under way.

The gross weight on the scale plate appears on the display. The instrument puts itself in WAIT START status. If the "recalculation of weights in respect to total" functioning mode is selected, the following dosage starts from the previously reset cycle

By cancelling the dosage under way, if the material has been dose, both the production of the single formula and the general total is increased.

NOTE: PAUSE and RESET don't work in the WAIT START condition.

15. CLEARING THE DOSAGE CYCLES

To clear the number of executed dosage cycles, press the **F1** key or push on input IN2 when the dosage is waiting for the start (W.StArT). The message "0.CYC?" will appear:

- press the **PRINT** key or push on input IN1 to clear the executed cycles;
- press the **C** key or push on input IN2 to cancel the clearing.

The number of cycles restart from 1 in the following dosage.

16. INSTRUMENT MESSAGES

16.1 ERROR MESSAGES

MESSAGE	DESCRIPTION
Er-36	During the calibration some internal negative points have been calculated: - the calibration point is less than the zero point. - the signal is negative (check the connections).
Er-37	Calibration error: the acquired calibration point (tP1 o tP2 o tP3) is equal to the zero point (tP0).
no CAL. **Er-39**	Scale needs to be calibrated, It is advisable to carry out a technical default, "dEFAu" parameter, before proceeding (**TECH.MAN.REF.)**. NOTE: press the **TARE** key to access the setup.
Err.00	Generic error.
Err.01	The weight on the scale exceeds the maximum weight allowed (**MAX.WGt** parameter, **TECH.MAN.REF**).
Err.02	A higher TARGET than the maximum dosable weight in a single dosage.
Err.03	A TARGET equal to zero was inserted in a partial/split unloading.
Err.04	A weight lower than the unloading TARGET is present on the scale.
Err.05	The weight is not stable when the dosage start command is given or in any case it doesn't become stable within the time set in the **W.StArt** parameter, **TECH.MAN.REF**.
Err.06	The maximum time for the execution of the formula has passed (**t.M.doS** parameter, **TECH.MAN.REF**.).
Err.07	In a dosage in loading, a TARGET equal to zero was inserted.
Err.08	EEPROM not present or not working. **(*)**
Err.09	The parameters saved in the EEPROM are not present or not corrected. **(*)**
Err.10	The cycle data saved in the EEPROM is not present or not corrected. **(*)**
Err.11	The weight is in underload or in overload for at least 10 seconds.
Err.12	The inserted minimum tare value exceeds the maximum tare one.
Err.13	Error in the parameters setting.
hW-Err	HARDWARE ERROR: software not compatible with the installed hardware.
oVr.MAX	The gross weight on the scale, summed to the formula target, exceeds the maximum weight allowed (**MAX.WGt** parameter, **TECH.MAN.REF**).

(*) One or more of these error messages can be present at the startup of the instrument, when a new functioning mode has just been selected (for instance, changing from btC.1-L to btC.1-u). In this case, the insertion of a formula in the new functioning mode can be sufficient to eliminate the error message at the next startup.

NOTE: one can exit the error status by pressing the **PRINT** key or restoring the correct dosage conditions.

16.2 MESSAGES WHILE IN USE

MESSAGE	DESCRIPTION
ZEro	The displayed weight is cleared.
WAit	Operation in progress.
undEr	The start weight is under the foreseen minimum tare.
oVEr	The start weight is over the foreseen maximum tare.
W.StArt	Give a start command to continue the dosage.
LoW	The dosed weight is less than the (target – tolerance) weight.
hiGh	The dosed weight is more than the (target + tolerance) weight.
FiLL	The silo must be filled till the refill end threshold (**End.Ld** parameter, **TECH.MAN.REF**).
Err.EE2	EEPROM resetting not successful.
no.F.SEL	Operation not allowed, because no formula was introduced.
no.ForM.	No formula in database.
no.PhAS.	No phase in the database.
no.F.Ph.	The phase and formula database is empty.
no.Fnct	No linked function.
Ph.FuLL	The formula is already formed by 8 phases, the maximum possible number.
W.StArt	The instrument is ready to dose.
Err.dEL. Ph.in.FM.	Impossible to cancel the phase because included in a formula of the database. It is necessary to first delete the related formula.
St.StAb.	The dosage can only start with a stable weight.
rd.dAtA	The instrument is reading data relative to the phase that has just concluded.
inPr	Printer configured in the energy saving mode (**PWr.Prn** parameter, **TECH.MAN.REF**).
no.0.unS	Weight not passed by net 0 or by unstability.
t.StoP	The timer counting was stopped. To continue, give a start command.
ErMot	Unstable weight during the acquisition of a point during calibration.
ErPnt	During the acquisition of a calibration point a null value has been read by the converter.
PrEC.	It is displayed if one tries to calibrate a point without first having confirmed the number of calibration points.
W.S.XXX	Waiting for cycle XXX start, in case of more dosage cycle repetitions.
C.XXX	Start of n.XXX cycle, in case of more dosage cycle repetitions.
End.F.XX	End of XX number Formula.
Err.Prn	It is displayed if there is an error in the communication with the printer for more than 10 seconds. After that: - By pressing the **PRINT** key, "WAit .." is displayed and the indicator retry the printing. - By pressing the **C-ON/Stb** key, “CAnCEL” is displayed and the indicator cancel the printing. if the printing is cancelled for 2 times during the dosage, “**no.Prn?**” is displayed. After that: - By pressing the “**PRINT**” key, the printer will be disable until the next restart of the instrument. - By pressing the “**C-ON/Stb**” key, "CAnCEL" is displayed and the indicator retry the printing.

17. STANDARD PRINT EXAMPLES

17.1 WEIGHT PRINTING

If the printing was enabled and if no formula was selected, by pressing the **PRINT** key, the instrument sends to the printer the instant weight data.

```
GROSS =     120kg
TARE  =       0kg
NET   =     120kg
27/12/07 10:16:16
```

While using the indicator, it is possible to incur into the "**no.0.unS**" error shown on the display; this means that the printing or the function which one wants to carry out must be re-enabled (in order to avoid casual executions).

Executing printouts through a key with NON APPROVED scales.

In order to print with non approved scales the following conditions must exist:

- the weight must be stable;
- the gross weight must be >= 0;
- the printout is always active (**SEtuP >> SEriAL >> CoM.Prn >> Pr.ModE** parameter, **TECH.MAN.REF.**)

Executing printouts through a key with APPROVED scales.

In order to be able to print with a legal for trade scale the following conditions must exist:

– the weight must be stable;
– the net weight must be >= the minimum weight (minimum of 20 divisions).

17.2 DOSAGE DATA PRINTING

During the dosage, the instrument automatically transmits to the printer the data of each executed phase/formula, including the cycle number being executed, the formula number, the dosage type, the target to be reached, the dosed weight, the error and interrupted cycle notifications.

If the tolerance test is enabled, the result will be indicated through the printing of the * IN TOLERANCE * and * OUT OF TOLERANCE * strings (in this last case with an asterisk (*) near the incorrect dosage).

In **<< tot.Wgt >>** mode, at the end of every cycle in which a quick entry of the target is made, the TARGET and the total DOSED is printed: the asterisk indicates a partial dosage out of tolerance; the * IN TOLERANCE * and * OUT OF TOLERANCE * strings instead indicate the result in comparison to the TARGET total.

"TARGET FORMULA" FUNCTIONING MODE

BATCH

```
**********************
FORMULA       000
CYCLE REPORT 001
27/12/07 11:15:13
**********************
00 AUTOM. DOSAGE
DOSE              50kg
DOSED             50kg
01 MANUAL DOSAGE
DOSE              50kg
DOSED             50kg
02 UNLOAD  SPLIT
DOSE              30kg
UN. 001           30kg
UN. 002           30kg
UN. 003           30kg
03 UNLOAD  TOTAL
**********************
TARGET           100kg
DOSED            100kg
27/12/07 11:16:03
* IN TOLERANCE     *
```

BTC.1-L
AUTOMATIC DOSAGE
IN LOADING

```
**********************
FORMULA       000
CYCLE REPORT 004
27/12/07 10:17:47
**********************
AUTOM. DOSAGE
DOSE              50kg
DOSED             50kg
**********************
27/12/07 10:18:05
* IN TOLERANCE     *
```

BTC.1-L
MANUAL DOSAGE
IN LOADING

```
**********************
FORMULA       000
CYCLE REPORT 001/002
27/12/07 10:19:08
**********************
MANUAL DOSAGE
DOSE              50kg
DOSED             50kg
**********************
27/12/07 10:19:26
* IN TOLERANCE     *


**********************
FORMULA       000
CYCLE REPORT 002/002
27/12/07 10:19:26
**********************
MANUAL DOSAGE
DOSE              50kg
DOSED             55kg *
**********************
27/12/07 10:19:47
* OUT OF TOLERANCE *
```

BTC.1-u
DOSAGE
IN UNLOADING

```
**********************
FORMULA       000
CYCLE REPORT 001/002
27/12/07 11:04:12
**********************
UNLOAD.DOSAGE
DOSE              50kg
DOSED             50kg
**********************
27/12/07 11:04:25
* IN TOLERANCE     *


**********************
FORMULA       000
CYCLE REPORT 002/002
27/12/07 11:04:33
**********************
UNLOAD.DOSAGE
DOSE              50kg
DOSED             50kg
**********************
27/12/07 11:04:50
* IN TOLERANCE     *
```

"SETTING OF THE TOTAL WEIGHT" FUNCTIONING MODE

BATCH

```
**********************
FORMULA       000
CYCLE REPORT 001
27/12/07 11:21:55
**********************
00 AUTOM. DOSAGE
DOSE              20kg
DOSED             20kg
01 MANUAL DOSAGE
DOSE              15kg
DOSED             15kg
02 AUTOM. DOSAGE
DOSE              40kg
DOSED             40kg
03 MANUAL DOSAGE
DOSE              25kg
DOSED             25kg
04 UNLOAD  TOTAL
**********************
TARGET           100kg
DOSED            100kg
27/12/07 11:22:30
* IN TOLERANCE     *


**********************
FORMULA       000
CYCLE REPORT 002
27/12/07 11:23:43
**********************
00 AUTOM. DOSAGE
DOSE              40kg
DOSED             40kg
01 MANUAL DOSAGE
DOSE              30kg
DOSED             30kg
02 AUTOM. DOSAGE
DOSE              80kg
DOSED             80kg
03 MANUAL DOSAGE
DOSE              50kg
DOSED             50kg
04 UNLOAD  TOTAL
**********************
TARGET           200kg
DOSED            200kg
27/12/07 11:24:27
* IN TOLERANCE     *
```

BTC.1-L AUTOMATIC DOSAGE IN LOADING

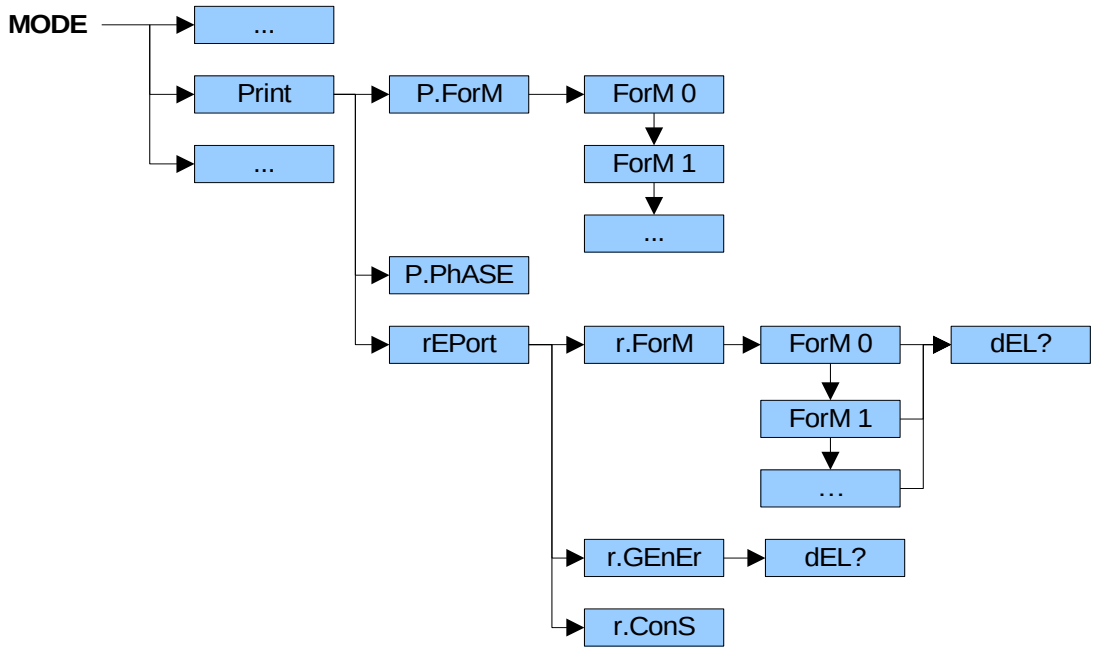
```
**********************
FORMULA       000
CYCLE REPORT 001/002
27/12/07 10:45:14
**********************
AUTOM. DOSAGE
DOSE              90kg
DOSED             90kg
**********************
AUTOM. DOSAGE
DOSE              90kg
DOSED             90kg
**********************
AUTOM. DOSAGE
DOSE              90kg
DOSED             90kg
**********************
**********************
TARGET           270kg
DOSED            270kg
27/12/07 10:45:54
* IN TOLERANCE     *


**********************
FORMULA       000
CYCLE REPORT 002/002
27/12/07 10:45:54
**********************
AUTOM. DOSAGE
DOSE              90kg
DOSED             93kg *
**********************
AUTOM. DOSAGE
DOSE              89kg
DOSED             91kg
**********************
AUTOM. DOSAGE
DOSE              86kg
DOSED             86kg
**********************
**********************
TARGET           270kg
DOSED            270kg
27/12/07 10:46:43
* IN TOLERANCE     *
```

BTC.1-u DOSAGE IN UNLOADING

```
**********************
FORMULA       000
CYCLE REPORT 001
27/12/07 11:01:39
**********************
UNLOAD.DOSAGE
DOSE              60kg
DOSED             64kg *
**********************
UNLOAD.DOSAGE
DOSE              56kg
DOSED             56kg
**********************
**********************
TARGET           120kg
DOSED            120kg
27/12/07 11:02:39
* IN TOLERANCE     *
```

17.3 PHASES / FORMULAS AND TOTAL DATA PRINTING

Press the **MODE** key and select the **<< Print >>** step.



<<P.ForM>> FORMULA DATA PRINTING

By pressing the **PRINT** key one can enter the formulas database: select the formula to print using the **ZERO** or **TARE** key and confirm with **PRINT**.

BATCH mode

```
**********************
*** FORMULA     00 ***
**********************
MIN.TARE            2kg
MAX TARE            6kg
TOT.TARGET        120kg
**********************
PHASE IND.          0
AUTOM. DOSAGE
FLY                 5kg
TOLERANCE           2kg
OUTPUT              1
TARGET             70kg
**********************
PHASE IND.          1
MANUAL DOSAGE
TOLERANCE           2kg
OUTPUT              2
TARGET             50kg
**********************
PHASE IND.          2
TIMER
OUTPUT              3
TIMER STOPDISABLED
DURATION         5.00s
**********************
PHASE IND.          3
PAUSE
OUTPUT              4
**********************
PHASE IND.          4
UNLOAD.DOSAGE
UNLOAD     TOTAL
OUTPUT              1
START      DISABLED
TARGET              0kg
**********************
```

BTC.1-L mode

```
**********************
*** FORMULA     00 ***
**********************
AUTOM. DOSAGE
MIN.TARE            2kg
MAX TARE            6kg
TARGET             50kg
FLY                 5kg
SLOW                5kg
TOLERANCE           2kg
**********************
```

BTC.1-u mode

```
**********************
*** FORMULA     00 ***
**********************
TARGET             50kg
FLY                 5kg
SLOW                5kg
TOLERANCE           2kg
DIRECT     DISABLED

**********************
```

<<P.PhASE>> PHASES IN THE DATABASE DATA PRINTING (only for multicomponent dosage (BATCH mode))

By pressing the **PRINT** key the instrument prints all the phases in the memory storage:

```
**********************
PHASE IND.         0
AUTOM. DOSAGE
FLY                5kg
TOLERANCE          2kg
OUTPUT             1
**********************
PHASE IND.         1
MANUAL DOSAGE
TOLERANCE          2kg
OUTPUT             2
**********************
PHASE IND.         2
TIMER
OUTPUT             3
TIMER STOPDISABLED
**********************
PHASE IND.         3
PAUSE
OUTPUT             4
**********************
PHASE IND.         4
UNLOAD.DOSAGE
UNLOAD     TOTAL
OUTPUT             1
START      DISABLED
```

<<r.ForM>> PRODUCTION FORMULA PRINTING

BATCH mode

```
**********************
FORMULA PRODUCTION 0
FROM 27/12/07 11:13:33
TO   27/12/07 11:39:26
TOT. DOSE       1185kg
DOSED TOT.      1184kg
IN TOLER.       1184kg
OUT OF TOL         0kg
CYCLES TOT        10
CYCLES OK         10
CYCLES KO          0
**********************
```

BTC.1-L mode

```
**********************
FORMULA PRODUCTION 0
FROM 27/12/07 11:53:56
TO   27/12/07 11:55:12
TOT. DOSE        150kg
DOSED TOT.       150kg
IN TOLER.        150kg
OUT OF TOL         0kg
CYCLES TOT         3
CYCLES OK          3
CYCLES KO          0
**********************
```

BTC.1-u mode

```
**********************
FORMULA PRODUCTION 0
FROM 27/12/07 12:05:29
TO   27/12/07 12:07:23
TOT. DOSE        150kg
DOSED TOT.       150kg
IN TOLER.        150kg
OUT OF TOL         0kg
CYCLES TOT         3
CYCLES OK          3
CYCLES KO          0
**********************
```

At the end of printing the instrument requests to cancel the formula production; on the LED display is shown the "dEL?" message; press **PRINT** to confirm, any other key to exit without making modifications.
The data is always valid (therefore they can be printed) till the end of the next dosage.

<<r.GEnEr>> GENERAL TOTAL PRINTING

By pressing the **PRINT** key the instrument prints the general total, i.e. the sum of all the dosed weight by the formulas implemented up to that moment, as from the last deletion of this total:

BATCH mode

```
**********************
GENERAL TOTAL
TO   27/12/07 11:39:51
TOT. DOSE       1185kg
DOSED TOT.      1184kg
IN TOLER.       1184kg
OUT OF TOL         0kg
CYCLES TOT        10
CYCLES OK         10
CYCLES KO          0
**********************
```

BTC.1-L mode

```
**********************
GENERAL TOTAL
TO   27/12/07 11:55:38
TOT. DOSE        150kg
DOSED TOT.       150kg
IN TOLER.        150kg
OUT OF TOL         0kg
CYCLES TOT         3
CYCLES OK          3
CYCLES KO          0
**********************
```

BTC.1-u mode

```
**********************
GENERAL TOTAL
TO   27/12/07 12:07:48
TOT. DOSE        150kg
DOSED TOT.       150kg
IN TOLER.        150kg
OUT OF TOL         0kg
CYCLES TOT         3
CYCLES OK          3
CYCLES KO          0
**********************
```

At the end of printing the instrument requests to cancel the general total; on the LED display is shown the "dEL?" message; press **PRINT** to confirm, any other key to exit without making modifications.
The data is always valid (therefore they can be printed) till the end of the next dosage.

<<r.ConS>> CONSUMPTIONS PRINTING

BATCH mode

```
**********************
FORMULAS PRODUCTION
**********************
TO   27/12/07 11:40:20
**********************

FORMULA             0
FROM 27/12/07 11:13:33
CYCLES TOT         10
DOSED TOT.      1184kg
**********************
```

BTC.1-L mode

```
**********************
FORMULAS PRODUCTION
**********************
TO   27/12/07 11:56:24
**********************

FORMULA             0
FROM 27/12/07 11:53:56
CYCLES TOT          3
DOSED TOT.        150kg
**********************
```

BTC.1-u mode

```
**********************
FORMULAS PRODUCTION
**********************
TO   27/12/07 12:08:44
**********************

FORMULA             0
FROM 27/12/07 12:05:29
CYCLES TOT          3
DOSED TOT.        150kg
**********************
```

NOTES:

- The weights of interrupted dosages are also included in the totals.
- If one tries to print a report without associated data, the message “EMPTY REPORT” is printed.

DECLARATION OF CONFORMITY

This device conforms to the essential standards and norms relative to the applicable European regulations. The Declaration of conformity is available in the web site **www.diniargeo.com**.

WARRANTY

The TWO-YEAR warranty period begins on the day the instrument is delivered. It includes spare parts and labour for repairs at no charge if the INSTRUMENTS ARE RETURNED prepaid to the DEALER'S PLACE OF BUSINESS. Warranty covers all defects NOT attributable to the Customer (such as improper use) and NOT caused during transport.

If on site service is requested (or necessary), for any reason, where the instrument is used, the Customer will pay for all of the service technician's costs: travel time and expenses plus room and board (if any).

The customer pays for shipping costs (both ways), if the instrument is shipped to the DEALER or manufacturer for repair.

The WARRANTY is VOIDED if faults occur due to work done by unauthorized personnel or due to connections to equipment installed by others or incorrect connection to the power supply.

This warranty DOES NOT provide for any compensation for losses or damages, direct or indirect, incurred by the Customer due to complete or partial failure of instruments or systems sold, even during the warranty period.

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