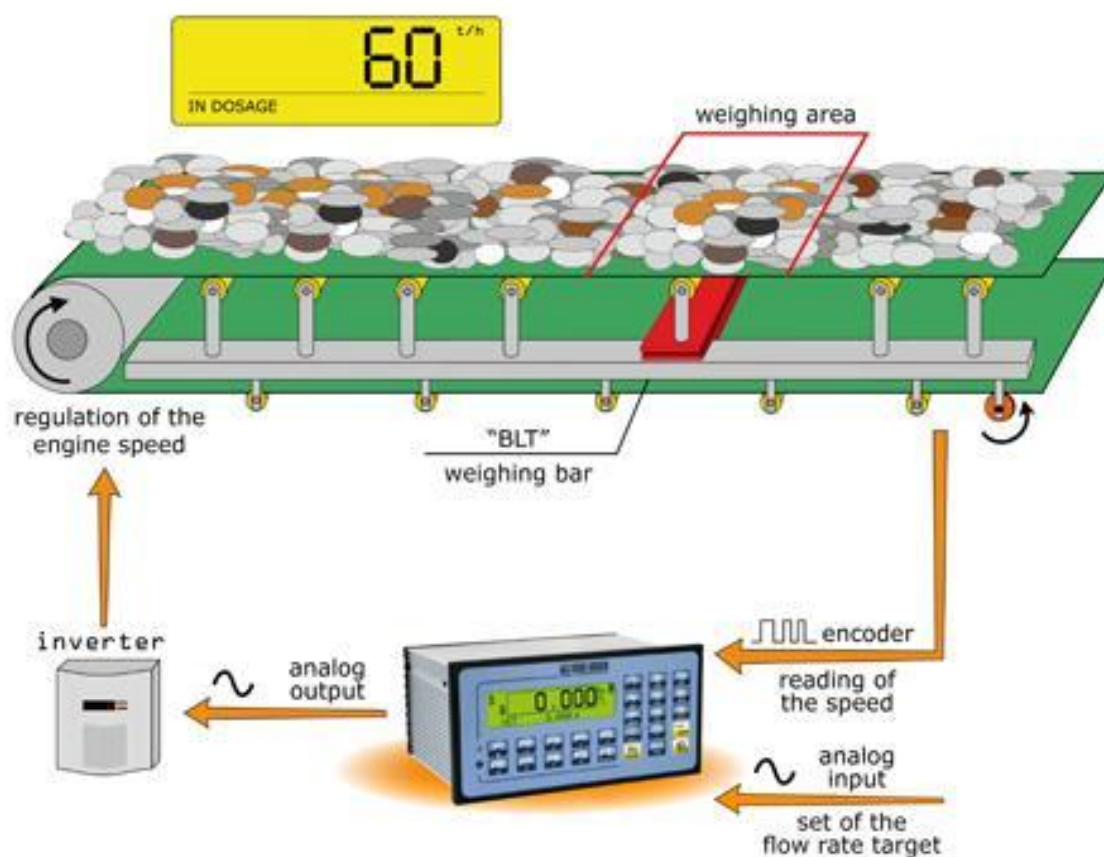


USER MANUAL WEIGHT INDICATOR MICROCONTROLLER



E-BELT: SOFTWARE FOR MANAGEMENT OF CONTINUOUS DOSAGES ON BELT



3590EXTBELTBCIO, CPWEBELT series indicator



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1. INTRODUCTION

This manual was created to help you install and learn all about the functional possibilities of the purchased indicator.

The instrument is suitable for use in various weighing environments.

Not only does it have all the normal features of high-precision scales, but it also gives you the possibility to work in specific environments due to the functioning modes contained in the software implemented in the FLASH MEMORY on the internal board; This makes the instrument extremely flexible and it can be used in many different industrial applications linked to weighing. The numerical and interactive alphanumeric display, the alphanumeric and function keyboard, allow the operator an easy and immediate use and provide the microcontroller with DATA ENTRY functions in addition to the normal weighing functions. The input/output allows the instrument to control various external devices, to receive external commands, control a printer and communicate with a personal computer or to be inserted in a network of weight indicators controlled by a PC.



Please note that this instrument is covered by a warranty and **MUST NOT BE OPENED BY THE USER** for any reason whatsoever. Any attempt to repair or modify the unit exposes the user to the risk of electric shock and will invalidate the entire warranty.

If any problems are found in the unit or with the system in which it is used, the fact must be communicated to the manufacturer or the dealer from whom it was purchased.

In any case, **DISCONNECT THE POWER SUPPLY** before taking any action.

With the 6V rechargeable battery version, it has to be completely recharged (12 hours) in the first installation of the instrument; we RECOMMEND disconnecting the battery if the instrument is not going to be used for more than 30 days. In order to avoid the deterioration of the rechargeable battery:

- In standard conditions, never leave the battery partially or completely uncharged; at least once a week recharge it completely.
- In case the instrument is not used for a long period, one needs to
 1. completely recharge the battery before the system is switched off for the last time;
 2. recharge completely every 3 months.

Do not pour liquids on the weight indicator.

Do not use solvents to clean the weight indicator.

Do not expose the instrument to direct sunlight nor place it near heat sources.

Place or anchor the weight indicator and platform on a non-vibrating base.

All the connections of the indicator have to be made respecting the rules 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 AND APPLY WHAT IS DESCRIBED IN CHAPTER 3.

Do not install in any area where there is a risk of explosion.



The symbol of the crossed trash can on the equipment shows that the product at the end of its utility must be handled separately from other trash. Therefore, when the product is no longer used, the user should take it to the appropriate places in which electronic and electrotechnical trash is taken or he may take it to the reseller when he purchases a new equivalent type of equipment. The adequate differentiated refuse collection in having the instrument recycled, treated and disposed of in an environmentally friendly manner 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	3590E: - 12 Vdc, with internal 100 ÷ 240 Vac (50÷60 Hz) / 12 Vdc power adapter. CPWE: - 8 ÷ 36 Vdc
MAXIMUM POWER	16 VA.
OPERATING TEMPERATURE	From -15 to +40 °C (from 5 to 104°F).
CONVERTER	24 bit Sigma Delta.
CONVERSION SPEED	200 conv./sec with automatic selection.
RANGE OF INPUT SIGNAL	0,6 mV/V - 3,2 mV/V.
MINIMUM VOLTAGE PER DIVISION	0.3 µV (approved instrument); 0.3 µV (non-approved instrument).
LOAD CELL POWER SUPPLY	5Vdc ± 5%, 120mA (max 8 350-Ohm cells).
LOAD CELL CONNECTIONS	6 wires with Remote Sense.
DISPLAY DIVISIONS	10000e, 3 x 3000e for legal for trade weighing, expandable up to 800.000 for internal use (with minimum signal coming from the 1,6 mV/V cell).
DISPLAYS	3590E: - Red, high-luminosity LED indicators, with six digits (h 13 mm). - Back lit graphic 160x32 dot LCD. CPWE: Back lit graphic 160x32 dot LCD.
DATABASE/MEMORY	Database of 100 products with: 5 alphanumeric description, hourly flow target, weight dosage target and initial value analogue output.
SIGNALS	3590E: 16 status LEDs. Graphic icons on LCD display. CPWE: Graphic icons on LCD display.
KEYBOARD	Impermeable polycarbonate keyboard, with membrane keys having an audible and tactile feedback.
PARAMETER SETUP	Calibration and linearity (up to 8 points), fully digital and programmable from the keyboard or from PC with Dinitools™.
CLOCK/DATE	Fitted, with buffer RAM.
CASE	3590E: IP68 Stainless steel case. CPWE: Anodized aluminium case with IP65 front panel protection.
SERIAL OUTPUTS	- 2 input/output RS232 ports on terminal board/ amp connector. - 1 input/output RS485 port on terminal board or RS232 on amp connector.
INPUTS AND OUTPUTS	- 8 inputs (optoisolated photo couplers), 12Vdc – 24Vdc, 20mA max. - 16 outputs (optoisolated photomofets), 48Vac / 0.15A, 60Vdc / 0.15A. - Management of the PC keyboard, bar code reader.
ANALOGUE OUTPUT (OPTIONAL)	16 BIT, proportional to the hourly flow in the flow reader functioning mode or inversely proportional to the hourly flow (in respect to the set target) in the flow regulator mode.





2.1 ACCESSORIES AVAILABLE

The indicator can be implemented with additional internal and external modules used to increase interfacing possibilities. For example one can connect various types of printers (in order to have an outcome of the weighs carried out). Also, one can connect a PC temporarily in order to simply program the instrument through Dinitools™, or permanently in order to have a complete management of the weighs.

Contact the reseller for the list of the available hardware and software accessories.

2.2 SYMBOLS

Below are the symbols or texts used in the manual to recall the reader's attention and on the instrument to recall the user's attention.

	<p>ATTENTION!</p> <p>Only qualified personnel must perform this operation</p>
	<p>ATTENTION!</p> <p>This is referred to working on energized lines: only qualified personnel must require or perform this operation.</p>
	<p>CE CONFORMITY</p>
	<p>IDENTIFIES THE CLASS OF PRECISION.</p>
<p><< XXXXX >></p>	<p>IDENTIFIES THE ABBREVIATION OR THE NAME OF THE STEP OF THE TECHNICAL SET-UP, TECH.MAN.REF.</p>
<p>“TECH.MAN.REF.”</p>	<p>It means that an advanced function is being described (therefore for the technical personnel) which will be further explained in the corresponding technical manual.</p>

THE INSTRUMENT'S DANGEROUS VOLTAGE PARTS AND THE PARTS THE USER CAN ACCESS HAVE BEEN ELECTRICALLY INSULATED.

3. INSTALLATION

3.1 CPWE DRILLING TEMPLATE, CASE AND DIMENSION

The weight indicator has an anodized aluminium case, whose external dimensions are shown in the figure. It should be mounted on a panel board respecting the safety norms.

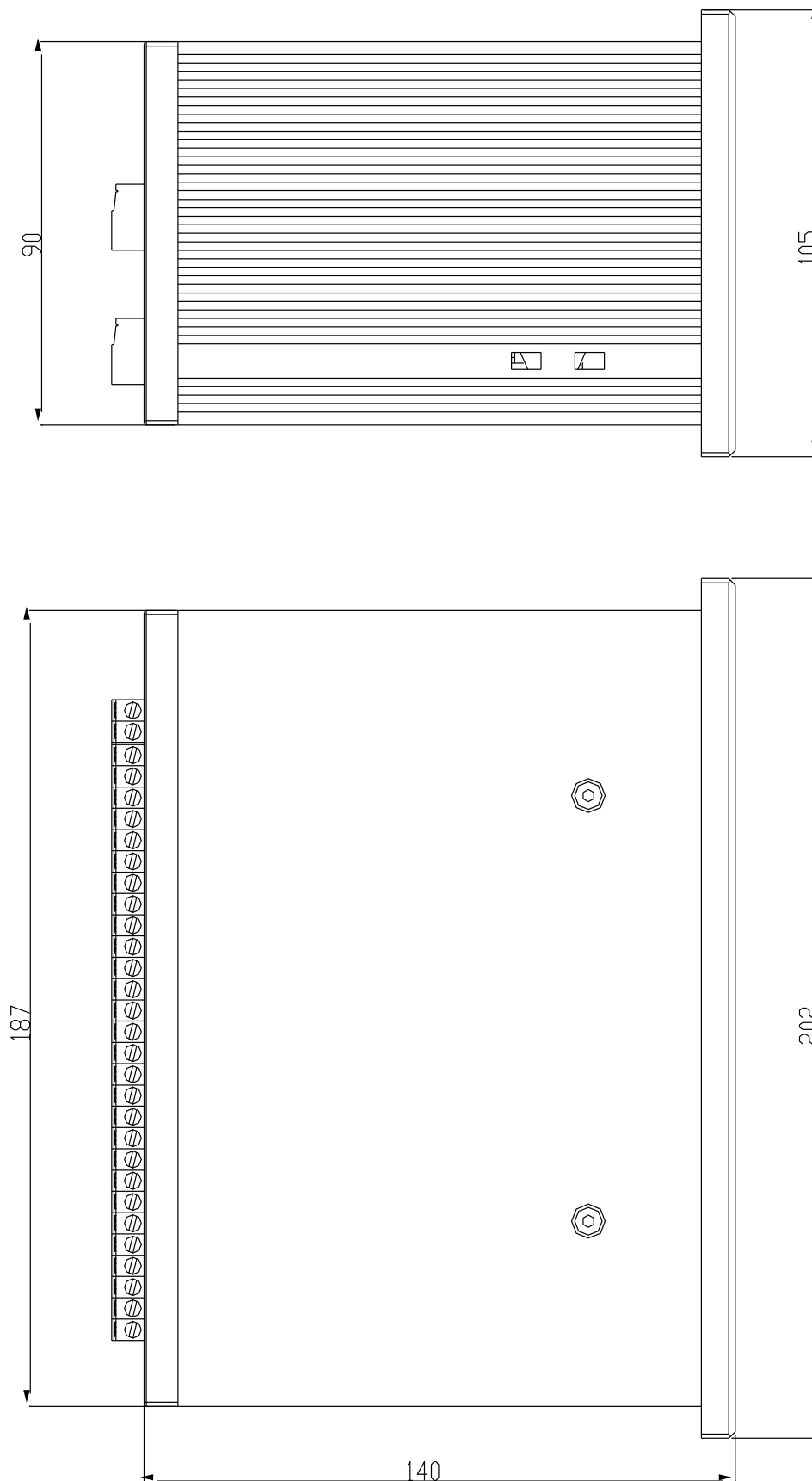


Figure 1: **DRILLING TEMPLATE DIMENSION: 187,5mm x 91,5mm**

3.2 3590E CASE AND DIMENSIONS

STAINLESS STEEL MODEL

The indicator has an STAINLESS STEEL case, whose external dimensions are shown in the Figure 2. It can be simply put on a table or fixed to a shelf or column available on request.

NOTE: If the identification plate is supplied separately (therefore not attached to the indicator), it is advisable to attach it to the indicator, in order to be able to identify the instrument.

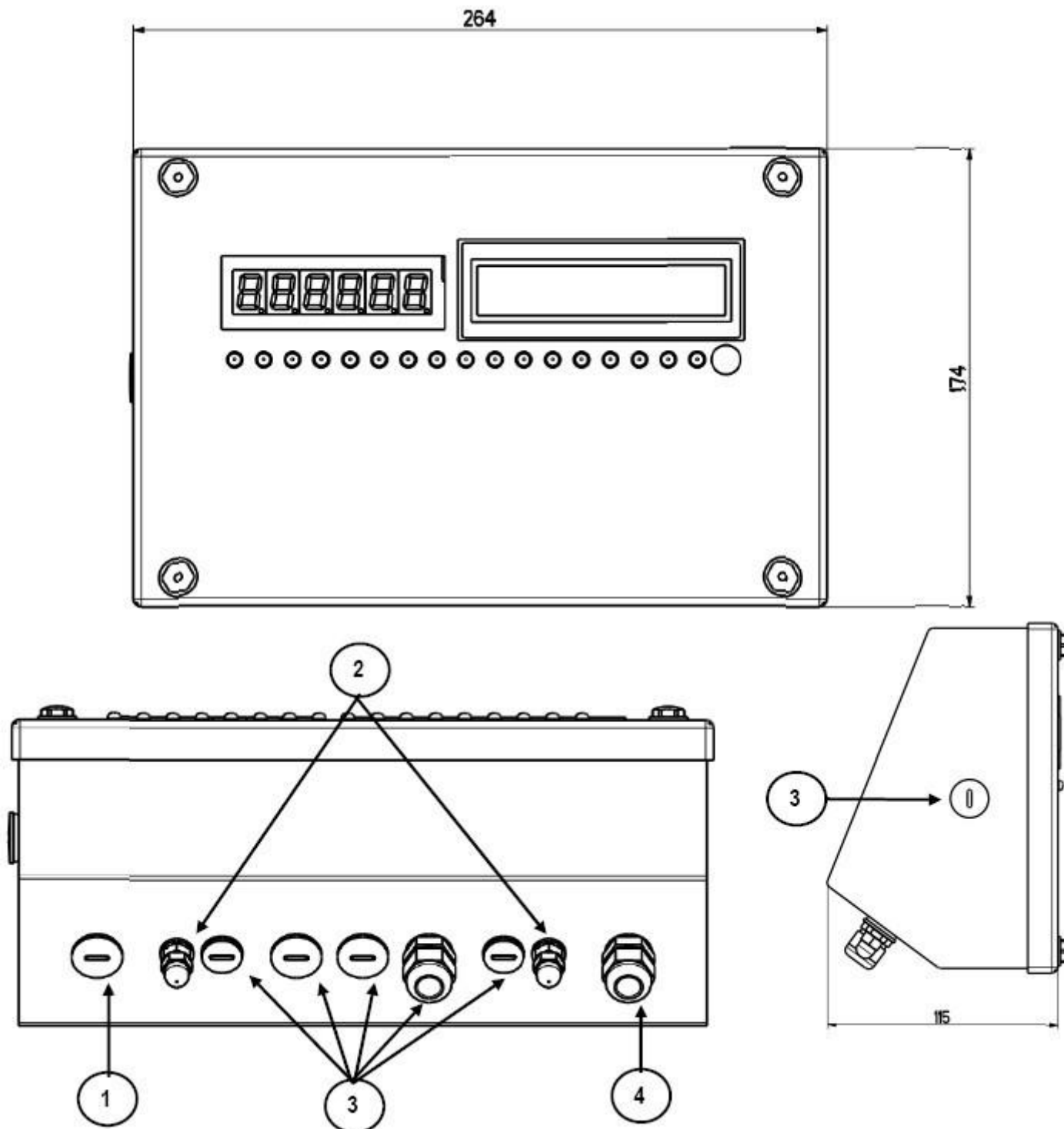


Figure 2 – Measurements and dimensions in mm

- 1) RJ45 connector
- 2) Fixing for shelf or column mounting
- 3) Available for load cells / serial lines / inputs / outputs.
- 4) Power supply input.

3.3 CASE AND DIMENSIONS CPWETF

The indicator has a STAINLESS STEEL case whose external dimensions are shown in figure 3. The instrument can be wall mounted.

NOTE: In the event that the identification plate is supplied separately (so, not attached to the indicator), it is advisable to attach the indicator, in order to make it identifiable.

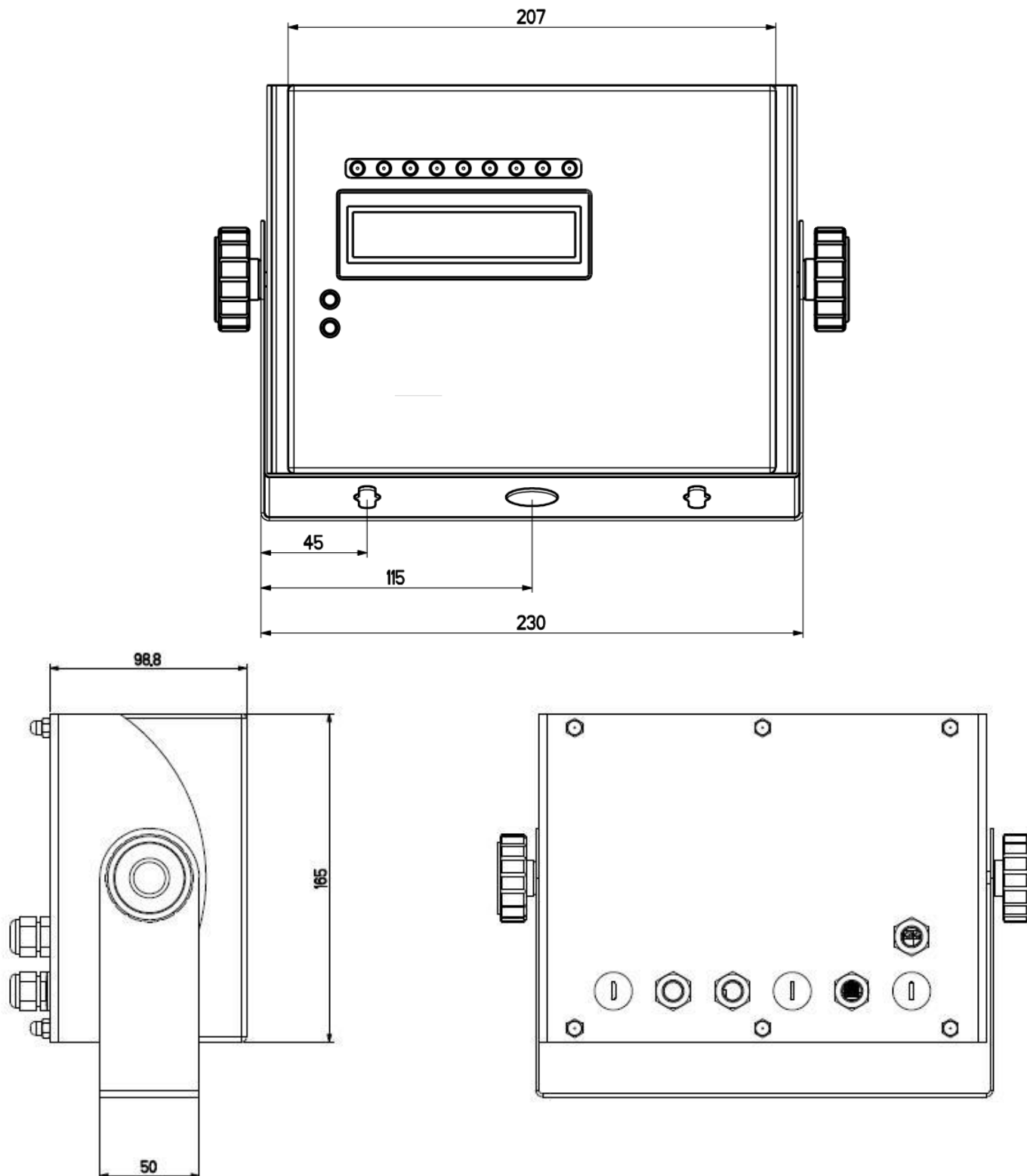


Figure 3 – Measures and dimensions in mm

1/2) Available for load cells / serial lines / inputs / outputs

3) Power supply input

4) RJ45 connector

3.4 POWER SUPPLY

- The 3590E indicator is powered with 12Vdc voltage, through an internal adapter which converts the 100 ÷ 240Vac, 50÷60Hz mains voltage.

TO POWER the instrument through the 240 Vac mains, insert the plug and the adapter to the 240 Vac mains socket.

- The CPWE indicator is powered with 8÷36 Vdc voltage.

For the connection to the power supply mains the safety norms must be respected including the use of a “clean” line without noise and interference caused by other electronic devices.

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

3.5 START UP

TO TURN ON the 3590E press the C key until the display turn on; then release.

The CPWE instead is automatically turned on as soon as it is powered.

The display shows:

- initially a welcome message (settable in the TECHNICAL SET-UP, <<LOGO>> step, **TECH.MAN.REF.**) while the instrument carries out a series of checking and preheating self tests.
- E-BELT - XX name of the installed software, in which XX identifies the software language.
XX.YY is the software version installed.
- E-BELT - XX name of the installed software, in which XX identifies the software language.
BARGRAPH

By pressing the **2ndF** key while the version is shown in the display, the indicator shows in sequence:

01.01	in which 01 indicates the instrument type, 01 indicates the metrological software version.
XX.YY.ZZ	is the installed software version.
HH	is the installed hardware version (08).
LEGAL FOR TRADE	
or HIGH RESOLUTION	if the instrument is APPROVED or UNAPPROVED, respectively.
9.XXXXX	is the the g gravity value (only with APPROVED instrument).

3.6 TURNING OFF THE INSTRUMENT

TO TURN OFF the 3590E or **TO RESTART** the CPWE keep the C key pressed until the “- OFF -” message appears on the LED display and “*** POWER OFF ***” on the LCD display.

TO TURN OFF the CPWE remove the instrument’s power supply.

3.7 CONNECTION TO THE BATTERY POWERED PRINTER

In a system where the indicator is connected to a printer, both are battery powered, the printer is normally maintained in STAND-BY and powered only when a printout is needed. This function reduces the energy absorbed by the battery when the printer is not being used.

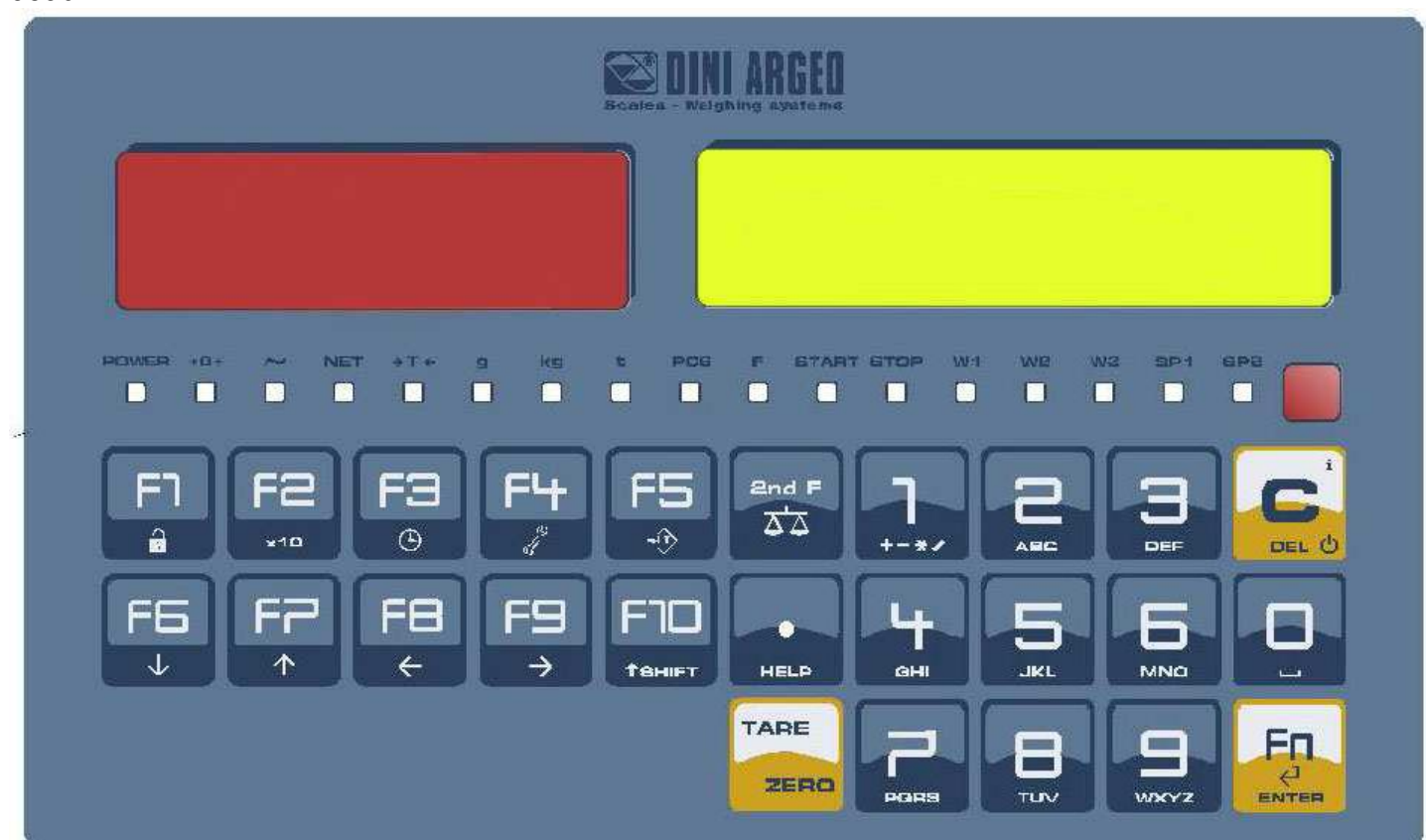
If, in this configuration, one should power the printer to change the paper and other maintenance jobs, one needs to keep pressed the **ENTER** and **0** keys (outside the dosage cycle): the display shows “Prn – on”, and the printer is kept on. Press any key to exit from this condition.

4. FUNCTION PANEL KEYS

CPWE



3590E



4.1 FUNCTION OF THE KEYS

In the following section, and later on in the manual, the keys' functioning is described in accordance to how these are configured by factory.

It is possible to customise the functionality of the keys through the <<F. Keys>> step.

KEY	FUNCTION
C / DEL	<ul style="list-style-type: none"> - If pressed at length turns the instrument on/off. - Exits the parameter without confirming and saving the modifications. - In the numeric input phase, it quickly clears the present value.
TARE / ZERO	<ul style="list-style-type: none"> - If pressed at length, it executes the ZERO BELT CALIBRATION.
Fn / ENTER	<ul style="list-style-type: none"> - In the alphanumeric input phase, it confirms the entry made. - In the menu it allows to enter a step or to confirm a parameter inside a step.
2nd F	<ul style="list-style-type: none"> - If pressed together with the other keys, it allows carrying out a specific function (see section 4.2 – “2ndF” KEY: SECOND FUNCTION OF THE KEYS”).
. / HELP	<ul style="list-style-type: none"> - In the numeric or alphanumeric input phase, it enters, in this order, the following characters: . , ; : # < > \ ” % & / () = ? ^ ’ [] { }. - HELP function, see section 4.5 – “HELP MENU”. - If pressed in some steps or functions of the weight indicator, the display shows the keys and their functions specific to that state of the instrument.
F1	<ul style="list-style-type: none"> - If pressed for an instant, it enters into the products database. - By entering a number through numerical keyboard and then pressing the F1 key, one can quickly select the product corresponding to the entered value (the product must have already been edited). - If pressed at length, it locks and unlocks the instrument’s keyboard (except the C key). - In the numeric or alphanumeric input phase, it allows to copy entered characters.
F2	<ul style="list-style-type: none"> - When one enters into the product database, if pressed for an instant, one can view or modify all the data of the product. - If pressed at length, the weight visualisation function with sensitivity x 10 is enabled. - In the numeric or alphanumeric input phase, it allows to stick with copied characters.
F3	<ul style="list-style-type: none"> - If there is an output set with a “SETPOINT” function, by pressing it for an instant, one can insert the set-point value. - If pressed at length, one can adjust the date and time of the instrument.
F4	<ul style="list-style-type: none"> - If pressed for an instant, it allows to fill in the input texts, if configured. - By entering a number through numerical keyboard and then pressing the F4 key, one can quickly select the input text corresponding to the entered value (the text must have already been edited); then one can modify the text. - If pressed at length, it enters the instrument’s diagnostics menu.
F5	<ul style="list-style-type: none"> - Out of the weighing cycle, it commands the data transmission to the printer serial port.
F6	<ul style="list-style-type: none"> - It allows scrolling ahead inside the menu steps or in the parameters within a step. - If pressed for an instant, one is asked to insert the flow-rate target. - In the numeric or alphanumeric phase, it decreases the blinking digit.
F7	<ul style="list-style-type: none"> - It allows scrolling backwards in the menu steps or in the parameters within a step. - If pressed for an instant, one is asked to insert the dosage target. - In the numeric or alphanumeric input phase, it increments the blinking digit.
F8	<ul style="list-style-type: none"> - If pressed for an instant, it executes the printing and the resetting of the partial total. - In the numeric or alphanumeric input phase, it selects the digit to be modified from right to left.
F9	<ul style="list-style-type: none"> - If pressed for an instant, it executes the printing and the zeroing of the general total. - In the numeric or alphanumeric input phase, it selects the digit to be modified from left to right.
F10	<ul style="list-style-type: none"> - On CPWE, if pressed for an instant, it switches the info shown on a single line of LCD display while in weight zoom . - In the numeric or alphanumeric input phase, it enters a space in the middle of two characters.
NUMERIC KEYBOARD	<ul style="list-style-type: none"> - Entry of digits or characters. - While weighing, these enter a numeric value with which it’s possible to execute calculations (see section 15.2 - “CALCULATOR”).

4.2 "2ndF" KEY: SECOND FUNCTION OF THE KEYS

In the weighing phase, by pressing the **2ndF** key together with another key, it's possible to execute various functions (continue reading the manual for the details of the functions):

2ndF	F1	Printing/Resetting of the product total.
2ndF	F5	Repetition of the last printout made.
2ndF	F8	Flow-rate/Gross weight conversion.
2ndF	F9	Change display visualizations.

4.3 ENTERING ALPHANUMERIC TEXT

It might be necessary, while the weighing system is working, to enter some alphanumerical texts such as descriptions, alphanumerical messages (operator, number of lot, customer, etc.).

To enter the characters one uses the **0** to **9** keys.

By pressing one of these keys a few times, the characters shown on the key will be shown on the display: initially the first letter in the bottom left will appear, and then the other characters towards the right.

After digiting a character, the blinking cursor, after a few instants, advances automatically of a position.

Function of the keys

F5	switches the writing mode from "numeric" (nuM) to "characters" (ChAr). In the nuM mode one enters <u>just the numbers</u> , while in the ChAr mode one can enter <u>all the characters of a key</u> .
C	If pressed for an instant, it cancels the written characters: first the characters that follow the cursor are cancelled; than those that precede it, one at a time. If pressed at length, it deletes all entered characters. With empty text, it exits the entry phase without confirming.
SHIFT	It enters a space in the middle of a text.
./HELP	If pressed a few times it allows entering the following characters: . , ; : # < > \ " ' % & / () = ? ^ ' [] { }.
0	In "characters" mode (ChAr), by pressing once a space is entered ; by pressing twice it enters the "0" character.
1	In "characters" mode (ChAr), pressed repeatedly, it allows to enter the following symbols: ? ! 1 @ ' + - * / = ~ € „ … † ‡ ^ % ¨ š < OE ž ı ' " • - - ~ ™ Š > oe ž φ £ ¤ ¥ ¦ § ¨ © ª « ¬ - ® ¯ ° ± ² ³ ´ μ ¶ · ¸ ¹ º » ¼ ½ ¾ ¿ ã.
◀ ▶	Moves the blinking cursor to the left or to the right.
▲ ▼	Scrolls in one sense or the other the list of all the enterable characters (0, 1...9, A, B...Y, Z)

Examples:

- To enter the letter "B" one should press the "2" key twice in the **ChAr** mode.
- To enter the number "3" one should press the "3" key four times (in the **ChAr** mode) or press the F5 key (one passes to the **nuM** mode) and press the "3" key once.

4.4 DISABLING THE KEYBOARD

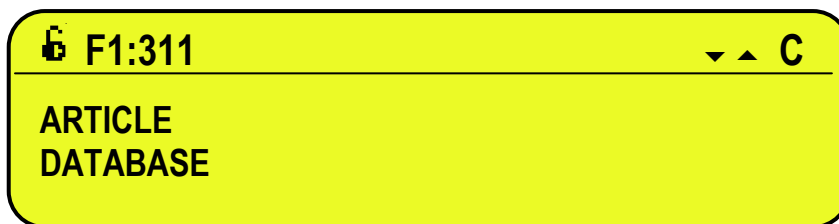
It is possible to disable the all keyboard functions (except the **C** key for turning on and off), in order to avoid undesired pressings of the scale keys:

- **To lock the keyboard**, press at length the **F1** key: the display shows the "LoCk" message for a few instants. Now the keyboard is LOCKED: if one presses a key, the display shows for a few instants the "HOLD F1 TO UNLOCK" message.
- **To unlock the keyboard**, press again at length, the **F1** key: the display shows the "unLoCk" message for a few instants.

NOTE: It's possible to lock all keys individually in a permanent way through the TECHNICAL SET-UP.

4.5 HELP MENU

In the weighing phase, by pressing at length the **HELP** key it is possible to access a menu containing the list of keys with the relative function, and status (locked or unlocked) indication.



The display shows:

- in the upper part: the key, followed by the code of the linked function in the <<F. Keys>> step, and a symbol indicating whether the key is unlocked () or locked () in the <<EN.KEYS>> step.

- in the lower part: the description of the key.

Scroll the list with the arrow keys , press the **C** key to exit.

4.6 INDICATOR CONNECTED TO PC KEYBOARD

It's possible to connect a PC keyboard (optional), used to emulate the functions of the keys of the indicator.

The keys are managed in the following way:

Esc	- C key. - If pressed at start-up, it allows entering in the technical set-up. In the alphanumeric input, it deletes all entered characters.
← and Canc	- C key. - If pressed at start-up, it allows entering in the technical set-up. In the alphanumeric input, it cancels first the characters which follow the cursor, then the ones which precede it, one at a time.
Enter ↵	- Fn key. - Confirms the entered value. - Enters the displayed step.
Numeric and alphanumeric keys, SHIFT and CAPS LOCK	- Quick entry of a numeric and alphanumeric string: through the CAPS/LOCK or SHIFT key it is possible to switch from the capital letters to the lower case letters, and vice versa, or enter the second character corresponding to the key (for example ", %, &, /, ?)
Cursor keys ↑ ↓	- Scroll the parameters. - Increase or decrease the blinking digit while entering a value.
Cursor keys ← →	- When entering a value or an alphanumeric string, it scrolls the digits to the right or to the left.
F1, F2....F10	F1,F2....F10 keys.
F11	2ndF key.
F12	TARE key.

NOTE: through the remote keyboard, it's not possible to carry out the functions made by pressing the keys at length.

4.7 REMOTE CONTROL

Depending on the model of indicator, it is possible to remotely control the instrument through one of the following types of remote controls: 18-key infrared (ir) or 6-key radio (rd).

The type of remote control to be used must be selected in the Setup environment, in the << inF.Red >> step (TECH.MAN.REF).

NOTE: The infrared remote controls are for indoor use only.

4.7.1 "18-KEY" INFRARED REMOTE CONTROL

With this type of remote control, the functioning of the keys will be as described in the following table.

The remote control can be programmed so that it will emulate the Tare key instead of the 2nd F key of the indicator and the function keys from F1 to F10 instead of the numeric keys (numeric key 1 for F1, numeric key 2 for key F2 etc...); see below the configuration details.

FUNCTION OF THE KEYS



KEYBOARD	KEY OR FUNCTION EMULATED
Fn	Fn key
2nd F	2nd F key or Tare function (see configuration below)
C	C key
NUMERIC KEYS	Entry of digits or emulation of F1...F10 keys (see configuration below)
TARE / ▲	Tare function or increase of a digit while entering a value
.	./HELP key
ZERO / ▼	Zero function or decrease of a digit while entering a value
MODE / →	Scrolls the digits to the right while entering a value
PRINT / ←	Confirms the entered value or enters the displayed step

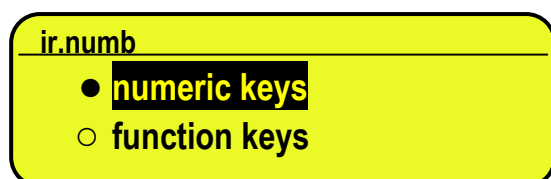
CONFIGURATION

To execute this configuration:

- press at length the Fn key on the remote control;
- the configuration of the 2nd F key is proposed:



- select the desired key that should be simulated by using the ▲ ▼ arrow keys and press the PRINT / ← key to confirm and pass to the following setting;
- the configuration of the numeric key is proposed:



- select the desired functioning of the numeric key (simulating the numbers or simulating the function keys from F1...F10) by using the ▲ ▼ arrow keys and press the PRINT / ← key to confirm and exit the menu.

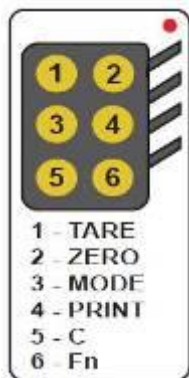
4.7.2 "6-KEY" RADIO REMOTE CONTROL

With this type of remote control, the functioning of each key can be programmed so that it is matched to one of the available keys of the indicator.

This configuration must be carried out in the Setup environment, in the << inF.Red >> step (**TECH.MAN.REF**), after the selection of this type of remote control.

By pressing the **.HELP** key of the indicator, it's possible to see, while weighing, the list of the functions matched to the keys of the indicator and also to the keys of the remote control.

EXAMPLE OF CONFIGURATION



USE OF MORE REMOTE CONTROLS WITH ONLY ONE INDICATOR

If one works with only an indicator, it is possible to use any 6-key remote control, without combining it to the indicator, therefore without limiting the number of usable remote controls.

To enable this mode one has to first select "RD 6 BR" in the << inF.Red >> (**TECH.MAN.REF**).

USE OF MORE REMOTE CONTROLS WITH SEVERAL INDICATORS IN THE SAME AREA

If one needs to use several indicators in the same area, it is possible to combine each remote control to the desired indicator, in order to execute the function only on it and therefore avoid emulating the function on all indicators in use.

By enabling this mode it will be possible to combine up to 3 different remote controls (e.i. for 3 different operators) for each indicator.

To enable this mode one has to first select "RD 6" in the << inF.Red >> (**TECH.MAN.REF**).

To link a new remote control to the indicator one has to:

- press at length 1 and 2 keys together (3 seconds).
- the instrument displays "aut.rd?"
- press the ENTER key of the indicator
- the new remote control is linked

To remove the linking of a remote control one has to:

- press at length 1 and 2 keys together (3 seconds).
- the instrument displays "aut.rd?"
- press the C key of the indicator; if the remote control was previously linked, it will be removed.

5. DISPLAY FUNCTIONS

During the weighing the displays are subdivided mainly in 4 sections, shown in the figure below:

- 1) SELECTABLE WEIGHT DATA: WEIGHT or FLOW RATE, see section 5.3 for the selection mode.
- 2) STATUS INDICATORS (led pilot lights /or graphic symbols)
- 3) SYSTEM STATUS INFO (on CPWE this line is shown when not in weight zoom, described in the following section): see section 5.5 for the available status info.
- 4) SELECTABLE INFO (second line in the 3590E; in the CPWE this line corresponds to the second line, when not in weight zoom, or the single line shown when in weight zoom): see section 5.4 for the available info and the selection mode.

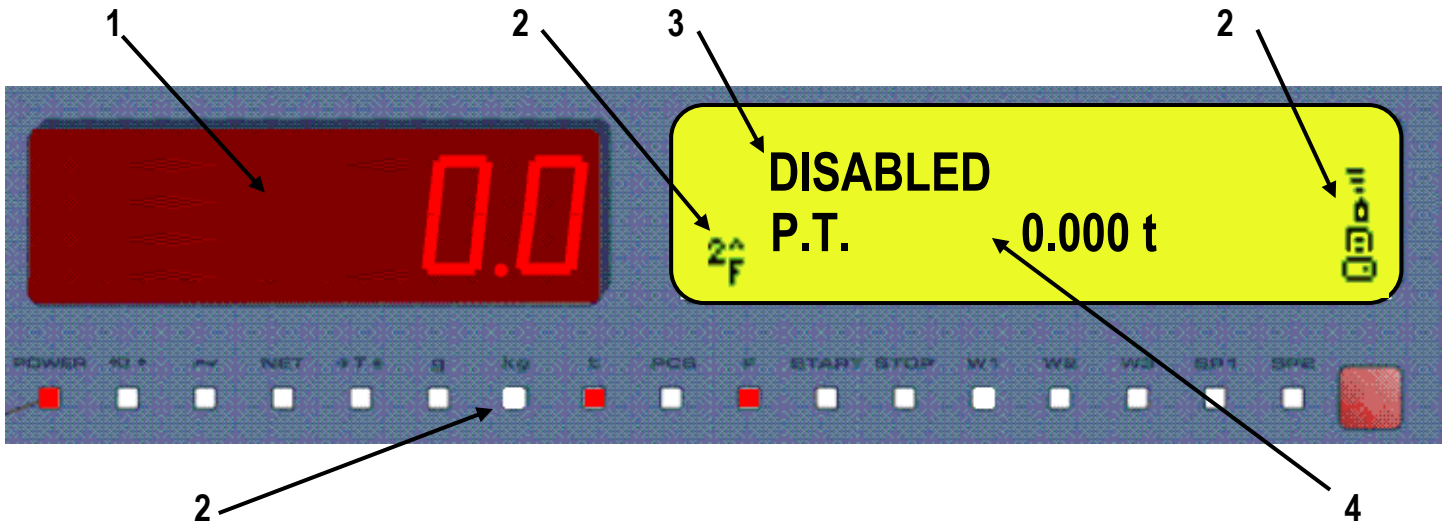


Figure 1: 3590E displays

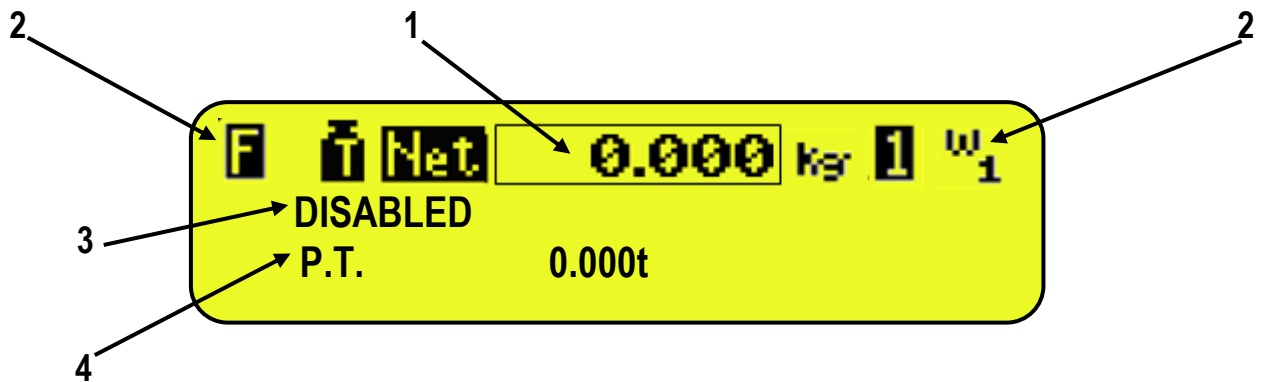
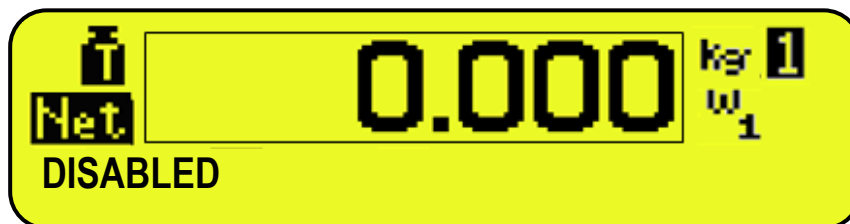


Figure 2: CPWE display

5.1 WEIGHT ZOOM

The zoom function allows to increase the size of the weight digits, in order to ease the reading from a distance; with the active zoom, the data is shown on a single line, with selectable info (see section 5.4 for the available info and the selection mode).



Through the <<ZOOM.W>> step, one can disable/enable the function and set a delay which determines the activation mode:

- always active function (with delay equal to 0), or
- disabled function at the pressing of a key and reenabled automatically when the keyboard inactivity time reaches the configured delay period (with delay greater than 0).

5.2 STATUS INDICATORS

LED	FUNCTION
POWER	Indicates the type of indicator power supply: - red pilot light: through built-in power adapter; - green pilot light: through battery (charged battery); - pilot light off: through battery (discharged battery).
→0←	Indicates that the weight detected by the weighing system is near zero, including the interval of $1/4 + 1/4$ of the scale's division.
~	Indicates that the weight is unstable.
NET	Indicates that the weight shown by the display is a NET WEIGHT.
→T←	Indicates that a tare value has been acquired or entered.
g	Indicates that the unit of measure in use is the gram.
kg	Indicates that the unit of measure in use is the kilogram.
t	Indicates that the unit of measure in use is the ton.
PCS	Not used in this application
F	Not used in this application
START	Not used in this application
STOP	Not used in this application
W1 W2 W3	See section 8.
SP1	Not used in this application
SP2	Not used in this application

SYMBOL ON LCD DISPLAY	FUNCTION
	The weight detected by the weighing system is near the zero, included within the interval of $-1/4$ and $+1/4$ of the scale division.
	The weight is unstable.
	The displayed weight is a GROSS WEIGHT (depending on the software language).
t / h	Unit of measure of the displayed flow-rate.
t kg g lb m ³ l	Unit of measure in use: ton, kilogram, gram, pounds, millilitres, or millivolts.
W ₁ W ₂ W ₃	Active weighing range, see section 6 – “MULTIRANGE FUNCTION”.
1 2 3 0	Active scale (always 1).
F	Indicates that a specific function of the instrument is active.
	Battery charge level: see section 5.2.1 – “BATTERY LEVEL INDICATION”.
	Active during the configuration of the date and time.

	Locked keyboard, see section 4.3 – “DISABLING THE KEYBOARD”.
	In the HELP menu these respectively indicate whether a key is unlocked or locked in the SETUP level (<<EN.KEYS>> step, see section 4.4 – “HELP MENU”).
F _n	The Fn key has been pressed.
2 nd F	The 2nd F key has been pressed.
	Transmission of the data to the printer serial port under way.
	Inside the step, these respectively indicate an unselected or selected parameter.
	Active calculator function, see section 18.2 – “CALCULATOR”.

5.2.1 BATTERY LEVEL INDICATION

The indicator is able to recognise whether it is powered by mains or by battery, and indicate its charge level; to enable the battery level indication, one should configure the <<Bt.Stat.>> step.

The charge level is shown during weighing by the battery symbol.

- : charged battery.

- : partially charged battery.

- : discharged battery: connect the indicator to the mains for recharging the battery (if provided for by that model) or replacing the battery. Furthermore, the "Low.bat" message will appear for a few seconds on the display (voltage at minimum level).

The indicator shows also when the battery is being recharged (if provided for the model):

RECHARGE PHASE: → → → → ...

COMPLETED RECHARGE:

NOTES:

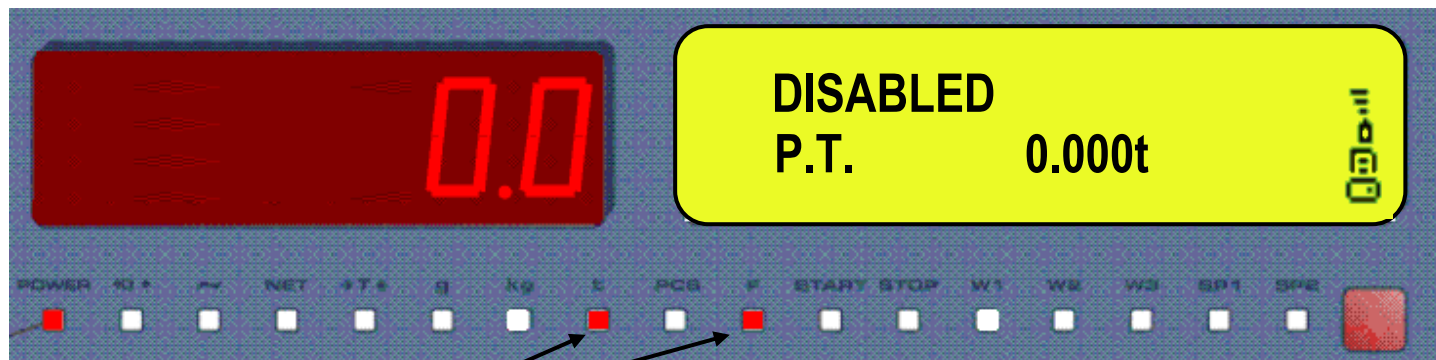
- During the recharge the instrument can be normally used.

- The instrument automatically turns off when the voltage goes below the minimum level.

5.3 MODIFICATION OF THE WEIGHT DATA

While weighing, the display can show 2 types of weight data: flow-rate or gross weight.
By pressing **2ndF + F8** one can switch from one type of visualization to the other one.

3590E

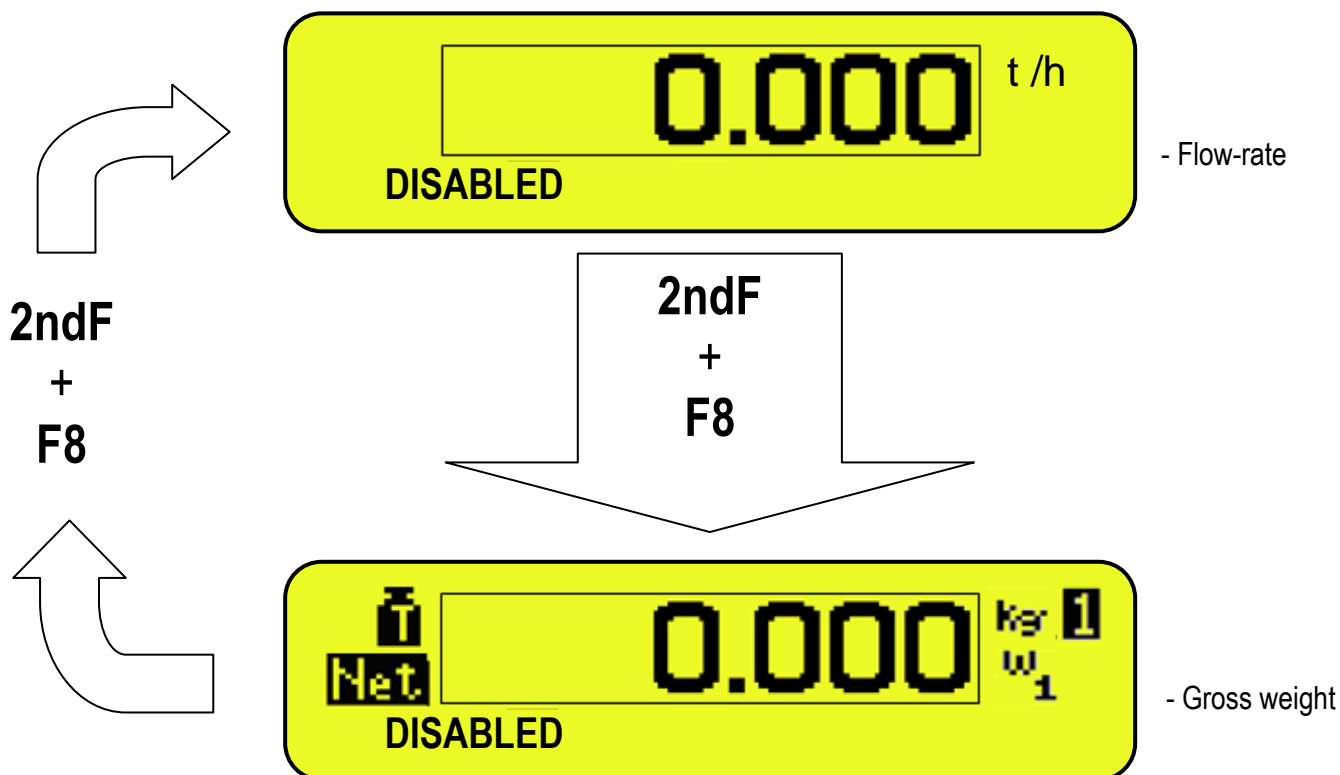


Flow-rate

2ndF
+
F8



Gross weight

CPWE**5.4 MODIFICATION OF THE DISPLAYED INFO**

The data shown on the display can be modified by selecting one of the various visualisations provided for by the indicator.

5.4.1 3590E

The selectable info are shown on the second line of the LCD display; by pressing in sequence the **2nd F** and **F9** keys, when the dosage is disabled, one scrolls in order the following visualisations:

NUM.	SECOND LINE VISUALISATION	OUT OF THE DOSAGE	DURING THE DOSAGE
0	(§) Flow rate target	DISABLED TRGT 0.0 t/h	DOSAGE TRGT 0.0 t/h
1	Partial total	DISABLED P.T. 0.000 t	DOSAGE P.T. 0.000 t
2	In the dosage, remaining material to be dosed or time to elapse to end the dosage (see section 13.1.3)	DISABLED [] 3.000 t	DOSAGE [] 3.000 t
3	General total	DISABLED G.T. 00.0 t	DOSAGE G.T. 00.0 t
4	Article total	DISABLED A.T. 00.0 t	DOSAGE A.T. 00.0 t

5	Load of the belt in um/m (um: unit of measure of the weight set in the Setup >> Config >> Calib. >> U.M. step)	DISABLED LOAD 0.000 kg/m	DOSAGE LOAD 0.000 kg/m
6	The impulses in a second by the encoder	DISABLED PUL. /sec 0	DOSAGE PUL. /sec 0
7	The number of turns per minute of the encoder roller	DISABLED REV. /min 0.0	DOSAGE REV. /min 0.0
8	Belt speed	DISABLED SPD. 0.00 m/min	DOSAGE SPD. 0.00 m/min

(§) It can be displayed only if the flow regulator mode has been selected (**F.Mode >> BELT >> FUNC** step, **TECH.MAN.REF.**).

By linking the function to a direct key, see the **<< F.KEYS >>** step, it is possible to:

- change the visualization also during the dosage;
- out of the dosage, quickly recall a visualisation by digiting, with the numeric keyboard, the relative number and pressing the key linked to the function.

Furthermore, by linking the number of a specific visualization to the function (preamble function in the **<< F.KEYS >>** step), it is possible (both during and out of the dosage) to select it directly with a direct key, for example F1 key to select the visualization n.1, and F2 key to select the visualization n. 2.

Notes:

- Default Visualisation: 1.

5.4.2 CPWE

The selection of the visualisation with non active weight zoom, and the one with active zoom (see section 5.1) are independent from each other.

VISUALISATION WITH NON ACTIVE WEIGHT ZOOM

The selectable info are shown on the second line under the "Weight"/ "Flow rate" section; by pressing in sequence the **2ndF** and **F9** keys, when the dosage is disabled, one will scroll in order the following visualisations:

NUM.	SECOND LINE VISUALISATION	OUT OF THE DOSAGE	DURING THE DOSAGE
0	(§) Flow rate target	DISABLED TRGT 0.0 t/h	DOSAGE TRGT 0.0 t/h
1	Partial total	DISABLED P.T. 0.000 t	DOSAGE P.T. 0.000 t
2	In the dosage, remaining material to be dosed or time to elapse to end the dosage (see section 13.1.3)	DISABLED 3.000 t	DOSAGE 3.000 t
3	General total	DISABLED G.T. 00.0 t	DOSAGE G.T. 00.0 t

4	Article total		
5	Load of the belt in um/m (um: unit of measure of the weight set in the Setup >> Config >> Calib. >> U.M. step)		
6	The impulses in a second by the encoder		
7	The number of turns per minute of the encoder roller		
8	Belt speed		

(§) It can be displayed only if the flow regulator mode has been selected (**F.Mode >> BELT >> FUNC** step, **TECH.MAN.REF.**).

By linking the function to a direct key, see the **<< F.KEYS >>** step, it is possible to:

- change the visualization also during the dosage;
- out of the dosage, quickly recall a visualisation by digiting, with the numeric keyboard, the relative number and pressing the key linked to the function.

Furthermore, by linking the number of a specific visualization to the function (preamble function in the **<< F.KEYS >>** step), it is possible (both during and out of the dosage) to select it directly with a direct key, for example F1 key to select the visualization n.1, and F2 key to select the visualization n. 2.


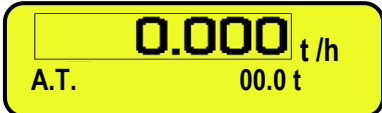








Notes:

- Default Visualisation: 1.

VISUALISATION WITH ACTIVE WEIGHT ZOOM

The selectable info are shown on the single line under the "Weight"/ "Flow rate" section; by pressing the **F10** key (both during and out of the dosage), one will scroll through the following visualisations in this order:

NUM.	SECOND LINE VISUALISATION	OUT OF THE DOSAGE	DURING THE DOSAGE
0	Dosage status (see section 5.5)		
1	(§) Flow rate target		
2	Partial total		
3	In the dosage, remaining material to be dosed or time to elapse to end the dosage (see section 13.1.3)		
4	General total		

5	Article total		
6	Load of the belt in um/m (um: unit of measure of the weight set in the Setup >> Config >> Calib. >> U.M. step)		
7	The impulses in a second by the encoder		
8	The number of turns per minute of the encoder roller		
9	Belt speed		

(§) It can be displayed only if the flow regulator mode has been selected (**F.Mode >> BELT >> FUNC** step, **TECH.MAN.REF.**).

Out of the dosage, it is possible to quickly recall a visualisation by digiting, with the numeric keyboard, the relative number and pressing the **F10** key.

Furthermore, by linking the number of a specific visualization to the function (preamble function in the **<< F.KEYS >>** step), it is possible (both during and out of the dosage) to select it directly with a direct key, for example F1 key to select the visualization n.1, and F2 key to select the visualization n. 2.

Notes:

- Default Visualisation: 0.

5.5 SYSTEM STATUS INFO

Below there are the statuses shown on the display on the first line or the single line in the case of active zoom on CPWE.

MESSAGE	DESCRIPTION
DISABLED	The DOSAGE START input is OPEN. Also in this status, with flow-rate greater than the minimum, the instrument totalises the weight in transit, but the error checks are not active.
WAITING	If a input is linked to consensus function, when the input is closed, the message will be showed on the display and wait for the start command.
START	The instrument waits for the reaching of the hourly flow (<<TAR.TIM>> step TECH.MAN.REF.).
START DELAY	The instrument waits for the time set in the <<DELAY>> step before enabling the dosage.
STOP DELAY	The instrument waits for the time set in the <<DELAY>> step before disabling the dosage.
LOCK	Indicates that the dosage has stopped due to one of the following reasons: - FLOW out of TOLERANCE RANGE - WEIGHT LESS THAN MINIMUM or GREATER THAN MAXIMUM - BELT SIDE-SLIPPING

PAUSE	The instrument is in the PAUSE status.
ALARM	The instrument is in the alarm condition, due one of the following reasons: - FLOW ALARM > MAX FLOW out of TOLERANCE RANGE ; - WEIGHT ALARM > MAX or < MIN WEIGHT LESS THAN MINIMUM or GREATER THAN MAXIMUM ; - SWERVING ALARM BELT SWERVING
DOSAGE	The instrument is in the dosage condition.
- OUT OF FLOW ! -	The instrument is in the underload or overload condition.
FLOW < MIN	The calculated flow is below <<MIN.F.R.>>.
FLOW > MAX	The calculated flow is over <<MAX.F.R.>>.
BELT LOADING	The instrument has entered the WEIGHING BELT MANUAL ENABLING function (see section 7 – “MANUAL ENABLING OF THE WEIGHING BELT”).

5.6 MESSAGES OF THE INSTRUMENT

While using the indicator, it is possible to incur the following errors:

INSIDE THE SET-UP OR MENU

Err.Mot.	The weight is unstable therefore it may not be acquired.
C.Er. – 38 C.Er. – 39	When carrying out the multirange or multidivisional calibration, the ranges have not been entered in an increasing manner (RANGE 1 < RANGE 2 < RANGE 3).
C.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)
C.Er. – 37	During the calibration some internal points less than the minimum value have been calculated: - the calibration point is equal to the zero point. - A capacity too high in relation to the division has been set.

AT START-UP

Err – 37 alternated with no.CAL	The converter points are less than the instrument's internal divisions; one must execute a TECHNICAL DEFAULT (<<Dflt.t>> step of the SET-UP environment) and carefully carry out the calibration.
Err – 39	Invalid calibration range number (there is the value 0 or values greater than 3); one must execute a TECHNICAL DEFAULT (<<Dflt.t>> step of the SET-UP environment), if not already executed previously, and carefully carry out the calibration.
Err – 40	The value 0 is in the “range 1” parameter of the calibration; one must execute a TECHNICAL DEFAULT (<<Dflt.t>> step of the SET-UP environment) and carefully carry out the calibration.
Err – 41	The value 0 is in the “diV 1” parameter of the calibration; one must execute a TECHNICAL DEFAULT (<<Dflt.t>> step of the SET-UP environment) and carefully carry out the calibration.
hW-Err	HARDWARE ERROR: software not compatible with the installed hardware; the hardware expansion component is missing which allows the software to function.

NOTE: if the “Er – XX” error appears after the indicator start-up, press the TARE key to enter in the SET-UP environment

IN WEIGHING

MESSAGE	DESCRIPTION
WEIGHT NOT VALID OR UNSTABLE	It is shown in the LCD display when one tries to print or totalise with 0, negative, or unstable weight.
WEIGHT NOT PASSED BY 0 OR UNSTABLE	It is shown in the LCD display when one tries to print or totalise, without having had the weight pass by the net zero or instability.

IN WEIGHING IN THE WEIGHT SECTION (CPWE) OR IN THE WEIGHT DISPLAY (3590E)

MESSAGE	DESCRIPTION
- - - - -	Under weigh -100d (with approved instrument) or over the Maximum Capacity + 9d .
prn-on	Turning on printer for maintenance (see section 3.3).
LOCK	Tare lock or enabled keyboard function.
UNLOCK	Tare lock or disabled keyboard function.

6. QUICK CALIBRATION FUNCTION OF THE ZERO FLOW

This operation is necessary to acquire the zero value when the conveyor belt is in motion. The movement of the belt is not perfectly smooth and the weighing roller is subject to any stress: for this reason the zero acquisition is calculated on the basis of an average.

When the weighing system is installed one should execute the zero flow calibration through the <<**ZERO.BL**>> step in the SETUP, entering correctly the requested parameters.

Later on, it will be possible to recalibrate faster the zero flow directly from the weighing mode, by using the parameters set in the setup therefore without to set them again.

Starting the calibration by keyboard

Press at length the **TARE/ZERO** key out of the dosage cycle: the instrument display will show "EXECUTE ZERO BELT?"; press **ENTER** to enable the function or **C** to abort.

Starting the calibration by input/serial command

It is possible to remote the function through an input, by linking it to the **ZERO.BL** function (**TECH.MAN.REF.**), or through a serial command of the SYSWAY, MODBUS or PROFIBUS protocol, by enabling the protocol in the **Setup >> Serial >> Com pc >> Protoc.** step, **TECH.MAN.REF.**.

By activating the input or sending the serial command out of the dosage cycle the instrument automatically executes the Function without asking a confirmation: reactivate the input or send again the serial command, in order to abort.

Procedure

- After the function is started, the display shows:

**START THE
BELT**

In this case one should enable the belt: the instrument supplies this message in the flow regulator mode, or in the flow reader mode if one uses the encoder; otherwise, in the flow reader mode, if one uses a fixed speed, the instrument passes directly to the following check, because it assumes that the belt is externally controlled, therefore already enabled.

- After the enabling of the belt the display shows:

**WAIT FOR BELT
REGIMEN**

If one uses the encoder the instrument waits until the impulses from the encoder are stable.

If one uses a fixed speed the instrument waits a fixed time of some seconds.

- When the waiting time is over, the display shows an instant:

ZERO ACQUISITION

- Then the instrument starts to acquire the belt zero, averaging the weights received by the instrument.

During the acquisition the display indicates the weight on the belt and the time elapsed, as percentage in respect to the time required to execute the function (on the basis of the parameters set in the SETUP):

0.000kg

50 %

- When the waiting time is over (depending on the parameters set in the SETUP), the instrument ends the acquisition and calculates the new zero.

- Before to return in weighing status, the instrument can eventually wait some seconds so that the flow-rate goes under the minimum value, to avoid totalizing; the display shows the following message during this time:

**WAIT UNTIL FLOW
RATE < MIN**

7. MANUAL ENABLING OF THE WEIGHING BELT OUT OF THE CYCLE, WITHOUT INCREMENT THE TOTALS (FOR MAINTENANCE OR LOADING/UNLOADING COMPLETELY THE BELT)

Through this function it's possible, out of the dosage cycle, to manually enable the weighing belt, for example to completely unload or load the belt, for maintenance checks, or for transporting material on the belt, without increment the totals.

This is useful also during the washing of the belt, because one can execute this operation and remove any residual material without totalizing weight on the belt.

The function is necessary when the weighing belt is managed by the dosage enabling output (Default=OUT1) and by the analogue output of the instrument, otherwise, when the belt is externally controlled, one has just to disable the cycle, after that the belt must be externally enabled.

Procedure

To execute the function:

- Disable the dosage cycle (see 13.1.3).
- Execute the function **302** combinable with the desired key (<< F.KEYS >> step, **TECH.MAN.REF.**).
- Then, if the flow regulator mode has been selected (see section 13.2.2), one has to enter the speed with which one wants to run the belt (DAC value), the display shows:

**BELT SPEED (DAC)
C NOT TO SET**

00000

In the reader mode one is not asked to enter the speed, because the belt runs at a fixed speed, set in the <<MAN.SPD>> step, **TECH.MAN.REF.**

Enter the speed and confirm with ENTER key.

- The display shows:



- Enable the cycle (see section 13.1.1): the dosage enabling output (OUT1) is enabled and the weighing belt starts to run at the set speed, without increment the totals.

To exit form the function one should:

- Disable the dosage cycle (see section 13.1.3).
- Press the **C** key.

8. MULTIRANGE FUNCTION

The multi range functioning allows to subdivide the scale capacity in two or three ranges, each which is up to 3000 divisions, improving in this way the first range division in the dual range and the first two ranges in the triple range.

For example 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.).
- Triple range: 15 / 6 / 3 kg capacity and 5 / 2 / 1 g division (3000 + 3000 + 3000 div.).

NOTE: For the approval of the weighing system in dual and triple ranges the cell must have better technical features in comparison to the cell used for the approval in a single range.

This functioning is indicated by the enabling of the symbol which identifies the range in which one is working: **W1** first range, **W2** second range, **W3** third range (if configured); by passing to the **W2** range, the second range division is enabled; by passing to the **W3** range, the third range division is enabled, at this point the **W1** first scale division is restored **only by passing the gross zero of the scale**.

The multidivisional functioning is similar to multirange, but with the difference that a range division is enabled as soon as one enters in its range interval (in other words **without passing by the scale zero**).

NOTE: The selection of the range number with multirange and multidivisional functioning is made during the indicator calibration (**TECH.MAN.REF.**).

9. DISPLAY OF METRIC DATA (inFO)

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

- First range capacity, first range division.
- Second range capacity, second range division.
- Third range capacity, third range division.
- Minimum weigh ("e")

NOTES:

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

To display the metric data:

- Press in sequence the **2ndF** and **C** key
- "METROLOGIC INFORMATION" is displayed
- The display will show the number of the scale, the type of displayed data and its value.
- Press the **F6** key to quickly scroll the data:
- Press the **F7** key to scroll the previous data backwards.
- Press the **C** key to return to weighing.

10. FILLING IN THE INPUT TEXTS

The indicator offers the possibility of using 15 CONFIGURABLE INPUT TEXTS (for example LOT, OPERATOR, SHIFT, etc.), each made up of 16 heading characters and 32 content characters.

When entered in the TECHNICAL SET-UP (see <<tXt>>), these may be printed later on, if programmed in the printouts; or these may be used as a reminder.

- 1) Press **F4** for an instant one can enter the contents of the programmed INPUT TEXTS:
- 2) The display shows "in. XX" on the first line, in which XX is the index of the free text (from 0 to 14) THE HEADING on the second line of the input text (or "Empty..." if empty).
- 3) Use the arrow **▲ ▼** keys to select the text to be filled in and press **ENTER**: now one can enter the alphanumeric text in the second line of the display, (see chapter 4.2 - "ENTERING ALPHANUMERIC TEXT").
- 4) Press **ENTER** to store and pass on to the following stored TEXT; by confirming the last entered text one returns automatically to the weigh functioning;
- 5) it is possible to exit also with the **C** key while in the text selection modification phase.

NOTE:

- a. The entered texts remain in storage until these are substituted or cancelled.
- b. If no text has been configured, the pressing of the **F4** key has no effect.


10.1 QUICK MODIFICATION OF THE INPUT TEXT

By linking a number of a specific input text, at the function 113 (the preamble of this function), it is possible edit directly this text by pressing the relative key with its preamble, for example using F1 to edit directly the input text 0 and F2 to edit directly at the input text 1.

11. ARTICLES DATABASE

The indicator has a database in which it is possible to store up to 100 articles having five descriptions of 20 characters, hourly flow target, weight dosage target and initial value analogue output; each article is linked to a storage number, from 0 to 99.

The selected article can be printed through the relative print block.

KEYS	ACCESS	KEY	MENU
	Article Database Art.dtb	F1 ▶	New
		F2 ▶	Edit
		F3 ▶	Delete
		F4 ▶	Research
		F5 ▶	Print
		Fn ▶	Select
		2nd F ▶	Deselect
		. / HELP ▶	Help

11.1 ENTRY

- 1) Press the **F1** key to enter in the article database.
- 2) Select the eventual desired position using the arrow keys ▲ ▼ (or with the keyboard type the position number).
- 3) Press **F1** to insert the article in the desired position, or with the first free position, if an already occupied position has been selected.
- 4) One should fill in the following fields (only the necessary ones are requested); press **ENTER** to confirm:
 - **"DESCRIPTION 1"**: first description line (up to 20 characters);
 - **"DESCRIPTION 2"**: second description line (up to 20 characters);
 - **"DESCRIPTION 3"**: third description line (up to 20 characters);
 - **"DESCRIPTION 4"**: fourth description line (up to 20 characters);
 - **"DESCRIPTION 5"**: fifth description line (up to 20 characters);
 - **"INI. VAL. ANALOG"**: initial value of the analogue output for this article, used in the regulator mode during the first dosage, if the "volumetric" optimization start is selected (see section 13.5.3.2); one can enters a value between 0 and 63250. If a number greater than 63250 is entered, the instrument clears the entered value.
 - **"FLOW RATE TARGET"**: target flow rate for the dosage; it is displayed only if the flow regulator mode has been selected (**F.Mode >> BELT >> FUNC** step, **TECH.MAN.REF.**).
 - **"DOSAGE TARGET"**: target weight for the dosage.

11.2 MODIFICATION

- 1) Press the **F1** key to enter in the article database.
- 2) Select the storage to be modified by using the arrow keys ▲ ▼ (or with the keyboard type the storage number; the LCD display shows the first corresponding DESCRIPTION line) and press **F2**.
- 3) Modify the desired fields, listed in the previous section.
Are also shown the dosed weight and the number of dosages of the article (these values can't be modified).
- 4) Press the **C** key to return to weighing.

11.3 CANCELLATION

- 1) Press the **F1** key to enter in the article database.
- 2) Select the storage to be cancelled by using the arrow keys ▲ ▼ (or with the keyboard type the storage number; the LCD display shows the first corresponding DESCRIPTION line) and press **F3**.
- 3) The indicator requests a further confirmation: press **ENTER** to confirm or another key to cancel.
- 4) Press the **C** key to return to weighing.

11.4 ALPHABETICAL RESEARCH

The access to the ALPHABETICAL RESEARCH is possible in the following 2 ways:

- 1) by pressing the **F1** to access the database and by pressing the **F4** key;
or
- 2) through function **312** combinable with the desired key (<< **F.KEYS** >> step, **TECH.MAN.REF.**).

To search an article:

- 1) enter the desired characters to search in the first description of all the articles.
- 2) Select the desired article in the list of the result by using the arrow keys **▲ ▼** and press **ENTER**.
- 3) If the research is started through the function **312**, the indicator automatically select the article otherwise, carry out one of the operations described in the previous sections.

11.5 PRINTING

- 1) Press the **F1** key to enter in the article database.
- 2) Once inside the article database menu, press the **F5** key. The LCD display shows the message "PRINT?": confirm with the **ENTER** key to print the entire article database which shows all the relative fields for each stored article.

11.6 SELECTION/UNSELECTION

To **select** a stored article, one can proceed in two ways:

- 1) Enter the article storage number using the numeric keyboard (if different than the 000 storage, see the following section) and press **F1**: if an article is stored in the recalled position, the indicator display shows the message "ARTICLE XXX SELECTED" (in which XXX indicates the number of the selected storage) and activates it.
- 2) Press for an instant the **F1** key to enter in the article database:
Select the storage
 - using the arrow keys **▲ ▼**
 - by typing the storage number with the keyboard (the LCD display shows the first corresponding DESCRIPTION line).
 - by searching the first description (see section 11.4)
 Press **ENTER** to activate the article.

To **unselect** a selected article, for an instant press the **F1** key to enter in the article database and press **2nd F**. Before unselecting, a confirmation is requested: press **ENTER** to confirm or another key to cancel.

11.7 ENTRY, MODIFICATION AND QUICK SELECTION OF ARTICLE 000

It's possible to enter or modify quickly the article 000:

Type the number 0 using the numeric keyboard and press **F1**; the indicator is ready to enter/modify the article 000: once modified and confirmed with **ENTER**, it is also selected. **The modification has effect also in the database.**

11.8 HELP

By pressing the **. /HELP** key inside the articles database, it is possible to display the list of the keys used in the database and their functions.

The list is automatically. If one wants to scroll the list of the keys in manual mode, it is possible to use the arrow keys (**F6 ▼ e F7 ▲**).

12. DATABASE ACCESS PASSWORD

In the SETUP (<<dtb.PWD>> step) one can set a password for access to the database of the articles. A password will be required only when one wants to insert, modify or delete an element of the file; for a moment the display shows the message "USER-PRESS KEY"; afterwards, it will be no longer possible to make changes to the database.

To access the complete menu

- Press any key DURING THE VISUALISATION OF THE "USER-PRESS KEY" message: the instrument requests the entry of the password (a number will appear).
- Enter the password and confirm with **ENTER**.

13. FUNCTIONING OF THE CONTINUOUS DOSAGE ON THE BELT

The programme has been made to manage the measurement/integration of the weight, flow of material transitioning on the weighing belt, with memorisation of the quantity of dosed material, and to adjust the flow through the 16 bit analogue output and PID control.

The input/output allows for the management, for the selection of the formulas and for other functions (see technical manual).

It is also possible to remotely manage the instrument, through Sysway or Modbus RTU protocols, or Profibus through external optional interface.

To start the dosage, one should start the cycle as described in the following sections.

13.1 PROCEDURES OF THE DOSAGE CYCLE

In order to execute a dosage, one should as first:

- fill in the article database and select the desired article to be dosed, in order to automatically select the relative parameters(see section 11),

or

- set manually the desired parameters (see following sections).

Then manually start the cycle through an external input or a configurable key.

By enabling the dosage cycle the following takes place:

Each time the belt is in motion, if the belt is managed from the indicator (a fixed speed has not been set and the encoder is connected) and the flow is greater than the minimum one set, the hourly flow of the instrument is displayed and the partial total and general total are incremented.

The accumulated partial total may be reset through the START serial command (see SYSWAY or MODBUS/PROFIBUS appendixes).

The instrument will execute specific functions depending on the **two available functioning modes:**

- Instantaneous reading of the flow, in kg/h or t/h with displaying of the status of the system and of the dosed total.
- Adjustment of the dosage hourly flow, in function of the pre-set target, with PID algorithm.

By programming the instrument inputs in a specific manner, one may **put the dosage in pause through** an external input or a configurable key. See section 13.1.2.

If the instrument is turned off during the dosage, when the instrument is turned back on it also enters in the pause status.

Enable again the cycle as described in the section 13.1.1 to retrieve the dosage from the condition in which it was turned off, or disable manually the cycle as described in the section 13.1.3 for resetting the dosage under way.

The instrument can end the dosage and consequently the totalization in 3 different ways:

- Automatically by reaching a set target weight
- Automatically when a set target time is over
- Manually by disabling the cycle

See section 13.1.3.

13.1.1 DOSAGE CYCLE START

13.1.1.1 START THROUGH EXTERNAL INPUT

To enable the cycle close and leave closed the input linked to the START/STOP function (Default=IN1).

13.1.1.2 START THROUGH A CONFIGURABLE KEY

It is possible to enable the cycle through the function **307** combinable with the desired key (<< **F.KEYS** >> step, **TECH.MAN.REF.**).

In this case no input has to be linked to "ON/OFF" function (**DOSAGE START/STOP**), and an input must be linked to the "CONSENSUS" function.

To start the dosage one has first to close and leave this input closed and then press the key linked to the **307** function.

13.1.1.3 START UPON START-UP

If one of the inputs has not been linked to the “**ON/OFF**” function (**DOSAGE START/STOP**) and to the “**CONSENSUS**” function, the dosage automatically starts right after the turn-on cycle of the instrument and it's possible to stop it by removing the power supply. In this case it is possible to clear the partial total also during the dosage (see section 13.3.2.5).

13.1.2 PAUSE – MOMENTARY INTERRUPTION OF THE DOSAGE CYCLE

13.1.2.1 PAUSE THROUGH EXTERNAL INPUT

To pause the cycle, one has as first to configure an input as PAUSE function in the SETUP.

Then to pause the cycle in the weighing phase, press an instant the external button, which must be connected to the previously configured input.

13.1.2.2 PAUSE THROUGH A CONFIGURABLE KEY

It is possible to pause the cycle through the function **308** combinable with the desired key (<< **F.KEYS** >> step, **TECH.MAN.REF.**).

13.1.3 DOSAGE CYCLE END MODE

13.1.3.1 DOSAGE END BY WEIGHT (DOSAGE TARGET)

The value of the weight that one wants to dose (target), must be programmed through the **F7** key or recalled together with the article (see section 11).

By setting a value different than zero, once the dosage is enabled, the instrument remains in this status until the accumulated partial total surpasses the set target; once this threshold is surpassed, the instrument disables the dosage output and enables the TARGET dosage output (Default=OUT3).

If the flight is foreseen, the instrument, while waiting the flight, totalizes the material until the flight time has passed. If the flight time has been programmed at zero, the instrument ends the totalisation at the target.

It is anyway possible to end manually the dosage by disabling the cycle, but not by time: once the DOSAGE TARGET WEIGHT is programmed, the indicator automatically clears the DOSAGE TIME.

13.1.3.2 DOSAGE END BY TIME

The value of the time until one wants to dose (target), must be programmed through the function **306** combinable with the desired key (<< **F.KEYS** >> step, **TECH.MAN.REF.**).

By recalling the function one is asked as first to select the unit of measure of the entered value:



Select between SECS (seconds), MINS (minutes) and HOURS (hours) and press ENTER. Then set the desired value and press ENTER to confirm.

By setting a value different than zero once the dosage is enabled, the instrument remains in this status until the set time is over.

Once this time is surpassed, the instrument disables the dosage output and ends instantaneously the dosage.

It is anyway possible to end manually the dosage by disabling the cycle, but not by weight: Once the DOSAGE TARGET TIME is programmed, the indicator automatically clears the DOSAGE WEIGHT.

13.1.3.3 MANUAL DOSAGE END / DOSAGE CYCLE DISABLING

By setting a target weight and a target time equal to zero, the dosage continues until the dosage cycle is manually disabled.

In this and in any case, it is possible to manually end/disable the cycle:

- By disabling the input linked to the START/STOP function (Default=IN1),
- or
- Through the function **309** combinable with the desired key (<< F.KEYS >> step, **TECH.MAN.REF.**).

13.1.4 PROGRAMMABLE DELAY TIME FOR DOSAGE CYCLE START AND STOP

It is possible to program a delay time for the start and the manual stop of the dosage, for the synchronization of various E-BELT systems in the dosage of material mixtures. In regards to the delay setting, please refer to the technical manual (<<DELAY>> STEP, **TECH.MAN.REF.**).

13.2 SELECTABLE FUNCTIONING MODES

13.2.1 "READER" MODE: FLOW READER

FUNCTIONS:

- Simple reading of the hourly flow of the material passing on the belt
- Display of the hourly flow/weight
- Totalisation of the dosed weight
- Display of the accumulated totals
- Manual dosage cycle end or automatic (by weight or by time)
- Printing of the dosage data, programmable
- Transmission of the dosed weight through an output (impulse counter)
- Checking the belt side-slipping and the minimum/maximum weight
- Reading of the flow and the total weight dosed using the serial interface.

Refer to the technical manual (**TECH.MAN.REF.**) for the functioning specifications.

NOTE: By using the Sysway protocol, it's possible to have the reading of the dosage data and the cancellation of the general total. With the Profibus and Modbus protocols it is also possible to configure the dosage parameters of the instrument.

- Analogue output proportional to the flow (OPTIONAL).
- For the description of this function, refer to section 13.4

13.2.2 "REGULATOR" MODE: FLOW REGULATOR

Premise: this functioning mode requires the optional analogue board and the encoder.

Besides the flow reader mode functions, the instrument allows to adjust the flow to a value entered through the keyboard or set from external device externally (see section 13.4.1). The analogue output is used to pilot the hourly flow monitoring device.

FUNCTIONS:

All the READER mode functions (but with a different management of the analogue output).
For the description of the common functions, refer to section 13.3.

Specific functions of the regulator mode:

- Target flow entered from keyboard or set from external device (through optional analogue input)
- Control/Adjustment of the flow through the relay/analogue output (OPTIONAL)
- Dosage start optimization
- Correction of weight error of dosed material

For the description of all the function of the flow regulator mode, refer to section 13.5

13.3 DESCRIPTION OF THE COMMON FUNCTIONS

13.3.1 DISPLAY OF THE HOURLY/WEIGHT FLOW

During the weighing cycle, the instrument shows the hourly flow of the system on the display (see section 5.3); by pressing the 2ndF + F8 key, one switches the display of the weight on the weighing system. The flow's unit of measure depends on the scale's unit of measure:

Scale unit of measure	Flow unit of measure
g	kg/h
kg	t/h

13.3.2 TOTALISATION OF THE DOSED WEIGHT

The instrument is fitted with three different total levels (Partial total, General total, Article total), each of which is increased during the weighing cycle according to the detected flow rate. The unit of measure of these totals depends on the scale's unit of measure:

Scale unit of measure	Total unit of measure
g	kg
kg	t

The totalisation begins from the start of the dosage and ends when the dosage cycle is stopped, as soon as the instrument reaches the set weight target or once the set dosage time has passed, depending on the dosage cycle end mode (see section 13.1.3).

The totalization is carried out if the flow rate is within the totalization tolerance field (see following section).

It is anyway possible to manually pause or end the dosage under way (see sections 13.1.2 and 13.1.3.3); if the instrument is in the pause status, by reenabling the dosage, the increase of the partial total will take place starting from the value accumulated until the pause status, otherwise when the dosage ends (manually or automatically by weight/time), the partial total is automatically cleared with the following dosage start.

NOTES:

- The partial total has two extra decimal digits in respect to the indication of the hourly flow
- The general total has the same number of decimal digits of the hourly flow.
- If the instrument manage the encoder to read the belt speed, when is out of the dosage cycle all totals will be anyway incremented if the belt is running and the instantaneous flow is within the totalization tolerance field (see following section).

13.3.2.1 TOTALIZATION TOLERANCE FIELD

PREMISE: IN REGARDS TO THE FIELD SETTING, PLEASE REFER TO THE TECHNICAL MANUAL (<<TOT.RNG>> step, **TECH.MAN.REF.**).

It is possible to define a flow rate interval inside of which it is possible to totalize the calculated weight during the dosage and outside of which the totalization is not carried out.

13.3.2.2 DISPLAY OF THE ACCUMULATED TOTALS DURING THE DOSAGE

The display shows also the status of the system and a second line with selectable information (see section 5.4); by changing the available visualization it will be possible to display the various level of totals (Partial total, general total, article total).

13.3.2.3 PRINTING WITH ZEROING OF THE ACCUMULATED TOTALS

If a printer is connected and correctly configured, the instrument is able to print the dosage data; the printouts are configurable. For the description of all the printing functions, refer to section 14.

13.3.2.4 TEMPORARY VISUALISATION AND CLEARING OF THE ACCUMULATED TOTALS

Each total can be momentarily viewed on the display or cleared independently through the printout, linking the function corresponding to the desired step (<< **F.KEYS** >> step, **TECH.MAN.REF.**):

By recalling one of the clearing functions, the instrument requests a confirmation before proceeding with the cancellation: press ENTER to clear, C for continuing to accumulate.

It's possible to disable the confirmation request, in the **F.Mode** >> **total** >> **rESEt** step, **TECH.MAN.REF.**

In case of visualisation of the total, the instrument automatically exits the function after a few seconds.

NOTES:

- The weight data of the cleared total will be updated only with the subsequent totalisation.

- The ARTICLE TOTAL is article specific, in other words, there is a total for EACH ARTICLE USED.

The other totals are GENERIC, and can be cleared INDEPENDENTLY ONE FROM THE OTHER (i.e. if one clears the General total, with the following totalisation, the other totals will continue to increment, while the General total will restart from 0).

TOTAL	FUNCTION CODE FOR VISUALISATION	FUNCTION CODE FOR RESETTING
PARTIAL TOTAL	403	405
GENERAL TOTAL	406	408
ARTICLE TOTAL (only with selected article)	409	411
ALL ARTICLE TOTALS	-	412
ALL SCALE TOTALS (including weighs' lists, except the article total)	-	413

13.3.2.5 RESET OF THE PARTIAL TOTAL THROUGH AN INPUT

Through the "CLR.P.T." function combinable with the desired input (**TECH.MAN.REF.**) it is possible to reset the partial total by pressing an external button connected to this input.

If the "dosage start cycle" function is combined with an input, one has as first to disable this input to disable the cycle, in order to allow the reset.

13.3.3 DIGITAL DOSAGE COUNTER (TRANSMISSION OF THE DOSED WEIGHT THROUGH PULSES)

It is possible to transmit the weight of the dosed material by using an output which gives an impulse (long 0.1 sec, not programmable) each time that the weight total is increased of a certain programmable value.

The value of the weight corresponding to an impulse can be set through the function **305**.

13.3.4 CHECKING THE BELT SIDE-SLIPPING

PREMISE: IN REGARDS TO THE FUNCTION ENABLING AND SETTING, PLEASE REFER TO THE TECHNICAL MANUAL (<<**SIDESL**>> step, **TECH.MAN.REF.**).

One can control the side-slipping of the belt through the relative input (Default=IN6), by connecting a the side-slipping sensor to it; if the input is closed, the indicator enters the side-slipping error status, enabling the relative output (Default=OUT6) and then the LOCK output (Default=OUT10), after the configured delay time in the SETUP.

13.3.5 CHECKING THE MINIMUM/MAXIMUM WEIGHT

One can control if the weight on the weighing zone is within the maximum and minimum weight set in the SETUP (<<**MAX.WEI**>> and <<**MIN.WEI**>>, **TECH.MAN.REF.** steps); when the weight is out of the tolerance field the indicator enters the alarm status, enabling the relative output (Default=OUT9) and then in the block status, after the relative weight alarm and weight block delay times (<<**ALARM**>> and <<**LoCk**>> steps inside the **F.Mode** >>**BELT** >> **ERRORS** >> **WEIGHT** parameter, **TECH.MAN.REF.**).

13.3.6 SLOW FLOW FUNCTION FOR MORE PRECISE DOSAGES

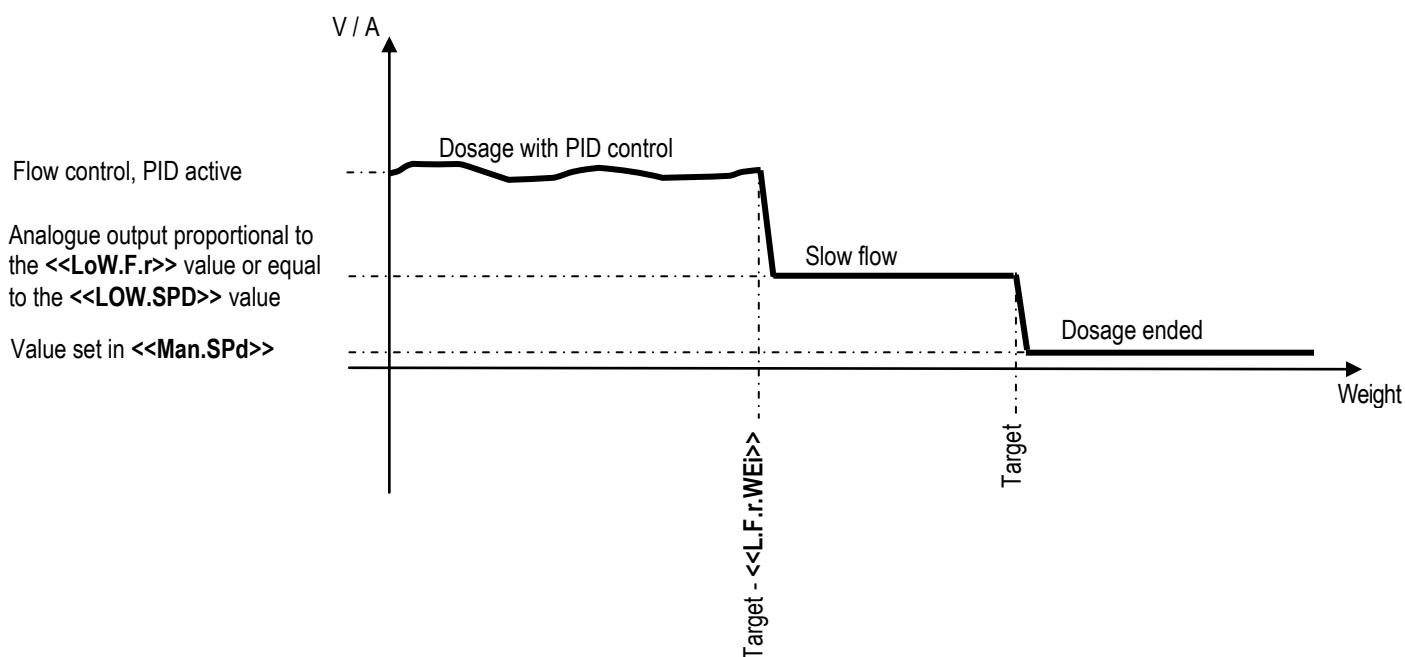
It's possible to enable the "slow flow" function in order to improve the result of the dosage, if one is working on the target

(dosage end mode by weight, see section 13.1.3.1)

The function foresees that the instrument modifies the dosage speed when upon the reaching of the set target, a certain quantity of material is missing; this quantity is set in the <<L.F.R.WEI>> step, **TECH.MAN.REF.**

Upon reaching this threshold, the analogue output value is modified so that the slow dosage is obtained:

- in the regulator mode, one can set this flow in the <<LOW.F.R>> step, **TECH.MAN.REF.** and the instrument calculates automatically the analogue output value proportionally to the last value which, during the dosage, has allowed the flow to go back within the set tolerance.
- in the reader mode, one has to set directly the analogue output value in the <<LOW.SPD>> step, **TECH.MAN.REF.**



13.3.7 FLIGHT MATERIAL AT END OF DOSAGE

It's possible to set a FLIGHT weight, in other words, the quantity of material which, by inertia, is normally added to the dosage when it is stopped, in order to stop previously the belt and reach correctly the set target, if one is working on it (dosage end mode by weight, see section 13.1.3.1)

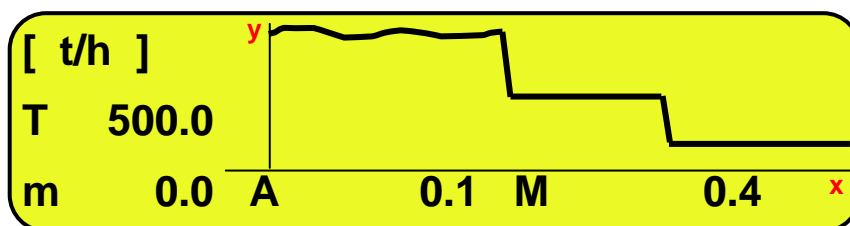
The function foresees that the instrument stop the dosage (analogue output and output linked to the STOP function) in the moment in which the TARGET minus the MATERIAL WEIGHT IN FLIGHT is reached. The quantity of material in flight is set in the <<FLY.WEI>> step, **TECH.MAN.REF.**

After this a wait time starts equal to the FLIGHT WAIT TIME in which one presumes that the belt is still in motion, therefore the material is still added to the dosage, and the TARGET will be reached. The flight time is set in the <<FLY.TIM.>> step, **TECH.MAN.REF**

During this time the instrument totalizes the material in transit on the weighing system and the dosage output remain active. Once the wait time is finished also the dosage output is disabled.

13.3.8 FLOW RATE GRAPHIC DISPLAY

At the end of the dosage it is possible to display a graphic of the flow rate:



In which:

X-axis: time

Y-axis: flow rate

T: Flow rate target (In the regulator mode)

m: Min. measured flow rate during the last dosage

A: Average flow rate of the dosage

M: Max. measured flow rate during the last dosage

The time interval (from 0 onwards) between each 2 data to be displayed can be set in the <<INT.F.R.>> step between 1 sec, 5 sec, 10 sec, 30 sec, 1 min, 5 min and 10 min.

The graphic can be displayed:

- automatically at the end of the dosage, if the automatic display has been enabled in the <<INT.F.R.>> step, **TECH.MAN.REF.**

- manually, out of the dosage cycle, through the function **310** combinable with the desired key (<< F.KEYS >> step, **TECH.MAN.REF.**).

13.4 SPECIFIC FUNCTIONS OF THE READER MODE

13.4.1 ANALOGUE OUTPUT (OPTIONAL)

The analogue output can take on a fixed value in order to manage an automatism which must function at a fixed speed during the dosage or can be programmed to supply a value proportional to the instantaneous hourly flow. Refer to the technical manual for the configuration.

13.4.1.1 ANALOGUE OUTPUT PROPORTIONAL TO THE INSTANTANEOUS HOURLY FLOW

By setting a value equal to 0 in the <<MAN.SPD>> step (**TECH.MAN.REF.**) the analogue output supplies a signal depending on the hourly flow value shown on the display; this signal is proportional to the maximum hourly flow, entered in the <<MAX.F.R.>> step.

With a maximum hourly flow the analogue signal is maximum, <<AOMA>>.

With a minimum hourly flow:

- the analogue signal is equal to the zero value, <<AOZE>>, if the value of <<AOZE>> is greater than the value of <<AOMI>>;
- the analogue signal is equal to the minimum value, <<AOMI>>, if the value of <<AOMI>> is greater than the value of <<AOZE>>.

With the scale in underload /overload, the analogue signal is equal to the minimum value <<AOMI>>.

13.4.1.2 ANALOGUE OUTPUT AT FIXED VALUE

This functioning mode is useful for the connection to the external equipment.

By setting a value different than 0 in the <<MAN.SPD>> step (**TECH.MAN.REF.**) the signal of the analogue output will remain constant during the dosage depending on the dosage phase:

- During the fast dosage the analogue signal is determined by the value set in this step.
- In the slow flow phase, the analogue signal is determined by the value set in the <<LOW.SPD>> step (TECH.MAN.REF.).
- During the flight wait time set in the <<FLY.TIM>> step (TECH.MAN.REF.), the analogue signal is minimum, <<AOMI>>.

13.5 SPECIFIC FUNCTIONS OF THE REGULATOR MODE

13.5.1 SETTING OF THE FLOW TARGET

The instrument executes the flow check depending on the value set and executes all the necessary adjustments in order to reach this value, modifying the analogue output value on the basis of the read material flow: the instrument increases or decreases the analogue output value until reaching, if possible, the value.

NOTE:

During the slow flow phase, the signal of the analogue output is determined by the value set in the <<LOW.F.R.>> step (TECH.MAN.REF.).

13.5.1.1 SETTING THROUGH THE KEYBOARD

If the monitoring of the target through the analogue input has not been selected (**An.in** >> **EnAbLE** step in the SETUP environment), by pressing the **F6** key it is possible to program directly the Flow Target to reach. Enter the desired target and confirm with ENTER.

It is possible also to recall the flow target together with the article selection (see section 11).

13.5.1.2 SETTING FROM EXTERNAL DEVICE (THROUGH THE ANALOGUE INPUT)

If the monitoring of the target through the analogue input has been selected (**An.in** >> **EnAbLE** step in the SETUP environment), the flow target will be calculated as a percentage of the value read from the analogue input: by pressing the **F6** key the percentage is requested instead of the flow.

This type of functioning is normally implemented in systems that use 2 weigh belts in succession, in order to modify the flow target of both automatically by changing the analogue value.

NOTE: the total top scale value corresponds to the value of REMOTE BELT MAXIMUM FLOW (**F.ModE** >> **bELt** >> **rEM.F.r.** and **rEM.dEC** steps in the SETUP environment) (TECH.MAN.REF.).

13.5.2 TOLERANCE CHECK ON THE FLOW

By setting a tolerance value percentile in the <<F.R.ERR.>> step (TECH.MAN.REF.), the instrument executes a tolerance check on the instantaneous hourly flow; this check determines the activation of the OVER UPPER FLOW or BELOW LOWER FLOW outputs (if configured), connectable to external devices for control and eventual correction, when the instantaneous flow goes respectively over the Target flow + the set percentage or under the Target flow - the set percentage.

13.5.3 ANALOGUE OUTPUT (OPTIONAL)

During the dosage, the analogue output can be controlled by the instrument through a **PID algorithm** that increases or decreases its value in order to reach, if possible, the flow target, as described in the section 13.5.3.1.

During the dosage start, it is possible to manage differently the analogue output in order to optimize the start, as described in the section 13.5.3.2.

13.5.3.1 ADJUSTING THE FLOW

The adjustment of the flow is carried out by using the analogue output to pilot the external adjustment device.

The differences between the measured flow and the target value are corrected by a PID algorithm (Proportional, Integral, Derived) that pilots the analogue output.

To avoid problems of instability of the regulated flow rate, the value of the maximum flow rate set in the <<MAX.F.R.>> step (TECH.MAN.REF.) must be equal to the effective maximum flow rate of the system, or slightly higher than it. It is possible to display the value of the maximum flow rate of the system by entering the maximum value of the analogue output <<AOMA>> in the <<FL.RATE>> step (TECH.MAN.REF.).

Improving the accuracy and the response speed of the adjustment is done by modifying the PID parameters shown in the technical manual in the <<PID.REG>> step (TECH.MAN.REF.).

13.5.3.2 DOSAGE START OPTIMIZATION (ACTIVE WITH EACH DOSAGE START/RESTART)

In order to eliminate the problems which take place at the start of a feedback-driven system (delays and surpassing the target value), **there are two different solutions:**

- **The first one (with ramp)**, which eliminates just the target surpassing error, consists in enabling immediately the PID when the dosage is started but creating a ramp of the flow target that the PID algorithm must reach, by increasing the flow target from 0 to the set value, in a preset time interval.

This is obtained by disabling the fast start of the belt (<<FAST.ST>> step = "NO", TECH.MAN.REF.) and by setting a time greater than zero in the <<TAR.TIM>> step (TECH.MAN.REF.) that defines the time interval of the ramp; in this way the PID check is enabled immediately and a start ramp of the flow target is executed until the set flow target value is reached (at the end of the set time), avoiding surpassing of the target value.

- **The second one (volumetric)**, decreases the delays, but causes the non immediate enabling of the PID; the analogue output is frozen at a fixed value for the entire start transitory time.

This is obtained by enabling the fast start of the belt (<<FAST.ST>> step = "YES", TECH.MAN.REF.) and by setting a time greater than zero in the <<TAR.TIM>> step (TECH.MAN.REF.) that defines the time for which the analogue output must be frozen:

- The value, upon the first dosage cycle start, is calculated by the instrument, or automatically enabled together with the article, if set, see section 11.1.
- In the following dosage, the instrument takes into consideration the last value for which the dosage went within the tolerance.
- It is possible to change at any time the initial value to use for the following dosages in the <<START.V>> step (TECH.MAN.REF.).
- It is possible to automatically recalculate the initial value when the target is changed, by enabling this function in the <<RECALC>> step (TECH.MAN.REF.).

13.5.4 CORRECTING THE DOSED MATERIAL WEIGHT ERROR

This function allows the correction of the error on the dosed total, by modifying the flow target value.

Even though the flow is adjusted, there are times in which it differs from the set flow target value; in these times may be that errors have accumulated on the dosed total, in respect to the total which would be obtained with a flow value always equal to the set flow target (hypothetically).

To correct this error, in a time period which is programmed in the <<COR.TIM>> step (TECH.MAN.REF.), the instrument modifies the flow target value.

A maximum value percentage for which the flow target can be modified can be set in the <<MAX.COR>> step (TECH.MAN.REF.).

13.5.5 FILTER ON THE HOURLY FLOW VISUALIZATION

If required, it is possible to enable a filter on the hourly flow visualization in order to make it more stable, see the <<F.R.VIS.>> step of the technical setup for further details, TECH.MAN.REF.

14. PRINTOUTS

The instrument is fitted with different print functions, which may be used while weighing, and of 30 print formats, in other words, 30 different memory storages, each of which contain a programmable printout.

The prints made by these functions depends on the print formats linked to it; see the following section for the linkages.

The format linking function allows to execute various printouts, by changing the linked format each time.

The available functions are:

SIMPLE PRINTOUT

- Programmable printout -

Through the **F5** key one prints the linked format:

With the APPROVED instrument:

- The printing works if there is a WEIGHT of at least 20 divisions.

With the NON APPROVED instrument:

- The printing works if there is a WEIGHT greater than zero.

DOSAGE REPORT

- Programmable printout -

Through the following print functions, it is possible to create a report of the dosage made, by printing an heading and the dosage end, with all the data of the weighs and the accumulated total. See standard printout example in the section 14.5.

START DOSAGE

- Programmable printout -

The linked format is automatically printed at the beginning of dosage start.

RESTART DOSAGE

- Programmable printout -

The linked format is automatically printed at the restart of the dosage.

AUTOMATIC DOSAGE END

- Programmable printout -

The linked format is automatically printed at the automatic end of dosage (by time or by weight, see section 13.1.3).

BELT BLOCK

- Programmable printout -

The linked format is automatically printed when the belt goes into the block status.

MANUAL DOSAGE STOP

- Programmable printout -

The linked format is automatically printed when the dosage is manually stopped (see section 13.1.3).

PAUSE DOSAGE

- Programmable printout -

The linked format is automatically printed when the dosage goes into the pause status.

PARTIAL TOTAL

- Programmable printout -

By pressing the **F8** key the resetting of the PARTIAL TOTAL and the printing of the linked format are made.

GENERAL TOTAL

- Programmable printout -

By pressing the **F9** key the resetting of the GENERAL TOTAL and the printing of the linked format are made.

SELECTED ARTICLE TOTAL

- Programmable printout -

By pressing the **2ndF + F1** key the resetting of the SELECTED ARTICLE TOTAL and the printing of the linked format are made.

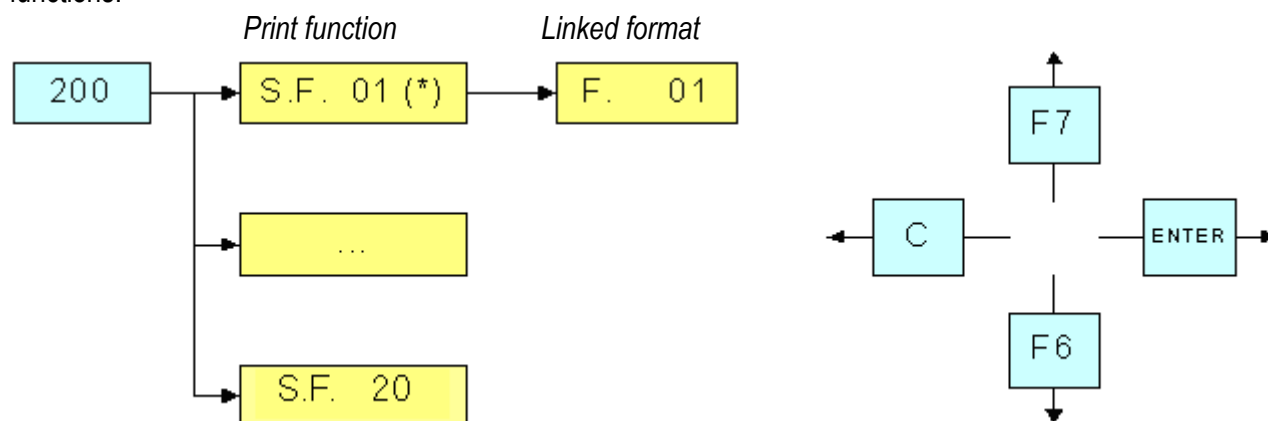
RESULT OF THE CALCULATOR

- Programmable printout -

Once terminated the operation with CALCULATOR function the linked format is printed. See section 15.1 – "CALCULATOR".

14.1 LINKING OF THE FORMATS TO THE PRINT FUNCTIONS

Through function **200**, combinable with the desired key (<< **F.KEYS** >> step, **TECH.MAN.REF.**), one accesses the linking of the print formats (configurable in the **SEtuP** >> **SEriAL** >> **Prn.FMt** step **TECH.MAN.REF.**) to the 30 programmable print functions:



Print function		Key	Linked step
SIMPLE PRINTOUT		F5	S.F. 01
DOSAGE REPORT	START DOSAGE	Automatic print	S.F. 02
	RESTART DOSAGE	Automatic print	S.F. 03
	END DOSAGE	Automatic print	S.F. 04
	BLOCK BELT	Automatic print	S.F. 05
	STOP DOSAGE	Automatic print	S.F. 06
	PAUSE DOSAGE	Automatic print	S.F. 07
PARTIAL TOTAL		F8	S.F. 08
GENERAL TOTAL		F9	S.F. 09
SELECTED ARTICLE TOTAL		2ndF + F1	S.F. 10
CALCULATOR		Automatic print	S.F. 11
PRINT AT IGNITION		Automatic entry	S.F. 12

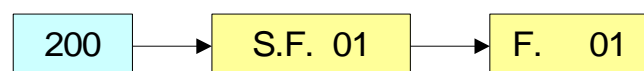
The instrument is fitted with 30 print formats, in other words, 30 different storages, each of which contain a programmable printout.

The formats are programmable in the **SEtuP** >> **SEriAL** >> **Prn.FMt** step in the SET-UP environment (**TECH.MAN.REF.**).

It's possible to quickly link to each print functions listed in the table to a stored format; this function allows also to execute various printouts with the same print function, changing the linked format from time to time.

TO LINK THE FORMAT:

- Recall function **200**, combinable with the desired key (<< **F.KEYS** >> step, **TECH.MAN.REF.**).



- The LCD display shows:

XX in which:

XX indicates the number of the function (from 01 onwards) to which the print format is linked.

- Select the print function (for example S.F. 01) through the arrow keys \blacktriangle \blacktriangledown and press the **ENTER** key
- Once entered, the display shows:

XX in which:

XX indicates the number of the format to be linked to the function.

- Type the format number and press **ENTER**.

NOTE: In order to not link any format to a vector one should enter the number 00.

14.1.1 QUICK LINKING OF A SPECIFIC PRINT FUNCTION

By linking the number of a specific print function to the function **200** (preamble function in the << **F.KEYS** >> step, **TECH.MAN.REF.**), it is possible to access directly to the modification of it with a direct key, for example F1 key to quickly link the S.F. 1, and F2 key to quickly link the S.F. 2.

TO QUICK LINK THE FORMAT:

- Recall the desired print function, by pressing the linked key (<< **F.KEYS** >> step, **TECH.MAN.REF.**).
- The LCD display shows:

XX	in which:
	XX indicates the number of the format to be linked.
- Type the format number and press **ENTER**.

NOTE: In order to no link any format to a print function one should enter the number 00.

14.2 TIKET PROGRESSIVE SETTING

14.2.1 PROGRESSIVE DIGITS

Through function **400**, combinable with the desired key (<< **F.KEYS** >> step, **TECH.MAN.REF.**), it's possible to set the number of digits with which the TICKET PROGRESSIVE and LOT PROGRESSIVE are printed.

The number of settable digits varies from 4 to 16, organised in this way:

- if the actual digits of the total are less than the number of digits set in this step, the difference is filled with some spaces.
- if the actual digits are greater than the number of digits set in this step, only the ones actually entered are taken into consideration (counting from right to left).

The alignment of the total fields is on the left.

NOTE: The number of settable digits DOES NOT INCLUDE the comma.

14.2.2 TICKET PROGRESSIVE

Through function **401**, combinable with the desired key (<< **F.KEYS** >> step, **TECH.MAN.REF.**), it's possible to modify or clear the TICKET PROGRESSIVE.

The TICKET PROGRESSIVE is a progressive number which increments of one at every PARTIAL TOTAL clearing.

14.2.3 LOT PROGRESSIVE

Through function **402**, combinable with the desired key (<< **F.KEYS** >> step, **TECH.MAN.REF.**), one obtains the clearing of the AUTOMATIC LOT (up to 6 digits); before carrying out the actual clearing, one is asked to confirm or cancel the operation; confirm with **ENTER**.

The AUTOMATIC LOT is a progressive number which increments of one at every GENERAL TOTAL clearing.

14.3 REPETITION OF THE LAST EXECUTED PRINTOUT

By pressing in sequence the **2ndF** and **F5** keys the last executed printout is repeated; the printout can be repeated many times, until a new printout is executed.

14.4 DEFAULT PRINTING FORMATS

The **SEtuP >> SErIAL >> dEF.Prn** parameter of the set-up environment (**TECH.MAN.REF.**) allows to enable the default printouts for the TPR printer.

NOTE: By enabling these printouts all the formatted print formats will be CANCELLED and the will be SUBSTITUTED by the standard formats, which automatically will be linked to the available print functions.

14.5 STANDARD PRINTOUT EXAMPLES**EXAMPLE 1 REPORT DOSAGE CYCLE**

DOSAGE START	
17 / 09 / 11	14:02
DOSAGE STOP	
17 / 09 / 11	14:03
DOSED	0.132 t

EXAMPLE 2 REPORT DOSAGE CYCLE

DOSAGE START	
17 / 09 / 11	14:09
DOSAGE END	
17 / 09 / 11	14:10
DOSATO	0.200 t

EXAMPLE 3 REPORT DOSAGE CYCLE

DOSAGE START	
17 / 09 / 11	14:23
PAUSE	
17 / 09 / 11	14:23
DOSAGE RESTART	
17 / 09 / 11	14:24
DOSAGE END	
17 / 09 / 11	14:24
DOSATO	0.173 t

PARTIAL TOTAL

PAR.TOT.	0.200 t
----------	---------

GENERAL TOTAL

GEN.TOT.	0.867 t
----------	---------

ARTICLE TOTAL

ARTICLE ART.TOT.	0.192 t
---------------------	---------

PRINT KEY (SIMPLE PRINT)

DOSED	0.200 t
-------	---------

15. OTHER FUNCTIONS

15.1 CALCULATOR

Through function **114** combinable with the desired key (<<**F. Keys**>> step, **TECH.MAN.REF.**), one enables the calculator function.

- **ADDITION**
- **MULTIPLICATION**
- **SUBTRACTION**

Procedure:

- Enter the first value using the numerical keyboard.
- Press **F1** to add, **F2** to multiply, **F3** to subtract the value.

TERMINATE THE OPERATION:

- **TYPE** the second value and **PRESS ENTER**: the result will be shown for a few seconds on the display.
- **PRESS 2nd F**: the weight on the scale will be used as a second value and the result will be shown for a few seconds on the display.

To disable the calculator function, press the **C** key.

HELP FUNCTION

By pressing at length the **/HELP** key it is possible to see the list of the keys used in the calculator function.

The list is automatically. If one wants to scroll the list of the keys in manual mode, it is possible to use the arrow keys (**F6** ▼ and **F7** ▲).

15.2 DISPLAY OF WEIGHT WITH SENSITIVITY X 10 (for testing use during calibration)

By pressing at length the **F2** key one will view the weight with sensitivity times 10 (press again at length the **F2** key to return to the normal visualisation).

NOTES:

- With approved indicator, the visualisation lasts about 5 seconds, after which it's disabled.
- The printout can only be done when the indicator has the standard sensitivity.

LIMITATION OF THE FUNCTION

For specific requirements, it is possible to limit the function **with approved instrument**.

By setting "YES" in the **SEtuP >> d.SALE** step and "no" in the **SEtuP >> d.SALE >> REM.DSP** step, the function will be disabled.

15.3 SETTING DATE / TIME

By pressing at length the **F3** key 'it's possible to quickly access the setting from the date / time of the instrument:

DAY ⇒ **ENTER** ⇒ MONTH ⇒ **ENTER** ⇒ YEAR ⇒ **ENTER** ⇒ HOUR ⇒ **ENTER** ⇒ MINUTES ⇒ **ENTER**.

15.4 OUTPUTS AND SET-POINT FUNCTION

The indicator is supplied with 4 outputs (optional) that can be used for different functions, besides, through the I/O expansion board (in the IO version) it is possible to use another 12.

In the **SEtuP >> outPut >> r.ConF** menu (**TECH.MAN.REF**) it is possible to set the characteristics of each output which will be used: normally open or normally closed; upon direct control or weight stability, with hysteresis or without, the functioning mode.

It is also possible to set whether the enabling of the output excludes the check on the previous outputs (see the **SEtuP >> outPut >> r.ModE** parameter).

15.4.1 NORMAL FUNCTIONING MODE

By setting the **SEtuP >> outPut >> r.ModE** parameter on "norMAL", one configures the independent use of the outputs:

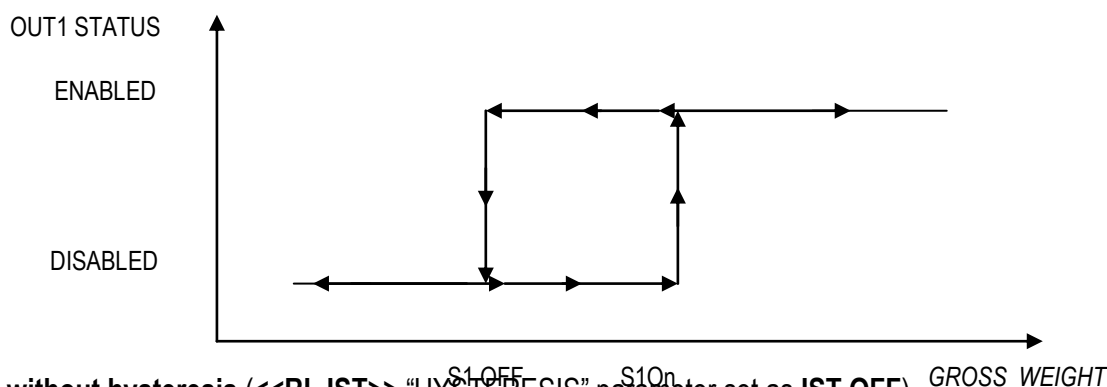
- the check is made on all the set outputs
- the enabling of one of these does not cause the disabling of the others.

15.4.1.1 SETPOINT ON THE GROSS WEIGHT

Functioning with hysteresis (<<RL.IST>> "HYSTERESIS" parameter set as **IST.ON**)

By selecting this functioning mode the relays function on the GROSS weight is activated; one enters two SETPOINTS for each relay: a DISABLING one, which, when the gross weight is lower than it, disables the appropriate relay; an ENABLING one, which, when the gross weight is greater or equal than it, it enables the appropriate relay. By pressing the **F3** key, the SET POINT values are entered (DISABLING and ENABLING) for each configured relay:

- The display shows " S.1 on " (relay 1 ENABLING SETPOINT): press **ENTER**, enter the weight value with the keyboard and confirm with **ENTER** (use the **C** key to quickly zero the current value).
- The display shows " S.1 oFF " (relay 1 DISABLING SETPOINT): press **ENTER**, enter the weight value with the keyboard and confirm with **ENTER** (use the **C** key to quickly zero the current value).
- Proceed in the same way for the following relays (if present).
- When finished programming the setpoints, exit with the **C** key.



Functioning without hysteresis (<<RL.IST>> "HYSTERESIS" parameter set as **IST.OFF**)

The operating mode is the same as the previous one, except that just one SETPOINT is entered for each relay ("S.1 on"); for this purpose **the access to the " S.1 oFF " parameter is inhibited.**

NOTES

- If no relay has the "**GROSS**" functioning mode, the pressing of the **F3** key has no effect.
- The DISABLING SETPOINT must be less or equal to the ENABLING one; if a value greater than the ENABLING one is entered and confirmed in the DISABLING SETPOINT, the indicator will set at 0 the setpoint, until a correct value is entered.
If a value lower than the DISABLING one is entered and confirmed in the ENABLING SETPOINT, that value is accepted, but the DISABLING SETPOINT is put at 0.
- The 0 value is valid on both the setpoint values.
- The SETPOINT check on the weight is active just during the weighing (in other words, not during the modification of the SETPOINTS).
- In case of weight not valid (local or from remote scale) all the relays will be disabled.

NOTE: For the selection of the functions of all relays, please see the **Setup >> OUTPUT. >> R.CONF. >> RLFUNC** step, **TECH.MAN.REF..**

15.4.1.2 GROSS WEIGHT AT ZERO

By selecting this functioning mode the output function on the GROSS weight at 0 is enabled.

15.4.1.3 INSTABILITY

By selecting this functioning mode the output function on the unstable weight is enabled.

15.4.1.4 DOSAGE

By selecting this functioning mode the output is enabled when the dosage is started and it is disabled when the dosage ends (see section 13.1).

15.4.1.5 DOSAGE TARGET

By selecting this functioning mode the output is enabled when the totalised weight reaches the value set for the dosage end by weight (see section 13.1.3.1), therefore after the dosage end. The output is disabled by manually disabling the cycle (see section 13.1.3.3),

15.4.1.6 PAUSE

By selecting this functioning mode the output is enabled when the dosage is paused (see section 13.1.2), and it is disabled when the dosage restarts (see section 13.1.1).

15.4.1.7 SIDE-SLIPPING

By selecting this functioning mode the output is enabled when the belt side-slipping is detected (see section 13.3.4).

15.4.1.8 MAX.FL.R AND MIN.FL.R

By selecting on of this functioning modes, the output is enabled when the flow is respectively greater than the TARGET + the value set in the <<F.R.ERR.>> step or less than the TARGET - the value set in the <<F.R.ERR.>> step.

15.4.1.9 ALARM

By selecting this functioning mode the output is enabled when the indicator is in ALARM status, in other words when an error condition (SIDE-SLIPPING, UNDER/OVER WEIGHT, OUT OF FLOW) is detected, and the ALARM time delay set in the SETUP (different for each specific error, see << ERRror>> step) is elapsed.

15.4.1.10 LOCK

By selecting this functioning mode the output is enabled when the dosage is locked, in other words when an error condition (SIDE-SLIPPING, UNDER/OVER WEIGHT, OUT OF FLOW) is detected, and the LOCK time delay set in the SETUP (different for each specific error, see << ERRror>> step) is elapsed.

15.4.1.11 PULSE

By selecting this functioning mode the output is enabled for the time set in the **F.Mode >> BELT >> PUL.TIM**, when the increase of the weight total reaches the value set in the **F.Mode >> BELT >> DOS.FUN >> COUNTER >> PULSE.W** step or in weighing phase, see section 13.3.3.

15.4.1.12 STOP

By selecting this functioning mode the output is enabled during the dosage, in other words from the dosage start to the dosage stop (reaching of the TARGET - eventual FLIGHT WEIGHT set in the step <<FLY.WEI.>>).

15.4.1.13 LOW.F.R

By selecting this functioning mode the output is enabled when the dosed weight is greater than the TARGET - <<L.F.R.WEI.>>, see section 13.3.6.

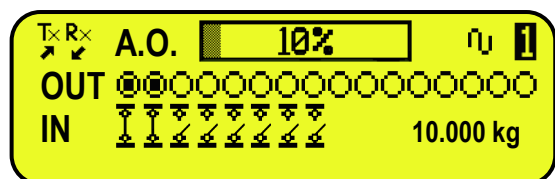
15.4.1.14 B.SPEED

By selecting this functioning mode the output is enabled when the detected belt speed is greater than 0.

15.5 DIAGNOSTIC PERIPHERALS

Through function **118** combinable with the desired key (<< **F.KEYS** >> step, **TECH.MAN.REF.**), one enables the diagnostic peripherals function.

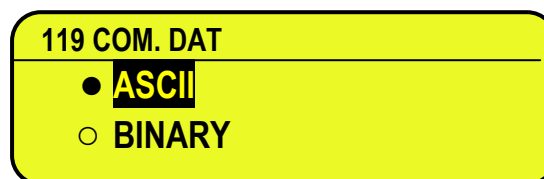
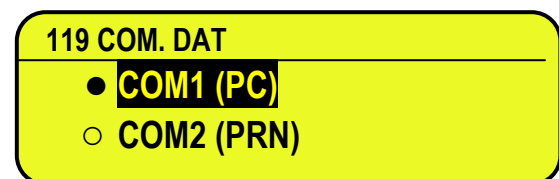
The display shows:



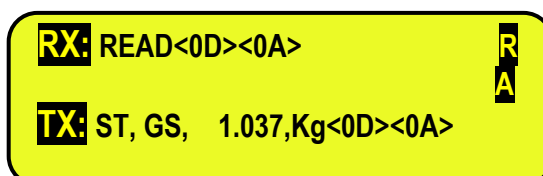
STATUS	DESCRIPTION
ANALOGIC OUTPUT(A.O)	Analogue output value express in percent.
OUTPUTS (OUT)	Status output, non active (○) or active (●).
INPUTS (IN)	Status input, non active (⚡) or active (⚡).
SERIAL COMUNICATIOIS (Tx RX)	The serial communication is active with external device.
WEIGHT	Status of the weight: - ● unloaded scale; - ■ unstable weight;
SCALE	Number of the active scale (example 1, see section 5 SCALE SELECTION) and the relative weight loaded.

15.6 COM DATA DIAGNOSTIC

Through function **119** combinable with the desired key (<< **F.KEYS** >> step, **TECH.MAN.REF.**), one enables the Com data diagnostic function. The display shows:



In the first screen one selects the port on which the diagnostic control should be executed. While in the second screen, one selects the code that one wants to use for viewing the data in transit.



When the data on the RX and TX reception and transmission lines are correctly displayed, then the functioning of the relative serial line is considered to be correct.

NOTE: By pressing the **.HELP** key, it's possible to see the keys list used in the menu.

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.

AUTHORISED SERVICE CENTRE STAMP

