# TECHNICAL MANUAL
# WEIGHT INDICATOR
# MICROCONTROLLER

## E-BATCH: SOFTWARE FOR MULTICOMPONENT DOSAGE SYSTEMS



```
JIM SMITH COMPANY
17, MAIN STREET
NEW YORK, NY  U.S.A
-------------------
TEST
TARGET          110kg
CYCLE REPORT 01
9/11/09 - 15:22
-------------------

01  AUTOM. DOSAGE
GRAVEL
SCALE NUMBER   1
DOSE            50kg
DOSED WEIGHT    50kg

02  MANUAL DOSAGE
SAND
SCALE NUMBER   1
DOSE            50kg
DOSED WEIGHT    50kg
-------------------
CYCLE REPORT
9/11/09 - 15:30
TARGET         110kg
DOSED          110kg
OUT OF TOL.      0kg
```

## 3590EXTBATCHBCIO, CPWEBATCH, CPWETF series indicator

# INDEX

# ⚠ 1. REQUIREMENTS FOR AN EFFECTIVE INSTALLATION ⚠

To obtain the best results it is recommended to install the indicator and the platform (or transducer) in a place with the following conditions:

**A flat, level surface on which to rest**

**Stable and vibration free**

**No dust or strong vapours**

**No draughts**

**Make sure the platform is level or that the loading cells are resting evenly**

**Moderate temperature and humidity (15-30°C and 40-70%)**

**Do not install anywhere where there is the risk of explosion**

**All the indicator connections have to be made respecting the rules applicable in the zone and in the installing environment. Respect the recommended electrical precautionary measures described in section 1.1.**

**Make sure that the grounding is made correctly, see section 1.2.**

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

**Avoid welding with load cells installed.**

**Use waterproof sheaths and couplings in order to protect the load cell cables.**

**Use a waterproof junction box to connect the cells**.

## 1.1 ELECTRICAL PRECAUTIONARY MEASURES

**Mains power supply is restricted to within ± 10% of the rated voltage**

**Electric protections (fuses etc.) are provided by the technician installing the instrument.**

**Respect the recommended minimal distances that are mentioned for the various cable categories, see sections 1.1.1 and 1.1.2.**

**The extension leads of the load cells or signal amplifiers, used for the connection of the serial ports and analogue output must be within the allowed maximum lengths, see section 1.1.3.**

**The extension leads of the load cells or signal amplifiers must be screened. In addition they must be laid on their own in a raceway or metal pipe as far away as possible from the power supply cables.**

**Install "RC" filters on the contactor coils, on the solenoid valves and on all devices producing electric disturbances.**

**If it is possible that condensation could form inside the weight transmitter it is advisable to leave the instrument powered at all times.**

**Every shielded cable or not (for instance PC cable, cell cable, power supply cable) connected to the indicator should be as shorter as possible, then you have to come out of the shield the minimum length of cable, then connect to the terminal box;**

**If the indicator is situated inside an electric panel, the power supply cable should be a shielded cable as shorter as possible, distant from every coil supply cable, inverter, electromotive force, etc. and in addition dedicate an uncoupler transformer in order to feed the indicator only.**

### 1.1.1 CABLE CLASSIFICATION
The various cables are classified depending on the transmitted signals:
**Category I**
- Field bus, LAN ( PROFIBUS, Ethernet, Devicenet…)
- Shielded data cables (RS232 …)
- Shielded cables for analogue/digital signals < 25V (sensors, load cells…)
- Low tension power supply cables (< 60V)
- Coaxial cables

**Category II**
- DC supply cables with tension > 60V and < 400V
- AC supply cables with tension > 25V and < 400V

**Category III**
- Power supply cables with tension > 400V
- Telephone cables

**Category IV**
- Any cable subject to lightning

### 1.1.2 RECOMMENDED DISTANCES AMONG CABLES
- When the cables are laid next to each other, these must be at the distances in the table below
- These distances are valid if in the air; these are reduced if the raceways are separated by grounded metallic shields.
- Different category cables can cross each other (90°)

| Category I | Category II | Category III | Category IV |
|---|---|---|---|

≥ 100 mm

≥ 200 mm

≥ 500 mm

≥ 100 mm

≥ 500 mm

≥ 500 mm
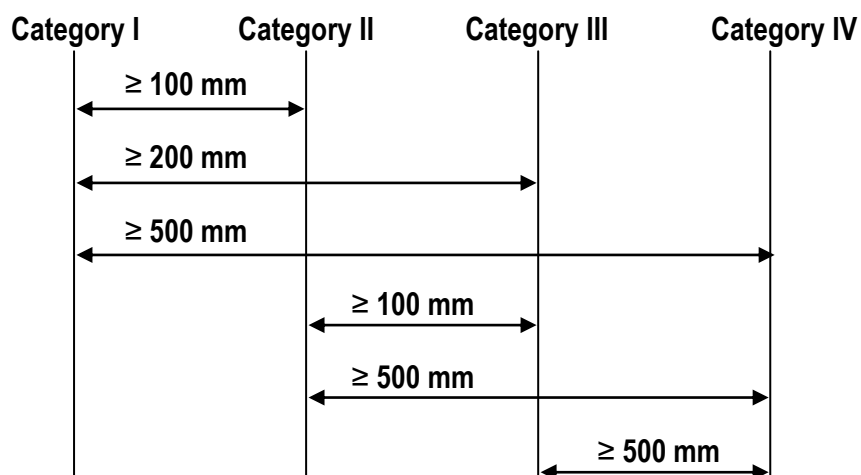
## 1.1.3 MAXIMUM CABLE LENGTH

**LOAD CELL CABLE**
The maximum reachable length from the line using the appropriate load cell cable is:
- 50 m with cable 6 x 0,25 mm$^2$
- 100 m with cable 6 x 0,5 mm$^2$

**RS232 CABLE**
The maximum reachable length from the line using the RS232 cable with a maximum baud rate of 19200, is about 15 m.

**RS485 CABLE**
The maximum reachable length from the line with the use of the appropriate cable for RS 485 connections (see section 8.1), and with baud rate up to 9600, is about 1200 meters.

**ANALOG OUTPUT CABLE**
The maximum length of the analogue output cable in current is:
- 100 m with cable 2 x 0,25 mm$^2$
- 150 m with cable 2 x 0,5 mm$^2$
- 300 m with cable 2 x 1 mm$^2$

The maximum length of the analogue output cable in voltage is:
- 50 m with cable 2 x 0,25 mm$^2$
- 75 m with cable 2 x 0,5 mm$^2$
- 150 m with cable 2 x 1 mm$^2$

## 1.2 EARTHING SYSTEM

For the right earthing and the optimal functioning of the system, it is necessary to connect the indicator, the load cells, the possible junction box and the weighing structure to the earth.
All earthing cables must have the shortest possible length in order to minimize their resistance.

**INDICATOR**
Connect the external earthing of the indicator to the earth through copper cables having at least a 16 mm$^2$ cross-section.

**LOAD CELLS AND JUNCTION BOX**
The earthing must be done by connecting the earthing cables to a ground bar with cables having a cross-section of at least 16 mm$^2$ and by connecting the ground bar to a ground pole with a cable having a cross-section of at least 50 mm$^2$.

- In the case the load cells are connected to the indicator through a junction box, it is necessary to connect the sheathing both of cells cables and of indicator cable to the earthing of the junction box (refer to the junction box manual) and connect this to the earth through copper cables having at least a 16 mm$^2$ cross-section.
- If the load cells are connected directly to the indicator (without the use of the junction box), one should connect the shieldings of the load cell cables to the grounding point (or earthing bar) inside the container.
- If the weighing system concerns large and/or outdoor structures, like weighbridges, and the junction box is connected to the indicator in a distance that is greater than 10 m, or in the presence of noise, the cable shield must be earthed both in the junction box and in the indicator, and the two ground leads must be connected with an earth cable having a cross-section of at least 16 mm$^2$.

**WEIGHING STRUCTURE**
Connect the weighing structure and the possible connected structures (for example silos that release material on the weighing structure) to the earth through copper cables having at least a 16 mm$^2$ cross-section.

Furthermore it is necessary that for each cell, one connects the upper part with the lower part of the load cell through a copper braid section not less than 16 mm2; the upper part must be short-circuited with the surface of the weighing structure and the lower part must be grounded through a copper braid section not less than 16 mm2.

**CONNECTED SERIAL CABLES AND INSTRUMENTS**
Connect the shield of the serial cable at the grounding point (or grounding bar) inside the container (on the end of the cable toward the indicator) and at the earth connection of the connected instrument (on the end of the cable toward the indicator), and ground the earth connection of the connected instrument, through a copper cable section not less than 16 mm$^2$.
To avoid possible side effects, the earth references of the connection and power supply cable of the indicator and of the connected instrument **must be at the same potential**.

**GENERAL NOTES:**

- All the grounding cables must have an adequate length, in order to obtain an overall resistance of grounding system less than 1 Ω.

- In the case the weighing system  regards great and/or outdoor structures, like weighbridges:

  - The grounding connection is to be made by connecting the grounding cables to a grounding bar and the grounding bar to the grounding pole with a cable section not less than 50 mm2.

  - the cable cross-section must be greater (for example 50 mm$^2$ instead of 16 mm$^2$ and 100 mm$^2$ instead of 50 mm$^2$), because the voltage into play is greater (for example thunderbolts);

  - the ground pole must be positioned at a distance of at least 10 metres from the weighbridge structure;

  - one needs to open the SENSE inside the indicator in order to offset the drifts due to the increase in temperature.

- One should check and remove, if necessary, the connection between the earth and the neutral wire of the electrical installation.

## 2. WEIGH MODULE

After having followed the instructions regarding the platform or weigh module, the screened cable leading from the load cell(s) must be connected to the instrument through the terminal board, see section 11.1

The terminal board of the indicator may be connected to the 6-wire weigh module (with use of SENSE), or simply 4-wire; for this, through jumper J7 and J8 it is possible to choose whether to short-circuit the SENSE with the POWER SUPPLY (jumpers closed) or not (jumpers open).

The sense allows compensating for any drops in voltage in the part of the cable that connects the instrument to the transducer. It is useful when the distance between the indicator and the transducer is greater than 10 m.
The 4-pin connectors instead allow just the 4-wire connection.
To make the connection, qualified personnel must open the instrument (see terminal board connections section 11.1).

**TAKE NOTE: if there is A SINGLE LOAD WEIGH MODULE, it is possible to make a 6-wire connection (use of the sense) directly to the terminal board, removing the J7 and J8 jumpers.**
**If there are two or MORE WEIGH MODULES, one should close the J7 and J8 jumpers (sense and power supply short-circuited) and make the 4-wire connection.**
**Normally the indicator comes already connected to the platform and is ready to use.** If this is a LEGAL version instrument, access to the connection will be subject to a legal SEAL.
Follow the instructions for preparing the platform for use.



**SIG +**  SIGNAL +
**SIG -**  SIGNAL -
**SEN +**  REFERENCE +
**SEN -**  REFERENCE -
**EXC +**  POWER SUPPLY +
**EXC -**  POWER SUPPLY -
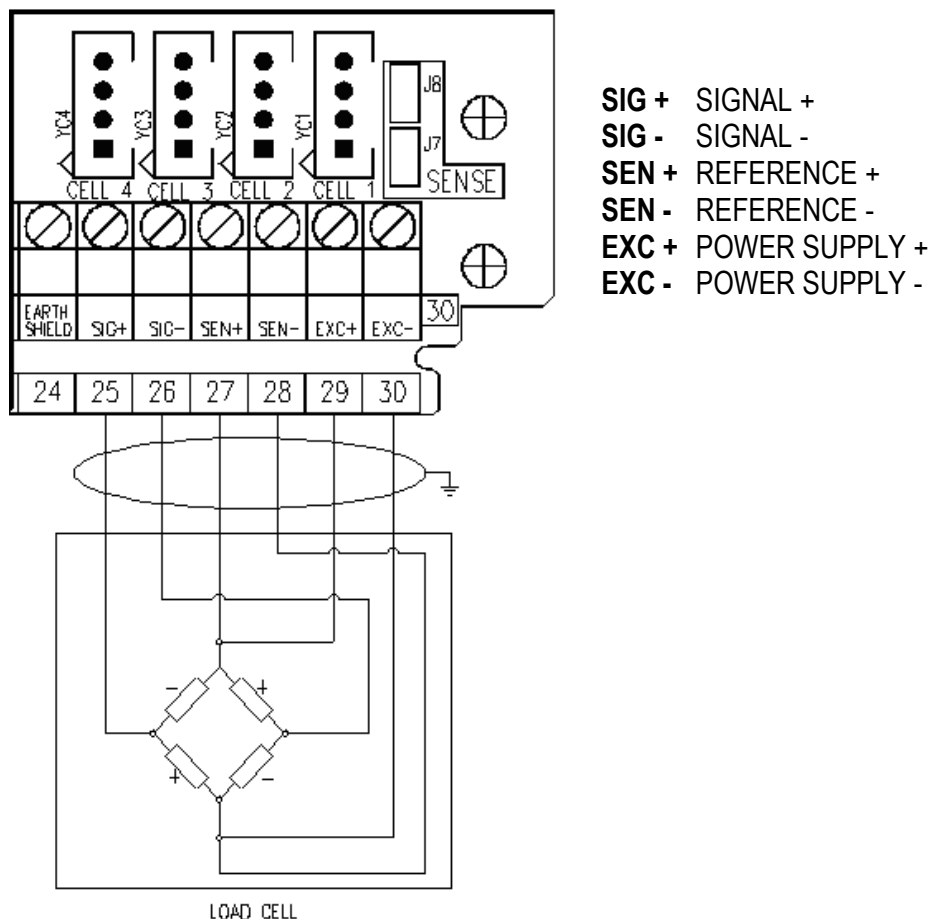
**See section 11.1 for further information.**

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# 3. SETUP ENVIRONMENT

By "SETUP environment" we mean a certain menu inside which all the indicator operating parameters can be set.
**To enter it, turn on the instrument and, during the countdown, press the TARE key for an instant.**

**Once in the set-up environment, the instrument displays the first step.**

**1)**

| " TECH "<br>for an instant on<br>the display | ⇨ | ACCESS<br>PASSWORD<br>DISABLED | ⇨ | "LAnG"<br>on the display on top;<br>"LANGUAGE"<br>on the display below | ⇨ | COMPLETE SET-UP<br>MENU<br>(technical |
|---|---|---|---|---|---|---|

**or**

**2)**

| " USER - PRESS<br>KEY "<br>for an instant on<br>the display | ⇨ | ACCESS<br>PASSWORD<br>ENABLED | ⇨ | "PrG.VEr"<br>on the display on top<br>"FIRMWARE"<br>on the display below | ⇨ | PARTIAL SET-UP<br>MENU<br>(only user) |
|---|---|---|---|---|---|---|
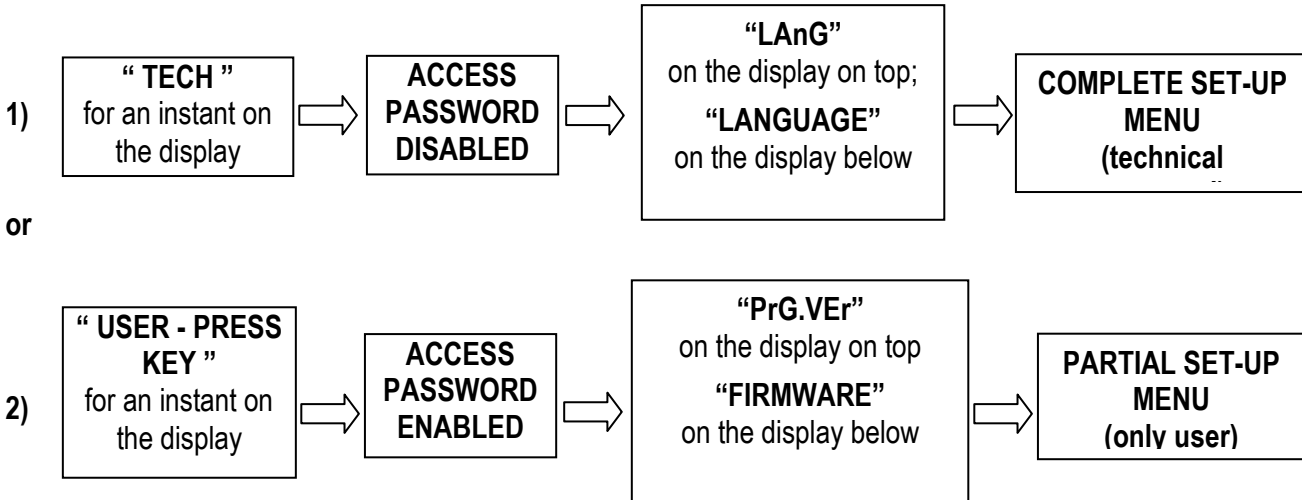
If you are in choice **2)** and you want to access the complete set-up menu one should:

| Press TARE<br>during the<br>visualisation of the<br>"**USER**" message<br>on the display | ⇨ | ENTER THE<br>PASSWORD<br>SUBSTITUTING<br>THE DISPLAYED<br>VALUE | ⇨ | PRESS<br>"ENTER" | ⇨ | "TECH "<br>for an instant on<br>the **LCD** display | ⇨ | COMPLETE<br>SET-UP<br>MENU<br>(technical<br>personnel). |
|---|---|---|---|---|---|---|---|---|
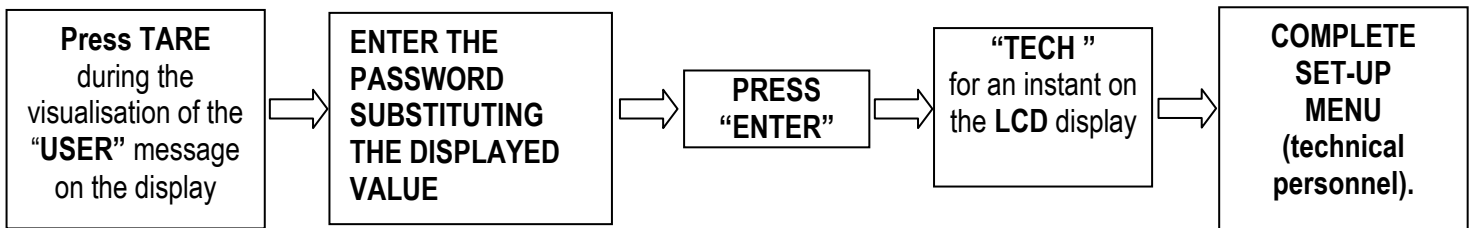
In the parameter description and in the block diagram
-   The **METRIC** parameters are shown with the **(*)** symbol**, and, with approved instrument, these may not be visible or read only. See the explanation of the parameter for the details.**
    **NOTE: The indicator is approved when the J1 jumper of the motherboard is closed(see the electrical scheme in the final chapter).**
-   The **CONDITIONAL STEPS** are shown with the **(§)** symbol, **and are not displayed in specific conditions, shown in the step description.**
-   The **DEFAULT VALUES** are shown with the **(!)** symbol placed next to the step and at the end of it.

**FUNCTION OF THE KEYS IN THE SET-UP ENVIRONMENT**

| KEY | FUNCTION |
|---|---|
| **F6, F7** | Allow to scroll forwards and backwards in the menu steps or in the parameters inside a step |
| **Fn / ENTER** | Allows to enter a step or to confirm a parameter inside a step. |
| **C / DEL** | Allows to exit a step without confirming any changes made and to go to the previous level |
| **NUMERIC KEYBOARD** | Allows entering an alphanumeric input. |

The display show the current parameter and its description; generally, when one exits a step the instrument places itself on the following step.

**TO EXIT THE SET-UP ENVIRONMENT, PRESS THE C KEY MANY TIMES UNTIL THE INDICATOR SHOWS:**

**EXITING SETUP:**
**SAVE ?**

**CONFIRM WITH ENTER TO SAVE CHANGES MADE OR PRESS ANOTHER KEY TO NOT SAVE.**

## 3.1 SETUP ENVIRONMENT BLOCK DIAGRAM

The following diagram represents the structure of the indicator's set-up environment; each step has been described in detail in the following paragraph 3.2.



LEGEND

= USER & TECH MENU'

= ONLY TECH MENU'

(*) = METROLOGICAL PARAMETER

(§) = CONDITIONED STEP

(!) = DEFAULT VALUE

F.ModE

bAtCh

EN.KEYS → F1...F10, 0...9, POINT, TARE, Fn, 2ndF, C → (!) Enable, Disable

ENABLE ALL, DISABLE ALL → SURE?

F.Keys → F1…F10, 2nd F+F1… 2nd F+F10, Fn+F1…Fn+F10 → xxx

dtb →
- En.dtb → (!) EnAbLE, diSAbL
- EN.A.FLD → FLY WEIGHT … → (!) Enable, Disable
- u.M. → (!) - kG -, - G -, - t -, - Lb -
- dECiM. → (!) 0.000, 0.00, 0.0, 0
- init.

rEACt → (!) PASS. 0, inStAb, Always

rEStAr → (!) diSAbL, EnAbLE

LoGo

tXt →
- CFG.tXt → In. 0 … In. 14 →
  - F1 → New
  - F2 → Edit
  - F3 → Delete
  - F5 → Print
- d.thrES → (!) 00 … 31

tXt.i →
- tXt.i0
- tXt.i1
- tXt.i2

Clr.rAM

dtb.PWd → (!) diSAbL, EnAbLE → 00000 … 65534

tAMAG →
- MonthS
- WEiGh.
- rESEt

F7
C    ENTER
F6

LEGEND

= USER & TECH MENU'

= ONLY TECH MENU'

(*) = METROLOGICAL PARAMETER

(§) = CONDITIONED STEP

(!) = DEFAULT VALUE

bAtCh

- REMOTE → (!) diSAbL, EnAbLE
- btCh.Ch → (§) SCALE 1, SCALE 2, SCALE 3, SCALE 4
  - MAX.WGt → XXXXXX
  - 0. toL → (!) 000.000
  - MIN.LVL → (!) 000.000
  - MAX.LVL → (!) 0.000
  - End.unL → (!) 000.000
  - W.u.LoAd → (!) 000.0
  - FLY.TIM → (!) 005.0
  - t.M.btC → (!) 000.0
  - DOS.LOC → (!) 000.0
  - t.d.MAn → (!) 000.0
  - PK.F.DIV → (!) 0000
  - PK.F.TIM → (!) 000.0
- tSt.toL → (!) WEIGHT, PERC, NO TEST
- d.Cy.on → (!) 0.00
- d.Cy.oFF → (!) 0.00
- Add.t → (!) diSAbL, EnAbLE
- STOP.T
  - T.INPUT → (!) START, INPUT7
  - T.ALARM → (!) DISABLE, ON TIMEOUT, ON STOP
- ADD.P → (!) diSAbL, EnAbLE
- P.INPUT → (!) START, INPUT8
- En.tArE → (!) diSAbL, EnAbLE
- dsP.n.G. → (!) GroSS, nEt
- FLT.TIM → (!) 00000.0
- WT.STAB → (!) 005.0
- MAX.out → (!) 012
- FLy.Cor → (!) % 000
- FLY.RAN → (!) % 000
- FOR.SEL → (!) KEYBOARD, 4 in, 2 in, ENCODER, ROTARY SW.
- RD.TIME → (!) 000.0
- EXE.For → (!) WGt.For, tot. WGt, IA.FrEE
- SLOW.M → (!) EVERY CYCLE, LAST CYCLE
- (§)PRN.FOR → (!) NO, YES
- ReS.ADD → (!) No, YES
- EN.PROD → (!) diSAbL, EnAbLE
- REM.COM
  - R.T.OUT → (!) 00005.0
  - R.RETRY → (!) 005

SEtuP → ConFiG → SCALE 1 → Param. → Stabil. → FLt 0 … (!) FLt 3, h.r.0 … h.r.3 50.fas … 50.slo, 100.fas … 100.slo, 200.fas … 200.slo, CuStoM

SCALE 2
SCALE 3
SCALE 4

(*) Auto-0 → (!) Enable, Disable → (!) 10, 00 ... 50
(*) 0.PERC → (!) 2, 00 ... 50
WArMuP → (!) 00 ... 60
(*) 0trACk → (!) ½, 1, 2, no, ¼
diV.Stb. → (!) 00 … 99

(*) GrAV → 9,75001 … 9,84999

(*) Calib → nuMbEr oF rAnGE → 1 / 2 / 3 → rAnGE tyPE → M.diViS, M.rAnGE

CAP. 1 → XXXXXX
diV. 1 → (!) 1, 2, 5, 10, 20, 50, 100, 200
CAP. 2
diV. 2
CAP. 3
diV. 3
dECiM. → (!) X.xxx, X.xx, X.x, X
u.M. → (!) kg, t, lb, g
CALib.P
PointS

(*) 0.CALib.

SeriAL

Anout → SCALE 1 → SLot → (!) SLot 1, Slot 2
SCALE 2 → ModE → (!) AO G, AO N, AO.BELT
SCALE 3 → (§) AoMA → (!) 00000 … 65535
SCALE 4 → (§) AoZE → (!) 00000 … 65535
→ (§) AoMi → (!) 00000 … 65535

OUTPUT → R.CONF. → RL.1...RL.4

T.LOCK → (!) ENABLE, DISABLE

ZOOM.W → (!) Enable, Disable → (!) 005, 000 … 255

PoW.oFF → (!) Disable, Enable

bt.StAt → (!) Disable, Enable

bACkuP → SurE? → BAK.PWD → (!) Disable, Enable

dFLt → SurE?

(*) dFLt.t → SurE?

PWd.SEt → (!) Disable, Enable → 00000 … 65534

(*) d.SALE → (!) NO
→ YES → REM.DSP → (!) NO, YES

PC.KEYb → KEYUSE → (!) Normal, READER
→ LAYout → (!)Us.En, itAL, FrAn, dEut

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**SEriAL**

- **PORTS** → PC.Pr.AX, PC.AX.Pr, Pr.PC.AX, Pr.AX.PC, AX.PC.Pr, AX.Pr.PC

- **CoM.Prn**
  - **bAud** → (!) 9600, 19200, 38400, 57600, 115200, 1200, 2400, 4800
  - **PArity** → (!) none, odd, EVEn
  - **Word** → (!) 8, 7
  - **StoP b** → (!) 1, 2
  - **CtS.St.** → (!) LoW, no.CtS, hiGh, EMuCtS, XON/XOFF
    - **SND.CTS** → (!) Disable, Enable
  - **ERR.CTS** → (!) Disable, Enable
  - **PWrPrn** → (!) PWrEXt , EXtoFF, PWrint
  - **ProtoC** → norMAL, riPE 6, Cont.

- **CoM.PC**
  - **bAud** → (!) 9600, 19200, 38400, 57600, 115200, 1200, 2400, 4800
  - **PArity** → (!) none, odd, EVEn
  - **Word** → (!) 8, 7
  - **StoP b** → (!) 1, 2
  - **CtS.St.** → (!) LoW, no.CtS, hiGh, EMuCtS
  - **Add.485** → n    00
  - **ProtoC** → (!) StAnd, AFXX, riPE 6, Mondir, CoMPoS, SMA
  - **PC.ModE** → (!) rEquE., Cont., StAbiL, - 485 -

- **CoM.AUX**
  - **bAud** → (!) 9600, 19200, 38400, 57600, 115200, 1200, 2400, 4800
  - **PArity** → nonE,  EUEn,  odd
  - **Word** → 8 bit,  7 bit
  - **StoP b** → (!) 1, 2
  - **CtS.St.** → (!) LoW, no.CtS, hiGh, EMuCtS
  - **ProtoC** → (!) nonE, Cont., riPE 6,

- **R71.rEP** → (!) Disable, Enable

- **Prn.FMt** → C.F.01 … 30

- **tErMin** → (!) Cr, Cr LF, LF, no.tErM

- **dEF.Prn**

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## 3.2 DESCRIPTION OF THE STEPS

# << LAnG >> FIRMWARE LANGUAGE

| Parameter | Language | Used Codepage (see section 10.2) |
|---|---|---|
| - **En** | English | 1252 Windows Latin 1 |
| - **Fr** | FranÇais | 1252 Windows Latin 1 |
| - **dE** | Deutsch | 1252 Windows Latin 1 |
| - **ES** | Español | 1252 Windows Latin 1 |
| - **It** | Italiano | 1252 Windows Latin 1 |

**(!) En**

# << nuM.SCA >> NUMBER OF CONNECTED SCALES (*)
- n.SC. 1: (1 scale)
- n.SC. 2: (2 scales)
- n.SC. 3: (3 scales)
- n.SC. 4: (4 scales)

**(!) n.SC. 1**

**(*)** In case of approved instrument the parameter is read only.

# <<F.ModE>> FUNCTIONING MODE
In this step one sets the scale functioning mode:

## <<bAtCh>> DOSAGE PARAMETERS

### <<REMOTE>>REMOTE COMPONENT ONLY
In this step you enable remote components excluding the other scales that are connected to the indicator, then the indicator can be used simply as a central control unit.

### << btCh.Ch >> SCALE CONFIGURATION
**NOTE:** If various scales are connected, once entered in the step, one should select the scale to be configured.

#### <<MAX.WGT>>: MAXIMUM WEIGHT
This is the maximum weight value which can be loaded onto the scale when executing a formula, which is normally programmed as the full scale value. The indicator, when checking whether the weight on the scale is greater than the maximum weight, it takes into consideration also the weight zeroed when the dosage is started.

**NOTE**:
- Pmin= 000.000Kg; Pmax= value set in the capacity, in **Cap. 1** parameter, if just one range is used, **Cap. 2** if a double range is used or **Cap. 3** if the triple range is used.
- The **Cap. 3** capacity must always be **greater than Cap. 2**, and **Cap. 2** must always be **greater than Cap. 1**.
**The entered value is expressed in the unif of measure of the selected scale.**
**We advise to enter a maximum value less than the silo capacity.**
**(!) 000.000**

#### <<0.TOL>> ZERO TOLERANCE WEIGHT (Kg)
If the minimum and maximum tare weights have not been entered for the selected formula (**USER MAN. REF.**) the zero tolerance weight is the maximum weight which can be on the scale when the dosage is begun: if the weight of the material is less than the value set in this parameter; upon the dosage START this material is automatically zeroed and the operations can start; otherwise an OUT OF ZERO error is signalled.
NOTE: Pmin= 000.000Kg; Pmax= value set in **<<MAX.WGt>>** parameter.
**(!) 000.000**

### <<MIN.LVL>>   MINIMUM LEVEL THRESHOLD
Set the weight threshold below which the linked output of minimum level exceeded is enabled.
**The entered value is expressed in the unit of measure of the selected scale.**
**(!) 000.000**


### <<MAX.LVL>>   MAXIMUM LEVEL THRESHOLD
Set the weight threshold beyond which the linked output of maximum level exceeded is enabled.
**The entered value is expressed in the unit of measure of the selected scale.**
**(!) 000.000**

### <<END.UNL>>   UNLOADING END THRESHOLD
Set the threshold which defines the end of the total unloading.
This threshold, added to the target of the split unloading activity defines also the partial unloading end threshold.
For the functioning specifics see section **13.1.3**, **USER MAN.REF.**
**The entered value is expressed in the unit of measure of the selected scale.**
**(!) 000.000**

### <<W.U.LOAD>>  WAIT TIME FOR DISCHARGE END (sec)
**For unloading dosages**
Wait time for terminating a discharge activity from when the weight value on the scale goes below the TOTAL UNLOADING END THRESHOLD value (see the description of the dosage cycle, **USER MAN.REF.)**. The discharge relay, during this time, remains active.
NOTE:    t min= 00000.0 sec ;    t max= 99999.9 sec
**(!) 00000.0 sec**

### <<FLY.TIM>>  FLIGHT WAITING TIME (sec.)
The dosage is interrupted (and relay 1 is also disabled) in the moment in which the TARGET minus the MATERIAL WEIGHT IN FLIGHT is reached; after this a wait time starts equal to the FLIGHT WAIT TIME in which one presumes that there is still material on the scale and the FINAL WEIGHT is reached.
NOTE:    t min= 00000.0 sec ;    t max= 99999.9 sec
**(!) 00000.0 sec**

### <<T.M.BTC>>  MAXIMUM TIME FOR THE DOSAGE (sec.)
Maximum time for executing of the formula. Once this time has passed from the beginning of the dosage, if the formula is not ended, the system has a dosage out of time error.
Programmed at 0, it has no effect.
NOTE:    t min= 00000.0 sec ;    t max= 99999.9 sec
**(!) 00000.0 sec**

### <<DOS.LOC>>  DOSAGE LOCK TRIGGERING TIME (sec.)
It is a timer which is similar with maximum dosage time (see the previous option), but the timer resets when the weight decreases (in unload activities) or increases (in load activities: auto, manual dosage and manual weight) during the dosage.
If the set time has passed and the weight isn`t increased or decreased, the instrument goes into error status，while the ERROR relay (OUT3) is activated and the message "DOSAGE LOCKED" is displayed.
Programmed at 0, it has no effect.
NOTE:    t min= 00000.0 sec ;    t max= 99999.9 sec
**(!) 00000.0 sec**

### <<T.D.MAN>>  WAIT TIME FOR AUTOMATIC END OF MANUAL DOSAGE (sec.)
**For manual loading dosages**
Maximum waiting time during the loading phase which can elapse from the reaching of the target and the manual ending of the activity, which reached the instrument ends automatically the activity: if in the loading phase, once the set target is reached, a START IMPULSE is not given within this time period (to pass to the following activity), the indicator automatically passes to the tolerance check.
For the functioning specifics see section **13.1.2**, **USER MAN.REF.**

NOTE:    t min= 00000.0 sec ;    t max= 99999.9 sec
**(!) 00000.0 sec**


### <<PK.F.DIV >>  MAXIMUM WEIGHT VARIATION IN TIME <<PK.F.TIM >>
This step allows to configure the number of divisions corresponding to the maximum weight variation allowed in the time window **<<PK.F.TIM >>** during the dosages in loading, which once exceeded enables the peak filter function (see section 4.5 for further details).
By setting the value 0, the control will be disabled.
**NOTE**: Min = 0000; MAx = 9999.
**(!) 0000**


### <<PK.F.TIM >>  BATCHING-PEAK ELIMINATION TIME (BATCH RIPPLING SMOOTHER FILTER)
This step allow to configure the time that the instrument takes into consideration to check if the weight variation is greater than the value set in the previous step, and to enable the peak filter function (See section 4.5 for further details).
The 0 value disables the checking.
**NOTE**:    t min= 00.0 sec ;    t max= 25.5 sec
**(!) 00.0**


### <<TST.TOL>>  ENABLES TOLERANCE TEST
The step allows to choose different type of check on the dosage accuracy (see section 13.4 in the user manual **(USER MAN.REF.)**
- **NO TEST** tolerance checking disabled
- **WEIGHT**  tolerance enabled in weight mode
- **PERC**     tolerance enabled in percentage mode, in other words tolerance is expressed in percentage of the target and not in weight when you insert tolerance value in the ACTIVITY archive.
**(!) WEIGHT**


### <<D.CY.ON>> TIME OF AN "ON" PHASE OF THE PRODUCT OUTPUT DURING THE FINE DOSAGE (sec.)
**For automatic dosage activity and for the partial or splitted unloading activity, with <<MAX.out>> equal or less than 8.**
When the target weight minus the slow weight and the flight weight is reached, the linked fine dosage output can be opened and closed according to the "on" phase set in this step (TAPPING) and "off" phase set in the following step, until the flight weight is reached.
By setting a value equal to 0 the tapping function is disabled.
NOTE:    d.CY.on min= 0.00 sec ;    d.CY.on max= 2.50 sec
**(!)  0.00 sec**


### <<D.CY.OFF>> TIME OF AN "OFF" PHASE OF THE PRODUCT OUTPUT DURING THE FINE DOSAGE (sec.)
**For automatic dosage activity and for the partial or splitted unloading activity, with <<MAX.out>> equal or less than 8.**
When the target weight minus the slow weight and the flight weight is reached, the linked fine dosage output can be opened and closed according to the "off" phase set in this step (TAPPING) and "on" phase set in the previous step, until the flight weight is reached.
By setting a value equal to 0 the tapping function is disabled.
NOTE:    d.CY.oFF min= 0.00 sec ;    d.CY.oFF max= 2.50 sec
**(!)  0.00 sec**

## <<ADD.T>> ENABLING DOSED WEIGHT SUM DURING THE TIMER ACTIVITY

It's possible to select whether the eventually added weight which detected at the end of a timer activity, is summed to the dosed total weight.

**EnAbLE:** enabled function
**diSAbL:** disabled function
**(!) diSAbL**

## <<STOP.T>> PARAMETERS CONFIGURATION TIMER

### <<T.INPUT>> STOP MODE

**NOTE**: The function has no effect if one set "**NOT STOPPABLE**" in the programming of timer activity.

**START**         Timer stoppable through start command (INPUT 1 or F6 key)
**INPUT7**        Timer stoppable through INPUT7
**(!) START**

### <<T.ALARM>> ALARM MODE

This step allows to enable one alarm function during the timer activity
**DISABLE**        alarm disabled
**ON TIMEOUT**    the relay error is enabled at the end of the timer (if the timer activity isn't stopped before the end).
**ON STOP**        the relay error is enabled when the timer activity is stopped before the end.
For the functioning specifics see section **13.1.5.1**, **USER MAN.REF.**
 **(!) DISABLE**

## <<ADD.P>> ENABLING DOSED WEIGHT SUM DURING THE PAUSE ACTIVITY

It's possible to select whether the eventually added weight which detected at the end of a pause activity, is summed to the dosed total weight.

**EnAbLE**         enabled function
**disable**         disabled function
**(!) diSAbL**

## <<P.INPUT>> PAUSE ACTIVITY ADVANCEMENT MODE

In this parameter it is possible to set the advancement mode of a pause activity:
**START**         Advancement through the START command(INPUT 1 or F6 key)
**INPUT8**        Advancement through the INPUT8
**(!) START**

## <<EN.TARE>>  ENABLING OF AUTOMATIC TARE

**For loading dosages**
It is possible to select whether the gross weight on the scale is tared or not at the dosage start.
**diSAbL**:
- if no tare value has been entered, the entire weight on the scale is zeroed;
- while if a semiautomatic or manual tare is entered, the net weight is considered to be the dosage weight start.

**EnAbLE**: the gross weight on the scale is entirely tared; therefore the dosage always starts with the net weight at zero.
**(!) diSAbL**

## <<DISP.N.G>>  NET/GROSS WEIGHT DISPLAY DURING THE UNLOADING ACTIVITY

It's possible to select whether to view the gross weight (GroSS) or the net weight (nEt) on the scale during the unloading activity.
**(!) GroSS**

### <<FLT.TIM >>  FILTERING TIME (sec)

Wait time which elapses:
- In the automatic dosages and in the partial/fraction unloads, from the reaching of the TARGET – FLIGHT WEIGHT threshold (end of the fine dosage) and the beginning of the FLIGHT WAIT TIME;
- In the total unloads, between the reaching of the TOTAL UNLOADING END THRESHOLD and the beginning of the WAIT TIME FOR THE THRESHOLD END.

    For the functioning specifics see section **13.1.7**, **USER MAN.REF.**

 **(!) 00000.0 sec**


### <<WT.STAB>>  WAIT STABILITY TIME (sec.)

This function allows to check whether the weight on the scale is stable when the START command is given.

The signal coming from the scale's load cell must be stable when the START command is given (or in the moment in which a dosage must start in a repetition of cycles), or in any case it must become stable within the time set here; if the weight is unstable after passing the wait time, the "INSTABILITY ERR" error message is displayed, and the dosage does not begin. If one sets a time value equal to zero, the check becomes instantaneous in the moment in which a start impulse is given.

NOTE:    t min= 00000.0 sec;    t max= 99999.9 sec

**(!) 00005.0**


### <<MAX.OUT>>  MAXIMUM NUMBER OF OUTPUTS

In this step one sets the maximum number of programmable outputs when entering a formula. See section 7 for further details.

**(!) 012**


### <<FLY.COR>> FLIGHT CORRECTION PERCENTAGE

**For automatic dosages**

In this parameter it can be decided (and in which percentage) to carry out an automatic correction of the flight weight depending on the one performed in the previously dosage.

The 0 value disables the automatic flight correction.

By setting a number between 1 and 100 it will be executed the automatic correction of the flight weight, based on the one obtained in the previous dosage, in the percentage set, only if the dosed flight weight is within the tolerance range set in the **<< FLY.RAN >>** step.

This parameter is valid for all the automatic programmed dosage activities.

For the functioning specifics see section **13.5**, **USER MAN.REF.**

NOTE: min= 0%; max= 100%

**(!) 000**

### <<FLY.RAN>>DOSED WEIGHT RANGE FOR THE FLIGHT CORRECTION FUNCTION

**For automatic dosages**

In this step  a tolerance range of dosage weight can be set, as a percentage of the target activity, for the correction of flight weight, enabled in step **<< FLY.COR >>**.

By setting a number between 1 and 100, the weight correction enabled in step **<< FLY.COR >>** will be applied within this range (even if it is out of tolerance). Outside of this range, it will not be applied any correction of the flight weight. If set to 0 the FLY.RAN, the tolerance applied is the one in **<<tSt.toL>>** step.

**(!) 000**

## <<FOR.SEL>>  FORMULA SELECTION MODE
The selection of the formula to be carried out takes place in one of the modes shown below:
- **KEYBOARD:** selection from keyboard.
- **4 IN:** selection through the binary combination of 4 external inputs.
- **2 IN:** selection of previous/following formula through 2 external inputs.
- **ENCODER:** selection of previous/following formula through 2 external inputs.
- **ROTARY SW.:** not used in this application.

For the functioning specifics see section **11.2.2**, **USER MAN.REF.**
**(!) KEYBOARD**

## <<RD.TIME>>  MAXIMUM DATA READING WAIT TIME (sec.)
The instrument waits for this time before passing to the following phase in order to allow the reading of the data relative to the phase made.
The function is enabled after the possible tolerance test at the end of the activity (both load and unload)
Programmed at 0, it has no effect.
NOTE:    t min= 00000.0 sec ;    t max= 99999.9 sec
**(!) 00000.0**

## <<EXE.FOR>>  FORMULA WEIGHT SETTING MODE
This function allows to decide the execution mode of the stored activity:
- **FORMULA WEIGHS (WGt.For):**
  The dosage is carried out following the targets set in the formula.
- **SETTING OF THE TOTAL WEIGHT (tot.WGt):**
  Here one sets the total weight which one wants to dose with the selected formula; the instrument automatically recalculates the weight to be dosed for each single activity of the formula on the basis of the percentage which each activity occupies in respect to the formula total (see section 13.2.3 **USER.MAN.REF.** for further details).
- **FIRST FREE COMPONENT (1A.FrEE):**
  The first component is manually dosed; the instrument, on the basis of the dosed weight, recalculates the weight to be dosed for each following activity proportionally in respect to the total; therefore in this functioning mode the first activity of the formula has to be a manual dosage or manual weight.
  By selecting this functioning mode, it will be possible to select only the formulas in which the first activity is a manual dosage or manual weight. For further details, see section 13.2.2 of the user manual **(USER.MAN.REF.).**

For the functioning specifics see section **13.2**, **USER MAN.REF.**
 **(!)  WGt.For**

## <<SLOW.M>>  SLOW EXECUTION MODE
**For "TOT.WGT" formula executing mode**
In this parameter one decides when the slow dosage will be performed:
**EVERY CYCLE**     every cycle
**END CYCLE**        only at the last cycle (if the cycles are plus one)
For the functioning specifics see section **13.2.3.1**, **USER MAN.REF.**
**(!) EVERY CYCLE**

## <<PRN.FOR>>  PRINT FORMULA UPON SET TOTAL WEIGHT CHANGE (§)
**For "TOT.WGT" formula executing mode**
This step decides whether the formula is printed or not, when set total weight is changed.
**NO**          when the set total weight is changed, it is not asked to print the formula.
**YES**         when the set total weight is changed, it is asked to print the formula, while the display shows "PRINT FORMULA?" message, one is asked to confirm with **ENTER** key, or press **C** key to exit it.
**(§)** this parameter is visible only if "TOT WGT" mode has been enabled.
**(!) NO**

### <u><<RES.ADD>> ADD WEIGHT WHEN CYCLE IS RESET</u>
This step allows to add the dosed weight to formula, activity, totals when the
cycle is reset.

**No**         not allow to add weight.
**YES**       allow to add weight.

**(!))No**

### <u><<EN.PROD>> ENABLING PRODUCTION PROGRAM FUNCTION</u>
This step allows to enable the production program function.
**Disable**    disabling production program
**Enable**     enabling production program
For the functioning specifics see section **13.7**, **USER MAN.REF.**
**(!) Disable**

### <u><<REM.COM>> COMMUNICATION CONFIGURATION FOR REMOTE COMPONENTS</u>
**NOTE:** For the functioning specifics see section , **USER MAN.REF.**

#### <u><<R.T.OUT>> REMOTE COMMUNICATION TIMEOUT (sec.)</u>
The step allows to set maximum communication timeout for the remote components, if the set time elapsed, the
communication still fails, the indicator will continually send the same commands to the remote instrument until the
number of retries use up (see the **<<R.RETRY>>** step).
NOTE:    t min= 00000.0 sec ;    t max= 99999.9 sec
**(!) 00000.5**

#### <u><<R.RETRY>> SET THE NUMBER OF THE COMMUNICATION RETRIES</u>
The step allows to set the maximum number of communication retries, if the set number of retries use up, the
communication still fails, the message "REM.DISCONNECT" (see section 4.2.5, **USER MAN.REF.**) is displayed
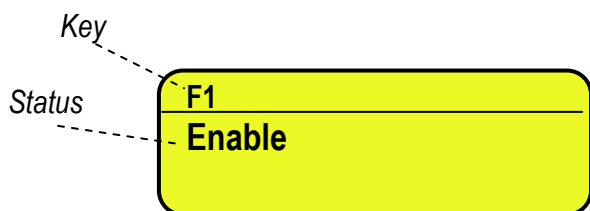and the dosage can`t be executed.
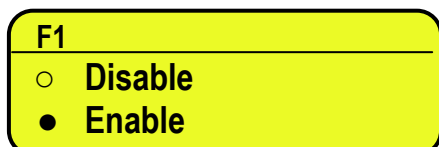NOTE:    min= 000 ;  max= 255
**(!) 005**

## << EN.KEYS >>  KEYS ENABLING

It is possible to enable/disable each single key of the keyboard:

- select the desired key with F6/F7:

*Key*

*Status*

```
F1
Enable
```

- press ENTER to modify the setting:

```
F1
○  Disable
●  Enable
```

- Press F6/F7 to select "Enable" (enabled) or "Disable" (disabled), and ENTER to confirm.

**NOTES:**
- It's possible to enable/disable all the keys together, by selecting "ENABLE ALL" or "DISABLE ALL" (the confirmation will be requested with the message "SURE?").
- The disabling of the keys will have effect only the WEIGHING PHASE, in other words, not inside the menus, databases, etc…
- The turning off of the instrument (long pressing of the C key) will always be enabled.
- The disabling of the keys will be applied also on the PC keyboard, if connected.

**(!) ENABLE ALL**

## << F.kEyS >>  FUNCTION KEYS COUPLING

It's possible to modify the function of the F1, F2…..F10 keys, and the combination of these with the **2nd F** or **Fn** keys (i.e. "2nd F + F1", "Fn + F2", etc...).

- select the desired key with F6/F7:

Key

| F1 |
| 301 |
| FORMUL |

*Function code*

*Function*

- press ENTER to modify the setting:
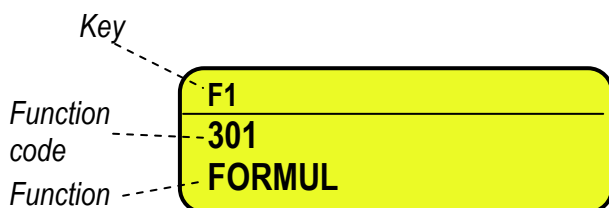
| F1 |
| **301** |
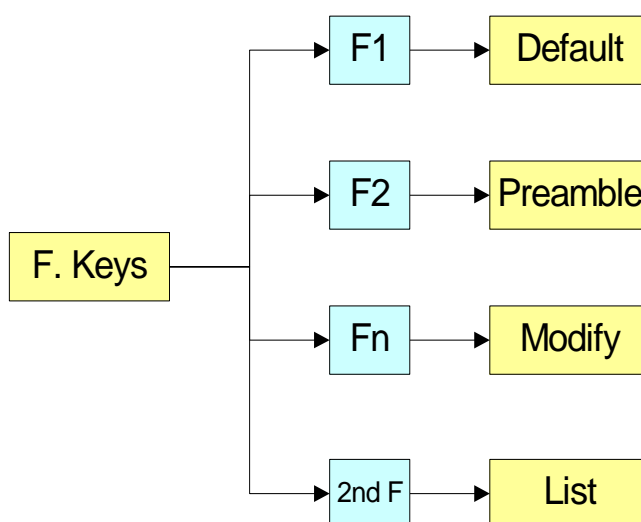
*Code function (blinking)*

- Enter the desired code and confirm with ENTER.

By pressing numeric **999999 + Fn** key it`s possible to enter into the following menu:

| CODE | BASIC FUNCTIONS | DEFAULT KEY/S |
|------|-----------------|---------------|
| 100 | Scale zero (ZERO) | ZERO |
| 101 | Cyclic zero (0.CYCLE) | 2ndF + ZERO |
| 102 | Tare execution (TARE) | TARE |
| 103 | Enable the printer (PRN-ON) | Fn + 0 |
| 104 | Simple printout (PRINT) | F5 |
| 105 | Repetition of last printout (CPY.PRN) | 2ndF + F5 |
| 106 | Change visualization weight (WEI.VIS) | 2ndF + F8 |
| 107 | CPWE: change visualization on display LCD (LCD.VIS) | 2ndF + F10 |
| 108 | Lock/unlock keyboard (L. KEYB) | F1 pressed at length |
| 109 | Visualization times ten (Disp.10) | F2 pressed at length |
| 110 | Set time and date (CLOCK) | F3 pressed at length |
| 111 | Diagnostics menù (Diag.) | F4 pressed at length |
| 112 | Lock/unlock tare (L. TARE) | F5 pressed at length |
| 113 | Input text configuration (txt) | F4 |
| 114 | Calculator (CALC) | |
| 118 | Peripheral units diagnostics (P.DIAG) | |
| 119 | Com data diagnostics (COM.DAT) | |
| 120 | Custom display enabling (CST.DSP) | Fn +F9 |
| 121 | Quick setting of the input text 0 (tXt.0) | |
| 122 | Quick setting of the input text 1 (tXt.1) | |
| 123 | Quick setting of the input text 2 (tXt.2) | |
| 124 | Quick setting of the input text 3 (tXt.3) | |
| 125 | Quick setting of the input text 4 (tXt.4) | |
| 126 | Quick setting of the input text 5 (tXt.5) | |
| 127 | Quick setting of the input text 6 (tXt.6) | |
| 128 | Quick setting of the input text 7 (tXt.7) | |
| 129 | Quick setting of the input text 8 (tXt.8) | |
| 130 | Quick setting of the input text 9 (tXt.9) | |
| 131 | Reset input texts (tXt.rSt) | |
| 132 | Send print format (Send.P.F) | |
| **OTHER FUNCTIONS** | | |
| 200 | Coupling print formats (PRN.FMT) | |
| 201 | Coupling second format (SND.FMT) | |
| 204 | Selection channel 1 (PLT-1) | 2ndF + 1 |
| 205 | Selection channel 2 (PLT-2) | 2ndF + 2 |
| 206 | Selection channel 3 (PLT-3) | 2ndF + 3 |

| 207 | Selection channel 4 (PLT-4) | 2ndF + 4 |
|---|---|---|
| 208 | CPWE: change visualization on second line (DAT.VIS)<br>3590E: change visualization on first line (DAT.VIS) | 2ndF + F9 |
| 209 | Switch on the next channel (CHG.PLT) | 2ndF + 2ndF |
| **SPECIAL FUNCTIONS** | | |
| 300 | Phases database (PHASES) | F2 |
| 301 | Formula database (FORMUL) | F1 |
| 302 | Setting total weight (WGT.FOR) | F7 |
| 303 | Setting number of dosage cycle repetition (N.CYCLE) | F8 |
| 304 | Printing the report of all the activities (PRN.ACT) | |
| 305 | Print and clear the consumption of all the dosage activities (PRN.CON) | |
| 306 | Clear the consumption of all the dosage activity (CLR.CON) | |
| 307 | Printing the report of a specific formula (PRN.FOR) | |
| 308 | Printing the report of all the formulas (PRN.F.A) | |
| 309 | Print and clear the production of a specific formula (PRN.P.F) | |
| 310 | Print and clear the production of all the formulas (PRN.PRO) | |
| 311 | Print and clear general total (PRN.G.T) | F9 |
| 312 | Clear the production of a specific formula (CLR.P.F) | |
| 313 | Clear the production of all the formulas (CLR.PRO) | |
| 314 | General total zeroing (CLR.G.T) | |
| 315 | Start dosage (START) | F6 |
| 316 | Dosage pause (PAUSE) | F10 |
| 317 | Direct insertion 1st target (D.INS.1) | |
| 318 | Direct insertion 2nd target (D.INS.2) | |
| 319 | Direct insertion 3rd target (D.INS.3) | |
| 320 | Direct insertion 4th target (D.INS.4) | |
| 321 | Direct insertion 5th target (D.INS.5) | |
| 322 | Direct insertion 6th target (D.INS.6) | |
| 323 | Formula selection with alphabetical research (FOR.SEL) | |
| 324 | Quick changing of the formula targets (TARGET) | F3 |
| 325 | Printing the report of the selected formula (PR.A.FOR) | |
| 326 | Print and clear the production the selected formula (PR.P.A.F) | |
| 327 | Enable production program (EN.PROD) | |
| 328 | Set formulas in the production program (SET.PRD) | |
| 329 | Print last executed production program (PRN.PRD) | |
| 330 | General total data visualization (GEN.TOT) | |
| 331 | REMOTE FORMULA IN PROGRESS (REM.PRO) | |
| 332 | REMOTE INSTRUMENT TEST (REM.TST) | |
| 333 | COMMAND FORWARD TO PC PORT (CMD.FWD) | |
| **PRINTOUT MENU VISUALIZATIONS** | | |
| 400 | Set progressive digit ( Prg.1) | |
| 401 | Set progressive ticket (Prg.2) | |
| 402 | Reset progressive ticket (0.Prg) | |

**Preamble function**

It is possible to associate also a preamble (numeric value) to the F1, F2…F10 keys: the preamble will be used as parameter of the function linked to the key, and allow to execute a specific function, depending on the main function itself, as described in the following list:
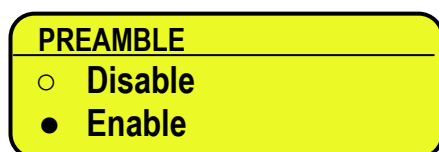
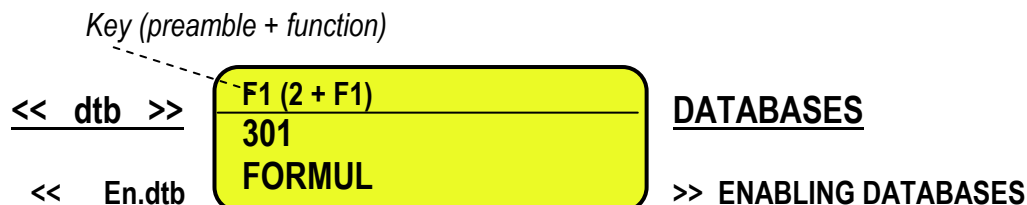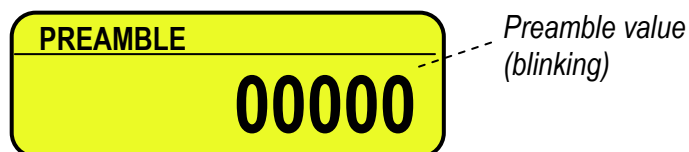| KEY FUNCTIONS | PREAMBLE FUNCTION | VALUE TO SET IN THE PREAMBLE |
|---|---|---|
| 107 - Change visualization on second line (LCD.VIS) | Direct selection of a specific visualization on the second line. | Number of the desired visualization (see section 4.2.4, USER.MAN.REF.). |
| 108 - Change visualization on first line (DAT.VIS) | Direct selection of a specific visualization on the first line. | Number of the desired visualization (see section 4.2.4, USER.MAN.REF.). |
| 114 - Input text configuration (tXt) | Direct access to the modification of a specific input text. | Number of the input text that one wants to modify. |
| 131 – Reset input texts (tXt.rSt) | Direct cancellation of the contents of an input text or all the input texts. | Number of the input text that one wants to cancel (see section 10, USER.MAN.REF.). |
| 132 - Send print format (Send.P.F) | Direct sending of a specific print format on the serial port to print. | Number of the print format that one wants to send. |
| 200 - Coupling print formats (Prn.Fmt) | Direct access to the modification of the coupling of a specific print function to a print format. | Number of the format on which one wants to modify the coupling. |
| 301 - Formula database (Art.dtb) | Direct selection of a specific formula. | Number of the desired formula. |
| 400 - Set progressive digit ( Prg.1) | Direct selection of a specific digit | Number of the desired digit |
| 401 - Set progressive ticket (Prg.2) | Direct selection of a specific ticket number | Number of the desired ticket |

To set the preamble:

- select the desired key with **F6/F7**:

*Key*

*Function code*

*Function*

```
F1
301
FORMUL
```
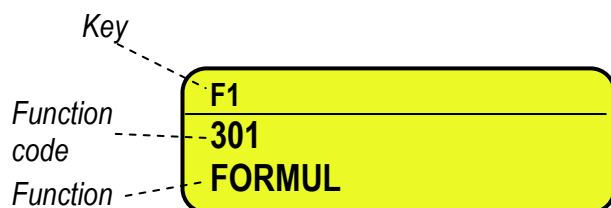
- press **F2** to insert the preamble, select enable and confirm with ENTER:

```
PREAMBLE
○  Disable
●  Enable
```

- enter the desired value through the numeric keyboard and confirm with **ENTER** (by confirming the value 0, the preamble is disabled).

```
  PREAMBLE
            00000
```
*Preamble value
(blinking)*

*Key (preamble + function)*

**<<   dtb   >>**

```
  F1 (2 + F1)
  301
  FORMUL
```

**DATABASES**

**<<     En.dtb**       **>> ENABLING DATABASES**

It's possible to enable or disable the activity and formula databases.
**EnAbLE:** databases enabled.
**diSAbL:** databases disabled.
**(!) EnAbLE**

**<< En.A.Fld  >>   ARTICLE FIELD ENABLING**

It's possible to enable one by one the fields necessary for the application.

*Field name*

*Status*

```
  FLY WEIGHT
  ○  Disable
  ●  Enable
```
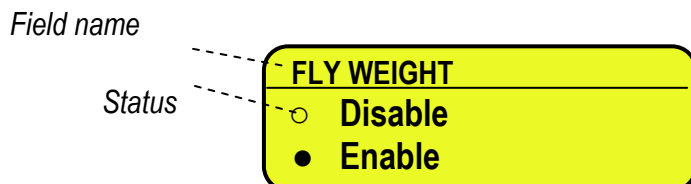
- Press F6/F7 to select "Enable" (enabled) or "Disable" (disabled), and ENTER to confirm.
- Proceed up to the last suggested field, after which it automatically exits the step.

**NOTE: The description is always enabled.**

**<< U.M. >>  DATABASE UNIT OF MEASURE**

It is possible to set the unit of measure of the ACTIVITIES database and of FORMULAS database, in relation to the total values: kg, t, lb, g; if the unit of measure is different than the one of the active scale, the displayed or printed total value will be automatically converted with the database's unit of measure.
**(!) kg**

**<< DECIM. >>   DATABASE DECIMALS**

It is possible to set the number of decimals of the ACTIVITIES database and of FORMULAS database, in relation to the total values: 1, 2, 3, no decimal; if the number of decimals is less than the one of the active scale, the displayed or printed total value will be automatically rounded off.
**(!) x.xxx**

## << INIT. >>  INITIALIZE DATABASES and INPUT TEXTS

By pressing **ENTER** one initialises the DATABASES (with the total values), the number of decimals and unit of measure of the databases and the INPUT TEXTS: in this way all their contents will be cancelled.

The cancellation is not immediate; the indicator requests a further confirmation (the LCD display shows "RESET DATABASES ? ENTER=YES C=NO").

By pressing **ENTER** one confirms the operation, by pressing **C**, the indicator gives the possibility to **cancel all the databases individually** in this order: ACTIVITY DATABASE, FORMULA  DATABASE, INPUT TEXTS.

## << rEACt >> REENABLING OF THE PRINTOUTS

It is possible to set the re-enabling of the simple print function in the following modes: "passage of the net weight by zero" or "weight instability".

**PASS.0:**    passage of the net weight by zero
**inStAb:**    instability
**(!) PASS.0**

## << rEStAr >>  RESTORING TARE AND ZERO AT START-UP

It's possible to set whether to restore or not at start-up the active tare before turning off the instrument.

**EnAbLE:** restoring enabled tare and zero.
**diSAbL:** restoring disabled tare and zero.

See the section "7.8 RESTORING TARE AND ZERO AT START-UP" in the user manual for the functioning specifics.
**(!) EnAbLE**

## << LOGO >>  TEXT UPON START-UP

At the start-up of the indicator, the LCD display shows a message of 2 lines of 16 characters, which is set in this step, or a 160x32 pixel photo uploadable from Dinitools™ (" *.bmp "monochromatic format is accepted).

**(!)** 📧 DINI ARGEO

## << tXt >>  INPUT TEXTS

### << CFG.tXt >>  INPUT TEXT CONFIGURATION

Through this step one can enter, modify or cancel the heading of the input texts which will be filled in during the weighing through the F4 key of the indicator; refer to the user manual for further specifications. (**USER MAN.REF**.).

| CFG.tXt | F1 | New |
|---------|----|-----|
|  | F2 | Edit |
|  | F3 | Delete |
|  | F5 | Print |
|  | ./HELP | Help |
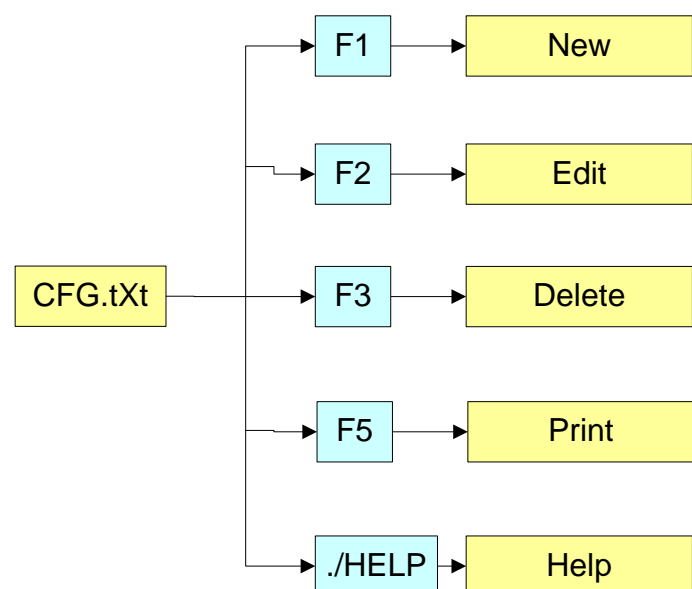
## ENTRY
- Press ENTER to enter in the step.
- Select the eventual desired position through the arrow ▲ ▼ keys (or with the keyboard digit the position number).
- Press F1 to enter the text in the desired position, or the first free position, if an already occupied position has been selected.
- The display shows "DESCRIPTION" and one can now enter the heading of the input text (up to 16 characters); press ENTER to confirm.
- The display shows "TEXT" and one can enter the contents of the input text (up to 32 characters); press ENTER to confirm.
- The display shows "THRESHOLD" and one can enter the maximum number of alphanumeric characters enterable in the field "TEXT"; press ENTER to confirm.
- The display shows "MANDATORY INPUT", if one chooses "Enable" it is possible to exit from the input phase only if the text isn't null; press ENTER to confirm.
- The display shows "ONLY VOID INPUT"; if one chooses "Enable" it is possible to modify the text only if it is null; press ENTER to confirm.
  NOTE: The threshold entered here defines also the field length for the compilation through the F4 key in the weighing phase; if no text is inserted, the length is set at 32 characters.

## MODIFICATION
- Press **ENTER** to enter in the step.
- Select the storage to be modified through the arrow ▲ ▼ keys (or with the keyboard digit the position number) and press **F2**.
- Modify the desired fields, listed in the previous section.
- **NOTE**: The text entered here defines also the field length for the compilation through the **F4** key in the weighing phase; if no text is inserted, the length is set at 32 characters.

## CANCELLATION
- Press **ENTER** to enter in the step.
- Select the storage to be cancelled through the arrow ▲ ▼ keys (or with the keyboard digit the position number) and press **F3**.
- The indicator requests a further confirmation: press **ENTER** to confirm or another key to cancel.

## PRINTING
- Press **ENTER** to enter in the step.
  Once inside it, press the **F5** key to print all the input texts. The LCD display shows the message "**PRINT ?**": confirm with the **ENTER** key to print the whole input texts' database.

## HELP
By pressing the **./HELP** key, it's possible to see the keys list used in the menu.
The key list is automatically. If you want to see the keys list, in manual mode, use the arrow key (**F6** or **F7** key).

### << d.thrES >>    DATA LENGTH THRESHOLD FROM READER
If one enables the compilation function of the free texts through the bar code reader / badge (see relative manual),
In this step one can define a length (from 00 to 31) which conditions the storage of data readed. If the datum has a length less or equal to the predefined one; it is stored in the first input text; otherwise it is stored in the second one.
**NOTE:** the function has been enabled on the serial port selected in the **SEtuP >> SEriAL >> rEAdEr** step, or on the PC KEYBOARD input, by selecting the "Reader" parameter in the **SEtuP >> PC.KEYb >> KEY.uSE** step.

### << tXt.i >>   ENTRY OF HEADINGS
Up to 3 lines x 24 characters of text can be entered that will be printed if programmed in the printout formats. The text entered will remain stored and printed until it is either cancelled or substituted.

## << CLr.rAM >>   BUFFERED RAM RESET

The indicator has a buffered RAM memory (not volatile when power is removed) inside which is the database data, the input texts, the print formats, the heading.

The cancellation is not immediate; the indicator requests a further confirmation: press **ENTER** to confirm or press another key to cancel.

**Note:** CALIBRATION DATA ARE NOT CANCELLED.

## << dtb.PWd >>   SET DATABASE ACCESS PASSWORD

By confirming the **EnAbLE** setting one may insert a password of up to 5 digits, which will block the visualisation of the databases, after the pressing of the **ENTER** key during the weighing. By setting **diSAbL**, this password is disabled.

See the section "DATABASES ACCESS PASSWORD", in the "MENU KEY" section of the user manual.

**NOTE**: The maximum enterable value is **65534**.

**(!) diSAbL**

## << tAMAG >>   TAMAGOTCHI

One enters the "NUMBER of MONTHS" passed (2 digits, **MonthS** paramters), and the "NUMBER of the WEIGHS" made (5 digits, **WEiGh.** parameter) **since the last calibration**; after this, one is advised to recalibrate the instrument.

By pressing **ENTER** one passes to a submenu:
- **MonthS**    >>>       Setting of Months
- **WEiGh.**    >>>       Setting of Weighs
- **rESEt**      >>>       Clearing of Months and Weighs from the last calibration

If you set the number of months and the weighing to zero, this function will be disabled; in any case it is possible to activate a choice of the number of months (MAX 99) or the number of weighs (MAX 99999).

By confirming with **ENTER** on the "rESEt" step one sets at zero the number of months and weighs taken place since the last calibration made.

At start-up and every day at 11:00 o'clock, the indicator will be checking for the number of weighing and the number of months that have passed since the last calibration. If one of the values or both are equal or higher than the previously set values, "WE ADVISE TO RECALIB. SCALE" appears in the display. By pressing any key, the indicator will enter in the normal scale functioning mode.

**(!) MonthS 00; WEiGh. 00000**.

# << SEtuP >>   SCALE CONFIGURATION

## <<ConFiG>>  PARAMETERS (*)

**NOTE:** in case of various connected scales, one will be asked to select the scale that is to be calibrated.

### <<PArAM>>   PARAMETERS

#### (*) <<StAbiL>>  FILTERING INTEGRATION

By pressing the **ENTER** key one accesses the selection of the type and degree of filter intervention for the stability of the weight indication:

**FLt 0 – 3**    filter for simple weighing
**h.r.0 – 1**    filter for high resolution
**dYn.0 – 1**    filter for weight in movement (i.e. weighing animals)
**doS.0 – 3**    filter for dosage
**SLW.0 – 3**   filter for weight rather unstable
**h.r.2 – 7**    filter for high resolution
**dYn.2 – 3**    filter for weight in movement (i.e. weighing animals)

**(*)** In case of approved instrument, one can select only: **FLt 0…3**, **h.r.0**, **h.r.1**, **dYn.0**, **dYn.1**.

The higher the filter value, and greater is its intervention relative to the type of filter used.

**(!) FLt 3**

### << (*) Auto-0 >>   AUTOZERO AT START-UP
Automatic acquisition of the gross zero at start-up.

```
 Auto 0
 ● Disable
 ○ Enable
```

- Disabled

```
 Auto 0
 ○ Disable
 ● Enable
```

ENTER →

```
 C.PErC
              10
```

*Clearing percentage (blinking)*

- Enabled

Set the clearing percentage in relation to the capacity  (in between +/-1 and +/- 50 %).

See section 3.2 **(USER MAN.REF.)** for details on the functioning.
**(*)** with approved instrument:
- it's not possible to change the selection from EnAbLE to diSAbLe or vice versa.
- by confirming the setting of EnAbLE it is possible to modify the clearing percentage between +/-1 and +/-10 %.
**(!) EnAb, +/-10 %**

### << (*) 0-PErC >>   ZERO FUNCTIONS IN WEIGHING PHASE
Acquisition of the gross zero through the ZERO key or through the AUTOZERO function.

```
 0.PErC
              02
```

*Clearing percentage (blinking)*

Set the clearing percentage in relation to the capacity (in between +/-1 and +/- 50 %).
By entering the 0 value, it's possible to disable the ZERO functions in the weighing phase.

See section 6 **(USER MAN.REF.)** for functioning details.
**(*)** In case of approved instrument, the settable values are between 0 and 2.
**(!) +/-2 %**

### <<(*) WArMuP>>  HEATING PHASE
It is possible to set a time in which, during the start-up phase, a short preheating is made of the instrument electronics, in order to optimize the weighing.
The 00 value disables the function.
**(*)** The function has no effect if **<<Auto-0>>** is **diSAbL**.
**NOTE**: tMin = 00 sec.; tMAx = 60 sec.
**(!) 00**

### <<(*) 0.trACk>>   ZERO TRACKING
This allows setting the zero tracking, in other words, the compensation parameter of the scale's thermal drift.
The set value corresponds to the number of **stable divisions per 1 second** that one desires to compensate.

| | |
|---|---|
| **tr. ½** | +/- half division. |
| **tr. ¼** | +/- one fourth of a division |
| **tr. 1** | +/- one division. |
| **tr. 2** | +/- two divisions. |
| **tr. no** | tracking disabled. |

**(*)** In case of approved instrument, by entering the step one views the set value; by pressing **ENTER** it's possible to modify the parameter and choose one of the following values: **tr. no**, **tr. ½**, **tr. ¼**.
**(!) tr. ½**

### <<(*) diV.Stb>>   DIVISIONS BY STABILITY

In this step one enters the number of divisions by which the instrument detects the weight stability; the higher the number of divisions, less is the sensitivity, and consequently the stability is more easily detected. The possible values are 0…99.

**NOTE:** the 0 value disables the checking.

**(*)** In case of approved instrument the parameter is read only.

**(!) 02**


### << (*) GrAV>>  GRAVITY ZONE AND ZONE OF USE

In this step one selects the gravitational acceleration value **of calibration and of use** of the instrument:

<u>Manual entry of the g value</u>: the instrument is ready for the manual entry of the gravitational acceleration value.

<u>If one enters a wrong g value</u>: the minimum decimal value is proposed (9,75001); by a wrong g value one intends a decimal number not including between 9,75001 and 9,84999 (included).

**(*)** In case of approved instrument the parameter is read only.

**(!) g = 9,80655**


### <<(*) CALib.>>   SCALE CALIBRATION

See section "4. CALIBRATION"

**(*)** In case of approved instrument the parameter is read only.


### <<(*) 0.CALib.>>  ZERO CALIBRATION

See section "4. CALIBRATION"

**(*)** In case of approved instrument the step is not visible.


## <<SEriAL>>  SELECTION OF THE SERIAL OUTPUT PARAMETERS


### << PORTS >> SERIAL CONFIGURATION

By pressing ENTER it's possible to choose the most adequate combination for the use of the three serial ports on the indicator hardware (**COM1, COM2, COM3**):

| Parametro | COM 1 | COM 2 | COM 3 |
|---|---|---|---|
| PC.PR.AX (!) | ComPC | ComPrn | ComAux |
| PC.AX.PR | ComPC | ComAux | ComPrn |
| PR.PC.AX | ComPrn | ComPC | ComAux |
| PR.AX.PC | ComPrn | ComAux | ComPC |
| AX.PC.PR | ComAux | ComPC | ComPrn |
| AX.PR.PC | ComAux | ComPrn | ComPC |


### <<CoMPrn>>  PRINTER SERIAL PORT


#### <<bAud>>  SET BAUD RATE

By pressing the **ENTER** key one accesses the selection of the data transmission speed (measured in Baud = bit/second). The possible values are: 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200.

**(!) 9600**


#### <<PAritY>>  SET PARITY BIT

By pressing the **ENTER** key one accesses the selection of the parity bit type. The possible values are: nonE (absent parity bits), odd (uneven parity bits) e EVEn (even parity bits).

**(!) nonE**


#### <<Word>>  SET WORD LENGTH

By pressing the **ENTER** key one accesses the selection of the number of data bits. The possible values are: 8 (8 data bits) and 7 (7 data bits).

**(!) 8**

### <<StoP b>>  SET STOP BIT

By pressing the **ENTER** key one can then select the number of stop bits. The possible values are: 1 (1-stop bit) and 2 (2 stop bits)

**(!) 1**

### <<CtS.St.>>  SET CTS LEVEL

On the serial line set as COM.PRN the indicator can manage a synchronism signal.
- by using the dedicated CTS (Clear To Send) signal, if one uses the COM2 port, or
- by using the RX input, if one uses the COM1 or COM3 port (in this case, by enabling the function, this input will be no longer managed for other reception functions).
A device (like a printer) that is slow in processing the data received, can interrupt the transmission temporarily using this signal.
It is possible to select:

| | | |
|---|---|---|
| **no.CtS** | no signal | (ITALORA WITTY280 and SMT280) |
| **LoW** | CTS active low | (LP522/542, EPSON LX300, TM295, TPR, LP542PLUS, TTP243, LP542S, SMTPLUS) |
| **hiGh** | CTS active high | (DP190) |

**EMuCtS**   Emulation of CTS signal, one is asked to enter the number of characters (nChrS) using 3 digits, which will be transmitted upon each transmission; then one should enter the wait time in milliseconds (tiME), using 4 digits, from a transmission and the next one.

**(!) no.CtS**

### <<SND.CTS>>  SECOND CTS SIGNAL (§)

This step decides if enable (**ENABLED**) second CTS signal used for 2 printers or not (**DISABLED**). See the previous step **<< CtS.St. >>**.

**(§)** the step is visible only if **COM2** is set on **"PRN"** and **LOW** or **HIGH** signal is enabled inside **"CtS.St."** step.

**(!) DISABLED**

### << Err.CtS >>  CTS STATUS ERROR

By enabling this error, it is possible to block in advance the print or totalisation function, if recalled with an already active synchronism signal (see previous step): the indicator display will shows the message "PRINTER ERROR: CHECK THE CTS!" for a few seconds and return to the weighing phase without carrying out the function.
Press F6/F7 to Enable (enabled) or Disable (disabled), and ENTER to confirm.

**(!) Disable**

### <<PWrPrn>>  PRINTER POWER SUPPLY

On the indicator board there is a terminal board called V-AUX (auxiliary power supply), thanks to which it is possible to power the devices (for example a printer); refer to the electric scheme for the characteristics.
In this step one programmes the functioning of the auxiliary output and the management of a possible connected printer:

**PWr.EXt**   with instrument on, printer managed and auxiliary output always active.

**PWr.int**   printer managed, auxiliary output active only when the instrument executes a printout.

**Ext.oFF**   printer managed and auxiliary output always active; the start-up characters are sent to the printer, because the printer is considered to be configured in the energy saving mode.

**(!) PWr.Ext**

### <<ProtoC>>  SELECTS PROTOCOL

| | |
|---|---|
| **norMAL** | Print |
| **riPE 6** | protocol for 6-digit repeater. |
| **Cont.** | continuous transmission |

For the protocol specifications, see 8.4 section.

**(!) norMAL**

### <<CoM PC>>   PC SERIAL PORT CONFIGURATION

#### <<bAud>> SET BAUD RATE
By pressing the **ENTER** key one accesses the selection of the data transmission speed (measured in Baud = bit/second). The possible values are: 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200.
**(!) 9600**

#### <<PAritY>>   SET PARITY BIT
By pressing the **ENTER** key one accesses the selection of the parity bit type. The possible values are: nonE (absent parity bits), odd (uneven parity bits) e EVEn (even parity bits).
**(!) nonE**

#### <<Word>>   SET WORD LENGTH
By pressing the **ENTER** key one accesses the selection of the number of data bits. The possible values are: 8 (8 data bits) and 7 (7 data bits).
**(!) 8 b**

#### <<StoP b>> SET STOP BIT
By pressing the **ENTER** key one can then select the number of stop bits. The possible values are: 1 (1-stop bit) and 2 (2 stop bits)
**(!) 1**

#### <<CtS.St.>>   SET CTS LEVEL
On the serial line set as COM.PRN the indicator can manage a synchronism signal.
- by using the dedicated CTS (Clear To Send) signal, if one uses the COM2 port, or
- by using the RX input, if one uses the COM1 or COM3 port (in this case, by enabling the function, this input will be no longer managed for other reception functions).
A device (like a printer) that is slow in processing the data received, can interrupt the transmission temporarily using this signal.
It is possible to select:

**no.CtS**     no signal                (ITALORA WITTY280 and SMT280)
**LoW**        CTS active low           (LP522/542, EPSON LX300, TM295, TPR, LP542PLUS, TTP243, LP542S, SMTPLUS)
**hiGh**       CTS active high          (DP190)
**EMuCtS**     Emulation of CTS signal, one is asked to enter the number of characters (nChrS) using 3 digits, which will be transmitted upon each transmission; then one should enter the wait time in milliseconds (tiME), using 4 digits, from a transmission and the next one.
**(!) no.CtS**

#### <<Add.485>>   485 ADDRESS
By pressing the **ENTER** key one accesses the insertion of a code of 2 digits (from 00 to 98) which identify the instrument among those connected in the RS485 transmission mode, on the PC serial port.
**NOTE:** the 99 code is used as a broadcast address.
**(!) 00**

#### <<ProtoC>>   TRANSMISSION PROTOCOL
Here one decides the data transmission format of the PC serial line:

| | |
|---|---|
| **StAnd** | Standard |
| **AFXX** | AF0X |
| **riPE 6** | Dini Argeo 6-digit repeater |
| **Mondir** | Uni-directional |
| **CoMPoS:** | Composite repeater |

For the protocol specifications, see 8.4 section.
**(!) StAnd**

### <<PC ModE>>   TRANSMISSION TYPE

| | |
|---|---|
| **rEquE.** | On request |
| **Cont.** | Continuous |
| **StAbiL** | A stabilità |
| **- 485 -** | 485 mode |

For the transmission mode specifics, see section 8.5.

**(!) rEquE.**


### << CoMAuX >>   AUX SERIAL CONFIGURATION (§)

### << bAud >>  SET BAUD RATE

By pressing **ENTER** one can select the data transmission speed (measured in Baud = bit/second). The possible values are: 2400, 4800, 9600, 19200, 38400, 57600, 115200.

**(!) 9600**

### << PAritY >>   SET PARITY

By pressing **ENTER** one can select the parity bit type. The possible values are: nonE (absent parity bit), odd (uneven parity bit) and EVEn (even parity bit).

**(!) nonE**


### << Word >>   SET WORD

By pressing **ENTER** one can select the number of data bits. The possible values are: 8 (8 data bits) and 7 (7 data bits).

**(!) 8**


### << StoP b >>   SET STOP BIT

By pressing **ENTER**  one accesses the selection of the stop bit number. The possible values are: 1 (1 stop bit) and 2 (2 stop bits).

**(!) 1**


### << CtS.St. >>  SYNCHRONISM SIGNAL

Not used in this application**.**


### << ProtoC >>  SELECTS PROTOCOL

| | |
|---|---|
| **nonE** | no protocol |
| **Cont.** | continuous transmission protocol |
| **riPE 6** | protocol for 6-digit repeater. |

For the protocol specifications, see 8.4 section.

**(!) nonE**


### << r71.rEP >>  R71 REPEATER

If the R71620 is connected to the indicator, through this step, it is possible to enable the dedicated protocol on the serial ports on which the "riPE 6" protocol is enabled.

| | |
|---|---|
| **Disable** | Disable |
| **Enable** | Enable |

**(!) Disable**


### << Prn.FMt >>   PRINT CONFIGURATION

Through this step one can configure up to 30 print formats directly from the indicator.

In this step it is possible to choose the number of format to be configured; therefore enter, modify or eliminate the print blocks following the instructions shown in section **10 PROGRAMMING THE PRINTOUTS**.

### << tErMin >>   SET TERMINATOR TYPE

When connecting a printer it is often necessary to transmit one of the following protocols in order to define the end of the print line.

**Cr**              CR (for DP190, LP522/542,TPR)
**Cr LF**           CR LF (for EPSON LX300 and TMU295)
**LF**              LF
**no.tErM**         NO TERMINATOR (for LP542 Plus, TTP243 and ITALORA COMPATIBLE, LP542S,SMTPLUS)
**(!) CF**

### << dEF.Prn >>  PRINTOUT DEFAULT

By pressing **ENTER** one is asked to confirm the activation of the 30 default printouts: the display shows "SurE?": press **ENTER** again to confirm or another key to cancel the operation.
**The printout default is configured only for TPR printer.**
**WARNING:** By enabling the printouts, all the formatted print formats will be CANCELLED and the first 27 will be SUBSTITUTED by the default formats which automatically will be linked to the 27 print functions.

## <<Anout>>  ANALOGUE OUTPUT (OPTIONAL)

If various scales are connected independently (see **nuM.SCA** parameter), the scale number to be configured will be requested; the configurations inside this menu must be made for each connected scale.
**See the "10. ANALOGUE OUTPUT (OPTIONAL)" section for configuring it**

### << SLot >>   SLOT SELECTION

One selects the SLOT to be used with the analogue output: SLOT 1 or SLOT2.

### << ModE >>   OPERATING MODE

AO G  = analogue output on the gross weight
AO n  = analogue output on the net weight
AO S  = analogue output proportional on the dosage speed.

### << (§) AoMA >>  MAXIMUM VALUE

Setting of the maximum value of the analogue output.

### << (§) AoZE >>   ZERO SCALE VALUE

Setting of the analogue output value when the scale displays zero weight.

### << (§) AoMi >>  MINIMUM VALUE

Setting of the minimum value of the analogue output.

## << OUTPUT. >> OUTPUTS CONFIGURATION

The indicator has 4 outputs on the main board and 12 outputs on the expansion board; through this step one can configure the functioning of 4 outputs (RL.1 to RL.4).

### << R.CONF. >> OUTPUTS CONFIGURATION

In this step it is possible to configure the functioning mode for the 4 outputs.

**rL. 1**      *OUTPUT 1(OUT1)*

**<< RLFUNC >>** RELAY FUNCTION

| | |
|---|---|
| **NULL** | NO FUNCTION (disabled) |
| **END.DOS** | End dosage (activated when the dosage is finished) |
| **FAST** | Fast speed (activated when the dosage is in approximate mode) |
| **ERROR** | Error (activated when the dosage is in error condition) |
| **OUT.TOL** | Out tolerance (activated when the dosed weight is out of tolerance, if **<<TST.TOL>>** is enabled) |
| **OK.TOL** | In tolerance (activated when the dosed weight is within tolerance, if **<<TST.TOL>>** is enabled) |
| **MIN.LVL** | Min level (activated when the weight goes below the minimum level threshold set in **<<MIN.LVL>>** step) |
| **MAX.LVL** | Max level (activated when the weight exceeds the maximum level threshold set in **<<MAX.LVL>>** step) |
| **OVER.T** | Over target (activated when the dosed weight exceeds the set target) |

The same configurations are valid for:
**rL. 2**      *OUTPUT 2(OUT2)*
**rL. 3**      *OUTPUT 3(OUT3)*
**rL. 4**      *OUTPUT 4(OUT4)*

**(!) RL.1 END.DOS, RL.2 FAST, RL.3 ERROR, RL.4 OVER.T**

## << t.LoCK >> TARE LOCKED/UNLOCKED

| | |
|---|---|
| **EnAbLE** | LOCKED TARE |
| **diSAbL** | UNLOCKED TARE |

See the section "7.5 TARE LOCKED/UNLOCKED" in the user manual for the functioning specifics.
**(!) EnAbLE**

## << ZOOM.W >> WEIGHT ZOOM

```
 ZOOM.W
 ● Disable
 ○ Enable
```

- Disable

```
 ZOOM.W              ZOOM.W
 ○ Disable    ENTER
 ● Enable     ——→         005
```
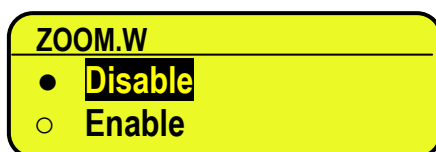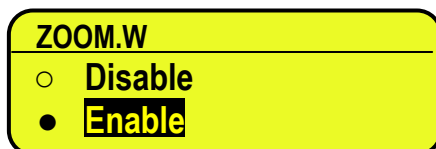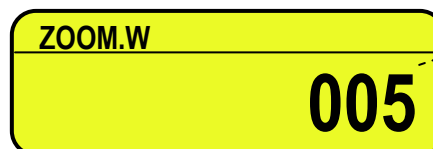
Activation delay
*(blinking)*

- Enable             Insert the activation delay (included between 0 and 255 sec.).

See section 4.2.1 **(USER MAN.REF.)** for the functioning details.
**(!) Enable, 005 sec.**

## << PoW.oFF >> AUTO SWITCH OFF

One enables/disables the auto switch-off after the scale is not used for 5 minutes, <u>with plate unloaded.</u>

| | |
|---|---|
| **EnAbLE** | auto switch-off ENABLED |
| **diSAbLE** | auto switch-off DISABLED |

**(!) disable**

## << bt.StAt >>   BATTERY LEVEL INDICATION

One selects whether to enable or disable the software check of the battery charge level: each time that the charge goes down of level, it is notified through the symbols on the display. See section 4.2.3, **USER MAN.REF.**

**EnAbLE**          check ENABLED
**diSAbL**          check DISABLED

**NOTE**: by enabling the indication of the battery level, the backlight automatically switches off when there is no keyboard activity for at least 15 seconds.

**(!) diSAbL**

## << baCkuP >>  INSTRUMENT DATA BACKUP

By pressing **ENTER** the indicator display shows "SURE?": press the **ENTER** to confirm or **C** to cancel the operation. In the first case, one is asked to enable or not a password.

If you confirm with **ENTER** key you enter to a submenu(**BAK.PWD**) wherein it is possible **ENABLE/DISABLE** the BACKUP password.

Default password is "**00000**". The password will required every whenever you want make another backup of instrument, where is also possible disable, enable and change it.

In the default steps (standard default, technical default, clearing of buffered ram, prints default or keys default), if a backup of the data is present and the password is enabled, one is asked to insert a correct password before execution of the normal default by pressing the **ENTER** key, or directly restore the saved data by pressing the **F1** key.

## << dFLt >>  STANDARD DEFAULT

By pressing **ENTER** the indicator activates the default parameters, (shown in bold and preceded by the exclamation point at the end of each step) and the standard printouts; the display shows **SurE?**: press **ENTER** to confirm  or **C** to cancel the operation.

**NOTE: THE CALIBRATION, THE DATABASES, THE INPUT TEXTS and the HEADING ARE NOT CANCELLED**.

## << (*) dFLt.t >>  TECHNICAL DEFAULT

By pressing **ENTER** the indicator activates the default parameters (shown in bold and preceded by an exclamation point at the end of each step), the standard printouts, initialises the database, cancels the input texts, the heading and **THE CALIBRATION**; the display shows **SurE?**: press the **ENTER** key to confirm  or **C** to cancel the operation.

**(*)** In case of approved instrument the step is not accessible.

## << PWd.SEt >>  SET ACCESS PASSWORD TO SET-UP ENVIRONMENT

One configures whether to enable or disable the access password to the technical menu:

**EnAbLE**    password ENABLED
**diSAbLe**   password DISABLED

By selecting **EnAbLE**, the instrument predisposes itself for the password entry, made up of up to 5 digits; when finished entering confirm with **ENTER**.

The enterable value are from 0 to 65534

See section 3 for the functioning specifics.

**(!) Disable**

## << (*) d.SALE >>  LIMITATION OF THE SCALE FUNCTIONS

- **no**      limitations disabled
- **yES**     limitations enabled

**(!) no**

If limitations enable, the next step is shown:

## << REM.DSP >>  PRESENCE OF THE REMOTE DISPLAY

- **no**      remote display not present
- **yES**     remote display present

**(!) no**

Refer to the user manual for the description of its functioning **(USER MAN.REF.)**.

**(*)** In case of approved instrument the parameter is not accessible.

## << PC.KEYb >>  PC KEYBOARD CONFIGURATION

### << KEYuSE >>  KEYBOARD PORT USE

| | |
|---|---|
| **norMAL** | Use of the external PC keyboard (see in the user manual the section 4.1.5. |
| **rEAdEr** | Enabling data reception from external reader (See relative manual)**.** |
| **(!) normal** | |

### << LAYout >>  EXTERNAL PC KEYBOARD LANGUAGE

| | |
|---|---|
| **uS.En** | american /english |
| **dEut** | german |
| **FrAn** | french |
| **itAL** | Italian |
| **(!) uS.En** | |

### << SOUND >>  INSTRUMENT SOUND ENABLING

| | |
|---|---|
| **Disable** | instrument sounds disabled |
| **Enable** | instrument sounds enabled |
| **(!)Enable** | |

# << diAG. >>  DIAGNOSTICS MENU
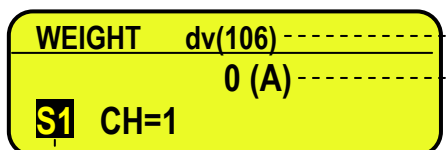
It's a submenu inside of which it is possible to check the software and hardware components of the scale, accessible also during the weighing, keeping the **F4** key pressed at length.

## << PrG.VEr >>   FIRMWARE

Software version checking.

## << WEiGht >>   WEGHT

By pressing **ENTER** the display shows:

```
WEIGHT    dv(106) - - - - - - - -      converter points per division
            0 (A) - - - - - - - -      weight and type of cells
 S1   CH=1                             (A)=Analogue (D)=Digital
```

*Checked scale*

If various scales are connected independently by pressing the F6 / F7 keys it is possible to select the scale to be checked.

## << MiLLiV >>  MILLIVOLT

Check of the load cell signal in millivolts, in three decimals.

By pressing **ENTER** the display shows:

```
MILLIVOLT
     0.285   (A) - - - - - - -      Millivolt and type of cells: (A)=Analogue, (D)=Digital
 S1   CH=1
```

*Checked channel*

*Checked scale* If various scales are connected independently by pressing the F6 / F7 keys it is possible to select the scale to be checked.

In the case the load cell is not connected or faulty, or the A/D converter is faulty, it is possible that floating values are shown, or the message "Err.C.XX" appears (in which XX is the number of channel / digital load cell on which the faulty is detected), if the signal exceed the underload / overload value of the converter.

To check if the A/D converter is faulty, disconnect the channel on which the faulty is detected and make a short between SIG+ and SIG-; with non faulty A/D converter a mV value proxime to 0.000 will be displayed.

## << ADC.Pnt >>  CONVERTER POINTS
Check of the A/D converter points.

By pressing **ENTER** the display shows:
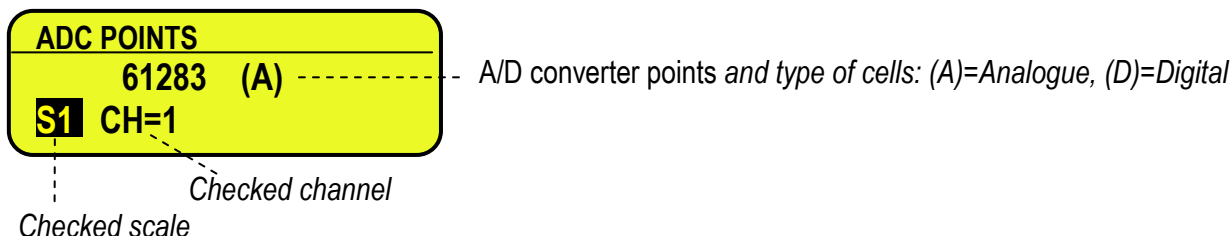
```
ADC POINTS
      61283   (A) ----------- A/D converter points and type of cells: (A)=Analogue, (D)=Digital
 S1  CH=1
```
        *Checked channel*

*Checked scale*

If various scales are connected independently by pressing the F6 / F7 keys it is possible to select the scale to be checked.

In the case the load cell is not connected or faulty, or the A/D converter is faulty, it is possible that floating values are shown, or the message "Err.C.XX" appears (in which XX is the number of channel / digital load cell on which the faulty is detected), if the signal exceed the underload / overload value of the converter.
To check if the A/D converter is faulty, disconnect the channel on which the faulty is detected and make a short between SIG+ and SIG-; with non faulty A/D converter a number of point proxime to 0 will be displayed.

## << diSPLAY >>  DISPLAY
By pressing **ENTER** the instrument shows the display version.
By pressing a key the display pixels turn on for some seconds, after that the indicator exit automatically from the step.

## << kEyb. >>  KEYBOARD
By pressing **ENTER** the instrument displays 0; by pressing the keys one at a time, the relative codes are shown to the display. One exits pressing the same key three times

## <<CtS.St. >>  CTS STATUS
By pressing **ENTER** the CTS signal type of the connected printer is shown on the display.

## << B.Level >>  BATTERY LEVEL
By pressing **ENTER** one views on the display the value of the battery input on the motherboard, read by the analog-digital converter.

## << Power >>  POWER SUPPLY VOLTAGE
By pressing **ENTER** the display shows the value of the power adapter input on the motherboard, read by the analogue-digital converter.

## << rELE >>  RELAY TEST
By pressing **ENTER** it is possible to test all the available relays; by selecting these one at a time with the ▲ ▼ arrow keys, these are activated:

| RL.01 | OUT1 | |
|-------|------|--------------------------------|
| … | | Relay of the main board. |
| RL.04 | OUT4 | |
| RL.05 | OUT5 | |
| … | | Relay of the expansion board (optional). |
| RL.16 | OUT16 | |

## << inPutS >> INPUT TEST

By pressing **ENTER** it's possible to test the status of the inputs; the display will show:

```
INPUTS
1  2  3  4  5  6  7  8
0  0  0  0  0  0  0  0
```

in which the number on the first line identifies the input:

| | | |
|---|---|---|
| 1 | IN1 | |
| … | | Inputs of the motherboard |
| 3 | IN3 | |
| | | |
| 4 | IN4 | |
| … | | Inputs of the expansion board |
| 8 | IN8 | |

and the number each input corresponds to its status:

0 = disabled;
1 = enabled.

## << Anout >> ANALOGUE OUTPUT TEST

If the instrument is fitted with the optional analogue output, through this step one can test if the values of the D/A converter (to be entered at time of calibration) correspond with the relative values of the analogue output (in voltage or in current), see section 9.

By pressing **ENTER** the display shows 00000; enter a value between 00000 and 65535 and confirm with **ENTER**; the instrument will supply the corresponding analogue value in output.

To exit the test confirm twice with **ENTER** the same entered value.

## << SEr. >> SERIAL PORTS TEST

By pressing **ENTER** it's possible to redirect the data received by any serial port, on other serial ports.

## << SEr.nuM >> SERIAL NUMBER

Diagnostics check for use of the manufacturer.

## << P.TEST >> PRINT FORMAT TEST

By pressing **ENTER** one is firstly asked to insert print format number to be tested, and then press **ENTER** again, the display shows "FMT.XX PRINT…" (XX indicates print format number), while the instrument will automatically print the format.

## << EV.LOG >> INSTRUMENT EVENTS VIEWER

By pressing **ENTER** it's possible to select the following events type:

- METRIC EVENT         view metric information, such as calibration, equalisation
- BATTERY EVENT       view the battery on/off status and level change
- KEYBOARD EVENT     view the pressed keys information
- SETUP EVENT          view the SETUP change and technical default information
- FW UPDATE EVENT    view the firmware update information

For each event the last 10 information are stored with the date/hour.

During view of the events, by pressing the F5 key it's possible to print the information.

# 4. CALIBRATION

The instrument offers the possibility of using the 4 channels of the A/D converter in order to obtain 4 independent weighing systems (therefore "independent channels"). Each connected system must be calibrated on its own, with its own capacity, division, and unit of measure.

## 4.1 CALIBRATION PROCEDURE
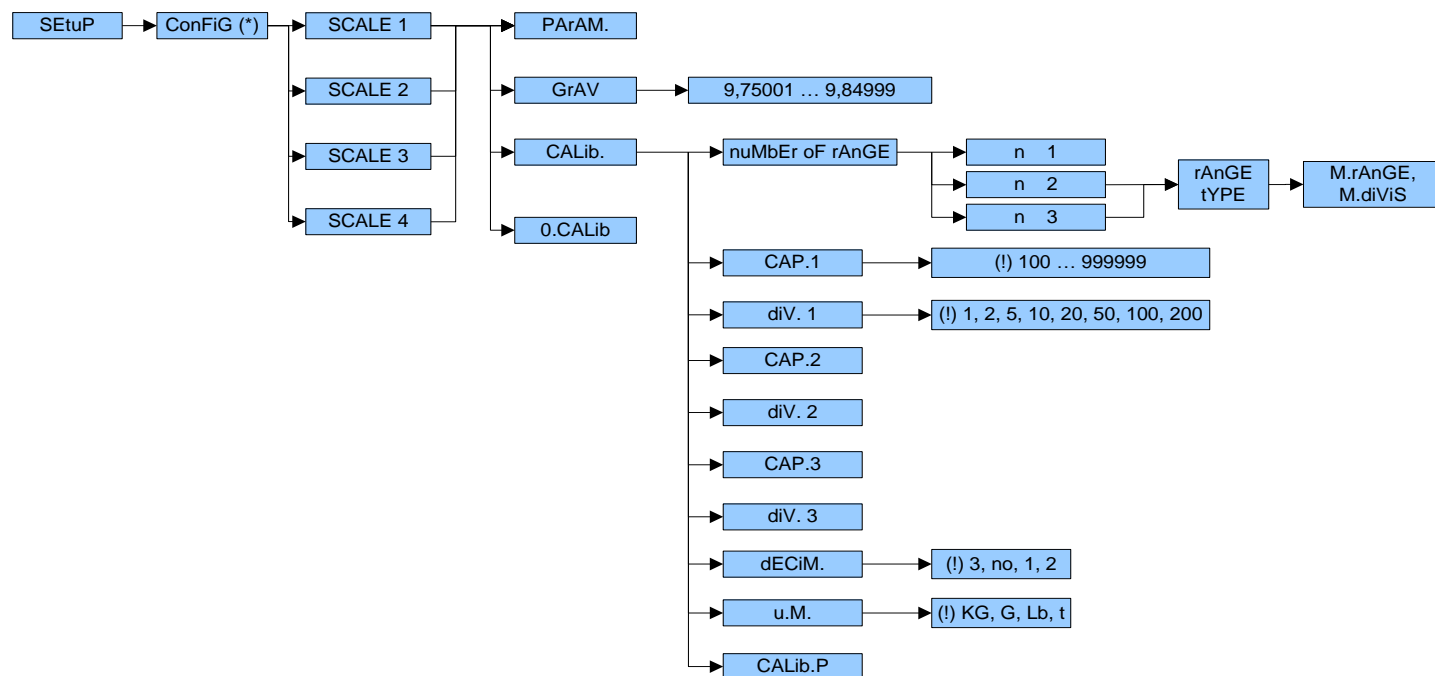


1) Enter in the SET-UP environment of the scale (when switched on, press for an instant the **TARE** key during the countdown).

2) Set the number of used channels; enter in the **<<nuM.SCA>>** step and select with the ▼ ▲ arrow keys:
   - **n.SC. 1**
   - **n.SC. 2**
   - **n.SC. 3**
   - **n.SC. 4**

3) Select the **<< SEtuP >>** step and press **ENTER;**

4) Select the **<< ConFiG >>** step and press **ENTER;**

5) Select the scale to be configured with the ▼ ▲ keys (only if **nuM.SCA > 1**) and press **ENTER**.

6) Select the **<<GrAV>>** step and press **ENTER;**

7) Select the calibration gravity zone or set the gravity acceleration value and confirm with **ENTER**.

8) Select the **<<CALib.>>** step and press **ENTER;**

9) Select the number of calibration range and confirm with **ENTER**
   - if there is only one measuring range, select 1**;**
   - with various fields (up to 3), the type of scale will be requested: select M.rAnGE (if a multirange scale) or M.diViS (if a multidivisional scale) and confirm with **ENTER**.

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10) Select the **<<CAP.1>>** step and press **ENTER;**
Set the total capacity of the scale or the first range in case of n ranges and press **ENTER.**
**TAKE NOTE:** enter the whole value including the decimal digits; for example if the capacity should be over 6 kg and the division 0.001kg (= 1 g), set 6000, or if the capacity should be 1500 kg and the division 0.5 kg, set 15000.
**(!) 000.100**

11) Select the  **<<diV. 1>>** step and press **ENTER**;
Set the minimum division of the scale or the first range in case of n ranges and press **ENTER** (selectable values: 1, 2, 5, 10, 20, 50, 100, 200).
**(!) 1**

12) Select step **<<CAP.2>>** (only in the case of n ranges) and press **ENTER;**
Set the capacity of the second range and press **ENTER.**

13) Select step **<<diV. 2>>** (only in the case of n ranges) and press **ENTER**;
Set the minimum division of the second range and press **ENTER.**

14) Select step **<<CAP.3>>** (only in the case of n ranges) and press **ENTER;**
Set the capacity of the third range and press **ENTER.**

15) Select the step **<<diV. 3>>** (only in the case of n ranges) and press **ENTER**;
Set the minimum division of the third range and press **ENTER.**

16) Select the step  **<<dECiM.>>** and press **ENTER;**
Set the decimals and press **ENTER** (selectable values: 1, 2, 3, no decimal).
**(!) 0.000**

17) Select the **<<u.M>>** step and press **ENTER;**
Set the unit of measure (g, lb, t, kg) and press **ENTER**.
**(!) kg**

18) Select the **<<CALib.P>>** step and press **ENTER**.

19) Set the number of points on which one wants to calibrate (from 1 to 8, with 1 one will do the zero point and the weight point) and press **ENTER**.
**N.B**.: the calibration points must be increasing (point 1 < point 2 < point 3 etc..).

20) One is asked the zero scale point: unload the scale and wait a few seconds, then press **ENTER**.

21) If the zero scale has been done well, one is asked for the first sample weight.

22) Put the weight on the scale, on the indicator set the value of the weight put on the scale, and press **ENTER**.

23) In case of various points restart from the previous point.

24) If one needs to calibrate various scales, once the calibration is made of all the necessary points, press many times the **C** key until the indicator shows on the display the scale which one is calibrating (for example "SCALE 1").
Select another scale and repeat the operations from point 6) onwards.

25) Once the calibration is made, press many times the **C** key until the indicator shows "EXITING SETUP: SAVE?" in the display: confirm with **ENTER** to store and return to weighing.

## 4.2 LINEARISATION POINTS

By entering in the **SEtuP >> ConFiG >> CALib >>** PointS step it's possible to access a menu which allows to view/modify the linearization points of the last calibration made:
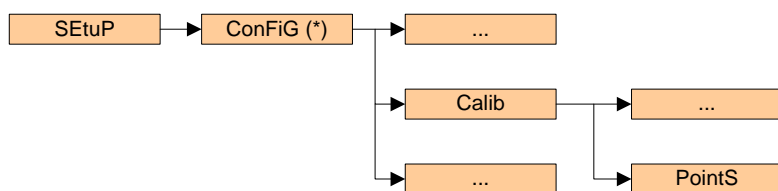
| SEtuP | ConFiG (*) | ... |
|-------|------------|-----|
|       | Calib      | ... |
|       | ...        | PointS |

| POINT  | ADC.POINT | WEIGHT  |
|--------|-----------|---------|
| 0      | 72461     | 0.000   |
| ACT. 1 | 182567    | 1.000   |

| POINT  | ADC.POINT | WEIGHT  |
|--------|-----------|---------|
| 1      | 182567    | 0.000   |
| ACT. 2 | 279939    | 1.890   |

| ...    |           |         |
|--------|-----------|---------|
| ...    |           |         |
| ...    |           |         |

| POINT  | ADC.POINT | WEIGHT  |
|--------|-----------|---------|
| 8      | XXXXXX    | XXX.XXX |
| ACT. 8 | XXXXXX    | XXX.XXX |

**KEYS' FUNCTIONS**

| | |
|---|---|
| **F1** | inserts a linearization point |
| **F2** | deletes a linearization point. |
| **F3** | copies a linearization point (waiting stability). |
| **F4** | copies ADC.POINT data (waiting stability). |
| **F5** | quickly copies ADC.POINT data (without waiting stability). |
| **F6** | scrolls forward the points. |
| **F7** | scrolls backward the points. |
| **F8** | moves cursor from right to left to select parameter, and press **ENTER** key, one is asked to enter desired value. |
| **F9** | moves cursor from left to right to select parameter, and press **ENTER** key, one is asked to enter desired value. |
| **2nd F** | switches from points to mV or vice versa. |
| **HELP** | shows the keys function. |
| **ENTER** | modifies a point (weight and converter points); while entering it confirm the values. |
| **C** | exits the programming; one is asked to save (the display shows"ACTIVATE NEW CALIBATION ?"): with **ENTER** one confirms, with another key one exits without saving. While entering a code, it quickly zeros the present value. |

## 4.3  ZONE OF USE DIFFERENT FROM THE CALIBRATION ZONE

In case the zone of use is different from the calibration zone one should:
1) Execute the calibration, following the procedure shown in section 4.1.
2) Enter in the Set-up of the instrument;
   (upon start-up, press for an instant the **TARE** key while the instrument version is displayed)

3) Enter in the configuration menu of the metric parameters, in other words, **SEtuP >> ConFiG** and press ENTER
4) Select the scale to be configured with the ▼ ▲ keys (only if **nuM.SCA** > **1**) and press **ENTER**.
5) Set the zone of use: enter in the **GrAV** step and set the gravity acceleration value of the ZONE OF USE.
6) Press various times the C key until the instrument asks to save and confirm with **ENTER**.
7) The weight error caused by a different gravity attraction value between the zone of calibration and the zone of use is automatically corrected.
8) With various scales, one should repeat the operations from point 1).

## 4.4  QUICK CALIBRATION OF ZERO
Useful for calibrating only the ZERO point when a permanent tare weight is put on a platform (for example a roller unit).
1) Enter in the instrument set-up;
   (upon start-up, press for an instant the **TARE** key while the instrument version is displayed)
2) Enter in the configuration menu of the metric parameters, in other words, **SEtuP >> ConFiG** and  press **ENTER**
3) Select the scale to be configured with the ▼ ▲ keys (only if **nuM.SCA** > **1**) and press **ENTER**.
4) Select the **0.CALib** step and press  **ENTER**; the "scale unloading and press enter" message appears
5) Once the calibration has taken place, "ZERO CALIBRATION EXECUTED" message will appear on the display, press ENTER and the scale returns to the **PArAM** step. If one needs to calibrate other scales, press the C key, select the next scale to be calibrated and repeat all the operations from point 2.
   If, on the other hand, the calibration is done, press various times the C key until the instrument asks to save and confirm with ENTER.

## 4.5 PEAKS FILTER
It may occur that the material falling onto the load receiver causes peak values, in such a manner that for a few fractions of a second the shown weight is incorrect. To avoid the occurrence of undesirable situations created by the difference between real weight and detected weight such as the activation of a batching output, the indicator is able to eliminate the peak values by averaging the detected weights on the basis of the BATCHING-PEAK ELIMINATION TIME (**PK.F.TIM** step) and the MAXIMUM WEIGHT VARIATION IN TIME (**PK.F.DIV** step):if the detected weights average exceeds the MAXIMUM WEIGHT VARIATION (**PK.F.DIV** step), during the dosages in loading, the weight is frozen at the window start value until the variation returns within the limits

# 5. DISPLAY OF THE GEOGRAPHICAL UTILISATION AND CORRECTION ZONE OF THE WEIGHING ERROR DUE TO THE DIFFERENT GRAVITATIONAL ATTRACTION BETWEEN THE CALIBRATION AND UTILISATION ZONE.

## 5.1 INDICATION AND/OR DISPLAY OF THE GEOGRAPHICAL UTILISATION ZONE
**(Compulsory for the legal type instruments)**
This instrument conforms to the laws currently in force regarding non-automatic weighing instruments. Such g-sensitive instruments are influenced by the gravitational acceleration value "**g**" of the utilisation zone hence it is compulsory to indicate, with a label or on the display, the coded name of the utilisation zone where the weighing machine can be used.
The approved instrument displays, upon start-up, the "g" value relative to the gravitational zone of use for a few seconds, after the name and the installed software version.

## 5.2 CORRECTION OF THE WEIGHING ERROR INTRODUCED BY A DIFFERENT GRAVITATIONAL ATTRACTION VALUE BETWEEN THE CALIBRATION AND UTILISATION ZONE
**(compulsory for legal type instruments)**

This instrument conforms to the laws currently in force regarding non-automatic weighing instruments. Such g-sensitive instruments are influenced by the gravitational acceleration value "**g**" of the utilisation zone so a special programme has been created to compensate for any differences in the gravitational attraction between the place where the weighing machine is calibrated and the place of utilisation.

During configuration the "**g**" values relative to the utilisation zone and to the zone of calibration are entered at a certain programming step which eliminates the weight error introduced by the different gravitational attraction value.

The approved instrument displays, upon start-up, the "g" value relative to the gravitational zone of use for a few seconds, after the name and the installed software version.

## 6. FUNCTION OF THE OPTOISOLATED INPUTS

| INPUT | FUNCTION | DESCRIPTION |
|---|---|---|
| **IN 1** | **DOSAGE START** | Starting the dosage / exiting the error and pause condition. |
| **IN 2** | **RESET/PAUSE** | - When present, it causes the dosage to pause. <br> - When it is present for at least 2/3 seconds it interrupts and cancels the dosage under way and it waits for the start impulse for the following dosage. |
| **IN 3…IN 6** | **FORMULA SELECTION** | If the function (**<<FOR.SEL>>** step), is enabled, it selects the formula |
| **IN 7** | **STOP TIMER** | If the parameter of timer activity is set on "STOPPABLE" and **STOP.T→T.INPUT** step is set on "INPUT7"**(TECH.MAN.REF.)**, close the input to stop timer activity immediately. |
| **IN 8** | **CANCEL PAUSE** | If P.INPUT step is set on "INPUT 8", when dosage is in pause activity, close the input to resume dosage. |

# 7. FUNCTION OF THE OUTPUTS (DEFAULT)

The following configuration is obtained carrying out the instrument default, **SEtuP** >> **dFLt.t** parameter.
Otherwise it's possible to programme a different functioning for the first 4 outputs. For this refer to the description of the **SEtuP** >> **outPutS** step

| RELAY | FUNCTION | DESCRIPTION |
|---|---|---|
| OUT 1 | DOSAGE CYCLE END | Indicates that the dosage under way is done ("formula end" output). |
| OUT 2 | FAST SPEED | Activated at the maximum dosage speed (approximate dosage). |
| OUT 3 | ERROR | Activated when dosage is in error condition:<br>FORMULA MISSING<br>BEYOND MAX TARE<br>BELOW MIN. TARE<br>OUT OF ZERO<br>ERR. OUT OF ZERO<br>INSTABILITY ERR<br>ERR. OUT OF TIME<br>TOL. ERR<br>DOS+GROS > CAPAC |
| OUT 4 | OVER TARGET | Activate it when the weight exceeds the set target. |
| OUT 5...OUT 16 | PRODUCT OUTPUTS | Depending on the number of usable outputs, programmed in the **<<MAX.out>>** step, it is possible to:<br><br>a) link each of these 12 outputs directly to each single dosage activity.<br>For example, if one selects the "activity output" number 1 during the activity insertion, then output OUT5 will be used. At the same way, if one selects the "activity output" number 12 during the activity insertion, the output OUT16 will be used.<br>(See table in AUTOMATIC DOSAGE. **USER MAN.REF.)**<br><br>b) link 127 combinations of these outputs to each single dosage activity, in other words, the instrument outputs supply a binary code, which decoded (for example by a PLC) will select the desired relay:<br>OUT5: DATA OUTPUT 1<br>OUT6: DATA OUTPUT 2<br>OUT7: DATA OUTPUT 3<br>OUT8: DATA OUTPUT 4<br>OUT9: DATA OUTPUT 5<br>OUT10: DATA OUTPUT 6<br>OUT11: DATA OUTPUT 7<br>OUT12-OUT15: NOT USED<br>OUT16: ALWAYS ACTIVATED WITH ACTIVITY IN EXECUTION.<br>See following section for further details. |

## 7.1 DIAGRAM FOR DECODING THE OUTPUTS

One can expand the outputs linkable to the activities, from 12 to 127.

In the **<<MAX.out>>** step one should enter the number of connected outputs (to select the decoding functioning mode, one should enter a number greater than 12).

See the connection scheme in section 11.2.

| ACTIVITY OUTPUT | OUT 5...OUT 16 OF THE INDICATOR | | | | | | | | ACTIVITY OUTPUT | OUT 5...OUT 16 OF THE INDICATOR | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 16 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | | 16 | 11 | 10 | 9 | 8 | 7 | 6 | 5 |
| 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 65 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 66 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| 3 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 67 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| 4 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 68 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 |
| 5 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 69 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| 6 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 70 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 |
| 7 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 71 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 |
| 8 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 72 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 |
| 9 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 73 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| 10 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 74 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| 11 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 75 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 |
| 12 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 76 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 |
| 13 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 77 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 |
| 14 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 78 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 1 |
| 15 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 79 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 0 |
| 16 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 80 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 |
| 17 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 81 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 |
| 18 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 82 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 |
| 19 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 83 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0 |
| 20 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 84 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 1 |
| 21 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 85 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 0 |
| 22 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 86 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |
| 23 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 87 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 0 |
| 24 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 88 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 1 |
| 25 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 89 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 |
| 26 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 90 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 |
| 27 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 91 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 0 |
| 28 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 92 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 |
| 29 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 93 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 0 |
| 30 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 94 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 |
| 31 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 95 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 |
| 32 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 96 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 |
| 33 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 97 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 34 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 98 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 |
| 35 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 99 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 |
| 36 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 100 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 |
| 37 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 101 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 |
| 38 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 102 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 1 |
| 39 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 103 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 0 |
| 40 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 104 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 |
| 41 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 105 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 |
| 42 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 106 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 1 |
| 43 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 107 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 0 |
| 44 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 108 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 1 |
| 45 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 109 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 |
| 46 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 110 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| 47 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 111 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 |
| 48 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 112 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 |
| 49 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 113 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| 50 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 114 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 |
| 51 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 115 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 |
| 52 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 116 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 |
| 53 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 117 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 |
| 54 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 118 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 1 |
| 55 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 119 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 |
| 56 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 120 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 |
| 57 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 121 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 |
| 58 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 122 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 |
| 59 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 123 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 |
| 60 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 124 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 |
| 61 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 125 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 |
| 62 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 126 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 |
| 63 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 127 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 64 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | | | | | | | | | |

## 7.2 INTERMITTENT ACTIVATION OF THE PRODUCT OUTPUT (JOGGING FUNCTION)

If the number of outputs set in the **<<MAX.out>>** step is lower or equal 12, it is possible to enable the jogging function: during the loading dosages, when the target weight minus the slow weight and the flight weight is reached, the product output is activated intermittently, with the ON/OFF time programmed in the **<<D.CY.ON>** and **<<D.CY.OFF>>** steps.

# 8. SERIAL OUTPUTS

The indicator is fitted with two bi-directional serial ports, both having the output in ASCII code compatible with a wide range of printers, remote displays, PCs and other devices; in the set-up it is possible to freely combine these ports to the available configurations ("ComPC", "ComPrn", and "ComAux").
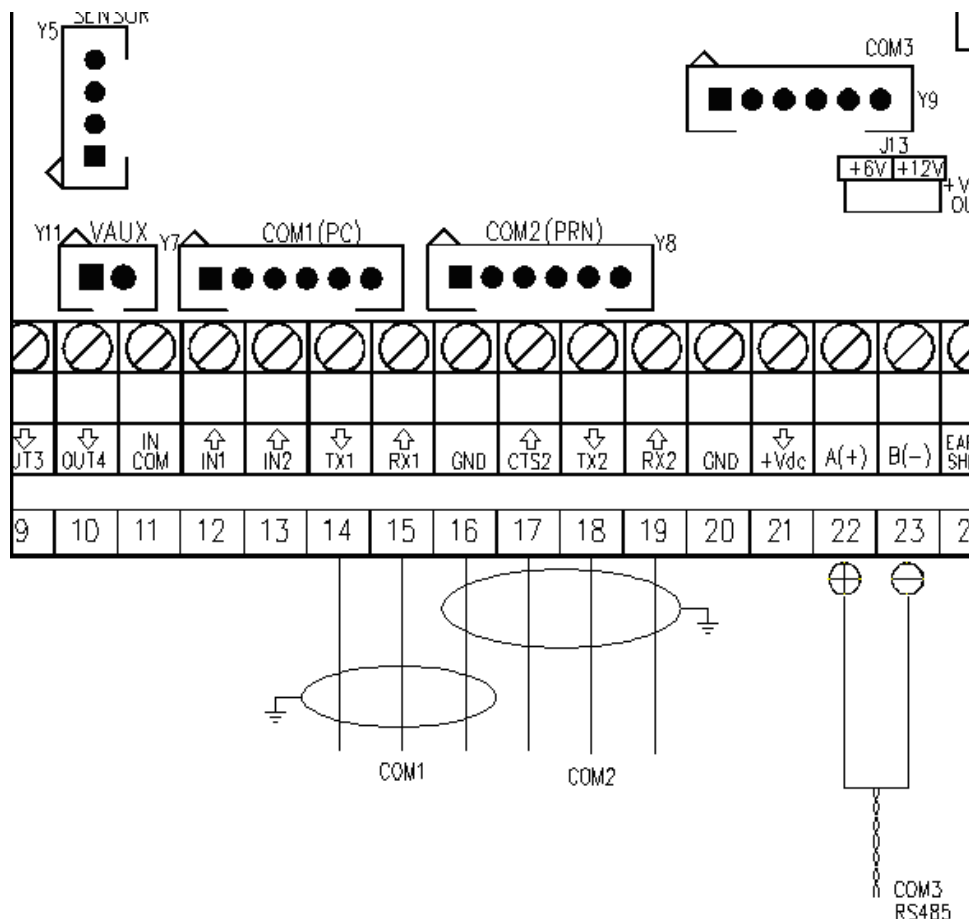


| Signal | AMP Connector | | Terminal board | | |
|---|---|---|---|---|---|
| | COM1/COM3 (RS232) | COM2 (RS232) | COM1 (RS232) | COM2 (RS232) | COM3 (RS485) |
| TX | 1 | 1 | 14 | 18 | 22 A(+) |
| RX | 2 | 2 | 15 | 19 | 23 B(-) |
| GND | 6 | 6 | 16 | 16 | - |
| CTS | 2 | 3 | 15 | 17 | - |

By the step **SEtuP >> SEriAL >> PortS** it is possible select the function of the serial ports:

| Parameter | COM 1 | COM 2 | COM 3 |
|---|---|---|---|
| PC.Pr.AX (!) | **ComPC** | **ComPrn** | **ComAux** |
| PC.AX.Pr | **ComPC** | **ComAux** | **ComPrn** |
| Pr.PC.AX | **ComPrn** | **ComPC** | **ComAux** |
| Pr.AX.PC | **ComPrn** | **ComAux** | **ComPC** |
| AX.PC.Pr | **ComAux** | **ComPC** | **ComPrn** |
| AX.Pr.PC | **ComAux** | **ComPrn** | **ComPC** |

ComPC: data transmission/reception to PC/PLC, printer, repeater.
ComPrn: data transmission to printer, repeater
ComAux: data transmission/reception to printer, repeater, reception remote scale, barcode reader.

## !! IMPORTANT !!
**THE CONNECTION AND THE SOFTWARE CONFIGURATION OF THE SERIAL PORTS MUST BE MADE BY TECHNICAL PERSONNEL WHO KNOWS THE PROCEDURES ON THE BASIS OF THE USER'S NEEDS.**
**The data transmission cable must be kept away from the AC power supply lines.**
**!! REMOVE VOLTAGE BEFORE OPENING THE INSTRUMENT !!**


**THE STANDARD CONFIGURATION OF THE SERIAL PORTS IS THE FOLLOWING:**
Baud rate = 9600, Parity = None, Data word = 8, Stop bit = 1, CTS signal = No Cts. The configuration may be modified in the SET-UP environment in the **<< SERIAL >>** step.

## 8.1 RS 485 CONNECTION

**Below is the RS485 connection of the indicator in the CoM3:**

| Meaning | Indicator Serial line |
|---------|----------------------|
| TX-/RX- | 22 A(+) |
| TX+/RX+ | 23 B(-) |

On the same RS 485 line it's possible to connect up to 32 devices, among indicators, digital load cells, 485/232 signal converter.
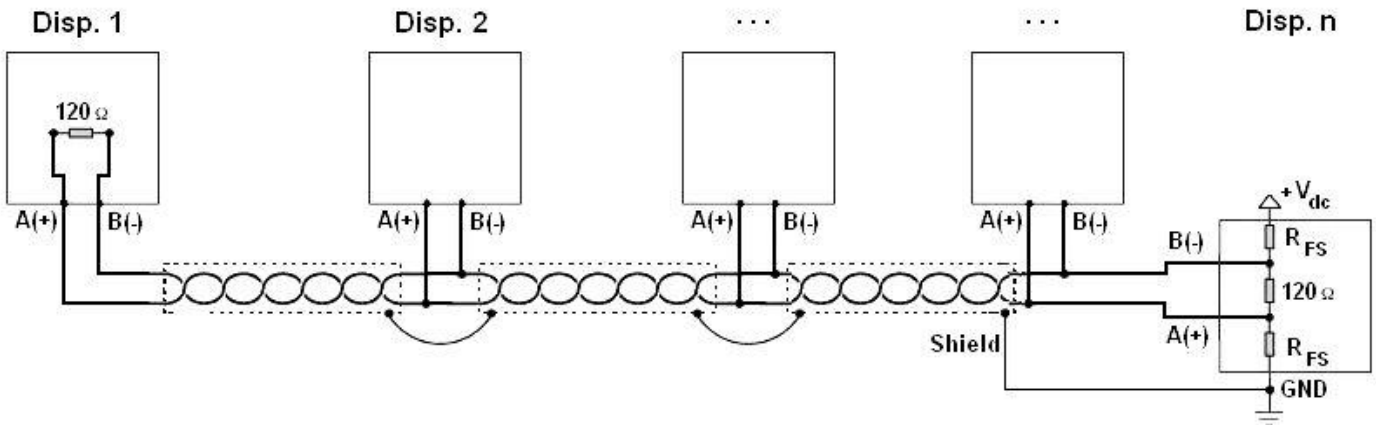


Figure 1: electrical diagram of RS485 connections.

- Use a **STP** (Shielded Twisted Pair) cable in order to make the connection (twisted and shielded pair/s with single shielding for each pair through aluminium band and total shielding through external sheathing).

- The maximum reachable length from the line with the use of the appropriate cable for RS 485 connections, the twisted 2x24 AWG duplex cable, shielded with external sheathing + aluminium band, is of about 1200 meters (see section 1.1.3)

- With very long cables, the cable capacity (normally near 50pF/m) starts being a dominant factor in the power consumption and increases with the increase of speed.

  This implies that **the maximum distance can not be covered with the maximum possible speed**. For an approximate value, one can consult the following table:

| Baud rate | Total capacity of the cable (pF) |
|-----------|----------------------------------|
| 1200 | 400000 |
| 2400 | 200000 |
| 4800 | 100000 |
| 9600 | 50000 |
| 19200 | 25000 |
| 38400 | 12000 |
| 57600 | 8000 |
| 115200 | 4000 |

As a general rule, if one has any doubts, it is always preferable to **choose the cable with a greater section.**

▪ Verify that the grounding satisfies the requirements of section 1.2. Especially, all the digital masses, as well as the analogue masses, and the power circuits, must be connected to the grounding bar and this last one must be connected to the grounding pole.

▪ The shielding can be connected into a single point of the entire network (as shown in Figure 1) or both its ends, however it's important that **all the masses have the same potential**, in order to avoid the forming of current rings.

▪ On the RS485 network normally one connects 2 **termination resistances** equal to the characteristic impedance of the cable (tipically 120 Ω, see  Figure 1), **ONLY** on the 2 devices **which are at the 2 ends of the cable**. The terminal resistance is not supplied with the ports of the indicator.

▪ The difference of potential between the A(+) and B(-) terminals in rest conditions (for example with instrument in set-up phase), **must be of at least 0,2 V**.
To  create a resistive divider which maintains this difference of potential also when all the transmitters are disabled, inert in the RS485 port of the indicator where there are the termination resistances, the **polarisation** or **fail-safe resistences** ($R_{FS}$ in Figure 1). The value of these resistances is between 390 Ω and 2,2 kΩ.

NOTE:  in particular, the value of each of these resistances must be greater than the value calculable through the formula:

$$R_{FS} = \frac{R_{eq}}{2} \times \left( \frac{V_{dc}}{0,2} - 1 \right)$$

in which:
- $V_{dc}$ is the power supply voltage of the line
- $R_{eq}$ is the overall resistance to the A(+) a B(-) heads, supplied by the parallel of the 2 termination resistances and all the input resistances of the devices connected to the bus.

FOR EXAMPLE:
Presuming that a connection has 120 Ω as termination resistance and 32 connected devices, each having an input impedance of 12 kΩ. The $V_{dc}$ power supply is 5 V.
One calculates $R_{eq}$ , equal to about 52 Ω, and $R_{FS}$ which must be at least equal to 624 Ω.

▪ **The connection between the indicator and the digital load cells is made with RS485 protocol in the COM3 configured as CoMAuX.** The indicator can be connected with up to 16 digital load cells.

▪ It's possible to connect the indicator to digital load cells with 485 4-wire protocol through 422/232 converter. In this case one is required to connect the double TX of RS422 cable to TX+ and TX- converter's pins and the double RX of RS422 cable to RX+ and RX- converter's pins

▪ In case of connection with non Dini Argeo devices, there may be different ways of line marking: generally one presumes that the A/B indication corresponds to the +/- and HI/LO markings, but this is not always true. Therefore, if the device does not function, one should try inverting the connections even if everything seems to be correct.

▪ For the correct functioning of the digital load cells, one should, in any case respect all the rules given in the relatvive specific manuals.

## 8.2 PC CONNECTION

**9 PIN CONNECTOR**

| INDICATOR | 9 pin Collector | Color |
|-----------|-----------------|-------|
| TX | 3 | Yellow |
| RX | 2 | Pink |
| GND | 5 | Grey |

## 8.3 PRINTER CONNECTION

|  | WTY280 /SMT80 9pin (female) | TMU295 /LX300 25pin (female) | LP542 Plus /TTP243/SMTPLUS 9pin (female) | Standard cable |
|---|---|---|---|---|
| **TX** | 3 | 3 | 3 | **Brown** |
| **CTS** | 4 | 20 | 8 | **Pink** |
| **GND** | 7 | 7 | 5 | **Grey** |

| TPR | STANDARD CABLE |
|---|---|
| GND | Black |
| CTS | Yellow |
| RX | Grey |

| TPR printer power supply | | |
|---|---|---|
|  | **STANDARD CABLE** | **Terminal box** |
| **+VP e +VC** | Red and Orange | 5 Vaux |
| **GND e GND** | Black and Black | 16 GND |

## 8.4 TRANSMISSION PROTOCOLS

**STANDARD**                                                           [available for ComPc, ComPrn, ComAux]
The weight data transmission on the serial port happens in the following format:
**[CC]HH,KK,PPPPPPPP,UM<CR LF>**

in which:                  **[CC]** = instrument code, es.00 (only with RS485 protocol)

                 **HH** =   UL      Underload
                              OL      Overload
                              ST      Weight stability
                              US      Weight instability

                   ,         Comma character

                 **KK** =   NT      Net Weight
                              GS      Gross Weight

                   ,         Comma character

                 **PPPPPPPP** = Weight (8 digits including the possible sign and decimal point)

                   ,         Comma character

                 **UM** =   Unit of measure (Kg, g, t, lb)

                 **<CR LF>**        Carriage Return + Line Feed (ASCII Characters 13 and 10)

**AF0X**                                                                    [available for ComPc, ComPrn]

The weight data transmission on the serial port happens in the following format:
**[CC]SS,B,LLLLLLLLLLUM,YYTTTTTTUM<CR LF>**

in which:                      **[CC]** = instrument code, es.00 (only with RS485 protocol)

      **SS**    UL     Underload
           OL     Overload
           ST     Weight stability
           US     Weight instability

      **,**     Comma character

      **B**     Scale Number

      **,**     Comma character

      **LLLLLLLLLL**    Gross weight (10 digits including the possible sign and decimal point).

      **UM** =   Unit of measure (Kg, g, t, lb)

      **,**     Comma character

      **YY**     - 2 spaces if the tare is automatic, or
- PT if a tare is pre-set or set manually

      **TTTTTTTTTT**    Tare weight (10 digits including the possible sign and decimal point).

      **UM** =   Unit of measure (Kg, g, t, lb)

      **<CR LF>**    Carriage Return + Line Feed  (ASCII 13 and 10)

**Note:** this protocol doesn't work while running a formula, but only when waiting for start and pause.

**DINI ARGEO REPEATER**                                        [available for ComPc, ComPrn, ComAux]

Transmission protocol for connection to a Dini Argeo weight repeater. It transmits the weight value shown on the display to the Dini Argeo weight display.
In this case, the setting of the **<< PC.Mode >>** "TRANSMISSION TYPE" parameter has no relevance.

**MONODIRECTIONAL**                                                            [available for ComPc]

Through this communication protocol the serial command management is excluded, in order to avoid possible responses to data received from the port in case of use of the 485 serial line; it can be useful when one uses the port for transmitting a printout, and various devices are connected on the same 485 line. With this protocol the data and serial command reception is disabled.

**COMPOSITE REPEATER**

**Premise: Transmission protocol for connection to a Dini Argeo (DGT series) weight repeater.**

Through this communication protocol, it's possible to choose which fields (up to 5) make up the information transmitted on the serial port.
Once this protocol is selected, one is asked through the "Fld.0X" (X=1,2,3,4,5) message to scroll the selectable steps and to choose which field to transmit. The configuration automatically ends after having chosen the fifth field or with the selection of the "End" field.
This information can be viewed on a correctly configured repeater instrument which has the corresponding 0X (X=1,2,3,4,5) address.
The selectable fields are the following:

      **For.idX**    Formula index in the "xxxxxx" format aligned to the right and non significant digits filled with spaces.
              "no.ForM" if no formula is selected.

      **For.dES**    Formula description in the "xxxxxx" format aligned to the left and non significant digits filled with spaces. If the description is longer than 6 characters, the excess letters are not displayed.

|  | |
|---|---|
| | "no.ForM" if no formula is selected. |
| **ACt.idX** | Activity index in the "xxxxxx" format aligned on the right and non significant digits filled with spaces. |
| | "no.ForM" if no formula is selected |
| | No data out of the dosage cycle. |
| **ACt.dES** | Activity description in the "xxxxxx" format aligned on the left and non significant digits filled with spaces. If the description is longer than 6 characeters, the letters in excess will not be displayed. |
| | "no.ForM" if no formula is selected. |
| | No data out of the dosage cycle. |
| **tArGEt** | Target weight for the activities of automatic and manual dosage, manual weight, and partial unloading in the "xxxxxx" format aligned on the right and non significant digits filled with spaces. |
| | "tot.unL" for the total discharge; |
| | "tiMEr.A" for the timer. |
| | "PAuSE.A" for the pause. |
| | "no.ForM" if no formula is selected. |
| | No data out of the dosage cycle. |
| **rEM.WEi** | Weight missing from the target and at the end of the activities in the "xxxxxx" format aligned to the right and non significant digits filled with spaces. |
| | "tiMEr.A" for the timer. |
| | "PAuSE.A" for the pause. |
| | "no.ForM" if no formula is selected. |
| | No data out of the dosage cycle. |
| **ACt.tyP** | Activity tipe aligned on the the left. Displays one of the following: |
| | "Aut.btC" for the automatic dosage |
| | "MAn.btC" for the manual dosage |
| | "tiMEr" for the timer |
| | "PAuSE" for the pause |
| | "MAn.Wgt" for the manual weight |
| | "unLoAd" for the total, partial, and fractioned discharge activities |
| | "no.ForM" if no formula is selected |
| **CyCLES** | Dosage cycle number in the "xxx/yy" format in which: |
| | xxx: cycle aligned to the left |
| | yy: cycle total aligned to the right |
| | the filling character is the space |
| **WEiGht** | Weight shown on the display aligned to the right and non significant digits filled with spaces |
| **doS.StA** | Status of the dosage, aligned to the left. Displays one of the following: |

|  |  |
|---|---|
| "WAit" | out of the dosage cycle |
| "A.d.FASt" | automatic dosage at approximate speed |
| "A.d.SLoW" | automatic dosage at fine speed |
| "A.d.FLy " | automatic dosage in flight |
| "M.d.StArt" | manual dosage start |
| "M.d.  oK" | manual dosage within tolerance |
| "M.d.Err " | manual dosage error |
| "M.d.FASt" | manual dosage at approximate speed |
| "M.d.out.L" | manual dosage, out of lower tolerance but greater than the slow one |
| "M.d. LoW" | manual dosage within tolerance and less than target |
| "M.d.out.h" | manual dosage out of upper tolerance |
| "M.d.high" | manual dosage within tolerance and greater than target |
| "W.UnLd " | wait unloading |
| "UnLoAd" | partial unloading |
| "tot.unL" | total unloading |
| "un.FASt" | quick partial unloading |

| | |
|---|---|
| "un.SLoW" | fine partial unloading |
| "un. FLY" | flight partial unloading |
| "TiMEr " | timer activity |
| "PAuSE.A" | pause activity |
| "MAn.WGT" | manual weight activity |
| "PAuSE " | cycle pause |
| "out.ZER" | out of zero |
| "out.CAP" | over range |
| "out.tiM" | error out of dosage time |
| "unStAb" | unstable weight at dosage start |
| "out.toL." | out of tolerance |
| **End** | Introduction end (to have less than 5 fields) |

## 8.5 TRANSMISSION MODES

<u>TRANSMISSION ON REQUEST</u>　　　　　　　　　　　　　　　　　　　　　　　[available for ComPc]
It requires an external command from the PC to send the data requested. Transmission can take place at any time requested.

<u>CONTINUOUS TRANSMISSION</u>　　　　　　　　　　　　　　[available for ComPc, ComPrn, ComAux]
- ComPC:　　　Continuous transmission of the standard string (**ProtoC** = **StAnd** step) or of the extended AF0X string (**ProtoC** = **AF0X** step) or continuous transmission of the customised string.
　　　　　　　　This mode is used for interfacing to the computer, remote displays, and other devices which require a constant update of the data independently from the weight stability (10 transmissions per second with a Baud rate at 9600 and stable weight).
- ComPrn:　　The indicator transmits continuously the data configured in the 01 print format.
　　　　　　　　Alternatively, by setting only the "300" block in the 01 print format, it is possible to transmit the STANDARD STRING (or the AF0X STRING, if configured for the PC port).
　　　　　　　　For configuration details of the print formats, see section 10.
- ComAux:　　The weight transmission on the serial port takes place with the STANDARD protocol.

<u>RS485 TRANSMISSION</u>　　　　　　　　　　　　　　　　　　　　　　　　　　[available for ComPc]
On Com3 is available a RS485 Half Duplex serial output, enabling the possibility of bi-directional communication up to 63 indicators to just one computer.
The transmission protocol is the same as that of transmission upon request, with the adding of a code that identifies the weight indicator (i.e. "00READ <CR LF>").

## 8.6 SERIAL COMMANDS FORMAT

## LEGEND
**[CC]**= instrument code, i.e.. 00 (only with 485 protocol).
**<CR LF>**= Carriage Return + Line Feed (ASCII 13 and 10 characters).

## SERIAL ERRORS
With each serial command received, the instrument transmits a string containing the response (see the command description) or one of the following indications:

OK<CR LF> is shown when one transmits a correct command to the indicator. The OK response does not imply that the instrument executes the command.

ERR01<CR LF> is shown when one transmits a correct command to the indicator followed however by letters entered by mistake (I.E.: READF TARES…).

ERR02<CR LF> is shown when one transmits a correct command to the indicator containing the wrong data.

ERR03<CR LF> is shown when one transmits a command not allowed by the indicator. It can be a command not used in the selected functioning mode, or the command reaches the indicator in the instant in which the keyboard buffer is already occupied by another command.

ERR04<CR LF> is shown when one transmits an inexistent command.

**NOTA:** The instrument does not transmit any indication to brief commands, in other words, ones made up by one single letter plus an eventual parameter.

| | | |
|---|---|---|
| **Version reading** | | **[CC]VER<CR LF>** |
| Instrument response | : | [CC]VER,vvv, E-BATCH<CR LF> |
| In which: | | vvv is the firmware version |

| | |
|---|---|
| **Data reading:** | **[CC]READ<CR LF> or: [CC]R<CR LF>** |
| Instrument response: | see section 8.4 COMMUNICATION PROTOCOLS |
| **Tare:** | **[CC]TARE<CR LF> or: [CC]T<CR LF>** |

**Tare condition:**               **[CC]TAREB<CR LF>**
Instrument's answer:               [CC]OK<CR LF>: the tare execution can be correctly done.
[CC]KO<CR LF>: tare is not permitted (tare disabled, weight instability, weight in overload, etc)

**Fixed tare:**               **[CC]WTTTTTT<CR LF>**
               **[CC]TMAN**TTTTTT**<CR LF>**
in which:               W, TMAN= command
                TTTTTT =  tare in ASCII, max 6 characters.
                Example:  W10.0 <CR LF>

**Zero:**               **[CC]ZERO<CR LF> or: [CC]Z<CR LF>**

**Zero condition:**               **[CC]ZEROB<CR LF>**
Instrument's answer:               [CC]OK<CR LF>: the zero execution can be correctly done.
[CC]KO<CR LF>: zero is not permitted (weight instability, weight in overload, etc)

**Clear:**               **[CC]CLEAR<CR LF> or: [CC]C<CR LF>**

**Net/Gross change:**               **[CC]NTGS<CR LF>**

**Print command:**               **[CC]PRNT<CR LF> or: [CC]P<CR LF>**

**Print condition:**               **[CC]PRNTB<CR LF>**
Instrument's answer:               [CC]OK<CR LF>: the print execution can be correctly done.
[CC]KO<CR LF>: print is not permitted (weight instability, print not reactivation, cts error, etc)

**Reading of extended weight string:**      **[CC]REXT<CR LF>**
Instrument's answer:
[CC]B,hh,NNNNNNNNNN,YYTTTTTTTTTT,PPPPPPPPPP,MMMMMMMMMM,uu<CR LF>
in which:        [CC] =    INSTRUMENT CODE IN THE FORMAT OF TWO ASCII DECIMAL DIGITS
                ONLY WHEN THE 485 PROTOCOL IS SELECTED (FOR EXAMPLE 00)
               hh =    UL      Underload
                OL      Overload
                ST      Stability of the  display
                US      Instability of the display
               B =    scale number (zero for the remote scale)
   NNNNNNNNNN =    net weight on 10 characters including sign and decimal point
               YY =    "PT" if the tare weight is entered with the keyboard, otherwise YY = "  " (two space characters) if the tare weight is weighed
    TTTTTTTTTT =    tare weight on 10 characters including sign and decimal point
   PPPPPPPPPP =     always 0

MMMMMMMMMMM =        always 0
          uu =        Unit of measure "Kg" "**b**g" "**b**t" "lb
          CR =        Carriage Return (ascii character decimal code 13)
          LF =        Line Feed (ascii character decimal code 10)

**[GR10] Reading the next weight times 10**
**Syntax**

| Format | <CC><ll>GR10<CR LF> | | |
|---|---|---|---|
| **Parameters** | | | |
| **Response** | **<CC><ll>HH,KK,PPPPPPPP,UM<CR LF>** | | |
| | **HH** | **UL** | **Underload** |
| | | **OL** | **Overload** |
| | | **ST** | **Weight stability** |
| | | **US** | **Weight instability** |
| | **, :** | | **Comma character** |
| | **KK :** | **GX** | **Weighing times 10 status** |
| | **, :** | | **Comma character** |
| | **PPPPPPPPPP :** | | **Net weight with sensitivity times 10** |
| | **, :** | | **Comma character** |
| | **UM :** | **Kg** | **Unit of measure** |
| **Example** | **01GR10<CR LF>** | | |
| **Result** | **01ST,GX,    0.1001,kg<CR LF>** | | |
| **Time-out max** | | | |

**Scale switch:**                                        **[CC]Qn<CR LF>**
in which:                                                Q = command
                                                          n = scale number (from 1 to 4)
                                                          Example:Q1+CR LF

**Viewing temporarily message on the display:**
                                    **[CC]DISPNNVVVVVV<CR LF>**
in which:                                                NN: display number of the indicator, standard 00 (ascii hex)
                                                          V: character to be shown (at least 1, cut off at the number of characters visualised
                                                           by the shown display)
The message remains for the time which set with the DINT command; if one selects to view the message permanently on a display and one wants to cancel the operation, send the DISPNN command without any message: the display, specified in the command, (NN) goes back to viewing the usual information relative to the selected functioning mode.

**Setting display visualisation interval:**
                                      **[CC]DINTXXNNNN<CR LF>**
in which:                                                XX: code which identifies the display (01 for LCD)
                                                           NNNN: visualisation interval (in milliseconds), N is an ascii hex character; for example, to set a visualisation time of 2 seconds (therefore 2000 milliseconds), which converted in hex become 07D0, the command becomes DINT07D0<CR><LF>.
By setting NNNN = 0000, the transmitted message with the DISP command (see above), remains permanently shown on the selected display.

**With approved instrument**
-    One should wait for the end of the current visualisation before being able to view the next one.

**AFXX type string reading and scale information:**            **[CC]RALL<CR LF>**

Instrument answer:

[AFXX string] B,NNNNNNNUM,LLLLLLLUM,PPPPPPPN,SSS,AAA,CCC,TTT,XXXXX-YYYYYY<CR LF>.

in which:

| | |
|---|---|
| B | Number of platform on which the totalisation has been made. |
| NNNNNNNUM | Last net weight totalized with unit of measure. |
| LLLLLLLUM | Last gross weight totalized with unit of measure. |
| PPPPPPP | Last pieces totalized. |
| SSS | Scale status: 000 start-up |
| | 001 weighing |
| | 002 selection of functioning mode |
| | 003 generic menu |
| | 004 set-up menu |
| | 005 user menu |
| | 006 exit from set-up |
| | 007 Update Firmware status |
| | 008 setting of user default |
| | 009 setting of technical default |
| | 010 switch channel |
| | 011 setting of technical default |
| | 012 Test of the PC serial ports |
| | 013 Test of the PRN serial ports |
| AAA | Counter of pressed keys. |
| CCC | Code of last key pressed. |
| TTT | Counter of totalisations. |
| XXXXX | Last rewriting number stored in the Alibi memory. |
| YYYYYY | Last weigh number stored in the Alibi memory. |

**Create the temporary communication bridge between PC port and printer or aux port:**            **[CC]BRIDGEx<CR LF>**

Instrument's answer:                                                                    [CC]OK<CR LF>:

In which:        **x** indicates 1 for printer port, 2 for aux port.

If the communication is OK, the LED display shows "bridGE" message, while the LCD display shows "COM1 <-> COM2" if the PC port communicates with printer port, or "COM1 <-> COM3" if the PC port communicates with aux port.

## 8.7 ADVANCED COMMANDS

The following command allows for **the reading of the data in the keyboard buffer** (only if the transmission of the pressed keys code is disabled):

**Sintax**

| | |
|---|---|
| **Format** | **<CC><II>GKBB<CR LF>** |
| **Parameters** | **-** |
| **Answer** | **- <CC><II>OK<CR LF> if the buffer is empty** |
| | **- If the buffer is not empty, two hexadecimal characters for each key, in the order in which these have been pressed, from left to right.** |
| **Example** | **01GKBB<CR LF>** |
| **Result** | **If for example, with empty keyboard buffer, the 1, 2, 3, 4, 5, 6 keys have been pressed, the instrument answer will be the following:** |
| | **08**09**00**B0**C0**D**<CR LF>** |

**NOTE:** the reading of the keyboard buffer causes the cancellation.

Furthermore, only if the transmission of the pressed keys code is disabled, it is possible to **cancel the contents of the keyboard buffer** with the following command:

**Sintax**

| Format | <CC><ll>EKBB<CR LF> |
|---|---|
| Paramers | - |
| Answer | <CC><ll>OK<CR LF> |
| Example | 01EKBB<CR LF> |
| Result | Cancellation of the keyboard buffer |

**[INUA] Request of a numeric value entry on the LCD display:**

**Syntax**

| Format | <CC><ll>INUA<CC><LL><I><CR LF> |
|---|---|
| Parameters | CC = decimal position from which the entry of the numeric data starts, from left to right.<br>LL = number of characters in decimals which make up the numeric data to be entered<br>I = selection/unselection of the display of an initial value, previously entered in the user buffer (using the WUBU command described later on):<br>   - I = 0  not displayed<br>   - I = 1  displayed |
| Answer | <CC><ll>OK<CR LF> |
| Example | 01INUA08071<CR LF> |
| Result | If <u>preceded</u> by the 01WUBU1234567<CR LF> command, it causes the 1234567 message to be shown on the LCD display, with the character 1 blinking, starting from the position 08 of the LCD display (in other words the digit 8). At this point it is possible to set 8 numerical digits which will substitute the displayed ones. |

**NOTE**: If an alphanumeric string is in the buffer, a number of blank spaces corrresponding to the number of digits set in LL will be shown on the display, starting from the set cursor position.

**[IALA] Request of alphanumeric text entry on the LCD display:**

**Sintax**

| Format | <CC><ll>IALA<CC><LL><I><CR LF> |
|---|---|
| Parameters | CC = decimal position from which the entry of the numeric data starts, from left to right.<br>LL = number of characters in decimals which make up the numeric data to be entered<br>I = selection/unselection of the display of an initial value, previously entered in the user buffer (using the WUBU command described later on):<br>   - I = 0  not displayed<br>   - I = 1  displayed |
| Answer | <CC><ll>OK<CR LF> |
| Example | 01IALA08071<CR LF > |
| Risult | If <u>preceded</u> by the 01WUBUABCDEFG<CR LF> command, it causes the ABCDEFG message to be shown on the LCD display, with the character 1 blinking, starting from the position 08 of the LCD display (in other words the digit 8). At this point it is possible to set 8 numerical digits which will substitute the displayed ones. |

**NOTE** : in order to enter a value on the LCD display, one should select the "oUEr" writing mode, pressing at length the SHIFT key. (**USER MAN REF.** "ENTRY OF ALPHANUMERIC TEXT" section)

**When exiting the entry phase, the displayed data is frozen on the LCD display and it remains until a new serial command does not switch the visualisations (for example a DISP command or a new visualisation entered with the INUA or IALA commands, previously described).**
**The turning off causes the restoration of the standard weight data.**

[GINR] Reading of entered data:
GINR + CR + LF

**Sintax**

| Format | <CC><ll>GINR<CR LF> |
|---|---|
| Parameters | - |
| Answer | - 2 if one exits from the entry phase with the C key; |
| | - 1 if the value has been entered and confirmed with ENTER |
| | To read the entered string, use the RUBU<CR LF> command described later on |
| Example | 01GINR<CR LF> |
| Result | Reading of the user buffer and transmission of the data read on the PC |

Reading and writing of the user buffer:
**Premise:** the user buffer is the memory area in which the temporary storage of entered data is used (using the indicator keyboard) by the user or made visible by the user.
The previous request commands on the display of data entry, taking advantage of this buffer.

[WUBU] Reading of the user buffer:
**Sintax**

| Format | <CC><ll>WUBU<AAA...A><CR LF> |
|---|---|
| Parameters | AAA...A is the numeric and/or alphanumeric string (UP TO 32 characters) which are entered in the user buffer |
| Answer | <CC><ll>OK<CR LF> |
| Example | 01WUBU<ABCDE><CR LF> |
| Result | The ABCDE string is stored in the user buffer |

**IMPORTANT: do not modify the user buffer while the instrument is waiting for the data entry: this operation can cause system malfunctioning, which are eliminated only when the instrument is turned off.**

[RUBU] Reading of the user buffer:
**Sintax**

| Format | <CC><ll>RUBU<CR LF> |
|---|---|
| Parameters | - |
| Answer | <CC><ll>AAA...A <CR LF> |
| | In which AAA...A is the numeric and/or alphanumeric string (UP TO 32 Characters), read in the user buffer. If the number of characters is less than 32, blank spaces will be added in order to complete the 32 transmitted characters. |
| Example | 01RUBU<CR LF> |
| Result | 01STRING <CR LF> |

**[TOPR] Transmission of numeric and/or alphanumeric string to printer:**

**Sintax**

| Format | <CC><ll>TOPR<XXX...X> <CR LF> |
|---|---|
| Parameters | XXX...X = numeric and/or alphanumeric string which one wants to print |
| Answer | <CC><ll>OK<CR LF><br>**The answer does not imply that the command has been made.** |
| Example | 01TOPRABCDE<CR LF> |
| Result | The ABCDE string will be printed |

**TECHNICAL NOTE**: The reception and transmission buffers of the indicator are of 256 bytes; knowing that each transmitted character is equal to one byte, the maximum number of characters which can be transmitted is 248. This value changes depending on the transmitted data.

**NOTES:**
- It is possible to print numeric and alphanumeric characters (A...Z, a...z, 0...9), for example TOPRABCabc123 + CR + LF.
- It is possible to print ascii characters by entering the corresponding decimal code (on three digits) preceded by the \ character; for example, if one wants to print the message <!!ATTENTION!!>, the command will be the following: TOPR\060\033\033ATTENTION\033\033\062+ CR + LF;
- It is possible to print the print blocks by entering the block number preceded by the \M abbreviation; for example, if one wants to print the block 301 NET WEIGHT, 302 GROSS WEIGHT, 303 TARE, the command will be the following:
  TOPR\M301\M302\M303 + CR + LF
- The command is not enabled if the instrument is approved.

**[OIN] Key with which one has exit from the user input**
With this command it is possible to know which key the user used to exit the input (ENTER or C).

**Sintax**

| Format | <CC><ll>OIN<CR LF> |
|---|---|
| Parameters | - |
| Answer | <CC><ll>OIN[<KEY> \| NO]<CR LF> |
| Key | ENT    Exited with the Enter key<br>CLR    Exited with the Clear key |
| Example | 01OIN<CR LF> |
| Result | 01OINENT<CR LF> |

If the command is wrong one will have the <ESC><ll>OINNO<STX> message.

**Key pressure simulation command**
**[CC]KEYPXX<CR LF>**
in which XX is the code of the pressed key:

| CODE | PRESSED KEY |
|------|-------------|
| 00 | **F1** key |
| 01 | **F2** key |
| 02 | **F3** key |
| 03 | **F4** key |
| 04 | **F5** key |
| 05 | **F6** key |
| 06 | **F7** key |
| 07 | **F8** key |
| 08 | **F9** key |
| 09 | **F10** key |
| 0A | '**0**' numeric key |
| 0B | '**1**' numeric key |
| 0C | '**2**' numeric key |
| 0D | '**3**' numeric key |
| 0E | '**4**' numeric key |
| 0F | '**5**' numeric key |
| 10 | '**6**' numeric key |
| 11 | '**7**' numeric key |
| 12 | '**8**' numeric key |
| 13 | '**9**' numeric key |
| 14 | **(.)** point key |
| 15 | **ZERO** key |
| 16 | **ENTER/Fn** key |
| 17 | **2ndF** key |
| 18 | **C** key |

Instrument response: OK<CR LF>: accepted command.
In case the simulated key has two linked functions (key briefly pressed or at length, like the TARE key), if the KEYP command is followed by the release command of the (KEYR) key within a maximum time of 1,5 seconds, the simple function will be executed (key briefly pressed); otherwise the second function will be made (key pressed at length).


**Key release simulation command**
**[CC]KEYR<CR LF>**
Response: [CC]OK<CR LF>


**Serial command which supplies the indicator status**
**[CC]STAT<CR LF>**
Instrument answer: [CC]STATXX<CR LF>
in which XX is a decimal value which supplies the status of the indicator; the possible values are:
**XX      indicator status**
00 normal scale status
01 normal scale status in input
02 instrument in technical setup
04 instrument in boot phase
05 instrument in rx/tx setup phase
06 instrument in test phase of the serial ports
07 instrument in print test
08 instrument in firmware update phase
09 instrument in stand-by
10 instrument in automatic zero phase
12 instrument in inputs test phase

**Serial command which supplies the indicator status and the dosage status**

**Reading Total Weight (only in Total Weight mode)**     The command is allowed in the state of wait for start.
**[CC]DWEI<CR LF>**
Instrument answer:        [CC]LLLLLLLLLLUM<CR LF>:

In which        LLLLLLLLLL is the weight of 10 decimal digits
                UM is the unit of measurement stored in the archives
The command can read the total weight set in **<<WGT.FOR>>**

**Setting Total Weight (only in Total Weight mode)**     The command is allowed in the state of wait for start.
**[CC]DWEI,XXX<CR LF>**
Instrument answer:        [CC]OK<CR LF>:         accepted command.
In which        XXX is the total weight for the formula to be set.
The command allows to set the total weight one want to dosing and indicator recalculates the weights of all the activities to be determined.

**[CC]STATB<CR LF>**
Instrument answer: [CC]STATXX-BYY<CR LF>
in which        XX is a decimal value which supplies the status of the indicator (see the STAT command);
                YY is a decimal value which supplies the dosage status; some values are:

**YY dosage status**
00 No selected formula
01 Local database management
02 Remote database management
03 Remote command management
04 Cycle start wait with Out of Capacity Formula
05 Cycle start wait with missing material
06 Cycle start wait in Weight Error
07 Reserved
08 Cycle start wait in First Weigh Error
09 Cycle start wait
10 Activity selection
11 Automatic dosage activity at maximum speed
12 Automatic dosage activity at minimum speed
13 Reserved
14 Automatic dosage activity: wait for flight time
15 Manual Dosage Start Test Start
16 Manual dosage activity (tot.WGt mode) able to start
17 Manual dosage activity (tot.WGt mode) not able to start due to incorrect target value
18 Manual dosage activity at maximum speed
19 Manual dosage activity NOT OK because under the lower tolerance
20 Manual dosage activity OK which is between the lower tolerance and the target
21 Manual dosage activity NOT OK because over the upper tolerance
22 Manual dosage activity OK which is between the upper tolerance and the target
23 Wait for discharge activity start
24 Discharge Start Test
25 Total discharge activity
26 Discharge activity at maximum speed
27 Discharge activity at minimum speed
28 Discharge activity: wait for flight time
29 Timer activity
30 Pause activity

31 Manual weight activity
32 Cycle Pause
33 Error: Out of zero
34 Error: Out of scale capacity
35 Error: Out of foreseen maximum time
36 Error: Out of foreseen triggering time
37 Error: Unstable weight
38 Error: Out of tolerance
39 Reserved for remote dosage
40 Reserved for remote dosage
41 Reserved for remote dosage
42 Alarm for Timer activity
43 Saves weight data
44 Activity end
45 Wait for the remote reading
46 Remote dosage
47 Synchronization for remote dosage
48 End of cycle
49 Reset of the cycle

**Serial command which supplies the complete dosage status**
**[CC]BSTAT<CR LF>**
Instrument answer:  [CC] B,S,F,P,C,R,O,AO,NP,W,TD,D,FT<CR LF>
in which:                B: scale (adc channel, from 1 to 4)
                               S: dosage status (see STATB command)
                               F: index of formula in execution
                               P: index of activity in execution
                               C: cycle number
                               R: number of foreseen repetitions
                               O: output status. It's a value which in the binary code indicates from right to left (R1 last on the right, R11 first on the left) the status of the outputs (1=enabled output, 0=disabled output).
                               For example 1026 (10000000010 in binary) indicates that both R2 and R11 are active.
                               AO: Analogue output value
                               NP: number of the activities of the active formula
                               W: present gross weight
                               TD: weight to dose in the active activity (time if timer activity)
                               D: dosed weight in the active activity
                               FT: active formula total dosed

**Selection formula**
**[CC]DSETxx<CR LF> in which** XX is the selecting formula index.
Instrument answer:          [CC]SETOK<CR LF>: accepted command.
                            [CC]ERROR<CR LF>: not present formula or already selected.


**Dosage start**
**[CC]DSTART<CR LF>**
Instrument answer:          [CC]START<CR LF>:    accepted command.
                            [CC]ERROR<CR LF>:    otherwise.


**Dosage PAUSE/RESET**
**[CC]DSTOP<CR LF>**
Instrument answer:          [CC]PAUSE<CR LF>:    dosage pause – if the command is received with the dosage under way.
                            [CC]RESET<CR LF>:    cancelling of dosage under way – if the command has been received
                                                 during the pause status.
                            [CC]ERROR<CR LF>:    if the command has been received out of the dosage status.


# 9. ANALOGUE OUTPUT (OPTIONAL)

Through an optional interface, it is possible to use a 16-bit analogue output configurable at 0 – 10V, 0 – 20 mA or 4 – 20 mA. Settable in different mode for each scale.
The voltage and the output current from the interface are proportional to the dosed gross or net weight or to the dosage speed, depending on how the **<<ModE>>** step has been programmed.

- **ANALOGUE OUTPUT ON THE NET OR THE GROSS**
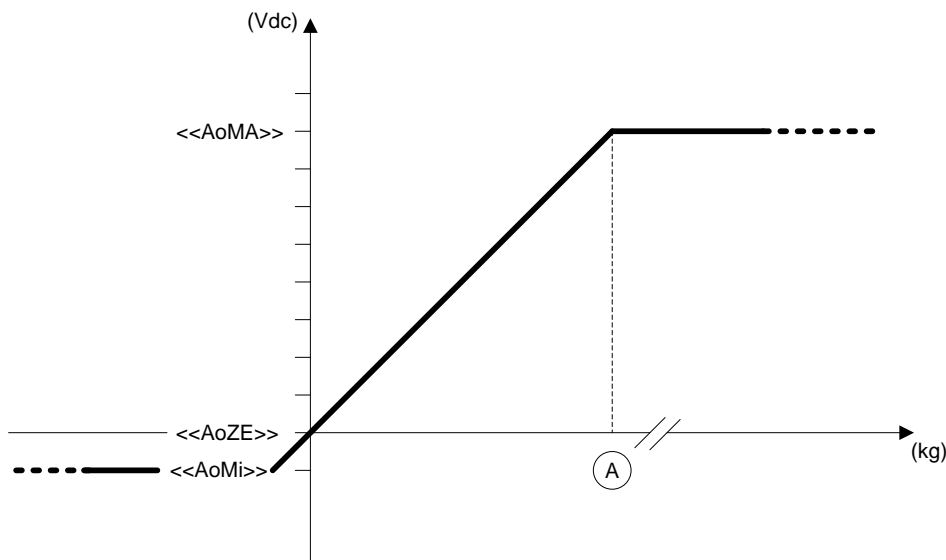


**Example of the analogue output trend for a dosage in loading**

- **ANALOGUT OUTPUT ON THE SPEED (AUTOMATIC DOSAGE EXAMPLE)**

**A** = % (target-fly)
**B** = target - flight = dosage end
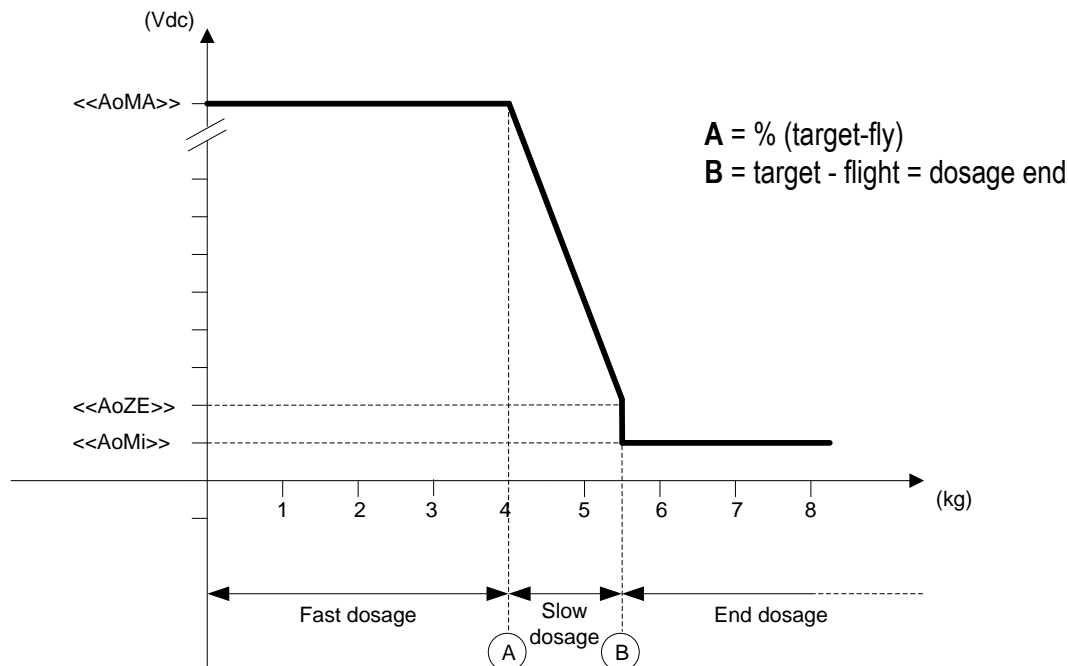
**Example of the analogue output trend for a dosage in loading**

**NOTA**:
- If the analogue output is proportional to the speed, for the TIMER, PAUSE and MANUAL WEIGHT activities, the output remains fixed to the minimum value, while for the total unloading activity, remains fixed to the maximum value.
- Out of the dosage cycle, the analogue output is always proportional to the gross weight on the scale.

In regards to the connections, see the electric scheme in section 11.
In order to configure the parameters, one needs to enter the **<<Anout>>** step.
In this order, one should configure the following parameters:

## <<SLot>>  SLOT SELECTION
One selects the SLOT to be used with the analogue output: SLOT 1 or SLOT2; it is possible to indifferently use either SLOT.

## <<ModE>>  OPERATING MODE
AO G    = analogue output on gross weight
AO n    = analogue output on net weight
AO S    = analogue output proportional to the dosing speed. One is asked to enter the (target-flight) percentage with which to start the slow part of the dosage. **Note:** the percentage will be the same for all the connected scales. To set the slow weight, **USER MAN REF.** 11.1.1 paragraph.

Once the functioning mode is confirmed, one sets the values of the analogue output; in other words, the digital/analogue converter values are entered (between 0 and 65535) to which corresponds a certain output value in voltage or in current.
In this configuration the instrument keys take on the following meanings (functions):

ENTER        By pressing once after a value is entered, it activates the corresponding output analogue value, (allowing the check) but the step still remains inside in case of a new modification. By pressing a second time (on the same entered value) it confirms and exits the step.

C            Allows to quickly zero the present value.

## <<AoMA>>  MAXIMUM VALUE
By entering this step, one sets the maximum value of the analogue output, in other words the corresponding value of the

full scale capacity. This value can be anywhere between 0 and 65535 (values of the digital/analogue converter); if a higher digit is entered, the instrument emits a prolonged sound, after which it zeros the value just entered.

### <<AoZE>>   SCALE ZERO VALUE

By entering this step, one sets the analogue output value when the scale displays zero weight. This value can be anywhere between 0 and 65535 (values of the digital/analogue converter); if a higher digit is entered, the instrument emits a prolonged sound, after which it zeros the value just entered.

### <<AoMi>>   MINIMUM VALUE

By entering this step, one sets the minimum value of the analogue output. This value can be anywhere between 0 and 65535 (values of the digital/analogue converter); if a higher digit is entered, the instrument emits a prolonged sound, after which it zeros the value just entered.

**APPROXIMATE VALUES BETWEEN THE D/A CONVERTER AND ANALOGUE OUTPUT**

| D/A CONVERTER VALUES | VOLTAGE VALUE (V) | CURRENT VALUE (mA) |
|---|---|---|
| 1200 | 0 | 0 |
| 12700 | | 4 |
| 58600 | | 20 |
| 62650 | 10 | |

# 10. PROGRAMMING THE PRINTOUTS

It is possible to programme 27 different print formats, linked to the 27 available print functions (see section 14, **USER.MAN.REF.**):
- "Prn.F.1" format >> simple printout
- "Prn.F.2" format >> headers

- …

For the complete list of the functions and the linked formats, see the "PRINTOUTS" section of the **USER MANUAL**.

It is possible to configure the formats:
- **through the Dinitools™ software** for PC, and transmitted to the indicator through the serial line; it is necessary that the print format number ("Print Format Number") is a value between 1 and 11 to indicate the format to be overwritten.
- **manually from the indicator** by entering in the **SetuP** >> **SeriAL** >> **Prn.FMt** step inside the SET-UP environment.

## MANUAL CONFIGURATION OF THE PRINT FORMATS

Each ticket is made up of a maximum of 2048 memory storages (which we will call "lines", from 0 to 2047; only the first 1000 are manually modifiable from the indicator), which, when programmed, these will produce the desired printout; in each line one can enter (through a 3-digit code, from 300 onwards) a command named "print block", which will produce a certain type of printout, for example:
PRINT NET WEIGHT (code 307), which will print the net weight value, the unit of measure and the CR or CR LF to go to the next line.

Or it is possible to print a single alphanumeric character, entering the relative ASCII code in the line (from 0 to 255).
To configure a print format:
- Enter in the **SetuP** >> **SeriAL** >> **Prn.FMt** parameter.
- The display shows:

**C.F.**    **XX**      in which:

        **XX** indicates the number of the format to be modified (from 01 to 30)

- Select the print format to be configured using the arrow keys ▲ ▼ and press the **ENTER** key
- Once entered in a format (for example C.F. 01), the display shows:

**XXX.YYY**      in which:

        **XXX** is number of the line which one is programming.
        **YYY** is the entered code (from 0 to 255 the ASCII code is printed, from 300 onwards the relative block is printed).

- Select the line to be programmed using the arrow keys ▲ ▼, or by typing the line number through the numeric keyboard, and press the **ENTER** key.
- The display shows "CHANGE" for an instant and onwards:

        **XXX**    in which:

        **XXX** is the value to be modified.

- Enter a value and press the **ENTER** key to confirm; the **C** key clears the entered value and if pressed again it cancels the operation.
- If a print block with parameters from 600 onwards has been entered, after having pressed the **ENTER** key the displays shows:

        **XXX**    in which:

        **XXX** is the value to be modified.

- Enter a valid value and press the **ENTER** key to confirm.
- Once programmed all the desired lines one should enter in the last line block 300 (PRINT END);

Press the **C** key to exit; the display will show the saving request; press the **ENTER** key to confirm or another key to cancel.

## KEYS' FUNCTIONS

| | |
|---|---|
| ▲ | scrolls forward inside the lines of the print format. |
| ▼ | scrolls backward inside the lines of the print format. |
| F1 | enters a print block or an ASCII character in the selected line moving the consecutive blocks of one place. |
| F2 | cancels the current line compacting the blocks that follow. |
| F3 | enters a print end in the current line. |
| ENTER | modifies the code in the current line; while entering it confirms the entered code. |
| C | exits the programming; one is asked to save (the display shows "SAVE?"): with **ENTER** one confirms, with another key one exits without saving. While entering a code, it quickly zeros the present value. |

**NUMERICAL**
**KEYBOARD**      allows entering a code inside of the selected printing line.

## NOTES

- For the complete list of the ASCII codes and the print blocks, see the sections 10.2 and 10.3.
- To terminate the programming of a format, it is necessary that the last command be "Print end": one should enter the code 300 (or press the **F3** key) in the last line of the format.

## PRINTING ON THE PC SERIAL PORT

By programming correctly a format, it is possible to direct the printing on the PC serial port, and then bring it back onto the printer port; the blocks to be used are:

312 (PRINTING ON PC PORT), 313 (PRINTING ON SERIAL PORT), 314 (FORCES THE PRINTING).

The correct syntax in the format is the following:

- **312 PRINTS ON PC PORT**
- prints block or ASCII character
- …
- **314 FORCES PRINTING**

⟶ The "Forces print" block executes the transmission of all the blocks or ASCII characters entered BEFORE the same block; reading block 312, the printout is directed onto the PC port.

- **313 PRINTS ON PRINTER PORT**
- prints block or ASCII character
- …
- **314 FORCES PRINTING**

⟶ All the blocks or ASCII characters entered here are instead transmitted through the printer serial port.

- 300 PRINT END

## 10.1 PROGRAMMING EXAMPLE

One programmes a format to be linked to a PRINT key function (**S.F.01** function) in this way:

| | |
|---|---|
| MARIO ROSSI SRL | MARIO ROSSI SRL |
| Date – time | 1/02/2005 – 19:00:00 |
| Gross weight | GROSS          2.000kg |
| Tare weight | TARE            0.000kg |
| Net weight | NET             2.000kg |
| 3 CRLF | |
| Print end | |

After having entered in the SET-UP environment, follow the procedures below:

- Go to step "**Prn.F.1**", inside the "SERIAL" parameter of the "SETUP" step and press **ENTER**: the display shows "**000.xxx**" (first line number, macro code).
- Press **ENTER**, the display shows "**xxx (macro code)**": enter the 077 code (ASCII relative to the "M" letter), confirm with **ENTER**.

- The display now shows "**001.xxx** " (second line number, fine macro code), press **ENTER** and enter the 065 code (ASCII relative to the letter "A"); confirm with **ENTER** to pass to the third line.
-      Repeat the operations by entering the following codes:
082 (letter "R")
073 (letter "I")
079 (letter "O")
032 (space)
082 (letter "R")
079 (letter "O")
083 (letter "S")
083 (letter "S")
073 (letter "I")
032 (space)
083 (letter "S")
082 (letter "R")
076 (letter "L")
377 (print terminator)
013 (CR, Carriage Return)
362 (prints date – time)
308 (prints gross weight)
307 (prints net weight)
309 (prints tare weight)
328 (prints 3 CRLF)
300 (print end)                **\*\* It is possible to enter the print end also with the F3 key \*\***


- Press the **C** key to exit the programming: the display shows "SAVE?", confirm with **ENTER** (one goes back into the "SERIAL" parameter).
- Exit the SETUP environment of the instrument by pressing the **C** key various times: the display shows "SAVE?", confirm the changes made with **ENTER** (the instrument returns to weighing).
- Link the configured format to the print key function (see the "PRINTOUTS" section of the user manual).

## 10.2 ASCII CODE TABLE

10.2.1 Windows 1252 (Latin1)

| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 0A | 0B | 0C | 0D | 0E | 0F |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **00** | NUL 0000 | SOH 0001 | STX 0002 | ETX 0003 | EOT 0004 | ENQ 0005 | ACK 0006 | BEL 0007 | BS 0008 | HT 0009 | LF 000A | VT 000B | FF 000C | CR 000D | SO 000E | SI 000F |
| **10** | DLE 0010 | DC1 0011 | DC2 0012 | DC3 0013 | DC4 0014 | NAK 0015 | SYN 0016 | ETB 0017 | CAN 0018 | EM 0019 | SUB 001A | ESC 001B | FS 001C | GS 001D | RS 001E | US 001F |
| **20** | SP 0020 | ! 0021 | " 0022 | # 0023 | $ 0024 | % 0025 | & 0026 | ' 0027 | ( 0028 | ) 0029 | * 002A | + 002B | , 002C | − 002D | . 002E | / 002F |
| **30** | 0 0030 | 1 0031 | 2 0032 | 3 0033 | 4 0034 | 5 0035 | 6 0036 | 7 0037 | 8 0038 | 9 0039 | : 003A | ; 003B | < 003C | = 003D | > 003E | ? 003F |
| **40** | @ 0040 | A 0041 | B 0042 | C 0043 | D 0044 | E 0045 | F 0046 | G 0047 | H 0048 | I 0049 | J 004A | K 004B | L 004C | M 004D | N 004E | O 004F |
| **50** | P 0050 | Q 0051 | R 0052 | S 0053 | T 0054 | U 0055 | V 0056 | W 0057 | X 0058 | Y 0059 | Z 005A | [ 005B | \ 005C | ] 005D | ^ 005E | _ 005F |
| **60** | ` 0060 | a 0061 | b 0062 | c 0063 | d 0064 | e 0065 | f 0066 | g 0067 | h 0068 | i 0069 | j 006A | k 006B | l 006C | m 006D | n 006E | o 006F |
| **70** | p 0070 | q 0071 | r 0072 | s 0073 | t 0074 | u 0075 | v 0076 | w 0077 | x 0078 | y 0079 | z 007A | { 007B | \| 007C | } 007D | ~ 007E | DEL 007F |
| **80** | € 20AC | | ‚ 201A | ƒ 0192 | „ 201E | … 2026 | † 2020 | ‡ 2021 | ˆ 02C6 | ‰ 2030 | Š 0160 | ‹ 2039 | Œ 0152 | | Ž 017D | |
| **90** | | ' 2018 | ' 2019 | " 201C | " 201D | • 2022 | – 2013 | — 2014 | ˜ 02DC | ™ 2122 | š 0161 | › 203A | œ 0153 | | ž 017E | Ÿ 0178 |
| **A0** | NBSP 00A0 | ¡ 00A1 | ¢ 00A2 | £ 00A3 | ¤ 00A4 | ¥ 00A5 | ¦ 00A6 | § 00A7 | ¨ 00A8 | © 00A9 | ª 00AA | « 00AB | ¬ 00AC | 00AD | ® 00AE | ¯ 00AF |
| **B0** | ° 00B0 | ± 00B1 | ² 00B2 | ³ 00B3 | ´ 00B4 | µ 00B5 | ¶ 00B6 | · 00B7 | ¸ 00B8 | ¹ 00B9 | º 00BA | » 00BB | ¼ 00BC | ½ 00BD | ¾ 00BE | ¿ 00BF |
| **C0** | À 00C0 | Á 00C1 | Â 00C2 | Ã 00C3 | Ä 00C4 | Å 00C5 | Æ 00C6 | Ç 00C7 | È 00C8 | É 00C9 | Ê 00CA | Ë 00CB | Ì 00CC | Í 00CD | Î 00CE | Ï 00CF |
| **D0** | Ð 00D0 | Ñ 00D1 | Ò 00D2 | Ó 00D3 | Ô 00D4 | Õ 00D5 | Ö 00D6 | × 00D7 | Ø 00D8 | Ù 00D9 | Ú 00DA | Û 00DB | Ü 00DC | Ý 00DD | Þ 00DE | ß 00DF |
| **E0** | à 00E0 | á 00E1 | â 00E2 | ã 00E3 | ä 00E4 | å 00E5 | æ 00E6 | ç 00E7 | è 00E8 | é 00E9 | ê 00EA | ë 00EB | ì 00EC | í 00ED | î 00EE | ï 00EF |
| **F0** | ð 00F0 | ñ 00F1 | ò 00F2 | ó 00F3 | ô 00F4 | õ 00F5 | ö 00F6 | ÷ 00F7 | ø 00F8 | ù 00F9 | ú 00FA | û 00FB | ü 00FC | ý 00FD | þ 00FE | ÿ 00FF |

**10.2.2 Windows 1251 (Cyrillic)**

| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 0A | 0B | 0C | 0D | 0E | 0F |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 00 | NUL 0000 | SOH 0001 | STX 0002 | ETX 0003 | EOT 0004 | ENQ 0005 | ACK 0006 | BEL 0007 | BS 0008 | HT 0009 | LF 000A | VT 000B | FF 000C | CR 000D | SO 000E | SI 000F |
| 10 | DLE 0010 | DC1 0011 | DC2 0012 | DC3 0013 | DC4 0014 | NAK 0015 | SYN 0016 | ETB 0017 | CAN 0018 | EM 0019 | SUB 001A | ESC 001B | FS 001C | GS 001D | RS 001E | US 001F |
| 20 | SP 0020 | ! 0021 | " 0022 | # 0023 | $ 0024 | % 0025 | & 0026 | ' 0027 | ( 0028 | ) 0029 | * 002A | + 002B | , 002C | – 002D | . 002E | / 002F |
| 30 | 0 0030 | 1 0031 | 2 0032 | 3 0033 | 4 0034 | 5 0035 | 6 0036 | 7 0037 | 8 0038 | 9 0039 | : 003A | ; 003B | < 003C | = 003D | > 003E | ? 003F |
| 40 | @ 0040 | A 0041 | B 0042 | C 0043 | D 0044 | E 0045 | F 0046 | G 0047 | H 0048 | I 0049 | J 004A | K 004B | L 004C | M 004D | N 004E | O 004F |
| 50 | P 0050 | Q 0051 | R 0052 | S 0053 | T 0054 | U 0055 | V 0056 | W 0057 | X 0058 | Y 0059 | Z 005A | [ 005B | \ 005C | ] 005D | ^ 005E | _ 005F |
| 60 | ` 0060 | a 0061 | b 0062 | c 0063 | d 0064 | e 0065 | f 0066 | g 0067 | h 0068 | i 0069 | j 006A | k 006B | l 006C | m 006D | n 006E | o 006F |
| 70 | p 0070 | q 0071 | r 0072 | s 0073 | t 0074 | u 0075 | v 0076 | w 0077 | x 0078 | y 0079 | z 007A | { 007B | | 007C | } 007D | ~ 007E | DEL 007F |
| 80 | Ђ 0402 | Ѓ 0403 | ‚ 201A | ѓ 0453 | „ 201E | … 2026 | † 2020 | ‡ 2021 | € 20AC | ‰ 2030 | Љ 0409 | ‹ 2039 | Њ 040A | Ќ 040C | Ћ 040B | Џ 040F |
| 90 | ђ 0452 | ' 2018 | ' 2019 | " 201C | " 201D | • 2022 | – 2013 | — 2014 | | ™ 2122 | љ 0459 | › 203A | њ 045A | ќ 045C | ћ 045B | џ 045F |
| A0 | NBSP 00A0 | Ў 040E | ў 045E | Ј 0408 | ¤ 00A4 | Ґ 0490 | ¦ 00A6 | § 00A7 | Ё 0401 | © 00A9 | Є 0404 | « 00AB | ¬ 00AC | – 00AD | ® 00AE | Ї 0407 |
| B0 | ° 00B0 | ± 00B1 | І 0406 | і 0456 | ґ 0491 | µ 00B5 | ¶ 00B6 | · 00B7 | ё 0451 | № 2116 | є 0454 | » 00BB | ј 0458 | Ѕ 0405 | ѕ 0455 | ї 0457 |
| C0 | А 0410 | Б 0411 | В 0412 | Г 0413 | Д 0414 | Е 0415 | Ж 0416 | З 0417 | И 0418 | Й 0419 | К 041A | Л 041B | М 041C | Н 041D | О 041E | П 041F |
| D0 | Р 0420 | С 0421 | Т 0422 | У 0423 | Ф 0424 | Х 0425 | Ц 0426 | Ч 0427 | Ш 0428 | Щ 0429 | Ъ 042A | Ы 042B | Ь 042C | Э 042D | Ю 042E | Я 042F |
| E0 | а 0430 | б 0431 | в 0432 | г 0433 | д 0434 | е 0435 | ж 0436 | з 0437 | и 0438 | й 0439 | к 043A | л 043B | м 043C | н 043D | о 043E | п 043F |
| F0 | р 0440 | с 0441 | т 0442 | у 0443 | ф 0444 | х 0445 | ц 0446 | ч 0447 | ш 0448 | щ 0449 | ъ 044A | ы 044B | ь 044C | э 044D | ю 044E | я 044F |

## 10.2.3 Windows 1253 (Greek)

| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 0A | 0B | 0C | 0D | 0E | 0F |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **00** | NUL 0000 | SOH 0001 | STX 0002 | ETX 0003 | EOT 0004 | ENQ 0005 | ACK 0006 | BEL 0007 | BS 0008 | HT 0009 | LF 000A | VT 000B | FF 000C | CR 000D | SO 000E | SI 000F |
| **10** | DLE 0010 | DC1 0011 | DC2 0012 | DC3 0013 | DC4 0014 | NAK 0015 | SYN 0016 | ETB 0017 | CAN 0018 | EM 0019 | SUB 001A | ESC 001B | FS 001C | GS 001D | RS 001E | US 001F |
| **20** | SP 0020 | ! 0021 | " 0022 | # 0023 | $ 0024 | % 0025 | & 0026 | ' 0027 | ( 0028 | ) 0029 | * 002A | + 002B | , 002C | - 002D | . 002E | / 002F |
| **30** | 0 0030 | 1 0031 | 2 0032 | 3 0033 | 4 0034 | 5 0035 | 6 0036 | 7 0037 | 8 0038 | 9 0039 | : 003A | ; 003B | < 003C | = 003D | > 003E | ? 003F |
| **40** | @ 0040 | A 0041 | B 0042 | C 0043 | D 0044 | E 0045 | F 0046 | G 0047 | H 0048 | I 0049 | J 004A | K 004B | L 004C | M 004D | N 004E | O 004F |
| **50** | P 0050 | Q 0051 | R 0052 | S 0053 | T 0054 | U 0055 | V 0056 | W 0057 | X 0058 | Y 0059 | Z 005A | [ 005B | \ 005C | ] 005D | ^ 005E | _ 005F |
| **60** | ` 0060 | a 0061 | b 0062 | c 0063 | d 0064 | e 0065 | f 0066 | g 0067 | h 0068 | i 0069 | j 006A | k 006B | l 006C | m 006D | n 006E | o 006F |
| **70** | p 0070 | q 0071 | r 0072 | s 0073 | t 0074 | u 0075 | v 0076 | w 0077 | x 0078 | y 0079 | z 007A | { 007B | \| 007C | } 007D | ~ 007E | DEL 007F |
| **80** | € 20AC | | ‚ 201A | ƒ 0192 | „ 201E | … 2026 | † 2020 | ‡ 2021 | | ‰ 2030 | | ‹ 2039 | | | | |
| **90** | | ' 2018 | ' 2019 | " 201C | " 201D | • 2022 | – 2013 | — 2014 | | ™ 2122 | | › 203A | | | | |
| **A0** | NBSP 00A0 | ΅ 0385 | Ά 0386 | £ 00A3 | ¤ 00A4 | ¥ 00A5 | ¦ 00A6 | § 00A7 | ¨ 00A8 | © 00A9 | | « 00AB | ¬ 00AC | - 00AD | ® 00AE | ― 2015 |
| **B0** | ° 00B0 | ± 00B1 | ² 00B2 | ³ 00B3 | ΄ 0384 | µ 00B5 | ¶ 00B6 | · 00B7 | Έ 0388 | Ή 0389 | Ί 038A | » 00BB | Ό 038C | ½ 00BD | Ύ 038E | Ώ 038F |
| **C0** | ΐ 0390 | Α 0391 | Β 0392 | Γ 0393 | Δ 0394 | Ε 0395 | Ζ 0396 | Η 0397 | Θ 0398 | Ι 0399 | Κ 039A | Λ 039B | Μ 039C | Ν 039D | Ξ 039E | Ο 039F |
| **D0** | Π 03A0 | Ρ 03A1 | | Σ 03A3 | Τ 03A4 | Υ 03A5 | Φ 03A6 | Χ 03A7 | Ψ 03A8 | Ω 03A9 | Ϊ 03AA | Ϋ 03AB | ά 03AC | έ 03AD | ή 03AE | ί 03AF |
| **E0** | ΰ 03B0 | α 03B1 | β 03B2 | γ 03B3 | δ 03B4 | ε 03B5 | ζ 03B6 | η 03B7 | θ 03B8 | ι 03B9 | κ 03BA | λ 03BB | μ 03BC | ν 03BD | ξ 03BE | ο 03BF |
| **F0** | π 03C0 | ρ 03C1 | ς 03C2 | σ 03C3 | τ 03C4 | υ 03C5 | φ 03C6 | χ 03C7 | ψ 03C8 | ω 03C9 | ϊ 03CA | ϋ 03CB | ό 03CC | ύ 03CD | ώ 03CE | |

## 10.3 LIST OF PRINT BLOCKS

**LEGEND:**

| | |
|---|---|
| **b** | indicates a space character (ASCII 32 decimal character). |
| UM | unit of measure of the active scale (kg, **b**g, **b**t, lb). |
| + T | terminator: depending on the setting of the **<< tErMin >>** step, a CR or CRLF is added, or no terminator. |
| XXX* | These blocks do not work without the alibi memory (optional). |

The weight fields expand from right to left, with spaces (ASCII 32 decimal character) to complete the field length.

10.3.1 ORDER BY KIND

| CODE | | PRINT FORMAT |
|---|---|---|
| | **GENERIC** | |
| 364 | ONLY HEADING OF LINE 1 | XXXXXXXXXXXXXXXXXXXXXXXX + T |
| 365 | ONLY HEADING OF LINE 2 | XXXXXXXXXXXXXXXXXXXXXXXX + T |
| 366 | ONLY HEADING OF LINE 3 | XXXXXXXXXXXXXXXXXXXXXXXX + T |
| | in which XXXXXXXXXXXXXXXXXXXXXXXX are the 24 characters of the first line of the heading; just the entered characters are printed, from left to right. | |
| 310 | DOTTED LINE | -- -- -- -- -- -- -- -- -- -- -- -- -- -- -- -- + T |
| 436 | PRINTS 3 CRLF | |
| 363 | SKIPS FOLLOWING MACRO TERMINATOR | |
| 377 | PRINTS TERMINATOR | CR or CRLF or NO TERMINATOR |
| 311 | DATE / TIME FOR DP24/DP190 | **b**HH:MM**b**DD-MM-YY + T |
| 360 | INDICATOR DATE | DD/MM/YY |
| 361 | INDICATOR TIME | HH:MM:SS |
| 362 | INDICATOR DATE TIME | DD/MM/YY**b**-**b**HH:MM:SS |
| 441 | INDICATOR TIME | HHMMSS |
| 442 | INDICATOR DATE | YYMMDD |
| 381 | JUST DATE OF LAST ZEROING OF GENERAL TOTAL | DD/MM/YY |
| 417 | JUST DATE OF LAST ZEROING OF FORMULA TOTAL | DD/MM/YY |

| 437 | ACTIVE SCALE NUMBER | SX + T |
|---|---|---|

in which X is the active scale number (0..4)

| 425 | JUST NUMBER OF SCALE IN USE | X |
|---|---|---|
| 424 | JUST SCALE UNIT OF MEASURE IN USE | UM |

The field expands from right to left.

| 373 | JUST DATABASE UNIT OF MEASURE | UM |
|---|---|---|

The field expands from right to left.

| 370 | ACTIVE SCALE NUMBER | SCALE**b**NUMBER**b**X + T |
|---|---|---|

in which X is the active scale number (0..4)

| 371 | JUST ACTIVE SCALE NUMBER | X |
|---|---|---|

in which X is the active scale number (0..4)

| 372 | SCALE UNIT OF MEASURE | UM + T |
|---|---|---|
| 401 | DATABASE UNIT OF MEASURE | UM |
| 312 | PRINTS ON PC PORT | |
| 313 | PRINTS ON PRINTER PORT | |
| 314 | FORCES PRINTOUT | |
| 375 | STANDARD KD PROTOCOL STRING | |
| 376 | AF0X PROTOCOL STRING | |

By using blocks 375 and 376 it is possible to print the STANDARD or AFXX serial string (see 8.4 TRANSMISSION PROTOCOLS section for the description); the string terminator is the one set in the **tErMin** "SET TERMINATOR TYPE" step in the SET-UP environment (CR or CRLF or no terminator).

| 428 | ONLY YEAR IN YY FORMAT | YY |
|---|---|---|
| 429 | ONLY MONTH IN MM FORMAT | MM |

| 430 | ONLY DAY IN DD FORMAT | DD |
| 431 | ONLY HOUR IN HH FORMAT | HH |
| 432 | ONLY THE MINUTES IN MM FORMAT | MM |

## CURRENT WEIGHT ON THE SCALE

307     NET WEIGHT                                               NET=XXXXXXXUM + T
current net weight on the weighing system
| 301 | JUST NET ON 8 DIGITS | XXXXXXX |
| 368 | JUST NET ON 10 DIGITS | XXXXXXXXX |

308     GROSS WEIGHT                                          GROSS=XXXXXXXUM + T
current gross weight on the weighing system
| 302 | JUST GROSS 8 DIGITS | XXXXXXX |
| 367 | JUST GROSS ON 10 DIGITS | XXXXXXXXX |
the field expands from right to left, with many spaces for completing the field length.

309     TARE WEIGHT                                            TARE=XXXXXXXUM + T
in which XXXXXXXXX is the value of the current weight on the weighing system. Upon 8 digits including the comma; the field expands from right to left
| 303 | JUST TARE 8 DIGITS | XXXXXXX |
| 369 | JUST TARE ON 10 DIGITS | XXXXXXXXX |
| 438 | JUST CURRENT NET WEIGHT VALUE | XXXXXXXXX |
| 440 | JUST CURRENT TARE WEIGHT VALUE | XXXXXXXXX |
in which XXXXXXXXX is the value of the weight on the weight system, in 10 digits including the comma; the field expands from right to left.
| 439 | JUST CURRENT GROSS WEIGHT VALUE | XXXXXXXXX |

## DOSAGE

408     TARGET                                          DOSEXXXXXXXXXXUM + T
in which XXXXXXXXX is the weight value on 10 digits including the comma (the field expands from right to left, with many spaces for completing the length of the field); UM indicates the unit of measure of the scale.

461     FORMULA TARGET                            TARGET**bbbbbbbb**XXXXXXXUM + T
in which XXXXXXX is the weight value on 8 digits including the comma (the field expands from right to left, with many spaces for completing the length of the field); UM indicates the unit of measure of the archive.

463     DOSED WEIGHT                           DOSED WEIGHT**bbbbbbbb**XXXXXXXUM + T
in which XXXXXXX is the weight value on 8 digits including the comma (the field expands from right to left, with many spaces for completing the length of the field); UM indicates the unit of measure of the scale

468     FIRST PRODUCTION TARGET CONTENT            YYY**bb**XXXXXXXXXXXXXXXXAAAAAAAAUM + T
in which YYY is formula number, XXXXXXXXXXXXXXXX is 16 characters of formula description, AAAAAAAA is the weight value on 8 digits including the comma (the field expands from right to left, with many spaces for completing the length of the field); UM indicates the unit of measure of the scale.

| 469 | SECOND PRODUCTION TARGET CONTENT | YYY**bb**XXXXXXXXXXXXXXXXAAAAAAAAUM + T |
| 470 | THIRD PRODUCTION TARGET CONTENT | YYY**bb**XXXXXXXXXXXXXXXXAAAAAAAAUM + T |
| 471 | FOURTH PRODUCTION TARGET CONTENT | YYY**bb**XXXXXXXXXXXXXXXXAAAAAAAAUM + T |

462     LAST DOSED WEIGHT                       DOSED WEIGHT**bbbbbbbb**XXXXXXXUM + T
It is the last net weight actually dosed, in which XXXXXXX is the weight value on 8 digits including the comma (the field expands from right to left, with many spaces for completing the length of the field); UM indicates the unit of measure of the archive

392     LAST TOTAL DOSED WEIGHT AND TARE            TARE**b**XXXXXXXXXXUM + T
                                                 DOSED CYCLEXXXXXXXXXXUM
| 403 | LAST TOTAL DOSED WEIGHT | DOSED CYCLEXXXXXXXXXXUM |

476     TOTAL PRODUCTION TARGET                        TOTAL**bbbbbbbb**XXXXXXXUM + T
in which XXXXXXX is the weight value on 8 digits including the comma (the field expands from right to left, with many spaces for completing the length of the field); UM indicates the unit of measure of the scale.

477    TOTAL PRODUCTION DOSED WEIGHT                          DOSED**bbbbbbbb**XXXXXXXXUM + T
XXXXXXXX is the dosed material value on 8 digits including the comma (the field expands from right to left, with
many spaces for completing the length of the field); UM indicates the unit of measure of the scale.

472    FIRST PRODUCTION DOSED CONTENT                  YYY**bb**XXXXXXXXXXXXXXXXXBBBBBBBBUM + T
in which YYY is formula number, XXXXXXXXXXXXXXXX is 16 characters of formula description, BBBBBBBB is
the dosed material value on 8 digits including the comma (the field expands from right to left, with many spaces for
completing the length of the field); UM indicates the unit of measure of the scale.

473    SECOND PRODUCTION DOSED CONTENT            YYY**bb**XXXXXXXXXXXXXXXXXBBBBBBBBUM + T
474    THIRD PRODUCTION DOSED CONTENT               YYY**bb**XXXXXXXXXXXXXXXXXBBBBBBBBUM + T
475    FOURTH PRODUCTION DOSED CONTENT            YYY**bb**XXXXXXXXXXXXXXXXXBBBBBBBBUM + T
402    JUST LAST TOTAL DOSED WEIGHT                                            XXXXXXXX
The field expands from right to left, with many spaces for completing the length of the field

411    JUST SELECTED FORMULA TARGET VALUE                                     XXXXXXXX
The field expands in 8 digits, from right to left; the target is printed just during the execution of the dosage.

412    JUST DOSED TOTAL OF SELECTED FORMULA                                   XXXXXXXX
The field expands on 8 digits, from right to left; blank spaces are printed to complete the field.

413    JUST OUT OF TOLERANCE DOSED TOTAL OF SELECTED FORMULA                  XXXXXXXX
The field expands in 8 digits, from right to left; the target is printed just during the execution of the dosage.

391    JUST DOSED GENERAL TOTAL                                               XXXXXXXX
The field expands on 8 digits, from right to left, blank spaces are printed to complete the field.

389    JUST GENERAL TOTAL DOSED OUT OF TOLERANCE                              XXXXXXXX
The field expands on 8 digits, from right to left; blank spaces are printed to complete the field.

390    JUST GENERAL TOTAL DOSED WITHIN TOLERANCE                              XXXXXXX;
The field expands on 8 digits, from right to left; blank spaces are printed to complete the field.

420    JUST TOTAL DOSED WITHIN TOLERANCE FOR SELECTED FORMULA                 XXXXXXXX
The field expands on 8 digits, from right to left; blank spaces are printed to complete the field.

387    CYCLES TOTALS                                           TARGETXXXXXXXXXXUM
                                                               DOSEDXXXXXXXXXXUM
                                                       OUT OF TOL.XXXXXXXXXXUM + T

388    CYCLE TOTALS                                            TARGETXXXXXXXXXXUM
                                                               DOSEDXXXXXXXXXXUM
                                                       OUT OF TOL.XXXXXXXXXXUM + T
in which TARGET is the TOTAL CYCLES/CYCLE PROGRAMMED, DOSED the TOTAL  CYCLES/CYCLE MADE,
OUT OF TOL the TOTAL CYCLES/CYCLE OUT OF CAPACITY; XXXXXXXXXX is the weight value on 10 digits
including the comma (the field expands from right to left, with many spaces for completing the length of the field);
UM indicates the scale's unit of measure..

406    TYPE OF ACTIVITY                                        0X**b**MANUAL DOS.**bbbb**
                                                               0X**b**AUTOMATIC DOS.**b**
                                                               0X**b**MANUAL**b**WEIGHT**b**
                                                               0X**b**UNLOAD**bbbbbbbb**
                                                               0x**b**TIMER**bbbbbbbbbb**
                                                               0X**b**WAIT**bbbbbbbbb**
The text varies depending on the type of activity carried out.

422    JUST TYPE OF ACTIVITY DESCRIPTION                              MAN. DOSAGE  or
                                                                   AUTOMATIC DOS. or
                                                                   MANUAL WEIGHT  or
                                                                              UNLOADING
The text varies depending on the type of activity made.

423    ONLY PROGRESSIVE OF EXECUTED ACTIVITIES                                       0X
In which X can take on two different values depending on the type of activity made: 1 automatic or manual dosage,
2 for unloading.

386    PARTIAL UNLOADING END                                  UNLOADED**bb**XXXXXXXXUM + T

405     FORMULA DESCRIPTION                                FORMULA**b**XXXXXXXXXXXXXXXXXXXX + T
in which XXXXXXXXXXXXXXXXXXXX are the 20 description characters of the selected formula; just the entered characters are printed, from right to left.

407     ONLY DESCRIPTION OF ACTIVITY                                XXXXXXXXXXXXXXXXXXXX

410     JUST FORMULA DESCRIPTION                                    XXXXXXXXXXXXXXXX

404     CYCLE REPORT                                    CYCLE**b**REPORT**b**XX/YY + T
in which XX indicates the number of dosages made, YY indicates the number of programmed cycle repetitions.

409     ONLY NUMBER OF LAST CYCLE MADE                                         XXX
It is the last complete cycle made; the field expands on three digits and also the non significant zeros are printed

478     THE NUMBER OF PRODUCTION FORMULA                    PRODUCTION FORMULA:**b**X + T
In which X is active production formula number.

421     JUST CURRENT CYCLE NUMBER                                             XXX
It is the cycle in execution; the field expands on three digits and also the non significant zeros are printed.

415     JUST TOTAL OF CYCLES MADE FOR SELECTED FORMULA                        XXXXX

416     JUST TOTAL OF WRONG CYCLES FOR SELECTED FORMULA                       XXXXX

380     JUST GENERAL TOTAL OF CYCLES MADE                                     XXXXX

378     JUST GENERAL TOTAL OF WRONG CYCLES                                    XXXXX
The field expands on 5 digits, from right to left; blank spaces are printed to complete the field.

419     JUST TOTAL OF CYCLES WITHIN TOLERANCE FOR SELECTED FORMULA            XXXXX

379     JUST TOTAL OF CYCLES IN TOLERANCE FOR GENERAL TOTAL                   XXXXX
The field expands on 5 digits, from right to left.

418     JUST NUMBER OF REPETITIONS OF SELECTED FORMULA                         XXX
The field expands on three digits, from right to left; also the non significant zeros are printed.

414     JUST ERROR TOTAL IN DOSAGES WITHIN TOLERANCE FOR FORMULA TOTAL      XXXXXXXX
The field expands on 8 digits from right to left;
This field prints the algebraic sum of the difference between the dosed weight and the set target (the error) of each executed dosage activity.
The block refers to the active formula.

382     JUST GENERAL ERROR TOTAL IN THE DOSAGES WITHIN TOLERANCE           XXXXXXXX
The field expands on 8 digits, from left to right
This field prints the algebraic sum of the difference between the dosed weight and the set target (the error) of each executed dosage activity.
The block refers to the active formula.

479     JUST FIRST PRODUCTION FORMULA NUMBER                                   XXX
In which XXX is formula number.

483     JUST SECOND PRODUCTION FORMULA NUMBER                                  XXX

487     JUST THIRD PRODUCTION FORMULA NUMBER                                   XXX

491     JUST FOURTH PRODUCTION FORMULA NUMBER                                  XXX

480     JUST FIRST PRODUCTION FORMULA DESCRIPTION                    XXXXXXXXXXXXXXXX
In which XXXXXXXXXXXXXXXX is 16 characters of formula description.

484     JUST SECOND PRODUCTION FORMULA DESCRIPTION                   XXXXXXXXXXXXXXXX

488     JUST THIRD PRODUCTION FORMULA DESCRIPTION                    XXXXXXXXXXXXXXXX

492     JUST FOURTH PRODUCTION FORMULA DESCRIPTION                   XXXXXXXXXXXXXXXX

481     JUST FIRST PRODUCTION TARGET WITH UNIT OF MEASURE                XXXXXXXUM
in which XXXXXXX is the weight value on 8 digits including the comma (the field expands from right to left, with many spaces for completing the length of the field); UM indicates the unit of measure of the scale.

485     JUST SECOND PRODUCTION TARGET WITH UNIT OF MEASURE              XXXXXXXUM

489     JUST THIRD PRODUCTION TARGET WITH UNIT OF MEASURE               XXXXXXXUM

493     JUST FOURTH PRODUCTION TARGET WITH UNIT OF MEASURE             XXXXXXXUM

482     JUST FIRST PRODUCTION DOSED WEIGHT WITH UNIT OF MEASURE         XXXXXXXUM
in which XXXXXXX is the dosed material value on 8 digits including the comma (the field expands from right to left, with many spaces for completing the length of the field); UM indicates the unit of measure of the scale.

486     JUST SECOND PRODUCTION DOSED WEIGHT WITH UNIT OF MEASURE        XXXXXXXUM

490     JUST THIRD PRODUCTION DOSED WEIGHT WITH UNIT OF MEASURE         XXXXXXXUM

494     JUST FOURTH PRODUCTION DOSED WEIGHT WITH UNIT OF MEASURE        XXXXXXXUM

426    ONLY DOSED WEIGHT ERROR FOR SELECTED FORMULA                    XXXXXXX
The block expands from right to left; just the significant digits are printed.

385    ACTIVITY END LOADING                                            DOSE**b**XXXXXXUM
                                                                       DOSED**b**XXXXXXUM  + T
                  UNLOADING                              UNLOADED**bb**XXXXXXXXUM + T
                  MANUAL DOSAGE                                  DEMXXXXXXXUM + T
                  TIMER                             ADDXXXXXXXUM**bb**dosed:XXXXXX
                  PAUSE                             ADDXXXXXXXUM**bb**dosed:XXXXXX

**NOTE**: For the TIMER and PAUSE activities, the macro is printed only if one has enabled the sum of the eventual dosed weight at the end of these activities together with the dosed total weight, in the **Add.t** and **Add.P** parameters**,** TECH.MAN.REF.

427    ONLY ACTIVITY END WEIGHT                                         XXXXXXX
The field expands on 8 digits, from right to left; blank spaces are printed to complete the field.
**NOTE**: For the TIMER and PAUSE activities, the macro is printed only if one has enabled the sum of the eventual dosed weight at the end of these activities together with the dosed total weight, in the **Add.t** and **Add.P** parameters**,** TECH.MAN.REF.

460    ONLY LAST DOSED WEIGHT                                           XXXXXXX
It is the last net weight actually dosed, in which XXXXXXX is the weight value on 8 digits including the comma (the field expands from right to left, with many spaces for completing the length of the field).

435    TIMER ACTIVITY TIMES                              TARGET**bbbbbbbbb**XXXXX.Xs
                                                         ELAPSED**bbbbbbbbb**XXXXX.Xs + T
In witch TARGET is the programmed time, ELAPSED is the elapsed time and "s" is the unit of measure (seconds).

---

**INPUT TEXTS**

---

315    JUST INPUT 0 TEXT HEADING                                XXXXXXXXXXXXXXXX
in which XXXXXXXXXXXXXXXX are 16 characters of the input 0 text heading; just the entered characters are printed, from left to right.

316    JUST INPUT 1 TEXT HEADING                                XXXXXXXXXXXXXXXX
317    JUST INPUT 2 TEXT HEADING                                XXXXXXXXXXXXXXXX
318    JUST INPUT 3 TEXT HEADING                                XXXXXXXXXXXXXXXX
319    JUST INPUT 4 TEXT HEADING                                XXXXXXXXXXXXXXXX
320    JUST INPUT 5 TEXT HEADING                                XXXXXXXXXXXXXXXX
321    JUST INPUT 6 TEXT HEADING                                XXXXXXXXXXXXXXXX
322    JUST INPUT 7TEXT HEADING                                 XXXXXXXXXXXXXXXX
323    JUST INPUT 8 TEXT HEADING                                XXXXXXXXXXXXXXXX
324    JUST INPUT 9 TEXT HEADING                                XXXXXXXXXXXXXXXX
325    JUST INPUT 10 TEXT HEADING                               XXXXXXXXXXXXXXXX
326    JUST INPUT 11 TEXT HEADING                               XXXXXXXXXXXXXXXX
327    JUST INPUT 12 TEXT HEADING                               XXXXXXXXXXXXXXXX
328    JUST INPUT 13 TEXT HEADING                               XXXXXXXXXXXXXXXX
329    JUST INPUT 14 TEXT HEADING                               XXXXXXXXXXXXXXXX
330    JUST THE INPUT 0 TEXT CONTENTS              YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY
in which YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY are 32 characters of the input 0 text contents; just the entered characters are printed, from left to right.

331    JUST THE INPUT 1 TEXT CONTENTS              YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY
332    JUST THE INPUT 2 TEXT CONTENTS              YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY
333    JUST THE INPUT 3 TEXT CONTENTS              YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY
334    JUST THE INPUT 4 TEXT CONTENTS              YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY
335    JUST THE INPUT 5 TEXT CONTENTS              YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY
336    JUST THE INPUT 6 TEXT CONTENTS              YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY
337    JUST THE INPUT 7 TEXT CONTENTS              YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY
338    JUST THE INPUT 8 TEXT CONTENTS              YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY

| | | |
|---|---|---|
| 339 | JUST THE INPUT 9 TEXT CONTENTS | YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY |
| 340 | JUST THE INPUT 10 TEXT CONTENTS | YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY |
| 341 | JUST THE INPUT 11 TEXT CONTENTS | YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY |
| 342 | JUST THE INPUT 12 TEXT CONTENTS | YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY |
| 343 | JUST THE INPUT 13 TEXT CONTENTS | YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY |
| 344 | JUST THE INPUT 14 TEXT CONTENTS | YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY |

345  INPUT 0 TEXT                    XXXXXXXXXXXXXXXX**b**YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY + T
in which XXXXXXXXXXXXXXXX are 16 characters of the heading and
YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY are 32 characters of the input 0 text contents, just the entered
characters are printed, from left to right.

346  INPUT 1 TEXT                    XXXXXXXXXXXXXXXX**b**YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY + T
347  INPUT 2 TEXT                    XXXXXXXXXXXXXXXX**b**YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY + T
348  INPUT 3 TEXT                    XXXXXXXXXXXXXXXX**b**YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY + T
349  INPUT 4 TEXT                    XXXXXXXXXXXXXXXX**b**YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY + T
350  INPUT 5 TEXT                    XXXXXXXXXXXXXXXX**b**YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY + T
351  INPUT 6 TEXT                    XXXXXXXXXXXXXXXX**b**YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY + T
352  INPUT 7 TEXT                    XXXXXXXXXXXXXXXX**b**YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY + T
353  INPUT 8 TEXT                    XXXXXXXXXXXXXXXX**b**YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY + T
354  INPUT 9 TEXT                    XXXXXXXXXXXXXXXX**b**YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY + T
355  INPUT 10 TEXT                   XXXXXXXXXXXXXXXX**b**YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY + T
356  INPUT 11 TEXT                   XXXXXXXXXXXXXXXX**b**YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY + T
357  INPUT 12 TEXT                   XXXXXXXXXXXXXXXX**b**YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY + T
358  INPUT 13 TEXT                   XXXXXXXXXXXXXXXX**b**YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY + T
359  INPUT 14 TEXT                   XXXXXXXXXXXXXXXX**b**YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY + T

## PRINTOUTS

446  ENABLES PAPER PRESENT SENSOR FOR TM295
447  RELEASES PAPER FOR TM295
448  EMISSION AND PAPER RELEASE FOR TM295
449  LARGE FONT FOR TM295 (2,5x6 mm - LxA)
450  MEDIUM SIZE FONT FOR TM295 (1,5x6 mm - LxA)
451  SMALL FONT FOR TM295 (1,5x3 mm - LxA)
452  MEDIUM SIZE FONT FOR LX300
453  LARGE FONT FOR LX300
454  SMALL FONT FOR LX300
455  LARGE FONT FOR DP190 (3x5 mm - LxA)
456  MEDIUM SIZE FONT FOR DP190 (1,5x5 mm - LxA)
457  SMALL FONT FOR DP190 (1,5x2,5 mm - LxA)
458  STARTS BARCODE 39 FOR THERMAL DP190
459  ENABLES TIME - OUT FOR TM295

## PROGRESSIVES

374  TICKET PROGRESSIVE                                        XXXXX
(progressive number that increases at every general total clearing)
the field expands from right tot left, with many spaces for completing the field length.

| JUST TEXT |
|---|

| 384 | WEIGHT ERRORS ONLY TEXT | **b**WEIGHT**b**OUT OF**b**TOLERANCE + T |
|---|---|---|
| | | WEIGHT**b**BEYOND**b**MAX.**b**TARE + T |
| | | WEIGHT**b**BELOW**b**MIN. **b**TARE + T |
| | | **bb**WEIGHT**b**OUT**b**OF**b**ZERO + T |
| | | **bb**UNSTABLE**b**WEIGHT + T |
| | | END**b**OF**b**MAX **b**DOSAGE**b**TIME + T |
| | | SCALE**b**OUT**b**OF**b**CAPACITY + T |
| | | TIMER**b**ALARM + T |
| 383 | INTERRUPTED CYCLE ONLY TEXT | **bbbb**INTERRUPTED**b**CYCLE + T |
| 395 | JUST "ERROR" TEXT | |
| 398 | JUST "CYCLES TOTAL" TEXT | CYCLES TOTAL |
| 464 | JUST "CYCLE REPORT" TEXT | CYCLE REPORT |
| 465 | JUST "CYCLES REPORT" TEXT | CYCLES REPORT |
| 393 | JUST "OUT OF T. CYCLES" TEXT | CYCLES OFF |
| 394 | JUST "OK CYCLES" TEXT | CYCLES OK |
| 400 | JUST "GENERAL TOTAL" TEXT | GENERAL TOTAL |
| 399 | JUST "DOSED TOTAL" TEXT | DOSED TOTAL |
| 396 | JUST "OUT OF TOL." TEXT | OUT OF TOL. |
| 397 | JUST "IN TOLERANCE." TEXT | IN TOLERANCE |
| 443 | JUST "GROSS" TEXT | GROSS**b** |
| 305 | JUST "GROSS =" TEXT | GROSS**b**= |
| 444 | JUST "NET" TEXT | NET**bbb** |
| 304 | JUST "NET  =" TEXT | NET**bbb**= |
| 445 | JUST "TARE" TEXT | TARE**bb** |
| 306 | JUST "TARE  =" TEXT | TARE**bb**= |
| 466 | JUST "START PRODUCTION" TEXT | START PRODUCTION |
| 467 | JUST "END PRODUCTION" TEXT | END PRODUCTION |
| 433 | ONLY CONDITIONED TARE TEXT | XXXXXX |
| | XXXXXX becomes TARE**bb** when the tare is equal to 0 or semiautomatic, PT**bbbb** with manual tare. | |
| 434 | ONLY CONDITIONED PT TEXT | XX |
| | XX becomes **bb** with tare equal to 0 or semiautomatic, PT with manual tare. | |

10.3.2 NUMERICAL ORDER

| **CODE** | | **PRINT FORMAT** |
|---|---|---|
| 300 | PRINT END | |
| 301 | JUST NET ON 8 DIGITS | XXXXXXXX |
| 302 | JUST NET GROSS 8 DIGITS | XXXXXXXX |
| 303 | JUST NET TARE 8 DIGITS | XXXXXXXX |
| 304 | JUST "NET  =" TEXT | NET**bbb**= |
| 305 | JUST "GROSS =" TEXT | GROSS**b**= |
| 306 | JUST "TARE  =" TEXT | TARE**bb**= |
| 307 | NET WEIGHT | NET=XXXXXXXXUM + T |
| | current net weight on the weighing system | |
| 308 | GROSS WEIGHT | GROSS=XXXXXXXXUM + T |
| | current gross weight on the weighing system | |
| 309 | TARE WEIGHT | TARE=XXXXXXXXUM + T |
| | in which XXXXXXXXX is the value of the current weight on the weighing system. Upon 8 digits including the comma; the field expands from right to left | |
| 310 | DOTTED LINE | -- -- -- -- -- -- -- -- -- -- -- -- -- -- + T |
| 311 | DATE / TIME FOR DP24/DP190 | **b**HH:MM**b**DD-MM-YY + T |
| 312 | PRINTS ON PC PORT | |
| 313 | PRINTS ON PRINTER PORT | |

| 314 | FORCES PRINTOUT | |
|---|---|---|
| 315 | JUST INPUT 0 TEXT HEADING | XXXXXXXXXXXXXXXX |

in which XXXXXXXXXXXXXXXX are 16 characters of the input 0 text heading; just the entered characters are printed, from left to right.

| 316 | JUST INPUT 1 TEXT HEADING | XXXXXXXXXXXXXXXX |
|---|---|---|
| 317 | JUST INPUT 2 TEXT HEADING | XXXXXXXXXXXXXXXX |
| 318 | JUST INPUT 3 TEXT HEADING | XXXXXXXXXXXXXXXX |
| 319 | JUST INPUT 4 TEXT HEADING | XXXXXXXXXXXXXXXX |
| 320 | JUST INPUT 5 TEXT HEADING | XXXXXXXXXXXXXXXX |
| 321 | JUST INPUT 6 TEXT HEADING | XXXXXXXXXXXXXXXX |
| 322 | JUST INPUT 7TEXT HEADING | XXXXXXXXXXXXXXXX |
| 323 | JUST INPUT 8 TEXT HEADING | XXXXXXXXXXXXXXXX |
| 324 | JUST INPUT 9 TEXT HEADING | XXXXXXXXXXXXXXXX |
| 325 | JUST INPUT 10 TEXT HEADING | XXXXXXXXXXXXXXXX |
| 326 | JUST INPUT 11 TEXT HEADING | XXXXXXXXXXXXXXXX |
| 327 | JUST INPUT 12 TEXT HEADING | XXXXXXXXXXXXXXXX |
| 328 | JUST INPUT 13 TEXT HEADING | XXXXXXXXXXXXXXXX |
| 329 | JUST INPUT 14 TEXT HEADING | XXXXXXXXXXXXXXXX |
| 330 | JUST THE INPUT 0 TEXT CONTENTS | YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY |

in which YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY are 32 characters of the input 0 text contents; just the entered characters are printed, from left to right.

| 331 | JUST THE INPUT 1 TEXT CONTENTS | YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY |
|---|---|---|
| 332 | JUST THE INPUT 2 TEXT CONTENTS | YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY |
| 333 | JUST THE INPUT 3 TEXT CONTENTS | YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY |
| 334 | JUST THE INPUT 4 TEXT CONTENTS | YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY |
| 335 | JUST THE INPUT 5 TEXT CONTENTS | YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY |
| 336 | JUST THE INPUT 6 TEXT CONTENTS | YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY |
| 337 | JUST THE INPUT 7 TEXT CONTENTS | YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY |
| 338 | JUST THE INPUT 8 TEXT CONTENTS | YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY |
| 339 | JUST THE INPUT 9 TEXT CONTENTS | YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY |
| 340 | JUST THE INPUT 10 TEXT CONTENTS | YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY |
| 341 | JUST THE INPUT 11 TEXT CONTENTS | YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY |
| 342 | JUST THE INPUT 12 TEXT CONTENTS | YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY |
| 343 | JUST THE INPUT 13 TEXT CONTENTS | YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY |
| 344 | JUST THE INPUT 14 TEXT CONTENTS | YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY |
| 345 | INPUT 0 TEXT | XXXXXXXXXXXXXXXX**b**YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY + T |

in which XXXXXXXXXXXXXXXX are 16 characters of the heading and
YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY are 32 characters of the input 0 text contents, just the entered characters are printed, from left to right.

| 346 | INPUT 1 TEXT | XXXXXXXXXXXXXXXX**b**YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY + T |
|---|---|---|
| 347 | INPUT 2 TEXT | XXXXXXXXXXXXXXXX**b**YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY + T |
| 348 | INPUT 3 TEXT | XXXXXXXXXXXXXXXX**b**YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY + T |
| 349 | INPUT 4 TEXT | XXXXXXXXXXXXXXXX**b**YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY + T |
| 350 | INPUT 5 TEXT | XXXXXXXXXXXXXXXX**b**YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY + T |
| 351 | INPUT 6 TEXT | XXXXXXXXXXXXXXXX**b**YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY + T |
| 352 | INPUT 7 TEXT | XXXXXXXXXXXXXXXX**b**YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY + T |
| 353 | INPUT 8 TEXT | XXXXXXXXXXXXXXXX**b**YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY + T |
| 354 | INPUT 9 TEXT | XXXXXXXXXXXXXXXX**b**YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY + T |
| 355 | INPUT 10 TEXT | XXXXXXXXXXXXXXXX**b**YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY + T |
| 356 | INPUT 11 TEXT | XXXXXXXXXXXXXXXX**b**YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY + T |
| 357 | INPUT 12 TEXT | XXXXXXXXXXXXXXXX**b**YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY + T |
| 358 | INPUT 13 TEXT | XXXXXXXXXXXXXXXX**b**YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY + T |
| 359 | INPUT 14 TEXT | XXXXXXXXXXXXXXXX**b**YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY + T |
| 360 | INDICATOR DATE | DD/MM/YY |
| 361 | INDICATOR TIME | HH:MM:SS |

| 362 | INDICATOR DATE TIME | DD/MM/YY**b**-**b**HH:MM:SS |
|---|---|---|
| 363 | SKIPS FOLLOWING MACRO TERMINATOR | |
| 364 | ONLY HEADING OF LINE 1 | XXXXXXXXXXXXXXXXXXXXXXXX + T |
| 365 | ONLY HEADING OF LINE 2 | XXXXXXXXXXXXXXXXXXXXXXXX + T |
| 366 | ONLY HEADING OF LINE 3 | XXXXXXXXXXXXXXXXXXXXXXXX + T |

in which XXXXXXXXXXXXXXXXXXXXXXXX are the 24 characters of the first line of the heading; just the entered characters are printed, from left to right.

| 367 | JUST GROSS ON 10 DIGITS | XXXXXXXXXX |
|---|---|---|

the field expands from right to left, with many spaces for completing the field length.

| 368 | JUST NET ON 10 DIGITS | XXXXXXXXXX |
|---|---|---|
| 369 | JUST TARE ON 10 DIGITS | XXXXXXXXXX |
| 370 | ACTIVE SCALE NUMBER | SCALE**b**NUMBER**b**X + T |

in which X is the active scale number (0..4)

| 371 | JUST ACTIVE SCALE NUMBER | X |
|---|---|---|

in which X is the active scale number (0..4)

| 372 | SCALE UNIT OF MEASURE | UM + T |
|---|---|---|
| 373 | JUST DATABASE UNIT OF MEASURE | UM |

The field expands from right to left.

| 374 | TICKET PROGRESSIVE | XXXXX |
|---|---|---|

(progressive number that increases at every general total printing)
the field expands from right tot left, with many spaces for completing the field length.

| 375 | STANDARD KD PROTOCOL STRING | |
|---|---|---|
| 376 | AF0X PROTOCOL STRING | |

By using blocks 375 and 376 it is possible to print the STANDARD or AFXX serial string (see 8.4 TRANSMISSION PROTOCOLS section for the description); the string terminator is the one set in the **tErMin** "SET TERMINATOR TYPE" step in the SET-UP environment (CR or CRLF or no terminator).

| 377 | PRINTS TERMINATOR | CR or CRLF or NO TERMINATOR |
|---|---|---|
| 378 | JUST GENERAL TOTAL OF WRONG CYCLES | XXXXX |

The field expands on 5 digits, from right to left; blank spaces are printed to complete the field.

| 379 | JUST TOTAL OF CYCLES IN TOLERANCE FOR GENERAL TOTAL | XXXXX |
|---|---|---|

The field expands on 5 digits, from right to left.

| 380 | JUST GENERAL TOTAL OF CYCLES MADE | XXXXX |
|---|---|---|
| 381 | JUST DATE OF LAST ZEROING OF GENERAL TOTAL | DD/MM/YY |
| 382 | JUST GENERAL ERROR TOTAL IN THE DOSAGES WITHIN TOLERANCE | XXXXXXXX |

The field expands on 8 digits, from left to right
This field prints the algebraic sum of the difference between the dosed weight and the set target (the error) of each executed dosage activity.
The block refers to the active formula.

| 383 | INTERRUPTED CYCLE ONLY TEXT | **bbbb**INTERRUPTED**b**CYCLE + T |
|---|---|---|
| 384 | WEIGHT ERRORS ONLY TEXT | **b**WEIGHT**b**OUT OF**b**TOLERANCE + T |
| | | WEIGHT**b**BEYOND**b**MAX.**b**TARE + T |
| | | WEIGHT**b**BELOW**b**MIN. **b**TARE + T |
| | | **bb**WEIGHT**b**OUT**b**OF**b**ZERO + T |
| | | **bb**UNSTABLE**b**WEIGHT + T |
| | | END**b**OF**b**MAX **b**DOSAGE**b**TIME + T |
| | | SCALE**b**OUT**b**OF**b**CAPACITY + T |
| | | TIMER**b**ALARM + T |

| 385 | ACTIVITY END LOADING | DOSE**b**XXXXXXUM |
| | | DOSED**b**XXXXXXUM + T |
| | UNLOADING | UNLOADED**bb**XXXXXXXXUM + T |
| | MANUAL DOSAGE | DEMXXXXXXXUM + T |
| | TIMER | ADDXXXXXXXUM**bb**dosed:XXXXXX |
| | PAUSE | ADDXXXXXXXUM**bb**dosed:XXXXXX |

**NOTE**: For the TIMER and PAUSE activities, the macro is printed only if one has enabled the sum of the eventual dosed weight at the end of these activities together with the dosed total weight, in the **Add.t** and **Add.P** parameters**,** TECH.MAN.REF.

| 386 | PARTIAL UNLOADING END | UNLOADED**bb**XXXXXXXXUM + T |
| 387 | CYCLES TOTALS | TARGETXXXXXXXXXXUM |
| | | DOSEDXXXXXXXXXXUM |
| | | OUT OF TOL.XXXXXXXXXXUM + T |

| 388 | CYCLE TOTALS | TARGETXXXXXXXXXXUM |
| | | DOSEDXXXXXXXXXXUM |
| | | OUT OF TOL.XXXXXXXXXXUM + T |

in which TARGET is the TOTAL CYCLES/CYCLE PROGRAMMED, DOSED the TOTAL CYCLES/CYCLE MADE, OUT OF TOL the TOTAL CYCLES/CYCLE OUT OF CAPACITY; XXXXXXXXXX is the weight value on 10 digits including the comma (the field expands from right to left, with many spaces for completing the length of the field); UM indicates the scale's unit of measure..

| 389 | JUST GENERAL TOTAL DOSED OUT OF TOLERANCE | XXXXXXXX |

The field expands on 8 digits, from right to left; blank spaces are printed to complete the field.

| 390 | JUST GENERAL TOTAL DOSED WITHIN TOLERANCE | XXXXXXX; |

The field expands on 8 digits, from right to left; blank spaces are printed to complete the field.

| 391 | JUST DOSED GENERAL TOTAL | XXXXXXXX |

The field expands on 8 digits, from right to left, blank spaces are printed to complete the field.

| 392 | LAST TOTAL DOSED WEIGHT AND TARE | TAREXXXXXXXXXXUM + T |
| | | DOSED CYCLEXXXXXXXXXXUM |
| 393 | JUST "OUT OF T. CYCLES" TEXT | CYCLES OFF |
| 394 | JUST "OK CYCLES" TEXT | CYCLES OK |
| 395 | JUST "ERROR" TEXT | ERROR |
| 396 | JUST "OUT OF TOL." TEXT | OUT OF TOL. |
| 397 | JUST "IN TOLERANCE." TEXT | IN TOLERANCE |
| 398 | JUST "CYCLES TOTAL" TEXT | CYCLES TOTAL |
| 399 | JUST "DOSED TOTAL" TEXT | DOSED TOTAL |
| 400 | JUST "GENERAL TOTAL" TEXT | GENERAL TOTAL |
| 401 | DATABASE UNIT OF MEASURE | UM |
| 402 | JUST LAST TOTAL DOSED WEIGHT | XXXXXXXXXX |

The field expands from right to left, with many spaces for completing the length of the field

| 403 | LAST TOTAL DOSED WEIGHT | DOSED CYCLEXXXXXXXXXXUM |
| 404 | CYCLE REPORT | CYCLE**b**REPORT**b**XX/YY + T |

in which XX indicates the number of dosages made, YY indicates the number of programmed cycle repetitions.

| 405 | FORMULA DESCRIPTION | FORMULA**b**XXXXXXXXXXXXXXXXXXXX + T |

in which XXXXXXXXXXXXXXXXXXXX are the 20 description characters of the selected formula; just the entered characters are printed, from right to left.

| 406 | TYPE OF ACTIVITY | 0X**b**MANUAL DOS.**bbbb** |
| | | 0X**b**AUTOMATIC DOS.**b** |
| | | 0X**b**MANUAL**b**WEIGHT**b** |
| | | 0X**b**UNLOAD**bbbbbbbb** |
| | | 0x**b**TIMER**bbbbbbbbbb** |
| | | 0X**b**WAIT**bbbbbbbbbb** |

The text varies depending on the type of activity carried out.

| 407 | ONLY DESCRIPTION OF ACTIVITY | XXXXXXXXXXXXXXXXXXXX |

408     TARGET                                                      DOSEXXXXXXXXXXXUM + T

in which XXXXXXXXXX is the weight value on 10 digits including the comma (the field expands from right to left, with many spaces for completing the length of the field); UM indicates the unit of measure of the scale.

409     ONLY NUMBER OF LAST CYCLE MADE                                          XXX

It is the last complete cycle made; the field expands on three digits and also the non significant zeros are printed

410     JUST FORMULA DESCRIPTION                             XXXXXXXXXXXXXXXX
411     JUST SELECTED FORMULA TARGET VALUE                          XXXXXXX

The field expands in 8 digits, from right to left; the target is printed just during the execution of the dosage.

412     JUST DOSED TOTAL OF SELECTED FORMULA                        XXXXXXX

The field expands on 8 digits, from right to left; blank spaces are printed to complete the field.

413     JUST OUT OF TOLERANCE DOSED TOTAL OF SELECTED FORMULA        XXXXXXX

The field expands in 8 digits, from right to left; the target is printed just during the execution of the dosage.

414     JUST ERROR TOTAL IN DOSAGES WITHIN TOLERANCE FOR FORMULA TOTAL   XXXXXXX

The field expands on 8 digits from right to left;

This field prints the algebraic sum of the difference between the dosed weight and the set target (the error) of each executed dosage activity.

The block refers to the active formula.

415     JUST TOTAL OF CYCLES MADE FOR SELECTED FORMULA                      XXXXX
416     JUST TOTAL OF WRONG CYCLES FOR SELECTED FORMULA                     XXXXX
417     JUST DATE OF LAST ZEROING OF FORMULA TOTAL                       DD/MM/YY
418     JUST NUMBER OF REPETITIONS OF SELECTED FORMULA                      XXX

The field expands on three digits, from right to left; also the non significant zeros are printed.

419     JUST TOTAL OF CYCLES WITHIN TOLERANCE FOR SELECTED FORMULA          XXXXX
420     JUST TOTAL DOSED WITHIN TOLERANCE FOR SELECTED FORMULA           XXXXXXX

The field expands on 8 digits, from right to left; blank spaces are printed to complete the field.

421     JUST CURRENT CYCLE NUMBER                                          XXX

It is the cycle in execution; the field expands on three digits and also the non significant zeros are printed.

422     JUST TYPE OF ACTIVITY DESCRIPTION                          MAN. DOSAGE   or
                                                                   AUTOMATIC DOS. or
                                                                   MANUAL WEIGHT  or
                                                                   UNLOADING

The text varies depending on the type of activity made.

423     ONLY PROGRESSIVE OF EXECUTED ACTIVITIES                             0X

In which X can take on two different values depending on the type of activity made: 1 automatic or manual dosage, 2 for unloading.

424     JUST SCALE UNIT OF MEASURE IN USE                                   UM

The field expands from right to left.

425     JUST NUMBER OF SCALE IN USE                                          X
426     ONLY DOSED WEIGHT ERROR FOR SELECTED FORMULA                    XXXXXXX

The block expands from right to left; just the significant digits are printed.

427     ONLY ACTIVITY END WEIGHT                                        XXXXXXX

The field expands on 8 digits, from right to left; blank spaces are printed to complete the field.

**NOTE**: For the TIMER and PAUSE activities, the macro is printed only if one has enabled the sum of the eventual dosed weight at the end of these activities together with the dosed total weight, in the **Add.t** and **Add.P** parameters, TECH.MAN.REF.

428     ONLY YEAR IN YY FORMAT                                               YY
429     ONLY MONTH IN MM FORMAT                                              MM
430     ONLY DAY IN DD FORMAT                                                DD
431     ONLY HOUR IN HH FORMAT                                               HH
432     ONLY THE MINUTES IN MM FORMAT                                        MM
433     ONLY CONDITIONED TARE TEXT                                       XXXXXX

XXXXXX becomes TARE**bb** when the tare is equal to 0 or semiautomatic, PT**bbbb** with manual tare.

| | | |
|---|---|---|
| 434 | ONLY CONDITIONED PT TEXT | XX |

XX becomes **bb** with tare equal to 0 or semiautomatic, PT with manual tare.

| | | |
|---|---|---|
| 435 | TIMER ACTIVITY TIMES | TARGET**bbbbbbbb**XXXXX.Xs |
| | | ELAPSED**bbbbbbbb**XXXXX.Xs + T |

In witch TARGET is the programmed time, DELAY is the elapsed time and "s" is the unit of measure (seconds)

| | | |
|---|---|---|
| 436 | PRINTS 3 CRLF | |
| 437 | ACTIVE SCALE NUMBER | SX + T |

in which X is the active scale number (0..4)

| | | |
|---|---|---|
| 438 | JUST CURRENT NET WEIGHT VALUE | XXXXXXXXXX |
| 439 | JUST CURRENT GROSS WEIGHT VALUE | XXXXXXXXXX |
| 440 | JUST CURRENT TARE WEIGHT VALUE | XXXXXXXXXX |

in which XXXXXXXXXX is the value of the weight on the weight system, in 10 digits including the comma; the field expands from right to left.

| | | |
|---|---|---|
| 441 | INDICATOR TIME | HHMMSS |
| 442 | INDICATOR DATE | YYMMDD |
| 443 | JUST "GROSS" TEXT | GROSS**b** |
| 444 | JUST "NET" TEXT | NET**bbb** |
| 445 | JUST "TARE" TEXT | TARE**bb** |
| 446 | ENABLES PAPER PRESENT SENSOR FOR TM295 | |
| 447 | RELEASES PAPER FOR TM295 | |
| 448 | EMISSION AND PAPER RELEASE FOR TM295 | |
| 449 | LARGE FONT FOR TM295 (2,5x6 mm - LxA) | |
| 450 | MEDIUM SIZE FONT FOR TM295 (1,5x6 mm - LxA) | |
| 451 | SMALL FONT FOR TM295 (1,5x3 mm - LxA) | |
| 452 | MEDIUM SIZE FONT FOR LX300 | |
| 453 | LARGE FONT FOR LX300 | |
| 454 | SMALL FONT FOR LX300 | |
| 455 | LARGE FONT FOR DP190 (3x5 mm - LxA) | |
| 456 | MEDIUM SIZE FONT FOR DP190 (1,5x5 mm - LxA) | |
| 457 | SMALL FONT FOR DP190 (1,5x2,5 mm - LxA) | |
| 458 | STARTS BARCODE 39 FOR THERMAL DP190 | |
| 459 | ENABLES TIME - OUT FOR TM295 | |

| | | |
|---|---|---|
| 460 | ONLY LAST DOSED WEIGHT | XXXXXXXX |

It is the last net weight actually dosed, in which XXXXXXX is the weight value on 8 digits including the comma (the field expands from right to left, with many spaces for completing the length of the field).

| | | |
|---|---|---|
| 461 | FORMULA TARGET | TARGET**bbbbbbbb**XXXXXXXXUM + T |

in which XXXXXXXX is the weight value on 8 digits including the comma (the field expands from right to left, with many spaces for completing the length of the field); UM indicates the unit of measure of the archive.

| | | |
|---|---|---|
| 462 | LAST DOSED WEIGHT | DOSED WEIGHT**bbbbbbbb**XXXXXXXXUM + T |

It is the last net weight actually dosed, in which XXXXXXX is the weight value on 8 digits including the comma (the field expands from right to left, with many spaces for completing the length of the field); UM indicates the unit of measure of the archive

| | | |
|---|---|---|
| 463 | DOSED WEIGHT | DOSED WEIGHT**bbbbbbbb**XXXXXXXXUM + T |

in which XXXXXXXX is the weight value on 8 digits including the comma (the field expands from right to left, with many spaces for completing the length of the field); UM indicates the unit of measure of the scale.

| | | |
|---|---|---|
| 464 | JUST "CYCLE REPORT" TEXT | CYCLE REPORT |
| 465 | JUST "CYCLES REPORT" TEXT | CYCLES REPORT |
| 466 | JUST "START PRODUCTION" TEXT | START PRODUCTION |
| 467 | JUST "END PRODUCTION" TEXT | END PRODUCTION |
| 468 | FIRST PRODUCTION TARGET CONTENT | YYY**bb**XXXXXXXXXXXXXXXXAAAAAAAAUM + T |

In which YYY is formula number, XXXXXXXXXXXXXXXX is 16 characters of formula description, AAAAAAAA is the weight value on 8 digits including the comma (the field expands from right to left, with many spaces for completing the length of the field); UM indicates the unit of measure of the scale.

| | | |
|---|---|---|
| 469 | SECOND PRODUCTION TARGET CONTENT | YYY**bb**XXXXXXXXXXXXXXXXAAAAAAAAUM + T |
| 470 | THIRD PRODUCTION TARGET CONTENT | YYY**bb**XXXXXXXXXXXXXXXXAAAAAAAAUM + T |

471    FOURTH PRODUCTION TARGET CONTENT          YYY**bb**XXXXXXXXXXXXXXXXAAAAAAAAUM + T
472    FIRST PRODUCTION DOSED CONTENT          YYY**bb**XXXXXXXXXXXXXXXXBBBBBBBBUM + T
In which YYY is formula number, XXXXXXXXXXXXXXXX is 16 characters of formula description, BBBBBBBB is the dosed material value on 8 digits including the comma (the field expands from right to left, with many spaces for completing the length of the field); UM indicates the unit of measure of the scale.
473    SECOND PRODUCTION DOSED CONTENT          YYY**bb**XXXXXXXXXXXXXXXXBBBBBBBBUM + T
474    THIRD PRODUCTION DOSED CONTENT          YYY**bb**XXXXXXXXXXXXXXXXBBBBBBBBUM + T
475    FOURTH PRODUCTION DOSED CONTENT          YYY**bb**XXXXXXXXXXXXXXXXBBBBBBBBUM + T
476    TOTAL PRODUCTION TARGET          TOTAL**bbbbbbbb**XXXXXXXXUM + T
in which XXXXXXXX is the weight value on 8 digits including the comma (the field expands from right to left, with many spaces for completing the length of the field); UM indicates the unit of measure of the scale.
477    TOTAL PRODUCTION DOSED WEIGHT          DOSED**bbbbbbbb**XXXXXXXXUM + T
XXXXXXXX is the dosed material value on 8 digits including the comma (the field expands from right to left, with many spaces for completing the length of the field); UM indicates the unit of measure of the scale.
478    THE NUMBER OF PRODUCTION FORMULA          PRODUCTION FORMULA:**b**X + T
In which X is active production formula number.
479    JUST FIRST PRODUCTION FORMULA NUMBER          XXX
In which XXX is formula number.
480    JUST FIRST PRODUCTION FORMULA DESCRIPTION          XXXXXXXXXXXXXXXX
In which XXXXXXXXXXXXXXXX is 16 characters of formula description.
481    JUST FIRST PRODUCTION TARGET WITH UNIT OF MEASURE          XXXXXXXXUM
in which XXXXXXXX is the weight value on 8 digits including the comma (the field expands from right to left, with many spaces for completing the length of the field); UM indicates the unit of measure of the scale.
482    JUST FIRST PRODUCTION DOSED WEIGHT WITH UNIT OF MEASURE          XXXXXXXXUM
in which XXXXXXXX is the dosed material value on 8 digits including the comma (the field expands from right to left, with many spaces for completing the length of the field); UM indicates the unit of measure of the scale.
483    JUST SECOND PRODUCTION FORMULA NUMBER          XXX
In which XXX is formula number.
484    JUST SECOND PRODUCTION FORMULA DESCRIPTION          XXXXXXXXXXXXXXXX
In which XXXXXXXXXXXXXXXX is 16 characters of formula description.
485    JUST SECOND PRODUCTION TARGET WITH UNIT OF MEASURE          XXXXXXXXUM
in which XXXXXXXX is the weight value on 8 digits including the comma (the field expands from right to left, with many spaces for completing the length of the field); UM indicates the unit of measure of the scale.
486    JUST SECOND PRODUCTION DOSED WEIGHT WITH UNIT OF MEASURE          XXXXXXXXUM
in which XXXXXXXX is the dosed material value on 8 digits including the comma (the field expands from right to left, with many spaces for completing the length of the field); UM indicates the unit of measure of the scale.
487    JUST THIRD PRODUCTION FORMULA NUMBER          XXX
In which XXX is formula number.
488    JUST THIRD PRODUCTION FORMULA DESCRIPTION          XXXXXXXXXXXXXXXX
In which XXXXXXXXXXXXXXXX is 16 characters of formula description.
489    JUST THIRD PRODUCTION TARGET WITH UNIT OF MEASURE          XXXXXXXXUM
in which XXXXXXXX is the weight value on 8 digits including the comma (the field expands from right to left, with many spaces for completing the length of the field); UM indicates the unit of measure of the scale.
490    JUST THIRD PRODUCTION DOSED WEIGHT WITH UNIT OF MEASURE          XXXXXXXXUM
in which XXXXXXXX is the dosed material value on 8 digits including the comma (the field expands from right to left, with many spaces for completing the length of the field); UM indicates the unit of measure of the scale.
491    JUST FOURTH PRODUCTION FORMULA NUMBER          XXX
In which XXX is formula number.
492    JUST FOURTH PRODUCTION FORMULA DESCRIPTION          XXXXXXXXXXXXXXXX
In which XXXXXXXXXXXXXXXX is 16 characters of formula description.
493    JUST FOURTH PRODUCTION TARGET WITH UNIT OF MEASURE          XXXXXXXXUM
in which XXXXXXXX is the weight value on 8 digits including the comma (the field expands from right to left, with many spaces for completing the length of the field); UM indicates the unit of measure of the scale.
494    JUST FOURTH PRODUCTION DOSED WEIGHT WITH UNIT OF MEASURE          XXXXXXXXUM
in which XXXXXXXX is the dosed material value on 8 digits including the comma (the field expands from right to left, with many spaces for completing the length of the field); UM indicates the unit of measure of the scale.

| 495 | JUST THE OPERATION RESULT |
| 496 | JUST 1 INSERED DATA |
| 497 | JUST 2 INSERED DATA |
| 498 | JUST OPERATION TYPE |
| 499 | PRINT DGTQF REMOTE ADDRESS |
| 500 | JUST 2 FORMULA DESCRIPTION |
| 501 | PRINT ONLY SET/REAL TARGET FORMULA |
| 502 | PRINT HEADER AND SET/REAL TARGET FORMULA |

## 10.4 BLOCKS WITH PARAMETERS

When entering the following blocks manually in a print ticket, these require that an additional numeric value be entered (specified in detail in the block's description) in order to define the print ticket which one wants to obtain.

EXAMPLE

Entry of the 600 "PRINT n TERMINATORS" block:
- Enter the 600 block in a ticket and confirm with **ENTER**.
- The indicator does not pass by the block present in the following line, but shows "000".
- Enter a value between 001 and 050; for values outside this interval the indicator shows "-Error-", restoring the block before entering the block 600.
- By entering a valid value, the block will print a number of terminators equal to the one previously entered.

| 600 | PRINTS n TERMINATORS | Values valid from 001 to 050 |
| 601 | PRINTS n LF CHARACTERS | Values valid from 001 to 050 |
| 602 | PRINTS n TAB CHARACTERS | Values valid from 001 to 050 |
| 603 | PRINTS n SPACE CHARACTERS | Values valid from 001 to 050 |
| 604 | PRINTS n "_" CHARACTERS | Values valid from 001 to 050 |
| 605 | LEFT MARGIN FOR LX300 | Values valid from 001 to 255 |
| 606 | NET WEIGHT ON X DIGITS | Values valid in the **nXX** format |
| 607 | GROSS WEIGHT ON X DIGITS | Values valid in the **nXX** format |
| 608 | TARE WEIGHT ON X DIGITS | Values valid in the **nXX** format |

in which **n** can be:

| 0 | Value with decimal point and spaces |
| 1 | Value with decimal point and zeros in the place of spaces |
| 2 | Value without decimal point and zeros in the place of spaces |

**XX** is the field length (maximum enterable value is 20); if the weight value is greater than the number of entered digits, the complete value is printed anyways.

################

**EXAMPLE**

With a weight value of 100.01, if one wants a length of 10 characters, in the three cases one will have:

| Parameter | Result |
|---|---|
| 010 | 100.01 |
| 110 | 0000100.01 |
| 210 | 0000010001 |

################

| 609 | SET VALUE IN THE ACCUMULATOR | Values valid in the **XXX** format |

In which **XXX** can be:

| 000 | Net weight. |
| 001 | Gross weight. |
| 002 | Tare weight. |

| 610 | SETS VALUE DECIMALS IN THE ACCUMULATOR | Values valid in the **XXX** format |

in which **XXX** can be:
000     No decimal
001     1 decimal
002     2 decimals
003     3 decimals
004     4 decimals
**NOTE: if no decimals are set, the ones of the scale are used.**

611     SETS CONVERSION UNIT OF MEASURE OF THE ACCUMULATOR VALUE
Values valid in the **XXX** format in which **XXX** can be:
000     g
001     kg
002     t
003     lb
Then if the weight is expressed in grams and one uses the [611; 001] macro, the value will be converted into kg.
**NOTE: if no unit of measure has been set, the one of the scale is used.**

612     PRINTS VALUE LOADED IN THE ACCUMULATOR                    Values valid in the **nXX** format
In which **n** can be:
0          Value with decimal point and spaces
1          Value with decimal point and zeros in the place of spaces
2          Value without decimal point and zeros in the place of spaces

**XX** is the length of the field (maximum enterable value is 20); if the weight value is greater than    the    number    of
entered digits, the complete value is printed anyways.

################
**EXAMPLE**
The scale is with three decimals and the unit of measure is the kg; one wants to print the net weight with two
decimals converted in pounds, expressed in 7 digits without decimal points, with non significant zeros filling in the
eventual spaces present.

One should set the following macros:

…
609 >>> enter parameter 000
610 >>> enter parameter 002
611 >>> enter parameter 003
612 >>> enter parameter 207

….
If the net weight of the scale corresponds to 2,480 kg, the printed value will be **0000547**
###############
613     SET OUTPUT FUNCTIONING                                  Values valid in the **nXX** format
In which **n** is the  status:
0          OFF
1 or 2   ON

**XX** is the number of the output to be enabled, from 00 to 15.

If one needs to manage various printers using the available outputs (connecting the transmission of the printer port
on the common of the outputs), follow the example in macro 624

614     EAN/UCC CHECKDIGIT ON X PREVIOUS DIGITS                   Values valid in the **XX** format
615     CONVERSION OF THE "." (POINT) CHARACTER IN THE "," (COMMA) CHARACTER
IN THE PREVIOUS X DIGITS                                    Values valid in the **XX** format

**NOTE: if one uses the 614 and 615 blocks, one should enter the block 314 "FORCES PRINTING" before the**

**blocks that need to be converted.**

**EXAMPLE**
314     FORCES PRINTING
307     PRINTS NET WEIGHT
615 >>> parameter 20   CONVERSION OF THE "." (POINT) CHARACTER IN THE "," (COMMA)

The net weight value will be printed with the comma instead of with the point

617   PRINT DIRECTION FOR MASTER / SLAVE SYSTEM    Valid values **000, 001, 002**
000 → Prints only on the SLAVE.
001 → Prints only on the MASTER.
002 → Prints only on the indicator which is being used.

620   CLEARING INPUT TEXT CONTENTS                                                      Values valid in the **nXX** format
This macro allows to print an input text content or to clear the contents of the input text content.

**n** can be:
0       to print
1       to clear.

**XX** is the number of the input text (XX = 01 to clear the text contents of input 0, XX=15 to clear the contents of the text of input 14, XX=00 to clear all the contents of the input texts).

621   SETTING THE ALIGNMENT AND NUMBER OF FORMATTING CHARACTERS      Values valid in the **nXX** format
This macro, followed by 620, allows to align to the right or to the left, the contents of the following macro in regards to the defined number of characters.

**n** can be:
0       to set the alignment to the right
1       to set the alignment to the left

**XX** is the number of formatting characters.

See the example in the 620 macro.

622   SETTING THE FILLING CHARACTER OF THE FOLLOWING MACRO           Values valid in the **XXX** format.
This macro allows to set the filling character of the following macro.

**XXX** corresponds to the ASCII decimal character (from 001 to 255).

################
**EXAMPLE**
If one wants to print on the right the contents of the 437 macro (NUMBER OF ACTIVE SCALE) one puts the "-" character (ASCII decimal 045) as filling on the left.

The macro contains 17 characters; therefore if the print line is 24 one should set the following macros:
…
619 >>> enter parameter 024
620 >>> enter parameter 045
437
….
################

623    CONFIRMATION "WAIT" FROM PC OR BY PRESSING OF **C** KEY                    Values valid in the **XXX** format
This macro allows to block the indicator and view the message "WAIT" on the display, after having forced the printing of the previous macros, and waiting for the character confirming that the reception has been made by the PC. In any case it's possible to unlock the indicator by pressing the **C** key.
Once unlocked, the indicator will print the eventual following macros.

**XXX** corresponds to the ASCII decimal character to be received in order to unlock the indicator (from 001 to 255, or 000 in case one wants to wait for the "PCOK" command).

**NOTE**: It's possible to enter more than one confirmation "wait" in the same print format.

#################
**EXAMPLE**
One wants to lock the indicator after printing a series of data; then one waits for the "-" confirmation character (ASCII decimal 045) and, once received, transmit other data.

One should set the following macros:

…
301
302
303
616 >>> enter parameter 045          Setting the wait of the "-" character (ASCII decimal 045)
304
305
306

…
################

624    SETTING THE THRESHOLD OF PRINT START OR THE NUMBER OF CHARACTERS TO BE PRINTED FOR THE INPUT TEXT CONTENTS                    Values valid in the **nXX** format
This macro allows to define which part of the contents of an input text which is to be printed in the 621 macro.

**n** can be:
0       for setting the threshold beginning;
1       for setting the characters to be printed.

**XX** is the threshold beginning if **n** = 0 or the characters to be printed if **n** = 1.

See the example in the 618 macro.

626    FORCES PRINTOUT AND TIME WAIT                    Values valid in the **XXX** format
Besides the force printout function it also waits for a period of time.

**XXX**     Wait time (up to 200dsec); for example "001" is equal to 0,1 seconds; "010" equals to 1 second.

**EXAMPLE**
With the need to manage various printers through the available outputs (by connecting the transmission of the printer port on the common of the outputs), as follows:

PRINTING OF THE NET WEIGHT ON OUTPUT 1, GROSS ON OUTPUT 2, TARE ON OUTPUT 3.
One should set the following macros:
…
613 >>> enter parameter 100 ((OUT 1 ON)
613 >>> enter parameter 001 ((OUT 2 OFF)
613 >>> enter parameter 002 ((OUT 3 OFF)

624 >>> enter parameter 001 (0,1 seconds)
301 (Net weight)
624 >>> enter parameter 001 (0,1 seconds)
613 >>> enter parameter 000 (OUT 1 OFF)
613 >>> enter parameter 101 (OUT 2 ON)
613 >>> enter parameter 002 (OUT 3 OFF)
624 >>> enter parameter 001 (0,1 seconds)
302 (Gross weight)
624 >>> enter parameter 001 (0,1 seconds)
613 >>> enter parameter 000 (OUT 1 OFF)
613 >>> enter parameter 001 (OUT 2 OFF)
613 >>> enter parameter 102 (OUT 3 ON)
624 >>> enter parameter 001 (0,1 seconds)
303 (Tare weight)
624 >>> enter parameter 001 (0,1 seconds)
…

627     QUEUE PRINTING FORMAT                                   Values valid in the **XXX** format
This macro allows to queue one printout format and print this one at the end of the format.

**XXX** is the number of printout format that will be printed at the end of the format, from 0 to 29 (**0** = **Prn.F.1** , **29** = **Prn.F.30**
################
**EXAMPLE**
One wants to print the GROSS, TARE and NET values and, at the end, the headers (**Prn.F.2**)
One should set the following macros:

…
625>>> enter parameter 001
307
308
309

…
################

**628**     SELECTION OF FROZEN OR IMMEDIATE VALUE     Values valid in the **XXX** format
This macro allows to select the type of value of the following macros:

**NET:**
301
303 (TARE= GROSS – **NET**)
606
609
**GROSS:**
302
303 (TARE= **GROSS** – NET)
607
609
**TARE:**
608
609

Values valid in the **XXX** format in which **XXX** can be:
000     frozen
001     immediate
**NOTE**: this macro operates in all the printout format.

**637**     BUFFER REDIRECTION                                     Valid values in the format **XXX**
Where  XXX can be :
-001 inserted into the buffer redirect all the data that follow the macro and prints them
-002 inserted into the buffer redirect all data following the macro (without printing)
-003 print the data buffer of redirections
-004 deleted all data in the buffer

**638**     PRINTS ACTIVITY DESCRIPTION                          Values valid in the **XXX** format
The macro allows to print activity description after the cycle dosage is terminated.

**XXX** is the activity number in the formula (for example, if XXX is set on 000, it corresponds with first activity in the formula).

**639**     PRINTS ACTIVITY TYPE                                       Values valid in the **XXX** format
The macro allows to print activity type after the cycle dosage is terminated.

**XXX** is the activity number in the formula (for example, if XXX is set on 000, it corresponds with first activity in the formula).

**640**     PRINTS ACTIVITY NUMBER                                Values valid in the **XXX** format
The macro allows to print activity number after the cycle dosage is terminated.

**XXX** is the activity number in the formula (for example, if XXX is set on 000, it corresponds with first activity in the formula).

**641**     PRINTS DOSED WEIGHT OF THE ACTIVITY                  Values valid in the **XXX** format
The macro allows to print dosed weight of the activity after the cycle dosage is terminated.

**XXX** is the activity number in the formula (for example, if XXX is set on 000, it corresponds with first activity in the formula).

642    PRINTS TARGET OF THE ACTIVITY                                    Values valid in the **XXX** format
The macro allows to print target of the activity after the cycle dosage is terminated.

**XXX** is the activity number in the formula (for example, if XXX is set on 000, it corresponds with first activity in the formula).

643    PRINTS DOSED WEIGHT OF THE ACTIVITY                       Values valid in the **XXX** format
The macro allows to print dosed weight of the activity after the cycle dosage is terminated.
The decimal of the dosed weight depends on the one of the calibration.

**XXX** is the activity number in the formula (for example, if XXX is set on 000, it corresponds with first activity in the formula).

644    PRINTS TARGET OF THE ACTIVITY                                    Values valid in the **XXX** format
The macro allows to print target of the activity after the cycle dosage is terminated.
The decimal of the target depends on the one of the calibration.

**XXX** is the activity number in the formula (for example, if XXX is set on 000, it corresponds with first activity in the formula).

645    PRINTS SCALE NUMBER FOR THE ACTIVITY                    Values valid in the **XXX** format
The macro allows to print scale number on which the activity executes after the cycle dosage is terminated.

**XXX** is the activity number in the formula (for example, if XXX is set on 000, it corresponds with first activity in the formula).

646    PRINTS THE UNIT OF MEASURE OF THE ACTIVITY           Values valid in the **XXX** format
The macro allows to the unit of the measure of the activity after the cycle dosage is terminated.

**XXX** is the activity number in the formula (for example, if XXX is set on 000, it corresponds with first activity in the formula).

# 11. ELECTRICAL CONNECTION SCHEMES

## 11.1 CPWE BACK PANEL
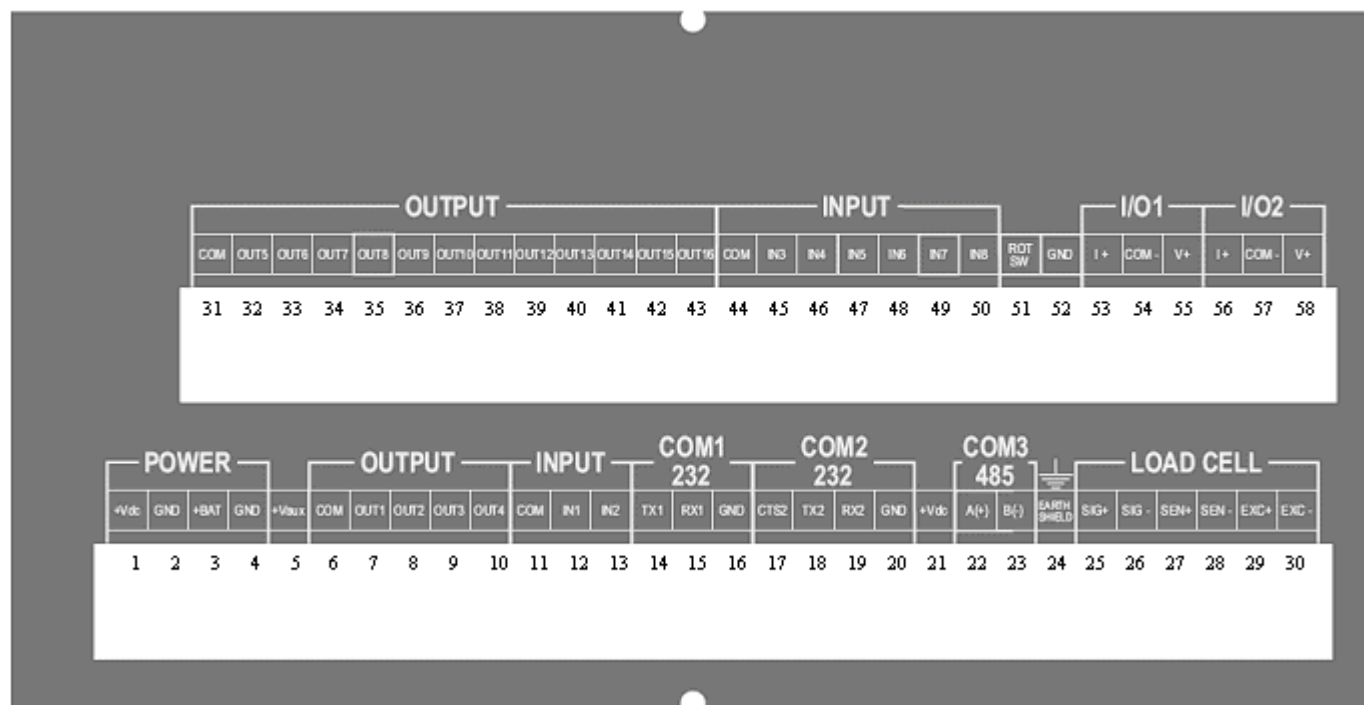
## 11.2 MOTHER BOARD
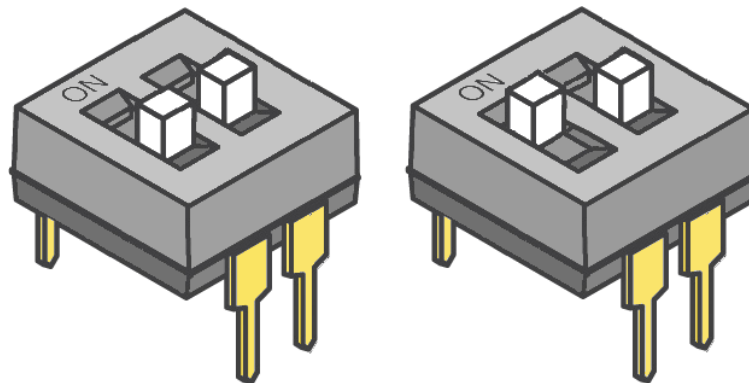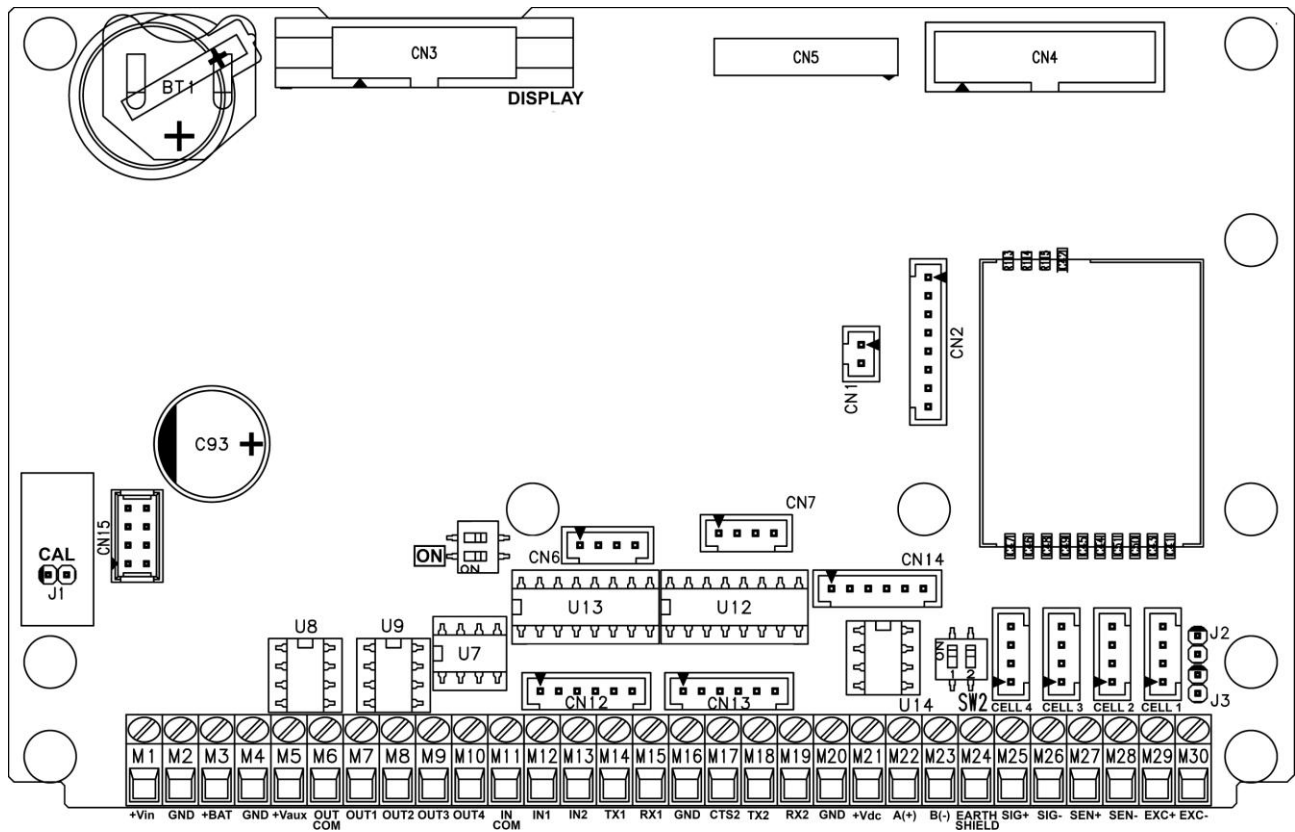


**There aren't differences between two switches, doesn't matter which is "ON", is enough activate only one**

**ON SW:**
- If closed, one can automatically turn on the instrument, as soon as the power voltage is supplied, one must also turn off the instrument by removing the mains voltage.
- If open, one can turn the instrument on and off by just pressing the ON key.

**J2, J3 (SENSE):** if closed, REFERENCE + and POWER SUPPLY +, REFERENCE - and POWER SUPPLY – are jumpered on the board

**J1:** if opened it enables the access to the metrological parameters, when configuring.

**SERIAL PORTS (refer to section 5)**

| COM 1 | COM 2 | COM 3 |
|---|---|---|
| Connector AMP CN12: serial 232 | Connector AMP CN13: serial 232 | Connector AMP CN14: serial 232 |
| Terminals 14-15-16: serial 232 | Terminals 16-17-18-19: serial 232 | Terminals 22-23: serial 485 (U14) |

**IMPORTANT:**
In the case of RS485 connection, read carefully and apply what is described in chapter 5.1.

**POWER SUPPLY**

| 6 Vdc BATTERY POWER SUPPLY | +Vdc POWER SUPPLY | V-AUX AUXILIARY POWER SUPPLY | +Vdc (OUT) POWER SUPPLY |
|---|---|---|---|
| 4 GND   (0 Vdc)<br>3 +BAT   (+ 6 Vdc) | 2 GND    (0 V)<br>1  +Vdc     (+12 Vdc, 8 ÷ 36 Vdc with I/O expansion board connected ) | 4    GND    (0 V)<br>5    +Vaux   (5,3 –8 Vdc 400 mA max) | 20 GND (0 V)<br>21 +Vdc (+12V only if connected to the power supply) |

**CELL LOAD RECEIVER (terminal board connection)**

| 25 | **SIG+** | SIGNAL + |
|---|---|---|
| 26 | **SIG-** | SIGNAL - |
| 27 | **SENS+** | SENSE + |
| 28 | **SENS-** | SENSE - |
| 29 | **EXC+** | EXCITATION + |
| 30 | **EXC-** | EXCITATION - |

**INPUTS (OPTOISOLATOR PHOTOCOUPLERS)**
Power supply: 12 Vdc ÷ 24 Vdc max 20 mA.

**PHOTOMOSFET OUTPUTS**
Maximum power: 48 Vac or 60 Vdc, 150 mA max., 10 ohm max

**!! IMPORTANT!!**

The optoisolation of the inputs and outputs is obtained by powering the common of the outputs and/or of the inputs by using a voltage outside the instrument.

**RS232 SERIAL PORT (RJ45 CONNECTOR) (\*)**
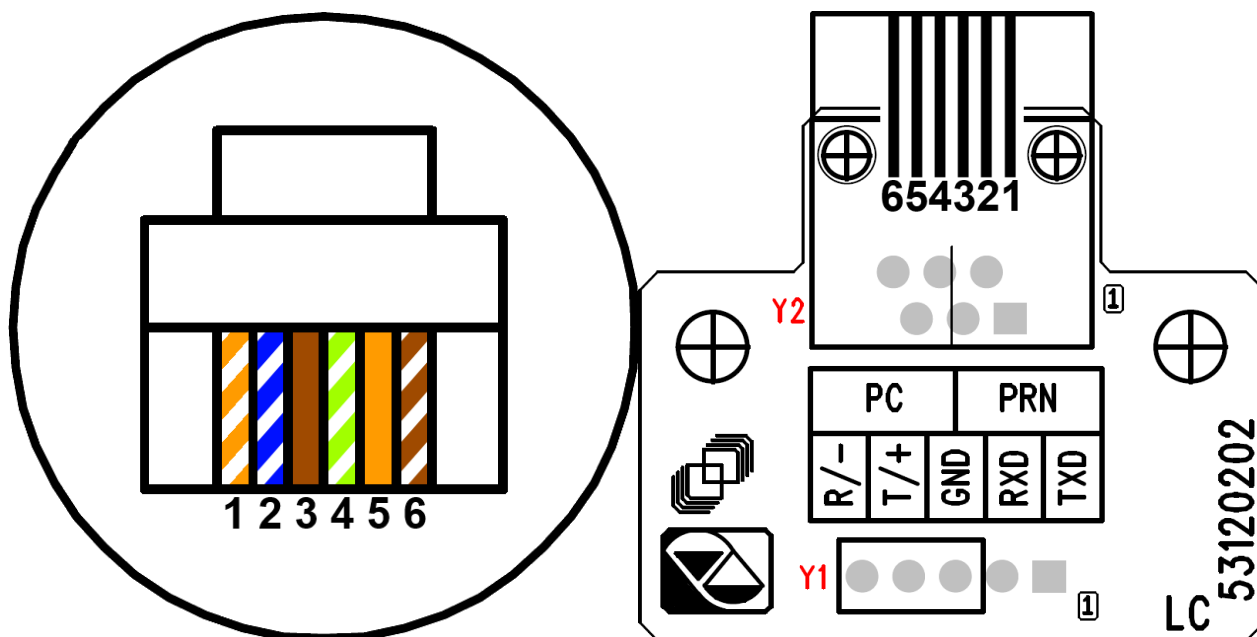


**PLUG6 CONNECTIONS:**

| Y2 | PLUG6 | DB9 | COLOR | | MEANING |
|----|-------|-----|-------|------|---------|
| 1 | 1 | | ORANGE | WHITE | |
| 2 | 2 | 3 | BLUE | WHITE | RX |
| 3 | 3 | | BROWN | | |
| 4 | 4 | 5 | GREEN | WHITE | GND |
| 5 | 5 | 2 | ORANGE | | TX |
| 6 | 6 | | BROWN | WHITE | |

**(\*) May be present depending on the model.**

**!! IMPORTANT !!**
Use 6-pin RJ12 connector, because the 8-pin connector doesn't fit into the hole of the weight indicator.

## 11.3  I/O EXPANSION BOARD (fitted with 3590EXT in IO version or CPWE)
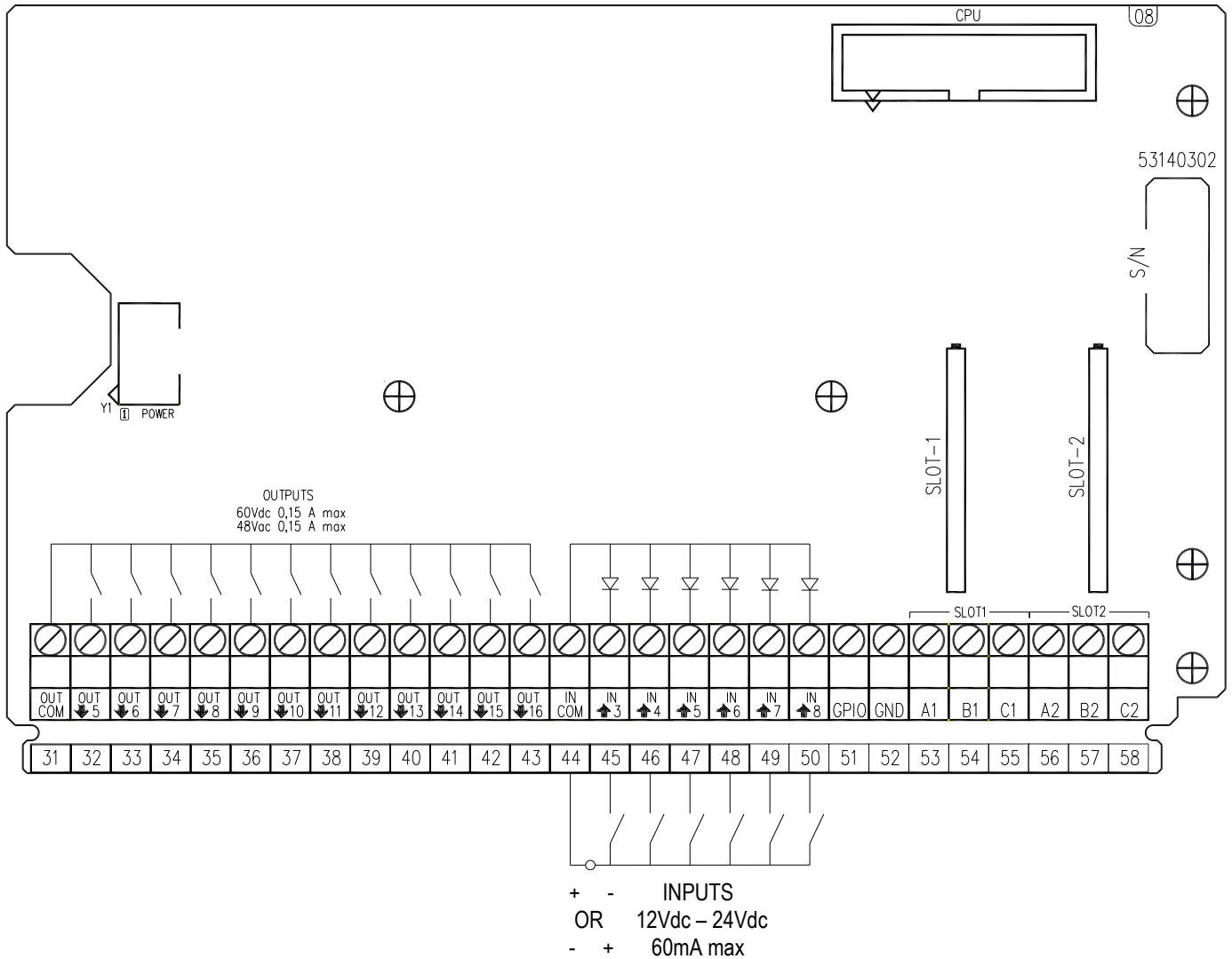


**ANALOGUE OUTPUT**

| I/O1 (SLOT 1): | | I/O2 (SLOT 2): | |
|---|---|---|---|
| 53 | I+ (A1)      + 20 mA | 56 | I+ (A2)      + 20 mA |
| 54 | COM- (B1) 0 mA / V | 57 | COM- (B2) 0 mA / V |
| 55 | V+ (C1)     + 10 V | 58 | V+ (C2)     + 10 V |

**Note**: the maximum resistance applicable on the output current is 350 Ohm and the minimum resistance applicable on the output voltage is 10 kohm.

**INPUTS (OPTOISOLATOR PHOTOCOUPLERS)**
Power supply: 12 Vdc ÷ 24 Vdc max 20 mA.

**PHOTOMOSFET OUTPUTS**
Maximum power: 48 Vac or 60 Vdc, 150 mA max., 10 ohm max
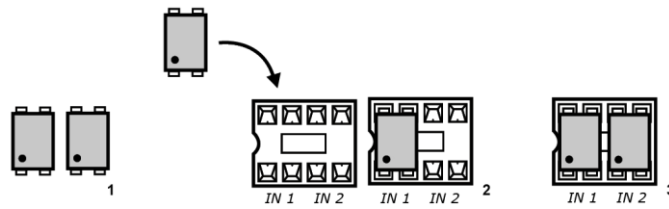
**!! IMPORTANT!!**

The optoisolation of the inputs and outputs is obtained by powering the common of the outputs and/or of the inputs by using a voltage outside the instrument.
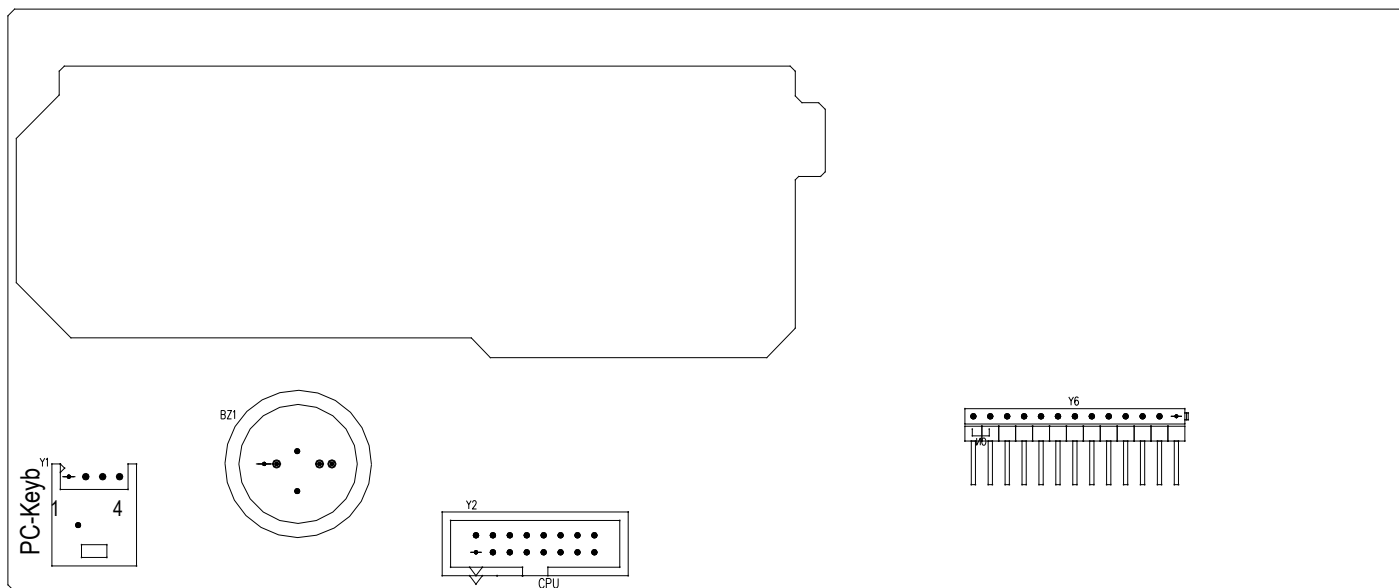
## 11.4 INTEGRATED CIRCUITS INSTALLATION

It is necessary follow this procedure to install Input, Output and RS485 integrated circuits:

## INPUT

IN 1    IN 2        IN 1    IN 2        IN 1    IN 2

1

2

3

OK!          NO

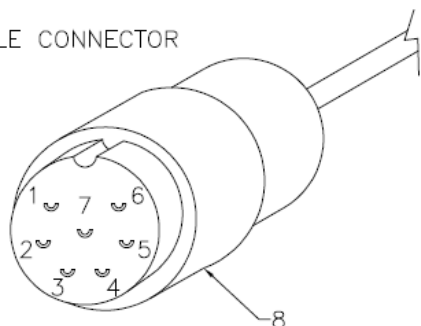| 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
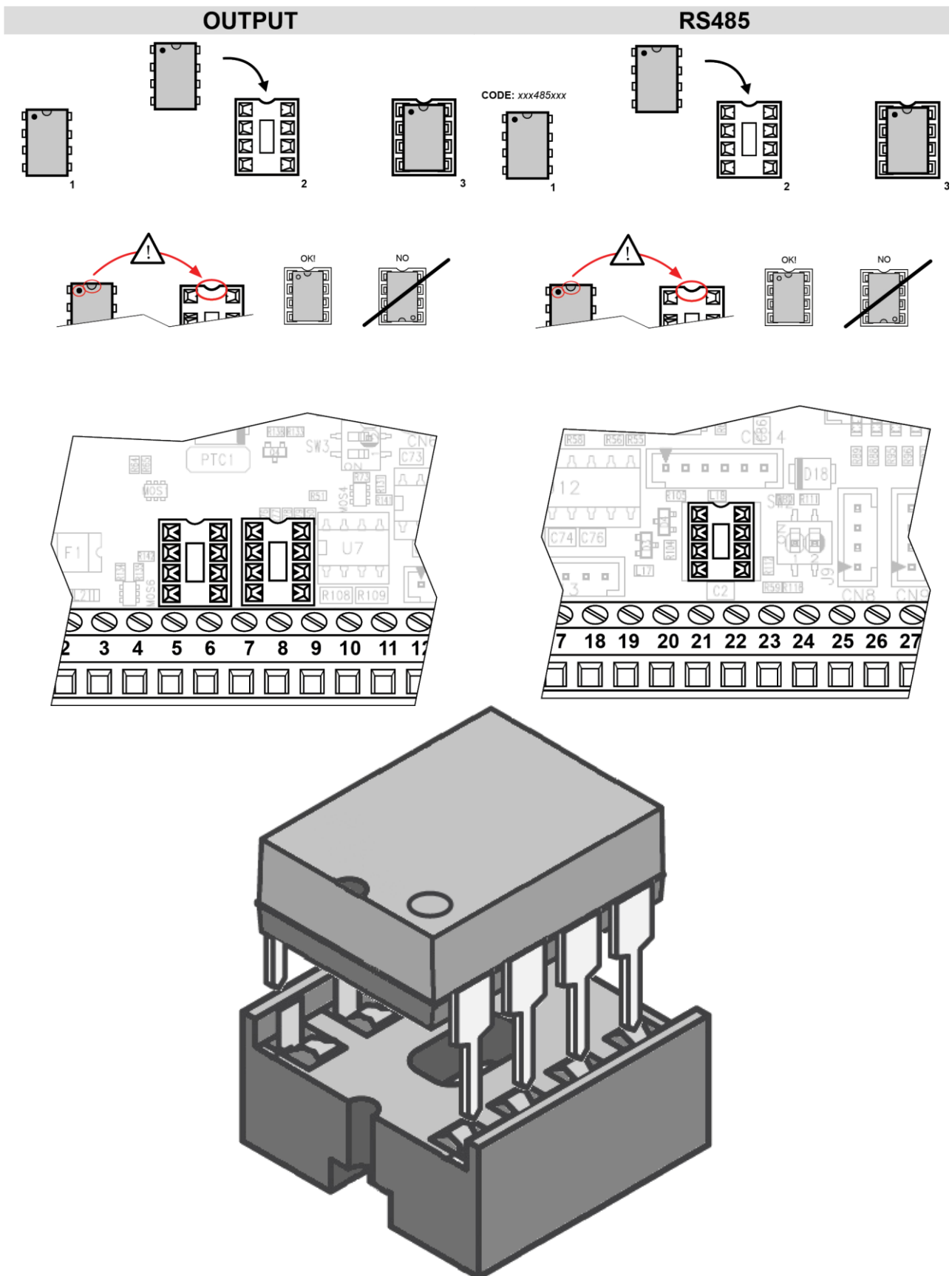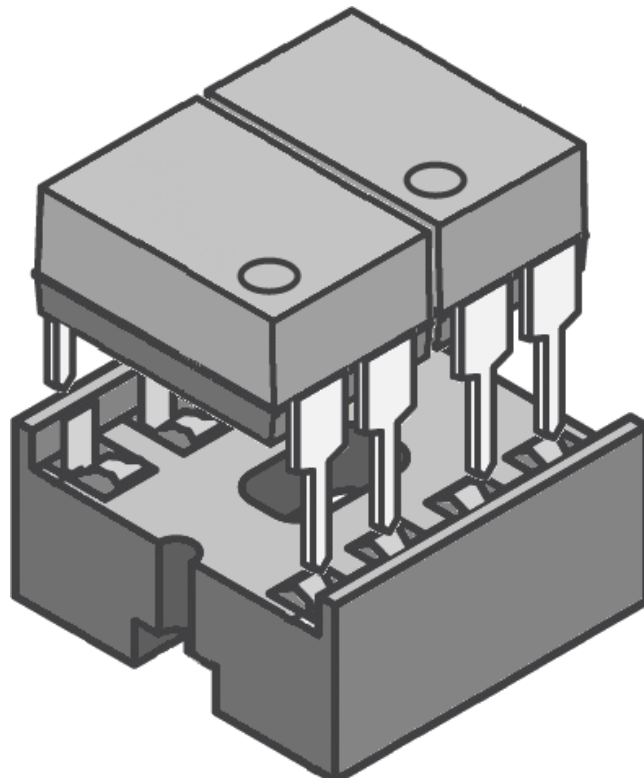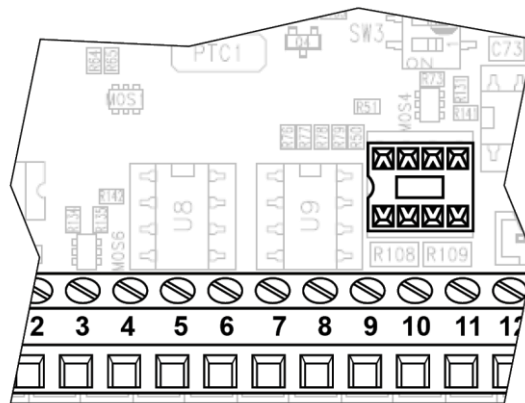
## 11.5  DISPLAY BOARD



### PC-Keyb – PC KEYBOARD CONNECTOR
Keyboard emulation input, usable for the connection of the instrument to the PC keyboard or the badge/bar code reader.

| PC-KEYB | | | PS/2 |
|---|---|---|---|
| 1 | +5V | | 4 |
| 2 | GND | | 3 |
| 3 | DATA | | 1 |
| 4 | CLK | | 5 |

## 11.6 LOAD CELL CONNECTOR CIRCUIT DIAGRAM



7 PIN FEMALE CONNECTOR

1 INPUT +
2 INPUT −
3 SENS −
4 SENS +
5 OUTPUT −
6 OUTPUT +
7 not connected
8 SHIELD TO BE FOLDED AND PLACED UNDER THE CONNECTOR CABLE TIGHTENER