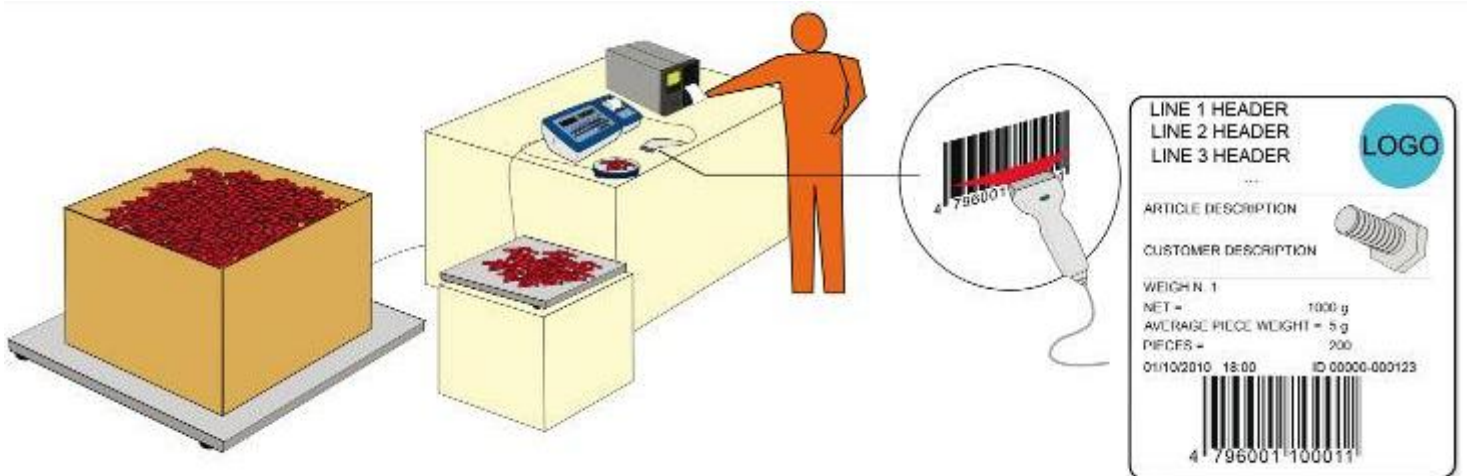# TECHNICAL MANUAL
WEIGHT INDICATOR

E-AF02: PROGRAM VERSION FOR QUANTITY (PIECES, LITRES, ETC.) COUNTING SYSTEMS

3590EKR, 3590EXP, 3590EXT, CPWE, CPWET series indicator

INDEX

1. REQUIREMENTS FOR AN OPTIMAL 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	
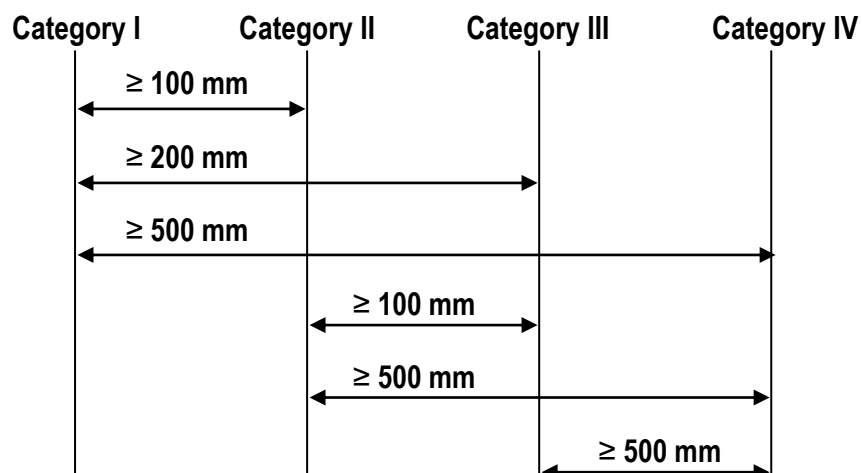
1.1.3 MAXIMUM CABLE LENGTH

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

RS485 CABLE
The maximum reachable length with the use of the appropriate cable for RS 485 connections (see section 5.1), 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 the cells cables and of the 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 at a distance that is greater than 10 m, or in the presence of noise, the cable shielding 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 mm^2; 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 mm^2.

CONNECTED SERIAL CABLES AND INSTRUMENTS

Connect the shielding 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 large 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 mm^2.

  - 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.

EARTHING EXAMPLE WEIGHBRIDGE

U-BOLT BETWEEEN PLATE UNDER
CELL AND WEIGHBRIDGE
(NOT SUPPLIED)

WEIGHBRIDGE

LOAD CELL

PLATE
UNDER CELL
(NOT SUPPLIED)

JB8Q POSITIONED ON
THE WALL
SURROUNDING THE PIT

Ø 8 (50 mm² section)
Ø 11,3 (100 mm² section)
EARTH CABLES
(NOT SUPPLIED)

GROUND POLE
POSITIONED UNDER
OR NEAR
WEIGHBRIDGE (NOT
SUPPLIED)

COPPER HOLED PLATE
ON THE SURROUNDING
WALL (NOT SUPPLIED)
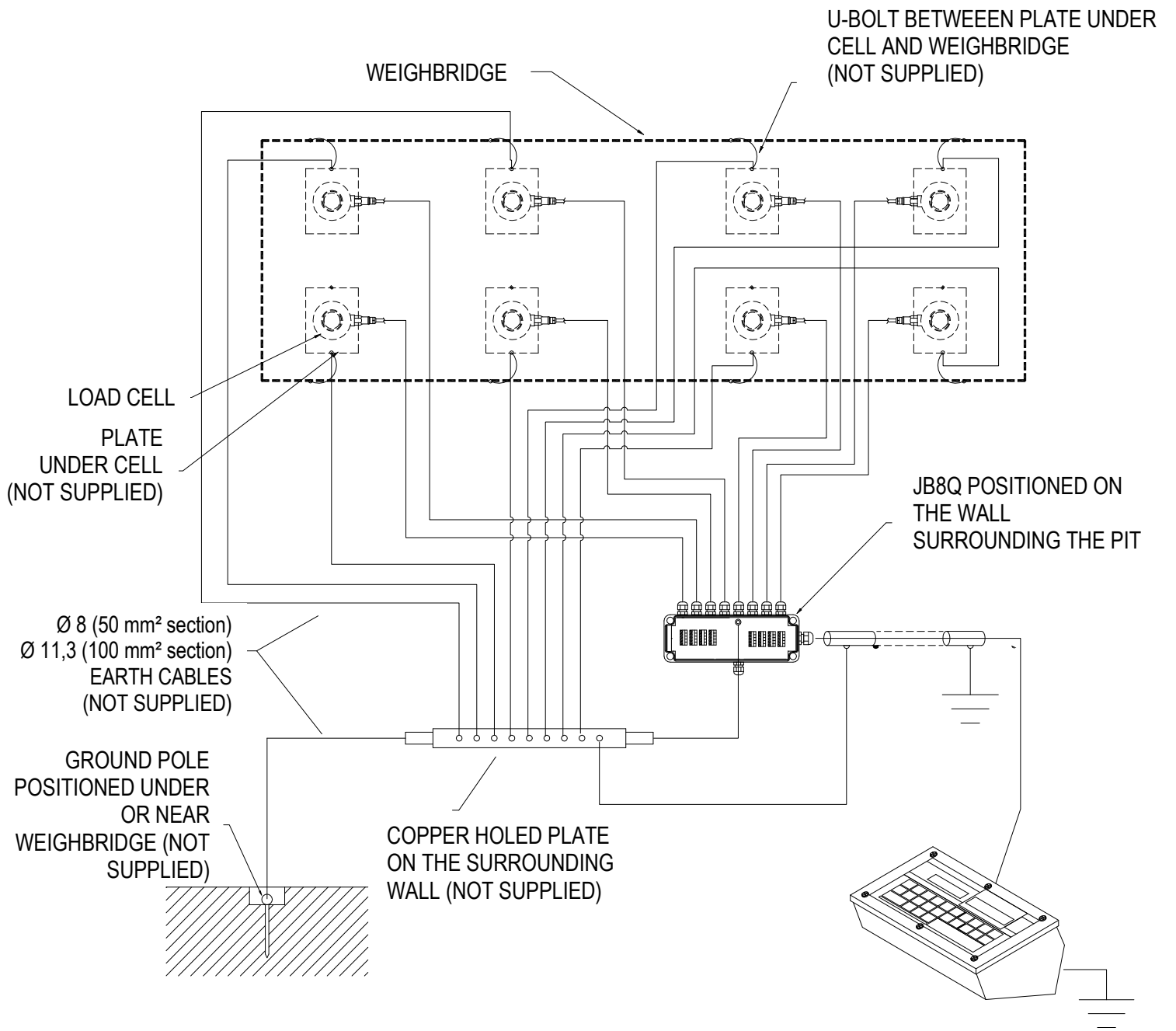
EARTHING EXAMPLE OF A SILO

Non weighing
structure (silo)

U-bolt between
plate under cell
and weighing
structure (not
supplied)

Weighing
structure

Load cell

Ø 4,6 – 16 mm²
earth cable
section (not
supplied)

Ø 8 – 50 mm²
earth cable
section (not
supplied)

Junction
box
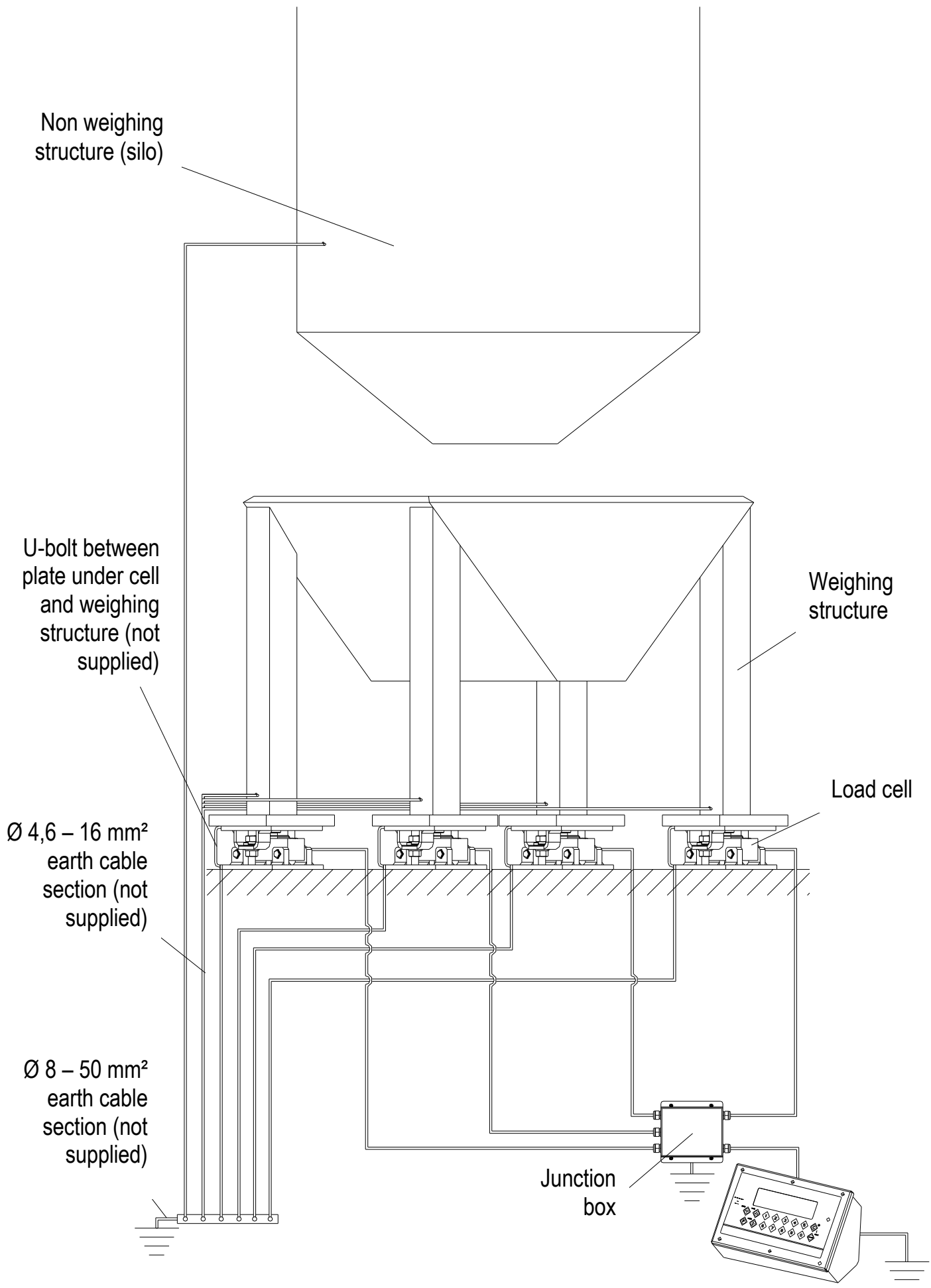
2. CONNECTION TO THE LOAD RECEIVER

2.1 ANOLOGUE LOAD CELLS

IMPORTANT: Respect the electrical precautionary measures indicated in section 1.

After having followed the instructions regarding the platform or the load receiver, the screened cable leading from the load cell(s) must be connected to the instrument through the CELL1 terminal board and the CELL1, CELL2, CELL3, CELL4 connectors; see section 8.1.

The terminal board of the indicator may be connected to the 6-wire load receiver (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 8.1).

TAKE NOTE: if there is just one LOAD RECEIVER, it is possible to make a 6-wire connection (use of sense) directly with the terminal board, removing the J7 and J8 jumpers.
If there are two or more LOAD RECEIVERS, one should close the J7 and J8 jumpers (sense and power supply are 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 FOR TRADE version instrument, access to the connection will be subject to a legal SEAL.
Follow the instructions for preparing the platform for use.

AMP 4 CONNECTOR
1. **EXC +** POWER SUPPLY +
2. **EXC -** POWER SUPPLY -
3. **SIG +** SIGNAL +
4. **SIG -** SIGNAL -

TERMINAL
25. **SIG +** SIGNAL +
26. **SIG -** SIGNAL -
27. **SEN +** REFERENCE +
28. **SEN -** REFERENCE -
29. **EXC +** POWER SUPPLY +
30. **EXC -** POWER SUPPLY -
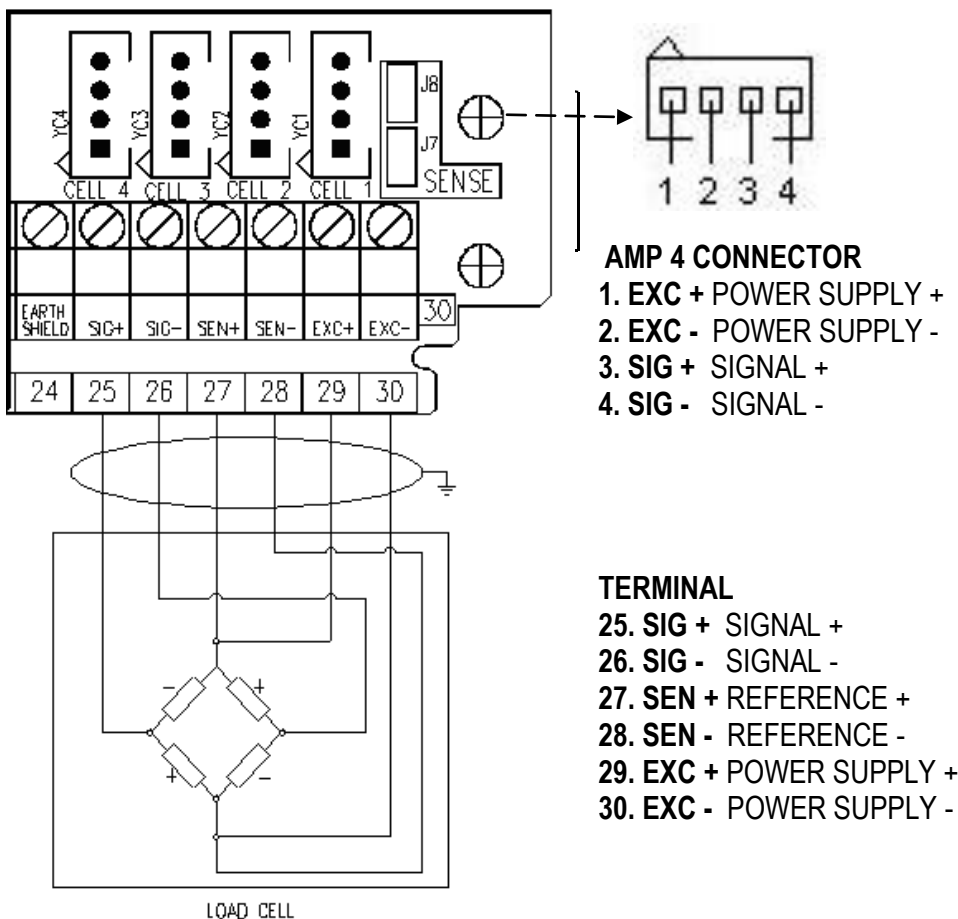
See section 8 for further information.

PART RESERVED FOR THE AUTHORISED TECHNICAL PERSONNEL

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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, while the firmware version is being displayed, press the TARE key for an instant.
The indicator shows:

1) | **"TECH "** for an instant on the display | ⇨ | **ACCESS PASSWORD DISABLED** | ⇨ | **"LAnG"** on the display on top; **"LANGUAGE"** on the display below | ⇨ | **COMPLETE SET-UP MENU (technical personnel).**

Or

2) | **"USER – PRESS KEY "** for an instant on the display | ⇨ | **ACCESS PASSWORD ENABLED** | ⇨ | **" PrG.VEr "** on the display on top; **"FIRMWARE"** on the display below | ⇨ | **PARTIAL SET-UP MENU (only user)**
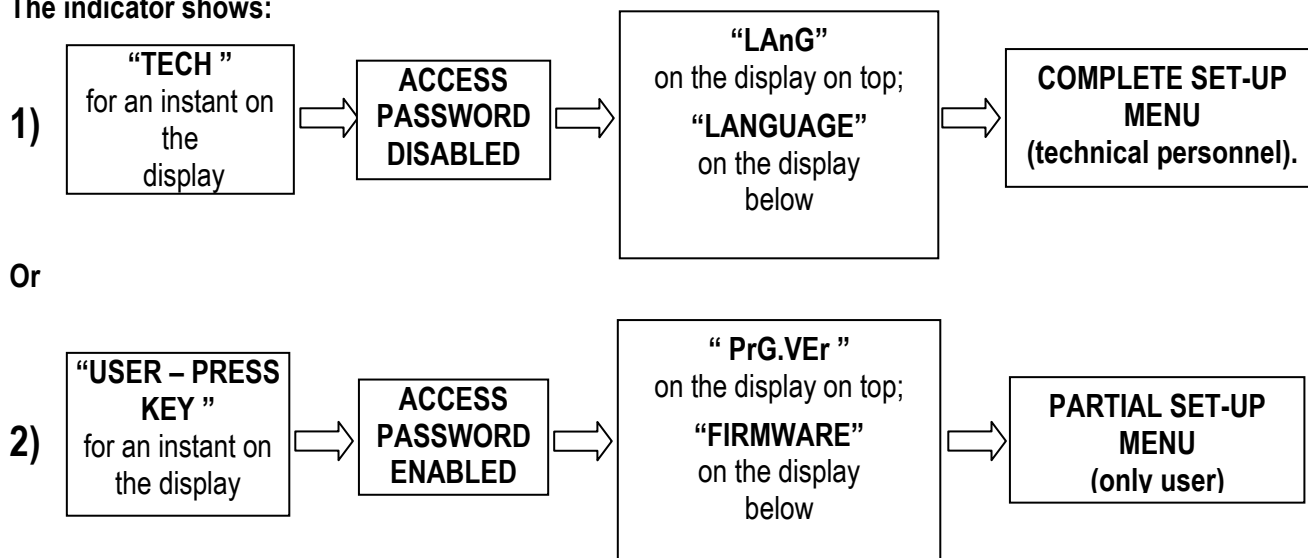
If one has chosen **2)** and one wants to access the complete set-up menu one should:

Press TARE/ZERO During the visualisation of the **"USER – PRESS KEY"** message On the display | ⇨ | **ENTER THE PASSWORD SUBSTITUTING THE DISPLAYED VALUE** | ⇨ | **PRESS "ENTER"** | ⇨ | **"TECH "** for an instant on the display | ⇨ | **COMPLETE SET-UP MENU (technical personnel).**
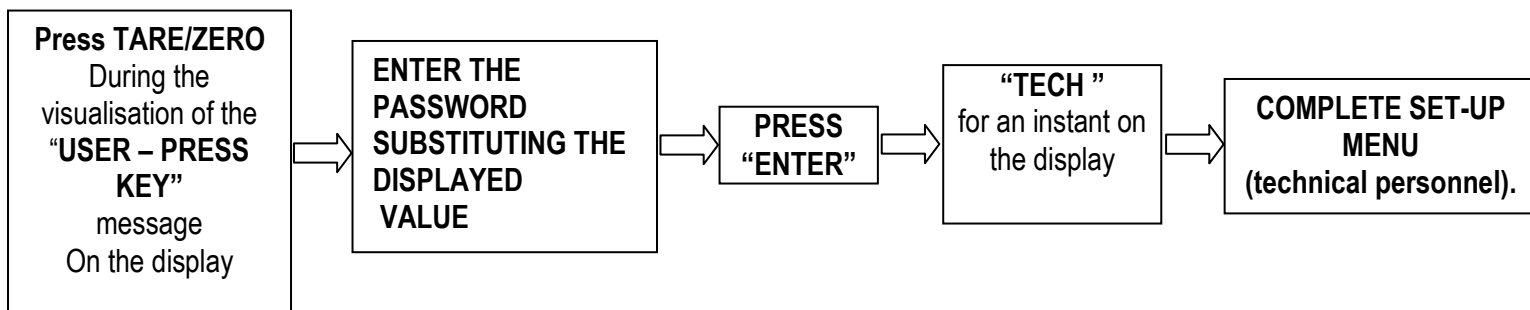
In the parameter description and in the block diagram:
-   The **METRIC** parameters are shown with the **(*)** symbol**, and, with approved instrument, these may not be visible or read only. See the explanation of the parameter for the details.**
    NOTE: The indicator is approved when the J1 jumper (CAL) of the motherboard is closed (see the electrical scheme in section 8.1).
-   The **CONDITIONAL STEPS** are shown with the **(§)** symbol, **and are not accessible or 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 scrolling ahead and behind, in the menu steps or in the parameters inside a step.
Fn / ENTER	Allows to enter a step or confirm a parameter inside a step.
C / DEL	Allows to exit a step without confirming the possibly modified parameter and go to the preceding level.
F5	Allows to print all configurations in the set-up environment (when in the main menu), or allows to print only one step to the se-up environment (when in the single step desired). The display show this message "PRINT", press ENTER to confirm or C to cancel.
NUMERIC KEYBOARD	Allows entering an alphanumeric input.

The display shows 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 SET-UP ENVIRONMENT BLOCK DIAGRAM

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

```
                                    ┌──────────┐        ┌──────────────────────┐
                                    │   LAnG   │──────▶ │ (!) En, Fr, dE, ES, iT│
                                    └──────────┘        └──────────────────────┘

                                    ┌──────────┐        ┌──────────────────────┐
                                    │   tyPE   │──────▶ │  (!) ind.Ch, dEP.Ch  │
                                    └──────────┘        └──────────────────────┘

                                    ┌──────────┐        ┌──────────────────────┐
                                    │  nuM.SCA │──────▶ │ (!) n.SC. 1, n.SC.2, │
                                    └──────────┘        │ n.SC. 3, n.SC. 4, rEMotE│
                                                        └──────────────────────┘
        ┌──────────────┐
        │    SETUP     │            ┌──────────┐
        │ ENVIRONMENT  │────┬─────▶ │  F.Mode  │──────────────────────────────▶
        └──────────────┘    │       └──────────┘
                            │
                            │       ┌──────────┐
                            │─────▶ │   SEtuP  │──────────────────────────────▶
                            │       └──────────┘
                            │
                            │       ┌──────────┐        ┌──────────────┐
                            └─────▶ │   diAG.  │──────┬▶│   PrG.VEr    │
                                    └──────────┘      │ ├──────────────┤
                                                      ▶│   WEiGht     │
                                                      ▶│   MiLLiV     │
                                                      ▶│   ADC.Pnt    │
                                                      ▶│   Display    │
                                                      ▶│   kEyb.      │
                                                      ▶│   CtS.St     │
                                                      ▶│   b.LEVEL    │
                                                      ▶│   POWER      │
                                                      ▶│   rELE       │
                                                      ▶│   inPutS     │
                                                      ▶│   Anout      │
                                                      ▶│   SER.       │
                                                      ▶│   SER.NUM    │
                                                      ▶│   P.EST      │
                                                      ▶│   EV.LOG     │
                                                       └──────────────┘
```
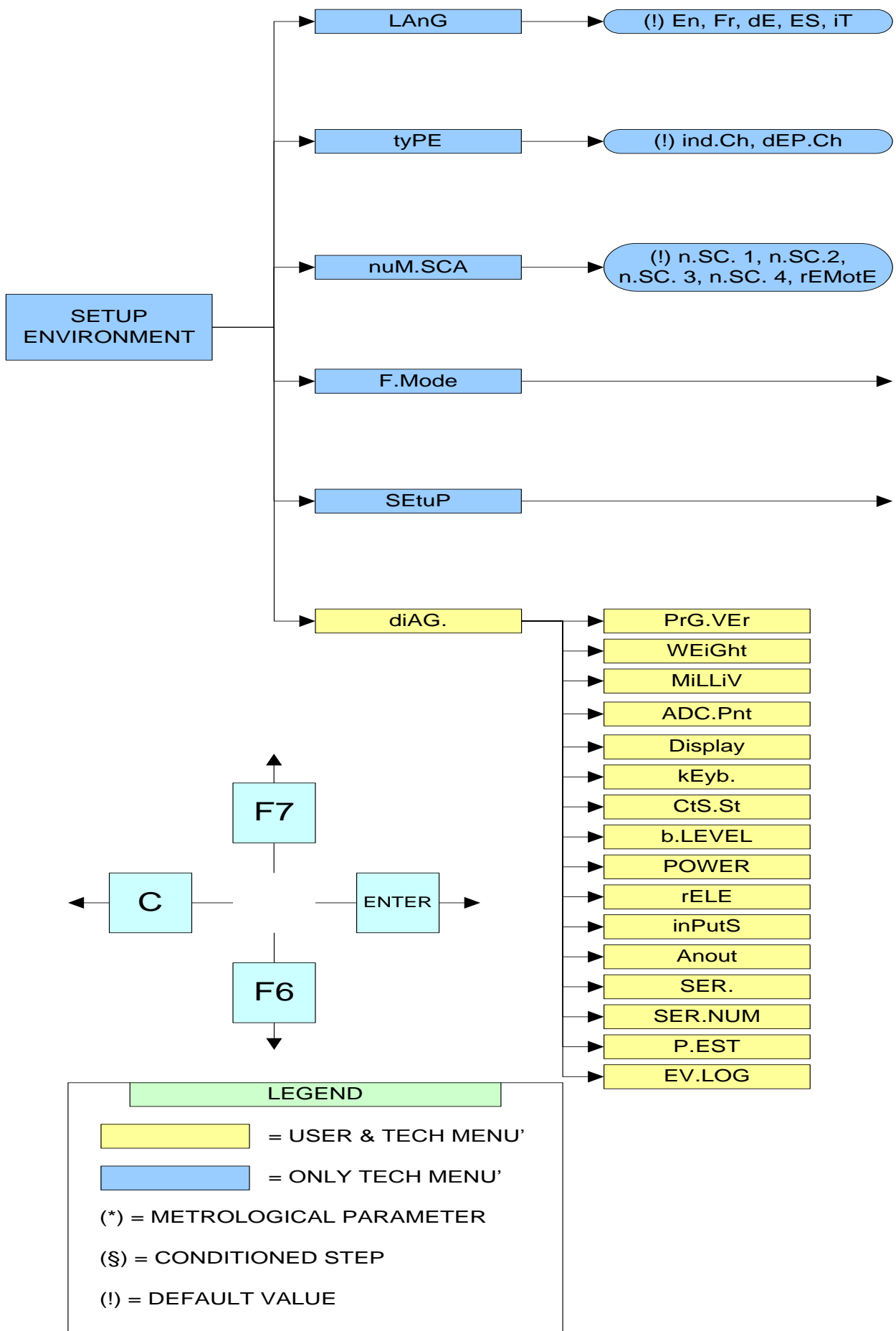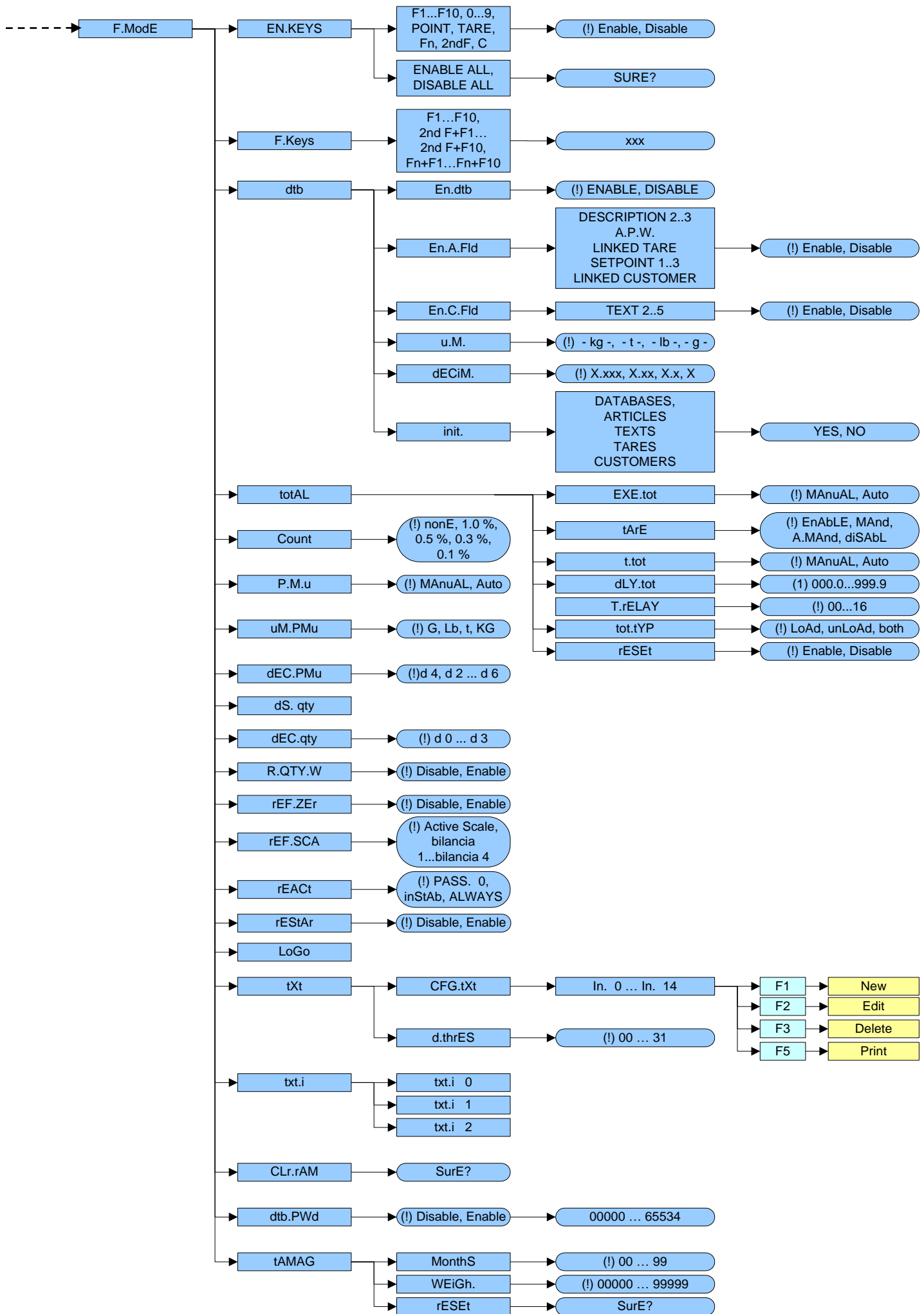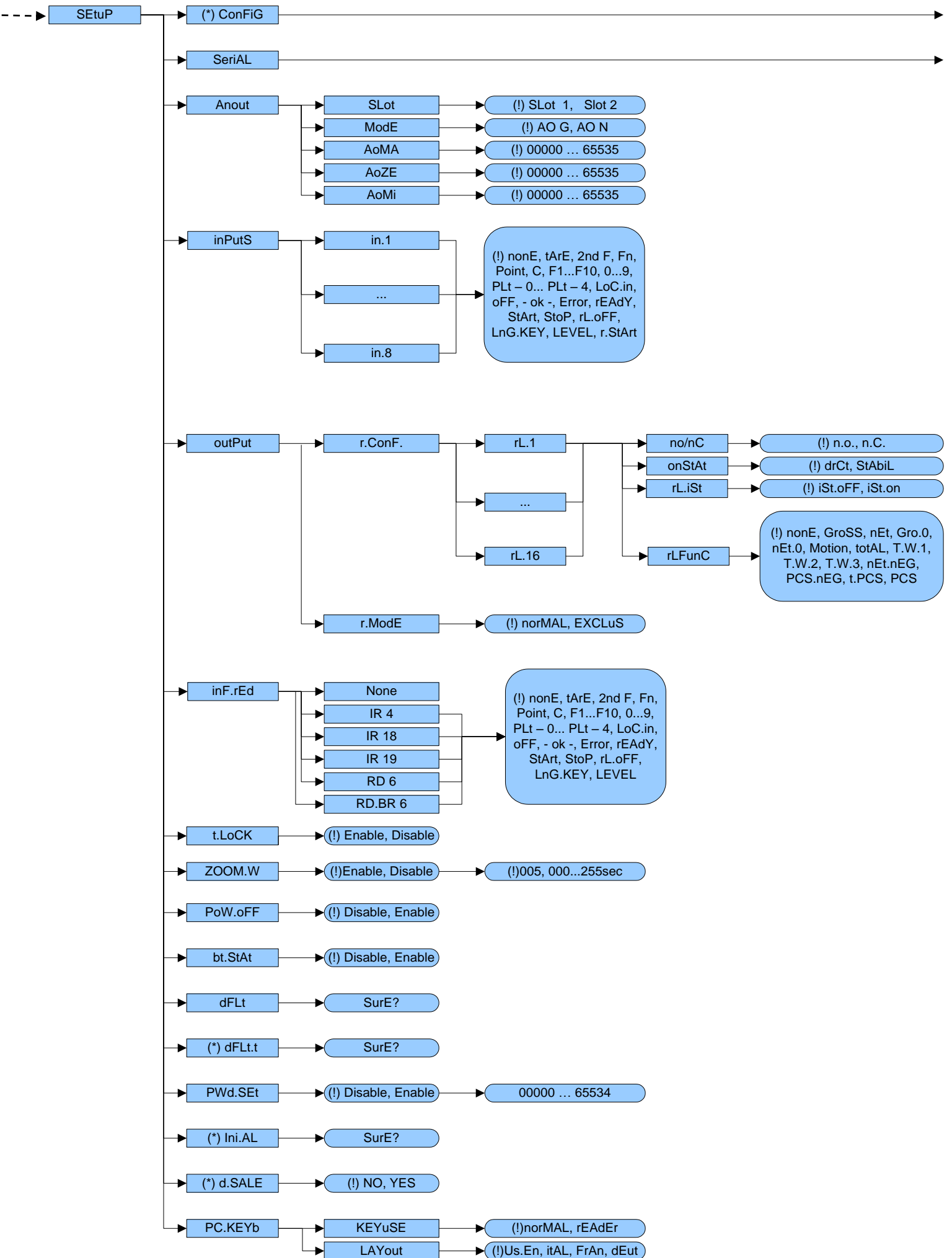
Navigation keys:

```
           F7
            ▲
            │
   C ◀──────┼──────▶ ENTER
            │
            ▼
           F6
```

LEGEND

(yellow box)	= USER & TECH MENU'
(blue box)	= ONLY TECH MENU'

(*) = METROLOGICAL PARAMETER

(§) = CONDITIONED STEP

(!) = DEFAULT VALUE

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F.ModE

- 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, DISABLE
  - En.A.Fld → DESCRIPTION 2..3, A.P.W., LINKED TARE, SETPOINT 1..3, LINKED CUSTOMER → (!) Enable, Disable
  - En.C.Fld → TEXT 2..5 → (!) Enable, Disable
  - u.M. → (!) - kg -, - t -, - lb -, - g -
  - dECiM. → (!) X.xxx, X.xx, X.x, X
  - init. → DATABASES, ARTICLES, TEXTS, TARES, CUSTOMERS → YES, NO

- totAL
  - EXE.tot → (!) MAnuAL, Auto
  - tArE → (!) EnAbLE, MAnd, A.MAnd, diSAbL
  - t.tot → (!) MAnuAL, Auto
  - dLY.tot → (1) 000.0...999.9
  - T.rELAY → (!) 00...16
  - tot.tYP → (!) LoAd, unLoAd, both
  - rESEt → (!) Enable, Disable

- Count → (!) nonE, 1.0 %, 0.5 %, 0.3 %, 0.1 %

- P.M.u → (!) MAnuAL, Auto

- uM.PMu → (!) G, Lb, t, KG

- dEC.PMu → (!) d 4, d 2 ... d 6

- dS. qty

- dEC.qty → (!) d 0 ... d 3

- R.QTY.W → (!) Disable, Enable

- rEF.ZEr → (!) Disable, Enable

- rEF.SCA → (!) Active Scale, bilancia 1...bilancia 4

- rEACt → (!) PASS. 0, inStAb, ALWAYS

- rEStAr → (!) Disable, Enable

- LoGo

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

- txt.i
  - txt.i 0
  - txt.i 1
  - txt.i 2

- CLr.rAM → SurE?

- dtb.PWd → (!) Disable, Enable → 00000 ... 65534

- tAMAG
  - MonthS → (!) 00 ... 99
  - WEiGh. → (!) 00000 ... 99999
  - rESEt → SurE?

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- - - ► **SEtuP**

(*) ConFiG ───►

SeriAL ───►

Anout
- **SLot** ──► (!) SLot 1, Slot 2
- **ModE** ──► (!) AO G, AO N
- **AoMA** ──► (!) 00000 … 65535
- **AoZE** ──► (!) 00000 … 65535
- **AoMi** ──► (!) 00000 … 65535

inPutS
- **in.1**
- **...**
- **in.8**

(!) nonE, tArE, 2nd F, Fn, Point, C, F1...F10, 0...9, PLt – 0... PLt – 4, LoC.in, oFF, - ok -, Error, rEAdY, StArt, StoP, rL.oFF, LnG.KEY, LEVEL, r.StArt

outPut
- **r.ConF.**
  - **rL.1**
  - **...**
  - **rL.16**
    - **no/nC** ──► (!) n.o., n.C.
    - **onStAt** ──► (!) drCt, StAbiL
    - **rL.iSt** ──► (!) iSt.oFF, iSt.on
    - **rLFunC** ──► (!) nonE, GroSS, nEt, Gro.0, nEt.0, Motion, totAL, T.W.1, T.W.2, T.W.3, nEt.nEG, PCS.nEG, t.PCS, PCS
- **r.ModE** ──► (!) norMAL, EXCLuS

inF.rEd
- **None**
- **IR 4**
- **IR 18**
- **IR 19**
- **RD 6**
- **RD.BR 6**

(!) nonE, tArE, 2nd F, Fn, Point, C, F1...F10, 0...9, PLt – 0... PLt – 4, LoC.in, oFF, - ok -, Error, rEAdY, StArt, StoP, rL.oFF, LnG.KEY, LEVEL

t.LoCK ──► (!) Enable, Disable

ZOOM.W ──► (!)Enable, Disable ──► (!)005, 000...255sec

PoW.oFF ──► (!) Disable, Enable

bt.StAt ──► (!) Disable, Enable

dFLt ──► SurE?

(*) dFLt.t ──► SurE?

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

(*) Ini.AL ──► SurE?

(*) d.SALE ──► (!) 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
- ComPrn
  - 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
    - (§)SND.CTS → (!) **Disable, Enable**
  - Err.CtS → (!) diSAbLe, EnAbLE
  - PWrPrn → (!) PWrint, EXtoFF, PWrEXt
  - ProtoC → norMAL, riPE 6, ALibi
- 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, riPLCd, Mondir, Alibi
  - PC.ModE → (!) rEquE., Cont., StAbiL, - 485 -
- CoMAUX
  - 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,
- rEM.SCA(*)(§)
  - EnAb. → (!) diSAbLe, EnAbLE
  - tErM → (!) 00 … 99
  - Wei.PoS → (!) 00 … 99
  - Wei.LEn → (!) 01 … 99
  - W.tYPE → (!) GroSS, nET
  - tAr.Pos → 000 …100 (!) 255
  - tAr.LEn → (!) 01 … 99
  - tAr.tYP → 000 …100 (!) 255
  - Str.LEn → (!) 00 … 99
  - CAPAC. → (!) 00001 … 99999
  - diV. → (!) 001 … 200
  - dECiM. → (!) 0 … 5
  - u.M. → (!) G, KG, t, Lb
  - StAb. → (!) 00… 20
  - StA.int → (!) 00… 20
  - round.S → (!) diSAbL, EnAbLE
  - ZEro → (!) diSAbLe, EnAbLE
  - tArE → (!) diSAbLe, EnAbLE → XXX
  - Man.tAr → (!) diSAbLe, CMd.VAL, VAL.CMd
  - rEq.WEi → (!) diSAbLe, EnAbLE → XXX → XXXX
  - tErM.tX → (!) CR, CR LF, LF, NO. TERM
- rEAdEr → (!) diSAbLE, CoM.Prn, CoM.AuX
- R71.rEP → (!) Disable, Enable
- Prn.FMt → C.F.01 … 30
- tErMin → (!) LF, No.tErM, Cr, Cr LF,
- dEF.Prn

ConFiG → SEL.SCA → Scale 1...4

Param. → Stabil. → FLt 0 - (!) 3, doS.0 - 3, h.r.0 - 7, dyn.0 - 3, SLW.0 - 3

(*) Auto-0 → (!) EnAbLE, diSAbLe, CYCLIC → (!) 10, 00 ... 50

(*) 0.PERC → (!) 2, 00 ... 50

WArMuP → (!) 00 ... 60

(*) 0trACk → (!) ½, 1, 2, no, ¼

diV.Stb. → (!) 02, 00 … 99

(*) GrAV → 9,75001 … 9,84999

(*) Calib → dECiM. → (!) X.xxx, X.xx, X.x, X

u.M. → (!) kg, t, lb, g

nuMbEr oF rAnGE → 1 / 2 / 3 → rAnGE tyPE → M.diViS, M.rAnGE

diV. 1 → (!) 1, 2, 5, 10, 20, 50, 100, 200

CAP. 1 → XXXXXX

diV. 2

CAP. 2

diV. 3

CAP. 3

CALib.P

PointS

(*) 0.CALib.

3.2 DESCRIPTION OF THE STEPS

<< LAnG >>   LANGUAGE SELECTION

Parameter	Language	Used Codepage (see section 7.2)
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

<< tYPE >>   INSTRUMENT TYPE (*)

One selects the type of application which will be made: scale with independent channels or scale with non dependent channels (equalised digitally)

ind.Ch.   Instrument connected to 1, 2, 3 or 4 independent load cells and/or a remote scale.

dEP.Ch   Instrument connected to 1 load cell with 2, 3 or 4 dependent load cells (eventually equalised digitally using a specific software procedure).

(!) ind.Ch

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

<< nuM.SCA >>   NUMBER OF CONNECTED SCALES (*)

- n.SC. 1 (scale 1) **(§)**. This value is not displayed if the **tYPE** step is set on "dEP.Ch".
- n.SC. 2 (scale 2).
- n.SC. 3 (scale 3).
- n.SC. 4 (scale 4).
- rEMotE **(§)** This value is not displayed if **SetuP >> SeriAL >> rEAdEr** step is set on **CoMAuX.**

(!) n.SC. 1

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

<< F.ModE >>   SCALE FUNCTIONING

<< En.kEyS >> KEYS ENABLING

It is possible to enable/disable each single key of the keyboard, as well as the following two sequences of keys:

- Fn + Fn   for access to a menu listing all functions
- 123 + Fn   for direct access to a specific function (e.g. number 123)

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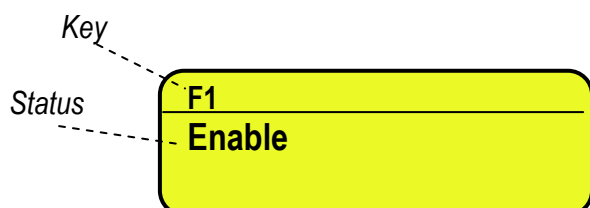
Key

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.

20

QUICK FUNCTION RECALL THROUGH 999 + 123 + Fn
If the function 123 + Fn is not enabled, is possible directly recall the desired function with the keys combination 999 + 123 + Fn in weighing phase.

NOTES:
- It's possible to enable/disable all the keys together (including the above-mentioned sequences of keys), 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, included the sequences of keys "Fn + Fn" and "123 + Fn"**

<< 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...).
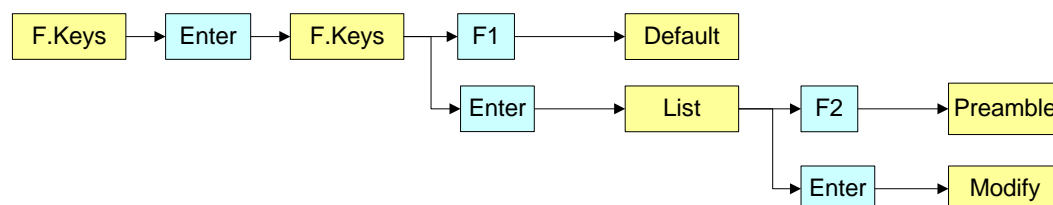
- select the desired key with F6/F7:
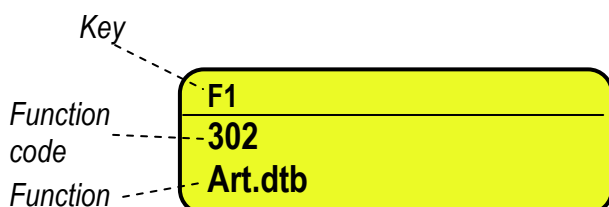
- press **ENTER** to see the list:

- press **ENTER** to modify the setting:

21
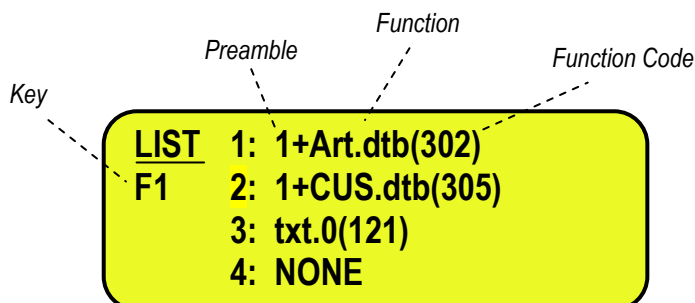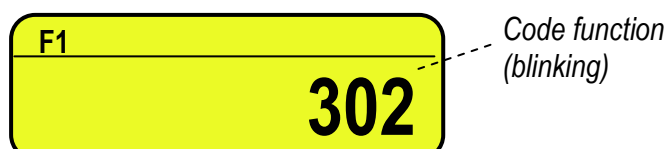
Quick introduction of the maximum and minimum thresholds
Is necessary to associate the functions 500 and 501,used for the settings of the totalisation thresholds, each to a function key between **F1** and **F10.** If one digits a value and then press one of the programmed key, the minimum or maximum threshold is set.

Preamble function
It is possible to associate also a preamble (numeric value) to the F1, F2…F10 keys. In this way, when the key is pressed, the preamble is automatically used as parameter of the function to be executed.
The functions to which can be associated a preamble are:

FUNCTIONS	PREAMBLE VALUE
Input text configuration (tXt)	Number of the input text that one wants to modify.
Coupling print formats (Prn.Fmt)	Number of the format on which one wants to modify the coupling.
Setpoint configuration (SETPNT)	Number of the setpoint that one wants to modify.
Article database (Art.dtb)	Number of the article that is automatically selected

By pressing a key with the function of a database associated (for example articles database) and it is enabled the preamble to the value 9999, it is required to deactivate the record eventually enabled.
EXAMPLE:
 9999 + F1(article database), deselect active article.

- press **F2** to insert the preamble:

> **PREAMBLE**
> ○ **Disable**
> ● **Enable**
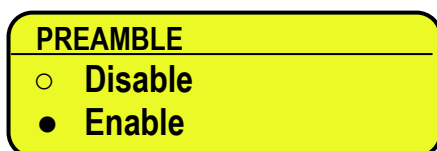
- select enable and confirm with **ENTER**

> **PREAMBLE**
> **00000**

Preamble value
(blinking)
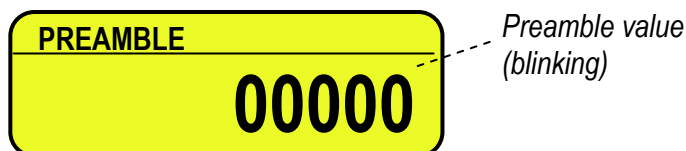
- insert the desired value through the numeric keyboard and confirm with **ENTER** (by confirming the value 0, the preamble is disabled).
- If one sets the value 9999 as preamble of a key matched to a database function, by pressing the key the active record is deselected

Key (preamble + function)

> **F1 (2 + F1)**
> **304**
> **Art.dtb**
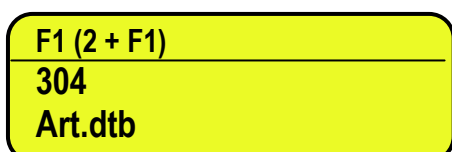
KEYS' FUNCTIONS IN THIS STEP

▲	scrolls backward inside the list of the keys.
▼	scrolls forward inside the list of the keys.
F1	performs the default of the function pairing of the keys.
F2	inserts the preamble.
ENTER	modifies the code of the function in the current key; while entering it confirms the enteredcode.

NOTE: by pressing the **. /HELP** key, it's possible to display the list of the keys used inside this step and their functions. The list is automatically shown. If one wants to scroll the list of the keys in manual mode, it is possible to use the arrow keys (F6 ▼ and F7 ▲).

CODE	BASIC FUNCTIONS	DEFAULT KEY/S
100	Scale zero (2Ero)	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 weight visualization (WEi.ViS)	2ndF + F8
107	Change visualization LCD display (LCd.ViS)	2ndF + F9
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 menu (diAG.)	F4 pressed at length
112	Lock/unlock tare (L.tArE)	F5 pressed at length
113	Input text configuration (txt)	F4
114	Calculator (CALC)	
115	Print and clear partial total (Prn.0.t0)	F8
116	Print and clear general total (Prn.0.t1)	F9
117	Print and clear grand total (Prn.0.t2)	F10
118	Diagnostics peripheral units(P.diAG)	
119	Com data diagnostics (CoM.dAt)	
120	Customized display enabling or change of visualization if already enabled (0CSt.dSP)	
121	Input text 0 configuration (txt.0)	
122	Input text 1 configuration (txt.1)	
123	Input text 2 configuration (txt.2)	
124	Input text 3 configuration (txt.3)	
125	Input text 4 configuration (txt.4)	
126	Input text 5 configuration (txt.5)	
127	Input text 6 configuration (txt.6)	
128	Input text 7 configuration (txt.7)	
129	Input text 8 configuration (txt.8)	
130	Input text 9 configuration (txt.9)	
131	Input text cancellation: from 0 to 14, 99 erase all the texts (txt.rSt)	
132	Print format sending: from 0 to 30 (SEnd.P.F)	
OTHER FUNCTIONS		
200	Format linking to the Printout Functions (Prn.FMt)	
201	Format Linking to the Totalisation (Snd.FMt)	

202	Setpoint configuration (SEtPnt)	
203	Selection remote scale (rEM.SCA)	2ndF + 0
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
209	Switch on the next scale (ChG.PLt)	2ndF + 2ndF
SPECIAL FUNCTIONS		
300	Totalisation (totAL)	F6
301	Sampling (rEFEr.)	F7
302	Entering APW (P.M.u.)	2ndF + F7
303	Manual APW optimization (uPd.PMu)	Fn + F7
304	Article database (Art.dtb)	F1
305	Print and clear article total (Prn.0.tA)	2ndF + F1
306	Print and clear articles total (Prn.0.tA)	
307	Customers database (CuS.dtb)	F2
308	Tare database (tAr.dtb)	2ndF + TARE
309	Article selection with alphabetical research (SEL.Art)	
310	Customer selection with alphabetical research (SEL.CuS)	
311	Sampling pieces (rEF.PCS)	
312	Cancel last weigh (CAnC.L.W)	
PRINTOUT MENU VISUALIZATIONS		
400	Automatic print partial total (Aut.Prn)	
401	Nr. of totalisations to print partial total (LbL.SEt)	
402	Totaliser additional value (Add.VAL)	
403	Set progress. digits (PrG.1)	
404	Set progress. ticket (PrG.2)	
405	Reset progress. lot (0.PrG)	
406	Visualizes partial total (V.t-0)	
407	Print partial total (Prn.t-0)	
408	Reset partial total (0.t-0)	
409	Visualizes general total (V.t-1)	
410	Print general total (Prn.t-1)	
411	Reset general total (0.t-1)	
412	Visualizes grand total (V.t-2)	
413	Print grand total (Prn.t-2)	
414	Reset grand total (0.t-2)	
415	Visualizes article total (V.t-A)	
416	Print article total (Prn.t-A)	
417	Reset article total (0.t-A)	
418	Print weighs report (rPt)	
419	Reset weighs list (0.W.LiSt)	
420	Weighs list net (W.LiSt.n)	
421	Weighs list gross (W.LiSt.G)	
422	Weighs list tare (W.LiSt.t)	
423	Reset scale totals (0.t-ALL)	
424	Reset articles total (0.ArtS)	
425	Reading Alibi Memory (ALibi)	
SET THRESHOLDS TOTALISATION		
500	Set maxim. threshold (tr.hi)	
501	Set minim. threshold (tr.Lo)	

<< dtb >>   DATABASES

<< En.dtb >> ENABLING DATABASES
It is possible to enable or disable the databases:
EnAbLE: databases enabled.
diSAbLE: 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 - - - - -

```
  DESCRIPTION 2
  ○  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 first article description is always enabled.

<<En.C.Fld>>   CUSTOMER FIELDS ENABLING
It's possible to enable one by one the fields necessary for the application.
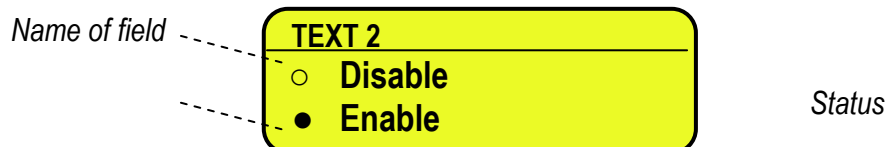
Name of field - - - - -

```
  TEXT 2
  ○  Disable
  ●  Enable
```

Status

- 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 first customer description is always enabled.

<< uM >> DATABASE UNIT OF MEASURE
It is possible to set the unit of measure of the ARTICLE 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 ARTICLE 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.
(!) 3
NOTE: units and decimals of archive must be set as in calibration.

<< init.>>   INITIALIZE DATABASES and INPUT TEXTS
By pressing **ENTER** one initialises the DATABASES (with the total values), the number of decimals, 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: ARTICLE DATABASE, TARE DATABASE, INPUT TEXTS, and CUSTOMERS

DATABASE.
Following the initialization of the databases, the unit of measure and the decimals are brought back to the default values.

<< totAL >>   TOTALISER

<< EXE.tot >> AUTOMATIC/MANUAL TOTALISER
One sets the totalisation mode:
- **Auto**   Automatic upon weight stability.
- **MAnuAL**   Manual using the F6 key.
  (!) MAnuAL

<< tArE >>   SELECTION OF THE TARE EXECUTION MODE
- **diSAbLe**   Disabled.
- **EnAbLE**   Enabled.
- **MAnd**   Compulsory execution before totalising.
- **A.MAnd**   Automatic execution upon weight stability, compulsory before totalising.
  See section 7.9 SELECTION OF THE TARE EXECUTION MODE in the user manual for functioning specifics.
  (!) EnAbLE

<< t.tot >> TARE AFTER THE TOTALISATION
- **MAnuAL**   Manual execution.
- **Auto**   Automatic execution after each totalisation.
  See section AUTOMATIC TARE AFTER THE TOTALISATION in the user manual for functioning specifics.
  (!) MAnuAL

<< dLY.tot >> TOTALISATION DELAY
Only for the automatic totalisation, one sets the time delay which runs between the weight stability and the totalisation.
NOTE: MIN= 000.0 sec. ; MAX= 999.9 sec.
  (!) 000.0

<<t.rELAY>> TOTALISER ONLY IF ACTIVE RELAY
Pressing enter is possible to enable a condition of totalization for which it is not possible to totalize if the condition is not true. The condition is given by the function of one of the 4 +12 outputs. It will be asked to enter the output number. If it is inserted 0 the control is disabled.

<< tot.tYP >> TOTALISER TYPE
One sets the type of totalisation: in loading (**LoAd**), in unloading (**unLoAd**), in loading as well as in unloading (**both**).
  (!) LoAd

<< rESEt >> TOTALISER CONFIRM RESET
It is possible to select the automatic resetting of the totals when these are printed (**diSAbLe**) or the resetting upon request (**EnAbLE**).
  (!) EnAbLE

<< Count >> MINIMUM WEIGHT PERCENTAGE
In this step one sets the minimum weight which must be put on the scale in order to make the reference operation:
- nonE: no checks.
- 0.1%: greater than 0,1% of the set capacity
- 0.3%: greater than 0,3% of the set capacity
- 0.5%: greater than 0,5% of the set capacity
- 1.0%: greater than 1,0% of the set capacity
  (!)   nonE

<< P.M.u >>   UPDATE OF THE MAN / AUT APW

In this step one selects the update mode of the A.P.W.

MAnuAL: the update is made through function **303,** combinable with the desired key (**<< F.KEYS >>** step, **USER MAN.REF.**)**.**

Auto: the update is made automatically

See the USER MANUAL,section 13.1.3

(!) MAnuAL

<< uM.PMu >> A.P.W. UNIT OF MEASURE

In this step one sets the unit of measure of the A.P.W.:**- G -, - KG -, - t -, - Lb -**

(!) - G -

<< dEC.PMu >> A.P.W. NUMBER OF DECIMALS

In this step one sets the number of decimals with which the A.P.W. is calculated; the indicator automatically rounds off the A.P.W., which will influence the calculation of the number of pieces.

One can select 2, 3, 4, 5, 6 decimal digits; higher the number and greater is the accuracy in calculating the number of pieces.

(!) 4

<< dS. qtY >> QUANTITY DESCRIPTION

In this step one sets the description (up to 10 characters) of the quantity which one wants to count; this description will be shown when the F7 key is pressed (entry of the reference quantity) and in the relative printouts.

(!) PCS

<< dEC. qtY >> QUANTITY NUMBER DECIMALS

In this step one sets the number of decimals of the quantity which one wants to count, from 0 to 3.

(!) 0

<< R.QTY.W >> FUNCTIONING OF THE SETPOINTS ON THE QUANTITY

Through this step it is possible to select how to manage the relays linked to a quantity setpoint function, when the indicator is out of the counting mode (APW=0, reference cleared):

Disable: the relays are disabled out of the counting mode.

Enable: the relays are managed on the NET weight, therefore the setpoints are entered as WEIGHT.

<< rEF.ZEr >> AUTOZERO BEFORE SAMPLING

By enabling this function is performed the scale zero before make the reference.

(!) diSAbLe   Disabled.

   EnAbLE   Enabled.

<< rEF.SCA >> SCALE FOR THE SAMPLING

This function only works if you have more that one scale and allows to set the scale on which you want make the reference.

If you press the button to the reference the instrument switches on the scale set in setup.

- **ACTIVE SCALE**
- **SCALE 1**
- **SCALE N**

<< rEACt >> REACTIVATIONS

It is possible to set whether to reactivate the printout and the totalisation with:

- PASSAGE BY ZERO OF THE NET WEIGHT **(PASS. 0)**
- WEIGHT INSTABILITY **(inStAb).**
- ALWAYS ACTIVE **(ALWAyS).**

(!) PASS. 0

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

It's possible to set whether to restore or not at start-up the first tare and the active tare before turning off the instrument; furthermore, if the current gross weight and the last stored gross weight before turning off the instrument are greater than zero, the stored zero is restored, otherwise the automatic zero is carried out.

Enable: restoring enabled tare and zero.

Disable: restoring disabled tare and zero.

(!) Disable

See the section "RESTORING TARE AND ZERO AT START-UP" in the user manual for the functioning specifics.

<< 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).(Refer to the DINITOOLS manual for the uploading procedure.)

(!)   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
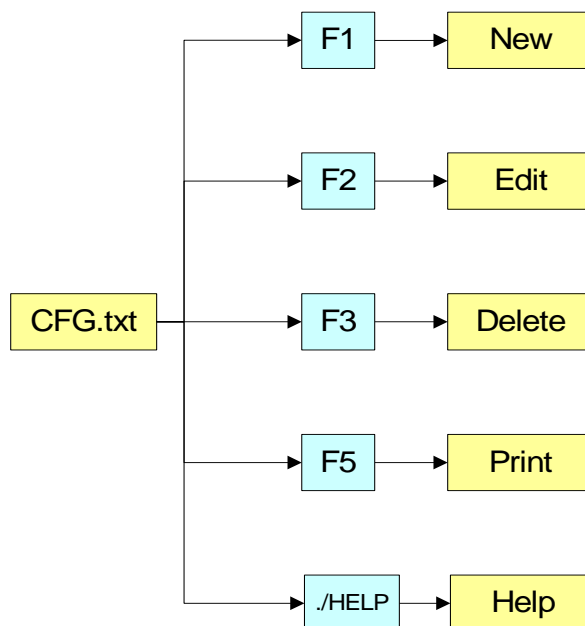
ENTRY

- 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 threshold 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 ▼ e F7 ▲).

<< 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 ready. 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 (see blocks 384, 385, 386). The text entered will remain stored and printed until it is either cancelled or substituted.

<< CLr.rAM >> CANCELLATION OF THE BUFFERED RAM
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 (the display shows "SurE?): 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 inhibit the entry, modification or cancellation of the databases, during the weighing.
The settable values run from 0 to 65534; by setting **Disable**, this password is disabled.
See section 12 in the user manual.
(!)Disable

<< tAMAG >> TAMAGOTCHI

One enters the "NUMBER of MONTHS" passed (2 digits, **MonthS** parameters), 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, the message "RECALIBRATE THE SCALE" appears in the LCD display and an intermitting sound is emitted. By pressing any key, the indicator will enter in the normal scale functioning mode.
NOTE: The number of weighs is increased when, after passing by instability, there is a stable weight and greater than 4 divisions on the scale.
(!) MonthS 00; WEiGh. 00000.

<< SEtuP >>   SCALE CONFIGURATION

<< ConFiG >> METRIC PARAMETERS

If various scales are connected (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.

<< 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:

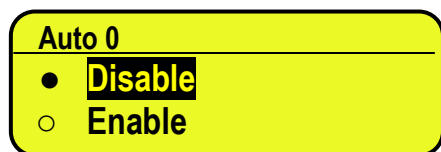|	
FLt 0 – 3	simple weighing
h.r.0 – 1	high resolution
dYn.0 – 1	weight in movement (i.e. weighing animals)
doS.0 – 3	dosage
SLW.0 – 3	weight rather unstable
h.r.2 – 7	high resolution
dYn.2 – 3	weight in movement (i.e. weighing animals)

The higher the filter value, and greater is its intervention relative to the type of filter used.
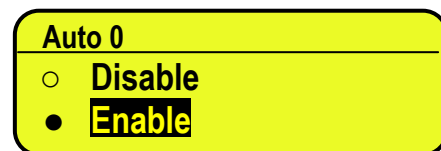**(!) FLt 3**
(*) In case of approved instrument, one can select only **FLt 0…3**, **h.r.0, h.r.1, dYn.0**, **dYn.1**.
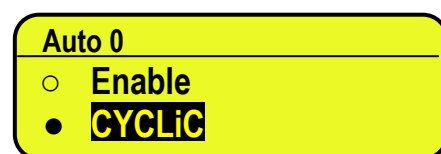
<< (*) Auto-0 >>   AUTOZERO AT START-UP

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 %).

```
Auto 0
  ○ Enable
  ● CYCLiC
```

ENTER →

```
C.PErC
            10
```
Clearing percentage (blinking)

- Executed cyclically on all the present scales. This value is not visible if there is just one scale (see the **nuM.SCA** parameter**)**.
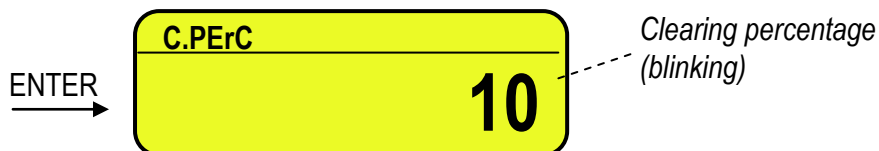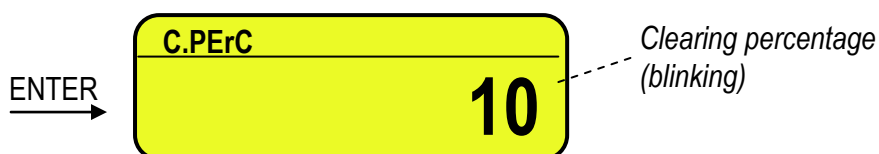
Set the clearing percentage in relation to the capacity (in between +/-1 and +/- 50 %).

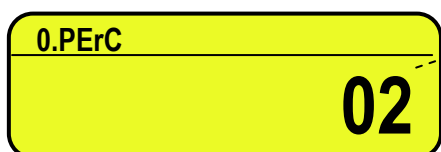See section 3.2 **(USER MAN.REF.)** for details on the functioning.

(*) with approved instrument:
- by confirming the setting of EnAbLE or CYCLIC 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.

```
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 >>   WARM-UP PHASE

It is possible to set a time in which, during the start-up phase, a short preheating of the instrument's electronics is made, in order to optimise the weighing.
The settable values go from 00 to 60 sec.
The 00 value disables the function.
 (!) 00

<< (*) 0.trACk >> ZERO TRACKING

This menu 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. ¼   +/- one fourth of a division

tr. ½   +/- half division.

tr. 1   +/- one division.

tr. 2   +/- two divisions.

tr. no   tracking disabled.

(!) tr. ½

(*) 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.**.

<< (*) 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. By setting the 0 value, the check is disabled.

(!) 2

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

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

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

Manual entry of the g value: the instrument is ready for the manual entry of the gravitational acceleration value.

If one enters a wrong g value: 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).

(!) g = 9,80655

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

<< EquAL. >> EQUALISATION **(§)**

See section 3.3 "SCALE CALIBRATION".

(§) This step is visible only if the scales are connected in a dependent way (see the **tYPE** parameter).

<< CALib. >> SCALE CALIBRATION

See paragraph "3.3 SCALE CALIBRATION".

(*) In case of approved instrument the parameters inside of this step are read only.

<< 0.CALib. >> ZERO CALIBRATION

See paragraph "3.3 SCALE CALIBRATION".

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

<< SEriAL >> SERIAL PORTS, PRINTOUTS, ETC…

<< PortS >> SERIAL PORTS 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**):

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

<< CoMPrn >> CONFIGURATION OF PRINTER SERIAL

<< 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
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
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

<< StoPb >> 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. >> SYNCHRONISM SIGNAL
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.
With synchronism signal active for a time greater than 10 seconds the indicator cancel the printing, it shows the message "PRINTER ERROR: CHECK THE CTS!" for a few seconds and returns to the weighing phase.
It is possible to select:

no-CtS	Disable	(ITALORA WITTY280 and SMT280)
LoW	CTS active low	(LP522/542, EPSON LX300, TM295, TPR)
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.	
XON/XOFF	XON/XOFF control for the printer. Is necessary the insertion of the printer reset command (4 characters in decimal) and the decimal value of XON and XOFF character (17 and 19 of default).	

(!) LoW

<< SND.CTS >> SECOND CTS SIGNAL (§)
This step decides if enables **(Enable)** second CTS signal used for 2 printers or not **(Disable)**. See the previous step **<< CtS.St. >>.** Second CTS is managed on RTX2 port.
(§) the step is visible only if **COM2** is set on **"PRN"** and **LOW** or **HIGH** signal is enabled inside **"CTS.ST."** step.
(!) Disable

<< 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

This step regulates the "AUX" output voltage which is on the board (see the electrical scheme in section 8); one may select:

PWrEXt External power supply (AUX output active)

EXtoFF Internal auto-off power supply (AUX output always active; at the beginning of each printout some CRs are sent as start-up characters, for a printer in energy saving mode).

PWrint Internal power supply (AUX output active just when printing).

(!) PWrint

<< ProtoC >> SELECTS PROTOCOL

norMAL Print

riPE 6 Dini Argeo 6-digit repeater.

ALibi print/alibi memory

Cont. continuous transmission

For the protocol specifications, see section 5.4

(!) norMAL

<< CoM PC >> PC SERIAL 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

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

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

<< StoPb >> 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. >> SYNCHRONISM SIGNAL
On the serial line set as COM.PRN the indicator can manage a synchronism signal CTS (Clear To Send). 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   Disable
LOW   CTS active low
HIGH   CTS active high
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 >> SELECTS PROTOCOL
StAnd   Standard
AFXX   AF0X
riPE 6   Dini Argeo 6-digit repeater
riPLCd   lcd repeater (for 3590E version)
Mondir   Uni-directional
ALibi   Alibi memory
SMA   SMA protocol
For the protocol specifications, see section 5.4
(!) StAnd
<< PC.ModE >> TRANSMISSION TYPE
rEquE.   On request
Cont.   Continuous
StAbiL   On stability
- 485 -   485 mode
For the transmission mode specifics, see section 5.5
(!) 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
riPE 6   Dini Argeo 6-digit repeater.
(!) nonE

<< rEM.SCA >> REMOTE SCALE CONFIGURATION (*)(§)
This step allows setting the parameters for managing a remote scale
(*) In case of approved instrument the step is not visible.
(§) It's possible to enable the remote scale only if the **SetuP >> SeriAL >> rEAdEr** parameter has not been set on "**CoMAuX**" and the **tYPE** parameter has been set on "ind.Ch.".

<< EnAb. >> ENABLING REMOTE SCALE
Selection/deselection of the remote scale functioning mode:
EnAbLE   enabled
DiSAble   disabled
(!) DiSAbLe

<< tErM >> REMOTE SCALE TERMINATOR
In this step one enters the ASCII decimal code (up to 2 characters) of the terminator characters of the weight string (I.E. 13 for CR or 10 for LF).
(!) 000

<< WEi.PoS >> REMOTE SCALE WEIGHT POSITION
In this step one sets the position of the first character of the weight value in the string transmitted by the remote scale, knowing that the first character on the left of the string has the 00 position.
A sign is part of the weight value.
For example, if the received string is **sppppppppuu + CR + LF:**

Received string	s	p	p	p	p	p	p	p	p	u	u	CR	LF
Position of the character	00	01	02	03	04	05	06	07	08	09	10	11	12

Therefore one should set the value 00.
It is possible to set up to 2 characters (from 0 to 99).
(!) 00

<< WEi.LEn >> LENGTH OF REMOTE SCALE WEIGHT VALUE
In this step one enters the number of digits (from 1 to 99) which make up the weight value, including the sign and the non significant digits (for example, if the transmitted string is **sppppppu + CR + LF**, in which **s** is the weight sign, **ppppppp** is the weight value, **uu** is the unit of measure, one should set the value 08).
(!) 01

<< W.tYPE>> WEIGHT TYPE

In this step it's possible to choose whether the previously configured weight value is a gross weight or a net weight:

GroSS   Gross weight
nEt   Net weight
(!) GroSS

NOTES: The following tare settings are not necessary if the remote scale transmits a string containing both the gross and the tare weights.

<< tAr.PoS >> POSITION OF REMOTE SCALE TARE WEIGHT VALUE

In this step one sets the position of the first character of the tare value in the string transmitted from the remote scale, taking into account that the first character on the left of the string has position 00. It's possible to set up to 3 characters (from 000 to 100); by setting 255, the reading of the parameter is disabled.
(!) 255

<< tAr.LEn >> LENGTH OF THE REMOTE SCALE TARE WEIGHT VALUE

In this step one enters the number of digits (from 1 to 99) which make up the tare value, including the non significant digits and the decimal point.
(!) 01

<< tAr.tYP >> TARE TYPE POSITION

In this step one sets the position of the first character of the tare type indication (2 characters), in the string transmitted from the remote scale, knowing that the first character on the left of the string has the position 00; it's possible to set up to 3 characters (from 000 to 100); by setting 255, the reading of the preset tare indication is disabled.
If the value in the indication corresponds to "PT" the previously configured tare is considered as preset; otherwise it is considered as a semiautomatic tare.
(!) 255

EXAMPLE:
if the transmitted string is **sppppppppuu, ttttttttuu kk + CR + LF**, in which **tttttttt** is the tare value, **uu** is the unit of measure and **kk** is the type of tare:
- **tAr.PoS:** 12
- **tAr.LEn:** 08
- **tAr.tYP:** 23

<< Str.LEn >> REMOTE SCALE STRING LENGTH

In this step one enters the number of digits (from 0 to 99) which make up the entire string transmitted from the serial line scale less the terminator character (for example, if the transmitted string is **sppppppppuu + CR + LF**, in which **s** is the weight sign, **ppppppp** is the weight value, **uu** is the unit of measure, one should set the value 11). Configure 0 in case of variable data string length; the position of the weight characters in the data string can't change.
 (!) 01

<< CAPAC. >> REMOTE SCALE CAPACITY

Enter the maximum capacity (up to 6 characters, from 1 to 999999) of the remote scale, taking into account the number of decimals of the scale.
(!) 000001

<< dIV. >> REMOTE SCALE'S DIVISION

Enter the scale's division (up to 3 characters, from 1 to 200). In case of it functions in dual or triple range, enter the lower range division.
(!) 001

<< dECiM.>> REMOTE SCALE'S DECIMALS
  Enter the number of scale decimals (from 0 to 5).
  (!) 3
<< u.M. >> REMOTE SCALE'S UNIT OF MEASURE
  Select the unit of measure of the scale from those suggested: g, KG, t, Lb.
  (!) g

The two following parameters allow generating the stability of the weight communicated by the remote scale and allow managing the stability indicator on the indicator:

<< StAb. >> NUMBER OF READINGS PER STABILITY
  Enter the number of consecutive readings which the indicator must take into consider in order to obtain stability (max 2 characters, from 01 to 20).
  By setting **00** is possible the choosing between "INSTAB. STRING", "STAB. STRING" and "IGNORE STABILITY" by scrolling up and down with F6 and F7.
  - by pressing **ENTER** it's possible to enable the reading of the instability/stability in the string transmitted from the remote scale; one sets in sequence:
  1) the position of the instability indication, in the string transmitted from the remote scale, knowing that the first character on the left of the string has the position 00; it's possible to set up to 3 characters (from 000 to 100); by setting 255, the reading of the instability is disabled and the weight is considered as stable.
  2) the instability string, in other words, the characters transmitted from the remote scale when the weight is unstable (up to 3 characters):
  If the value in the instability indication corresponds to the set value, the weight is considered to be unstable; otherwise, it is considered as stable.
  By pressing **C** the instability check is disabled and the weight is considered to be always stable.
  (!) 03

<< StA.int >> WEIGHT DIFFERENCE PER STABILITY
  Enter the maximum value (2 characters, from 0 to 20) which can be taken on by the difference between the weights of the consecutive readings, set in the previous step.
  If the weight difference between the readings is equal or less than the set value, the weight is considered to be stable (stability indicator off), otherwise the weight is considered to be unstable (stability indicator on).
  (!) 02

<< round.S >> ROUNDING
Enable   Enabled
Disable   Disabled
(!) Disable

EXAMPLE:
WEIGHT SENT BY REMOTE SCALE
"   41.6375 g G   0.5006 g T"
If the parameters are enabled, the displayed weight will be "41.638".
If the parameters are disabled the displayed weight will be "41.637".

NOTE: if the function is enable is also necessary to set the correct number of decimals (considering that the rounding eliminate the last digit).

<< Zero >> TRANSMISSION OF SCALE ZERO COMMAND FROM THE INDICATOR
In this step one can enable the Zero scale transmission command: the command (not configurable) is **Z** followed by a "CR".
diSAbLe   disabled
EnAbLE   enabled
(!) Disable

<< tArE >>   REMOTE SCALE TARE SENDING
In this step one can enable the transmission of the Tare command from the indicator:
Disable
Enable   >> One will be requested to enter the command that is to be transmitted (up to 3 alphanumeric characters) followed by a "CR".
(!) Disable
<< Man.tAr >>   REMOTE SCALE MANUAL TARE
In this step one can enable the transmission of the manual Tare command from the indicator:
Disable
VAL.CMd   first the value is transmitted and then the tare command
CMd.VAL   first the command is transmitted and then the tare value
If one sets **VAL.CMd** or **CMd.VAL** one will be asked to enter the command to be transmitted (up to 3 alphanumeric characters) followed by a "CR".
(!) diSAbLe

<< rEq.WEi >>   REMOTE SCALE WEIGHT REQUEST
In this step one can enable the serial command which will be used to request the string from the remote scale, when it is transmitted upon request.
Disable   disabled
Enable   enabled   >> It will be possible to set the request interval (001..up to 255 hundredths of sec) and the serial command for reading the weight (up to 4 alphanumeric characters).
(!) Disable

NOTE: For the scale configuration of the remote scale, refer to the relative manual.

<< terM.tX >>   TERMINATOR IN TRASMISSION
To the commands of required weight, tare and zero is appended this terminator.
Cr   TERMINATOR CR (character 13 from ASCII table)
Cr LF   TERMINATOR CR LF (character 13 and character 10 from ASCII table)
LF   TERMINATOR LF (character 10 from ASCII table)
no.tErM   NO TERMINATOR (for Dini Argeo printers, with standard printing by Dinitools TM)
(!) CR

<< rEAdEr >>   READER PROTOCOL
Enabling data reception from the external reader (See relative manual)
Disable   disabled
CoM.AuX   enabled on the ComAux
CoM.Prn   enabled on the ComPrn
(!) diSAbLe

<< r71.rEP >> R71 REPEATER
If the R71620 is connected to the indicator, through this step it is possible to enable the dedicated protocol, for the serial ports set with the "**riPE 6**" protocol.
Disable   Disabled
Enable   Enabled
(!) 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 **7 PROGRAMMING THE PRINTOUTS**.

<< tErMin >>   SET TERMINATOR TYPE

When connecting a printer it is possible to define the end of the print line, in the print blocks which foresee the terminator print (indication +T, see 7.3 section)

Cr	TERMINATOR CR (character 13 from ASCII table)
Cr LF	TERMINATOR CR LF (character 13 and character 10 from ASCII table)
LF	TERMINATOR LF (character 10 from ASCII table)
no.tErM	NO TERMINATOR (for Dini Argeo printers, with standard printing by Dinitools TM)
(!) LF	

<< dEF.Prn >> PRINTOUT DEFAULT

By pressing **ENTER** one is asked to confirm the activation of the default printouts: the display shows "SurE?": press **ENTER** again to confirm or another key to cancel the operation.

The printout default is valid only for the TPR printer.

WARNING: By enabling the printouts, all the formatted print formats will be CANCELLED and the first 8 will be SUBSTITUTED by the standard formats which automatically will be linked to the 8 print functions.

<< Anout >> ANALOGUE OUTPUT (OPTIONAL)

If various scales are connected (see **nuM.SCA** parameter), the number of the scale to be configured will be requested, the configurations inside this menu must be made for each connected scale.

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

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.

See the 6 "ANALOGUE OUTPUT" section for configuring.

<< inPutS >>   INPUT CONFIGURATION

The indicator has 2 inputs on the main board, 6 on the optional expansion board, which may take on the meaning of a specific function key or of any scale function key, among those available; it is therefore possible to emulate a few keys through the corresponding input.

In. 1   INPUT 1

nonE	NO INPUT
tArE	TARE KEY
2nd F	2nd F KEY
ENTER/Fn	ENTER/Fn KEY
Point	DECIMAL POINT
C	C KEY
F1	F1 KEY
F2	F2 KEY
F3	F3 KEY
F4	F4 KEY
F5	F5 KEY
F6	F6 KEY
F7	F7 KEY
F8	F8 KEY
F9	F9 KEY
F10	F10 KEY
- 0 -	NUMERIC ZERO KEY
- 1 -	ONE KEY
- 2 -	TWO KEY
- 3 -	THREE KEY
- 4 -	FOUR KEY
- 5 -	FIVE KEY
- 6 -	SIX KEY
- 7 -	SEVEN KEY
- 8 -	EIGHT KEY
- 9 -	NINE KEY
PLt – 0	ENABLE REMOTE SCALE
PLt – 1	ENABLE SCALE 1
PLt – 2	ENABLE SCALE 2
PLt – 3	ENABLE SCALE 3
PLt – 4	ENABLE SCALE 4
LoC.in	KEYBOARD LOCK
oFF	TURNING OFF THE INDICATOR
- oK -	OK MESSAGE
Error	IN THE LED DISPLAY APPEARS "------" AND THE KEYBOARD IS DISABLED
rEAdY	READY MESSAGE
StArt	START MESSAGE
StoP	STOP MESSAGE
rL.oFF	SETS ALL THE OUTPUTS AT OFF
LnG.KEY	SETS KEY PRESSED AT LENGTH
LEVEL	SETS LEVEL CHECK
MNU.FUN	EXECUTION OF A SPECIFIC FUNCTION: Select from a menu the function to execute every time the relative input is activated. The menu lists all the functions contained in the table described at paragraph 3.2 (<<F.kEyS>>).
r.StArt	CYCLE MANAGEMENT ON THE OUTPUTS (dosage)
(!) nonE	

The same configurations are valid for:

In. 2   INPUT 2
In. 3   EXPANSION BOARD
In. 4   EXPANSION BOARD
In. 5   EXPANSION BOARD
In. 6   EXPANSION BOARD
In. 7   EXPANSION BOARD
In. 8   EXPANSION BOARD

r.StArt - Dosage cycle management through outputs

Premise: The functioning provides for an input to be set on r.StArt.

The involved outputs are OUT1 and OUT2: in order to function correctly these must be configured with the NC contact on a weight function, for example Set point on the Net or Gross weight.

By enabling the input linked to the r.StArt both outputs are enabled; the dosage automatically ends upon reaching the set point linked to OUT2.

Notes:
1) if an input is linked to r.StArt OUT1 and OUT2 are managed in "dosage" even if these are configured in their exclusive functioning;
2) it's possible to execute also dosages in unloading (negative set points) as long as the zeroing or the tare at cycle start is executed (through the input or the key);
3) if input1 is linked to the tare or to the zero, the dosage starts only if the net weight is zero (this allows to execute an initial compulsory zeroing);
4) it's possible to interrupt at any moment the dosage cycle by enabling an input set on rL.oFF.

for example:

rL.1=100   rL.2= 200   in.1=rL.oFF   in.2=r.StArt

  - enabling in.2:   one enables OUT1 and OUT2 and the dosage cycle starts.
  - upon reaching 100g the rL.1 disables OUT 1 is disabled.
  - upon reaching 200g the rL.2 disables OUT 2 is disabled and the dosage cycle ends.
  - by enabling in.1 the dosage cycle resets at any point.

<< output >>   OUTPUT CONFIGURATION

The indicator has 4 outputs on the main board and 12 outputs on the optional expansion board; through this step one configures the functioning of each output.

See the section 15.4 "FUNCTION OF SET POINTS" in the user manual for the functioning mode specifications.

<< r.ConF >> OUTPUTS' CONFIGURATION

In this step it is possible to configure the normal status, the switching condition and the functioning mode for each output.

rL. 1   OUTPUT 1 (OUT 1)
  << no/nC >> NO/NC CONTACTS
  By pressing **ENTER** one sets the status of the output after the instrument start-up: normally open **(n.o.)** or normally closed **(n.C.).**
  NOTE: with indicator turned off, the status of the output is normally open.
  (!) n.o.

  << onStAt >> SWITCHING CONDITION
  By pressing **ENTER** one sets the output activation condition:
  drCt **DIRECT**: it is activated as soon as the weight reaches the set threshold, (independently from the stability), and it is deactivated as soon as it goes under the disabling threshold.
  StbL **UPON STABILITY**: it is activated in the moment in which the weight, after reaching the set activation thresholds, becomes stable and is disabled in the moment in which the weight goes below the configured disabling threshold and becomes stable.

(!) drCt

<< rL.iSt >> HYSTERESIS

This step allows selecting the outputs functioning mode with or without hysteresis:

iSt.on   functioning with hysteresis

iSt.oFF   functioning without hysteresis

(!) iSt.oFF

<< rLFunC >> FUNCTION

This step allows selecting the output functioning mode:

nonE	NO FUNCTIONING (disabled).
GroSS	GROSS SETPOINT (activation on the gross weight).
nEt	NET SETPOINT (activation on the net weight).
Gro.0	0 GROSS (activation on the gross weight at 0).
nEt.0	0 NET (activation on the net weight at 0).
Motion	INSTABILITY (activation upon weight instability).
toAL	TOTALISATION (activation when totalisation is made).
t.W.1	PARTIAL TOTAL (activation on the net partial total + net weight on the scale).
t.W.2	GENERAL TOTAL (activation on the net general total + net weight on the scale).
t.W.3	GRAND TOTAL (activation on the net grand total + net weight on the scale).
nEt.nEG	NEGATIVE NET SETPOINT (activation on the negative net weight).
PCS	QTY PIECES (activation on the quantity displayed)
PCS.nEG	NEGATIVE QTY PIECES (activation on the negative quantity displayed)
t.PCS	QTY TOTAL (activation on the quantity partial total + quantity present on the scale).

(!) nonE

The same configurations are valid for:

rL. 2 *OUTPUT 2 (OUT2),*

rL. 3 *OUTPUT 3 (OUT3),*

rL. 4 *OUTPUT 4 (OUT4),*

rL..5 *OUTPUT 5 (OUT5), EXPANSION BOARD*

rL..6 *OUTPUT 6 (OUT6), EXPANSION BOARD*

rL..7 *OUTPUT 7 (OUT7), EXPANSION BOARD*

rL..8 *OUTPUT 8 (OUT8), EXPANSION BOARD*

rL..9 *OUTPUT 9 (OUT9), EXPANSION BOARD*

rL..10 *OUTPUT 10 (OUT10), EXPANSION BOARD*

rL..11 *OUTPUT 11 (OUT11), EXPANSION BOARD*

rL..12 *OUTPUT 12 (OUT12), EXPANSION BOARD*

rL..13 *OUTPUT 13 (OUT13), EXPANSION BOARD*

rL..14 *OUTPUT 14 (OUT14), EXPANSION BOARD*

rL..15 *OUTPUT 15 (OUT15), EXPANSION BOARD*

rL..16 *OUTPUT 16 (OUT16), EXPANSION BOARD*

<< r.ModE >>   OUTPUTS' CONFIGURATION

norMAL   The check is always made on all the configured outputs; therefore each output is independently (its enabling does not provoke the disabling of the others).

EXCLuS   Starting from the last output up to the first its activation excludes the check on the previous ones (the activation provokes the disabling of the previous out puts) and its disabling reenables it.

(!) norMAL

<< inF.rEd >> REMOTE CONTROL CONFIGURATION

Entering the step one can choose one of four types of remote control shown:
- **None** (no remote control enabled)
- **IR 4** (4 key infrared remote control)
- **IR 18** (18 key infrared remote control)
- **IR 19** (19-key infrared remote control)
- **RD 6** (6 key radio remote control)
- **RD.BR 6** (6 key radio broadcast remote control)

The remote control keys repeat the keys' functions (both the ones obtained with a SHORT pressing as well as those with a LONG pressing).

If the weight indicator provides for a **4-key remote control** or a **6-key remote control** (optional) it's possible to personalise the configuration of the keys of the infrared ray remote control; it may be done as follows:

kEy 1   key 1 ("ZERO" on the 4-key remote control)

nonE	NO INPUT
tArE	TARE KEY
ENTER/Fn	ENTER/Fn KEY
C	C KEY
2ndF	2ndF KEY
ENTER/Fn	ENTER/Fn KEY
Point	DECIMAL POINT
F1	F1 KEY
F2	F2 KEY
F3	F3 KEY
F4	F4 KEY
F5	F5 KEY
F6	F6 KEY
F7	F7 KEY
F8	F8 KEY
F9	F9 KEY
F10	F10 KEY
- 0 -	NUMERIC ZERO KEY
- 1 -	ONE KEY
- 2 -	TWO KEY
- 3 -	THREE KEY
- 4 -	FOUR KEY
- 5 -	FIVE KEY
- 6 -	SIX KEY
- 7 -	SEVEN KEY
- 8 -	EIGHT KEY
- 9 -	NINE KEY
PLt – 0	ENABLE REMOTE SCALE
PLt – 1	ENABLE SCALE 1
PLt – 2	ENABLE SCALE 2
PLt – 3	ENABLE SCALE 3
PLt – 4	ENABLE SCALE 4
LoC.in	KEYBOARD LOCK
oFF	TURNING OFF THE INDICATOR
- oK -	OK MESSAGE
Error	ERROR MESSAGE
rEAdY	READY MESSAGE
StArt	START MESSAGE
StoP	STOP MESSAGE

rL.oFF	SETS ALL THE OUTPUTS AT OFF
LnG.KEY	SETS KEY PRESSED AT LENGTH
LEVEL	SETS LEVEL CHECK
MNU.FUN	EXECUTION OF A SPECIFIC FUNCTION: Select from a menu the function to execute when pressing the relative key on the remote control. The menu lists all the functions contained in the table described at paragraph 3.2 (**<<F.kEyS>>**).

(!) nonE

The same configurations are valid for:
kEy 2   key 2 ("Tare" on the 4-key remote control)
kEy 3   key 3 ("F1 Mode" on the 4-key remote control)
kEy 4   key 4 ("F2 Print" on the 4-key remote control)
kEy 5   key 5
kEy 6   key 6

<< t.LoCK >>   TARE LOCKED/UNLOCKED

Enable   LOCKED TARE
Disable   UNLOCKED TARE
See the 7.6 "TARE LOCKED/UNLOCKED" **(USER MAN.REF.)** sections for the functioning specifics.
NOTE: during the weighing it is possible to lock / unlock the tare by pressing at length the F5 key.
(!) Enable

<< ZOOM.W >>   WEIGHT ZOOM (§)

```
ZOOM.W
 ● Disable
 ○ Enable
```

- **Disable**

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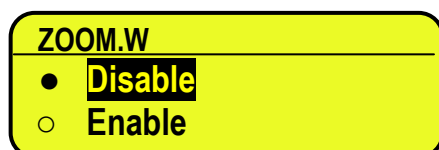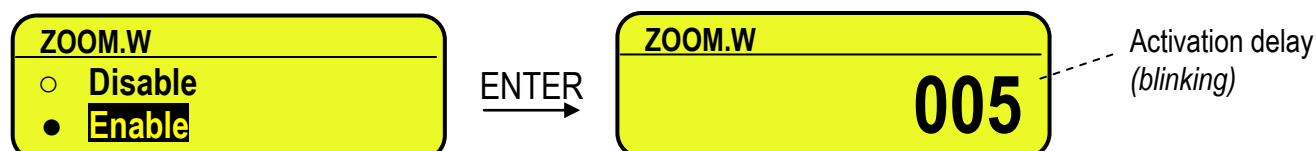
- **Enable**

See section 5.1 **(USER MAN.REF.)** for the functioning details.
(!) Enable, 005 sec
(§) This step is visible only in case of CPWE/CPWET indicator.

<< 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 a level, it is notified through the symbols on the LCD display (battery icon). See section 4.2.2 **USER MAN.REF**.

Enable   check ENABLED
Disable   check DISABLED
(!) Disable

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.

<< bACkuP >> INSTRUMENT DATA BACKUP

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

If you decide to press the ENTER key is required to enable the password protection of the backup, in this case you will be prompted to enter a numeric value to 5 digits (default 00000).

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, is asked if one wants to execute the normal default by pressing the **ENTER** key or to 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 default printouts; the LED 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 default printouts, initialises the database and the alibi memory, 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 settable values go from 0 to 65534.

See section 3 for the functioning specifics.

(!) Disable

<< ini.AL >> INITIALIZES ALIBI MEMORY (*)

The initialisation cancels all the data stored in the Alibi memory; by pressing **ENTER** one is asked to confirm the operation. The display shows **SurE?**; press **ENTER** again to confirm or another key to cancel.

At the end the " oK " message appears if the operation is made with success; otherwise the "Err" message is displayed.

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

<< dSALE >> DIRECT SALE (*)

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

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

(!) no

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

<<PC.KEYb >> PC KEYBOARD SETUP

<<KEY.uSE >> 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

<< 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.UEr >>   FIRMWARE
Software version check.

<<WEiGht >>   WEGHT
By pressing **ENTER** the display shows:
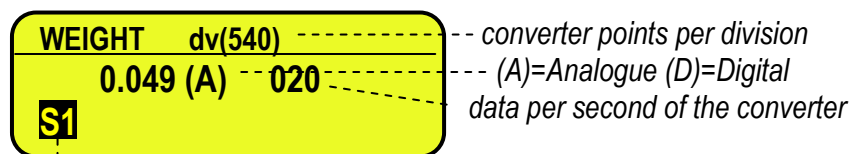
```
WEIGHT     dv(540) ----------- converter points per division
   0.049 (A) --020------------- (A)=Analogue (D)=Digital
S1 ------------------------------- data per second of the converter
```

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

```
MILLIVOLT
   0.285   (D) ----------- Millivolts and type of cells: (A)=Analogue, (D)=Digital
S1   CH=ALL
```
Checked channel / digital load cell.
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    (D)  --------- -   A/D converter points and type of cells: (A)=Analogue, (D)=Digital
S1   CH=ALL
```

Checked channel / digital load cell

Checked scale

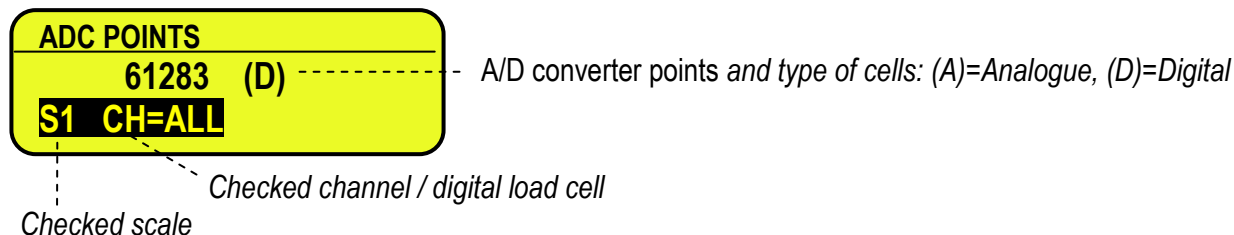If various scales are connected independently by pressing the F6 / F7 keys it is possible to select the scale to be checked. In the case the load cell is not connected or faulty, or the A/D converter is faulty, it is possible that floating values are shown, or the message "Err.C.XX" appears (in which 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 point' value close to 0will be displayed.

<< diSPLA >> DISPLAY

By pressing **ENTER** the instrument shows the display version and the led turns on.
By pressing a key all the leds (in the 3590E version) and LCD 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 rebrought 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.
If the second CTS is enabled is possible scroll up and down with the rows to see the status of both CTS.

<< 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 analog-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.
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
2	IN2	
3	IN3	
…		Inputs of the expansion board
8	IN8	

and the number each input corresponds to its status:

0 = disabled;
1 = enabled.

<< Anout >>   ANALOGUE OUTPUT

If the instrument is fitted with the 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 6.

By pressing **ENTER** the display shows 0; enter a value between 0 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 >> PRINTOUT TEST

One can choose the number of format to print by inserting the correspondent code. By choosing the format 00 all the formats are printed in succession.

<< EV.LOG >> EVENTS LOG

This function shows and allows also to print, a list of the events generated by the indicator. Events are divided in the following categories:

- metrical: calibration, equalization
- battery: power on, power off, changing of the power supply (battery, mains)
- keyboard: pressed keys
- setup operations: default, restore from backup, setup saving
- firmware update
- network

For each category are present the last 10 events with the indication of the Date/Time of happening. By pressing the F5 key the list is printed.

3.3 CALIBRATION OF THE SCALE

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") or 1 weighing system, with digital equalisation of 4 channels (therefore "dependent channels").

With independent channels, each connected system must be calibrated on its own, with its own capacity, division, and unit of measure.

With dependent channels, the weighing system will be connected to 2, 3 or 4 channels of the converter, and besides the calibration, one must carry out the equalisation (useful for managing pallet truck scales or scales with various load cells).

3.3.1 CALIBRATION PROCEDURE
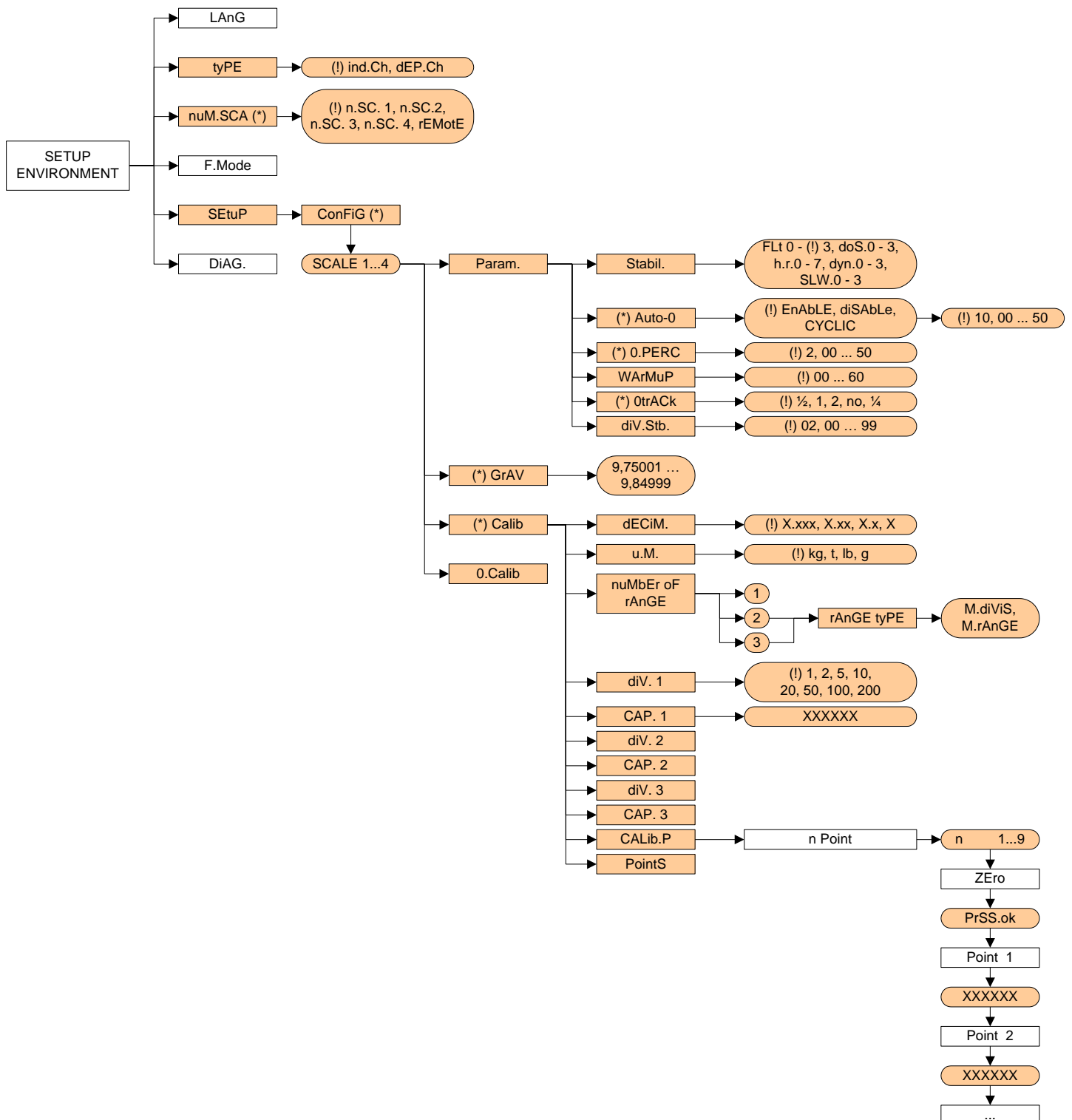
1) Enter the setup of the instrument;
    (at start-up, press for an instant **TARE** key while the instrument version is displayed)

2) Select the type of desired system; enter the **tyPE** step and select with the ▼ ▲ keys:
    - **ind.Ch**: up to 4 independent weighing systems.
    - **dEP.Ch**: 1 weighing system with various cells.
    Confirm with **ENTER**.

3) Set the number of used channels; enter in the **nuM.SCA** step and select with the ▼ ▲ arrow keys:
    - **rEMotE**: only for remote scale (calibrations are not carried out)
    - **n.SC. 1**
    - **n.SC. 2**
    - **n.SC. 3**
    - **n.SC. 4**

4) Enter in the configuration menu of the calibration in other words **SEtuP >> ConFiG>> CALIB** and press **ENTER**.

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

6) Execute the equalisation (only if **tyPE** = **dEP.Ch**), as described in section 3.3.5.

7) Select the calibration menu, in other words, **CALib** and press **ENTER;** if the equalisation of point 6 has not been made (only if **tyPE** = **dEP.Ch**), the display will show "no Eq?", confirm with **ENTER** to carry out the calibration nevertheless.

8) Set the number of calibration decimals: select the **dECiM.** step and press **ENTER**, with the ▼ ▲ keys move the decimal point in the desired position and press **ENTER**.
    (!) 0.000

9) Set the unit of measure: select the u.M. step and press **ENTER**, with the ▼ ▲ keys select the unit of measure: grams (G), kilograms (kG), tons (t) or pounds (Lb) and press **ENTER**.
    (!) kg

10) Select the number of calibration range: select the **rAn.nuM** step and press **ENTER**.
    -   if there is only one measuring range, select 1 and confirm with **ENTER;**
    -   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**.

11) Set the division of the scale or the division of the first range: select the **diV. 1** step and press **ENTER**, with the ▼ ▲ keys select the value (1, 2, 5, 10, 20, 50, 100, 200) and press **ENTER**.
    (!) 1

12) Set the capacity of the scale or the first range: select the **CAP.1** step and press **ENTER**, set the value (minimum 100 maximum 999999) 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.
    (!) 0.100

    NOTE: if the range number set in step 10) is equal to 1, pass directly to point 17)

13) Set the division of the second range: select step **diV. 2** and press **ENTER**, with the ▼ ▲ keys select the value (1, 2, 5, 10, 20, 50, 100, 200) and press **ENTER**.
    (!) 1

14) Set the second range: select step **CAP.2** and press **ENTER**, set the value (minimum 100 maximum 999999) and press **ENTER**.

    NOTE: if the range number set in step 10) is equal to 2, pass directly to point 17)

15) <u>Set the division of the third range:</u> select step **diV. 3** and press **ENTER**, with the ▼ ▲ keys select the value (1, 2, 5, 10, 20, 50, 100, 200) and press **ENTER**.
(!) 1

16) <u>Set the third range:</u> select step **CAP.2** and press **ENTER**, set the value (minimum 100 maximum 999999) and press **ENTER**.

17) <u>Carry out the acquisition of the calibration points:</u> select the **CALib.P** step and press **ENTER**.
The instrument will request the following in this order:

<u>Number of signal linearization points:</u> the "CALIBRATION POINTS" message will appear followed by " 1 ", enter the value (from 1 to 8 points, besides ZERO) and press **ENTER**.

<u>ZERO points:</u> the message "UNLOAD THE SCALE AND PRESS ENTER" appears; unload the scale and press **ENTER**.

<u>First linearization point:</u> "Point 1" message will appear followed by the request to enter the value of the calibration weight; enter the value with the numeric keyboard; put the weight on the scale and press **ENTER**.

<u>Following calibration points:</u> as the above

18) After the calibration is made, the message "CALIBRATION MADE" appears on the display;

19) If one needs to calibrate other scales, press the C key various times until the display shows "SELECT THE SCALE"; select the following scale that is to be calibrated and repeat all the operations from point 7.

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**.

3.3.2 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:
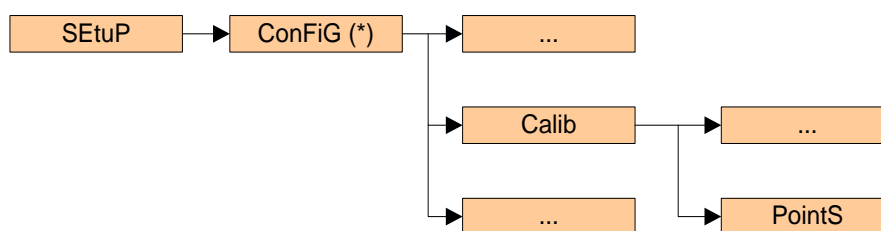
POINT	ADC.POINT	WEIGHT
0	72461	0.00
ACT.1	182567	1.00

POINT	ADC.POINT	WEIGHT
1	182567	1.00
ACT.2	279939	1.89

...
...
...

POINT	ADC.POINT	WEIGHT
7	XXXXXX	XXXX.XX
ACT.8	XXXXXX	XXXX.XX

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KEYS' FUNCTIONS
F1   enters a linearization point.
F2   cancels a linearization point.
F3   waits for weight stability and enters a linearization point copying both the converter points / millivolt and weight indications.
F4   waits for weight stability and enters a linearization point copying the converter points / millivolt indication.
F5   enters a linearization point copying the converter points / millivolt indication without waiting for weight stability.
F6 ▼   scrolls backward the points inside the menu.
F7 ▲   scrolls forward the points inside the menu.
F8 ◄ / F9 ►   scroll between the converter points or the millivolt indication and the weight indication.
2ndF   changes between the converter points' indication and the millivolt indication.
HELP   show keys function.
ENTER   modifies a point (weight, converter point, millivolt); while entering it confirm the entered values.
C   exits the programming; one is asked to save (the display shows "**SurE**?"): with **ENTER** one confirms, with another key one exits without saving. While entering a code, it quickly zeros the present value.

3.3.3 ZONE OF USE DIFFERENT THAN THE ZONE OF CALIBRATION:
If the zone of use is different than the calibration zone, one should:

1) Enter in the Set-up of the instrument;
   (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) Set the calibration zone: enter in the **GrAV** step and set the gravitational acceleration value of the CALIBRATION ZONE.

4) Execute the calibration, following the procedure shown in section 3.3.1.

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.

3.3.4 QUICK ZERO CALIBRATION
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/ZERO** 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 (if **nuM.SCA** > **1**) and press **ENTER**.

4) Select the **0.CALib** step and press **ENTER**; the message "UNLOAD THE SCALE AND PRESS ENTER" appears.

5) Put the preset tare to be cleared on the scale or unload the scale and press **ENTER**

6) Once calibration is made, the message "ZERO CALIBRATION MADE" will appear on the LCD display; press **ENTER** and the scale returns to the **ParAM** step; in case one needs to calibrate other scales, press the C key, select the following scale to be calibrated and repeat all the operations from point 2.

7) If, otherwise, the calibration is done, press various times the C key until the instrument asks to save and confirm with **ENTER**.

3.3.5 CELL EQUALISATION PROCEDURE

NOTE: - This procedure may be selected only if **tYPE** = dEP.Ch (dependent channels).
  - Furthermore, for this procedure it is advisable to use a weight of at least 1/3 of the capacity.

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) Enter in the equalisation step: select the **EquAL** step and press **ENTER**
   NOTE: the system asks to confirm " **rESEt ?** " before entering in this step because by continuing one will reset the previous memorised equalisation.

4) Select the **Eq 0** step (equalisation of the zero): the message "EQUALISATION ZERO" will appear unload the weighing system and press **ENTER**.

5) Select the **Eq 1** step (equalisation of the first channel): the message "EQUALISATION CHANNEL 1" will appear put a calibration weight on the connected cell and press **ENTER**.

6) Select the **Eq 2** step (equalisation of the second channel): the message "EQUALISATION CHANNEL 2" will appear put **the same calibration weight** on the connected cell and press **ENTER**.

7) Select the **Eq 3** step (equalisation of the third channel): the message "EQUALISATION CHANNEL 3" will appear put **the same calibration weight** on the connected cell and press **ENTER**.

8) Select the **Eq 4** step (equalisation of the fourth channel): the message "EQUALISATION CHANNEL 4" will appear put **the same calibration weight** on the connected cell and press **ENTER**. **(§)**

9) Proceed with the calibration

3.4 REMOTE SCALE CONFIGURATION

Example of configuration with a DFW06 as remote scale set with extended string:

[CC]B,hh,NNNNNNNNNN,YYTTTTTTTTTT,PPPPPPPPPP,uu,(dd/mm/yybbhh:mm:ss|"NO DATE TIME") <CR LF>

in which:

[CC]		INSTRUMENT CODE IN THE FORMAT OF TWO ASCII DECIMAL DIGITS JUST IN CASE THE 485 PROTOCOL IS SELECTED (FOR EXAMPLE 00)
B		scale number (always 1).
,		Comma character
hh	UL	Underload
	OL	Overload
	ST	Stability of display
	US	Instability of display
	TL	Active inclination input
,		Comma character
NNNNNNNNNN		net weight on 10 characters including possible sign and decimal point
,		Comma character
YY		"PT" if the tare is manual, otherwise YY = " " (two empty spaces) if the tare is semiautomatic.
TTTTTTTTTT		Tare weight on 10 characters including possible sign and decimal point.
,		Comma character
PPPPPPPPPP		Number of pieces on 10 characters, equal to 0 if the indicator is in a functioning mode other than the counting mode.
,		Comma character
uu		Unit of measure "Kg" "**b**g" "**b**t" "lb
,		Comma character (only with REXD command)
dd/mm/yy		Date in the "dd/mm/yy" format (only with REXD command)
bb		2 space characters, 32 decimal ascii characters (only with REXD command)
hh:mm:ss		Time in the "hh:mm:ss" format (only with REXD command)
<CR LF>		Carriage Return + Line Feed (ascii decimal character 13 and 10).

The insignificant digits of the net, tare, gross tare weights and the pieces' number of the various channels will be filled with spaces (space character, 32 decimal ASCII code characters)
In the case in which the optional "Real Time Clock" board is not detected or it is not set, the weight is transmitted but not the date and time; "NO DATE TIME" is in its place.

Example of how to set the remote scale string parameters, step by step:

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43
1	,	S	T	,						6	.	0	0	0	,	P	T						0	.	0	0	0	,										0	,	k	g	CR	LF
					W	W	W	W	W	W	W	W	W			M	M	T	T	T	T	T	T	T	T	T	T																E

where:

W	W	W	W	W	W	W	W	W

Is the Weight

M	M

Is the Tare Type

T	T	T	T	T	T	T	T	T

Is the Tare Weight

E

Is the Char Terminator (It's recommendable to set the Char Terminator that must be unique and the last char of the string)

Parameters to set in the setup environment:

Parameter	Extended String	
EnAb.	Enable	
tErM	010	
WEi.PoS	05	
WEi.LEn	10	
W.tyPE	NET	
tAr.PoS	18	
tAr.LEn	10	
tAr.tYP	16	
Str.LEn	43	
CAPAC. (#)	XXXXXX	
diV. (#)	XXX	
dECiM. (#)	X	
u.M. (#)	XX	
StAb.	00	
In.Str?	Instability string position	02
	Instability string	US
StA.int	02	
round.S	Disable	
Zero	Enable	
tArE	Enable Tare command >> T	
MAn.tAr	CMD.VAL. Tare command >> W	
rEQ.WEi	Enable	
	Interval of request (csec)	050
	Command for weight request	REXT

(#) The capacity (CAPAC.), the division (DIV.), the decimals (DECIM.) and the unit of measure (U.M.) must be set depending on the configuration of the remote scale.
The communication on the slave must be set in request mode.

Compile your string:

RECEIVED STRING																																												
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44

LCD Text	Parameter	Value
Term	REMOTE SCALE TERMINATOR	
WEi.Pos	REMOTE SCALE WEIGHT POSITION	
WEi.LEn	REMOTE SCALE WEIGHT LENGTH	
tAr.PoS	REMOTE SCALE TARE POSITION	
tAr.LEn	REMOTE SCALE TARE LENGTH	
tAr.tYP	REMOTE SCALE TARE TYPE POSIT.	
Str.LEn	REMOTE SCALE STRING LENGTH	

The communication on the remote scale should be required.
In communicating with remote scale, it displays "out of scale" in the case of exceeding the maximum capacity. If you exceed the negative value of underload, it will still be displayed. If you set the flag of stability, in all other cases (underload, overload, etc. ..) icon appears instability. Conversely, if you set the flag of instability in the case of stability, and in other cases (underload, overload, etc. ..) don't see the icon of instability.
NOTE: This operation does not change with an approved instrument.

4. DISPLAY OF THE SCALE GRAVITY ACCELERATION AND CORRECTION OF THE WEIGHING ERROR DUE TO THE DIFFERENT GRAVITY ACCELERATION BETWEEN THE CALIBRATION AND THE UTILISATION ZONE

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 value of "**g**" of the utilisation zone where the weighing machine can be used.

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 instrument displays, upon start-up by pressing the **2ndF** key, the "g" value relative to the gravitational zone of use for a few seconds, after the name and the installed software version.

5. 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").
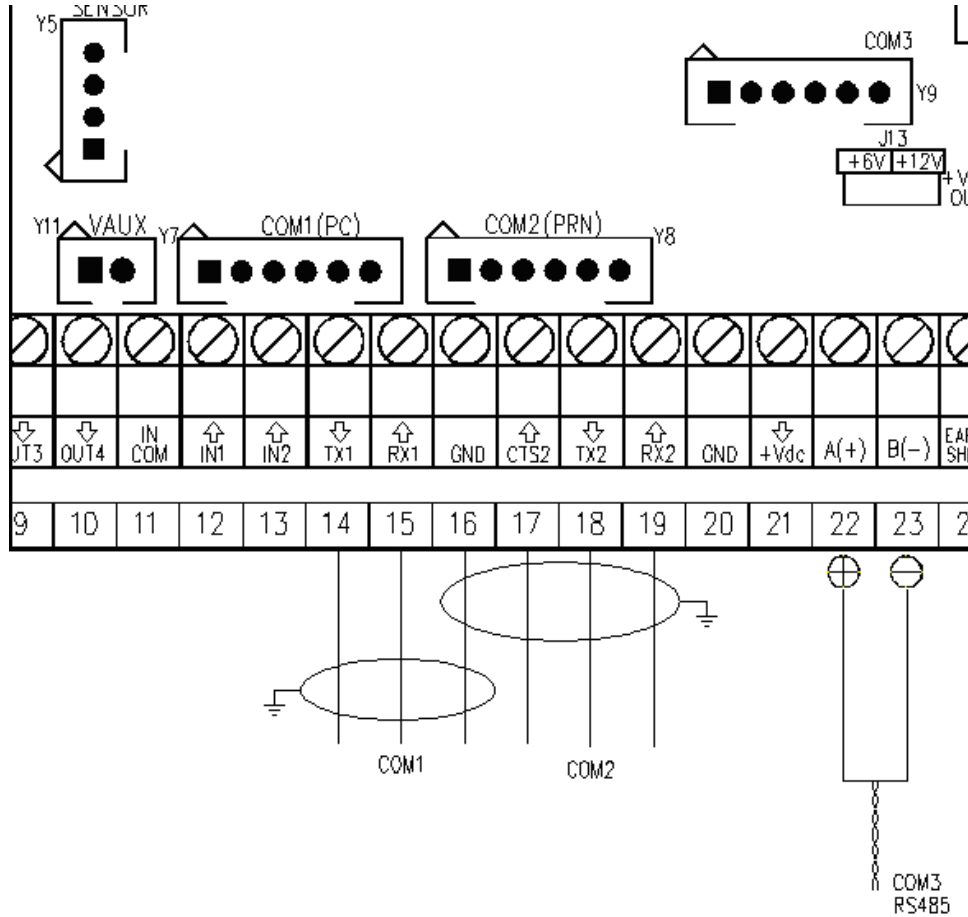
Signal	AMP connector		Terminal board		
	COM1/COM3 (RS232)	COM2 (RS232)	COM1 (RS232)	COM2 (RS232)	COM3 (RS485)
TX	1	1	14	18	22 A(+)
RX	2	2	15	19	23 B(-)
GND	6	6	16	16	-
CTS	2	3	15	17	-

Through the step **SEtuP >> SEriAL >> PortS** it is possible to 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, remote scale, barcode reader.

!! IMPORTANT !!
THE CONNECTION AND THE SOFTWARE CONFIGURATION OF THE SERIAL PORTS MUST BE MADE BY TECHNICAL PERSONNEL WHO KNOW 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.

5.1 RS 485 CONNECTION

IMPORTANT:
- **Respect the electrical precautionary measures indicated in section 1.**

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.
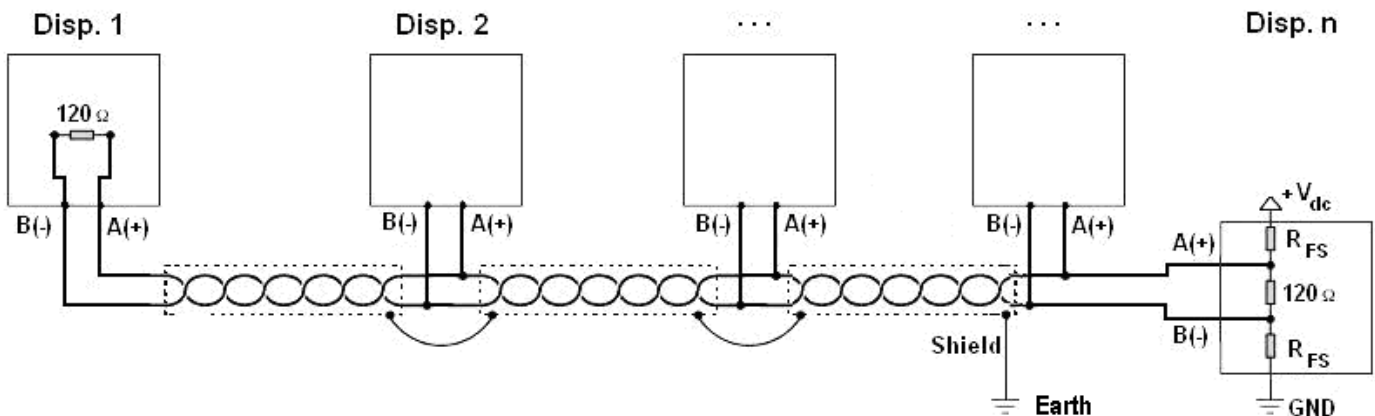
Figure 1: electrical diagram of RS485 connections.

- 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't 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 (typically 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 resistances** (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 relative specific manuals.

5.2 PC CONNECTION

9 PIN CONNECTOR

INDICATOR	9 pin Collector	Colour
TX	2	Pink
RX	3	Yellow
GND	5	Grey

RJ45 CONNECTOR

INDICATOR (RJ45 connector)	9 pin Collector	Colour
TX 6	2	Orange
RX 3	3	Blue/White
GND 5	5	Green/White

5.3 PRINTER CONNECTION

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

INDICATOR	TPR	STANDARD CABLE
GND	GND	Black
CTS	CTS	Yellow
TX	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

5.4 TRANSMISSION PROTOCOLS

<u>STANDARD</u>   [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)		

<u>AF0X STRING</u>   [available for ComPc]

The weight data transmission on the serial port happens in the following format:

CC]SS,B,LLLLLLLLLLUM,TTTTTTTTTTUM,nnnnnnnnnnN,PPPPPPPPPUM<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)	
nnnnnnnnn	number of pieces	
N	letter entered after the number of pieces	
PPPPPPPP	average unit weight	
UM =	Unit of measure (Kg, g, t, lb)	
<CR LF>	Carriage Return + Line Feed (ASCII 13 and 10)	

DINI ARGEO REPEATER   [available for ComPc, ComPrn, ComAux]
Transmission protocol for connection to a Dini Argeo weight repeater. It transmits the weight value shown to the Dini Argeo weight display.
NOTE: In this case, the setting of the **PC.Mode** "TRANSMISSION TYPE" parameter has no relevance.

LCD REPEATER (for 3590E version)   [available for ComPc]
With this transmission protocol, it is possible to repeat the messages shown on the LCD display.
The data is transmitted in the following format:

XXXXXXXXXXXXXXXXYYYYYYYYYYYYYYYY + CR + LF

In which: **XXXXXXXXXXXXXXXX**   =   Data shown on the first line of the LCD display

            YYYYYYYYYYYYYYYY   =   Data shown on the second line of the LCD display

            CR   =   Carriage Return

            LF   =   Line Feed

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.

ALIBI MEMORY   [available for ComPc, ComPrn]
If the indicator is fitted with the alibi memory, one should set this parameter in order to store the weighs using the print key and transmitting the string through the PC serial port; see the protocol specifications in the "ALIBI MEMORY" section in the user manual.
NOTE: in the ComPrn the string will not be transmitted.

SMA   [available for ComPc]
Serial communication protocol of the Scale Manufacturers Associations (SMA). See relative manual.

PROFIBUS   [available for ComPc]
Standard protocol, see relative manual.

MODBUS   [available for ComPc]
Standard protocol, see relative manual.

"NO PROTOCOL"   [available for ComAux]
Set in case of connection to remote scale or badge / bar code reader (serial ports).

"PRINT"   [available per ComPrn]
The weight data transmission on the serial port depends on the print functions of the indicator.
For further details see section 7 "PROGRAMMING THE PRINTOUTS" and section 14 "PRINTOUTS" **USER MAN.REF.**

5.5 TRANSMISSION MODES

Data transmission from serial Ports can be done in **4** different ways:

TRANSMISSION ON REQUEST
It requires an external command from the PC to send the data requested. Transmission can take place at any time requested.

CONTINUOUS TRANSMISSION
- 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 7.
- ComAux: The weight transmission on the serial port takes place with the STANDARD protocol.

TRANSMISSION ON STABILITY
Transmission is automatic each time the weight put on the platform reaches stability ("~" pilot light off); the minimum transmission limit is of 10 divisions with a NON APPROVED instrument and 20 divisions with an APPROVED instrument. The reactivation of the transmission takes place depending on how the **F.modE >> rEACt** "REACTIVATIONS" parameter of the SET-UP environment has been set (passage by zero of the net weight or weight instability).

RS485 TRANSMISSION
On request an RS485 Half Duplex serial output can be installed, enabling the possibility of bi-directional communication up to 32 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>").

5.6 SERIAL COMMANDS FORMAT

LEGEND	
[CC] o <II>	instrument code, e.g. 00 (only with RS485 protocol)
<CR LF>	Carriage Return + Line Feed (ASCII characters 13 and 10)
<ESC>	ASCII character ASCII 27
<STX>	ASCII character ASCII 02
B	space character, ASCII 32.

SERIAL ERRORS	
Upon each serial command received the instrument transmits a string containing the answer (see the command description) or it transmits one of the following indications:	
OK<CR LF>	it is shown when a correct command is transmitted from the PC to the indicator. The OK answer does not imply that the instrument executes the zero.
ERR01<CR LF>	it is shown when a correct command is transmitted from the PC to the indicator however it is followed by letters inserted involuntarily (I.E.: READF, TARES…).
ERR02<CR LF>	it is shown when a correct command is transmitted from the PC to the indicator, but containing wrong data.
ERR03<CR LF>	it is shown when a non allowed command is transmitted. It may 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>	it is shown when an inexistent command is transmitted.
NOTE: The instrument doesn't transmit any indication with the short commands, like the ones made up of only one letter and then the possible parameter.	

COMMANDS

Version reading   **[CC]VER<CR LF>**
Instrument response: [CC]VER,vvv,E-AF02<CR LF>
In which: vvv is the firmware version

Data reading: **[CC]READ<CR LF> or: [CC]R<CR LF>**
Instrument response: see Transmission Protocol

Semiautomatic tare: **[CC]TARE<CR LF> or: [CC]T<CR LF>**

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

Checked tare: **[CC]TAREB<CR LF>**
Instrument's answer: [CC]OK<CR LF>:   tare executed
                                [CC]KO<CR LF>:   tare is not allowed (tare disabled, weight instability, weight in overload, etc.)

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

Checked zero: **[CC]ZEROB<CR LF>**
Instrument's answer: [CC]OK<CR LF>: zero executed
                                [CC]KO<CR LF>: zero is not allowed (weight instability, weight in overload, etc.)

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

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)
	B =	scale number (zero for the remote scale)
	, =	Comma character (ASCII decimal 44)
	hh =	UL Underload
		OL Overload
		ST Stability of the display
		US Instability of the display
	, =	Comma character (ASCII decimal 44)
NNNNNNNNNN =		net weight on 10 characters including sign and decimal point
	, =	Comma character (ASCII decimal 44)
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
	, =	Comma character (ASCII decimal 44)
PPPPPPPPPP =		number of pieces on 8 characters, pieces equal to 0 if the indicator is not in a counting functioning mode
	, =	Comma character (ASCII decimal 44)
MMMMMMMMMM =		A.P.W.
	,=	Comma character (ASCII decimal 44)
	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)

NOTE: With **remote scale** in error only with AFXX or ALIBI protocol in the place of the UL/OL/ST/US heading flags it will put responds with ER; this is valid for all the weight reading commands which contain the status flags; for example: READ /R /RALL /REXT.

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

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

Checked print: **[CC]PRNTB<CR LF>**
Instrument's answer: [CC]OK<CR LF>: print executed
                                    [CC]KO<CR LF>: print is not allowed (weight instability, print not reactivation, cts error, etc.)

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

Reading of the number of entered articles and total articles:
                                    [CC]NREC00<CR LF>
Instrument's answer: [CC]NREC,0,XXXX,0100<CR LF>

in which:	0=	database index
	XXXX=	number of entered articles
	0100=	number of total articles

Reading of the content of a specific article:

                                        [CC]RREC,0,xxxx<CR LF>
in which: 0=   database index
                             xxxx=   number of the article

Instrument's answer: [CC]RREC,0,xxxx,content,CC<CR LF>

in which: 0=   database index
                             xxxx=   number of the article
The content consists of the following fields, in this order:
                                           description 1;
                                           description 2;
                                           description 3;
                                           description 4;
                                           description 5;
                                           initial value of the analogue output;
                                           PID error;
                                           PID error sum;
                                           flow rate target;
                                           dosage target;
                                           dosed weight;
                                           number of dosages
                             CC=   checksum

Example:
Command: [CC]RREC,0,0001<CR LF>
Instrument's answer:
RREC,0,0001,DESCR.1;D.2;TEXT3;D.4;DESCR. 5;300;0;0; 25.8;   1.500;   6.042;8;,30

Note: the dimension of some fields depends on the number of digits/characters inserted in the corresponding parameters; these fields are: description 1, description 2, description 3, description 4, description 5, initial value of the analogue output, PID error, PID error sum, number of dosages.

Reading of the selected article number:
                                        [CC]GREC00<CR LF>
Instrument's answer:
[CC]GREC,0,XXXX<CR LF>   if the article had been selected

in which: 0=   database index
                             XXXX=   number of the selected article

[CC]GREC,0,NULL<CR LF>   if the article had not been selected

in which: 0=   database index

Selection of an entered article: **[CC]SREC,0,xxxx<CR LF>**
in which: 0=   database index
                             xxxx=   number of the article
Instrument's answer:
[CC]SREC,0,xxxx,OK<CR LF>   if the article had been entered
[CC]SREC,0,xxxx,KO<CR LF>   if the article had not been entered ,

in which: 0=   database index
                             xxxxx=   number of the article

Deselection of the selected article: **[CC]SREC,0,9999<CR LF>**
Instrument's answer: [CC]SREC,0,9999,OK<CR LF>

in which: 0=   database index

Reading text sections of custom language tool:
                                    [CC]TSECT<CR LF>
Instrument's answer: [CC]12<CR LF>

in which: 12 = the indicator have 12 text sections.

If "TSECT" is followed by 2 digits (from 00 to 11), it will show index name of each text section.

Temporary view of message on the display:
                                    [CC]DISPNNVVVVVV<CR LF>
in which: NN: display number of the indicator, (00 for 3590E display / CPWE-CPWET weight section, 01 for 3590E LCD display / CPWE-CPWET data section)
                                    V: character to be displayed (at least 1, cut off at the number of characters which may be viewed by the indicated display)
The message remains for the time configured through the DINT command; if one selects to view the message permanently on a display and one wants to cancel the operation, transmit the DISPNN command without any message: the display, specified in the command (NN) goes back to view the usual information relative to the selected functioning mode.

Setting a display visualisation interval: **[CC]DINTXXNNNN<CR LF>**
in which: XX: code which identifies the display (00 for 3590E display / CPWE-CPWET weight section, 01 for 3590E LCD display / CPWE-CPWET data section)
                                    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 into hex become 07D0, the command becomes DINT0007D0<CR><LF>.

By setting NNNN = 0000, the transmitted message with the DISP command (see above) remains permanently viewed on the selected display.

With approved instrument
- for the display (00 for 3590E LED display / CPWE-CPWET weight section, the maximum settable time is 5 seconds (5000 milliseconds, HEX 1388).
- one should wait for the end of an eventual current visualisation before viewing a following one.

APW transmission: **[CC]SPMUPPPPPPPP<CR LF> or[CC]XPPPPPPPP<CR LF>**
In which: PPPPPPPP = APW in ASCII, max 8 characters.
Example: X10.0<CR LF>

SEE also section 3.2, Description of the steps:
P.M.u   UPDATING THE MAN / AUT A.P.W.
uM.PMu   A.P.W. UNIT OF MEASURE
dEC.PMu   A.P.W. NUMBER OF DECIMALS

Reading of converter points relative to the weight: **[CC]RAZF<CR LF>**
Instrument's answer: [CC]SS,RZ,RRRRRRRRRR,vv<CR LF>
In which: SS   UL   Underload
                                                                          OL   Overload
                                                                          ST   Stability of the weight
                                                                          US   Instability of the weight
                                                       RRRRRRRRRR   Value of converter points (10 characters)

Reading of microvolts relative to the weight: **[CC]MVOL<CR LF>**
Instrument's answer: [CC]SS,VL,MMMMMMMMMM,uv<CR LF>
In which: SS   UL   Underload
                                                                          OL   Overload
                                                                          ST   Stability of the weight
                                                                          US   Instability of the weight
                                                       MMMMMMMMMM   Value of microvolts (10 characters)

Reading of net weight with sensitivity times 10:   **[CC]GR10<CR LF>**
Instrument's answer: [CC]SS,GX,VVVVVVVVVV,UM<CR LF>
In which: SS   UL   Underload
                                                                          OL   Overload
                                                                          ST   Stability of the weight
                                                                          US   Instability of the weight
                                                                          GX   Weighing times 10 status
                                                       VVVVVVVVVV   Value of net weight times 10 (10 characters)
                                                                          UM   Unit of measure (Kg, g, t, lb)

NOTE: The instrument does not transmit the OK answer to the short commands (R, T, Z, P….).

Modification of GR10 command response: **[CC]GR10X<CR LF>**
in which: GR10= command
                                                               X→ **E** enabled
                                                               X→ **D** disabled
                                                               Example: GR10E<CR LF>
This command enabled the compatibility with the old protocol of the 3590 with eprom. If enabled, it modifies the format of the GR10 command response string: it responds to the GR10 command with the number of the active scale in the place of the "GX – weighing status x 10").

The setting is valid until the indicator is turned off. To save it permanently in the instrument one should transmit the command in the set-up status.

Setpoint: **[CC]STPTntxxxxxxtyyyyyy<CR LF>**
in which: n, expressed in hexadecimals, indicates the number of SETPOINTS:0 (OUT1), 1, 2, 3, 8, 9, A, B, C, D, E, F (OUT16).
                                                   t → **F** if the following weight value indicates the DISABLING of the output (OFF).
                                                   t → **O** if the following weight value indicates the ENABLING of the output (ON).
                                                   xxxxxx and yyyyyy take on the enabling or disabling setpoint value: the digits must be entered WITHOUT decimal point, omitting the NON significant zeros.
Example in case of instrument with 10,000 kg capacity and 1 g division:
Command: **STPT0F5000O6500** (Disabling of first output at 5 kg and enabling at 6,5 kg)
Answer: **OK**
NOTE: The negative answer of the instrument (NO), takes place in the following conditions:
- One of the two entered values surpasses the capacity.
- One of the two entered values has a minimum division which is incongruent with the one set in the instrument.
- The disabling value surpasses the enabling 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:

[String AFXX]	See the "AF0X type protocol" in the paragraph "TRANSMISSION PROTOCOLS".
B	Number of platform on which the totalisation has been made.
,	Comma character (ASCII decimal 44)
NNNNNNNUM	Last net weight totalized with unit of measure.
,	Comma character (ASCII decimal 44)
LLLLLLLUM	Last gross weight totalized with unit of measure.
,	Comma character (ASCII decimal 44)
PPPPPPP	Last pieces totalized with N character (ASCII decimal 78).
,	Comma character (ASCII decimal 44)
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
,	Comma character (ASCII decimal 44)
AAA	Counter of pressed keys.
,	Comma character (ASCII decimal 44)
CCC	Code of last key pressed.
,	Comma character (ASCII decimal 44)
TTT	Counter of totalisations.
XXXXX	Last rewriting number stored in the Alibi memory.
-	ASCII decimal 45 character
YYYYYY	Last weigh number stored in the Alibi memory.

Bridge data between serial port:	**[CC]BRIDGEX<CRLF>**
	BRIDGE=command
	X→1 = COMPC→COMPRN
	X→2 = COMPC→COMAUX
	EXAMPLE: BRIDGE1
Instrument's answer:	[CC]OK<CR LF>

This serial command allows to create a bridge from the pc port to another. After 10 seconds of silence the instrument back to the state before sending the command.

In the state of bridge between the serial, the instrument shows "BRIDGE" on the LED display, and the bridge serial ports on the LCD display (ex. "COM1 <-> COM2").

LEGEND
[CC]= instrument code, i.e. 00 (only with RS485 protocol).
<CR LF>= Carriage Return + Line Feed (ASCII characters 13 and 10).

Reading of the instrument's serial number: **[CC]SN<CRLF>**
Instrument's answer: [CC]SN: XXXXXXX<CRLF>
In which:

	XXXXXX	serial number (can have more than 6 digits)

Reading of the board's information: **[CC]BOARD<CRLF>**
Instrument's answer:
[CC]LOADER: aaa, BOARD ID: bbb, BOARD REV: ccc, HWCFG: ddd, SN: xxx, BOARD NAME: nnn<CRLF>

In which:	aaa	loader version in hex form (e.i. 203 for loader 2.03)
	bbb	board ID (numeric value)
	ccc	board revision (numeric value)
	ddd	hardware config. (numeric value)
	xxx	serial number
	nnn	board name (up to 8 characters)

ALIBI MEMORY SERIAL COMMAND

REQUEST WEIGHT VALUE WITH WEIGH ID
The command which allows saving the weight in the alibi memory and the transmission is:
<II>PID<CRLF>
< II > =   machine code, only if functioning in 485
PID =   saving command of the weight data in the alibi memory
CR =   ASCII 13 decimal code
LF =   ASCII 10 decimal code
If the gross weight is equal or greater than zero and stable, the instrument will save the weight on the belt in the alibi memory.

And the PID string (weight/id) will be transmitted on the PC port; this is described in the following section.

STRING FORMAT (WEIGHT / ID)
The PID string contains all the information regarding the executed weigh.
DESCRIPTION OF THE PID STRING:

<ESC>[II]PIDSS,B,LLLLLLLLLLUU,YYTTTTTTTTTTUU,(ID | NO) <CR or CRLF>

in which: [II]   485 address (only in the case of 485 transmission mode)
SS   US instable weight
                    ST stable weight
                    OL weight out of range (greater)
                    UL weight out of range (lower)
,   comma character, ASCII 044
          B   number of selected channel
,   comma character, ASCII 044
          LLLLLLLLLL   gross weight on 10 digits
          UU   unit of measure
,   comma character, ASCII 044
          YY   2 spaces in the case of null tare or semiautomatic tare, PT in the case of preset tare
          TTTTTTTTTT   tare weight on 10 digits
            ,   comma character, ASCII 044
          ID   XXXXX-YYYYYY or "NO": weigh not stored in the alibi memory; the gross weight is negative or
unstable.
          <CR o CRLF>   Terminator, ASCII 13 and ASCII 10 characters

WEIGH READING
Command:
[II]ALRDXXXXX-YYYYYY <CR o CRLF>
in which [II]   485 address (only in the case of 485 transmission mode)
XXXXX   rewriting number, from 0 up to 255.
-                    ASCII 045 character
YYYYYY ID code
<CR o CRLF>   terminator, ASCII 13 and ASCII 10 characters

Instrument answer:
[II]B,LLLLLLLLLLUU,YYTTTTTTTTTTUU <CR o CRLF>
in which: [II]   485 address (only in the case of 485 transmission mode)
          B   number of selected channel
,   comma character, ASCII 044
LLLLLLLLLL   gross weight on 10 digits
          UU   unit of measure
,   comma character, ASCII 044
YY   2 spaces in the case of null tare or semi automatic tare, PT in the case of preset tare
          TTTTTTTTTT   tare weight on 10 digits
<CR o CRLF>   Terminator, ASCII 13 and ASCII 10 characters

ALIBI MEMORY CANCELLATION (only with non approved instrument)

Command:
[II]ALDL <CR o CRLF>
in which: [II]   485 address (only in the case of 485 transmission mode)

Instrument answer:
[II]ALDLOK <CR o CRLF>   if the cancellation has been carried out effectively
[II]ALDLNO <CR o CRLF>   if the cancellation has not been carried out effectively

5.7 ADVANCED COMMANDS

[GKBB] Reading of the data in the keyboard buffer:
This following command allows for **the reading of the data in the keyboard buffer (max 20 keys)** (only if the transmission of the pressed keys code is disabled):

Syntax

Format	<CC>GKBB<CR LF>
Parameters	-
Answer	- <CC>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: 0B0C0D0E0F10<CR LF>

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

[EKBB] Cancellation of the data inside the keyboard buffer:
With this command it is possible to **cancel the contents of the keyboard buffer** (only in the case in which the transmission of the pressed keys' code is disabled):

Syntax

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

[OUTP] Enabling/disabling of the relay output:

Syntax

Format	<CC> OUTPNVVVV <CC> OUTPNNVVVV <CR LF>

Parameters	- N = output number (expressed in hexadecimals)
	 - 0 to enable simultaneously all the outputs
	 - from 1 to 4 to identify the single output of the motherboard from 8 to F to identify the same output (only up to OUT11) of the expansion board
	 - NN= output number (expressed in hexadecimals)
	 - 00 to enable simultaneously all the outputs
	    - from 01 to 0 to identify the single output of the motherboard and from 08 to 0F to identify the single output (up to OUT11) of the expansion board
	    - 10 to enable the 12 outputs (OUT12) of the expansion board.
	 - VVVV = enabling/disabling code;
	 - for the single output, V = 0000 disabled, while V = 0001 enabled.
	 - all the outputs (in other words, N = 0), the value identifies the outputs to be enabled (expressed in hexadecimals);

Response	<CC>OK<CR LF> The response does not imply that the command has been made.
Example	01OUTP00412<CRLF>or01OUTP000412<CR LF>
Result	Configuration of the outputs (see below the suggested explanation)

A bit is ascribed to each output:

Expansion board outputs (optional)												Motherboard outputs			
OUT 16	OUT 15	OUT 14	OUT 13	OUT 12	OUT 11	OUT 10	OUT 9	OUT 8	OUT 7	OUT 6	OUT 5	OUT 4	OUT 3	OUT 2	OUT 1
Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0

The bit at 1 is interpreted as active output, while the bit at 0 as disabled output.

If, for example, one wants to enable the **OUT5** and **OUT11** outputs of the optional board and **OUT2** of the motherboard the binary combination will be

Expansion board outputs (optional)												Motherboard outputs			
OUT 16	OUT 15	OUT 14	OUT 13	OUT 12	OUT 11	OUT 10	OUT 9	OUT 8	OUT 7	OUT 6	OUT 5	OUT 4	OUT 3	OUT 2	OUT 1

Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	0	0	0	0	1	0	0	0	0	0	1	0	0	1	0

Which, in hexadecimals, corresponds to the number 0412; therefore the command will be OUTP<u>00</u>412 + CR + LF or OUTP<u>000</u>412 + CR + LF.

NOTES:
- The outputs enabling command does not work neither in the set-up environment nor in the weighing phase; if the set point mode has been selected and the output function is different than "nonE". (ref. output step, rLFunC parameter).

[INPU] optoisolated input reading:
INPUN + CR + LF

Sintax

Format	<CC>INPU<N><CR LF>
Parameters	N = input number (expressed in hexadecimals): - 0 to simultaneously read all the inputs. - from 1 to 2 to identify the single input of the Motherboard and from 3 to 8 to identify the single input of the Expansion board.
Answer	<CC>INPUNVVVV <CR LF> N = input number (expressed in hexadecimals), described previously VVVV = input \ inputs status: - for the single input, V = 0000 means input not active, while V = 0001 active input. - for all the inputs (in other words N = 0), the returned value corresponds to the hexadecimal codification of the status of the inputs
Example	01INPU0 <CR LF>
Result	Reading of indicator's inputs' status (see the following explanation).

A bit is ascribed to each input:

Unhandled bits								Expansion board inputs (optional)						Motherboard inputs	
								in.8	in.7	in.6	In.5	in.4	in.3	in. 2	in. 1
Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0

Therefore if the INPU00026 string is received, the hexadecimal value, converted into binary, indicates that the status of the inputs is the following:

Unhandled bits								Expansion board inputs (optional)						Motherboard inputs	
								in.8	in.7	in.6	in.5	in.4	in.3	in.2	in.1
Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0

The active inputs are therefore **in.6**, **in.3** of the optional board and **in.2** of the motherboard.

NOTES:
- With the bits 8 to 15, no input is assigned, and are fixed at zero
- The reading command of the inputs works also in the set-up environment

[INUN] Request of a numeric value entry on the 3590E LED display (only for 3590e version):

Syntax

Format	<CC>INUN<X>,<M>,<H>,< I >,<L>,<D>,<P><CR LF>

Parameters	X = numeric or alphanumeric character (0 – 9 ; A – Z ; a – z) displayable in the digit on the extreme left of the 3590E LED display / CPWE weight section (not modifiable);
	 M = minimum enterable value in decimals (0 ≤ M ≤ H)
	 H = maximum enterable value in decimals
	 (0 ≤ H ≤ 999'999'999'999'999'999,18 digits).
	 I = value displayed initially in decimals, substituted then by the entered one (M ≤ I ≤ H); if the entered value is less than the enterable minimum value (M), the minimum value will initially be displayed (M).
	 L = maximum number of enterable characters in decimals
	 (0 ≤ L ≤ 18)
	 D = number of decimal digits (in decimals)
	 P = initial position in decimals of the blinking digit (in other words the position of the first value to be modified).
	   - if P = 0, the blinking digit is the least significant one
	   - if P = 1, the blinking digit is the most significant one

Answer	<CC>OK<CR LF>
Example	01INUNt,0,10000,0,5,3,0<CR LF>
Result	**The t 00.000 message appears on the 3590E LED display weight section with the least significant digit blinking, while waiting for the entry of a numeric value**

If the entered value is greater or less respectively to the maximum or minimum set value, the instrument will emit an error sound signal.

[INUA] Request of a numeric value entry on the 3590E LCD display / CPWE-CPWET data section:

Syntax

Format	<CC>INUA<PP><LL><I><CR LF>

Parameters	PP = decimal position from which the entry of the numeric data starts, from left to right.
	 LL = number of characters in decimals which make up the numeric data to be entered
	 I = selection/unselection of the display of an initial value, previously entered in the user buffer (using the WUBU command described later on):
	   - I = 0 not displayed
	   - I = 1 displayed

Answer	<CC>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 3590E LCD display / CPWE-CPWET data section, with the character 1 blinking, starting from the position 08 of the 3590E LCD display / CPWE-CPWET data section (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 corresponding 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 3590E LCD display / CPWE-CPWET data section:

Syntax

Format	<CC>IALA<PP><LL><I><CR LF>

Parameters	PP = decimal position from which the entry of the numeric data starts, from left to right.
	LL = number of characters in decimals which make up the numeric data to be entered
	I = selection/unselection of the display of an initial value, previously entered in the user buffer (using the WUBU command described later on):
	    - I = 0 not displayed
	    - I = 1 displayed

Answer	<CC>OK<CR LF>
Example	01IALA08071<CR LF>
Result	**If _preceded_ by the 01WUBUABCDEFG<CR LF> command, it causes the ABCDEFG message to be shown on the 3590E LCD display / CPWE-CPWET data section, with the character 1 blinking, starting from the position 08 of the 3590E LCD display / CPWE-CPWET data section (in other words the digit 8). At this point it is possible to set 8 numerical digits which will substitute the displayed ones.**

When exiting the entry phase, the displayed data is frozen on the 3590E LCD display / CPWE-CPWET data section 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

Syntax

Format	<CC>GINR<CR LF>
Parameters	-

Answer	**Entry of value on the 3590E LCD display / CPWE-CPWET data section case:**
	  - **- 1 if one exits from the entry phase with the C key;**
	  - **Entered value in decimals and confirmed with ENTER;**
	Entry of value on 3590E LCD display / CPWE-CPWET data section case:
	  - **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 <ESC>RUBU<STX> 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:

Syntax

Format	<CC>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>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 is eliminated only when the instrument is turned off.

[RUBU] Reading of the user buffer:

Syntax

Format	<CC>RUBU<CR LF>
Parameters	-
Answer	<CC>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:

Syntax

Format	<CC>TOPR<XXX...X> <CR LF>
Parameters	XXX...X = numeric and/or alphanumeric string which one wants to print
Answer	<CC>OK<CR LF> 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 (see section **7.3 LIST OF PRINT BLOCKS**), 302 GROSS WEIGHT, 303 TARE, the command will be the following: TOPR\M301\M302\M303 + CR + LF

[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).

Syntax

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

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

Simulation of key pressing:
[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

Response of the instrument: OK<CR LF>: command accepted
If 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 key release command (KEYR) within a maximum time of 1,5 seconds, the simple function will be executed (key briefly pressed); otherwise the second function will be executed (key pressed at length).

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

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

Selecting / Deselecting an element of database:
[CC]SREC,X,NNNN<CR LF>

Instrument's answer :		[CC]SREC,X,NNNN,EE<CR LF>
In which:	X	database index:
	0	article database
	1	tare database
	2	free text database
	3	customer database
	NNNN	Position Number to select in the database (9999 to deselect the element)
	EE	OK in case of executed command
		KO in case of not executed command

Read selected positon in database:
[CC]GREC,X<CR LF>

Instrument's answer:		[CC]GREC,X,PPPP<CR LF>
In which:	X	database index:
	0	article database
	1	tare database
	2	free text database
	3	customer database
	PPPP	Position number selected in the database (NULL if no position selected)

Read compiled position and total number of positions in database:
[CC]NREC,X<CR LF>

Instrument's answer:		[CC]NREC,X,CCCC,TTTT<CR LF>
In which:	X	database index:
	0	article database
	1	tare database
	2	free text database
	3	customer database
	CCCC	Number of compiled position in the database
	TTTT	Total number of available position in the database

5.8 CUSTOMISATION OF THE STRING [available for ComPc, ComPrn]

Personalise string configuration on the ComPC:
the instrument is able to transmit, continuously or in response to the READ command on the port linked to the ComPC, a data string configurable in the print format 100 through Dinitools™. To restore the transmission of the strings of the instrument, set only the block "300".
NOTE: format 100 contain up to 50 macros.

Configuration of the customised string on the ComPrn:
The instrument is able to transmit, continuously on the port linked to the ComPrn, a data string configurable in the 01 print format.
For further details in regards to configuring the print formats through Dinitools ™ see the relative manual.

6. ANALOGUE OUTPUT (OPTIONAL)

Through an optional interface, it is possible to use an analogue output a 16 bit configurable at 0 – 10V, 0 – 20 mA or 4 – 20 mA.

The voltage and the output current from the interface are proportional to the gross weight or net weight present on the scale. In regards to the electrical connection scheme, see section 8.
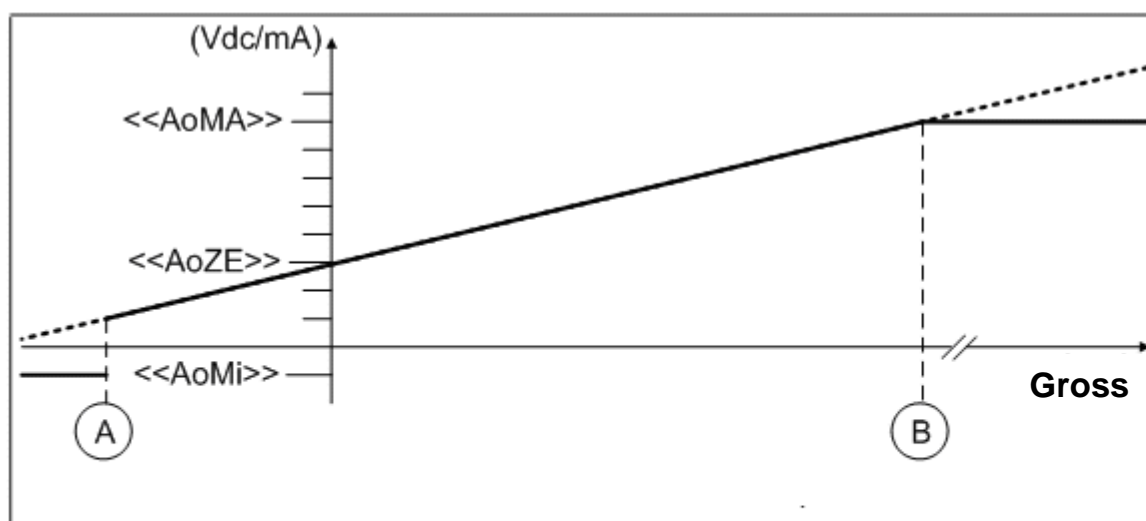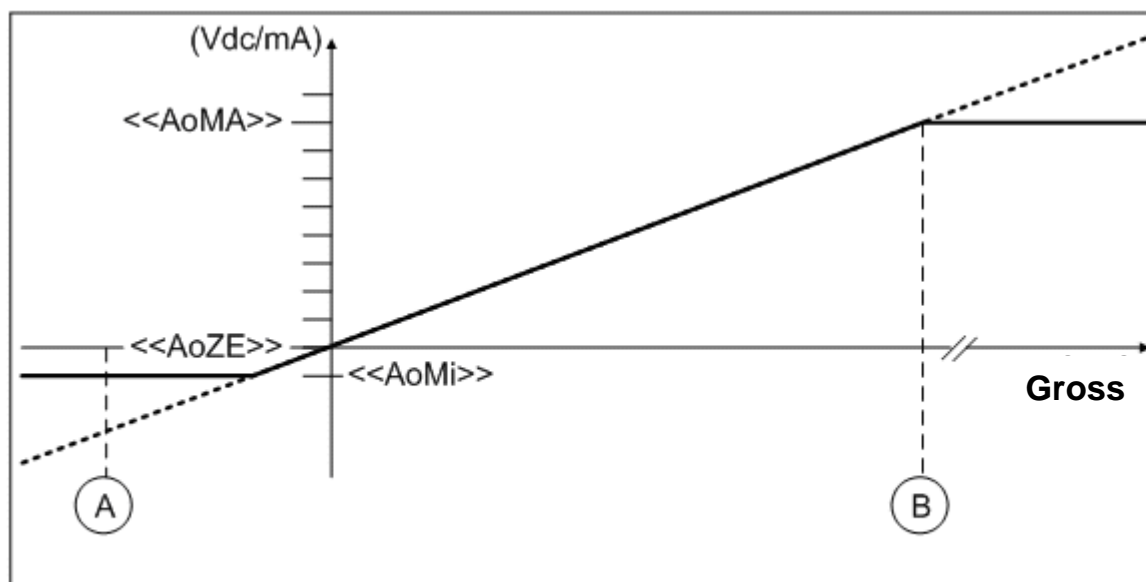
6.1 OPERATING MODES

6.1.1 OUTPUT ON THE GROSS WEIGHT

The value of the analogue output grows proportionally to the gross weight on the scale in relation to the configured value for the gross weight at 0 (AO ZE), and the one configured for the gross weight equal to the capacity (AO MA).

When the gross weight is equal or greater than the capacity, the output takes on the value set for AO MA, while in the underload condition (gross weight <= -100d with approved instrument) the output takes on the value set for AO MI.

Trend examples (approved instrument)
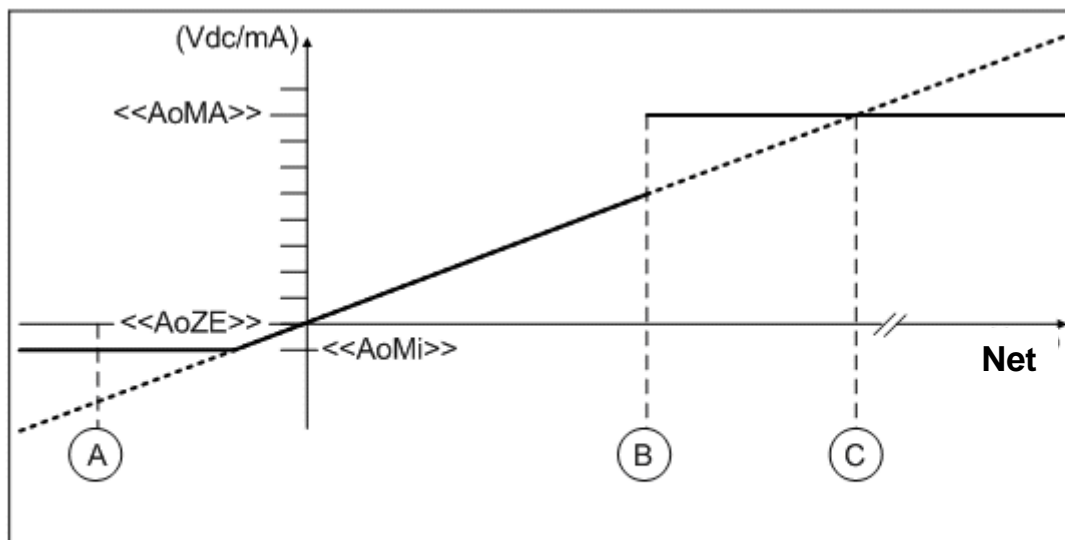

A   **Gross = -100d**

B   **Gross =Max. Scale Capacity**

6.1.2 OUTPUT ON THE NET WEIGHT

The value of the analogue output grows proportionally to the net weight on the scale in relation to the value configured for the net weight at 0 (AO ZE), and the one configured fo the net weight equal to the capacity (AO MA).

When the gross weight is equal or greater than the capacity + 9e, the output takes on the value set for AO MA, while in the underload condition (gross weight <= -100d with approved instrument) the output takes on the value set for AO MI.

Trend examples (approved instrument)

Ⓐ **Gross = -100d**

Ⓑ **Gross =Max. Scale Capacity + 9e**

Ⓒ **Net = Max. Scale Capacity**

6.2 CONFIGURATION

In order to configure the parameters, one needs to enter the SET-UP environment in the **Anout** step inside the **SEtuP** menu.

If various scales are connected (see the **nuM.SCA** parameter), the number of the scale to be configured, will be requested; the configurations within this menu must be carried out for each connected scale.

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
*A*O G = analogue output on gross weight
AO n = analogue output on net weight

Once the functioning mode is confirmed, one sets the values of the analogue output useful for the calculation in the weighing phase, of the value that the output must take on proportionally; 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.
NUMERICAL KEYS	Allow entering values, from right to left.

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.

<u>APPROXIMATE</u> VALUES BETWEEN THE D/A CONVERTER AND ANALOGUE OUTPUT

D/A CONVERTER VALUES	VOLTAGE VALUE (V)	CURRENT VALUE (mA)
1070	0	
1375		0
11500		4
52010		20
62450	10	

7. PROGRAMMING THE PRINTOUTS

It is possible to programme 30 different formats to be linked to the print functions.
Each print vector is linked to a specific print function, for example:
- "S.F.01" function >> print key
- "S.F.02" function >> totalisation
- "S.F.03" function >> partial total

- …

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

When the printing is requested, the indicator uses the format linked to the vector linked to that printout.

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 30 to indicate the format to be overwritten. Once the formats are configured one should carry out the linkages of those functions. **(USER MAN.REF.).**
- **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 format is made up of a maximum of 2048 memory storages (which will be called "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 301), 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:

Prn.FMt   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 display shows:

- **Prn.FMt   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; if a format has been modified, 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.
HELP	displays the list of the keys used inside this step and their functions. To scroll the list of the keys in manual mode one can use the arrow keys (**F6** ▼ and **F7** ▲).

NOTES
- For the complete list of the ASCII codes and the print blocks, see the sections   "ASCII CODE TABLE" and "LIST OF PRINT BLOCKS".
- 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:
329 (PRINTING ON PC PORT), 330 (PRINTING ON SERIAL PORT), 331 (FORCES THE PRINTING).
The correct syntax in the format is the following:

- **329 PRINTS ON PC PORT**
- prints block or ASCII character
- …
- **331 FORCES PRINTING**

> The "Forces print" block executes the transmission of all the blocks or ASCII characters entered BEFORE the same block; reading block 329, the printout is directed onto the PC port.

- **330 PRINTS ON PRINTER PORT**
- prints block or ASCII character
- …
- **331 FORCES PRINTING**
- 300 PRINT END

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

7.1 PROGRAMMING EXAMPLE

One programmes a format to be linked to a PRINT key vector (**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 blank lines		
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 "**Prn.FMt 000.xxx**" (first line number, macro code).
- Press **ENTER**, the display shows "**Prn.FMt 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")
013 (terminator CR)
032 (space)
013 (terminator CR)
379 (prints date – time)
013 (terminator CR)
032 (space)
013 (terminator CR)
302 (prints gross weight)
013 (terminator CR)
301 (prints net weight)
013 (terminator CR)
303 (prints tare weight)
013 (terminator CR)
032 (space)
013 (terminator CR)
032 (space)
013 (terminator CR)
032 (space)
013 (terminator CR)
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 three 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).

7.2 ASCII CODE TABLES

7.2.1 CODE PAGE 1252 WINDOWS LATIN 1

	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	Ω 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	

7.2.2 CODE PAGE 1251 WINDOWS CYRILLIC

	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
00	NUL 0000	STX 0001	SOT 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

7.2.3 CODE PAGE 1253 WINDOWS GREEK

	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
00	NUL 0000	STX 0001	SOT 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	

7.3 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).
UMD   unit of measure of the database (kg, **b**g, **b**t, lb).
+ T   terminator: depending on the setting of the **SEtuP** >> **SEriAL** >> **tErMin** "SET TERMINATOR TYPE" step of the SET-UP environment, a CR or CRLF, LF or no terminator is added.
XXX*   These blocks do not work without the alibi memory (optional).
The weight field expands from right to left, with many spaces (ASCII 32 decimal character) for completing the field length.

7.3.1 ORDER BY KIND

CODE		PRINT FORMAT
	GENERIC	
300	PRINT END	
316	DOTTED LINE	-- -- -- -- -- -- -- -- -- -- -- -- -- -- + T
317	PRINTS 3 CRLF	
423	PRINTS TERMINATOR	CR, CRLF, LF or NO TERMINATOR
380	FOLLOWING MACRO TERMINATOR SKIPS	
318	DATE / TIME FOR DP24/DP190	**b**HH:MM**b**DD/MM/YY + T
	the date and time of the printer is printed; one can adjust it through the printer.	
377	DATE	DD/MM/YY + T
378	TIME	HH:MM + T
379	DATE TIME	HH:MM**b**DD/MM/YY + T
473	ONLY YEAR IN YY FORMAT	YY
474	ONLY MONTH IN MM FORMAT	MM
475	ONLY DAY IN DD FORMAT	DD
476	ONLY HOUR IN HH FORMAT	HH
477	ONLY THE MINUTES IN MM FORMAT	MM
478	ONLY "TOTAL ARTICLE" TEXT	TOTAL**b**ARTICLE
392	ACTIVE SCALE NUMBER	SCALE**b**NUMBER**b**X+T
	in which X is the active scale number (0...4)	
393	JUST ACTIVE SCALE NUMBER	X
	In which X is the active scale number (0..4)	
394	SCALE UNIT OF MEASURE	UM + T
395	DATABASE UNIT OF MEASURE	UM + T
329	PRINTS ON PC PORT330	PRINTS ON PRINTER PORT
331	FORCES PRINTOUT	
434	STANDARD KD PROTOCOL STRING	
435	AF0X PROTOCOL STRING	
	Through the blocks 434 and 435 it is possible to print the STANDARD or AFXX serial string (see section 5.4 TRANSMISSION PROTOCOLS for the description); the terminator of the string depends on the setting of the **tErMin** "SET TERMINATOR TYPE" step of the SET-UP environment (CR or CRLF or no terminator).	
384	HEADING 1	XXXXXXXXXXXXXXXXXXXXXXXX + T
	in which XXXXXXXXXXXXXXXX are the 24 characters of the first line of the heading; just the entered characters are printed, from left to right.	
385	HEADING 2	XXXXXXXXXXXXXXXXXXXXXXXX + T
386	HEADING 3	XXXXXXXXXXXXXXXXXXXXXXXX + T
454	PRINT OF CALCULATED DATA	XXXXXXXXX
455	PRINT OF ENTERED DATA	XXXXXX
479	PRINTS SECOND ENTERED DATUM	XXXXXX

480   PRINTS OPERATION SYMBOL   X
"+" in case of addition, "-" in case of subtraction, "x" in case of multiplication.

The 454, 455, 479 and 480 blocks refer to the operation executed with the "calculator" function described in section **15.1**, **USER MAN.REF.**

WEIGHT

301   NET WEIGHT   NET**bb**=**b**XXXXXXXXXXUM + T
in which XXXXXXXXXX is the weight value on 10 digits including the comma.
If you enter the preamble 32767 is performed with the reference last number of pieces.

388   JUST NET ON 10 DIGITS   XXXXXXXXXX

304   TOTALISATION NET   N.YYY**b**NET**bbb**XXXXXXXX**b**UM + T
in which YYY shows the weigh number, XXXXXXX is the weight value in 8 digits including the comma; the weigh number is reset upon the resetting of the partial total.

424   LAST NET TOTALISED   XXXXXXXXXX
in which XXXXXXXXXX indicates the weight value in 10 digits including the comma.

302   GROSS WEIGHT   GROSS**b**=XXXXXXXXXXUM + T
in which XXXXXXXXXX is the weight value on 10 digits including the comma.

387   JUST GROSS ON 10 DIGITS   XXXXXXXXXX

305   TOTALISATION GROSS   N.YYY**b**GROSS**b**XXXXXXXX**b**UM + T
in which YYY shows the weigh number, XXXXXXX is the weight value in 8 digits including the comma; the weigh number is reset upon the resetting of the partial total.

425   LAST TOTALISED GROSS   XXXXXXXXXX

303   TARE WEIGHT   TARE**bb**=XXXXXXXXXXUM + T
in which XXXXXXXXXX is the weight value on 10 digits including the comma.

389   JUST TARE ON 10 DIGITS   XXXXXXXXXX

447   JUST NUMBER OF SELECTED TARE   XXX
the field expands from right to left; the non significant zeros will be printed anyways.

306   TOTALISATION TARE   N.YYY**b**TARE**bb**XXXXXXXX**b**UM + T
in which YYY indicates the weigh number, XXXXXXX is the weight value on 8 digits including the comma; the weigh number is reset upon the resetting of the partial total.

426   LAST TOTALISED TARE   XXXXXXXXXX

410   NUMBER OF PIECES   YYYYYYYYYY=XXXXXXXXXXUM + T
In which in which YYYYYYYYYY is the text configured in the F.ModE >> dS. qtY step of the SET.UP (just the entered characters are printed, if less than 6 this length is compensated with spaces), XXXXXXXXXX indicates the weight value on 10 digits including the comma; the weight field expands from right to left, with many spaces for completing the length of the field.

436   JUST NUMBER OF PIECES   XXXXXXXXXX
The field expands from right to left, with many spaces for completing the length of the field.

427   LAST NUMBER OF TOTALIZED PIECES   XXXXXXXXX+T
in which XXXXXXXXXX indicates the weight value in 10 digits including the comma; the weight field expands from right to left.

411   A..P.W.   PMU**bbb**=XXXXXXXXXXUM+T
in which XXXXXXXXXX indicates the weight value on 10 digits including the comma.

482   ONLY A.P.W. ON 10 DIGITS   XXXXXXXXXX

417   APW UNIT OF MEASURE   UM + T

390   TOTALISATION MAXIMUM THRESHOLD VALUE   XXXXXXXXXX

391   TOTALISATION MINIMUM THRESHOLD VALUE   XXXXXXXXXX
The threshold values refer to the selected scale.

632 DATA FLASH OR FROZEN   Valid values 000 or 001
        000 → considers frozen data (normal)
        001 → considers instantaneous data

PARTIAL TOTAL

307	NET PARTIAL TARE	N.YYY**b**T1.G.**b**XXXXXXXX**b**UM

in which YYY indicates the weighs number, XXXXXXXX the weight value in 8 digits including the comma.

402	JUST NET PARTIAL TOTAL	XXXXXXXXX
310	GROSS PARTIAL TOTAL	N.YYY**b**T1.G.**b**XXXXXXXX**b**UM + T

in which YYY indicates the weighs number, XXXXXXXX the weight value in 8 digits including the comma

403	JUST GROSS PARTIAL TOTAL	XXXXXXXXX
431	JUST PARTIAL TOTAL TARE	XXXXXXXXX
428	PARTIAL TOTAL OF PIECES	T1. YYYYYYYYYYXXXXXXXXX+T

in which YYYYYYYYY is the text configured in the F.ModE >> dS. qtY step of the SET-UP (just the entered characters are printed), XXXXXXXXXX indicates the weight value in 10 digits including the comma.

407	JUST PARTIAL NUMBER OF PIECES	XXXXXXXXX

GENERAL TOTAL

308	NET GENERAL TOTAL	N.YYY**b**T2.N.**b**XXXXXXXX**b**UM + T

in which YYY indicates the weighs number, XXXXXXXX the weight value in 8 digits including the comma.

382	JUST GENERAL NET TOTAL	XXXXXXXXX
311	GROSS GENERAL TOTAL	N.YYY**b**T2.G.**b**XXXXXXXX**b**UM + T

in which YYY indicates the weighs number, XXXXXXXX the weight value in 8 digits including the comma.

383	JUST GENERAL GROSS TOTAL	XXXXXXXXX
432	JUST GENERAL TOTAL TARE	XXXXXXXXX
408	JUST GENERAL NUMBER OF PIECES	XXXXXXXXX
429	GENERAL TOTAL OF PIECES	T2. YYYYYYYYYYXXXXXXXXX+T

in which YYYYYYYYY is the text configured in the F.ModE >> dS. qtY step of the SET-UP (just the entered characters are printed) indicates the weight value in 10 digits including the comma.

GRAND TOTAL

406	JUST GROSS GRAND TOTAL	XXXXXXXXX
309	NET GRAND TOTAL	N.YYY**b**T3.N.**b**XXXXXXXX**b**UM + T

in which YYY indicates the weighs number, XXXXXXXX the weight value in 8 digits including the comma.

405	JUST NET GRAND TOTAL	XXXXXXXXX
312	GROSS GRAND TOTAL	N.YYY**b**T3.G.**b**XXXXXXXX**b**UM + T

in which YYY indicates the weighs number, XXXXXXXX the weight value in 8 digits including the comma.

433	JUST GRAND TOTAL TARE	XXXXXXXXX
409	JUST GRAND TOTAL NUMBER OF PIECES	XXXXXXXXX
430	GRAND TOTAL OF PIECES	T3. YYYYYYYYYYXXXXXXXXX+T

in which YYYYYYYYY is the text configured in the F.ModE >> dS. qtY step of the SET-UP (just the entered characters are printed), XXXXXXXXXX indicates the weight value in 10 digits including the comma.

PROGRESSIVES

396	TICKET PROGRESSIVE	XXXXX

(number of partial total resettings)
the field expands from right tot left, with many spaces for completing the field length.

397	LOT PROGRESSIVE	XXXXXX

(number of general total resettings)
the field expands from right tot left, with many spaces for completing the field length

401	JUST WEIGHS PARTIAL TOTAL	XXXXXXXX

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

381	JUST GENERAL TOTAL WEIGHS	XXXXXXXX

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

404	JUST WEIGHS GRAND TOTAL	XXXXXXXX

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

JUST TEXTS		
437	JUST "WEIGH" TEXT	WEIGH
438	JUST "WEIGHS" TEXT	WEIGHS
439	JUST "PARTIAL TOTAL" TEXT	PARTIAL**b**TOTAL
444	JUST "GENERAL TOTAL" TEXT	GENERAL**b**TOTAL
445	JUST "GRAND TOTAL" TEXT	GRAND**b**TOTAL
324	"NET TOTAL" TEXT ONLY	NET**b**TOTAL
321	"GROSS TOTAL" TEXT ONLY	GROSS**b**TOTAL
322	"LINKED TARE" TEXT ONLY	LINKED**b**TARE
323	"WEIGHS TOTAL" TEXT ONLY	WEIGHS**b**TOTAL
412	"T. QUANTITY" TEXT ONLY	T.**b**QUANTITY
440	JUST "GROSS" TEXT	GROSS**b**
441	JUST "NET" TEXT	NET**b**
442	JUST "TARE" TEXT	TARE**bb**
443	JUST "QUANTITY" TEXT	XXXXXXXXXX

443 continued: in which XXXXXXXXXX is the text configured in the F.ModE >> dS. qtY step of the SET-UP (just the entered characters are printed, if less than 6 the length is compensated with spaces).

414	"A.P.W." TEXT ONLY	A.P.W.
481	"APW" TEXT ONLY	APW**bbb**
471	ONLY CONDITIONED TARE TEXT	XXXXXX

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

472	ONLY CONDITIONED PT TEXT	XX

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

ADDITIONAL VALUE		
313	T1 ADDITIONAL VALUE	T1**b**ADD.**b**XXXXXXXXXX + T

in which XXXXXXXXXX is the additional value, linked to the partial total in 10 digits; the field expands from left to right. It is reset upon the resetting of the partial total.

314	T2 ADDITIONAL VALUE	T2**b**ADD.**b**XXXXXXXXXX + T

in which XXXXXXXXXX is the additional totalised value, linked to the general total in 10 digits; the field expands from left to right. It is reset upon the resetting of the general total.

315	T3 ADDITIONAL VALUE	T3**b**ADD.**b**XXXXXXXXXX + T

in which XXXXXXXXXX is the additional totalised value, linked to the grand total in 10 digits; the field expands from left to right. It is reset upon the resetting of the grand total.

ARTICLE	
400	ACTIVE ARTICLE MEMORY TOTAL XXX

the field is expressed with three digits, with the zeros to complete the field length.

319	1st ARTICLE DESCRIPTION XXXXXXXXXXXXXXXXXXXX + T

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

320	2nd ARTICLE DESCRIPTION XXXXXXXXXXXXXXXXXXXX + T
416	3rd ARTICLE DESCRIPTION XXXXXXXXXXXXXXXXXXXX + T
398	ARTICLE NET TOTAL N.YYY**b**TA.N.**b**XXXXXXXX**b**UM + T

in which YYY indicates the weigh number, XXXXXXXX the weight value in 8 digits including the comma.

328	JUST ARTICLE NET TOTAL XXXXXXXXXX
399	ARTICLE GROSS TOTAL N.YYY**b**TA.L.**b**XXXXXXXX**b**UM + T

in which YYY indicates the weigh number, XXXXXXXX the weight value in 8 digits including the comma.

325	JUST ARTICLE GROSS TOTAL XXXXXXXXXX
326	JUST ARTICLE TARE TOTAL XXXXXXXXXX
327	JUST ARTICLE WEIGHS TOTAL XXXXX

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

413	JUST NUMBER OF ARTICLE PIECES XXXXXX

In which XXXXXX indicates the weight value on 6 digits including the comma; the weight field expands from right to left

415	JUST ARTICLE A.P.W. XXXXXXX

in which XXXXXXX XXXXXX indicates the weight value on 7 digits including the comma; the weight field expands from right to left.

INPUT TEXTS	
332	JUST INPUT 1 TEXT HEADING XXXXXXXXXXXXXXXX

in which XXXXXXXXXXXXXXXX are 16 characters of the input 1 text heading; just the entered characters are printed, from left to right.

333	JUST INPUT 1 TEXT HEADING XXXXXXXXXXXXXXXX
334	JUST INPUT 2 TEXT HEADING XXXXXXXXXXXXXXXX
335	JUST INPUT 3 TEXT HEADING XXXXXXXXXXXXXXXX
336	JUST INPUT 4 TEXT HEADING XXXXXXXXXXXXXXXX
337	JUST INPUT 5 TEXT HEADING XXXXXXXXXXXXXXXX
338	JUST INPUT 6 TEXT HEADING XXXXXXXXXXXXXXXX
339	JUST INPUT 7TEXT HEADING XXXXXXXXXXXXXXXX
340	JUST INPUT 8 TEXT HEADING XXXXXXXXXXXXXXXX
341	JUST INPUT 9 TEXT HEADING XXXXXXXXXXXXXXXX
342	JUST INPUT 10 TEXT HEADING XXXXXXXXXXXXXXXX
343	JUST INPUT 11 TEXT HEADING XXXXXXXXXXXXXXXX
344	JUST INPUT 12 TEXT HEADING XXXXXXXXXXXXXXXX
345	JUST INPUT 13 TEXT HEADING XXXXXXXXXXXXXXXX
346	JUST INPUT 14 TEXT HEADING XXXXXXXXXXXXXXXX
347	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.

348	JUST THE INPUT 1 TEXT CONTENTS YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY
349	JUST THE INPUT 2 TEXT CONTENTS YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY
350	JUST THE INPUT 3 TEXT CONTENTS YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY
351	JUST THE INPUT 4 TEXT CONTENTS YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY
352	JUST THE INPUT 5 TEXT CONTENTS YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY
353	JUST THE INPUT 6 TEXT CONTENTS YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY
354	JUST THE INPUT 7 TEXT CONTENTS YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY

355	JUST THE INPUT 8 TEXT CONTENTS	YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY
356	JUST THE INPUT 9 TEXT CONTENTS	YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY
357	JUST THE INPUT 10 TEXT CONTENTS	YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY
358	JUST THE INPUT 11 TEXT CONTENTS	YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY
359	JUST THE INPUT 12 TEXT CONTENTS	YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY
360	JUST THE INPUT 13 TEXT CONTENTS	YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY
361	JUST THE INPUT 14 TEXT CONTENTS	YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY
362	INPUT 0 TEXT	XXXXXXXXXXXXXXXX**b**YYYYYYYYYYYYYYYY + T

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

363	INPUT 1 TEXT	XXXXXXXXXXXXXXXX**b**YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY + T
364	INPUT 2 TEXT	XXXXXXXXXXXXXXXX**b**YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY + T
365	INPUT 3 TEXT	XXXXXXXXXXXXXXXX**b**YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY + T
366	INPUT 4 TEXT	XXXXXXXXXXXXXXXX**b**YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY + T
367	INPUT 5 TEXT	XXXXXXXXXXXXXXXX**b**YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY + T
368	INPUT 6 TEXT	XXXXXXXXXXXXXXXX**b**YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY + T
369	INPUT 7 TEXT	XXXXXXXXXXXXXXXX**b**YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY + T
370	INPUT 8 TEXT	XXXXXXXXXXXXXXXX**b**YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY + T
371	INPUT 9 TEXT	XXXXXXXXXXXXXXXX**b**YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY + T
372	INPUT 10 TEXT	XXXXXXXXXXXXXXXX**b**YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY + T
373	INPUT 11 TEXT	XXXXXXXXXXXXXXXX**b**YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY + T
374	INPUT 12 TEXT	XXXXXXXXXXXXXXXX**b**YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY + T
375	INPUT 13 TEXT	XXXXXXXXXXXXXXXX**b**YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY + T
376	INPUT 14 TEXT	XXXXXXXXXXXXXXXX**b**YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY + T

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

ALIBI MEMORY

418	LAST GROSS WEIGHT ON ALIBI MEMORY	XXXXXXXXXX

in which XXXXXXXXXX indicates the weight value on 10 digits including the comma.

419	LAST TARE ON ALIBI MEMORY	XXXXXXXXXX
420*	ACTIVE SCALE NUMBER WITH ALIBI MEMORY	XX
421	ALIBI MEMORY WEIGHT ID PRINTING	XXXXXX

in which XXXXXX indicates the weight ID on 6 digits, including the comma; the field expands from right to left.

446	JUST NUMBER OF ALIBI MEMORY REWRITINGS	XXXXX

the field expands from right to left; the non significant zeros will be printed anyways.

422	ALIBI MEMORY WEIGH ID UNIT OF MEASURE	UM

this block prints the unit of measure of the weigh saved in the alibi memory.

469	LAST NET WEIGHT ON ALIBI MEMORY	XXXXXXXXXX

CUSTOMER

448	ACTIVE CUSTOMER STORAGE NUMBER	XXX
449	1ST DESCRIPTION OF ACTIVE CUSTOMER	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX + T
450	2ND DESCRIPTION OF ACTIVE CUSTOMER	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX + T
451	3RD DESCRIPTION OF ACTIVE CUSTOMER	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX + T
452	4TH DESCRIPTION OF ACTIVE CUSTOMER	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX + T
453	5TH DESCRIPTION OF ACTIVE CUSTOMER	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX + T

PRINTOUTS

456	ACTIVATES PAPER PRESENT SENSOR FOR TM295
457	RELEASES PAPER FOR TM295
458	EMISSION AND RELEASE OF PAPER FOR TM295
459	LARGE FONT FOR TM295 (2,5x6 mm - LxA)
460	MEDIUM FONT FOR TM295 (1,5x6 mm - LxA)
461	SMALL FONT FOR TM295 (1,5x3 mm - LxA)
462	MEDIUM FONT FOR LX300
463	LARGE FONT FOR LX300
464	SMALL FONT FOR LX300
465	LARGE FONT FOR DP190 (3x5 mm - LxA)
466	MEDIUM FONT FOR DP190 (1,5x5 mm - LxA)
467	SMALL FONT FOR DP190 (1,5x2,5 mm - LxA)
468	BARCODE 39 BEGINNING FOR THERMAL DP190
470	ACTIVATES TIMEOUT FOR TM295

7.3.2 NUMERICAL ORDER

CODE		PRINT FORMAT

300   PRINT END

301   NET WEIGHT   NET**bb**=XXXXXXXXXXUM + T
in which XXXXXXXXXX is the weight value on 10 digits including the comma; the field expands from right to left.

302   GROSS WEIGHT   GROSS=XXXXXXXXXXUM + T

303   TARE WEIGHT   TARE**b**=XXXXXXXXXXUM + T

304   TOTALISATION NET   N.YYY**b**NET**bbb**XXXXXXXX**b**UM + T
in which YYY indicates the weigh number, XXXXXXX is the weight value in 8 digits including the comma; the weigh number is reset upon the resetting of the partial total.

305   TOTALISATION GROSS   N.YYY**b**GROSS**b**XXXXXXXX**b**UM + T

306   TOTALISATION TARE   N.YYY**b**TARE**bb**XXXXXXXX**b**UM + T

307   NET PARTIAL TARE   N.YYY**b**T1.N.XXXXXXXX**b**UM
in which YYY indicates the weight number, XXXXXXXX the weight value in 8 digits including the comma, with many spaces for completing the field length.

308   NET GENERAL TOTAL   N.YYY**b**T2.N.**b**XXXXXXXX**b**UM + T

309   NET GRAND TOTAL   N.YYY**b**T3.N.**b**XXXXXXXX**b**UM + T

310   GROSS PARTIAL TOTAL   N.YYY**b**T1.G.**b**XXXXXXXX**b**UM + T

311   GROSS GENERAL TOTAL   N.YYY**b**T2.G.**b**XXXXXXXX**b**UM + T

312   GROSS GRAND TOTAL   N.YYY**b**T3.G.**b**XXXXXXXX**b**UM + T

313   T1 ADDITIONAL VALUE   T1**b**ADD.**b**XXXXXXXXXX + T
in which XXXXXXXXXX is the additional value, linked to the partial total in 10 digits. It is reset upon the resetting of the partial total.

314   T2 ADDITIONAL VALUE   T2**b**ADD.**b**XXXXXXXXXX + T
in which XXXXXXXXXX is the additional totalised value, linked to the general total in 10 digits. It is reset upon the resetting of the general total.

315   T3 ADDITIONAL VALUE   T3**b**ADD.**b**XXXXXXXXXX + T
in which XXXXXXXXXX is the additional totalised value, linked to the grand total in 10 digits. It is reset upon the resetting of the grand total.

316   DOTTED LINE   -- -- -- -- -- -- -- -- -- -- -- -- -- -- -- + T

317   PRINTS 3 CRLF

318   DATE / TIME FOR DP24/DP190   **b**HH:MM**b**DD/MM/YY + T
the date and time of the printer is printed; one can adjust it through the printer.

319   1st ARTICLE DESCRIPTION   XXXXXXXXXXXXXXXXXXXX + T
in which XXXXXXXXXXXXXXXXXXXX are the 20 description characters; just the entered characters are printed, which expand from left to right.

320   2nd ARTICLE DESCRIPTION   XXXXXXXXXXXXXXXXXXXX + T

321   JUST "GROSS TOTAL" TEXT   GROSS**b**TOTAL

322   JUST "TARE TOTAL" TEXT   TARE**b**TOTAL

323   JUST "WEIGHS TOTAL" TEXT   WEIGHS**b**TOTAL

324   JUST "NET TOTAL" TEXT   NET**b**TOTAL

325   JUST ARTICLE GROSS TOTAL   XXXXXXXXXX

326   JUST ARTICLE TARE TOTAL   XXXXXXXXXX

327   JUST ARTICLE WEIGHS TOTAL   XXXXX
the field expands from right to left, with many spaces for completing the field length.

328   JUST ARTICLE NET TOTAL   XXXXXXXXXX

329   PRINTS ON PC PORT

330   PRINTS ON PRINTER PORT

331   FORCES PRINTOUT

332   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.

333	JUST INPUT 1 TEXT HEADING	XXXXXXXXXXXXXXXX
334	JUST INPUT 2 TEXT HEADING	XXXXXXXXXXXXXXXX
335	JUST INPUT 3 TEXT HEADING	XXXXXXXXXXXXXXXX
336	JUST INPUT 4 TEXT HEADING	XXXXXXXXXXXXXXXX
337	JUST INPUT 5 TEXT HEADING	XXXXXXXXXXXXXXXX
338	JUST INPUT 6 TEXT HEADING	XXXXXXXXXXXXXXXX
339	JUST INPUT 7TEXT HEADING	XXXXXXXXXXXXXXXX
340	JUST INPUT 8 TEXT HEADING	XXXXXXXXXXXXXXXX
341	JUST INPUT 9 TEXT HEADING	XXXXXXXXXXXXXXXX
342	JUST INPUT 10 TEXT HEADING	XXXXXXXXXXXXXXXX
343	JUST INPUT 11 TEXT HEADING	XXXXXXXXXXXXXXXX
344	JUST INPUT 12 TEXT HEADING	XXXXXXXXXXXXXXXX
345	JUST INPUT 13 TEXT HEADING	XXXXXXXXXXXXXXXX
346	JUST INPUT 14 TEXT HEADING	XXXXXXXXXXXXXXXX
347	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.

348	JUST THE INPUT 1 TEXT CONTENTS	YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY
349	JUST THE INPUT 2 TEXT CONTENTS	YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY
350	JUST THE INPUT 3 TEXT CONTENTS	YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY
351	JUST THE INPUT 4 TEXT CONTENTS	YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY
352	JUST THE INPUT 5 TEXT CONTENTS	YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY
353	JUST THE INPUT 6 TEXT CONTENTS	YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY
354	JUST THE INPUT 7 TEXT CONTENTS	YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY
355	JUST THE INPUT 8 TEXT CONTENTS	YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY
356	JUST THE INPUT 9 TEXT CONTENTS	YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY
357	JUST THE INPUT 10 TEXT CONTENTS	YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY
358	JUST THE INPUT 11 TEXT CONTENTS	YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY
359	JUST THE INPUT 12 TEXT CONTENTS	YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY
360	JUST THE INPUT 13 TEXT CONTENTS	YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY
361	JUST THE INPUT 14 TEXT CONTENTS	YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY
362	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.

363	INPUT 1 TEXT	XXXXXXXXXXXXXXXX**b**YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY + T
364	INPUT 2 TEXT	XXXXXXXXXXXXXXXX**b**YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY + T
365	INPUT 3 TEXT	XXXXXXXXXXXXXXXX**b**YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY + T
366	INPUT 4 TEXT	XXXXXXXXXXXXXXXX**b**YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY + T
367	INPUT 5 TEXT	XXXXXXXXXXXXXXXX**b**YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY + T
368	INPUT 6 TEXT	XXXXXXXXXXXXXXXX**b**YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY + T
369	INPUT 7 TEXT	XXXXXXXXXXXXXXXX**b**YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY + T
370	INPUT 8 TEXT	XXXXXXXXXXXXXXXX**b**YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY + T
371	INPUT 9 TEXT	XXXXXXXXXXXXXXXX**b**YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY + T
372	INPUT 10 TEXT	XXXXXXXXXXXXXXXX**b**YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY + T
373	INPUT 11 TEXT	XXXXXXXXXXXXXXXX**b**YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY + T
374	INPUT 12 TEXT	XXXXXXXXXXXXXXXX**b**YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY + T
375	INPUT 13 TEXT	XXXXXXXXXXXXXXXX**b**YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY + T
376	INPUT 14 TEXT	XXXXXXXXXXXXXXXX**b**YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY + T
377	DATE	DD/MM/YY + T
378	TIME	HH:MM + T
379	DATE TIME	HH:MM**b**DD/MM/YY + T
380	FOLLOWING MACRO TERMINATOR SKIPS	
381	JUST GENERAL TOTAL WEIGHS	XXXXXXXX

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

382	JUST GENERAL NET TOTAL	XXXXXXXXX
383	JUST GENERAL GROSS TOTAL	XXXXXXXXX
384	HEADING 1	XXXXXXXXXXXXXXXXXXXXXXXX + T

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

385	HEADING 2	XXXXXXXXXXXXXXXXXXXXXXXX + T
386	HEADING 3	XXXXXXXXXXXXXXXXXXXXXXXX + T
387	JUST GROSS ON 10 DIGITS	XXXXXXXXX

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

388	JUST NET ON 10 DIGITS	XXXXXXXXX
389	JUST TARE ON 10 DIGITS	XXXXXXXXX
390	MAXIMUM TOTALISATION THRESHOLD VALUE	XXXXXXXXX
391	MINIMUM TOTALISATION THRESHOLD VALUE	XXXXXXXXX

The threshold values refer to the selected scale.

392	ACTIVE SCALE NUMBER	SCALE**b**NUMBER**b**X+ T

in which X is the active scale number (1..4)

393	JUST ACTIVE SCALE NUMBER	X

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

394	SCALE UNIT OF MEASURE	UM + T
395	DATABASE UNIT OF MEASURE	UM + T
396	TICKET PROGRESSIVE	XXXXX

(number of partial total resettings)
the field expands from right tot left, with many spaces for completing the field length.

397	LOT PROGRESSIVE	XXXXXX

(number of general total resettings)
the field expands from right tot left, with many spaces for completing the field length

398	ARTICLE NET TOTAL	N.YYY**b**TA.N.**b**XXXXXXXX**b**UM + T

in which YYY indicates the weigh number, XXXXXXX the weight value in 8 digits including the comma; the weight field expands from right to left, with many spaces for completing the field length

399	ARTICLE GROSS TOTAL	N.YYY**b**TA.L.**b**XXXXXXXX**b**UM + T
400	ACTIVE ARTICLE MEMORY TOTAL	XXX

the field is expressed with three digits, with the zeros to complete the field length.

401	JUST WEIGHS PARTIAL TOTAL	XXXXXXXX

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

402	JUST NET PARTIAL TOTAL	XXXXXXXXX
403	JUST GROSS PARTIAL TOTAL	XXXXXXXXX
404	JUST WEIGHS GRAND TOTAL	XXXXXXXX
405	JUST NET GRAND TOTAL	XXXXXXXXX
406	JUST GROSS GRAND TOTAL	XXXXXXXXX
407	JUST PARTIAL NUMBER OF PIECES	XXXXXXXXX

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

408	JUST GENERAL NUMBER OF PIECES	XXXXXXXXX
409	JUST GRAND TOTAL NUMBER OF PIECES	XXXXXXXXX
410	NUMBER OF PIECES	YYYYYYYYYY=XXXXXXXXXX+ T

in which YYYYYYYYYY is the text configured in the **F.ModE >> dS. qtY** step of the SET-UP (just the entered characters are printed, if less than 6 this length is compensated with spaces), XXXXXXXXXX indicates the weight value on 10 digits including the comma; the weight field expands from right to left, with many spaces for completing the length of the field.

411	P.M.U.	PMU**bbb**=XXXXXXXXXXUM+T

In which XXXXXXXXXX indicates the weight value on 10 digits including the comma; the weight field expands from left to right.

412	ONLY "T. QUANTITY" TEXT	T.**b**QUANTITY
413	JUST NUMBER OF ARTICLE PIECES	XXXXXX

In which XXXXXX indicates the weight value on 6 digits including the comma; the weight field expands from right to left.

414	ONLY "A.P.W." TEXT	A.P.W.
415	JUST ARTICLE A.P.W.	XXXXXXX

in which XXXXXXX XXXXX indicates the weight value on 7 digits including the comma; the weight field expands from right to left.

416	3° ARTICLE DESCRIPTION	XXXXXXXXXXXXXXXXXXXX + T

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

417	APW UNIT OF MEASURE	UM + T
418*	LAST GROSS WEIGHT ON ALIBI MEMORY	XXXXXXXXXX

in which XXXXXXXXXX indicates the weight value in 10 digits including the comma; the weight field expands from right to left.

419*	LAST TARE ON ALIBI MEMORY	XXXXXXXXXX
420*	ACTIVE SCALE NUMBER WITH ALIBI MEMORY	XX
421*	ALIBI MEMORY WEIGHT ID PRINTING	XXXXXX

in which XXXXXX indicates the weight ID on 6 digits, including the comma; the field expands from right to left.

422*	ID UNIT OF MEASURE	UM+T

this block prints the unit of measure of the weigh saved in the alibi memory.

423	PRINTS TERMINATOR	CR, CRLF, LF or NO TERMINATOR
424	LAST NET TOTALISED	XXXXXXXXXX

in which XXXXXXXXXX indicates the weight value in 10 digits including the comma; the weight field expands from right to left.

425	LAST TOTALISED GROSS	XXXXXXXXXX
426	LAST TOTALISED TARE	XXXXXXXXXX
427	LAST NUMBER OF TOTALIZED PIECES	XXXXXXXXXX+T

in which XXXXXXXXXX indicates the weight value in 10 digits including the comma; the weight field expands from right to left.

428	PARTIAL TOTAL OF PIECES	T1.YYYYYYYYYYXXXXXXXXXX+T

in which YYYYYYYYYY is the text configured in the **F.ModE >> dS. qtY** step of the SET-UP (just the entered characters are printed), XXXXXXXXXX indicates the weight value in 10 digits including the comma; the weight field expands from right to left.

429	GENERAL TOTAL OF PIECES	T2.YYYYYYYYYYXXXXXXXXXX+T

in which YYYYYYYYYY is the text configured in the F.ModE >> dS. qtY step of the SET-UP (just the entered characters are printed), XXXXXXXXXX indicates the number of pieces on 10 digits including the comma.

430	GRAND TOTAL OF PIECES	T3.YYYYYYYYYYXXXXXXXXXX+T

in which YYYYYYYYYY is the text configured in the F.ModE >> dS. qtY step of the SET-UP (just the entered characters are printed), XXXXXXXXXX indicates the number of pieces on 10 digits including the comma.

431	JUST PARTIAL TOTAL TARE	XXXXXXXXXX
432	JUST GENERAL TOTAL TARE	XXXXXXXXXX
433	JUST GRAND TOTAL TARE	XXXXXXXXXX
434	STANDARD KD PROTOCOL STRING	
435	AF0X PROTOCOL STRING	

Through the blocks 434 and 435 it is possible to print the STANDARD or AFXX serial string (see "TRANSMISSION PROTOCOLS" for the description); the string terminator is the one set in the **tErMin** "SET TERMINATOR TYPE" step of the SET-UP environment (CR or CRLF or no terminator).

436	JUST NUMBER OF PIECES	XXXXXXXXXX

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

437	JUST "WEIGH" TEXT	WEIGH
438	JUST "WEIGHS" TEXT	WEIGHS
439	JUST "PARTIAL TOTAL" TEXT	PARTIAL TOTAL
440	JUST "GROSS" TEXT	GROSS**b**
441	JUST "NET" TEXT	NET**b**
442	JUST "TARE" TEXT	TARE**bb**
443	JUST QUANTITY TEXT	XXXXXXXXXX

in which XXXXXXXXXX is the text configured in the **F.ModE >> dS. qtY** step of the SET-UP (just the entered characters are printed, if less than 6 the length is compensated with spaces).

444   JUST "GENERAL TOTAL" TEXT   GENERAL TOTAL

444   JUST "GENERAL TOTAL" TEXT   GENERAL TOTAL

445	JUST "GRAND TOTAL" TEXT	GRAND TOTAL
446	JUST NUMBER OF ALIBI MEMORY REWRITINGS	XXXXX

the field expands from right to left; the non significant zeros will be printed anyways.

447	JUST NUMBER OF SELECTED TARE	XXX

the field expands from right to left; the non significant zeros will be printed anyways.

448	ACTIVE CUSTOMER STORAGE NUMBER	XXX
449	1ST DESCRIPTION OF ACTIVE CUSTOMER	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX + T

in which XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX are 30 description characters; just the entered characters are printed, which expand from left to right.

450	2ND DESCRIPTION OF ACTIVE CUSTOMER	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX + T
451	3RD DESCRIPTION OF ACTIVE CUSTOMER	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX + T
452	4TH DESCRIPTION OF ACTIVE CUSTOMER	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX + T
453	5TH DESCRIPTION OF ACTIVE CUSTOMER	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX + T
454	PRINTS CALCULATED DATA	XXXXXXXXXX
455	PRINTS FIRST DATUM ENTERED	XXXXXXX

The blocks 454 and 455 refer to the operation made using the "calculator" function described in section 15.1, **USER MAN.REF.**

456	ACTIVATES PAPER PRESENT SENSOR FOR TM295	
457	RELEASES PAPER FOR TM295	
458	EMISSION AND PAPER RELEASE FOR TM295	
459	LARGE FONT FOR TM295 (2,5x6 mm - LxA)	
460	MEDIUM FONT FOR TM295 (1,5x6 mm - LxA)	
461	SMALL FONT FOR TM295 (1,5x3 mm - LxA)	
462	MEDIUM FONT FOR LX300	
463	LARGE FONT FOR LX300	
464	SMALL FONT FOR LX300	
465	LARGE FONT FOR DP190 (3x5 mm - LxA)	
466	MEDIUM FONT FOR DP190 (1,5x5 mm - LxA)	
467	SMALL FONT FOR DP190 (1,5x2,5 mm - LxA)	
468	STARTS BARCODE 39 FOR THERMAL DP190	
469	LAST NET ON ALIBI MEMORY	XXXXXXXXXX

in which XXXXXXXXXX indicates the weight value on 10 digits including the comma

470	ACTIVATES TIMEOUT FOR TM295	
471	JUST CONDITIONED TARE TEXT	XXXXXX

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

472	JUST CONDITIONED PT TEXT	XX

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

473	JUST YEAR IN YY FORMAT	YY
474	JUST MONTH IN MM FORMAT	MM
475	JUST DAY IN DD FORMAT	DD
476	JUST HOUR IN HH FORMAT	HH
477	JUST THE MINUTES IN MM FORMAT	MM
478	JUST "ARTICLE TOTAL" TEXT	ARTICLE**b**TOTAL
479	PRINTS SECOND ENTERED DATUM	XXXXXXX
480	PRINTS OPERATION SYMBOL	X

"+" in case of addition, "-" in case of subtraction, "x" in case of multiplication.

The 479 and 480 blocks refer to the operation executed with the "calculator" function described in **USER MAN.REF.**

481	JUST "PMU" TEXT	PMU**bbb**
482	JUST P.M.U. ON 10 DIGITS	XXXXXXXXXX

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 configuration of the **SEtuP >> SeriAL >> tErMin** step: "SET TYPE OF TERMINATOR" in SETUP menu, a CR or CRLF or no terminator is added.

7.4 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 OK/menu.
- The indicator does not pass by the block present in the following line, but shows "P000".
- 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 ACCUMULATOR VALUE   Values valid in the **XXX** format
       in which **XXX** can be:
       000   Net weight.
       001   Gross weight.
       002   Tare weight.
       003   Net article total
       004   Net partial total
       005   Net general total
       006   Net grand total
       007   Article gross total
       008   Partial gross total
       009   General gross total
       010   Gross grand total
       011   Tare article total
       012   Partial tare total
       013   Tare general total
       014   Tare grand total
       015   Weighs' article total
       016   Weighs' partial total
       017   Weighs' general total
       018   Weighs' grand total
       019   Article total additional value
       020   Partial total additional value
       021   General total additional value
       022   Grand total additional value
       023   Pieces article total
       024   Pieces partial total
       025   Pieces general total
       026   Pieces grand total
       027   Fist tare value
       028   Switches the configured value with the comparison value (see Macro Attachment)

610   SETS DECIMALS' VALUE OF 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

611   SETS UNIT OF MEASURE CONVERSION VALUE OF THE ACCUMULATOR   Values valid in the **XXX** format
       in which **XXX** can be:
       000   g
       001   kg
       002   t
       003   lb

612   PRINTS ACCUMULATOR VALUE   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 output 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 630:

614   PIECES ON X DIGITS   Values valid in the **nXX** format
615   APW 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
616   EAN/UCC CHECKDIGIT ON X PREVIOUS DIGITS   Values valid in the **XX** format
617   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 616 and 617 blocks, one should enter the block 331 "FORCES PRINTING" before the blocks that need to be converted.

        EXAMPLE
        331   FORCES PRINTING
        301   PRINTS NET WEIGHT
        617 >>> 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

619   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   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 macro 622.
        n can be:
        0   to set the start threshold;
        1   to set the characters to be printed.

        XX is the start threshold if **n** = 0 or the characters to be printed if **n** = 1.

        See the example in macro 622.

622   PRINTING OR CLEARING INPUT TEXT CONTENTS   Values valid in the **nXX** format
        This macro allows to print a part of the contents of an input text defined in the macro 620 or to clear the contents of
        the input text.

        n can be:
        0   to print;
        1   to clear.

        XX is the number of the input text (XX = 01 to print or clear the contents of input text 0, XX=15 to print or clear the
        contents of input text 14, XX=00 to clear all the contents of the input texts).

        #################
        EXAMPLE
        If one wants to print from the 1st to the 6th letter of the contents of input text 0 and clear the contents, one should
        set the following macros:
        …
        620 >>> enter parameter 000   Sets the start of the printing from the 1st character.
        620 >>> enter parameter 106   Sets the number of characters to be printed at 6.
        622 >>> enter parameter 001   Prints the contents of the input text 0 with the set margins.
        622 >>> enter parameter 101   Clears the contents of the input text 0
        ….
        #################

623   SETTING THE ALIGNMENT AND NUMBER OF FORMATTING CHARACTERS   Values valid in the **nXX** format
        This macro, followed by 624, allows to align to the right or to the left the contents of the following macro, on the
        number of defined 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 macro 624.

624   SETTING THE FILLING CHARACTERS 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 macro 392 (NUMBER OF ACTIVE SCALE) by putting the "-" character (ASCII decimal 045) as filling on the left.

The macro contains 17 characters, therefore if the print line is of 24 one should set the following macros:

…
623 >>> enter parameter 024
624 >>> enter parameter 045
392 >>> enter parameter 001

….
################

625   CONFIRMATION WAIT FROM PC OR **C** KEY   Values valid in the **XXX** format
This macro allows to lock the indicator and view the message "WAIT" on the LED display, after forcing the printing of the previous macros, waiting for the character which confirms that the PC has received the command. In any case it's possible to unlock the indicator by pressing the **C** key.
Once unlocked the indicator will print the eventual macros which follow.

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
If one wants to lock the indicator after printing a series of data, wait for the "-" confirmation character (ASCII decimal 045) and, once received, transmit other data, one should set the following macros:

…
301
302
303
625 >>> enter parameter 045   Setting the wait of the "-" character (ASCII decimal 045)
304
305
306
…
################

626   LAST REFERENCE VALUE ON X DIGITS   Values valid in the **nXX** format

627   SETS THE VALUE OF THE SETPOINT IN THE MACRO 609   Values valid in the **XXX** format

Parameter	ON Threshold (setpoint)
=========	==================
000 ~ 003	OUT1 ~ 4 (Mother board)
004 ~ 015	OUT5 ~ 16 (Expansion board)

Parameter	OFF Threshold (hysteresis)
=========	==================
000 ~ 003	OUT1 ~ 4 (Mother board)
004 ~ 015	OUT5 ~ 16 (Expansion board)

630   FORCES PRINTING AND TIME DELAY   Values valid in the **XXX** format
Besides the print forcing function it also functions as a time delay.
XXX   Time delay (up to 200dsec); for example "001" equals 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)
630 >>> enter parameter 001 (0,1 seconds)
301 (Net weight)
630 >>> 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)
630 >>> enter parameter 001 (0,1 seconds)
302 (Gross weight)
630 >>> 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)
630 >>> enter parameter 001 (0,1 seconds)
303 (Tare weight)
630 >>> enter parameter 001 (0,1 seconds)

…
################
632 DATA FLASH OR FROZEN   Valid values 000 or 001
000 → considers frozen data (normal)
001 → considers instantaneous data

643   SETS THE VALUE FOR ENABLE OR DISABLE PRINT TERMINATOR   Values valid **000 or 001**
000→ Enable print Terminator
001→ Disable print Terminator

644   SIMULATES THE PRESSURE OF A KEY
-     0xx simulates the pressure of the key with xx code.
-     1xx simulates the long pressure of the key with xx code.

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
10	Numeric key '**0**'
11	Numeric key '**1**'
12	Numeric key '**2**'
13	Numeric key '**3**'
14	Numeric key '**4**'
15	Numeric key '**5**'
16	Numeric key '**6**'
17	Numeric key '**7**'
18	Numeric key '**8**'
19	Numeric key '**9**'
20	Dot key **(.)**
21	**ZERO** key
22	**Fn/ENTER** key
23	**2nd F** key
24	**C** key

645   WAIT THE PRESSURE OF A KEY
-     0xx set the visualization of WAIT message and "block" the instrument, it remain on waiting of the pressure of the key with xx code.
-     1xx "block" the instrument, it remain on waiting of the pressure of the key with xx code.

646   WAIT THE STATUS OF THE INSTRUMENT
-     0xx set the visualization of WAIT message and "block" the instrument, it remain on waiting of xx status.
-     1xx "block" the instrument, it remain on waiting of xx status.

647   SET THE LEVEL OF THE FUNCTION
0xx set the menu level of the function that one want to perform.

648   SET THE FUNCTION
0xx set the code of the function that one want to perform.

Example:
To execute the function 311 is necessary insert in the format the macro 647 with 003 parameter (that set the level menu level) and the macro 648 with 011 parameter (number of the function).

649   REDIRECTION OF THE PRINT   Values valid **000**, **001** or **002**
- 000 print on Print port
- 001 print on Pc port
- 002 print on Aux port

Note: parameter 255 forces printing.

650   SET ACCUMULATOR WITH PRINT BUFFER VALUE OR   Values valid in the **nXX** format
          DECREASE PRINT BUFFER
          In which **n** can be:
          0 sets the accumulator with the character that is in the following position of the print buffer:
          current position – XX characters; the character will be stored in ASCII decimal code.
          1 decreases the print buffer of XX characters.
          2 increases the print buffer of XX characters.
          ################
          EXAMPLE
          One wants to get only the number of the active scale from the macro 392 ("ACTIVE SCALE NUMBER") and set it in
          the accumulator (in ASCII decimal value), without printing.
          One should set the following macros:

          …
          392   "Scale**n**Number**nnnn**X**t**" (X is the number of the scale)
          650 >>> enter parameter 002 (sets the number of the scale in the accumulator)
          Considering that the cursors start from the end of the string the accumulator will get the number of the scale "X"
          650 >>> enter parameter 118 (decreases the print buffer of 18 characters)

           …

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

651   REDIRECTION BUFFER   Values valid in the **XXX** format
           In which **XXX** can be:
          -001 inserts in the redirection buffer all the data that follow the macro and prints them
          -002 inserts in the redirection buffer all the data that follow the macro (without printing them)
          -003 prints the data of the redirection buffer
          -004 cancels all the data in the buffer

Note: parameter 255 forces printing.

8. DISPLAY CUSTOMIZATION

It's possible to program the lines of the customizable display. In each line up to 22 characters can be displayed.
The print format that allows to program the customizable display is the number 99.
The terminator to be used in this format must be CR.
One can configure this format through the Dinitools™ software (for the management of the print formats, see the manual of
the software).
The programming of the lines of the display can be executed by using the print macros described in the sections "LIST OF
PRINT BLOCKS" and "BLOCKS WITH PARAMETERS".

9. ELECTRICAL CONNECTION SCHEMES

9.1 MOTHER BOARD
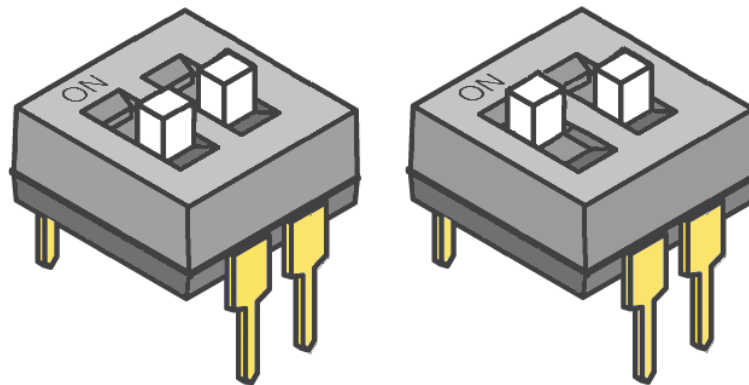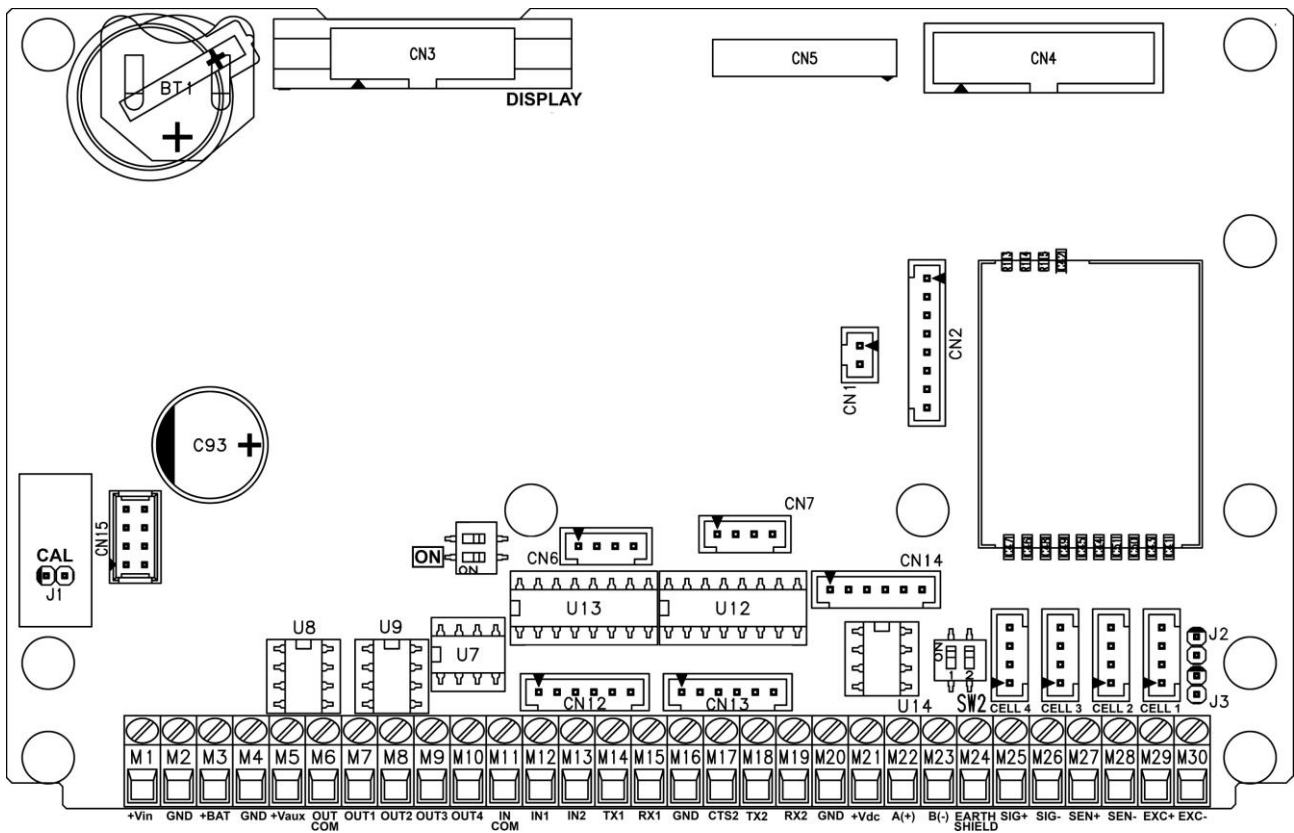
There aren't differences between two switches, doesn't matter which is "ON", is enough activate only one

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
	2 GND (0 V)		20 GND (0 V)
4 GND (0 Vdc)	1 +Vdc (+12 Vdc, 8 ÷ 36 Vdc	4 GND (0 V)	21 +Vdc (+12V only if connected
3 +BAT (+ 6 Vdc)	with I/O expansion board connected)	5 +Vaux (5,3 –8 Vdc 400 mA max)	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) (*)
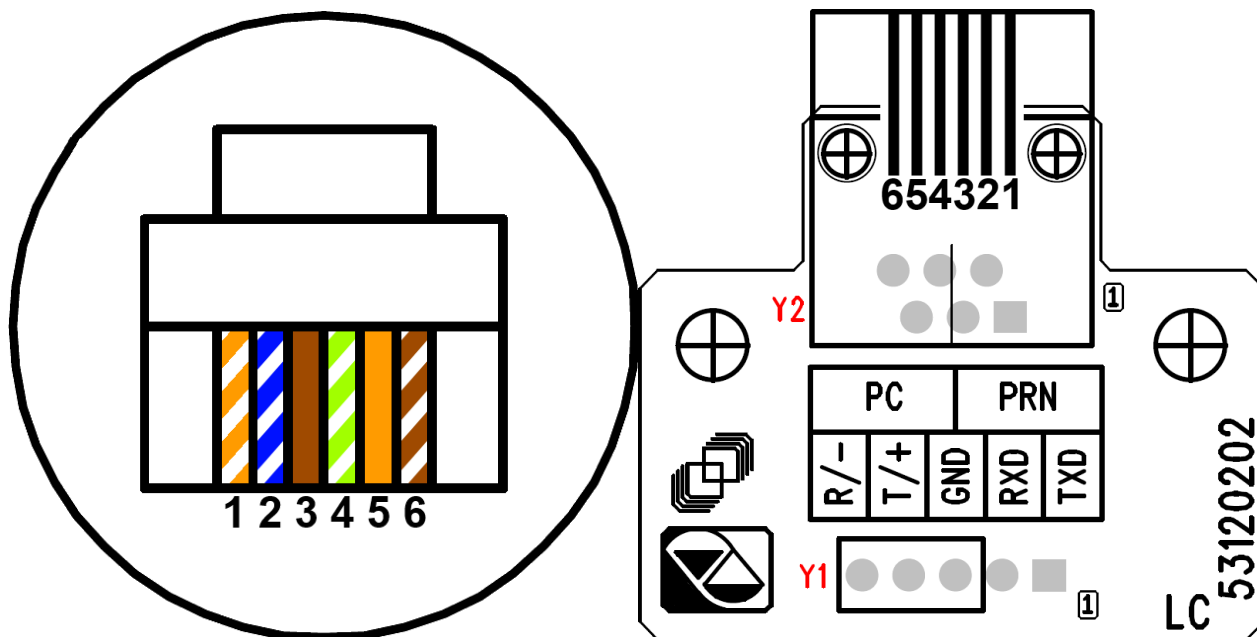
PLUG6 CONNECTIONS:

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.

9.2 I/O EXPANSION BOARD (fitted with 3590EXT in IO version or CPWE)
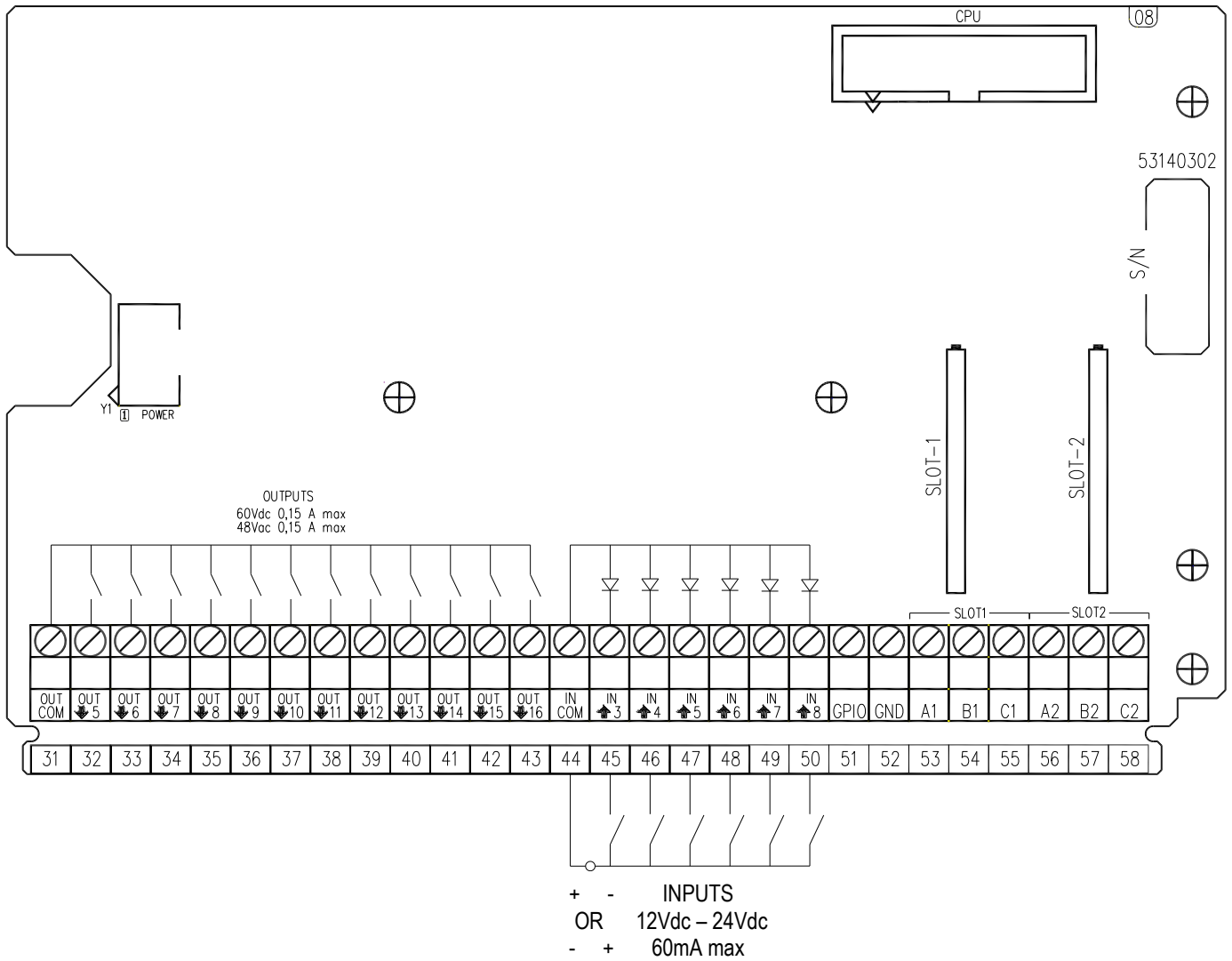
ANALOGUE OUTPUT

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.

9.3 INTEGRATED CIRCUITS INSTALLATION

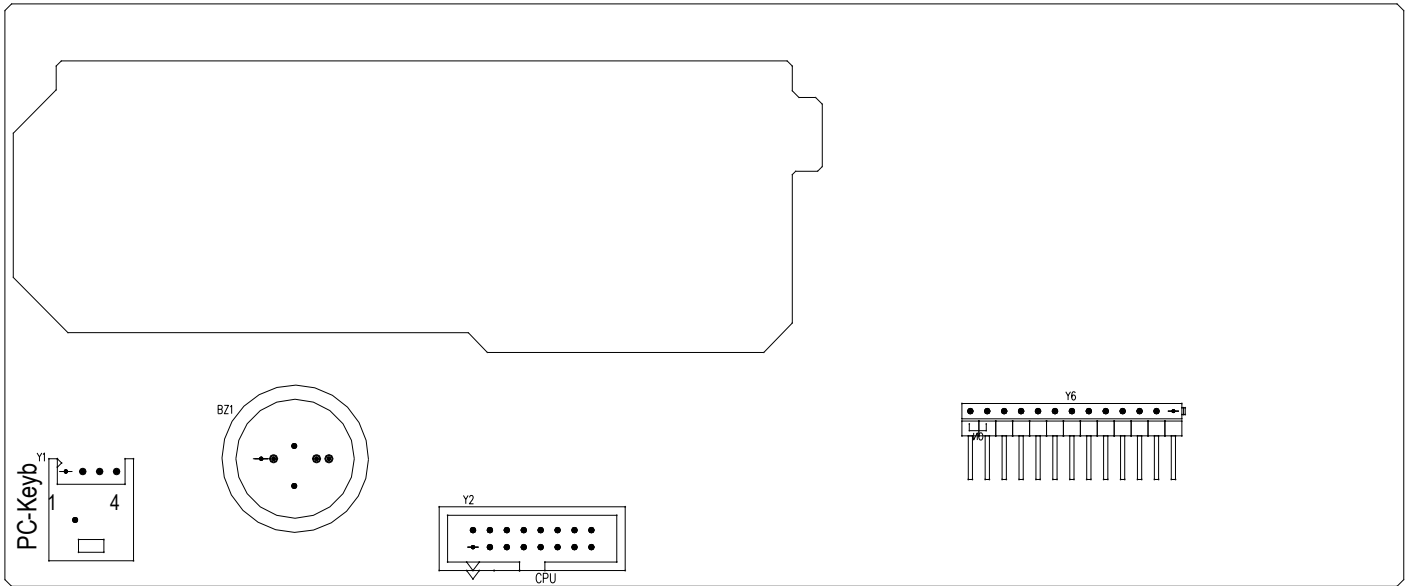It is necessary follow this procedure to install Input, Output and RS485 integrated circuits:
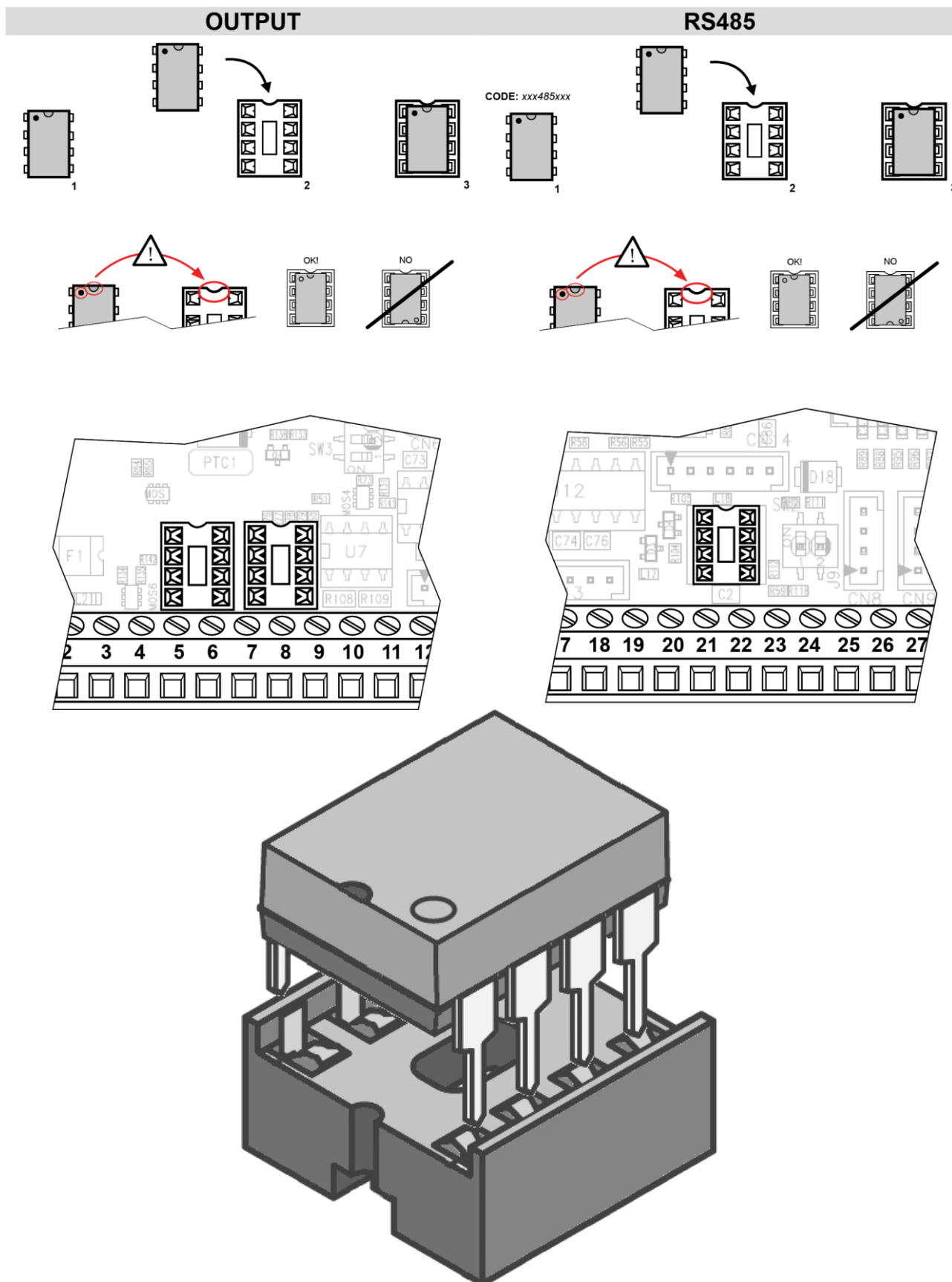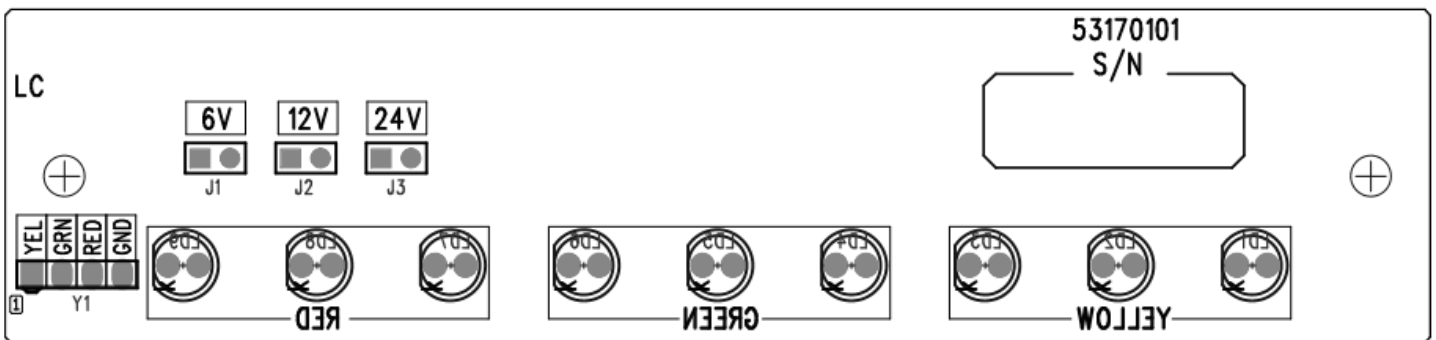
INPUT
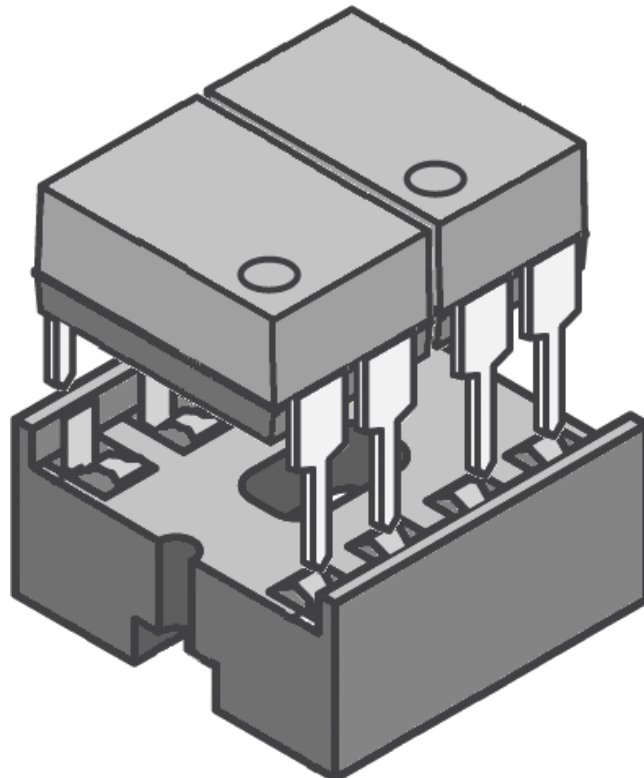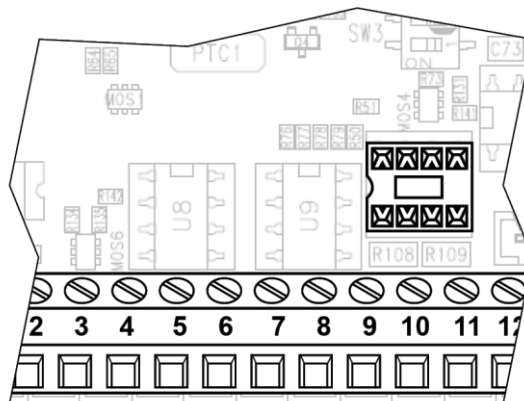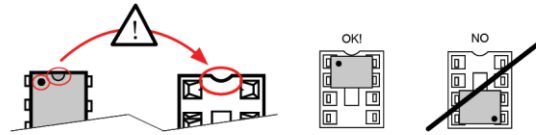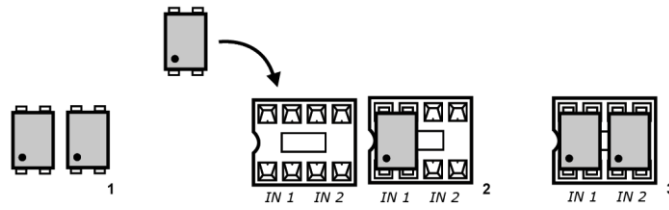
9.4 DISPLAY BOARD

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

9.5 CONTROL LIGHT
(only for CPWET)

J1: if closed, allows to set the power supply of the control light to **6V**.
J2: if closed, allows to set the voltage of the control light to **12V**.
J3: not used

!!WARNING!!
Only one jumper must be closed at time

Y1	MEANING	COLOUR	MOTHERBOARD
1 (YEL)	OUT1	YELLOW	7
2 (GRN)	OUT2	GREEN	8
3 (RED)	OUT3	BROWN	9
4 (GND)	GND	WHITE	20

9.6 EXAMPLE OF CONFIGURATION
Set the following parameters:
- SEtuP >> outPut >> r.CONF. >> rL. 1 >> rLFunC: PCS
- SEtuP >> outPut >> r.CONF. >> rL. 1 >> onstat: „drct" (direct) or „stabil." (on stability)

- SEtuP >> outPut >> r.CONF. >> rL. 2 >> rLFunC: PCS
- SEtuP >> outPut >> r.CONF. >> rL. 2 >> onstat: „drct" (direct) or „stabil." (on stability)

- SEtuP >> outPut >> r.CONF. >> rL. 3 >> rLFunC: PCS
- SEtuP >> outPut >> r.CONF. >> rL. 3 >> onstat: „drct" (direct) or „stabil." (on stability)

- SEtuP >> outPut >> r.MODE >> EXCLUS

Therefore set with **F3** key the thresholds 1, 2 and 3, or set the thresholds 1, 2 and 3 directly in the article field.