

TPWATEX

WEIGHT INDICATOR



Group II, 2G category, IIC T4 with environment temperature = - 20 ÷ +40,



USER MANUAL

TPWATEX_04_07.06_UK_U

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1 INTRODUCTION

In thanking you for purchasing this pallet truck scale we would like for you to take into consideration some aspects of this manual:

- this manual gives all the information for the correct functioning and maintenance of the TPWATEX pallet truck which is an integral part of the machine.
- this manual also gives the information regarding the use and functions of the weight indicator installed on the TPWATEX pallet truck
- all the information given here is what is available at the time of printing; the manufacturer reserves the right to make changes to the product at any time without prior notice. It is advisable to verify if there are any updates.
- the person responsible for the use of the TPWATEX pallet truck must make sure that all the existing safety norms in the country of use are respected and guarantee that the instrument is used in conformity with the use for which it has been manufactured for.
- Some functions written in the sections regarding the weight indicator might not be available, because these depend on the type of weighing system that has been purchased.

This pallet truck is designed for lifting and transporting loads put on a pallet or containers placed on flat, level surfaces with adequate resistance.

It is also fitted with an electronic weighing system made up of a DFWATEX multifunction digital indicator put on the column and of 4 load cells rigidly fixed **inside the stainless steel forks**.

The TPWATEX is designed in order to avoid causes for sparks. The potential friction surfaces have been made in stainless steel. The metallic structure parts are electrically connected and a sliding chain is provided for its grounding.

2 SYMBOLS

Below are shown the symbols used:

- in the manual to recall the attention of the reader.
- on the instrument to recall the attention of the user.

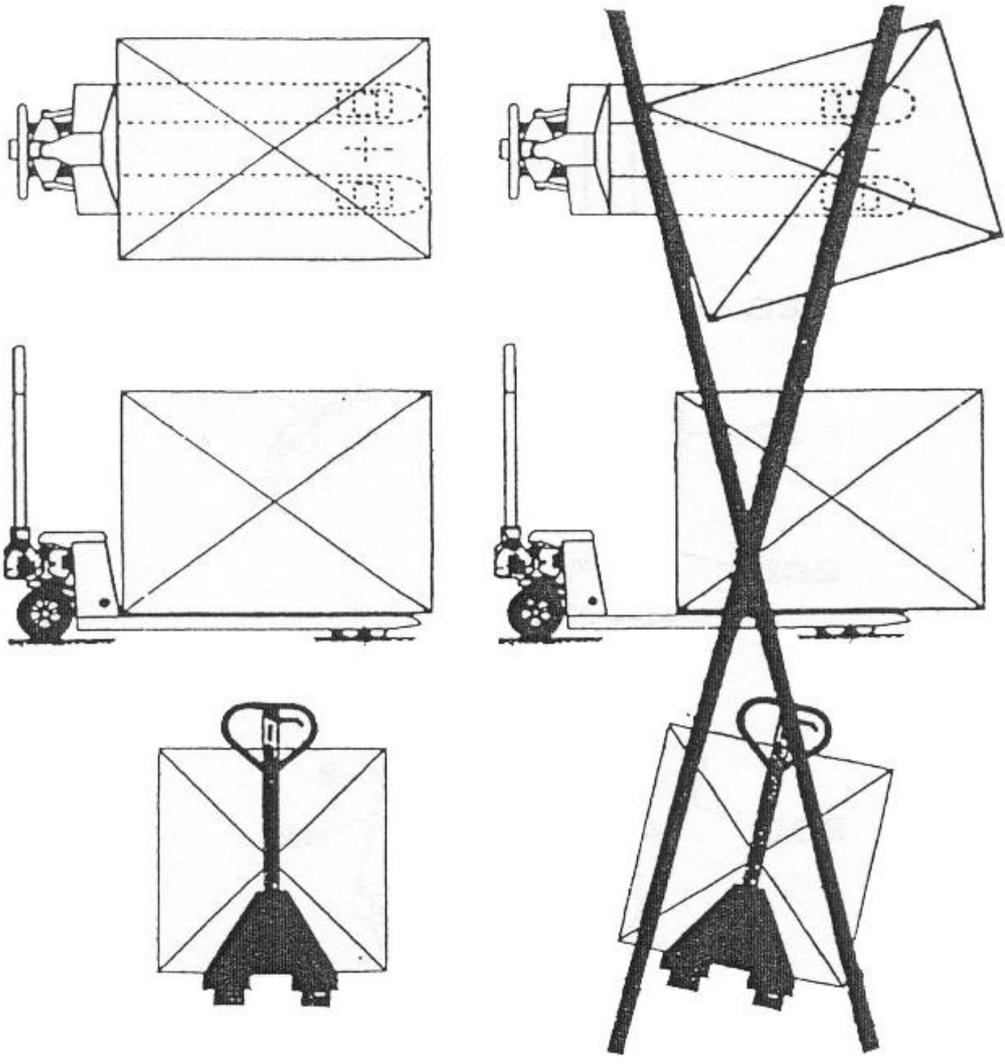
	!!WARNING!! This operation must be made by specialized personnel
	CE CONFORMITY
	IDENTIFYING THE PRECISION CLASS
	NOTES WHICH PARTICULARLY CONCERN THE USE OF THE INSTRUMENT IN A HAZARDOUS AREA
	The crossed-out wheeled bin on the product means that at the product end of life, it must be taken to separate collection or to the reseller when a new equivalent type of equipment is purchased. The adequate differentiated refuse collection in having the product recycled, helps to avoid possible negative effects on the environment and health and supports the recycling of the materials of which the equipment is made. The unlawful disposal of the product by the user will entail fines foreseen by the current regulations.
"TECH.MAN.REF."	Means that an advanced function is being described (therefore for the technical personnel) which will be further explained in the corresponding technical manual.

3



- This scale has been designed to only weigh on pallets
- NEVER load the scale beyond the maximum capacity shown on the weight indicator's plate.
- Load only when forks are in the lowest position.
- Check that the pallet truck scale is in good operating conditions.
- To get the best weighing results, lift up the forks (after loaded) about 5-10 cm.
- The use of the instrument in hazardous areas require a special attention and special precautions during the use and maintenance
- The instrument conforms for use in zones having precise features: do not install and use the instrument in environments different than those provided for.
- The installation, maintenance and repair of the instrument, must be made by qualified and authorized personnel.
- The safety of the explosion-proof system is guaranteed **only** if the system is installed, used and taken care of following the instructions given in this manual and in the technical manual (**TECH.MAN.REF.**).
- Avoid accumulations of electrostatic charges; therefore, when using the instrument in a hazardous zone, the appropriate work clothing must be used by the operator or the maintenance person.
- Do not cover the instrument with coverings made by materials which could have electrostatic charge
- It is forbidden to modify or repair the instrument with components not conforming to the certification; this action compromises the intrinsic safety of the instrument (**with a subsequent loss of the Ex approval**) and the nullification of the product warranty.
- It is forbidden to connect the instrument to modules not provided for by the certification; this action compromises the intrinsic safety of the instrument (**with a subsequent loss of the Ex approval**). Contact Dini Argeo srl for further information.
- Use just the provided for battery; Contact Dini Argeo srl for further information.
- Be very careful when using the instrument; any sparks could cause an explosion.
- Recharge the battery **only** in a safe zone and use **just** the appropriate battery charger.
- Do not open, repair or modify a defective battery; this operation causes the loss of its intrinsic safety. Dispose of the defective batteries.

FIX THE LOAD ON THE PALLET, AS SHOWN IN THE DRAWING



4 DESCRIPTION of the SYSTEM

The TPWATEX series' electronic scales are devices for hazardous areas having presence of gas, designed and made according to the ATEX 94/9/CE directive, group II category 2G according to the EN50014 and EN50020. The protection mode of the electronic weighing terminal (DFWATEX) is EEx ia IIC T4.

The weighing terminal is made up of a metallic case, which contains the various intrinsically safe electronic circuits:

- DFWATEX terminal, stand alone application with IP65 protection;

The weighing terminal is fitted with a CPU, LCD display, membrane keyboard and separate power supply unit, made up of a Ni-MH battery or a power adapter, which has a separate ATEX certification.

The terminal provides for a connection to load cells (strain gauges – simple apparatus or intrinsically safe load cells, which have a separate ATEX certification) / digital signals / electronic level - simple apparatus. A fibre optic connection for the interfacing of devices in a safe zone is also provided for (30 m of maximum cable length).

The TPWATEX is designed in order to avoid causes for sparks. The potential friction surfaces have been made in stainless steel. The metallic structure parts are electrically connected and a sliding chain is provided for its grounding.

5 SAFETY DATA / PLATE PARAMETERS

The power supply of the DFWATEX electronic weighing terminals is provided with battery:

- DFWBP76ATEX battery pack, Ni-MH, $V_n = 10,4 \text{ V}$, 7600 mAh

Intrinsically safe circuits

Connection to load cells (strain gauges – simple apparatus or intrinsically safe load cells, which have a separate ATEX certification) / digital signals / electronic level - simple apparatus. :

Channel	U_o	I_o	L_o	C_o
EXI+ / EXI-	5.9 V	252 mA	0.25 mH	40 μF
IN+ / IN-	5.9 V	18 mA	< 90 mH	40 μF
SEN+ / SEN-	5.9 V	18 mA	< 90 mH	40 μF
digital IN	5.9 V	6 mA	250 mH	40 μF
digital OUT	5.9 V	52 mA	10 mH	40 μF

A fibre optic connection for the interfacing of devices in a safe zone is also provided for (30 m of maximum cable length).

6 MARKINGS

The markings of the pallet truck scale (TPW) is:

CE  **II 2 GD c IIC T6 85°C**

The markings of the electronic weighing terminals (DFWATEX) is:

CE **0722**  **II 2 G EEx ia IIC T4**

0722 Nr. of notified body (CESI) for the ATEX/Q surveillance

II group II (surface)

2 category 2 equipment

G explosive atmospheres caused by gas, fog or vapours

D explosive atmospheres caused by dust

c IIC T6 85°C protection mode, gas group, class of temperature of the pallet truck scale (TPW)

EEx ia IIC T4 protection mode, gas group, class of temperature of the electronic weighing terminals (DFWATEX)

For the marking of the whole see the CE declaration of conformity attached in this manual.

Hazardous zone		Category according to 94/9/CE directive
Gas, fog or vapours	Zone 0	1G
Gas, fog or vapours	Zone 1	1 G or 2G
Gas, fog or vapours	Zone 2	1 G, 2G or 3G

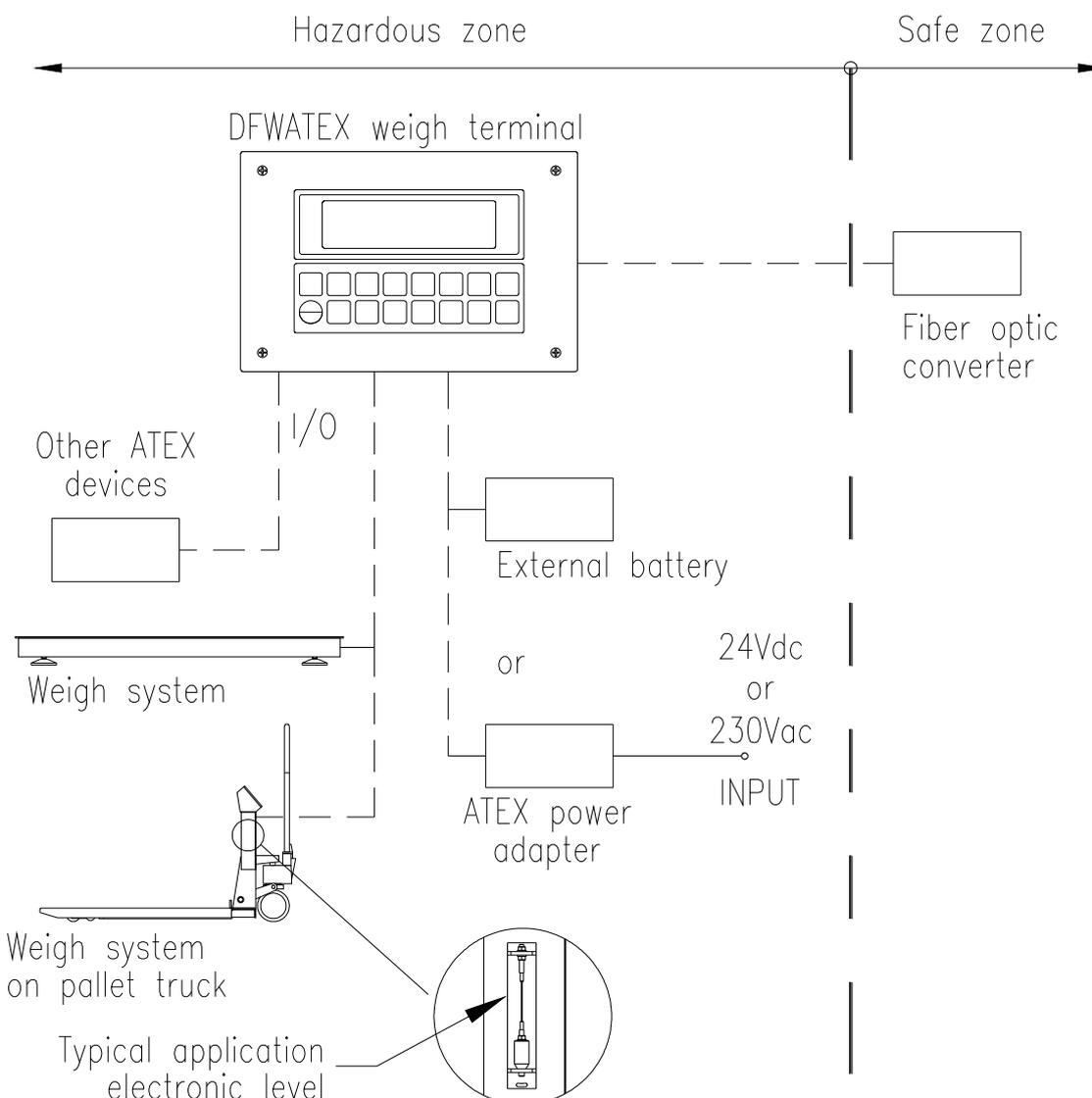
Ex 7 INSTRUCTIONS FOR INSTALLATION IN HAZARDOUS ZONE Ex

The TPWATEX series' electronic scales must be installed or preserved according to the applicable norms relative to the installations in a hazardous zone (different from the mines) classified for the presence of gas as ZONE 1 or ZONE 2, for example: EN 60079-14, EN 60079-17 or other national norms/standards).

- DFWBP76ATEX battery pack: substitute only with battery pack of the same type. The **RECHARGE** must be made **only in SAFE ZONE** and just with the DFWBPAL recharge device.
- The indicator is grounded through a chain. Do not remove the chain.
- Warning plate (JBQ4/EX JUNCTION BOX)

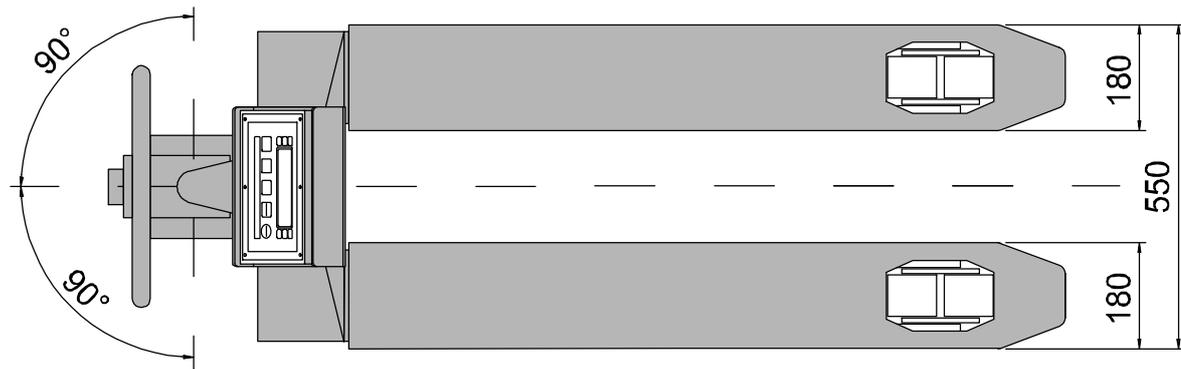
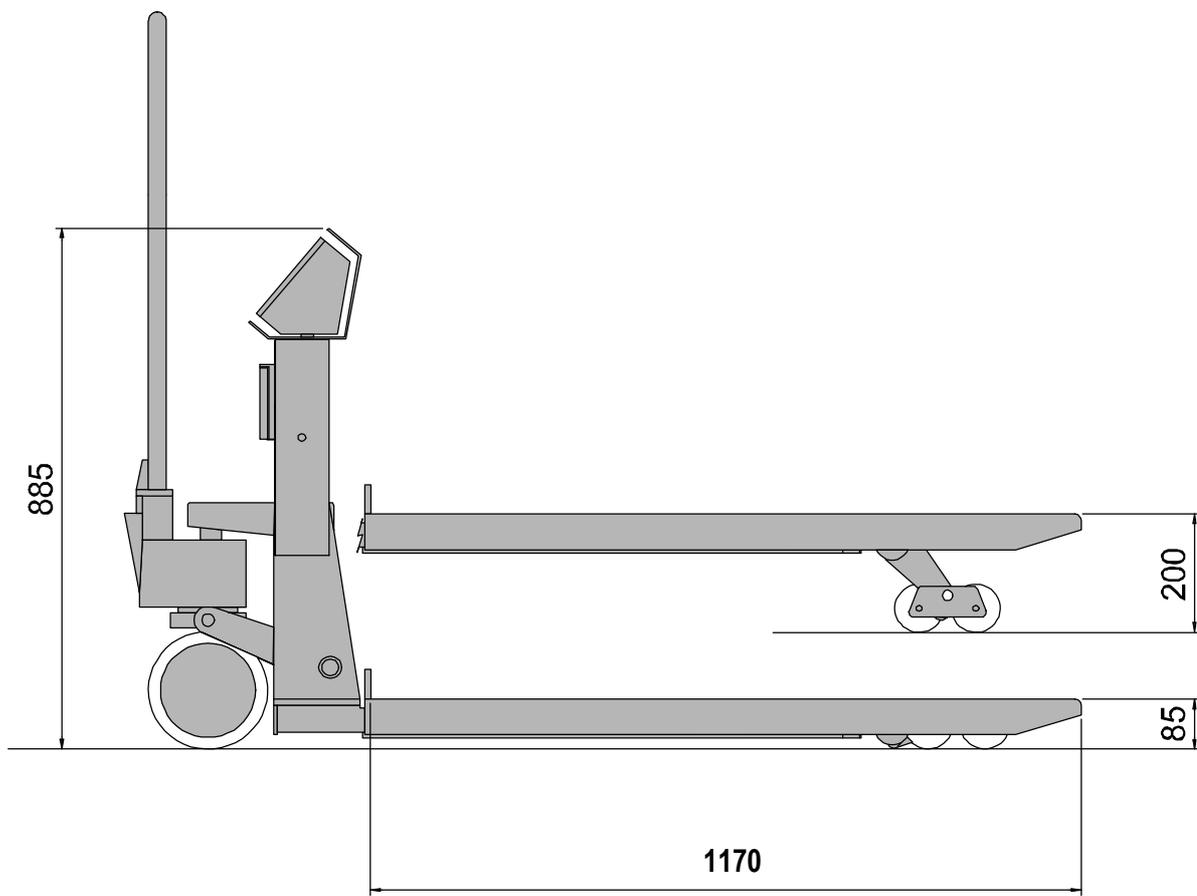
CONTAINS EXI CIRCUITS. ELECTROSTATIC CHARGES WARNING. CLEAN ONLY WITH DAMP CLOTHS OR ANTISTATIC PRODUCTS.

7.1 INSTALLATION EXAMPLE



PALLET TRUCK

8 TPWATEX DIMENSIONS (mm)



9 OPERATING INSTRUCTIONS

A pallet truck scale is an electronic weighing system directly installed on a pallet truck.

Must be used on even solid surfaces and driven always in the normal position.

Before loading, check the maximum load allowed by the pallet truck scale in use.

(refer to instruction plate X on the side of the pallet truck – reference drawing B).

The rudder has a double function, direction control and hydraulic lifting.

N.B. Lift up or pull down only when the pallet truck scale is in a standing still position.

N.B. Load only when forks are in the lowest position.

CONTROLS

The lever on the right side of the rudder can be put in 3 positions, like it shows on the plate “Y” in figure B.

POS. 1 – centre = **TRANSPORT** The rudder is completely free to allow driving control.

POS. 2 – down = **LIFT UP** By moving the lever downward the lifting mechanism is activated.

Pushing down the rudder will cause the load to lift up.

POS. 3 – up = **PULL DOWN** By moving the lever upward the load will descend. When the lever is quickly moved upward, a special valve controls the descending speed of the load.

RUDDER ASSEMBLY (figure C)

1. Lock rudder (228) to hydraulic pump (200) with screws (27) that you can find in the box.
2. Lock chain (208) to lift down pedal (50). Rotate pedal to simplify the connection.

DESCENDING SPEED REGULATION (figure C)

1. Lift up forks to maximum height.
2. Set right lever to POS. 1 (centre).
3. Make sure the rudder (200) is in a vertical position.
4. Unscrew bolt (2) and turn clockwise the adjustable screw (48) until the forks **start** to descend.
5. Turn adjustable screw 1 ½ turn counter clockwise, then screw bolt (2).
6. You should be able to obtain a descending movement from every position of the rudder.

PARKING BRAKE (OPTIONAL)

If provided for, the rear wheel brake system can be fitted with a parking brake.

CAREFUL: use the brake only for parking the pallet truck and not to slow it down.

MAINTENANCE WARNINGS

Before you perform any service, make sure the pallet truck is in a condition of safety.

Never discharge any residue without taking the necessary environmental precautions.

Only perform the service described in this manual. Maintenance and repair jobs not included in this manual must be performed by authorised personnel only.

Serious injury could result from service or maintenance performed by unqualified personnel.

Never alter the safety level of the machine. Always use identical replacement parts.

Never remove or hide in anyway instruction plates and stickers.

Do not modify the pallet truck.

Do not use inflammable cleaners. Do not use direct jets of water. Do not pour liquids on the indicator.

OIL LEVEL (figure D)

Check oil level every 6 months. Only use hydraulic oil. No engine oil or brake oil.

Oil viscosity 30 Cst at 40°C . Quantity 0.3 lt.

With the fork in the lower position follow these steps:

1. Remove cover (204), o-ring (11) and cap (202).
2. If necessary add oil. Maximum filling level is 200mm below top of tank.
3. Turn on the pump to get air out of the hydraulic circuit.
4. Put cap (202), o-ring (11) and cover (204) back.

DAILY MAINTENANCE

To keep the pallet truck scale in good operating condition, **the operator must** perform daily these checkpoints:

- Check overall conditions.
- Check weighing scale.
- Check printer (if installed).
- Check pump.
- Check rollers and wheels.

SCHEDULED MAINTENANCE (MAINTENANCE PERFORMED BY QUALIFIED PERSONNEL ONLY)

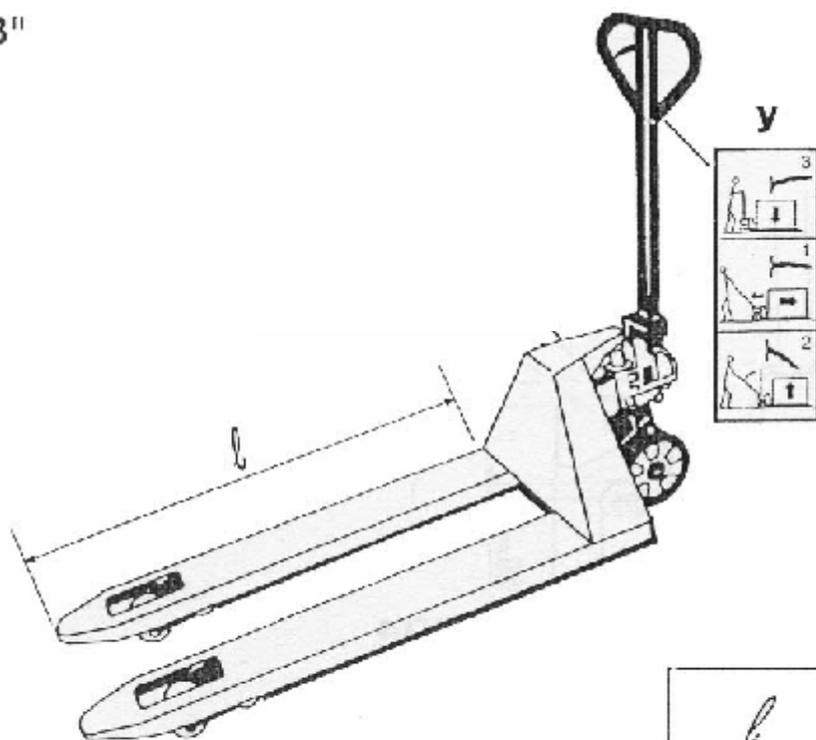
Please find below the programmed mainenance operations to be made by specialised personnel. Remember that before starting the maintenanc one should place the cart on a flat surface.

- Make sure to put the pallet truck scale on a flat and solid surface.
- Check that nothing is blocking the rollers.
- Grease rollers and wheels bearings: the lubrication with lithium grease is foreseen for every 6 months.
- Grease control lever on rudder.
- Check oil every six months. Fill up if necessary with IP46 hydraulic oil.
N.B. If oil needs to be replaced, follow the necessary precaution and law requirements for the disposal of the exhausted oil.
 Replace rollers and wheels when necessary.
- The foreseen life of the bearings is the following:
 - For applications with a single roller: 900 hours of use;
 - For applications with double roller: 9000 hours of use;
 Once reached this time period one should substitute these with bearing of the same model (SKF6204Z).

For any questions or problems check with an Authorised service Centre.

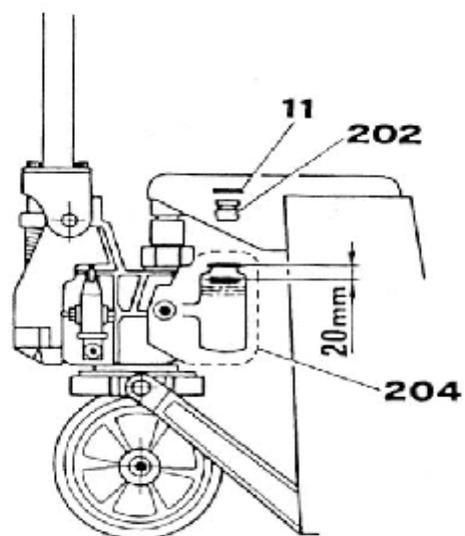
10 REFERENCE DRAWINGS

B''

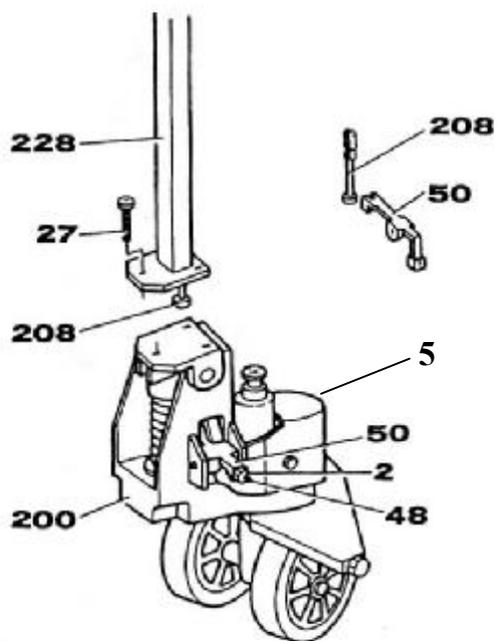


	1170
	120

C''



D''



WEIGHT INDICATOR

11 CONNECTION TO TRANSDUCER

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 (see "CONNECTION SCHEME" section) through the relative input ("INSTALLATION" section).

The CELL1 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 J10 and J11 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 paragraph 8.2 "CONNECTION SCHEME").

Normally the indicator comes already connected to the scale and is ready to use.

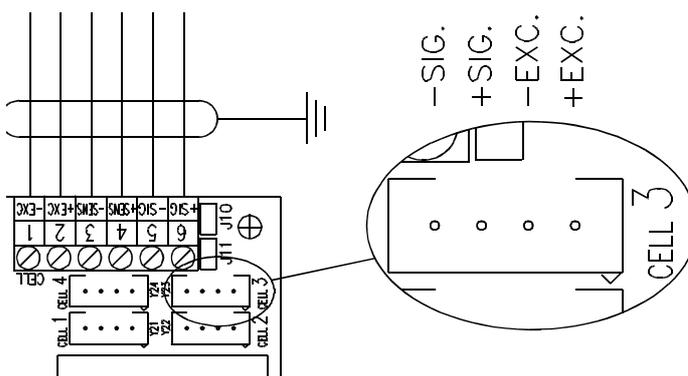
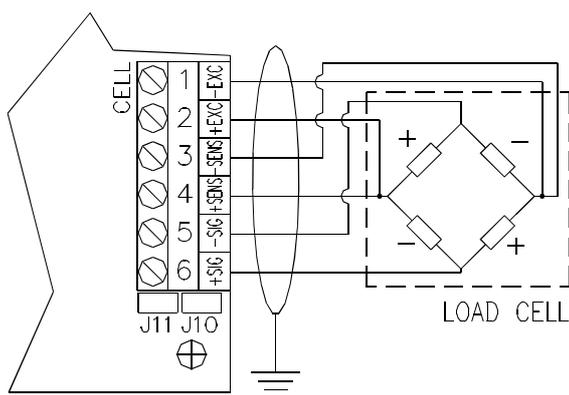
If the instrument is approved for table mounting, the access to the connection will be bound by SEAL. If the connection is not sealed, like in the case of the model for panel mounting, the load receiving device will have an identification label that shows the indicator it is connected to.

Technical Note: on the external power cable, on the battery cable (near the terminal on the CPU card), and on the connection cable to the load receiving device (near the cable entrance of the instrument) some ferrite rings are installed or, at times, supplied together with the instrument to reduce possible radio frequency disturbances.

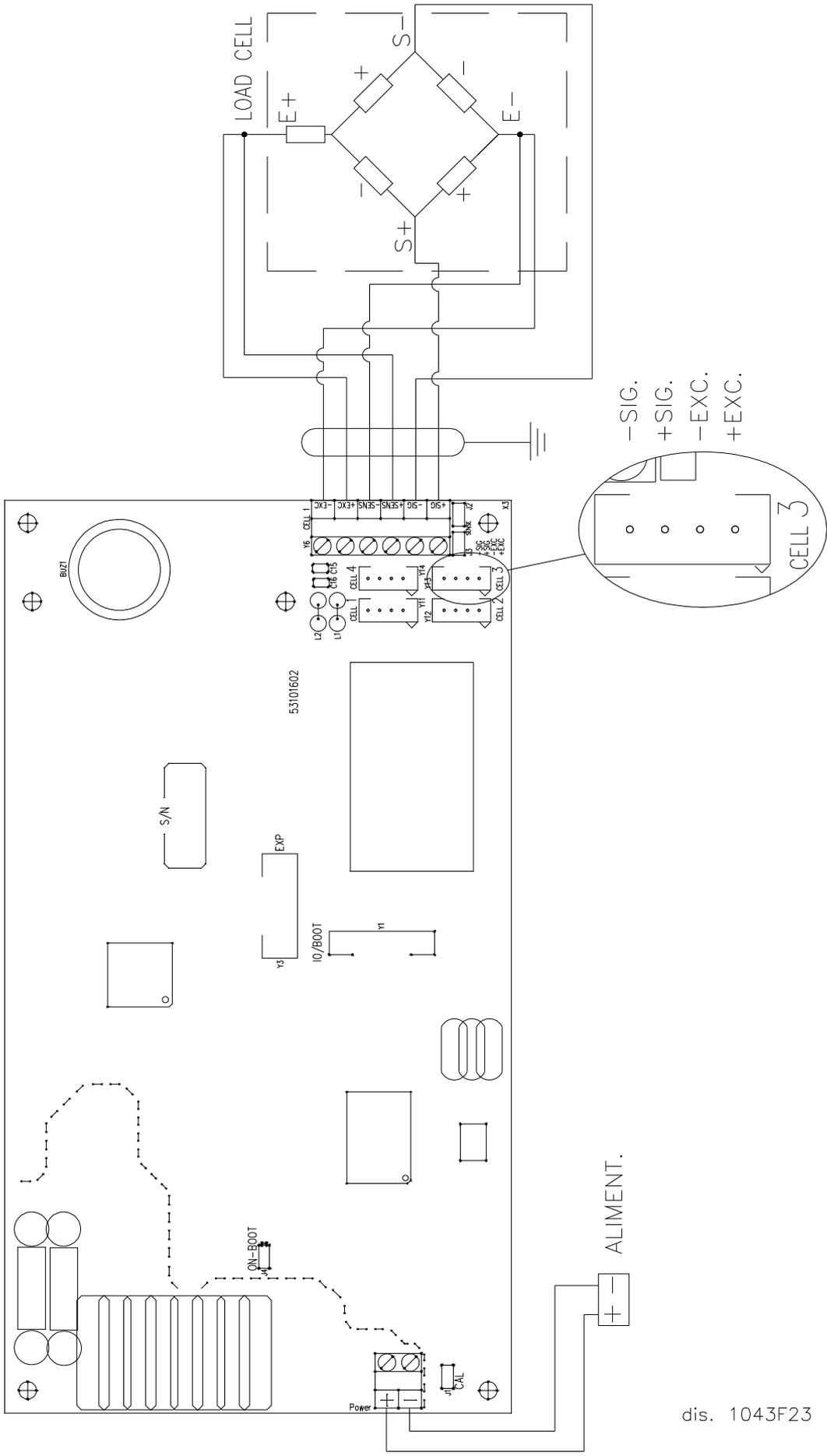
All cables must be wound at least once around the ferrite ring before being connected to the terminal board; the cable screen must be left outside of the ferrite and should be connected to the relevant ground pin.

6-WIRE CONNECTION

4-WIRE CONNECTION



12 CONNECTION SCHEMES



dis. 1043F23

Power: instrument power supply (see specifications in section 9)

CELL: load receiver

1	+ SIG	SIGNAL +
2	- SIG	SIGNAL -
3	+ SENS	REFERENCE +
4	- SENS	REFERENCE -
5	+ EXC	POWER SUPPLY +
6	- EXC	POWER SUPPLY -

J2 and J3 = if closed, REFERENCE + and POWER SUPPLY +, REFERENCE – and POWER SUPPLY –are jumpered on the board

J1 CAL = if closed, it enables the access to the metrological parameters

IO/BOOT = connector for programming the board to be used for connecting the alibi memory (optional)

EXP = connector for connecting the expansion board (optional)

13



INSTRUMENT POWER SUPPLY



The instrument is powered with a NiMH rechargeable battery, certified together with the indicator.

SPECIFICATIONS:

Nominal voltage	10,4 Vdc
Overall nominal capacity	7,6 Ah
Maximum current in output	120 mA
Battery operating time	from 60 hours (maximum configuration) to 160 hours (minimum configuration)
Recharge time	15 – 18 hours (only with appropriate battery charger)

NOTE: we advise to completely recharge the battery before installing the instrument; if the instrument is not used for a period longer than 30 days, WE ADVISE to disconnect the battery in order to avoid a progressive deterioration.

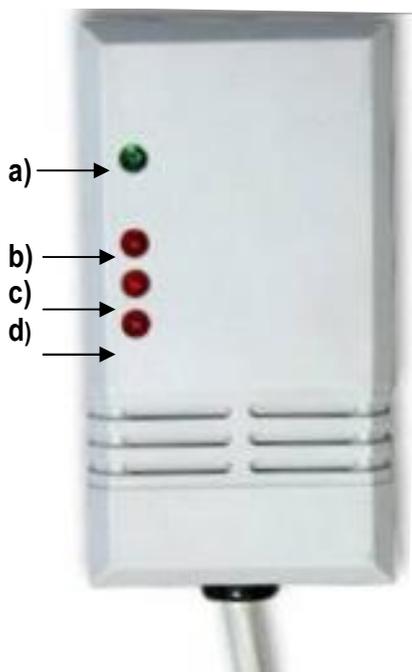
Do not connect other devices to the same socket.

Do not tread on the power supply cable.

13.1 BATTERY CHARGING (ONLY FOR MODEL WITH OPTIONAL BATTERY)

PROCEDURE

- 1) Connect the battery charger to the ATEX battery.
- 2) Power the ATEX battery charger with its proper adapter supplied together with the battery charger.
- 3) The battery charger LEDs indicate the reached charge level:



LED	DESCRIPTION
a)	on, indicates the power supply voltage
b)	on, indicates the battery presence, in other words, the battery is connected correctly to the battery charger.
c)	on, indicates that the battery has made half the charge
d)	on, indicates that the battery is completely charged; this LED turns on about 10/12 hours after LED c) has turned on.

!! IMPORTANT !!

While the battery has charged, there must always be power supply voltage. Eventual momentary power supply interruptions can lengthen the recharging time.

Once the charging is completely made

- 4) remove the adapter from the battery charger
- 5) remove the battery charger from the battery

NOTES

When the third pilot light is on, the battery charger is in a "charge maintenance" phase in which it can remain also for many days without the batteries getting damaged; it is advisable in any case to remove the battery pack as soon as possible.

While being charged both the battery charger as well as the battery pack are conditioned by the heat.

It is possible to charge the ATEX battery pack even when it isn't completely uncharged.

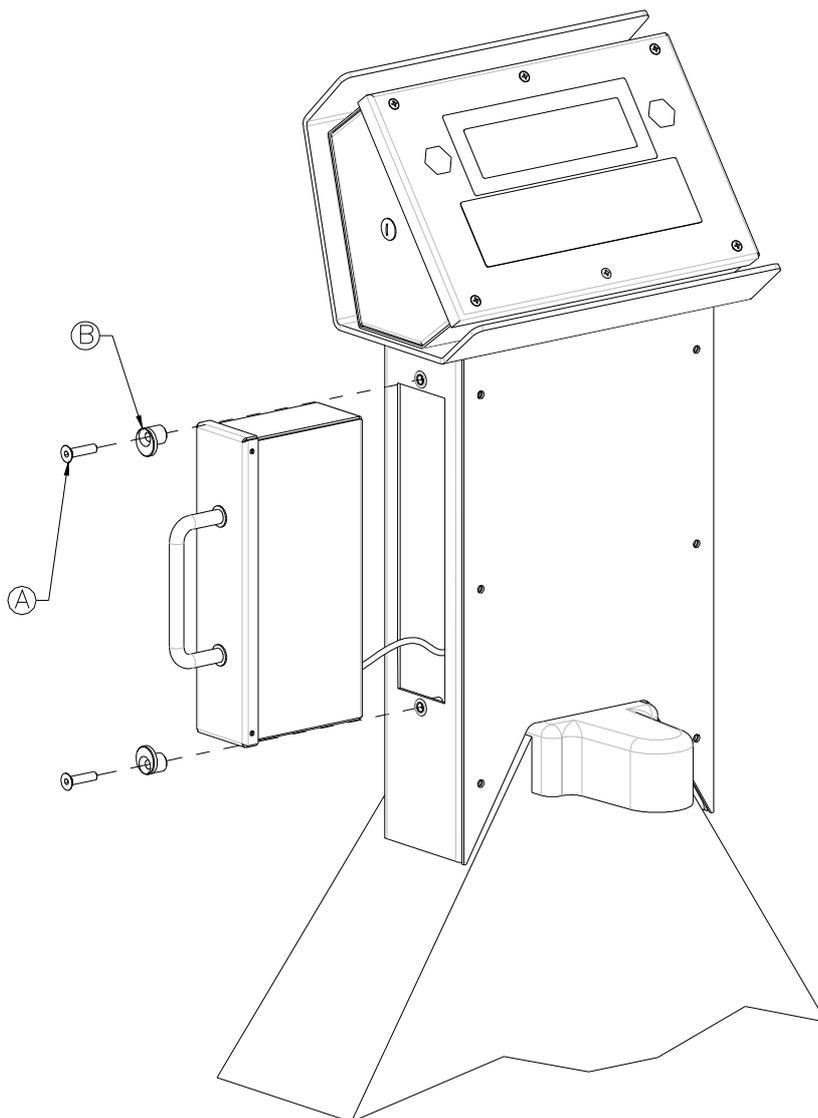
In any case it is advisable to have the battery pack become totally uncharged every 5/10 recharges, in order to improve the performance of the cells in the long term.

WARNINGS

- **WE ADVISED TO COMPLETELY CHARGE THE BATTERY BEFORE INSTALLING IT IN THE INSTRUMENT.**
- **WHILE THE BATTERY IS CHARGER, THERE MUST ALWAYS BE POWER SUPPLY VOLTAGE. EVENTUAL MOMENTARY POWER SUPPLY INTERRUPTIONS CAN LENGTHEN THE RECHARGING TIME.**
- **THE BATTERY CHARGER MUST ALWAYS BE USED IN A SAFE AREA.**
- **THE BATTERY CHARGING MUST ALWAYS TAKE PLACE IN A SAFE AREA.**
- **THE BATTERY CHARGER MUST ONLY BY POWERED BY THE SUPPLIED MAINS ADAPTER.**

**ANY RESPONSIBILITY FOR DAMAGES DERIVING BY THE
UNOBSERVANCE OF THESE WARNINGS IS DECLINED**

13.2 BATTERY INSTALLATION



To remove the battery from the column one should:

- 1) remove the screws (A)
- 2) remove the brackets (B)
- 3) remove the battery connector from the power supply cable

To install the battery in the column one should:

- 1) connect the battery connector to the power supply cable
- 2) install the brackets (B)
- 3) install the screws (A)

14 TURNING ON AND OFF

TO TURN ON the instrument Press the C key until the display turns on; then release.

The display shows in sequence:

XX.YY is the installed software version.

bt X in which X is a number from 0 to 9 which indicates the battery level.

The instrument executes a countdown (self-check) and preheating and finally “hi rES” is displayed (in case of non approved instrument) or “LEGAL” and the calibration area (in case of approved instrument).

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

By pressing the **→0←** key for an instant while the version is shown in the LED display, the indicator will show the following in this order:

08.01 in which 08 indicates the instrument type, 01 indicates the metrological software version.

XX.YY.ZZ is the installed software version.

DFWAtH is the name of the installed software.

bt X in which X is a number from 0 to 9 which indicates the battery level.

If the instrument is powered by the mains, the message "**PoWEr**" is displayed.

-K- X.YY in which K identifies the type of keyboard: K=0 5-key keyboard, K=17-key keyboard.

X.YY is the installed software version.

PPP.PPP Capacity and division of the instrument

The instrument executes a countdown (self-check) and preheating and finally “hi rES” is displayed (in case of non approved instrument) or “LEGAL” and the g gravity value (in case of approved instrument).

TO TURN OFF the instrument keep the C key pressed until the - Off – message appears on the display; then release the key.

15 FRONT PANEL KEYS AND INDICATORS

The front panel is made up of a display with 6 25mm digits and water-proof film keyboard with 17 numerical and function keys.

If the indicator has an LCD display, while weighing various multifunction symbols indicating the functioning status will turn on (see "SYMBOLS ON THE LCD DISPLAY" section).

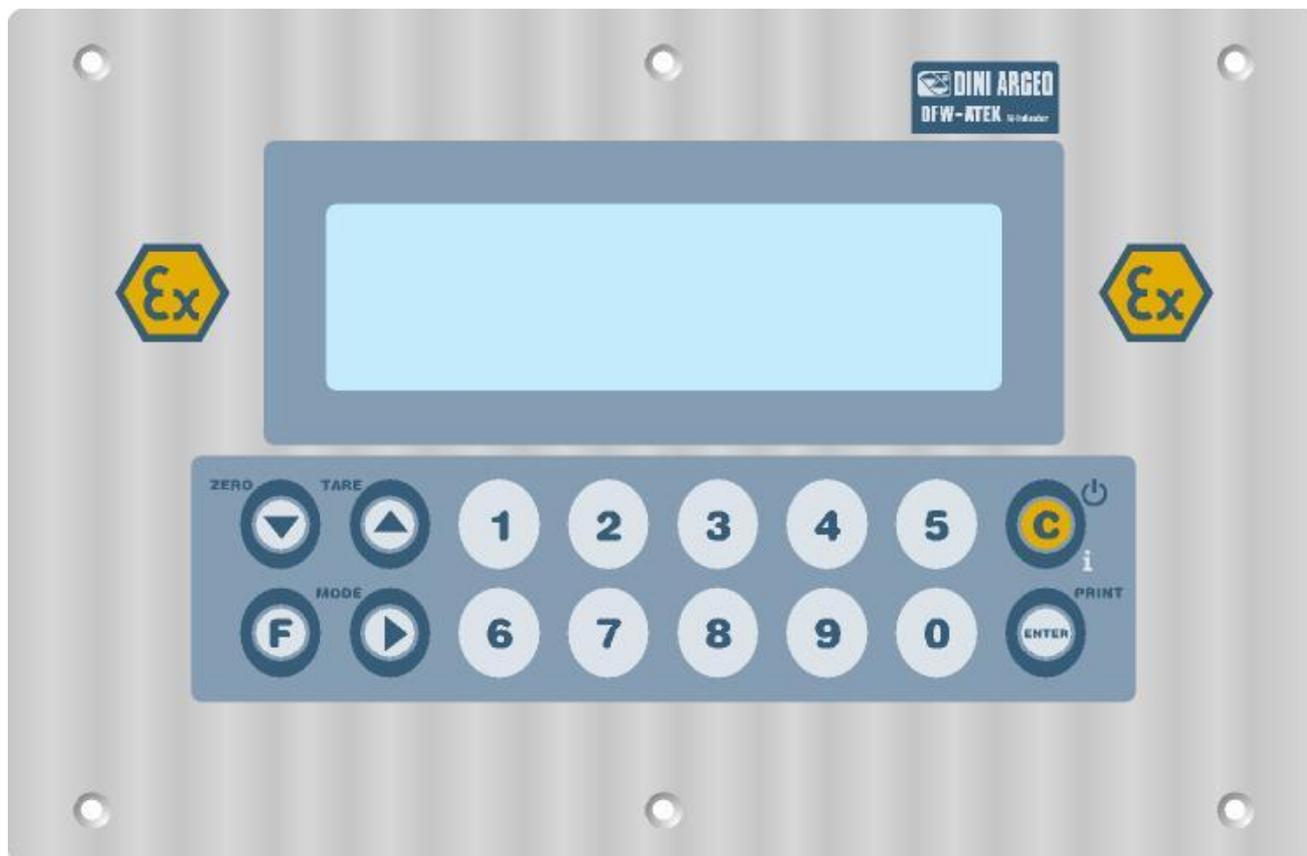
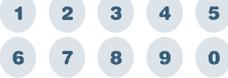


FIGURE 2

SCALE KEY	FUNCTION
<p>ZERO</p> 	<ul style="list-style-type: none"> - Zeros the displayed gross weight, if it is within +/- 2% of the total capacity. - Cancels the negative tare value. - When entering numbers it decreases the digit to be modified.
<p>TARE</p> 	<ul style="list-style-type: none"> - If pressed for an instant it carries out the semiautomatic tare. - If pressed at length it allows entering the manual tare from keyboard. - Cancels the negative tare value. - In the numeric input phase it increases the digit to be modified
<p>MODE</p> 	<ul style="list-style-type: none"> - It carries out a specific function of the operating mode set in the set-up environment. - In the numeric input phase it selects the digit to be modified, from left to right.
<p>PRINT</p> 	<ul style="list-style-type: none"> - it carries out a specific function of the operating mode set in the set-up environment. - In the numeric input phase, it confirms the entry made. - In the SET-UP, it allows to enter a step or to confirm a parameter within a step. - it transmits the data from the serial port dedicated to the printer.
	<ul style="list-style-type: none"> - It turns the instrument on and off. - In the numeric input phase, it quickly zeros the present value. - In the SET-UP, it allows to exit a step without confirming the change made. -Allows viewing the scale's metric information: capacity, division, minimum weigh for each configured range.
	<ul style="list-style-type: none"> - Allows to select the desired function
	<ul style="list-style-type: none"> - During the numeric input phase it allows to enter the desired value.

16 LCD DISPLAY SYMBOLS

The LCD display has symbols which show the indicator's functioning status; you will find the description for each symbol below.

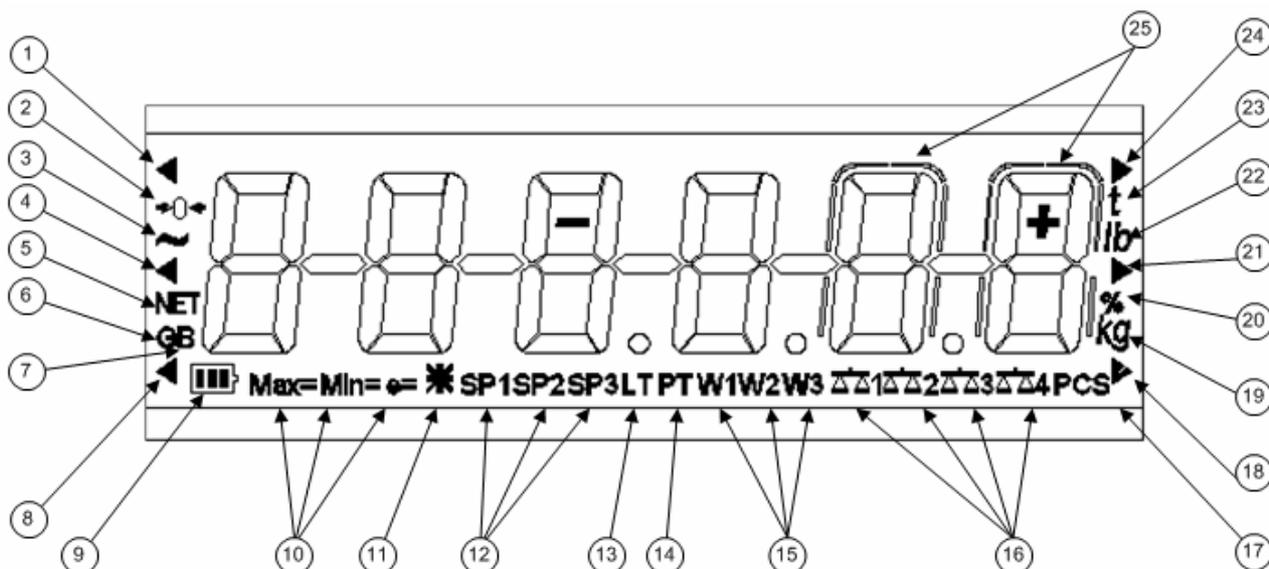
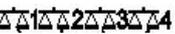


FIGURE 3 - LCD-C01 DISPLAY



FIGURE 4 - LCD-C02 DISPLAY

NUMBER	SYMBOL	FUNCTION
(1), (4), (8), (18), (21), (24)	◀ ▶	When on and blinking, these indicate a pause status: the indicator carries out a function
(2)	→0←	Indicates that the weight detected on the weighing system is near zero, within the interval of $-1/4 \div +1/4$ of the division.
(3)	~	Indicates that the weight is unstable.
(5)	NET	Indicates that the displayed weight is a net weight.
(6)	G	Indicates that the displayed value is a gross weight, if the Italian or English language is selected in the print configuration
(7)	B	Indicates that the displayed value is a gross weight, if the German language is selected in the print configuration

(9)		Indicates the battery charge level: <ul style="list-style-type: none"> - 3 notches (corresponding to the bt 8, bt 9 values) - 2 notches (corresponding to the bt 6, bt 7 values) - 1 notch (corresponding to the bt 3, bt 4, bt 5 values) - 0 notches (corresponding to the bt 0, bt 1, bt 2 values)
(10)	MAX= MIN= e=	When viewing the metric information, it identifies the indicated capacity range. When viewing the metric information, it identifies the indicated minimum weigh range. When viewing the metric information, it identifies the indicated division range
(11)	*	Always active, it indicates that the HOLD function is enabled. If not active, it enables an instant when a key is pressed. If already active, it disables an instant when a key is pressed
(12)	SP1 SP2 SP3 SP4	Indicates that the relay nr. 1 (optional) has been enabled. Indicates that the relay nr. 2 (optional) has been enabled. Indicates that the relay nr. 3 (optional) has been enabled. Indicates that the relay nr. 4 (optional) has been enabled.
(13)	LT	Indicates that a locked tare is enabled
(14)	PT	Indicates that a manual tare is active.
(15)	W1 W2 W3	Indicates that the instrument is in the first weighing range. Indicates that the instrument is in the second weighing range. Indicates that the instrument is in the third weighing range.
(16)		Indicate the number of the scale being displayed, when in the REPEATER IN RADIO FREQUENCY functioning mode. In the other functioning modes scale nr. 1 is always shown.
(17)	PCS	Indicates the number of pieces is being displayed.
(19)	kg	Indicates the unit of measure in use ("kg" for kilograms, "g" for grams).
(20)	%	Not managed
(22)	LB	Indicates the unit of measure in use (pounds)
(23)	t	Indicates the unit of measure in use (tons).
(25)	These are displayed around the last digit on the right, when viewing the weight x 10.	
(26)	PEAK	Not managed
(27)	HOLD	Indicates that the HOLD function is enabled.
(28)		Not managed

17 BASIC FUNCTIONS

17.1 ZERO SCALE

By pressing the ZERO key, it is possible to zero a gross weight value which is within +/- 2% of the capacity; after the zeroing, the display shows 0 weight and the relative pilot lights are turned on.

17.2 TARE OPERATIONS

SEMI-AUTOMATIC TARE

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

In any case a new tare operation cancels and substitutes the previous one.

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

ENTERING THE MANUAL TARE FROM KEYBOARD

Press TARE for a few seconds: the display shows "- tM -" and then "000000". Enter the desired value using the extended keyboard:

Confirm with the ENTER/PRINT key; the value will be subtracted from the weight present on the plate and the relative pilot lights will turn on.

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

In any case a new tare operation cancels and substitutes the preceding one.

CANCELLING A TARE

One can manually cancel the tare value in different ways:

- unload the scale and press the TARE or ZERO key.
- carry out the tares in deduction, partially unloading the scale and pressing TARE to zero the display.
- press C without unloading the scale.
- enter a manual tare equal to 0.

NOTE: it is possible to automatically cancel the tare value; see the following section.

SELECTION OF LOCKED/UNLOCKED/DISABLED TARE

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

With the UNLOCKED tare:

In case of SEMIAUTOMATIC TARE the net weight, before unloading the scale, may also be 0.

In case of MANUAL TARE or FROM DATABASE the net weight before unloading the scale must be of at least 2 stable divisions.

To set the type of tare:

press in sequence the "F"+ "2" keys: the display shows "tA-L" = BLOCKED TARE is selected; by pressing the same keys again the display shows "tA-U" = UNBLOCKED TARE is selected.

The indicator stores the last selection made, also after it is turned off.

17.3 LIMITATION OF THE TARE FUNCTIONS

- With a non approved instrument, the tare operations are unlimited, in other words, these are always active.

The same operations may be executed with an approved instrument, if one selects: **SEtuP >> d.SALE >> no.** (see TECHNICAL SET-UP (TECH.MAN.REF.)

- With approved instrument, it is possible to limit the tare functions, selecting: **SEtuP >> d.SALE >> yES (TECH.MAN.REF.)** the tare operations will have the following specifications:

SCALE CAPACITY	FUNCTIONING
< 100kg	All the tare functions are disabled
≥ 100kg	<ul style="list-style-type: none"> - The SEMIAUTOMATIC TARE value can not be modified with a manual tare or from database. - The manual tare or from database can be entered or modified only with an UNLOADED scale.

With approved instrument, the **d.SALE** step is not displayed.

17.4 AUTO POWER OFF FUNCTION

It is possible to automatically turn off the indicator (from 1 to 255 minutes), or disable it; the auto power off takes place when, **with unloaded scale**, the weight has not been moved or a key has not been pressed for the time set: the display shows the “- oFF – “ blinking message and an acoustic signal is emitted; after this the indicator turns off.

For the setting, follow the procedures below:

- Turn on the scale, press the TARE key while the firmware version is displayed
- Scroll the parameters with the ZERO key until the F.ModE menu is shown on the display.
- Press ENTER/PRINT to enter the menu.
- Press ZERO many times (to scroll ahead through the parameters) or TARE (to scroll backwards) until one finds the “AutoFF” parameter.
- Press ENTER/PRINT to enter the parameter.
- With the ZERO or TARE keys select the possible options: “diSAb” (auto switch-off disabled), “EnAb” (auto switch-off enabled).
- Confirm with ENTER/PRINT; if “EnAb” has been selected, one will be asked to enter the number of minutes after which the indicator should turn off: enter a number between 1 and 255 (using the MODE key to select the digit to be modified and ZERO/TARE to decrease/increase it) and confirm with ENTER/PRINT.
- Press many times the C key until the display shows “SAVE?”.
- Press ENTER/PRINT to confirm the changes made or another key for not saving.

17.5 LOW BATTERY WARNING

The indicator is able to recognize whether it is powered from the mains or through a battery; in this last case the battery charge level (from “bt 9” to “bt 0”) is shown when the indicator is turned on.

On the display the battery symbol () is always displayed indicating its charge level:

- 3 notches correspond to the bt 8, bt 9 values
- 2 notches correspond to the bt 6, bt 7 values.
- 1 notch corresponds to the bt 3, bt 4, bt 5 values.
- 0 notches correspond to the bt 0, bt 1, bt 2 values.

When this level becomes equal or less than bt 2, or during the weighing phase, “Low.bat ” appears on the display (in other words the voltage goes below 5,9 V), one should connect the indicator to the mains in order to recharge the battery.

While recharging, the instrument can be used as usual.

NOTE: the instrument automatically turns off when the voltage goes below 5,8V.

17.6 "TILT" DEVICE

The TILT is a device which inhibits the indicator’s weighing system and starts working when the instrument’s inclination is greater than 2% for the pallet truck application or 5% for application on lift trucks.

Central dashes are shown on the LED display, and at regular intervals of about 5 seconds, an error sound signal is emitted. The activation of the tilt alarm has a delay of about three seconds from the detection of the exceeding inclination.

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

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

For example, with a 10 kg cell platform it is possible to approve the weighing system with:

- A single range: 6 kg capacity and 2 g division (3000 div.).
- Dual range: 6 / 3 kg capacity and 2/1 g division (3000 + 3000 div.).
- Triple range: 6 / 3 / 1,5 kg capacity and 2/1/0,5 g division (3000 + 3000 + 3000 div.).

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

The multirange functioning is shown by the turning on of the relative LED which identifies the range in which one is operating; by passing to the second range, the second range division is enabled; by passing to the third range, the third range division is enabled. At this point the first range division is restored **only by passing by the gross zero of the scale.**

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

17.8 PRINTING (only with optional board)

If a printer is connected (**in a safe zone**) it is possible to print the programmed weight data, for example:

- 4 heading lines of 24 characters
- GROSS weight
- TARE weight
- NET weight
- ticket number
- a CODE 39 barcode (with TPR thermal printer).

Besides the generic printing described above, each single functioning mode will have some specific printouts, which are described in the operating mode.

Printing with NON approved scales.

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

- the weight must be stable;
- the gross weight must be ≥ 0 ;

NOTE: In the totaliser modes in order to print the totalised weight the following must take place:

- the weight must be stable;
- the net weight must be \geq of a division;

Legal for Trade scale printing.

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

- the weight must be stable;
- the net weight must be \geq the minimum weight (minimum of 20 divisions).

the printing is reactivated depending on how the "rEACT" parameter has been set in the set-up environment: passage by zero of the NET weight, weight instability, or always.

To configure the printouts, go to the section 8 "PROGRAMMING THE PRINTOUTS" in the technical manual (**TECH.MAN.REF.**).

Notes:

- The printing is confirmed by the indication on the display of the "Print" message.
- If the printout is not reenabled the display shows the "no.0.unS" message
- With the weight unstable the display shows the "unStAb" message.

17.9 REENABLING THE PRINTOUTS AND THE INDICATOR FUNCTIONS

While using the indicator, it is possible to incur into the “no.0.unS” error shown on the display along with an acoustic signal; this means that the printing or the function which one wants to carry out must be reenabled (in order to avoid unwanted executions).

It is possible to set the reenabling in different ways: “passage by zero of the net weight”, “weigh instability” or “always”. Follow the procedure below:

- Turn on the scale, press the TARE key while the firmware version is displayed
- Scroll the parameters with the ZERO key until the F.ModE menu is shown on the display.
- Press ENTER/PRINT to enter the menu.
- Press ZERO many times (to scroll forwards through the parameters) or TARE (to scroll backwards) until one finds the “rEAct” parameter.
- Press ENTER/PRINT to enter the parameter.
- With the ZERO or TARE keys select the possible options: “ZEro” (passage by zero of the net weight), “inSt” (instability), ALWAYS.
- Confirm with ENTER/PRINT.
- Press the C key many times until the message “SAVE?” is shown on the display.
- Press ENTER/PRINT to confirm the changes made or another key to not save.

17.10 DISPLAY OF METRIC DATA (inFO)

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

- First range capacity, first range minimum weigh, first range division.
- Second range capacity, second range minimum weigh, second range division.
- Third range capacity, third range minimum weigh, third range division.

NOTES:

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

To view the metric data:

- keep the C key pressed until the display shows “inFO”, and release
- The capacity value of the first range will appear.
- Press the ZERO key to scroll the following data, in this order:
Capacity 1° range ⇔ Minimum weigh 1° range ⇔ Division 1° range ⇔
Capacity 2° range ⇔ Minimum weigh 2° range ⇔ Division 2° range ⇔
Capacity 3° range ⇔ Minimum weigh 3° range ⇔ Division 3° range ⇔
Capacity 1° range ⇔.....
- Press the TARE key to scroll backwards the metric data.
- Press the ENTER/PRINT or C key to return to weighing.

17.11 STORED TARE MEMORY VALUES

It's possible to store up to **10 tare memory values**, identified by the location numbers 0 to 9, which the user can recall when needed.

To insert or modify a tare value:

- press the keys “F”+ “9” in sequence - the display will indicate *tM n.* in which *n* is the storage number to be entered. For example, by pressing “0”; the display will indicate “00000” or any value that already exists in the tare memory location “0.”
- Insert the tare value with the numeric keyboard (with the C key one quickly zeros the entered value) and press **ENTER/PRINT**.
- Repeat the sequence for the following memory positions.

If the entered value is not a multiple of the scale's minimum division, it will be rounded down if equal or greater than half of the division, and rounded up if less.

RECALLING STORED TARE VALUES

To recall a stored value:

- press the keys “F” + “1” in sequence. The display will indicate “tP n.” in which *n* is the storage number to be entered. Press the key (0 - 9) corresponding to the desired tare value location in memory; the tare will be enabled.

17.12 ENTERING THE IDENTIFICATION CODE

It is possible to insert 2 numerical codes of up to 10 digits in length (maximum) to use as a reference during printing:

- Press the "F" + "3" keys in sequence. The display will indicate "Id n" in which n identifies the code number which one wants to enter.
- Press 1 or 2: the display will show 00000 or the last entered value.
- Enter the code through the numeric keyboard and confirm with ENTER/PRINT or press C to exit without saving the modifications. While entering, just the last 6 digits entered will be displayed; in any case it is possible to scroll all the digits using the MODE key.

After its entry, the code will automatically be printed with its abbreviation (ID1 or ID2) in each printing that will be made. It is also possible to set the automatic cancellation of the code after the printing made (see the following paragraph).

IN ANY CASE, the stored codes are cancelled when the instrument is turned off.

NOTES:

- The values between 0'000'000'001 and 9'999'999'999 are valid; by entering 0'000'000'000 the code is cancelled.
- In the TOTALIZER functioning mode, the codes will be printed only in the printing of the total.

LOCKED / UNLOCKED CODE SELECTION

Normally the code is LOCKED, in other words once it is set it remains stored (and therefore printed) until it is cancelled or until the instrument is turned off. In any case it is possible to make it so the code is cancelled as soon as it is printed (UNLOCKED CODE).

- Press the keys "F" + "4" in sequence; the display indicates "MId n".
- Press "1"; the display indicates "Id1 U" = CODE 1 UNLOCKED.
- Press the same keys again: the display indicates "Id1 L" = CODE 1 LOCKED.
- Repeat the same operations for CODE 2. .

17.13 KEYBOARD LOCK

It is possible to disable the keyboard functions (except for the C key for turning on and off) in order to avoid accidental pressing of the keys:

- Press in sequence the F and 0 keys: the display shows "LoCk.kEY" for an instant (LOCKED KEYBOARD).
- If in this status a key is pressed the message "LoCkEd" is shown on the display.
- To UNLOCK the keyboard, press again the F and 0 keys: the display shows "unL.kEY" for an instant (UNLOCKED KEYBOARD).

NOTE: The keyboard may be disabled also by closing an input, if programmed, of the optional expansion board: refer to the "inPutS" parameter of the set-up environment (**TECH.MAN.REF.**); in this case however by pressing a key, the message "LoCkEd" does not appear on the display.

18 SELECTABLE OPERATING MODES

In addition to the STANDARD weighing mode - with TARE deduction and transmission of data, the indicator can carry out an additional function.

Each functioning mode foresees the turning on of various function pilot leds, described in detail:

To set the operating mode, carry out the following procedures:

- Turn on the scale, press the TARE key while the firmware version is displayed
- Scroll the parameters with the ZERO key until the F.ModE menu is shown on the display.
- Press ENTER/PRINT to enter the menu (the display shows the "FunCt" menu).
- Press ENTER/PRINT to enter the parameter.
- With the ZERO or TARE keys select the desired functioning mode:

Std	kg / lb conversion
ntGS	net weight / gross weight conversion
StPG	Setpoint on gross weight
StPn	Setpoint on net weight
inout	Input / output weighing
MAStr	Weight repeater
MAStr	Weight repeater
ALibi	Alibi memory
UiSS	Sensitivity times ten
hLd	Hold
tot o	Horizontal totalizer
tot S	Vertical totalizer
Coun	Counting
- Confirm with ENTER/PRINT; if one has selected the inout, tot or, tot S or Coun mode; one will be asked to select another functioning parameter (refer to the relative functioning mode section for the relative description).
- many times the C key until the display shows the message "SAVE?".
- Press ENTER/PRINT to confirm the changes made or another key to not save.

NOTE: If there is a printer, once the functioning mode is selected, the relative printout is automatically enabled, depending on the type of printer selected in the **SEtuP >> SErIAL >> PrMODE (TECH.MAN.REF)**.

18.1 kg/lb CONVERSION (Std)

By pressing "MODE" key the value is converted from kg to lb and vice versa.

NOTES:

- with APPROVED instrument in single range the weight in pounds is displayed for 5 seconds, after which the display goes to kilograms. During the viewing in pounds it is not possible to print the weight (when pressing ENTER/PRINT the message "ConV" is shown and an acoustic signal is emitted).

18.2 NET/GROSS SWITCH (ntGS)

If a tare is set by pressing the MODE key, for about 5 second interval, the gross weight is displayed.

NOTE: While the gross weight is being viewed it is not possible to print.

18.3 SETPOINT ON GROSS WEIGHT (StPG)

By selecting this functioning mode, in the normal scale status one enables the function of the TTL digital outputs on the GROSS weight.

Through the optional board, it is possible to use up to 4 outputs.

In the **outPut** menu of the SET-UP environment (**TECH.MAN.REF.**), one sets the functioning mode of each output: none, with hysteresis (separate enabling and disabling set points), without hysteresis (single set point).

Furthermore it is possible to set the status of the outputs (normally open or normally closed), or the type of check (direct or upon weight stability).

MODE WITHOUT HYSTERESIS

One enters just one set point value, which corresponds to the enabling threshold, both with the one for the disabling the output.

To enter the set point value, follow the procedure below:

(example referred to output 1)

Press ENTER for three seconds → **Sb 1.on** → press ENTER → **000000** → enter

the set point value → press ENTER to save the value.

Do the same for all the outputs which functioning without hysteresis.

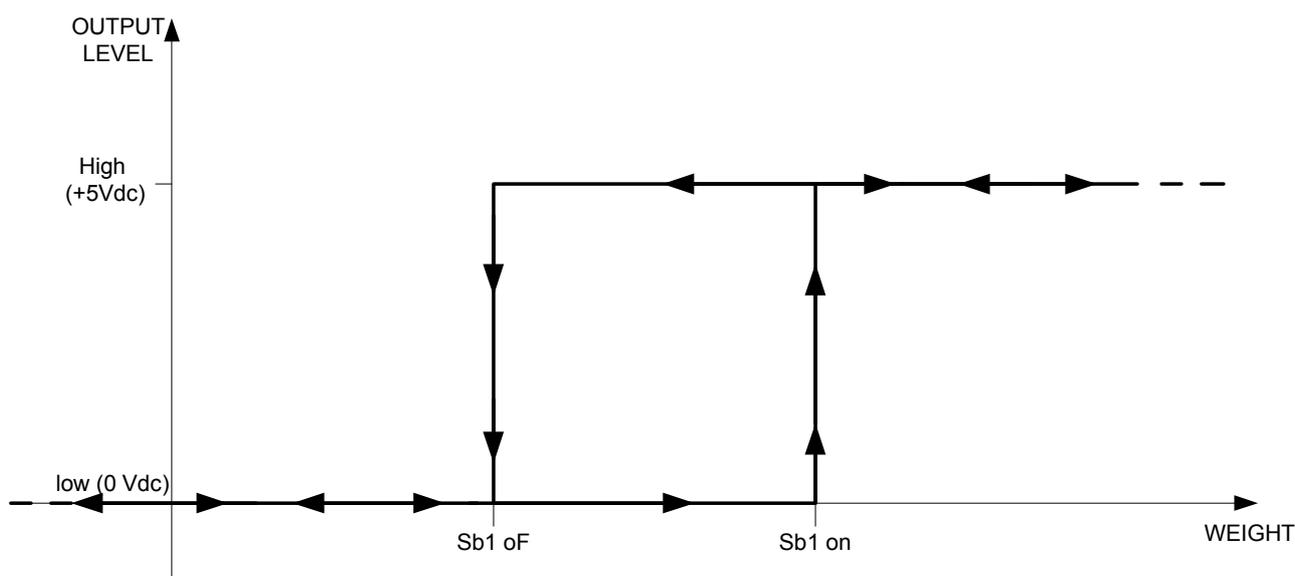
Once the programming is finished, press the C key to return to weighing.

NOTES: the value must be \leq than the scale capacity.

MODE WITH HYSTERESIS

One enters two set point values, an enabling one and a disabling one of the output:

- disabling set point: when the gross weight value is reached and goes below this value, the output is disabled.
- enabling set point: when the gross weight value reached and goes above this value, the output is enabled.



In order to enter the set point values, follow the procedure below:

(example referred to output 2)

Press ENTER for three seconds → **Sb 2.oF** → press ENTER → **000000** → enter

the disabling set point value → press ENTER to save the value → **Sb 2.on** →

press ENTER → **000000** → enter the enabling set point value → press ENTER

to save the value.

Do the same for all the outputs which function with hysteresis.

Once the programming is finished, press the C key to return to weighing

- NOTES:**
- the disabling set point must be \leq the enabling set point.
 - if in the disabling set point one enters and confirms a value greater than the enabling one, the instrument will automatically set the same value in the enabling step.
 - if in the enabling set point one enters and confirms a value less than the enabling one, the instrument will automatically set the same disabling value.
 - if one enters a set point with a number of divisions not coherent with the set minimum division it will be rounded up to the multiple of the minimum division closest to it.
 - if one enters a disabling set point greater than the enabling one it will be corrected and the anomaly is indicated through the "ModiFY" message at the exit of the configuration MENU of the SET POINTS.

The 0 value is valid both in the enabling as well as in the disabling set points, and just set points equal or greater than zero are accepted.

18.4 SET POINT ON NET WEIGHT (StPn)

Functions the same as the previous one, but the check is made on the NET weight.

18.5 INPUT/OUTPUT (in out)

Simple display functioning mode with in / out weighing function: the indicator acquires two weight values through the confirmation of the operator and calculates the difference, automatically printing the data (if the presence of a printer has been configured).

Once the in/out mode has been selected, the message "tyPE" is shown and one is asked to select with ENTER/PRINT the printing mode of the acquired data:

- **"G.t. gross/tare:**
 - GROSS Greater weight with unit of measure
 - TARE Lesser weight with unit of measure.
 - NET Difference between GROSS and TARE with unit of measure
- **1st.2nd first weigh/second weigh:**
 - WEIGH 2 Second weight with unit of measure.
 - NET Difference without sign between WEIGH 1 and WEIGH 2 with unit of measure.
- **in.out input/output:**
 - INPUT First weight with unit of measure.
 - OUTPUT Second weight with unit of measure.
 - NET Zero weight with unit of measure >> if WEIGH 1 = WEIGH 2

INPUT NET >> if WEIGH 1 > WEIGH 2
Difference without sign between INPUT and OUTPUT with unit of measure.

OUTPUT NET >> if WEIGH 1 < WEIGH 2
Difference without sign between INPUT and OUTPUT with unit of measure.

PROCEDURE:

- With the key one acquires the first weight, on the display is shown "-- 1 --" accompanied by a prolonged beep;
- By pressing 2 one acquires the second weight and on the display is shown "-- 2 --" accompanied by a prolonged beep.
- **NOTE:** The acquisition of the second weight is made only if the setting of the rEACt parameter in the set-up environment has been respected (passage by zero of the weight, instability, or always); see "REENABLING OF THE PRINTOUTS AND THE INDICATOR FUNCTIONS" section.
- When the second weight is acquired, the data printout is commanded:

It is possible to interrupt the weighing cycle by pressing the key after the acquisition of the first weight: On the display the message "CLEAR" is shown accompanied by a prolonged beep. Press ENTER/PRINT to confirm the cancelling of the first acquired weight or another key to not confirm.

NOTES:

The first weight is acquired if:

- With a NON APPROVED scale one has a STABLE weight and GREATER than 0.
- With an APPROVED scale one has a STABLE weight and GREATER than 20 divisions.

The second weight is acquired if:

- With a NON APPROVED scale one has a STABLE weight and GREATER than 0.
- With an APPROVED scale one has a STABLE weight and GREATER than 20 divisions.
- if the setting of the rEACt parameter in the set-up environment has been respected (passage by zero of the weight, instability, or always); see "REENABLING OF THE PRINTOUTS AND THE INDICATOR FUNCTIONS" section.
- the tare operations are DISABLED.

18.6 REPEATER (MAStR)

The system is made up of one indicator (called **SLAVE**), connected to one or more weighing system, which communicates with another indicator (called **MASTER**) which acts as weight repeater, on which it is possible to view the weight of the connected scale.

In the SLAVE, instead, one needs to set a different functioning mode than the "MAStR" and enter the code 01 in **SEtuP >> SERIAL >> CoMPC >> PCModE >> 485** (see set-up environment, **TECH.MAN.REF.**).

FUNCTIONING

When turned on, the MASTER predisposes itself for the connection to the SLAVE present ("ECo 1" message appears, indicating that it's trying to detect the SLAVE): when at least the SLAVE is detected, it positions itself on it and repeats its weight.

About every 10 seconds, the message "SCA 1" appears, indicating that the weight on the slave is being displayed.

By pressing the keys on the MASTER, these are repeated also on the SLAVE.

WARNING:

- if the instrument is or if the radio signal does not reach the MASTER, on the same display the "ECo 1" message is displayed indicating that it's trying to detect the SLAVE.
- If the connection is lost with the SLAVE, the MASTER will try to reconnect it;
- If the automatic switch off has been enabled in the MASTER, after about 5 minutes that one is trying to connect with the SLAVE (in other words the ECo-1 message appears on the display), it turns off.

EXECUTION OF THE PRINTOUTS

If there is a printer on the master, it's possible to execute on it the printouts configured in the active slave. In order to do this, one should configure the printout on the SLAVE and in the master select the type or printer in the **SEtuP >> SERIAL >> CoMPrn >> PrModE** parameter, **TECH.MAN.REF.**

The selection of this parameter excludes the printouts on the active slave.

18.7 ALIBI MEMORY (ALibi) (OPTIONAL)

(The mode foresees the use of a printer of a PC)

The alibi memory allows filing the transmitted weight values in the computer for data processing and/or integration. The filed values may then be recalled from the PC serial line or directly on the indicator's display for a following check.

The storage of a weigh takes place either following the reception of the serial command or following the pressure of the ENTER/PRINT key: the indicator transmits on the PC serial line the gross and tare weights and an ID which clearly identifies the weigh.

The ID has the following format:

<Rewriting number> — <Weigh number>

Rewriting number: number of 5 digits which may go from 00000 to 00255; it indicates the number of complete rewritings of the alibi memory.

Weigh number: number of 6 digits which may go from 00000 to 131072; it indicates the weigh number in the current rewriting of the alibi memory

With each storage the weigh number is increased of 000001; when this reaches the 131072 value, it restarts from 000000 and the rewriting number increases of 00001.

Example:

If the stored weigh is the following:

"PIDST,1, 1.000kg, 1.000kg,00126-131072"

and the following will be:

"PIDST,1, 1.000kg, 1.000kg,00127-000000"

The storage of a weigh is possible only if the weight is stable, valid (in other words not in under load nor in overload) and if the gross weight is equal or greater than zero. If these conditions are not respected:

- in the response to the PID serial command one has "NO" in the place of the ID.
- there is no transmission if ENTER/PRINT has been pressed.

When the weight is transmitted with the ID following the pressing of the ENTER/PRINT key, the display shows for about 2 seconds the message " tr.id ", and the transmitted string is the following:

<ESC>[II]PIDSS,B,LLLLLLLLLUU,YYTTTTTTTTTUU,(ID | NO)<STX>.

See the following section "Serial commands" for the string description.

NOTES:

- The alibi memory can store up to 131072 weighs; then one has the rewriting from the beginning.
- With approved instrument, the storage of the weigh and the following transmission of the ID to PC by pressing a key is possible only if the printout is active (or passage from 0 or weight instability and minimum weight of 20 divisions).
- With approved or not approved instrument, the storage of the weigh through the PID serial command is always possible for all the weighs from 0 to full range value.

READING OF THE WEIGHS CARRIED OUT

In order to read the information relative to the weighs carried out:

- Press the **MODE** key.
- The message "rew.id" appears; now one should enter the rewriting number (from 00000 to 00255) and press ENTER/PRINT.
- The message " id " appears; now one should enter the weigh number (from 000000 to 131072) and press ENTER/PRINT.
- Now it is possible to view on the display the weigh information in sequence, and scroll through it with the ZERO key (ahead) or the TARE key (backwards):
 - "ch. x", in which x is the scale number (always 1).
 - " um yy" in which yy is the unit of measure (kg, g, t o lb).
 - gross weight (for about a second the message "GroSS" appears and then the gross weight value).
 - Tare weight (for about a second the message "tArE" appears or "tArEpt" if it is a manual tare; then the tare value appears).
- Press C to return to weighing.

NOTES:

- If the alibi memory is empty, when the MODE key is pressed the message "EMPTY" appears for about a second, an error acoustic signal is enabled and one returns to weighing.
- If the entered ID is not valid, in other words, if there is no stored weigh relative to the entered ID, the message " no id" appears and an error acoustic signal is enabled and one returns to weighing.

INITIALISATION OF THE ALIBI MEMORY

It is possible to cancel all the weighs made, initialising the alibi memory; this operation can be made directly on the indicator (see the parameter "SETUP" >> "ini.AL" of the set-up environment, **TECH.MAN.REF.**) or through the serial command (see "SERIAL COMMANDS" below).

NOTES:

- It is not possible to just cancel a single weigh.
- The initialisation is possible only with a non approved instrument.

SERIAL COMMANDS:**WEIGH STORAGE****Command****[II]PID<CRLF>** or **<ESC>[II]PID<STX>**

in which: [II]: 485 address

<ESC>: 27 ascii decimal character

<STX>: 2 ascii decimal character

Instrument response to the **[II]PID<CRLF>** command:**[II]PIDSS,B,LLLLLLLLLLUU,YYTTTTTTTTUU,(ID | NO) <CRLF>****Instrument response** to the **<ESC>[II]PID<STX>** command:**<ESC>[II]PIDSS,B,LLLLLLLLLLUU,YYTTTTTTTTUU,(ID | NO)<STX>**

In which:[II] 485 address (only when transmitting in 485 mode)

SS OL" (weight in overload) or "UL" (weight in under load) or "ST" (stable weight) or "US" (unstable weight) or "TL" (TILT input closed).

B scale number (always 1)

LLLLLLLLLL: gross weight on 10 digits

UU: unit of measure

YY: 2 spaces in the case of null tare or semiautomatic tare, "PT" in case of manual tare

TTTTTTTTTT: tare on 10 digits

ID XXXX-YYYYYY in which: XXXXX is the rewriting number (5 digits, from 00000 to 00255) and YYYYYY is the weigh number (6 digits, from 000000 to 131072).

In the case in which the gross weight is negative or unstable, the weight is transmitted but not the ID; "NO" is in its place. In these cases there is no storage in the alibi memory.

WEIGH READING**Command:****[II]ALRDXXXXX-YYYYYY <CR o CRLF>**

In which: [II] 485 address (only when transmitting in 485 mode)

XXXXXX rewriting number (from 00000 to 00255)

YYYYYY weigh number (from 000000 to 131072)

Instrument response:**[II]B,LLLLLLLLLLUU,YYTTTTTTTTUU<CR o CRLF>**

In which: [II] 485 address (only when transmitting in 485 mode)

B scale number (always 1)

LLLLLLLLLL gross weight on 10 digits

UU unit of measure

YY spaces in the case of null or semiautomatic tare, PT in the case of manual tare

TTTTTTTTTT tare weight on 10 digits

ALIBI MEMORY CANCELLATION (only with non approved instrument)**Command:****[II]ALDL <CR o CRLF>**

In which [II] 485 address (only when transmitting in the 485 mode)

Instrument response:**[II]ALDLOK <CR o CRLF>** if the cancellation has been effective

[III]ALDLNO <CR o CRLF> if the cancellation has not worked

The commands are ignored if one is not in the alibi memory functioning mode.

NOTE: the cancellation requests extra time, in some cases more than 5 minutes; the answer is received at the end of the cancellation

18.8 DISPLAY WITH SENSITIVITY X 10 (VISS) (TO BE USED IN TESTING DURING THE CALIBRATION)

By pressing the MODE key one switches from the weight display with normal sensitivity to a sensitivity ten times greater; in fact, one will note that the last digit on the right of the display will have a sensitivity equal to the scale's division divided by 10.

If a printout is carried out, the weight values are printed with the normal sensitivity.

TAKE NOTE: In case the instrument is LEGAL FOR TRADE, when "MODE" is pressed, the sensitivity times 10 is displayed for five seconds after which the instrument returns to standard weight displaying.

18.9 HOLD: FREEZING THE WEIGHT ON THE DISPLAY (hLd)

By pressing MODE, the value of the weight is held on the display, and the display shows HoLd alternately with the weight held value (every 5 sec). To release the weight value on the display, press MODE key again.

18.10 HORIZONTAL TOTALIZER (Sum of lots) (tot o)

TYPE OF TOTALISATION (NORMAL, FAST, AUTOMATIC)

Once the totalizer operating mode is selected, both horizontal and vertical, one is asked to set the type of totalization: normal (t.norM), fast (t.FASt) or automatic (Auto); with ZERO or TARE one changes the parameter; with ENTER/PRINT one confirms.

- In the normal totalisation, for each accumulation operation there is the display of the weigh number and the net weight total, before the printing of the data.
- In the fast one, just the display of the "-tot-" message appears on the display, before the printing of the data.
- In the automatic one, there is the automatic acquisition of the stable weight; therefore the display of the "-tot-" message on the display and then the printing of the data.

Max.tot: NUMBER OF CONSECUTIVE TOTALISATIONS AFTER WHICH THE TOTAL IS AUTOMATICALLY PRINTED AND RESET

After having made the set weighs, the general accumulated total is printed and reset; set a value between 0 and 63.

NOTE: the value 0 disables the function

TOTALISATION OPERATIONS

In order to carry out the totalisation it is necessary to press the MODE key (if the automatic totalisation has not been set): if the weight is accumulated in two total levels (a partial total and a general total).

To totalize, the net weight must be

- at least 1 division with non approved instrument and with normal or fast totalisation;
- at least 10 division with non approved instrument and with automatic totalisation;
- at least 20 divisions with approved instrument.

To avoid undesired accumulations, the "MODE" key is active just once; it reactivates depending on the setting of the "rEACT" parameter in the SET-UP environment, in other words, either after passing by the net zero of the scale, by instability or always (see "REENABLING OF THE PRINTOUTS AND THE INDICATOR FUNCTIONS" section).

If the presence of a printer has been configured, the "MODE" key causes also the printing of the weight values.

By pressing the MODE key again, **without having reenabled the totalisation:**

After a totalisation, press the MODE key again:

- with the normal totalizer, one can temporarily view on the display the number of weighs carried out and the PARTIAL NET TOTAL accumulated until that moment (Subtotal): if the accumulated digit is more than 5 digits the visualisation takes place in two stages.
- with the fast totalizer the "no.0.UnS" error message is displayed.

NOTE:

- If the gross or net weight is equal to zero, with the normal totalizer the indicator displays the accumulated total, while with the fast totalisation the "LOW" error message is displayed.

TOTALISATION WITH PRINTING

If the presence of a printer has been configured, upon each pressing of MODE, one prints the data programmed in step SEtuP >> SEriAL >> CoM.Prn >> Pr.ConF of the set-up environment (**TECH.MAN.REF.**), for example:

- Weigh number
- GROSS weight
- TARE weight
- NET weight

PRINTING AND ZEROING OF THE TOTALS

The instrument has two different total levels, a partial total and a general total, which increase upon each totalisation; these may be printed and zeroed independently from each other.

To print and zero the PARTIAL TOTAL one should press for an instant the ENTER/PRINT key; depending on the type of totalisation, various messages will be displayed:

- With **normal totalisation** the number of weighs and the accumulated total will be displayed.
- With **fast or automatic totalisation** the message "totAL" will be displayed.

The number of weighs made and the NET WEIGHT TOTAL is printed.

To print and zero the GENERAL TOTAL one should press for a few seconds the ENTER/PRINT key; depending on the type of totalisation; various messages will be displayed:

- With **normal totalisation** the number of weighs and the accumulated total will be displayed.
- With **fast or automatic totalisation** the message "G.totAL" will be displayed.

The number of weighs made and the NET WEIGHT TOTAL is printed.

To view at any time the number of weighs and the accumulated net weight in the totals:

- By pressing for an instant the **6** key, the following will be displayed in this sequence:

"n x", in which x is the number of weighs made

"totAL", followed by the accumulated **PARTIAL NET TOTAL**.

- By pressing in sequence the **F** and **6** keys, the following will be displayed in sequence:

"n x", in which x is the number of weighs made

"totAL", followed by the accumulated **GENERAL NET TOTAL**.

MEMORY STORAGES

It is possible to memorize the weigh totalisation in one of nine memory storages (identified from 1 to 9).

- Press in sequence the **F** and **5** keys; the display shows "m n ":
- Enter the desired storage number (from 1 to 9).
- Now all the made totalisations are stored in the storage number just entered.
- To change the storage, repeat the same operations.

To recall or zero the PARTIAL TOTAL of a storage, it is necessary to recall first its identifying number, as previously described; however the GRAND TOTAL is not available for each storage.

NOTE:

- The selected storage remains active for all the following totalizations until it is substituted with another.
 - All the values accumulated in the single storage numbers are automatically zeroed each time the instrument is turned off.
 - When turned on, the indicator automatically goes to storage nr. 0 (not selectable).
- Storage nr. 0 is considered to be the basic one in which non-addressed weights are accumulated.

18.11 VERTICAL TOTALIZER (Sum by recipe) (tot S)

Like the horizontal totaliser but with each pressing of MODE the indicated weight is totalised and automatically tared; in this way it is possible for example to fill a container with various products.

18.12 COUNTING (Coun)

In this functioning mode it is possible to carry out the reference operations in order to use the scale for counting pieces. When the functioning mode is selected, one is asked to set some parameters:

- **"uM.APW" : unit of measure of the average unit weight (APW).**
 - Press ENTER/PRINT to enter the step.
 - With the ZERO or TARE keys select the unit of measure (*g / kg / t / Lb*).
 - Confirm with ENTER/PRINT.
 - Press many times the C key until the display shows the message "SAVE?".
 - Press ENTER/PRINT to confirm the changes made or another key to not save.
- **"WAI.t" : sampling interval.**

Setting of the sampling time (in seconds, with a decimal); greater is the time set and more precise will the calculated APW be.

 - Press ENTER/PRINT to enter the step.
 - Set the desired time.
 - Confirm with ENTER/PRINT.
 - Press many times the C key until the display shows the message "SAVE?".
 - Press ENTER/PRINT to confirm the changes made or another key to not save.

It is possible to change the sampling time also while weighing, by pressing the F and 7 keys. If the entered value is confirmed, it substitutes the one in the set-up environment.

COUNTING PROCEDURE

The operations to be carried out are the following:

- 1) Place the empty container on the scale and press TARE to tare it.
- 2) Check that the zero is on the display and press the MODE button: the counting function activates
- 3) The display suggests a REFERENCE QUANTITY. The possible options are: 5, 10, 20, 30, 40, 50, 60, 75, 100, 200.
- 4) Press "ZERO" or "TARE" the number of times needed to reach the desired sample size.
- 5) Put the quantity of pieces chosen for the SAMPLE on the scale and press ENTER/PRINT to confirm or C to cancel the operation and return to weighing.
- 6) Press ENTER/PRINT; the display will indicate SAMPL and the indicator will calculate the **Average Piece Weight (APW)**. After a few instants the display will indicate the quantity selected put on the platform.
- 7) Add the rest of the items to count in the container and whose value will appear on the display.
- 8) Unload the scale, the APW will remain stored in memory for the next counting of similar pieces, without having to repeat the REFERENCE operation.
- 9) By pressing the MODE key one switches from the display of the number of pieces to the display of the net weight and vice versa.
- 10) **To carry out a new reference operation**, press at length the MODE key and repeat the operations as describe in point 3).

NOTE: If the number of calculated pieces is greater than 999999, the display shows just the first 6 digits on the right.

PIECE COUNTING IN EXTRACTION

- 1) Load a FULL container on the scale and press "TARE" to tare it.
- 2) Press "MODE": The display suggests various REFERENCE QUANTITIES: 5,10,20,30,40,50,60,75,100,200
- 3) Press "ZERO" or "TARE" various times until the chosen quantity is displayed.
- 4) From the container take off the same number of pieces and press "ENTER/PRINT" to confirm. The display shows "SAMPL" while the indicator calculates the Average Piece Weight. The display shows in negative the quantity extracted.
- 5) Continue the counting in extraction.

“Er.Mot” ERROR DUE TO WEIGHT INSTABILITY DURING THE SAMPLING

It may happen that during the sampling phase the weight is unstable and therefore it is not possible to correctly calculate the APW. The “Er.Mot” is shown remaining for about three seconds. One should therefore repeat the sampling operation.

MINIMUM WEIGHT OF THE SAMPLE

It is advisable to use a reference quantity equal or greater than 0,1% of the scale capacity.

In any case, the weight of the reference quantity should not create an APW lower than the two internal points of the converter (intrinsic limit of the instrument); if this condition takes place, during the sampling, the display will indicate for an instant: "Error " and the quantity put on the plate will not be accepted. One should therefore use a higher reference quantity.

VARIABLE SAMPLE SIZE (REFERENCE QUANTITY)

It is possible to insert directly by keyboard any reference quantity up to 999999 (not only the quantities proposed by the MODE key).

- With the scale at zero, after having stored a tare, press “F”+ “5”; the display will indicate “n S” and then “0” or a quantity already stored.
- Modify and/or enter the quantity (up to 999999) using the numeric keys.
- Follow the operations describe in point 5) in the **COUNTING PROCEDURE** section.

DISPLAY AND MODIFICATION OF THE AVERAGE PIECE WEIGHT

It is possible to view or enter a known Average Piece weight using the keyboard. This can significantly speed up the reference operations.

- With the scale at zero, after having stored a tare, press “F” + “6”, or the ENTER/PRINT key at length.
- The display will indicate “ APW “ and then "000.000" or a previously entered value expressed with three decimal digits in the programmed unit of measure.
- Enter the APW value with the keyboard (or leave the one present) and press ENTER/PRINT to confirm.

Example:

Unit of measure of the APW in g

000.000 means 000,000 g (for example APW = 001,050 = 1,05 g).

Press ENTER to confirm and load the pieces to count as described in section PCS COUNTING point 5.

PRINTING UNDER COUNTING MODE

If the presence of a printer has been configured, each time ENTER/PRINT is pressed, while either weight or pieces are displayed, one prints the data programmed in the SEtUP >> SEriAL >> CoM.Prn >> Pr.ConF of the set-up environment (**TECH.MAN.REF.**); for example:

- GROSS weight
- TARE weight
- NET weight
- Quantity of PIECES (PCS) on the scale in that moment.
- calculated APW, expressed in the set unit of measure, with three decimal digits

19 INSTRUMENT MESSAGES DURING THE USE

MESSAGE	DESCRIPTION
AL.Err	It is displayed when one selects the alibi memory functioning mode, and upon start-up, the alibi memory is not connected or there are communication problems between the indicator and the board. The "NET/GROSS SWITCH" functioning is automatically set, but not saved in the set-up environment.
BuSy	Print under way (PRN serial port is occupied) or indicator waiting to transmit a printing to a PC.
UnStAB	One is trying to print with an unstable weight.
un.oVEr	One is trying to print with the weight in under load or in overload, in other words, with a weight of 9 divisions greater than the capacity or of 20 divisions below the gross zero.
LoW	Weight less than the minimum weight provided for the printing, the totalisation or the transmission of the string, standard or extended, upon pressing of the print key.
no.0.unS	Weight not passed by net 0 or by instability.
ConV.	In standard mode, with approved instrument, one is trying to print while the instrument is converting the unit of measure.
no in	In the input/output mode (set as "in.out"), one is trying to acquire a second time the input weight.
no out	In the input/output mode (set as "in.out"), one is trying to acquire a second time the output weight.
no 1	In the input/output mode (set as "G.t." or "1st.2nd"), one is trying to acquire a second time the input weight.
no 2	In the input/output mode (set as "G.t." or "1st.2nd"), one is trying to acquire a second time the output weight.
Er.Mot	In the counting mode, the sampling has not been made because the weight is unstable.
Error	In the counting mode, the sampling has not been made because one should use a higher reference quantity.
StorE	It is displayed when data is stored in the permanent storage of the instrument (setpoint, tares, ticket progressive, etc.)

20 PRINTING EXAMPLES

WEIGHING NR.	00000001
GROSS	2,000 kg
TARE	0,500 kg
NET	1,500 kg

WEIGHING NR.	00000002
GROSS	3,000 kg
TARE	1,000 kg
NET	2,000 kg

WEIGHING NR.	00000002
TOTAL NET	2,862 kg
TICKET NR.	2
10:30 08-01-02	

Totalizer Mode

HEADING 1	
HEADING 2	
HEADING 3	
HEADING 4	
GROSS	8,000 kg
TARE	3,000 kg
NET	5,000 kg
TICKET NR.	1
10:16 08-01-02	

Standard Weight Indicator Mode
(UISS, Std, ntgS)

GROSS	1,000 kg
TARE	0,500 kg
NET	0,500 kg
PCS	100
APW	0,005 kg
TICKET NR.	2
11:42 08-01-02	

Piece Counting Mode

GROSS (HOLD)	3,326 kg
TARE (HOLD)	1,364 kg
NET (HOLD)	1,926 kg
TICKET NR.	1
11:24 08-01-02	

Hold Mode

GROSS (PEAK)	1,500 kg
TARE (PEAK)	0,000 kg
NET (PEAK)	1,500 kg
TICKET NR.	1
11:42 08-01-02	

Peak Mode

REGISTER # 5	
WEIGHING NR.	00000001
GROSS	0,572 kg
TARE	0,500 kg
NET	1,500 kg
REGISTER # 5	
WEIGHING NR.	00000002
GROSS	3,000.kg
PT	1,000 kg
NET	2,000 kg
REGISTER # 5	
WEIGHING NR.	00000002
ID1	234
ID2	6789
TOTAL NET	2,154 kg
TICKET NR.	2
12:03 08-01-02	
Totalizer Mode With Register	

HEADING 1	
HEADING 2	
HEADING 3	
HEADING 4	
GROSS	8,000 kg
PT	3,000 kg
NET	5,000 kg
TICKET NR.	11
12:41 08-01-02	
Indicator in Standard Mode (UISS, Std, ntgS)	

GROSS	1,228 kg
TARE	0,456 kg
NET	0,772 kg
PCS	150
APW	0,00514 kg
ID1	234
ID2	6789
TICKET NR.	13
12:11 08-01-02	
Piece Counting Mode	

GROSS (HOLD)	4,664 kg
TARE (HOLD)	3,044 kg
NET (HOLD)	1,620 kg
ID1	2345
TICKET NR.	10
12:06 08-01-02	
Hold Mode	

GROSS (PEAK)	0,726 kg
TARE (PEAK)	0,000 kg
NET (PEAK)	1,606 kg
12:09 08-01-02	
Peak Mode	



CE DECLARATION OF CONFORMITY

We **DINI ARGEO Srl,**
Via della Fisica, 20
41042 Spezzano di Fiorano - MODENA

Declare under our responsibility that the products **TPWATEX** is made up of:

DFWATEX series electronic weighing terminal (CESI 04ATEX102 CE type certificate nr.; Notified Body for ATEX/Q surveillance : 0722 (CESI))
TPW series pallet truck scale (Tech. File AETF01 Dep. n° CEC-04/2036-ADF088)

Described in this declaration conform to the following directives:

- **EMC 89/336/EEC**
- **ATEX 94/9/EC**
- **98/37/EC**
- **90/384/EEC**

The conformity is confirmed by the observance of the following norms:

- | | |
|---|----------------|
| - EN 50014 | - EN 1127-1 |
| - EN 61326-1, EN 61000-6-2 / EN 61000-6-4 | - EN 13463-1 |
| - EN 50020 | - EN 45501 (*) |

(*) the EN 45501 norm is indicated when the instrument has been subject to metric verification ("stamping")

Markings:

- **CE**  **II 2 G IIC T4**

Spezzano di Fiorano, 22/09/2006

Signature
 Marco Bertoni
 President

ONE YEAR WARRANTY

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

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

the Customer pays for the transport costs (both ways), if the instrument is shipped to DEALER or manufacturer for repair.

The WARRANTY is VOIDED if any of the following occurs: repairs or attempted repairs are made by unauthorised personnel, connected to equipment installed by others, or is incorrectly connected to the power supply, or instrument has defects or damage due to carelessness or failure to follow the guidelines in this instruction manual.

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

CE CONFORMITY CERTIFICATE

The instrument conforms to current technical standards and EEC Directives.
The Conformity Certificate is in this manual.

AUTHORIZED SERVICE CENTRE STAMP

