DINI ARGEO

Scales - Weighing systems

ELECTRONIC CRANE SCALE INSTRUCTIONS MANUAL

MCWHU

“HULK”

MCWHU_03_10.06_EN_U

INDEX

1 GENERAL INFORMATION

1.1 INTRODUCTION

Dear Customer,

We thank you for choosing a Dini Argeo product and we invite you to carefully read this manual before carrying out any operation on the instrument that you have purchased.

1.1.1 Designation of the machine and manufacturer data

The "MCWHU" instrument is an electronic weighing device, to be considered as a lifting accessory, suitable for use on overhead cranes, or on similar lifting devices.
The MCWHU electronic crane scale consists of the following components: a double shear beam load cell, a top pivot, a lower pivot, a battery pack, and an electronic weight measurment and indication device.
Normally the remote command of the measuring instrument takes place through an infrared ray system.
It is possible also to use radio devices both for the remote commands as well as for the data transmission (RF).
On the basis of its use, can choose the device depending on the available capacities, which in tons, are: T10, T15, T25, T35.
The instrument can be suitable for use with third parties (M) or for internal use.
The complete identification will then be:
MCWHU + (10 or 15) + (M - if only for use with third parties) and MCWHU + (10 or 15 or 25 or 35) when the instrument is suitable for internal use. For more information see section 1.1.7 MARKING.
This manual takes into consideration the various types.

MANUFACTURER'S DATA:
DINI ARGEO srl – via della Fisica , 20 - 41042 Spezzano di Fiorano (MO) - Italy
Tel. 0536-843418 Fax 0536-843521 E-mail info@diniargeo.com web www.diniargeo.com

1.1.2 Premises

The purpose of this manual is for the user to know all the fundamental norms and criteria for the installation, the correct use and for carrying out the correct maintenance of the purchased instrument.
Therefore:

- This manual contains all the scale's user instructions and the necessary knowledge for its correct and safe use.
- This manual supplies the useful indications for the correct functioning and maintenance of the relative electronic crane scale; it is therefore important to pay careful attention and refer to all those sections which illustrate the simplest and safest way to operate.
- This publication, or any part of it, can be reproduced without the written authorisation by the Manufacturer.

PS: The person responsible for the use of the weight indicator must make sure that all of the safety rules in force in the country of its use should be applied, to guarantee that the equipment is used in conformity with the use for which it is destined and avoid any dangerous situation for the users.
Any attempt of tampering or modifying the instrument by the user or non authorised personnel, or improper use, or different than what is foreseen in this manual, will relieve the Manufacturer from all responsibility in the case of damages caused by people or things.

1.1.3 Symbols

Please find below the symbols in the manual which recall the operator's attention, in regards to the various danger levels. The danger levels will be subdivided in four classes of importance:

DANGER!!

Concept or procedure which, if not carried out accurately, causes the danger or harsh personal injuries in case of accident.

CAREFUL!!

Concept or procedure which, if not carried out accurately, can cause harsh personal injuries or damages to the instrument in case of accident.

CAUTION!!

In case of an accident, concept or procedure which can cause damages to the instrument or materials or adjacent to it, if it does not carry out accurately.

WARNING: Important information or procedure which advises the operator regarding the optimal use of the system and on all the connected work modes.

Besides the symbols of the four different danger levels, other symbols used, will be shown:
- in the manual to recall the attention of the reader;
- on the instrument to recall the attention of the user.

CE — Conforms to the standards of the European Union.

III — Identifies the Class Of Precision defined by the OIML to represent 3000 divisions

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

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.

It is forbidden to halt or transit under suspended load.

1.1.4 General precepts

The warnings shown in this manual recall the ATTENTION OF THE OPERATOR in regards to information or procedures which advise the best use of the equipment in order to:

- work safely;
- lengthen the duration and functionality;
- avoid the damages or loss of the programming;
- optimise the work by taking into account the metric and safety norms in force in the country where it is used;

The crane scale is to be considered a scale, and therefore should only be used as a weighing instrument. Therefore any improper use, or different than what is foreseen in this manual, will relieve the Manufacturer of all responsibilities in case of damages, direct or indirect, caused to people or things.

For the indications and warnings for working in safety conditions see the 1.3 GENERAL SAFETY NORMS section.

1.1.5 Destination of use

The “MCWHU” instrument is a non automatic weighing device, to be considered as a lifting accessory, suitable to be used on cranes, or on similar lifting devices.

In regards to the weight measurement it is possible to identify the following operating conditions:

- use for determining the weight for commercial transactions.
- use for determining the weight for internal use.

The name of the device models suitable to be used for commercial transactions are distinguished by a final letter M and APPROPRIATE MARKINGS (see section 1.1.7 MARKINGS).

The name of the equipment model are marked by their own APPROPRIATE MARKING (see paragraph 1.1.7 MARKING).

The device can be used only in ordinary work environments. For further details see section 1.3.6 ENVIRONMENTAL CONDITIONS.

1.1.6 Typical CE conformity declaration

CE

DICHIARAZIONE DI CONFORMITA'
DECLARATION OF CONFORMITY
KONFORMITÄTSERKLÄRUNG
DÉCLARATION DE CONFORMITÉ
DECLARACIÓN DE CONFORMIDAD

Fabbricante: Manufacturer: Hersteller: Fabricant: Fabricante:	DINI ARGEO srl
Dinamometro elettronico modello: Electronic crane scale model: Electronische Kranwaage Modell: Dinamomètre électronique modèle: Gancho pesador electrnico modelo:	MCWHU
Anno di costruzione: Manufacturing year: Herstellungsjahr: Année de fabrication: Año de construcción:	
Numero di serie: Serial number: Seriennummer: Numéro de série: Número de serie:	

E' conforme alle direttive:
-Conforms to the directives: / Konform mit folgenden richtlinien ist: / Est conforme aux directives: / Es conforme a las directivas:
2004/108/CE - Compatibilità Elettromagnetica
-Elecrtomagnetic Compatibility / Elektromagnetische Kompatibilität /
-Con riferimento alle norme armonizzate:
-With reference to these harmonised norms: / Mit Bezug auf die Normen: / En référence aux normes harmonisées: / Con referencia a las normas armonizadas:
(CEI EN 61000-6-2 / 2006 ; CEI EN 61000-6-4 / 2007 ; CEI EN 61326-1 / 2007 ; CEI EN 55011 / 2009)

2006/42/CE - Macchine
-Machines / Maschinen / Machines / Máquinas

Dichiara inoltre che:
Declares also that: / Der Hersteller erklärt auβerdem, dass: / Déclare également que: / Declara también que:
-La persona autorizzata a costituire il fascicolo tecnico presso la sede del fabbricante è la Direzione Tecnica.
The person authorised to compose the technical file at the premises of the manufacturer is the Technical Management. / Die autorisierte Person, die die technischen Dokumente im Firmensitz des Herstellers verwaltet, ist das technische Management. / La personne autorisée à constituer le dossier technique chez la siége du fabricant est le directeur technique. / La persona autorizada a constituir el expediente técnico en la sede del fabricante es la Dirección Técnica.

Data/Date/Datum	Firma/Signature/Unterschrift

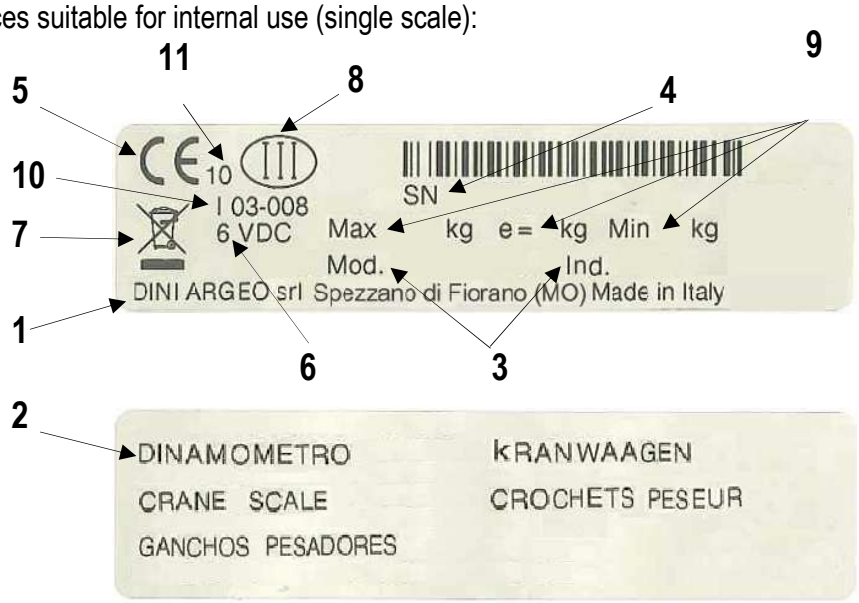
1.1.7 Markings

On the equipment one will find a label in which there are shown the metrological and technical information as well as the relative CE marking of the instrument.

CAUTION!!

For no reason the data or closing and legalisation seals on the instrument's plate, must be modified or removed. In case of tampering or removal of this information, the warranty of the instrument ceases, and the manufacturing company is released from any eventual damage, direct or indirect, caused to people or to things.
THE LABELS ARE OF THE ADHESIVE TYPE, WHICH DETACH THEMSELVES WHEN DESTROYED.

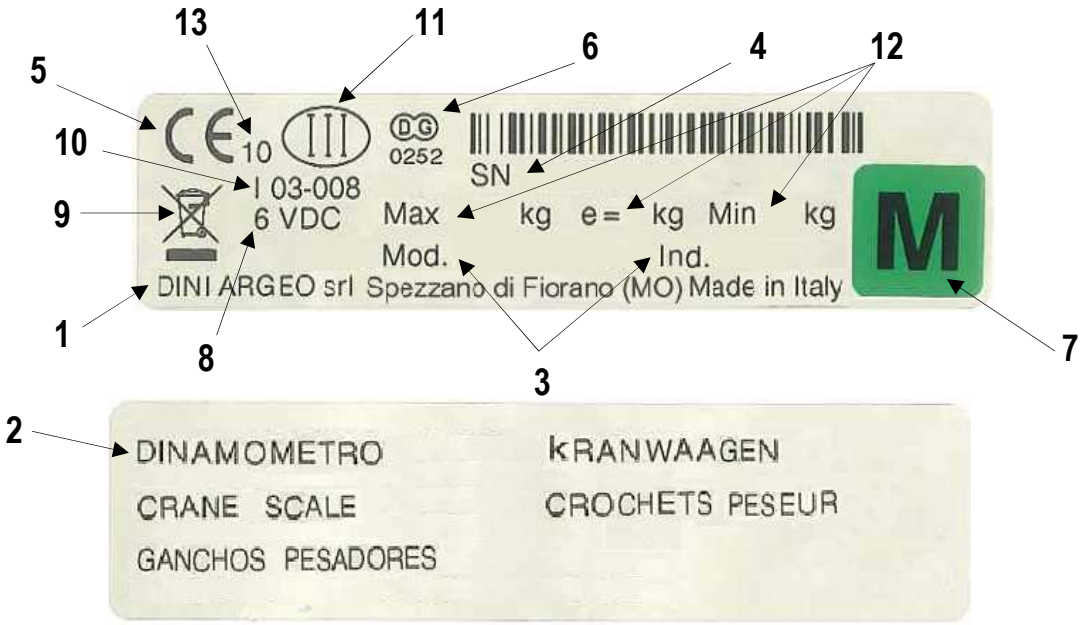
Marking for devices suitable for internal use (single scale):



In which:

1 Company name and fabrication status
2 Name of the machine
3 Name of the machine model and the type of installed electronic device
4 Serial Number (sn)
5 CE Markings
6 Power supply voltage
7 Symbol of the dumpster: indicates that at the end of its useful life the product must be disposed in the appropriate waste collection bins
8 Instrument's precision class
9 Measuring field:
Max= maximum capacity or full range of the instrument;
Min= minimum weigh. Weighing accuracy is not guaranteed below this value;
e= division value
10 Space reserved for the CE type approval certificate number
11 Building year of the machine

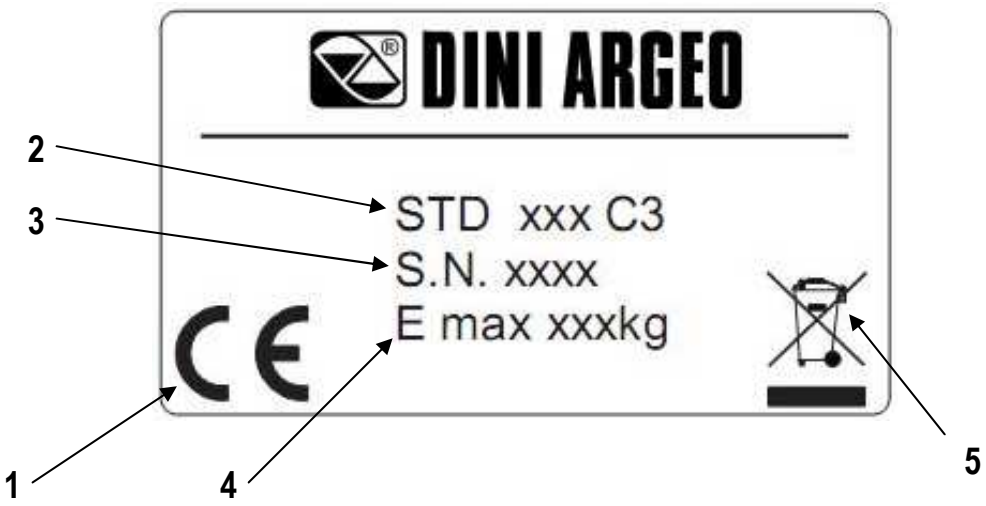
Markings for devices suitable for commercial transactions:



In which:

1 Company name and fabrication status
2 Name of the machine
3 Name of the machine model and the type of installed electronic device
4 Serial Number (sn)
5 CE Markings
6 Space reserved for the number of the notified body
7 Conformity marking (instrument subject to metrological check)
8 Power supply voltage
9 Symbol of the dumpster: indicates that at the end of its useful life the product must be disposed in the appropriate waste collection bins
10 Space reserved for the CE type approval certificate number
11 Instrument's precision class
12 Measuring field:
Max= maximum capacity or full range of the instrument;
Min= minimum weigh. Weighing accuracy is not guaranteed below this value;
e= division value
13 Building year of the machine

Markings on the load cell:



In which:
1 CE marking
2 Name of the series or model of the load cell
3 Serial number (sn)
4 Maximum useful load (maximum capacity)
5 With the issuing of the July 22nd, 2005 nr. 151 decree-law, relative to the European Directive 2002/96/EC in regards to the Waste Electrical and Electronic Equipment (known as WEEE), the relative manufacturers are called to intervene and manage the life cycle end of their introduced products. All the WEEE products must have impressed an easily visible and undeletable crossed-out dumpster. Therefore the manufacturers must offer all the instruments necessary for a correct disposal of this equipment.

1.1.8 Periodic metrological verification

For all weighing instruments used in commercial transactions, it must be ascertained that the metrological features and the measurement reliability are kept in time. A periodic metrological verification is, therefore compulsory; the periodicity and the verifying person depend on the laws / regulations of the country in which one is operating.

1.1.9 Directives and reference norms

List of the EC directives taken into reference:

- 2009/23/EC (Non automatic weighing instruments)
- 2004/108/EC (Electromagnetic compatibility)
- 2006/95/EC (Low Voltage)
- 2006/42/EC (Machines)
- 1999/5/EC (Radio equipment); only version with radio module
- 2002/95/EC ; 2003/118/EC ; 2002/96/EC (RoHS and WEEE)

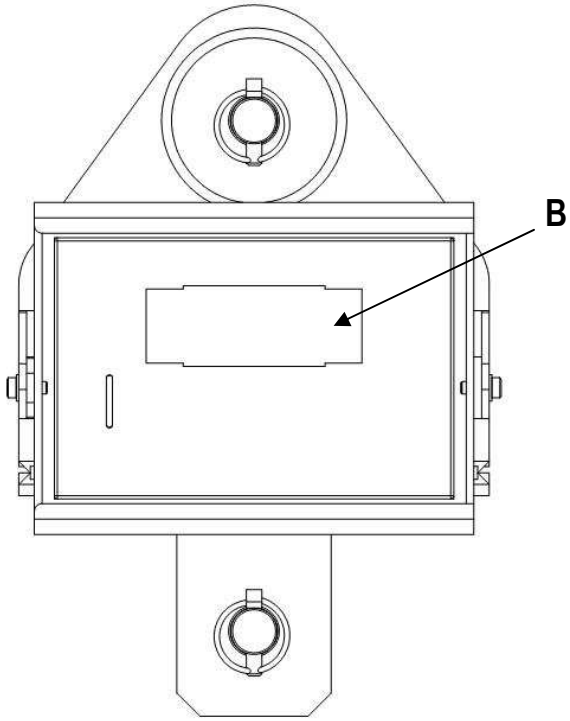
List of norms or other documents taken into reference:

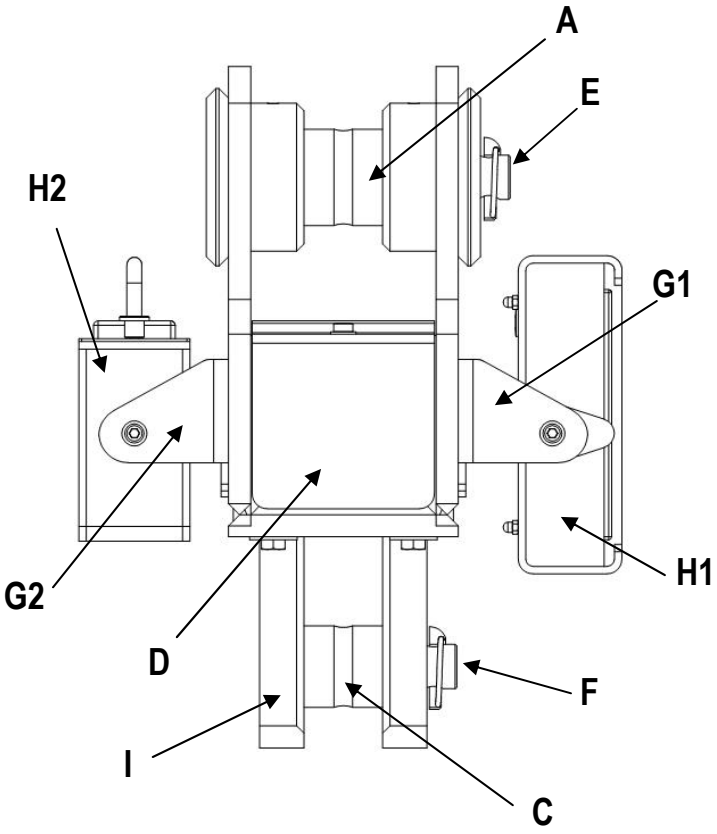
- FEM1.001
- CEI EN 61000-6-2 / 2006
- CEI EN 61000-6-4 / 2007
- CEI EN 61326-1 / 2007
- CEI EN 55011 / 2009
- 1999/519/EC recommendation (only version with radio module)
- ETSI EN 301489-3 1.4.1 version (only version with radio module)
- ETSI EN 300220-2 2.1.1 version (only version with radio module)

1.2 TECHNICAL FEATURES OF THE WEIGHING SYSTEM

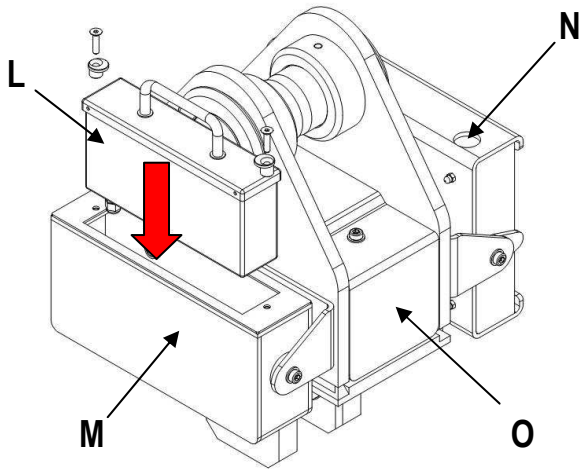
1.2.1 Main components

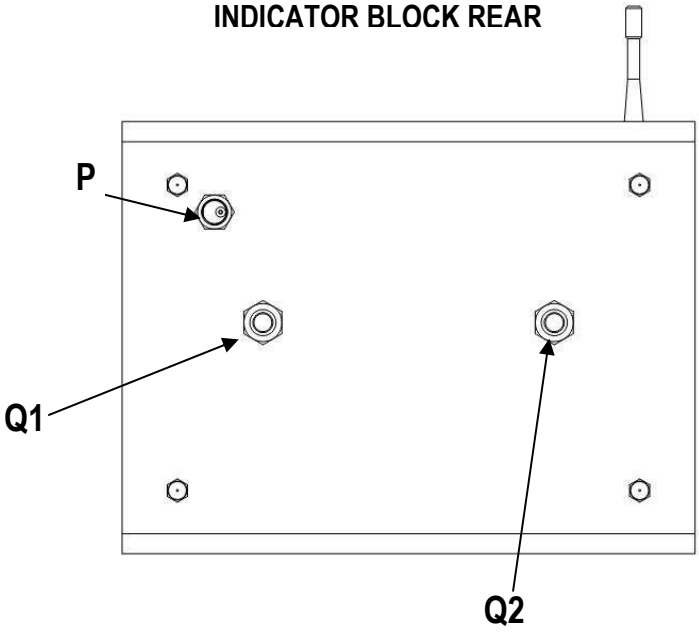
The “MCWHU” instrument is an electronic weighing device which carries out the “lifting accessory” function through the parts which compose it. In order to better understand this product, please find below the main components which are part of this machinery.





A: top pivot for connecting the connection ring and the device block;
B: electronic device for converting the signal coming from the transducer into a weight unit, with measurement display, and command and adjustment systems; shackle for connection between the lifting device hook and the load cell;
C: lower pivot for the connection of swivel hook and the device fork;
D: protective box containing load cell and its relative blocking pivots;
E: top pivot lockpin;
F: lower pivot lockpin;
G1: indicator holding bracket;
G2: battery holding bracket;
H1: weight indicator block;
H2: battery box;
I: fork for the connection between the lower pin and the load cell;

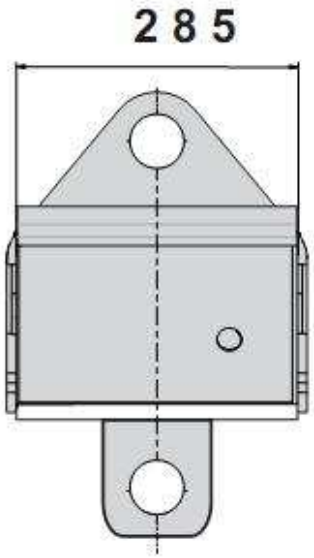


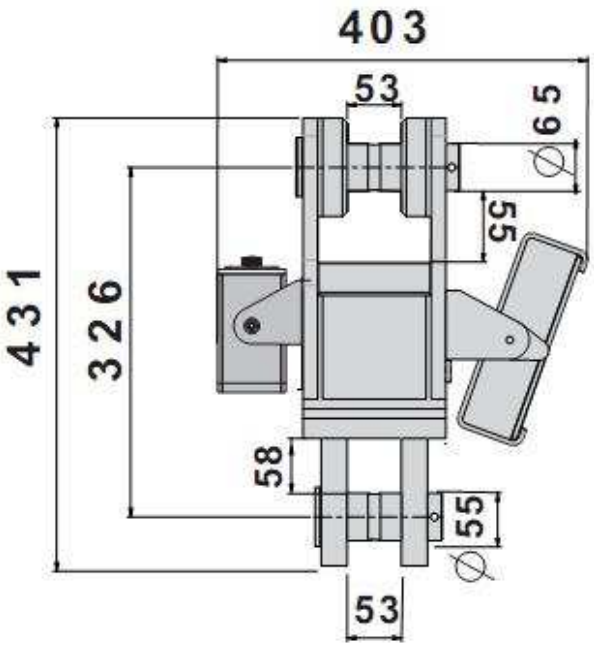


L: is the battery box and its direction of insertion into the MCWHU electronic crane scale;
M: is the box in which the battery pack is placed. The box is located on the rear of the machine;
N: the hole for the antenna output (this version with radio module);
O: body in which there is the double shear beam load cell;
P: connector for connecting the indicator block with the external power supply through the "Jack";
Q1: PG9 cable gland for connecting the indicator block and the battery pack;
Q2: PG9 cable gland for connecting the indicator block and the load cell;

For more information concerning the battery and its features, see paragraph 3.2.5.

1.2.2 Crane scale dimensions





DIMENSIONS EXPRESSED IN mm

1.2.4 Electronic device features

PROTECTION DEGREE	IP 67
POWER SUPPLY	6 -10 Vdc Ah sealed rechargeable internal battery, standard, range of about 130 hours. 12 Vdc avec external power supply 100÷ 240 Vac (50÷60 Hz)/12 Vdc standard.
MAXIMUM POWER	5 VA.
MINIMUM VOLTAGE PER DIVISION	0.3 μV (Homologated instrument); 0.03 μV (non homologated instrument).
DISPLAYED DIVISIONS	10000e, 3X3000e for legal for trade use expandable to 800.000 for internal factory use (with **minimum** signal coming from the1,6mV/V cell).
DISPLAY	DOT LED 6 digits 40 mm high.
RESOLUTION IN COMTAGE	1'500'000 points (with input signal equal to 3mV/V).
KEYBOARD	Water resistant key polycarbonate membrane with tactile feedback. Plexiglas screen protection for the display and keyboard.
TARE FUNCTION	Subtractive on the entire capacity.
AUTO POWER OFF	Adjustable from 1 to 255 minutes of no use, disinsertable.
LOW BATTERY WARNING	"Low bat" shown on the display.
MEASUREMENT UNIT AVAILABLE IN CALIBRATION PHASE	g= grams, kg= kilograms, t= tons, Lb= pounds.
CONTAINER	Sturdy stainless steel, for protection from dust and splashes. Extremely sturdy oven painted steel case
POWER OF LOAD CELLS	5Vdc ± 5%, 120mA (max 8 load cells 350 Ohm).
I/O SECTION	- 1 RS232/TTL input/output - 1 RS232/input/output Configurable for connection to PC/PLC, WEIGHT REPEATER or. PRINTER.
THEORETICAL LIFE	If the instrument is regularly maintained and if the user instructions shown in this manual are carried out, the instrument will attain a theoretical life of 5 years; the data is a function of use is subject to change according to audits by the manufacturer. For further details, see section 3.2 MAINTENANCE AND VERIFICATIONS.

THE PARTS OF THE INSTRUMENT CONTAINING DANGEROUS ELECTRICAL TENSION ARE ISOLATED AND INACCESSIBLE TO THE USER UNLESS IT HAS BEEN DAMAGED, OPENED, OR ALTERED.

1.2.5 Load cell features

The load cell is of the strain gauge type, with temperature compensation.
The main technical features are:

- *Precision and repeatability conform to the OIML R60 recommendation.*
- *Precision: 0,03% of the Full Scale capacity (F.S.).*
- *High precision and repeatability.*
- *Maximum number of load cell divisions: nLC = 4000.*
- *Sensitivity: 2mV/V +/-0,1%.*
- *700 +/- 7 Ohm input resistance.*
- *700 +/-7 Ohm output resistance.*
- *Nominal load creep after 240 minutes: 0,02% full range.*
- *Thermal compensation: -10°C / +40°C.*
- *Foreseen life: if the cell is not subject to knocks and/or overloads and is regularly submitted to maintenance, will attain a theoretical life from 3 to 5 years.*

1.2.6 Indicator environmental features

Environmental operating features:

OPERATING TEMPERATURE	From -10 to +80°C with optional heat shield (-10/+40ºC in CE-M approved version).
RELATIVE HUMIDITY	From 10 to 85 % without condensation

1.2.7 Infrared remote control: keys and commands

Along with the “MCWHU” electronic crane scale, an infrared remote control is supplied in which it is possible to repeat the keyboard functions. The command system is “directive”, therefore the receiving measurement device must be “in view”; the maximum functioning distance is 8 m.

On the measurement device it is possible to configure the functions of the remote control keys; it is possible to have the:

- remote control disabled;
- remote control completely enabled (the keys have the indicated function);
- remote control partially enabled (all the keys function as a **TARE** key);

KEY	”IR NO”MODE FUNCTION	”IR 1” MODE FUNCTION	”IR 4” MODE FUNCTION
ZERO	DISABLED	TARE	ZERO
TARE	DISABLED	TARE	TARE
F1 MODE	DISABLED	TARE	MODE
F2 PRINT	DISABLED	TARE	ENTER/PRINT

CAUTION!!

Do not press the keys with hard and/or pointed objects; only use fingers.

The configuration instructions are described in section 2.3.7 FUNCTIONING WITH REMOTE CONTROL

1.2.8 Radio module features (only for model with radio module)

The radio module version allows communicating in radio frequency with eventual external devices (PC, printer or weight repeater); it is fitted with two multipoint radio frequency modules; one is installed on the measurement device and the other on the remote unit. The remote modules can be inserted inside the devices, or fitted with their own watertight containment box and connected by cable.
The multi channel radio module functions in a frequency band, without need of license.

SPECIFICATIONS:

POWER SUPPLY	5-12Vdc 100mA max
OPERATING TEMPERATURE	From -10 to +40 °C.
TIMING	Power Up Sequence: 135 ms Enter in Serial Stand-by: 3.2 ms Wake Up from Serial Stand-by: 5.5ms
MAXIMUM POWER	25mW
WORK FREQUENCY	From 868 to 870 MHz
NUMBER OF CHANNELS	Up to 52
RADIO TRANSMISSION SPEED	Up to 38.4 kbps
SERIAL TRANSMISSION SPEED	Up to 19.2 kbps
INPUT/OUTPUT 1 RS232 PORT	on AMP connector or 1 USB port (with a 1m long USB cable fitted), depending on the model.
FUNCTIONING DISTANCE, IN APPROPRIATE CONDITIONS	Up to 70m indoors, up to 150m outdoors
CONTAINER	Box in PVC (depending on the model)
ANTENNA	Swivelling and inclinable

NOTE:
For details regarding the configurations and use of the radio module contact the Dini Argeo Assistance Centre. The device manual can be downloaded from the www.diniargeo.com internet web site or requested to the Assistance Centre.

1.3 GENERAL SAFETY NORMS

The user must respect the manufacturer's prescriptions of the crane scale; one must respect the prescriptions requested by the manufacturer of the lifting device, and those highlighted in the eventual safety data sheet of the product which must be weighed.

1.3.1 Laws and national norms

Before putting into service and while using it, the user must ascertain that all norms in force in the country, where the instrument is used in regards to "safety and prevention of casualties" and "metrology", are respected.
It is also important to take into account and respect the laws and prescriptions of the Bodies assigned to the safety control of the country of use.

1.3.2 General warnings

- DO NOT exceed the nominal capacity of the crane, of the scale or of any support element of the load fixed onto the scale.
- Use the scale EXCLUSIVELY for the lifting and the weigh of suspended loads and for TENSION measurements.
- Suspended loads which may cause applied torsion stresses MUST be hanged with flexible or swivelling bindings.

The crane scale is to be considered like an actual scale, and therefore it must be used only as a weighing instrument. Therefore, an improper or different use than what is foreseen in this manual, will release the Manufacturer from all responsibilities in case of damages caused to people or things.

1.3.3 Organisational measures of the user company

- Respect the safety measures established by the manufacturer of the electronic crane scale, the manufacturer of the lifting device, and eventually of the safety board of the product to be weighed.
- The electronic crane scale must be used only for the foreseen purposes.
- Entrust the use of the instrument only to expert and trained people, also with experience in using the lifting equipment.
- Entrust the execution of installation, putting into function, maintenance, and repair operations only to specialised personnel (section 3.2 MAINTENANCE AND VERIFICATIONS).
- Make sure that the user manual is always available where the scale is used.
- Carefully read and apply what described in the section 2.2.1 POWER SUPPLY – START-UP – SWITCH-OFF.
- The nominal capacity of the scale must be equal or greater than the crane. If the nominal capacity of the scale is greater than the maximum capacity of the crane, make sure that loads, which are greater than the maximum capacity of the crane or of any support element of the load, are lifted.
- Use only original spare parts.
- All the indicator connections must be made respecting the norms applied in the installation zone and environment.
- Periodic verification with registry.
- The electronic crane scale must be submitted to regular maintenance and repair interventions (see section 3.2 MAINTENANCE AND VERIFICATIONS).
- File the test result and conserve it in the test register.
- When one notices anomalies while using the electronic crane scale, IMMEDIATELY stop all operations and do not reuse the instrument until the instrument has been submitted to specific controls by specialised and authorised personnel or by Dini Argeo service assistance personnel.

Incorrect use, but reasonably foreseeable, by untrained people entails a non acceptable residual risk.

1.3.4 Indications and warnings regarding the crane scale

- It is strictly FORBIDDEN for non authorised personnel to enter in the operating zone.
- It is strictly FORBIDDEN to walk or halt below or near suspended loads.
- It is strictly FORBIDDEN to exceed the nominal capacity of the crane, the scale or of any load support element fixed to the scale.
- It is strictly FORBIDDEN to lift loads exceeding the maximum capacity of the MCWHU, which is shown on the sides of the instrument.
- The crane scale is to be considered a scale, for all purposes, and therefore should only be used as a weighing instrument.
- Use ONLY the scale to weigh suspended loads and to make tension measurements.
- Place the crane so that the load is lifted vertically.
- Place the load without causing knocks using a low speed of the crane.
- Once the load harnessing operation is done, move away, and make sure that the load is well balanced lifting it up a few centimetres from the ground.
- Use structures with single hitch elements which allow a correct alignment of the scale.
- Do not use structures with single hitch large-sized elements which could block the correct alignment near the hitch point.
- Suspended loads which can cause applied torsion stresses MUST be hanged with flexible or swivelling bindings.
- It is FORBIDDEN to make oblique moves on the load.
- Carefully read and apply what described in section 2.2.1 a POWER SUPPLY – START-UP – SWITCH-OFF.
- Periodically check the integrity of all the scale parts (see section 3.2 MAINTENANCE AND VERIFICATIONS).
- Any maintenance, repair, or cleaning operations must be made with the electronic crane scale turned off (see section 3.2 MAINTENANCE AND VERIFICATIONS).
- Use the DPI prescribed by the manufacturer of the lifting system and eventually those highlighted in the safety data sheet of the weighing article (helmet, accident-prevention shoes, etc.).

DANGER!!

The nominal capacity of the electronic crane scale must not be lower than the maximum capacity of the lifting device. If one attaches a crane scale with a nominal capacity less than the nominal capacity of the lifting device, verify it with another weighing system, making sure that the load to be weighed is not greater than the nominal capacity of the electronic crane scale.

1.3.5 Indications and bans for working in safe conditions

- It is FORBIDDEN to use the equipment for lifting or transporting people.
- It is FORBIDDEN to pull or drag loads, but only to apply vertical forces.
- DO NOT exceed the rated capacity of the crane, scale or any bearing element attached to the scale.
- DO NOT swing the load by pushing it or putting it beyond the work area of the lifting device.
- DO NOT use multiple attachment points.
- DO NOT push nor pull the load or the loaded scale.
- DO NOT pull the hook from the side.
- It is FORBIDDEN to use the device for weighing radioactive materials or melded masses.
- DO NOT stretch obliquely the load.
- It is FORBIDDEN to make any changes to the scale.
- DO NOT spill liquid on the instrument.
- DO NOT use solvents or industrial chemicals for cleaning the instrument

1.3.6 Environmental conditions

- DO NOT install in an area with risk of explosion.
- DO NOT expose the instrument to strong magnetic or electrical fields.
- DO NOT install the instrument in an environment at risk of corrosion.
- It is FORBIDDEN to use the device beyond the temperature range from -10 ° C to + 80 °C with the optional heat shield and with the optional heat shield and -10/+40ºC in the approved version CE-M.

2 USER MANUAL

2.1 USER

2.1.1 Professional features

The staff assigned to the electronic crane scale and all activities related to it must:
- Have appropriate physical and mental characteristics;
- Be an expert or have sufficient knowledge on lifting equipment and be trained in the proper use of scales;
- Be familiar with the requirements of labour protection and accident prevention in the field;
- Be able to evaluate the safety condition of the lifting equipment;
- Understand the safety signs on the machine, the warnings and the messages highlighted in the manual of the instrument, even if he does not have a good command of the language in which the crane operates;
- Be able to make oneself understood in the workplace.

2.1.2 Location

The operator of lifting equipment, which was installed on the crane scale, must not only respect the safety conditions but is also responsible for accidents that may occur around the machine.
Therefore, the operator must place himself in a working position which is safe for people, things, and vehicles in the workplace. In particular, the operator must:
- Be very careful to never position below the load or in positions which could be dangerous if there was a rupture of an accessory of lifting equipment;
- Always have a good visibility of the load and eventual personnel nearby;
- Evacuate the people and things from the work area;

2.1.3 Clothing and equipment

The personnel must wear clothing and be fitted with personal protective equipment required for the lifting vehicle used (helmets, protective gloves, safety shoes, etc..)

2.2 DESCRIPTION OF THE MACHINES AND CONTROLS

2.2.1 Power - On – Off

The instrument is powered by a 6 VDC internal rechargeable battery.
It is possible to charge the battery through the 12V power adapter (supplied) which should be connected to the 230 Vac mains voltage.
Safety norms must be respected for the connection to the mains voltage including the use of a line which has to be free from noise generated by other electronic equipment..
NOTE: ***It is advisable to completely recharge the battery (12 hours) in the first installation of the instrument; we RECOMMEND disconnecting the battery if the instrument is not going to be used for more than 30 days.***

BATTERY CHARACTERISTICS
Material LEAD
Power 10 Ah
Output 6 V
THE BATTERY MUST ONLY BE REPLACED WITH AN ORIGINAL FROM THE MANUFACTURER.

In order **TO CHARGE THE BATTERY** through the 230Vac mains, one should insert the plug end of the AC/DC power adapter into the socket in the back of the instrument and the adapter to your 230Vac current source (the **power-on** led on the front panel turns on).

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

TO TURN ON the instrument press the C key until the indicator turns on; then release.

The display shows in sequence:
XX.YY is the installed software version.
bt XXX in which XXX is a number from 0 to 100 which indicates the battery level.

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** parameter **(TECH.MAN.REF.).**

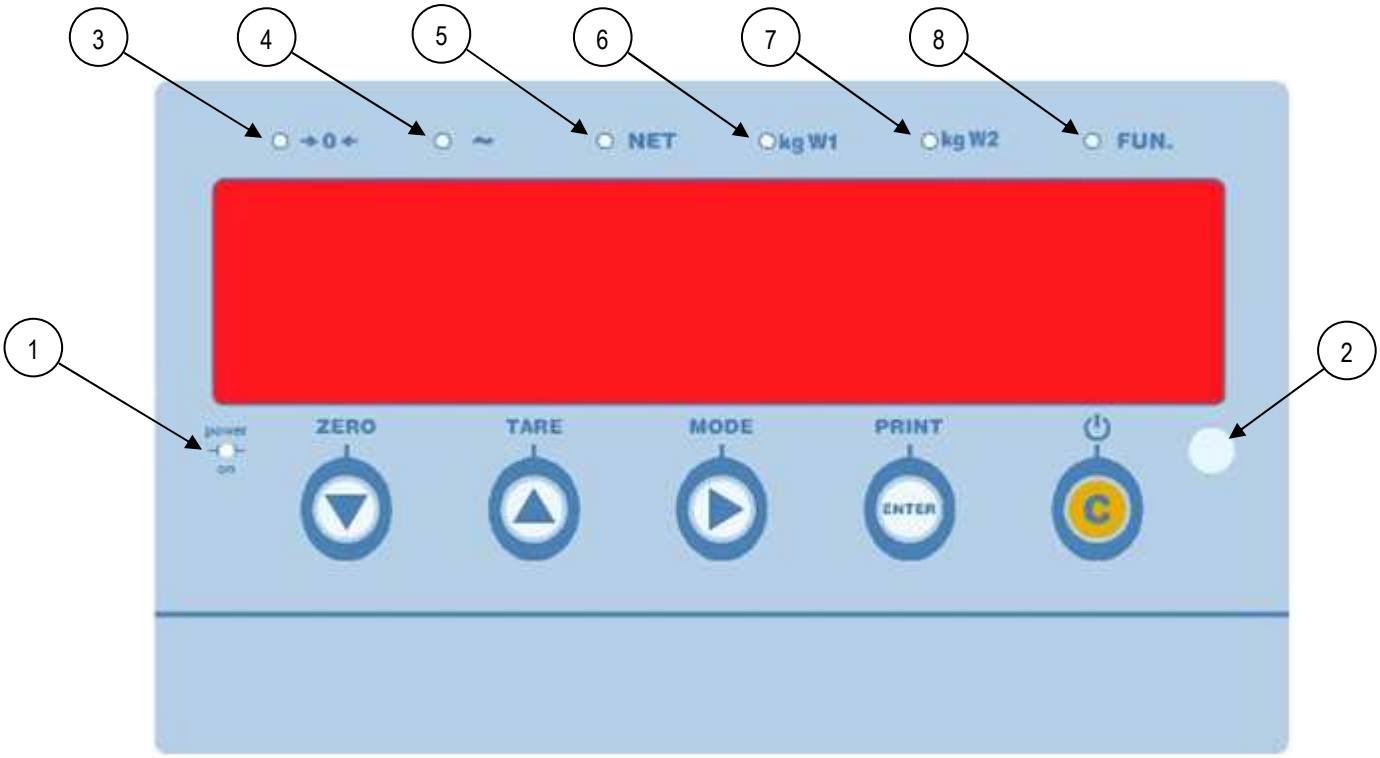
By pressing the **ZERO** key for an instant while the version is shown in the LED display, the indicator will show the following in this order:
CLoCK if there is the optional board with date and time.
02.01 in which 02 indicates the instrument type, 01 indicates the metrological software version.
XX.YY.ZZ is the installed software version.
DFW06 is the name of the installed software.
bt XXX in which XXX is a number from 0 to 100 which indicates the battery level.
-K- X.YY in which K identifies the type of keyboard: K=0 5-key keyboard, K=1 17-key keyboard.
X.YY is the installed software version.

After this, “hi rES” is displayed (in case of non approved instrument) or “LEGAL” and the g gravity value (in case of approved instrument), then the programmed capacity and minimum division, and finally it executes a countdown (self-check).

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

2.2.2 Front panel keys

The front panel is projected in order to make easy and immediate use of the indicator by the user; it consists of a display 6 DOT LED 40mm high digits, 7-LED indicators and a waterproof film keypad at 5 keys.



1 Indicates the presence of power supply.

2 Sensor for the reception of the infrared signal.

3 Indicates that the weight detected by the weighing system is close to zero, within ±¼ of the division.

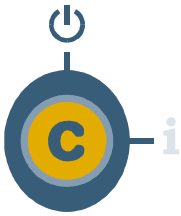
4 Indicates that the weight is unstable.

5 Indicates that the displayed value is a net weight.

6 Indicates the unit of measure in use and that one is in the first weighing range.

7 Indicates the unit of measure in use and that one is in the second weighing range.

8 Indicates that a specific function of the indicator is active.

SCALE KEY	FUNCTION
	- 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. - If pressed for a long time, it allows to enter the MENU of the user (see paragraph 2.3.12.)
	- 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.
	- 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.
	- 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.
	- 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 In the 5-key indicator: - Allows viewing the scale's metric information: capacity, division, minimum weigh for each configured range.

2.3 BASIC FUNCTIONS

2.3.1 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 weights and the relative pilot lights are turned on.

2.3.2 Tare operations

SEMI-AUTOMATIC TARE

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

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 must 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 following keys:

ZERO decreases the blinking digit.
TARE increases the blinking digit.
MODE selects the digit to be modified (blinking); the scrolling of the digits takes place from left to right.
C if pressed for an instant it quickly zeros the present value; if pressed at length it allows to return to weighing without saving the changes made.

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.

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.

LOCKED/UNLOCKED/DISABLED TARE SELECTION

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 may also be 0 before unloading the scale.

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

To set the type of tare:

- Turn on the indicator, press the TARE while the firmware version is displayed (the display shows the "typE" menu).
- Press ZERO many times (to scroll ahead through the parameters) or TARE (to scroll backwards) until one finds the "FModE" parameter.
- 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 "tArE" parameter.
- Press ENTER/PRINT to enter the parameter.
- With the ZERO or TARE keys select the possible options: "LoCK" (locked tare), "unLoCK" (unlocked tare), diSAb (disabled tare).
- Confirm with ENTER/PRINT.
- Press the C key many times until the display shows the message "SAVE?".

Press ENTER/PRINT to confirm the changes made or another key for not saving.

2.3.3 Limitation of the tare functions

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	- 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. - It's possible to cancel the tare value only with an UNLOADED scale

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

2.3.4 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 (the display shows the "typE" menu).
- Press ZERO many times (to scroll ahead through the parameters) or TARE (to scroll backwards) until one finds the "FModE" parameter.
- 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 "En.SAVE" parameter.
- 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.

2.3.5 Low battery warning

The indicator is able to recognize if it is powered by the network or battery.
The charge level of battery is indicated in the weighing phase; the display will indicate the percentage of charge.

NOTES:

- The instrument automatically turns off when the voltage goes below the minimum level.
- It's possible to view the recharge percentile of the battery by pressing the ZERO key upon start-up (see section 2.2.1 POWER SUPPLY - START-UP - OFF").

2.3.6 Remote control

If the model is provided for the remote control, it is possible to remotely use the functionality of the ZERO, TARE, MODE, ENTER/PRINT keys or just the TARE key. To choose which type of functioning follow the below procedure:

- Turn on the scale; press the TARE key while the firmware version is displayed (the display shows the "typE" menu).
- Press ZERO many times (to scroll ahead through the parameters) or TARE (to scroll backwards) until one finds the "FModE" parameter.
- 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 "irConF" parameter.
- Press ENTER/PRINT to enter the parameter.
- With the ZERO or TARE keys select the possible options: "ir no" (disabled remote control), "ir 1" (all the remote control keys function as the TARE key) or "ir 4" (the remote control keys functions as ZERO, TARE, MODE and ENTER/PRINT).
- Confirm with ENTER/PRINT.
- Press the C key many times until the message "SAVE?" appears on the display.
- Press ENTER/PRINT to confirm the changes made or another key to not save.

In the "multifunction" configuration, the remote control keys repeat the keys' functions (both the ones obtained with a SHORT pressing as well as those with a LONG pressing) and they correspond to the following indicator keys:

REMOTE CONTROL KEY	INDICATOR KEY
ZERO	ZERO
TARE	TARE
F1/MODE	MODE
F2/PRINT	ENTER/PRINT

2.3.6.1 Stand-by function

In the "multifunction" configuration, by pressing at length the ZERO key, it's possible to put the instrument in stand-by; by pressing any other key one returns to the weighing mode.

2.3.7 Date/time adjustment (optional)

The indicator can be fitted with the date/time board optional; in this case, the "CLoCK" message is shown when instrument is turned on.

To set the date/time, follow the procedure below:

- Turn on the scale, press the TARE key while the firmware version is displayed (the display shows the "typE" menu).
- Press ZERO many times (to scroll ahead through the parameters) or TARE (to scroll backwards) until one finds the "FModE" parameter.
- Press ENTER/PRINT to enter the menu.
- Press ZERO many times (to scroll forwards through the parameters) or TARE (to scroll backwards) to find the "CLoCK" parameter.
- Confirm with ENTER/PRINT: in this order one will be asked to enter the day, month, year, hour, and minutes. The entry of each parameter must be confirmed with ENTER/PRINT.
- Press the C key many times until the message "SAVE?" appears on the display.
- Press ENTER/PRINT to confirm the changes made or another key to not save.

NOTES

- The "CLoCK" parameter is displayed if there is the date/time option.

2.3.8 "Screen saver" function (optional)

If the indicator is fitted with the date/time function optional, it is possible to enable the "Screen Saver": after a programmable time (from 1 to 255 minutes) with the scale unloaded, the time is shown on the display, in the "HH:MM:SS" format and the clock symbol ( ) is enabled. As soon as a weight variation is detected, or a key is pressed, the indicator returns to viewing the current weight.

To set the function:

- Turn on the scale, press the TARE key while the firmware version is displayed (the display shows the "typE" menu).
- Press ZERO many times (to scroll ahead through the parameters) or TARE (to scroll backwards) until one finds the "FModE" parameter.
- Press ENTER/PRINT to enter the menu.
- Press ZERO many times (to scroll forwards through the parameters) or TARE (to scroll backwards) to find the "SCr.SAV" parameter.
- Press ENTER/PRINT to enter the parameter.
- With the ZERO or TARE key select the possible options: "no" (disabled), "YES" (enabled).
- Confirm with ENTER/PRINT; if one has selected "YES", one is asked to enter the number of minutes after which the indicator should show the time: enter a number between 1 and 255 (using the MODE key to select the digit to be modified and the ZERO/TARE keys to decrease/increase it) and confirm with ENTER/PRINT.
- Press the C key many times until the display shows the message "SAVE?".
- Press ENTER/PRINT to confirm the changes made or another key to not save.

NOTE: the "SCr.SAV" parameter is shown if there is the date/time option.

2.3.9 Printing

If a printer is connected, 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
- date and time (optional)
- a CODE 39 bar code (both with the LP542PLUS labeller as well as the 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.

Executing printouts with NON approved scales.

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

- the weight must be stable;
- the gross weight must be >= 0;
- the printout is always active;

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

- the weight must be stable;
- the net weight must be >= of a division with normal or fast totalisation;
- the net weight must be >= of 10 divisions with automatic totalisation;
- 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 (see 2.3.11 REENABLING OF THE PRINTOUTS AND OF THE INDICATOR FUNCTIONS section).

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 >= 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 (see 2.3.11 REENABLING OF THE PRINTOUTS AND OF THE INDICATOR FUNCTIONS section).

Notes:
- The printing is confirmed by the indication on the display of the "Print" message or “-tot-” in case of totalisation.
- If the printout is not re-enabled the display shows the "no.0.unS" message
- With the weight unstable the display shows the "unStAb" message.
- If the gross or net weight is less than the requested minimum weight, by pressing the ENTER/PRINT key, the display shows the “LoW” error message.
- If the indicator is in under load or over load status, by pressing the ENTER/PRINT key, the display shows the “un.oVEr” error message.

To configure the printouts, go to the 9 PROGRAMMING THE PRINTOUTS” section in the technical manual (**TECH.MAN.REF**.).

2.3.10 Re-enabling 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 re-enabled (in order to avoid unwanted executions).
It is possible to set the re-enabling in different ways: “passage by zero of the net weight”, “weight instability” or “always”. Follow the procedure below:
- Turn on the scale, press the TARE key while the firmware version is displayed (the display shows the “typE” menu).
- Press ZERO many times (to scroll ahead through the parameters) or TARE (to scroll backwards) until one finds the “FModE” parameter.
- 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.

2.3.11 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:

- **With the 5-key indicator** 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.

NOTES:
- The minimum weigh corresponds to 20 net weight divisions.

The data of the second and third range appear only if actually configured

2.3.12 User Menu

During weighing, the electronic crane scale provides access to a menu in which one can configure the following steps:

- **On.Prin**: Turning on the printer (only with printer).
- **L.int**: Backlight intensity of the display or LED display.
- **Um.ConV**: Unit of measure conversion weight.

Prn-On Printer FEED

Premise: the **On-Prin** step appears only if the **SEtuP** >> **SEriAL** >> **CoMPrn** >> **PWrPrn** parameter is configured as "**EXt.oFF**" or "**PWrint**", **TECH.REF.MAN**.).
In a system comprising of an indicator connected to a printer, both powered by the battery, the printer is normally maintained in STAND-BY and fed only when it is printing. This operation is useful in order to reduce energy consumption from the battery when the printer is not used.
If you need to keep powered up the printer, in order to replace the paper or to carry out any other maintenance, you should select the **Prn-on** step in the user menu and press ENTER / PRINT: the screen displays **Prn-on** and the printer is kept powered. Press **C** to return to the weighing stage.

L.int BACKLIGHT INTENSITY OF THE SCREEN OR LED SCREEN

This step configures the intensity of the backlight in the case of the electronic crane scale with LCD display or the LED intensity in the case of electronic crane scale with LED display.

The intensity levels are selectable:

- **Lint 1** (minimum)
- **Lint 2**
- **Lint 3**
- **Lint 4**
- **Lint 5** (highest).

Once the intensity level is selected, press ENTER / PRINT to confirm.
Press **C** to return to the stage of weighing.

UM.CON UNIT OF MEASURE OF THE WEIGHT CONVERSION

Premise: the **Um.Con** step is displayed only if the **F. Mode** >> **Funct** parameter is set as **"Std".**
This step configures the unit of measure that one wants to convert the measured weight value of the electronic crane scale.

The various enterable conversions are:

- **lb:** the conversion of the unit of measure of the scale in pounds and vice versa.
- **n:** the conversion of the unit of measure of the scale in Newton and vice versa.
- **lb n:** the conversion of the scale unit of measure in pounds, Newton's and again in the scale measurement unit (the cyclic conversion order).

Once the intensity level is selected, press ENTER / PRINT to confirm.
Press **C** to return to the weighing stage.

2.4 SELECTABLE OPERATING MODES

In addition to the STANDARD weighing mode - with TARE deduction and transmission of data, the indicator can carry out one of the following functions:
CONVERSION OF UNIT OF MEASURE IN POUNDS / NEWTON / POUNDS AND NEWTON, NET/GROSS SWITCH, SET POINT ON THE GROSS WEIGHT, SET POINT ON THE NET WEIGHT, IN/OUT, ALIBI MEMORY, +/- TOLERANCE CHECK, SAMPLE WEIGHT PERCENTAGE, DISPLAY WITH SENSITIVITY X 10, FREEZING OF THE WEIGHT ON THE DISPLAY, PEAK DETECTOR, HORIZONTAL TOTALIZER, VERTICAL TOTALIZER, PIECE COUNTING.

Each functioning mode foresees the turning on of various function pilot lights, described in detail in the sections 2.2.2 KEYS AND INDICATORS OF THE FRONT PANEL.

To set the operating mode, carry out the following procedures:
- Turn on the scale, press the TARE key while the firmware version is displayed (the display shows the “typE” menu).
- Press ZERO many times (to scroll ahead through the parameters) or TARE (to scroll backwards) until one finds the “FModE” parameter.
- 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 possible options:

Std	Unit of measure / pounds conversion
ntGS	Net weight / gross weight conversion
StPG	Set point on the GROSS weight
StPn	Set point on the NET weight
inout	Input / output weighing
ALibi	Alibi memory
ChECK	+/- Tolerance Check
PErC	Sample weight percentage
UiSS	Sensitivity times ten
hLd	Hold
PEAK	Peak detector
tot o	Horizontal totalizer
tot S	Vertical totalizer
Coun	Counting

- Confirm with ENTER/PRINT; if one has selected the inout, ChECK, PErC., tot o, tot S or Coun mode, one will be asked to select one or more operating parameter; refer to the specific functioning mode section for the relative description.
- The instrument automatically goes to the following step.
- 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.

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)**.

2.4.1 Unit of measure conversion in pounds / Newton / pounds and Newton (Std)

Press the **MODE** button: the conversion is made from the scale unit of measure to the configured measuring unit in the **Um.Con** step in the user menu.

Depending on the parameter set, in the **Um.Con** step, there are the following weight conversion methods:

- **lb**: the conversion from the scale unit of measure into pounds and vice versa.
- **n**: the conversion of the scale unit of measure into Newton and vice versa.
- **lb n**: the conversion of the scale unit of measure into pounds or Newton and again into the scale unit of measure (cyclic order conversion).

NOTES:

- The conversion takes place for any unit of measure set during the calibration.
- With APPROVED instrument the weight in pounds is displayed for 5 seconds, after which the display goes to the scale unit of measure. 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.

2.4.2 Net/gross switch (ntgS)

If a tare is set by pressing the MODE key, for about 3 second interval, the gross weight is displayed.
NOTE: While the gross weight is being viewed it is not possible to print.

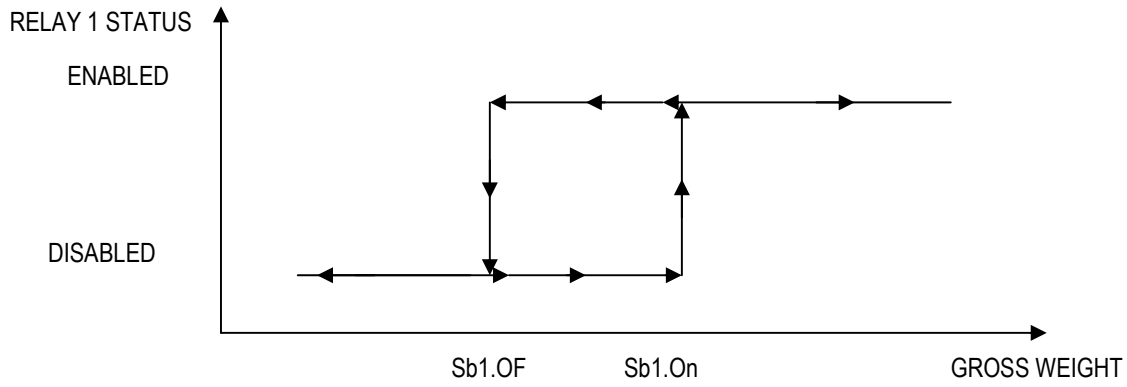
2.4.3 Set point on the gross weight (StPG)

By selecting this functioning mode, in the normal scale status, one enables the function of the relays on the GROSS weight; with the optional boards, it is possible to use up to 4 relays.
In the outPut menu of the SET-UP environment (TECH.MAN.REF.), one sets the functioning mode for each relay used: none, with hysteresis (enabling and disabling set point) without hysteresis (single set point).
Furthermore it is possible to set the status of the relays (normally open or normally closed), or the type of check (direct or weight stability).

MODE WITH HYSTERESIS

One enters two SET POINTS for each relay: a DISABLING one, which, when the gross weight is lower than it, it disables the concerned relay; and an ENABLING one, which, when the gross weight is equal or greater than it, it enables the concerned relay.
By keeping the ENTER/PRINT key pressed for about 3 seconds one enters the DISABLING and ENABLING SET POINT values, only for the configured relays:

- The display shows " S1 oF " (DISABLING relay 1 SET POINT): press ENTER/PRINT to enter the Step.
- Use the MODE key to choose the digit to be increased (BLINKING DIGIT), the scrolling of the digits goes from left to right.
- Decrease or increase the value using the ZERO or TARE keys.
- When finished entering the values, confirm with ENTER/PRINT.
- The display shows “S1 on” (ENABLING relay 1 SET POINT): enter the weight value like in the preceding SET POINT and confirm with ENTER/PRINT.
- With the C key, one quickly zeros the set point value.
- In the same way go ahead with the "Sb2.oF", “Sb2.on”, “Sb3.oF”, “Sb3.on”, “Sb4.oF”, “Sb4.on” (if present).
- Once finished the programming of the set points, one should exit with the C key to return to weighing.



NOTES:

- If the relay functioning mode has not been configured, the prolonged pressure of the ENTER/PRINT key has no effect.
- The DISABLING SET POINT must be equal or less than the ENABLING one;
  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 and the anomaly is indicated through the "ModiFY" message at the exit of the configuration MENU of the SET POINTS.
- If in the ENABLING SET POINT one enters a value lower than the DISABLING one, the instrument does not allow to confirm.
- 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.
- The 0 value is valid for the enabling and the disabling set points and just the set points greater or equal to zero are accepted.
- The check of the weight remains active on the present value even during the modification of the SET POINT, until the new value is confirmed.
- At start-up, the relays are managed from when the weight is displayed and these take on the configuration set in the set-up environment. These are not managed inside the technical set-up.
- The tare operations are active**.**

MODE WITHOUT HYSTERESIS

It is the same as the functioning mode with hysteresis, except that one enters just one SET POINT value (therefore the enabling threshold coincides with the disabling threshold).

2.4.4 Set point on the net weight (StPn)

By selecting this functioning mode, in the normal scale status, one enables the function of the relays on the NET weight; the entry of the SET POINTS and the functioning notes are the same as the gross weight mode.

2.4.5 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 >> if WEIGH 1 = WEIGH 2
  Zero weight with unit of measure
  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 MODE, one acquires the first weight, on the display is shown “ - - 1 - - -“ accompanied by a prolonged beep;
- By pressing again MODE key), 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 section 2.3.11 REENABLING OF THE PRINTOUTS AND THE INDICATOR FUNCTIONS.
- When the second weight is acquired, the data printout is commanded:

It is possible to interrupt the weighing cycle by pressing the ENTER/PRINT 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 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 section 2.3.11 REENABLING OF THE PRINTOUTS AND THE INDICATOR FUNCTIONS.
- The tare operations are DISABLED.

2.4.6 Aliby memory (ALibi) (Optional)

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.

Therefore the weigh relative to an ID may be verified just if:

- it has a rewriting number equal to the current one of the alibi memory and a weighing number equal or less than the last value received with the "PID" command;
- it has a rewriting number equal or greater than zero, but less than 1, in comparison to the current value of the alibi memory, and a weigh number greater than the last value received with the "PID" command.

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 and valid (in other words not in under load nor in overload), if the gross weight is equal or greater than zero and without the TILT alarm (see paragraph 9.6).
The storage of the weigh by pressing a key is possible only if:

- the function is active (net weight passed from 0 or weight instability, or always depending on how the **F.ModE** >> **rEAct** step has been configured in the technical set-up, **TECH.MAN.REF.**)
- the net weight is at least of 20 divisions with approved instrument.

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 **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,LLLLLLLLLLUU,YYTTTTTTTTTTUU,(ID | NO)<STX>.
See the following section "Serial commands" for the string description.

NOTES:

- 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:
- The alibi memory can store up to 131072 weighs; then the rewriting takes place from the beginning.
- 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

Besides the commands described in the 7.4 FORMAT OF THE SERIAL COMMANDS, **TECH.MAN.REF.**, in this functioning mode also the commands below are available:
WEIGH STORAGE

Command
[II]PID<CRLF> or **<ESC>[II]PID<STX>**

[II]PIDD<CRLF> or **<ESC>[II]PIDD<STX>**

in which: [II]: 485 address
<ESC>: 27 ASCII decimal character
<STX>: 2 ascidia decimal character

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

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

Instrument response to the **[II]PIDD<CRLF>** command:
[II]PIDSS,B,LLLLLLLLLLUU,YYTTTTTTTTTTUU,(ID | NO),(dd/mm/yybbhh:mm:ss|"NO DATE TIME")<CRLF>

Instrument response to the **<ESC>[II]PID<STX>** command:
<ESC>[II]PIDSS,B,LLLLLLLLLLUU,YYTTTTTTTTTTUU,(ID | NO),(dd/mm/yybbhh:mm:ss|"NO DATE TIME") <STX>

In which:[II] 485 address (only when transmitting in 485 mode)
SS OL" (weight in overload) or "UL" (weight in underload) or "ST" (stable weight) or "US" (unstable weight) or "TL" (TILT input closed).

B	scale number (always 1)	
LLLLLLLLL:	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	
TTTTTTTTT:	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 t0 131072).
dd/mm/yy	Date in the "dd/mm/yy" format (only with PIDD command).	
bb	2 space characters, 32 decimal ascii character (only with PIDD command).	
hh:mm:ss	Time in the "hh:mm:ss" format (only with PIDD command).	

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.

In the case in which the date/time is not detected or set, the weight is transmitted but not the date and time; “NO DATE TIME” is in its place.

WEIGH READING

Command:

[II]ALRDXXXXX-YYYYYY <CR o CRLF>

In which:
- [II] 485 address (only when transmitting in 485 mode)
- XXXXX rewriting number (from 00000 to 00255)
- YYYYYY weigh number (from 000000 to 131072)

Instrument response:

[II]B,LLLLLLLLLUU,YYTTTTTTTTTTUU<CR o CRLF>

In which:
- [II] 485 address (only when transmitting in 485 mode)
- B scale number (always 1)
- LLLLLLLLL 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
- TTTTTTTTT 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
[II]ALDLNO <CR o CRLF> if the cancellation has not worked
NOTE: During the cancellation, the display shows "WAit" and all the indicator functions are "frozen".

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

2.4.7 +/- Tolerance check (ChECK)
In this functioning mode, the instrument commands the functioning of the SP1, SP2, SP3 and SP4 icons of the LCD display and the functioning of the 4 relays of the 2 expansion boards (optional), on the basis of a freely programmed TARGET WEIGHT, a LOWER TOLERANCE value, an UPPER TOLERANCE value, and an ENABLING threshold.

----------(thrESh)----------(t.Min)----------TARGET WEIGHT----------(t.MAX)----------

It is possible to carry out a check on the gross weight or the net weight: in the TECHNICAL set-up, after the selection of the Check mode, one is asked to select "GroSS" (gross weight) or "nEt" (net weight). The selection of the check type (net or gross), causes the configuration of the relay's relative default parameters.
By setting the threshold for activating the functioning mode, if the weight is under the set threshold, no check on the weight is made; if instead the weight reaches or surpasses the threshold, the check on the tolerances is enabled.

ENTERING THE ACTIVATION THRESHOLD, TARGET AND THE TOLERANCES

- Press the **MODE** key; the instrument first shows "tArGEt"then "000000" or the target previously used. With the keyboard enter the desired target; with **C** one quickly zeros the entered value; by pressing **C** again one cancels the entry and returns to weighing.
- Confirm with **ENTER/PRINT**: the display shows first "t.Min" then "000000" or the T1 lower tolerance previously used. With the keyboard enter the desired lower tolerance; with **C** one quickly zeros the entered value; by pressing **C** again one cancels the entry and returns to weighing.
- Confirm with **ENTER/PRINT**: the display shows first "t.MAX" then "000000" or the T1 upper tolerance previously used. With the keyboard enter the desired upper tolerance; with **C** one quickly zeros the entered value; by pressing **C** again one cancels the entry and returns to weighing.
- Confirm with **ENTER/PRINT**: the display shows first "thrESh" and then "000000" or the enabling threshold used previously. Through the keyboard enter the desired enabling threshold; by pressing **C** one quickly clears the entered value, while by pressing again **C** one cancels the entry and returns to the weighing mode.
- Confirm with **ENTER/PRINT**: the display shows "StorE" for an instant; after this it returns to weighing.

NOTE: If the entered value is wrong (i.e. tolerance value greater than the target or target greater than the scale capacity) the indicator emits a prolonged sound and zeros the entered value; furthermore, if a value different than the scale division is entered, it is rounded off to the nearest minimum division multiple.

PROCEDURE
After having entered the activation threshold, the target and the tolerance values, put the weight on the scale: if the target is greater than 0, the display shows, at regular intervals, if the weight is within the entered tolerances:

Scale	Display View	Enable Relay
Weight < Target - t.Min	-- undEr	reL.b.1
Target - t.Min ≤ Weight ≤ Target + t.MAX	oK	reL.b.2
Weight > Target + t.MAX	-- oVEr	reL.b.3
Weight ≥ thrESh		reL.b.4

TECHNICAL NOTES
- The 0 value is valid for the tolerances and for the activation threshold as well.
- By setting the target at 0 the weight check is disabled.
- If the printer has been configured and a target greater than 0 has been set, the target, tolerances, and check result will be printed.
- The check of the weight is active also during the modification of the target and the tolerances, according to the last confirmed values. The new entered values start working after having been confirmed.
- The 4 relays of the 2 expansion boards (optional) are automatically enabled depending on the mode selection , and may be used to manage external signals which show the operator whether the weight on the scale is INSUFFICIENT, CORRECT, ABUNDANT in comparison to the TARGET WEIGHT. Furthermore it is not possible to set the functioning mode of the relays, but just the status (NO / NC) and the type of check (direct or upon stability).
- It is possible to set the target, the tolerances and the activation threshold through the serial line, see "Serial command format", **TECH.MAN.REF.**
-

2.4.8 Sample weight percentage (3.PErC.)

In this operating mode, the instrument shows on the display the net weight expressed as a percentage, comparing it with a reference weight which has been previously linked to a percentage**.**

When the functioning mode is selected, one is asked to set of:

- **"WAit.t" : sampling interval.**
  Setting of the sampling time (in seconds, with a decimal); greater is the time set and more precise will the sampling being.
  - Set the desired time.
  - Confirm with ENTER/PRINT.
  - Press many times the C key until the display shows the message "SAVE?".

  If the entered value is confirmed, it will substitute the one in the set-up environment.

PROCEDURE

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 MODE.
3) The display suggests a percentage; the possible options are: 100.0, 200.0, 5.0, 10.0, 20.0, 30.0, 40.0, 50.0, 60.0, 75.0.
4) Press "ZERO" or "TARE" several times to reach the desired sample size.
5) Put the reference weight 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 show "SAMPL". After a few instants the display will show the percentage selected put on the platform.
7) Add the quantity to be measured on the scale and the value will appear on the display.
8) By pressing the MODE key one switch from the display of the percentage to the display of the net weight and vice versa.
9) To carry out a new sampling, press at length the MODE key and repeat the operations as describe in point **3).**

"Er.Mot" ERROR DUE TO WEIGHT INSTABILITY DURING THE SAMPLING

It may happen that during the sampling phase the weight is unstable; the "Er.Mot" is shown remaining for about three seconds. One should therefore repeat the sampling operation.

MINIMUM WEIGHT OF THE SAMPLE

It is necessary to use a net weight greater than 0.

PRINTING

If the presence of a printer has been configured, each time ENTER/PRINT is pressed, while either weight or percentage 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
- Percentage quantity on the scale in that moment.

NOTE: *If the sampling has not been made, the quantity percentile is not printed.*

2.4.9 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.
The printout can only be done when the indicator has the standard 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. Furthermore, if the direct sales has been configured in the* ***SEtup*** *>>* ***dSALE*** *parameter,* ***TECH.MAN.REF****, this displaying is possible only with if the capacity is equal or less than 100 kg (220 lb).*

2.4.10 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.

2.4.11 Weight peaks detection (PEaK)
It is possible to use the instrument to store the maximum weight value measured during the weigh (PEAK), useful to measure, for example, the breaking load of the materials.
By pressing the **MODE** key, the peak mode is enabled; on the LED display the maximum weight reached will be displayed, alternated with the message PEAK every 5 sec.
The test terminates by pressing the **MODE** key again or when the weight peak surpasses the maximum capacity of the instrument (for an instant PEAk.oF is displayed and the indicator returns to standard operation)

SETTING SAMPLING TIME
It is possible to set the minimum time period of the peak impulse beyond which the measuring is accepted. This time is set by keeping "ENTER/PRINT" pressed for a few seconds when the indicator is not in the peak mode: the message **-tP-** appears on the display followed by a number which corresponds to the minimum time length of the impulse expressed in hundredths of seconds.
By pressing "ZERO" or "TARE" the following settable values are proposed: 1, 2, 3, 4, 5, 10, 20, 50, 100 and 127; press "ENTER/PRINT" to confirm the desired value, (the indicator will return to weighing). The default value is 2.

TABLE OF OPERATING PARAMETERS IN PEAK MODE

LENGTH	SAMPLINGS PER SECOND	ACQUIRED VALUES	MEDIATED VALUES
1	400	1	1
2	200	1	1
3	100	1	1
4	100	4	2
5	50	4	2
10	25	4	2
20	12	4	2
50	6	4	2
100	6	8	2
127	6	12	2

When enabling the PEAK mode, it's possible that the displayed weight isn't really the one on the scale. Greater the number of samplings per second and greater is the weight that can be shown on the display.
E.g. if 0.000Kg is on the scale and the sampling time is equal to 1, when the PEAK mode is enabled, 0.034Kg could be displayed.

2.4.12 Horizontal totalizer (Sum of lots) (tot 0)

Tot.Mod**: 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 carried out the set weighs, the accumulated general 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 load the weight on the scale and press the MODE key (if the automatic totalisation has not been set): 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 section 2.3.11 REENABLING OF THE PRINTOUTS AND THE INDICATOR FUNCTIONS).
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 re-enabled the totalisation**:
- 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 less or equal to zero, by pressing the **MODE** key the display shows the “LoW” error message.
- If the indicator is in the under load or over load status, by pressing the **MODE** key the display shows the “un.oVEr” error message.

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 PARTIAL TOTAL are 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 GENERAL TOTAL is printed.

2.4.13 Vertical totalizer (Sum 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.
Note: At the end of the totalisation operations, if one wants to view the gross weight on the scale one should press the C key.

2.4.14 Piece 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.

Independently from the unit of measure selected, the APW has always three fixed decimals.

- **"WAit.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 being.
  - 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.

COUNTING PROCEDURE

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 is enabled.
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 **A**verage **P**iece **W**eight (**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.

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.

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

2.5 INDICATOR CONNECTED TO PRINTER, FUNCTIONING BY BATTERY

In a system made up of an indicator connected to a printer in which both are battery powered, the printer, normally in STAND-BY, will be powered only when one prints. When the printing is finished the printer returns to STAND-BY automatically. This functioning is useful to reduce the energy absorbed from the battery when the printer is not used.
In this configuration if one has the need to maintain the printer powered in order to replace the paper and for other operations:

- Press the ZERO key for a few seconds.
- On the display the blinking "onPri" message will appear.
- The printer is now on; carry out the desired operations.
- Press any key to exit.

2.6 INSTRUMENT MESSAGES WHILE IN USE

MESSAGE	DESCRIPTION
ZERO	The scale is zeroing the weight.
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 "unit of measure/pounds conversion" functioning is automatically set, but not saved in the set-up environment.
Er.i.b.X	A function has been linked to input X (from 1 to 4) and this is not present; see the "InPutS" parameter of the set-up environment (**TECH.MAN.REF.).**
Er.r.b.X	In a set point functioning mode the relay X has been set (from 1 to 4) and this is not present; see the "outPut" parameter of the set-up environment (**TECH.MAN.REF).**
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 underload 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	Unstable weight.
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.)
Err.CLK	Communication problems with the date/time of the indicator: check the **F.ModE >> CLoCK** step of the set-up (**TECH.MAN.REF.**).
SEt.CLK	Date/time not set: check the **F.ModE >> CLoCK** step of the set-up (**TECH.MAN.REF.**).
PREC.	It is displayed if one tries to calibrate a point without first having confirmed the number of calibration points
ERPNT	During the acquisition of a calibration point a null value has been read by the converter.
Er – 11	Calibration error: a too small sample weight has been used; it is advisable to use a weight equal to at least half of the scale capacity.
Er – 12	Calibration error: the acquired calibration point (tP1 o tP2 o tP3) is equal to the zero point (tP0).
Er – 37	The number of converter points per scale division is less than two. Carry out again the calibration with special attention to the capacity and the division.
Er – 39	It is displayed when the instrument has not yet been calibrated and initialized. Press the **TARE** key when the instrument displays "ERR – 39" to enter the technical set-up environment. Carry out the initialization of the indicator ("dEFAu" parameter) and the selection of the type of keyboard ("KEYb" parameter) and finally the programming of all the parameters of the set-up environment and the calibration.

2.7 FUNCTIONING

1) Suspend the instrument from the crane it will be used on and press push-button “C” for a few seconds: all segments on the display will light for a few seconds as the MCW conducts a lamp and other self-tests.
2) After the self-tests, press button marked "ZERO," Especially important if the display shows a non-zero value without a load on the scale.
3) If any accessories have been applied to the MCW (connection rings, chains, hooks etc.) it is necessary to press the "TARE" key (or by using the remote control’s TARE button).

NOTES:

- The "TARE" key can be used with any weight applied in the range of its capacity.
- If slings are used to handle the load, make sure that the load is properly balanced and that the slings are positioned properly.

4) When the display indicates “0 ", the instrument is ready for use.
5) Start lifting the load slowly.
6) If the load is greater than the full-scale value (not maximum capacity), the display will show " ‾ ‾ ‾ ‾ ‾ ", which means overload. Unload to avoid any need for recalibration.
7) To switch off the instrument, keep the C key pressed until the – Off – message appears on the display.

DANGER!!

If, during the weighing operations with the crane scale, one views the " ‾ ‾ ‾ ‾ ‾ " (Over Load) message, one should IMMEDIATELY stop the weighing operations and quickly place on the ground the load attached on the crane scale.

3 TECHNICAL INFORMATION

3.1 PACKAGING, TRANSPORT, HANDLING, STORAGE, AND INSTALLATION

3.1.1 Packaging

The equipment is supplied on a standard wooden pallet arranged for the transport of the instrument.

In the packaging of the "MCWHU" instrument, the following material is supplied:

- Sheet metal for transport.
- External power (12Vdc)
- Infrared remote control.
- Instruction manual (CD or paper).
- Certificate of calibration.
- Certificate of internal control of the manufacturer (which serves as a reference for periodic inspections).
- CE Declaration of Conformity.
- REGISTER FOR MAINTENANCE AND WARRANTY.
  Before making the first user verification, make sure that the package contains all the items in the above list and that the material has not been damaged during the transport.

3.1.2 Transport, handling, storage

The transport of electronic crane scale must be made by using its own wooden pallet.
The wooden pallet foresees the lifting through forks in order to ease the transport of the electronic crane scale; this also protects the instrument from knocks and possible falls.
During the transportation, one must take into consideration that the packaging should not be compressed neither from above or from the side from any external bodies.
It is important that the wooden pallet and the electronic crane scale itself are stored in enclosed spaces that meet the environmental conditions mentioned above (see paragraph 1.3.6 ENVIRONMENTAL CONDITIONS).

MODEL	SIZES mm (l x w x h)	WEIGHT
MCWHU10	620X670X120	88 kg
MCWHU15	620X670X120	88 kg
MCWHU25	620X670X120	88 kg
MCWHU35	620X670X120	88 kg

Sizes:
Length (l) x width (w) x height (h)

CAREFUL!!

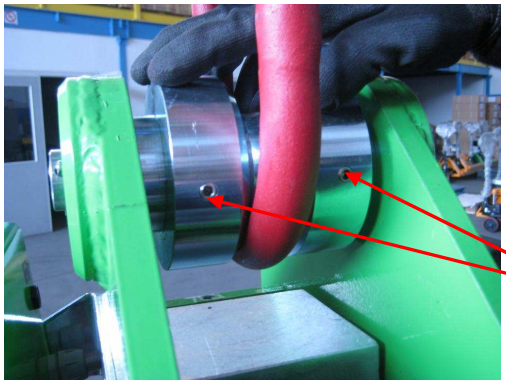
Take care when handling the pallet in order to avoid collisions or falls that could be harmful to humans and / or instrument.
If necessary, execute the procedure for handling with the help of several people or with appropriate aid.

3.1.3 Installation

In the wooden pallet used for the transport of the instrument, all system components are included.
The equipment is not supplied ready to use, so it is necessary to perform some operations to enable the functioning of the machine.
The installation steps are:

- Open the wooden box containing the electronic crane scale.
- Install the "shackle" on top of the load cell.
- Install the "shackle" on the bottom of the load cell.
- Replace the metal used for the transport of the instrument.
- Insert a ring inside the upper pin and place it like in the following figure.

- Attach the spacers of the top pivot using the supplied screws as shown in the figure below.



- Insert the swivel hook inside the lower pivot;
  - Insert the locking pins of the upper and lower pivot and check if they are properly locked.
  - Once all the accessories of the system are installed, check their integrity and proper installation.
  - Do not forget to check the suitability of the crane hook where the crane scale is installed.
  - Connect the system to the crane safety hook, ensuring that the ring rests on the saddle of the crane hook and that the lever is positioned safely.
  - Once the load harnessing is finished, walk away and lift the the crane scale a few centimetres off the floor.
  - The crane scale is supplied with batteries already installed. Then by pressing the **C** button on the front panel, the electronic crane scale can be switched on and used immediately.

3.2 MAINTENANCE AND CHECKS

The electronic crane scale and all lifting accessories must be regularly maintained.
For the prevention of accidents or damages, it is necessary that the maintenance is done according to the manufacturer's instructions. Maintenance must be performed only by persons who have acquired the necessary technical expertise.
To ensure a safe operation, follow these instructions:

- carry out a continuous regular maintenance and cleaning.
- entrust the maintenance and repair operations only to trained and authorized personnel or to the Dini Argeo service dept.
- use only original spare parts.
- do not use the electronic crane scale where there is non-compliance with the safety checklist.
- any maintenance, repair or cleaning should be done with the electronic crane scale turned off.

3.2.1 Daily monitoring

Each time the operator starts a new work cycle with the electronic crane scale, one must:

- check all instrument parts;
- carry out a general visual inspection of the whole system;
- monitor the integrity and efficiency of all the component parts of the system as the safety lever hooks, swivel hook, pins and locking pins, rings etc..

3.2.2 Regular Maintenance

Maintenance should be carried out only by persons who have acquired the necessary technical expertise and are specialized and trained for this purpose.

Every 3 months or, in any case, after 12.500 weighs	- Check all dimensions of the parts which make up the instrument; - Check the wear on the handle or the eyelet, by checking if there are any plastic deformations, mechanical damages(irregular), cracks, corrosion, damage to threaded portions and the twists; - Check the tightness of the splice plate on the hook, and the presence of defects, and ensure its proper functioning; - If other metrological and mechanical irregularities are detected, have the electronic crane scale repaired by qualified personnel (Dini Argeo assistance service). Do not for any reason carry out the repair by yourself. In case of non-compliance turn immediately off the electronic crane scale. All repair operations and the parts used are classified and stored in the maintenance register.
Every 12 months or, in any case, after 50.000 weighs	The extraordinary maintenance of the product should be made by specialized personnel (Dini Argeo assistance service). During this general check, use iron filings in order to ascertain that no cracks are in all parts of the instrument.

It is of utmost importance that all the maintenance and repair operations, and the used pieces are recorded and filed in the appropriate produce maintenance registry.

For further information on regular checks, see the following table:

COMPONENT	PART	CONTROL	LIMIT	REMEDY	SOLUTION
Shackle	Locking bolts	• Loosening		Tightening	In order to replace the damaged parts, contact personally the manufacturer. In case of replacement of the original parts, use only original spare parts.
	Pivot	• Deformation			
	Shackle surface	• Wear • Deformation			
	Split pin	• Positioning		Full insertion of the split pin in the pivot	
Hook	Eyelet and hook surfaces	• Mechanical damages			
	Eyelet and hook	• Wear • Corrosion	Current size > 95% compared to the initial sizes		
	Eyelet	• Orientation of the eyelet	Can not be torque		
	Hook opening	• Deformation	Deformation > 10% of the original sizes		
	Squint Hook	• Tension	Tension > 10°		
	Safety Splice plate	• Damages			
Instrument	Locking screws	• Loosening		Tightening	

3.2.3 Clean

If the electronic crane scale is often used in different places, especially in places with the presence of dust and moisture, it is necessary to have the instrument regularly cleaned.
Clean the keyboard of electronic crane scale with a soft damp cloth with a detergent or a mild detergent solution.

CAUTION!!

Do not use any type of solvent or industrial chemical product while cleaning the instrument and all the system parts.

3.2.4 Replacing the remote control batteries

As mentioned above, the MCWHU electronic crane scale is supplied with a emote control that duplicates the functions of the keyboard. When using the remote control, the battery may die and must be replaced.
To replace the batteries in the remote control, carry out the following steps:

- take out the battery box placed on the back of the remote control;
- replace the old battery with a new one and make sure that it's correctly inserted;
- reinsert the box with the new battery in the remote control.

3.2.5 Electronic crane scale battery: instructions and recharge

As mentioned earlier, the power supply in MCWHU electronic crane scale is provided through a rechargeable 6V- 10 Ah, to be included in the box on the back of the equipment (see section 1.2.1 MAIN COMPONENTS).
In order to prevent problems with the battery, it is recommended to remove the battery from the load cell, if the electronic crane scale is not used for a long time so as not to cause damage to both the battery and the crane scale itself.

CAREFUL!!

Never throw the battery into the fire, will bring them closer to sources of heat can cause explosions and injuries.

The electronic crane scale displays "Low.Bat" when the batteries are about to complete their life cycle. In this case, it is necessary to connect the crane scale to external power (12Vdc) to fully recharge the battery.
In order to recharge the battery, you must:

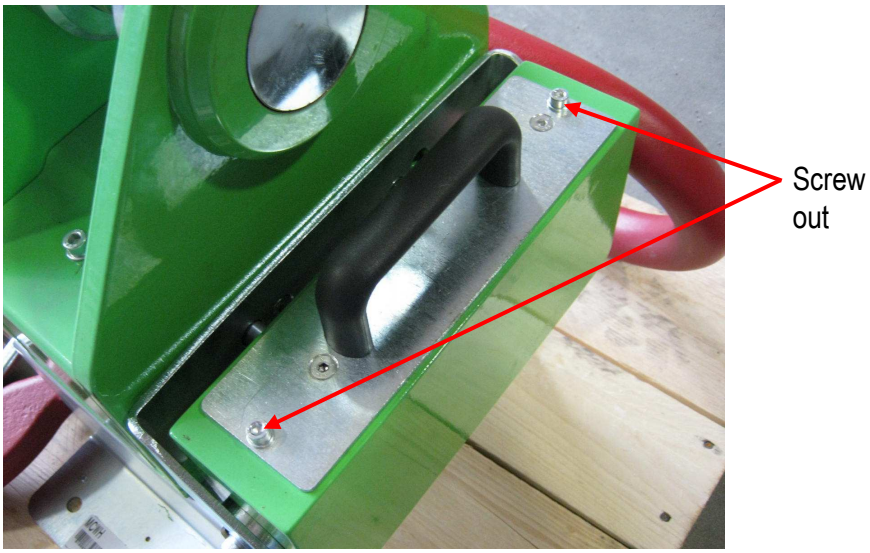
- Remove the rubber cap from the connector on the back of the crane scale;
- Insert the jack of the feeder (12V) in the connector on the back of the instrument;
- Insert the power supply (12V) in the power outlet at 230VAC;

Later, on the indicator front panel lights the LED power-on LED lights.

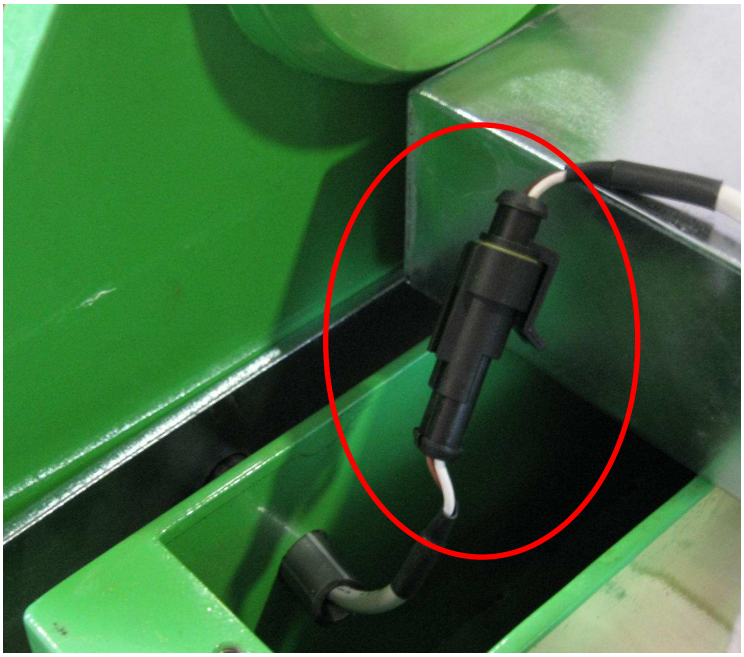
3.2.6 The battery recharge by optional kit

If it is necessary to constantly use the MCWHU crane scale, it is possible to request a kit including a spare battery pack and a charger adapter.
To perform a battery change and development its functions, perform the following steps:

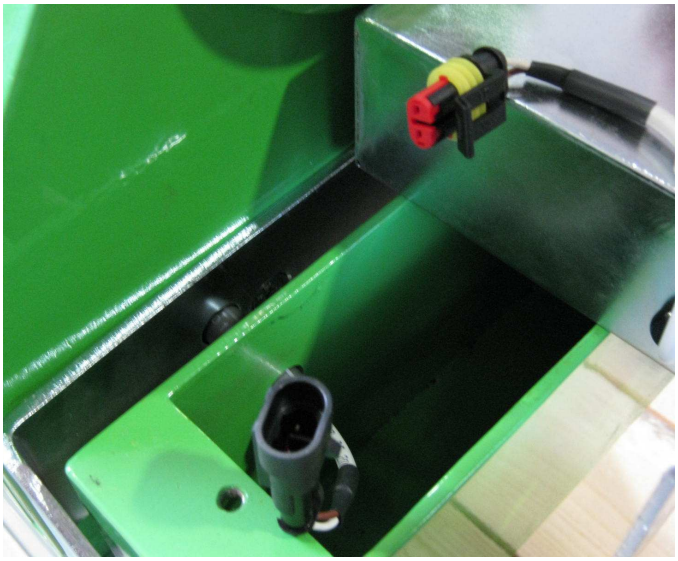
1) Screw off the socket head screws placed on the battery pack (behind the machine).



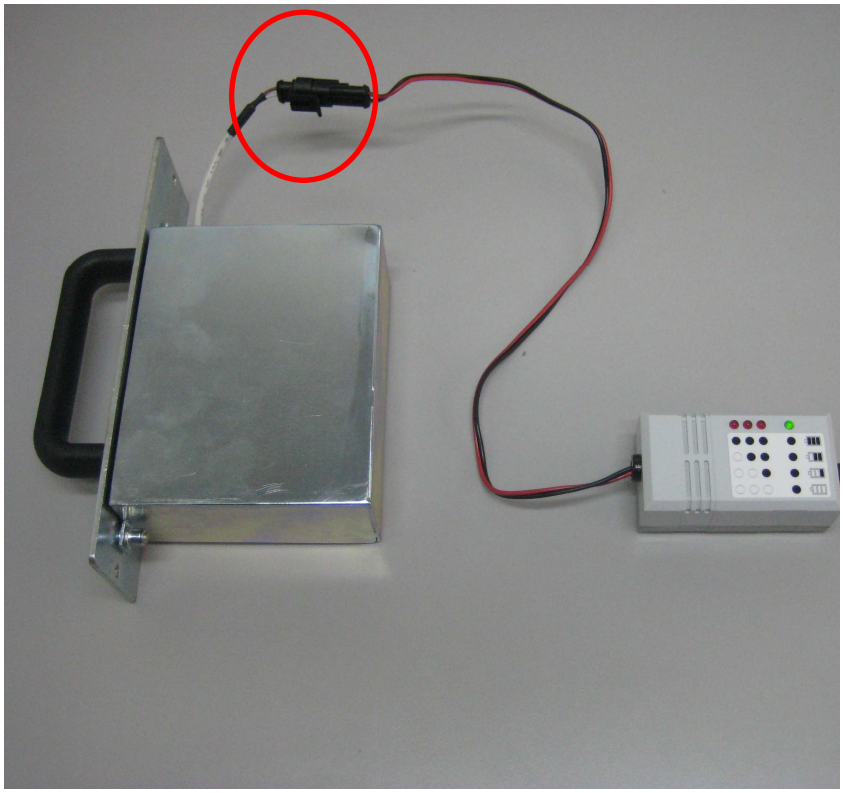
2) Slowly remove the battery pack.
3) The battery pack is internally connected to the electronic card of the instrument through an AMP automotive connector.



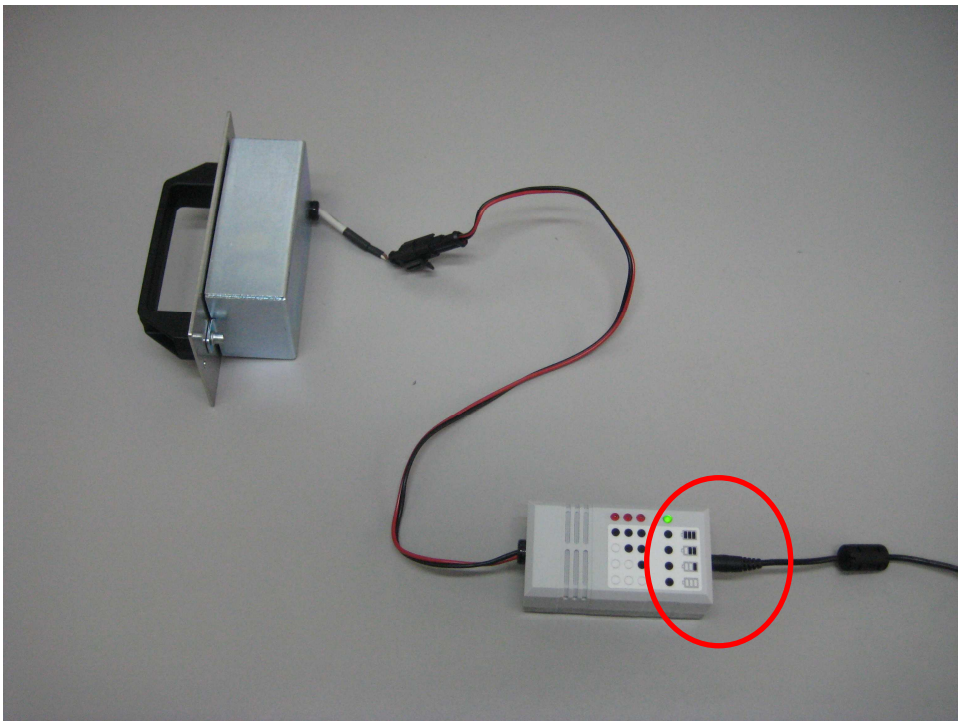
4) Unplug the AMP automotive connector from the battery pack.



5) Connect the charger to the battery pack through the AMP automotive connector.



6) Insert the power supply (12Vdc) to the power outlet at 230Vac and connect it to the charger through the jack.



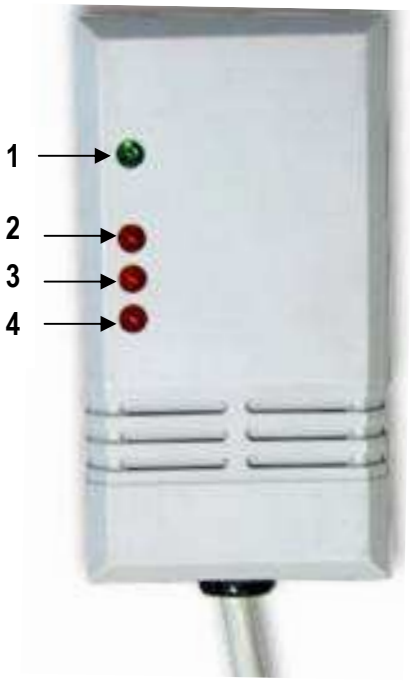
Once the battery is charging, it is possible to connect the spare battery pack to the crane scale.

ATTENZIONE !!

The charging of the battery pack must only be carried out using the power supply (12Vdc) supplied with the instrument.

PHASE OF THE BATTERY RECHARGE BY CHARGER ADAPTER

The charger's led indicate the charge level reached:



LED	DESCRIPTION
1	When lit, it indicates the presence of voltage.
2	When lit, it indicates the presence of the battery; it means that the battery is connected correctly to the charger.
3	When lit, it indicates that the battery is half charged .
4	When lit, it indicates that the battery is fully charged.

Once the full charge reached:
- Disconnect the power supply charger.
- Disconnect the battery charger.

3.3 DECOMMISSIONING AND DISPOSAL

Each consumer should help protect the environment by reducing pollution risks and adopting a responsible attitude, according to the recycling norms in force in the country where the instrument is used.
The symbol of the crossed garbage on the product indicates that, at the end of its useful life, the product must be given to appropriate centres for collection or returned to the distributor when purchasing a new equivalent product.
A proper collection for recycling the product will prevent any negative effects on the environment and health and encourage the recycling of materials.
Therefore, before disposing the product, it is necessary to separate the components of the instrument in each recycling category and place them in the appropriate collection centres.

The unlawful disposal of the product by the user causes the application of the administrative sanctions foreseen by the law.

4 DECLARATION OF CONFORMITY

The two years 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 notattributable 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 in the event that the instrument is returned or if there are damages caused by: unobservance of indications in the manual, interventions by non authorised personnel, and/or non original spare parts, user incapacity and/or improper use, incorrect maintenance, loss or impossibility of presenting the maintenance booklet.

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.