ENGLISH ENGLISH ENGLISH ENGLISH

Installation and User Manual

version 1.00

WINOX-BGE
WTAB-BGE

Graphic weighbridge

CE **2014/30/UE**

EN55022:2010 EN61000-6-2:2005 EN61000-6-4:2007

SYMBOLS

Here are the symbols used in the manual to draw the reader's attention:

Caution! Risk of electric shock.

Caution! This operation must be performed by skilled personnel.

Pay particular attention to the following instructions.

Further information.

WARRANTY

24 months from the date of the delivery note. Warranty covers only failures of defective components (due to construction defects or defects in materials) and includes replacement or repair of the components and related labor costs.
Warranty is automatically forfeited in the event of:
- tampering, deletion, removal of the identification label and/or serial number of the product
- misuse, transformation, alteration, repair of products not carried out by Laumas personnel

Laumas provides a 1-year warranty from the date of the delivery note on defects in material or manufacture of the battery.

GUIDELINES FOR PROPER DISPOSAL

Sealed Lead Acid Battery Must be recycled Properly

This symbol on the product or packaging indicates that:
- This is electrical/electronic equipment and cannot be disposed of as municipal solid waste, but must be delivered to a recycling center
- Improper use or disposal can pollute the environment or damage human health
- Non-compliance with these guidelines will be penalized in accordance with the regulations in force in the country of destination
- It is recommended to dispose of the packing and packaging as required by local regulations

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USER WARNINGS

RECOMMENDATIONS FOR THE PROPER USE OF WEIGHING INSTRUMENT

- Keep away from heat sources and direct sunlight
- Repair the instrument from rain (except special IP versions)
- Do not wash with water jets (except special IP versions)
- Do not dip in water
- Do not spill liquid on the instrument
- Do not use solvents to clean the instrument
- Do not install in areas subject to explosion hazard (except special Atex versions)

RECOMMENDATIONS FOR CORRECT INSTALLATION OF WEIGHING INSTRUMENTS

The terminals indicated on the instrument's wiring diagram to be connected to earth must have the same potential as the weighed structure (same earthing pit or earthing system). If you are unable to ensure this condition, connect with an earthing wire the terminals of the instrument (including the terminal – SUPPLY) to the weighed structure.
The cell cable must be individually led to its panel input and not share a conduit with other cables; connect it directly to the instrument terminal strip without breaking its route with support terminal strips.
Use "RC" filters on the instrument-driven solenoid valve and remote control switch coils.
Avoid inverters in the instrument panel; if inevitable, use special filters for the inverters and separate them with sheet metal partitions.
The panel installer must provide electric protections for the instruments (fuses, door lock switch etc.).
It is advisable to leave the equipment always switched on to prevent the formation of condensation.

MAXIMUM CABLE LENGTHS

- RS485: 1000 metres with AWG24, shielded and twisted cables
- RS232: 15 metres for baud rates up to 19200
- Analog current output: up to 500 metres with 0.5 mm^2 cable
- Analog voltage output: up to 300 metres with 0.5 mm^2 cable

RECOMMENDATIONS FOR CORRECT INSTALLATION OF THE LOAD CELLS

INSTALLING LOAD CELLS: The load cells must be placed on rigid, stable in-line structures; it is important to use the mounting modules for load cells to compensate for misalignment of the support surfaces.

PROTECTION OF THE CELL CABLE: Use water-proof sheaths and joints in order to protect the cables of the cells.

MECHANICAL RESTRAINTS (pipes, etc.): When pipes are present, we recommend the use of hoses and flexible couplings with open mouthpieces with rubber protection; in case of hard pipes, place the pipe support or anchor bracket as far as possible from the weighed structure (at a distance at least 40 times the diameter of the pipe).

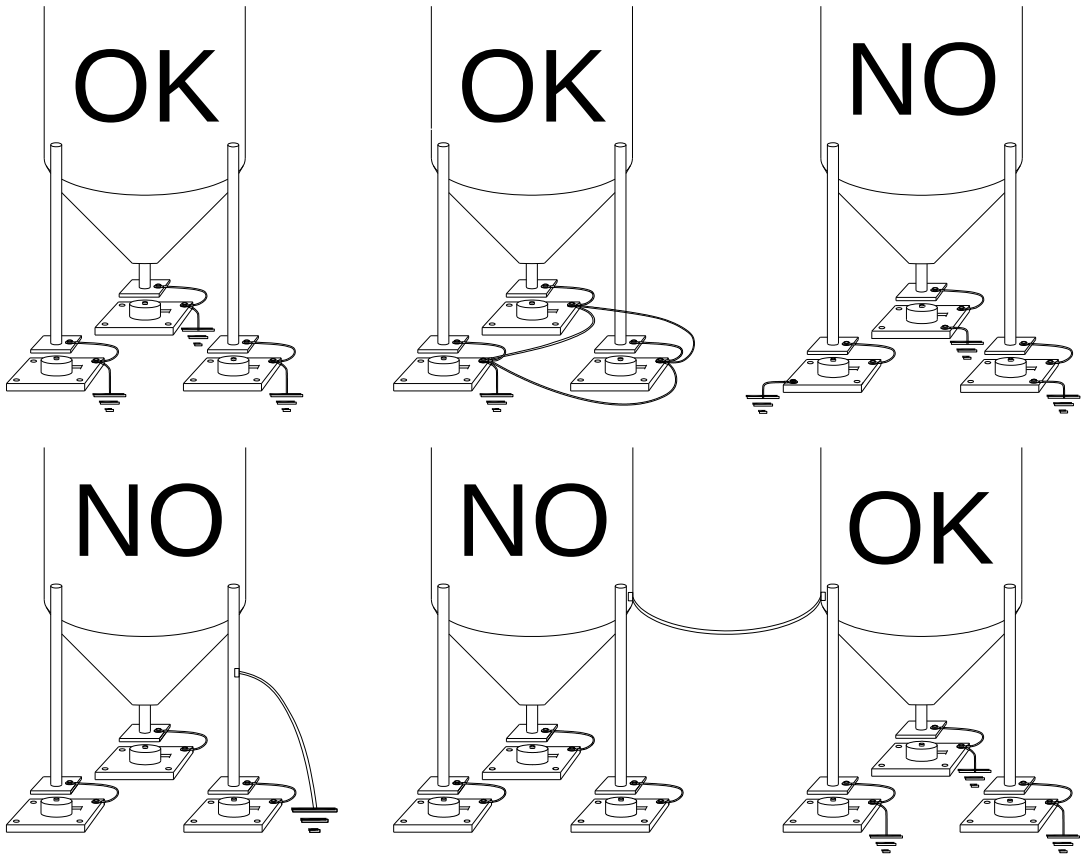
CONNECTING SEVERAL CELLS IN PARALLEL: Connect several cells in parallel by using - if necessary - a watertight junction box with terminal box. The cell connection extension cables must be shielded, led individually into their piping or conduit and laid as far as possible from the power cables (in case of 4-wire connections, use cables with 4x1 mm^2 minimum cross-section).

WELDING: Avoid welding with the load cells already installed. If this cannot be avoided, place the welder ground clamp close to the required welding point to prevent sending current through the load cell body.

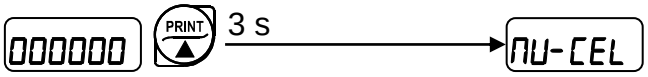
WINDY CONDITIONS - KNOCKS - VIBRATIONS: The use of weigh modules is strongly recommended for all load cells to compensate for misalignment of the support surfaces. The system designer must ensure that the plant is protected against lateral shifting and tipping relating to: shocks and vibration; windy conditions; seismic conditions in the installation setting; stability of the support structure.

EARTHING THE WEIGHED STRUCTURE: By means of a copper wire with suitable cross-section, connect the cell upper support plate with the lower support plate, then connect all the lower plates to a single earthing system. Electrostatic charges accumulated because of the product rubbing against the pipes and the weighed container walls are discharged to the ground without going through or damaging the load cells. Failure to implement a proper earthing system might not affect the operation of the weighing system; this, however, does not rule out the possibility that the cells and connected instrument may become damaged in the future. It is forbidden to ensure earthing system continuity by using metal parts contained in the weighed structure.

FAILURE TO FOLLOW THE INSTALLATION RECOMMENDATIONS WILL BE CONSIDERED A MISUSE OF THE EQUIPMENT



LOAD CELL INPUT TEST (QUICK ACCESS)



From the weight display, press ▲ for 3 seconds; the response signal of the load cells is displayed, expressed in mV with four decimals.

LOAD CELL TESTING

Load cell resistance measurement (use a digital multimeter):

- Disconnect the load cells from the instrument and check that there is no moisture in the cell junction box caused by condensation or water infiltration. If so, drain the system or replace it if necessary.
- The value between the positive signal wire and the negative signal wire must be equal or similar to the one indicated in the load cell data sheet (output resistance).
- The value between the positive excitation wire and the negative excitation wire must be equal or similar to the one indicated in the load cell data sheet (input resistance).
- The insulation value between the shield and any other cell wire and between any other cell wire and the body of the load cell must be higher than 20 Mohm.

Load cell voltage measurement (use a digital multimeter):

- Take out the load cell to be tested from underneath the container, or alternatively, lift the container support.
- Make sure that the excitation of two wires of the load cell connected to the instrument (or amplifier) is 5 VDC ±3%.
- Measure the response signal between the positive and the negative signal wires by directly connecting them to the tester, and make sure that it is comprised between 0 and ±0.5 mV.
- Apply load to the cell and make sure that there is a signal increment.

IF ONE OF THE ABOVE CONDITIONS IS NOT MET, PLEASE CONTACT THE TECHNICAL ASSISTANCE SERVICE.

MAIN SPECIFICATIONS OF THE INSTRUMENT

Indicator with 6-wire load cell input installable on table, panel front, wall or column mounting. STN transmissive graphic LCD display, white on blue, 240x64 pixel resolution, backlit, 133x39 mm viewing area. 52-key membrane keyboard, with buzzer. Real-time clock/calendar with buffer battery. Four serial ports (two RS232 and two RS485) for connection to: PC/PLC up to 32 instruments (max 99 with line repeaters) by ASCII Laumas or ModBus R.T.U. protocol, remote display, printer.
Ethernet TCP/IP port that allows to exchange the weight and the main parameters in an ethernet network, for example with a PC, even via web interface.

The instrument can manage:

- 500 simultaneous vehicles (lorries/trailers);
- 500 simultaneous customers/suppliers;
- 500 simultaneous products;
- 500 simultaneous operators;
- 255 simultaneous open weighings;
- 10000 weighings that can be saved in alibi memory (optional).

The instrument can be connected to a CLM serie intelligent junction box or to a multi-channel weight transmitter.

Dimensions:

WINOX	Type of connectors	Max. encumbrance
	**D** – D-Sub connector (table) IP40 protection rating Front panel IP68 protection rating Power supply included	206x286x85 mm (connectors included)
	Wall installation with bracket (can also be installed on table)	206x286x187 mm approx. (bracket included)

WTAB	Type of connectors	Max. encumbrance
	**D** – D-Sub connector IP40 protection rating Power supply included	315x315x180 mm

BUFFER BATTERY

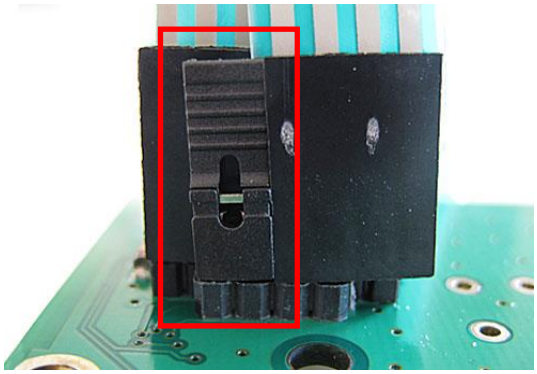
The instrument is equipped with an internal battery that allows to keep active the internal clock even in the event of power failure.

At the first start and after long periods of inactivity, leave the instrument on for at least 12 hours to fully charge the battery.

AFTER A BLACKOUT

After a blackout the instrument DOES NOT come on again automatically, you have to press ON.
To guarantee an automatic restart after a blackout, disable the ON key as follows:

- disconnect power supply and open the instrument;
- identify flat connectors coming from the keypad on the main board;
- extract the 4-pole connector;
- using the unused jumper inside the instrument, short-circuit the two outer pins compared to the main board;
- connect the 4-pole flat to the two pins still free complying with initial orientation.



TECHNICAL SPECIFICATIONS

115/230 VAC power supplier included in the supply.

POWER SUPPLY and CONSUMPTION	12/24 VDC ±10%; 6 W
NO. OF LOAD CELLS IN PARALLEL and SUPPLY	max 8 (350 ohm); 5 VDC / 120 mA
LINEARITY	< 0.01% F.S.
THERMAL DRIFT	< 0.0005% F.S./°C
A/D CONVERTER	24 bit (16000000 points)
MAX DIVISIONS (with measurement range: ±10 mV = sens. 2 mV/V)	±999999
MEASUREMENT RANGE	±39 mV
MAX SENSITIVITY OF USABLE LOAD CELLS	±7 mV/V
MAX CONVERSIONS PER SECOND	300 conversions/second
DISPLAY RANGE	±999999
NO. OF DECIMALS / DISPLAY INCREMENTS	0÷4 / x 1 x 2 x 5 x 10 x 20 x 50 x 100
DIGITAL FILTER / READINGS PER SECOND	0.012÷7 s / 5÷300 Hz
RELAY OUTPUTS	N.5 - max 115 VAC; 150 mA
DIGITAL INPUTS	N.3 - optoisolated 5 - 24 VDC PNP
SERIAL PORTS	2x RS485, 2x RS232
BAUD RATE	2400, 4800, 9600, 19200, 38400, 115200
HUMIDITY (non condensing)	85%
STORAGE TEMPERATURE	-30°C +80°C
WORKING TEMPERATURE	-20°C +60°C

c UL us	RELAY OUTPUTS	N.5 - max 30 VAC, 60 VDC; 150 mA
	WORKING TEMPERATURE	-20°C +50°C
	Equipment to be powered by 12-24 VDC LPS or Class 2 power source.	

ELECTRICAL CONNECTIONS

BASIC INFORMATION

- Connect the metal structure of the weighbridge and the external screw (placed at the rear of the instrument) to the same earthing system to obtain an equipotential connection.
- It is possible to supply up to eight 350 ohm load cells or sixteen 700 ohm load cells.
- For 4-wire load cells, make a jumper between EX- and REF- and between EX+ and REF+.
- Connect terminal "– SUPPLY" to the RS485 common of the connected instruments in the event that these receive alternating current input or that they have an optoisolated RS485.
- In case of an RS485 network with several devices it is recommended to activate the 120 ohm termination resistance on the two devices located at the ends of the network, as described in section **RS485 SERIAL CONNECTION.**

KEY TO CONNECTORS

Connector	Pin	Signal
P1 Power supply		+SUPPLY (12/24 VDC)
		-SUPPLY (12/24 VDC)
D1 Female Load cell	1	-LOAD CELL EXCITATION (-Exc)
	2	-LOAD CELL REF/SENSE
	3	
	4	
	5	LOAD CELL SHIELD
	6	+LOAD CELL EXCITATION (+Exc)
	7	+LOAD CELL REF/SENSE
	8	-LOAD CELL SIGNAL (-Sig)
	9	+LOAD CELL SIGNAL (+Sig)
D3 Male I/O	1	OUTPUT No.1 (max 24 V)
	2	OUTPUT No.2 (max 24 V)
	3	OUTPUT No.3 (max 24 V)
	4	OUTPUT No.4 (max 24 V)
	5	OUTPUT No. 5 (max 24 V)
	6	OUTPUT COMMON (max 24 V)
	7	INPUT No.1 (+VDC min 5 V max 24 V)
	8	INPUT No.2 (+VDC min 5 V max 24 V)
	9	INPUT No. 3 (+VDC min 5 V max 24 V)
	10	INPUT COMMON (-VDC 0 V)
	11	
	12	
	13	
	14	
	15	

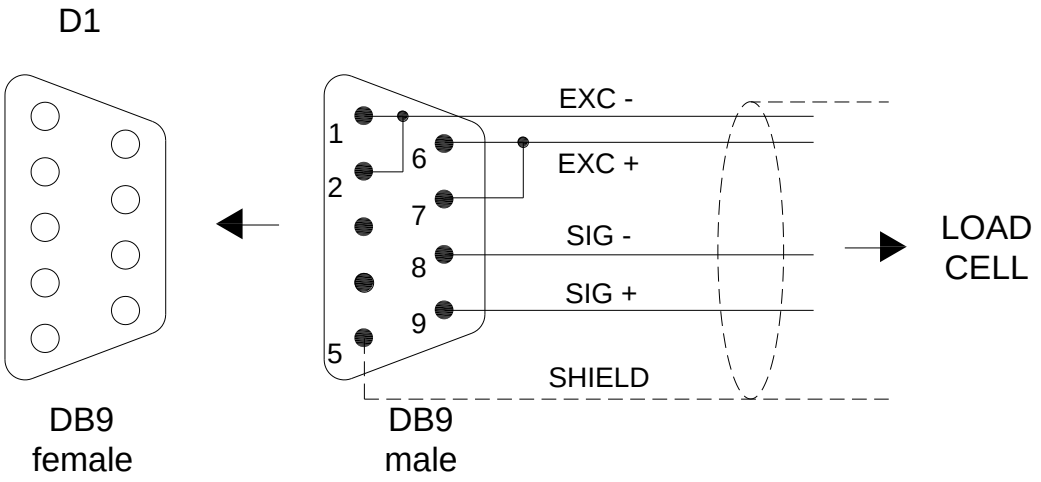
D4 Male RS232 serial port	1	
	2	RS232: RXD
	3	RS232: TXD
	4	
	5	RS232: SHIELD, GND
	6	
	7	
	8	
	9	
D5 Male RS485 serial port with 24 VDC output	1	+OUTPUT (24 VDC)*
	2	-OUTPUT (24 VDC)*
	3	
	4	RS485: +
	5	RS485: SHIELD, GND
	6	RS485: -
	7	RS485: -
	8	
	9	RS485: +
D6 Male RS232B serial port	1	
	2	RS232: RXD
	3	RS232: TXD
	4	
	5	RS232: SHIELD, GND
	6	
	7	
	8	
	9	
D7 Male RS485B serial port with 24 VDC output	1	+OUTPUT (24 VDC)*
	2	-OUTPUT (24 VDC)*
	3	
	4	RS485: +
	5	RS485: SHIELD, GND
	6	RS485: -
	7	RS485: -
	8	
	9	RS485: +

*) Not available if the instrument is battery powered.
Use only if the instrument is connected to the provided 24 VDC power supply.
Total load: 5 W (D5 load + D7 load).

If the integrated printer is available, port RS485 (D5) is not available.

CONNECTION TO 4-WIRE LOAD CELLS

For 4-wire cells it is necessary to connect D1.1 with D1.2 and D1.6 with D1.7.



KEY AND SYMBOLS FUNCTIONS

KEYS

KEY	Short press	Long press (3 s)	Into menus
ON OFF	Power-on	Power-off	
→0← ESC	Semi-automatic zero	Tare resetting	Cancel or return to previous menu
TARE ◀	Gross → Net	Net → Gross	Select figure to be modified
PTARE ▶	Setting preset tare		Select figure to be modified
PRINT ▲	Print menu	mV load cell test	Modify selected figure or go to previous menu item
DB ▼	Database menu		Modify selected figure or go to next menu item
MENU Enter	Setting setpoint and hysteresis		Confirm or enter in submenu
F1 F2	Context-sensitive function keys: see corresponding symbol on display		Context-sensitive function keys: see corresponding symbol on display
MENU Enter + →0← ESC	Setting general parameters (press MENU Enter immediately followed by →0← ESC)		
IN	Lorry entrance		
OUT	Lorry exit		

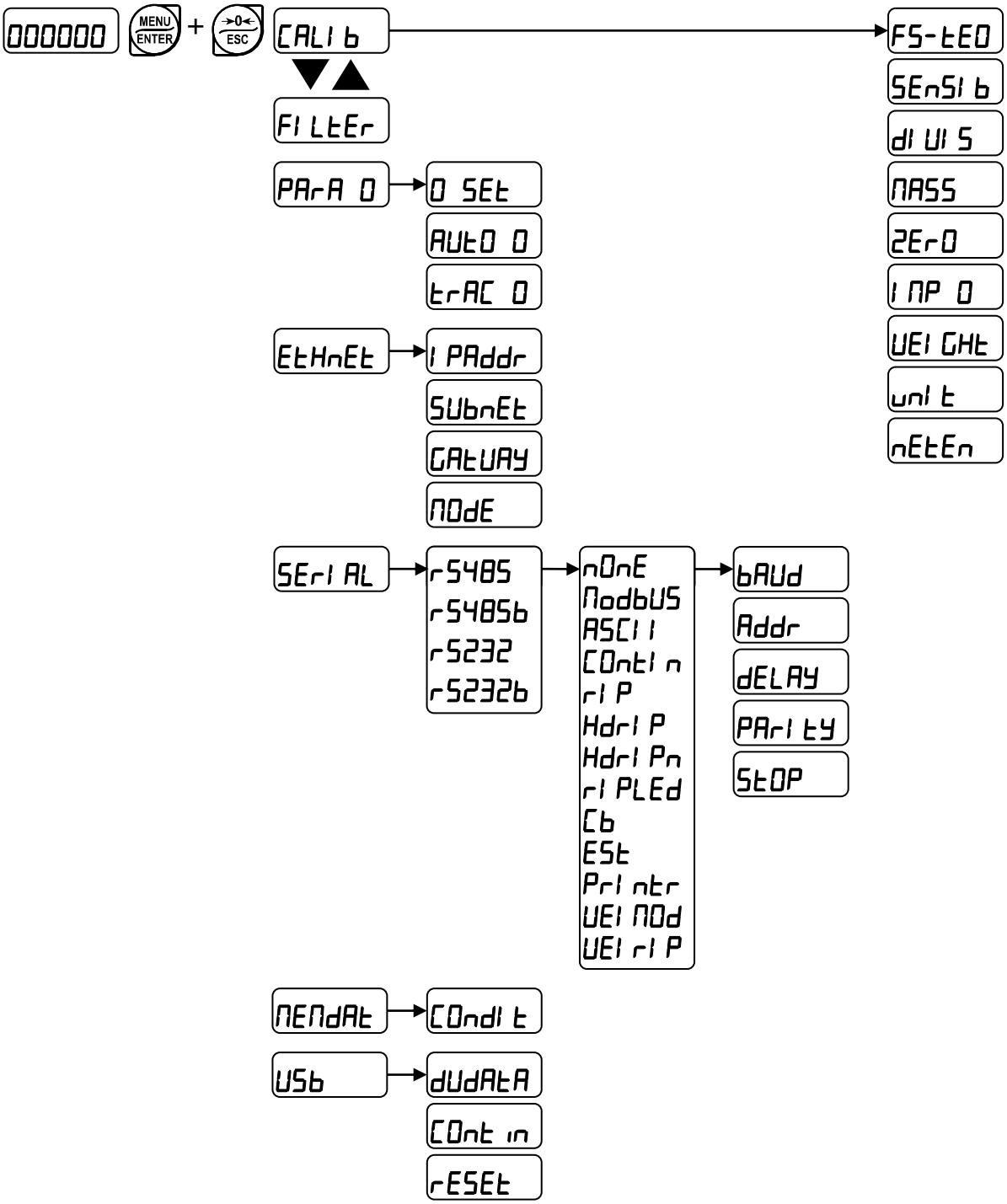
SYMBOLS

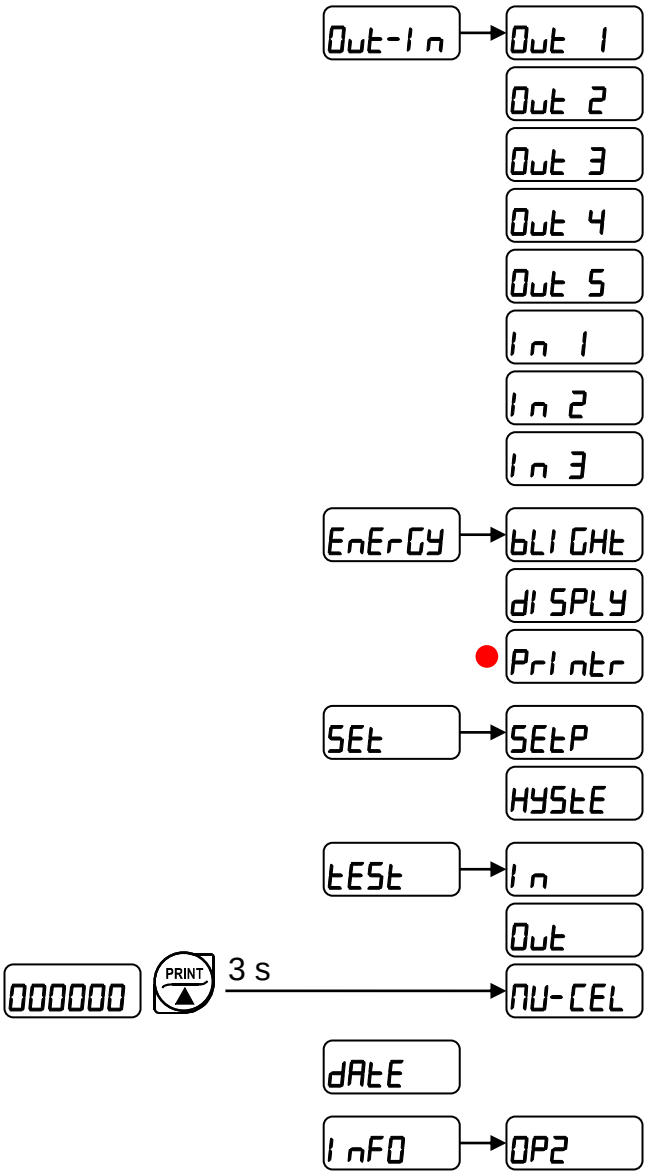
SYMBOL	Function
POWER LED	power supply available
NET	net weight (semi-automatic tare or preset tare)
→0←	zero (deviation from zero not more than +/-0.25 divisions)
	stability

MENU MAP

Into menus changes are applied right after pressing the ENTER key (no further confirmation is required).

SYSTEM PARAMETERS




Out-In
Out 1
Out 2
Out 3
Out 4
Out 5
In 1
In 2
In 3
EnErGY
bLIGHt
dISPLY
PrIntr
SEt
SEtP
HYStE
tESt
In
Out
000000
PRINT
3 s
nU-CEL
dAtE
InFO
OP2

● WTAB only

INSTRUMENT COMMISSIONING

To turn on the instrument press ON. To turn it off press OFF for about 3 seconds: when *OFF* appears release the key.
After a blackout the instrument DOES NOT come on again automatically, you have to press ON.
To guarantee an automatic restart after a blackout, disable the ON key (see section **AFTER A BLACKOUT**).

Upon switch-on, the display shows in sequence:
- *111111* → *999999* (ONLY in case of approved program);
- instrument model (e.g.: *UI nH* o *UtAb*);
- *SU* followed by the software code (e.g.: *SU 5*);
- program type: *br1 dGE* (bridge);
- *r* followed by the software version (e.g.: *r 1.00.00*);
- *HU* followed by the hardware code (e.g.: *HU 238*);
- serial number (e.g.: *13000 1*);

Check that the display shows the weight and that when loading the load cells there is an increase in weight. If there is not check and verify the connections and correct positioning of the load cells.

- **If the instrument has already been theoretical CALIBRATED** (plant system identification tag present on the instrument and on the cover: load cell's rated data already entered):
  - Reset to zero (see section **TARE WEIGHT ZERO SETTING**).
  - Check the calibration with sample weights and correct the indicated weight if necessary (see section **REAL CALIBRATION (WITH SAMPLE WEIGHTS)**).

- **If the instrument HAS NOT BEEN CALIBRATED** (missing plant system identification tag) proceed with calibration:
  - If load cells data are unknown, follow the procedure in section **REAL CALIBRATION (WITH SAMPLE WEIGHTS).**
  - Enter the rated data of load cells following the procedure given in section **THEORETICAL CALIBRATION.**
  - Reset to zero (see section **TARE WEIGHT ZERO SETTING**).
  - Check the calibration with sample weights and correct the indicated weight if necessary (see section **REAL CALIBRATION (WITH SAMPLE WEIGHTS)**).

- Select the printer model used (see section **SERIAL COMMUNICATION SETTING**).
- Set instrument's clock with current date and time (see section **DATE AND TIME SETTING**).

LCD GRAPHIC DISPLAY

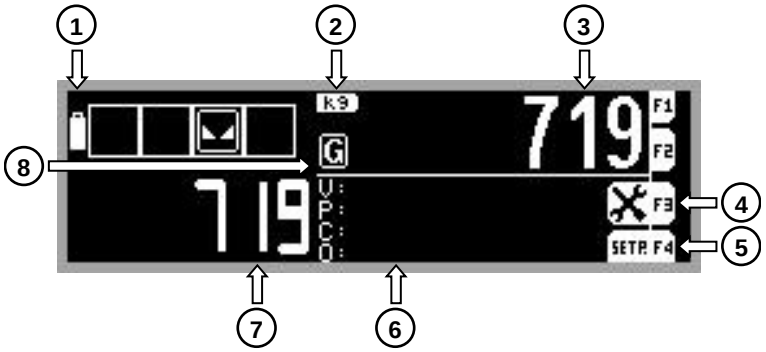
BASIC INFORMATION

Upon switch-on, the instrument shows system information on display:

1) Instrument model
2) Software code
3) Programm type
4) Software version
5) Hardware code
6) Instrument serial number

These information are required to request technical assistance.

As the start-up sequence is completed, if no error occurs, the instrument shows the main screen:



1) Battery charge level (optional)
2) Unit of measure
3) Gross weight value
4) Display configuration menu
5) Setpoint view
6) Active database item
7) Net weight value
8) Gross weight symbol

Alternative view: press the F1 key to display the net weight value enlarged. Press F1 again to return to the standard view.

Setpoint view: hold down the SETP. function key to show the setpoint screen; release it to return to previous screen.

SETPOINT VIEW

From gross weight displaying, hold down the SETP function key to show the setpoint screen:

1) Unit of measure
2) Gross weight symbol
3) Setpoint status and value
4) Gross weight value

Setpoint status and value: if weight exceeds setpoint value the ◘, symbol is displayed, otherwise the ◘ symbol is displayed.

GENERAL SETTINGS

From the main screen press the ✕ function key to enter the LCD display configuration menu:

1) Selected menu item
2) Select the previous menu item
3) Confirm the selection
4) Return to the previous menu
5) Select the next menu item

Within this menu, the following keys can also be used: ▲, ▼, ENTER e ESC.

- LANGUAGE ..... change of software language
- CONTRAST ..... display contrast adjustment
- DATABASE ..... database management (see section **DATABASE**)
- DELETE TABLES ..... database tables deletion
- PROGR. PRINTOUTS .... display, change and deletion of printouts progressive
- HEADER..... change of printouts header
- FOOTER..... change of printouts footer

LANGUAGE SETTING

The instrument supports several languages, select the desired one as follows:

> LANGUAGE

- ITALIANO..... (default)
- ENGLISH
- FRANÇAIS
- ESPAÑOL
- JOLLY

"JOLLY" language: allows to customize the text of messages; it can also be loaded onto the instrument (via PC) specific character sets to write messages in other languages.
Selecting the JOLLY language another submenu appears:

> MSG JOLLY

- EDIT MSG..... (edit messages)
- RESET MSG..... (restore messages to their default values in english)

CUSTOMIZING MESSAGES OF DISPLAY

The instrument allows to edit all messages in the following way:

> MSG JOLLY > EDIT MSG

Select the message to edit, the following screen appears:

1) Selected character
2) Select the previous character
3) Delete the selected character
4) Confirm the changes
5) Select the next character
6) Selected symbol
7) Symbols selection area
8) Message box

Within this menu, the extended keyboard can also be used.

Symbols selection area: move cursor within the symbols selection area using the following keys:

- ▲ or ▼ to move vertically
- ◀ or ▶ to move horizontally
- ENTER to confirm selected symbol and go to next character
- ESC to cancel changes and return to previous screen

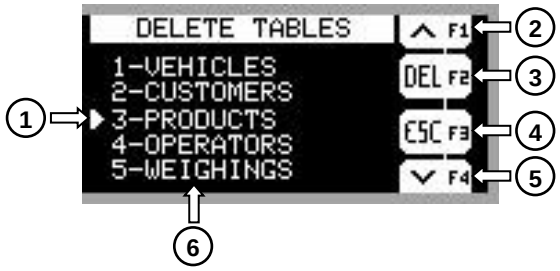
Selected character: the character currently being edited is indicated by the blinking cursor inside the message box;

Selected symbol: the currently selected symbol is indicated by the blinking cursor inside the symbols selection area.

TABLES DELETION

The database tables can be reset as follows:

> DELETE TABLES



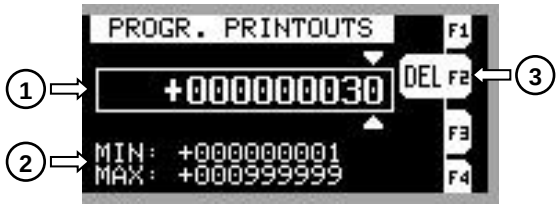
1) Selected table
2) Select the previous table
3) Reset the selected table
4) Return to the main menu
5) Select the next table
6) List of database tables

Within this menu, the following keys can also be used: ▲, ▼, ENTER e ESC.

PRINTOUTS PROGRESSIVE

The printouts progressive can be reset as follows:

> PROGR. PRINTOUTS



1) Current value
2) Range of valid values
3) Reset the printouts progressive

To change the printouts progressive use ▲ and ▼ keys; confirm with ENTER or press ESC to cancel and return to the main menu.

HEADER AND FOOTER

The printouts header and footer can be customized as follows:

> HEADER > LINE 1 / LINE 2 / LINE 3 / LINE 4

> FOOTER > LINE 1 / LINE 2 / LINE 3

Select the message to edit, the following screen appears:

1) Selected character
2) Select the previous character
3) Delete the selected character
4) Confirm the changes
5) Select the next character
6) Selected symbol
7) Symbols selection area
8) Message box

Within this menu, the extended keyboard can also be used.

Symbols selection area: move cursor within the symbols selection area using the following keys:

- ▲ or ▼ to move vertically
- ◀ or ▶ to move horizontally
- ENTER to confirm selected symbol and go to next character
- ESC to cancel changes and return to previous screen

Selected character: the character currently being edited is indicated by the blinking cursor inside the message box;

Selected symbol: the currently selected symbol is indicated by the blinking cursor inside the symbols selection area.

PROGRAMMING OF SYSTEM PARAMETERS

From the weight display, press simultaneously keys MENU and ESC to access the parameter setting.

MENU/ENTER: to enter a menu/confirm the data entry.
▲ ▼: to modify the displayed figure or menu item.
◀ ▶: to select a new figure.
ESC: to cancel and return to the previous menu.

THEORETICAL CALIBRATION

000000 (MENU/ENTER) + (→0←/ESC) CALIb (MENU/ENTER) FS-tEO (MENU/ENTER) SEnSIb (MENU/ENTER) dIVIS

This function allows the load cell rated values to be set.

To perform the theoretical calibration set the following parameters in sequence:

- FS-tEO (Default: dEMo)**:** The **system full scale** is given by one cell capacity multiplied by the number of cells used. Example: 4 cells of 1000 kg → FULL SCALE = 1000 x 4 = 4000. The instrument is supplied with a theoretical full scale value dEMO corresponding to 10000. To restore factory values, set 0 as full scale.
- SEnSIb (Default: 2.00000 mV/V): **Sensitivity** is a load cell rated parameter expressed in mV/V. Set the average sensitivity value indicated on the load cells. It's possible to set a value between 0.50000 and 7.00000 mV/V. Example of 4-cell system with sensitivity: 2.00100, 2.00150, 2.00200, 2.00250; enter 2.00175, calculated as (2.00100 + 2.00150 + 2.00200 + 2.00250) / 4.
- dIVIS**:** The **division** (resolution) is the minimum weight increment value which can be displayed. It is automatically calculated by the system according to the performed calibration, so that it is equal to 1/10000 of full scale. It can be changed and be variable between 0.0001 and 100 with x1 x2 x5 x10 increments.

- By modifying the theoretical full scale or the sensitivity, the real calibration is cancelled and the theoretical calibration only is considered valid.
- If the theoretical full scale and the recalculated full scale in real calibration (see section **REAL CALIBRATION (WITH SAMPLE WEIGHTS)**) are equal, this means that the calibration currently in use is theoretical; if they are different, the calibration in use is the real calibration based on sample weights.
- By modifying the theoretical full scale or the divisions, all the system's parameters containing a weight value will be set to default values (setpoint, hysteresis, etc.).

MAXIMUM CAPACITY

000000 (MENU/ENTER) + (→0←/ESC) CALIb (MENU/ENTER) FS-tEO ▼ ▲ MASS

MASS: Maximum displayable weight (from 0 to max full scale; default: 0). When the weight exceeds this value by 9 divisions, the display shows ------. To disable this function, set 0.

TARE WEIGHT ZERO SETTING

000000 (MENU/ENTER) + (→0←/ESC) CALIb (MENU/ENTER) FS-tEO ▼ ▲ ZEr0

This menu may also be accessed directly from the weight display, holding down the →0← key for 3 seconds.

Perform this procedure after having set the THEORETICAL CALIBRATION data.

Use this function to set to zero the weight of the empty system after commissioning and then later on to compensate zero variations due to the presence of product residues.
Procedure:

- Confirm the message ZEr0 by pressing ENTER.
- The weight value to be set to zero is displayed. In this phase all of the symbols are flashing.
- Confirming once again, the weight is set to zero (the value is stored to the permanent memory).
- Press ▲ to display the value of the total weight reset by the instrument, given by the sum of all of the previous zero settings.

ZERO VALUE MANUAL ENTRY

000000 (MENU/ENTER) + (→0←/ESC) CALIb (MENU/ENTER) FS-tEO ▼ ▲ INP 0

WARNING: Perform this procedure only if it's not possible to reset the weighed structure tare, for example because it contains product that cannot be unloaded.

Set in this parameter the estimated zero value (from 0 to max 999999; default: 0).

REAL CALIBRATION (WITH SAMPLE WEIGHTS)

000000 MENU/ENTER + →0← ESC CALIb MENU/ENTER FS-tEO ▼ ▲ UEIGHt

After having performed the THEORETICAL CALIBRATION and TARE WEIGHT ZERO SETTING, this function allows correct calibration to be done using sample weights of known value and, if necessary, any deviations of the indicated value from the correct value to be corrected.

Load onto the weighing system a sample weight, which must be **at least 50%** of the maximum quantity to be weighed.
By confirming the message UEIGHt the flashing value of the weight currently on the system is displayed. In this phase all of the symbols are off. Adjust the value on display by using the arrow keys if necessary. After confirming, the new set weight will appear with all the symbols flashing.
After an additional confirmation, the message UEIGHt will be restored and by repeatedly pressing the key ESC the weight will once again be displayed.

Example: for a system of maximum capacity 1000 kg and 1 kg division, two sample weights are available, one of 500 kg and the other one of 300 kg. Load both weights onto the system and correct the indicated weight to 800. Now remove the 300 kg weight, the system must show 500; remove the 500 kg weight too; the system must read zero. If this does not happen, it means that there is a mechanical problem affecting the system linearity.

WARNING: identify and correct any mechanical problems before repeating the procedure.

- If theoretical full scale and recalculated full scale in real calibration are equal, it means that the theoretical calibration is currently in use; otherwise, the real calibration based on sample weights is in use.
- If the correction made changes the previous full scale for more than 20%, all the parameters with settable weight values are reset to default values.

LINEARISATION OPTION ON MAX 5 POINTS:
It is possible to perform a linearisation of the weight repeating the above-described procedure up to a maximum of five points, using five different sample weights. The procedure ends by pressing the ESC button or after entering the fifth value; at this point it will no longer be possible to change the calibration value, but only to perform a new real calibration. To perform a new calibration, should return to the weight display and then re-entering into the calibration menu.
By pressing ▲ after having confirmed the sample weight that has been set, the full scale appears, recalculated according to the value of the maximum sample weight entered and making reference to the cell sensitivity set in the theoretical calibration (SEnSIb).

FILTER ON THE WEIGHT

000000 (MENU ENTER) + (→0← ESC) CALIb ▼ ▲ FILtEr

Setting this parameter allows a stable weight display to be obtained.
To increase the effect (weight more stable) increase the value (from 0 to 9, default 4).
As seen in the diagram:

- By confirming the FILtEr message, the currently programmed filter value is displayed.
- By changing and confirming the value, the weight is displayed and it will be possible to experimentally verify its stability.
- If stability is not satisfactory, confirming brings back the message FILtEr and the filter may be modified again until an optimum result is achieved.

The filter enables to stabilise a weight as long as its variations are smaller than the corresponding "response time". It is necessary to set this filter according to the type of application and to the full scale value set.

FILTER VALUE	Response times [ms]	Display and serial port refresh frequency [Hz]
0	12	300
1	150	100
2	260	50
3	425	25
4 (default)	850	12.5
5	1700	12.5
6	2500	12.5
7	4000	10
8	6000	10
9	7000	5

ANTI PEAK

When the weight is stable, the anti peak filter removes any sudden disturbances with a maximum duration of 1 second. Confirm the filter on the weight with ENTER and select one of the following options:

- AntPOn: anti peak filter enabled (default);
- AntPOF: anti peak filter disabled.

000000 MENU ENTER + →0← ESC CALIb ▼ ▲ PArA 0

RESETTABLE WEIGHT SETTING FOR SMALL WEIGHT CHANGES

0 SEt (from 0 to max full scale; default: 300; considered decimals: 300 – 30.0 – 3.00 – 0.300): this parameter indicates the maximum weight value resettable by external contact, keypad or serial protocol.

AUTOMATIC ZERO SETTING AT POWER-ON

AUt0 0 (from 0 to max 20% of full scale; default: 0): If at switch-on the weight value is lower than the value set in this parameter and does not exceed the 0 SEt value, the weight is reset. To disable this function, set 0.

ZERO TRACKING

trAC 0 (from 1 to 5, default: nOnE): When the weight value is stable and, after a second, it deviates from zero by a figure in divisions smaller or equal to the figure in divisions set in this parameter, the weight is set to zero. To disable this function, set nOnE.

Example: if the parameter dIVI5 is set to 5 and trAC 0 is set to 2, the weight will be automatically set to zero for variations smaller than or equal to 10 (dIVI5 x trAC 0).

SETTING UNITS OF MEASURE

000000 MENU/ENTER + →0← ESC CALIb MENU/ENTER FS-tEO ▼ ▲ unit

These are the available units of measure:

HI LOG: kilograms
G: grams
t: tons
Lb: pounds
nEUtOn: newtons
LI trE: litres
bAr: bars
AtM: atmospheres
PI ECE: pieces
nEU-M: newton metres
HI LO-M: kilogram metres
OtHEr: other generic units of measure not included in the list

If the print function is enabled, the symbol corresponding to the selected unit of measure will be printed after the measured value.

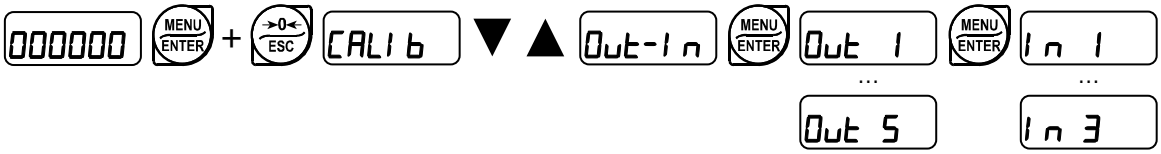
NET FUNCTIONS

000000 MENU/ENTER + →0← ESC CALIb MENU/ENTER FS-tEO ▼ ▲ nEtEn

Enables or disables the semiautomatic tare and preset tare functions:

EnAbLE: net functions enabled (default).
dI SAbL: net functions disabled.

OUTPUTS AND INPUTS CONFIGURATION



OUTPUTS

The outputs are set by default as follows:

- OUT1: OPEn / GrEEn.
- OUT2: OPEn / rEd.
- OUT3, 4, 5: OPEn / SEt / GrOSS / POSnEG / OFF.

Possible operation modes:

- OPEn **(normally open)**: the relay is de-energised and the contact is open when the weight is lower than the programmed setpoint value; it closes when the weight is higher than or equal to the programmed setpoint value.
- CLOSE **(normally closed)**: the relay is energised and the contact is closed when the weight is lower than the programmed setpoint value; it opens when the weight is higher than or equal to the programmed setpoint value.

- SEt: the contact will switch on the basis of weight, according to setpoint (see section **SETPOINT PROGRAMMING**).
- PLC: the contact will not switch on the basis of weight, but is controlled by remote protocol commands.
- StAbLE: relay switching occurs when the weight is stable.
- GrEEn: (OUT 1 only): connect to the green light of the signal station.
- rEd: (OUT2 only): connect to the red light of the signal station.

If the operation mode SEt is selected and the net functions are enabled, the following options are also active:

- GrOSS: the contact will switch on the basis of gross weight.
- nEt: the contact will switch on the basis of net weight (If the net function is not active, the contact will switch on the basis of gross weight).

If net functions are disabled (see section **NET FUNCTIONS**), by selecting SEt the operating mode GrOSS will be activated.

- POSnEG: relay switching occurs for both positive and negative weight values.
- POS: relay switching occurs for positive weight values only.
- nEG: relay switching occurs for negative weight values only.

By confirming with ENTER the setpoint operation can be set to the value 0:

- OFF: relay switching will not occur if the setpoint value is 0.
- On:
    - setpoint = 0 and switching = POSnEG: relay switching occurs when the weight is 0; the relay will switch again when the weight is different from zero, taking hysteresis into account (both for positive and for negative weights).
    - setpoint = 0 and switching = POS: relay switching occurs for a weight higher than or equal to 0, the relay will switch again for values below 0, taking hysteresis into account.
    - setpoint = 0 and switching = nEG: relay switching occurs for a weight lower than or equal to 0, the relay will switch again for values above 0, taking hysteresis into account.

INPUTS

Default: input 1 = HEY In input 2 = HEYOUt input 3 = Printr

Possible operation modes:

- nE-LO (NET/GROSS): by closing this input for no more than one second, it's making an operation of SEMI-AUTOMATIC TARE and the display will show the net weight. To display the gross weight again, hold the NET/GROSS input closed for 3 seconds.

Function not available if net functions are disabled (see section **NET FUNCTIONS**).

- ZERO: by closing the input for no more than one second, the weight is set to zero (see section **WEIGHT ZERO-SETTING FOR SMALL VARIATIONS (SEMI-AUTOMATIC ZERO)**).
- PLC: closing the input no operation is performed, the input status may however be read remotely by way of the communication protocol.
- CONtIn: closing the input for max one second the weight is transmitted over the serial connection according to the fast continuous transmission protocol only once (**only if CONtIn is set in the item SERIAL**).
- Printr**:** when the input is closed the data are sent for printing if in the communication protocol of either serial port the parameter Printr is set. If the alibi memory is active, data storage is carried out too.
- HEY In**:** replicates the function of IN.
- HEYOUt**:** replicates the function of OUT.

SEMI-AUTOMATIC TARE (NET/GROSS)

THE SEMI-AUTOMATIC TARE OPERATION IS LOST UPON INSTRUMENT POWER-OFF.

To perform a net operation (SEMI-AUTOMATIC TARE), close the NET/GROSS input or press the TARE f key for less than 3 seconds. The instrument displays the net weight (just set to zero) and the NET symbol lights up. To display the gross weight again, keep the NET/GROSS input closed or press TARE for 3 seconds.
This operation can be repeated many times by the operator to allow the loading of several products.

Example:
Put the box on the scale, the display shows the box weight; press TARE, the display shows the net weight to zero; introduce the product in the box, the display shows the product weight. This operation can be repeated several times.

While the net weight is displayed, keep ▲ pressed to display gross weight. When the key is released the net weight will be displayed again.

The semi-automatic tare operation is not allowed if the gross weight is zero (the display shows I nZEr0).

Function not available if net functions are disabled (see section **NET FUNCTIONS**).

PRESET TARE (SUBTRACTIVE TARE DEVICE)

It is possible to manually set a preset tare value to be subtracted from the display value provided that the P-tArE ≤ max capacity condition is verified. In multi-interval instruments, the max permitted value is Max1 (max capacity of range 1).

By default the instrument shows the last programmed preset tare value: to apply it press ENTER.
After setting the tare value, going back to the remote display, the display shows the net weight (subtracting the preset tare value) and the NET symbol lights up to show that a tare has been entered. To delete a preset tare and return to gross weight display, hold down TARE for about 3 seconds or keep the NET/GROSS input (if any) closed for the same length of time (3 seconds). The preset tare value is set to zero. The NET symbol is turned off when the gross weight is displayed once again.

While the net weight is displayed, keep ▲ pressed to display the preset tare. When the key is released the net weight will be displayed again.

- **IF A SEMI-AUTOMATIC TARE (NET) IS ENTERED, IT IS NOT POSSIBLE TO ACCESS THE ENTER PRESET TARE FUNCTION.**
- **IF A PRESET TARE IS ENTERED, IT'S STILL POSSIBLE TO ACCESS THE SEMI-AUTOMATIC TARE (NET) FUNCTION. THE TWO DIFFERENT TYPES OF TARE ARE ADDED.**

ALL THE SEMI-AUTOMATIC TARE (NET) AND PRESET TARE FUNCTIONS WILL BE LOST WHEN THE INSTRUMENT IS TURNED OFF.

Function not available if net functions are disabled (see section **NET FUNCTIONS**).

SEMI-AUTOMATIC ZERO (WEIGHT ZERO-SETTING FOR SMALL VARIATIONS)

By closing the SEMI-AUTOMATIC ZERO input, the weight is set to zero; alternatively, by pressing the →0← key for less than 3 seconds, the StOrEP message is displayed for 3 seconds, by pressing ENTER the weight is set to zero.
This function is only allowed if the weight is lower than the 0 SEt value (see section **RESETTABLE WEIGHT SETTING FOR SMALL WEIGHT CHANGES**), otherwise the alarm E ----- appears and the weight is not set to zero.

ETHERNET TCP/IP

The instrument features an ethernet TCP/IP port that allows to exchange the weight and the main parameters of the instrument in an ethernet network, for example with a PC.

000000 (MENU/ENTER) + (→0←/ESC) CALIb ▼ ▲ EtHnEt

I PAddr (default: 192.8.0.141): set instrument IP address.
SUbnEt (default: 255.255.255.0): set instrument Subnet Mask.
GAtUAY (default: 192.8.0.111): set Gateway address of Ethernet network.
nOdE: select communication protocol (see section **SERIAL COMMUNICATION SETTING**).

In order to apply the changes, turn the instrument off, wait for 10 seconds and turn it back on.

For more information about protocols and methods of communication, see Communication protocols manual.

SERIAL COMMUNICATION SETTING

000000 (MENU/ENTER) + (→0←/ESC) CALIb ▼ ▲ SEriAL (MENU/ENTER) rS485 / rS485b / rS232 / rS232b

If net functions are disabled (see section **NET FUNCTIONS**), protocols transmit only the gross weight, even if otherwise indicated.

- nOnE: it disables any type of communication (default).
- ModbUS: MODBUS-RTU protocol; possible addresses: from 1 to 99 (see Communication protocols manual – BASE program).
- ASCII: ASCII bidirectional protocol; possible addresses: from 1 to 99 (see Communication protocols manual – BASE program).
  - nOdU60
  - nOd td
- COntInn: continuous weight transmission protocol (see Communication protocols manual – BASE program), at the frequency set in HErtZ item (from 10 to 300).
  - nOd t (set: PArIty = nOnE, StOP = 1).
  - nOd td (set: PArIty = nOnE, StOP = 1).

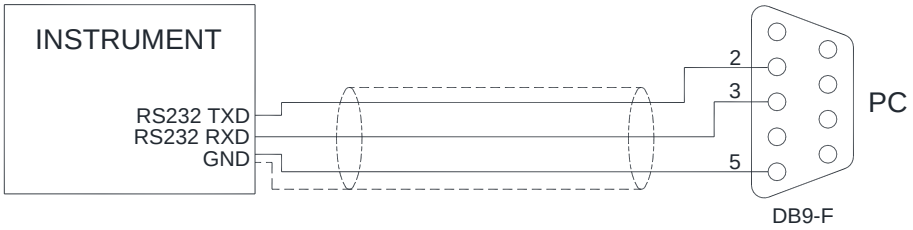
- rI P: continuous weight transmission protocol to RIP5/20/60, RIP50SHA, RIPLED series remote displays; the remote display shows the net weight or gross weight according to its settings (set: bAUd = 9600, PArI tY = nOnE, StOP = 1).
- HdrI P: continuous weight transmission protocol to RIP6100, RIP675, RIP6125C series remote displays; the remote display shows the net weight or gross weight according to its settings (set: bAUd = 9600, PArI tY = nOnE, StOP = 1).
- HdrI Pn: continuous weight transmission protocol to RIP6100, RIP675, RIP6125C series remote displays (set: bAUd = 9600, PArI tY = nOnE, StOP = 1).
  When the remote display is set to gross weight:
  - if the instrument displays the gross weight, the remote display shows the gross weight.
  - if the instrument shows the net weight, the remote display shows the net weight alternated with the message nEt.
- rI PLEd: continuous weight transmission protocol to RIPLEDIP65 series remote displays.
  - SEMAPH: enabling of the traffic light integrated in the remote display (YES – nO; default: nO).
- Cb: CB transmission protocol.
- Est: EXTENDED transmission protocol.
- PrI ntr: printer.
- UEI MOd: weight reception mode (see section **WEIGHT READING VIA SERIAL PORT**).
- UEI rI P: weight reception mode (see section **WEIGHT READING VIA SERIAL PORT**).

  - bAUd: transmission speed (2400, 4800, 9600, 19200, 38400, 115200; default: 9600).
  - Addr: instrument address (from 1 to 99; default: 1).
  - HErt2: maximum transmission frequency (10 – 20 – 30 – 40 – 50 – 60 – 70 – 80 – 100 – 200 – 300; default: 10); to be set when the COntI n transmission protocol is selected.
    Maximum setting frequency (HErt2):
    - 20 Hz with minimum baud rate 2400 baud.
    - 40 Hz with minimum baud rate 4800 baud.
    - 80 Hz with minimum baud rate 9600 baud.
    - 100 Hz with minimum baud rate 19200 baud.
    - 200 Hz with minimum baud rate 38400 baud.
    - 300 Hz with minimum baud rate 38400 baud.
  - dELAY: delay in milliseconds which elapses before the instrument replies (from 0 to 200 ms; default: 0).
  - PArI tY:
    - nOnE: no parity (default).
    - EUEn: even parity.
    - Odd: odd parity.
  - StOP: stop bit (1 – 2; default: 1).

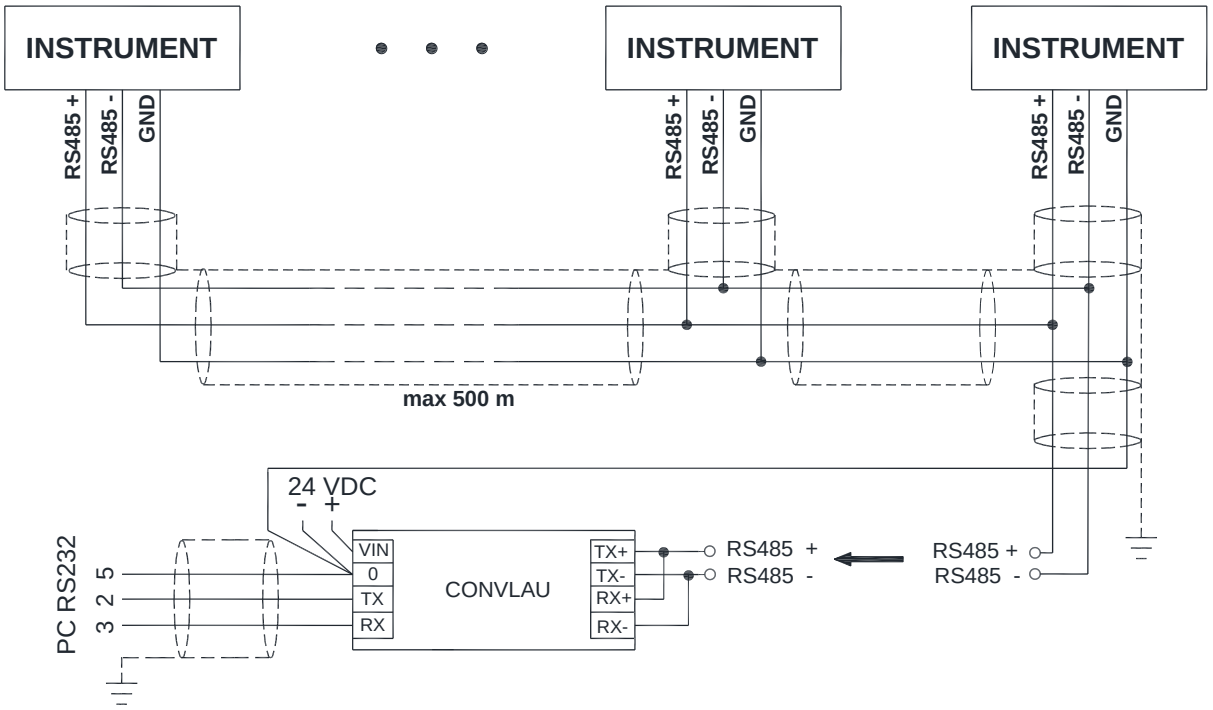
- EMPtY (for PLUSII, STAVTII, KUBEII, STAVQ only): number of blank lines between one printout and the next.
- InEMPt (for TMU295 or LX300 only): number of blank lines before the input weigh printout (default: 0).
- OUtEMP (for TMU295 or LX300 only): number of blank lines before the output weigh printout (default: 15).
- HEAdEr: printing of header and footer, customized via PC (YES – nO; default: nO).
- bArCdE (for PLUSII, STAVTII, KUBEII, LX300 only): printing of the numeric identification code of the weighing as CODE-39 barcode (YES – nO; default: nO).
- PrInFo: printing of the license plate, product name, customer name, operator name fields (YES – nO; default: nO).
- LAnG: selecting the language for printouts:
  - ItA: Italian (default).
  - EnG: English.
  - Fr: French.
  - ESP: Spanish.
- nCOPY: number of copies for each printout; after the first printout press ENTER to print the next copies or press ESC to stop printing.
- PrtMOd: connected printer type:
  - PLUSII : Custom PLUSII, printer integrated in the WTAB (default).
  - StAUt: Laumas STAVTII.
  - tMU295: Epson TM-U295.
  - LH300: Epson LX-300.
  - HUbEII : Custom KubeII.
  - StAUQ: Laumas STAVQ: printer integrated in the WTAB.
- EJECt: (for LX300 only): paper ejection after printing.

For more information about protocols and methods of communication, see Communication protocols manual.

RS232 SERIAL COMMUNICATION



RS485 SERIAL COMMUNICATION



If the RS485 network exceeds 100 metres in length or baud-rate over 9600 are used, two terminating resistors are needed at the ends of the network. Two 120 ohm resistors must be connected between the "+" and "–" terminals of the line, on the terminal strip of the furthest instruments. Should there be different instruments or converters, refer to the specific manuals to determine whether it is necessary to connect the above-mentioned resistors.

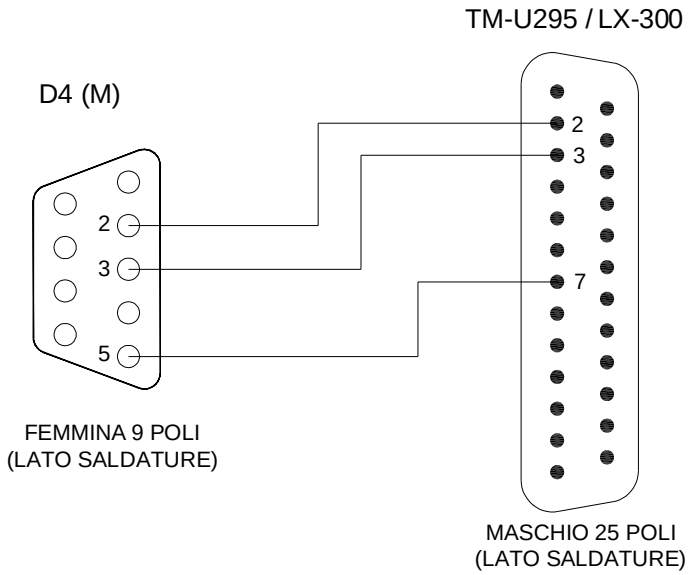
DIRECT CONNECTION BETWEEN RS485 AND RS232 WITHOUT CONVERTER

Since a two-wire RS485 output may be used directly on the RS-232 input of a PC or remote display, it is possible to implement instrument connection to an RS-232 port in the following manner:

INSTRUMENT		**RS232**
RS 485 **–**	→	RXD
RS 485 **+**	→	GND

This type of connection allows A SINGLE instrument to be used in a ONE WAY mode.

CONNECTION WITH TM-U295 / LX-300



WEIGHT READING VIA SERIAL PORT

Overview:
By transmitting instrument, it means the one connected to the load cell.
By receiving instrument, it means the one which receives the weight via serial port.

This function allows the instrument to read the weight by another instrument (transmitting instrument) rather than by a load cell, via the RS485 or RS232 serial port. Outputs, serial ports and analog output (if present) continue to work as described in this manual, using as weight value the one received via serial port.
The instrument supports the following modes of weight reading via serial port:
- UEI MOd (see section **WEIMOD MODE**)
- UEI rI P (see section **WEIRIP MODE**)

WARNING: in order to use the weight reading via serial port, the weight reading mode must be set as SEri AL (see section **DATA DELETION AND PROGRAM SELECTION**).

WEIMOD MODE

The instrument works as if it were directly connected to the load cell, therefore calibrations and zero settings can be done. The protocol used is Modbus (the receiving instrument works as master and the transmitting one as slave).
Procedure:

1. *TRANSMITTING INSTRUMENT* (see section **SERIAL COMMUNICATION SETTING** in the transmitting instrument manual)
   - select the desired serial port
   - set ModbUS protocol
   - set the serial communication parameters
   - set the desired filter value (see section **FILTER ON THE WEIGHT** in the transmitting instrument manual)

2. *RECEIVING INSTRUMENT* (see section **SERIAL COMMUNICATION SETTING**)
   - select the desired serial port
   - set the UEI nOd mode

     
     It's not possible to enable this function on several serial ports; in case of conflict, the last serial set remains active.

   - set the serial communication parameters as on the transmitting instrument:
     - bAUd: transmission speed (2400, 4800, 9600, 19200, 38400, 115200; default: 9600)
     - SLAUE: transmitting instrument address (from 1 to 99; default: 1)
     - dELAY: delay in milliseconds which elapses before the instrument replies (from 0 to 200 ms; default: 0)
     - PAr I tY:
       - nOnE: no parity (default)
       - EUEn: even parity
       - Odd: odd parity
     - StOP: stop bit (1 – 2; default: 1)


The transmitting instrument display is locked and shows the instrument model. To unlock it, disconnect the receiving instrument and follow the procedure in section **KEYPAD OR DISPLAY LOCKING** in the transmitting instrument manual.

WEIRIP MODE

The instrument receives the gross weight via serial port; calibrations and zero settings must be performed on the transmitting instrument.
Procedure:

1. *TRANSMITTING INSTRUMENT* (see section **SERIAL COMMUNICATION SETTING** in the transmitting instrument manual)
   - select the desired serial port
   - set rIP protocol
   - set the serial communication parameters

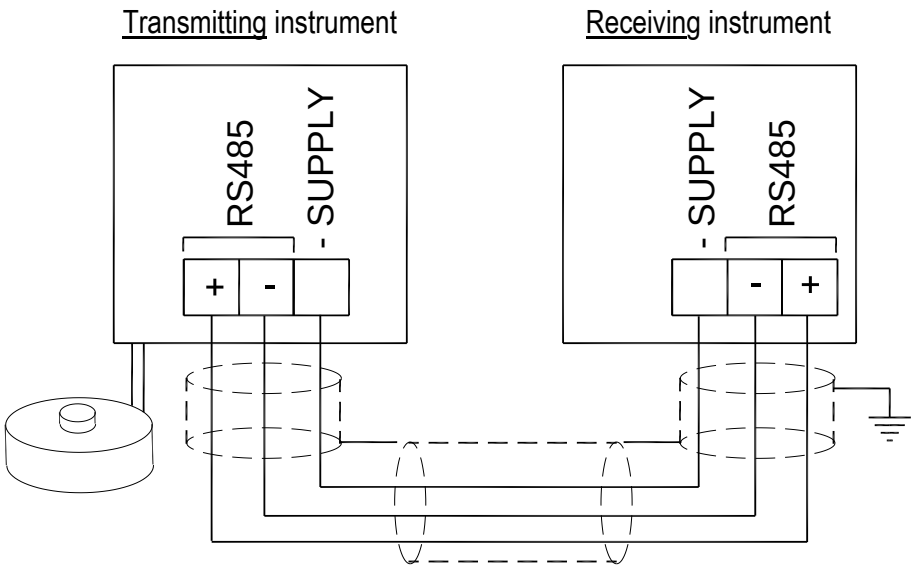
2. *RECEIVING INSTRUMENT* (see section **SERIAL COMMUNICATION SETTING**)
   - select the desired serial port
   - set the UEIrIP mode

     
     It's not possible to enable this function on several serial ports; in case of conflict, the last serial set remains active.

   - set the serial communication parameters as on the transmitting instrument:
     - bAUd: transmission speed (2400, 4800, 9600, 19200, 38400, 115200; default: 9600)
     - dELAY: delay in milliseconds which elapses before the instrument replies (from 0 to 200 ms; default: 0)
     - PArItY:
       - nOnE: no parity (default)
       - EUEn: even parity
       - Odd: odd parity
     - StOP: stop bit (1 – 2; default: 1)
   - set unit of measure (Unit) and number of decimals (dECIM) of the gross weight received by the transmitting instrument

     
     The Unit and dECIM menu items appear in the main menu after having set the UEIrIP mode.

RS485 CONNECTION

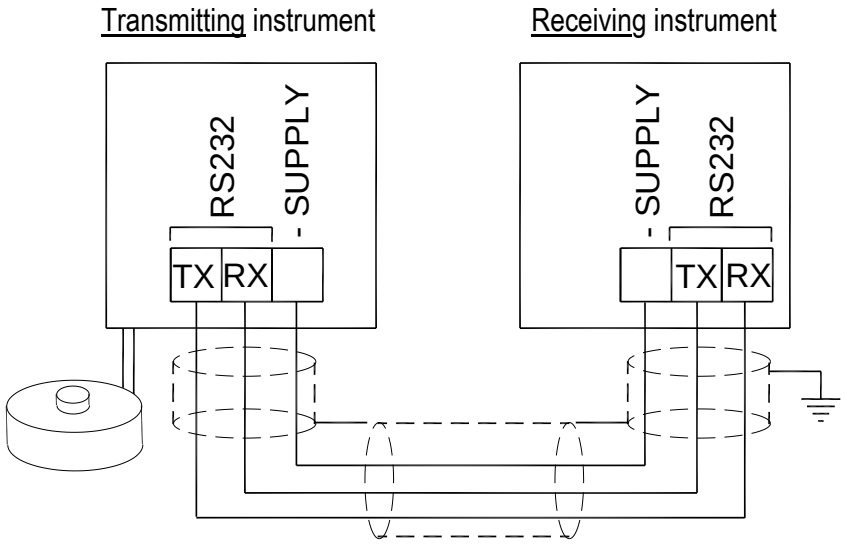


Connector	Pin	Signal	Internal terminal	Internal colour
D5 or D7 Male RS485 serial port with 24 VDC output	1	+OUTPUT (24 VDC)*	7	red
	2	-OUTPUT (24 VDC)*	8	black
	3			
	4	RS485: +	6	yellow
	5	RS485: SHIELD, GND	8	black
	6	RS485: -	5	blue
	7	RS485: -	5	blue
	8			
	9	RS485: +	6	yellow

*) Not available if the instrument is battery powered.
Use only if the instrument is connected to the provided 24 VDC power supply.
Maximum load: 5 W.

If the RS485 network exceeds 100 metres in length or baud-rate is higher than 9600, two terminating resistors are needed at the ends of the network. Two 120 ohm resistors are to be connected, between the "+" and "–" terminals of the line on terminal strip of the instrument furthest away in the network. If should be there different instruments or converters, refer to the specific manuals to determine whether it is necessary to connect the above-mentioned resistors.

RS232 CONNECTION



Connector	Pin	Signal	Internal terminal	Internal colour
D4 or D6 Male RS232 serial port	1			
	2	RS232: RXD	10	yellow
	3	RS232: TXD	9	blue
	4			
	5	RS485: SHIELD, GND	8	black
	6			
	7			
	8			
	9			

WEIGHINGS STORAGE AND PRINTING CONDITIONS

000000 MENU/ENTER + →0← ESC CALIb ▼ ▲ MENdAt MENU/ENTER CondIt

- dEFAUL: factory settings restore: the weight must vary compared to the last stored weight and must be stable; confirmation is requested (SUrE?),press ENTER to proceed or press ESC to cancel.
- tO MIn: the weight must fall below the minimum weight (20e) for a new storage to be carried out; select YES or nO to enable or disable the control.
- CHAnGE: the weight must be changed compared to the previous one for a new storage to be carried out; select YES or nO to enable or disable the control.
- StAbLE: the weight must be stable for a new storage to be carried out; select YES or nO to enable or disable the control.

TEST

000000 MENU/ENTER + →0← ESC CALIb ▼ ▲ tESt

- **Input Test:**

  In: ensure that for each open input 0 is displayed, 1 is displayed when the input is closed.
- **Output Test:**

  Out: setting 0 ensure that the corresponding output opens. Setting 1 ensure that the corresponding output closes.
- **Millivolt Test:**

  MV-CEL: displays the load cell response signal in mV with four decimals.

ENERGY SAVING

000000 (MENU/ENTER) + (→0←/ESC) CALIb ▼ ▲ EnErGY (MENU/ENTER) diSPLY

- On (default): display always on;
- CHAnGE: the display enters energy saving mode after about one minute of no activity; pressing a key or a weight change turns normal operations on again.

000000 (MENU/ENTER) + (→0←/ESC) CALIb ▼ ▲ EnErGY (MENU/ENTER) bLIGHt

- On: back-lighting on;
- OFF: back-lighting off;
- CHAnGE: back-lighting goes off after about one minute of no activity; pressing a key or a weight change turns it on again.

WTAB ONLY

000000 (MENU/ENTER) + (→0←/ESC) CALIb ▼ ▲ EnErGY (MENU/ENTER) PrIntr

- On (default): the integrated printer is always on;
- OnPrt: the integrated printer only turns on when printing

DATE AND TIME SETTING

000000 (MENU/ENTER) + (→0←/ESC) CALIb ▼ ▲ dAtE

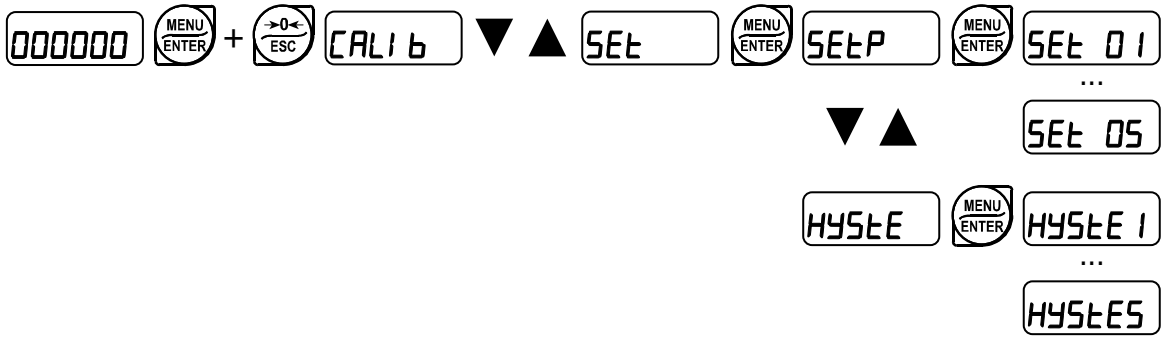
When selecting the dAtE item in the main menu, access is obtained to the date and time display menu.
Pressing ENTER several times scrolls through days - months – years, hours and – minutes; press ◀ and ▶ to select the figure to change; press ▲ and ▼ or the numerical keypad to change the figure; pressing ENTER you can confirm and go to the next menu.

INFO MENU

000000 (MENU/ENTER) + (→0←/ESC) CALIb ▼ ▲ InFO

OP2: active options are displayed.

SETPOINT



- SEt 01...05 (from 0 to max full scale; default: 0): setpoint; relay switching occurs when the weight exceed the value set in this parameter. The type of switching is settable (see section **OUTPUTS AND INPUTS CONFIGURATION**).

- HYStE 1...5 (from 0 to max full scale; default: 0): hysteresis, value to be subtracted from the setpoint to obtain contact switching for decreasing weight. For example with a setpoint at 100 and hysteresis at 10, the switching occurs at 90 for decreasing weight.

These values are set to zero if the calibration is changed significantly (see sections **THEORETICAL CALIBRATION** and **REAL CALIBRATION (WITH SAMPLE WEIGHTS)**).

DATABASE

The instrument can manage 500 vehicles, 500 products, 500 customers/suppliers, 500 operators, 255 open weighings.
To access the database tables, select the desired one as follows:

> DATABASE
- VEHICLES
- PRODUCTS
- CUSTOMERS
- OPERATORS
- WEIGHINGS

The database can be directly accessed by pressing the DB key.
To exit the database and return to the weight displaying, press ESC.

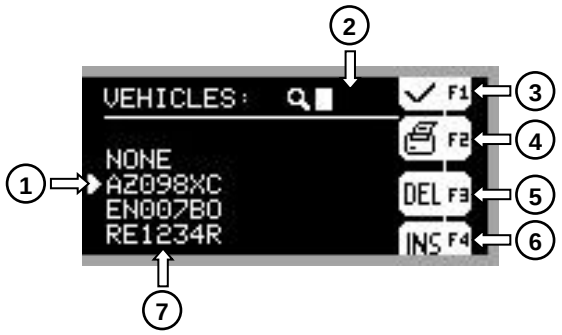
During the visualization of a table items, the following operations can be performed:
- search of an item by keyboard;
- moving through the table items with ▲ and ▼;
- activation of the selected item with ✓, to use its data during weighing operations;
- printing of the selected item's parameters with 🖨;
- deletion of the selected item with DEL;
- insertion of a new item with INS;
- visualization/change of the selected item's parameters with ENTER;
- return to the tables list with ESC.

VEHICLES

The following parameters are associated to each vehicle:
- LICENSE PLATE ..... vehicle license plate number
- TARE ..... preset tare
- ID ..... code associated to the vehicle owner

The vehicles list is alphabetically ordered by the LICENSE PLATE parameter; to scroll the list use the ▲ and ▼ keys.

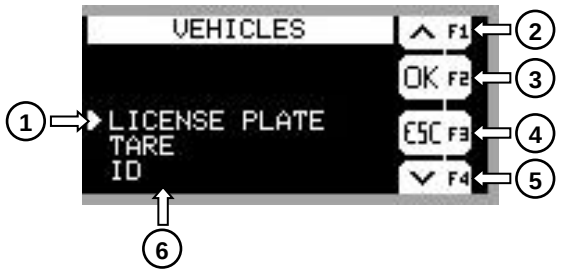
To search for a specific vehicle, enter the desired license plate number using the instrument keyboard: the list scrolls dinamically to the license plate number entered.



1) Selected vehicle
2) Vehicle search by license plate number
3) Activate the selected vehicle
4) Print the parameters of the selected vehicle
5) Delete the selected vehicle
6) Insert a new vehicle
7) List of vehicles

INSERTION OF A NEW VEHICLE

Press INS to access the new vehicle parameters:



1) Selected parameter
2) Select the previous parameter
3) Show/edit the selected parameter
4) Return to the list of vehicles
5) Select the next parameter
6) List of vehicle's parameters

Within this menu, the following keys can also be used: ▲, ▼, ENTER e ESC.

Press ENTER to access the selected parameter:

- **LICENSE PLATE**: enter the desired license plate number using the instrument keyboard; confirm with ENTER or press ESC to cancel and return to the parameters list. License plate numbers duplicated or composed only by blank spaces, are not allowed (the display shows bAdKEY).
- **TARE**: the value entered must be included in the range shown in the lower part of the screen; confirm with ENTER or press ESC to cancel and return to the parameters list.
- **ID**: enter the desired code using the instrument keyboard; confirm with ENTER or press ESC to cancel and return to the parameters list. The code entered must be already registered in the database (see section **CUSTOMERS**).

Press ESC to save changes and return to the vehicles list.

VISUALIZATION OR CHANGE OF A VEHICLE'S PARAMETERS

Press ENTER to access the parameters of the selected vehicle and proceed as for the insertion of a new vehicle.

ACTIVATION OF A VEHICLE

Press ✓ to activate the selected vehicle. If entered, the vehicle parameters are used for the next weighing operation: the customer to which the ID has been assigned is activated, and a preset tare equal to the TARE parameter is set.

DELETION OF A VEHICLE

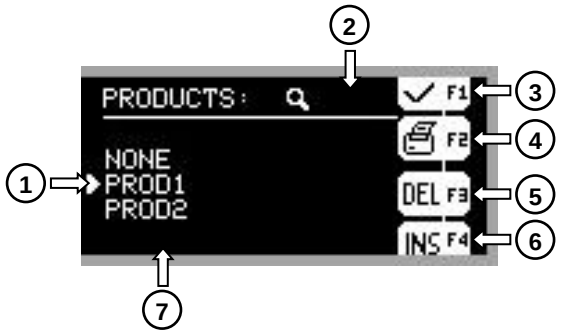
Press DEL to delete the selected vehicle from the database. If the deleted vehicle was active, the references to its parameters are reset.

PRODUCTS

The following parameters are associated to each product:

- NAME ..... product name
- STOCKS ..... available product quantity
- TOTALS ..... total quantities of loaded and unloaded product

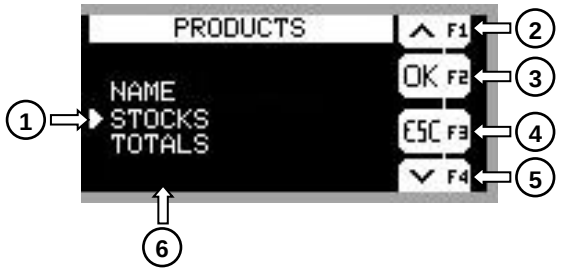
The products list is alphabetically ordered by the NAME parameter; to scroll the list use the ▲ and ▼ keys.
To search for a specific product, enter its name using the instrument keyboard: the list scrolls dinamically to the product name entered.



1) Selected product
2) Product search by name
3) Activate the selected product
4) Print the parameters of the selected product
5) Delete the selected product
6) Insert a new product
7) List of products

INSERTION OF A NEW PRODUCT

Press INS to access the new product parameters:



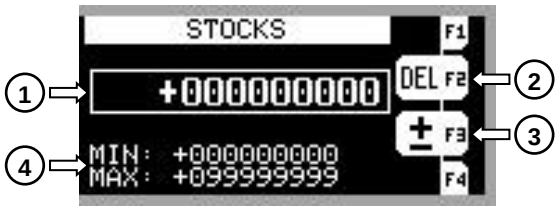
1) Selected parameter
2) Select the previous parameter
3) Show/edit the selected parameter
4) Return to the list of products
5) Select the next parameter
6) List of product's parameters

Within this menu, the following keys can also be used: ▲, ▼, ENTER e ESC.

Press ENTER to access the selected parameter:

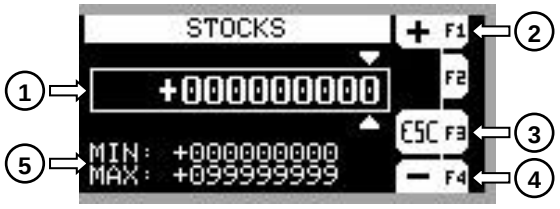
- **NAME**: enter the desired name using the instrument keyboard; confirm with ENTER or press ESC to cancel and return to the parameters list. Names duplicated or composed only by blank spaces, are not allowed (the display shows bAdKEY).

- **STOCKS**: the stocks value of a product is updated after each weighing operation in which the product is active.



1) Current value
2) Reset the stocks
3) Change the current value
4) Range of valid values

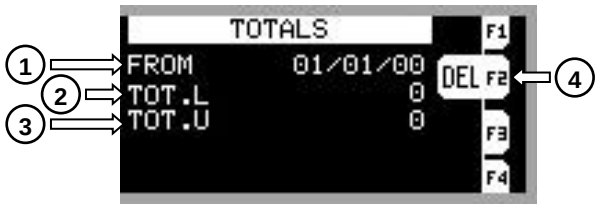
Press DEL to reset the stocks, confirm with ENTER or press ESC to cancel.
Press ± to change the stocks current value:



1) Variation value
2) Increase the stocks
3) Return to the previous menu
4) Decrease the stocks
5) Range of valid values

Enter the variation value using the instrument keyboard or moving the cursor with ◀ ▶ and changing the figures with ▲ ▼; press + to add the quantity set to the stocks, press − to remove it; confirm with ENTER or press ESC to cancel.
The final value of the stocks must be included in the range of valid values.

- **TOTALS**: quantity of loaded and unloaded product since last reset.



1) Date of the last reset
2) Total loaded quantity
3) Total unloaded quantity
4) Reset the totals and update the date

Press DEL to reset the totals and update the date of the last reset, confirm with ENTER or press ESC to cancel.

Press ESC to save changes and return to the products list.

VISUALIZATION OR CHANGE OF A PRODUCT'S PARAMETERS

Press ENTER to access the parameters of the selected product and proceed as for the insertion of a new product.

ACTIVATION OF A PRODUCT

Press ✓ to activate the selected product. The product parameters are used for the next weighing operations, until another product is activated.

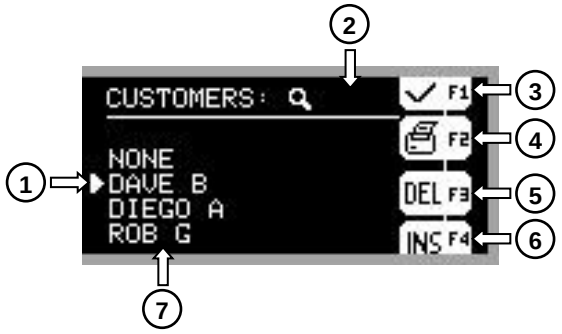
DELETION OF A PRODUCT

Press DEL to delete the selected product from the database. If the deleted product was active, the references to its parameters are reset.

CUSTOMERS

The following parameters are associated to each customer:
- NAME ..... customer name
- ID ..... unique numeric ID used in the VEHICLES table

The customers list is alphabetically ordered by the NAME parameter; to scroll the list use the ▲ and ▼ keys.
To search for a specific customer, enter its name using the instrument keyboard: the list scrolls dinamically to the customer name entered.



1) Selected customer
2) Customer search by name
3) Activate the selected customer
4) Print the parameters of the selected customer
5) Delete the selected customer
6) Insert a new customer
7) List of customers

INSERTION OF A NEW CUSTOMER

Press INS to access the new customer parameters:

1) Selected parameter
2) Select the previous parameter
3) Show/edit the selected parameter
4) Return to the list of customers
5) Select the next parameter
6) List of customer's parameters

Within this menu, the following keys can also be used: ▲, ▼, ENTER e ESC.

Press ENTER to access the selected parameter:

- **NAME**: enter the desired name using the instrument keyboard; confirm with ENTER or press ESC to cancel and return to the parameters list. Names duplicated or composed only by blank spaces, are not allowed (the display shows *bAdKEY*).
- **ID**: unique numeric ID assigned by the instrument; it can't be modified and it is used to associate one or more vehicles to the customer (see section **VEHICLES**).

Press ESC to save changes and return to the customers list.

VISUALIZATION OR CHANGE OF A CUSTOMER'S PARAMETERS

Press ENTER to access the parameters of the selected customer and proceed as for the insertion of a new customer.

ACTIVATION OF A CUSTOMER

Press ✓ to activate the selected customer. The customer parameters are used for the next weighing operations, until another customer is activated.

DELETION OF A CUSTOMER

Press DEL to delete the selected customer from the database. If the deleted customer was active, the references to its parameters are reset.

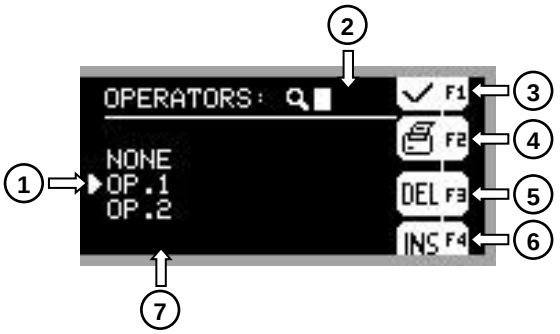
OPERATORS

The following parameter is associated to each operator:

- NAME ..... operator name

The operators list is alphabetically ordered by the NAME parameter; to scroll the list use the ▲ and ▼ keys.

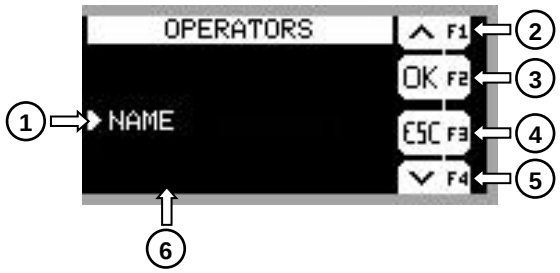
To search for a specific operator, enter its name using the instrument keyboard: the list scrolls dinamically to the operator name entered.



1) Selected operator
2) Operator search by name
3) Activate the selected operator
4) Print the parameters of the selected operator
5) Delete the selected operator
6) Insert a new operator
7) List of operators

INSERTION OF A NEW OPERATOR

Press INS to access the new operator parameters:



1) Selected parameter
2) Select the previous parameter
3) Show/edit the selected parameter
4) Return to the list of operators
5) Select the next parameter
6) List of operator's parameters

Within this menu, the following keys can also be used: ▲, ▼, ENTER e ESC.

Press ENTER to access the selected parameter:

- **NAME**: enter the desired name using the instrument keyboard; confirm with ENTER or press ESC to cancel and return to the parameters list. Names duplicated or composed only by blank spaces, are not allowed (the display shows bAdKEY).

Press ESC to save changes and return to the operators list.

VISUALIZATION OR CHANGE OF AN OPERATOR'S PARAMETERS

Press ENTER to access the parameters of the selected operator and proceed as for the insertion of a new operator.

ACTIVATION OF AN OPERATOR

Press ✓ to activate the selected operator. The operator parameters are used for the next weighing operations, until another operator is activated.

DELETION OF AN OPERATOR

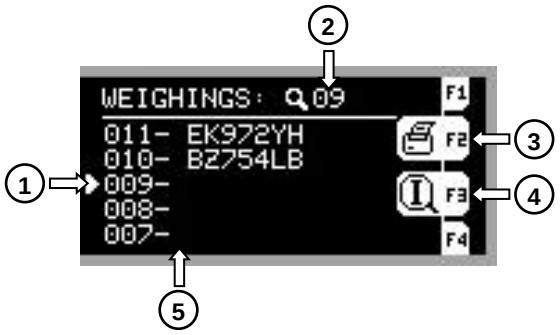
Press DEL to delete the selected operator from the database. If the deleted operator was active, the references to its parameters are reset.

OPEN WEIGHINGS

The following parameters are associated to open weighing:
- DATE ..... weighing date and time
- INDEX ..... weighing chronological index
- TYPE ..... weighing type
- WEIGHT ..... read weight
- TARE ..... tare value applied
- CUSTOMER ..... customer associated to the weighing
- PRODUCT ..... product associated to the weighing
- OPERATOR ..... operator associated to the weighing

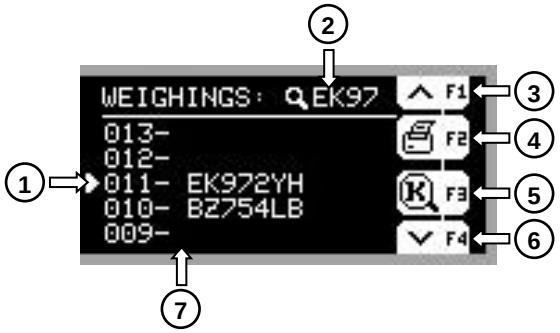
The license plate number of the weighed vehicle is associated to each weighing (if the LICENSE PLATE parameter has been correctly set in the VEHICLES table).
The open weighings list is ordered by the INDEX parameter; to scroll the list use the ▲ and ▼ keys.
To search for a specific weighing, select the searching method by pressing F3:

search by weighing chronological index; enter the desired index using the instrument keyboard: the list scrolls dinamically to the index entered.



1) Selected weighing
2) Search field
3) Print the parameters of the selected weighing
4) Selected searching method
5) List of weighings

search by license plate number associated to the weighing; enter the desired license plate number using the instrument keyboard: the list scrolls dinamically to the license plate number entered. If several weighings are associated to the same vehicle, select the desired one using ^ and v..



1) Selected weighing
2) Search field
3) Select the previous weighing
4) Print the parameters of the selected weighing
5) Selected searching method
6) Select the next weighing
7) List of weighings

VISUALIZATION OF A WEIGHING'S PARAMETERS

Press ENTER to access the parameters of the selected weighing:

1) Selected parameter
2) Select the previous parameter
3) Show the selected parameter
4) Return to the list of weighings
5) Select the next parameter
6) List of weighing's parameters

Within this menu, the following keys can also be used: ▲, ▼, ENTER e ESC.

Press ENTER to access the selected parameter:

- **DATE**: weighing date and time.
- **INDEX**: weighing chronological index.
- **TYPE**: weighing type.
  - **IN**: input weighing.
  - **MULTI**: multiple weighing.
  - **IN A+B**: input weighing with trailer.
- **WEIGHT**: read weight.
- **TARE**: tare value applied.
- **CUSTOMER**: customer associated to the weighing (if correctly activated in the CUSTOMERS table prior to weighing).
- **PRODUCT**: product associated to the weighing (if correctly activated in the PRODUCTS table prior to weighing).
- **OPERATOR**: operator associated to the weighing (if correctly activated in the OPERATORS table prior to weighing).

Press ESC to return to the weighings list.

ACTIVATION OF A WEIGHING

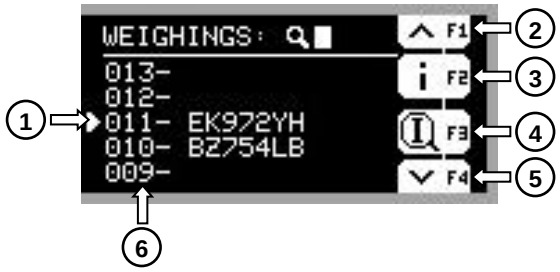
The activation of one of the open weighings is required during a double weighing or a multiple weighing (see sections **DOUBLE WEIGHING (ENTRY/EXIT)**, **DOUBLE WEIGHING (ENTRY/EXIT) WITH TRAILER** and **MULTIPLE WEIGHING**).

The message CODE? appears and the open weighings list opens: to scroll the list use the ▲ and ▼ keys or search for a specific weighing by selecting the searching method with F3:

search by weighing chronological index; enter the desired index using the instrument keyboard: the list scrolls dinamically to the index entered.

search by license plate number associated to the weighing; enter the desired license plate number using the instrument keyboard: the list scrolls dinamically to the license plate number entered. If several weighings are associated to the same vehicle, select the desired one using ^ and v..

Select the desired weighing and press F2 to view its parameters, or press ENTER or OUT to activate it.



1) Selected weighing
2) Select the previous weighing
3) Show the parameters of the selected weighing
4) Selected searching method
5) Select the next weighing
6) List of weighings

Alternatively, using a barcode reader connected to the USB port of the instrument, a weighing can be activated by reading the barcode on the input weighing printout.

The instrument supports USB barcode readers.

DATA TRANSFER TO THE USB PENDRIVE

At the end of each weighing, the following data are saved:
- gross weight
- net weight
- tare
- unit of measure
- Alibi identification (only if alibi memory is present)
- coefficient unit of measure (only if present)
- weighing date and time
- vehicle associated to the weighing
- product associated to the weighing
- customer associated to the weighing
- operator associated to the weighing
- weighing type

Data can be transfered to a USB pendrive, so they can be imported and processed on PC using the PROG_DB software included in the supply (for more information, refer to the PROG_DB software manual

Insert the USB pendrive into the USB2 port.

The instrument automatically detects the device inserted: after about 20 seconds, if the USB pendrive has been correctly recognized, the message USb OH appears; otherwise the alarm USb Er is shown.

OPERATING MODES

CONTINUOUS TRANSFER

000000 MENU/ENTER + →0← ESC CALIb ▼ ▲ USb MENU/ENTER CONtIn

- YES: at the end of each weighing, the data are saved in the instrument internal memory and automatically tranfered to the USB pendrive; the pendrive must always be inserted into the instrument USB2 port;
- nO (default): the data are saved in the instrument internal memory and must be manually tranfered to the USB pendrive.

MANUAL TRANSFER

- Insert the USB pendrive into the USB2 port and wait for the instrument to recognize it; the display shows USb OH;
- press ENTER and wait for the transfer to be complete; the display shows the operation progress percentage;
- remove the USB pendrive.

DATA DELETION

- Press ENTER to delete the data saved in the instrument internal memory;
- the SUrE? deletion confirmation is requested; press ENTER to proceed or press ESC to cancel.

DOUBLE WEIGHING (ENTRY/EXIT)

For this type of operation **two weighings** per lorry are required:

1. upon the lorry entering, its weight is recorded and a numeric code is automatically associated to it;
2. upon the lorry leaving, the operator enters the numeric code assigned during the first weighing (it allows the lorry identification), records the weight when leaving and calculates the difference between the two weighed values; the actual quantity of the material loaded onto or unloaded from the lorry is thus obtained.

1. FIRST WEIGHING (ENTRY)

The lorry goes onto the weighbridge.
The following parameters can be associated to the weighing by activating them in the respective database tables: vehicle, product, customer and operator (see section **DATABASE**).
When the weight is stable (stability symbol on), press IN.
The instrument automatically associates a code to the lorry and displays it preceded by the letter C.The instrument saves the weighed value in the memory and sends it for printing.

2. SECOND WEIGHING (EXIT)

After loading or unloading, the lorry goes on the weighbridge.
When the weight is stable (stability symbol on), press OUT.
If only one “outstanding” lorry is present, which means a lorry that made the first weighing, the instrument automatically retrieves its code; otherwise the message CodEP appears and the open weighings list opens: select the desired weighing and press F2 to view its parameters, or press ENTER or OUT to activate it (see section **OPEN WEIGHINGS**).
The system retrieves the corresponding first weighed value from the memory and calculates the difference between the two weighed values: if the second weighed value is lower than the first, the material was unloaded and the instrument shows the unloaded weight preceded by the letter U for “Unloaded”; if the second weighed value is greater than the first, the material was loaded and the instrument shows the loaded weight preceded by the letter L for “Loaded”.
The instrument saves the weighed value in the memory and sends it for printing.

NOTES: Operation with double weighing is only possible with the gross weight. The codes range from 1 to 254. It is thus possible to have up to 254 weighings open at the same time ("outstanding” lorries that have been weighed for the first time but not the second time).
Once code 254 is used the instrument automatically searches for the first free code (not connected to an open weighing) starting back from 1.
To have the code restart from 1, delete the open weighings (see section **OPEN WEIGHINGS**), even if there are no open weighings.

To display, print or delete the open weighings, see sections **OPEN WEIGHINGS** and **PRINTING EXAMPLES.**
The totals are updated every time a second weighing is completed. To display, print or delete the totals, see sections **TOTALS** and **PRINTING EXAMPLES**.
The conditions that allow a new weighing to be carried out can be set (see section **WEIGHINGS STORAGE AND PRINTING CONDITIONS**).

SINGLE WEIGHING

In this case **the lorry is weighed once**: the weight of the empty lorry is used as preset tare; the value may be entered on the spot or retrieved from the lorry database.

SINGLE WEIGHING WITHOUT USING THE DATABASE

The lorry goes onto the weighbridge.
Press PTARE, enter the weight of the empty lorry (preset tare) using the numerical keypad, confirm with ENTER. To reset the tare, keep the TARE key pressed.
The following parameters can be associated to the weighing by activating them in the respective database tables: product, customer and operator (see section **DATABASE**).
The display shows the weight of the material loaded onto the lorry (net weight).
Press IN if the lorry is entering (the material will be unloaded).
Press OUT if the lorry is leaving (the material will be loaded).
The display shows the weight of the material preceded by the letter *U* for “Unloaded” if unloaded, letter *L* for “Loaded” if loaded.
The instrument saves the weighed value in the memory and sends it for printing.
The instrument automatically goes back to showing the gross weight.

SINGLE WEIGHING USING THE DATABASE

The lorry goes onto the weighbridge.
Press DB, the display shows the database tables list.
Identify the lorry in the VEHICLES table and activate it with ✓ (see section **VEHICLES**).
The instrument applies the preset tare read from the database and shows the weight of the material loaded onto the lorry (net weight).
The following parameters can be associated to the weighing by activating them in the respective database tables: product, customer and operator (see section **DATABASE**).
Exit the database and return to the weight displaying by pressing ESC several times.
Press IN if the lorry is entering (the material will be unloaded).
Press OUT if the lorry is leaving (the material will be loaded).
The display shows the weight of the material preceded by the letter *U* for “Unloaded” if unloaded, letter *L* for “Loaded” if loaded.
The instrument saves the weighed value in the memory and sends it for printing.
The instrument automatically goes back to showing the gross weight.

NOTES: Operation with single weighing is only possible with the net weight. The totals are updated every time a weighing is completed. To display, print or delete the totals, see sections **TOTALS** and **PRINTING EXAMPLES**. The conditions that allow a new weighing to be carried out can be set (see section **WEIGHINGS STORAGE AND PRINTING CONDITIONS**).

DOUBLE WEIGHING (ENTRY/EXIT) WITH TRAILER

This type of operation allows the weighing of a lorry consisting of tractor and trailer.
Four weighing operations per lorry are required:

1 and 2: when the lorry arrives (first weighing), the weights of the tractor and trailer are recorded and a numeric code is automatically associated to the lorry; the following parameters can be associated to the weighing by activating them in the respective database tables: vehicle, product, customer and operator (see section **DATABASE**). If a vehicle with tare other than zero is activated, this kind of weighing can't be performed.

3 and 4: upon the lorry leaving (second weighing) the operator enters the numeric code assigned during the first weighing (it allows the lorry identification), records the weights of the tractor and trailer when leaving and calculates the difference between the two weighed values; the actual quantity of the material loaded onto or unloaded from the lorry is thus obtained.

The operations must be carried out by following the sequence described.

1. FIRST WEIGHING OF THE TRACTOR (ENTRY)

The tractor goes onto the weighbridge.
When the weight is stable (stability symbol on), hold the IN key pressed until you see trAILr (Trailer = it indicates the tractor + trailer function); press ENTER.
The instrument saves the weighed value in the memory and shows StOrEd (printing takes place after the subsequent first weighing of the trailer).
To cancel the weighing press ESC.

2. FIRST WEIGHING OF THE TRAILER (ENTRY)

The trailer goes onto the weighbridge.
When the weight is stable (stability symbol on), press IN.
The instrument automatically associates a code to the lorry (valid for both the tractor and the trailer) and shows it preceded by letter C.
The instrument saves the weighed value in the memory and sends the receipt of the first weighting for printing with the data of the tractor (marked with the letter A) and the trailer (marked with B).

3. SECOND WEIGHING OF THE TRACTOR (EXIT)

After loading or unloading the lorry, the tractor goes back on the weighbridge.
When the weight is stable (stability symbol on), press OUT.
If only one “outstanding” lorry is present, which means a lorry that made the first weighing, the instrument automatically retrieves its code; otherwise the message CodE? appears and the open weighings list opens: select the desired weighing and press F2 to view its parameters, or press ENTER or OUT to activate it (see section **OPEN WEIGHINGS**).
The instrument saves the weighed value in the memory and shows StOrEd (printing takes place after the subsequent second weighing of the trailer).
To cancel the weighing press ESC.

4. SECONDA PESATA RIMORCHIO (USCITA)

The trailer goes onto the weighbridge.
When the weight is stable (stability symbol on), press OUT.
The system recovers the weights regarding the first weighing from the memory (tractor and trailer).
If the second weighing (tractor + trailer) is lower than the first (tractor + trailer), the material was unloaded; the instrument shows the unloaded weight preceded by the letter U for “Unloaded”.
If the second weighing (tractor + trailer) is greater than the first (tractor + trailer), the material was loaded; the instrument shows the loaded weight preceded by the letter L for “Loaded”.
The instrument saves the weighed value in the memory and sends the receipt of the second weighting for printing with the data of the tractor and the trailer.

NOTES: Operation with double weighing is only possible with the gross weight. The codes range from 1 to 254. It is thus possible to have up to 254 weighings open at the same time ("outstanding” lorries that have been weighed for the first time but not the second time).
Once code 254 is used the instrument automatically searches for the first free code (not connected to an open weighing) starting back from 1.
To have the code restart from 1, delete the open weighings (see section **OPEN WEIGHINGS**), even if there are no open weighings.
To display, print or delete the open weighings, see sections **OPEN WEIGHINGS** and **PRINTING EXAMPLES.**
The totals are updated every time a second weighing is completed. To display, print or delete the totals, see sections **TOTALS** and **PRINTING EXAMPLES**.
The conditions that allow a new weighing to be carried out can be set (see section **WEIGHINGS STORAGE AND PRINTING CONDITIONS**).

In this case only **two weighing operations are performed** (tractor and trailer): the weights of the empty tractor and trailer are used as preset tare; the value is entered on the spot or saved in the lorry database.

SINGLE WEIGHING WITHOUT USING THE DATABASE

The tractor goes onto the weighbridge.
Press PTARE, enter the weight of the empty tractor (preset tare) via the numerical keypad, confirm with ENTER. To reset the tractor tare, keep the TARE key pressed.
The display shows the weight of the material loaded onto the tractor (net weight).
The following parameters can be associated to the weighing by activating them in the respective database tables: product, customer and operator (see section **DATABASE**).
Hold the IN key pressed if the lorry is entering (the material will be unloaded), trAILr appears (Trailer = it indicates the tractor + trailer function), press ENTER.
Hold the OUT key pressed if the lorry is leaving (the material has been loaded), trAILr appears (Trailer = it indicates the tractor + trailer function), press ENTER.
The instrument saves the weighed value in the memory and shows StOrEd (printing takes place after the subsequent weighing of the trailer).
The instrument automatically goes back to showing the gross weight.
To cancel the weighing press ESC.

The trailer goes onto the weighbridge.
Press PTARE, enter the weight value of the empty trailer (preset tare) via the numerical keypad, confirm with ENTER. To reset the trailer tare, keep the TARE key pressed.
The display shows the weight of the material loaded onto the trailer (net weight).
Press IN if the lorry is entering (the material will be unloaded).
Press OUT if the lorry is leaving (the material will be loaded).
The display shows the total weight (tractor + trailer) of the material preceded by the letter U for "Unloaded" if unloaded, letter L for "Loaded" if loaded.
The instrument saves the weighed value in the memory and sends it for printing.
The instrument automatically goes back to showing the gross weight.

SINGLE WEIGHING USING THE DATABASE

The tractor goes onto the weighbridge.
Press DB, the display shows the database tables list.
Identify the lorry in the VEHICLES table and activate it with ✔ (see section **VEHICLES**).

The instrument applies the preset tare read from the database and shows the weight of the material loaded onto the tractor (net weight).
The following parameters can be associated to the weighing by activating them in the respective database tables: product, customer and operator (see section **DATABASE**).
Exit the database and return to the weight displaying by pressing ESC several times.
Hold the IN key pressed if the lorry is entering (the material will be unloaded), trAIL r appears (Trailer = it indicates the tractor + trailer function), press ENTER.
Hold the OUT key pressed if the lorry is leaving (the material has been loaded), trAIL r appears (Trailer = it indicates the tractor + trailer function), press ENTER.
The instrument saves the weighed value in the memory and shows StOrEd (printing takes place after the subsequent weighing of the trailer).
To cancel the weighing press ESC.

The trailer goes onto the weighbridge.
Press DB, the display shows the database tables list.
Identify the lorry in the VEHICLES table and activate it with ✓ (see section **VEHICLES**).
Exit the database and return to the weight displaying by pressing ESC several times.
The instrument applies the preset tare read from the database and shows the weight of the material loaded onto the trailer (net weight).
Press IN if the lorry is entering (the material will be unloaded).
Press OUT if the lorry is leaving (the material will be loaded).
The display shows the weight of the material preceded by the letter U for "Unloaded" if unloaded, letter L for "Loaded" if loaded.
The instrument saves the weighed value in the memory and sends it for printing.
The instrument automatically goes back to showing the gross weight.

NOTES: Operation with single weighing is only possible with the net weight. The totals are updated every time a weighing is completed. To display, print or delete the totals, see sections **TOTALS** and **PRINTING EXAMPLES**.
The conditions that allow a new weighing to be carried out can be set (see section **WEIGHINGS STORAGE AND PRINTING CONDITIONS**).

MULTIPLE WEIGHING

In this mode, **up to 255 weighing operations** can be performed on the same lorry by calculating the difference with the previous weighed value each time. This function may be useful for lorries fitted with more than one compartment in case you wish to know the weight of the material in each individual compartment or if various subsequent loading and unloading operations are carried out.

1. FIRST MULTIPLE WEIGHING

The lorry goes onto the weighbridge.
When the weight is stable (stability symbol on), keep the IN key pressed until you see trAI Lr; press ▲ or ▼ to display MULt.
Press ENTER.
The instrument saves the weighed value in the memory and sends it for printing.

2. SUBSEQUENT WEIGHINGS

After loading or unloading, the lorry goes on the weighbridge.
When the weight is stable (stability symbol on), press OUT.
If only one "outstanding" lorry is present, which means a lorry that made the first weighing, the instrument automatically retrieves its code; otherwise the message CodEP appears and the open weighings list opens: select the desired weighing and press F2 to view its parameters, or press ENTER or OUT to activate it (see section **OPEN WEIGHINGS**).
The system retrieves the previous weighed value from the memory and calculates the difference between the two weighed values: if the weighed value is lower than the previous one, the material was unloaded and the instrument shows the unloaded weight preceded by the letter U for "Unloaded"; if the weighed value is greater than the first, the material was loaded and the instrument shows the loaded weight preceded by the letter L for "Loaded".
The instrument saves the weighed value in the memory and sends it for printing.
Up to 255 weighings can be made by repeating the sequence in this section.

3. WEIGHING CLOSING

Keep the OUT key pressed until you see trAI Lr; press ▲ or ▼ to display MULtI .
Press ENTER.
If only one "outstanding" lorry is present, which means a lorry that made the first weighing, the instrument automatically retrieves its code; otherwise the message CodEP appears and the open weighings list opens: select the desired weighing and press F2 to view its parameters, or press ENTER or OUT to activate it (see section **OPEN WEIGHINGS**).
The display shows CLOSE and the weighing is closed.

NOTES: Operation is only possible with the gross weight. The totals are updated every time a weighing is completed after the first one. To display, print or delete the totals, see sections **TOTALS** and **PRINTING EXAMPLES**.
The conditions that allow a new weighing to be carried out can be set (see section **WEIGHINGS STORAGE AND PRINTING CONDITIONS**).

TRAFFIC LIGHT

TRAFFIC LIGHT OPERATION

- When the system is idle, the traffic light is off.
- When the lorry goes onto the weighbridge, the red light turns on.
- After the weighing has been saved, the red light turns off and the green light turns on.
- When the lorry goes off the weighbridge, the green light turns off.

MANAGEMENT OF AN EXTERNAL TRAFFIC LIGHT

- Connect the OUT1 and OUT2 outputs respectively to the green and red light of the traffic light.
- Set the OUT1 and OUT2 outputs respectively as *GrEEn* and *rEd* (see section **OUTPUTS AND INPUTS CONFIGURATION**).

MANAGEMENT OF THE TRAFFIC LIGHT INTEGRATED IN THE LAUMAS RIPLEDIP65 REMOTE DISPLAY

- Connect the remote display to the instrument serial port.
- Set the *rI PLEd* protocol on the serial port used (see section **SERIAL COMMUNICATION SETTING**).

ALARMS

ErCEL: the load cell is not connected or is incorrectly connected; the load cell signal exceeds 39 mV; the conversion electronics (AD converter) is malfunctioning; the load cell is a 4-wire and there are no jumpers between EX- and REF- and between EX+ and REF+.

Er OL: the weight display exceeds 110% of the full scale.

Er Ad: internal instrument converter failure; check load cell connections, if necessary contact technical assistance.

------: the weight exceeds the maximum capacity by 9 divisions.

Er OF: maximum displayable value exceeded (value higher than 999999 or lower than -999999).

t-----: weight too high: zero setting not possible.

MAX-PU: this message appears in the sample weight setting, in real calibration, after the fifth sample weight value has been entered.

Error: the value set for the parameter is beyond the permitted values; press ESC to quit the setting mode leaving the previous value unchanged. Examples: a number of decimals is selected for full scale which exceeds the instrument's display potential; value above the maximum setting value; the weight value set in sample weight verification does not match the detected mV increase; the analog output correction goes beyond the permitted limits.

bLOC: lock active on menu item, keypad or display.

nOdI SP: It's not possible to display properly the number because is greater than 999999 or less than -999999.

bAtrtC: buffer battery low, loss of date and time of Real-Time Clock. Confirm with ENTER to continue; leave the instrument on for at least 12 hours to charge the battery, if the alarm persists contact technical assistance.

dAtEP: an incorrect date has been detected: go into the related menu to check and correct it.

unStbL: unstable weight: zero-setting or net weight not possible. The weight cannot be recorded.

nCHAnG: weight has not changed: not possible to print or save.

nO MI n: the weight did not go below the minimum weight: it is not possible to print it or save it.

FULL: no code available; close at least one weighing or delete the open weighings to continue

nOCOdE: second weighing: the operator entered a code that is not connected to a first weighed value.

EntEr: press ENTER to print the next copy of the receipt, press ESC to stop printing the subsequent copies.

I n: the instrument is waiting for the IN key to be pressed to complete the weighing.

OUt: the instrument is waiting for the OUT key to be pressed to complete the weighing.

P-tArE: the instrument is waiting for a Preset Tare to continue.

EMPtY: the operator recalled an empty index of the database.

USb Er: no USB pendrive inserted in the USB2 port; the pendrive inserted is not formatted; the pendrive inserted has less than 10 MB of free space.

MEMFUL: the instrument internal memory is 90-95% full: transfer the data to USB pendrive as soon as possible.

MEMOUr: the instrument internal memory is 99% full: transfer the data to USB pendrive immediately to avoid the oldest data to be overwritten.

Serial protocol alarms:

	ErCEL	Er OL	Er Ad	------	Er OF	t-----	------
MODE							
Bit LSB	76543210 **xxxxxxx1**	76543210 **xxxx1xxx**	76543210 **xxxxxx1x**	76543210 **xxxxx1xx**	76543210 On gross: **xxx1xxxx** On net: **xx1xxxxx**	The response to the zero command is a 'value not valid' error (error code 3)	76543210 **x1xxxxxx**
Status Register MODBUS RTU							
ASCII	**__O-F_**	**__O-L_**	**__O-F_**	**__O-L_**	**__O-F_**	**&aa#CR**	**__O-L_**
RIP *	**__O-F_**	**__O-L_**	**__O-F_**	**__O-L_**	**__O-F_**	**__O-F_**	**__O-L_**
HDRIP-N	**_ERCEL**	**_ER_OL**	**_ER_AD**	**######**	**_ER_OF**	**O__SET**	**######**
CONTIN	**_ERCEL**	**_ER_OL**	**_ER_AD**	**^^^^^^**	**_ER_OF**	**O__SET**	**^^^^^^**

*** For RIP remote displays, if the message exceeds 5 digits the display reads ------.**

PRINTING EXAMPLES

If the printer has been set (see section **SERIAL COMMUNICATION SETTINGS**), from the weight display press the PRINT key for less than 3 seconds:

- UEI GHt: printing of the displayed weight (the totals are not updated).
- rEPrt: re-print the last weighing made.

The printing examples below refer to the Custom PLUSII printer, integrated in the WTAB model; the printouts with the other supported printers show wider texts in case the number of characters per available row is higher.

WEIGHING PRINTOUTS

First weighed value (see section **FIRST WEIGHED VALUE (ENTRY)**)

```
------------------------
24/01/13        09:58:01
PRINTOUT NUMBER        7

CODE                   3
INCOMING:    15000 kg
```

Progressive printouts

Second weighed value (see section **SECOND WEIGHED VALUE (EXIT)**)

```
------------------------
24/01/13        10:15:01
PRINTOUT NUMBER        8

CODE                   3
INCOMING:       15000 kg

OUTGOING:       25000 kg
------------------------
LOADED:         10000 kg
```

Progressive printouts

Single weighing (see section **OPERATION WITH SINGLE WEIGHING**)

```
------------------------
24/01/13        10:30:01
PRINTOUT NUMBER       19

UNLOADED:N      11000 kg
G               26000 kg
PT              15000 kg
DB                    91
```

Progressive printouts

Net weight
Gross weight
Preset tare
Lorry database index (if used)

Generic weight printout (from the PRINT key)

```
------------------------
24/01/13        10:31:01

G               26000 kg
N               11000 kg
PT              15000 kg
```

Net weight
Gross weight
Preset tare

COMPLEX FUNCTIONS PRINTOUTS

First weighed value tractor + trailer (see section **FIRST WEIGHED VALUE TRAILER (ENTRY)**)

```
------------------------
24/01/13        10:35:03
PRINTOUT NUMBER       20

CODE                   4
ENTRY A:        26000 kg
ENTRY B:        27000 kg
ENTRY A+B:      53000 kg
```

Progressive printouts

Tractor weight
Trailer weight
Tractor + trailer weight

Second weighed value tractor + trailer (see section **SECOND WEIGHED VALUE TRAILER (EXIT)**)

```
------------------------
24/01/13        10:37:03
PRINTOUT NUMBER       21

CODE                   4
ENTRY A:        26000 kg
ENTRY B:        27000 kg
ENTRY A+B:      53000 kg

EXIT A:         15000 kg
EXIT B:         11000 kg
EXIT A+B:       26000 kg
------------------------
UNLOADED:       27000 kg
```

Progressive printouts

Tractor first weighed value
Trailer first weighed value
Tractor + trailer first weighed value

Tractor second weighed value
Trailer second weighed value
Tractor + trailer second weighed value

First multiple weighed value (see section **FIRST MULTIPLE WEIGHED VALUE**)

```
------------------------
24/01/13        10:40:01
PRINTOUT NUMBER       22
CODE                   5
WEIGHED VALUE 1 15000 kg
```

Progressive printouts

Multiple weighed value after the first (see section **SUBSEQUENT WEIGHED VALUES**)

```
------------------------
24/01/13        10:45:01
PRINTOUT NUMBER       23

CODE                   5
WEIGHED VALUE 1 15000 kg

WEIGHED VALUE 2 18000 kg
------------------------
LOADED:          3000 kg
```

Progressive printouts

Vehicles (see section **VEHICLES)**

```
------------------------
24/01/13        10:45:01

TR:                                  License plate number

T:                6000 kg
CL:                                  Customer name
```

Products (see section **PRODUCTS)**

```
------------------------
24/01/13        10:45:01

NAME:                                Product name

STOCKS:           500 kg

TOTALS
LOADED:         3000 kg
UNLOADED:        2500 kg
```

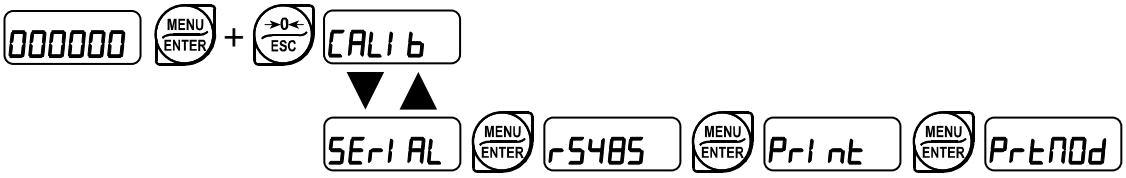
Open weighings (see section **OPEN WEIGHINGS)**

```
------------------------
24/01/13        10:45:01
CODE:                1
TYPE:                 IN
G:                6000 kg
TR:                                  License plate number
CL:                                  Customer name
PR:                                  Product name
OP:                                  Operator name
```

OPZWTABSTA: PLUSII INTEGRATED PRINTER

Instrument
WTAB

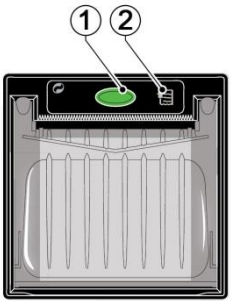
From the weight display press the MENU and ESC buttons at the same time and select the printer on RS485 port:



select PLuSII ;

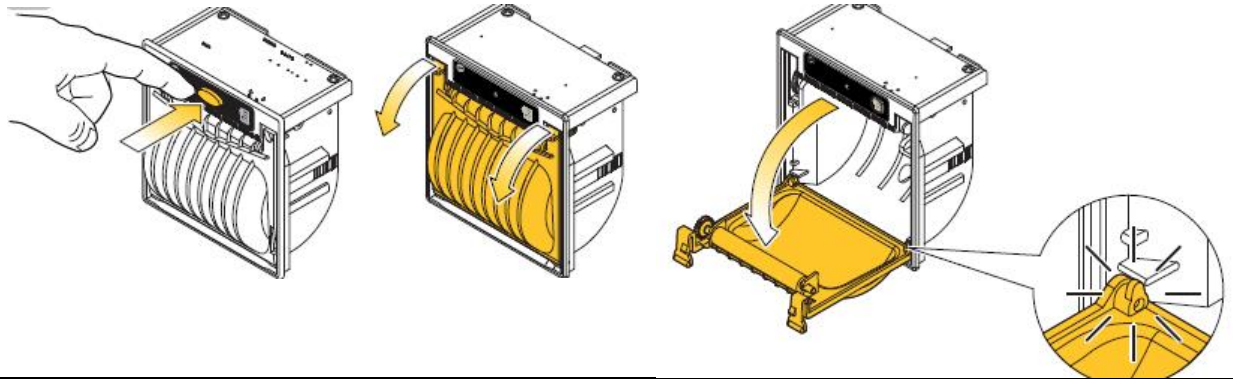
LED/KEY FUNCTION

1. OPEN key: if lit indicates that the printer is on; press to open the paper roll compartment.
2. FEED key: press to advance the paper.

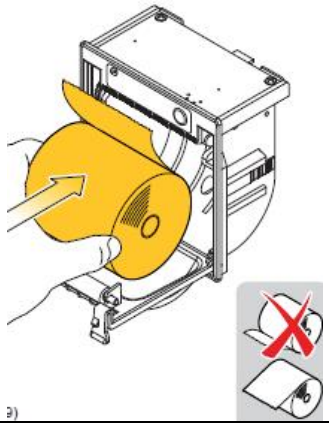


PAPER ROLL REPLACEMENT

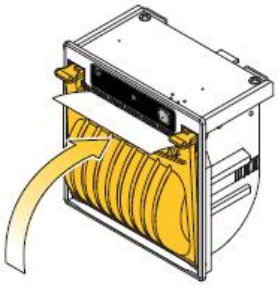
1. Open the paper roll compartment by keeping pressed the OPEN key and using the two opening notches.



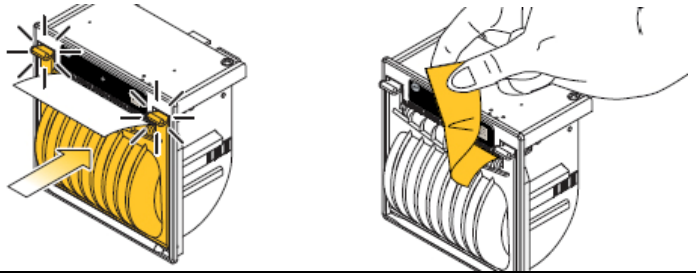
2. Place the paper roll making sure that it unrolls in the proper direction as shown.



3. Take out the paper and close the cover.



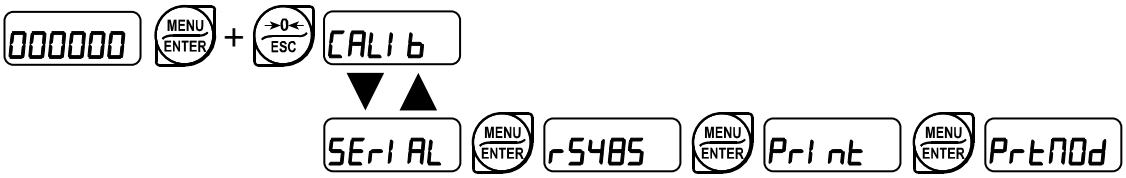
4. Push on the plastic cover to lock it and tear off the exceeding paper using the jagged edge.



OPZWTABSTAVQ: STAVQ INTEGRATED PRINTER

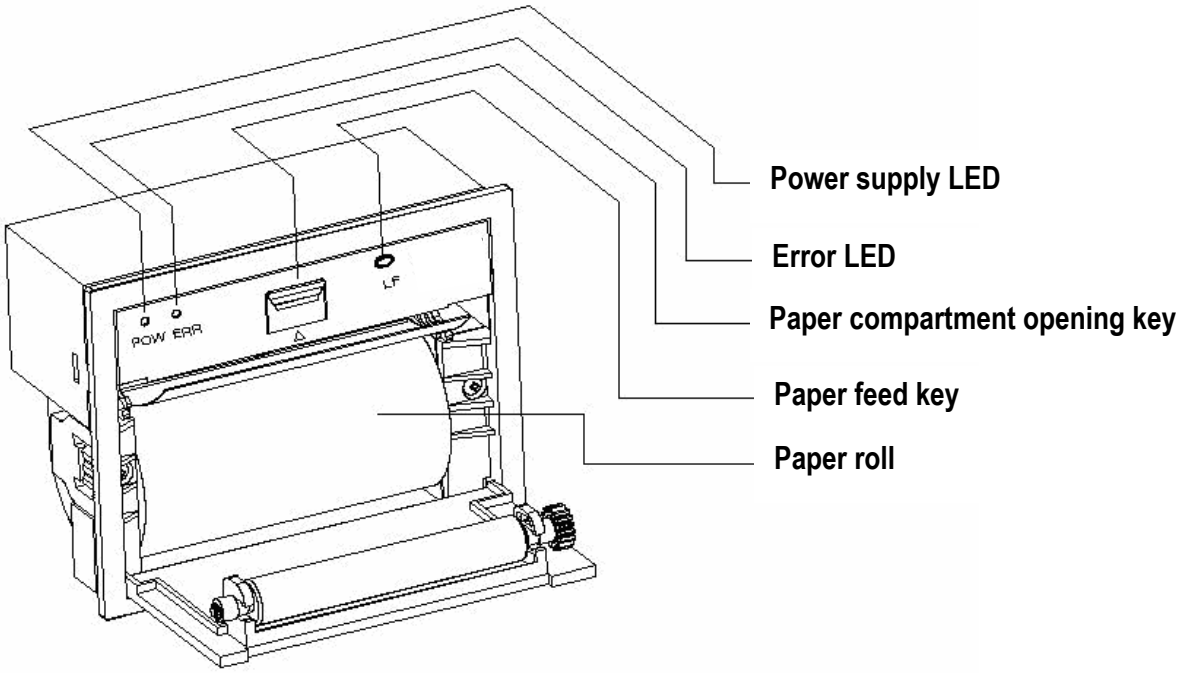
Instrument
WTAB

From the weight display press the MENU and ESC buttons at the same time and select the printer on RS485 port:



select STAVQ;

LED/KEY FUNCTION



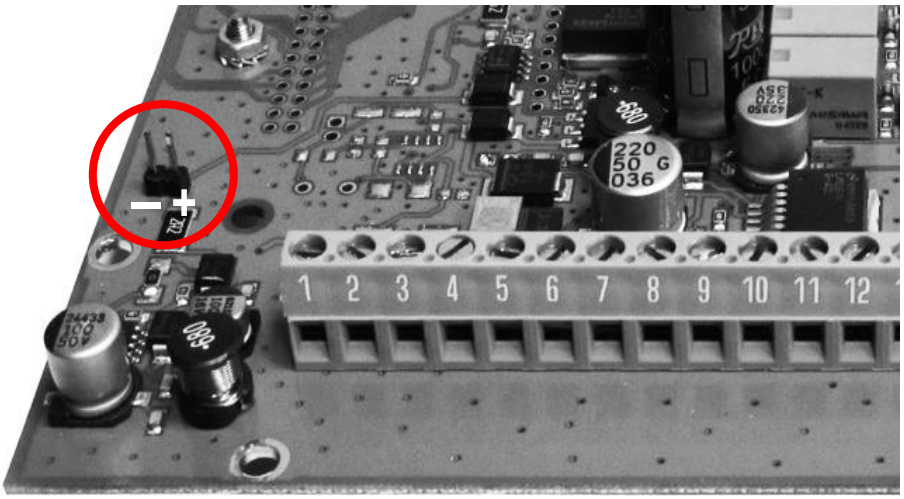
PAPER ROLL REPLACEMEN

Open the paper compartment with the special key and insert the roll as shows in the figure above, with a small strip of paper sticking out.

- 12.2 V rechargeable lead battery with 2.2 Ah capacity, which is supplied already installed in the instrument.
- Use the functions of the EnErGY menu to optimize battery lifetime (see section **ENERGY SAVING**).
- The battery is recharged automatically every time the instrument is powered from an external power source (Power LED is on). A full charge takes about 20 hours.
- The instrument may be left connected to the external power source and this will not damage the battery.
- The battery will not charge if the instrument is powered by 12 VDC.
- The instrument indicates that the battery is low by displaying the LOUbAt message alternated with the weight display.
- When the battery is too low, the instrument displays LOUbAt for 2 seconds and then turns off automatically.

Mode	Maximum operating time (hours)
no. 8 load cell (350 ohm), energy saving disabled	12
no. 8 load cell (350 ohm), energy saving enabled	13

CONNECTING THE BATTERY TO THE INSTRUMENT



- : black cable
+: red cable

RESERVED FOR THE INSTALLER

MENU LOCKING

Through this procedure, it's possible to block the access to any menu on the instrument.
Select the menu that you wish to lock:

000000 MENU/ENTER CALIb press ESC and ◀ simultaneously for 3 seconds, the display shows C.ALIb (the left point on the text indicates that this menu item is now locked). If the operator tries to enter this menu, the access is denied and the display shows bLOC.

MENU UNLOCKING

000000 MENU/ENTER C.ALIb press ENTER and ▲ simultaneously for 3 seconds, the display shows CALIb (the left point on the text is off to indicate that this menu item is unlocked).

TEMPORARY MENU UNLOCKING

000000 MENU/ENTER C.ALIb press ▲ and ◀ simultaneously for 3 seconds: it is now possible to enter and modify all menus including those which are locked. By returning to weight display, the menu lock is restored.

DATA DELETION AND PROGRAM SELECTION

WARNING: operations must only be performed after contacting technical assistance.
After each operation the display shows dOnE, press ENTER to continue.
By pressing ESC the procedure is cancelled and no changes are made.

Upon instrument power-on hold down the ESC key until the display shows PrOG, then proceed as follows:

CONSTANTS RESTORE (does not erase the calibration): confirm PrOG, use arrow keys to select PASSU, set code 6935 and confirm.

PROGRAM SELECTION: confirm PrOG and use the arrow keys to select the desired program:
brI dGE: weighbridge program

- Set the weight reading mode:
  - CELL: the weight is received by load cells or intelligent junction box or transmitter connected to the instrument.
  - SErI AL: the weight is received via serial port (**WEIMOD** or **WEIRIP** mode).

- Set the approval status
  - nOtLEG: not approved program;
  - LEGAL: approved program, single interval (Dir. 2014/31/EU, art. 1)*;
  - LEGMI : approved program, multi-interval (Dir. 2014/31/EU, art. 1)*;
  - LEGMr: approved program, multiple range (Dir. 2014/31/EU, art. 1)*;

  * *Contact technical assistance to request the proper manual and the correct procedures for approval, indicating mandatory hardware code and serial number (see section **INSTRUMENT COMMISSIONING**).*

When a W series instrument is used in combination with an intelligent junction box or a weight transmitter, the approval status set on both devices must be the same.

- Configure the connection to the CLM serie intelligent junction box or to the multi-channel weight transmitter (only if SErI AL has not been set):
  - ESYES: intelligent junction box or transmitter connected to the instrument
  - ESnO: no intelligent junction box or transmitter connected

By confirming, the instrument is restored to default and data is erased.

If you do not have a specific manual for the newly set program, you can request it to technical assistance.

KEYPAD OR DISPLAY LOCKING

Press ESC immediately followed by ▲ hold them down for about 5 seconds (this operation is also possible via the MODBUS and ASCII protocols):

- FrEE: no lock.
- HEY: keypad lock: if active, when a key is pressed the message bLOC is displayed for 3 seconds.
- dI SP: keypad and display lock: if active, the kaypad is locked and the display shows the instrument model (weight is not displayed); by pressing a key the display shows bLOC for 3 seconds.

DECLARATION OF CONFORMITY - EU

LAUMAS
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SISTEMI DI PESATURA INDUSTRIALE - CELLE DI CARICO - BILANCE

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SISTEMA QUALITÀ CERTIFICATO UNI EN ISO 9001 - SISTEMA GESTIONE AMBIENTALE ISO 14001 - MODULO D: GARANZIA DELLA QUALITÀ DEL PROCESSO DI PRODUZIONE

I	Dichiarazione di conformità	Dichiariamo che il prodotto al quale la presente dichiarazione si riferisce è conforme alle norme di seguito citate.
GB	Declaration of conformity	We hereby declare that the product to which this declaration refers conforms with the following standards.
E	Declaración de conformidad	Manifestamos en la presente que el producto al que se refiere esta declaración está de acuerdo con las siguientes normas
D	Konformitäts-erklärung	Wir erklären hiermit, dass das Produkt, auf das sich diese Erklärung bezieht, mit den nachstehenden Normen übereinstimmt.
F	Déclaration de conformité	Nous déclarons avec cela responsabilité que le produit, auquel se rapporte la présente déclaration, est conforme aux normes citées ci-après.
CZ	Prohlášení o shode	Tímto prohlašujeme, že výrobek, kterého se toto prohlášení týká, je v souladu s níže uvedenými normami.
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P	Declaração de conformidade	Declaramos por meio da presente que o produto no qual se refere esta declaração, corresponde às normas seguintes.
PL	Deklaracja zgodności	Niniejszym oświadczamy, że produkt, którego niniejsze oświadczenie dotyczy, jest zgodny z poniższymi normami.
RUS	Заявление о соответствии	Мы заявляем, что продукт, к которому относится данная декларация, соответствует перечисленным ниже нормам.

Models: WINOXBGE, WTABBGE

Mark Applied	EU Directive	Standards
CE	**2014/35/EU** Low Voltage Directive	*Not Applicable (N/A)* for VDC type EN 61010-1:2010 for 230/115 VAC type
CE	**2014/30/EU** EMC Directive	EN 55022:2010 EN 61000-6-2:2005 EN 61000-6-4:2007 EN 61000-4-2:2009 EN 61000-4-3:2006+A2:2010 EN 61000-4-4:2012 EN 61000-4-5:2014 EN 61000-4-6:2014
CE M (only if "M" mark is applied)	**2014/31/EU** NAWI Directive	EN 45501:2015 OIML R76-1:2006

Montechiarugolo (PR), 14/01/2021

LAUMAS Elettronica s.r.l.
M. Consonni
(*Rappresentante Legale*)

On our website www.laumas.com there are videos on the guidelines for correct installation of weighing systems and video tutorials on configuring our transmitters and weight indicators.

All Laumas product manuals are available online. You can download the manuals in PDF format from www.laumas.com by consulting the Products section or the Download Area.
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