User Manual

Slim Master 01-02-04

English

Codice Manuale | Manual Code
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Index Rev.	Date	Sw compatibility	Notes
00	30/10/2011	WS06_11	First issue
01	20/11/2012	WS06_12	Norwegian language update

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Introduction

The information on this document could be subject to change without notice.

The constructor is not responsible for possible content mistakes or misprints that could be present in this manual.

Any reproduction, translation or copy of parts of this manual is forbidden without prior written authorization by the constructor.

WARNING:

Modifications not expressly approved by COBO Division 3B6 cause the loss of authorization to operate the system.

WARNING:

Before starting operations, the user should read and understand this manual and follow the contained instructions.

2

Warnings

1.1 Use of the System

The following directions should enable the person responsible for the system, and the person who actually uses the instrument, to anticipate and avoid operational hazards.

The person responsible for the instrument must ensure that all users understand these directions and adhere to them. All users must follow the safety instructions given by the manufacturer and the directions of the person responsible for the instrument.

Prohibited uses

- Using the system without instruction
- Using outside the stated limits
- Opening of the equipment by using tools (screwdrivers etc.)
- Carrying out modification or conversion of the product
- Use of accessories from other manufacturers without the express approval of COBO Divisione 3B6
- Inadequate safeguards at the surveying site (e.g. when measuring on roads, power lines)

⚠ **WARNING:**

The chance of injury, malfunctions and damage to the equipment if not used as specified. The owner has to inform the user of the hazards in use, protective and counter measures to take.

1.2 Areas of Responsibility

⚠ **WARNING:**

The person responsible for the instrument must ensure that the equipment is used in accordance with the instructions. This person is also accountable for the deployment of personnel and for their training and for the safety of the equipment when in use

The Person in charge of the instrument has the following duties:

- To understand the safety instructions on the product and the instructions in the User Manual.
- To be familiar with local safety regulations relating to accident prevention.
- To inform COBO Divisione 3B6 immediately if the equipment becomes unsafe.

1.3 Checks the user must perform

To ensure continuous & safe operations of the system the following checks must be performed regularly by the user.

- Cable integrity and connectors tightening
- Angle Sensors integrity and tightening
- Failure messages showing by display

3

Characteristics

3.1 GENERAL DESCRITION

Description

The SLIM-MASTER is a weighing system suitable for forklifts, front loaders and telescopic handlers.

System functions

The main function and the features are the following:

- Weighing management in 4 different modes depending on the machine's application:
  - Static continuous weighing with cumulative total of any added weight to the initial load (activated by external button);
  - Static weighing with inputs to calculate the lifted load (activated by a single proximity sensor or keypad);
  - Dynamic weighing for forklifts (activated by proximity sensors);
  - Dynamic weighing for front loaders and telescopic handlers (activated by proximity sensors or angular sensors)
- Temporary disablement of the weighing function
- Tare function
- Functions of Total, Partial and Tare Zeroing
- Maximum load function
- Partial X2 function
- Diagnostic function to facilitate troubleshooting in case of system's malfunction
- Ability to perform two independent calibrations with different lifting devices applied to the machine (e.g.: forks or bucket)

System characteristics

- Graphic display
- Visualizing total load, partial load, individuals load of materials in Kg/Lbs and %.
- Visualizing maximum load with warning lamps: "Traffic Lights".
- Optional printer
- Pre-cabled connections and harness for fast and easy installations.

4

Operative Mode

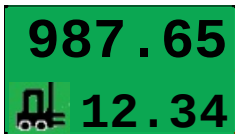
4.1 WEIGHING MODES

Use the Slim like a weighing system with all functions according to the active mode.

The Weighing Mode is set by the installer and is indicates by the weighing symbol on the display.

The Weighing procedure is described following (Refer to “Weighing Procedure” paragraph).

4.1.1 Static Weighing



Static without INPUT

The partial load is automatically calculated every 5 sec.

The total load is calculated by keypad consent (the partial load is added to the total)

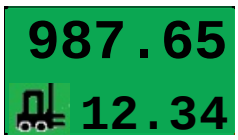
Static with INPUT

The partial load is calculated by external button consent or single proximity

The total weight is automatically calculated at the end of the partial load

4.1.2 Dynamic Weighing

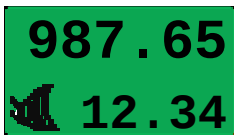
Dynamic on forklifts (with 2 proximities)



The calculating of the partial load automatically begins when the 1st proximity is activated and will be completed when the 2nd proximity is then activated.

The total weight is automatically calculated at the end of the partial load calculating

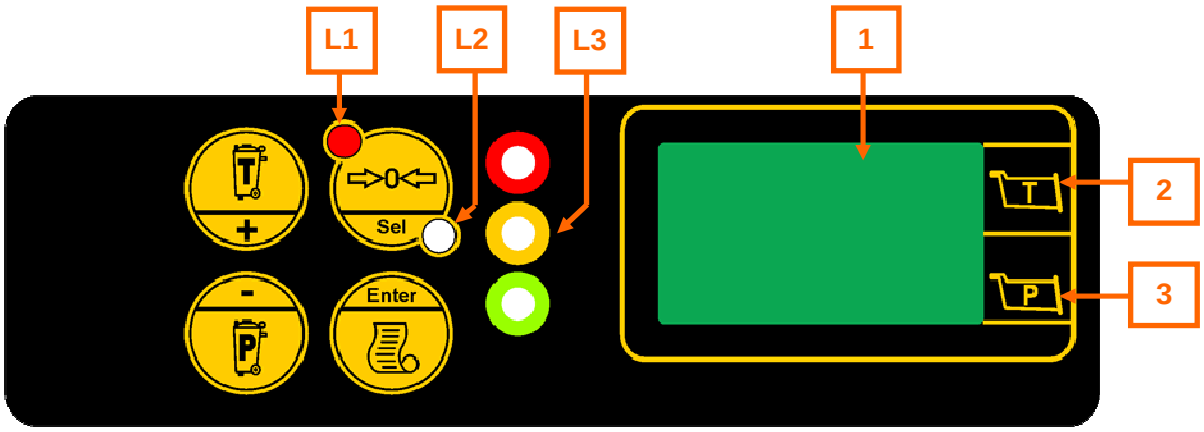
Dynamic on front loaders (with 2 proximities or angle sensors)



The calculating of the partial load automatically begins when the 1st proximity is activated and will be completed when the 2nd proximity is then activated.

The total weight is automatically calculated at the end of the partial load

4.2 SLIM PANNEL



BUTTONS

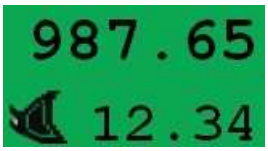
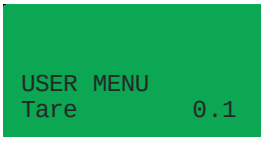
Key	Description
	• Press&hold (3 sec):Total weigh zeroing key () *Static Weighing mode without INPUT* • Press once: it adds the partial load to the total.
	• Press once: Partial weigh zeroing key () • Press&hold (3 sec): Partial x 2
	• Press once: To print the ticket. (Optional printer) • Press&hold (3 sec): To enter the Operation menu
	*In Tare setting:* • Press once: To memorize new Tare • Press&hold (3 sec): Zeroing the Tare value *Inside a menu:* • Press&hold (3 sec): to exit the menus. The display turns on the operating screen.

LIGHTS

Ref.	Lights	Description
L1		Led **L1** lit (ON) indicates Tare value is other than zero.

Ref.	Lights	Description
L2		Led **L2** lit (ON) indicates Tare value equals zero.
L3		"Traffic Lights" Warning lamps for max total load and max partial load in weighing (refer to "Traffic Lights Function" paragraph).

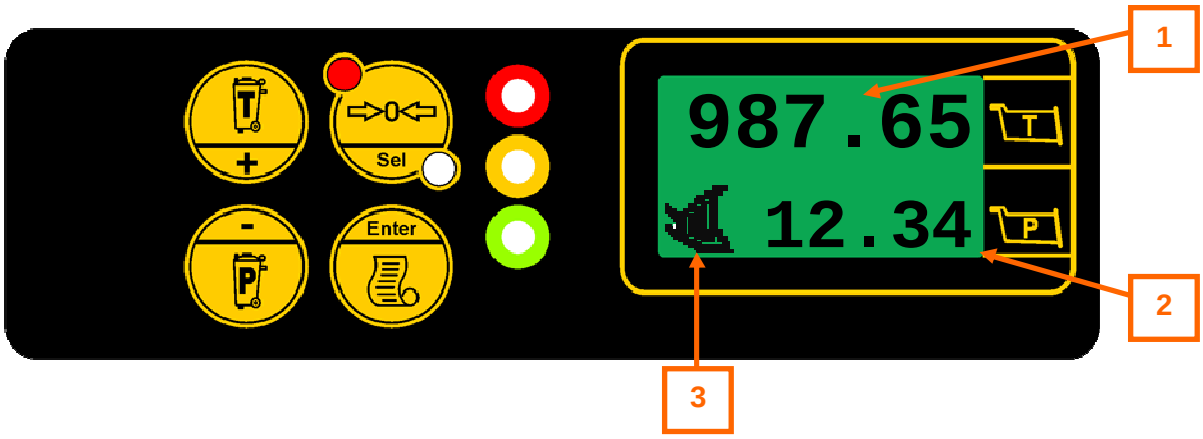
DISPLAY

Ref.	Display symbol	Description
1	  	LCD display At Start up Software version: Release (WS06_XX) / Date (dd/mm/yy) In Operative Mode: • Operative Page • Operative Menu
2		Total Weight Symbol
3		Single Weight Symbol

4.3 OPERATIVE PAGE

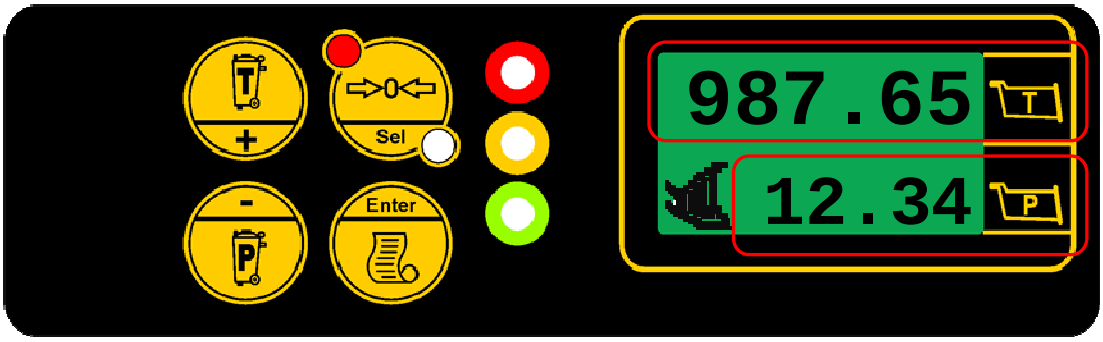
The Start Up page is displayed for a few seconds at power on. Then the screen shows the operative page ready to work.

In the operative page is displayed the weighing mode active, the last bucket weighed and the total of the buckets weighed performed.



Ref.	Display Icon	Description
1		Total Weight: total load of the buckets
2		Single Weighing: load of the last bucket
3		Symbol of active weighing mode (the weighing mode is set by Installer): •  : Static Weighing Mode and Dynamic Weighing Mode on forklifts •  : Dynamic Weighing Mode on front loader

4.3.1 Total and Partial Weight



Total Weight: Total load of the buckets

Total Zeroing

Zeroing the total weight an occurred warning of maximum load (through traffic lights) will be stopped.

- Press&hold (3 sec) the key to perform the Total zeroing

Partial Weight: Load of the last bucket

Partial Zeroing

Deleting the last bucket weighed the partial weigh will be removed to the total weight. To be used if the bucket has been wrong or accidentally weighed and the material will not be putted on the truck.

- Press once the key to perform the Partial zeroing

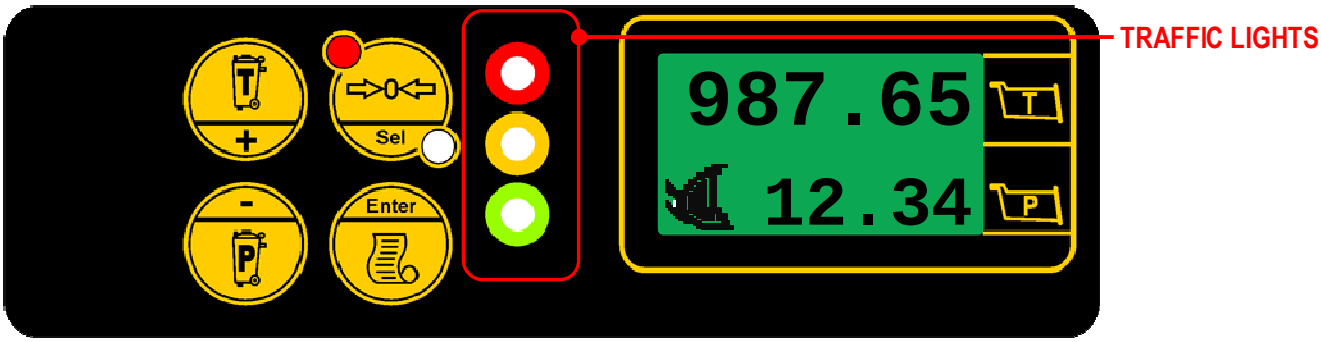
Partial x 2 (Residue material function)

This function removes twice the last value weighed from the total.

When the last bucket load did not empty completely proceed as following:

- Perform a weighing of the material which has remained in the bucket to find out the effective quantity unloaded
- Press&hold (3 sec) the key. to perform the Partial x 2. The calculated total meets that actually loaded.

4.3.2 Traffic Light



Max Load

The 3 LEDs on the SLIM-MASTER (as shown above) will light up according to the percentage of the Total Load lifted in relation to the Maximum Load set, by following the criteria set below:

RED LED lit when the Total Weight equals or exceeds 100% of the Max Load set

YELLOW LED lit when the Total Weight is between 90% and 99% of the Max Load set

GREEN LED lit when the Total Weight is between 0% and 89% of the Max Load set.

Upon exceeding the maximum load set for first time (refer to “Max Load” paragraph), additional to the red led, the SLIM-MASTER will emit 3 beeps in rapid succession.

This audio warning will be repeated every weighing cycle with the Total Weight greater than the Max Load set, until the Total Weight will be zeroed.

To set the max load refer to the “Max Load Setting” paragraph.

Max Load Bucket

The 3 LEDs on the SLIM-MASTER (as shown above) will light up according to the percentage of the Partial Load lifted in relation to the Maximum Load Bucket set, by following the criteria set below:

RED LED lit when the Partial Weight equals or exceeds 100% of the Max Load Bucket set

YELLOW LED lit when the Partial Weight is between 90% and 99% of the Max Load Bucket set

GREEN LED lit when the Partial Weight is between 0% and 89% of the Max Load Bucket set.

Upon exceeding the maximum load of bucket set for first time (refer to “Max Load Bucket” paragraph), additional to the red led, the SLIM-MASTER will emit 3 beeps in rapid succession.

This audio warning will be repeated every weighing cycle with the Partial Weight greater than the Maximum Load Bucket set, until the partial weight does not fall below the maximum load of bucket.

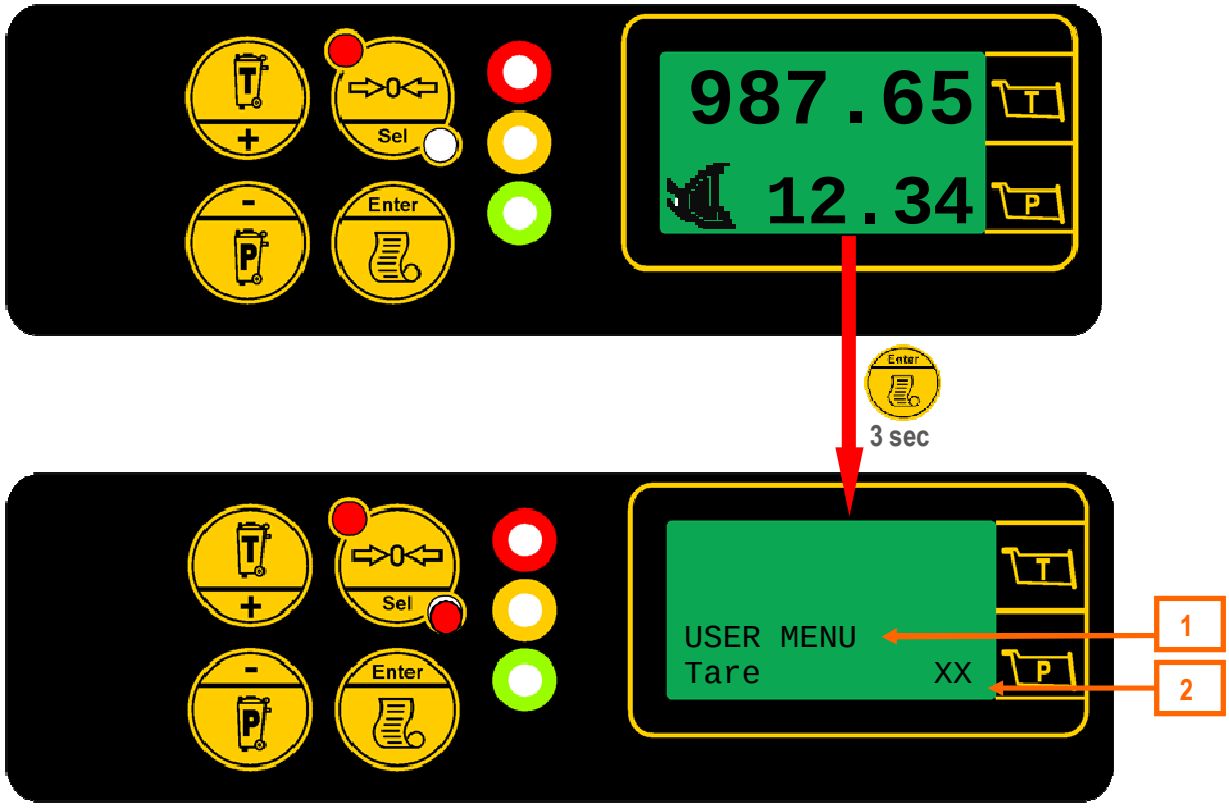
To set the max load refer to the “Max Load Bucket Setting” paragraph.

4.3.3 User Menu

The User Menu is the main operating menu.

- To enter the User Menu press&hold for 3 seconds the 

key from the operative screen.



Key / Ref.	Description
	To scroll the menu list
	To accede sub-menus or enable/disable commands (ON/OFF).
	Press&hold (3 sec): exit from the menu. The display turns on the operating screen.
1	1st line: Menu Header
2	2nd line: Menu List

Menu List

Display	Type	Description
Tare: xxx	*Visualize*	*Weighing Setup* Last Tare value memorized
Weighing: OFF	*Command*	*Weighing Procedure* Temporary disabling of weighing system (ON/OFF)
Max Load: xxx.x	*Setting*	*Weighing Setup* Maximum Total Load for traffic lights function.
Max Load B:xxx.x	*Setting*	*Weighing Setup* Maximum Bucket Load for traffic lights function.
Machine: x	*Command*	*Weighing Setup* Selection of the machine calibration (1/2) *Not available if regenerative valve present*
Correction: xxx	*Setting*	*Weighing Setup* Correction in percentage of single weighing (Range: 90÷110)
Buzzer OFF	*Command*	*Weighing Setup (* Buzzer state selection during weighing (ON/OFF) *Only in Static Weighing Mode*
Contrast xxx	*Setting*	*System Setup* Display contrast
Language: UK	*Command*	*System Setup* Selection of the display language (e.g.. UK)
Time Setting	*Sub-menu*	*System Setup* Access to time setting menu
Sensor Check	*Sub-menu*	*System Check (Diagnostics)* Access to sensors check menu
Setting Menu	*Sub-menu*	*Calibration* Access to setting menu (reserved to installer) *Refer to the Calibration Manual*

Type:

- *Visualize*: to view a set or memorized value.
- *Setting*: this description refers to any value that can be modified, in which case follow the procedure described in the paragraph “Set value”.
- *Command*: enables directly a function.
- *Sub-menu*: allows access to a sub-menu.

4.4 WEIGHING PROCEDURE

Weighing must be performed according to the active Weighing Mode.

Static weighing without INPUT ("continuous") (weighing mode symbol: )

- Place the machine in the weighing position.

The SLIM-MASTER will calculate and update the partial load automatically every 5 sec.

The partial load will be added to the total load by pressing once the  *key.*

Static weighing "with INPUT" (weighing mode symbol: )

With manually activated external push button

- Place the machine in the weighing position.
- Press the external push button.

The SLIM-MASTER will calculate the partial load, and at the end it will be added automatically to the total weight.

The buzzer (if enabled) will sound continuously during the calculation process.

With single proximity installed

- Lift the load until the proximity is activated (the correct position will be signaled by the buzzer in the SLIM).
- Stop lifting immediately, and wait until the buzzer stops.

At this point the SLIM-MASTER will update the partial weight, and it will be added automatically to the total weight.

Dynamic weighing on forklifts with 2 proximities (weighing mode symbol: )

- Following the initial lift off the ground, maintain a constant lifting speed during the complete weighing cycle.

The SLIM-MASTER will begin calculating the load automatically when the 1st proximity is activated, and will be completed when the 2nd proximity is then activated. The buzzer will start beeping when the 1st proximity is activated, and will continue until the completion of the weighing cycle.

The partial load will then be added automatically to the total weight.

Dynamic weighing on front loaders with 2 proximities (or angle sensors) (weighing mode symbol: )

- Having filled the bucket, begin lifting maintaining a constant lifting speed during the complete weighing cycle.

The SLIM-MASTER will begin calculating the load automatically when the 1st proximity is activated, and will be completed when the 2nd proximity is then activated. The buzzer will start beeping when the 1st proximity is activated, and will continue until the completion of the weighing cycle.

The partial load will then be added automatically to the total weight.

IMPORTANT: Avoid weighing with the machine tilted sideways, and/or sloping forward or backward; also avoid sudden and/or abrupt movements during the weighing operation.

4.4.1 Weighing on/off

In case the machine may be required for alternative tasks whilst engaged in loading/weighing operations, and it is necessary to retain the value of load accumulated till then, it is possible to interrupt the operation, by temporarily disabling the weighing cycle, and resume the operations later to complete the loading of that particular truck.

Enable/disable Weighing

- From the operating screen to keep pressed the 

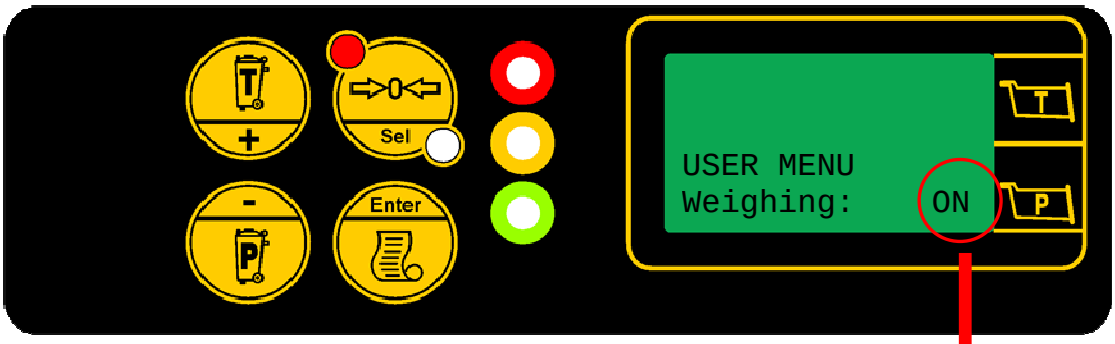
key to enter the User Menu.
- Scroll the Mix Menu with 

, 

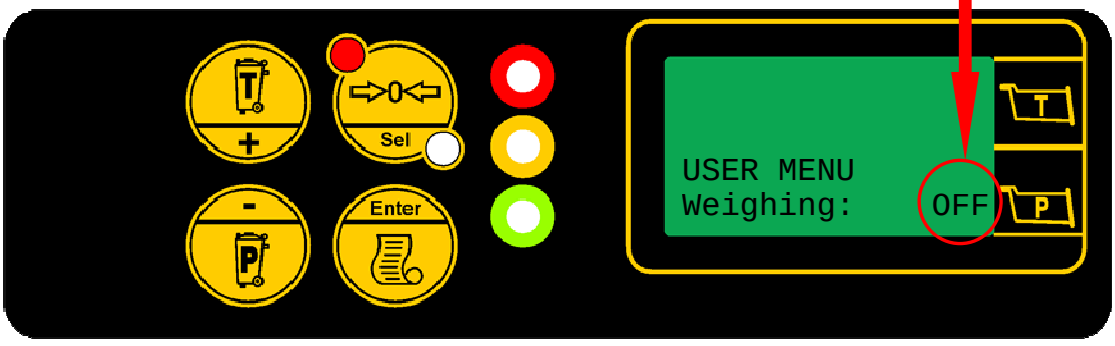
keys and select the command “Weighing”.
- Press 

key to enable/disable the function

  ON: Weighing enable



  OFF: Weighing disable



With weighing disabled the “Traffic Lights” lamps is off.

Exiting from the command, the weighing function is automatically enabled.

- Press&hold (3 sec) 

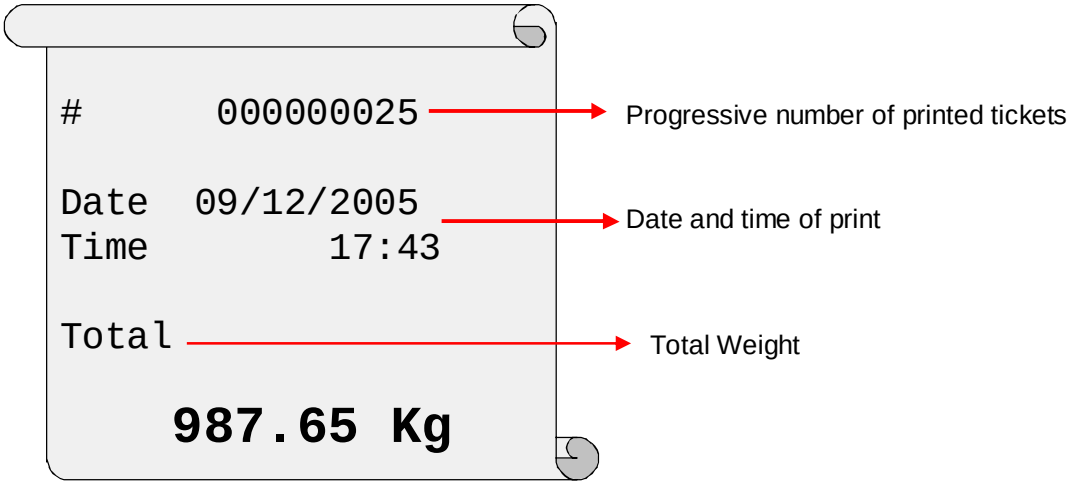
key to go back to the operative page.

4.5 PRINTER (OPTIONAL)

- To be able to print it is necessary to press once the 

key when the machine is in the operating screen.

The printed ticket will show the following details:



Note: The unit of measure referred to on the ticket is set during the calibration of the SLIM-MASTER.

4.6 WEIGHING SETUP

4.6.1 Tare Setting

Setting a new tare function may be necessary when the machine is cold, changing the current bucket, changing hydraulic oil in the circuit, or when some material accumulates in the bucket, which cannot be dislodged during normal dumping operation. By setting a new tare, it enables zeroing the extra weight of the bucket, thus weighing only the material effectively dumped.

It is advisable to verify the status of the tare prior the beginning loading operation, by performing a empty weigh; in the eventuality that the partial weigh is not "0" perform the tare acquiring.

Repeat this operation a few times during the day to compensate the hydraulic oil temperature variation.

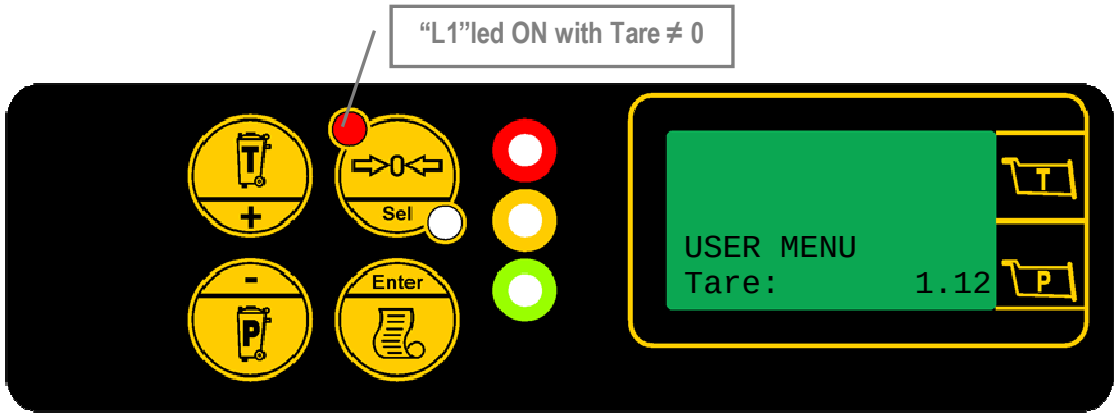
Visualization of the actual tare

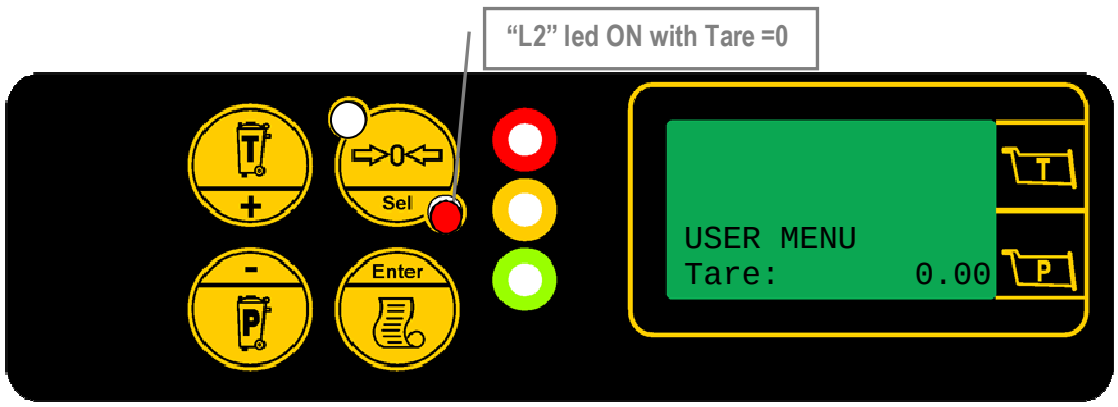
- From the operating screen to keep pressed the 

key to enter the User Menu
- Scroll the User Menu with 

, 

keys and select the line "Tare": the tare value is displayed.





Zeroing existing Tare

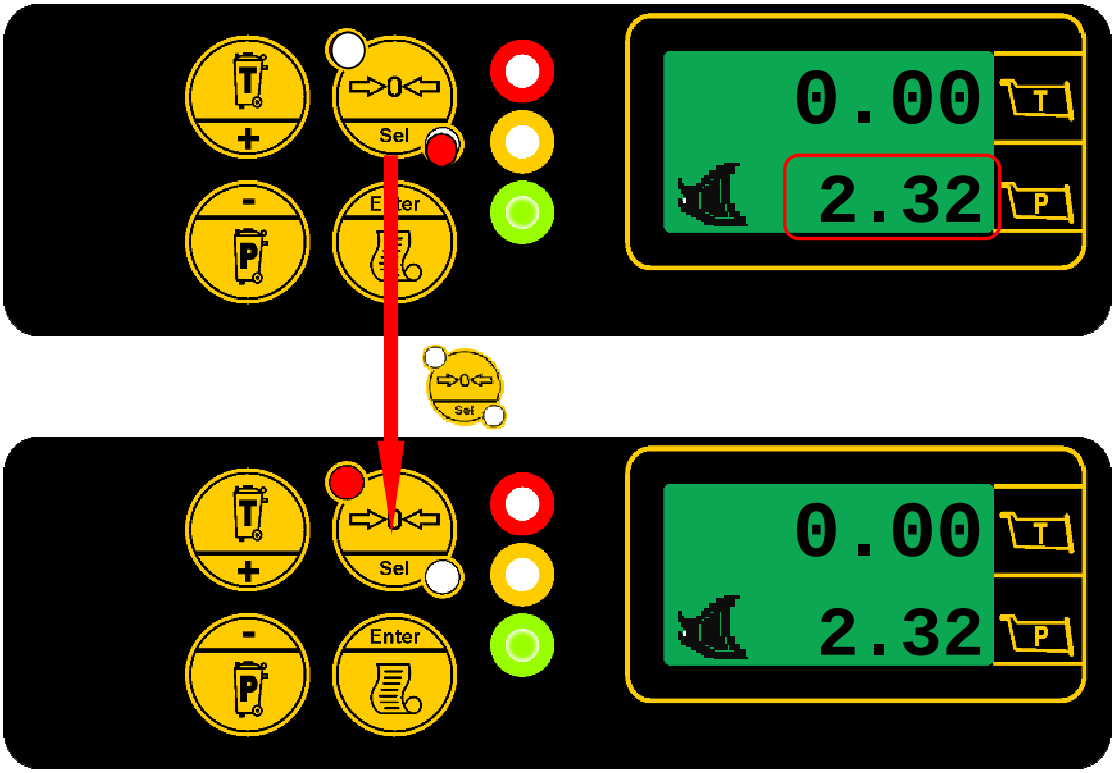
It's possible delete the actual tare (for example before a new acquiring).

- Whilst holding aloft the empty bucket, press&hold the key  until the lower led (L2) is lit:  .
  At this point the Tare value will be zeroed.

Acquiring NewTare

If a tare value is yet present "L1" led on , proceed to delete the actual value bofore new acquiring (Zeroing existing Tare).

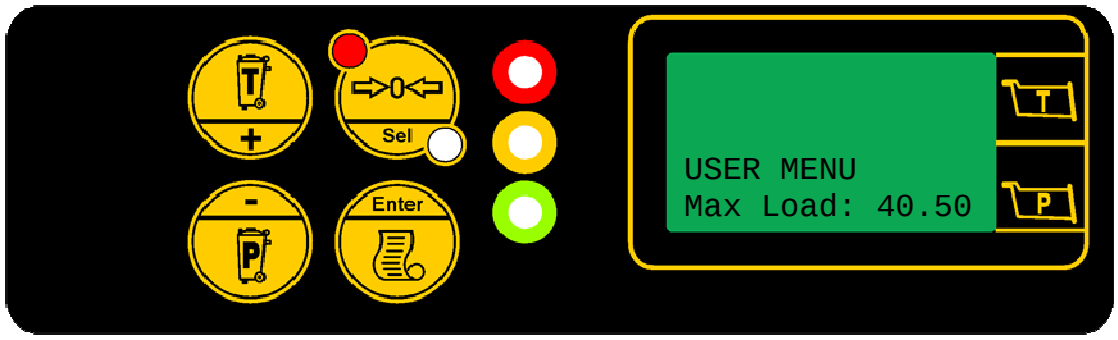
- Perform an empty weighing based on the active weighing mode shown on the SLIM screen.
  The screen will display a value for the partial weight (e.g. 2.32) to set as new tare.



- Press once the  key. The upper led (L1) will light up:  .
  The new value will be acquired.

4.6.2 Max Load Setting

The Max Load setting allows to set a maximum threshold of load for the “Traffic Lights” indication.

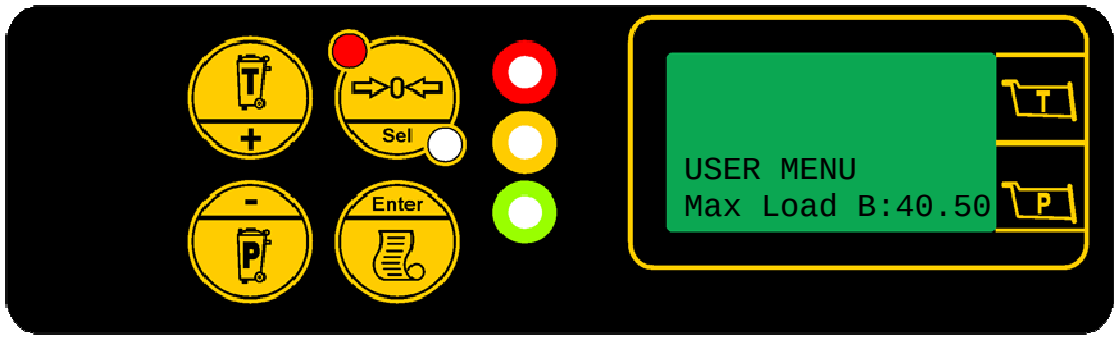


Setting of the Max Load

- From the operating screen to keep pressed the  key to enter the User Menu
- Scroll the User Menu with  ,  keys and select the line “Max Load”. The actual value is displayed.
- Press  key to enter the new setting.
- Set the value of the Max Load (look to paragraph “Set value”).
- Press&hold (3 sec)  key to go back to the operative page.

4.6.3 Max Load Bucket Setting

The Max Load Bucket setting allows to set a maximum threshold of bucket load for the “Traffic Lights” indication.



Setting of the Max Load Bucket

- From the operating screen to keep pressed the  key to enter the User Menu
- Scroll the User Menu with  ,  keys and select the line “Max Load B”. The actual value is displayed.
- Press  key to enter the new setting.
- Set the value of the Max Load B (look to paragraph “Set value”).
- Press&hold (3 sec)  key to go back to the operative page.

4.6.4 Machine calibration Selection

The Machine function allowed to select the desired calibration mode typically used when the machine is equipped with 2 different lifting devices (e.g. Bucket / Forks).

Note: This selection is not possible if the regenerative valve management is enable (refer to the Calibration Manual).

Selection of the machine (machine calibration)

- From the operating screen to keep pressed the 

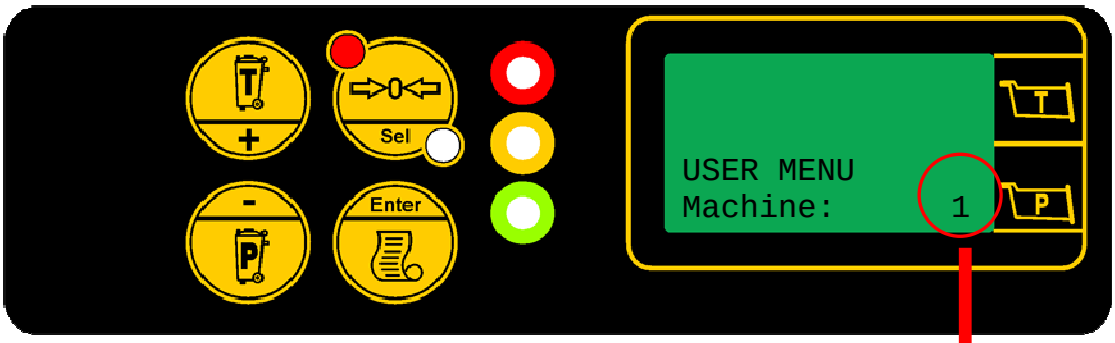
key to enter the User Menu.
- Scroll the User Menu with 

, 

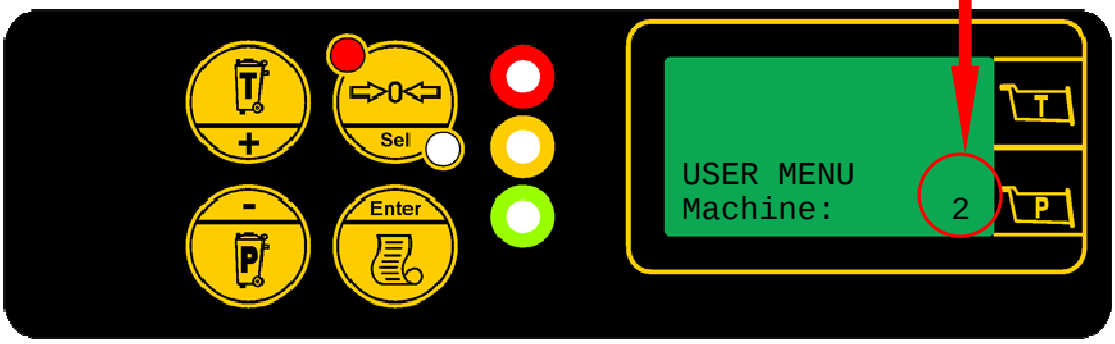
keys and select the command “Machine”. The actual value is displayed.
- Press once 

key to active the machine calibration (1/2).

“1” : Machine1 active



“2” : Machine2 active

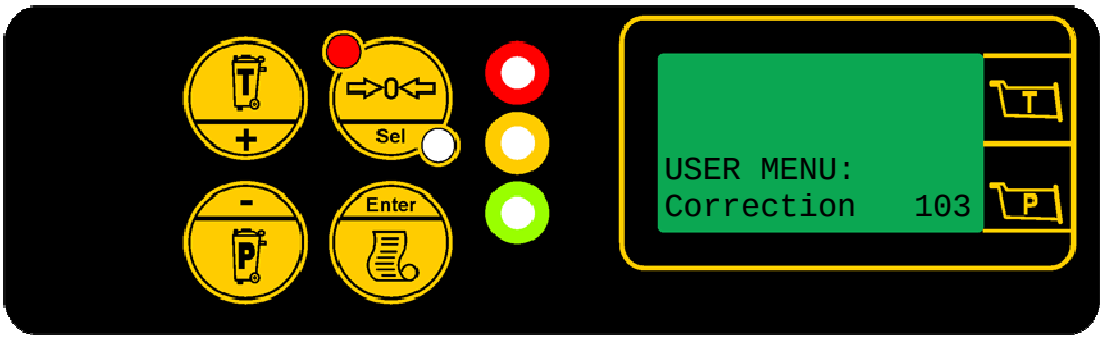


- Press&hold (3 sec) 

key to go back to the operative page.

4.6.5 Correction Setting

The “Correction” function is used to override persisting minor errors in each weighing cycle.



It is possible to set a factor of ±10% in relation to the calibration value:

- 100 = no correction factor is evident.
- 110 = the maximum positive correction to increase the weighed load.
- 90 = the maximum negative correction factor to decrease the weighed load.

Set the correction

- From the Operating screen to keep pressed the  key to enter the User Menu.
- Scroll the menu with  e  keys and select the “Correction” setting
- Press  key to enter the function.
- Set or modify the value of the correction (look to paragraph “Set value”).
- Press&hold (3 sec)  key to go back to the operative page.

4.6.6 Buzzer Setting

The “Buzzer” function is used to set the status of the buzzer (continuous or silent sound) during the weight calculation process in the Static Weighing Mode.
This function is settable only in Static Weighing Mode.

Enable/disable Buzzer

- From the operating screen to keep pressed the 

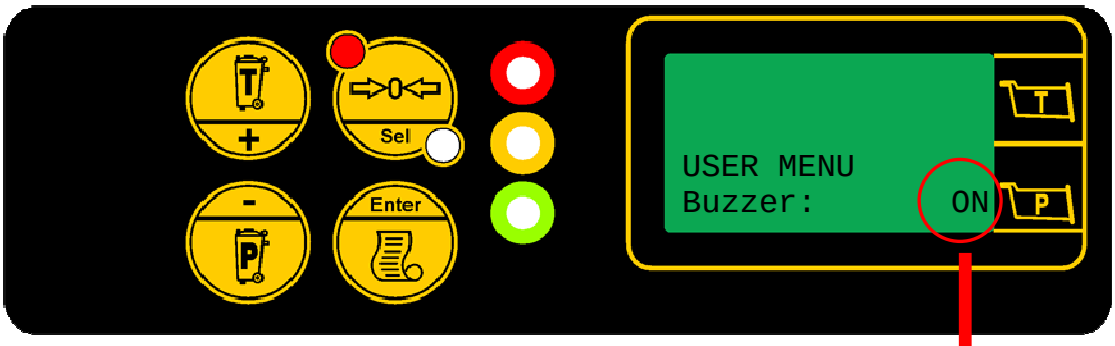
key to enter the User Menu.
- Scroll the menu with 

, 

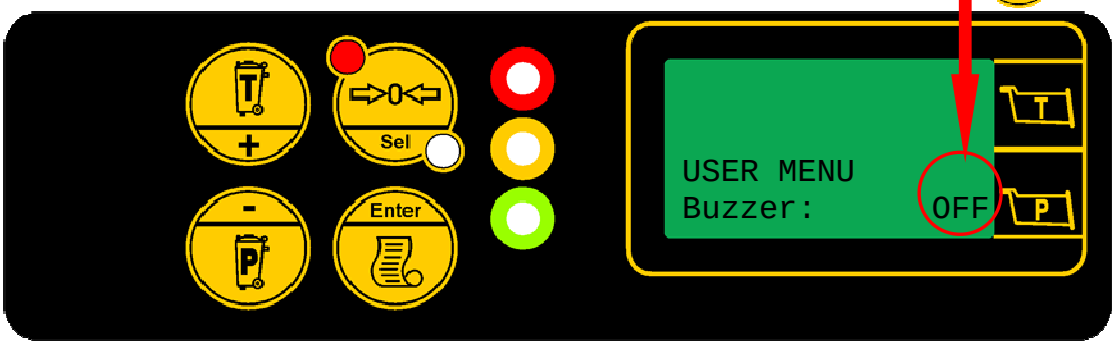
keys and select the command “Buzzer”.
- Press 

key to enable/disable the function

ON: Buzzer active



OFF: Buzzer silent



- Press&hold (3 sec) 

key to go back to the operative page.

4.7 SYSTEM SETUP

4.7.1 Language Setting

It is possible to select the language of the menus.

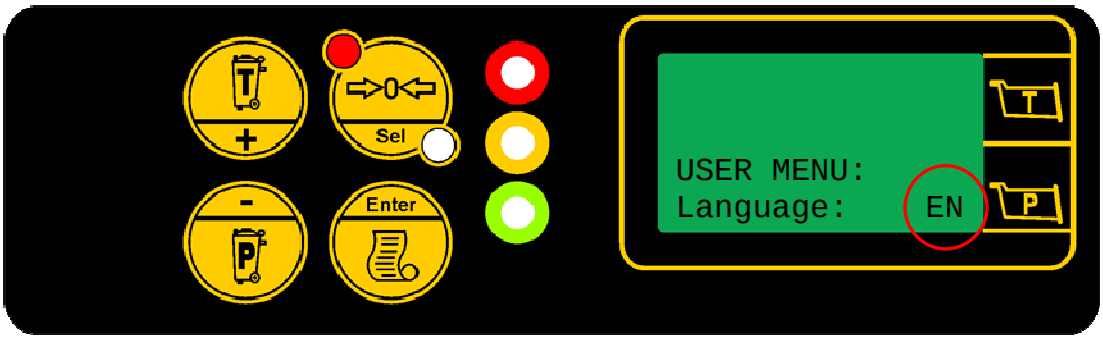
- From the operating screen to keep pressed the 

key to enter the User Menu.
- Scroll the menu with 

, 

keys and select the command “Language”. The screen shows the language in use.
- In the “language” command, press 

key until the language to use in is set.



- Press 

to go back to operative page. The selection is automatically setted.

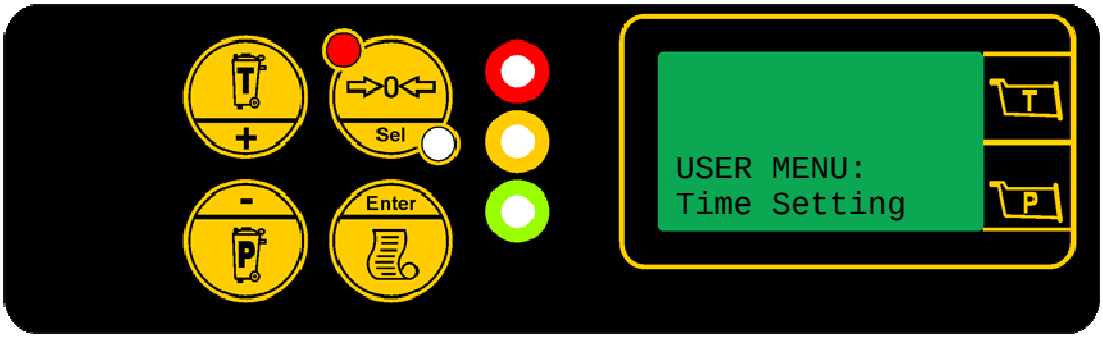
Language List:

IT = Italian
UK = English
ES = Spanish
FR = French
TR = Turkish
FM = Flemish
PT = Portuguese
GE = German
DK = Danish
NW = Norwegian

4.7.2 Time Setting

To modify the Time and Date.

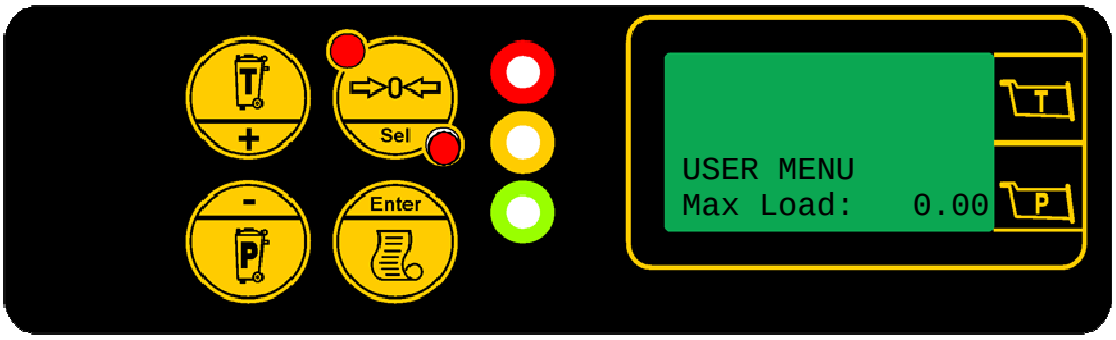
- From the operative screen to keep pressed the  key to enter the User Menù.



Display	Type	Description
USER MENU **Time setting**	*HEADING menu*	Select the “time setting” menu with  ,  and confirm with  .
TIME SETTING **minute: X** **hour: X** **day: X** **month: X** **year: X**	*HEADING setting* *setting* *setting* *setting* *setting*	**Time setting Menu** Use the  ,  keys to scroll the lines and  to enter the value (to set the value look the paragraph “Set value”).
TIME SETTING **update time…** **ENTER to confirm** **time update!**	*HEADING command* *command* *visualize*	Select the line and press  to confirm the setting. Press again  to save the setting. The system displays this message to confirm the modifications.

4.8 SET VALUE

Set a new value, for example Max Load.



Display	Description
USER MENU Max Laod: 0.00	With  ,  keys select the function to set (e.g. “Max Load”) and press  to enter the setting.
Max Laod: 0.00 Max Laod: *0.00 Max Laod: *1.00 Max Laod: 1.00	Press the  key to enable the setting. The asterisk displayed shows the digit to be modified. Use  key to scroll the asterisk above the digit to change. Use the  ,  keys to modify (increase/decrease) the value of the digit. Press  key to confirm the changes. The asterisk disappears. Press&hold  to exit the setting.

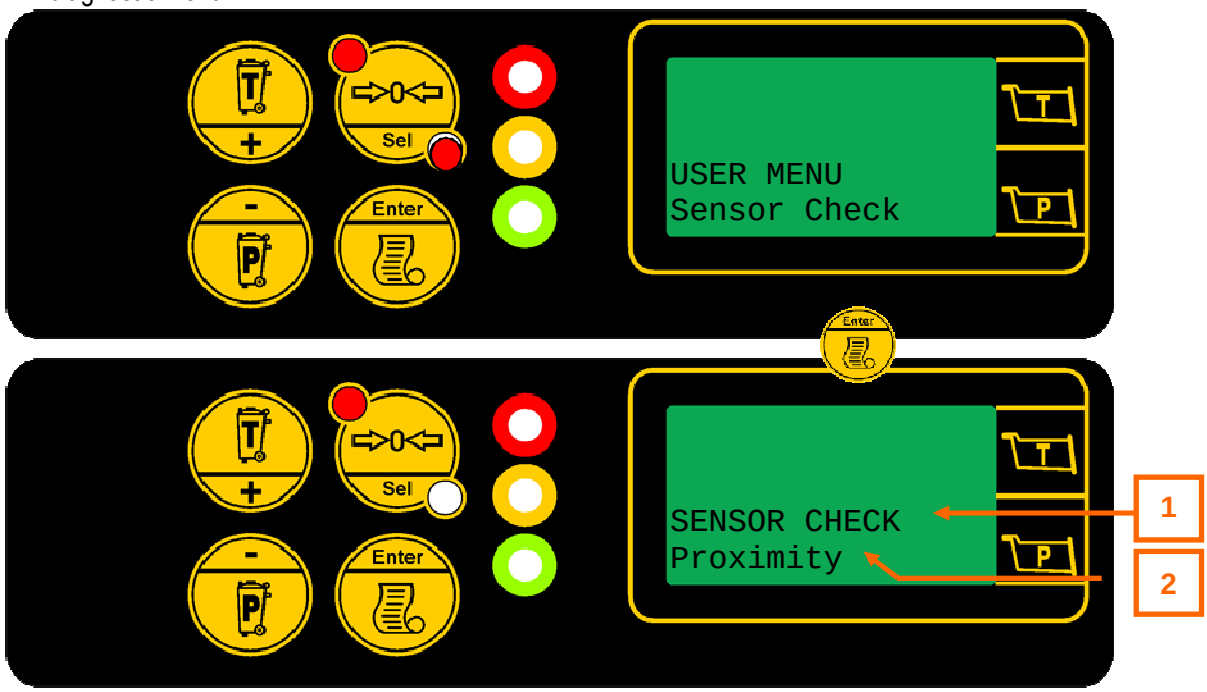
5

Diagnostic

The diagnostic allows viewing the status of all inputs and outputs of the Slim.

5.1 ENTER DIAGNOSTIC

- From the operating screen to keep pressed the  key to enter the User Menu.
- Scroll the menu with  ,  keys and select the function “Sensor check” and press  to enter the diagnostic menu.



Key / Ref.	Description
	To scroll the menu list
	To accede sub-menus or enable/disable commands (ON/OFF).
	Press&hold (3 sec): exit from the menu. The display turns on the operating screen.
1	1st line: Menu Header
2	2nd line: Menu List

5.2 DIAGNOSTIC MENU

Display	Type	Description
SENSOR CHECK **Proximity**	*HEADING* *sub-menu*	Use the  keys to scroll the sub-menu. To accede the sub-menu, by pressing the  key.
Proximity	*sub-menu*	Access to proximity menu
on-off outputs	*sub-menu*	Access to on-off outputs menu
pressure sensors	*sub-menu*	Access to pressure sensors menu

5.2.1 Proximity Inputs

This menu visualizes the status of the proximity switches.

The proximity status is normally OFF. During the weighing cycle, when they become active, the status is ON.

Display	Type	Description
INPUT STATUS **proxy.1 OFF**	*HEADING* *visualize*	Status of the Proximity 1 Input
proxy.2 OFF	*visualize*	Status of the Proximity 2 Input
		Use the  keys to scroll the data.

5.2.2 On-Off Outputs

This menu visualizes the status of the digital outputs.

Display	Type	Description
OUTPUT STATUS **Buzzer OFF**	*HEADING* *visualize*	Status of the Slim internal buzzer (ON=active)
Output 4 OFF	*visualize*	Printer power supply status (ON=active)
		Use the  keys to scroll the data.

5.2.3 Pressure and Angle Sensors

This menu visualizes the status of transducers and angle sensors.

Menu Text	Type	Description
ANALOGUE VALUE	*HEADING*	
Press.Low XXXX	*visualize*	Piston side transducer output value
Press.High XXXX	*visualize*	Rod side transducer output value
Boom Ang1 XXXX	*visualize*	Boom angle sensor (machine 1)
Chassy Ang1 XXXX	*visualize*	Chassis angle sensor (machine 1)
Boom Ang2 XXXX	*visualize*	Boom angle sensor (machine 2)
Chassy Ang2 XXXX	*visualize*	Boom angle sensor (machine 2)
		Use the  keys to scroll the data.

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