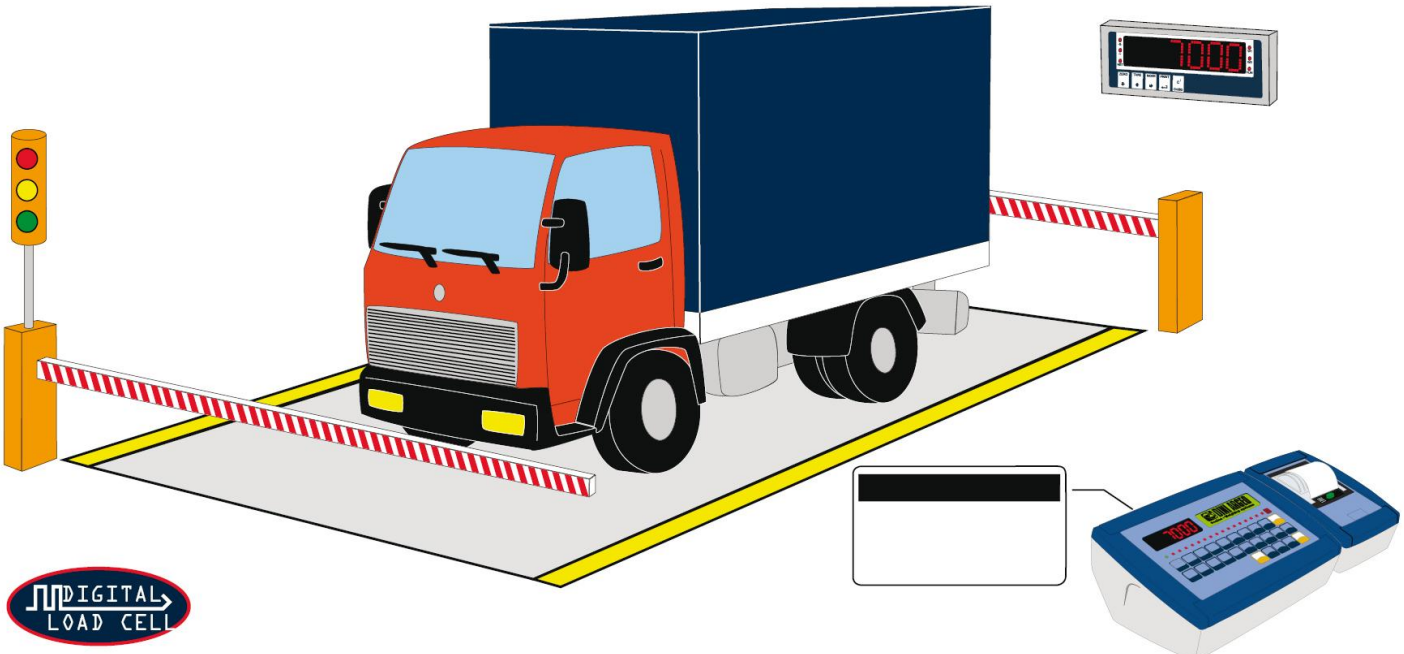
EGT-AF03 USER GUIDE

VEHICLE WEIGHING SYSTEMS WITH INPUT/OUTPUT FUNCTION



Revision	2.00
Last update	07/01/2013

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1 INTRODUCTION

This manual was created to help you install and learn all about the functional possibilities of the purchased indicator.
The instrument is suitable for use in various weighing environments.
Not only does it have all the normal features of high-precision scales, but it also gives you the possibility to work in specific environments due to the functioning modes contained in the software implemented in the FLASH MEMORY on the internal board. This makes the instrument extremely flexible and it can be used in many different industrial applications linked to weighing. The touch screen, the numerical and function keyboard, allow the operator an easy and immediate use and provide the microcontroller with DATA ENTRY functions in addition to the normal weighing functions. The input/output allows the instrument to control various external devices, to receive external commands, control a printer and communicate with a personal computer or to be inserted in a network of weight indicators controlled by a PC.

WARNING

Please note that this instrument is covered by a warranty and **MUST NOT BE OPENED BY THE USER** for any reason whatsoever. Any attempt to repair or modify the unit exposes the user to the risk of electric shock and will invalidate the entire warranty.
If any problems are found in the unit or with the system in which it is used, the fact must be communicated to the manufacturer or the dealer from whom it was purchased.
In any case, **DISCONNECT THE POWER SUPPLY** before taking any action.

- Do not pour liquids on the weight indicator.
- Do not use solvents to clean the weight indicator.
- Do not expose the instrument to direct sunlight nor place it near heat sources.
- Place or anchor the weight indicator and platform on a non-vibrating base.
- All the connections of the indicator have to be made respecting the rules applicable in the zone and in the installing environment.

Everything not expressly described in this manual has to be considered as improper use of the equipment.

Do not install in any area where there is a risk of explosion.

The crossed-out wheeled bin on the product means that at the product end of life, it must be taken to separate collection or to the reseller when a new equivalent type of equipment is purchased. The adequate differentiated refuse collection in having the product recycled, helps to avoid possible negative effects on the environment and health and supports the recycling of the materials of which the equipment is made. The unlawful disposal of the product by the user will entail fines foreseen by the current regulations.

Used symbols through the manual

	ATTENTION! Only qualified personnel must perform this operation
	ATTENTION! This is referred to working with live wires: only qualified personnel must perform this operation.
	CE CONFORMITY
	IDENTIFIES THE CLASS OF PRECISION.
	It identifies an advanced function explained in the technical manual (for technical personnel).

2 TECHNICAL SPECIFICATIONS

POWER SUPPLY	12 Vdc (8 ÷ 24 Vdc in the IO versions), with internal 100 ÷ 240 Vac (50÷60 Hz) / 12 Vdc adapter.
MAXIMUM POWER	16 VA.
OPERATING TEMPERATURE	From -10 to +40 °C.
CONVERTER	24 bit Sigma Delta.
CONVERSION SPEED	200 conv./sec with automatic selection.
RANGE OF INPUT SIGNAL	0.6 mV/V – 3.2 mV/V.
MINIMUM VOLTAGE PER DIVISION	0.3 μV (approved instrument); 0.03 μV (non-approved instrument).
AUTOMATIC ZERO DETECTION	Only in gross mode, programmable at +/- ¼, ½, 1, 2 divisions.
ZERO RANGE	Configurable up to +/- 50% of max load capacity.
AUTO ZERO AT START-UP	Configurable up to +/- 50% of max load capacity.
LOAD CELL POWER SUPPLY	5Vdc ± 5%, 120mA (max 8 350Ω cells).
LOAD CELL CONNECTIONS	6 wires with Remote Sense.
DISPLAY DIVISIONS	10000e, 3 x 3000e for legal for trade weighing, expandable up to 800.000 for internal use (with **minimum** signal coming from the 1.6 mV/V cell).
DISPLAYS	Graphic touch screen 320x240 dots (black & white).
DATABASE/MEMORY	Customers database of 500 items (3 descriptions of 25 characters each) Materials database of 500 items (2 descriptions of 20 characters each) Vehicles database of 500 items (10 characters plate, 20 characters description, linked tare)
SIGNALS	3-way control light
KEYBOARD	Impermeable polycarbonate keyboard (IP65 protection degree), with membrane keys with audible and tactile feedback.
PARAMETER SETUP	Calibration and linearity (up to 8 points), fully digital and programmable from the keyboard or from PC with Dinitools ™.
CLOCK/DATE	Fitted, with buffer RAM.
SERIAL OUTPUTS	- 2 input/output RS232 ports on terminal board/ amp connector. - 1 input/output RS485 port on terminal board or RS232 on amp connector.
INPUTS AND OUTPUTS	- Management of PC keyboard or barcode reader - 2 optoisolated inputs (optoisolated photo couplers), 12Vdc – 24Vdc, 20mA max - 4 outputs (optoisolated photomosfets), 48Vac / 0.15A, 60Vdc / 0.15A, 10 Ω max. With IO expansion: - 8 inputs (optoisolated photo couplers), 12Vdc – 24Vdc, 20mA max. - 16 outputs (optoisolated photomosfets), 48Vac / 0.15A, 60Vdc / 0.15A, 10 Ω max.
ANALOG OUTPUT (with analog expansion board)	16-bit analogue output configurable from keyboard (full-scale value; zero scale value and minimum value) from 0 to 10 Vdc or from 0 to 20mA; the maximum resistance applicable on the output current is 350 Ω and the minimum resistance applicable on the output voltage is 10 kΩ.

3 INSTALLATION

3.1 Case and dimensions

The indicator has an STAINLESS STEEL case, whose external dimensions are shown in the Figure 1. It can be simply put on a table or fixed to a shelf or column available on request.

NOTE: If the identification plate is supplied separately (therefore not attached to the indicator), it is advisable to attach it to the indicator, in order to be able to identify the instrument.

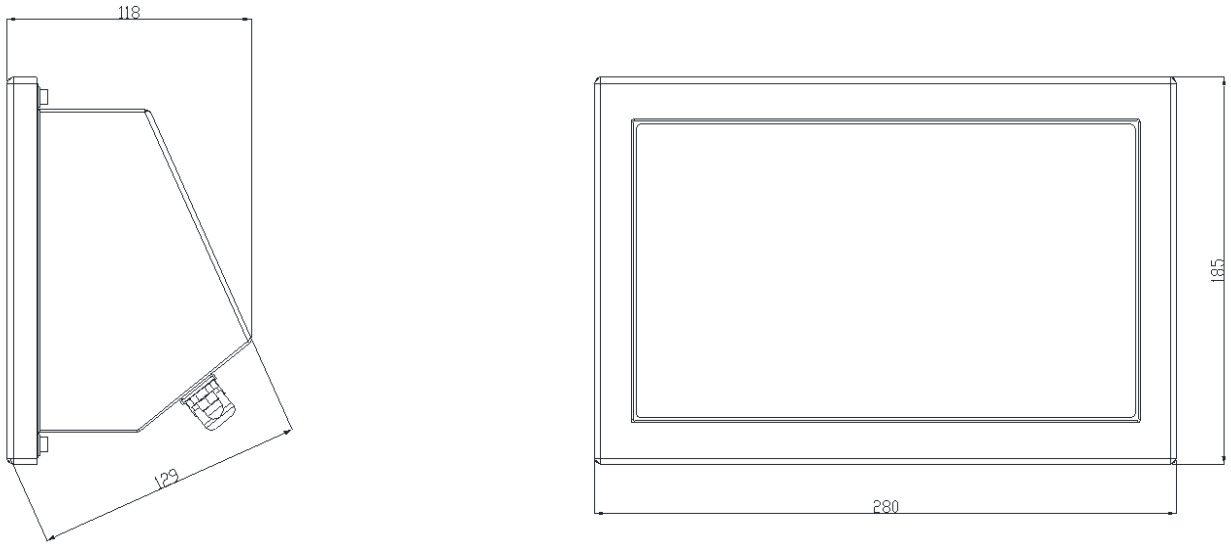


Figure 1. Measurements and dimensions in mm

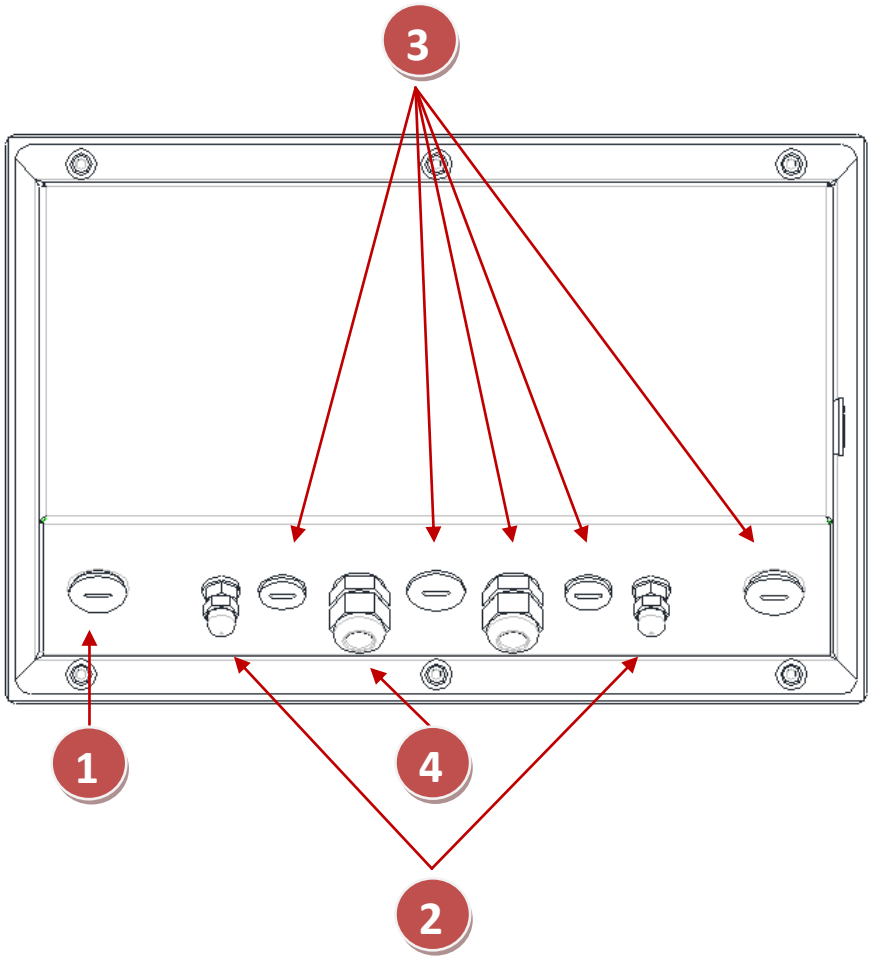


Figure 2. Back panel

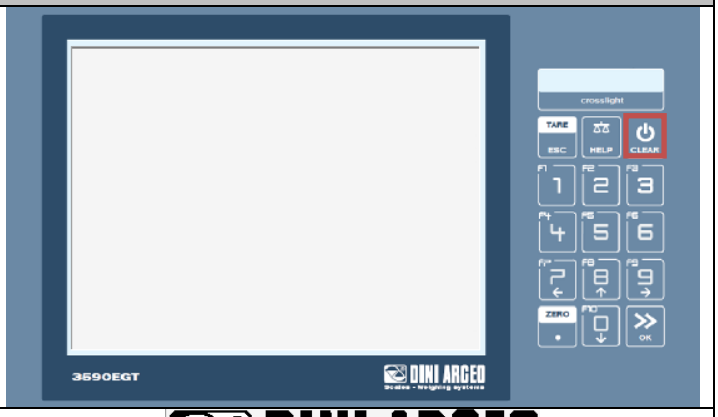
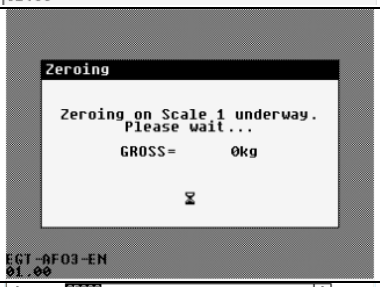
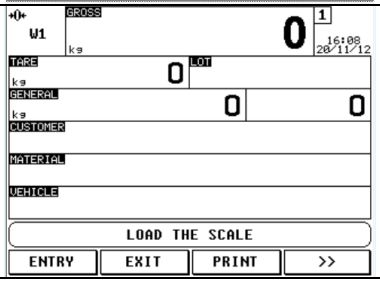
Part	Description
1	RJ45 connector
2	Fixing for shelf or column mounting
3	Available for load cells / serial lines / inputs / outputs
4	Power supply input

3.2 Power supply

The indicator is powered with 12Vdc voltage (8 ÷ 36 Vdc in the IO version), through an internal adapter which converts the 100 ÷ 240Vac, 50÷60Hz mains voltage.
To power the instrument through the 240 Vac mains insert the plug and the adapter to the 240 Vac mains socket.

- To connect the indicator to the power mains, the safety regulations must be observed, including the use of a "clean" line without disturbances or interference caused by other electronic equipment.
- Do not connect other equipment to the same socket as the one that the adapter is in.
- Do not step on or crush the power supply cable.

3.3 Start up

Step	Description	Screen
1	Press the CLEAR key until when the instrument powers on	
2	The logo (Logo to show at the start up) and the software version appear for some instants. EGT-AF03-XX is the name of the installed software, in which XX identifies the language. XX.YY is the installed software version.	
3	The zeroing procedure clears the weight on the scale within the tolerance (Automatic zeroing at start up)	
4	The main screen appears on the display	

3.4 Turning off the instrument

To turn off the indicator press the CLEAR key until when the logo appears on the display.

4 INDICATOR PARTS

Figure 3. Front panel

Part	Description
1	Touch screen
2	Cross light (3 colors)
3	Keyboard

4.1 Display

The indicator presents 2 main screens, illustrated in the below scheme:

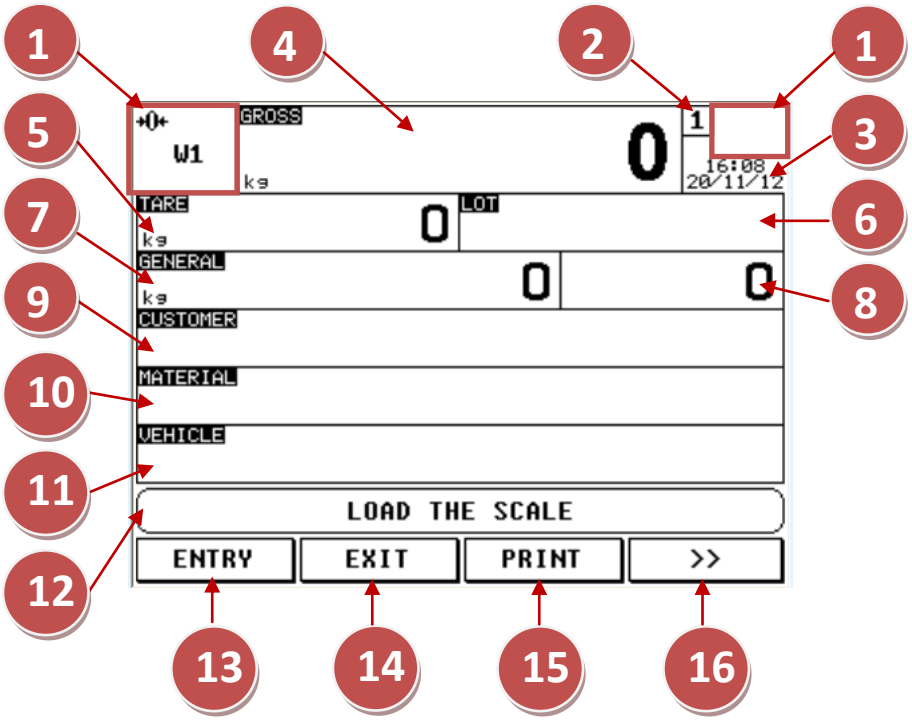


Figure 4. First main screen

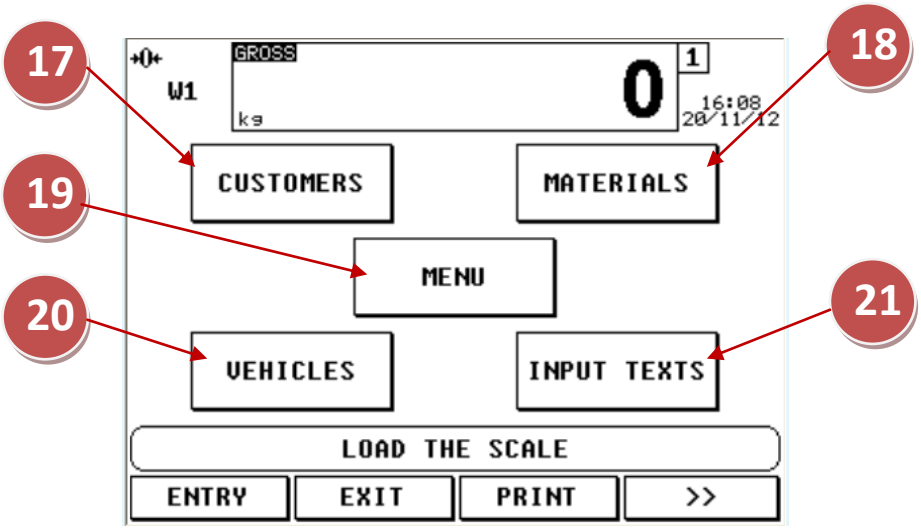
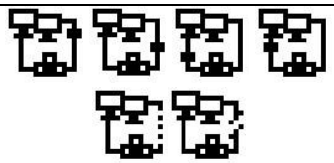


Figure 5. Second main screen

Element	Description
1	Display indicators
2	Active scale Touch to switch to the next scale
3	Time and date Touch to change the date
4	Weight value on the active scale Touch to tare the gross weight
5	Tare value Touch to insert a preset tare
6	Description of the first input text (LOT) Touch to change the description of the first input text
7	Net value of the general total Touch to print and reset the general total
8	Number of weighs of the general total Touch to print and reset the general total
9	Selected customer Touch to select a customer
10	Selected material Touch to select a material
11	Selected vehicle Touch to select a vehicle
12	System messages area
13	Touch to execute the entry weigh
14	Touch to execute the exit weigh
15	Touch to print
16	Touch to switch to the next screen
17	Touch to manage the customers database
18	Touch to manage the materials database
19	Touch to access to the indicator functions
20	Touch to manage the vehicles database
21	Touch to manage the input texts

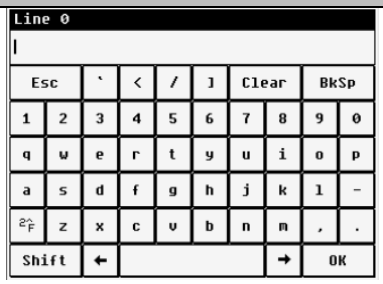
4.1.1 Display Indicators

Symbol	Description
	The weight detected by the weighing system is near the zero, included within the interval of –1/4 and +1/4 of the scale division
	The weight is unstable
	A tare value has been acquired
	A preset tare value has been entered
	Active weighing range
	Locked keyboard
	Transmission of the data to the printer serial port underway
	Network communication status: the first 4 pictures identify that the communication works well, while the others 2 identify the disconnected network

4.1.2 Numeric input

Screen	Function
	Allows to insert a numeric value within the range. X ~ Y: range of the value to insert **0…9**: numbers **.**: decimal point **+/-**: positive or negative sign **/ * - +:** arithmetic operations **C**: clears all the value **BkSp**: backspace **OK**: exit saving the value **Esc**: exit without saving the value

4.1.3 Alphanumeric input

Screen	Function
	Allows to insert a alphanumeric text. **←** **→**: scroll left or right **Clear**: clears all the text **Bksp**: backspace **2^F**: switches to special characters **Shift**: changes the character case and switches between letter and number modes **OK**: exit saving the text **Esc**: exit without saving the text NOTE: on the first pressed key all the field is replaced

4.2 Keyboard

Key	Function
	Press to clear the tare Press for a long time to power on/off the instrument
	Press to tare the gross weight
	Press to switch to the next scale
	Press to zero the scale
	Press to switch to the next screen
 … 	Press to insert the preset tare

4.3 Cross light

The standard functioning in the weighing environment is described in the table:

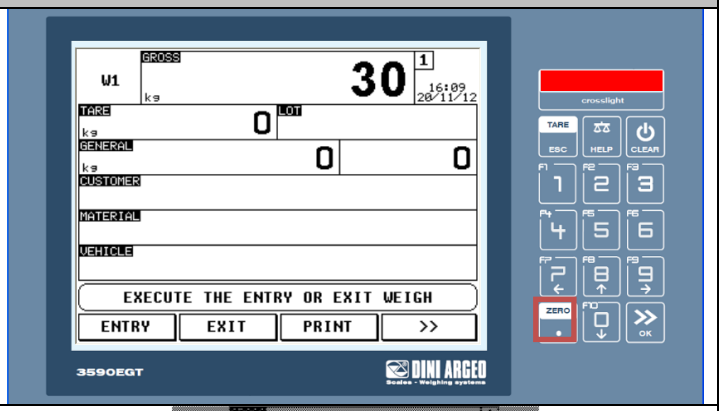
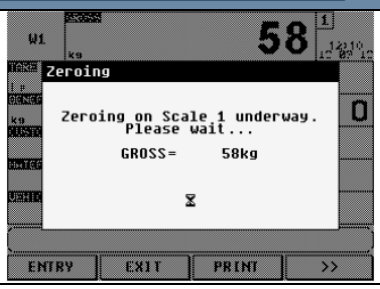
Step	Description	Light
1	The scale is unloaded and the vehicle is not yet positioned on the scale: the green light turns on	
2	The vehicle is now positioned on the scale (when the net weight is over the activation threshold of output 3, see section 5.6): the green light turns off and the red light turns on	
3	After the execution of the entry or exit weigh, the RED light turns off and the GREEN light turns back on	
4	The vehicle descends from the scale and the GREEN light continues to stay on	
5	It is possible to execute another weigh with the same procedure	

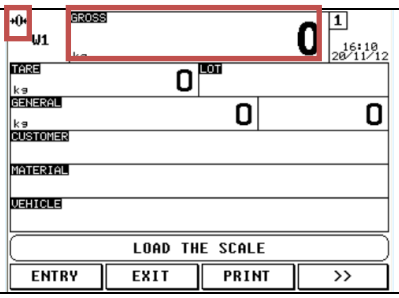
5 MAIN FUNCTIONING DESCRIPTION

All the functions of the indicator are available from the MENU button in the second screen. The functions are divided into the following groups:

Group	Description
Scale functions	Operations to the weight (zeroing, tare, …)
Printout	Print functions management
Generic functions	Generic operations to the indicator (lock keyboard, calculator, …)
Diagnostic	Functions to check the peripheral units working state
Input texts	Input texts management
Databases	Databases management
AF03 functions	Input/output weighing operations
Totals	Print and reset of the totals
Progressives	Weigh progressives management
Network functions	Network communication management (Visible if the network is enabled, Ethernet)

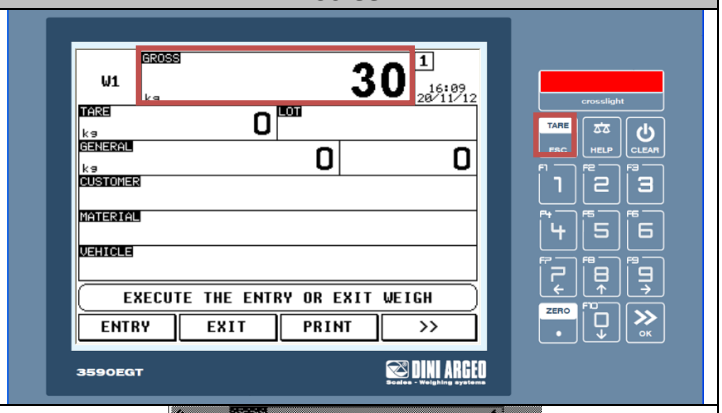
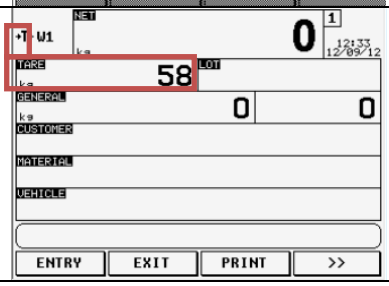
5.1 Zeroing

Step	Description	Screen
1	Press the ZERO key	
2	A message appears on the display during the zeroing	

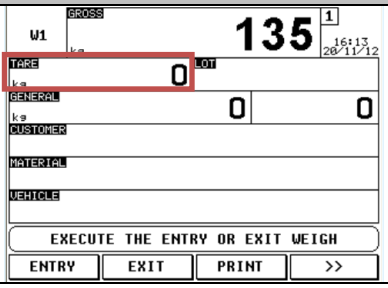
3	If the weight on the scale is included in the percentage (Zeroing percentage with ZERO key), it is zeroed and the →0← indicator turns on	

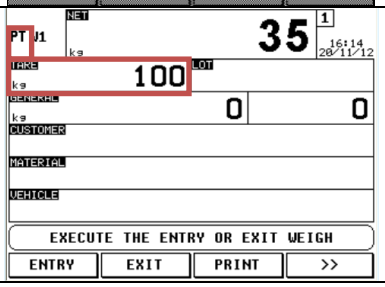
5.2 Tare

5.2.1 Semiautomatic tare

Step	Description	Screen
1	Press the TARE ESC key or touch on the weight area to tare the gross weight on the scale	
2	A message appears on the display	
3	If the weight is almost one division and is stable and valid (not in the underload/overload condition), the gross weight is stored as tare and the →T← indicator turns on	

5.2.2 Preset tare

Step	Description	Screen
1	Touch on the tare area	

2	Insert the preset tare value and confirm with the **OK** key	
3	The entered value is subtracted from the gross weight and the **PT** indicator turns on	

5.2.3 Link a preset tare to a vehicle

It's possible to insert the tare value of a vehicle in the database. By selecting the vehicle the preset tare is activated.

5.2.4 Tare cancellation

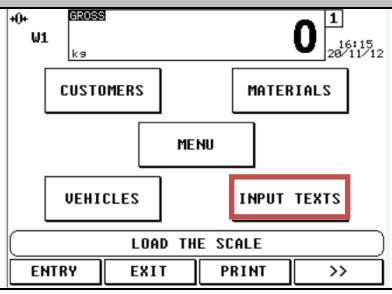
It's possible to cancel the stored tare value in the following ways:

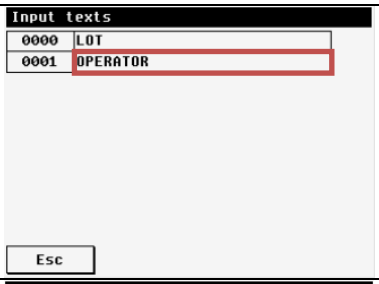
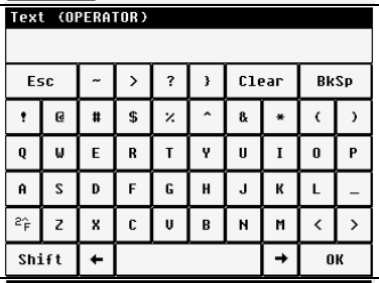
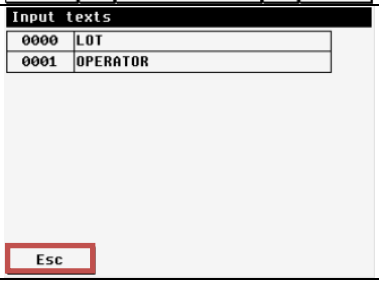
- Zeroing the scale
- By touching the weight area or by pressing the TARE/ESC when the platform is unloaded;
- By setting the preset tare value to 0;
- By pressing the CLEAR key.

5.2.5 Locked/unlocked tare

Normally the tare is active until when the cancellation operation (locked tare). One can also choose that the tare value is cancelled automatically when the scale is unloaded (unlocked tare) through Menu → Scale functions → **Lock/Unlock tare** function.

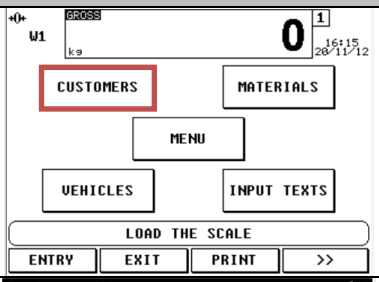
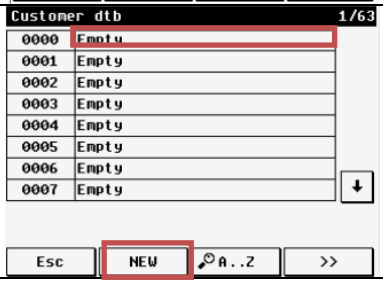
5.3 Input texts

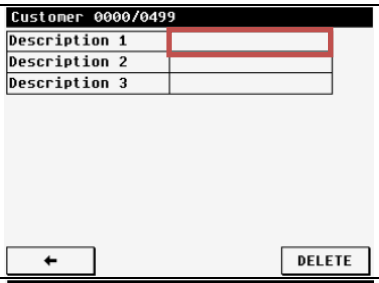
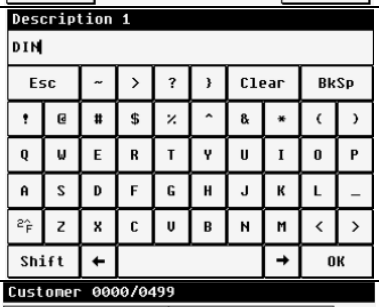
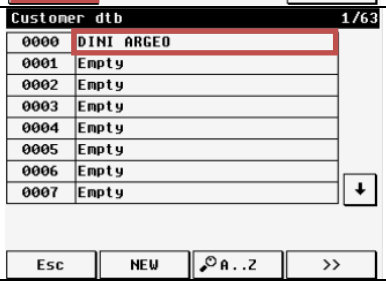
Step	Description	Screen
1	Touch on the button to get access to the input texts	

2	Touch on the desired text to be changed	
3	Insert the content of the text and confirm with the **OK** button	
	Touch on the **ESC** button to go back to the main screen	

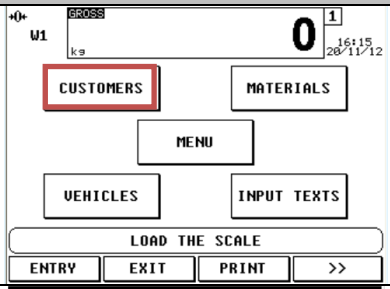
5.4 Databases

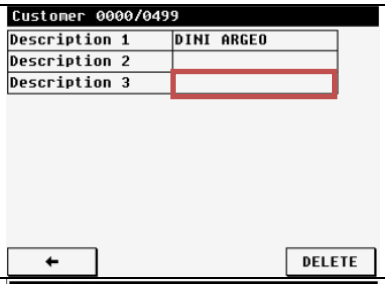
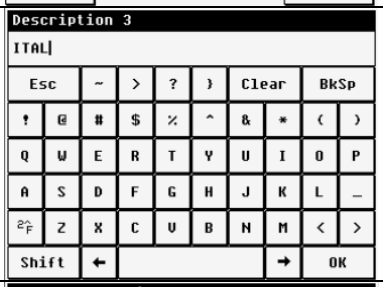
5.4.1 Insertion

Step	Description	Screen
1	Touch on the button to get access to the desired database	
2	Select the desired position by touching the element or by touching the **NEW** button to insert an element in the first empty position	

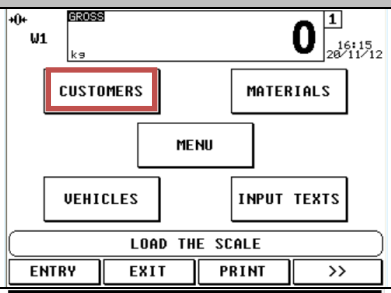
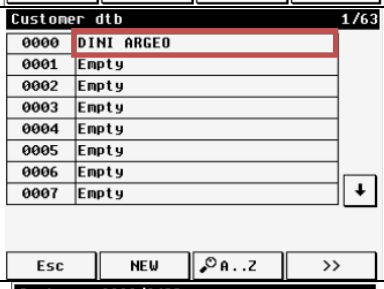
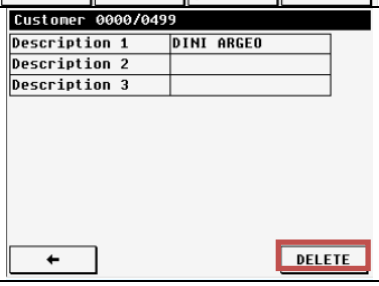
3	Touch the first field to insert the content	
4	Insert the content of the field and confirm it with the **OK** button	
5	Repeat the operation for the desired fields and press the ← button to confirm or the **DELETE** button to cancel	
6	The inserted element appears in the table with the first field value	

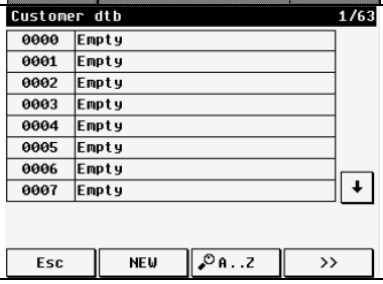
5.4.2 Modification

Step	Description	Screen
1	Touch the button to get access to the desired database	
2	Touch the element or the **A..Z** button to search the element to be updated	

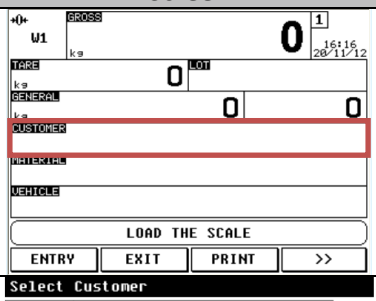
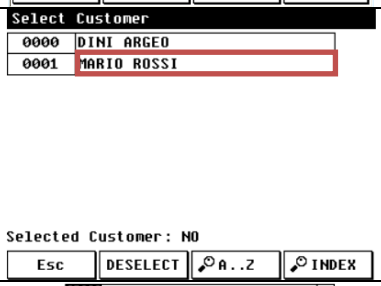
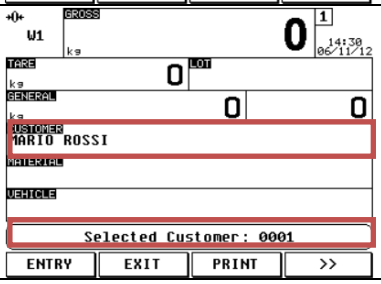
3	Touch the desired field to be modified	
4	Insert the content of the field and confirm it with the **OK** button	
	Repeat the operation for the desired fields to be updated and press the ← button to confirm	

5.4.3 Cancellation

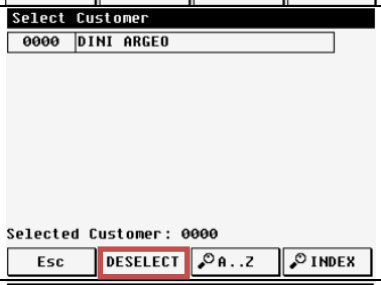
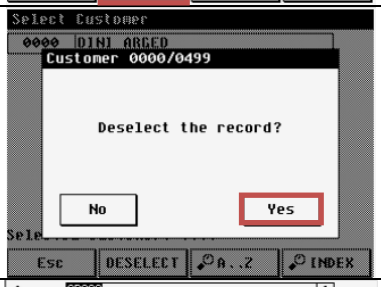
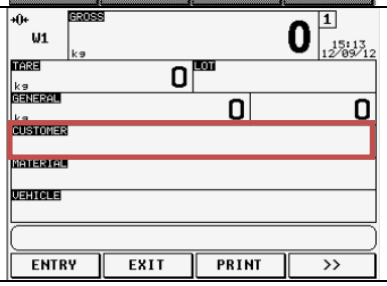
Step	Description	Screen
1	Touch the button to get access to the desired database	
2	Touch the element or the **A..Z** button to search the element to be deleted	
3	Touch the **DELETE** button	

4	Press the button to confirm or not the cancellation	
5	The element has been removed from the database	

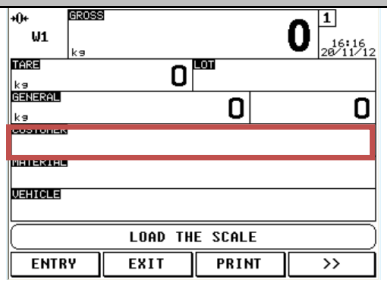
5.4.4 Selection

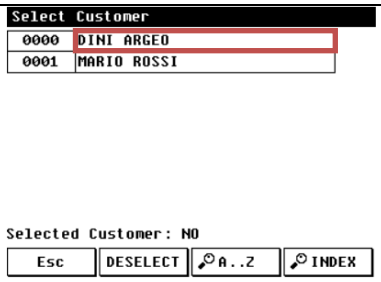
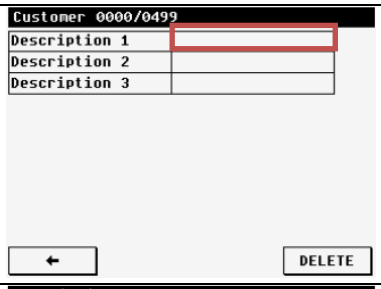
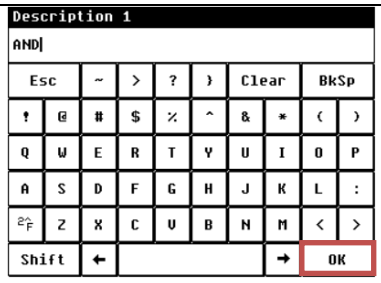
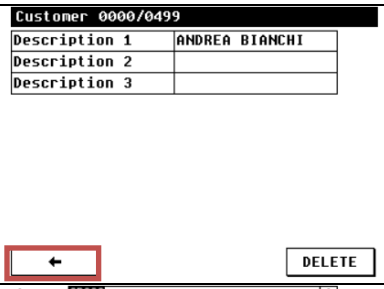
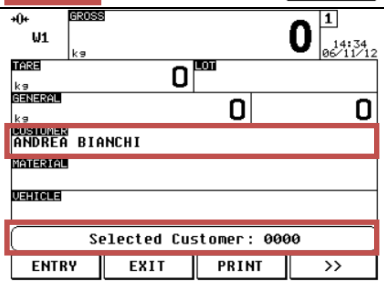
Step	Description	Screen
1	Touch the button in the first main screen to get access to the elements present into desired database	
2	Touch the desired element to select	
3	The description of selected element appears on the display	

5.4.5 Deselection

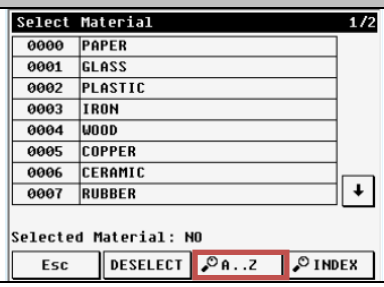
Step	Description	Screen
1	Touch the button in the first main screen to get access to the elements present into desired database	
2	A message indicates the index of the selected element. Touch the **DESELECT** button to deselect this element	
3	Press the button to confirm or not the deselection	
4	The description of previous selected element disappears on the display	

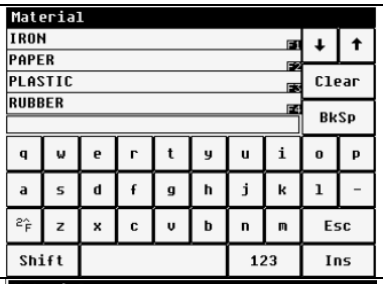
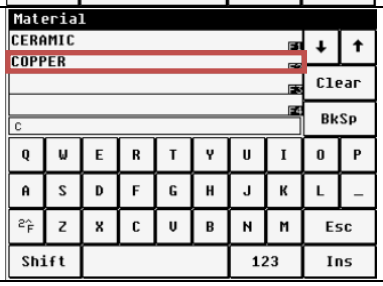
5.4.6 Insertion and quick selection of the temporary element

Step	Description	Screen
1	Touch the button in the first main screen to get access to the elements present into desired database	

2	Touch the element 0000 to insert the temporary element: the previous element will be cleared	
3	Touch the first field to insert the content	
4	Insert the content of the field and confirm it with the **OK** button	
5	Repeat the operation for the desired fields and press the ← button to confirm and select it immediately or the **DELETE** button to cancel	
6	The description of element 0000 appears on the display	

5.4.7 Alphanumeric search

Step	Description	Screen
1	Touch the **A..Z** button in the database update/selection screen	

2	Insert the first characters of the element to search	
3	The table shows all the elements with the typed characters. Then touch the desired element	

5.4.8 Search by element index

Step	Description	Screen
1	Touch the **INDEX** button in the database update/selection screen	
2	Insert the index of the desired element and confirm. In selection the element is selected and the main screen is displayed. In update the element fields are displayed and can be modified.	

5.5 Printouts

The indicator has 12 print functions, each function has an associated format. When a function has been put into execution through the operation illustrated in the scheme, the associated format is sent to the print serial port.

There are 30 available formats to associate to the print functions. To change the format of the print function use MENU → Printout → **Change the printout format**.

Nr.	Print function	Operation	Format
1	SIMPLE PRINTOUT	PRINT in the first main screen With the approved instrument the net weight must be almost 20 divisions. With the non approved instrument the net weight must be greater than zero.	1
2	PARTIAL TOTAL	MENU → Totals → **Print partial total**	2
3	GENERAL TOTAL	MENU → Totals → **Print general total**	3
4	GRAND TOTAL	MENU → Totals → **Print grand total**	4
5	SINGLE WEIGH	ENTRY or EXIT in the first main screen	5
6	ENTRY WEIGH	ENTRY in the first main screen	6
7	EXIT WEIGH	EXIT in the first main screen	7
8	CUSTOMER TOTAL	MENU → Totals → **Print customer total**	8
9	MATERIAL TOTAL	MENU → Totals → **Print material total**	9
10	VECHICLE TOTAL	MENU → Totals → **Print vehicle total**	10
11	START UP		11
12	CALCULATOR RESULT	MENU → Generic functions → **Calculator**	12

5.6 Setpoints

To set the setpoints thresholds follow the path MENU → Generic functions → **Outputs setpoint setting**. A screen like the of Figure 6 is displayed. In the example outputs 2 and 3 are configured with hysteresys disabled ( Digital outputs).

Press one of the two ON values, the usual numeric input screen is displayed. Insert the desired value.

At the end press **Esc** to go back to Generic functions menu.

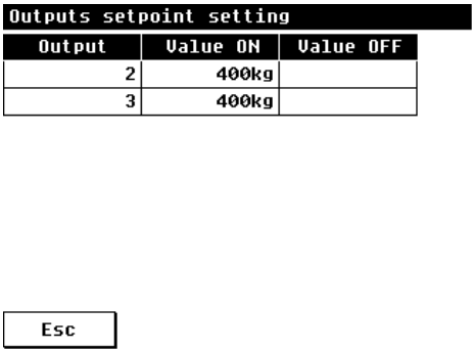


Figure 6. Setpoints thresholds setting

6 WEIGHING PROCEDURE

Besides the basic standard weighing function, this EGT-AF03 version allows to keep under control the flow of goods in input and output from a warehouse or a factory, with the possibility of simultaneously managing up to 999 vehicles, also on two scales; these vehicles can be managed as single vehicles or as vehicles with trailer (Weighing mode).
To guarantee correlation between the two operations, the system foresees two identification methods: through ID code or through the LICENSE PLATE of the vehicle (Memorization type of input weigh).
The implementation of external modules like the PC keyboard, the bar code or badge readers, allows to quicken the weighing operations.
Furthermore, the programme has been made to manage the accumulation and the printing of the weight difference.
The weight difference is automatically accumulated in the instrument totals (PARTIAL, GENERAL, GRAND TOTAL), and the weighs' progressives are automatically increased relative to the previously shown totals.
Furthermore, if a customer/material/vehicle has been enabled, the instrument increases both the totals as well as the weighs' progressive relative to the selected article.

6.1 Input weigh

6.1.1 Single vehicle

To execute the input weigh follow the steps below:

1. Position the vehicle on the scale
2. Select, if required, the customer / material / vehicle to be linked to the weigh
3. Touch the toolbar ENTRY button
4. The display will show the screen of Figure 7
5. If the scale captures the weight correctly it will execute the printout, if configured, and displays the main screen again with the information about the weigh (Figure 9)
6. If the scale is unable to capture the weight, because of instability for example, the screen of Figure 8 is displayed
7. Touch **Yes** to try to get the weight again, touch **No** to cancel the weigh

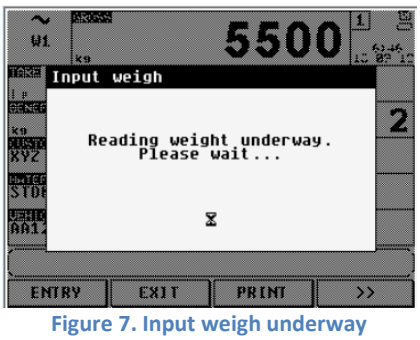


Figure 7. Input weigh underway

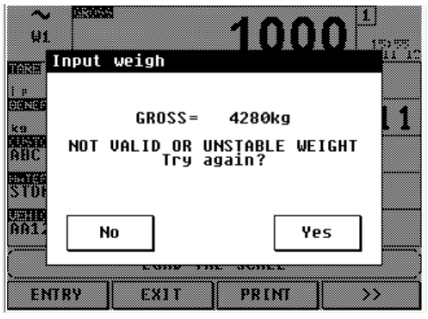


Figure 8. Input weigh failure

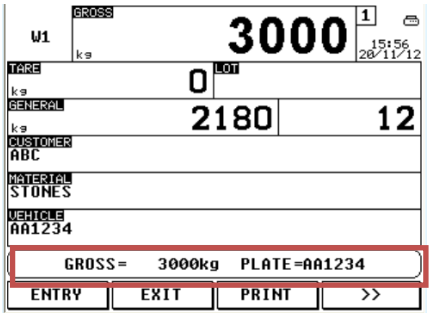


Figure 9. Input weigh executed

6.1.2 Vehicle with trailer

If the scale is configured to execute weighs with trailers the procedure to execute is the same of section 6.1.1but when the first weigh is terminated the message of Figure 10 is displayed. Pressing **Yes** the second weigh is executed, otherwise the main screen is displayed and the scale is ready for the next weigh.

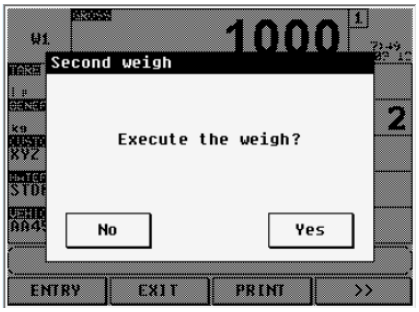


Figure 10. Second weigh confirm

6.2 Output weigh

6.2.1 Single vehicle

1. Position the vehicle on the scale
2. Select, if required, the customer / material / vehicle to be linked to the weigh
3. Touch the toolbar EXIT button
4. The display will show the screen of Figure 11 if the system is set to work by ID, otherwise the screen of Figure 12 is displayed. The input weighs are displayed in alphabetical order, you can search the desired weigh inserting the first characters of the element
5. Once selected the input weigh the display will show the screen of Figure 7, but with “Output weigh” title
6. If the scale captures the weight correctly it will execute the printout, if configured, and displays the main screen again with the information about the weigh
7. If the scale is unable to capture the weight, because of instability for example, a screen like the one of Figure 8, but with “Output weigh” title, is displayed
8. Touch **Yes** to try to get the weight again, touch **No** to cancel the weigh

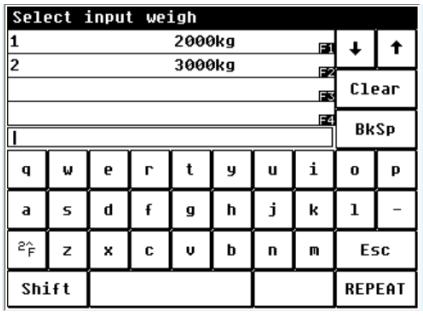


Figure 11. Input weigh selection by ID

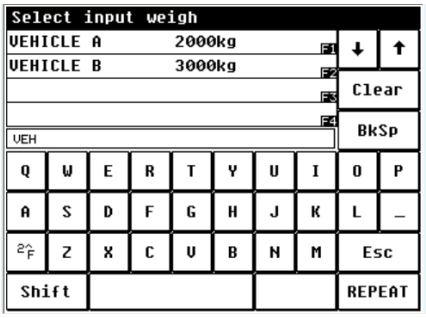


Figure 12. Input weigh selection by plate

6.2.2 Vehicle with trailer

If the scale is configured to execute weighs with trailers the procedure to execute is the same of section 6.2.1 but when the first weigh is terminated the message of Figure 10 is displayed. Pressing Y**es** the second weigh is executed, otherwise the main screen is displayed and the scale is ready for the next weigh.

6.2.3 Additional tare function

This function (Add. tare before output weigh) is useful if one wants to calculate the loaded/unloaded weight at the net of a tare added to the weight of the vehicle taken into consideration.

Example: after have executed the input weigh of an empty vehicle the same vehicle is loaded with goods contained in boxes of known weight. Inserting as additional tare the weight of a box times the number of loaded boxes the scale calculates the weight of the goods only.

If the additional tare function is enabled after the step 4 of section 6.2.1 the screen of Figure 13 appears. Insert the additional tare value and confirm with OK. The procedure continues with step 5 of section 6.2.1.

Figure 13. Additional tare insertion

6.2.4 Repetition of an already done weigh

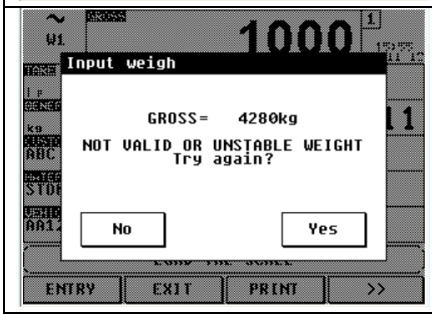
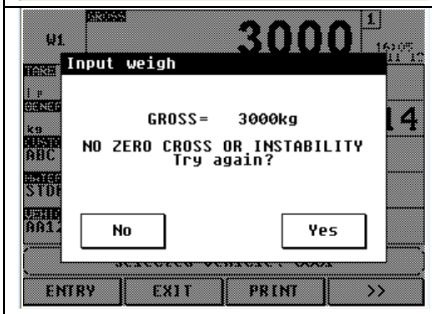
If the user wants to repeat an already done weigh, in the input weigh selection screen (see Figure 11 and Figure 12), insert the complete ID number or license plate and press the **REPEAT** button. The screen of the Figure 14 appears on the display.

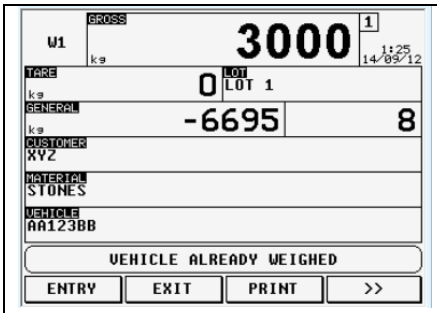
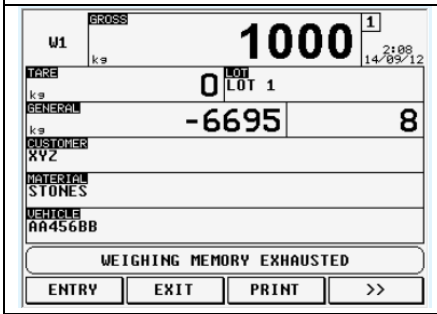
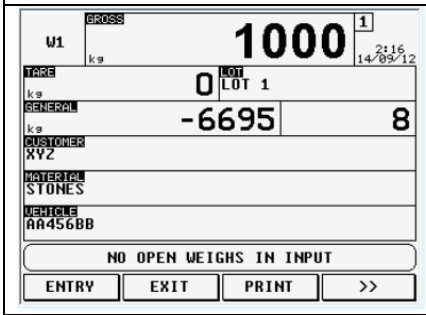
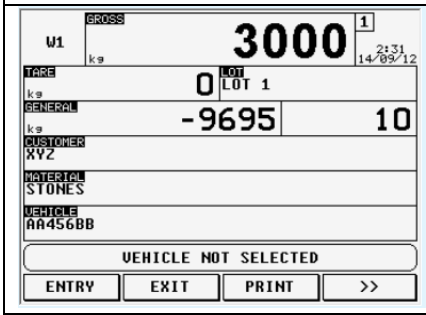
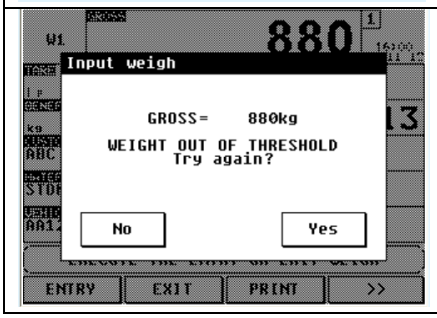
Figure 14. Output weigh repetition

6.3 Single weigh

To execute a single input or output weigh insert a preset tare or execute the semi automatic tare function, then continue with the same steps of section 6.1 or 6.2 for input or output weigh respectively.
When a single input weigh is executed no one of the available 999 input weighs memories is occupied.

6.4 Error messages

Displayed error message	Type of error	What to do
	The weight on the scale is below the minimum allowed one (20 divisions)	Load the scale with a weight greater than 20 divisions then touch **Yes** to try to weigh again or **No** to cancel the weigh.
	The weight is unstable or the scale is in the under/over load condition	Wait that the weight is stable and between 20 divisions and the maximum scale capacity, then **Yes** to try to weigh again or **No** to cancel the weigh.
	The weight hasn't crossed the zero or passed from instability since the last weigh	Unload the scale then load again and touch **Yes** to try to weigh again or **No** to cancel the weigh.

	The selected vehicle plate is already stored in the input weighs	Select another vehicle or execute the output weigh
	Input weigh not allowed because all the 999 input weighs memories are occupied	Execute an output weigh to free up a memory location or delete all the stored input weighs (MENU → AF03 functions → Reset weighs list)
	Output weigh not allowed because the input weighs list is empty	Execute the input weigh first
	Input weigh not allowed because the instrument is working in plate mode (Memorization type of input weigh) and a vehicle with a valid plate is not selected	Select a vehicle with a valid plate first
	The weight on the scale is less than the minimum threshold or greater than the maximum threshold (MENU → AF03 functions)	Load a vehicle with a weight between minimum and maximum thresholds and press **Yes** or press **No** to cancel. Change the thresholds if necessary.

DECLARATION OF CONFORMITY

This device conforms to the essential standards and norms relative to the applicable European regulations. The Declaration of conformity is available in the web site www.diniargeo.com.

WARRANTY

The TWO-YEAR warranty period begins on the day the instrument is delivered. It includes spare parts and labour for repairs at no charge if the INSTRUMENTS ARE RETURNED prepaid to the DEALER'S PLACE OF BUSINESS. Warranty covers all defects NOT attributable to the Customer (so are not included in the warranty, failures resulting from improper use) and NOT caused during transport.

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

The customer pays for shipping costs (both ways), if the instrument is shipped to the DEALER or manufacturer for repair.

The WARRANTY is VOIDED if faults occur due to work done by unauthorized personnel or due to connections to equipment installed by others or incorrect connection to the power supply.

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

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