



TMRscale 403



User Guide

REV. A.0

23/07/2004

INDEX

INDEX 21

1	GENERAL INFORMATION	24
1.1	SAFETY STANDARDS	24
1.2	IMPORTANT SAFETY RULES	25
1.3	MAINTENANCE	26
2	TECHNICAL DATA	27
3	CONNECTIONS DIAGRAM	28
4	MICROCOMPUTER USE	29
5	SUPPLEMENTARY FUNCTIONS	30
6	PROGRAMMING RECIPES	31
7	EXECUTION RECIPES	32
8	SETTING OF THE PARAMETERS	33
8.1	ACCESSING THE PASSWORD MENU	33
8.2	SETTING OF THE PASSWORD	33
8.3	TO GET OUT OF THE PASSWORD MENU	33
8.4	BASES PARAMETERS – Password 19 –	34
8.5	PREDEFINED CALIBRATION – Password 23 – “- FCAL -“	35
8.6	CALIBRATION WITH SIMULATOR – Password 45 – “- CAL -“	36
8.7	WEIGHT MODIFICATION (-10% to +10%) – Password 67 – “- CPC-“	37
8.8	SETTING OF THE LIIMIT WEIGHT – Password 99 – “- OF -“	37
9	OPTIONAL ACCESSORIES	38
9.1	PRINTER	38
9.2	DISPLAY REMOTE	38
10	SEARCH FOR FAULTS	39
10.1	HOW TO FIND OUT THE DAMAGED COMPONENTS	39
10.1.1	Check the working of the indicator	39
10.1.2	Check the JUNCTION CABLE and the JUNCTION BOX	39
10.1.3	Check the LOAD CELLS and SENSOR CABLES	40
10.2	SOME PARTICULAR SITUATIONS	41
11	WARRANTY	42

1 GENERAL INFORMATION

1.1 SAFETY STANDARDS

The Commission of the European Community requires that every electronic device must be furnished with the CE mark, as a guarantee of its presumed conformity to the requirements imposed by the applicable Community Directives.

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CERTIFICATO DI CONFORMITÀ **n. 001/01** **Certificate of conformity**

SI DICHIARA CHE IL PRODOTTO:
We declare that the product:

MODELLO: Model:	TMR Scale 403
DESCRIZIONE: Description:	Sistema di pesatura semplice Simple weight system

RISPONDE AI REQUISITI DELLE NORME DI CONFORMITA ARMONIZZATE RICHIESTE DALLA DIRETTIVA 89/336.
is made in conformity with the following directives and standards required by 89/336.

Norma di base: EN 50081-1
 EN 55014
 EN 55022
 EN 60555-2
 EN 60555-3

NORMATIVA STANDARD PER LE EMISSIONI ELETTROMAGNETICHE.
EMC generic standard for emission.

Norma di base: EN 50082-1
 IEC 801-2
 IEC 801-3
 IEC 801-4

NORMATIVA STANDARD PER L'IMMUNITA' ELETTROMAGNETICA.
EMC generic standard for immunity.

POGGIO RUSCO,

08/01/2001

Questo documento è di proprietà esclusiva Dinamica Generale s.r.l
E' vietata la riproduzione, anche parziale.

If the device described in this manual is not installed and used in strict conformity with the instructions described below, it may function improperly and cause the improper functioning of other nearby or connected devices.

The Directives also require that before this device can be released on the market it must be indelibly and visibly marked, in an easily readable form, with its maximum capacity in both kilograms and tons.

The product identification label with the real Maximum Capacity of the entire weighing system is located on the left side of the machine; the value for the Maximum Capacity is the lesser of those of the instrument, the sensors and the mechanical structure of the carriage.

Any unauthorised modifications or interventions performed on the equipment could void its conformity with the Directives and render its use prohibited.

The equipment has been tested and found in conformity with the Directives under test conditions that anticipate the use of shielded cables and accessories conforming to the requirements of the Directives.

Therefore, conformity with the Directives is guaranteed only if original spare parts and accessories are used. If, on the other hand, non-original accessories are used, consult the *Customer Technical Support Department* for additional information.

1.2 IMPORTANT SAFETY RULES

Before connecting the device to electric power, read the following Safety Rules, to protect yourself and the equipment from possibly serious damage.

It is recommended that you take the actions listed below before proceeding to use the equipment:

- Carefully read all the documentation included with the equipment.
- Obey all of the instructions and precautions relative to the equipment.

Immediately disconnect the Power Cable and Alarm in the following cases:

- If the connection cables or connectors are worn or damaged.
- If liquid is present, even in the form of condensation, inside the equipment.
- If the equipment housing displays damage or breakage.
- If you believe that the equipment is in need of maintenance or repair.
- Before opening the equipment housing.
- Before performing any type of maintenance operation.

Attention: electrical equipment can be dangerous if used in an improper manner. The functioning of the equipment and all of the parts that comprise the Weighing System must always occur under the strict supervision of an adult. Do not permit children to have access to the internal parts of any electrical equipment and prevent them from handling cables of any type.

Attention: before cleaning the mixer wagon with jets of water under high pressure, protect the equipment from possible water ingress. In addition, take great care not to subject the indicator, load cells, junction box, audible alarm, cables or any other option to any direct jets of water.

Attention: before performing any welding operations on the mixer wagon, always disconnect the connection cables. Check that there are no sensor connector cables in the area to be welded. To avoid welding current passing through the sensors, it is necessary to “short-circuit” the sensor body with a cable of adequate diameter, in addition to positioning the earth clamp as close as possible to the welding point. Contact the *Customer Technical Support Department* for additional information.

Important: If the equipment presents a problem that is not dealt with in the documentation provided, contact the *Customer Technical Support Department*. Interventions by unauthorized persons will invalidate the Warranty Conditions. Contact the *Customer Technical Support Department*.

1.3 MAINTENANCE

Weighing Systems for mixer wagons do not require any special maintenance operations. To prevent operational problems or breakdowns, it is nevertheless recommended that you periodically perform the following checks:

- Verify the perfect operation of the electrical system external to the equipment, checking, in addition, that there is no humidity or corrosion at the connection points.

Remember that in places where food is handled, there are often small rodents that attack the cables in places that are not very accessible.

- Verify that the voltage of the electrical power to the equipment is within the following values: 11-18 volts.
- Verify that the sensors are not scratched; the presence of any rust on the external surface of the sensors will not affect its proper functioning.
- Pay special attention to the presence of any cracks in the sealant, in as much as this could cause ingress of humidity.
- Verify, by loading the mixer wagon with a known weight (min. 500 kg), that the weight displayed on the device corresponds to the weight loaded.
- Verify the tightness of all the fixings on the parts that relate to the Weighing System.

Attention: before cleaning the mixer wagon with jets of water under high pressure, protect the equipment from possible ingress of water. In addition, take great care not to subject the indicator, load cell, junction box, audible alarm, cables or any options to direct jets of water.

Attention: if the equipment needs to be cleaned, use a soft, damp, lint-free cloth. Never use sprays, solvents, abrasives, or sharp or pointed objects that could damage the indicator.

Attention: any unauthorized modifications or interventions made to the equipment could void its conformity to the Directives and render its use prohibited.

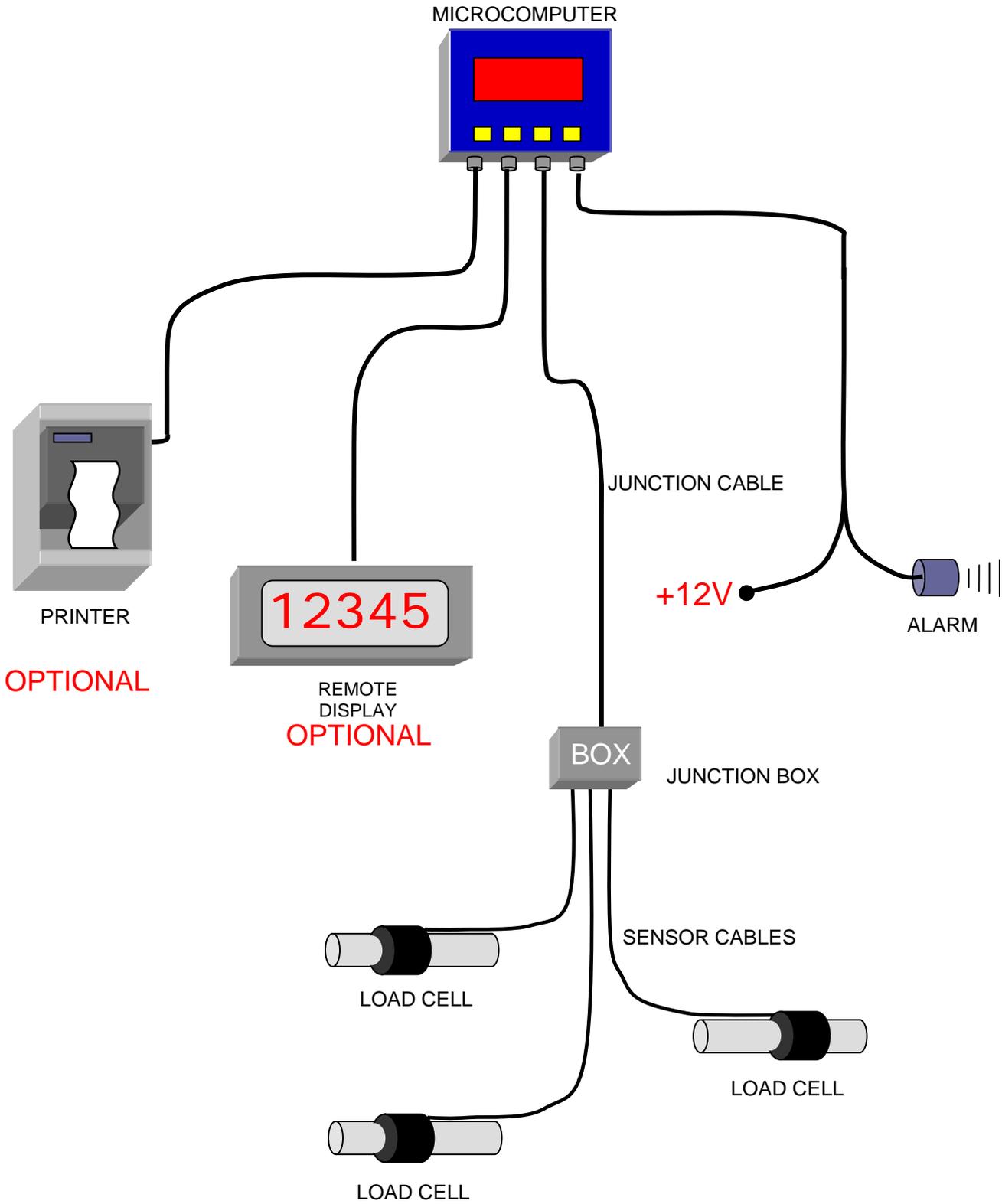
2 TECHNICAL DATA

Range (f.s.):	0 - 19.999 kg
Resolution:	1 - 2 - 5 -10 kg
Precision:	< +/- 0,015 % f.s.
Operating temperature:	- 20 °C / + 60 °C
Input voltage:	9 – 18 Vd.c. (“LOW BATTERY” alarm < 9,0 V d.c.)
Dimensions (mm):	220 x 200 x 100
Weight (gr):	2000
Case:	IP65 protection Polyamide (PA) 30% fibre glass, noise shielded
Display:	5 digit high efficiency red LED diodes 40 mm high 16 LCD alpha-numeric types 10 mm high black light
Visibility display:	> 15 m
Recipes:	10
Components:	12

The indicator is characterised in the following way:

Display:	- Large red LED: to display the weight - Smaller LCD: to display the messages
ENTER – SELECT:	The keys utilised for selection, programming and execution of loading recipes and unloading programming.
BLOCK – ZERO – TOTAL:	Operating keys.
ON / OFF:	ON and OFF switch.

3 CONNECTIONS DIAGRAM



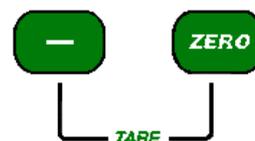
4 MICROCOMPUTER USE

1) START UP

Turn the microcomputer ON using the key  wait **Rev. xxx**, then **-----**, therefore **XXXX** (a value of weight).

2) ZERO BALANCE THE SCALE / SET TARE

Before loading a new mix, zero balance the scale/set tare by pressing at the same time the keys MINUS and ZERO until the message -TA- followed by the message -END- is displayed. The total reading will then be 0.



3) PROGRESSIVE WEIGHING

Now you are ready for the progressive weighing (when loading the material the displayed value increases, when unloading the material the displayed value decreases).

4) PARTIAL ZERO

To weigh individual components during loading - zero balance the scale (point 2), load the first component, when weight is achieved, press ZERO, -PA- appears followed by 0 accompanied by three dots between the digits **.0.** to indicate that you are in partial zero mode, weight of the first component is stored in memory and the display shows 0 in readiness for the next component. Repeat as required, after adding the final component press TOTAL, -tot- appears followed by the total gross weight of all components in the wagon (and the three red dots disappear to indicate you are no longer in partial zero mode).

5) LOADING WITH ALARM

- Turn ON the microcomputer as indicated in point 1) and 2).
- Press at the same time the keys PLUS and MINUS.
- When the display shows ... **-ALARM-** ... leave the key.
- After displaying... **0** ... set the weight by pressing the PLUS and MINUS buttons individually.
- Confirm the set weight by pressing the key **ZERO** ... before loading (the weight to be loaded is underlined by 3 flashing dots). When 85% load is reached an intermittent alarm will start to sound and then sounds continuously at 100%
- After 5 seconds the microcomputer automatically goes to the total weight.
- Repeat the same procedure for each item to be loaded starting from point b).



6) UNLOADING WITH ALARM

Follow the same procedure indicated in point LOADING WITH ALARM 4.b)
The microcomputer automatically recognises the unloading phase.

NOTE 1: if an alarm weight has already been set and the weight change during a movement, it is possible to re-set it by pressing these keys in sequence:

first  and then 

NOTE 2: The key  is not working in the loading & unloading with alarm function.

5 SUPPLEMENTARY FUNCTIONS

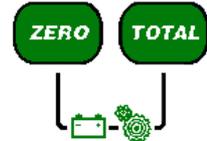
1) TOTAL

This key allows to pass to the progressive weighing at any time (it displays the total weight inside the wagon) since the last tare operation performed on the scale.



2) BATTERY CONTROL

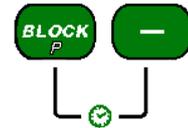
Press both the ZERO and TOTAL keys the battery voltage is displayed. (minimum 10v DC.)



3) TIME and DATE

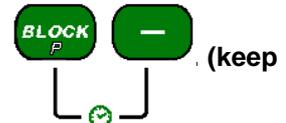
DISPLAYING / VISUALISATION

Press both the PRINT and MINUS keys the time and the date is displayed.



PROGRAMMING

At turn ON the microcomputer, wait ... , therefore press the keys ...



In sequence, the display shows HOURS (0 - 23), MINUTES (0 - 59), DAY (1 - 31), MONTH (1 - 12), YEAR (0 - 99).

Each parameter is set with the PLUS and MINUS keys ...  

Confirm by pressing ...   ... It returns automatically to the normal working. 

4) PRINT

To press the key BLOCK to print the displayed weight. The function is not available when there is no printer.



6 PROGRAMMING RECIPES

Using the key ...  ... set on "PROG. R1" – (Programming RECIPE 1)

with the keys ...   ... choose the recipe to programme (or change) – 10 recipes -

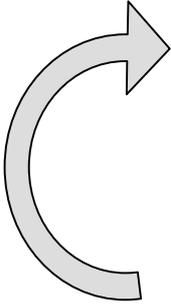
confirm the choice by pressing ...  : to proceed to next function.

with the keys ...   ... insert the COWS ("COWS")

N.B.: with "COWS NUMBER = 0",
to programme for per TOTALS (in kg)

confirm by pressing ... 

To proceed to 1st COMPONENT C1

 with the keys ...   ... insert the weight relative to the indicated component
confirm by pressing ... 

REPEAT for all 12 components

If it has a printer, it is possible to print the recipe from any following point to the programming of the no. of cows pressing the keys ... 

To exit in any moment to press the keys ... 

7 EXECUTION RECIPES

Using the key ...  ... set on "EXEC. R 1" – (Execution RECIPE 1)

with the keys ...   ... choice the recipe to execute

confirm the choice by pressing ... 

If the recipe is programmed for COWS

with the keys ...   ... it is possible to change the number of cows "COWS "

confirm by pressing ... 

If the recipe is programmed for TOTALS

leave the NUMBER of COWS "COWS "to Zero and confirm by pressing ... 

If you want to modify the order of intake, you can move in correspondence of the component to load

with the keys ...  

If the microcomputer is connected to the printer, once you have finished loading, the print starts automatically.

The microcomputer returns to the **MANUAL** working.

N.B.

If during the performance, you wish to make a suspension (stop weighing) press the key ...  ... To resume execution press the same key again.

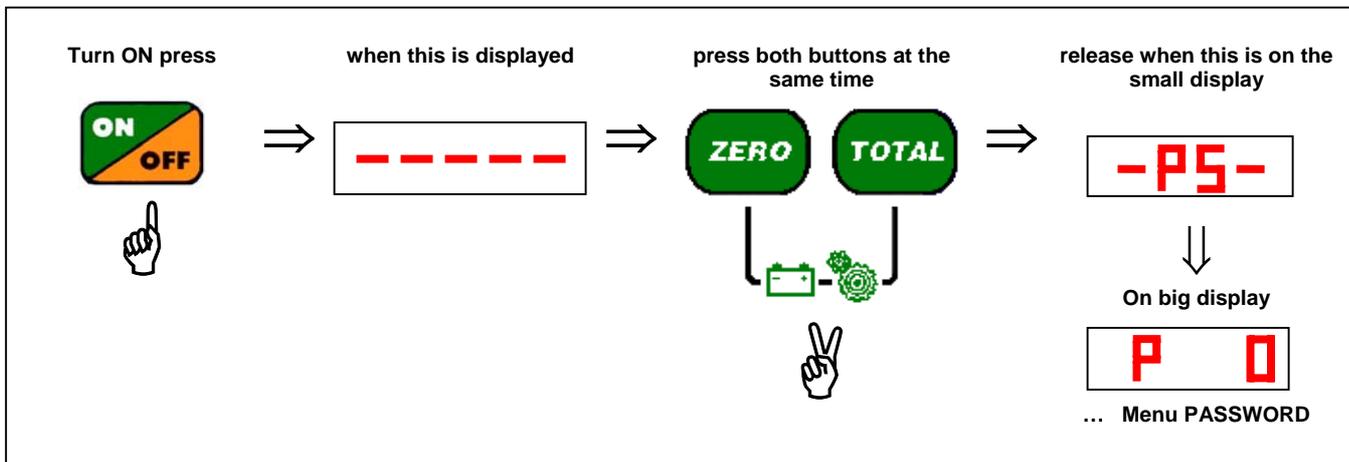
MOVING COMPONENT:

Moving to the next, or previous, ingredient by using the PLUS and MINUS keys does not store any weighing.  

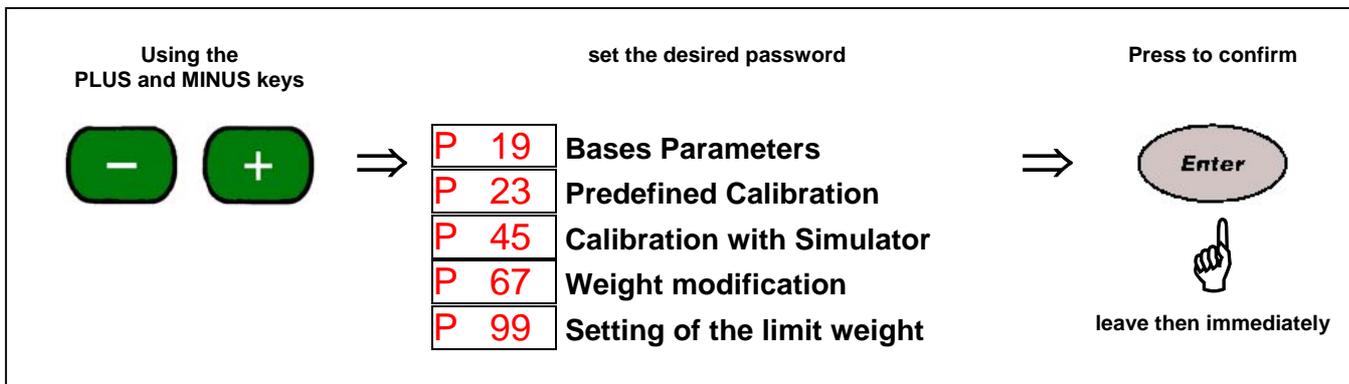
Moving to the next by using the key ENTER, to confirm the weighing value and to memorise. 

8 SETTING OF THE PARAMETERS

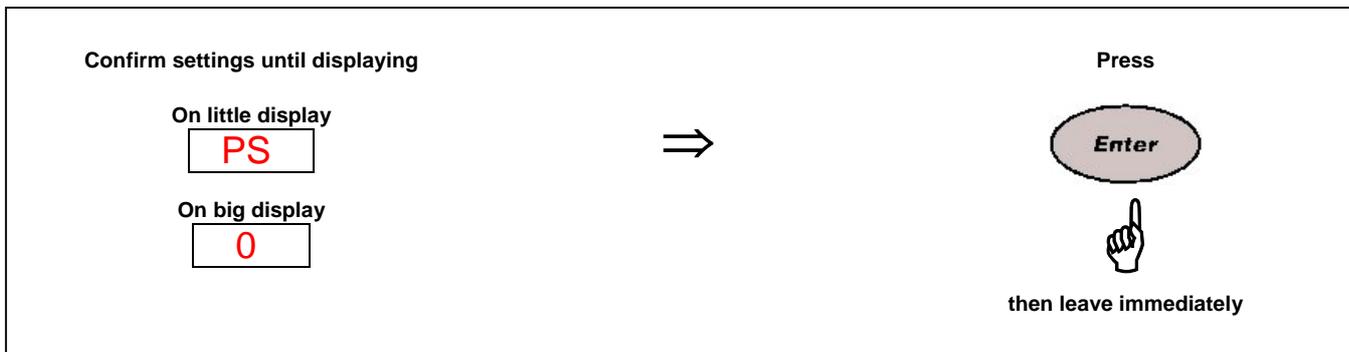
8.1 ACCESSING THE PASSWORD MENU



8.2 SETTING OF THE PASSWORD

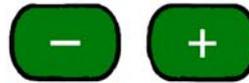


8.3 TO GET OUT OF THE PASSWORD MENU



8.4 BASES PARAMETERS – Password 19 –

In order to change the set values, you have to use the keys PLUS and MINUS.



To confirm the changing by pressing at the same time ... leave then immediately.

In order to get out, it is necessary to pass all voices in succession

- MOT -

Motion (default: 250 – you are advised not to change this)



The MOTION is an alarm that signals sudden weight changes that can damage the system. If that occurs, verify the installation of the weight system and the calibration values.

- DI -

Resolution of the weight visualisation (default: 5)



The setting up of the division of the Kg. to be displayed can be set at 1, 2, 5 or 10 Kg always by pressing the keys PLUS and MINUS.

- PAL -

Percentage on the alarm intervention (default: 15)



The setting up of the percentage on the sound alarm intervention that controls the weighings. Setting 15, the alarm will be working at the programmed weight minus the 15 %. This is the pre-alarm phase and the sound signal is working in an intermittent way.

- AT -

Time of the permanence of the alarm intervention (default: 6)



The programming of the sound permanence that controls the weighings. The set number corresponds to the time of the sound alarm permanence, which is expressed in seconds and it starts from the reaching of the programmed value.

- FI -

Setting up of a filter for the weight reading stabilisation (default: 6)



The setting up of a filter that allows the weight visualisation that can be more or less fast. Setting a low value, the weight visualisation will be very fast and sensitive even to the very little changes. Setting an high value, the weight visualisation will be more firm and less sensitive to the little changes

- AUTO -

Advance way from a component to the following one (default: 1)



Advance way of the components (in the programmed loading) and of the unloading points (in programmed unloading).
Setting "AUTO = 1" the passage from a component to the following one (or from the unloading point to the following one) will be automatic.
Setting "AUTO = 0" the passage from a component to the following one (or from the unloading point to the following one) will be in manual way confirming by pressing the key "ENTER"
The setting up of the value '0' or '1' is always made by the keys PLUS and MINUS

PS
On small LCD display

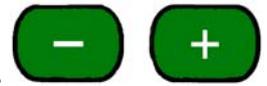
To press ENTER for exit

N.B.: to exit from the menu all the parameters must be confirmed in sequence using the ZERO and TOTAL buttons.

0
On large LED display

8.5 PREDEFINED CALIBRATION – Password 23 – “- FCAL -”

Select the required PREDEFINED calibration by using the PLUS and MINUS keys



PREDEFINED CALIBRATION

2780	cells 60 diameter (BAA3-60)
4000	cells 80 diameter (BAA3-80)
1800	cells 42 diameter
2690	cells 54 diameter (Taarup TVs)
3920	cells 63 diameter
4100	cells 63 diameter (63-Axle)
5742	cells 63 diameter (Taarup 600 / Vicon 600)

Confirm the choice by using at the same time ...



.. leave then immediately.



PS

will appear on little display and

0

will appear on big display.

8.6 CALIBRATION WITH SIMULATOR – Password 45 – “- CAL -”

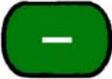
- C1 - is displayed

Move the simulator lever to the **ZERO** position.

Press at the same time the keys ..   ... leave then immediately.



- C2 - is displayed and immediately after it is displayed the current calibration value **XXXX**

Setting the calibration required by using the PLUS and MINUS keys  

Move the simulator lever to the **CAL** position.

Press at the same time the keys ..   ... leave then immediately.



End is displayed

PS will appear on little display and **0** will appear on big display.

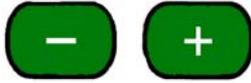
To check correct setting turn OFF and then turn ON the microcomputer, move the simulator to the **ZERO** position, calibrate and then move the simulator lever from **ZERO** to **CAL**.

The microcomputer should display the last value just set.

8.7 WEIGHT MODIFICATION (-10% to +10%) – Password 67 – “- CPC-“

Enter the weight error you verified as a percentage (-10% to +10%) by using the keys

PLUS and MINUS



Confirm the choice by using at the same time ...



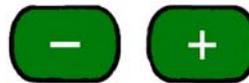
... and then release immediately.



8.8 SETTING OF THE LIIMIT WEIGHT – Password 99 – “- OF -“

Set up the weight limit by using the PLUS and MINUS keys.

(Default: 14,000 kg)



Confirm the choice by using at the same time ...



... leave then immediately.



9 OPTIONAL ACCESSORIES

9.1 PRINTER

- It is connectable to every microcomputer fitted with a suitable printer port.
- Possibility to define the customer's headline, name, address, company title etc...
- Watertight case IP65 for critical environment.
- Low cost of maintenance.
- Operating temperature from 0 to 50°C
- Thermal roll paper, width 57,5 mm, max. diameter 50 mm
- In accordance with EEC directives

- During the manual working, it is possible to print the current weight value (TOTAL and/or PARTIAL) with date and time pressing the PRINT key
- During the execution of loading or unloading with programme, the RECIPE or the UNLOADING programmes are automatically printed at the end of the process.
- The LOADING and UNLOADING programmes that are stored on the weight system can be printed by pressing the PRINT key at the end of every programming or at the end of a simple visualisation of the stored programme.
- In order to get the advancing of the paper by hand, press the red key on the printer panel.

- The printer is automatically activated immediately after the weighing system is switched on (if it is connected).
- If the printer is not correctly identified, the message "TEST PRINTER" is displayed. The message remains until the problem is solved.
- Check the possible causes of the problem that normally are due to the wrong connection of the cable or the power supply voltage. If the problem is not solved, contact the customer service.
- In order to go on, to ignore the printer, press the PLUS key for 5 seconds; the weight system will normally work without taking into consideration the printer connection.
- If the printer is not connected to the microcomputer, the respective starting TEST are not considered and the scale switches-on normally.

- To gain the access to the time regulation present on the weight system, press the PRINT & MINUS (-) keys together immediately after the switching on.
- It will be displayed in succession TIME(0 - 24), MINUTES (0 - 60), DAY (1 -31), MONTH (1 - 12), YEAR (1980 - 2080).
- The setting up of every parameter is done by the PLUS (+) and MINUS (-). The set up value is confirmed pressing the TOTAL & ZERO keys together.
- At the end of the programming, you pass automatically to the normal working mode.
- In order to display the time and the date, press the TOTAL & MINUS (-) keys together: the current time and date that will used on the print-out will appear.

9.2 DISPLAY REMOTE

- Dimensions 245 x 125 x 50
- Red LED display high efficiency 60 mm high.
- Display visibility: more than 20 meters.
- Weight reading up to 19.999 Kg.
- Metal watertight case IP65 protected against radio frequency noises.
- Simple and direct connection to the microcomputers.
- Data that is displayed by the microcomputer LED is repeated on the REMOTE display.

10 SEARCH FOR FAULTS

10.1 HOW TO FIND OUT THE DAMAGED COMPONENTS

10.1.1 Check the working of the indicator



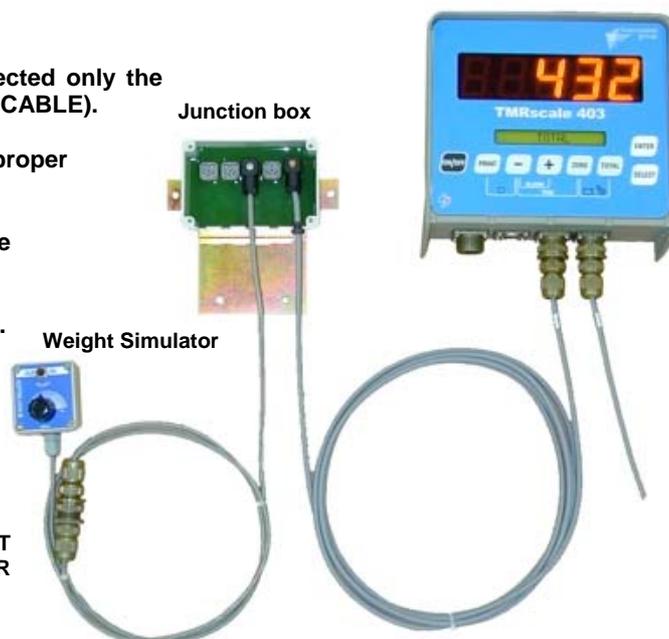
- Connect the WEIGHT SIMULATOR (calibrator) with the lever in position “Var” (varying) to the connector SENSORS of the indicator.
- Do the TARE by pressing at the same time the keys MINUS and ZERO.
- The scale has to become stable displaying “0” kg.
- Verify the correct working of the scale by turning the WEIGHT SIMULATOR knob (the clockwise increases the weight, the counter-clockwise decreases the weight).

IF EVERYTHING WORKS CORRECTLY, THE INDICATOR DOES NOT HAVE ANY PROBLEM AND IT IS NECESSARY TO GO ON WITH THE FOLLOWING CHECKS.

IF THERE IS A PROBLEM WITH THE SCALE INDICATOR, CONTACT THE SERVICE DEPARTMENT FOR ADVICE

10.1.2 Check the JUNCTION CABLE and the JUNCTION BOX

- Open the JUNCTION BOX.
- Disconnect the SENSOR CABLES leaving connected only the cable that goes to the scale indicator (JUNCTION CABLE).
- Connect the WEIGHT SIMULATOR using the proper adapter in the place of one sensor.
- Do the TARE by pressing at the same time the keys MINUS and ZERO.
- The scale has to become stable displaying “0” kg.
- Verify the correct working of the scale by turning the WEIGHT SIMULATOR knob (the clockwise increases the weight, the counter-clockwise decreases the weight).



REPEAT THE TEST BY CONNECTIN THE WEIGHT SIMULATOR IN THE PLACE OF EACH SENSOR CABLE/LOAD CELL

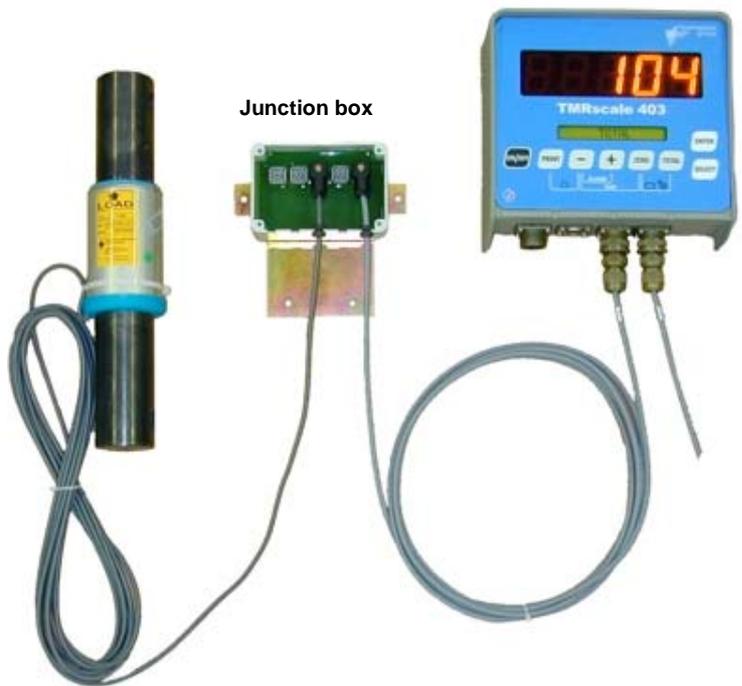
TEST RESULTS AND SUBSEQUENT ACTIONS

- If the function is correct, the JUNCTION CABLE and the JUNCTION BOX do not have any problems, it is then necessary to check each LOAD CELL and SENSOR CABLE.
- If the working is correct only for some positions, this is probably due to the JUNCTION BOX (try to replace it).
- If the working is not correct, it is necessary to replace the JUNCTION CABLE (and perhaps also the JUNCTION BOX)

10.1.3 Check the LOAD CELLS and SENSOR CABLES

- a) Open the JUNCTION BOX.
- b) Connect only one SENSOR CABLE/LOAD CELL and the cable that goes to the indicator (JUNCTION CABLE).
- c) Do the TARE by pressing at the same time the keys MINUS and ZERO.
- d) The scale indicator has to become stable by displaying "0" kg.
- e) Verify the correct working by trying to load cell (the displayed weight is not indicative but it has to be stable).
- f) Check SENSORS CABLES for signs of damage – damaged cables can be repaired by splicing and heat shrink sealing.

REPEAT THE TEST BY CONNECTING EACH LOAD CELL/SENSOR CABLE INDIVIDUALLY.



10.2 SOME PARTICULAR SITUATIONS

	CAUSE	SOLUTION
<p>MOTION ALARM</p> 	<p>The signal coming from the load cells shows sudden and important weight changes.</p> <p>A connection cable or a load cell does not work correctly.</p>	<p>Solution1: do the TARE (MINUS+ZERO).</p> <p>Solution2: do the calibration with password 23 o 45 and then do the TARE (MINUS + ZERO).</p> <p>Solution3: follow the procedures to check the CABLES, JUNCTION BOX and SENSORS.</p>
<p>IT DOES NOT SWITCH ON</p> 	<p>The power supply does not reach the microcomputer.</p>	<p>Solution1: check very carefully the power connection cable.</p> <p>Solution2: check the efficiency of the power supply system (minimum 9 Volts / 0.5 A).</p> <p>Solution3: ship the microcomputer to manufacturer for the repair.</p>
<p>OVERRANGE ALARM</p> 	<p>The microcomputer can not read the signal of the load cells: the load cell connection cable does not work correctly.</p> <p>A connection cable or a load cell does not work correctly.</p> <p>The signal coming from the sensors is out of the valid "RANGE" (see the password 99)</p>	<p>Solution1: do the TARE (MINUS + ZERO).</p> <p>Solution2: do the calibration with the password 23 o 45 and then do the TARE (MINUS + ZERO).</p> <p>Solution3: follow the procedures to check the CABLES, JUNCTION BOX and SENSORS.</p>
<p>LOW BATTERY ALARM</p> 	<p>The power to the microcomputer is lower than the fixed value.</p>	<p>Solution1: check the condition and function of the battery.</p> <p>Solution2: check the CABLES that supply the power from the BATTERY to the MICROCOMPUTER.</p>
<p>UNSTABLE weight The weight reading fluctuates tens or hundreds kg</p>	<p>The signal coming from the load cells is jammed: a cable or a load cell does not work correctly.</p>	<p>Solution1: follow the procedures to check the CABLES, JUNCTION BOX and SENSORS.</p>

11 WARRANTY

The supplier makes the following guarantees for equipment that it manufactured bearing its factory mark or serial number: that the materials used are free of defects, that the equipment was properly manufactured and will function properly. During the warranty period, the supplier undertakes to see to the repair or replacement, F.O.B. the factory, of parts defective due to material or manufacturing defects, so long as said parts are delivered to the factory freight prepaid.

The warranty excludes deficiencies or defects caused by improper use of the equipment, inadequate maintenance, modifications made without authorisation from the manufacturer and normal wear.

The manufacturer excludes responsibility and compensation for direct or indirect damage to persons, objects or production, even as a consequence of the defective functioning of the supplied equipment or of defects of materials or manufacture.

NOTES: