

# WEIGHING INDICATOR

# HL 20

## MANUAL



**PTM s.r.l.**

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Sistema Qualità Certificato secondo UNI EN ISO 9001:2000



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*Dear Customer,*

*Thank you for the preference you have given to one of our products. We invite you to read this booklet: you will find some useful specifications in order to know, use and preserve as long as possible your new weighing and dosing system.*

# INDEX

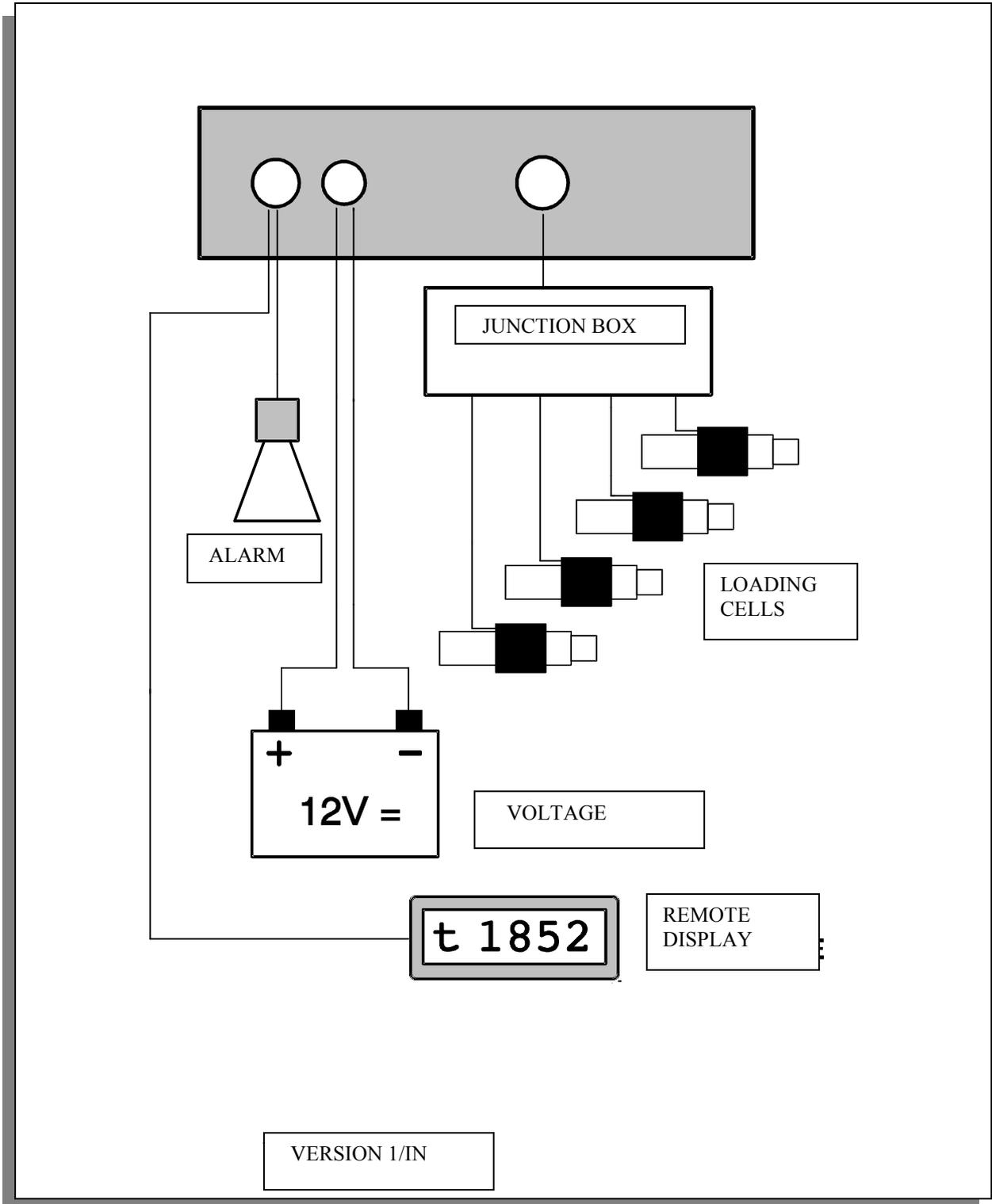
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# Features

<b>Box:</b>	in pressure die-cast aluminium IP 65
<b>Dimensions:</b>	L 260 x H 160 x P 90 mm
<b>Weight:</b>	3500 gr., more or less
<b>Display:</b>	5 digits, red LED H 55 mm
<b>Keyboard:</b>	with high sensibility membrane
<b>Memory:</b>	EEprom
<b>Resolution:</b>	135.000 dd
<b>Programmable divisions:</b>	kg. 1 - 2 - 5 - 10
<b>Reading Error:</b>	+/- kg.1 referring to kg.10.000
<b>Working conditions</b>	from -20° C to +60° C/ relative humidity 100%
<b>Power supply</b>	from 11 to 26 V dc max. tension peak = 30V dc
<b>Protection against the interferences of Radio-frequency</b>	
<b>Cancellation of interferences due to the power supply</b>	
<b>RS 232 Exit</b>	
<b>Alarm Exit</b>	
<b>Resetting and Calibration can be set through Software</b>	
<b>Signal of low tension</b>	
<b>Direct control of the tension</b>	

**PTM keeps itself the right to modify the features of its products without warning with the purpose to improve the quality.**

# CONNECTIONS



# KEYBOARD



Switching on



Switching off



Zeroing of the tare.  
Total weight recall



Partial setting at zero  
Partial weight recall



Increasing of values



Decreasing of values



Entry in User's menu



Operation confirmation



Exit



Shift to the left of the cursor



Shift to the right of the cursor



Block of the weight



Print of total weight  
Print of partial weight

# ATTACHMENTS

All models of line "HL" can be supplied with the following attachments:

**☀ REMOTE DISPLAY AV20:**

It is connected to the system through a RS232-connection cable. It is provided with an internal software for a double control on data receipt and for signalling of anomalies transmission.

**☀ REMOTE DISPLAY MV6:**

It is connected to the system through a RS232-connection cable. It is provided with an internal software for a double control on data receipt and for signalling of anomalies transmission.

# MESSAGES OF ERROR



Low supply voltage. Check the battery of the tractor, the connections and the electric system.

In order to control the tension, it is necessary to enter in the special menu, as per explications included in next pages of this instruction manual.



System out of scale with negative and positive values.



Verify the possible causes:  
 Humidity in loading cells' connections.  
 The connection cable is either broken or squashed.  
 The loading cell is broken.  
 The loading cell has moved in its right position.

# SAFETY INFORMATION

- The system works with a tension from 11 to 26 Vdc. Use only this voltage.
- Never open the protection housing.
- Let the system be checked immediately, if liquids go in.
- To disconnect the computer unscrew the connectors. Never pull the cables.
- For your safety call the technician for the maintenance.

**ATTENTION!**  
**Do not use high-pressure water devices to wash the scale**

## FUNCTIONING OF SYSTEM

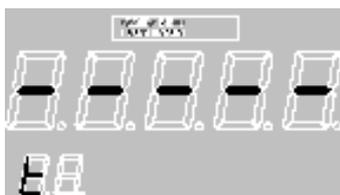
### Switching on and balancing



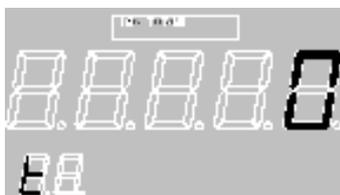
Push key  to switch on the scale. After the message of welcome it will reach automatically the menu of "Total weight".



Keep pressed  for about 3 seconds until the appearance of the request for the setting at zero of the system.



To confirm the operation you have to press the key  , or  to cancel it.

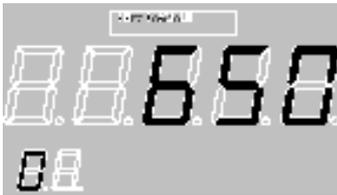


After the visualization of the dashes on the display the system will balance itself and it will return automatically to the menu of "Total weight".

### Load operations



Press the key  to plan the scale to load the component and start the relevant dosage.

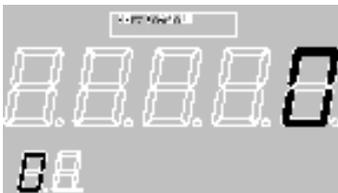


When reaching the wished weight to load press again the key  in order to be able to start with dosage of another component. Repeat said operation for all components to load.



At the end of the loading operations press  to finish and to return to the menu of total weight.

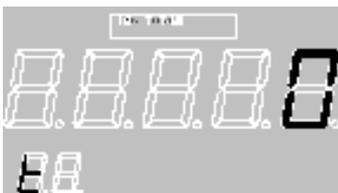
### Unload operations



Press the key  to plan the scale to unload the first planned quantity, then proceed with the unloading.

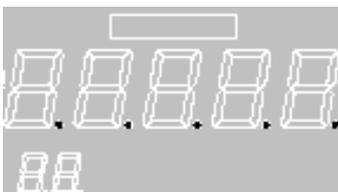


When reaching the wished weight to unload press again the key  in order to be able to start with the next unload. Repeat said operation when unload of mixing is required.



At the end of the unload operations press the key  to finish and to return to the menu of the total weight.

### Users' Meny



Press the key  to enter in the functions of the user's menu. On the display the points will be lighted, whereas on top of the LCD display it is possible to see the submenu to come in. To run the

submenu list press the keys  and .

The submenus at your disposition are the following:

- ✘ CONTRAST;
- ✘ BATTERY;
- ✘ CLOCK.

To enter in the selected submenu press the key  or  if you want to go out and return to the menu of total weight.

## CONTRAST



In this menu it is possible to regulate the LCD display's contrast which is placed above the digits. The regulation can be varying from +10 (high contrast) to -10 (low contrast). To modify the setting

use the keys  and . To go out without confirming any

choice press the key , whereas, with the purpose to confirm the effected setting up and to go out, press the key .

## BATTERY



In this menu it is possible to check the correct tension of the scale's alimention. In LCD display it is stated the Volt value (for ex. B=

12.5V). To go out from the menu press the key .

## CLOCK



In this menu it is possible to see and modify the date and time of the system. Entering in the menu it will be displayed on the LCD

display the present date and hour and press the key  to modify one of them. The cursor will flash on the position related to the day.

Press the keys  and  to modify the value. To confirm and to pass to the next value

press the key . Repeat this procedure afterwards for all the coming values (month, year, hour, minutes and seconds). After the setting of the seconds the display will show you the date

and the time with the introduced changes. To go out from the menu press the key .

## WARRANTY

PTM production represents the expression of the most advanced technology in the field of dosing and weighing systems. Employed materials are of the highest qualitative level present in the market. Each device, before leaving our laboratories, is submitted to foreseen checks and control tests. Things being so we are able to guarantee the systems to be free from defects in material and factory workmanship for a period of 24 months from purchase date. However, during warranty period, PTM engages itself to freely repair or replace the faulty spare-parts charging only the labour and carriage charges. Warranty has to be considered on "Free PTM Visano headquarter" basis.

### Conditions:

This warranty does **not cover**:

- ✘ Damages caused during transport or movement of the goods, since products are furnished on ex works loaded basis.
- ✘ Costs and risks of transport related, directly or indirectly, to warranty of the product. It is also referring to the carriage from assistance centre to customer and vice versa.
- ✘ Periodical controls, handlings and reparations or replacements of spare parts, due to normal wear and tear of time.
- ✘ Accidental breakages, due to incorrect use or carelessness.
- ✘ Costs born by PTM Assistance centres for modifications or necessary interventions said to adapt the product to specific technical or security needs, or in order to adhere the rules of the different Countries, as well as for all charges to be born to match products with modified operatives conditions which occurred after relevant delivery.
- ✘ Violation, cancellation, removal of identification label which is always stuck on our products.
- ✘ Damages to this product due to carelessness, falls, displacements, incorrect use and because of following reasons:
  - Missing use of the product for its own normal purposes or in case of improper use and handling of the products and so not in conformity with PTM instructions at this matter.
  - Not observance of installation and use instructions or use in contrast with security or technical rules in force in the Country where the product has to be used.
  - Reparations made by people or assistance centres not duly authorised by PTM.
  - Accidents or consequences due to theft of vehicle transporting PTM product, acts of vandalism, thunderbolts, fire, humidity, liquid infiltrations, inclemency of the weather.
  - Addition or integration in device neither furnished nor recommended by PTM, failing expressed written agreement.
  - Use for a different purpose than what the product is destined.

To get the warranty acknowledgement it is necessary to keep a document which is fiscally valid and proving the date of purchase.

This warranty does not prejudice customer's rights duly reserved by the Law as well as the national rules still into force, not even prejudice customer's rights towards the seller coming from purchase and sale contract. In case of lack of a national law this warranty will be the only and mere customer's protection and, neither PTM nor its distributor will be responsible for any accidental or in direct damage, for the violation of any implicit or explicit warranty of this product.

## **DECLARATION OF CONFORMITY**

The included products satisfy the requirements of the  
Directive 89/336 EEC.

Manufacturer's name            **P T M S.r.l.**  
Manufacturer's address        **Via per Isorella 22A 25010**  
**Visano BS ITALIA**

### **DECLARES THAT THE FOLLOWING PRODUCTS**

Product name            **Electronic weighing system**  
Model                      **HL 20**

### **IN ACCORDANCE WITH EMC SPECIFICATION BASED ON THE FOLLOWING RULES**

-EN 61000-6-3 (2002)  
    EN 55022 (1999) **IRRADIATED EMISSION CLASS B**  
    EN 55022 (1999) **LEADED EMISSION CLASS B**

-EN61000-6-1 (2002)  
    IEC 61000-4-2 (1996) **Electrostatics discharging**  
STANDARD B  
    IEC 61000-4-3 (2003) **Irradiated fields** STANDARD A  
    IEC 61000-4-4 (2006) **Quickly Transistor/Burst**  
STANDARD B  
    IEC 61000-4-5 (1997) **Pulses/Surges** STANDARD B  
    IEC 61000-4-6 (1997) **Interferences caused by radio**  
**frequency fields**  
**STANDARD A**

#### **SIGNAL AND SUPPLY LINES: DIRECT CURRENT**

The products have been tested under a typical  
configuration.

**VISANO 02-05-2006**

**Compliance Engineer**  
**Ing. Vittorio**  
**Michelotti**

*Vittorio Michelotti*

HL20



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9952818

# List of Codes

*HL20 - HL25*

*HL30 - HL50*

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# WEIGHING INDICATORS

## HL 20 / HL 25 / HL 30 / HL 50

CODE	DESCRIPTION
<b>1</b>	Weight Division
<b>5</b>	Introduction Sentence
<b>7</b>	Present Data of calibration
<b>8</b>	Calibration with data through loading cells
<b>9</b>	Final calibration with measured and real value
<b>10</b>	Final calibration with sample weight
<b>15</b>	Components names on the digits
<b>16</b>	Alphabetic demonstration on the digits
<b>27</b>	Calibration Number (board)
<b>28</b>	Activation of rests recalculating <b>(no HL20)</b>
<b>29</b>	Access to unloads re-calculations (NO HL 20)
<b>37</b>	Set up - Calibration 0,8mV/V
<b>43</b>	Settings of supplementary Display RF AV50
<b>44</b>	RF Radio Control
<b>45</b>	Weight Speed
<b>50</b>	Alarm Setting (NO HL 20)
<b>51</b>	Instructions for selection Animals/Totals (NO HL 20/25)
<b>71</b>	Pause among the components (NO HL 20/25)
<b>80</b>	Setting of auxiliary relay (NO HL 20)
<b>81</b>	Printing Access
<b>83</b>	Memory Card Access (no HL 20/25)
<b>84</b>	Selection of the supplementary display
<b>85</b>	Scale Overload
<b>86</b>	Warranty Data
<b>90</b>	Selection of the Language
<b>99</b>	Software Version
	Calibrations Board

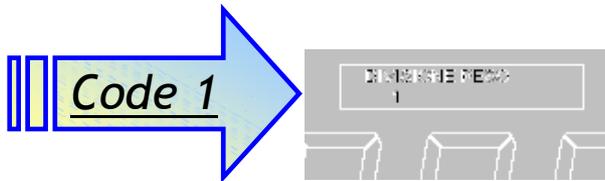
### How to enter in the codes area



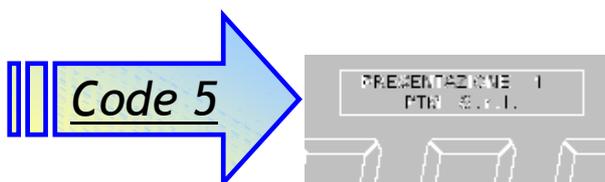
Keep pressed for some seconds from the menu of total weight the keys  and , until it appears the captions CODES MENU on the display and Cod 00 on the digits.

To select the wished code number modify the flashing digit through the arrows  and , while to move laterally with the cursors use the keys  and .

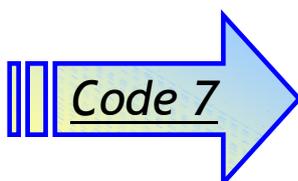
To confirm the effected choice press the key , while to go out and to return to the menu of total weight push the key .



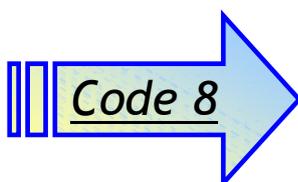
In this code it is possible to select the weight division. For example by selecting the division 2 the weight shown on the display will be a multiple of number 2. It is possible to select a division among 1, 2, 5 and 10. Press the key  to enter in the setting modifications. The cursor will flash on the display just where the value has to be modified. Press the keys  and  for the modification, after that push  to confirm the effected choice. To go out press the key .



In this code it is possible to modify the introduction sentence on the display when switching the scale on. The cursor will flash just where the value has to be modified. To modify it press the keys  and , while to move the cursor laterally push the keys  and . To pass from the modification of the first introduction line to the second one press the key . It will be possible to recognize the first line from the second since, on the display, it is mentioned the caption "introduction 1" and "introduction 2". To confirm the effected introduction and to go out use the key .



In this code it is possible to see the details of active calibration, such as the load cells capacity and the calibration mV/V. To move from a value to the other one use the keys  and , while to go out from the code press the key .



In this code it is possible to make a final weight calibration by using the data stated on the load cells plates.



As first parameter it is required the number of decimals for the weight precision. This value can be from 0 to 3 and it is possible to modify it by pressing the keys



and . To confirm the inserted value press . To go out press the key .



Afterwards it is required the max. range of each single load cell. To

modify the mentioned numeric character from the flashing cursor push the arrows  and



, while to move laterally from a digit to another press the keys  and .

To confirm the effected input and to go out use the key . To go back to the previous point

press the key .



Now, it is required the quantity of load cell installed in the system. This value can be set from 1 to 20. To modify the mentioned numeric character from the flashing

cursor push the arrows  and , while to move laterally from a digit to another press

the keys  and . To confirm the effected introduction and to go out use the key. To go

back to the previous point press the key .



Therefore, it will be required the mV/V value of each load cell which is present in the system. Said value is stated on the identification plate which is applied in the load cell itself. To modify the mentioned numeric character from the flashing cursor push the

arrows  and , while to move laterally from a digit to another press the keys  and



. To confirm the effected input and to go out use the key. To go back to the previous

point press the key .



After putting all said values for every load cell, a confirmation about the

application of effected settings is required. To confirm press , otherwise press  to return to the previous points and in case of modification or cancellation of the operation.

## Code 9

In this code it is possible to effect the calibration of the weight through the knowledge of a value measured by the scale and the real weight of the same. Higher is the utilized weight, better it is the precision of said calibration.



At this purpose, it is firstly required the entry of the weight previously measured by the scale. To modify the mentioned numeric character from the flashing cursor

push the arrows  and , while to move laterally from a digit to another press the keys  and .

To confirm the input and to go to the setting of the known real weight press the key .

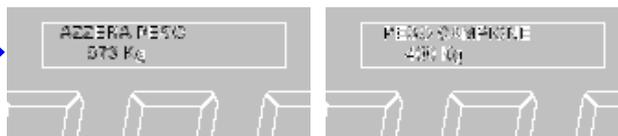


Now it is required the entry of the known real weight related to what it has been previously weighted by the scale. In the same way to modify the mentioned numeric

character from the flashing cursor push the arrows  and , while to move laterally from a digit to another press the keys  and .

To confirm the input and to complete the final calibration press the key . In any time to cancel and to go out from said code push the button .

## Code 10



Our instruments are set to zero in our laboratory in accordance to applied kind of load cells. Their precision depends on the application of the load cells and it is closed to about 0,1%. For a better precision it is necessary to set to zero the scale through the Code 10 with a sample weight to be a fourth of the total weight at least. In such way the precision can be also of 0,05%. When using our apparatus in very cold Areas (Nordic Countries, Russia, etc..) it is necessary to switch them on well in advance of at least 15/20 minutes before being used and in order to reach the scale and load cells' temperature.

In this code it is possible to make a precise weight calibration through a weight sample already known. The weight sample must be of at least 100 units displayed by the scale, anyway higher is the weight of the sample and better it will be the precision of said calibration.

After entering into the code continue as per following instructions:

- ✘ Take all the weight of the load cells off and calculate the tare by keeping pressed the key



until the weight shown on the display is not zeroed.

- ✘ Put on the load cells the sample weight.

- ✘ Wait for the stabilization of the displayed weight and then press  to continue.
- ✘ If the weight is too low and so the calibration is imprecise the scale will show the message LOW WEIGHT!! In this case it is necessary to use a higher sample weight.
- ✘ If the weight isn't correct it will be required to input the correct value of the used weight sample. To modify the mentioned numeric character from the flashing cursor push the arrows  and , while to move laterally from a digit to another press the keys  and .
- ✘ After writing the correct value of the weight sample press  to confirm and complete the calibration e then go out from the code.
- ✘ In any time to cancel and to go out from said code push the button .

## Code 15

In this code it is possible to set out, on the digits of the display, the parameters for the visualization of the component names at the beginning of the load operation. It is possible to set out a load weight that, in case of overcoming, from the visualization of the name it will pass to the visualization of the weight to load and, furthermore, it is possible to set out the time for the visualization of the name on the display. To move from a setting to another press the keys  and , while to modify a setting push the key . During the modification of the setting up use the keys  and  to vary the parameter, whereas to confirm the input press . To go out press .

## Code 16

In this code it is possible to see a demonstration of the writing of all characters available on a 5 red digits display. To run the alphabet utilize the keys  and  and to go out press .

## Code 27



In this code it is possible to select the calibration number from the break-down duly stated at the end of this manual in accordance to model of load cells installed in the system. To run on the display the list of models of available cells press the keys  and . To select and

apply the wished calibration push , otherwise press  to go out and cancel the operation.

## Code 28

In this code it is possible to activating or to deactivating the function for recalculating of the rest in the mixer wagon. If the function is activated, the user can calculate in percentage by starting of loading the remaining quantity in the wagon with the components of the recipe. By starting of the load the scale will ask the user for a confirmation. If the quantity inside the wagon is bigger than the programmed quantity in the recipe, the message ERROR 4 appears on the screen. On the contrary, if the remaining quantity inside the wagon is smaller or like to

0, the recalculation will be automatically deactivated. Press the keys  and  for the modification, after that push  to confirm the effected choice.

## Codice 29



In this code it is possible to activate and deactivate the function related to unloads recalculation. This function is consisting in the calculation of the unload to be effected in accordance to what it has been programmed as per the quantity really loaded. For example, if the theoretical load was involving 100 kilos, whereas the real loaded weight is of 110 kilos, thanks to this function, if active, a 10% more could be unloaded in every unload operation. To

modify the setting press the keys  and , while to confirm and to go out from the code press the key .

## Code 37



In this code is effected the full scale's set-up. All the memory is cancelled and all the system is re-started. Proceed as it follows:

- ✘ After entering into the code confirm the memory starting operation, which is into processing, by pressing the key . To cancel said operation press the key .
- ✘ At the end of the operation the system will go ahead with the calibration operation at 0,8mV/V of the system. Connect a weight calibrator which is in position to provide an output of 0,8mV/V to the load cells' connector.
- ✘ When calibration states CALIBRATION A/D 0,0000mV/V put the calibrator in the OFF position and press the key .
- ✘ The display will show CALIBRATION A/D 0,8000mV/V, then move the calibrator's switch in the ON position. Wait for few seconds for relevant stabilization and press  to confirm.

- ✘ If calibration is valid the scale will come out automatically from the code, on the contrary press .
- ✘ However, in case calibration is not valid, or just in order to get a better accuracy in the weighing, we suggest to effect a final optimal calibration of the system by using the right codes at this purpose.

## Code 43

Trough this code the customer can modify the settings of the display RF AV50. It is possible the setting of the following parameters:

RF CHANEL from 0 to 9

POWER from 0 to 3.

To move from a setting to another press the keys  and , while to modify a setting push the key . During the modification of the setting up use the keys  and  to vary the parameter, whereas to confirm the input press . To go out press .

## Code 44

In this code it is possible to visualize the RF7 radio control's configuration parameters, to test the 4 keys and to allow a self-learning of the keys functions. To test the 4 keys move with the

arrows  and , by selecting the wished key which is duly stated in the two smaller

digits. To access to the visualization of the keys codification press the key ,

to move from one key to another use the arrows  and , you exit with .

To effect a self-learning press the key ,

then press a button on the radio control for some seconds until it will appear the caption SET OK on the display. To go out from the code press the key .

## Code 45



In this code it is possible to set up the velocity of the weight visualization, that is to say the speed with which the weight is on the load cells and it is shown on the display. Said speed can be set from 1 (very slow) to 9 (very speedy). To allow the modification of the value press the

key  and the cursor will start flashing. To modify the setting use the keys  and ,

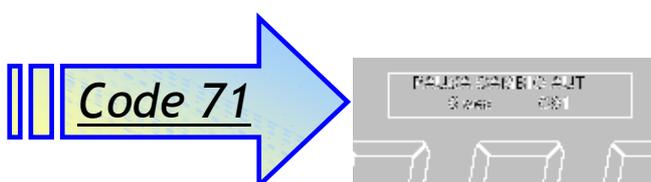
to confirm the effected choice press . To go out from the code press the key .



In this code it is possible to set out the parameters connected with the alarm device. There are two different parameters: the first is the percentage of alarm's start, namely the percentage of effected load and unload starting from which alarm device will begin ringing in intermittent way; the second parameter is involving the seconds the alarm will be ringing at the end of load and unload operation and before going to the next component. The first parameter can be set from 5% to 30%, with the further chance to deactivate this function, while the second can be set from 1 to 60 seconds, with the chance to be also deactivated. To select the setting to be modified use the arrows  and , and then press  to confirm the modification. To modify the value use the keys  and , then confirm once again the button  to confirm the modification. To go out from the code press the key .



In this code it is possible to select the programming method concerning the load and unload operations of the scale. It is possible to choice between the mode for TOTALS or for ANIMALS. In the mode for TOTALS quantities to be loaded and unloaded are directly introduced and mentioned by kilo; whereas with mode ANIMALS the calculation of the quantity to load is made by multiplying the number of the animals times the quantity of the component for each single animal which is mentioned in hectogram. Calculation of the quantity to unload is made considering the total of the recipe in accordance to the number of animals which is programmed for each unload. To select the setting to modify use the arrows  and , then press  to confirm the modification. To change the parameter press the keys  and , then confirm once again the button . To go out from the code press .

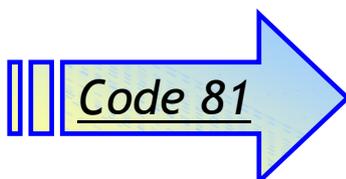


In this code it is possible to set out the time of the pause when ending the loading of the component. It is possible to input from 0 to 9999 seconds for each of planned components. To select the component on which you want to modify relevant time press the keys  and , then use  to confirm the modification. To modify the mentioned numeric character from the flashing cursor push the arrows  and , while to move laterally from a digit

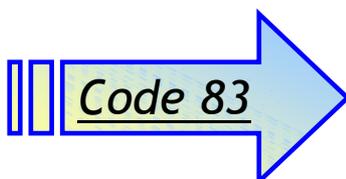
to another press the arrows  and , to confirm once again the modification press the key . To go out from the code press the key .



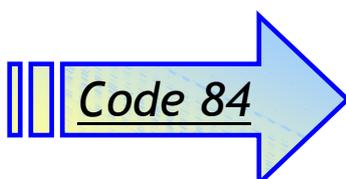
In this code it is possible to enable the function of the auxiliary relay. Said relay is activated in accordance to the percentage of the load of the component, which should be set through this code too. To pass from the access of the function to the setting of percentage and vice versa use the arrows  and , then press  to confirm the modification of the parameter. Use the arrows  and  to modify the setting and press  to confirm the effected setting. To go out from the code press .



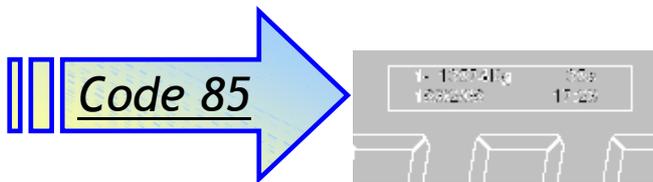
In this code it is possible to enable the system to the use of a printing machine. Through the utilization of arrows  and  it is possible to activate or deactivate this option, while to go out from the code press the key .



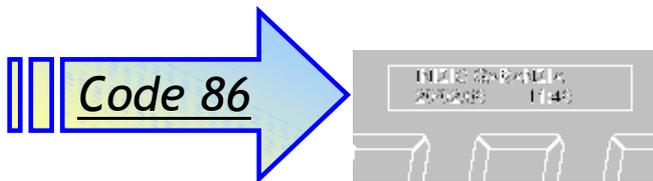
In this code it is possible to enable the system to the use of a memory card for the transfer of all data to a Personal Computer. Through the use of the arrows  and  it is possible to activate and deactivate this option, while to go out from the code press the key .



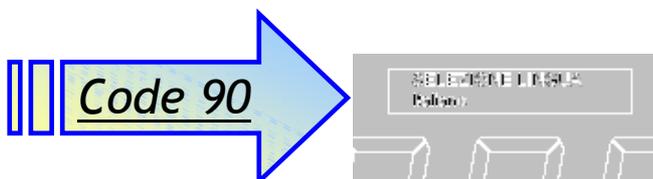
Here the user can select the model of the supplementary display connected to the scale. If it is connected a standard display like AV20/5, MV6, it is necessary to select through the arrows   "RIPETITORE", whereas to work with AV50 select "AV50". To go out press .



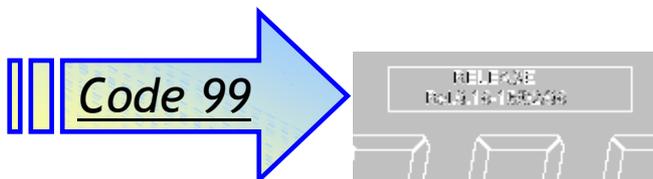
In this code it is possible to give a look at last 5 overloads occurred in the system. Displayed data are the maximum weight of the occurred overload, the date and the hour of the relevant recording. Through the use of the arrows  and  it is possible to run the list of the overloads if present. To fully cancel said list keep pressed for long the keys  and , while to go out from the code press the key .



In this code the parameters regarding the warranty are displayed. In particular on the display are stated the date and the hour related to the beginning of the warranty, the total working time, the max. loaded weight that overcame the load cells' capacity, the number of times when said capacity has been overcome and the number of effected unloads. To pass from a term to another one press the arrows  and , while to go out from the code press .



In this code it is possible to select the wished language for the visualisation of the phrases on the display. The available languages are Italian, English, French, Spanish and German. To change the setting use the arrows  and , to confirm the choice and to go out from the code press , while to go out without confirming any modification push .



In this code it is displayed the software version and the date of relevant editing. To go out from the code press .

NUM	TOTALE A 0.8 MV	DEC.	GUAD.	SENSORI				NOTE
				N.	SIGLA	PORTATA	Ω	
1	132,88	2	1					
2	13,288	3	1					
3	365,0	1	1	3	SB1-K5C	500	350	
4	481,0	1	1	4	SB1-K5C	500	350	
5	727,0	1	1	3	SB1-K1M	1000	350	
6	960,0	1	1	4	SB1-K1M	1000	350	
7	1454,0	1	1	3	SB1-K2M	2000	350	
8	1920,0	1	1	4	SB1-K2M	2000	350	
9	6735	0	2					
10	8986	0	2					
11	6976	0	2					
12	9302	0	2					
13	9968	0	2	3	4.0TB.F-WT	4000	350	Unifeed
14	13288	0	2	4	4.0TB.F-WT	4000	350	Unifeed
15	10950	0	2	3	4.0 TB-TB.A-4.5TB	4000	350	Unifeed
16	14600	0	2	4	4.0TB.A-LR	4000	350	Unifeed
17	22014	0	2	3	5.0 TBH	5000	350	Unifeed
18	29352	0	2	4	5.0 TBH	5000	350	Unifeed
19	8883	0	2	3	4.0TB.S	4000	350	Unifeed
20	11847	0	2	4	4.0TB.S	4000	350	Unifeed
21	18767	0	2	3	6.0 TB.L.	6000	350	Unifeed
22	3655	0	1	3	SB1-K5M	5000	350	
23	4834	0	1	4	SB1-K5M	5000	350	
24	5486	0	1	3	SB1-K7M5	7500	350	
25	7255	0	1	4	SB1-K7M5	7500	350	
26	10972	0	2	6	SB1-K7M5	7500	350	
27	14629	0	2	8	SB1-K7M5	7500	350	
28	21944	0	2	12	SB1-K7M5	7500	350	
29	9570	0	2	4	SB2-K6M	6000	350	
30	6949	0	2	3	SB2-K6M	6000	350	
31	5770	0	1	3	2.0TB.U	2000	350	Unifeed
32	7693	0	1	4	2.0TB.U	2000	350	Unifeed
33	16392	0	2	3	4.0TB.JS	4000	350	Unifeed
34	21856	0	2	4	4.0TB.JS	4000	350	Unifeed
35	76,16	2	1	3	OC1-K5D	50	350	
36	727	0	1	3	SB1-K1M	1000	350	
37	960	0	1	4	SB1-K1M	1000	350	
38	1454	0	1	3	SB1-K2M	2000	350	
39	1920	0	1	4	SB1-K2M	2000	350	
40	206,1	1	1	1	SB1-K3C	300	350	
41	121,7	1	1	1	SB1-K5C	500	350	
42	22649	0	2	3	CZ63	5500	350	Unifeed
43	14234	0	2	3	5.4 SG	5400	350	Unifeed
44	18979	0	2	4	5.4 SG	5400	350	Unifeed
45	19987	0	2	3	1/2 DB-bar	10000	350	
46	19511	0	2	3	1/9 DB-bar	1000	350	
47	7950	0	2	3	SB3-K7M5	7500	350	
48	10600	0	2	4	SB3-K7M5	7500	350	
49	184,0	1	2	3	SB1-K2C5	250	350	
50	531	0	2	1	CS2-K2M	2000	350	
51	61,33	2	2	1	SB1-K2C5	250	350	

NUM	TOTALE A 0.8 MV	DEC.	GUAD.	SENSORI				NOTE
				N.	SIGLA	PORTATA	Ω	
52	242,3	1	2	1	SB1-K1M	1000	350	
53	484,7	1	2	1	SB1-K2M	2000	350	
54	1218	0	2	1	SB1-K5M	5000	350	
55	1828	0	2	1	SB1-K7M5	7500	350	
56	241,9	1	2	4	SB1-K2C5	250	350	
57	368,0	1	2	6	SB1-K2C5	250	350	
58	730,0	1	2	6	SB1-K5C	500	350	
59	1454	0	2	6	SB1-K1M	1000	350	
60	2908	0	2	6	SB1-K2M	2000	350	
61	7310	0	2	6	SB1-K5M	5000	350	
62	20,095	3	1	1	OC4-K5D	50	385	Lactamatic
63	10138	0	2	3	4.0 STR	4000	350	Unifeed
64	13517	0	2	4	4.0 STR	4000	350	Unifeed
65	10648	0	1	6	SB5-K5M/10	5000	385	
66	1090,6	1	2	4	TWIN	500	350	Unifeed
67	10449	0	2	3	5.0TBLCS Qualimix	4000	350	Unifeed
68	10731	0	2	3	5.0TBLCS Spirmix	4000	350	Unifeed
69	11487	0	2	3	CM	10000	700	
70	14870	0	2	4	CM	10000	700	
71	7378	0	2	4	CM	5000	700	
72	72,0	1	2	4	OC4-K5D	50	385	
73	37370	0	2	4	CM	25000	350	
74	400	0	2	1	AF1	1000	350	
75	2857	0	2	3	CM	2500	700	
76	7004	0	2	10	SB1-K2M	2000	350	
77	22373	0	2	4	CM	15000	700	
78	32809	0	2	6	CM	15000	700	
79	5916	0	2	5	SB1-K5M	5000	350	
80	7152	0	1	4	SB5-K5M/10	5000	385	
81	9009	0	2	5	SB1-K7M5	7500	350	
82	365	0	1	3	SB1-K5C	500	350	
83	481	0	1	4	SB1-K5C	500	350	
84	37360	1	1					ECO1 (51)
85	3280	0	1					ECOx (52)
86	328,0	1	1					ECOx (50)
87	7820	0	2					GPA (80)
88	4369	2	1	6	CM	20000	700	ton
89	40,051	3	2	1	CB	100	350	
90	3729	0	1	2	SB5-K5M/10	5000	385	
91	14176	0	1	8	SB5-K5M/10	5000	385	
92	17730	0	1	10	SB5-K5M/10	5000	385	
93	21332	0	1	12	SB5-K5M/10	5000	385	
94	21786	0	2	6	CM	10000	700	
95	14254	0	1	4	SB1-K10M	10000	350	
96	7198	0	2	8	CM	2500	700	
97	45580	0	2	8	CM	15000	700	
98	53380	0	2	10	CM	15000	700	
99	28630	0	2	8	CM	10000	700	
100	35550	0	2	10	CM	10000	700	
101	6406	2	1	12	CM	15000	700	ton
102	4255	2	1	12	CM	10000	700	ton

NUM	TOTALE A 0.8 MV	DEC.	GUAD.	SENSORI				NOTE
				N.	SIGLA	PORTATA	Ω	
103	18107	0	2	6	4.0 STR	4000	350	Unifeed
104	1486	0	1	4	CM	1000	700	
105	1898	0	1	8	SB1-K1M	1000	350	
106	162,5	1	1	4	OC4-K1C	100	385	
107	4305	0	1	4	SB1-K3M	3000	350	
108	6470	0	1	6	SB1-K3M	3000	350	
109	19932	0	2	6	4.0TB.F-WT	4000	350	Unifeed
110	14017	0	2	4	SPIRMIX 240	4000	350	Unifeed
111	10805	0	2	12	CM	2500	700	
112	21381	0	2	6	SB1-K10M	10000	350	
113	28508	0	2	8	SB1-K10M	10000	350	
114	3563	2	1	10	SB1-K10M	10000	350	ton
115	4276	2	1	12	SB1-K10M	10000	350	ton
116	25023	0	2	4	6.0 TB.L.	6000	350	Unifeed
117	21847	0	2	3	CM	20000	700	
118	29129	0	2	4	CM	20000	700	
119	5826	2	1	8	CM	20000	700	ton
120	7282	2	1	10	CM	20000	700	ton
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