M II

DIGITAL WEIGHT INDICATOR

OPERATION AND CONFIGURATION MANUAL

Revision: Sept. 2009 (English)
For software versions: ID 1.00X
PC 1.00X

M II
CALIBRATION DATA

Write the system calibration data below.

Scale 1	Scale 2
Serial number:	Serial number:
Model: Model:	
Supply voltage:	Supply voltage:
Date of purchase:	Date of purchase:
Date of installation:	Date of installation:
Calibration coefficients: ZERO: SPAN:	Calibration coefficients: ZERO: SPAN:
Manufacturers identification code (ID): **2802**	
Custom identification code (ID):	

WARNING
Keep this new number in a safe place. It is the only one that will allow access to the protected parameters (scale definition, calibration, etc.)

SAFETY PRECAUTIONS

	WARNING - RISK OF ELECTRICAL SHOCK For proper grounding, the power cord must be connected to a grounded socket.
	WARNING - RISK OF ELECTRICAL SHOCK For proper grounding, the grounding cord (green or green/yellow) must be connected to the general ground connection.
	WARNING - RISK OF ELECTRICAL SHOCK Due to the risk of electrical shock, the device must only be installed by qualified personnel.
	WARNING - RISK OF ELECTRICAL SHOCK Due to the risk of electrical shock, the device must only be opened by qualified personnel.
	WARNING Calibration and configuration must be performed only by qualified personnel.
	WARNING Electrical shock. Do not open the device. Get assistance from qualified personnel.
	WARNING Fire risk. Replace the fuse with the appropriate spare part.
	WARNING The circuits built in the M II are sensitive to electrostatic discharges (ESD). Use suitable means for transportation, storage and handling.

CONTENTS

1 Introduction

1.1 Characteristics of the Indicator

1.1.1 Analog load cell connection

Maximum input signal	‹.9 mV/V
Input impedance	200 M∧ (typical)
Internal resolution	24 bit A/D converter; 16,700,000 accounts (± 8.350.000)
Measurement rate	50 measurements per second
Linearity error	δ 0.01 % of measurement range
Zero stability	150 nV/ºC max.
Span stability	3.5 ppm/ºC max.
Excitation voltage	6 ± 0.3 VDC
Minimum resistance of transducer	43∧ (8 cellsx350∧, 16 cellsx700∧)
Maximum resistance of transducer	1000 k∧
Cable length	400 m/mm^{2}max. (6 wires) 30 m/mm2 max. (4 wires)
Maximum input voltage	± 6.8 V

1.1.2 Digital load cell connection

Load cell type	740D model or compatible
Load cell power supply	18 V DC / 1.5 A (external adaptor)
Load cell communication	Bus RS-485 full duplex, 38400 bauds
Maximum number of load cells	16

1.1.3 Operator's interface

Display	Graphic LCD (240x128) with backlighting
Keyboard	29 key membrane keyboard
External keyboard (optional)	Standard PC, PS/2 connector

1.1.4 Serial communication

Port Tx/Rx: (Channel 1)	RS-232C bidirectional
Port Tx/Rx: (Channel 2)	RS-232C bidirectional
Port Tx/Rx: (Channel 3)	RS-485 half duplex
Transmission speed	115200, 57600, 38400, 19200, 9600 and 4800 bauds
Number of bits and parity	7 and 8 bits, both with no parity, with even parity or with odd parity

1.1.5 Ethernet

Technology	10BaseT
Speed	10Mbps
Type of cabling	Twisted pair

Maximum distance	100 m
Topology	Star (hub or switch)

1.1.6 Power Supply

Power supply connection	90-260 VAC, 50-60 Hz, 18 W max.
DC Power Supply	18 VDC external fuse 1A

1.1.7 Operating conditions and mechanical data

Operating temperature range	-10ºC to 40ºC
Temperature limit	-25ºC to 70ºC
Size	292 x 202 x 127 mm
Weight 3 kg	
Mounting	Desktop, support or panel

1.2 Keypad

The keypad, which is located on the front of the device, is membrane and features 29 keys. Its layout is as shown in figure 1.2.1

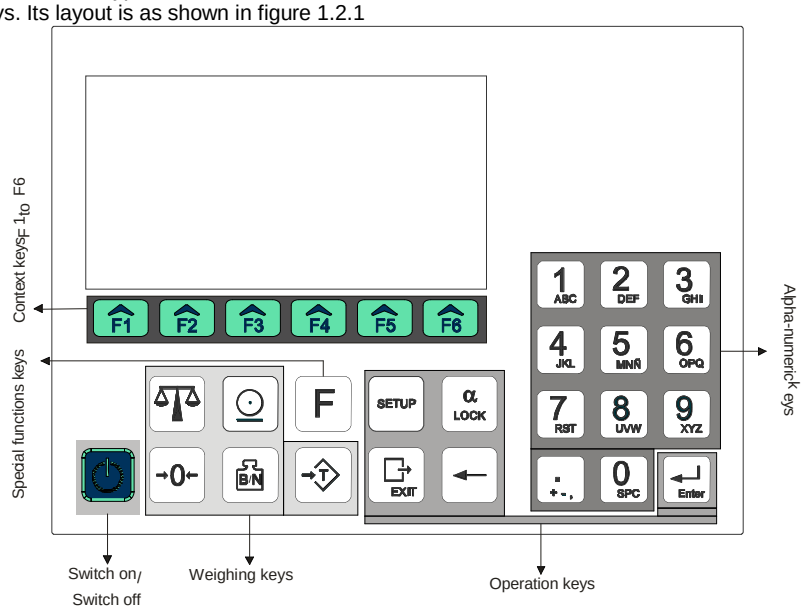
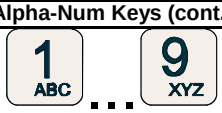


Figure 1.2.1 Keypad layout

1.2.1 Functions

Operating Keys	Normal State	Setup
	On-Off ----	
	Access to the device configuration	----
	Exit any operation	Exit setup, change level or cancel
	Confirmation and execution	Confirmation and execution of parameters
Weighing Keys		
	Scale change (only bi-scale)	----
	Reset to zero	----
	Enter tare	----
	Indication change Gross/Net	----
	Print Ticket	----
Alpha-Num Keys		
	Enable/disable numbers and characters	Enable/disable numbers and characters
	Delete the previous character	Delete the previous character

Alpha-Num Keys (cont.)	Normal State	Setup
	Alpha-numeric keys	Alpha-numeric keys
Special Keys		

F	Key reserved for additional functions - Change F1-F6	----
F1 ... F6	F1 to F6 keys have various functions depending on context shown on graphic display	F1 to F6 keys have various functions depending on context shown on graphic display

1.3 Display and luminous Information

The indicator features a graphic display just as is shown in figure 1.3.1:

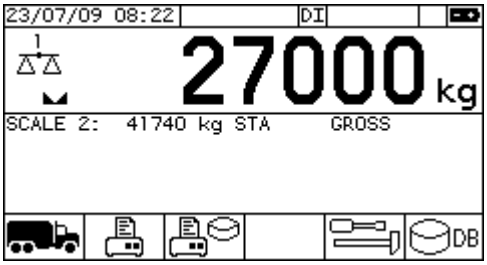
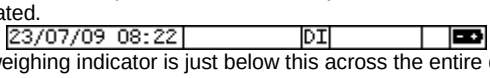
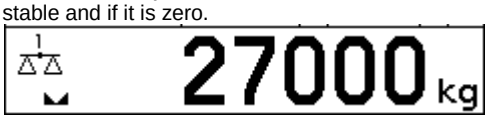


Figure 1.3.1 View of display and luminous information

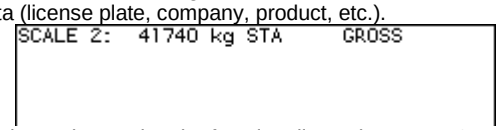
The date and time are shown in the upper left corner. The ethernet connection status can be seen to the right, then the power status and finally, whether the character option for the numeric keys is activated.



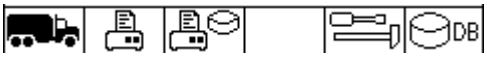
The main weighing indicator is just below this across the entire display. This shows the weight on the scale that is currently selected - in this case, scale 1-, and whether it is gross or net, if the weight is stable and if it is zero.



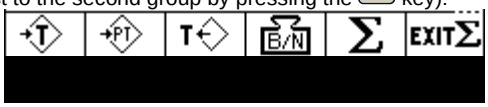
Then, the secondary weighing indicator is shown. It is configurable (see section 5.2.1.7), and shows the weight on the scale that is not currently selected,- in this case, scale 2- , and whether it is gross or net, if the weight is stable and if it is zero. On weighing, this part is used to enter the data (license plate, company, product, etc.).



Finally, the icons that assign the functionality to the F1 to F6 context keys appear (see 1.2.1).



In industrial mode, the icons that assign the functionalities to the F1 to F6 context keys are (changes from the first to the second group by pressing the F key):



1.3.1 Functionalities

Indicator	Meaning
	Main scale number
	Stable indication
NET	Tared indication
>0<	System zero
R1/R2	Range situation
PT	Programmed Tare indication
	Double weighing operations (for first and second weighing)
	Single weighing ticket
	Print ticket for most recent weighing
	Application options
	View or edit data base
	Tare
	Remove tare
	Programmed tare
	Change weight indication from Gross to Net
	Totalize
	Exit Totalize
	Piece counter
	Exit piece counter

1.4 Device Labels

1.4.1 Indicator characteristics label

There is a label (M) on the back that defines the device characteristics (see figure 1.4.1.1):

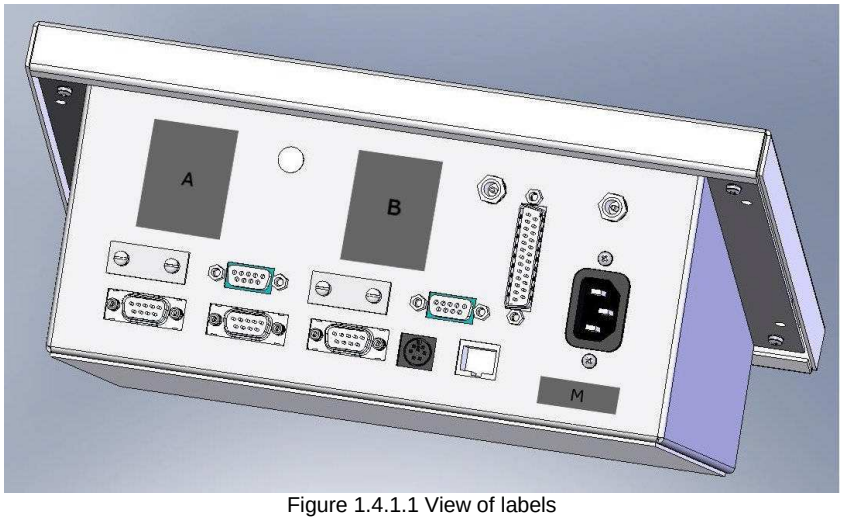
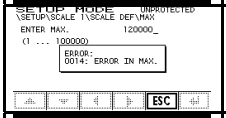


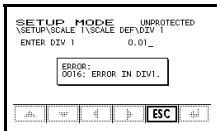
Figure 1.4.1.1 View of labels

1.4.2 Label with characteristics and metrological identification

As can be seen in figure 1.4.1.1, the characteristics and metrology identification labels (A, B) are located at the back of the indicator. It is a security label for each individual scale that shows the characteristics of the device and features an area for the metrology values and marks for each scale.

1.5 Error Messages

Display	Error	Possible Cause	What To Do
	-0- out of range	Scale is not empty	Remove weight from the scale
	Out of range	Entry (Tare, Setpoint) not permitted	Check the entry
	Overload	Weight on the scale exceeds maximum capacity Input signal exceeds maximum range	Remove weight from the scale Check installation
	Underload	Input signal lower than minimum range	Check installation
	Locked	Key pushed disabled	Check configuration
	Weight not valid	The weight on the scale is lower than the minimum weight	Place a weight that is heavier than the minimum on the scale (see 5.3.2.9)
	Invalid Input	The value entered is not correct for the type of variable	Enter a correct value
	Input too high	The value entered is too high for the current field	Enter a lower value
	Error MAX	Ratio not fulfilled: $\frac{MAX}{DIV} \delta 100000$	Verify that the MAX value is correct Modify DIV to fulfill ratio
	Error DIV	Ratio not fulfilled: $\frac{MAX}{DIV} \delta 100000$	Verify that the DIV value is correct Modify MAX to fulfill ratio
	Error MAX1	Ratio not fulfilled: $\frac{MAX1}{DIV1} \delta 100000$	Verify that the MAX1 value is correct Modify DIV1 to fulfill ratio

	Error DIV1	Ratio not fulfilled: $\frac{MAX1}{DIV1} \delta 100000$	Verify that the DIV1 value is correct Modify MAX1 to fulfill ratio
	Error MAX2	Ratio not fulfilled: $\frac{MAX2}{DIV2} \delta 100000$	Verify that the MAX2 value is correct Modify DIV2 to fulfill ratio
	Error DIV2	Ratio not fulfilled: $\frac{MAX2}{DIV2} \delta 100000$	Verify that the DIV2 value is correct Modify MAX2 to fulfill ratio
	Error MAX1 IS 0	The zero value entered is not valid for these parameters	Modify the zero value
	Error DIV1 IS 0		
	Error MAX2 IS 0		
	Error DIV2 IS 0		
	Error PROTECTED PARAMETER	An attempt is being made to modify a protected parameter without having entered the PIN correctly	Enter the PIN correctly and then modify the parameter
	Error TICKET DOES NOT EXIST	An attempt is being made to repeat a ticket, the number of which does not exist in the data base	Enter a ticket number that exists in the data base
	Error TICKET IS OPEN	At attempt is being made to print a totalize ticket that has not been closed	Close it by pressing the EXIT Σ key
Display off		It is not connected to the power supply	Connect it to the power supply
		Indicator broken	Contact your technical service
		Switch is OFF	Turn it ON

1.6 PC Keyboard Assignment

The indicator can be used with different types of PC keyboards. The character you get from pushing a certain key will depend on the type of keyboard that has been configured in the device (see section 5.2.1.13). The keyboard types can be: Spanish, Portuguese, French and Czech.

The keys shown in figure 1.6.1 have the same function as those on the indicator keypad that appear in that figure.

Figure 1.6.1 PC Keyboard

1.7 Maintenance

1.7.1 Cleaning

a) Disconnect the indicator by unplugging it from the wall socket.
b) Clean the indicator with a clean, dry cloth.

WARNING

Never use any type of alcohol or solvent to clean the indicator. These chemical products can damage it. Do not allow water to get inside the indicator; it could damage the electronic components.

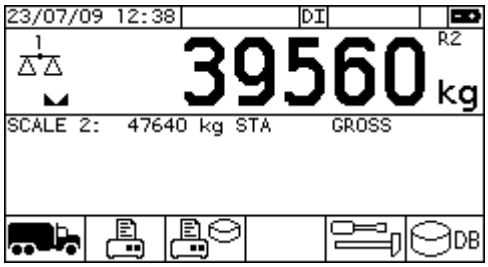
2 Operation

2.1 Turning Indicator On

The indicator can be turned on by using the ON/OFF button that is located on the keypad on the front of the device once it has been connected to the power supply. Before using the device, it is best to give it some time to stabilize. This is particularly important when it is going to be calibrated. In this case, waiting 30 minutes is recommended. To avoid waiting for it to warm up and possible condensation in the event of significant outside temperature changes, the device can be left permanently connected.

2.2 Normal Weighing

Upon loading the platform, the weight on the scale currently selected will be indicated on the graphic display:



2.3 Zero

The indicator features a manual reset to zero device. If you press the zero key, the indicator will use the current weight value as the system zero value.

Operation:

2.4 Tare

There are different types of tare. They are described in the following sections.

2.4.1 Normal Tare

By pressing the tare key, the current value on the indicator will become the tare value. The word NET will be shown to the right of the weight.

Operation:

2.4.2 Manual Tare

To manually enter a specific tare, you must indicate the tare value with the numeric keys, press ↵ or Enter and then press →T. The message MANUAL TARE will temporarily appear and NET and PT will be shown to the right of the weight, which will be reduced by the tare value entered. See figures 2.4.2.1 and 2.4.2.2.

Operation:

nnn ↵ or Enter →T

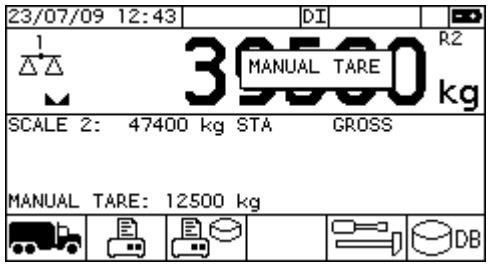


Figure 2.4.2.1 Message shown when you press TARE

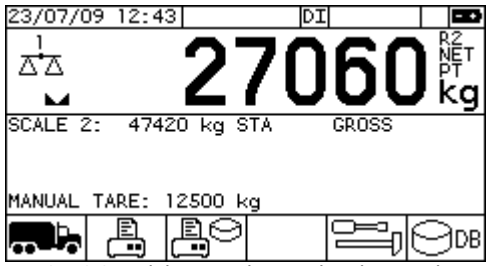


Figure 2.4.2.2 Weight once the tare has been subtracted

2.4.3 Disable tare

To disable the tare currently in use, you must press Exit and then the tare key.

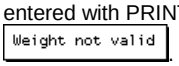
Operation:

EXIT →T

2.5 Gross

If the weight in the display is	The indication NET is	On pressing the key	Weight in the display is	The indication NET is
Gross	OFF		Net	ON
Net ON			Gross	OFF

2.6 Print Ticket

To print a ticket, you must press the print key. If the weight does not pass the divisions entered with PRINT MIN function (see 5.3.2.9), the display will show the message  .

Operation:

The ticket will be printed in accordance with the selected configuration (see 5.2.8).

2.7 Communications

The device has three serial ports for transmission and reception.

These communication ports can be configured in the configuration menu (points 5.2.2, 5.2.3 and 5.2.4)

As an optional module, it may feature a fourth communication port, which can be configured in the configuration menu explained in section 5.2.5.

2.7.1 General Characteristics of the Remote Control

2.7.1.1 Remote Control Commands

The device can be controlled through one of the communication ports. For this function the device must be configured in the 'DEMAND' mode (see sections 5.2.2, 5.2.3 and 5.2.4).

Commands:

A Request for weight in F4 format
G Same as EXIT + TARE keys
P Request for weight with a response in the selected format (see sections 5.2.2.4, 5.2.3.4 and 5.2.4.4)
Q Same as PRINT key
R Reset the device
T Same as TARE key
Z Same as ZERO key
$ Request for weight: The command does not require <CR> (only F7, F8 and F9 formats, see 2.7.1.2)
STX, ENQ, ETX Request for weight: The command does not require <CR>

(only F12 and F13 formats, see 2.7.1.2)
SYN Request for weight: The command does not require <CR>
(only F11 formats, see 2.7.1.2)
B Same as GROSS key

Commands only available in truck weighing mode:
PR Sends the weighings table through serial port

Commands only available in industrial mode:
E Same as EXIT + TOTALIZE keys
S Same as TOTALIZE key

TARE Programming: This makes it possible to program a pre-set TARE. The decimal point is obtained from the system.

Program: T ± p p p p p p p Ter

Check T ? Ter

Returns the value in the programming format regardless of whether there is a tare or a pre-set tare in the system.
Transmission of the date in ASCII:
± : sign: + positive value; - negative value
p : weight (7 digits)
Ter: Termination CR, CR+LF, ETX or none depending on how the parameter TERMINATION for the Rx/Tx port is programmed (see 5.2.2.7, 5.2.3.7 and 5.2.4.7)

2.7.1.2 Data Block Formats

F1 Format:

<STX> POL		ppppppp U G/N			S T	

F2 Format:

'' POL nnnnnnn		T

F3 Format:

<STX>	‰' ' ' ^' ' ' POL		nnnnnnn	<ETX>	T	

F4 Format:

POL	aaaaaaa	T

F5 Format:

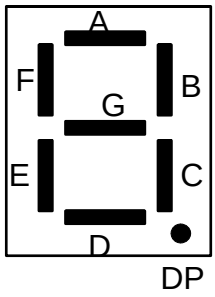
<STX> ' ' POL nnnnnnn		<ETX> T	

F6 Format:
For UTILCELL weight repeaters. The display content is transmitted in hexadecimal.

D7 D6	D5 D4	D3 D2	D1 Status				

digit coding:

bit 7: segment DP
bit 6: segment A
bit 5: segment B
bit 4: segment C
bit 3: segment D
bit 2: segment E
bit 1: segment F
bit 0: segment G



status coding:

bit 7: totalize activated
bit 6: range 1 (R1)
bit 5: range 2 (R2)
bit 4: piece counter activated
bit 3: pre-set tare (PT)
bit 2: ZERO
bit 1: NET
bit 0: STABLE

F7 Format:

<STX> Status POL ppppppp		T

The status is obtained by adding $0x20_{hex}$ .to the following status values:

Gross= $0x01_{hex}$
Net= $0x02_{hex}$

Zero= $0x08_{hex}$
Stable=$0x20_{hex}$

F8 Format:

<STX>	POL	‘ ‘	ppppppp	‘ ‘	Unit	Unit	‘ ‘	Mode	Mode	‘ ‘	T

UNIT: kg = ‘KG’
lb = ‘lb’
MODE: Gross= ‘BR’
Net= ‘NT’

F9 Format:

ppppppp	T

F10 Format:

<STX>	<STA> ppppppp	T

<STA>: status, 1 character: "+" positive weight
"-" negative weight
"?" unstable weight

F11 Format:

<STX>	‘ ‘	‘	‘ ‘	POL	ppppppp	T

F12 Format:

<STX>	<STA>	“ “	weight T	

<STA>: status, 1 character: "S" stable weight
"N" unstable weight

weight: without decimal point ⇗ 6 digits
with decimal point ⇗ 7 digits

F13 Format:

<STX>	“	<STA>	weight T		

<STA>: status, 1 character: "S" stable weight
"N" unstable weight

weight: without decimal point ⇗ 5 digits
with decimal point ⇗ 6 digits

Definitions:

<STX>	Start of Text (ASCII 2)
<ETX>	End of Text (ASCII 3)
<ENQ>	Enquire (ASCII 5)
<SYN>	Synchronous Idle (ASCII 22)
<CR>	Carriage Return (ASCII 13)
<LF>	Line Feed (ASCII 10)
‘ ‘	Space
‘0’	˜0” Character

‘1’ ™” Character
ppppppp Weight, 7 digits
nnnnnnn Net weight, 7 digits
aaaaaaa Analog/digital converter filtered output, 7 digits
POL Polarity:
‘ ‘ Weight > 0
‘-‘ Weight < 0
U Units:
K kg
T t
G g
L lb
‘ ‘ oz, no unit
G/N Gross/Net:
G Gross
N Net
S Status:
‘ ‘ Valid weight
M Unstable weight
O Overload
I Weight value not valid
T Termination:
CR
CR + LF
ETX
none
ACK (ASCII 6)
NAK (ASCII 21)

The device only transmits a response if the stability conditions as per standard EN45501 are fulfilled. If there is no stability at the time of the weight request, the device makes the request wait until there is stability. There is no maximum waiting time.

2.7.2 RS-232 Protocol

Communication between two point-to-point devices with a maximum link distance of 15m.

The protocol format can be seen in the following table:

Command	CR

All the commands found in section 2.7.1.1 can be used.

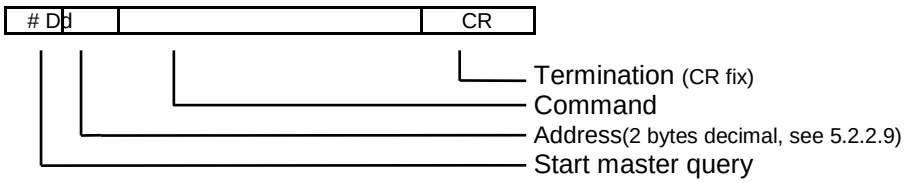
2.7.3 Network Communications (RS-485)

Communication among several equipments (100 maximum) in a BUS with a maximum link distance of 1,200 m.

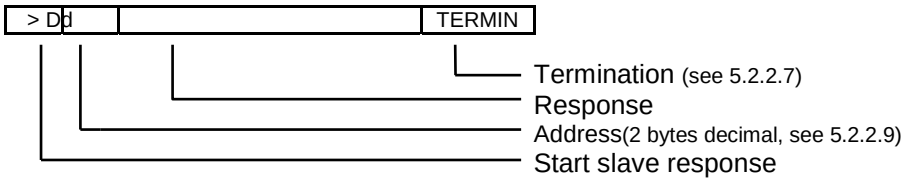
The indicator can only be the SLAVE and it must be assigned an address from 0 to 99.

Masters queries and slaves responses have the following formats:

Master query:



Slave response:



There are three types of responses:

Data	Received and responded query command
ACK	Received and understood command
NAK	Received but not understood command

3 Truck Weighing Application

3.1 Description of Function Keys

Double weighing operations (the first and the second weighing).

Single weighing ticket

Print ticket for the most recent weighing.

Application options

View or edit data base

3.2 Obtaining Net Weight with Two Weighings

3.2.1 First Weight

To record the first weight of a vehicle, press the key. Enter the license plate and press or to validate it.

License Plate

or Enter

This message will appear on the display: 1st WEIGHT.

Next, depending on the options chosen as described in section 3.6.1.1.3, the device will ask for additional information to record for this weight (i.e.: company code (client or supplier), product code, field 1, field 2 and remarks, as long as in section 3.6.1.1.3 the selection was made to show this field and the content of the wording has not been modified and changed to another). See figure 3.2.1.1:

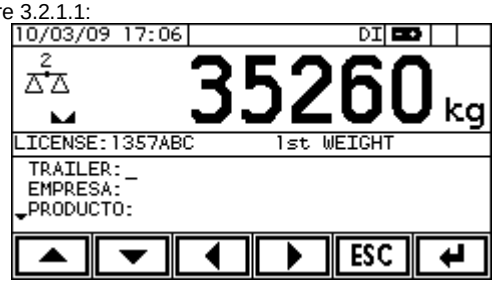


Figure 3.2.1.1

Before validating and storing the weight, the device verifies if the weight indicated has been stable for at least 5 seconds (see 5.3.1.6 and 5.4.1.6). If the weight is not stable, Wait for stabil. appears on the display until the stability requirement has been met. If the stability requirement is not met after 10 seconds have passed, the weight is validated and

stored, but the weight will appear without the unit when the weighing ticket is printed, indicating that the weight may not be correct.

If at any time during the data entry process, the ESC or EXIT key is pressed, the process is aborted and the weight will not be stored.

The indicator automatically records the date and time for this weight.

It will not be possible to weigh this way in any of the following circumstances:

There is a system error

The indicator is in the “Overload” or “Underload” status (see 5.3.2.8 and 5.4.2.8)

The gross weight is less than PRINT MIN (see 5.3.2.9 and 5.4.2.9)

To manually enter a weight, you must enter the weight using the keypad and then press the ↵ or Enter key to confirm. MANUAL INPUT is shown on the display along with the weight value entered. Then press the 🚚 key and follow the same process described above. This message will appear on the display: 1st WEIGHT MANUAL. The weight unit for these manual weighings does not appear when the ticket is printed.

3.2.2 Second Weight

To record the second weight of a vehicle, press the 🚚 key. Enter the license plate or select it from the vehicles in transit with the up or down keys (65-180 ↑ 65-180 ↓) and press ↵ or Enter to validate it.

[redacted] License Plate ↵ or Enter

This message will appear on the display: 2nd WEIGHT.

Next, depending on the options chosen as described in section 3.6.1.1.3, the device will ask for additional information to record for this weight (i.e.: company code (client or supplier), product code, field 1, field 2 and remarks, as long as in section 3.6.1.1.3 the selection was made to show this field and the content of the wording has not been modified and changed to another). See figure 3.2.2.1:

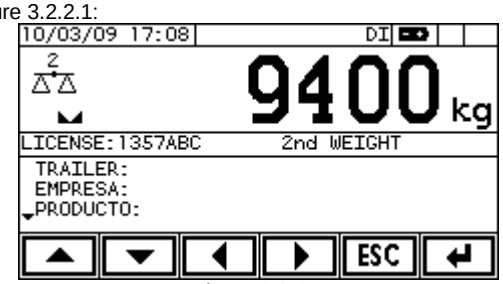


Figure 3.2.2.1

Before validating and storing the weight, the device verifies if the weight indicated has been stable for at least 5 seconds (See 5.3.1.6 and 5.4.1.6). If the weight is not stable, Wait for stabil. appears on the display until the stability requirement has been met. If the stability requirement is not met after 10 seconds have passed, the weight is validated and stored, but the weight will appear without the unit upon printing the weighing ticket, indicating

that the weight may not be correct. Once the weight has been validated, the net weight for the complete weighing is shown on the display for 3 sec.

If at any time during the data entry process, the ESC or EXIT key is pressed, the process is aborted and the weight will not be stored.

The indicator automatically records the date and time for this weight.

The indicator assigns a correlative number to each double weighing operation. This number makes it possible to recover each weighing in order to check, modify or print the information that has been stored. The weighing number can be reset by the user by using the TICKET ID option in the truck weighing application options menu (see section 5.2.7.15).

It will not be possible to weigh this way in any of the following circumstances:

There is a system error

The indicator is in the "Overload" or "Underload" status (see 5.3.2.8 and 5.4.2.8)

The gross weight is less than PRINT MIN (see 5.3.2.9 and 5.4.2.9)

To manually enter a weight, you must enter the weight using the keypad and then press the ↵ or Enter key to confirm. MANUAL INPUT is shown on the display along with the weight value entered. Then press the key and follow the same process described above. This message will appear on the display: 2nd WEIGHT MANUAL. The weight unit for these manual weighings does not appear when the ticket is printed.

3.3 Obtaining Net Weight with a Single Weighing

3.3.1 Weighing a vehicle with the tare stored

To record a weight for a vehicle for which the tare is stored in the VEHICLE TABLE, press the key. Enter the license plate and press ↵ or Enter to validate it.

License Plate ↵ or Enter

This message will appear on the display: STORED TARE.

Next, depending on the options chosen as described in section 3.6.1.1.3, the device will ask for additional information to record for this weight (i.e.: company code (client or supplier), product code, field 1, field 2 and remarks, as long as in section 3.6.1.1.3 the selection was made to show this field and the content of the wording has not been modified and changed to another). See figure 3.3.1.1:

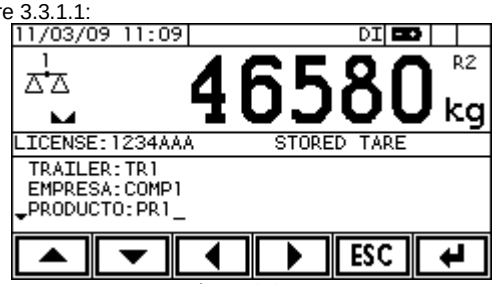


Figure 3.3.1.1

Before validating and storing the weight, the device verifies if the weight indicated has been stable for at least 5 seconds (see 5.3.1.6 and 5.4.1.6). If the weight is not stable, Wait for stabil. appears on the display until the stability requirement has been met. If the stability requirement is not met after 10 seconds have passed, the weight is validated and stored, but the weight will appear without the unit upon printing the weighing ticket, indicating that the weight may not be correct. Once the weight has been validated, the net weight for the complete weighing is shown on the display for 3 sec.

If at any time during the data entry process, the ESC or EXIT key is pressed, the process is aborted and the weight will not be stored.

For this operation, the gross weight on the scale when the last field is validated is recorded as the second weight. The tare stored for this vehicle is recorded as the first weight.

The indicator automatically records the date and time for this weight. For these kinds of operations, the date and time of the first and of the second weight are the same.

The indicator assigns a correlative number to each double weighing operation. This number makes it possible to recover each weighing in order to check, modify or print the information that has been stored. The weighing number can be reset by the user by using the TICKET_ID option in the truck weighing application options menu (see section 5.2.7.15).

For this kind of weighings, the indicator records that the vehicle tare (first weight) was entered manually. When the ticket for this weighing is printed (see section 3.4), the weight will appear without the unit, indicating that this weight was not on the scale at the time of the weighing.

It will not be possible to weigh this way in any of the following circumstances:

- There is a system error
- The indicator is in the "Overload" or "Underload" status (see 5.3.2.8 and 5.4.2.8)
- The gross weight is less than PRINT MIN (see 5.3.2.9 and 5.4.2.9)

To manually enter a weight, you must enter the weight using the keypad and then press the ↵ or Enter key to confirm. MANUAL INPUT is shown on the display along with the weight value entered. Then press the truck key and follow the same process described above. This message will appear on the display: STORED TARE MANUAL. The weight unit for these manual weighings does not appear when the ticket is printed.

3.3.2 Weighing a vehicle using the tare on the indicator

To record a vehicle weight using the tare on the indicator (see section 2.4.1) or a manually entered tare (see 2.4.2), do the process described in the sections mentioned and then press the truck key. Enter the license plate and press ↵ or Enter to validate it.

This message will appear on the display: "TARED WEIGHT".

Next, depending on the options chosen as described in section 3.6.1.1.3, the device will ask for additional information to record for this weight (i.e.: company code (client or supplier), product code, field 1, field 2 and remarks, as long as in section 3.6.1.1.3 the selection was made to show this field and the content of the wording has not been modified and changed to another). See figure 3.3.2.1:

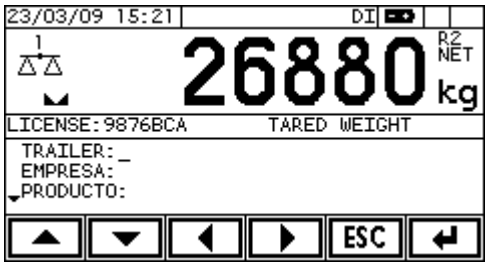


Figure 3.3.2.1

Before validating and storing the weight, the device verifies if the weight indicated has been stable for at least 5 seconds (See 5.3.1.6 and 5.4.1.6). If the weight is not stable, "Wait for stabil." appears on the display until the stability requirement has been met. If the stability requirement is not met after 10 seconds have passed, the weight is validated and stored, but the weight will appear without the unit upon printing the weighing ticket, indicating that the weight may not be correct. Once the weight has been validated, the net weight for the complete weighing is shown on the display for 3 sec.

If at any time during the data entry process, the Exit key is pressed, the process is aborted and the weight will not be stored.

For this operation, the gross weight on the scale when the last field is validated is recorded as the second weighing. The tare on the indicator at that time is recorded as the first weighing.

The indicator automatically records the date and time for this weight. For these kinds of operations, the date and time of the first and of the second weight are the same.

The indicator assigns a correlative number to each double weighing operation. This number makes it possible to recover each weighing in order to check, modify or print the information that has been stored. The weighing number can be reset by the user by using the TICKET_ID option in the truck weighing application options menu (see section 5.2.7.15).

It will not be possible to weigh this way in any of the following circumstances:

There is a system error

The indicator is in the "Overload" or "Underload" status (see 5.3.2.8 and 5.4.2.8)

The gross weight is less than PRINT MIN (see 5.3.2.9 and 5.4.2.9)

To manually enter a weight, you must enter the weight using the keypad and then press the ↵ or Enter key to confirm. MANUAL INPUT is shown on the display along with the weight value entered. Then press the 🚚 key and follow the same process described above. This message will appear on the display: TARED WEIGHT. The weight unit for these manual weighings does not appear when the ticket is printed.

3.4 Single Weighing Ticket

By pressing the 🖶 key, a weighing ticket is printed that is not stored in the weighings data base.

License Plate

↵ or Enter

Next, depending on the options chosen as described in section 3.6.1.1.3, the device will ask for additional information to record for this weight (i.e.: company code (client or supplier), product code, field 1, field 2 and remarks, as long as in section 3.6.1.1.3 the selection was made to show this field and the content of the wording has not been modified and changed to another).

If at any time during the data entry process, the ESC or EXIT key is pressed, the process is aborted and the weight will not be stored.

The indicator assigns a correlative number to each ticket. This number can be initialized by the user by using the TICKET_ID function in the configuration menu (see 5.2.7.15).

Once the data entry is complete, a ticket will be printed with the gross weight the device indicates at that time.

It is also possible to print a ticket of this kind without entering the license plate, company and remarks data by pressing the print ticket key.

Depending on the TICKET value configured in section 5.2.8, the ticket that is printed will be standard or a customized one that is programmed using the Smart Ticket (v1.1+). program. If the TICKET value was configured to OFF in section 5.2.8, no ticket will be printed. Figure 3.4.1 shows an example of a ticket.

```
   1.....................................40
 1 ....HEADER TEXT 1 (MAX. 40 CHARACTERS)...
 2 ....HEADER TEXT 2 (MAX. 40 CHARACTERS)...
 3 ....HEADER TEXT 3 (MAX. 40 CHARACTERS)...
 4 ....HEADER TEXT 4 (MAX. 40 CHARACTERS)...
 5 ....HEADER TEXT 5 (MAX. 40 CHARACTERS)...
 6 ----------------------------------------
 7 TICKET NUM:          6964
 8 LICENSE: 0987CBA
 9 COMPANY CCCCCCCCCC
10         DDDDDDDDDD...(MAX. 30 CHARS)..
11 PRODUCT PPPPPPPPPP
12         EEEEEEEEEE...(MAX. 30 CHARS)..
13 FIELD1  FFFFFFFFFF
14 FIELD2  GGGGGGGGGG
15 REMARKS HHHHHHHHHH...(MAX. 20 CHARS)..
16 ----------------------------------------
17 24/03/09   17:09   1stWEIGHT    39740 kg
18 ----------------------------------------
19 In order:
20
21
22
23 ----------------------------------------
24 ....FOOT TEXT 1 (MAX. 40 CHARACTERS).....
25 ....FOOT TEXT 2 (MAX. 40 CHARACTERS).....
```

Figure 3.4.1 Example Ticket

3.5 Print ticket for the last weight recorded.

To print a weighing ticket with the information recorded for the last operation, press the key.

While printing, this message will appear on the display: “PRINTING”.

Depending on the TICKET value configured in section 5.2.8, the ticket that is printed will be standard or a customized one that is programmed using the Smart Ticket (v1.1+). program. If the TICKET value was configured to OFF in section 5.2.8, no ticket will be printed. Figure 3.5.1 shows an example of a ticket.

```
   1.....................................40
 1 ....HEADER TEXT 1 (MAX. 40 CHARACTERS)...
 2 ....HEADER TEXT 2 (MAX. 40 CHARACTERS)...
 3 ....HEADER TEXT 3 (MAX. 40 CHARACTERS)...
 4 ....HEADER TEXT 4 (MAX. 40 CHARACTERS)...
 5 ....HEADER TEXT 5 (MAX. 40 CHARACTERS)...
 6 ----------------------------------------
 7 TICKET NUM:          6965
 8 LICENSE: 0987CBA
 9 COMPANY CCCCCCCCCC
10        DDDDDDDDDD...(MAX. 30 CHARS)..
11 PRODUCT PPPPPPPPPP
12        EEEEEEEEEE...(MAX. 30 CHARS)..
13 FIELD1  FFFFFFFFFF
14 FIELD2  GGGGGGGGGG
15 REMARKS HHHHHHHHHH...(MAX. 20 CHARS)..
16 ----------------------------------------
17 24/03/09   15:27   GROSS    39740 kg
18 24/03/09   15:15   TARE     18340 kg
19 NET                OUTPUT   21400 kg
20 ----------------------------------------
21 In order:
22
23
24
25 ----------------------------------------
26 ....FOOT TEXT 1 (MAX. 40 CHARACTERS).....
27 ....FOOT TEXT 2 (MAX. 40 CHARACTERS).....
```

Figure 3.5.1 Ticket 40 Characters Wide

```
   1.................21.....................................50.....................80
 1                    ....HEADER TEXT 1 (MAX. 40 CHARACTERS)...
 2                    ....HEADER TEXT 2 (MAX. 40 CHARACTERS)...
 3                    ....HEADER TEXT 3 (MAX. 40 CHARACTERS)...
                      ....HEADER TEXT 4 (MAX. 40 CHARACTERS)...
                      ....HEADER TEXT 5 (MAX. 40 CHARACTERS)...
 4 --------------------------------------------------------------------------------
 5  TICKET NUM:          6965
 6 LICENSE: 0987CBA
 7 COMPANY CCCCCCCCCC
 8                              DDDDDDDDDD...(MAX. 30 CHARS)..
 9 PRODUCT PPPPPPPPPP
10                              EEEEEEEEEE...(MAX. 30 CHARS)..
11  FIELD1  FFFFFFFFFF
12  FIELD2  GGGGGGGGGG
13  REMARKS HHHHHHHHHH...(MAX. 20 CHARS)..
```

```
14 --------------------------------------------------------------------------------
15 24/03/09   15:27   GROSS    39740 kg
16 24/03/09   15:15   TARE     18340 kg
17 NET                OUTPUT   21400 kg
18 In order:
19
20
21
22
23
24 --------------------------------------------------------------------------------
25                    ....FOOT TEXT 1 (MAX. 40 CHARACTERS).....
26                    ....FOOT TEXT 2 (MAX. 40 CHARACTERS).....
```

Figure 3.5.2 Ticket 80 Characters Wide

3.6 Truck Weighing Application Options Menu

The options in this menu allow you to manage the information generated with each weighing, as well as the auxiliary information that will be used to create the weighing tickets.

To access the options menu for the truck weighing application, press  .

What will appear on the display is showed in the following illustration:

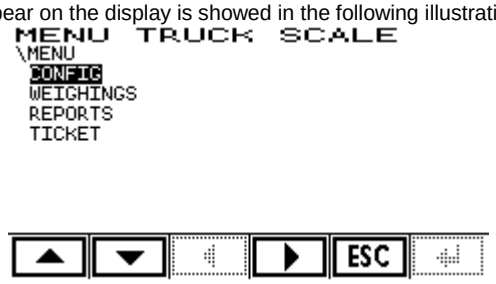


Figure 3.6.1 General Menu Layout

To move around the menus, use the cursor movement keys. To move around the same level, use the right and left keys; and to change levels, use the up or down keys.
To exit the menu, press the ESC key.

3.6.1 CONFIG

This option allows you to configure the different options available in the truck weighing option. The menu is as shown in the following illustration:

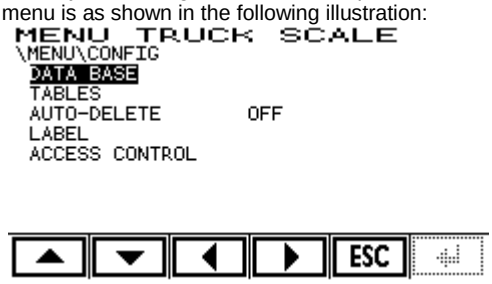


Figure 3.6.1.1

Using the ▼ key, you can go down to the next option.
Using the ▲ key, you can go up to the previous option.
Using the ▶ key, you enter the menu for the option currently selected.
Using the ◀ key, you exit the menu for the option currently selected.

The ↵ or Enter key validates the option or the data entered. If you do not wish to validate the option or data entered, press the ESC or Esc key.

3.6.1.1 DATA BASE

This option allows you to define the data base source. *At this time, this data base can only be local.*

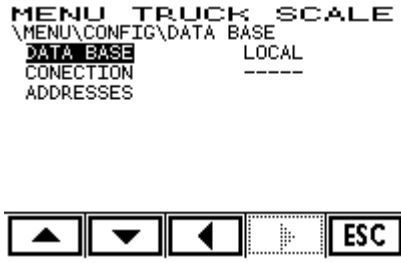


Figure 3.6.1.1.1

3.6.1.1.1 TABLES

This allows you to modify the dimensions of the COMPANY, PRODUCTS, VEHICLES and WEIGHINGS tables in the data base. Access to this option is protected and requires you to enter an access code (ID):

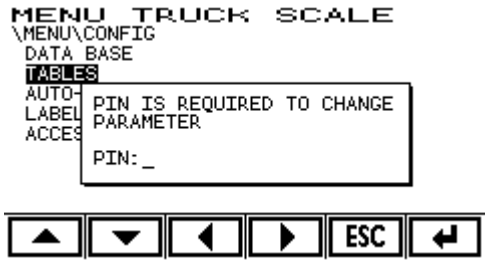


Figure 3.6.1.1.1.1

The menu is as shown in the following figure. The number shown to the right of each field is the maximum number of records in the corresponding table:

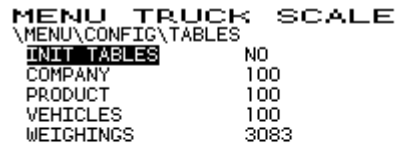


Figure 3.6.1.1.1.2

WARNING
Modifying the dimension of any of the tables leads to a deletion in the data base

3.6.1.1.1.1 INIT TABLES

Using this option, you can reset the data base tables to their default values. To do so, select the YES option and press the ↵ or Enter key.

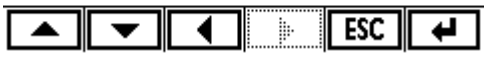


Figure 3.6.1.1.1.1.1

WARNING
Resetting the data base tables leads to a deletion of the data base

3.6.1.1.1.2 COMPANY

This option allows you to modify the quantity of maximum records available in the COMPANY table in the data base. This quantity can be anywhere from 1 to 1000 records.

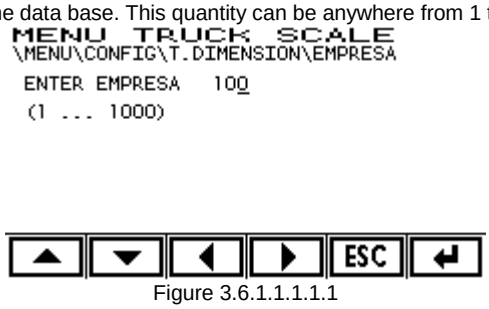


Figure 3.6.1.1.1.1.1

Once the value for this option has been modified, the data base is initialized and the number of records available in the WEIGHINGS table is recalculated.

3.6.1.1.1.3 PRODUCT

This option allows you to modify the quantity of maximum records available in the PRODUCT table in the data base. This quantity can be anywhere from 1 to 1000 records.

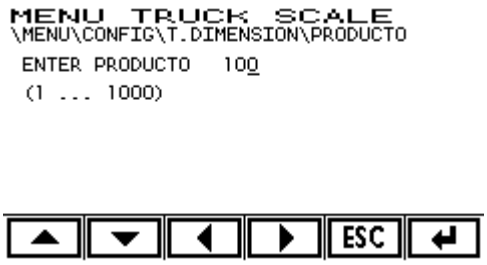


Figure 3.6.1.1.1.3.1

Once the value for this option has been modified, the data base is initialized and the number of records available in the WEIGHINGS table is recalculated.

3.6.1.1.1.4 VEHICLES

This option allows you to modify the quantity of maximum records available in the VEHICLES table in the data base. This quantity can be anywhere from 1 to 1000 records.

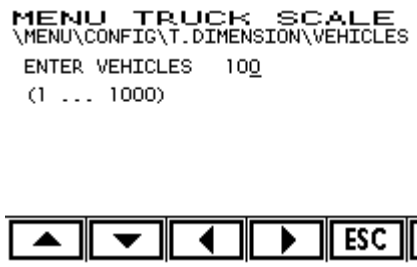


Figure 3.6.1.1.1.4.1

Once the value for this option has been modified, the data base is initialized and the number of records available in the WEIGHINGS table is recalculated.

3.6.1.1.1.5 WEIGHINGS

This option does not feature a submenu as the number of records is calculated based on the quantity of records in the rest of the tables. Each record in each table requires the following memory quantity:

TABLE	Necessary Memory [bytes]
COMPANIES	40
PRODUCTS 40	
VEHICLES 13	
WEIGHINGS	82

The number of weighings is calculated in accordance with the following formula:
nº weighings = [262144 – (nº companies * 40) – (nº products * 40) – (nº vehicles * 13)] / 82

So, for example, if the number of records in the COMPANIES, PRODUCTS and VEHICLES tables is 100, the quantity of records available for the WEIGHINGS table would be 3083.

3.6.1.1.2 AUTO-DELETE

This parameter determines how the indicator works when there is no free space in the data base to do more weighings and a new weighing is attempted.

It admits two possible values ON/**OFF**.

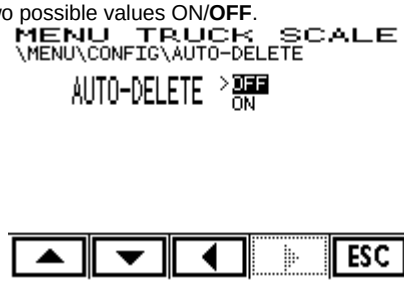


Figure 3.6.1.1.2

Automatic deletion OFF (Default option): When an attempt is made to store a weighing beyond the capacity of the WEIGHINGS table, the message "OUT OF MEMORY" appears on the display. In this case, in order to continue storing weighings, do a complete deletion (see 3.6.1.1.1.1).

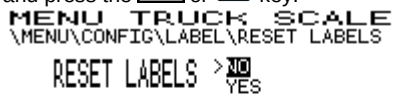
Automatic deletion ON: The indicator searches the weighings table for the oldest record and overwrites it with the new weighing. The record used may correspond to both a 1st weight or a complete weighing.

3.6.1.1.3 LABEL

Using this option, you can configure the texts/labels that are shown for the different fields: TRAILER, COMPANY, PRODUCT, FIELD 1, FIELD 2 and REMARKS.

3.6.1.1.3.1 RESET LABELS

Using this option, you can reset the texts/labels to their default values. To do so, select the YES option and press the ↵ or Enter key.



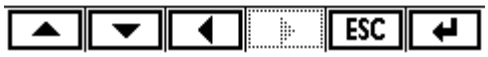


Figure 3.6.1.1.3.1.1

3.6.1.1.3.2 TRAILER

This menu contains the options shown in the following figure 3.6.1.1.3.1:

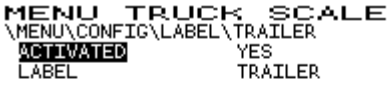


Figure 3.6.1.1.3.2.1

The desired option is selected by using the ▲ ▼ keys. You access this option using the ► key. You exit the option using the ◄, ESC or Exit key.

3.6.1.1.3.2.1 ACTIVATED

This allows you to activate or disable the appearance of the TRAILER field in the data entry sequence for a weighing. The possible options are YES/NO.

The desired option is selected by using the ▲ ▼ keys. You confirm by pressing the ↵ or Enter key.

3.6.1.1.3.2.2 LABEL

This allows you to modify the wording shown in the TRAILER field, the maximum length of which is 10 characters.

To delete the current text, press the ← key several times. Enter the desired text for the wording using the alphanumeric keypad and finally, press the ↵ or Enter key.

3.6.1.1.3.3 COMPANY

This menu contains the options shown in the following figure 3.6.1.1.3.3.1.

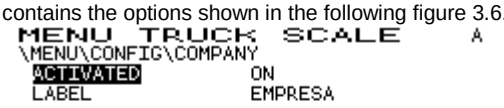


Figure 3.6.1.1.3.3.1

The desired option is selected by using the ▲ ▼ keys. You access this option using the ► key. You exit the option using the ◄, ESC or EXIT key.

3.6.1.1.3.3.1 ACTIVATED

This allows you to activate or disable the appearance of the COMPANY field in the data entry sequence for a weighing. The possible options are YES/NO.

The desired option is selected by using the ▲ ▼ keys. You confirm by pressing the ↵ or Enter key.

3.6.1.1.3.3.2 LABEL

This allows you to modify the wording shown in the COMPANY field, the maximum length of which is 10 characters.

To delete the current text, press the ← key several times. Enter the desired text for the wording using the alphanumeric keypad and finally, press the ↵ or Enter key.

3.6.1.1.3.4 PRODUCT

This menu contains the options shown in the following figure 3.6.1.1.3.4.1:

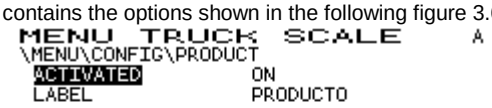


Figure 3.6.1.1.3.4.1

The desired option is selected by using the ▲ ▼ keys. You access this option using the ► key. You exit the option using the ◄, ESC or EXIT key.

3.6.1.1.3.4.1 ACTIVATED

This allows you to activate or disable the appearance of the PRODUCT field in the data entry sequence for a weighing. The possible options are YES/NO.

The desired option is selected by using the ▲ ▼ keys. You confirm by pressing the ↵ or Enter key.

3.6.1.1.3.4.2 LABEL

This allows you to modify the wording shown in the PRODUCT field, the maximum length of which is 10 characters.

To delete the current text, press the ← key several times. Enter the desired text for the wording using the alphanumeric keypad and finally, press the ↵ or Enter key.

3.6.1.1.3.5 FIELD1

This menu contains the options shown in the following figure 3.6.1.1.3.5.1:

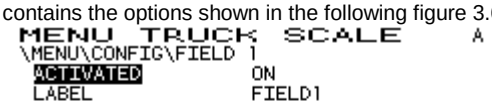


Figure 3.6.1.1.3.5.1

The desired option is selected by using the ▲ ▼ keys. You access this option by using the ▶ key. You exit the option using the ◀, ESC or EXIT key.

3.6.1.1.3.5.1 ACTIVATED

This allows you to activate or disable the appearance of the FIELD 1 field in the data entry sequence for a weighing. The possible options are YES/NO.

The desired option is selected by using the ▲ ▼ keys. You can confirm by pressing the ↵ or Enter key.

3.6.1.1.3.5.2 LABEL

This allows you to modify the wording shown in the FIELD 1 field, the maximum length of which is 10 characters.

To delete the current text, press the ← key several times. Enter the desired text for the wording using the alphanumeric keypad and finally, press the ↵ or Enter key.

3.6.1.1.3.6 FIELD2

This menu contains the options shown in the following figure 3.6.1.1.3.6.1:

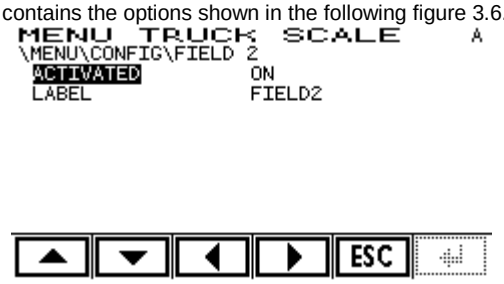


Figure 3.6.1.1.3.6.1

The desired option is selected by using the ▲ ▼ keys. You access this option by using the ▶ key. You exit the option using the ◀, ESC or EXIT key.

3.6.1.1.3.6.1 ACTIVATED

This allows you to activate or disable the appearance of the FIELD2 field in the data entry sequence for a weighing. The possible options are YES/NO.

The desired option is selected by using the ▲ ▼ keys. You can confirm by pressing the ↵ or Enter key.

3.6.1.1.3.6.2 LABEL

This allows you to modify the wording shown in the F IELD2 field, the maximum length of which is 10 characters.

To delete the current text, press the ← key several times. Enter the desired text for the wording using the alphanumeric keypad and finally, press the ↵ or Enter key.

3.6.1.1.3.7 REMARKS

This menu contains the options shown in the following figure 3.6.1.1.3.7.1:

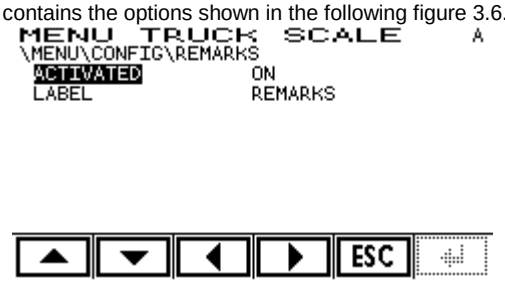


Figure 3.6.1.1.3.7.1

The desired option is selected by using the ▲ ▼ keys. You access this option by using the ► key. You exit the option using the ◄, ESC or EXIT key.

3.6.1.1.3.7.1 ACTIVATED

This allows you to activate or disable the appearance of the REMARKS field in the data entry sequence for a weighing. The possible options are YES/NO.

The desired option is selected by using the ▲ ▼ keys. You can confirm by pressing the ↵ or Enter key.

3.6.1.1.3.7.2 LABEL

This allows you to modify the wording shown in the REMARKS field, the maximum length of which is 20 characters.

To delete the current text, press the ← key several times. Enter the desired text for the wording using the alphanumeric keypad and finally, press the ↵ or Enter key.

3.6.1.1.4 ACCESS CONTROL

A functionality that will be activated in future versions of the software.

3.6.2 WEIGHINGS

Using this menu, you can do the operations shown in the following figure:

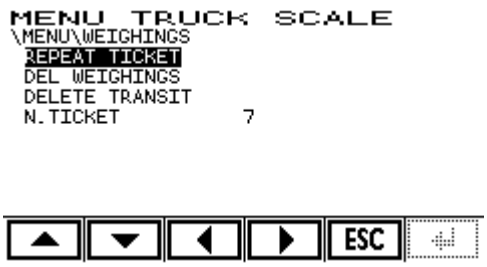


Figure 3.6.2.1

3.6.2.1 REPEAT TICKET

With this option, you enter a screen where you can print a ticket again. To do so, you must enter the ticket number and press the ↵ or Enter key as shown in the following figure.

Figure 3.6.2.1.1

3.6.2.2 DEL WEIGHINGS

This deletes all the weighings in the memory up to the date entered on the following screen:

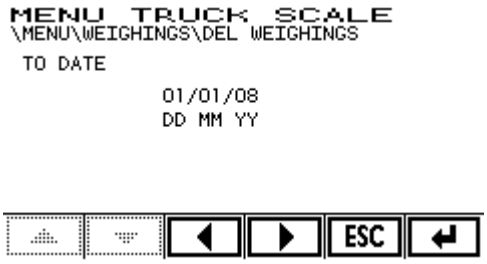


Figure 3.6.2.2.1

3.6.2.3 DELETE TRANSIT

This option allows you to delete all the weighing records that exist in the indicator memory. To do so, select YES and press the ↵ or Enter key as shown in the following figure.

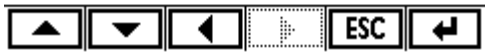


Figure 3.6.2.3.1

3.6.2.4 N. TICKET

On this screen, you can modify the ticket number assigned for the next weighing. To do so, enter the desired number and press the ↵ or ↵ key as seen in the following figure.

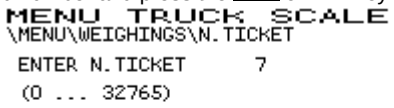


Figure 3.6.2.4.1

3.6.3 REPORTS

Menu where you can get reports on vehicles in transit, a list of movements, of companies, of products and of vehicles. When you access the menu, it will look just as it appears in figure 3.6.3.1:

Figure 3.6.3.1

3.6.3.1 TRANSIT

Using this option, you can get a printed list of vehicles in transit.

3.6.3.2 MOVEMENTS

A menu where you can get a list of movements with a filter and order option. When you enter, the screen shown is as follows:

Figure 3.6.3.2.1

3.6.3.2.1 FILTER

An option that allows you to filter the list of movements according to different criteria:

- License plate number (REG.N)
- Product code (PROD.C)
- Company code (COMP.C)
- From a date (FROM DATE)
- To date (TO DATE)

To remove the current filter, there is an option to reset the filter (RESET FILTER)

3.6.3.2.2 SORTKEY

An option with which you can choose an order criteria for the list of movements. The possible options are:

- Exit date (D2)
- Exit weight (W2)
- Entrance date (D1)
- Entrance weight (W1)
- License plate number (REG.N)
- Product code (PROD.C)
- Company code (COM.C)
- Ticket number (SNo.)
- Field 1 (FIELD 1)
- Field 2 (FIELD 2)

3.6.3.2.3 PRINTOUT

With this option once the desired filter and order options have been chosen, the list of movements is sent to the printer.

3.6.3.3 COMPANY

Using this option, you can get a printed list of companies.

3.6.3.4 PRODUCT

Using this option, you can get a printed list of products.

3.6.3.5 VEHICLES

Using this option, you can get a printed list of vehicles.

3.6.4 TICKETS

An option to choose what type of ticket will be used for:
- First weighing
- Second weighing
- Single weighing

For all of these, the possible options are:
- Standard
- Programmed
- Disabled (OFF)

3.7 Database Menu

In this menu, you can view and modify the fields for the different database tables in the truck weighing application.

You enter this menu by pressing the DB key, and the display will look like figure 3.7.1:

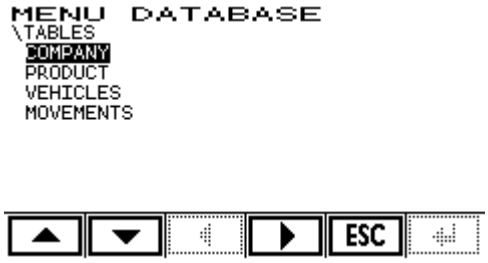


Figure 3.7.1

You select the table you wish to access using the ▼ and ▲ keys. You access the selected table using the ▶ key. You exit the option using the ESC key.

3.7.1 COMPANY Table

The structure of this table is just as shown in figure 3.7.1.1. Certain texts can be modified (see section 3.6.1.1.3):

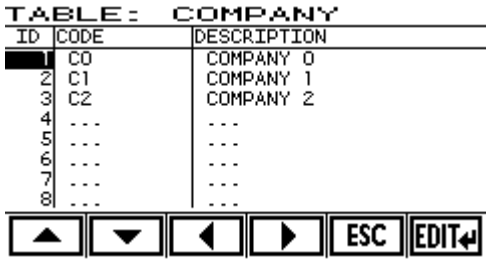


Figure 3.7.1.1

Use the ▼ and ▲ keys to move through the different record lines. Press the EDIT key while the cursor is on any record in the ID column and a menu will appear that allows you to directly skip to a certain record. Use the ◄ and ► keys to move through the different record fields. To edit the field you are in, press the EDIT key and confirm with the ↵ key or cancel with the ESC key. You exit this menu with the ESC key.

3.7.2 PRODUCT Table

The structure of this table is just as shown in figure 3.7.2.1. Certain texts can be modified (see section 3.6.1.1.3):

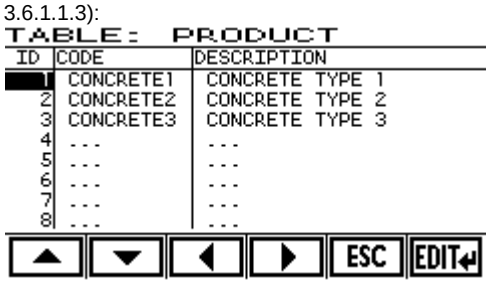


Figure 3.7.2.1

Use the ▼ and ▲ keys to move through the different record lines. Press the EDIT key while the cursor is on any record in the ID column and a menu will appear that allows you to directly skip to a certain record. Use the ◄ and ► keys to move through the different record fields. To edit the field you are in, press the EDIT key and confirm with the ↵ key or cancel with the ESC key. You exit this menu with the ESC key.

3.7.3 VEHICLES Table

The structure of this table is just as shown in figure 3.7.3.1. Certain texts can be modified (see section 3.6.1.1.3):

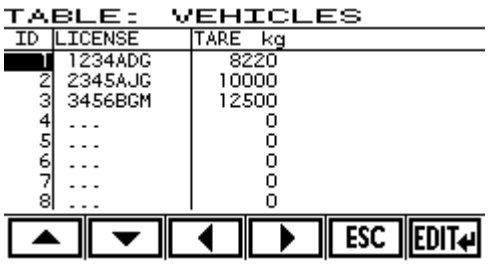


Figure 3.7.3.1

Use the ▼ and ▲ keys to move through the different record lines. Press the EDIT key while the cursor is on any record in the ID column and a menu will appear that allows you to directly skip to a certain record. Use the ◄ and ► keys to move through the different record columns. To edit the record you are in, press the EDIT key and confirm with the ↵ key or cancel with the ESC key. You exit this menu with the ESC key.

3.7.4 MOVEMENTS Table

The structure of this table is just as shown in figure 3.7.4.1. Certain texts can be modified (see section 3.6.1.1.3):

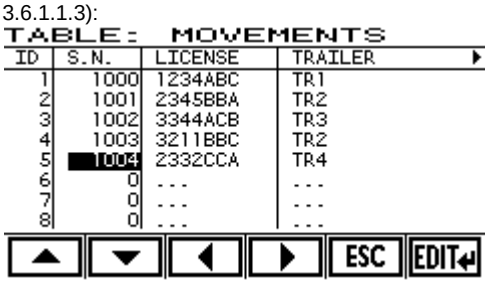


Figure 3.7.4.1

The fields that have been disabled (see 3.6.1.1.3) do not appear in the columns of this table.

Use the ▼ and ▲ keys to move through the different record lines. Press the EDIT key while the cursor is on any record in the ID column and a menu will appear that allows you to directly skip to a certain record. Use the ◄ and ► keys to move through the different record fields. To edit the field you are in, press the EDIT key and confirm with the ↵ key or cancel with the ESC key. You exit this menu with the ESC key.

4 Industrial Application

4.1 Operation

4.1.1 Normal Weighing

Upon loading the platform, the weight will appear on the main display:

4.1.2 Zero

The indicator features a manual reset to zero device. If you press the zero key, the indicator will use the current weight value as the system zero value.

Operation:

4.1.3 Tare

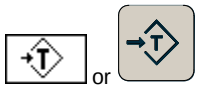
The types of tare that can be done are as follows:

- Normal tare
- Manual tare
- Programmed tare

4.1.3.1 Normal Tare

By pressing the  or  key, the current value on the indicator will become the tare value. The word NET will appear to the right of the weight.

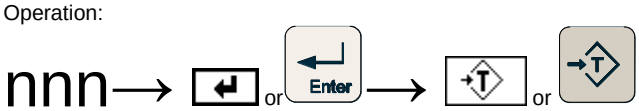
Operation:



4.1.3.2 Manual Tare

To enter a specific tare, you must indicate the tare value using the numeric keys, enter it using the  or  key and finally, validate it by pressing the  or  key. The words NET and PT will appear to the right of the weight.

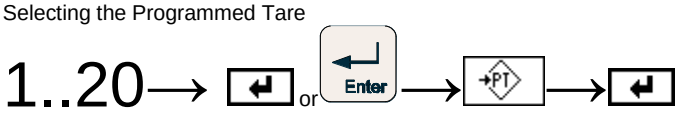
Operation:



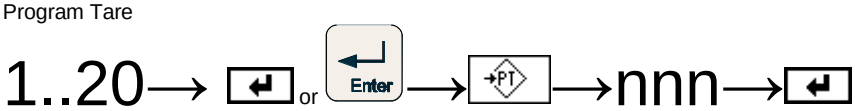
4.1.3.3 Programmed Tare

To select a programmed tare, you must enter the tare number (1…20) and press the ↵ or Enter key. Then, press the programmed tare key →PT. The programmed tare will appear on the screen. If it is the desired value, you must confirm with the ↵ or Enter key; if you wish to change the programmed tare, enter the new value and press the ↵ or Enter key. The NET and PT indications will appear to the right of the weight.

Operation:
Selecting the Programmed Tare



Program Tare



4.1.3.4 Disable Tare

To disable the tare, regardless of the type, press the delete tare key T→. The net indicator will turn off and, if applicable, the pre-set tare one, and the gross weight will be shown.

Operation:

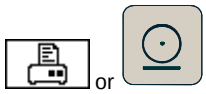
4.1.4 Gross

If the weight in the display is	The indication NET is	On pressing the key	Weight in the display is	The indication NET is
Gross	OFF	B/N or ■	Net	ON
Net ON			Gross	OFF

4.1.5 Print Ticket

To print a ticket, you must press the ⊙ or 🖶 key. If the weight does not pass the divisions entered with the PR MIN function (see 5.3.2.9 or 5.4.2.9), the device will indicate the message “Weight not valid”. If the weight is not stable when you press the ⊙ or 🖶 key, the message “WAITING TO PRINT...” will appear.

Operation:



The ticket will be printed in accordance with the selected configuration (see 3.6.4).

4.1.6 Piece Counter

It can operate in two different ways:
- By number of pieces
- By weight per piece

4.1.6.1 By number of pieces

To operate according to a number of pieces, place a known number of pieces on the platform, press the count pieces key and enter the number of pieces there are on the platform. The indication Pcs will appear. If the unit weight is less than a tenth of a division, an error message will appear.

From this time on, the indicator will indicate the quantity of pieces. The display will indicate the weight of one piece at an accuracy of two decimals more than the unit the scale is operating with (if it is operating with kg, the accuracy is 0.01 kg). See the following figure:

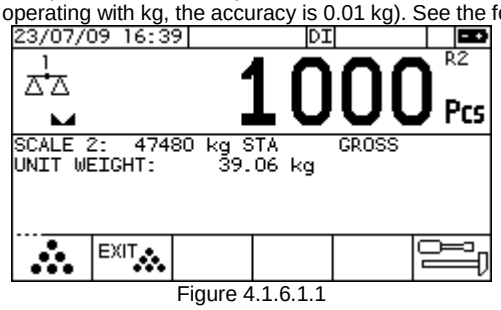


Figure 4.1.6.1.1

Operation:

This operation can be repeated by adding more pieces to those already on the scale if you wish to readjust the system again.

To exit the pieces counter function, you must press the key. The indicator will show weight again.

4.1.6.2 By weight per piece

To operate according to weight per piece, you enter the weight per piece and press the or key. The maximum accuracy of the weight per piece is two decimals more than the unit the scale is operating with (if it is operating with kg, the accuracy is 0.01 kg). Then, press the count pieces key. The Pcs indicator turns on instead of the weight units.

The weight per piece entered will be shown on the auxiliary display. From this time on, the indicator will indicate the quantity of pieces.
Operation:

Weight per piece → ↵ or Enter → ⁂

To exit the pieces counter function, you must press the EXIT⁂ key. The indicator will show weight again.

4.1.7 Totalize

This function gives the total sum of the different weighings and the number of weighings completed.

To enter the current weight on the scale in the sum, press the Σ key.
The auxiliary line shows the cumulative total and the number of weighings. If you are in the pieces counter function, it will also give the sum of the pieces. See the following figure:

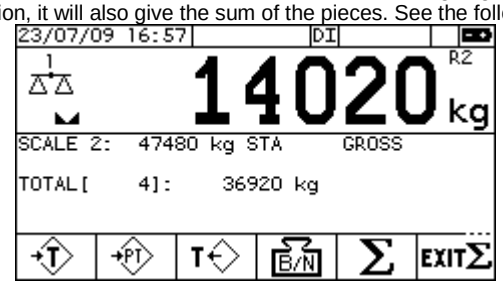


Figure 4.1.7.1

Operation:

Σ

To exit this function, you must press the EXITΣ key. The cumulative total and the number of weighings will be set to zero and the ticket that is created with this function will be closed. To print this ticket, press the ⊙ key.

If the weight does not pass the divisions entered with the PR MIN function (see 5.3.2.9 or 5.4.2.9), the device will indicate the message *"Weight not valid"*. If the weight is not stable when you press the ⊙ key, the message "*WAITING TO ACCUMULATE...*" will appear. If you were to press the ⊙ key and not yet exited the totalize function, the ticket will not have been closed and the device will show the error "Ticket open".

4.2 CONFIGURATION

4.2.1 Entering the configuration mode

If the following appears at the bottom of the screen:

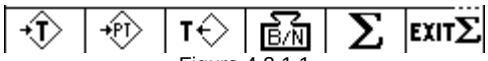


Figure 4.2.1.1

Press the F key so the following appears:

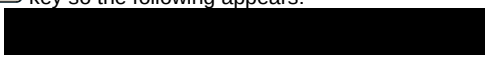
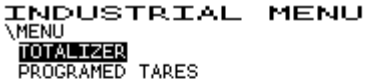


Figure 4.2.1.2

Then press the key to enter the configuration mode. The following screen will be shown:



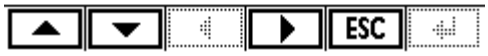


Figure 4.2.1.3

4.2.2 TOTALIZER

The options are as follows:

- Ticket type
- Reset

4.2.2.1 TICKET TYPE

On this screen, you select the type of ticket that will be used in the totalize function. The possible options are:

- Standard
- Programmed
- Disabled

4.2.2.2 REARM

On this screen, you program the value of the rearm weight in order to do a totalize operation. This weight value is programmed in divisions.

The rearm weight means the following: after a weight accumulation operation, the weight should go down below the programmed rearm value to allow for a new accumulation.

If the programmed value is zero, the weight just has to be unstable for a moment in order to allow for a new accumulation. For this reason, the word STABILITY will appear if the zero value has been programmed.

If you do accumulations with weight values below the rearm value, the weight just has to be unstable for a moment in order to allow for a new accumulation.

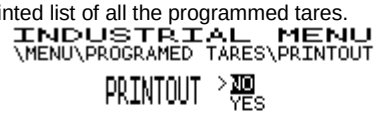
4.2.2.3 PROGRAMMED TARES

There are three options in the programmed tare menu:

- Printout
- Edit
- Erase

4.2.2.3.1 PRINTOUT

Makes a printed list of all the programmed tares.



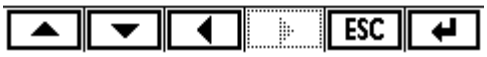


Figure 4.2.2.3.1.1

To make the printout, select the "Yes" option and validate with ↵ or Enter.

4.2.2.3.2 EDIT

This allows you to view and modify the programmed tares.

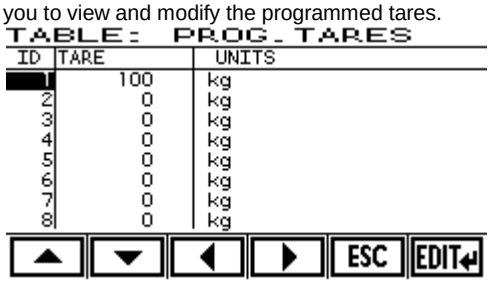


Figure 4.2.2.3.2.1

The tare number, its value and the units appear in the table.

You select the tare number and field to modify with the arrows ▼ ▲ ◀ and ▶. You edit the field with the EDIT↵ key. You exit the menu with the ESC key.

If you are in the "NUM" column, press EDIT↵ and a box will appear in order to enter a record number to skip to.

The admitted units are: *kg*, *lb*, *t*, *g*, *oz* and no units (blank).

4.2.2.3.3 ERASE

With this option, you can delete all the stored tares. When you delete, all of them are initialized with the zero value and the units and decimal points of the active scale.

5 Configuration and Calibration

5.1 Introduction

There are different parameters types in the indicator configuration and calibration menu:

-Those that are free-access and can always be read and modified.

-Those that are read-only, which you can not modify (accompanied by an Ⓛ in the diagrams).

-Those that are protected, which you can read, but can only modify under certain circumstances (accompanied by a Ⓟ in the diagrams).

To enter the calibration and configuration menu, you must press the SETUP key. When you press it, it asks whether you want to enter the configuration mode: select the YES option with the ◄ ► keys and press the ↵ or Enter key. Then, you enter the menu and see the following:

```
SETUP MODE
\SETUP
INDICATOR
SCALE 1          ANALOG
SCALE 2          ANALOG
```

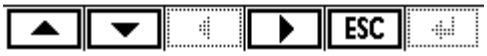


Figure 5.1.1

The position you will be in is shown with the inverted font.

To move around the different menu options, you must use the ▲ ▼ keys. To access the selected option, press the ► key. You exit the option using the ◄ key. To modify a parameter, enter the desired value and press ↵ or Enter. If you wish to exit without modifying the parameter, press the ESC or EXIT key. To exit the calibration and configuration menu, press the ESC or EXIT key.

Upon accessing any of the options, you will be asked to enter the access code (PIN) (see figure 5.1.2). The manufacturer's identification code can be found on page i. This PIN may be independently configured for each one of the cases (see sections 5.2.1.16, 5.3.1.10 and 5.4.1.10). If it is entered correctly, you will have access and be able to modify the protected parameters. If you do not enter the PIN or do it incorrectly, you will access the menu, but you will not be able to modify the protected parameters.

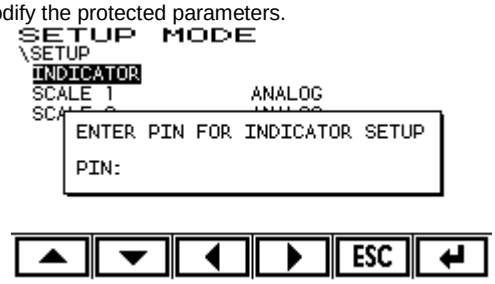


Figure 5.1.2

If you enter the access code correctly, you will access the SETUP menu in the UNPROTECTED mode, which will be appear just as shown in figure 5.1.3:

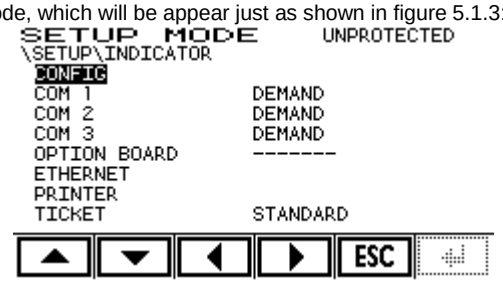


Figure 5.1.3

There are two different calibration levels in this menu and they feature different levels of protection:

- Indicator configuration: the protected parameters may only be modified if the access code has been entered correctly
- Configuration and calibration of the scale(s): besides entering the access code correctly, there is a switch on the back of the indicator (see figure 5.1.4) for each one of the two scales (a second scale is optional). This is a selector that can be mechanically sealed off and in the LOCK position, prevents any modification of the protected parameters even if the access code has been entered correctly.

Any time a protected parameter is modified, this access will be recorded in the read-only parameter CAL COUNTER and the date of this most recent modification in the read-only parameter CAL DATE, which is found in the SETUP\SCALE *i*\CONFIG SCALE (*i* is 1 if it affects scale 1 and 2 if it affects scale 2)

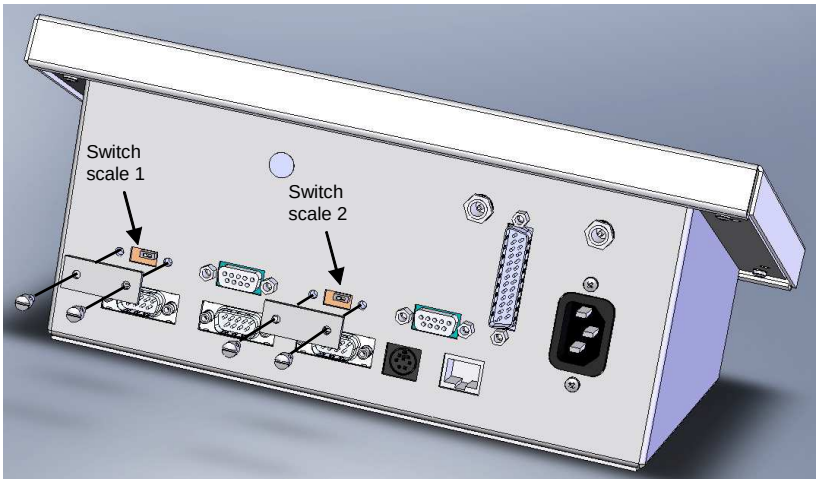


Figure 5.1.4 Mechanical Security seal

The following is the general layout of the SETUP menu:

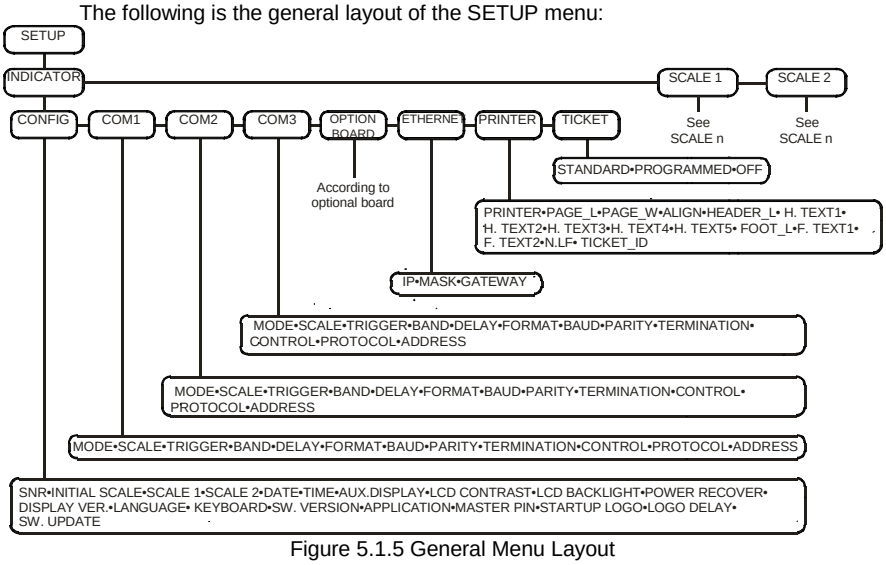


Figure 5.1.5 General Menu Layout

SCALE menu for analog scales:

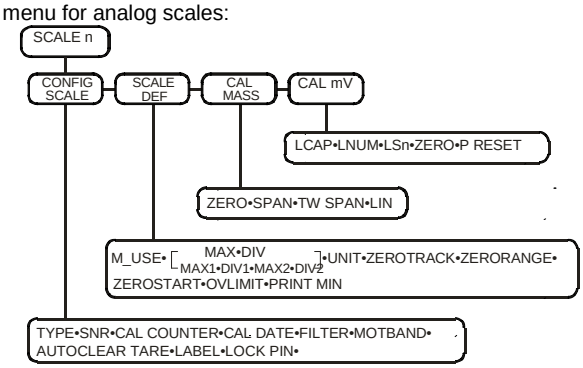


Figure 5.1.6 Analog Scale Menu

SCALE menu for digital scales:

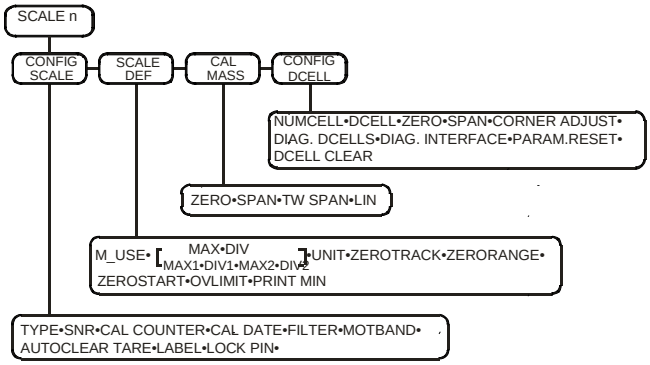


Figure 5.1.7 Digital Scale Menu

5.2 INDICATOR

At the indicator configuration level, you will find the options shown in figure 5.2.1.

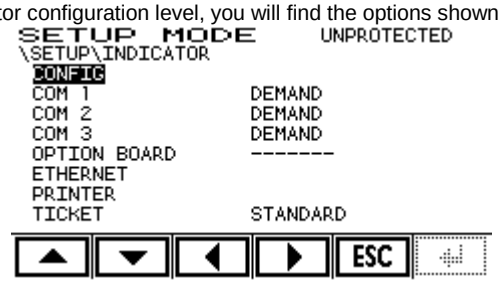


Figure 5.2.1 INDICATOR Configuration

5.2.1 CONFIG

The available options at the CONFIG level are shown in figure 5.2.1.1:

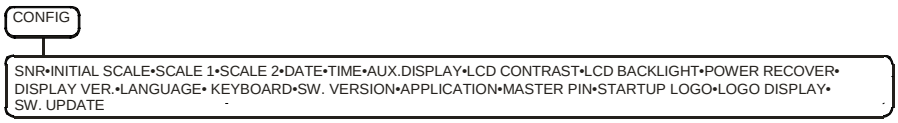


Figure 5.2.1.1

5.2.1.1 SNR

Non-modifiable serial number Ⓛ.

5.2.1.2 INITIAL SCALE

Indicates the active scale when the device is started up. This can only be modified if there are two scales connected. The different options are:

- SCALE 1
- SCALE 2
- LAST active scale

5.2.1.3 SCALE1

This allows you to view different parameters for scale 1, just as shown in figure 5.2.1.3.1. All these parameters are read-only Ⓛ:

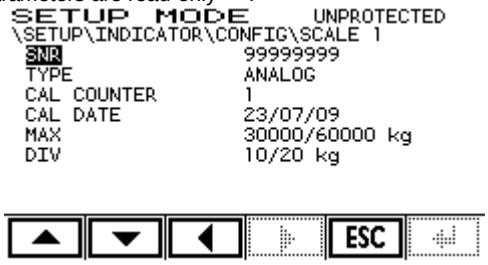


Figure 5.2.1.3.1

5.2.1.4 SCALE2

The same as for scale 1. It allows you to view different parameters for scale 2. All of these parameters are read-only Ⓛ.

5.2.1.5 DATE

Shows the date on the device and allows you to modify it.

5.2.1.6 TIME

Shows the time on the device and allows you to modify it.

5.2.1.7 AUX.DISPLAY

Allows you to configure what is shown on the auxiliary part of the display. All the possible options are:

1. OFF: Nothing is shown.
2. WEIGHT NOT ACT.SCALE: Net weight of the inactive scale.
3. WEIGHT SCALE 1: Net weight of scale 1
4. WEIGHT SCALE 2: Net weight of scale 2
5. mV/V ACTIVE SCALE: mV/V of the active scale.
6. mV/V SCALE 1: mV/V of scale 1
7. mV/V SCALE 2: mV/V of scale 2
8. x10 ACTIVE SCALE: Net weight x10 of the active scale
9. x10 SCALE1: Net weight x10 of scale 1
10. x10 SCALE2: Net weight x10 of scale 2
11. GROSS ACTIVE SCALE: Gross weight of the active scale.
12. GROSS SCALE 1: Gross weight of scale 1.
13. GROSS SCALE 2: Gross weight of scale 2.
14. TARE ACTIVE SCALE: Tare on the active scale.
15. TARE SCALE 1: Tare on scale 1.
16. TARE SCALE 2: Tare on scale 2.

If you select a scale that is not installed on the device, then apostrophe marks “------“ will be shown.

If the mV/V option is selected on a digital scale, the word "digital" will be shown.

5.2.1.8 LCD CONTRAST

Allows you to configure the display contrast value.

5.2.1.9 LCD BACKLIGHT

Allows you to configure the display illumination. The possible options are OFF, LOW, MEDIUM and HIGH.

5.2.1.10 POWER RECOVER

Allows you to choose what the device will do upon recovery if the power goes out. The different options are:

- POWER ON
- POWER OFF
- LAST STATE

5.2.1.11 DISPLAY VER.

Shows the display version.

5.2.1.12 LANGUAGE

Allows you to configure the language of the indicator menus. The possible options are:
SPANISH, PORTUGUESE, FRENCH, ENGLISH, CATALAN, CZECH, GERMAN

5.2.1.13 KEYBOARD

Allows you to configure the type of PC keyboard. The possible options are: SPANISH, PORTUGUESE, FRENCH and CZECH

5.2.1.14 SW.VERSION

Shows the version of the indicator software. This is a read-only parameter Ⓛ.

5.2.1.15 APPLICATION

Allows you to configure the type of application the indicator will execute. The possible options are TRUCK SCALE and INDUSTRIAL Ⓟ.

5.2.1.16 MASTER PIN

Allows you to modify the MASTER PIN value. To do so, you must correctly enter the previous MASTER PIN twice Ⓟ.

5.2.1.17 STARTUP LOGO

With this option, you can configure the logo that appears upon starting up the device. The possible options are: OFF, Standard and Programmable

5.2.1.18 LOGO DELAY

This allows you to configure the time in seconds that the device will continue showing the LOGO once the device start-up has finished. The possible values are 0 to 15 s.

5.2.1.19 SW. UPDATE

This places the device in a mode that enables a software update. Correctly entering the MASTER PIN Ⓟ is required. Once correctly entered, the following screen appears:

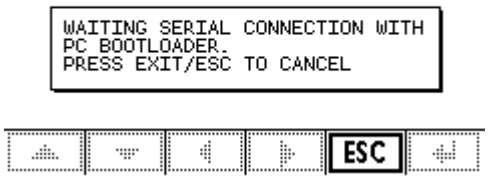


Figure 5.2.1.17.1

In this mode, the device is waiting to connect to a PC for the software update. At this point, you can still cancel the update with ESC or EXIT, or by turning the device off with the key.

Once the connection to the PC has been established and the software update process has begun, you cannot cancel the operation because the device will be left unprogrammed.

If for any reason, the device cannot finish loading, it may be caused by one of two things:

Case A: The communication between the device and PC has failed, or the PC has interrupted the loading process, but the device continues waiting for the update to finish.

Case B: The power went off and the device turned off without having completed the update. In this case, the device will not start up.

In case A, you must restart the update by starting the PC program again and repeating the update process. In case B, disconnect the device from the power supply and send it to the technical service where the program can be loaded using special tools.

5.2.2 COM1

At this level, you can configure the different COM1 communications port options. The available options are shown in figure 5.2.2.1:

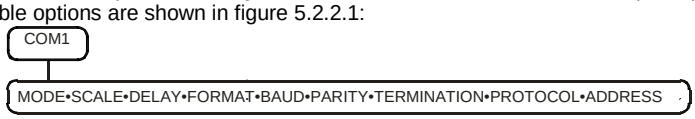


Figure 5.2.2.1

5.2.2.1 MODE

Port operation mode. The possible options are:
OFF, DEMAND, STREAM, TICKET

OFF:	Port disconnected
DEMAND:	Transmits if there is an external request through the serial port
STREAM:	Always transmits
TICKET:	Transmits if there is an internal request (key)

5.2.2.2 SCALE

This allows you to select which of the two scales is associated to the port.

5.2.2.3 DELAY

Waiting time between the data request and transmission. In the STREAM mode, it's the waiting time between the blocks of data transmitted.

The possible options are:
OFF, 100ms, 250ms, 500ms, 500ms, 1s, 2s, 5s, 10s

5.2.2.4 FORMAT

Format of the data transmitted for DEMAND and STREAM (see 5.2.2.1).
The possible options are:
F1, F2, F3, F4, F5, F6, F7, F8, F9, F10, F11, F12, F13 (see 2.7)

5.2.2.5 BAUD

Transmission speed in bps.
The possible options are:
4800, 9600, 19200, 38400, 57600, 115200

5.2.2.6 PARITY

Selection of number of bits and parity.
The possible options are:

NONE-8bits:	8 data bits
EVEN-8bits:	8 data bits, 1 even parity bit
ODD-8bits:	8 data bits, 1 odd parity bit
NONE-7bits:	7 data bits
EVEN-7bits:	7 data bits, 1 even parity bit
ODD-7bits:	7 data bits, 1 odd parity bit

5.2.2.7 TERMINATION

Termination of the data blocks for DEMAND and STREAM (see 5.2.2.1).
The possible options are:
CR+LF, CR, LF, ETX, CR+ETX, NONE

5.2.2.8 PROTOCOL

If NONE is selected, the protocol established in 2.7.2 is used and the parameter "ADDRESS" is forced automatically to be ~".

5.2.2.9 ADDRESS

Address of the device on an RS-485 network. For it to work as an RS-232 port, it has to be ~".

5.2.3 COM2

At this level, you can configure the different COM2 communications port options. The available options are shown in figure 5.2.3.1 and they are the same as for the COM1 port:

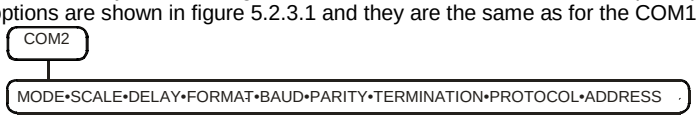


Figure 5.2.3.1

5.2.3.1 MODE

See 5.2.2.1.

5.2.3.2 SCALE

See 5.2.2.2.

5.2.3.3 DELAY

See 5.2.2.3.

5.2.3.4 FORMAT

See 5.2.2.4.

5.2.3.5 BAUD

See 5.2.2.5.

5.2.3.6 PARITY

See 5.2.2.6.

5.2.3.7 TERMINATION

See 5.2.2.7.

5.2.3.8 PROTOCOL

See 5.2.2.8.

5.2.3.9 ADDRESS

See 5.2.2.9.

5.2.4 COM3

At this level, you can configure the different COM3 communications port options. The available options are shown in figure 5.2.4.1 and they are the same as for the COM1 port:

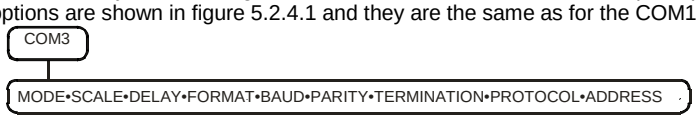


Figure 5.2.4.1

5.2.4.1 MODE

See 5.2.2.1.

5.2.4.2 SCALE

See 5.2.2.2.

5.2.4.3 DELAY

See 5.2.2.3.

5.2.4.4 FORMAT

See 5.2.2.4.

5.2.4.5 BAUD

See 5.2.2.5.

5.2.4.6 PARITY

See 5.2.2.6.

5.2.4.7 TERMINATION

See 5.2.2.7.

5.2.4.8 PROTOCOL

See 5.2.2.8.

5.2.4.9 ADDRESS

See 5.2.2.9.

5.2.5 OPTION BOARD

This menu option is only accessible if an optional board has been mounted. When the device starts up, checks whether the board is mounted. If it is not, this option cannot be configured.

The list of parameters may vary depending on the module model used.

5.2.5.1 RS TYPE MODULE

The list of parameters that may be selected for this type of module is shown in figure 5.2.5.1.1:

Figure 5.2.5.1.1

5.2.5.1.1 MODULE

Type of optional board that is mounted in the device and which is determined through hardware when starting the device up. If there is no board mounted, the rest of the parameters remain inaccessible.

5.2.5.1.2 MODE

See 5.2.2.1.

5.2.5.1.3 SCALE

See 5.2.2.2.

5.2.5.1.4 DELAY

See 5.2.2.3.

5.2.5.1.5 FORMAT

See 5.2.2.4.

5.2.5.1.6 BAUD

See 5.2.2.5.

5.2.5.1.7 PARITY

See 5.2.2.6.

5.2.5.1.8 TERMINATION

See 5.2.2.7.

5.2.5.1.9 PROTOCOL

See 5.2.2.8.

5.2.5.1.10 ADDRESS

See 5.2.2.9.

5.2.6 ETHERNET

Configuration options for the Ethernet port as shown in the following figure:

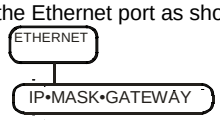


Figure 5.2.6.1

5.2.6.1 IP

Allows you to configure the IP address for the device.

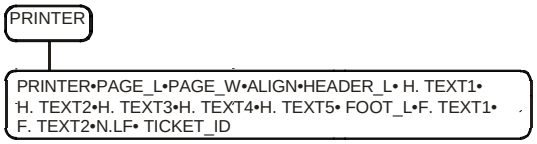
5.2.6.2 MASK

Allows you to configure the subnet mask.

5.2.6.3 GATEWAY

Allows you to configure the gateway.

5.2.7 PRINTER



5.2.7.1 PRINTER

Defines what type of printer is connected and whether it admits special commands (bold, enlarged, etc.)

The possible options are:

OFF Option disabled (only text. The printer does not admit special commands)

ESC/P Printers that use the ESC/P command language

(i.e. EPSON LX-300)
SP-X Ticket printers (i.e. STAR SP-2000 or Samsung SRP-270)
ESC/POS Epson TM-U220 and Samsung SRP-275 printers

If the option “ESC/POS” or “SP-X” is selected, this automatically forces the parameter “PAGE WIDTH” to 40.

5.2.7.2 PAGE_L

(Only for “ESC/P” printers)
Length of the label in lines. The length must be greater than or equal to the sum of the number of header lines, plus the number of footer lines, plus the number of label body lines, plus three additional lines that are not used for printing.
The number of lines can be calculated my multiplying the length of the page in inches by 6.

NUMBER LINES NUMBER INCHES 6

Examples:

Page Length	Number of Lines
4”	24
5” ½	33
6”	36
11”	66
12”	72

5.2.7.3 PAGE_W

Page width in characters.
The possible options are:
40, 80

5.2.7.4 ALIGN

Type of alignment desired.
The possible options are:
LEFT: Left alignment
CENTER: Center alignment
RIGHT: Right alignment

5.2.7.5 HEADER_L

Number of lines used for the header.
The possible options are:
0, 1, 2, 3, 4, 5

5.2.7.6 H.TEXT1

To enter the text for each header 1 line. This can only be modified if the value indicated in HEADER LINES is 1 to 5. The line may have a maximum of 40 characters. See figure 5.2.7.6.1:

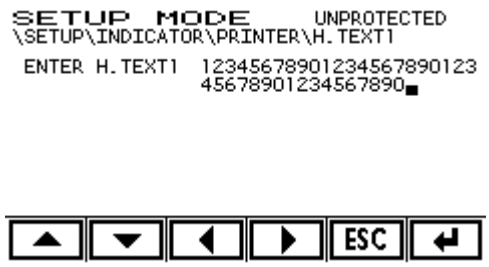


Figure 5.2.7.6.1

5.2.7.7 H.TEXT2

To enter the text for each header 2 line. This can only be modified if the value indicated in HEADER LINES is 2 to 5. The line may have a maximum of 40 characters.

5.2.7.8 H.TEXT3

To enter the text for each header 3 line. This can only be modified if the value indicated in HEADER LINES is 3 to 5. The line may have a maximum of 40 characters.

5.2.7.9 H.TEXT4

To enter the text for each header 4 line. This can only be modified if the value indicated in HEADER LINES is 4 or 5. The line may have a maximum of 40 characters.

5.2.7.10 H.TEXT5

To enter the text for each header 5 line. This can only be modified if the value indicated in HEADER LINES is 5. The line may have a maximum of 40 characters.

5.2.7.11 FOOT_L

Number of lines used for the ticket foot.
The possible options are:
0, 1, 2

5.2.7.12 F.TEXT1

To enter the text for each foot 1 line. This can only be modified if the value indicated in HEADER LINES is 1 or 2. The line may have a maximum of 40 characters.

5.2.7.13 F.TEXT2

To enter the text for each foot 2 line. This can only be modified if the value indicated in HEADER LINES is 2. The line may have a maximum of 40 characters.

5.2.7.14 N.LF

Number of separation lines between tickets.
The possible options are: 0_

5.2.7.15 TICKET_ID

Ticket number that is assigned to the next ticket that is printed. This value increases automatically by a unit when each ticket is printed. This can be modified and the maximum value is 65535.

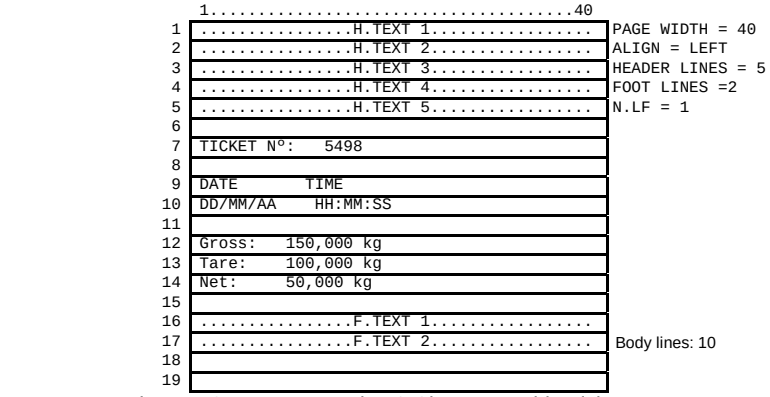


Figure 5.2.7.15.1 Example 40-Character Wide Ticket

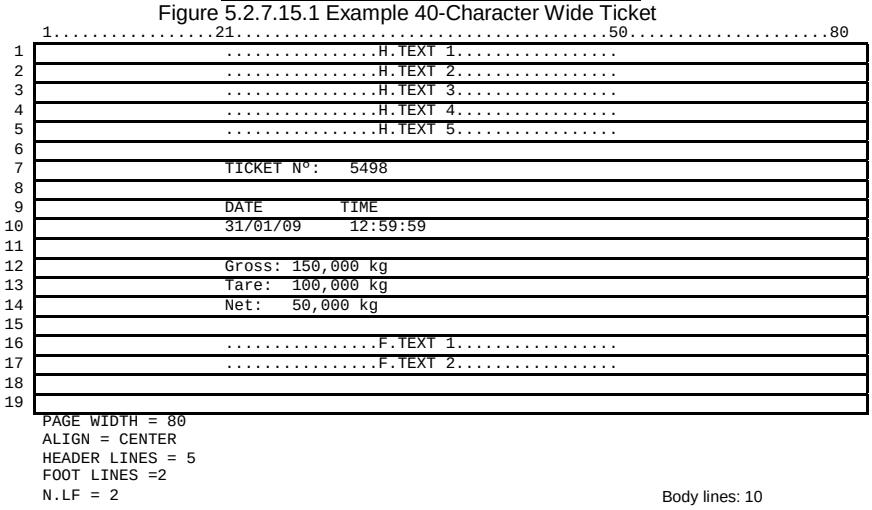


Figure 5.2.7.15.2 Example 80-Character Wide Ticket

5.2.8 TICKET

Menu where the printed ticket type is configured. The possible options are:

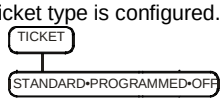


Figure 5.2.8.1

5.3 SCALE 1 (ANALOGIC OUTPUT SCALE)

In this section, you can view and configure the parameters that define scale 1. The options that are shown depend on whether the scale is analog or digital. In this section, only the analog scale will be explained. This will be equally valid when scale 2 is analog. The digital scale will be explained for scale 2 in section 5.4.

Figure 5.3.1 shows the options that appear for the analog scale.

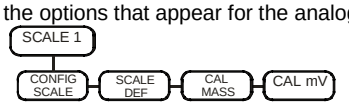


Figure 5.3.1

5.3.1 CONFIG SCALE

At this level, the general parameters of the scale are shown. These are shown in figure 5.3.1.1:

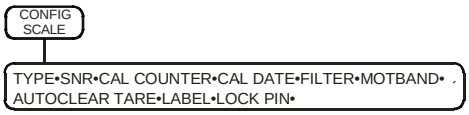


Figure 5.3.1.1

5.3.1.1 TYPE

Read-only parameter that shows the type of interface for scale 1 (analog or digital)Ⓛ.

5.3.1.2 SNR

Interface serial number. Read-only parameter Ⓛ.

5.3.1.3 CAL COUNTER

Internal read-only counter for the number of calibrations completed Ⓛ. This increases each time a modification is made that affects at least one protected parameter.

5.3.1.4 CAL DATE

Date of the last modification recorded in CAL COUNTER. Read-only Ⓛ.

5.3.1.5 FILTER

Filter level. You can choose from different levels or disable this function. The higher the value selected, the higher the filter level.

The possible options are:
OFF, 2, 4, 8, 16, 32, 64

5.3.1.6 MOTBAND

Indication movement band, outside of which stability is not indicated.
The possible options are:

OFF:	Disable function
1div:	One division
2div:	Two divisions
3div:	Three divisions

5.3.1.7 AUTOCLEAR TARE

This allows you to remove the tare automatically. Protected parameter Ⓟ. This occurs when the gross weight goes back to zero.

The possible options are:
OFF, ON

5.3.1.8 LABEL

Scale label for the ticket printing.

5.3.1.9 LOCK

This makes it possible to block certain protected functions Ⓟ:

KEYBOARD	Total block on PC and device keyboard. You can only enter in the SETUP menu on the device.
PRINT	Blocks printing
TARE	Blocks tare
ZERO	Blocks zero

Each function can take on the LOCKED value and be blocked or UNLOCKED value and be unblocked.

5.3.1.10 PIN

Using this option, you can modify the access code (PIN) the device asks for when you want to access the scale 1 menu. This PIN may be different than the one for the indicator and scale 2.

5.3.2 SCALE DEF

Menu that allows for the definition of the scale. The options are as follows:

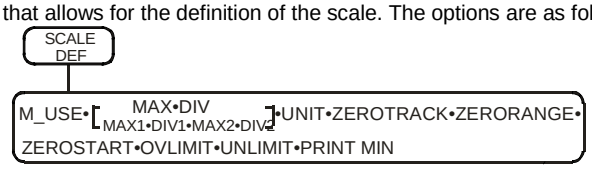


Figure 5.3.2.1

When the value of M_USE is ON instead of showing MAX and DIV, this menu shows the options for multi-range MAX1, DIV1, MAX2 and DIV2.

5.3.2.1 M_USE

Activates the multi-range function. In the ON position, the menu lets you access the MAX1, DIV1, MAX2 and DIV2 parameters, and the MAX and DIV parameters disappear from the menu. Protected parameter Ⓟ.

5.3.2.2 MAX, MAX1, MAX2

MAX is the maximum capacity of the scale in a mono-range system.
MAX1 is the capacity of the first range and MAX2 is the capacity of the second range in a multi-range system. Protected parameter Ⓟ.

5.3.2.3 DIV, DIV1, DIV2

DIV is the scale division in a mono-range system.
DIV1 is the division of the first range and DIV2 is the division of the second range in a multi-range system. Protected parameter Ⓟ.

5.3.2.4 UNIT

Weight unit of the scale. Protected parameter Ⓟ.
The possible options are:

kg: Kilograms
lb: Pounds
t: Tons
g: Grams
oz: Ounces
none: None

5.3.2.5 ZERO_TRACK

Band where the zero track works. There will be an automatic zero if the weight is within the selected band. Protected parameter Ⓟ.
The possible options are:

OFF:	Function disabled
0.5 div:	± 0.5 divisions
1div:	± 1 division
2div:	± 2 divisions

5.3.2.6 ZERO_RANGE

The limit permitted for the zero functions ( key and zero track). Protected parameter Ⓟ.
The possible options are:

1.9%:	The reset to zero can be moved 1.9% from the initial zero value.
100%:	The reset to zero can be moved 100% from the initial zero value.

5.3.2.7 ZEROSTART

The indicator automatically goes to zero upon starting. Protected parameter Ⓟ.
The possible options are:

ON:	Function activated
OFF:	Function disabled

5.3.2.8 OVLIMIT

Maximum weight admitted on the scale before indicating “OVERLOAD”.
The possible options are:

MAX:	Maximum value of the scale
MAX+1div:	Maximum value of the scale plus one division
MAX+9div:	Maximum value of the scale plus nine divisions
MAX+2%:	Maximum value of the scale plus 2%

5.3.2.9 UNLIMIT

Allows you to configure the weight as of which it will indicate “UNDERFLOW”.
The possible options are:

-OVLIMIT:	The same value as OVLIMIT, but in negative
-20div:	- 20 display divisions

The default value is -20div.

5.3.2.10 PRINT MIN

Minimum weight to be able to print. The error that will be shown on the display if it cannot print is “Weight not valid”.
It can take on the values:
0- div

5.3.3 CAL MASS

The parameters shown in figure 5.3.3.1 can be found in the calibration with masses level.

Figure 5.3.3.1

5.3.3.1 ZERO

It shows and allows you to adjust the scale zero point. Make the zero point adjustment by pressing the [▶] key. The zero point adjustment menu will appear with the options shown in the following figure:

```
SETUP MODE          UNPROTECTED
\SETUP\SCALE 1\CAL MASS\ZERO
 ZERO CALIB
 ZERO COEFF          100351
```

Figure 5.3.3.1.1

5.3.3.1.1 ZERO CALIB

This option allows access to the menu where the current weight on the scale can be set as the scale zero point. Protected parameter Ⓟ. To do so, all the weights must be removed from the scale, press the [▶] key to access the menu shown in figure 5.3.3.1.1.1:

```
SETUP MODE          UNPROTECTED
\SETUP\SCALE 1\CAL MASS\ZERO\CALIB
 ZERO                  61536
```

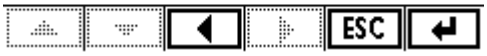


Figure 5.3.3.1.1.1

To confirm the value shown in the ZERO field as the current scale zero point, press the [↵] or [Enter] key. To exit without confirming, press the [ESC] or [EXIT] key. Upon confirming, the system will show the calibration process on the display:

```
SETUP MODE          UNPROTECTED
\SETUP\SCALE 1\CAL MASS\ZERO\CALIB

 CALIBRATING ZERO. PLEASE WAIT...
          ******....
```

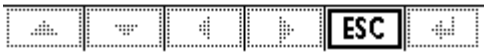


Figure 5.3.3.1.1.2

Once the process has finished, it will return to the CAL MASS menu showing the stored zero point coefficient value.

5.3.3.1.2 ZERO COEFF

This allows you to manually enter the scale zero point value. Protected parameter Ⓟ. To do so, press the [▶] key to access the menu shown in figure 5.3.3.1.2.1:

```
SETUP MODE          UNPROTECTED
\SETUP\SCALE 1\CAL MASS\ZERO\ZERO COEFF

 ENTER ZERO          62600
```

Figure 5.3.3.1.2.1

Next, enter the zero value and validate it with the [↵] or [Enter] key. To exit without validating, press the [ESC] or [EXIT] key.

5.3.3.2 SPAN

It shows and allows you to adjust the scale span. To make the span adjustment, press the [▶] key. The span adjustment menu will appear with the options shown in the following figure:

```
SETUP MODE          UNPROTECTED
\SETUP\SCALE 1\CAL MASS\SPAN
 SPAN CALIB
 SPAN COEFF          41339481
```

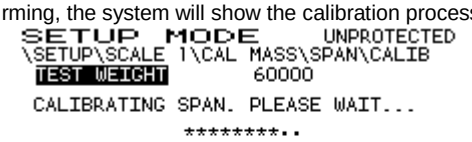
Figure 5.3.3.2.1

5.3.3.2.1 SPAN CALIB

This option allows you access to the menu where the scale span is calibrated using a known quantity of mass on the scale. Protected parameter Ⓟ. To do so, place the mass quantity on the scale and press the [▶] key; you will then access the following menu:

Figure 5.3.3.2.1.1

In this menu, you enter the value of the mass quantity on the scale - in the mass units defined in UNIT (see 5.3.2.4) –, which by default is the MAX scale value (see 5.3.2.2). This value is validated with the ↵ or Enter key. To exit without validating, press the ESC or EXIT key. Upon confirming, the system will show the calibration process on the display:



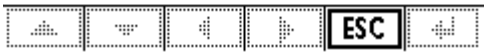


Figure 5.3.3.2.1.2

Once the process has finished, it will return to the CAL MASS menu showing the stored span coefficient value.

5.3.3.2.2 SPAN COEFF

This allows you to manually enter the scale span value. Protected parameter Ⓟ. To do so, press the ▶ key to access the menu shown in figure 5.3.3.2.2.1:

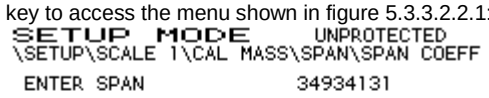


Figure 5.3.3.2.2.1

Next, enter the span value and validate it with the ↵ or Enter key. To exit without validating, press the ESC or EXIT key.

5.3.3.3 TW SPAN

Fine span adjustment. Protected parameter Ⓟ. To do so, press the [▶] key to access the menu:

```
SETUP MODE      UNPROTECTED
\SETUP\SCALE 1\CAL MASS\TW SPAN
 WEIGHT:          59992
```

Figure 5.3.3.3.1

This menu shows the weight with an increased resolution (x10). Using the [+] and [−] keys, you can increase or decrease this value. It is validated with the [↵] or Enter key. To exit without validating, press the [ESC] or Exit key.

5.3.3.4 LIN

A linear adjustment functionality that will be implemented in future versions of the software. Protected parameter Ⓟ.

5.3.4 CAL mV

If there is no reference weight, it is possible to do a theoretical calibration using the capacity and sensitivity values (mV/V) of the load cells used.

For the most accurate calibration, always use the calibration with masses.

The parameters shown in figure 5.3.4.1 can be found in the theoretical calibration level.

```
SETUP MODE      UNPROTECTED
\SETUP
 LCAP            20000 kg
 LNUM            6
 LSn             2.0000 mV/V
 ZERO            62600
 P RESET
```

Figure 5.3.4.1

5.3.4.1 LCAP

Nominal capacity (Emax) of one of the cells used in the scale, expressed in the same units that have been used in MAX and DIV (see scale definition 5.3.2.2 and 5.3.2.3). Protected parameter Ⓟ.

5.3.4.2 LNUM

Load cell receiver support numbers. The supports that rest on the load cells as well as those that don't must be counted. Protected parameter Ⓟ.

5.3.4.3 LSn

Nominal sensitivity in mV/V of the load cells used (if the values are not equal, calculate the average). Protected parameter Ⓟ.

5.3.4.4 ZERO

Adjust the scale zero point. The process is the same as explained in section 5.3.3.1. Protected parameter Ⓟ.

5.3.4.5 P RESET

Resets all the parameters to the default values. Protected parameter Ⓟ.

WARNING
All the configurations and calibrations that have been done previously to the device will be lost.

5.4 SCALE 2 (DIGITAL OUTPUT SCALE)

In this section, you can view and configure the parameters that define scale 2. The options that are shown depend on whether the scale is analog or digital. In this section, only the digital scale will be explained. This will be equally valid when scale 1 is digital. The analog scale is explained for scale 1 in section 5.3.

Figure 5.4.1 shows the options that appear for the digital scale.

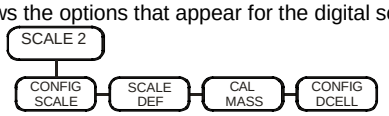


Figure 5.4.1

5.4.1 CONFIG SCALE

At this level, the general parameters of the scale are shown. These are shown in figure 5.4.1.1:

Figure 5.4.1.1

5.4.1.1 TYPE

A read-only parameter that shows the type of interface for scale 1 (analog or digital)Ⓛ.

5.4.1.2 SNR

Interface serial number. Read-only parameter Ⓛ.

5.4.1.3 CAL COUNTER

Internal read-only counter for the number of calibrations completed Ⓛ. This increases each time a modification is made that affects at least one protected parameter.

5.4.1.4 CAL DATE

Date of the last modification recorded in CAL COUNTER. Read-only Ⓛ.

5.4.1.5 FILTER

Filter level. You can choose from different levels or disable this function. The higher the value selected, the higher the filter level.

The possible options are:

OFF, 2, 4, 8, 16, 32, 64

5.4.1.6 MOTBAND

Indication movement band, outside of which stability is not indicated.

The possible options are:

OFF:	Disable function
1div:	One division
2div:	Two divisions
3div:	Three divisions

5.4.1.7 AUTOCLEAR TARE

This allows you to remove the tare automatically. Protected parameter Ⓟ. This occurs when the gross weight goes back to zero.

The possible options are:

OFF, ON

5.4.1.8 LABEL

Scale label for the ticket printing.

5.4.1.9 LOCK

This makes it possible to block certain protected functions. Protected parameter Ⓟ:

KEYBOARD	Total block on PC and device keyboard. You can only enter in the SETUP menu on the device.
PRINT	Blocks printing
TARE	Blocks tare
ZERO	Blocks zero

Each function can take on the LOCKED value and be blocked or UNLOCKED value and be unblocked.

5.4.1.10 PIN

Using this option, you can modify the access code (PIN) the device asks for when you want to access the scale 2 menu. This PIN may be different than the one for the indicator and scale 1.

5.4.2 SCALE DEF

Menu that allows for the definition of the scale. The options are as follows:

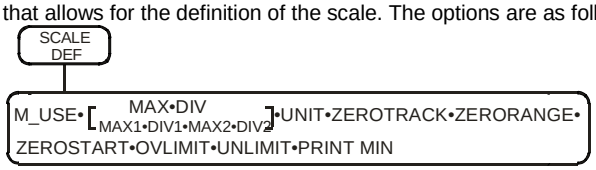


Figure 5.4.2.1

When the value of M_USE is ON instead of showing MAX and DIV, this menu shows the options for multi-range MAX1, DIV1, MAX2 and DIV2.

5.4.2.1 M_USE

Activates the multi-range function. In the ON position, the menu lets you access the MAX1, DIV1, MAX2 and DIV2 parameters and the MAX and DIV parameters disappear from the menu. Protected parameter Ⓟ.

5.4.2.2 MAX, MAX1, MAX2

MAX is the maximum capacity of the scale in a mono-range system.

MAX1 is the capacity of the first range and MAX2 is the capacity of the second range in a multi-range system. Protected parameter Ⓟ.

5.4.2.3 DIV, DIV1, DIV2

DIV is the scale division in a mono-range system.

DIV1 is the division of the first range and DIV2 is the division of the second range in a multi-range system. Protected parameter Ⓟ.

5.4.2.4 UNIT

Weight unit of the scale. Protected parameter Ⓟ.

The possible options are:

kg: Kilograms
lb: Pounds
t: Tons
g: Grams
oz: Ounces
none: None

5.4.2.5 ZERO_TRACK

Band where the zero track works. There will be an automatic zero if the weight is within the selected band. Protected parameter Ⓟ.

The possible options are:

OFF:	Function disabled
0.5div:	± 0.5 divisions
1div:	± 1 division
2div:	± 2 divisions

5.4.2.6 ZERO_RANGE

The limit permitted for the zero functions ( key and zero track). Protected parameter Ⓟ.

The possible options are:

1.9%:	The reset to zero can be moved 1.9% from the initial zero value.
100%:	The reset to zero can be moved 100% from the initial zero value.

5.4.2.7 ZEROSTART

The indicator automatically goes to the zero point upon starting. Protected parameterⓅ.

The possible options are:

ON:	Function activated
OFF:	Function disabled

5.4.2.8 OVLIMIT

Maximum weight admitted on the scale before indicating “OVERLOAD”.

The possible options are:

MAX:	Maximum value of the scale
MAX+1div:	Maximum value of the scale plus one division
MAX+9div:	Maximum value of the scale plus nine divisions
MAX+2%:	Maximum value of the scale plus 2%

5.4.2.9 UNLIMIT

Allows you to configure the weight as of which it will indicate “UNDERFLOW”.

The possible options are:

-OVLIMIT:	The same value as OVLIMIT, but in negative
-20div:	- 20 display divisions

The default value is -20div.

5.4.2.10 PRINT MIN

Minimum weight to be able to print. The error that will be shown on the display if it cannot print is “Weight not valid”.

It can take on the values:

0- div

5.4.3 CAL MASS

The parameters shown in figure 5.4.3.1 can be found in the calibration with masses level.

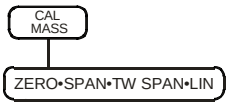


Figure 5.4.3.1

5.4.3.1 ZERO

It shows and allows you to adjust the scale zero point. Make the zero point adjustment by pressing the [▶] key. The zero point adjustment menu will appear with the options shown in the following figure:

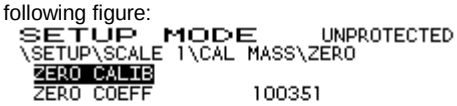


Figure 5.4.3.1.1

5.4.3.1.1 ZERO CALIB

This option allows access to the menu where the current weight on the scale can be set as the scale zero point. Protected parameter Ⓟ. To do so, all the weights must be removed from the scale, press the [▶] key to access the menu shown in figure 5.4.3.1.1.1:

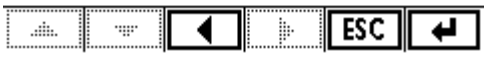


Figure 5.4.3.1.1.1

To confirm the value shown in the ZERO field as the current scale zero point, press the [↵] or [Enter] key. To exit without confirming, press the [ESC] or [EXIT] key. Upon confirming, the system will show the calibration process on the display:

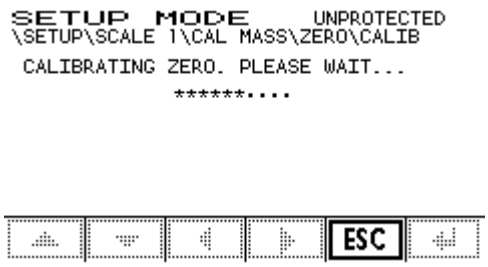


Figure 5.4.3.1.1.2

Once the process has finished, it will return to the CAL MASS menu showing the stored zero point coefficient value.

5.4.3.1.2 ZERO COEFF

This allows you to manually enter the scale zero point value. Protected parameter Ⓟ. To do so, press the [▶] key to access the menu shown in figure 5.4.3.1.2.1:

Figure 5.4.3.1.2.1

Next, enter the zero point value and validate it with the [↵] or [Enter] key. To exit without validating, press the [ESC] or [EXIT] key.

5.4.3.2 SPAN

It shows and allows you to adjust the scale span. To make the span adjustment, press the [▶] key. The span adjustment menu will appear with the options shown in the following figure:

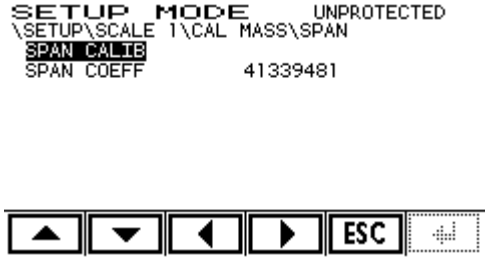


Figure 5.4.3.2.1

5.4.3.2.1 SPAN CALIB

This option allows you access to the menu where the scale span is calibrated using a known quantity of mass on the scale. Protected parameter Ⓟ. To do so, place the mass quantity on the scale and press the [▶] key; you will then access the following menu:

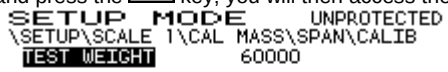
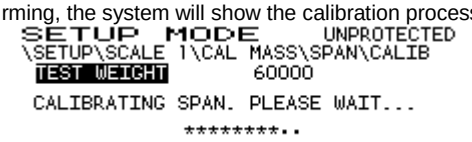


Figure 5.4.3.2.1.1

In this menu, you enter the value of the mass quantity on the scale - in the mass units defined in UNIT (see 5.3.2.4) -, which by default is the MAX scale value (see 5.3.2.2). This value is validated with the [↵] or [Enter] key. To exit without validating, press the [ESC] or [Exit] key. Upon confirming, the system will show the calibration process on the display:



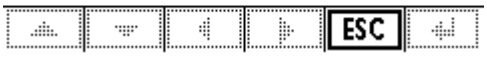


Figure 5.3.3.2.1.2

Once the process has finished, it will return to the CAL MASS menu showing the stored span coefficient value.

5.4.3.2.2 SPAN COEFF

This allows you to manually enter the scale span value. Protected parameter Ⓟ. To do so, press the [▶] key to access the menu shown in figure 5.4.3.2.2.1:

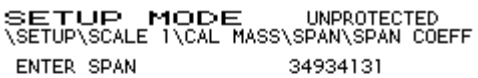


Figure 5.4.3.2.2.1

Next, enter the span value and validate it with the ↵ or Enter key. To exit without validating, press the ESC or EXIT key.

5.4.3.3 TW SPAN

Fine span adjustment. Protected parameter Ⓟ. To do so, press the ▶ key to access the menu:

Figure 5.4.3.3.1

This menu shows the weight with an increased resolution (x10). Using the + and − keys, you can increase or decrease this value. It is validated with the ↵ or Enter key. To exit without validating, press the ESC or EXIT key.

5.4.3.4 LIN

A linear adjustment functionality that will be implemented in future versions of the software. Protected parameter Ⓟ.

5.4.4 CONFIG DCELL

Using this menu, you can configure the characteristics of the digital scale and certain adjustments. The available options are as follows:

Figure 5.4.4.1

5.4.4.1 NUMCELL

To program the number of scale load cells. Protected parameter Ⓟ.
The possible values are:
1Î

5.4.4.2 DCELL

To enter the load cells in the system and view their parameters. Protected parameterⓅ. You access this by pressing the [►] key and then a menu is shown just like the one in figure 5.4.4.2.1:

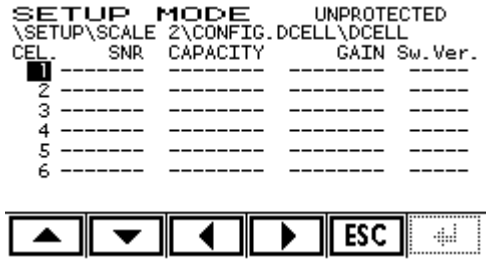


Figure 5.4.4.2.1

All the cells that have been programmed in NUMCELL appear in this menu (see section 5.4.4.1).

Using the [▲] and [▼] keys, you select the cell you wish to enter in the system. You access the selected cell - in this case, cell 1 - by pressing the [►] key. Then, a menu will appear just like the one shown in figure 5.4.4.2.2:

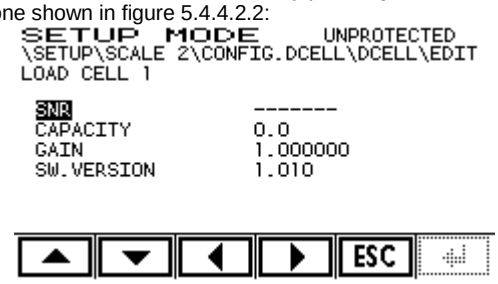


Figure 5.4.4.2.2

When you press the [►] key, the system searches for an uninstalled load cell. When it finds one, this message appears: [NEW SNR FOUND !]. Then it shows the serial number of the cell found just as shown in the following figure:

```
SETUP MODE      UNPROTECTED
\SETUP\SCALE 2\CONFIG.DCELL\DCELL\EDIT
LOAD CELL 1
 ENTER SNR            516767
```

Figure 5.4.4.2.3

If you wish to confirm this serial number so it is installed as cell number 1 in the system, press the ↵ or Enter key. If you wish to enter the serial number by hand, do it and then press the ↵ or Enter key. To exit without confirming, press the ESC or EXIT key.

This process must be completed for all the scale cells. Once completed, the display will show all the installed cells just as shown in the following figure:

```
SETUP MODE      UNPROTECTED
\SETUP\SCALE 2\CONFIG.DCELL\DCELL
CEL.     SNR  CAPACITY      GAIN Sw.Ver.
  1  516767   30000.0  1.000000  1.009
  2  516768   30000.0  1.000000  1.009
  3  515023   30000.0  1.000000  1.009
  4  516769   30000.0  1.000000  1.009
```

Figure 5.4.4.2.4

5.4.4.2.1 DCELL EDIT

Once a load cell is installed, the SNR and GAIN parameters can be edited. Protected parameter Ⓟ.

5.4.4.2.1.1 SNR

Using the ▲ and ▼ keys, you select the load cell you wish to edit. You access the load cell by pressing the ▶ key. Then the menu with the parameters for the selected load cell will appear.

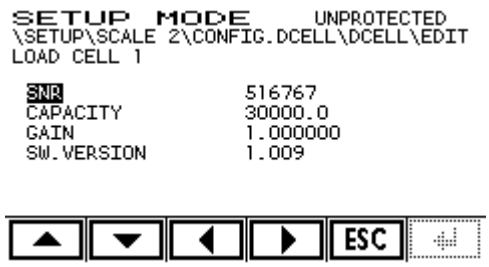


Figure 5.4.4.2.1.1.1

Press the ▶ key to access the menu where you can modify the SNR value. If you wish to confirm the SNR value entered, press the ↵ or Enter key. To exit without confirming, press the ESC or EXIT key.

5.4.4.2.1.2 GAIN

To modify the GAIN value with the ▲ and ▼ keys, select the load cell you wish to edit. You access the load cell by pressing the ▶ key. Then the menu with the parameters for the selected load cell will appear.

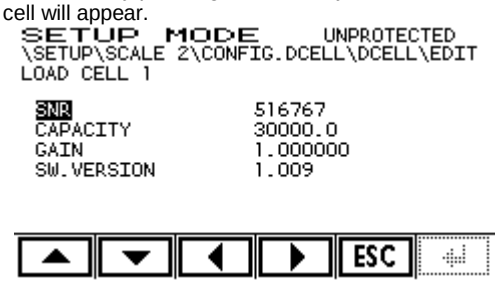


Figure 5.4.4.2.1.2.1

Using the ▲ and ▼ keys, you select the option GAIN and access this by pressing the ▶ key. The following menu will appear where you can modify the GAIN value.

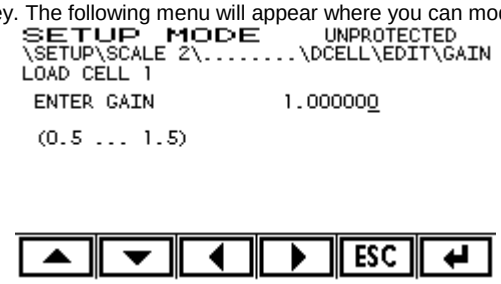


Figure 5.4.4.2.1.2.2

If you wish to confirm the GAIN value entered, press the ↵ or Enter key. To exit without confirming, press the ESC or EXIT key.

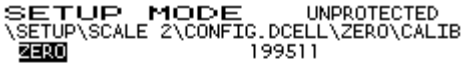
5.4.4.3 ZERO

It shows and allows you to adjust the scale zero point. Make the zero point adjustment by pressing the ▶ key. The zero point adjustment menu will appear with the options shown in the following figure:

Figure 5.4.4.3.1

5.4.4.3.1 ZERO CALIB

This option allows access to the menu where the current weight on the scale can be set as the scale zero point. Protected parameter Ⓟ. To do so, all the weights must be removed from the scale, press the ▶ key to access the menu shown in figure 5.4.4.3.1.1:



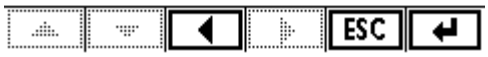


Figure 5.4.4.3.1.1

To confirm the value shown in the ZERO field as the current scale zero point, press the ↵ or Enter key. To exit without confirming, press the ESC or EXIT key. Upon confirming, the system will show the calibration process on the display:

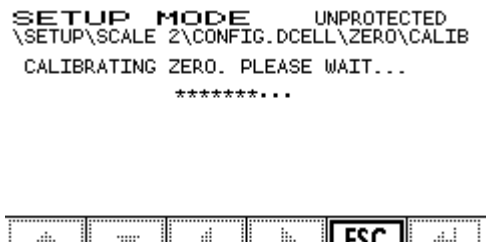


Figure 5.4.4.3.1.2

Once the process has finished, it will return to the D CELL menu showing the stored zero point coefficient value.

5.4.4.3.2 ZERO COEFF

This allows you to manually enter the scale zero point value. Protected parameter Ⓟ. To do so, press the ▶ key to access the menu shown in figure 5.4.4.3.2.1:

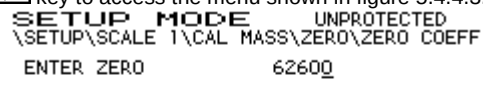
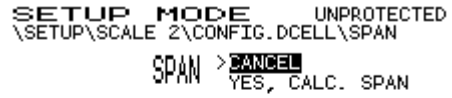


Figure 5.4.4.3.2.1

Next, enter the zero point value and validate it with the ↵ or Enter key. To exit without validating, press the ESC or EXIT key.

5.4.4.4 SPAN

This option allows you to make a theoretical SPAN adjustment. Protected parameterⓅ. To do this, access the menu by pressing the ▶ key. The following menu will appear:



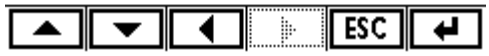


Figure 5.4.4.4.1

If you select the CANCEL option, the device returns to the previous screen without making any change. However, if you select YES, CALC. SPAN and press ↵, the device will theoretically calculate the scale SPAN value. Once the process has finished, it will return to the CONFIG DCELL.

5.4.4.5 CORNER ADJUST

An option through which you can access a menu where you can make a corner adjustment to the scale. The available options in this menu are:

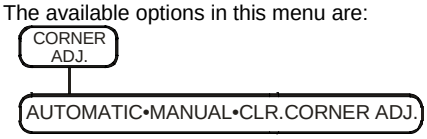


Figure 5.4.4.5.1

5.4.4.5.1 AUTOMATIC

This option allows you to make an automatic corner adjustment. This automatic adjustment is done by taking readings of all the corners with the same weight. At the end of the readings, the span adjustment correction is calculated automatically for each cell in order to equal out all the readings of all the corners. Protected parameter Ⓟ.

You enter the menu by pressing the ▶ key. Using the ▲ and ▼ keys, you select the number of the cell in the corner of which you have placed the weight and press ↵ or Enter.

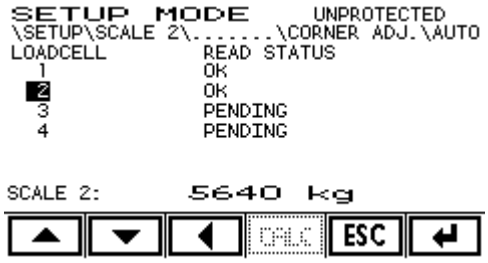


Figure 5.4.4.5.1.1

Once the reading has been done correctly, the display will show OK. Complete this process for all the scale cells. Once this process has been done for all the cells, press the CALC button.

If the indicator detects that a cell number is to be read for which the signal is not the largest of all of them, the system will show the error message VERIFY CORNER !! POSSIBLE ERROR and it will only complete it if it is asked again to do the reading.

5.4.4.5.2 MANUAL

A menu where you can view and modify the individual span of each one of the load cells. Protected parameter Ⓟ. You enter the menu by pressing the ▶ key. Using the ▲

and [▼] keys, you select the number of the cell for which you wish to modify the span and press [►] again. Then, the screen shown in figure 5.4.4.5.2.1 appears:

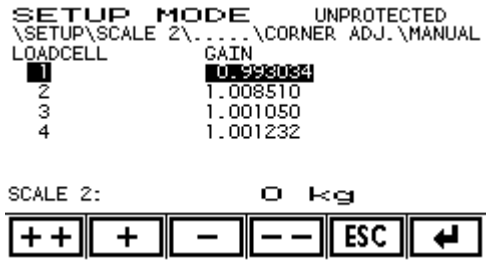


Figure 5.4.4.5.2.1

If you wish to increase the value, press [+] and to decrease it, press [−]. For a rapid increase, press [++], and for a rapid decrease, press [−−]. The span change is confirmed by pressing [↵] or [Enter]. To exit without modifying the span, press [ESC] or [ESC].

5.4.4.5.3 CLR. CORNER ADJ.

With this option, you can delete the corner adjust. Protected parameter Ⓟ. Once you access the menu using the [►] key, the screen shown in figure 5.4.4.5.3.1 appears:

Figure 5.4.4.5.3.1

If you select the CANCEL option, the device returns to the previous screen without making any change. However, if you select CLEAR CORNER ADJUST and press [↵], the device will delete any corner adjustment previously made (it will return the span values of all the cells to 1.000000).

5.4.4.6 DIAG. DCELLS

A menu with several diagnostic functions for the load cells. Read-only Ⓛ.

5.4.4.6.1 COUNTS

The first screen shown upon accessing the DIAG.DCELLS menu is the one that shows the points of each cell, the percentage it represents out of the entire scale and to the right, the total points and gross weight. The screen format is the following:

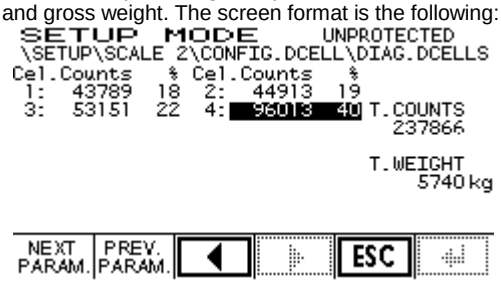


Figure 5.4.4.6.1.1

The load cell that provides a greater signal is highlighted.

To show the screen with the next diagnostic function, press NEXT PARAM. and to go to the previous one, press PREV. PARAM. . Press ◄ to return to the previous menu. Press ESC to completely exit the SETUP menu.

5.4.4.6.2 STATUS

This screen shows the status of each cell. If everything is correct, “OK” appears. If there is one or more errors, the following texts are shown highlighted with an inverted background:

Text	Error
“**SN**”	The serial number does not coincide with the NVM value (adjustment value).
“**GA**”	The span does not coincide with the NVM value (adjustment value).
“**CA**”	The cell capacity does not coincide with the NVM value (adjustment value).
“**NO**”	The cell NOM does not coincide with the NVM value (adjustment value).
“**ST**”	The cell status indicates some kind of error.

If there is more than one error, they are shown separated by hyphens. For example, a serial number and span error: “SN-GA”.

The screen format is the following:

Figure 5.4.4.6.2.1

5.4.4.6.3 ERR.INDEX

Index of communication errors:

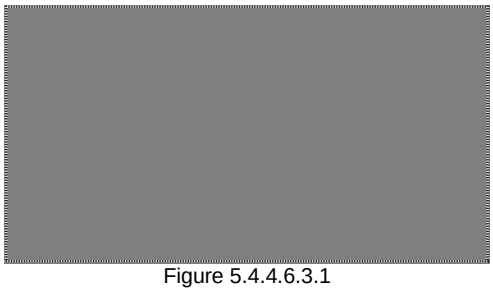


Figure 5.4.4.6.3.1

This screen indicates the percentage of communication errors for each cell. If there are no errors, it indicates ˜.000". When there is some kind of error, the letters "T" for time-out error and "F" for format error are added. When there is some kind of error, this is highlighted with an inverted background. A counter with the sum of the total individual weight requests made for each one of the cells is shown.

5.4.4.7 DIAG. INTERFACE

A menu with several diagnostic functions for the interface. The screen is as shown in figure 5.4.4.7.1:

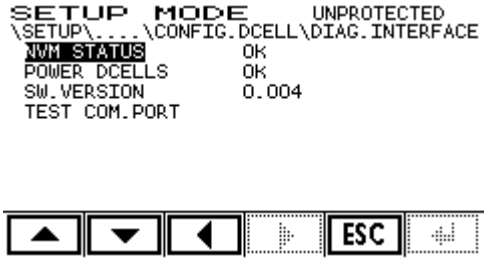


Figure 5.4.4.7.1

NVM STATUS: This shows the status of the non-volatile memory (NVM) of the load cell communication interface. It will show "OK" if everything is correct and "CORRUPTED" if not. Read-only parameter Ⓛ.

POWER DCELLS: This shows the status of the power supply of the load cells. It will show "OK" if everything is correct, "OFF" if it is turned off and "FAIL" if there is some kind of power failure (example: a short circuit in the cell power supply). Read-only parameter Ⓛ.

SW.VERSION: Shows the version of the communication interface software. Read-only parameter Ⓛ.

TEST COM.: Enter in the communications port test mode.

5.4.4.7.1 TEST COM

A test is done on this screen of the RS485 communications port of the digital platform interface. This screen indicates the test status. To run the test, a test connector that connects the transmission to the reception must be placed in the communications connector.

The test result shows four counters. They mean the following:
MESSAGES: Counts the test messages sent.
OK: Counts the test messages received correctly.
TIMEOUT: Counts the timeouts. With each test message sent that is not correctly received on time, this counter increases. If this happens, it might be because the test connector is not in.
ERROR: Counts the error messages. The message received does not coincide with the one sent. Possible failure in the RS485 driver or in the connection between transmission and reception.

When the test connector is in the correct place, only the MESSAGES and OK counters should increase.

5.4.4.8 PARAM RESET

A menu that allows you to reset the device back to the default parameters. Protected parameter Ⓟ.The screen shown is as follows:

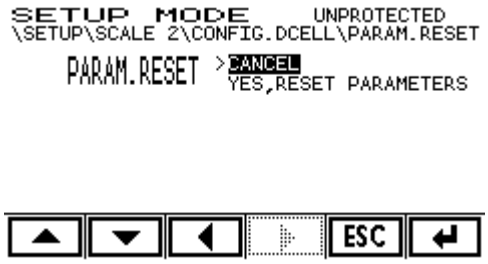


Figure 5.4.4.8

If you select the CANCEL option, the device returns to the previous screen without making any change. However, if you select YES,RESET PARAMETERS and press ↵, the device resets the interface parameters back to the default values.

This deletion does not affect the cell numbering or "user gain" they have programmed. These values can be deleted in the DCELL CLEAR menu (see 5.4.4.9).

WARNING
All the configurations and calibrations that have been done previously to the device will be lost.

5.4.4.9 DCELL CLEAR

Returns one or several load cells to their factory status: “user gain” equals 1, cell address 0 and 19200 bps communication speed. Protected parameter Ⓟ. This process can be done with one specific load cell or for all those connected to the device.

This deletion only affects the cells and not the parameters configured in the indicator.

Using the ▲ and ▼ keys, you select the desired option and confirm with ↵ or Enter.

The possible options are:

NO:	Returns to the previous menu without doing anything.
ALL:	Deletes all the cells connected to the indicator.
1,2...16:	Deletes the cell which number has been selected.

6 Description of the Connectors

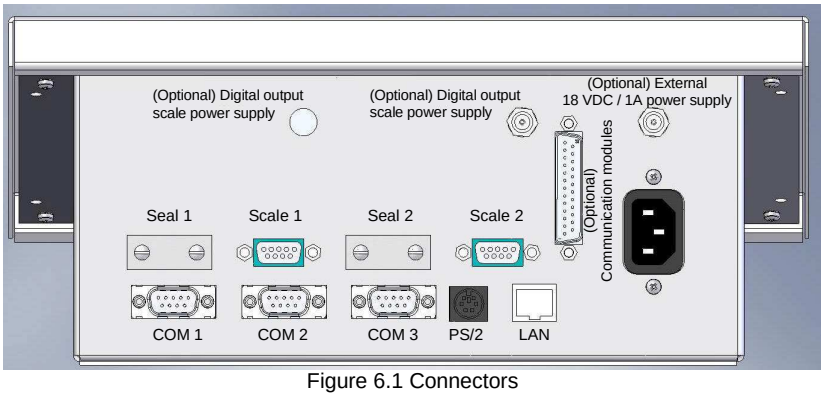


Figure 6.1 Connectors

6.1 Load cell connector

To connect the load cell to the indicator, a SUBD-9 male aerial connector must be used. The cell cables will be welded in this connector as shown in the attached tables. For a 6 wire connection, bridging the 1-6 and 5-9 pins is recommended in order to double the contact surface of the power supply wires.

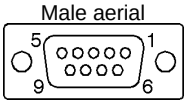
SUB-D 9 Connector Male aerial  Pin Assignment View from welded side	PIN SIGNAL		UTILCELL Load Cell Code
	1	EXC +	Green
	6		
	2 Sense +		Blue
	7 SIG +		Red
	3 Shield		-
	8 SIG-		White
	4 Sense -		Yellow
	5	EXC -	Black
	9		

Table 6.1.1 6-Wire PIN Assignment

If using a 4-wire connection cable, the 1-6-2 (EXC+ and SENSE+) and 4-5-9 (EXC- and SENSE-) pins must be bridged in the aerial connector.

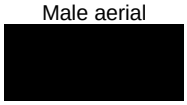
	PIN	SIGNAL	UTILCELL Load Cell Code
SUB-D 9 Connector Male aerial  Pin Assignment View from welded side	1	EXC +	Green
	6		
	2		
	7	SIG +	Red
	3	Shield	-
	8	SIG-	White
	4	EXC -	Black
	5		
	9		

Table 6.1.2 4-Wire PIN Assignment

6.1.1 Cell Connector Security seal

The load cell connector is sealed with an adhesive destructible pull label for each load cell connector as shown in figure 6.1.1.1.

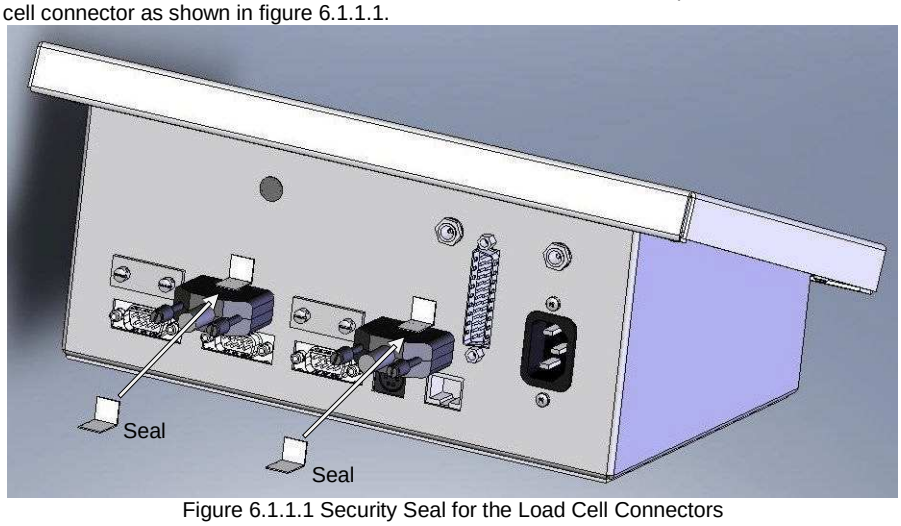


Figure 6.1.1.1 Security Seal for the Load Cell Connectors

6.2 PC Keyboard Connector

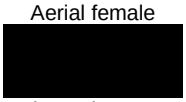
Connecting a standard PC keyboard with a PS/2 connector.
The keyboard should not be connected or disconnected when the device is in operation.

6.3 Communications Connectors

6.3.1 RS-232 COM1/COM2 Connector

The indicator connector is a SUB-D 9 Male.

SUB-D 9 Connector
Aerial female



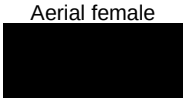
Pin Assignment
View from welded side

PIN	SIGNAL	
1	-	
2	RxD	
3	TxD	
4	-	
5	GND	
6	-	
7	RTS	
8	CTS	
9	-	

Table 6.3.1.1 RS-232 Connector Assignment

6.3.2 RS-485 (COM3) Connector

SUB-D 9 Connector
Aerial female



Pin Assignment
View from welded side

PIN	SIGNAL	
1		A (TxD+/RxD+)-
2	-	
3	-	
4	-	
5	GND	
6	B (TxD-/RxD-)	
7	-	
8	-	
9	-	

Table 6.3.2.1 RS-485 Connector Assignment