OPERATION MANUAL

SERIES GEC

Models

GEC-6

GEC-15

GEC-30

REV. 1A9M06

EQUIPO CERTIFICADO

ENGLISH

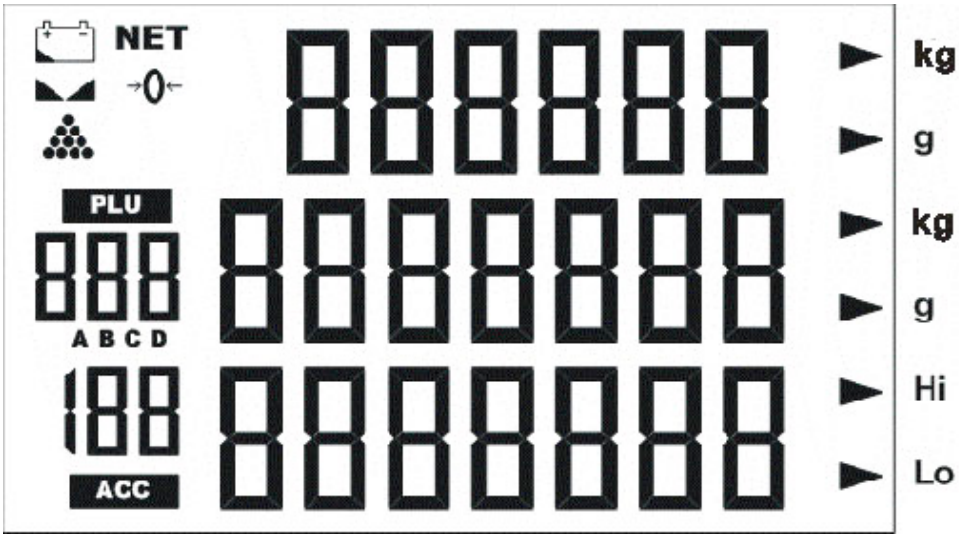
SPECIFICATIONS

Display	LCD, height 14.5mm 6/7/7 (Unit weight / Weight / Total pieces)
Pan size (mm)	245 x 355 (W x H)
Dimensions (mm)	387 x 365 x 117(W x L x H)
Net weight (kg)	3.7kg
Operation temperature	0 ℃to +40℃
RH	Less than 85%
Power	9V / 500mA, AC adaptor; rechargeable battery 6V
Output	RS-232C

Model	**GEC-6**	**GEC-15**	**GEC-30**
Maximal Capacity	6kg	15kg	30kg
d =	0.2g	0.5g	1g
Precision	1/30000	1/30000	1/30000

DISPLAY AND KEYBOARD

LCD Display



- Weight display
- Unit weight display

Total pieces display

Indicates that battery voltage is low, the battery must be charged.

NET

Indicates that display shows the net weight, after making a tare.

Indicates that weight is stable.

Indicates that the scale is in zero point, if you are not using the tare function.

Indicates the PLU number.

ACC

Indicates the accumulated weighing.

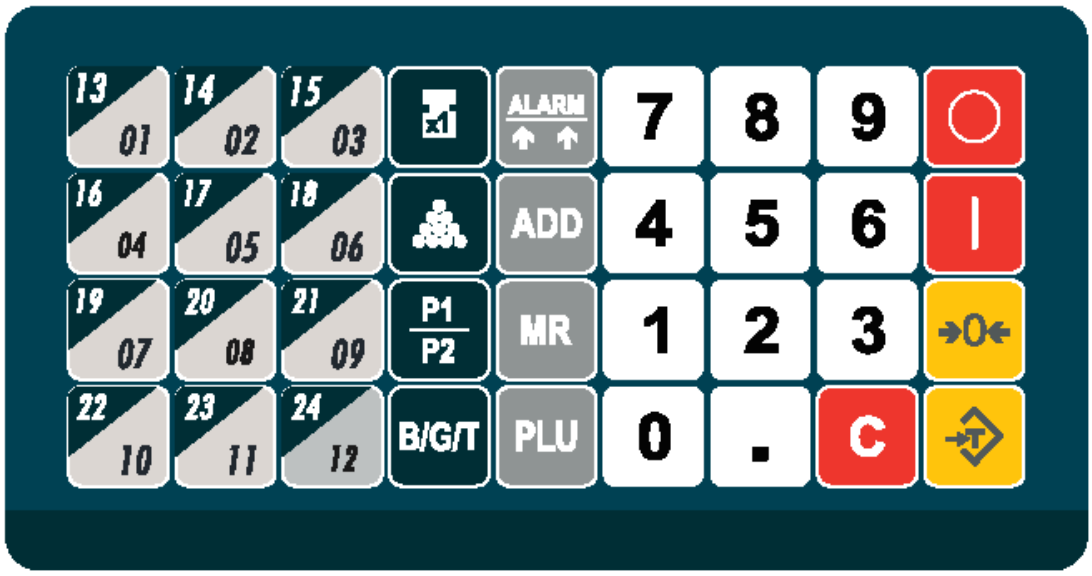
► Hi

Indicates that the high limit of a weight or number of pieces has been configured.

► Lo

Indicates that the low limit of a weight or number of pieces has been configured.

KEYBOARD DESCRIPTION



To turn off the scale.

To turn on the scale.

To reset the display to zero

To perform a tare

0 ~ 9 . Numerical keys and decimal point to introduce data.

C Key to delete data

ALARM Press this key to activate the alarm in high / low limits function.

ADD Press this key to make weighing accumulations.

MR Press this key to view the total weight accumulated or the total number of pieces accumulated.

PLU Press this key to save, introduce or modify the weight of a sample.

Memorizes the unit weight of a sample.

Memorizes the number of pieces of a sample.

P1 / P2 Change the indicator from the scale pan (A) to external platform (optional) (B).

B/G/T To view the gross weight, net weight or tare weight.

13 01 24 12 Recall of 24 direct PLU's

COUNTING PIECES FUNCTION

Introduction of unit weight directly through the keyboard.

1. In weighing mode, use the numerical and decimal key to input the unit weight. (Unit weight in grams)

2. Press the the unit weight will change.
3. If the  key is not pressed in 4 seconds, the entered value will be deleted.

Sampling introduction through number of pieces – Method 1

1. Place a number of pieces on the weighing pan.
2. In weighing mode, use the numerical and decimal keys to input the number of pieces placed on the pan.
3. Press the  key to calculate the unit weight of each piece.
4. If the  key is not pressed in 4 seconds, the entered value will be deleted.

Sampling introduction through number of pieces – Method 2

1. Be sure that the weighing pan is empty and the unit weight display is at zero.
2. Press the  key, the second display will show SAMPLE and the third will show by default as 100.
3. Use the numerical and decimal keys to input the quantity of pieces.
4. Place the pieces on the weighing pan. The unit weight will be automatically calculated.

Note: If the scale is connected to an auxiliary platform (B) and the weighing mode is in B position (auxiliary platform)), after pressing the  ***key, the input sampling will continue automatically in mode A (scale)***

Sampling introduction through number of pieces – Method 3

1. Be sure that weighing pan is empty and unit weight display is at zero.
2. Place a number of pieces on the weighing pan.
5. Press the  key, the second display will show SAMPLE and the third the value for default as 100.
3. Use the numerical keys to input the quantity.

4. Remove the pieces from the weighing pan. The unit weight will be automatically calculated.

Note: If the scale is connected to an auxiliary platform (B) and the weighing mode is in B position (auxiliary platform)), after pressing the  ***key, the input sampling will continue automatically in mode A (scale)***

Sampling introduction through number of pieces – Method 4

If the unit weight is not deleted, add or remove pieces and press the  key to calculate again the unit weight.

Auto-sampling operation.

After the sampling introduction, the scale will automatically do the sampling in mode A (scale) of any small item. Placing a new object on the weighing pan, the scale will automatically do the sampling.

The auto-sampling function can be disabled in configuration menu CAL 1

PLU´S OPERATION

PLU Data setting

Configuration of direct PLU (keys 1 ~24)

1. Input the unit weight of the piece (see sampling introduction section)
2. Press the **PLU** key , the display will flash the message PLU
3. Select the desired PLU key (1 – 24)

4. Press the **PLU** key to confirm and save. The message PLU will stop flashing.

Example

To input the unit weight of a piece of 0.5 g: Press: . 5 x1

1. Press the **PLU** key, the message PLU will flash.
2. Press the desired PLU key, for example: 15 03, the PLU indicator will show 3 then the symbol PLU 3 will flash.
3. Press again the 15 03 key, the PLU indicator will show 15 then the symbol PLU 15 will flash.
4. Press the **PLU** key to confirm, after a bip the unit weight for PLU 15 will be of 0.5 g.

Configuration of indirect PLU´s (0 ~ 999)

1. Input the unit weight of the piece (see sampling introduction section)
2. Press the **PLU** key, the display will show the flashing PLU message.
3. Use the numerical keys to select the desired PLU number.
4. Press the **PLU** key to confirm and save. The PLU message will stop flashing.

- If any data is entered in 30 seconds, the scale will automatically exit of configuration mode and will return to normal weighing mode.

Recall of PLUs

Recall of a direct PLUs (keys 1 – 24)

- In normal weighing mode, press PLU key once (1 – 24) to access PLU (bottom key)
- Press again the same PLU key to access to PLU (top key)

Example:

1. Press once the 

key, the PLU number 3 will be automatically recalled. The display will show 3 below PLU.
2. Press the same 

key again. The PLU number 15 will be automatically recalled. The display will show 15 below PLU.

Recall of an indirect PLU (0 – 999)

1. In normal weighing mode, keep pressed the **PLU** until the scale gives a double beep, then release the key.
2. Use the numerical keys to introduce the desired PLU number and then press the **PLU** key to recall it.

Change the value of a PLU

1. When the PLU message appears on the display, press the **PLU** key. The unit weight value will flash.
2. Change the unit weight value according to previous procedure and press **PLU** key to confirm and save.

WEIGHING ACCUMULATIONS M+

1. Place a weight on the weighing pan and input his weight, press the **M+** key. When the scale gives a beep and the display shows the ACC message, the data will be automatically stored.

2. Remove the weight from the weighing pan and place another one on the pan. Input the unit weight and press the M+ key. When the scale gives a beep and the display shows the message ACC, the data will be automatically stored.

- ***If after each operation, the weight is not removed from the pan, pressing the M+ key the scale will make a long beep and it can not save the data of following weighing.***

- ***The scale can store up to 180 weighings.***

Total weighing accumulations MR

1. In weighing mode, press the **MR** key, the display WEIGHT will remain at zero. The display PIECE WEIGHT will show tOtAL and the display PCS the total number of pieces.
2. The display WEIGHT will show the total weight accumulated. The number located in top side of message ACC means the number of weighing made.
3. Press again the **MR** key to exit from function without delete data. (When the option *CAL 1: MR REC* is configured to exit) or press again the **MR** key to exit and delete data.

4. If optional Printer LP-50 is connected to the scale, the total weight accumulated and the total of pieces will be printed (When the option CAL 1: MR REC is configured to delete)

OTHER FUNCTIONS

LIMITS WEIGHT

1. Press the **ALARM** key. The display PCS will show the message PCS. Hi
2. The display PIECE WEIGHT shows the high limit configuration for a number of pieces. Input the high limit value using the numerical keys.

3. Press the **ALARM** key. Now the display PCS shows the message PCS. Lo. Input the low limit value for a number of pieces using the numerical keys.
4. Press the **ALARM** key. The display PCS will show LoAd. Hi. Input the high limit for weight using the numerical keyboard. (The unit weight must be in grams)
5. Press the **ALARM** key. The display PCS will show the message LoAd. Lo. Input the low limit for weight using the numerical keyboard (The unit weight must be in grams)
6. Press the **ALARM** key to confirm and save all input data.

Note:

- ***If number of pieces or weight placed on the pan exceeds the high predetermined value, the scale will give a beep.***
- ***If number of pieces or weight placed on the pan is below the low predetermined value, the scale will give a beep.***
- ***The beep mode can be modified in parameters menu, CAL 1.***

INTRODUCTION OF TARE VALUE

(Through the keyboard)

1. In weighing mode, input the Tare value using the numerical keys (The unit weight is grams)
2. Press the  key to confirm and save. (If this key is not pressed in 4 seconds, the entered value will be automatically deleted)

Note: It is not possible to input a Tare value that exceeds the capacity of the scale.

AUXILIAR PLATFORM (B)

1. Press the **A/B** key to activate the scale (A) or the auxiliary platform (B)
2. The initial zero is the zero configured in calibration procedure. It means that the weight located on the pan will be displayed accurately when the scale is turned on.
3. Reset zero range is 10% of maximal capacity.

Configuration and calibration.

1. With scale disconnected, press and hold any key and then press the **I** key to connect it. The display will show the **CAL 1** message.
2. Press the **C** key to navigate through the different menus: **CAL 1**, **CAL 2**, **CAL 3**, **CAL 4 and CAL 5**
3. Select the menu **CAL 1**, press the  to access to general configuration.

4. Select the menu **CAL 2**, press the to access to configuration of auxiliary platform (B)
5. Select the menu **CAL 3**, press the  to access to print configuration
6. Select the menu **CAL 4**, press the  to access to calibration configuration.
7. Select the menu **CAL 5**, press the  to access to linearity calibration procedure.

Note: To configure the menus CAL 4 and CAL 5, is necessary to remove the JP3 jumper from PCB. Once the configuration is completed, place the JP3 jumper in the original place again.

GENERAL CONFIGURATION (CAL 1)

Press the C key to navigate through different options and press the  to confirm the introduced data.

1. AUTO TURN-OFF

Display	Comments
Aut.oFF **oFF**	Auto Turn-off disabled.
Aut.oFF **5**	Auto Turn-off after 5 minutes of not in use.
Aut.oFF **10**	Auto Turn-off after 10 minutes of not in use.
Aut.oFF **20**	Auto Turn-off after 20 minutes of not in use.
Aut.oFF **30**	Auto Turn-off after 30 minutes of not in use.

2. BACKLIGHT

Display	Descriptions
b.LiGHt oFF	Backlight disabled
b.LiGHt on	Backlight enabled.
b.LiGHt AUto	Automatic Backlight.

3. rE.tArE – REPETITION OF THE TARE

Display	Descriptions
rE.tArE oFF	Tare repetition disabled
rE.tArE on	Tare repetition enabled

4. rE.SAnP – AUTO-SAMPLING

Display	Descriptions
rE.SAnP oFF	Auto-sampling function disabled
rE.SAnP on	Auto-sampling function enabled

5. Hi bEEP – ALARM OF HIGH LIMIT

Display	Explanation
Hi.bEEP ALArn oFF	High limit alarm disabled
Hi.bEEP ALArn SHort	High Limit alarm. Sound format: continuous short beeps.

Hi.bEEP **ALArn** **LonG**	High Limit alarm. Sound format: continuous long beeps. .

6. Lo bEEP – ALARM OF LOW LIMIT

Display	Descriptions
Lo.bEEP **ALArn** **oFF**	Low limit alarm disabled
Lo.bEEP **ALArn** **SHort**	Low Limit alarm. Sound format: continuous short beeps.
Lo.bEEP **ALArn** **LonG**	Low Limit alarm. Sound format: continuous long beeps.

7. ZERO TRACKING

Display	Descriptions
trAcE **oFF**	Zero tracking disabled.
trAcE **on**	Zero tracking enabled.

8. LEVEL STABILITY OF THE SCALE (A)

Display	Descriptions
StAbLE **XX** **1 - 10**	Configuration of level of stability using the numerical keys. X: Level of stability: 1~10 Level for default: 5

9. UNIT WEIGHT

Display	Descriptions
Unit lb	Configuration of unit weight in lb.
Unit 1000g	Configuration of unit weight in kg

10. ACCUMULATION OF WEIGHINGS

Display	Descriptions
NPIuS Add Pr	Press the **M+** key to accumulate the weight and print out the results.
NPIuS Prt	Press the **M+** key to print out the results only (in this parameter, the **Total** key is disabled).
NPIuS Add	Press the **M+** key to accumulate the weight only.

11. ACCUMULATED TOTAL

Display	Descriptions
Nr rEC LEAuE	Press the **MR** key to view the accumulated total. Pressing it again will delete the accumulation data.
Nr rEC CIEAr	Press the **MR** key to view the accumulated total. Pressing it again will delete the data from the memory. ***(Note: When the optional LP-50 printer is connected to the scale, pressing the M+ key for a second time will delete the data from the memory and the totals will be printed. The serial connection in the CAL3 menu should be configured to LP-50)***.

AUXILIARY PLATFORM CONFIGURATION (B) –CAL 2-

Press the C key to navigate between the different menu options. Use the numerical keypad to enter the data and press the  key to confirm and save.

1. Configuration of capacity - auxiliary platform (B) -

Display	Descriptions
b.LoAd **xxxxxxx** **GrAN**	Configuration of the auxiliary platform capacity in grams. If 0 value is entered, the auxiliary platform (B) will be disabled.

2. Configuration of resolution – auxiliary platform (B) -

Display	Descriptions
b.d= **xxxxx** **GrAN**	Configuration of the auxiliary platform resolution (d) in grams. Min. d is 1 gram. Max. d is 65535 grams.

3. Configuration of stability level - auxiliary platform (B) -

Display	Descriptions
b.StAbL **x** **1-10**	Configuration of the stability level of the auxiliary platform (B). X: 1~10 stability level. **(Default stability level is: 3)**

Minimum level is 1, allowing for faster stabilization time but with a slower filter.
Maximum level is 9, allowing for more filter but with slower stabilization time.

4. Zero-point calibration

Display	Descriptions
XXXXXX **0** **b.Pnt. 0**	The first row shows the AD value, the second row shows “0” and the third one shows “b.Pnt. 0”.

Make sure that the weighing pan is empty. When the AD value is stable, press this key: 

5. Configuration of the value of the calibration weight

Display	Descriptions
XXXXXX **XXXXXX** **b.Pnt.CAL**	The first row shows the AD value, the second row shoes the calibration weight (Unit: grams) and the third row shows “b.Pnt.CAL”. The default calibration weight value is 1000 g. Use the numerical keypad to enter the desired value.

1. Place the calibration weight on the weighing pan.
2. Use the numerical keypad to enter the value of the calibration weight in grams.
3. When the AD value is stable, press the  key to complete the calibration.

PRINT CONFIGURATION (CAL 3)

This section is only applicable in models with RS-232C data output.

Press the C key to navigate between the different options and press the  key to confirm.

1. Baud rate

Display	Descriptions
bAud **2400**	Set the transmission speed to 2400.
bAud **4800**	Set the transmission speed to 4800.
bAud **9600**	Set the transmission speed to 9600.
bAud **19200**	Set the transmission speed to 19200.

2. Parity

Display	Descriptions
PAritY **7-E-1**	Set parity to 7-E-1.
PAritY **7-o-1**	Set parity to 7-o-1.

PAritY 7-n-2	Set parity to 7-n-2.
PAritY 8-n-1	Set parity to 8-n-1.

3. Printout

Display	Descriptions
Print PrESS	Press the **M+** key to print out the result of a weighing. Press the **C** key within MR mode to print out the result of the accumulation of weighings and the accumulated total.
Print StAbLE.1	Press the **M+** key to print out the data of a weighing (Net wt, Pc. wt, Pc. count) when the scale is stable and the weight is > 0. Press the **MR** key to not print.
Print StAbLE.2	Press the **M+** key to print out the net weight when the scale is stable and the weight is > 0. Press the **MR** key to not print.
Print ALL.1	Press the **M+** key to print out a single weighing. Press the **C** key within MR mode to print out the result of the accumulation of weighings and total accumulation. Printing of weighing data (Net wt, Pc. wt, Pc. count) when the scale is stable and the weight is > 0.
Print ALL.2	Press the **M+** key to print out a single weighing. Press the **C** key within MR mode to print out the result of the accumulation of weighings and total accumulation.
Print oFF	Print function disabled.

Note: To use the print function, ADD (M Plus) in the CAL 1 parameter should be configured to Add Pr.

4. Peripherals

Display	Descriptions
rENOtE LP50	Connection to an LP-50 thermal printer.
rENOtE PC	Connection to a PC for data transmission.

CALIBRATION PROCEDURE (CAL 4)

Remove the JP3 jumper before proceeding to calibration.
In the Calibration menu, press the C key to navigate between the different options. Use the numerical keypad to enter the data and press the  key to confirm and save.

1. Selection of maximum capacity

Display		Descriptions
Kg	**Lb**	**Viewed max. capacity varies with the default wt unit.**
LoAd 03	**LoAd 06**	Configure maximum capacity as 3 kg/6lb.
LoAd 06	**LoAd 12**	Configure maximum capacity as 6 kg/12lb.
LoAd 15	**LoAd 30**	Configure maximum capacity as 15 kg /30lb.
LoAd 30	**LoAd 60**	Configure maximum capacity as 30 kg/60lb.
LoAd 50	**LoAd 100**	Configure maximum capacity as 50 kg/100lb.

Note: The capacity will be shown in the display in kg. or lb. according to the weighing unit configured in the CAL 1 menu.

2. Zero-point calibration

Display	Descriptions
XXXXXX 0 Pnt. 0	The first row shows the AD value, the second row shows “0” and the third one shows “Pnt. 0”.

Make sure that the weighing pan is empty. When the AD value is stable, press the  key.

3. Configuration of the value of the calibration weight.

Display	Descriptions
XXXXXX **XXXXX** **Pnt.CAL**	The first row shows the AD value, the second row shoes the calibration weight (Unit: grams or lb/1000) and the third row shows “Pnt.CAL”. The default value is 1/3 of the scale’s capacity. Use the numerical keypad to enter the desired value.

Place the calibration weight on the weighing pan. Use the numerical keypad to enter its value in grams.
When the AD value is stable, press the  key to conclude the calibration process.

LINEARITY CALIBRATION (CAL 5)

Note: This section can only be carried out by professionals.

Remove the JP3 jumper before proceeding to calibration.
In the Calibration menu, press the C key to navigate between the different options and press the  key to confirm.

1. Configure maximum capacity

Display		Descriptions
Kg	**Lb**	**Viewed max. capacity varies with the default wt unit.**
LoAd 03	**LoAd 06**	Configure maximum capacity as 3 kg/6lb.
LoAd 06	**LoAd 12**	Configure maximum capacity as 6 kg/12lb.
LoAd 15	**LoAd 30**	Configure maximum capacity as 15 kg/30lb.
LoAd 30	**LoAd 60**	Configure maximum capacity as 30 kg/60lb.
LoAd 50	**LoAd 100**	Configure maximum capacity as 50 kg/100lb.

Note: The capacity will be shown in the display in kg. or lb. according to the weighing unit configured in the CAL 1 menu.

2. Zero-point calibration

Display	Descriptions
XXXXX **0** **Pnt 0**	The first row shows the AD value, the second row shows “0” and the third one shows “Pnt 0.”.

Make sure the pan is empty. When the AD value is stable, press the →T key.

3. CALIBRATION OF 1/3 OF MAXIMUM CAPACITY

Display		Descriptions
g	**Lb/1000**	The calibration unit is viewed according to the default value.
XXXXX **2000** **Pnt 1**	**XXXXX** **1000** **Pnt 1**	The first row shows the AD value, the second row shoes the calibration weight value of 1/3 of maximum capacity (Unit: grams or lb/1000), and the third one shows “Pnt 1.”.

Place the corresponding calibration weight with the value of 1/3 of the scale’s maximum capacity. When the AD value is stable, press the →T key.

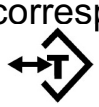
4. CALIBRATION OF 2/3 OF MAXIMUM CAPACITY

Display		Descriptions
g	**Lb/1000**	The unit viewed in the display varies according to the default unit.
XXXXX **4000** **Pnt 2**	**XXXXX** **2000** **Pnt 2**	The first row shows the AD value, the second row displays the weight of 2/3 of maximum capacity (Unit: grams or lb/1000) and the third one shows the “Pnt 2.” message.

Place the corresponding calibration weight with the value of 2/3 of the scale’s maximum capacity. When the AD value is stable, press the →T key.

5. CALIBRATION WITH MAXIMUM CAPACITY

Display		Descriptions
g	**Lb/1000**	The unit viewed in the display varies according to the default unit.
XXXXX **6000** **Pnt 3**	**XXXXX** **3000** **Pnt 3**	The first row shows the AD value, the second row shows the maximum capacity value (Unit: grams or lb/1000) and the third one shows the “Pnt 3.” message.

Place the calibration weight corresponding to maximum capacity. When the AD value is stable, press the  key.

LOAD CELL CONNECTOR (Male)

Pin setting: 1 (EXC+) 2 (EXC-) 3 (SIG+) 4 (SIG-)

RS232C CONNECTOR: DB-09 (Male)

Pin setting: 2 (TXD) 3 (RXD) 5 (GND) others (NC)

RS232C BI-DIRECTIONAL OUTPUT CONFIGURATION

Configuration

This section is only applicable in models with RS-232C data output.

PRINT FORMAT

1. Print when a key is pressed

<table>
<tr><th>Setting</th><th>Press M+</th><th>Press the C key in MR mode</th></tr>
<tr><td>Print
PrESS</td><td rowspan="3">COUNTING 1 :

Net Weight :
<Weight format>
Piece Weight:
<Weight format3>
Piece Count:
<Count format>

…
…</td><td rowspan="3">(1) To subtract the result
of a single weighing
SUBRACT COUNTING:

Net Weight: <Weight format>
Piece Weight: <Weight format3>
Piece Count: <Count format>
(2) To print the accumulation of
weighings (when the total total
is viewed on the display)
TRANSACTION TOTAL

TOTAL PIECES of 2
COUNTING(S):
<Count format></td></tr>
<tr><td>Print
ALL.1</td></tr>
<tr><td>Print
ALL.2</td></tr>
<tr><td>Print
StAbLE.1</td><td rowspan="3">Without printing.</td><td rowspan="3">Without printing.</td></tr>
<tr><td>Print
StAbLE.2</td></tr>
<tr><td>Print
oFF</td></tr>
</table>

2. Automatic printing when the weight is stable.

Setting	Printing when the weight is stable	
Print StAbLE.1	Net Weight : <Weight format2>	

Print ALL.1	Piece Weight: <Weight format3> Pieces Count : <Count format>	
Print ALL.2	<Weight format>	
Print StAbLE.2		
Print PrESS	No print out.	
Print oFF		

ENTERING COMMANDS

The scale can be controlled via the following commands:

Basic commands:

PLUxx	PLU selection.
T	Performing a Tare.
T123.456	The default tare value is 123.456.
Z	Zeroing the display reading.
M+	Storing the results in the memory and printing.
MR	Recovering the values from the memory.
MC	Deleting the data from the memory.
U123.456	Storing the unit weight of 123.456 (grams if the unit is configured in Kilograms or pounds if configured in pounds).
S123	Entering the sample of 123 pieces. Same function pressing the  key.

Immediate print commands:

Command	Output from scale
\I	ID number equal to PUID (below).
\S	Scale number equal to PSID (below).
\N	Net weight.

\G	Gross weight.
\T	Tare.
\U	Weighing unit.
\P	Piece counter.
\C	Total piece counter.
\W	Total weight.
\M	Number of items stored in the memory.
\B	Printing of one line.

STORAGE OF DATA VIA RS232
To store the data, the commands are the following:

SUIDxxxxxx <CR><LF>	Store user ID data.
SSIDxxxxxx <CR><LF>	Store scale ID data.
SPLUxx,xxxxxxxxxxxx <CR><LF>	Store text data for the PLUxx.

- When the text of a PLU is memorized, the current weighing unit and the tare value will also be stored in the PLU.
- For the SPLU command the data are: PLU number (3 characters), (Comma) description (max 18 characters).
- If the fields are less than maximum, it will not be necessary to use all the characters.

WARRANTY

This scale is covered by a warranty against all manufacturing and material defects for a 1-year period counting from the date of delivery.

During this period, GRAM PRECISION SL will take care of repairing the scale.

This warranty does not include any damage caused by misuse, overloading or not having followed the recommendations described in this manual (particularly the recommendations of the MAINTENANCE TIPS section).

The warranty does not cover shipping costs (carriage) required for repairing the scale.