Service Manual

G-TIMER with Touch Screen & Encoder

Issue 1.2 - 10/10/25
Ref. NR-00136-ENG

Before installing the unit and starting it up, carefully read all the technical and safety documentation included in this manual. Pay special attention to the information to know and understand the operation and the conditions of use of the unit. All of the information is aimed at enhancing User Safety and avoiding possible breakdowns derived from the incorrect use of the unit.

WARRANTY

HI-TECH SPRAY EQUIPMENT, S. A. (hereinafter “HI-TECH”) grants this Limited Guarantee to the original buyer (hereinafter the “Client”) for the unit and the original accessories given with the unit (hereinafter the “Product”) against any fault in the design, materials or manufacture of the Product at the time of the first purchase by the user and for a duration of two (2) years thereafter, except in the case of hoses and TSU’s, which will have a warranty period of one (1) year. Additionally, for any other product manufactured by external suppliers, the warranty period will be as specified by the manufacturer.

If during the guarantee period and under normal conditions of use, the Product should fail to work correctly due to defects of design, material or manufacture, the authorised distributor of the country where the HI-TECH Product or technical assistance service has been purchased shall repair or replace the Product in accordance with what is established in the following

CONDITIONS

a) The validity of this guarantee will be subject to the presentation of the original invoice issued by the HI-TECH authorised distributor for the sale of the Product along with the Product handed over for repair or replacement, which must show the date of purchase and the serial number. HI-TECH reserves the right to refuse to give the guarantee service when the indicated data fail to appear on the invoice or have been modified after the purchase of the Product.

b) The repaired or replaced Product will continue to maintain the original guarantee for the time remaining until the end of the guarantee or for three (3) months from the repair date, if the remaining period of the original guarantee were shorter.

c) This guarantee will not be applied to the faults in the Product caused by its faulty installation, the natural wear and tear of the components, any use other than that considered normal for this Product or which should fail to strictly comply with the instructions of use provided by HI-TECH; due to accident, carelessness, adjustments, alterations or modifications of the Product not authorised by HI-TECH or due to the use of accessories, heating devices, pumping equipment and/or dispensers that have not been approved or manufactured by HI-TECH.

d) The guarantee applicable to the components and accessories forming part of the Product and which have not been made by HI-TECH will be limited to the guarantee offered by the original manufacturer thereof.

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All of the information provided on components which have not been manufactured by HI-TECH and which is based on reports received from the original manufacturer, though considered precise and reliable, is provided without any guarantee or responsibility of any explicit or implicit kind.

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The restrictions on the guarantee suppose no limitation on the legal rights of the consumer established in applicable national legislation, nor do they affect any rights derived from the bargain and sale agreement between the consumer and supplier.

All of the information provided in this manual has been included in the confidence that it is true, although it does not constitute any responsibility or implicit or explicit guarantee. HI-TECH reserves the right at any time without forewarning to make all necessary improvements and modifications to this manual in order to rectify any possible typographical errors, increase the information contained and enter the changes made to the characteristics and performances of the device.

SAFETY AND HANDLING

The equipment described in this manual has been designed and manufactured in compliance with the following European Directives, following as application guide the harmonized standards detailed and in conformity with the relevant UK Statutory Instruments (and their amendments):

2006/42/EC Machinery Directive

2014/35/EU Low Voltage Directive

2014/30/EU EMC Directive

2011/65/EU RoHS Directive with amendment 2015/863

2012/19/EU Directive on waste electrical and electronic equipment

Standards used:

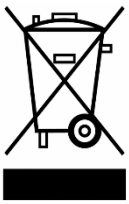
EN ISO 12100:2010

EN 60204-1:2018

EN IEC 61000-6-4:2019

EN IEC 61000-6-2:2019

EN IEC 63000:2018



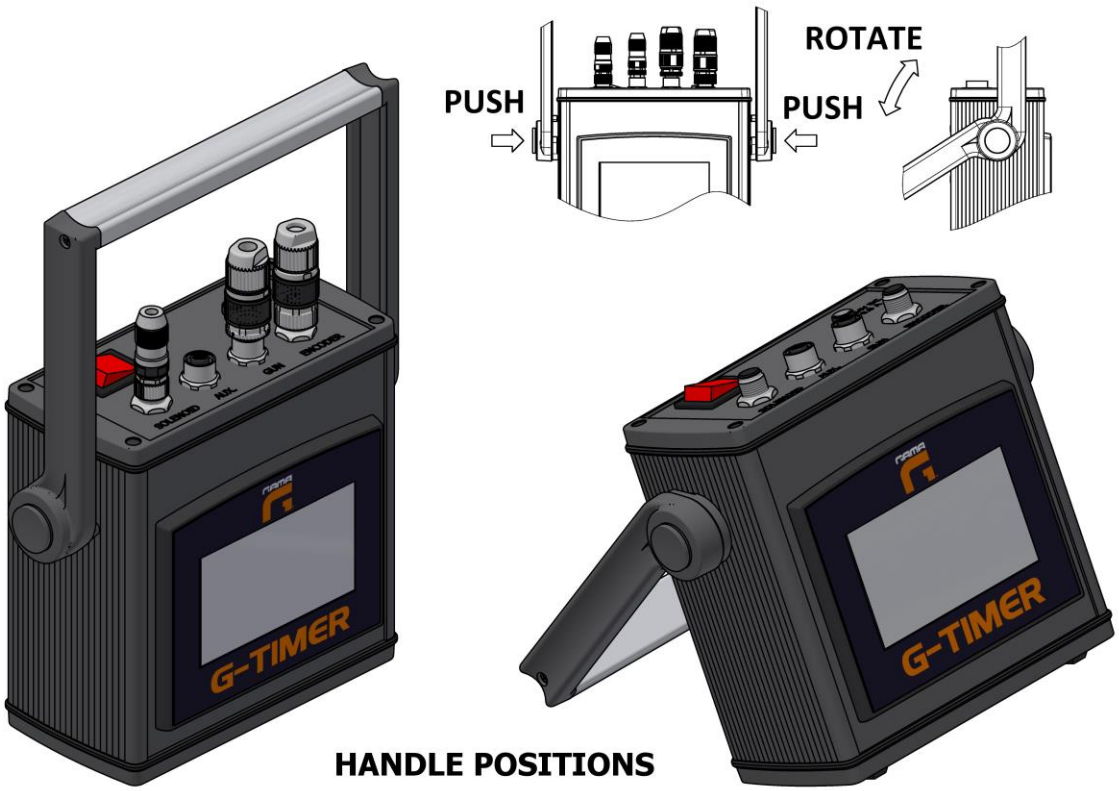
Electrical products cannot be thrown out with the rubbish. They must be taken to a dedicated collection point for an environmentally sound disposal in accordance with local regulations. You must contact your local collective or retailer for information about recycling. Before leaving WEEE at appropriate collection facilities, batteries must be removed and disposed of separately for proper recycling. The packaging materials are recyclable. Dispose of packaging materials in an environmentally sound manner and place them at the disposal of recycling sectors.

TRANSPORT AND STORAGE

Proper precautions must be taken so that the equipment can withstand the effects of transport and storage temperatures between -25°C and +55°C or up to +70°C for short periods that do not exceed 24 hours. Also, appropriate means to prevent damage from moisture, vibrations or shocks must be foreseen.

This device is equipped with a rotating handle that can be used as a support foot. To place the handle in the desired position, press the buttons on the side of the handle while turning it. The handle has an interlocking position every 30° and can rotate 360°.

When turning the handle, be careful not to interfere with any of the wires.



HANDLE POSITIONS

G-TIMER TECHNICAL SPECIFICATIONS

Electrical

Main Voltage_____ ~230 V
Frequency_____ 50/60 Hz

Mechanical

Approximate weight _____ 2 Kg
Dimensions (with handle in vertical position) _____H: 28 cm W: 21.5 cm L: 9 cm

CHARACTERISTICS

- The G-Timer processor allows spray shots to be programmed by ***"TIME"*** control (seconds) and in units equipped with encoders, shots can be programmed by ***"WEIGHT"*** control (grams). It is also possible to operate the gun without preset time or weight control by selecting the ***"TEST"*** option on the main screen. With this option you can perform test shots to determine the time and weight, which can then be programmed. To do this, go to the ***"SETTINGS"*** menu under the ***"TEST"*** option and enter the values that define the system, orientation of the pump units (horizontal or vertical), size of each dosing pump (ISO and POL) and density of each product (ISO and POL).

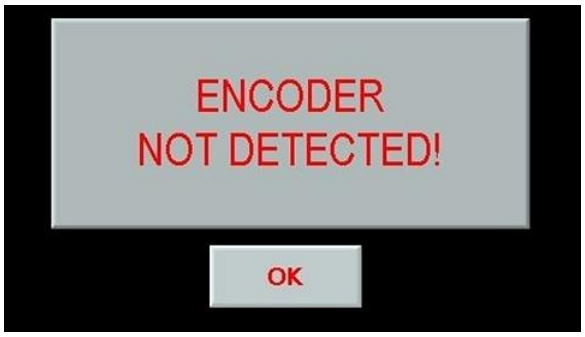
- Each control (by time and by weight) gives the possibility of working in "AUTO" mode (configuring several times or weights in different programs) and in "MANUAL" mode (configuring a single time or weight).

- It has memory to store up to 10 programs in "AUTO" mode, with 10 times or 10 weights in each one (depending on whether control is by time or by weight, respectively). "MANUAL" mode has no saved programs; it uses a single time or weight that is set and used repeatedly until you want to change.

- The device has a touchscreen to control all of the different menus designed for this purpose. At the top of the box, there is a start and stop switch, as well as the input and output connections (if applicable) and the power connection.

- The device is powered by a transformer with ~230V input and 24V DC output at 2.5A, with a male Ø5.7x2 jack.

- When the encoder is not connected or experiences an issue and cannot be detected by the device, the weight control ***"WEIGHT"*** can be configured for the sequence, but when the shot is sprayed, the warning screen will be displayed, and the encoder will lock:



Correct the problem with the encoder connection or continue your work using the ***"TIME"*** control.

Figure 1. ENCODER WARNING screen.

- The ***"TIME"*** timer starts when the operator presses the gun trigger and the inductive sensor sends the signal to the device. The gun will close automatically once the time set on the device has been reached and the operator will need to release the trigger before continuing with another cycle.

- The ***"WEIGHT"*** counter is activated when the operator presses the gun trigger and the device starts receiving pulses from the encoder. The gun will close automatically once the weight set on the device has been reached and the operator will need to release the trigger before continuing with another cycle.

- If the machine generates an alarm and stops during the spraying process, the counter will stop and display the remaining seconds or grams from the time the alarm occurs.

  Solve the problem that generated the alarm and pull the trigger again to expend the remaining seconds or grams to complete the cycle.

- To work in the ***"WEIGHT"*** modes, the parameters and densities of the products must be entered. The table below indicates the values to be entered in the ***"SETTINGS"*** screen, depending on the size and type of pump:

HORIZONTAL PUMPS (STROKE 7.62 cm)		**VERTICAL** PUMPS (STROKE 10 cm)	
PUMP SIZE	NOMINAL VOLUME	PUMP SIZE	NOMINAL VOLUME
#0.34	34 cc	#2.9	29 cc
#0.4	40 cc	#3.2	32 cc
#0.58	58 cc	#4.5	45 cc
#0.60	60 cc	#4.7	47 cc
#0.67	67 cc	#5.1	51 cc
#0.69	69 cc	#5.7	57 cc
#0.80	80 cc	#6.3	63 cc
#0.88	88 cc	#6.7	67 cc
#0.90	90 cc	#7.2	72 cc
#0.96	96 cc	#7.6	76 cc
#0.965	96.5 cc	#9.0	90 cc
#1.00	100 cc	#11.8	118 cc
#1.04	104 cc	#13.5	135 cc
#1.10	110 cc		
#1.14	114 cc		
#1.20	120 cc		
#1.47	147 cc		
#2.00	200 cc		

- The pump volumes are entered by the equivalent **NOMINAL VOLUME** in cubic centimetres.
  E.g. Pump **#0.80** → **NOMINAL VOLUME 80**

- The values of the densities of the products are entered IN g/cm3:
  E.g. Density "**A**" 1.23 g/cm3 → **Value 1.23**
  (Min. value 0.10 : Max value 9.99) (Units with 2 decimals)

- To select the pump type, press the corresponding selector (HORIZONTAL or VERTICAL) and the selected model will be highlighted in blue.

OPERTE WITH THE SCREENS

Connect wires, solenoid, gun and encoder (if applicable).

Be sure to connect each identified cable to its corresponding connector.

Turn on the power to the transformer and turn on the device using the switch on the top of the box.

The device will turn on and the home screen will be displayed, where you can access the ***"TIME"*** control, ***"WEIGHT"*** control and the ***"TEST"*** option.

TEST MODE

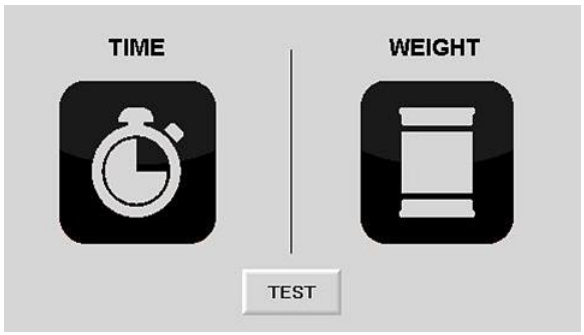


Figure 2. HOME screen.

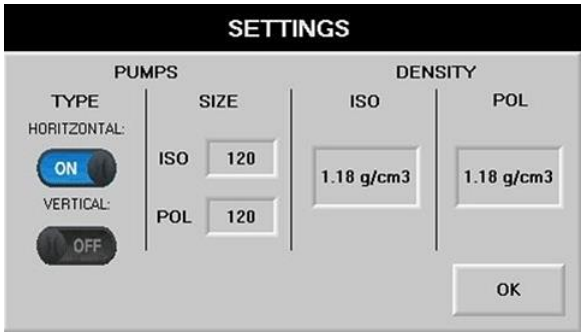
The ***"TIME"*** option is for spray shots programmed by time, while the ***"WEIGHT"*** option is for spray shots programmed by weight. For both methods, the values must be known in advance, using ***"TEST"*** mode. The spray shots required to fill a specific cavity are made and the device indicates the time used, as well as the amount of product used in the spray shot, provided that an encoder has been connected and configured. ***Note that the "TIME" value is expressed in seconds only.***

Figure 3. TEST screen.

The ***"SETTINGS"*** button is used to access the configuration screen for the weight control parameters.

The ***"RESET"*** button resets the counters to zero.

The ***"HOME"*** button returns to the Home screen.

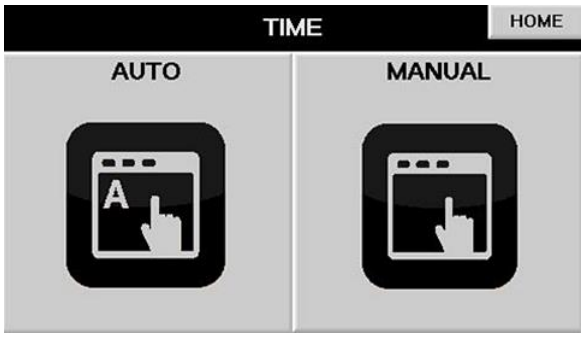


Remember that, to work with values by weight, an encoder must be connected to the device and the type and size of the product pumps installed on the machine must be configured, as well as the densities of both products.

Figure 4. SETTINGS screen.

The configuration screen of the ***"SETTINGS"*** parameters in ***"TEST"*** mode is the same as the configuration screen for ***"WEIGHT"*** control, that is, the values entered for the ***"TEST"*** will be the same as the ones used in the ***"WEIGHT"*** control and vice versa.

"TIME" CONTROL



In ***"TIME"*** control mode, you can access either "AUTO" or "MANUAL" mode.

You can also return to the Home screen by pressing the ***"HOME"*** button.

Figure 5. Time mode selection screen (TIME).

"TIME" CONTROL (MANUAL mode)

In this mode, the time estimated or calculated time in the ***"TEST"*** mode is programmed and shots are sprayed repeatedly with this value.

The screen has an activation button (), a window with numerical values in red (counter) that display the remaining time, a window with numerical values to select the time (000 s), an ***"ENTER"*** button to move the selected value to the counter window, and a ***"HOME"*** button to return to the Home screen.

Figure 6. TIME screen (MANUAL mode).

To select the time value, press the ***"TIME"*** window; a screen with keyboard will open. Press the desired value in seconds followed by enter (←). It will automatically return to the control screen with the numerical value window with a blue background. Press "ENTER" and the value will be set in the counter window.

Press the activation button. It will turn red and the device will be ready to begin the spraying. When it is started, the counter will begin to count down the seconds until the sequence is completed. If you release the trigger of the gun in mid-sequence, the spray shot will stop and the remaining time will be displayed. This time will count down when you pull the trigger again.

At the end of the sequence, the counter is reset to the memorized time 2 seconds after you release the trigger of the gun.

Notes:

Spray times cannot be set in fractions of a second or, logically, to negative values.

The minimum value is 1 s and the minimum is 999 s.

VALUES CAN ONLY BE ENTERED IN SECONDS.

The value shown in the counter is expressed only in seconds and hundredths of a second (hundredths).

When the device is restarted, the counter value is reset to zero and the last value executed in the time selection window is saved.

"TIME" CONTROL (AUTO mode)

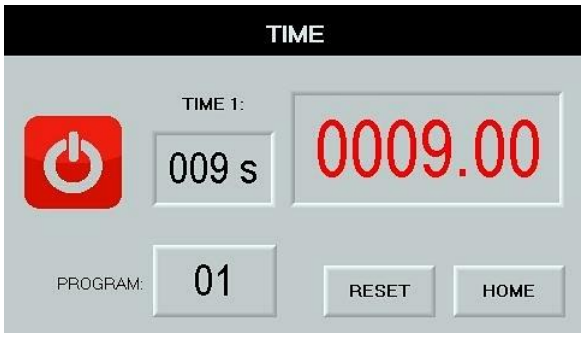


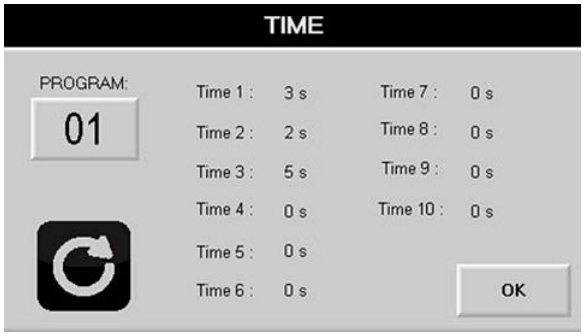
Figure 7. TIME screen (AUTO mode).

In this mode, you can program up to 10 sequences (or programs) with 10 times each (same or different).

The screen has an activation button (), a window with numerical values in red (counter) that display the remaining time, a window with numerical values to display the time in progress (000 s), a **"PROGRAM"** button select and display the program number and times, a ***"RESET"*** button to reset the program to the initial time, and a ***"HOME"*** button to return to the Home screen.

This function is ideal for injecting in carousel mode with several equal cavities or cavities with different capacities. To do this, select or program a sequence of times with equal or different durations.

To select or set a sequence, press the "PROGRAM" key and access the program time screen.



Here you can select each program (by pressing "PROGRAM"), or each time (by pressing the respective value of each one).

After making the desired changes, press the update key to save the values to memory. Press **"OK"** to return to the **TIME screen in "AUTO" mode**.

Figure 8. TIME screen (PROGRAM).

Notes:

To set a program with fewer than 10 times, configure the desired times and assign the value "0" to the time that immediately follows. The device will understand that when the value set to zero "0" is reached, it will end the sequence.

If you do not press the update key before "OK" after setting the times, only the times that were properly saved will be displayed when changing programs.

Press the activation button. It will turn red and the device will be ready to begin the sequence.

Pull the trigger on the gun and the will begin to count down from the initial time.

When it reaches zero "0", release the trigger and the counter will reset to the value of the second time in the sequence after 2 seconds.

Reactivate the gun trigger to count down the second time of the sequence. This will repeat until the end of the cycle, when the end program screen will appear.

Press "OK" to restart the cycle.

Figure 9. End Program screen.

Notes:

If you release the gun trigger before the end of any of the times, the cycle will stop and the remaining seconds of the interrupted time will be displayed and will count down again when you pull the trigger.

*If for any reason you press the **"RESET"** button, the device will restart at the first time of the selected program.*

Restarting the device has the same effect as pressing the "RESET" key.

"WEIGHT" Control

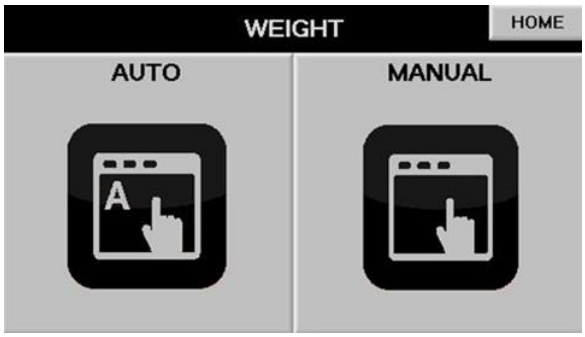


Figure 10. ***Weight mode selection screen (TIME).***

In ***"WEIGHT"*** control mode, you can access the "AUTO" mode or the "MANUAL" mode.

You can also return to the Home screen by pressing the ***"HOME"*** button.

"WEIGHT" CONTROL (MANUAL mode)

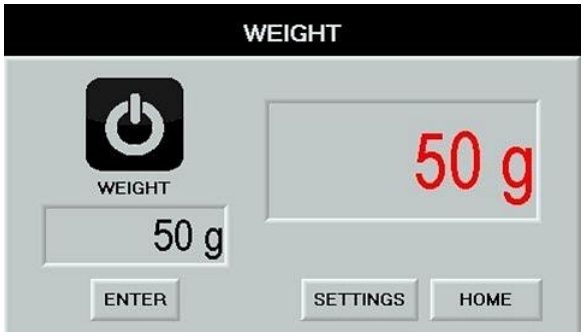


Figure 11. ***"WEIGHT" screen (MANUAL mode).***

In this mode, the weight estimated or calculated in the ***"TEST"*** mode is programmed and shots are sprayed repeatedly with this value.

The screen has an activation button (), a window with numerical values in red (counter) that display the remaining weight, a window with numerical values to select the weight (000 g), an "ENTER" button to send the selected value to the counter window, a ***"SETTINGS"*** button to enter the parameters for the machine and product, in addition to a ***"HOME"*** button to return to the home screen.

Remember that the parameters entered in ***"TEST"*** mode are the same as the parameters displayed on the weight control screens.

To select the weight value, press the ***"WEIGHT"*** window; a screen with keyboard will open. Press the desired value in grams followed by enter (←). It will automatically return to the control screen with the numerical value window with a blue background. Press "ENTER" and the value will be set in the counter window.

Press the activation button. It will turn red and the device will be ready to begin the spraying. When it is started, the counter will begin to count down the grams until the sequence is completed. If you release the trigger of the gun in mid-sequence, the shot will stop and the remaining grams will be displayed and will be consumed when you pull the trigger again.

At the end of the sequence, the counter is reset to the memorized time 2 seconds after you release the trigger of the gun.

Notes:

*You **CANNOT** set weights in fractions of a gram, or, logically, to negative values.*

VALUES CAN ONLY BE ENTERED IN GRAMS.

The value displayed on the counter is expressed in grams.

***When the device is restarted, the counter value is reset to zero** and the last value executed in the weight selection window is saved.*

"WEIGHT" CONTROL (AUTO mode)

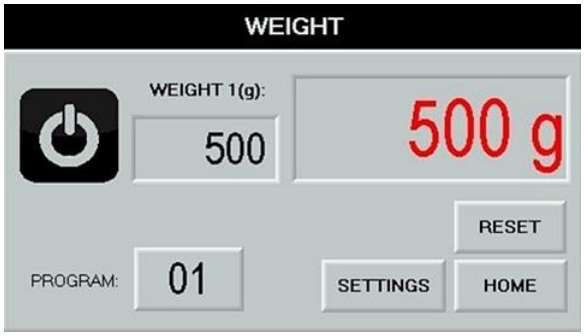


Figure 12. "WEIGHT" screen (AUTO mode).

In this mode, you can program up to 10 sequences (or programs) with 10 weights each (same or different).

The screen has an activation button (), a window with numerical values in red (counter) that display the remaining weight, a window with numerical values to display the weight in progress (000 s), a **"PROGRAM"** button select and display the program number and weights, a ***"RESET"*** button to reset the program to the initial time, and a ***"HOME"*** button to return to the Home screen.

This function is ideal for injecting in carousel mode with several equal cavities or cavities with different capacities. To do this, select or program a sequence of weights with equal or different durations.

To select or configure a sequence, press the "PROGRAM" button and access the programmed weight screen.

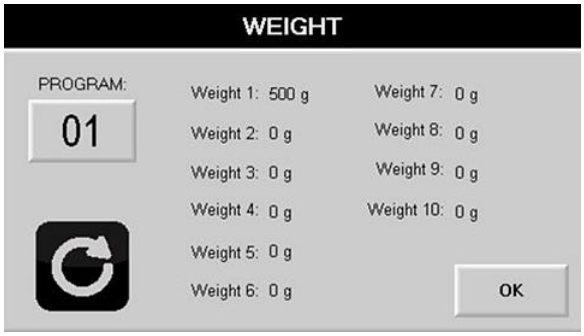


Figure 13. "WEIGHT" screen (PROGRAM).

Here you can select each program (by pressing "PROGRAM"), or each weight (by pressing the respective value of each one).

After making the desired changes, press the update key to save the values to memory. Press **"OK"** to return to the **WEIGHT "AUTO" mode** screen.

Notes:

To set a program with fewer than 10 weights, configure the desired weights and assign the value "0" to the weight that immediately follows. The device will understand that when the value set to zero "0" is reached, it will end the sequence.

If you do not press the update key before "OK" after setting the times, only the times that were properly saved will be displayed when changing programs.

Press the activation button. It will turn red and the device will be ready to begin the sequence.

Figure 14. End program screen.

Pull the trigger on the gun and the counter will begin to count down grams from the first weight.

When it reaches zero "0", release the trigger and the counter will reset to the value of the second weight in the sequence after 2 seconds.

Press the trigger again to use up the second weight in the sequence. This will repeat until the end of the cycle, when the end program screen will appear.

Press "OK" to restart the cycle.

Notes:

If you release the gun trigger before the end of any of the weights, the cycle will stop and the remaining grams of the interrupted weight will be displayed and will count down again when you pull the trigger.

*If for any reason you press the **"RESET"** button, the device will restart at the first weight of the selected program.*

Restarting the device has the same effect as pressing the "RESET" key.

CONTENT

Warranty 2
Safety and Handling 3
G-Timer Technical Specifications 5
Electrical 5
Mechanical 5
Characteristics 6
Operte with the Screens 9
TEST MODE 9
"TIME" CONTROL 10
"TIME" CONTROL (MANUAL mode) 10
"TIME" CONTROL (AUTO mode) 11
"WEIGHT" Control 13
"WEIGHT" CONTROL (MANUAL mode) 13
"WEIGHT" CONTROL (AUTO mode) 14
Content 16
List of Ilustrations 17

LIST OF ILUSTRATIONS

Figure 1. ENCODER WARNING screen. 6
Figure 2. HOME screen. 9
Figure 3. TEST screen. 9
Figure 4. SETTINGS screen. 10
Figure 5. Time mode selection screen (TIME). 10
Figure 6. TIME screen (MANUAL mode). 10
Figure 7. TIME screen (AUTO mode). 11
Figure 8. TIME screen (PROGRAM). 12
Figure 9. End Program screen. 12
Figure 10. Weight mode selection screen (TIME). 13
Figure 11. “WEIGHT” screen (MANUAL mode). 13
Figure 12. “WEIGHT” screen (AUTO mode). 14
Figure 13. “WEIGHT” screen (PROGRAM). 15
Figure 14. End program screen. 15