INSTALLATION MANUAL

CLEANING PROGRAMMER

Efficient solutions
for **irrigation systems**

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1.

Specifications

The CF10 cleaning programmer is a filter cleaning controller with up to 10 outputs. The unit is equipped with a microcontroller, analogue differential pressure sensor and graphic panel for setting the desired parameters.

The programmer can handle all types of solenoids such as latch, 12V DC or 24V AC. To do so, simply select it with the LATCH/AC-DC switch (A L) without the need to modify the programmer or add additional modules.

When using latch solenoids, the programmer can be powered by 4 x C-type alkaline batteries. The power consumption is very low and can operate for over one year or 10,000 activations. To drive 12V DC or 24V AC solenoids, a 9V transformer and at least 1.5A is required. It is advisable not to use solenoids with a power greater than 8W.

The dimensions of the unit are 160 x 125 x 80 mm. The electronic system has a watertight enclosure with IP65/DIN EN 60529 protection, made of ABS.

Wash cycles can be triggered either by time or by differential pressure (DP) when the set threshold is reached:

- By "time": acting every period of water circulation through the filters measured by means of the internal clock.
- By "pressure drop": acting whenever the controller receives the signal coming from a differential pressure switch that controls the pressure drop between the inlet and output of the filters, as a consequence of the dirt accumulated in the filters.
- By combining the "pressure drop" with the "elapsed time", a minimum periodic cleaning is guaranteed, if it has not been required previously due to unforeseen accumulation of dirt.
- Endless wash problems are detected when the programmed number of consecutive wash cycles (ten by default) is exceeded; if this value is exceeded, the controller suspends the washes and issues an alarm signal.
- Washing can be initiated manually or by means of an external pressure switch.
- The cleanings can be inactivated externally (e.g. by the action of an external programmer and/or a switch).

The controller has a 2.6-inch graphic display and 4 buttons for modifying the various parameters.

2.

Inputs and outputs

The equipment has the following inputs:

- It has two analogue inputs (A1 and A2) where the pressure sensors are connected. The differential pressure sensors have two connections to detect the pressure drop across the filters (required for "pressure drop" starts): one to measure the pressure upstream (BLUE colour) and one downstream of the filters (RED colour).
- Two digital inputs are available: one for the activation of the cleaning (M) and one for the cancellation of the cleaning (S). Optionally, an external pressure switch with dry contact output can be connected to the M input.
- Up to 10 solenoid outputs. If preferred, a sustaining valve and/or an alarm output can be connected.

3.

Models and options

The basic version handles the washing of 2 filters or 1 filter and a sustaining valve. The outputs can be extended with extensions of two outputs each, and the cleaning of up to a maximum of 10 filters and a pressure sustaining valve regulated. The washing time and the time between washes of the filter set are adjusted from the controller. The filters are washed sequentially.

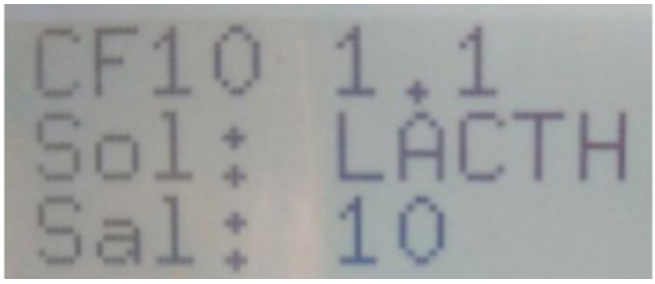
4.

Programming

First-time start-up

Once the power supply is connected, or if the RESET button on the board is pressed, a screen with the equipment specifications appears for a few seconds. Specifically, the following appear:

the software version (e.g. CF10 1.1), the type of solenoids (e.g. Sol: LATCH, for latch solenoids) and the number of outputs (e.g. Out: 10, in this case it has 10 outputs).



If you wish to add modules or change the type of solenoids with which the unit will function, proceed as follows:

- Disconnect the power supply.
- The type of solenoid is set by setting the selector switch to A (24V AC or 12V DC solenoids) or L (latch solenoids).
- If you wish to add module(s).
- Switch on the power supply.
- Press the RESET button and check on the home screen that the solenoid type (LATCH or AC) and the number of modules are correct.

Programming

- All parameter values and timings of the controller are very easy for the user to program via the drop-down menus that appear on the screen using the buttons. If the ✓ button is held down, the wash starts manually. Any wash can be cancelled by pressing and holding the **X** button for a few seconds.

4.

Programming

Display and modification of parameters

Main screen:

- A. The current differential pressure
- B. The number of total washes
- C. Status messages
- D. Battery level
- E. The differential pressure threshold
- F. The time interval and the time remaining for the next wash.
- From the main screen, the manual wash can be activated by pressing and holding the ✓button.

Menu:

- Press any button to turn on the display.
- To access the menu, press **+** or **-** .
- To browse through the menus, press **+** or **-** .
- To exit from the different menu levels, press **X**.

The menu has five levels, which are described in the table on the next page:

1. Cleaning
2. Outputs
3. Inputs
4. Delays
5. Other

To access the submenus and alter amounts, press the ✓button. To exit, press the **X** key.

4.

Menu/Submenu	**Description**	**Values**	**Observations**
1. Cleaning			
1.1. Duration	Washing time of each filter	00m 00m - 60m 00s	
1.2. Diff. Press.	Threshold differential pressure above which flushing is activated	0-5 bar (or up to 72 psi)	If "0", no differential pressure washings will be performed
1.3. Time	Time interval between the execution of washes	00h 00m - 99m 60s	If "0", no washing will be performed for each time interval
1.4. Endless	Number of consecutive washes required to trigger the endless wash alarm	0–50	
1.5 Accumulated	Record of number of washes: a. By differential pressure: b. By time c. Manuals d. Totals		Only records will be displayed
2. Outputs			
2.1. Fil. No.	Selection of the number of filters to control	1–10	It depends on the number of modules installed and if there is a sustaining valve or alarm output.
2.2. Sus. Val.	Sustaining valve fitted.	YES/ NO	If "YES" is selected, the output to which the sustaining valve is to be connected is shown on the display.
2.3. Alarm O/P.	Section of an alarm output	YES/ NO	If "YES" is selected (alarm activated), the output to be connected to is indicated on the display.
2.4. Check	Check all outputs consistently		It is recommended that the installer performs this action.

4.

Menu/Submenu	**Description**	**Values**	**Observations**
3. Inputs			
3.1. Sensor	Differential pressure sensor selection	DP10 DP16 DPH+ ABSO	Differential sensor PN10 Differential sensor PN16 Two absolute sensors for pressure calculation Absolute Sensor
3.2. Calibration	Sensor calibration		Tare of the sensor with the two ducts disconnected from the air.
3.3. Check	Checking of sensor inputs: A1, A2, IN1 and IN2	0–4095 0–4095 0–1 0–1	
4. Delays			
4.1 Between Fil.	Adjustment of delays between filters	00m 00s - 60m 00s	
4.2. Post-wash.	Post-wash delay setting	00m 00s - 60m 00s	Time after a wash during which a new cleaning will not be triggered
4.3. Sust. Del.	Adjustment of the delay between the closing of the sustaining valve and the cleaning of the first filter	00m 00s - 60m 00s	
4.4. Pres. Unit	Adjustment of the pressure unit	Bar/ PSI.	
4.5. Reset. Val.	Restoring of factory settings		
5. Other			
5.1. Contrast	Screen contrast	100 - 200	
5.2. LCD Led	Display backlighting	YES/ NO	
5.3 Sound	Activate or deactivate sound	YES/ NO	

5.

Error messages

STOP: If the stop input "S" is activated.

SFIN: If the limit of consecutive washes (endless washes) has been reached.

BATT: If the battery voltage is low and the batteries need to be replaced.

DP1E: If the differential pressure switch is not working properly (connected to "A1").

DP2E: If the pressure switch connected to "A2" does not work properly

_OK_: all correct, no alarm is activated.

6.

Operation

Once the cleaning command is detected, the controller will activate in sequence (one after the other) the various filters connected. There is a time, which affects all filters equally, which is the pause between filters and the washing time. This timing is important to recover pressures in the network and to avoid overlaps in the hydraulic valves.

Manually, a cleaning sequence can be initiated by pressing and holding the ✓ button. To manually interrupt the washing sequence, press and hold the **X** button.

Optionally, it is possible to manage the suspension of the current wash or the start of another wash by means of an external connection to the S input (e.g. suspend the wash while fertigation is in progress).

7.

Alarm sounds

1 Beep: Normal

2 Beeps: Endless washing.

3 Beeps: Low battery.

4 Beeps: Differential pressure (DP) sensor not connected or faulty.

8.

Connection of additional outputs

This controller can handle all types of solenoids (latch, 12V DC and 24V AC). To do this, you don't have to modify anything or add any additional modules. Just set the LATCH/AC-DC switch to the appropriate position. In the "LATCH" position, the device is prepared to control "LATCH" solenoids, in the "AC-DC" position for 12V DC and 24V AC solenoids.

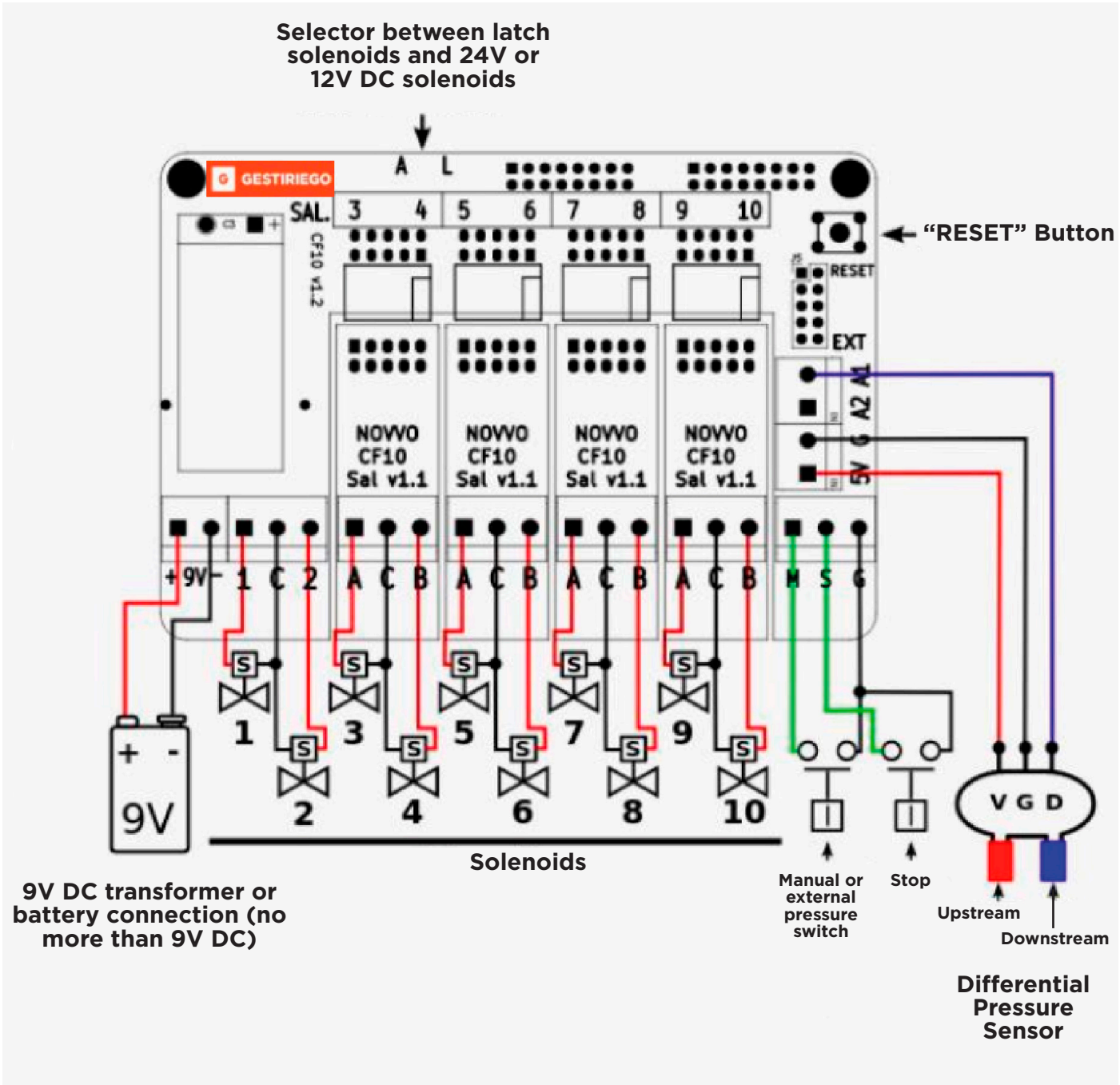
In the case of 12V DC and 24V AC solenoids, the batteries must be replaced by a 9V DC and 1.5A transformer to supply the necessary power for such solenoids.

This programmer has 2 outputs by default. If you wish to increase the number of outputs, you only need to add additional modules. Each module consists of two outputs. The modules must be incorporated consecutively starting from output 2. The controller recognizes the modules automatically after pressing the "RESET" button.

To add additional modules, it is recommended to disconnect the batteries or the transformer. Once the module is connected, press "RESET". At startup, the programmer version, the selection of "LATCH" or "AC-DC", and the number of recognized outputs will be displayed.

9.

Wiring diagram



10.

Proper use and warranty

To make proper use of the irrigation controller, some key factors need to be taken into account:

1. Location: Place the controller in a protected location, such as a junction box or switch house. Protect the controller from inclement weather, such as rain, sun and humidity.

2. Watertightness: Make sure all electrical connections are properly sealed in order to prevent water or moisture from entering.

3. Insulation: If the controller is exposed to extreme temperatures, consider adding thermal insulation to protect the internal components.

4. Connection: Be sure to connect the controller to a power supply with adequate power. For 24V AC and 12V DC to 230V and with LATCH to battery (batteries) 9 -12V.

5. Protection of the installation: Fit a surge suppressor in your installation to prevent damage to the controller due to electrical fluctuations or lightning strikes. This device will help protect the system in case of voltage spikes.

6. Fuses or circuit breakers: Install fuses or circuit breakers in the electrical circuit feeding the controller. These components act as safety switches and can automatically disconnect the power in case of electrical problems.

7. Battery powered. If the programmer is going to be powered by a 12V battery, a DC/DC source must be incorporated so that when the battery is being charged, overcurrent can be prevented from entering the programmer and possible faults on the board therefore avoided.

The correct use of the programmer is subject to the recommendations specified by the manufacturer. **Any practice that does not conform to these specifications, in the event of an anomaly**, shall be considered improper use of the equipment and shall be exempt from any warranty coverage.

Terms Of Sale

ACCEPTANCE

1. Acceptance of the purchase order by the buyer constitutes express acceptance of these Terms and Conditions. Any acceptance of the Seller's offer is expressly limited to acceptance of these Terms and Conditions, and the Seller expressly rejects any additional or different terms proposed by the Buyer.
2. No site entry form shall modify these Terms and Conditions even if signed by the Seller's representative. Unless otherwise stated in the offer, the Seller's offer shall expire 15 days from the date of the offer and may be modified or cancelled by the Seller prior to receipt of the Buyer's acceptance.
3. It is advisable to indicate the code of the items requested in the orders.
4. Any credit for returned material will be deducted from future purchases.
5. The delivery times provided to the buyer are for guidance purposes only, and any failure to meet these delivery times due to force majeure or for reasons not directly attributable to CARSYSTEM - GESTIRIEGO shall not give rise to any obligation or liability.
6. We reserve the right to modify, in whole or in part, the characteristics of our products and the content of this document, without prior notice.
7. Special orders, once signed, cannot be cancelled.

PRICES

8. Prices are subject to V.A.T. and/or taxes in force at the time of delivery.
9. Prices are net retail prices and are subject to change without notice.

DELIVERY AND SHIPPING

10. Cancellation by the buyer of orders for materials already manufactured or in the course of manufacture shall not be permitted.
11. The goods travel at the risk and expense of the buyer, even if they are freight prepaid by the seller.
12. The contracting parties, expressly waiving their own jurisdiction, expressly submit themselves to the Courts and Tribunals of Murcia for any incidents arising from this document, including claims for any type of document.
13. Our Customer Service department will keep you informed if there are any changes to your order during its preparation and dispatch.
14. Our delivery service covers mainland Spain and the Canary Islands.
15. The cost of shipping is calculated according to the Peninsular area where the delivery will be made and the kilos/volume of each of the orders. The context of the operation/order will be taken into account when shipping the material, and the operation/order of the contracting party may alter the cost of transport. There will be a 5% increase in the total cost of the order when full boxes are not ordered.

CARSYSTEM IRRIGATION

16. Own transport in the areas: Valencia Community, Murcia, Castilla-La Mancha (Ciudad Real and Albacete) and Andalusia (Granada and Almeria). Freight prepaid on full loads.
17. Through transport agencies: Pipe pallets freight collect. Full loads freight prepaid.

GESTIRIEGO

- Accessory pallets: From €1300 freight prepaid.
- Accessory packages: From €350 freight prepaid.

RETURNS

18. The object of the purchase will remain in the buyer's deposit and he/she will not acquire ownership of it until he/she has paid the total price stipulated, the seller reserving, as a guarantee, the ownership of the item sold, so that the buyer may not dispose of it until he/she has paid for it, whereby non-compliance with the obligation to dispose of it constitutes the crime of misappropriation, typified in Art.253 of the Penal Code.
19. Orders must be submitted and confirmed by any written means that provides evidence of receipt. The company is not responsible for any errors and/or confusion associated with shipments whose orders have not been confirmed in writing.
20. No return will be accepted that has not been previously authorised in writing by the selling company and that is not accompanied by the justifying document (collection delivery note). In order to obtain this document, you must inform our offices in detail of the reason for the return and then, if necessary, a technical study will be carried out to determine conformity.
21. We reserve the right to accept or reject returns of material 30 days after delivery, and we may apply a 30% depreciation on accepted returns for handling and packaging, in any case crediting the buyer for any the freight costs.

GUARANTEE

1. The Seller represents and warrants that the Goods meet the mutually agreed specifications and will be delivered free from defects in materials and workmanship.
2. The guarantee for all manufactured products shall be 2 years, and 6 months for wearing parts or consumable spare parts. Once these deadlines have elapsed, no claims or refunds of any kind will be accepted for this reason.
3. In the event that the Goods supplied by CARSYSTEM - GESTIRIEGO shows any defect attributable to the manufacturing process, the customer must inform the company in writing and reliably within a maximum period of 15 days from receipt of the Goods. In the event of such a claim, CARSYSTEM - GESTIRIEGO technical personnel will verify whether the defect in the Goods originates from the manufacturing process or from any subsequent manipulation. In the first case, the responsibility of CARSYSTEM - GESTIRIEGO shall be limited solely and exclusively to the replacement or repair of the defective product, excluding any other type of responsibility in this regard. No returns or claims for material will be accepted after the aforementioned fifteen days from receipt. The return will be accepted as long as the goods have not undergone any variation, and this will imply a 10% depreciation of the value. Once this period has expired, the goods referred to in this document shall be understood to have been examined by the buyer, to his/her full satisfaction, whereby he/she shall have no right of recourse against CARSYSTEM - GESTIRIEGO for any alleged defect in quantity or quality. Any return of material must be accepted in writing in advance by CARSYSTEM - GESTIRIEGO. The customer must provide the reasons for the return in writing.
4. If the buyer fails to pay one or more of the stipulated instalments on the due date, the seller may choose to enforce or terminate the obligation, with compensation for damages and interest in both cases, as well as bank charges and legal costs, arising from the return, dispute or claim for unpaid items. The sums paid by the buyer up to the time of non-payment shall remain with the seller as part of the damages. It is also agreed that the recovery of the material due to non-payment may be carried out by the seller without the need for judicial action or prior notice, since the buyer's refusal to deliver it shall represent the appropriation of the other party's material.
5. If the Goods do not conform to the foregoing warranties, Seller will, at its discretion, repair or replace the defective Goods, provided that Buyer gives the Seller written notice of such non-conformity prior to the expiration of the warranty period and within thirty (30) days after discovery of the defect. Repair, replacement or new provision under warranty by the Seller shall not extend or renew the relevant warranty period.
6. The Buyer shall obtain the Seller's approval of the specifications of any tests it intends to carry out to determine whether a non-conformity exists. The Seller will be able to check, in any case and beforehand, the defects caused by the means it considers appropriate, without the Buyer being able to hinder the action of the persons appointed by the Seller to verify such non-conformity.
7. The Warranty shall not cover defects and/or malfunctions in the Goods caused by:

- Storage, installation, commissioning, use or maintenance carried out by the buyer or third parties.
- Defects and/or malfunctions in the Goods caused by the inflow of water that does not comply with the physical/chemical and/or biological parameters agreed in the tender submission.
- Defects and/or malfunctions in the Goods caused by the use of consumables other than those authorised by the seller.
- Those defects and/or malfunctions in the Goods caused by conditions of the working pressure, quality of the water source, electrical supply voltage and/or conditions of exposure to aggressive environments (saline, acidic, alkaline and others), any repairs, modifications or alterations made to the Goods by the buyer, end customer, or by personnel other than the seller, without the prior written consent of the seller.
- Any repairs, alterations or modifications made to the Goods without following the instructions given by the Seller.
- Any loss and/or damage to property or persons in connection with the installation, commissioning, use and/or maintenance of the Goods by the buyer or third parties.
- Any losses and/or damages caused by inadequate operating conditions, outside the intervals or parameters indicated by the Seller, damages and defects attributable to negligence, improper use or faulty handling by the Buyer or the end customer.

For the entire range of irrigation products, in addition to any and all of the above exclusions, the warranty shall not cover: any defects and/or malfunctions in the Goods caused by amphibians, insects, ants, rodents and/or animals.

- Any defects and/or malfunctions in the Goods caused by dripper blockages not attributable to a manufacturing defect.
- Any defects and/or malfunctions in the Goods caused by settling, precipitation, agglutination of bacteria or algae, as well as suspended silt or clay, and chemical precipitation.
- Any defects and/or malfunctions in the Goods caused by the non-installation of a pre-filter or by other hydraulic or electrical events.

1. The warranty shall not cover access costs necessary to carry out the seller's rectification work under warranty (including the removal or replacement of parts and materials, structures or other parts from the buyer's premises), assembly/disassembly, decontamination, and installation/reinstallation, the costs of which shall be borne by the buyer.
2. This warranty does not extend to products and materials and components or accessories which are not manufactured by or purchased directly from the seller. This is not a guarantee for consumers or end users and does not extend to professional customers who buy directly from the seller.
3. Under no circumstances shall the Seller be liable for any type of claim, lawsuit, complaint and/or administrative sanction that it may receive as a consequence of: a) the marketing of the Goods by the Buyer or third parties; or b) possible infringements of the industrial and intellectual property rights of third parties; and/or c) infringement of the rights of consumers and users. In the event of the aforementioned claims, the Buyer will hold the Seller harmless, and will pay and/or allow the debiting to its account of the amounts that may be demanded from the Seller as compensation, fines in disciplinary proceedings, or any other claim and other expenses that may be incurred, including those of lawyers, solicitors and experts necessary for its defence.

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