SISTEMES ELECTRÒNICS PROGRÉS

AGRÒNIC 52

INSTRUCTION MANUAL

24 V ac

INDEX

Sec.	Theme	Page
1.	INTRODUCTION	1
2.	SCREEN DATA	2
3.	CHARACTERISTICS OF THE UNIT	2
4.	DIMENSIONS	3
5.	INPUTS AND OUTLETS	3
5.1.	Inputs	3
5.2.	Outlets	4
6.	OPERATING THEORY	4
7.	CONFIGURATION OF THE INSTALLER	5
8.	**CONSULTATION**	**6**
9.	**PROGRAMMING**	**6**
10.	**CONFIGURATION OF THE USER**	**6**
11.	**CALIBRATION**	**7**
12.	**BREAKDOWNS**	**7**
13.	**SYNOPTIC OF FUNCTIONS**	**8**

PRESENTATION

We wish to take this opportunity to thank you for the confidence in us which you have demonstrated in expressing interest or acquiring Agrónic 52.

This confidence, for our part, stimulates our efforts to meet and surpass the expectations of our clients to justify the traditional quality of our products.

This Manual will allow you to see the capacity of the unit as well as its installation and use.

However, if after reading this you still have any doubts, contact us and we will happily answer them.

SISTEMES ELECTRÒNICS PROGRÉS

1. INTRODUCTION

Agrónic 52 is a unit which continuously mixes two waters in order to obtain a programmed conductivity, by using one or two motorised valves.

There are 3 formulas or programmes which are started by external orders received by the corresponding inputs.

The programming can be done either by the expected level of conductivity or by the opening percentage expected for every motorised valve.

Up to 2 motorised valves can be connected. Every motorised valve has an outlet to open and another one to close.

There is also an outlet for alarm.

Feeding of the unit at 24 Vac. Optionally, at 12 Vdc.

There are 3 inputs for the start of the programmes and 1 input to detect breakdowns.

There is also 1 input for the conductivity sensor, with a transmitter which is integrated in the unit circuitry.

The calibration of sensors is done with the keyboard.

It is easy to use and programme by means of three keys and a LC screen with 14 millimetre-high digits.

There is a CE alarm, being possible to configure the high value, the low one and the delay in the detection of an irregularity.

Configurable delay for the detection of start inputs and breakdowns.

It is possible to stop or not the programme which is being working when there is an alarm.

The motorised valves can also be activated manually.

Configuration of the motorised valve which will control the water with more conductivity, as well as configuration of the one which will control the water we want to save.

It is possible to programme a minimum opening of the motorised valves.

The unit is located in a poly-carbonate closed box.

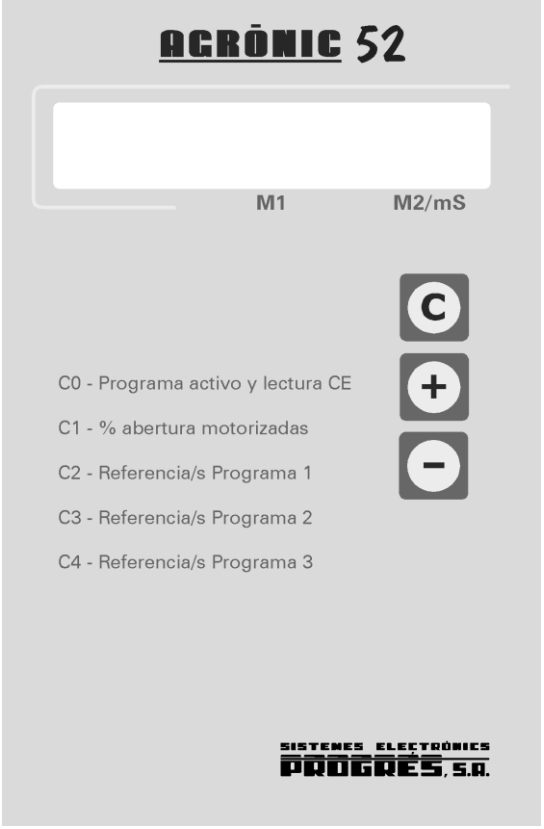
Agrónic 52 follows the CE guidelines.

2. SCREEN DATA

Information is displayed on the screen in the following way: the first two digits indicate the code in which we are. The following block of digits gives information about the motorised valve M1, while the last block of digits makes reference to the motorised valve M2 or to the electric conductivity.

Use the "C" key to go from one code to the next one. If you keep pressing this key, the code will change rapidly.

Use the "+" and "-" keys to modify the values which are displayed on the screen. These keys will increase or decrease the active value which is displayed in that moment. If you keep pressing the key, it increases or decreases rapidly.



3. CHARACTERISTICS OF THE UNIT

Feeding		
	Power source	24 V. ac
	Energy consumption	Average consume: 8,5 VA
	Input fuse	2,5 A, type F, 250 V (fast)

Outlet		
	Number	5
	Type	Relay, Triac. optolinked

Inputs		
	Number	4
	Type	Optolinked

Environment	
Temperature	0º C a 45º C
Humidity	< 85 %
Height	2000 m.
Pollution	Grade II

Weight *(approximate)*	
	1 Kg.

Memory backup	
Parameters, programmes	It can not be erased

DECLARATION OF CONFORMITY

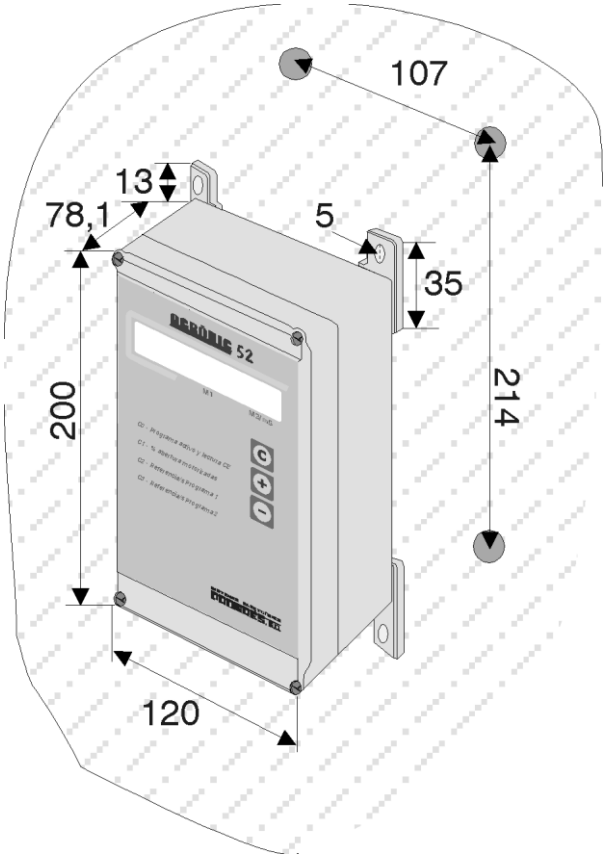
It follows the 89/336/CEE Guidelines for the Electromagnetic compatibility and the 73/23/CEE Guidelines of Low Tension for the Fulfilment of the Product Security. The fulfilment of the following specifications was demonstrated as indicated in the Official Diary of the European Communities.

CE

Symbols which can be displayed on the product	Double insulation

4. DIMENSIONS

All measures in mm.

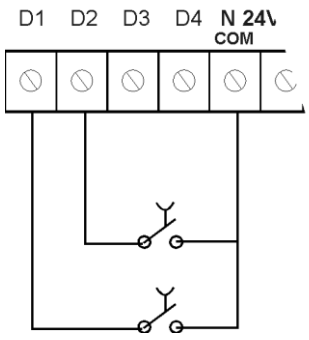


5. INPUTS AND OUTLETS

5.1. INPUTS.

The unit has four digital inputs (D1,D2,D3,D4). Three of them work as switches (D1,D2 and D3), starting or stopping the corresponding programme, while the fourth one is a breakdown input (D4).

The activation of inputs is done through their connection to the common.



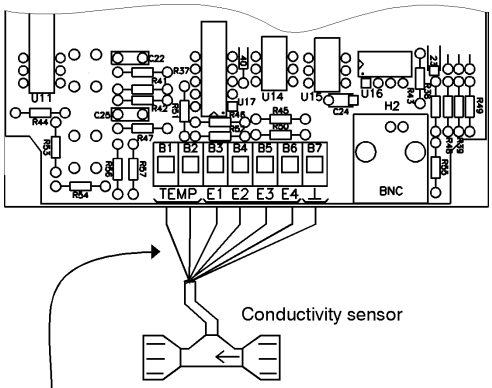
A time for the detection delay can be configured for every input, but deactivation is immediate.

The conductivity reference or the opening percentage of the available motorised valves can be configured for every input or programmes 1, 2 and 3. It is not possible to activate more than one input at the same time.

Input 4, breakdown, is only taken into account if a programme is working. If it activates, it always stops the programme, without taking into account the established configuration.

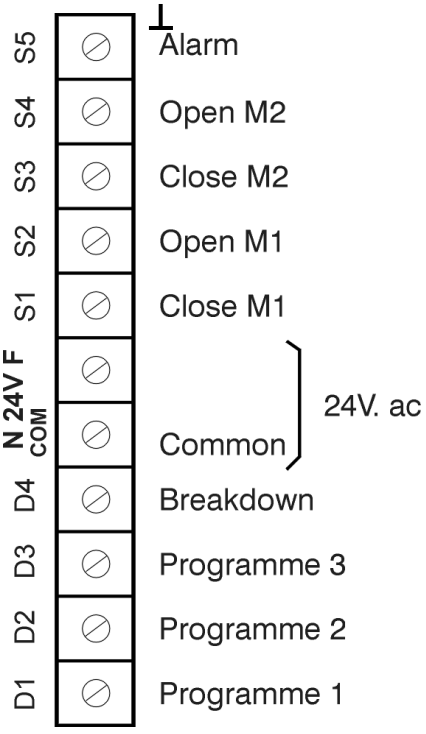
The unit also has an input for conductivity sensor.

SECTION OF THE UNIT SUPERIOR BOARD



	HI7635 IN-LINE SENSOR		HI-3001 DIRECT SENSOR TO PIPE	
	GRID	GRID	GRID	GRID
E4	Green	Green	Blue	Blue
E3	White	White	Red	Red
E2	Blue	Blue	White	Pink
E1	Brown	Gray	Green	Green
Tem	Red	Red	Brown	Brown
	Black	Black	Black	Black

VERY IMPORTANT: The grid must be connected to the box terminal ⊥ of the unit.

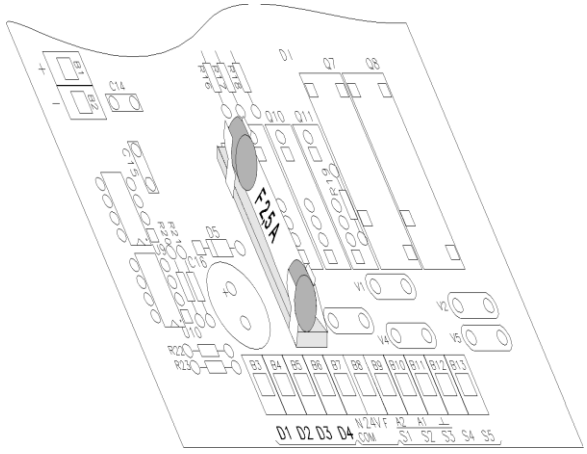


5.2. OUTLETS.

The unit has 5 digital outlets.

Outlets are protected by a 2.5 A fuse F Type (fast). Replace it with a similar one if it fuses.

SECTION OF THE UNIT INFERIOR BOARD

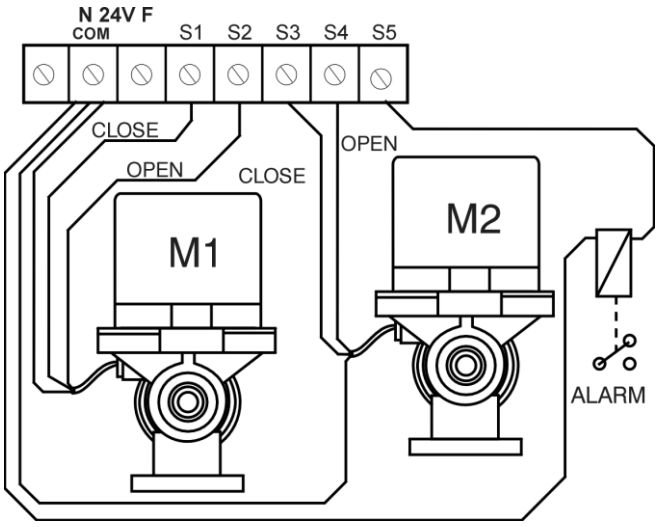


- S1, S2: Digital outlets for the opening and closing of the motorised valve M1. S1 is connected to the closing terminal of the motorised valve and S2 to the opening one. If no motorised valve is connected to these outlets, but there is an electrovalve, connect it to S2.

- S3, S4: Digital outlets for the opening and closing of the motorised valve M2. S3 is connected to the closing terminal of the motorised valve and S4 to the opening one. If no motorised valve is connected to these outlets, but there is an electrovalve, connect it to S4.

- S5: Digital outlet used for the breakdown warning.

DIGITAL OUTLET CONNECTION



6. OPERATING THEORY

The unit can be programmed in two different ways:

- By opening: In this case, the programmer only opens the existing motorised valves up to the point indicated in the programme and it does not carry out any type of regulation. However, it checks whether the conductivity level is within the established alarm limits.

- By conductivity reference: When the reading of the electric conductivity (CE) is higher or lower than the specified permissiveness margin, the programmer corrects the deviation making minimum movements of the motorised valve chosen for the regulation. If only one motorised valve is available, it will be the chosen one. In order to know whether the programmer has to open or close the motorised valve it takes into account the CE level (high or low CE) which the water controlled by the motorised has in reference to the other water.

If two motorised valves are available, the programmer starts the regulation by opening as much as possible one of the motorised valves (the one which corresponds to the cheapest water) and it regulates with the other one. If the opening of this motorised valve reaches its minimum, it is not possible to obtain the reference indicated in the programme. Otherwise, if the motorised valve reaches its maximum opening, the programmer tries to reach the indicated reference, closing the motorised valve which corresponds to the cheapest water.

While a programme is working, it is not possible that the two motorised valves reach their minimum opening, but it is possible that both are completely open.

7. CONFIGURATION OF THE INSTALLER

This configuration must be done by the installer of the unit. To access it, press the "+" and "-" keys at the same time while being at code C0. Press the "C" key to go to the following code. Press the "+" and "-" keys to change the values. Press the "C" key until the C0 code is displayed to go back to CONSULTATION.

Do not change the parameters related to the motorised valves if a programme is working or the motorised valves are moving. It may cause a malfunction in the unit.

In the programming by openings, only codes 10 to 13 are significant.

- Code 00: Programming mode. By opening percentage (set at YES pressing the "+" key) or by conductivity reference (set at NO pressing the "-" key).

- Code 01, 02, 03 and 04: Timings. Indicate, in seconds, the time that must go by from the detection of the activation of an input until the programmer takes it into account. The value must go from 0 to 99.

- Code 05: Alarm outlet: Set at YES (press the "+" key) so that outlet S5 activates when there is a breakdown. Set at NO (press the "-" key) so that outlet S5 does not activate.

- Code 06: Initial regulation delay. Indicate the time in seconds that the programmer has to wait before starting the regulation when a programme starts. During this time, the applied opening percentage will be memorised in the last irrigation. This allows the stabilisation of the mixing. The value must go from 0 to 250.

- Codes 07: Self-adjustment delay. Indicate, in seconds, the time that has to go by between an adjustment attempt and the next one. The self-adjustment time is the time that has to go by since a change has taken place at the opening of one of the motorised valves until the following change takes place. The minimum time is 4 seconds and the maximum 99.

- Code 08: Permissiveness margin. Indicate how much the reading of the CE can differ from the given reference without a regulation taking place. Diminish the value to obtain more precision. Increase the value to diminish the movement of the motorised valve/s. The minimum value is 0 the maximum 0,5.

- Code 09: Higher conductivity water. Press the "+" key if A1 (water controlled by the motorised valve M1) is the water with the highest conductivity. Press the "-" key if A2 (water controlled by the motorised valve M2) is the one with the highest conductivity.

- Code 10: Available motorised valves. The available motorised valves are changed with the "+" and "-" keys. Indicate A1 if there is only one motorised valve and it is connected to the outlets S1 and S2. Indicate A2 if there is only one motorised valve and it is connected to the outlets S3 and S4. Indicate A1 and A2 if there are two motorised valves.

- Code 11: Opening time of the motorised valves. Indicate the necessary time in seconds to completely open the motorised valves M1 and/or M2 being completely closed. The maximum time is 199 seconds.

- Code 12: Minimum movement percentage of the motorised valves. Indicate the minimum opening of the motorised valve M1 and/or M2. The values go from 0.1 to 5.0.

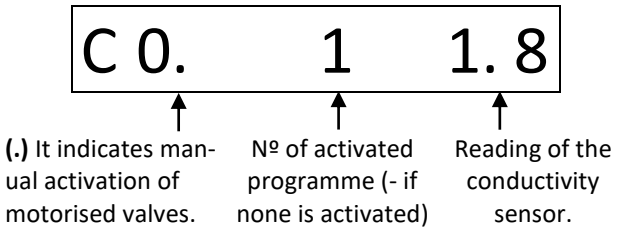
- Code 13: Minimum opening of motorised valve M1 and/or M2 while the mixing is taking place. If it is not possible to get the expected number (due to the minimum movement of the motorised valve) we will approach at it as much as possible, by defect or excess. The control values go from 0 to 99.

- Code 14: Water to be saved. Indicate which water you want to spend the least. Press the "+" key to indicate A2 (water regulated by motorised valve M2) or press the "-" key to indicate A1 (water regulated by motorised valve M1).

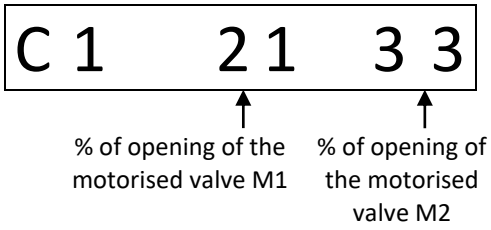
8. CONSULTATION

The first two codes of the programmer correspond to consultations of the unit state (C0 and C1).

- Code C0: It shows which programme is activated (a hyphen if none is activated) and the conductivity reading in mS which reaches the unit through the sensor. If a breakdown takes place, the programmer shows this code and the alarm origin (programme number) intermittently, and the reason for it (high or low conductivity, breakdown input). For further information read the section BREAKDOWNS.



- Code C1: it shows the opening percentage of every motorised valve. The previous code, C0, is acceded by pressing the "+" or "-" keys.



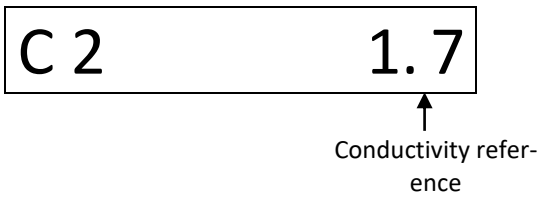
9. PROGRAMMING

The codes that go from C2 to C4 are used to define every programme, having to specify either the desired level of conductivity or the opening percentage of the motorised valve.

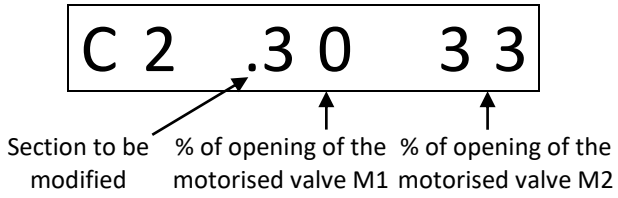
When programming openings, every code is divided into two sections. The first one corresponds to values of the motorised valve M1, while the second one corresponds to values of the motorised valve M2. The opening of a motorised valve can not be varied if it is moving.

Press the "C" key to change section or code and the "+" and "-" keys to increase or decrease the value of the section which is active, that is to say the one which has a blinking point on its left.

When programming the conductivity level, codes C2, C3 and C4 are used to indicate the desired reference value for conductivity (value from 0 to 9.9).



If the programming is done by opening of the motorised valves, the value will go from 0 to 99. Only the opening of the motorised valves which have been configured will be required.



10. CONFIGURATION OF THE USER

In this section we can find the parameters which allow you to adjust the working of the unit, as well as the sensor calibration and the manual activation of the motorised valves. To access this section, press the "C" and "+" keys at the same time when the programmer is at code C0 of consultation.

If no input is activated, the programmer goes to sensor calibration; otherwise, it goes directly to the first configuration code (code 03).

Press the "C" key to go from one code to another. Use the "+" and "-" keys to change values. Press the "C" key, until code C0 appears, to go back to consultation.

Codes U0 and U1, which correspond to calibration, are explained in the CALIBRATION section.

- Code U2: Manual activation of the motorised valves. The first section corresponds to the activation of the motorised valve M1 and the second one to the activation of the motorised valve M2. If one of the motorised valves is not available, the corresponding section does not appear. When the opening percentage of any of the motorised valves is varied, the indicated movement will be carried out. Set value 0 at the motorised valves to finish the manual opening. While it is at manual a flashing dot appears just at the end of the option code. It is not possible to activate any programme while in manual mode. It is possible to vary the opening of a motorised valve if this one is in movement.

- Code U3: High and low CE alarms respectively. If the programming is done by reference of conductivity, enter, in the first section, the difference that there has to be above the indicated reference in order to activate the alarm, as a level of conductivity which is too high

has been reached. If the programming is by openings, indicate the maximum conductivity value which is allowed. Values go from 0.0 to 9.9. In the second section, enter the difference there must be below the expected reference so that the alarm activates because it has reached a level of conductivity which is too low. If the programming is by openings, indicate the minimum conductivity value which is allowed. Values go from 0 to 9.9.

- Code U4: Delay in alarm detection. Indicate the number of seconds during which conductivity must be at an alarm level before its activation. The value must be between 0 and 999.

- Code U5: Indicate whether the active programme must be deactivated when a breakdown takes place (press the "+" key for YES to be displayed on the screen) or it must continue its working (press the "-" key for NO to be displayed on the screen). In the last case, the entrance of another programme will not be allowed. This value does not affect input nº 4, which will always stop the active programme.

- Code U6: Alarm working and at stop. In the first section, indicate the number of seconds the alarm must be working in the cycle of alarm signal. The value must be between 1 and 99 (0 means "do not start"). In the second section, indicate the number of seconds the alarm must be at stop in the cycle of alarm signal. These values must be between 0 and 99 and it only has sense if outlet S5 has been programmed as alarm outlet (0 means alarm always working, if there is time in the previous section).

11. CALIBRATION

In the configuration of the user, codes U0 and U1 are used to calibrate sensors. In order to carry out the calibration, take the sensor out of the pipe and leave in a place where it has no contact with water. Next, go to code U0. On entering in everyone of the codes, the code and value which is expected from the sensor appears for a few seconds. After these seconds, the screen blinks and displays the reading which is being obtained from the sensor. If the reading is stable enough and similar to the desired one, the screen stops blinking after ten seconds, indicating that the sensor has been calibrated. Pressing the "+" and "-" keys at the same time the unit is forced to accept the value which is being displayed on the screen at that moment. Once this point has been reached in the code U0, deep or fill the sensor with pattern liquid of 5.0 mS and press the "C" key to change to code U1.

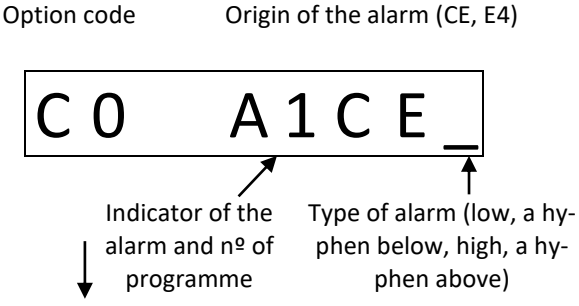
If the calibration of sensor is not to be done, press the "C" key during the initial seconds or press the "C" key until the code changes, when the screen is blinking.

In order to have a good calibration, the sensor and the liquid have to be as close as possible to 25ºC degrees. Then, the liquid value and the automatic compensation that the sensor have will be correct. If the irrigation water is cooler than 25ºC the sensor it should be taken out for several minutes because the sensor has and inertia to the temperature changes.

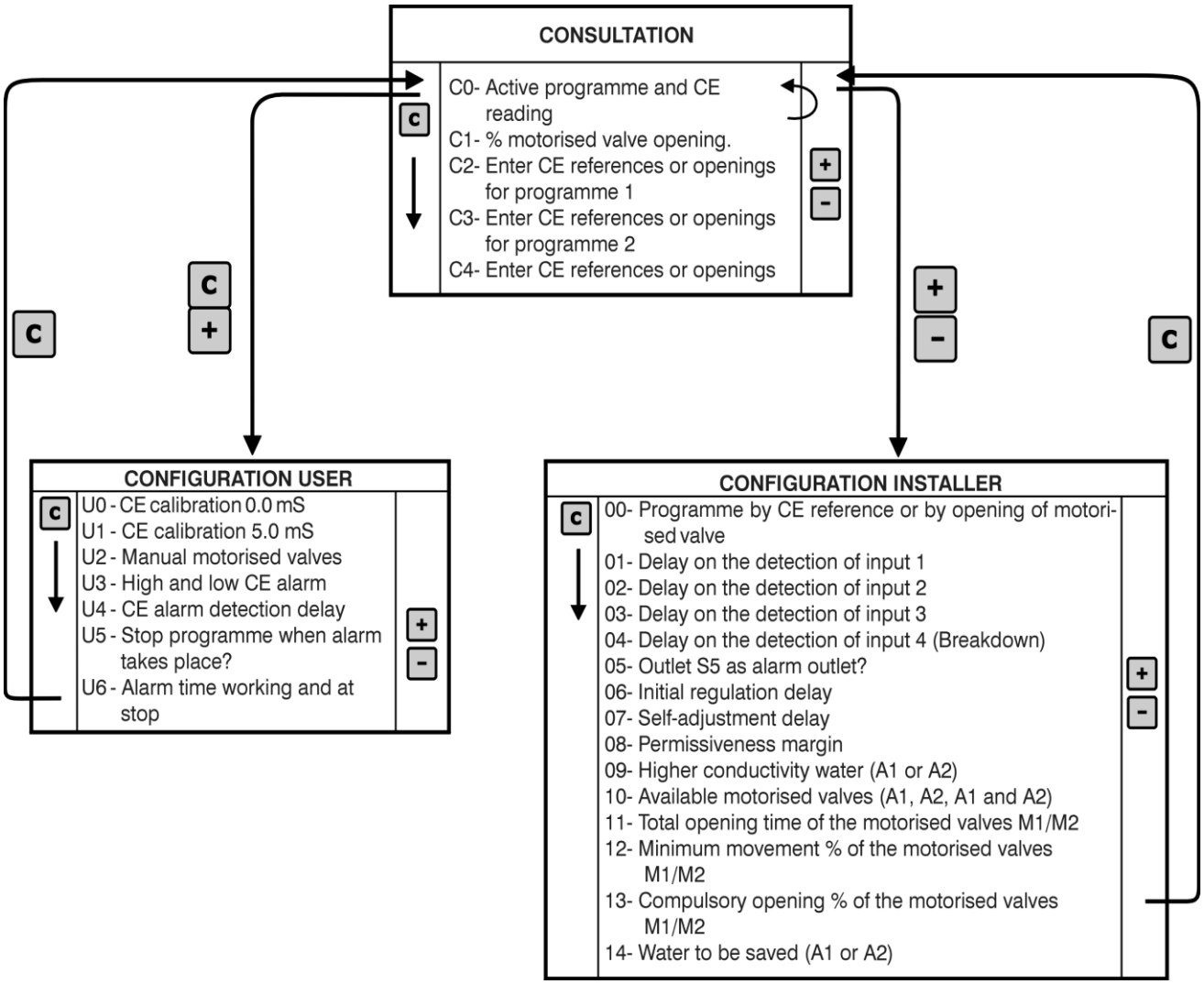
If a suitable calibration is not done in the first code, the second one does not appear. So, to do a valid calibration of the sensor, it is necessary to do the two codes correctly.

12. BREAKDOWNS

When the unit detects a breakdown, because a non desired level of conductivity has been reached or because input 4 has been activated, the screen displays the consultation code C0 and the information about the reason of the breakdown in a blinking way. This message will disappear on pressing the "C" key. If it has been indicated that the programme has to stop, the action will take place and the activation of another programme will not be allowed. If , apart from that, it has been indicated that outlet S5 works as alarm outlet, it will activate according to what is indicated in the configuration of the user.



13. SYNOPTIC OF FUNCTIONS



Sistemes Electrònics Progrés, S.A.
Polígon Industrial, C/ de la Coma, 2
25243 El Palau d'Anglesola | Lleida | España
Tel. 973 32 04 29 | info@progres.es
www.progres.es