# User's Manual

# AGRÓNIC SMART

Version 1

#### **TABLE OF CONTENTS**

1.	BASIC FUNCTIONAL DESCRIPTION	∠
2.	SPECIFICATIONS	
3.	CONTROLLER	4
	3.1. TECHNICAL CHARACTERISTICS	4
	3.2. INSTALLATION	4
	3.3. CONNECTIONS	4
	3.4. CONTROL AND MANAGEMENT OF THE CONTROLLER	6
4.	LINKING THE CONTROLLER TO THE MOBILE APP	7
5.	QUICK GUIDE TO CONFIGURING PROGRAMMING	8
6.	MOBILE APP	10
	6.1. AVAILABLE PROGRAMS	10
	6.2. UNAVAILABLE CONTROLLERS (NO CONNECTION)	10
	6.3. CONFIGURING THE MOBILE APP	11
	6.4. MENU	
	6.5. START	12
	6.6. CONFIGURING THE CONTROLLER	14
	6.7. CONFIGURING THE INSTALLER	17
	6.8. SECTORS	18
	6.9. CONFIGURING A SECTOR	20
	6.10. PROGRAMS	21
	6.11. CONFIGURING A PROGRAM	
	6.12. STATUS OF THE CONTROLLER	26
	6.13. CONTROLLER MANUAL AND MORE INFORMATION	
7.	MANUAL BUTTON	
8.	TROUBLESHOOTING GUIDE AND Q&A	28

# 1. Basic functional description

The Agrónic Smart is a battery-powered controller for latch-type solenoid valves with two or three wires, without a screen or a keypad, for use on small land parcels and in gardens.

Using a Bluetooth connection, you can view and manage your controller through the free Agrónic Smart mobile app, available in the Google Play and App Stores.



There are 2 versions of the controller: the Basic version and the Plus version, which offers additional features including fertilizer management and an alternating sector sequence in a single program.

The controller has 10 outputs, which are managed based on the established configuration:

- 10 sectors
- 9 sectors + 1 general
- 9 sectors + 1 fertilizer (Plus version)
- 8 sectors + 1 general + 1 fertilizer (Plus version)

It also has 2 digital inputs, which can be used as digital sensors to establish different determining factors for starting or stopping.

Each of the 5 irrigation programs has 5 schedules to start up to 9 sectors, sequentially or grouped in flexible formats, in a weekly format or once every certain number of days.

It has a button on the controller sheet that permits basic options to be carried out without the need to connect to the app.

# 2. Specifications

# 10 outputs (10 sectors, or 8 sectors with general and fertilizer outputs)

- 2-wire, 2-inverted-wire and 3-wire outputs
- · Output activation voltage may be selected from: 13V, 19V, 5V (4700 µF condenser)

#### 2 digital inputs

- Meter/rain gauge
- Digital sensor (temporary stop, conditional stop, start program)

#### Sectors

- Designation of name for each sector
- Specification of time for water hammer and "stop by sector"

#### **Programs**

- 5 programs
- 10 sectors/program
- Various sectors (up to 10) may be grouped into the same program to irrigate at the same time.
- Specification of irrigation time and fertilizer for each sector
- 5 start hours per program
- Irrigation on specific days or by frequency of days
- Start based on schedule, manually or by digital input
- Plus version:
  - · Alternating sequence: Each time the program starts, it will do so in a different sector, in accordance with the defined sequence.
  - · Fertilizer: Use of fertilizer and specification of fertilization time for each sector in the program sequence.

# Manual actions accessible from the Agrónic Smart app:

- Controller: Set the clock
- Controller: Enter/Exit Stop
- Controller: Enter/Exit Out of service
- Program: Start/Stop a specific program
- Program: Erase 1 or all programs
- Program: Place in Out of service
- Program: Pause for a certain amount of time
- Program: Specify a particular manual factor (=variation in program time)
- Sector: Start/Stop/Automatic
- Totals: Erasure (coming soon)

## Basic manual actions available through the use of a button:

- Output test
- Activation of programs
- Activation of sectors
- Battery test
- Reset PIN

#### 3. Controller

#### 3.1. TECHNICAL CHARACTERISTICS

The controller is contained in a box suitable for outdoor use with the following characteristics:

Box dimension	Box dimensions		
Height	150 mm		
Width	150 mm		
Depth	90 mm		
Weight (approx.)	0.8 Kg		

Environment	
Temperature	-10°C to +60°C
Humidity	< 95 %
Altitude	2000 m
Pollution	Degree II
IP	67

Power	
Power source	2 D batteries, 1.5 V-3 V
Usage	3 V-0.70 mW (average)

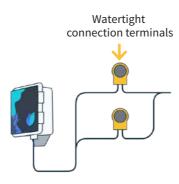
#### 3.2. INSTALLATION

The Agrónic Smart controller may be installed on a wall or on the upper part of a pole. It includes a stainless support that facilitates mounting.

#### 3.3. CONNECTIONS

The controller is delivered with a 15-wire hose to facilitate the connections.

In order to ensure that the cables on the module hose are watertight, the use of watertight terminals is recommended. The connection between these two terminals must be made without stripping the cables.



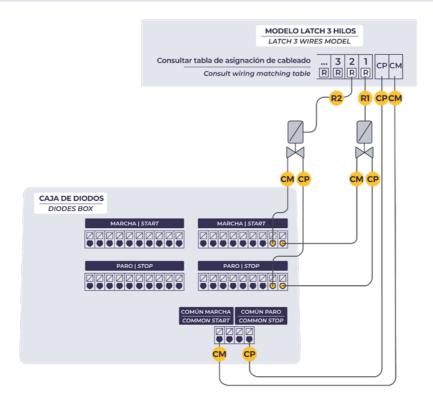
The cables on the different hoses are identified by colour and number. Connect them using the following table based on their functionality.

Agrónic Smart			
Wire colour	Cable ID	Functionality 1 <b>(2-wire latch)</b>	Funcionality 2 (3-wire latch*)
White	1	R:	L+
Brown	2	R2	2+
Green	3	R	3+
Yellow	4	R4	1+
Grey	5	R5+	
Pink	6	R6+	
Blue	7	R7+	
Red	8	R8+	
Black	9	R9+ (Fertilizer)	
Purple	10	R10+ (General)	
Grey-pink	11	R1-, R2-, R3-, R4-, R5-, R6-, R7-, R8-, R9-, R10- Common stop Common start	Common stop (CP) on diode box
Red-blue	12	-	Common start (CM) on diode box
White-green	13	Input 1	
Brown-green	14	Input 2	
White-yellow	15	Common inputs	

<sup>\*</sup>For 3-wire models, a diode box is required. See assembly diagram on the next page.

You may use 3M Scotchlok connectors (www.3m.com), TYCO Electronics ES Caps (www.tycoelectronics.com) or Cellpack resin splice kits (www.cellpackiberica.com).

#### ASSEMBLY DIAGRAM - 3-WIRE LATCH WITH DIODE BOX



#### 3.4. CONTROL AND MANAGEMENT OF THE CONTROLLER

The controller is configured and managed through the Agrónic Smart app, which must be installed on a mobile device (smartphone or tablet).

The controller and mobile device communicate using standard Bluetooth. This means that the mobile device must be located near the controller in order to be able to communicate with it.

The typical coverage that it offers ranges from 200m if there is a direct line of sight to a few metres if there are many objects between the controller and the mobile device.

The app can operate and connect to the controller even without an Internet connection.

# Linking the controller to the mobile app

The steps to follow to connect the app to the controller are:

In the controller, open the cover and slide the red button to the "on" position.



2 On the mobile device, open Google Play or the App Store and download the Agrónic Smart app.



Activate Bluetooth on the device.



Open the app.



5 The first time a mobile device connects to the controller, it will ask for a PIN code, which is provided along with the controller.



6 To help you create irrigation programming, the next section contains a quick guide to configuring it.



# 5. Quick guide to configuring programming

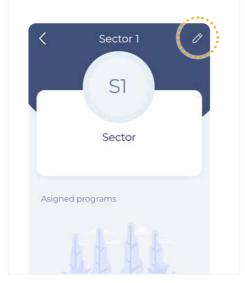
The first step is configuring the controller, which may be accessed through the icon at the upper right.



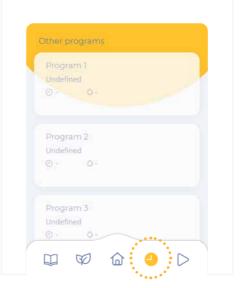
2 Once the controller has been configured, we can personalise the sectors in which we plan to work.



In each sector, we can edit the name and add a photo to better identify it.



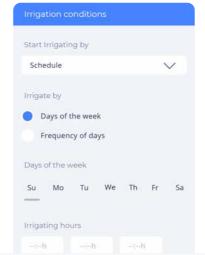
**4** The next step is to create an irrigation program.



**5** To configure a program, access the configuration through the "edit program" icon.



6 Select the type of start (if we want it to irrigate on specific days or by frequency) and the daily number of hours of irrigation.



**7** To incorporate sectors into the program, select "sector". And select "--" to enter the irrigation time for the sector.



If you would like to work with grouped sectors or an alternating sequence, or add a manual factor, please see the "Configuring programs" section.

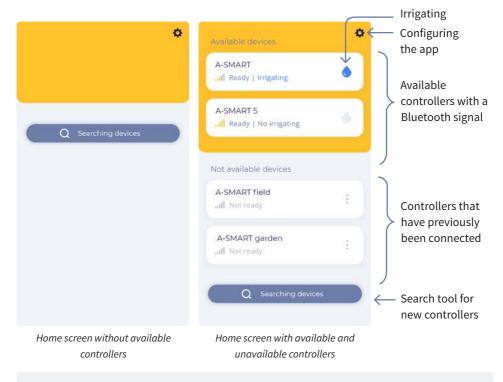
8 And this is the basic configuration you'll need to start irrigating with the Agrónic Smart.



# 6. Application

#### 6.1. AVAILABLE CONTROLLERS

The first time you access the app, you will not see any controllers. In order for the available controllers to appear, select the "Search for devices" button.



NOTE Only one mobile device may be connected to a particular controller at a time.

If you don't see the controller in your search results, another mobile device may be connected.

#### 6.2. UNAVAILABLE CONTROLLERS (NO CONNECTION)

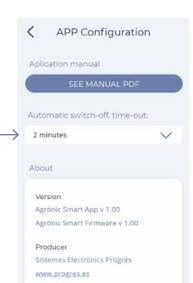
Once the controller has been linked to the app, the Agrónic Smart programming can be accessed even if it is unavailable (no connection), and controller and program values can be modified.

The edited values will be highlighted in yellow. These edited values will not be sent until the controller is reconnected to the app.

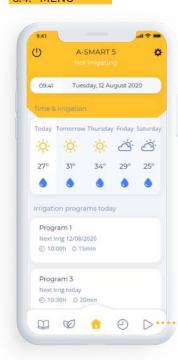
Once the controller is connected to the app, the app will ask if you would like to send the pending parameters. Select "send" to overwrite the existing values and replace them with the new ones, or select "don't send" to return to the previous programming.



Using the configuration button at the upper right, on the "available controllers" screen, we can configure app details, view the manual and familiarise ourselves with the version of the app.



#### 6.4. MENU



From the menu on the lower bar, we can access the different features of the controller.

The selected screen is in yellow.

Wait time for the -

app to disconnect



- Manual and "More information": Use this section to view the manual and references to the versions of the controller and the app.
- Sectors: List of the sectors configured in the controller. View the status and manual actions of a particular sector.
- Home: Principal screen, which displays a summary of the status of the controller.
- Programs: List of the programs configured in the controller. View the status and manual actions of a particular program.
- Status of the controller: Use this section to change the status of the controller.





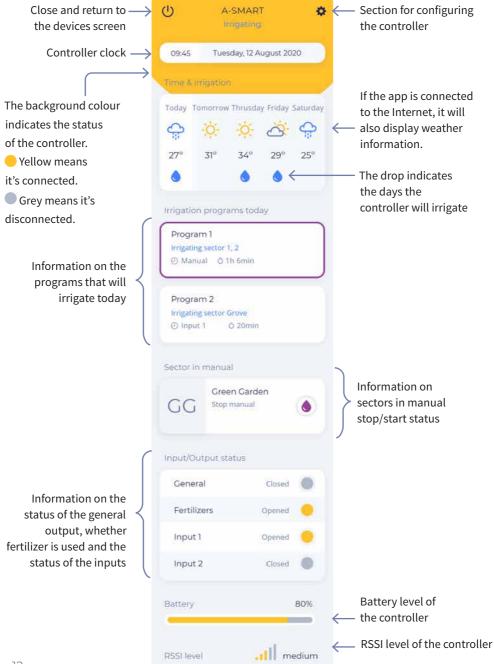








The home page on the app displays a summary of the controller.



#### Different scenarios on the home screen:



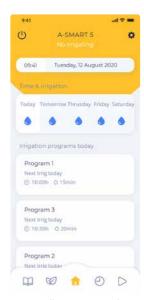
Controller is connected. There are programs irrigating at this time.



Controller is connected. Irrigation is programmed for today.



Manual status of the controller is "stopped".



Controller is connected. No Internet access. Irrigation is programmed for today.



Controller is connected. Manual status of the controller is "out of service".



Controller is not connected.

#### 6.6. CONFIGURING THE CONTROLLER

The controller's configuration may be accessed from the configuration icon screen of the app.

The Agrónic Smart can control one general output. If the controller has the Plus version, it can also control a fertilizer output.

If the general valve or pump is activated, the output will be set and will correspond to physical output 10.

If the fertilizer is activated, the output will be set and will correspond to physical output 9.

In this section of the controller's configuration, the following parameters may be established:

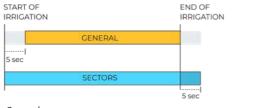
- Name: Name to be given to the controller.
- General: Active (Yes) / Inactive (No)
- Start-stop temporization: The delay or advance of the general output in relation to the sectors is specified in seconds:

start temporization = stop temporization.

- Start temporization: amount of time activation of the general output is delayed on beginning irrigation (from 0 to 999").
- Stop temporization: amount of time stopping of the pump is extended on stopping irrigation (from 0 to 999").
- Stop by sectors: "YES" if you would like the general output to stop on completion of irrigation and for the sectors to remain open a few seconds longer (the stop temporization goes to the sectors).
  - "NO" if the general output will remain open for the amount of time specified in the water hammer on completion of irrigation.



### Example graphic (general output water hammer and stop by sector):

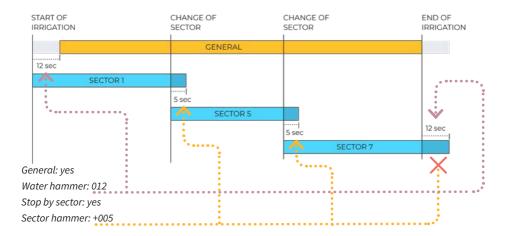


START OF END OF IRRIGATION IRRIGATION **GENERAL** 12 sec 12 sec SECTORS

General: yes Water hammer: 005 Stop by sector: yes

General: yes Water hammer: 012 Stop by sector: no

- Sector hammer: This is the length of the delay (in seconds) between the opening and closure of consecutive sectors and the general output (from 0 to +/-999").
  - Where the value is positive, it will open immediately once irrigation starts, and on completion it will keep the valve open for the programmed number of seconds.
  - Where the value is negative, it will delay opening for the programmed number of seconds and close immediately on completion. As an exception, a sector may be the final one in an irrigation sequence and the stop temporization for the general output (general output water hammer) may be applied.



- Fertilizer (Available for Plus version) Active (Yes) / Inactive (No). We'll establish whether or not the fertilizer will be used.
- Post-irrigation: Post-irrigation time (minutes).



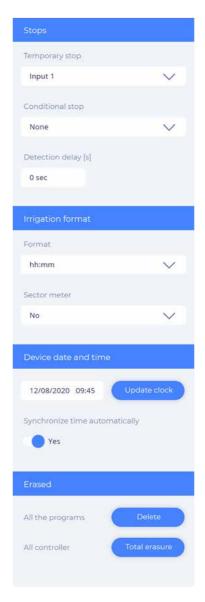
Stops are controls that act on irrigation programs based on values from the sensors that are connected to the inputs.

We can configure the following stops:

 Temporary stop: For programs in progress until the next program start. Any irrigation units left over from the program will be lost.

Determining factor:

- Input 1
- Input 2
- Conditional stop: For all programs while the determining factor in question is active. When it becomes inactive, the programs will continue from where they left off.
   Determining factor:
  - betermining ract
  - Input 1
  - Input 2
- Detection delay: Applies to both temporary stops and conditional stops; this is the time that elapses between the activation of the corresponding input and the time at which the temporary or conditional stop takes place.
- Format: Two available time formats: hours/minutes (hh:mm) or minutes/seconds (mm:ss).
- Sector meter (Coming soon): If it has a meter, you must select the input where it will operate:
  - Input 1
  - Input 2
- Date and time of controller: Display shows the time of the controller. If the time displayed is incorrect, you can synchronise it to the current time by pressing "update clock". If you would like this to occur automatically, activate "automatically synchronise time".
- Erasures: You may completely erase:
  - All programs: erases data from all programs that are available in the controller.
  - Entire controller: erases all data entered into the controller.



#### 6.7. CONFIGURING THE INSTALLER

Select the "Installer access" button to enter the installer configuration section. The following may be established:

- Summer/winter time: You can set the controller to automatically change the time during daylight savings in the spring and autumn. Automatically set by default.
- Output type: 2-wire, 2-inverted-wire (by default) and 3-wire latches.
- Activation level: 13V (by default), 19V, 5V
- Application PIN code: This refers to the password needed to connect using Bluetooth. Initially, the PIN code is set and provided by Progrés. But, through the installer configuration, you can set a different number. It must always have 6 digits.
- Activation of Plus version: By entering the applicable code (this information is provided by Progrés under contract), you can activate the Plus version, which adds extra functionalities to the controller:
  - Alternating sequence: Each time a program starts, it will do so in a different sector, in accordance with the sequence defined in the program.
  - Use of fertilizer
- Updating controller firmware: If there is a firmware update available for the controller, the "update" button will appear. If there is an action in progress or programs irrigating, the button will disappear until they are complete so that the update does not affect the programming.

The update process can take several minutes. It is important not to close the application or disconnect the controller.



#### 6.8. SECTORS





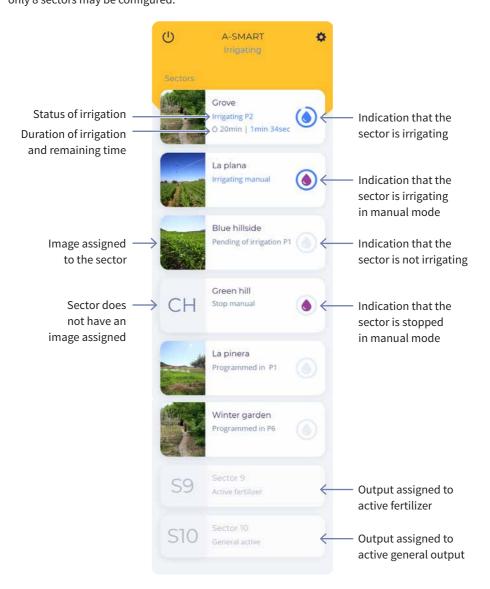




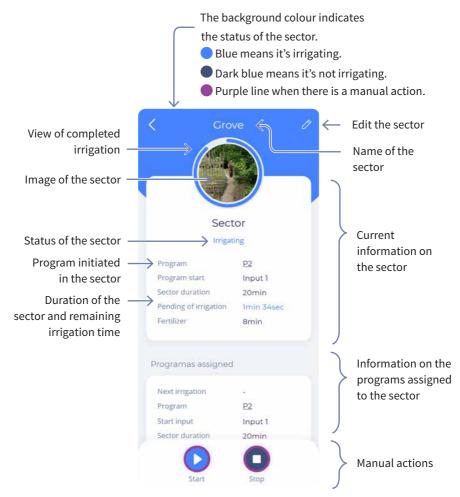
The "sectors" screen displays a list of the 10 available sectors in the controller.

Sector 1 corresponds to physical output 1, sector 2 to physical output 2, and so on.

If you need to fertilize and/or activate the general output, this will occupy 2 sectors; as a result, only 8 sectors may be configured.



Screen displays the status of the sector and future programming in detail.

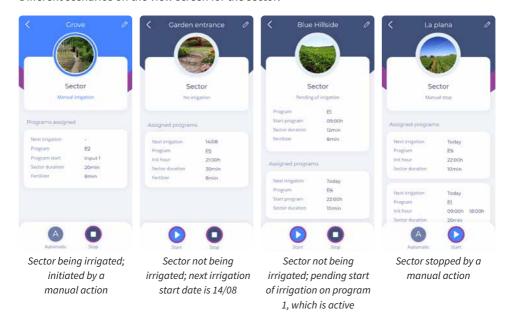


You can change the state of the sector with manual actions:

- Start manual, start irrigation manually (if you ahve an associated pump, this will be activated.
- Stop manual, stop the sector (if a program has this sector associated, the program will be postponed until the sector is set to automatic).
- Automatic, to continue with his programming.

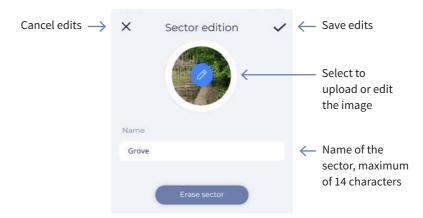


Different scenarios on the view screen for the sector:



#### 6.9. CONFIGURING A SECTOR

You can assign a name and image to each sector by selecting the button at the top right of the screen for the sector to be configured:



Images are not transferred between mobile devices.



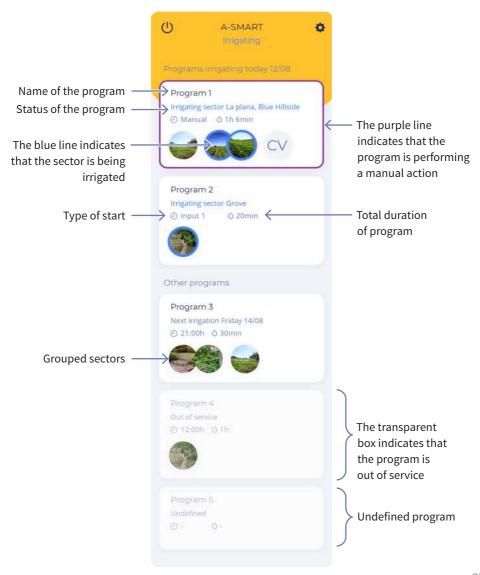




Programs manage the controller's irrigation and fertilization, control the irrigation and fertilization units in the various sectors and issue automatic commands.

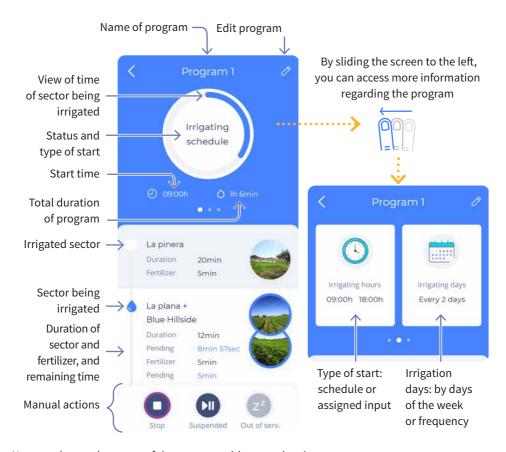
The Agrónic Smart has 5 programs, each of which can have up to 10 sectors.

The 5 available programs, with irrigation information and associated sectors, are listed on the program screen in the app.



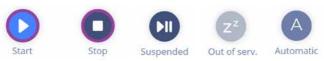
#### DETAILED VIEW OF A PROGRAM

• Screen displays the status of the program and assigned sectors in detail.



You can change the status of the program with manual actions:

- Start, starts the program manually even if it is outside the active hours and active period.
- Parar, stops the program in progress and will continue with the established schedule.
- Suspend, suspends the program for the hours specified. To reactivate the program, select suspend again, set the time to 00:00, and send.
- Out of service, Cancels the current program. It does not allow said program to enter again until this condition is canceled.
- Automatic, to take out of service.



#### Different scenarios on the program screen:



Program irrigating; initiated pursuant to schedule



Program irrigating; initiated by a manual action



Program not irrigating; next irrigation start date is 13/08



Program not irrigating; next irrigation start date will be determined by input 2



Program stopped by a manual action



Program paused for several hours



Program delayed due to a sector in manual stop status



Program out of service

The background colour indicates the status of the controller:

- Blue means it's irrigating.
- Dark blue means it's not irrigating.
- Purple line when there is a manual action.
- In grey when is out of service.



A purple line indicates that the sector is in manual status.

#### 6.11. CONFIGURING A PROGRAM

You can specify the following parameters for each program by selecting the // button at the top right of the screen for the program to be configured:

- Start irrigation by... Determine the type of start to the program:
  - 'schedule' Starts at a specific time.
  - 'input' Digital input 1 or digital input 2.

# Irrigation conditions Start irrigating by Schedule

Days of the week

Frequency of days

#### Irrigate by...

- Days of the week: you'll need to specify the days of the week that irrigation will occur.
- Frequency of days: you'll need to specify how frequently irrigation will occur.
  - Every "x" days 1 irrigates each day, 2 irrigates every other day, 3 irrigates one day but not the next two.
  - · Start in "x" days You can modify the number of days remaining until the next irrigation.



Irrigation times (if the start is pursuant to a schedule)
 Up to 5 different start times may be entered.

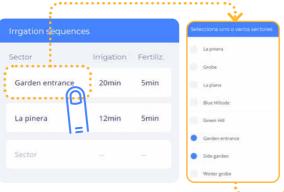
Irrigation sequences: There may be up to 10 sectors

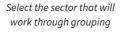
configured per program.

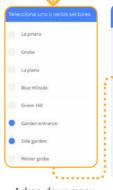
Select the sector to be activated, the amount of irrigation and the amount of fertilizer (fertilizer available for Plus version). The fertilization time may not exceed the irrigation time. They will start sequentially, one after the other.



Grouping of sectors Several sectors may be activated at the same time. The irrigation time of the sectors will be the same.







A drop-down menu will appear allowing vou to select one or more sectors



Grouped sectors will be shown together in the same field

- Alternating sequence (available for Plus version) We can activate the alternating sequence option for a particular program. If we do this, each time the program starts, it will begin with the next sector in the sequence. Let's take a look at the following program:
  - First start: Plants | Lawn 1 | Lawn 2 | Lawn 3
  - Second start: Lawn 1 | Lawn 2 | Lawn 3 | Plants
  - Third start: Lawn 2 | Lawn 3 | Plants | Lawn 1
  - Fourth start: Lawn 3 | Plants | Lawn 1 | Lawn 2
  - Fifth start: Plants | Lawn 1 | Lawn 2 | Lawn 3
- Manual factor: Modifies the irrigation time for this program pursuant to the specified %. A positive value means that the irrigation time for this program will increase by this percentage. A negative value means that the irrigation time for this program will decrease by the specified percentage.
- Erasure of the program: Resets the program and returns the values to 0.



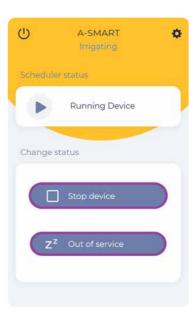
#### 6.12. STATUS OF THE CONTROLLER



The controller may be set manually as follows:

- Stop controller: For irrigation in process, delaying it. Any new irrigation will also be delayed.
- Start: Any irrigation that was delayed will continue from where it left off.
- Out of service: Cancels all irrigation in progress.

  Does not permit entry of any new irrigation.



#### 6.13. CONTROLLER MANUAL AND MORE INFORMATION



Use this screen to access the controller manual, information regarding the version and manufacturer and links to legal information.



#### 7. Manual button

The Agrónic Smart controller has an internal button that allows you to carry out several basic functions or check the status of the controller:



- Short pulses (< 0.5"): Indicates the status of the controller through the LED light on the controller:
  - LED 1 ON for 2". Controller functioning properly
  - LED 2 ON for 2". Low battery (< 2.5V)
- 3" pulse + "n" short pulses. Manual command to activate/stop output given through "n" number of pulses.
- "n" short pulses + 3" pulse. Manual command to activate/stop program given through "n" number of pulses.
- 3" pulse + 3" pulse. Enter or exit STOP.
- 3" pulse + 8 short pulses + 3" pulse. The access PIN will reset to its default value: initial value.
- 3" pulse + 1 short pulse + 3" pulse. TEST ON → Manual start/stop command for all outputs sequentially, lasting 3 minutes or until the "TEST OFF" command is given.
- 3" pulse + 2 short pulses + 3" pulse. TEST OFF → Manual stop command for all outputs. All outputs will be set to automatic.

# 8. Troubleshooting guide and Q&A

Set forth below is a summary table with the most common problems that arise in using the Agrónic Smart. In addition, a possible solution to each is shown.

#### **CONNECTION PROBLEMS**

Problem	Possible cause	Solutions	
The Agrónic Smart	Bluetooth on mobile device is inactive or status is unknown	Review the device settings and ensure that the Bluetooth option has been activated.  In the event it has been activated, deactivate and reactivate it.	
does not appear on the list of available	Agrónic Smart is off	Start it using the ON button on the controller.	
devices when I am near it.	Agrónic Smart is connected to another device	The Agrónic Smart may be linked to several mobile devices, but it can only be connected to one at time.  In order to connect it to another mobile device, you will need to disconnect it from the first one it is connected to.	
The app is <b>not</b> asking for the PIN  code	The permissions required by the app have not been granted	Go to the application manager on the mobile device and grant all available permissions to the Agrónic Smart app.  Uninstall and reinstall the app. When you open it, set all requested permissions to "yes".	
	PIN code error	Make sure the PIN code you've entered is correct (6 digits).  If the PIN has been modified to less than 6 digits, the first digits should be ZEROS. Ex: PIN 123 → ACTUAL PIN 000123	
The app is <b>not connecting</b> to the Agrónic Smart	Bluetooth error	<ul> <li>In the event the PIN entered is correct →</li> <li>Close the application</li> <li>Go to the list of associated Bluetooth devices</li> <li>Unlink the device in question</li> <li>Restart the app (it will ask for the PIN code again)</li> </ul>	
	Permission error	The app does not have location permissions activated. In the device's settings, go to location permissions under the mobile app and select "permit".	
The device	Forced disconnection due to inactivity	When the mobile device's screen is turned off, it will disconnect from the Agrónic Smart after a period of time.  The pre-set time is 2 minutes, but this can be modified through the wheel in the upper right part of the home screen.	
period of time.	Problem with Bluetooth connection	Unlink the mobile device in question:  Close the app  Go to the list of associated Bluetooth devices  Unlink the app in question  Restart the app (it will ask for the PIN again)	

# **FUNCTIONALITY QUESTIONS**

Question	Solutions
Can I <b>change the Agrónic Smart</b>	Yes. Once the controller has been linked to the app, the Agrónic
<b>parameters</b> or the parameters of a	Smart programming can be accessed even if it is unavailable (no
program when the <b>Agrónic Smart</b>	connection), and controller and program values can be modified.
is not connected?	
	The edited values will be highlighted in yellow. These edited values will not be sent until the controller is reconnected to the app.
	Once the controller is connected to the app, the app will ask if you would like to send the pending parameters. Select "send" to overwrite the existing values and replace them with the new ones, or select "don't send" to return to the previous programming.
Do the <b>temporary stop and conditional stop</b> inputs affect the sectors?	The stop inputs only affect the programs.
Can I <b>name the inputs</b> ?	You can not name the inputs.
How can I <b>reactive a program that has been suspended</b> for a  certain amount of time?	To reactivate the program, select the "pause" button, put the time to 00:00 and send.
Can I put a longer name in the controller?	The maximum length of a name is 13 characters.
Is it possible to configure a <b>different</b> detection delay for each input in Stops?	No. The delay is common and unique.
Why is there a <b>number following</b> <b>the name of the Agrónic Smart</b> on the list of devices?	This is the serial number of the controller.
Why can't I see the photo of the sector from another mobile device?	Images are only saved on one device.

PERSONAL NOTES

PERSONAL NOTES	