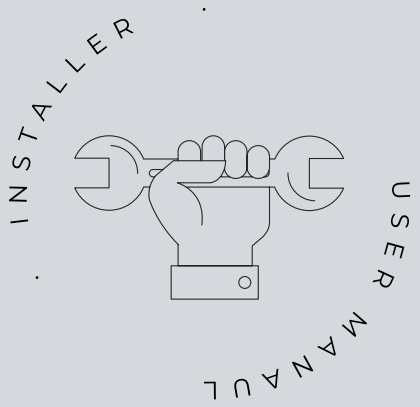
INSTALLER USER MANUAL

AGRÓNIC 2500

Basic version | V3



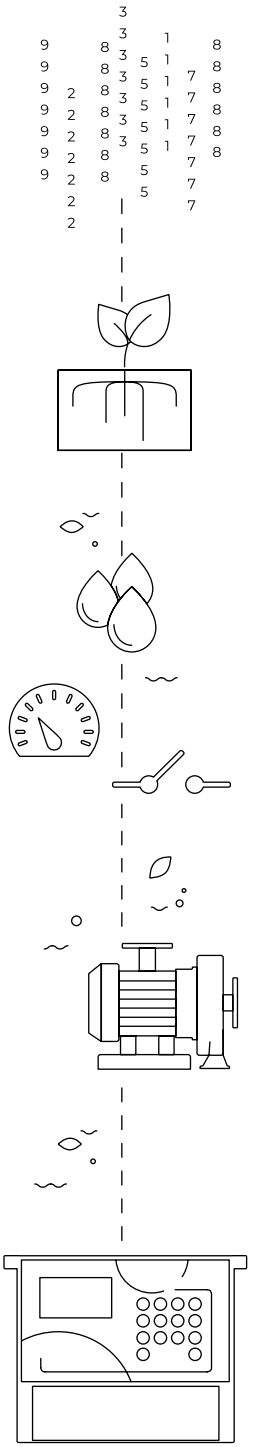
Sections in the manual:

- Functional description
- Features
- Formats, versions, models and options
- Technical specifications
- Parameters
- Input and output coding
- Practical examples
- Troubleshooting
- Technical support

The Communications Parameters section is detailed in the Communications Manual.

The sections on Programming, Manual Actions and Consultation are detailed in the User Manual.

SISTEMES ELECTRÒNICS PROGRÉS



Welcome to the Agrónic 2500 manual.

We are pleased to count on your experience and skills to install the Agrónic 2500.

This document will guide you through the process, providing details on the controller's features and parameters.

Your experience is essential to teach the customer how to effectively use the Agrónic 2500.

Remember that there are two versions: basic and Plus, adapted to the specific needs of each installation.

Thank you for your work!

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1 DESCRIPTION OF BASIC FUNCTIONS

The Agrónic 2500 is designed for automating irrigation on small and medium-sized farms (maximum 30 irrigation sectors) where there is a need to open/close sector and master valves, fertilizing control and filters.

The farm may have a pressurized water intake or need a drive pump (electric or motor pump). There may be an irrigation water meter.

The head can have 12 Vdc power supply (with solar panel and battery, or battery only) or at 220 Vac (mains or generator set).

The valves can be 12 Vdc, 24 Vac or latch and can be close to the head and controlled by microtube or cable, or at distances of up to 2 km connected to AgroBee-L radio modules.

In the head, there can be fertilization with a hydraulic pump injector, electric dosing machines or a venturis system.

The Agrónic 2500 has an internet connection, with mobile telephony or WiFi, to connect to the VEGGA platform or to the Agrónic APP application and remotely manage the Agrónic.

For remote management, you can also connect to the 'Agrónic PC' Windows program. The connection can be with direct USB to the computer, when it is next to the unit, by radio modem, for medium distances, or by Internet, with WiFi or mobile telephony.

All the features of the Agrónic are expanded in the Plus version. If the Basic version does not meet your requirements, see the Plus version.

To go from the Basic to the Plus version, just activate an option from the unit.

2 FEATURES

The Agrónic 2500 is a controller for controlling irrigation, fertilization, pumping and filter cleaning. It detects malfunctions and creates a chronological record of the events. Fully configurable, with multiple possibilities for use, communication and expansion.

IRRIGATION

Control up to 30 sectors using 50 irrigation programs.

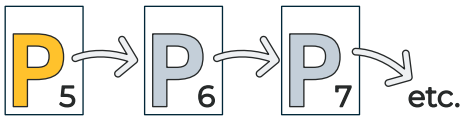
Each program can activate 1 to 4 irrigation sectors simultaneously.

There are three ways to start a program:

schedule start: at a specific time choosing the days of the week.

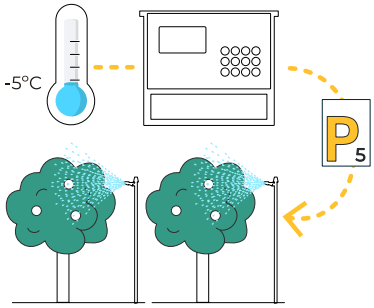
Days of the week

Sequential start: when another program has finished. It is used to irrigate several sector groups one after another. The first program in the sequence must be schedule start or conditional.



P6 sequential of P5 and P7 sequential of P6, etc.

Conditional start: when the contact closes the program start input (CS).



Conditional start due to frost

The programs can be stopped, before the irrigation ends, by three digital malfunction inputs.

Temporary malfunction (TM): stops the current irrigation but allows the next one to start.

Definitive malfunction (DM): for all programs and must be reset manually.

Conditional stop (CS): stops the program while the contact is closed, when it is opened the program resumes at the last point where it was.

Irrigation units can be in time (hh:mm) or volume (m3).

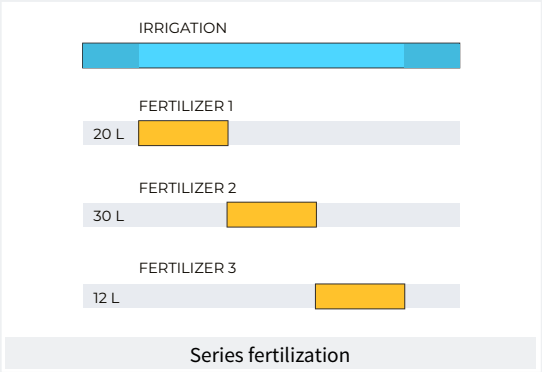
A record is made of the irrigation time and volume for each sector and in total.

FERTILIZATION

Configurabe from 0 to 4 fertilizers in separate tanks. Separates pre- and post-irrigation values in each program. Cleaning the injectors after fertilizing. Fertilization units in time (hh:mm), in volume (L). Configured to use mixers, with pre-mixing and intermittent or continuous mixing.

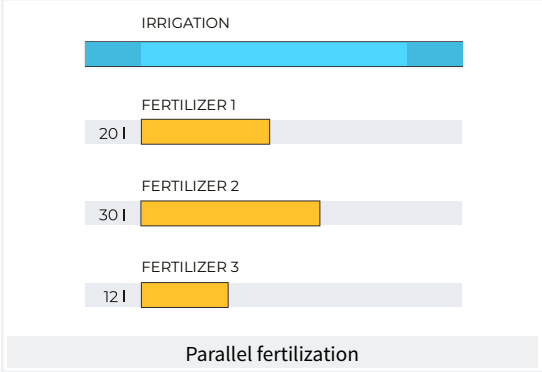
Fertilizers can be applied in two ways:

in series: one type of fertilizing after another from a single injector



Series fertilization

Parallel: various fertilizers simultaneously with one injector per type



Parallel fertilization

PUMPING

It has 2 general irrigation outputs, or pumps.

One of the pumps can be a motor pump or generator set. Each sector is assigned with the pumps associated to it.

The pumps are activated together with the sector. There are time delays to separate the activation of the pump from that of the sector during activation as well as in stop.

FILTER CLEANING

Configured for 0 to 9 filters, with selectable cleaning times. Programmable pause between filters.

Washing sequence may be started by the pressure differential and/or according to the time or volume of the water circulation.

Whether or not the irrigation sectors and fertilizers are stopped while the filters are being cleaned is configurable.

Control over malfunctions due to continuous cleanings.

A general filter output can be configured.

MANUAL

Through manual commands, the unit can:

- Start or stop a program
- Leave the unit out of service or on general stop
- Start or stop filter cleaning
- Terminate alarms and malfunctions
- Set the sectors to manual start, manual stop or automatic
- Erase totals
- Activate the outputs

READINGS

The unit saves the totals and event logs with the anomalies over the last days.

- General totals and totals by sector for irrigation and fertilization units in time and volume starting from an initial date.
- Anomalies with time and date of the incident and related instructions.

Plus, also offers:

- detailed records of every event occurring in the unit.
- Separate history per irrigation sector with the units in time and the irrigation and fertilizing volumes applied everyday.
- History of every analog sensor with average values, with maximum and minimums in 10-minute fractions.
- History of every meter sensor with the irrigation or fertilization values plus leaks in 10-minute fractions.

EXTERNAL MODULES

With the AgroBee-L Link option, the unit links with AgroBee-L radio modules, expanding the possibilities and the use of new features.

The different modules in the range activate valves and other irrigation elements, as well as read digital and analog sensors and meters.

The AgroBee-L radio modules work with LoRa radio modulation, which operates in the free bands of 868 MHz / 433 MHz / 915 MHz, obtaining coverage radio of up to 2500 m between two points (depending on the orography).

SUMMARY OF BASIC VERSION FEATURES

Head	Pumping	2 general pumps or valves, pump 1 can be a generator set or motor pump
	Filters	9 filters in a single group
	Fertilization	4 fertilizers
		Type: series or parallel Units: hh:mm, Liters
Irrigation	Sectors	30 Maximum 27 in the base, the rest in AgroBee or AgroBee-L
	Programs	50 programs From 1 to 4 sectors per program
		Start type: hourly, sequential and by input Units: hh:mm, m3
Sensors (inputs)	Digital	6 sensors Start cleaning / Temporary malfunction / Definitive malfunction Conditional stop / Program start / Alarm
	Meters	5 sensors Irrigation meter / Fertilizing meters 1 to 4
External modules	AgroBee-L	20 modules

SUMMARY OF PLUS VERSION FEATURES

The Agrónic 2500 with the Plus option offers a notable increase in features as per the basic version, which may come from the factory with the options pre-activated or be done so at any time during its operable lifespan to meet any new demands that arise in the facility.

- In the Programs function, in addition to the classic irrigation operation based on days of the week, there is a day frequency function, allowing irrigations to be repeated every certain amount of days, for example, every two days, one day on, one day off, etc.
- Programs with several activations separated by an amount of time in hours and minutes, thus irrigating by pulses.
- Programs with active schedules to limit the irrigation application within a schedule; useful when starting irrigation by sensor.
- Programs with active periods to limit the operation of each program to specific dates.
- Programs with safety times (hh:mm) between irrigation periods to prevent continuous commands; useful when commands are sensor activated and an incident occurs.
- Uniform fertilization. Uniform application is added in parallel and by volume for the most homogeneous fertilizer distribution possible within the irrigation units.
- New format in the irrigation and fertilization programming, in cubic meters per hectare (m3/ha) and liters per hectare (L/ha), respectively, where the unit makes the calculations for the units to be applied at the start of every irrigation.
- In Determining factors, the number of operating determining factors has been increased from 5 to 30. They can also affect all the unit or be assigned to specific irrigation programs; digital, analog or meter sensors can be used, or the data integrated from a previous irrigation; they can result in just a record being created or an anomaly and send a warning SMS message.

Operatives:

  - Definitive stop.
  - Temporary stop.
  - Conditioned stop.
  - Start and stop irrigation programs.
  - Warning.
  - Modify irrigation.
  - Modify fertilizing.
  - End due to rain.
  - Filter pressure gage.
  - Diesel pressure gage
  - Stop fertilizing

- Text descriptions for programs, sectors, sensors and determining factors.
- Possibility for 10 meters (up to 4 for fertilizing and the rest for irrigation) plus 40 analog sensors and 20 digital sensors.
- Manual commands so programs can be placed out of service, suspended for a certain number of hours or modified to change the day frequency meter or pending actions. As for determining factors, these may be deactivated or a definitive stop can be terminated. As for sectors, these can be left in automatic or manual start mode or in manual stop mode. As for sensors, the manual commands permit values to be entered on a virtual sensor.
- In Readings, there are new record and history sections. Chronological and detailed records are made of each event occurring in the unit. The history of the irrigation and fertilizing totals is based on the time and volume applied per sector, grouped in days on the unit and in 10-minute fractions from Agrónic APP/VEGGA/Agrónic PC. History for each analog sensor, with the average, maximum and minimum value, of the day on the unit and in 10-minute fractions on the Agrónic APP/VEGGA/Agrónic PC. History of each meter sensor, with the irrigation or fertilizing value plus the leak value in daily values or in 10-minute fractions on the Agrónic APP/VEGGA/Agrónic PC.

3 FORMATS, VERSIONS, MODELS AND OPTIONS

3.1. FORMATS

The Agrónic 2500 has two formats:

- box format With plastic box and transparent door to hang on the wall.
- Built-in format With metal box to be built-in on a cabinet or desk.

Formats
Box format
Built-in format in Agrónic 2509 and 2518 (9 and 18 outputs)
Built-in format in Agrónic 2527 (27 outputs)

3.3. VERSIONS

The Agrónic 2500 has two versions, the Basic version and the Plus version, which also has uniform fertilization, more determining factors, analog sensors, records, history, descriptive text in each element, more than one irrigation meter, total per meter and, for irrigation programs, operating by frequency of days, by activations, by schedule and active period.

Versions	Observations
Basic version	
Plus version	For analog sensor management, This version is required. *It is activated by code.*

3.2. MODELS

Power:

- Single 12 Vdc power supply model. It can be served with an external power supply from 220 Vac to 12 Vdc (included with the 220/24 option).

Valve type:

- Valves at 12 Vdc.
- Valves at 24 Vac. It can be served with an external power supply from 220 Vac to 24 Vac (included with the 220/24 option).
- Latch valves. Selectable 2- or 3-wire.

Number of outputs:

- Models with 9, 18 and 27 outputs.

Models	Observations	
Agrónic 2509 220/24 Vac	Includes 220/12 Vdc 2 A power supply and 220/24 Vac 50 VA transformer	9 Outputs
Agrónic 2509 12 Vdc		
Agrónic 2509 latch 2-wire	Includes solar regulator	
Agrónic 2509 latch 3-wire	Includes solar regulator and diode box	
Agrónic 2509 12 Vdc dual voltage	Includes 220/24 Vac 50 VA transformer and diesel pump control option	
Agrónic 2509 12 Vdc with battery charger	The Plus version and GPRS modem option are required	
Agrónic 2518 220/24 Vac	Includes 220/12 Vdc 2 A power supply and 220/24 Vac 50 VA transformer	18 Outputs
Agrónic 2518 12 Vdc		
Agrónic 2518 latch 2-wire	Includes solar regulator	
Agrónic 2518 latch 3-wire	Includes solar regulator and diode box	
Agrónic 2518 12 Vdc dual voltage	Includes 220/24 V 50 VA transformer and diesel pump control option.	
Agrónic 2518 12 Vdc with battery charger	The Plus version and GPRS modem option are required	
Agrónic 2527 220/24 Vac	Includes 220/12 Vdc 2 A power supply and 220/24 Vac 50 VA transformer	27 Outputs
Agrónic 2527 12 Vdc		
Agrónic 2527 latch 2-wire	Includes solar regulator	
Agrónic 2527 latch 3-wire	Includes solar regulator and diode box	
Agrónic 2527 12 Vdc dual voltage	Includes 220/24 Vac 50 VA transformer and diesel pump control option	
Agrónic 2527 12 Vdc with battery charger	The Plus version and GPRS modem option are required	

3.4. OPTIONS

Options		Description	Observations
Remote management communication	**Cloud** "Web platform" *(Agrónic APP + VEGGA)*	License to connect the unit to the cloud.	The GPRS or WiFi modem option are required. To use the Agrónic APP or VEGGA, the unit must be registered in the cloud and an annual fee paid. ***It is activated by code.***
	Cloud + PC "Agrónic PC program" *(Agrónic PC + Agrónic APP + VEGGA)*	**GPRS and WiFi** – License to connect up to 3 PCs/Servers or to the cloud. **USB, RS485 and Radiolink** – License to connect 1 PC/Server.	The GPRS, WiFi, USB, RS485 or Radiolink modem option are required. To use the Agrónic APP or VEGGA, the unit must be registered in the cloud and an annual fee paid. ***It is activated by code.***
	Modem link / SMS messages	Option to connect with Agrónic PC, Agrónic APP and VEGGA via GPRS, and/or receive SMS messages from the unit.	Includes GPRS modem with deactivated Movistar M2M SIM card. Includes 5dBi quad-band antenna and 3 meters of cable. Not compatible with the WiFi Link option.
	WiFi link	Option to connect with Agrónic PC, Agrónic APP and VEGGA via WiFi router.	Not compatible with the GPRS Modem Link / SMS Messages option. Includes 7dBi directive antenna with six meters of cable and 3dBi omni-directional antenna.
	USB link	Option to connect with Agrónic PC via cable.	Includes three meters of cable.
	433 MHz radio link	Option to connect with Agrónic PC via radio.	An Agrónic Radiomodem 433 MHz must be connected to the PC with the Agrónic PC program. See Agrónic Radiomodem 433 MHz in the Accessories section.
	RS 485 link for PC	Serial port to connect with Agrónic PC with RS485 Link box.	A 220/12 V 2 A power supply and an RS485 + USB link box are required.
Radio control	**AgroBee-L Link 868 MHz / 915 MHz / 433MHz**	Option to connect with external AgroBee-L modules (Lora technology).	**Only valid for units with version 3.** Includes coordinator, omni-directional antenna with 10 meters of cable, optionally 15 meters of cable (check price). The Plus version must be activated in order to activate general and read analog sensors.
	AgroBee-L link 868 MHz / 915 MHz / 433MHz + modem	Option to connect with external AgroBee-L modules (Lora technology) with GPRS modem included on the same board.	**Only valid for units with version 3.** Includes deactivated Movistar M2M SIM card and 5dBi quad-band antenna with 3 meters of cable for the GPRS modem. For the AgroBee-L modem, coordinator, omni-directional antenna with 10 meters of cable, optionally 15 meters of cable (check price). The Plus version must be activated in order to activate general and read analog sensors.
Sensor control	**RS 485 Modbus link**	Serial port to connect to Davis Vantage Pro 2 weather station.	**Only valid for units with version 3.** The "SDI-12 expansion and 4 analog inputs" option and the "Gateway for Davis Vantage Pro" complement are required.
	2 Analog inputs	Connector for 2 analog inputs. For voltage and current measurement (V/mA).	The Plus version must be activated on the computer.
	SDI-12 expansion and 4 analog inputs	Board to incorporate 8 sensors with SDI-12 protocol + 4 analog 4-20 mA sensors.	**Only valid for units with version 3** and Plus version activated. See Sensor section to see compatible SDI-12 models.
Other	**5 digital inputs**	Connector for 5 digital inputs.	Only for relay models (not compatible with latch units).
	Pivot control	Option to control position, movement direction, speed, start, stop, etc. up to a maximum of 4 pivots.	The Plus version must be activated on the computer. ***It is activated by code.***
	Diesel pump control	Option for automatic start of a motor pump or generator set.	***It is activated by code.***

4 TECHNICAL SPECIFICATIONS

General power supply		
Voltage		12 Vdc +15% -10%
Frequency		--
Power consumption		Less than 12.5 W (0.3 W standby)
Fuse	Input	Thermal (PTC) 1.1 Amp. at 25°C, auto-resettable

Output power source		
Voltage		From 12 to 24 Vdc or Vac (maximum 30 V)
Fuse	Input “R+”	Thermal (PTC) 3.0 Amp. at 25°C, auto-resettable

Outputs		
Digital	Number	9, extendable to 18 and 27.
	Type	By relay contact, with 24 VAC potential (external transformer).
	Limits	30 Vac / 30 Vdc, 1 Ampere, 50-60 Hz, CAT ll (per output)
All outputs have double isolation in respect to the power output.		

Inputs		
Digital sensors	Number	6, expandable (option) to 9 on non-Latch models.
	Type	Coupling options, operate at 12 or 24 V
Analog (option)	Number	2
	Type	4-20 mA, 0-20 V. (on demand, with galvanized separation)
	Number	4
	Type	4-20 mA

Environment	
Temperature	-5°C to 45°C
Humidity	< 85%
Altitude	2000 m
Pollution	Grade 2

Weight	
Box model	From 1.0 kg to 1.6 kg
Built-in model	From 1.1 kg to 1.5 kg

Memory and clock safeguard	
Memory	No maintenance, 10 years for parameters and programs in FRAM memory and FLASH memory records
Clock	48 hours without power

Statement of compliance	
Complies with Directive 89/336/EEC for Electromagnetic Compatibility and Low Voltage Directive 73/23/EEC for Product Safety Compliance. Compliance with the following specifications was demonstrated as indicated in the European Community Official Gazette.	CE

Symbols that may appear on the product							
	Protective ground terminal		Antenna		Ground terminal		Double isolation

This symbol indicates that electronic devices should not be disposed of along with household waste at the end of their useful life. The product must be taken to the corresponding collection point for electric and electronic unit recycling and correctly processed pursuant to Spanish legislation.

5 PARAMETERS

To install and prepare the unit for operation, enter the Parameters section and adapt them to the needs of each installation.

To access the menu, press 'Function - 4. Parameters' on the keyboard .

FUNCTION

1. PROGRAMS
2. MANUAL
3. READINGS
4. PARAMETERS

It is divided into eight sections. To enter one of them, just press the corresponding index number or move to the selection with the arrow keys and then press 'Enter' .

PARAMETERS

1. Fertilization
2. Filters
3. General
4. Programs
5. Sectors
6. Communications
7. Various
8. Installer

If a menu has more than 5 lines, the '↓' symbol will be displayed to indicate that they do not fit on the screen, so press the index number or move the key '↓' to access them.

An example of how to interpret the questions and how to modify the possible values to configure is explained:

Example

Example of interpretation

N. of fertilizers: 0
Fertilizer general: no
Type of fert.: series

N. of fertilizers *(0 ... 4)*

- Underlined value or number: indicates the default value that is configured in the controller.

Fertilizer general *(yes | no)* YES 9 NO 0

- Indicates the option to respond with 'yes' or 'no'.

Type of fert. *(series | parallel)* YES 9 FRI 6

- Indicates that there are several options to modify.

5.1. FERTILIZATION

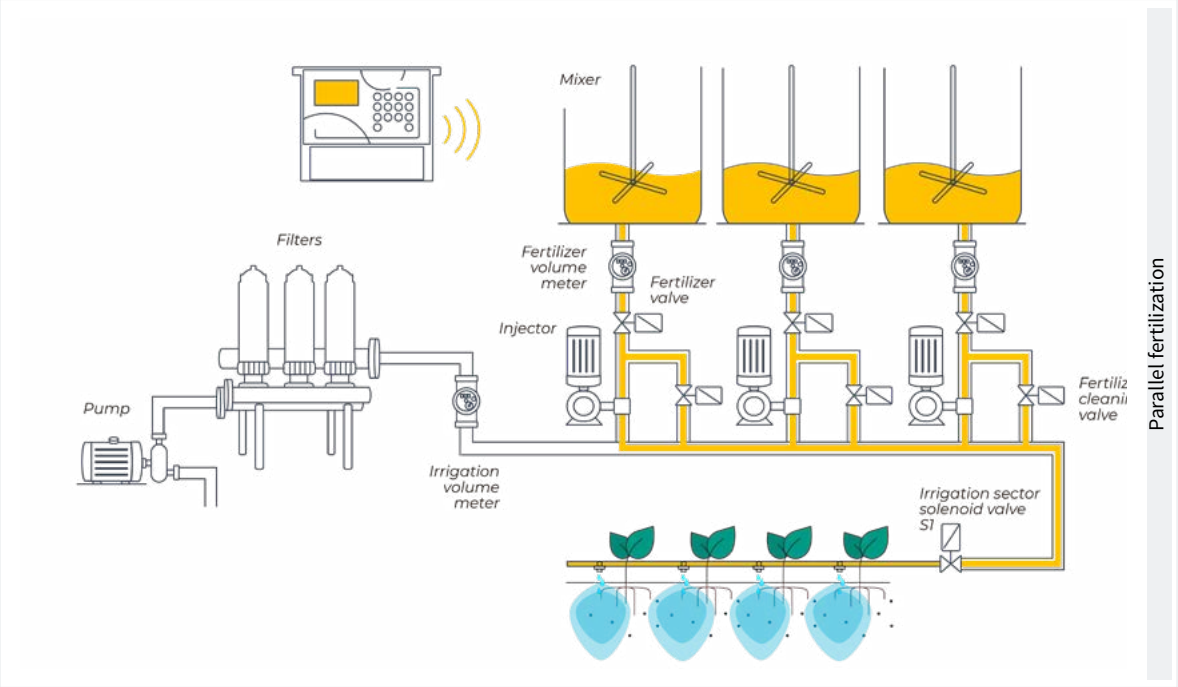
The Agrónic 2500 can operate with a maximum of four fertilizers that are applied in series (one after another), in parallel (all at once), in units of time or volume and separate pre/post irrigation for each program.

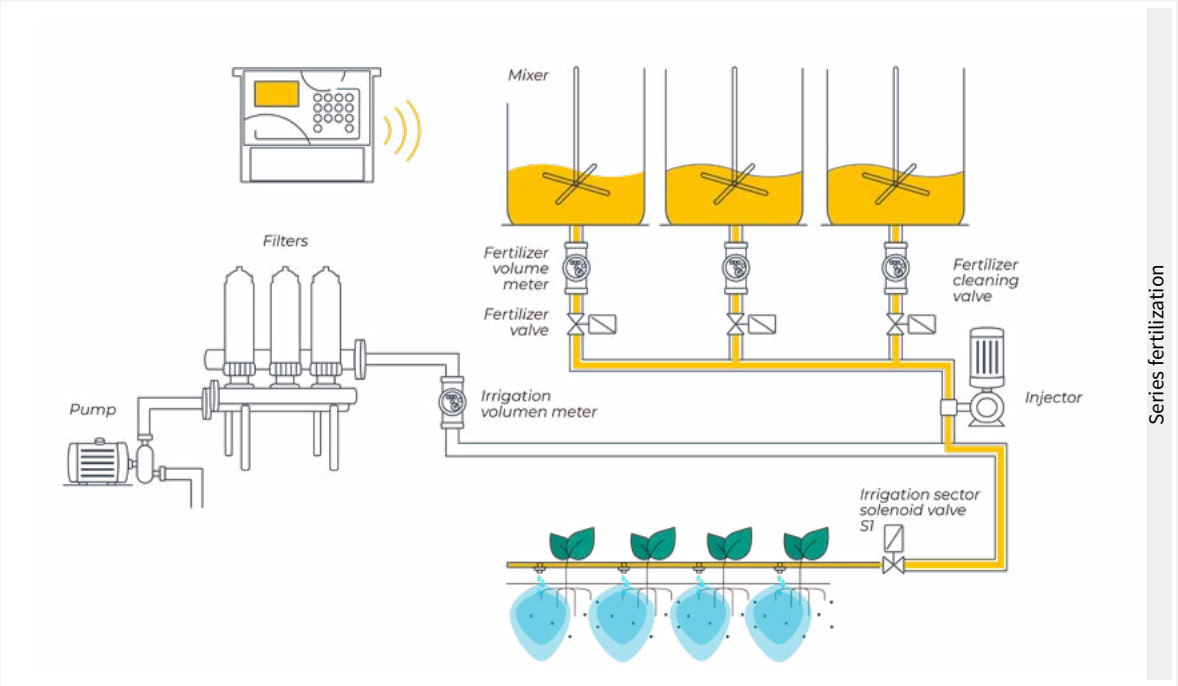
For each fertilizing, there may be a mixer that stirs the fertilizing tanks before and during irrigation.

The outputs where the fertilization elements can be connected are assigned in 'Function - 4. Parameters – 3. General'.

Video tutorial available for this section

Watch video





FERTILIZATION PARAMETERS

N. fertilizers: 4

Fertilizer general: yes

Mixer F1: no
Mixer F2: yes
Mixer F3: yes
Mixer F4: no

Pre-mixing: 015”
Mixing start: 030”
Mixing stop: 120 ”
Last cleaning: 030”

Number of fertilizers *(0 ... 4)*: enter in the unit the number of fertilizers installed in the irrigation network.

Leave the value at 0 if there are none.

Fertilizing general *(No | Yes)*: is an output normally used to connect the injector in series application and is only activated when one of the fertilizers activates. Enter ‘Yes’ if it is going to be used.

Fertilizing mixer *(No | Yes)*: each fertilizing can be assigned a separate mixer. Indicate which fertilizers have a mixer.

Pre-mixing *(000 ... 999”)*: time that the fertilizer will be stirred before starting fertilization. Pre-mixing comes in

before the program starts. If it is less than 10 minutes since the last irrigation, do not run the pre-mixing.

Mixing during fertilization can be continuous or with pauses.

Mixing start *(000 ... 999")*: mixing time before a pause. If continuous mixing is desired, set the mixing pause to 0 and any time here.

Mixing stop *(000 ... 999")*: time that the mixing will be stopped after a running time. If continuous mixing is desired, set this time to 0.

Last cleaning *(000 ... 999")*: when fertilization ends, the general and fertilizing cleaning outputs are activated during this time. If the fertilization is in series, it cleans at the termination of each fertilizing. If it is in parallel, when the last one ends.

5.2. FILTERS

The Agrónic can control the filter cleaning. Cleaning can be started manually or automatically.

It starts automatically by a differential pressure gage or by an amount of time or a volume of water having passed through the filters. It will only start automatically if the general one (P1 or P2) assigned to the filters is activated. In other words, when there is a program irrigating. It can be started manually whenever desired from 'Function - 2. Manual - 4. Filters'.

FILTER PARAMETERS

N. of filters: 5

Initial wait: 000"

Time of activation
by filter: 045"

Pause between filters: 04"

Units between cleanings
Volume: 0000 m3
Time: 0000 '

General filter: no
Relationship with P1: yes
Relationship with P2: no

Max. number of continuous
cleanings: 0

Sector stop: no

Number of filters *(0 ... 9)*: number of filters.

Initial wait *(000 ... 999")*: the waiting time between activating the filter general and starting cleaning the first filter.

Time of activation by filter *(000 ... 999")*: time that the water will pass through each filter to perform cleaning.

Pause between filters *(00 ... 99")*: waiting time between closing the cleaning of one filter and activating the next one.

Units between cleanings *(0000 ... 9999)*: the irrigation time or volume that must pass through the filters for automatic cleaning to begin. Time in minutes and volume in m3.

General of filters *(No | Yes)*: indicate 'Yes' to activate an output during the entire filter washing process.

Relation with P1, P2 *(No | Yes)*: it indicates the pump from which the water that passes through the filters comes from. It is used to count units between cleanings and to run the cleaning.

Maximum number of consecutive cleanings *(0 ... 9)*: if cleaning is started by the differential pressure gage and is always activated, it will do the cleanings configured here at most. It then goes into malfunction and will not continue cleanings until it is manually reconfigured. At 0, it never goes into malfunction.

To restart cleaning go to 'Function - 2. Manual - 4. Filters'.

Stop of sectors *(No | Yes)*: if cleaning takes place during irrigation, select whether or not to postpone the irrigation while it does so. It is used when sectors must be closed during cleaning to maintain pressure.

- Yes: programs that have sectors related to the pump that use cleaning are postponed. When the cleaning is finished, the programs continue where they were.
- No: the programs remain active during cleaning and the irrigation sectors are not closed.

Video tutorial available for this section

Watch video

5.3. GENERAL

The meter and alarm inputs and the pump, fertilizing, filter, etc. outputs are configured in this section.

These inputs and outputs must be from the base of the Agrónic 2500, they cannot be on external modules such as the AgroBee-L.

Pumps

Output connected to the drive pumps or general valves.

GENERAL PARAMETERS

Pump 1: yes
Temp. start: 018”
Temp. stop: 012”
Stop in the sectors: no

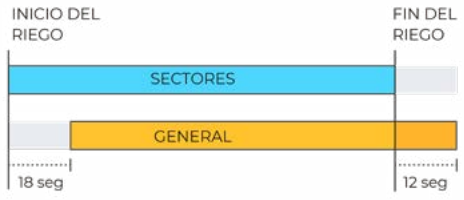
Pump 2: yes
Temp. start: 005”
Temp. stop: 022”
Stopping the sectors: yes

Pump 1 *(No | Yes)*: yes if pump 1 output is to be used. An output must be assigned to the pump.

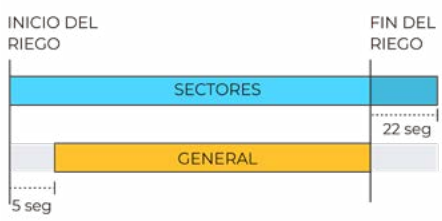
Temp. start *(000 ... 250”)*: time delay in activating the pump when starting an irrigation.

Temp. stop *(000 ... 250”)*: time that the pump stop is extended when stopping irrigation.

Stopping the sectors *(No | Yes)*: yes for the pump to stop when irrigation is finished and for the sectors to remain open for a few more seconds.



Run timing: 018
Stop timing: 012
Stop in the sectors: no



Run timing: 005
Stop timing: 022
Stop in sectors: yes

Video tutorial available for this section
Watch video

Inputs

At the base of the Agrónic 2500 there are 6 digital inputs, identified as D1 to D6, to connect the following sensors.

GENERAL PARAMETERS

Assign inputs:

IM	FM
1	2

Assign inputs:

SC	TM	DM	CS	PS	AL
4	0	0	5	0	0

IM Irrigation meter.

FM Fertilizing meter 1 to 4, when fertilizing is in series format, there is only one common meter for all CF fertilizers. For parallel fertilization there will be 4 meters: cF1 to CF4.

SC Start cleaning. Used to connect a differential pressure gage and make cleanings by increasing the pressure between the inputs and outputs for a group of filters. The IL input is only taken into account if there is an irrigation program.

TM Temporary malfunction, it stops the irrigation program in progress but allows the next sequence or start to continue. The AT input is only taken into account if there is an irrigation program.

DM Definitive malfunction, is what causes a total and definitive stop of the system until it is manually reactivated by the user in ‘Function - 2. Manual - 6. Terminate stops’. The AD input is only taken into account if there is an irrigation program.

CS Conditional stop, when activated, all the programs under way stop completely with their remaining units intact. Once the stop is over, irrigation resumes at the same point. While in a conditional stop, programs may begin and be placed on standby.

PS Start programs, a digital sensor will begin the irrigation of one or more programs. The input will no longer be accepted if the programs or their sequences have not terminated.

AL Alarm, a normally closed digital sensor will send an SMS when the contact is opened.

GENERAL PARAMETERS

Irrigation meter:
value per pulse: 00100.00 L
Delay without pulse: 010'

Fertilizing meter:
pulse per value: 00001.00 L
Delay without pulse: 010'

Detection delay
Input SC: 030"

Delay, detection
Input TM: 180"

Irrigation meter

The input allows a maximum of 5 pulses per seconds.

Pulse value *(00000 ... 90000 L)*: volume measured by each pulse.

Delay with no pulse *(000 ... 255')*: time in minutes that must transpire without receiving pulses from the meter for a definitive malfunction to occur and irrigation to stop (At 0 there is no meter error control).

Fertilizing meter

If the fertilization is in parallel and there are several meters, they are all are assigned the same values. The input allows a maximum of 5 pulses per seconds.

Pulse value *(00000 ... 90000 L)*: volume measured by each pulse.

Delay with no pulse *(000 ... 255')*: time in minutes that must transpire without receiving pulses from the meter to stop fertilization (At 0 there is no meter error control).

Sensors SC, TM, DM, CS, PS, AL.

Only for sensors that have an input assigned.

Detection delay *(000 ... 999")*: time in seconds that the input must be active in order for it to perform the function.

Outputs

At the base of the Agrónic 2500, there can be up to 27 digital outputs, identified as R1 to R27, to connect the general outputs. Start with the unit's last outputs and reserve the first ones for the sectors.

GENERAL PARAMETERS

Assign outputs:
m1 M2
18 17

Assign outputs:
f1 F2 FG
15 14 16

Assign outputs:
m1 M2 FC
13 12 20

Assign outputs:
c1 C4 GC
10 7 11

Pumps

P1 and P2: outputs connected to pumps or general valves.

Fertilizers

F1, F2, F3, F4: outputs connected to the fertilizing injectors.

FG: output connected to the pump or general fertilizing.

M1, M2, M3, M4: outputs connected to the mixers.

FC: output connected to the fertilizing cleaning valve.

Filter cleaning.

Before assigning the outputs, configure how many filters there are in the installation. This is assigned in 'Function - 4. Parameters - 2. Filters'.

C1: output assigned to the first filter.

Cx: output assigned to the last filter.

GC: output connected to the general filter cleaning valve.

The outputs that occupy the filters between the first and last are assigned automatically. If there is only one filter, the last one is not asked.

5.3.1 Diesel option

This option is used to start, stop and monitor diesel pumps for malfunctions.

Operation

The diesel pump is related to pump 1. It starts when a sector that uses pump 1 opens and stops when the last sector that uses pump 1 closes.

First the sector is opened, the contact and preheating output of the diesel pump is activated. When preheating is finished, the start output activates. If the pressure gage input is activated, the diesel pump has already started and irrigation begins. If it is not activated after the boot time, wait 30" and attempt another boot. If the diesel pump cannot be started in 4 attempts, the stop output is activated, it enters Malfunction and makes a record. The pump will attempt to start again at the next irrigation start.

When irrigation is finished, it closes the sectors and the pump, carrying out the water hammer timings and once the end of pump time has transpired, it activates the stop.

'Consult – 1. General' shows the status of the diesel pump.

These screens only appear if the Diesel Option is activated.

Pressure gage

A pressure gage is used to detect that the pump is running. Its purpose is twofold: to detect start-up when attempting to start and, once finished, to detect insufficient oil pressure. In the Agrónic Basic version, the pressure gage must be connected to digital input 6 (D6). This input cannot be used for any other function. If you have a generator on which there is no need to control the pressure gage input, set the start and stop times to 0.

Video tutorial available for this section

Watch video

GENERAL PARAMETERS

Preheating: 08"
Start-up: 04"
Stop: 060"

Pump input: 085"
Pump end: 0120"

Assign outputs:

ar	Pa	Co	Pr
18	17	16	15

Preheating *(00 ... 99")*: time that the preheating output (Pr) is activated before starting the diesel pump.

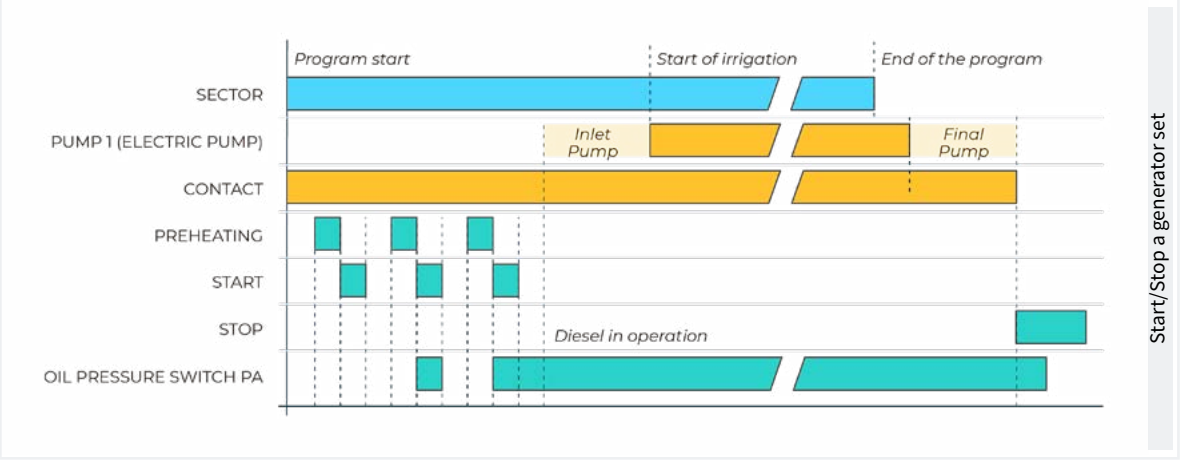
Start *(00 ... 99")*: time that the start output (Ar) is activated to start the diesel pump.

Stop *(000 ... 999")*: time that the stop output is activated (Pa) to stop the diesel pump.

Pump input *(000 ... 999")*: time between when the diesel pump is running and when the pump 1 output is activated. It is used to bring the generator set into operation before starting the pump.

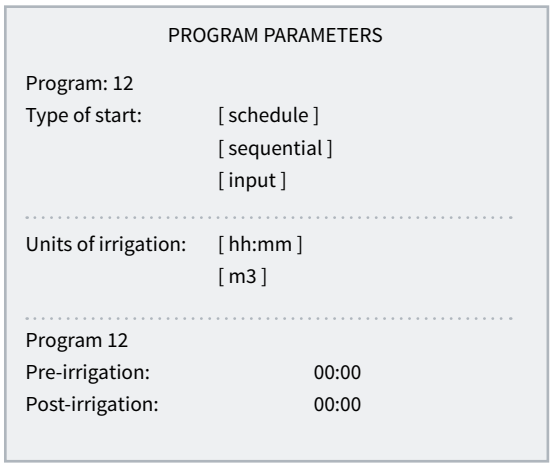
End of pump *(000 ... 999")*: time between when the output of pump 1 stops and the diesel pump stops.

Outputs Ar, Pa, Co, Pr: corresponds to the Start, Stop, Contact and Preheating outputs. If the Agrónic is dual voltage, these outputs are assigned automatically to the last four of the unit.



5.4. PROGRAMS

The programs are those that manage crop irrigation and fertilization. They control the opening and closing of sectors and fertilization. The Agrónic 2500 has 50 programs.



Program *(00 ... 50)*: program number to be configured.

Start-up type *(schedule | sequential | input)*: determines how the program is to be started.

- Schedule: starts at a certain time.
- Sequential: starts when another program ends.
- Input: starts when the IP input is activated.

If the Sequential with 99:00 option is activated in 'Function - 4. Parameters - 8. Installer - 5. Various', changing the start schedule to sequential can be entered in the program. There is no need to do it from parameters.

Irrigation Units *(hh:mm | m3)*: determines which units the program will use for irrigation. When the units are volume (m3), the irrigation meter must be configured.

- hh:mm: hours and minutes.
- m3: cubic meters.

Pre-irrigation *(00:00 ... 99:59)*: time or volume that must transpire before starting fertilization. The units and format are the same as irrigation. At 0, fertilization begins the same as irrigation.

Post-irrigation *(00:00 ... 99:59)*: time or volume that must transpire between fertilizing termination and the program termination. The units and format are the same as irrigation. If fertilizing has not yet finished when it arrives at post-irrigation, it stops and anomaly 26 is recorded. If irrigating and fertilizing by time and the fertilization is series or parallel, there is no need to run pre-irrigation. It is automatically calculated based on the post-irrigation and fertilization time.

5.5. SECTORS

The sectors are the outputs where the irrigation valves are connected. They are related to pumps and the irrigation meter. The history stores the irrigation and fertilizing that each sector totals. The Agrónic 2500 can manage up to 30 sectors.

SECTOR PARAMETERS

Sector: 01

Sector: 01
Pump 1: yes
Pump 2: no

Sector: 01
Waterhammer
temporization: +028 “

Meter: yes
Planned flow: 015.50 m3/h

Sector *(00 ... 30)*: sector number to be configured. The output of the sector is linked to the sector number, sector 1 with R1, sector 2 with R2, etc. There is an exception when the Agrónic has AgroBee-L.

Pump 1 and 2 *(No | Yes)*: yes if the sector requires pump 1 and/or 2 to be activated to irrigate.

Waterhammer timing *(-127 ... 000 ... +127”)*: time in seconds of delay between the opening and closing of consecutive and general sectors.

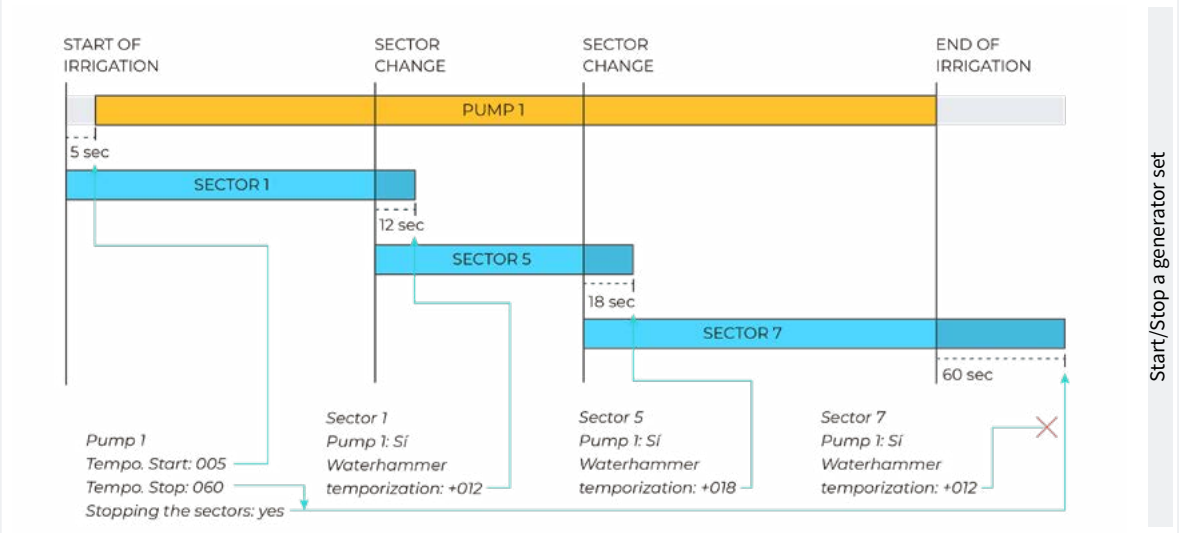
- With positive values, the valve opens immediately when irrigation starts and stays open for the number of seconds programmed when it ends.
- With negative values, the opening is delayed for the number of seconds programmed and when irrigation ends, it closes immediately. There may be an exception if the sector is the last of an irrigation sequence and the pump stopping timer is applied.

Meter *(No | Yes)*: yes if the sector will use the irrigation meter.

Planned flow *(000.00 ... 655.00 m3/h)*: it is the flow consumed by the sector through drip emitters, sprinklers, etc. It is used to distribute the irrigation and fertilizing volumes in the histories and totals of the sectors that irrigate at the same time.

Video tutorial available for this section

Watch video



AgroBee or AgroBee-L option

With this option, the sector valves can communicate remotely via radio, so that you can configure in the sector which output the valve will be connected to.

It also enables an auxiliary output that can be common with other sectors. Activated whenever any of the sectors that have it configured are activated.

SECTOR PARAMETERS

Sector: 01
N. of output: 00000
N. of output: 00000

The first question about output number corresponds to the sector and the second to the auxiliary output.

To configure AgroBee or AgroBee-L outputs, see the table in section ‘6. Input and output coding’.

The Communications Query section is detailed in the Communications Manual *r1850*

See Communications Manual

Video tutorial available for this section

Watch video

5.6. VARIOUS

VARIOUS PARAMETERS

Screen:
automatic shut-off: yes
Illumination: yes
Contrast: 5

Keyboard:
sound level: 2

PIN Security
PIN code: 0000

Screen

Automatic shut-off *(No | Yes)*:

- yes: the screen turns off after 5' of not touching any key.
- No: the screen is always on.

Ilumination *(No | Yes)*:

- yes: the screen has lighting activated.
- No: the screen lighting is stopped.

Contrast *(00 ... 05 ... 10)*: screen contrast level.

Keyboard.

Sound level *(0 ... 2 ... 5)*: duration of the sound when pressing a key.

PIN security.

Like mobile phones, the Agrónic can be protected with a PIN code so that it cannot be used if it is stolen. If the Agrónic is without power for more than 10 minutes, the PIN code will be requested when it is powered again. If the correct code is not entered three times, the Agrónic is blocked and the deactivation code (PUK) is requested. To get the code, please contact Progrés. Even if the Agrónic is blocked, the programs continue to run normally and it will operate normally if there is a connection to Agrónic APP/VEGGA/Agrónic PC.

To change the PIN code, first enter the current PIN, otherwise it cannot be changed.

PIN code *(0000 ... 9999)*: security code. At 0 PIN protection will not be used.

Video tutorial available for this section

Watch video

5.7. INSTALLER

This section shows the least-common parameters to change once the unit has been installed.

The input to this section is protected with an access code that, if needed, must be requested from Progrés.

INSTALLER PARAMETERS

1. Erasure
2. Events
3. Access codes
4. Activate options
5. Various
6. Communications
7. Language
8. Update software
9. Backup param.

5.6.1 Erasure

Totally erase the memory, RAM, records, programs and sectors, etc.

5.6.2 Events

It is not possible to make modifications in the basic version.

5.6.3 Access codes

Enables the limited access to the Parameters, Functions or Erase Totals sections. Enter the 4-digit access code here. Leave the value at 0 if this is not necessary.

5.6.4 Activate options

Used to activate or deactivate options once they have been installed on the unit. To activate them, enter the code provided by Progrés, and to deactivate them, enter an erroneous code. The activated option will display a '*' to the right of the text for the option.

5.6.5 Various

Programs

- Sector limit *(0 ... 8)*: only the sectors indicated at the base of the Agrónic can be irrigated at the same time. If more sectors are to be irrigated, they are postponed until another one finishes. It is used so that there is no consumption overload in the output transformer.
- Sensor limit in program *(0 ... 4)*: 1 to 4 sectors can be activated in each irrigation program. Here you configure how many sectors are asked in the program.
- Alternating sequential *(No | Yes)*: when you want a program sequence to not always start with the same one.

Video tutorial available for this section

Watch video

Example

If program 1, 2 and 3 are linked, the first time it starts with program 1, the second time with program 2 and so on repeatedly.

- Sequential with 99:00? *(No | Yes)*:
  - Yes: to be able to indicate that one program is sequential to another in the start time.

Example

To indicate that the program is sequential from 2, enter 99:02.

- In volume irrigation, ask for time *(No | Yes)*:
  - Yes: to set a maximum irrigation time when the units are configured by volume. This time is given for safety.
- Active schedule *(No | Yes)*:
  - Yes: it will ask the active schedule in 'Function - 1. Program'.
- Active period *(No | Yes)*:
  - Yes: it will request the active period in 'Function - 1. Program'.
- Activations *(No | Yes)*:
  - Yes: it will ask in 'Function – 1. Program' for activations.
- Outside of active hours, end irrigation *(No ... Yes)*:
  - yes: if the program reaches the end of the active schedule and has not finished, it continues with irrigation.
  - No: if the program reaches the end of the active schedule and has not finished, irrigation stops.

- Volume format *(00000 | 0000.0 | 000.00)*: when the units are by volume, here you determine which format you want to work in.

Fertilization

- Fertilizing type *(series | parallel)*: it indicates how the fertilizers are injected into the irrigation, one after another (series), all at the same time (parallel).
- Fertilizing units *(hh:mm | liters)*: indicates which fertilizing units will be used: time (hh:mm) or volume (liters) . These units are common for all programs. Irrigation units are configured for each program.
- Stop when cleaning filters *(No | Yes)*:
  - Yes: the fertilization is temporarily stopped when the filters are cleaned.

Inputs and outputs

- Latch valve *(2 wires | 3 wires | 2 w.inv)*: if the base of the Agrónic is latch, you can configure what type of solenoids. If 3-wire is selected, outputs M1 and M2 can be configured as 2-wire latch.
- Latch voltage *(12 V | 22 V)*: the latch trigger voltage is selected.
- Pump1-Tension latch *(12 V | 22 V)*: latch trigger voltage for P1.
- Pump1-Latch time *(93.7 | 125.0 | 156.2 | 187.5 | 218.7 | 250.0 | 281.2 | 312.5 | 343.7 | 375.0 | 406.2 | 437.5 | 468.7 | 500.0)*: latch trigger time for P1.
- Pump2-Tension latch *(12 V | 22 V)*: latch trigger voltage for P2.
- Pump2-Latch time *93.7 | 125.0 | 156.2 | 187.5 | 218.7 | 250.0 | 281.2 | 312.5 | 343.7 | 375.0 | 406.2 | 437.5 | 468.7 | 500.0)*: latch trigger time for P2.
- Daylight saving time *(No ... Yes)*:
  - Yes: the controller automatically changes from winter to summer schedule.
- Digital Meter Sensor Anti-bounce Filter *(00.0 ... 10.0")*: you can define a time for the back-torque filter for the base meter inputs (00.0 no filter). This value is the minimum time that the meter pulse needs to be active for the total value to increase. A pulse lower than this time does not increase the total value.

5.6.6 Communications

See the '1850 Agrónic 2500 Communications' manual.

5.6.7 Language

The available languages are Spanish, English, French, Italian, Portuguese and Catalan.

5.6.8 Update software

To update the Agrónic 2500 software by connecting it to a PC using a USB cable.

5.6.9 Backup parameters

Saves a copy of all the Agrónic parameters and programs in an internal flash memory. This copy can be recovered whenever desired, leaving the unit with the same configuration as when it was saved.

6 INPUT AND OUTPUT CODING

The inputs and outputs are coded in a way that makes it easy to indicate where they are located; There are five digits in total. The most significant indicates the unit: base, AgroBee or AgroBee-L, the next two digits for the AgroBee, AgroBee-L module number or internal values and the last two for the input or output number.

DIGITAL OUTPUTS

0 00 00			Description
0: base	00	01 - 27	Base output
1: agroBee	01 - 16	01 - 09	Depends on the AgroBee model
3: agroBee-L	01 - 20	01 - 09	Depends on the AgroBee-L model

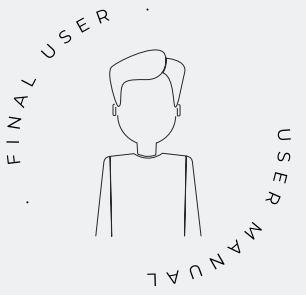
Example

30102: output 2 of the module 1 of the AgroBee-L system

DIGITAL INPUTS

0 00 00			Description
0: base	00	01 - 12	01 to 10: base
	01	01 - 02	01: voltage on the outputs 02: voltage on the solar panel

The sections on Programming, Manual Actions and Query are detailed in the User Manual *r2467 r2469*



See User Manual

7 PRACTICAL EXAMPLES

The examples in the manual are summarized. To see the step-by-step explanation of how to do it, please go to our website. There are many more examples that may be useful to you.

Configure the irrigation meter

First find out which digital input the meter is connected to. Then go to 'Function - 4. Parameters - 3. General' (see section 5.3) and enter that input in CR. Configure the pulse value and the maximum time between pulses for the meter malfunction. In 'Function - 4. Parameters - 5. Sectors' enter which sectors use water from that meter. By default, all sectors are configured to use the meter.

Connect a diesel generator with a control unit

If you have a unit with the diesel option and a generator with a control unit, it may be that only a contact signal is required for the generator. In this case, set the start and stop time to 0 (Diesel option).

Save a copy of the parameters and programs

The Agrónic allows you to save a copy of all the parameters and programs that can be recovered when necessary. To make the copy or recover the last copy created, go to 'Function - 4. Parameters - 8. Installer - 9. Backup parameters'. If there is a saved copy, enter the date and time it was made. You can recover the saved copy or create a new one.

Protect the Agrónic against theft

The Agrónic has an anti-theft system with a 4-digit pin code. If the Agrónic is disconnected for more than 10 minutes, the pin code is requested when it reconnects (Various).

8 TROUBLESHOOTING

These are the most common problems and we attempt to provide the solution to facilitate the installation process.

An output is not activated

- Go to 'Consult - 7. Agrónic' and check that there is voltage in the output part and that the mother-board is correctly configured.
- Unit with relay base. If there is no voltage at the outputs (V.Out: no) the 12 Vdc/24 Vac supply of the R- R+ terminals may be failing (check with a tester) or one of the valves is crossed (disconnect the output terminal).
- Unit with latch base. Check that the type of latch valve and the trip voltage are correct in 'Function - 4. Parameters - 8. Installer - 5. Various'. If none of the valves work, open the unit and check whether there are any burned components on the base plate. To carry out tests, the output can be activated directly from 'Function - 2. Manual - 9. Outputs'.

The meter accumulates more volume than the real one

- First make sure that the meter cable is away from any AC cables.
- When the meter relay changes state, it can cause 'bounces' in the line, which can cause the Agrónic to accumulate extra pulses. To avoid this, increase the time of the back-torque filter in 'Function - 4. Parameters - 8. Installer - 5. Various - Digital Meter Sensor' (Various).

An input is not read from the base

- Go to 'Consult - 7. Agrónic' and check that there is voltage in the output part and that the mother-board is correctly configured (see section 6.7 of the user manual).
- If there is no voltage at the outputs (V.Out: no) the inputs will not work, check the voltage of the R- R+.
- If there is voltage (V.Out.: yes) go to 'Consult - 7. Agrónic' and press the '1' key to access the internal query. The status of the 6 digital inputs (DI) appears at the bottom of the screen. Use a cable to directly connect the CD terminals and the input to be tested (D1 to D6). A 1 (connected cable) or a 0 (unconnected cable) must appear on the screen.

9 TECHNICAL SUPPORT

Apart from this manual, the Agrónic 2500 has other manuals, instruction videos, tips and frequently asked questions on the Progrés website, Technical Support section.

Assembly and connection manual *r2465*

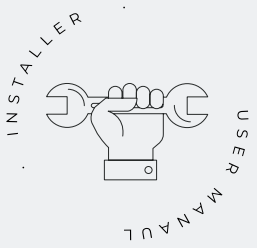
Intended for those who physically install the Agrónic on the farm or in the electrical panel. Shows the dimensions and how the different connection options must be wired.

See manual

Communications manual *r1850*

Intended for installers who configure communications with the cloud for VEGGA and Agrónic APP or with the Agrónic PC Windows program. There is the explanation of the different communication systems.

See manual



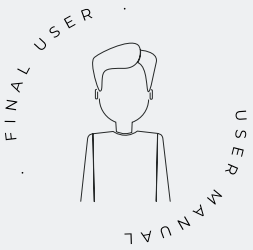
Installer's manual

r2466 r2468

Intended for installers who configure the Agrónic irrigation system. It details all the parameters related to irrigation: general, sectors, programs, fertilization, etc.

There is one manual for the BASIC version and another for the Plus version.

Basic manual Plus manual



End user manual

r2467 r2469

Intended for the Agrónic end user. It details the most common use of programming, manual actions and queries. The parameters are not explained in this manual.

There is one manual for the BASIC version and another for the Plus version.

Basic manual Plus manual

Pivot manual

r2485

For the installer and end user who uses the unit for pivot control.

See manual

Solar irrigation manual *r2006*

Intended for the installer and user who uses hybrid solar irrigation systems (panels + generator set).

See manual

Installing the options

Installation Option GPRS

Installation Option USB (r1933)

Installation Option WiFi

Installation Option AgroBee

Installation Option AgroBee-L (r2367)

Installation Option 2 analog inputs (r2366)

Installation Option SDI-12 and 4 in. Ana. (r2369)

Installation Option 5 digital inputs (r2370)

Installation Power limiting resistor

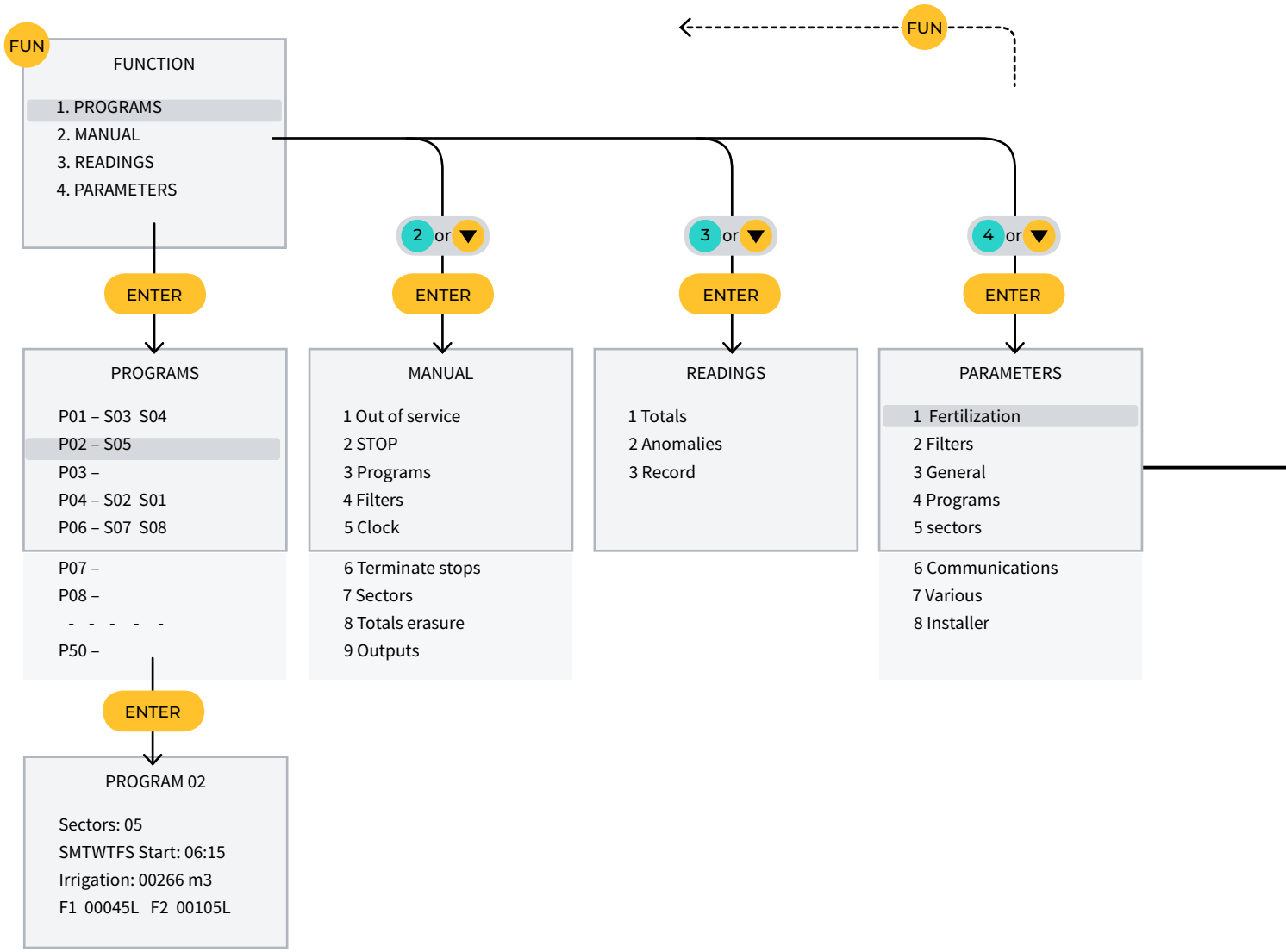
Ver Manuales

Video tutorials

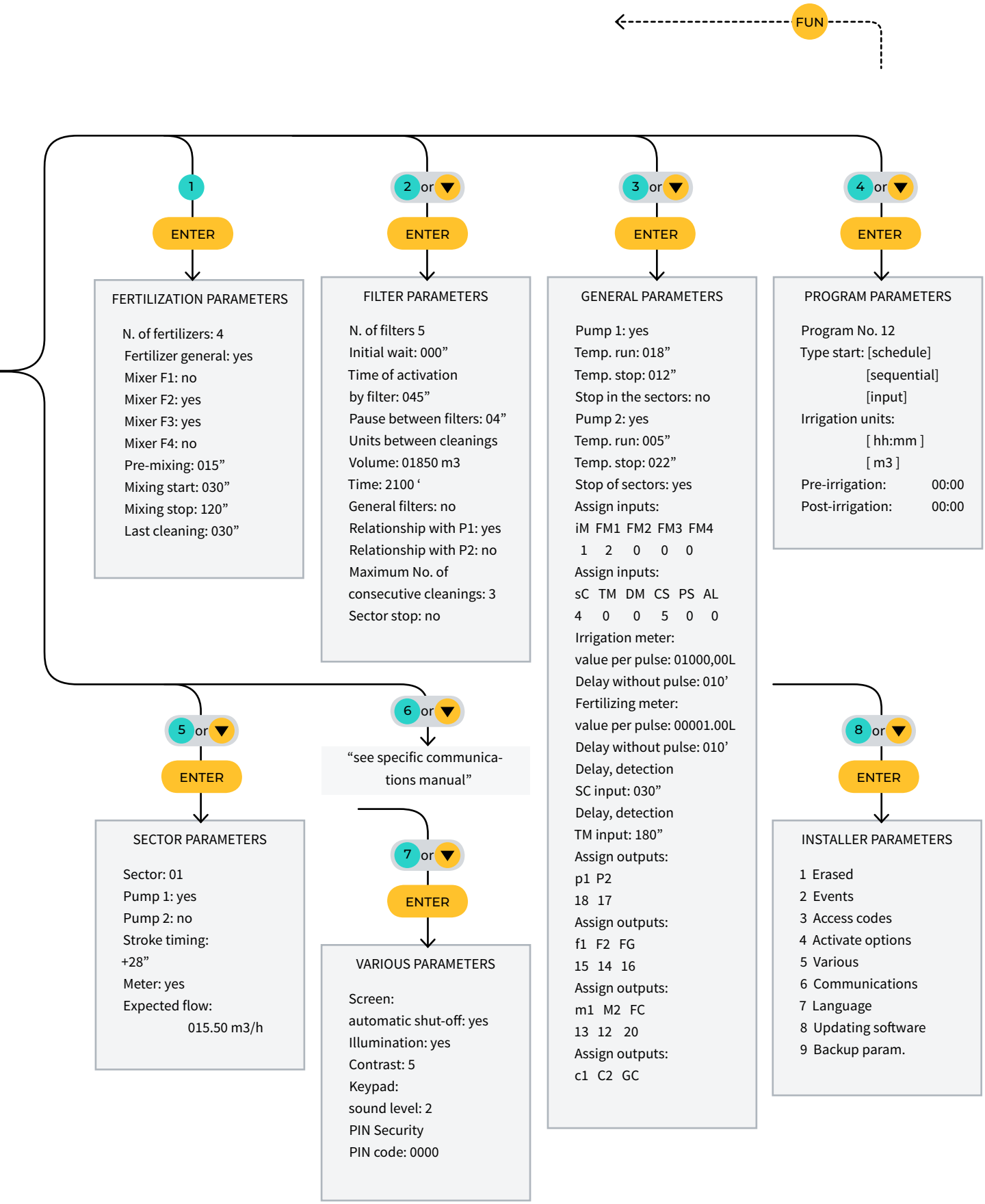
There are instruction videos on the Progrés website explaining the most frequently asked questions step-by-step. Please consult them if you have any questions or problems, you may find the solution there.

Watch video tutorials

10 FUNCTION SCREEN



11 PARAMETERS SCREEN



SPACE RESERVED FOR THE USER

Use this space to record information such as the parameters entered into the controller, drawings, program information, determining factors, alarms, etc.

Warranty

The Agrónic 2500 complies with the CE marking directives.
Products manufactured by Progrés have a two-year warranty against any manufacturing defect.
Compensation for direct and indirect damage caused by the use of the unit is excluded from the guarantee.

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R-2466