

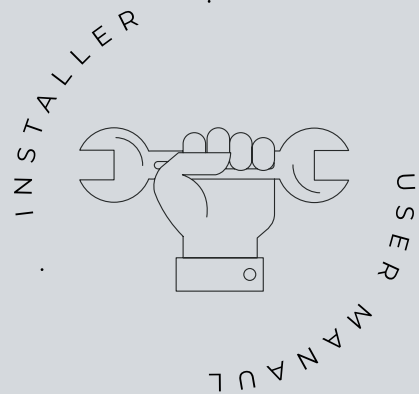
INSTALLER USER MANUAL

AGRÓNIC 2500

Plus 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 Query are detailed in the User Manual.

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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, fertilizer 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.



Reading of all types of sensors (analog, digital and meters) connected to Agrónic and also remotely with AgroBee-L radio modules.

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 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.

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.



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.

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

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.

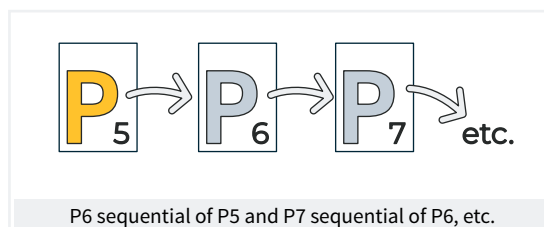
There are three ways to start a program:

Schedule start: at a specific time choosing the days of the week or repeat the irrigation every few days (frequency of days).

| | | | | | | | | | | | | | |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| Lu | Ma | Mi | Ju | Vi | Sa | Do | Lu | Ma | Mi | Ju | Vi | Sa | Do |
| | | | | | | 1 | | | | | | | 1 |
| 2 | 3 | 4 | 5 | 6 | 7 | 8 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 9 | 10 | 11 | 12 | 13 | 14 | 15 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| 16 | 17 | 18 | 19 | 20 | 21 | 22 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
| 23 | 24 | 25 | 26 | 27 | 28 | 29 | 23 | 24 | 25 | 26 | 27 | 28 | 29 |
| 30 | 31 | | | | | | 30 | 31 | | | | | |

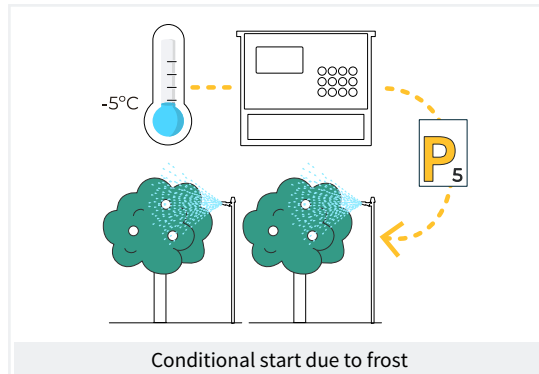
Days of the week Every 3 days

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.



Conditional start: when a determining factor is activated.

The determining factor is related to any type of sensor and can activate the program, for example, when the temperature rises, when a buoy is deactivated or when a flow rate drops below a certain level. An active schedule and a safe schedule can be configured between starts.



Once the program has started, there is an option to repeat the irrigation every certain amount of time.

At the start, the amount of irrigation can be modified using the determining factors. For example, increase irrigation by % if there is a lot of radiation, decrease irrigation by % if there is a lot of moisture in the soil, etc.

Irrigation units can be in time, hh:mm, mm:ss or hh:mm/ha; or in volume, m3 or m3/ha (m3 per hectare).

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

When the program is active, irrigation can be stopped, permanently or temporarily, using a determining factor. For example, stopping when it is very windy, stopping while the well level is low, stopping when the flow in a sector is too high (broken pipe), etc.

FERTILIZATION

Configurable from 0 to 4 fertilizers in separate tanks.

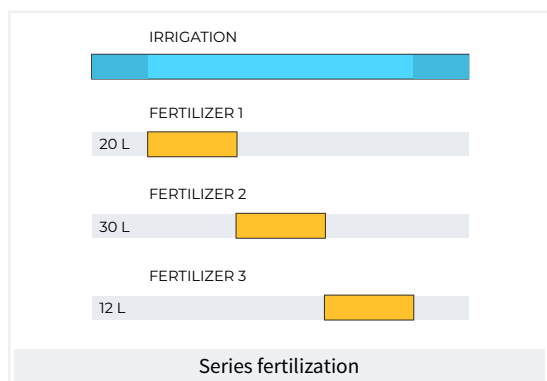
Separates pre- and post-irrigation values in each program.

Fertilization units in time (hh:mm or mm:ss) or in volume (L or L/ha).

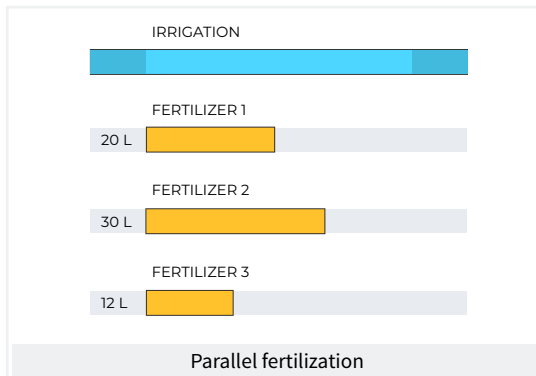
Configured to use mixers, with pre-mixing and intermittent or continuous mixing.

Fertilizers can be applied in three different ways:

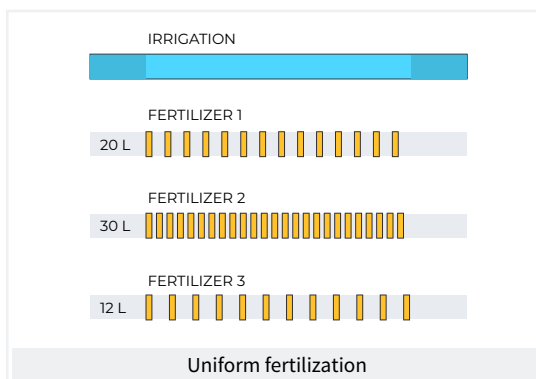
in series: one type of fertilizer after another from a single injector



Parallel: various fertilizers simultaneously with one injector per type.



Uniform: applies and distributes the each type of fertilizer uniformly between pre- and post-irrigation.



In volume fertilization, detect no pulses or leak. The proportional distribution of each pulse made by the meter is recorded into the totals and history according to the planned flows in sectors being fertilized at the same time. 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 pump from the sector activation, during activation as well as stop, to avoid water hammer.



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.

Configurable general filter output.

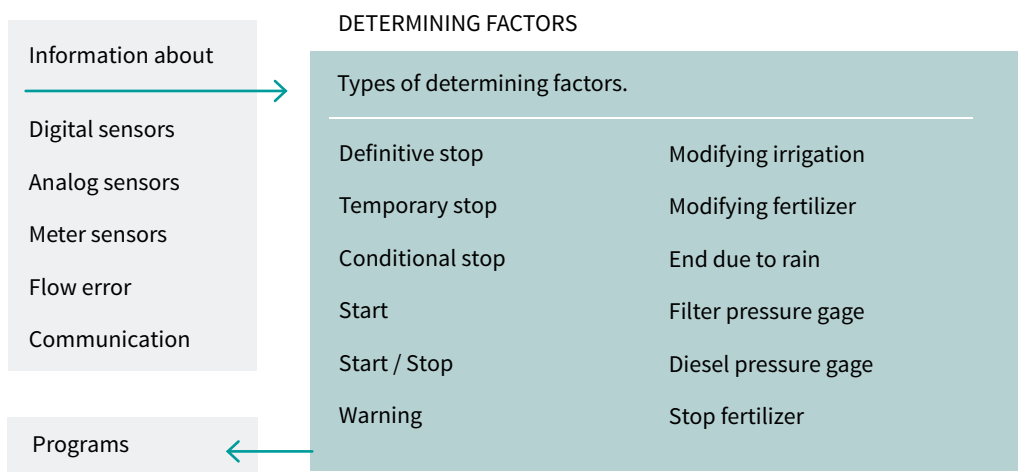


DETERMINING FACTORS

The unit has a total of 30 completely configurable determining factors to trigger actions that take into account certain determining factors or values from digital or analog sensors and meters.

There is a wide variety of actions possible, such as the ability to make definitive, temporary or determined stops that are applied to specific programs or all of them, start and/or stop irrigation, send a warning, adjust irrigation or fertilizer units when starting an irrigation program according to an instantaneous value from a sensor or the value recorded from a previous irrigation, etc. Each determining factor can also be configured to create a malfunction or send an SMS message and an SMS message to another machine.

To give a few examples, it can be used to terminate irrigation due to a broken pipe, postpone irrigation due to the lack of water level or excessive wind, modify the volume of each irrigation as to the value of the water content in the soil or the solar radiation the plant received since its previous irrigation or the evapotranspiration, terminate irrigation if a certain amount of rain has fallen since the previous irrigation, or send a warning to the owner for an attempted theft, etc.



MANUAL

Through manual commands, the unit can:

- start, stop or place a program out of service
- Suspend a program for a few hours
- Leave the unit out of service or on general stop
- Start or stop filter cleaning
- Modify the time and date on the unit
- Terminate alarms and malfunctions
- Set the sectors to manual, stop or automatic
- Modify virtual sensors
- Activate outputs
- Erase totals
- Place the determining factors out of service

SOLAR IRRIGATION

Uses solar power to irrigate. It drives pumps using solar panels connected to a solar radiation sensor and a frequency drive.

It combines solar power and power from the electrical

grid or diesel pump in hybrid installations to ensure irrigation on cloudy days or outside of sunlight hours.

Solar irrigation also allows irrigation at different pressures, prioritizing sectors with higher pressure.

PIVOT CONTROL

Remote management of up to 4 circular and linear pivots. Its features are:

- position reading by GPS.
- Speed and direction control.
- Deactivation of the jet and the wing according to position.
- Control of diesel pumps or solar irrigation.
- Control of physical guards in sector pivots.
- Manual action such as start, stop, dry passes, etc.
- Sectorization and configuration of up to 8 irrigable areas by pivot.
- Programming by time or by passes.
- Modify precipitation rate by area.
- Information on alarms, misalignment, slip and pivot position.

Modify irrigation depending on the sensors (climate, plant, soil).

Remote management through Agrónic APP, VEGGA and Agrónic PC.



READINGS

The unit stores all totals in memory that cannot be erased and, optionally, the events history and records with the anomalies of the previous 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.
- Detailed records of every event occurring in the unit.
- Separate history per irrigation sector with the units in time and the irrigation and fertilizer 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 radii of up to 2500 m between two points (depending on the orography).

SDI-12 UNITS

The SDI-12 is a communications bus that enables the units that use this bus to communicate with the Agrónic. Currently, soil moisture sensors from the

Meter Group, AquaCheck and Decagon brands can be connected.

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 / Fertilizer meters 1 to 4 |
| External modules | AgroBee-L | 20 modules |

SUMMARY OF PLUS VERSION FEATURES

| | | |
|---------------------|------------------|--|
| Head | Pumping | 2 general pumps or valves, pump 1 can be a generator set or motor pump Solar pumping together with generator set or network |
| | Filters | 9 filters in a single group |
| | Fertilization | 4 fertilizers Type: series or parallel (uniform or not) Units: hh:mm, mm'ss", Liters, Liters/ha |
| 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: schedule, sequential and determining factor Units: hh:mm, mm'ss", hh:mm/ha m3, m3/ha 5 determining factors |
| | Solar irrigation | 10 determining factors |
| Sensors | Digital | 20 sensors Start cleaning / Temporary malfunction / Definitive malfunction Conditional stop / Program start / Alarm |
| | Analog | 40 sensors |
| | Meters | 10 sensors Irrigation meter / Fertilizer meters 1 to 4 |
| Determining factors | | 30 determining factors |
| Pivots | | 4 pivots |
| | Areas (by pivot) | 8 Irrigation areas 8 exterior areas (wing and/or jet) |
| External modules | AgroBee | 16 modules |
| | AgroBee-L | 20 modules |
| | SDI-12 | 8 units |
| | Davis station | 1 Weather station |

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. <i>It is activated by code.</i> |

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).

- 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.

Valve type:

- valves at 12 Vdc.

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 | 18 Outputs |
| Agrónic 2518 220/24 Vac | Includes 220/12 Vdc 2 A power supply and 220/24 Vac 50 VA transformer | |
| 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. | 27 Outputs |
| 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 | |
| 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. |
| | 5 digital inputs | Connector for 5 digital inputs. Only for relay models (not compatible with latch units). |
| Other | 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 II (per output) |





All outputs have double isolation in respect to the power output.

| Inputs | | |
|-----------------|--------|--|
| Digital sensors | Number | 6, expandable (option) to 11 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 | | Weight | |
|-------------|--------------|----------------|-----------------------|
| Temperature | -5°C to 45°C | Box model | From 1.0 kg to 1.6 kg |
| Humidity | < 85% | Built-in model | From 1.1 kg to 1.5 kg |
| Altitude | 2000 m | | |
| Pollution | Grade 2 | | |

| 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. |  |

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

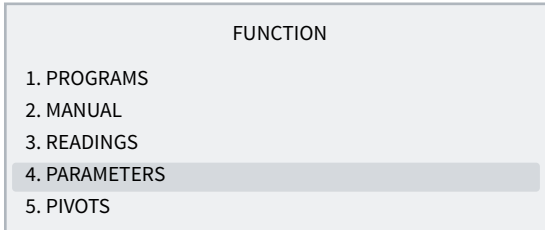


This symbol indicates that electronic devices should not be disposed of along with household waste at the end of their useful life. The product must be taken to the corresponding collection point for electric and electronic unit recycling and correctly processed pursuant to Spanish legislation.

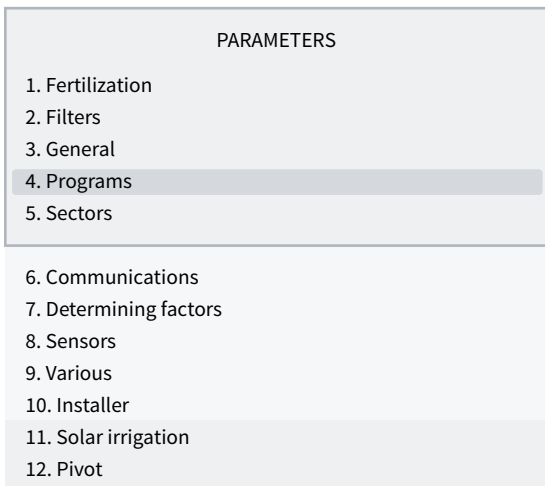
5 PARAMETERS

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' on the keypad, select 4. Parameters, 'Enter'.



It is divided into twelve 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'.



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

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

- Indicates that there are several options to modify.

N. of fertilizers (0... 4)

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

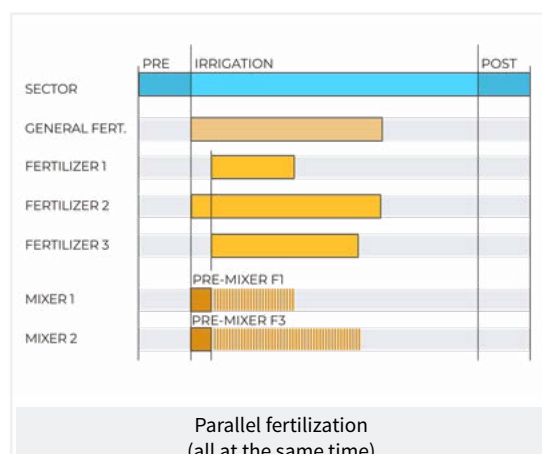
Fertilizer general (*yes* | *no*) YES 9+ NO 0

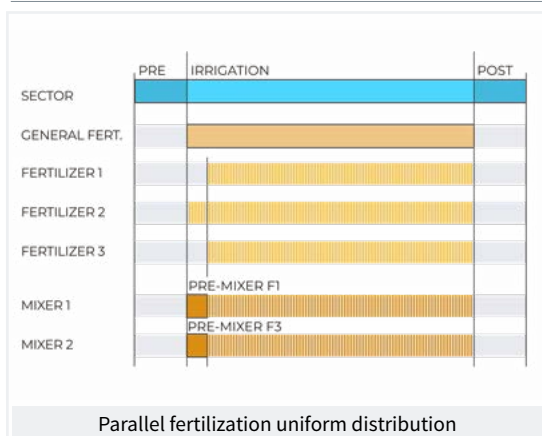
- Indicates the option to respond with 'yes' or 'no'.

5.1. FERTILIZATION

The Agrónic 2500 can work up to four fertilizers.

The Plus version has three types of application: series, parallel and parallel with uniform distribution.





It works in units of time or volume and has an independent pre/post irrigation for each program.

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

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

| FERTILIZATION PARAMETERS |
|---------------------------|
| No. fertilizers: 4 |
| General fertilizer: yes |
| F1 mixer: no |
| F2 mixer: yes |
| F3 mixer: yes |
| F4 mixer: no |
| Pre-mixing: 015" |
| Mixing start: 030" |
| Mixing stop: 120 " |
| End cleaning: 030" |
| F1 Meter: 01 |
| F2 Meter: 02 |
| F3 Meter: 03 |
| F4 Meter: 04 |
| Flow rate F1: 000.00 m3/h |
| Flow rate F2: 000.00 m3/h |
| Flow rate F3: 000.00 m3/h |
| Flow rate F4: 000.00 m3/h |

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.

Fertilizer general (yes | no): 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.

Fertilizer mixer (yes | no): each fertilizer 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 start 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 starting time. If continuous mixing is desired, set this time to 0.

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

Fertilizer meters

If fertilizer by volume, the meters must be assigned.

When fertilizer is parallel or uniform, a meter must be assigned to each fertilizer; if it is series, the same meter can be assigned to all fertilizers.

Meter F1, F2, F3, F4 (0 ... 10): meter sensor number associated with the fertilizer.

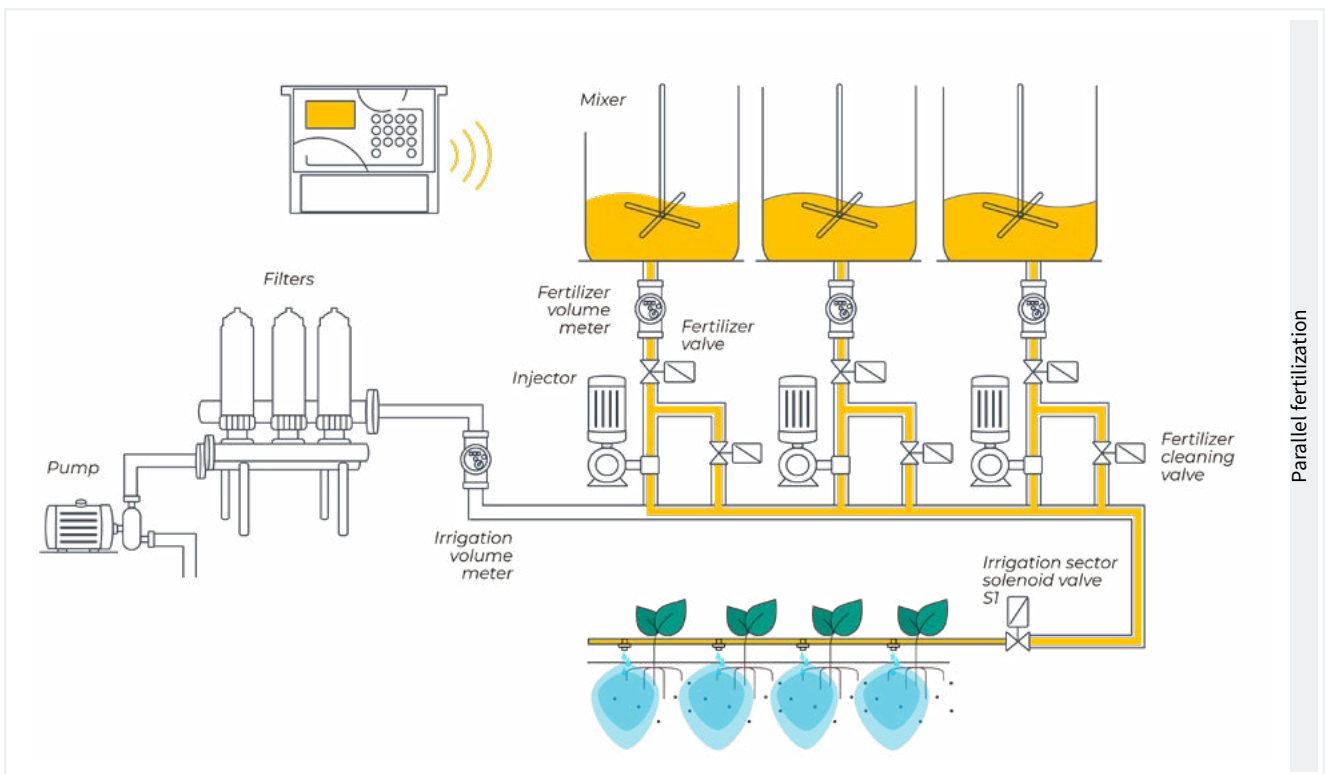
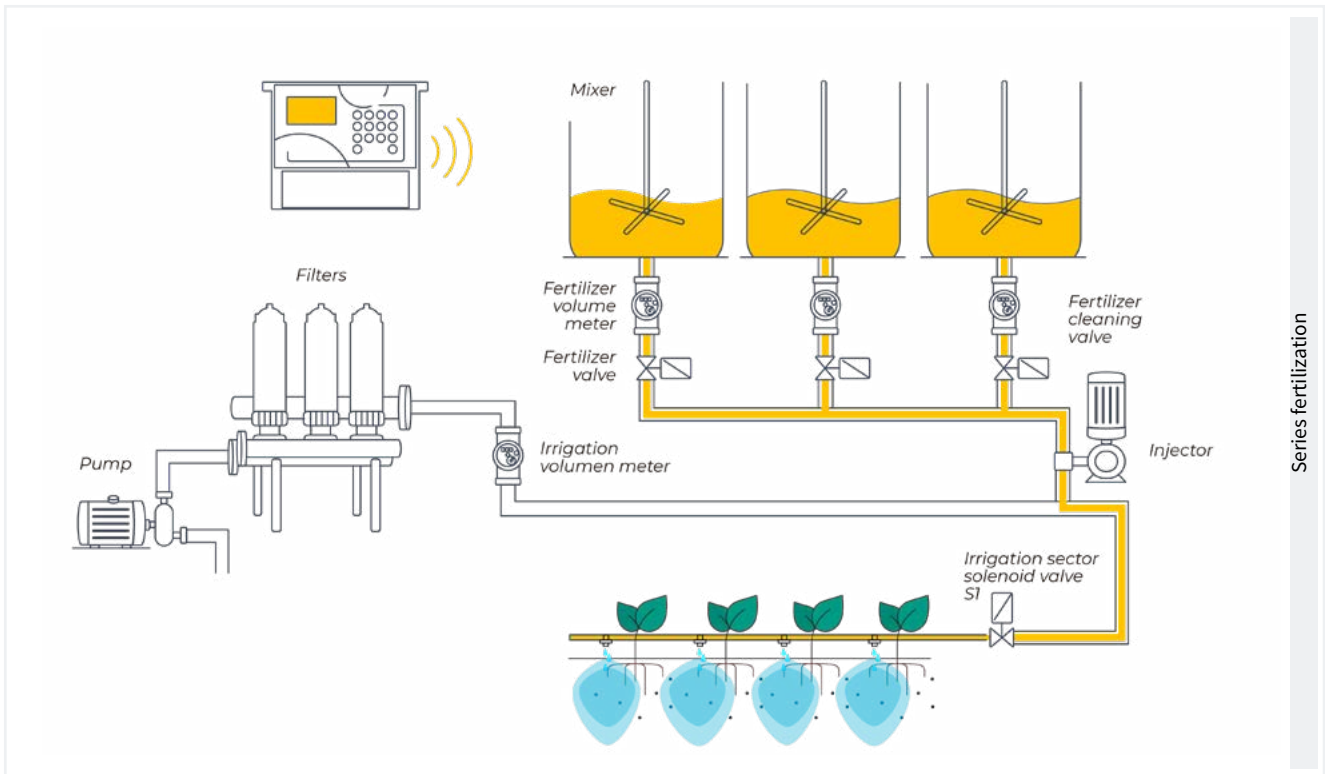
Flow rate F1, F2, F3, F4 (000.00 ... 655.35): maximum planned injection flow rate for these fertilizers. The planned flow rate is used for uniform fertilization.

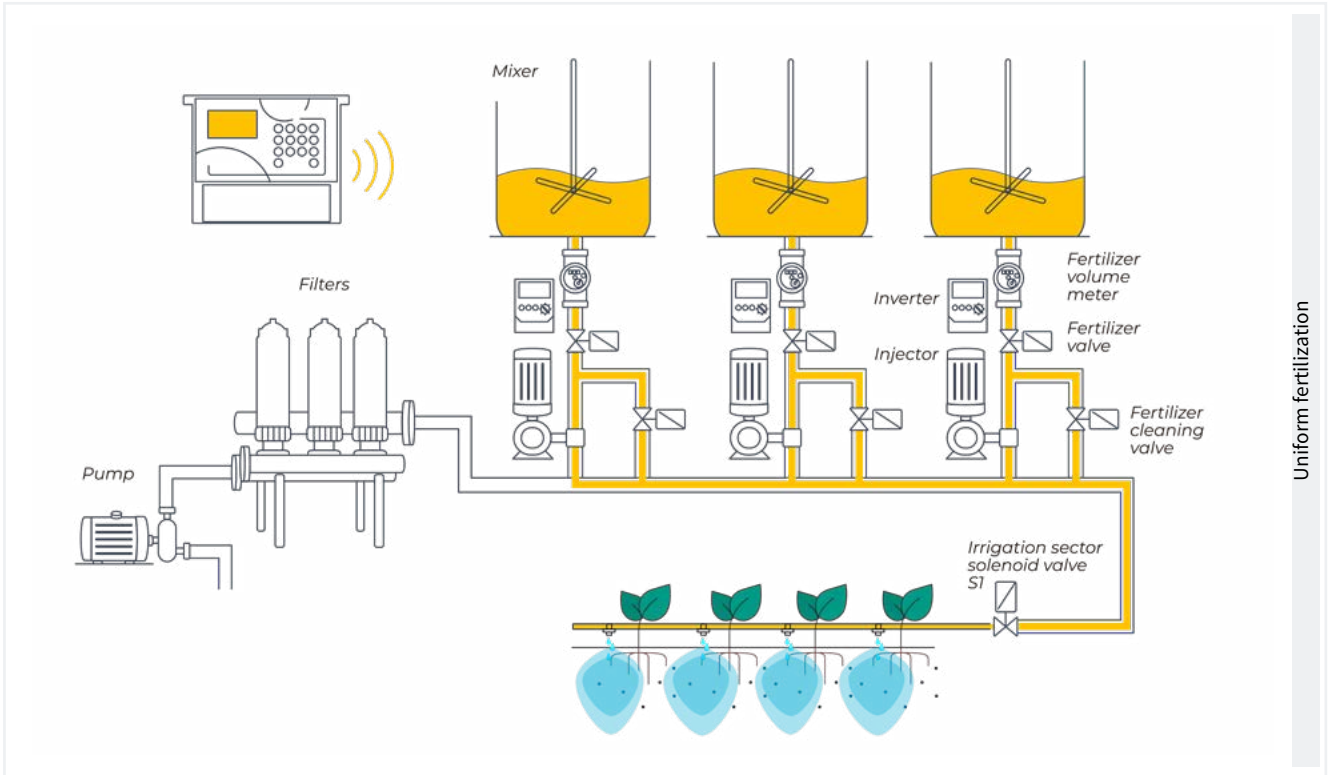
Uniform fertilization

With uniform fertilization, the fertilizer is distributed, injecting small doses, throughout the irrigation. This achieves better nutrient absorption, more homogeneous growth, drainage losses and sedimentation in pipes.

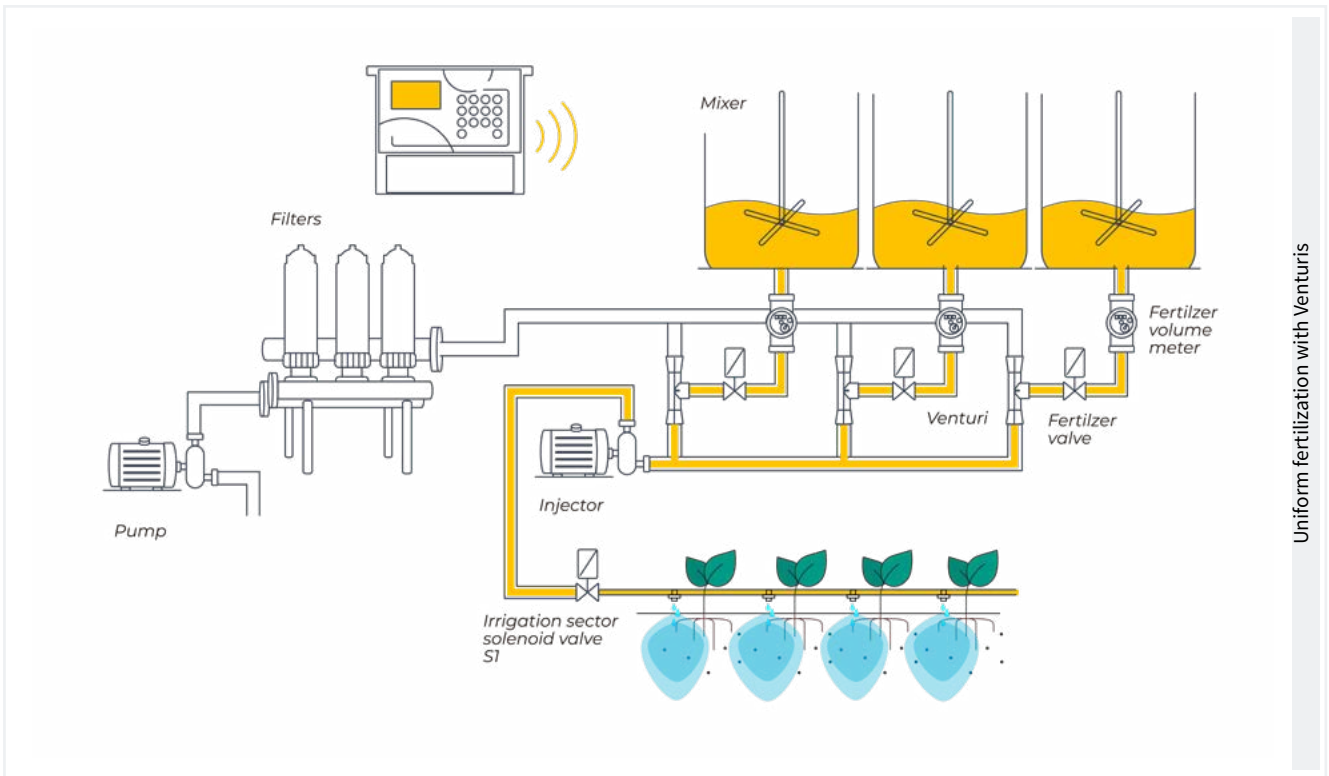
It is applied using simple Venturi-type hydraulic systems, reducing installation costs and can be done in time and volume.







Uniform fertilization



Uniform fertilization with Venturi

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 a time or volume of water having passed through the filters. It will only start automatically if the general one 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 |
|---|
| No. of filters 3 |
| Initial wait: 000" |
| Time of activation by filter: 045" |
| Pause between filters: 04" |
| Units between cleanings Volume: 0000 m3 Time: 0000 ' |
| General of filters: no Relation with P1: yes Relation with P2: no |
| Max. number of continuous cleanings: 0 |
| Stop of sectors: 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.

Activation time per 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.

Filter general (yes | no): indicate 'yes' to activate an output during the entire filter washing process.

Relation with P1, P2 (yes | no): 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 start 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 sectors (yes | no): 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

5.3. GENERAL

The pump, fertilizers, filter and diesel outputs are configured in this section.

The outputs can be from the base of the Agrónic 2500, a recommended option and from external modules such as the AgroBee-L, an option not recommended due to the activation and deactivation delays they may have.

Pumps

Output connected to the drive pumps or general valves.

| GENERAL PARAMETERS | |
|--------------------------|--|
| Pump 1: yes | |
| Temp. start: 018" | |
| Temp. stop: 012" | |
| Stopping the sectors: no | |
| | |
| Pump 2: yes | |
| Temp. start: 005" | |
| Temp. stop: 022" | |
| Stopping sectors: yes | |

Pump 1 (yes | no):

- 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 (yes | no):

- Yes: for the pump to stop when irrigation is finished and for the sectors to remain open for a few more seconds.



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. It is recommended to start with the unit's last outputs and reserve the first ones for the sectors.

| GENERAL PARAMETERS | |
|--------------------|--|
| Assign outputs: | |
| Pump 1: 00018 | |
| Pump 2: 00017 | |
| | |
| F1: 00015 | |
| F2: 00014 | |
| F3: 00013 | |
| F4: 00012 | |
| | |
| Fertilizer: | |
| Pump: 00016 | |
| Cleaning: 00020 | |
| | |
| A1: 00000 | |
| A2: 00011 | |
| A3: 00000 | |
| A4: 00000 | |
| | |
| L1: 00010 | |
| L3: 00007 | |
| GL: 00000 | |

Pumps

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

Fertilizers

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



MF: output connected to the pump or general fertilizer.

A1, A2, A3, A4: outputs connected to the mixers.

LF: output connected to the fertilizer 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'**.

L1: output assigned to the first filter.

Lx: output assigned to the last filter.

GL: 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.



Example

An installation with 4 filters, in which the assigned outputs would be: L1 output 10, L2 output 9, L3 output 8 and L4 output 7.

The output number coding can be found in section **'6 Input and output coding'** of this manual.

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 starting. 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.

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.

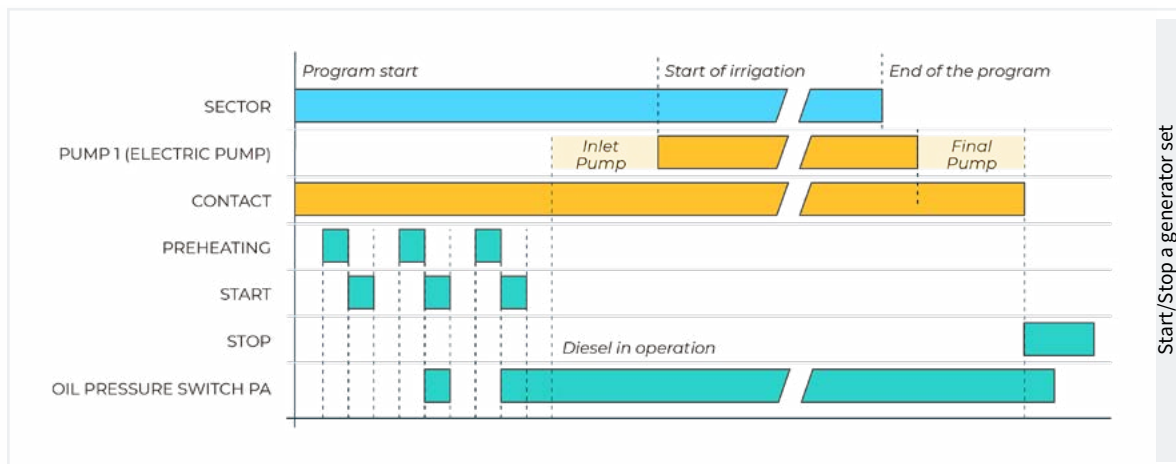
Stop (000... 999”): time that the stop output is activated (Pa) to stop the diesel pump.

Pump input (000 ... 999”): time between when the diesel pump is starting and when the ‘Pump1’ 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 Agronic 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 PARAMETERS | |
|----------------------|--|
| Program: | 12 |
| Type of start: | [schedule] [sequential] [deter. fact.] |
| ----- | |
| Program | 12 |
| Units of irrigation: | [hh:mm] [m3] [m3/ha] [mm:ss"] [hh:mm/ha] |

Program (0 ... 50): program number to be configured.

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

- **Schedule**: starts at a certain time.
- **Sequential**: starts when another program ends.
- **Determining factor**: starts when a determining factor is activated. The determining factor must be 'Start' or 'Start/Stop' type and must be assigned to the program.

If the **Sequential with 99:00** option is activated in '**Function - 4. Parameters - 10. 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* | *m3/ha* | *mm:ss"* | *hh:mm/ha*): 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.
- **m3/ha**: cubic meters per hectare. The area of each sector needs to be configured. With the area and its correction coefficient, it determines the m3 of irrigation that corresponds to it.

- **mm:ss"**: minutes and seconds.
- **hh:mm/ha**: time per hectare. The expected flow rate and the area of each sector must be configured. Irrigation programming is in m3/ha but irrigation will be in hh:mm. With the area and its correction coefficient, it determines the m3 of irrigation that corresponds to it and with the planned flow, it converts it into time (hh:mm). Ideal for irrigating in m3/ha and an irrigation meter is not available.

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

| PROGRAM PARAMETERS | |
|--------------------------------|----------------|
| Program | 12 |
| Days of the week: | no |
| Priority: | 1 |
| ----- | |
| Program | 12 |
| Determining factors: | 05 06 00 00 00 |
| Program | 12 |
| Safety time between starts: | 00:00 |
| Program | 12 |
| Text: | abcdefghi |

Days of the week (*Yes ... No*): if the start type is sequential, it is not asked.

- **Yes**: the program will ask for the days of the week. For example, irrigate on Mondays and Thursdays.
- **No**: the program will irrigate according to the frequency of days. For example, irrigate every three days.



Priority (0 ... 9): when a program starts and another is irrigating, the one with the highest priority irrigates and the other is postponed. If they share sectors it will not be postponed. If there is no assigned priority, there may be several active programs at the same time as long as they do not share sectors or fertilizers. At 0 there is no priority, at 1 maximum priority, at 9 minimum priority.

Determining factors (00 ... 30): up to five determining factors that affect the program can be configured. Leaving 0 there is no determining factor. Use the determining factors to start and stop the program, modify irrigation and fertilizer, stop due to alarms, etc. Programs with sequential start cannot have start determining factors.

Safety time between starts (00:00 ... 23:59): when the program starts due to a determining factor, it cannot be started again until the time configured here passes. It is a safety to avoid continuous irrigation if the sensor malfunctions. At 0 there is no control. It only asks if the program starts by determining factor.

Text (0 ... 9 characters): program identification text.

5.5. SECTORS

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

| SECTOR PARAMETERS | |
|-------------------|-----------------------------------|
| Sector: 01 | |
| Sector 01 | N. of output: 00001 |
| | N. of output: 00000 |
| | |
| Sector 01 | Pump 1: yes |
| | Pump 1: no |
| | |
| Sector 01 | Waterhammer temporization: +028 " |

Sector (0... 30): sector number.

Output No.: the first question corresponds to the digital output where the solenoid valve is connected. This output cannot be assigned to any other sector or general.

Output No.: the second question corresponds to the auxiliary digital output. It may be common with other sectors. Activated whenever any of the sectors that have it configured are activated.

For output coding, see '6 Input and output coding'.

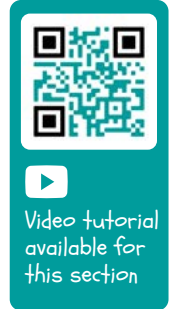
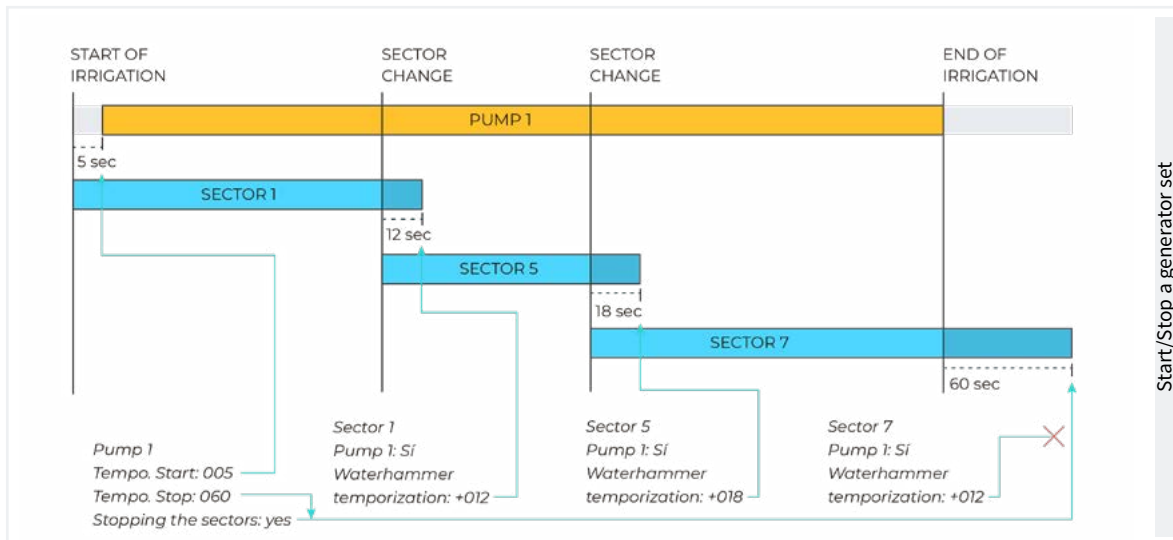
Pump 1 and 2 (Yes ... No):

- Yes: if the sector requires pump 1 and/or 2 to be activated to irrigate.

Waterhammer temporization (-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.

Example of the timer applied in the sequential irrigation of three sectors:



SECTOR PARAMETERS

Sector 01
Meter No.: 01

Sector 01
Expected flow: 015.50 m3/h

Flow detector
Input No.: 00000

Sector 01
Sector area: 000000 m2
Crop: 00000000
Coeff. corrector: 1.00

Sector 01
Text: abcdefghi

N. of meter (0 ... 10): meter sensor number assigned to the sector. If irrigation is by volume, the meter must be assigned.

Planned flow (000.00 ... 655.35): it is the flow consumed by the sector through drip emitters, sprinklers, etc. It is used to distribute the irrigation and fertilizer volumes in the histories and totals of the sectors that irrigate at the same time.

Flow detector. Input: each sector can have a digital

sensor to detect the passage of flow. This sensor generates record 60 in the following cases: when the sector is activated and no water passes or when the sector is stopped and water passes. The delay time before registration is configured in the installer parameter. The status of the flow detector is shown in the sector query. This parameter configures which digital input the sensor is connected to.

For input coding, see '[6 Input and output coding](#)'.

Area of sector (000000 ... 999999 m²): area that will irrigate the sector (1 ha=10000 m²). The sector area is used when irrigating by m³/ha and hh:mm/ha.

Crop: type of crop that the sector irrigates. It is used for mass programming and only with VEGGA.

Coeff. corrector (0.00 ... 1.00 ... 2.55): irrigation correction coefficient. It is only used if the program where the irrigation sector is configured is by m³/ha. The program irrigation amount is multiplied by this coefficient. If it is left at 1.00 the value is not modified. If a program has more than one sector configured, the coefficient of the first is used.

Text (0 ... 9 characters): identifying text of the sector.

The Communications Query section is detailed in the Communications Manual *r1754*



Video tutorial available for this section

5.6. DETERMINING FACTORS

The determining factors are controls that act on irrigation programs and records based on the value of the sensors. The determining factor is related to the programs in “Parameters – Programs”.

Each determining factor is assigned a specific operative (stop, start, modify, warning, etc.), an origin (digital, analog, meter, flow sensor, etc.), certain references entered in the operatives, the type of record and whether an SMS is sent.

Determining factor (0... 30): number of the determining factor to configure.

Type (*Not configured* | *Definitive stop* | *Temporary stop* | *Conditional stop* | *Start* | *Start/Stop* | *Warning* | *Modify irrigation* | *Modify fert.* | *End due to rain* | *Filter pres. gauge* | *Diesel press.gauge* | *Stop fert.*): determining factor operative

- **Not configured:** the determining factor is not used.
- **Definitive stop:** for the associated programs until manually reset.
- **Temporary stop:** for associated programs until the next program start.
- **Conditional stop:** for associated programs while the determining factor is active.
- **Start:** when the determining factor is activated, the associated programs start.
- **Start / Stop:** when the determining factor is activated, the associated programs start and when it is deactivated they stop.
- **Warning:** when the determining factor is activated or deactivated, a record is made.
- **Modify irrigation:** when a program starts, the irrigation amount can be modified.
- **Modify fert.:** when a program starts, the EC reference, if fertilizer by EC, or the fertilizer units, if fertilizer uniformly, can be modified.

- **End due to rain:** when it has rained a certain amount, irrigation does not start or stops if it is active.
- **Filter pres. gauge:** to start filter cleaning.
- **Diesel press. gauge:** to indicate that the diesel pump is activated.
- **Stop fert.:** when the determining factor for fertilization is activated but irrigation continues.

Origin (*Digital sensor* | *Analog sensor* | *Meter sensor* | *Flow error* | *Communication*): type of sensor or output associated with the determining factor.

- **Digital sensor:** associated with a digital sensor.
- **Analog sensor:** associated with an analog sensor.
- **Meter sensor:** associated with a meter sensor. Use the instantaneous or total flow reading depending on the type of determining factor.
- **Flow error:** associated with a meter sensor (high and low flow errors, not receiving pulses when irrigating, receiving pulses when not irrigating).
- **Communication:** associated with the communication status with the AgroBee-L modules, the computer or Cloud.

Depending on the origin of the determining factor, the sensor associated with it is requested. There are cases in which it is not requested because it is associated with an output, or because the sensor is already defined by default.

Digital sensor No. (0 ... 20): associated digital sensor number.

Analog sensor number (0... 40): analog sensor number.

Meter sensor number (0 ... 10): meter sensor number.



Video tutorial
available for
this section

Relation between types of determining factors and the origin that can be used:

| Type | Digital sensor origin | Analog sensor origin | Meter sensor origin | Flow error origin | Origin Communication |
|----------------------|-----------------------|----------------------|---------------------|-------------------|----------------------|
| Definitive stop | ✓ | ✓ | ✓ | ✓ | ✓ |
| Temporary stop | ✓ | ✓ | ✓ | ✓ | ✓ |
| Conditional stop | ✓ | ✓ | ✓ | | ✓ |
| Start | ✓ | ✓ | ✓ | | |
| Start / Stop | ✓ | ✓ | ✓ | | |
| Warning | ✓ | ✓ | ✓ | ✓ | |
| Modify irrigation | ✓ | ✓ | ✓ | | |
| Modify fertilizer | ✓ | ✓ | ✓ | | |
| End due to rain | | | ✓ | | |
| Filter pressure gage | ✓ | ✓ | | | |
| Diesel pressure gage | ✓ | | | | |
| Stop fertilizer | ✓ | ✓ | ✓ | ✓ | |

Common parameters for all

DETERMINING FACTOR PARAMETERS

Determining factor 18

SMS to tel. A: yes

SMS to tel. B: yes

SMS text C: 0

It is an anomaly: yes

To all programs: no

In error: does not change

Text: abcdefghi

SMS to tel. A (Yes ... *No*): when the determining factor is activated, send an SMS to phone A.

SMS to tel. B (Yes ... *No*): when the determining factor is activated, send an SMS to phone B.

SMS to tel. C (0 ... 6): when the determining factor is activated, send an SMS to phone C with the selected.

Urgent send (Yes ... *No*): only used if the GPRS modem is deactivated on a schedule.

- Yes: if the modem is deactivated, it is activated to send the SMS and deactivated again.

- No: if the modem is deactivated, the SMS will be sent when it is activated by schedule.

It is an anomaly (Yes ... *No*): yes when the determining factor is activated, it is registered as a new anomaly.

In all programs (Yes ... *No*):

- Yes: the determining factor is associated with all Agronic programs. It is not assigned to foggers.
- No: the determining factor is associated with the desired programs within '**Function - 4. Parameters - 5. Programs**'.

In error (*No change* | *Not active* | *Active*): what to do if there is an error in the sensor associated with the determining factor.

- **No change**: the determining factor maintains the state.
- **Not active**: the determining factor is deactivated.
- **Active**: the determining factor is activated.

Text (0 ... 9 characters): identifying text of the determining factor.

5.6.1 Definitive stop / Temporary stop

Definitive stop

Stops associated programs until manually reset.

To reset it, go to 'Function - 2. Manual - 6. Terminate stops'. When it is reset, it also asks whether to continue with the programs that have been stopped from the point where they were. It can only be activated if there is an irrigation program associated.

Temporary stop

Pauses associated programs until the next start. The irrigation units remaining in the program are lost. It can only be activated if there is an irrigation program associated.

Detection delay (0000 ... 9999"): the time that the determining factor must remain to activate or deactivate the determining factor.

Origin: digital sensor

The determining factor is activated when the digital sensor is activated for a period of time.

Origin: analog sensor and meter sensor

Start-up delay (0000 ... 9999"): when a program starts during this time, the determining factor is not calculated. In the case of sequential programs, it only applies to the start of the first program.

Reference: sensor value from which the determining factor is activated or deactivated.

When surpassed (Yes ... No):

- **yes:** the determining factor is activated if the sensor value is higher than the reference (value > reference).
- **No:** the determining factor is activated if the sensor value is lower than the reference (value < reference).

Origin: flow error

Start-up delay (0000 ... 9999"): when a program starts during this time, the determining factor is not calculated.

High margin (000 ... 100 %): the determining factor is activated when the instantaneous flow rate is higher than the expected flow rate in this % (At 0 there is no high margin control).

Low margin (000 ... 100 %): the determining factor is activated when the instantaneous flow rate is lower than the expected flow rate in this % (At 0 there is no low margin control).

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

Origin: communication

Use the communication status with the AgroBee, the computer or Cloud.

Unit (AgroBee | PC):

- **AgroBee:** when the Agronic does not have communication with the AgroBee, the determining factor is activated. The determining factor only affects programs that have sectors with outputs assigned to the AgroBee.
- **PC:** when the Agronic does not have communication with the computer or the Cloud, the determining factor is activated.

Module (00 ... 20): when the unit is the AgroBee, enter the AgroBee number. The determining factor is activated when there is no communication with any of the AgroBee-Ls (leaving it at 0) or with the AgroBee-L configured here.

User (0 ... 3): when the unit is the PC, enter the user number. The determining factor is activated when there is no communication with any of the users (leaving it at 0) or with the user configured here. For communication with the Cloud, enter user 3.

| DETERMINING FACTOR PARAMETERS | | | | |
|-------------------------------|-------------------------|-------------------------|----------------------------|-----------------------|
| Determining factor: 01 | | Type: definitive stop | | |
| Origin: digital sensor | Origin: analog sensor | Origin: meter sensor | Origin: flow error | Origin: communication |
| Digital sensor No.: 01 | Analog sensor No.: 01 | Meter sensor No.: 01 | Meter sensor No.: 01 | Unit: agroBee |
| Delay, detection: 0030" | Delay, detection: 0150" | Delay, detection: 0000" | High margin: 015% | Module: 01 |
| | Reference: 01.8 Bar | at start: 0000" | Low margin: 019% | |
| | When surpassed: no | Reference: 000.00 m3/h | Delay, at start: 0120" | |
| | | When surpassed: no | Detection margins: 0030 " | |
| | | | Delay without pulse: 006 ' | |

5.6.2 Conditional stop

For the associated programs while the determining factor is active. When it becomes inactive, it continues with the program at the point where it was.

Detection delay (0000 ... 9999"): the time that the determining factor must remain to activate or deactivate the determining factor.

Origin: digital sensor

The determining factor is activated when the digital sensor is activated for a period of time.

Origin: analog sensor

Reference: sensor value from which the determining factor is activated or deactivated.

Differential: margin between activation and deactivation of the determining factor.

When surpassed (Yes ... No):

- **yes:** if (value > reference) active determining factor.
If (value < reference - differential) non-active determining factor.
- **No:** if (value < reference) active determining factor.
If (value > reference + differential) non-active determining factor.

Origin: communication

Use the communication status with the AgroBee, the PC or Cloud.

Unit (AgroBee | PC):

- **AgroBee:** when the Agrónic does not have communication with the AgroBee, the determining factor is activated. The determining factor only affects programs that have sectors with outputs assigned to the AgroBee.
- **PC:** when the Agrónic does not have communication with the PC or the Cloud, the determining factor is activated.

Module (00 ... 20): when the unit is the AgroBee, enter the AgroBee number. The determining factor is activated when there is no communication with any of the AgroBee-Ls (leaving it at 0) or with the AgroBee-L configured here.

User (0 ... 3): when the unit is the PC, enter the user number. The determining factor is activated when there is no communication with any of the users (leaving it at 0) or with the user configured here. For communication with the Cloud, enter user 3.

| DETERMINING FACTOR PARAMETERS | | | |
|-------------------------------|------------------------------|--|------------------------------|
| Determining factor: 02 | | Type: conditional stop | |
| Origin: digital sensor | Origin: analog sensor | Origin: meter sensor | Origin: communication |
| Digital sensor No.: 04 | Analog sensor No.: 01 | Meter sensor No.: 01 | Unit: agroBee |
| Delay, detection: 0110" | Delay, detection: 0150" | Delay, detection: 0015" at start: 0300" | Module: 01 |
| | Reference: 05.2 Bar | Reference: 008.50 m3/h | |
| | Differential: 01.0 Bar | When surpassed: no | |
| | When surpassed: yes | | |

5.6.3 Start – Start and Stop

Start

Starts the associated programs when the determining factor is activated. This determining factor can be limited with the program's active schedule.

Start/Stop

It starts the associated programs when the determining factor is activated and stops them when the irrigation units are deactivated or terminated. This determining factor can be limited with the program's active schedule.

Detection delay (0000 ... 9999"): the time that the determining factor must remain in order to activate or deactivate the determining factor.

Origin: digital sensor

The determining factor is activated when the digital

sensor is activated for a period of time.

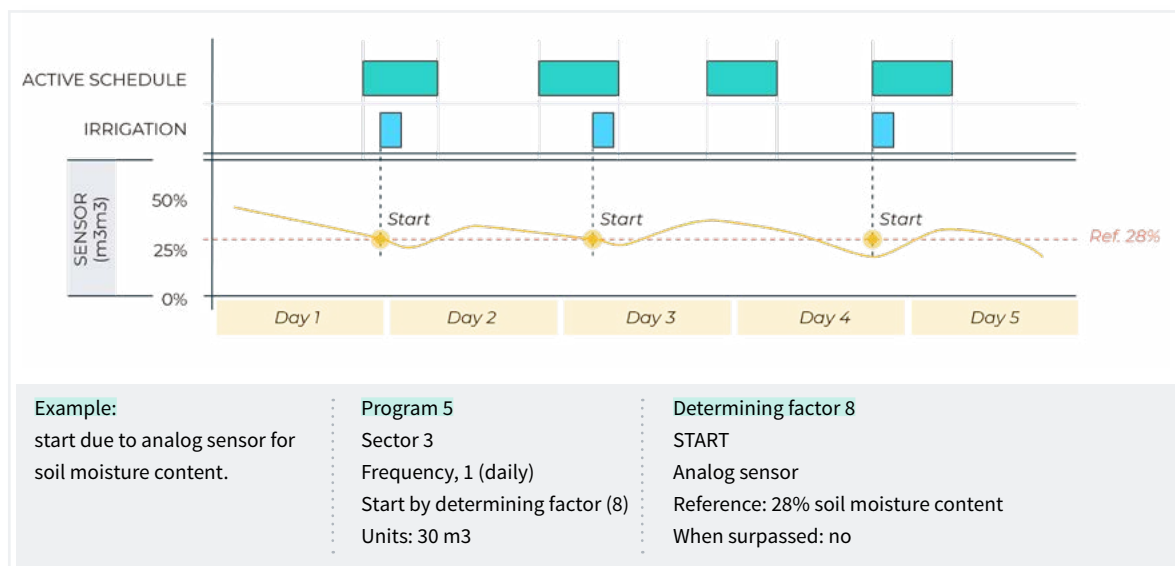
Origin: analog sensor and meter sensor

Reference: sensor value from which the determining factor is activated or deactivated.

Differential: margin between activation and deactivation of the determining factor.

When surpassed (Yes ... No):

- **yes:** if (value > reference) active determining factor.
If (value < reference - differential) non-active determining factor.
- **No:** If (value < reference) active determining factor.
If (value > reference + differential) non-active determining factor.



5.6.4 Warning

The Warning does not act on programs. It only makes a record when it is activated and when it is deactivated. This record can be used to send an SMS, but it only sends SMS when the alert is activated, not when it is deactivated. With the warnings, anti-theft, anti-freeze, warn about pipe breaks, errors in meters, etc. can be configured.

Detection delay (0000 ... 9999"): the time that the determining factor must remain in order to activate or deactivate the determining factor.

Origin: digital sensor

The determining factor is activated when the digital sensor is activated for a period of time.

Origin: analog sensor and meter sensor

Reference: sensor value from which the determining factor is activated or deactivated.

Differential: margin between activation and deactivation of the determining factor.

When surpassed (Yes ... No):

- **yes:** If (value > reference) active determining factor.
If (value < reference - differential) non-active determining factor.
- **No:** If (value < reference) active determining factor.
If (value > reference + differential) non-active determining factor.

Origin: flow error

High margin (000 ... 100 %): the determining factor is activated when the instantaneous flow rate is higher than the expected flow rate in this % (At 0 there is no high margin control).

Low margin (000 ... 100 %): the determining factor is activated when the instantaneous flow rate is lower than the expected flow rate in this % (At 0 there is no low margin control).

Start-up delay (0000 ... 9999"): when a program starts during this time, the determining factor is not calculate).

Margin detection delay (0000 ... 9999"): time that the high margin or low margin determining factor must remain to activate or deactivate the determining factor.

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

Reference for leak (000.00 ... 655.35): if there is no irrigation order that the meter uses, the leak will be controlled by issuing a warning when the leak flow reference is exceeded (At 0 there is no leak control).

Leak delay (000 ... 255'): minutes that the leak flow must remain for the warning to be given.

| DETERMINING FACTOR PARAMETERS | | | |
|-------------------------------|-------------------------|---------------------------|----------------------------|
| Determining factor: 01 | | Type: warning | |
| Origin: digital sensor | Origin: analog sensor | Origin: meter sensor | Origin: flow error |
| Digital sensor No.: 01 | Analog sensor No.: 01 | Meter sensor No.: 01 | Meter sensor No.: 01 |
| Delay, detection: 0030" | Delay, detection: 0150" | Delay, detection: 0000" | High margin: 015% |
| | Reference: 01.8 Bar | Reference: 020.00 m3/h | Low margin: 019% |
| | Differential: 01.0 Bar | Differential: 001.00 m3/h | Delay, at start: 0120" |
| | When surpassed: no | When surpassed: no | Detection margins: 0030 " |
| | | | Delay without pulse: 006 ' |
| | | | Ref. for leak: 000.00 m3/h |
| | | | Leak delay: 000 ' |

5.6.5 Modify irrigation – Modify fertilizer

Increase or decrease the irrigation or fertilizer units depending on the value of the determining factor.

The modification is made when the program is started.

Origin: digital sensor

% to modify (-100 ... 000 ... 100): if the determining factor is activated when the program starts, it modifies the irrigation or fertilizer by the % indicated here.

Origin: analog sensor

Previous hours (000 ... 255 h): the number of hours before the start of the program that the determining factor will be integrate. If left at 0, it is not integrated, it uses the last sensor reading. The integration value increases every 10 minutes.

Reference: start and end values of the integration line.

% to modify (-100 ... 000 ... 100): start and end values of the irrigation or fertilizer modification line.

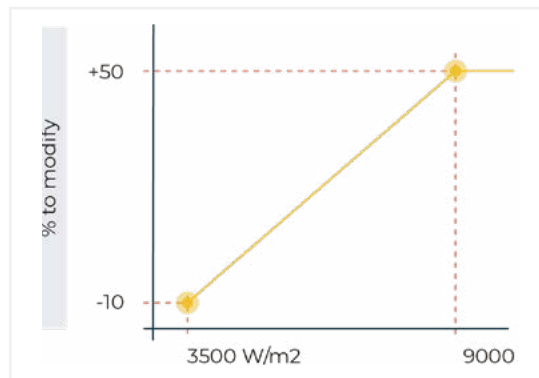
Origin: meter sensor, total

The accumulation of a meter sensor can be the rain fallen over a certain time.

Previous hours (000 ... 255 h): the last hours total is used to calculate the determining factor. Here, configure the number of hours back that should be taken into account.

Reference: start and end values of the integration line. Values are in liters.

% to modify (-100 ... 000 ... 100): start and end values of the irrigation or fertilizer modification line.



| DETERMINING FACTOR PARAMETERS | | | |
|-------------------------------|------------------------------|-----------------------------|--|
| Determining factor: 01 | | Type: modify Irrigation | |
| Origin: digital sensor | Origin: analog sensor | Origin: meter sensor | |
| Digital sensor No.: 02 | Analog sensor No.: 02 | Meter sensor No.: 01 | |
| % to modify: +025% | Previous hours: 048 | Previous hours: 048 | |
| | Point 1: | Point 1: | |
| | Reference: 3500 W/m2 | Reference: 001 L/m2 | |
| | % to modify: -010% | % to modify: +000% | |
| | Point 2: | Point 2: | |
| | Reference: 9000 W/m2 | Reference: 024 L/m2 | |
| | % to modify: +050% | % to modify: -080% | |

5.6.6 End due to rain

It does not allow irrigation to start, or stops it if it is irrigating, when the rain reaches a certain amount.

The origin is always a meter sensor.

Previous hours (000... 255 h): the last hours total is used to calculate the determining factor. Here, configure

the number of hours back that should be taken into account.

Reference: amount of total water to stop irrigation.

When a program starts by a manual command, this determining factor will not be taken into account.

| DETERMINING FACTOR PARAMETERS | | | |
|-------------------------------|--|-----------------------|--|
| Determining factor: 18 | | Type: end due to rain | |
| Origin: meter sensor | | | |
| Meter sensor No.: 03 | | | |
| Previous hours: 024 | | | |
| Reference: 005 L/m2 | | | |

5.6.7 Filter pressure gage

A differential pressure gage is needed to start filter cleaning when the pressure between the input and output drops. This determining factor assigns the pressure gage sensor to filter cleaning and activates cleaning when the determining factor is activated.

Detection delay (0000 ... 9999"): the time that the determining factor must remain to activate or deactivate the determining factor.

Origin: digital sensor

The determining factor is activated when the digital sensor is activated for a period of time.

Origin: analog sensor

Reference: sensor value from which the determining factor is activated or deactivated.

Differential: margin between activation and deactivation of the determining factor.

When surpassed (Yes ... No):

- **yes:** if (value > reference) active determining factor.
If (value < reference - differential) non-active determining factor.
- **No:** if (value < reference) active determining factor.
If (value > reference + differential) non-active determining factor.

| DETERMINING FACTOR PARAMETERS | |
|--|--|
| Determining factor: 18 | |
| Origin: digital sensor Digital sensor No.: 02 Delay, detection: 0030" | Origin: analog sensor Analog sensor No.: 01 Delay, detection: 0030" Reference: 04.3 bar When surpassed: yes |

5.6.8 Diesel pressure gage

It is only used if the diesel option is activated. The pressure gage is a digital sensor that is activated when the diesel pump is starting. It can only be a digital sensor.

Detection delay (0000 ... 9999"): the time that the determining factor must remain to activate or deactivate the determining factor.

| DETERMINING FACTOR PARAMETERS | | | |
|-------------------------------|--|----------------------------|--|
| Determining factor: 18 | | Type: diesel pressure gage | |
| Origin: digital sensor | | | |
| Digital sensor No.: 02 | | | |
| Delay, detection: 0030" | | | |

5.6.9 Stop fertilizer

Stops fertilization and associated programs until the next start, irrigation continues without fertilization. The fertilizer units remaining in the program are lost. It can only be activated if there is an associated irrigation and fertilizer program. When fertilization stops, anomaly 26 is recorded.

Detection delay (0000 ... 9999"): the time that the determining factor must remain to activate or deactivate the determining factor.

Origin: digital sensor

The determining factor is activated when the digital sensor is activated for a period of time.

Origin: analog sensor and meter sensor

Start-up delay (0000 ... 9999): when a program starts during this time, the determining factor is not calculated. In the case of sequential programs, it only applies to the start of the first program.

Reference: sensor value from which the determining factor is activated or deactivated.

When surpassed (Yes ... No):

- **yes**: the determining factor is activated if the sensor value is higher than the reference (value > reference).
- **No**: the determining factor is activated if the sensor value is lower than the reference (value < reference).

Origin: flow error

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

Origin: communication

Use the communication status with the AgroBee, the PC or Cloud.

Unit (AgroBee | PC):

- **AgroBee**: when the Agrónic does not have communication with the AgroBee, the determining factor is activated. The determining factor only affects programs that have sectors with outputs assigned to the AgroBee.
- **PC**: when the Agrónic does not have communication with the PC or the Cloud, the determining factor is activated.

Module (01 ... 20): when the unit is the AgroBee, enter the AgroBee number. The determining factor is activated when there is no communication with any of the AgroBee-Ls (leaving it at 0) or with the AgroBee-L configured here.

User (0 ... 3): when the unit is the PC, enter the user number. The determining factor is activated when there is no communication with any of the users (leaving it at 0) or with the user configured here. For communication with the Cloud, enter user 3.

| DETERMINING FACTOR PARAMETERS | | | |
|--|---|--|--|
| Determining factor: 08 | | Type: stop fertilizer | |
| Origin: digital sensor Digital sensor No.: 01 Delay, detection: 0030" | Origin: analog sensor Analog sensor No.: 02 Delay, detection: 0150" Reference: 02.1 mS When surpassed: yes | Origin: meter sensor Meter sensor No.: 02 Delay, detection: 0000" at start: 0000" Reference: 000.00 L/h When surpassed: no | Origin: flow error Meter sensor No.: 02 Delay without pulse: 006' |

5.7. SENSORS

There are three types of sensors:

SENSOR PARAMETERS

1. Digital
2. Analog
3. Meters

Digital: on/off sensors connected to digital inputs. There can be a total of 20.

Analog: current (4-20 mA) or voltage (0-20 V) sensors connected to analog inputs, SDI12 units or AgroBee or AgroBee-L modules. There can be a total of 40.

Meters: pulse-emitting sensors (irrigation, fertilizer or rain gages) connected to digital inputs. There can be a total of 10.



5.7.1 Digital sensors

A digital sensor acts by opening and closing a contact. Example: pressure gages, thermostats, tank levels, open door detector, etc. They are identified on the base of the Agrónic as D1 to D6.

DIGITAL SENSOR PARAMETERS

Sensor: 01
 Input No.: 00003
 Status, normally open: yes
 Text: abcdefghi

Sensor (00 ... 20): digital sensor number to be configured.

Input No.: digital input where the sensor is connected. See section 6 '[Input and output coding](#)'.

Status, normally open (Yes ... No):

- **yes:** the sensor marks '1' when there is continuity between CD and the corresponding input.
- **No:** the sensor marks '1' when there is no continuity between CD and the corresponding input.

Text (0 ... 9 characters): sensor identification text.

5.7.2 Analog sensors

An analog sensor acts by delivering current or a voltage proportional to what it measures. Example: temperature, radiation, pressure, wind, humidity, etc.

| ANALOG SENSOR PARAMETERS | |
|--------------------------|--|
| 1. Sensors | |
| 2. Formats | |

Sensors

| ANALOG SENSOR PARAMETERS | |
|--------------------------|--|
| Sensor: 01 | |
| Input No.: 00002 | |
| | |
| Format: 01 +000.0 °C | |
| | |
| Tare: -000.2°C | |
| | |
| Text: texttext | |

Sensor (00 ... 40): analog sensor number to configure.

Input No.: analog where the sensor is connected. See section 6 '[Input and output coding](#)'. If the sensor is connected to an AgroBee or AgroBee-L, the module must be configured before the sensor.

Format (01 ... 31): format number used by the sensor). The format is configured automatically in some internal or AgroBee sensors.

Tare: value to be added or subtracted from the sensor reading.

Text (0 ... 9 characters): identifying text of the sensor.

If the sensor is connected to an SDI12 unit or to an AgroBee or AgroBee-L module, the module must be configured before the sensor.

Formats

| ANALOG SENSOR PARAMETERS | |
|--------------------------|--|
| Format: 01 | |
| No. of integers: 3 | |
| No. of decimals: 1 | |
| | |
| Sign: yes | |
| Units: °C | |
| | |
| Calibration point 1: | |
| real value: 00800 mV | |
| Logical value: -100.0°C | |
| | |
| Calibration point 2: | |
| real value: 04000 mV | |
| Logical value: +100.0°C | |
| | |
| Calibration point 3: | |
| real value: 00000 mV | |
| ... | |

The format indicates the sensor units and the relationship between the voltage read by the input and the sensor reading values.

Format (01 ... 31): format: number to configure.

No. of integers (1 ... 5): the number of integers on the sensor reading.

No. of decimals (1 ... 4): the number of decimals on the sensor reading.

Sign (Yes ... No):

- **yes:** the sensor reading may be negative.
- **No:** the sensor reading is always positive.

Units (0 ... 5 characters): descriptive text of the units.

Calibration points.

There are up to four calibration points, allowing non-linear sensors to be configured. If they are not used, they can be left at 0.

Actual value: reading the analog input in millivolt. If it is by current, it must be converted taking into account that there is a resistance of 200 ohms, 4 mA = 800 mV, 20 mA = 4000 mV.

Logical value: logical value that corresponds to the previous real value. It goes in the previously defined units and format.

| FORMATS – Default configuration | | | | | | | | | | | |
|---------------------------------|--------|--------------------------|------------------------------|--------------------|-------------|--------------------|-------------|--------------------|-------------|--------------------|-------------|
| No. | Units | Description | Sign Integers Decimals | P1 Real (mV) | P1 Logic | P2 Real (mV) | P2 Logic | P3 Real (mV) | P3 Logic | P4 Real (mV) | P4 Logic |
| 1 | °C | Temperature | +/- 3.1 | 800 | -30.0 | 4000 | +60.0 | 0 | 0 | 0 | 0 |
| 2 | W/m2 | Radiation | 4.0 | 800 | 0 | 4000 | 2000 | 0 | 0 | 0 | 0 |
| 3 | cbar | Soil moisture content | 3.1 | 800 | 0 | 2326 | 40.2 | 3422 | 85.5 | 4000 | 120.0 |
| 4 | %RH | Relative humidity | 3.0 | 800 | 0 | 4000 | 100 | 0 | 0 | 0 | 0 |
| 5 | Km/h | Speed | 3.0 | 800 | 0 | 4000 | 160 | 0 | 0 | 0 | 0 |
| 6 | % | Percentage | 3.0 | 800 | 0 | 4000 | 100 | 0 | 0 | 0 | 0 |
| 7 | u | Units | 4.0 | 0 | 0 | 5000 | 5000 | 0 | 0 | 0 | 0 |
| 8 | mm | Distance | 3.0 | 800 | 0 | 4000 | 100 | 0 | 0 | 0 | 0 |
| 9 | L | Volume | 4.0 | 800 | 0 | 4000 | 1000 | 0 | 0 | 0 | 0 |
| 10 | L/m2 | Precipitation | 2.1 | 800 | 0 | 4000 | 20.0 | 0 | 0 | 0 | 0 |
| 11 | m3/h | Flow rate | 3.1 | 800 | 0 | 4000 | 200.0 | 0 | 0 | 0 | 0 |
| 12 | bar | Pressure | 2.1 | 800 | 0 | 4000 | 16.0 | 0 | 0 | 0 | 0 |
| 13 | mS | Conductivity | 2.1 | 800 | 0 | 4000 | 20.0 | 0 | 0 | 0 | 0 |
| 14 | pH | Acidity | 2.1 | 800 | 0 | 4000 | 14.0 | 0 | 0 | 0 | 0 |
| 15 | mm/d | Evaporation | 1.2 | 800 | 0 | 4000 | 5.00 | 0 | 0 | 0 | 0 |
| 16 | ° kkkk | Direction | 3.0 | 800 | 0 | 4000 | 360 | 0 | 0 | 0 | 0 |
| 17 | rpm | Revolutions | 4.0 | 800 | 0 | 4000 | 5000 | 0 | 0 | 0 | 0 |
| 18 | mm | Movement | +/-1.1 | 800 | -2.5 | 4000 | +2.5 | 0 | 0 | 0 | 0 |
| 19 | V | Voltage | 2.1 | 800 | 0 | 4000 | 50.0 | 0 | 0 | 0 | 0 |
| 20 | % | Soil moisture content | 3.0 | 800 | 0 | 4000 | 50 | 0 | 0 | 0 | 0 |
| 21 | mA | Current | 2.2 | 0 | 0 | 4000 | 20.00 | 0 | 0 | 0 | 0 |
| 22 | | | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 23 | | | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 24 | | | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 25 | | | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 26 | | | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

5.7.3 Meter sensors

A meter sensor receives information about the water volume and flow and rainfall, in the case of rainfall gages, that passes through the pipe.

The meter sensors are connected to a digital input. If the digital input is from the base, in 'Function - 4. Parameters - 10. Installer - 5. Various', a back-torque filter can be configured and it allows a maximum of 5 pulses per second.

| SENSORS METER PARAMETERS | |
|------------------------------|---|
| Input No.: | 00002 |
| Type: | digital |
| ----- | |
| Pulse value: | 00001.00 L |
| ----- | |
| Maximum time between pulses: | 200" |
| ----- | |
| Flow in: | [000.00 m3/h] [000.00 L/h] [000.00 L/s] |
| Total in: | [000.00 m3] |
| ----- | |
| Text: | abcdefghi |

Sensor (00 ... 10): analog sensor number to configure (1 to 10).

Input No.: digital input where the meter is connected. See section 6 'Input and output coding'.

Type (Digital | Rain Gauge):

- **digital:** the meter closes a contact, producing a pulse each time a known volume of water passes. The flow rate is calculated by counting the time between two pulses. It must be connected to a digital input on the Agrónic or AgroBee modules.
- **Rain gauge:** the rain gage has a spoon that fills with rain. It is automatically emptied when it is full, generating a pulse. Each pulse is equivalent to a quantity of water per m2.

Pulse value (00000,00 ... 90000,00 L): volume measured by each pulse.

Maximum time between pulses (000 ... 999"): if more than this time passes after receiving a pulse, the instantaneous flow rate goes to 0.

Flow in (m3/h | L/h | L/s):

- 000.00 m3/h: cubic meters per hour.
- 000.00 L/h: liters per hour.
- 000.00 L/s: liters per second.

Total in (0000 m3 | 0000.0 m3 | 000.00 m3 | 0000 L | 000.0 L | 000.00 L | 0000 L/m2 | 000.0 L/m2 | 000.00 L/m2): units in which the total volume is saved in history.

Text (0 ... 9 characters): identifying text of the sensor.

5.8. VARIOUS

VARIOUS PARAMETERS

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

Keypad:
 sound level: 2

PIN Security
 PIN code: 0000

Screen

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

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

Lighting (*Yes ... No*):

- **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 Progres. Even if the Agrónic is blocked, the programs continue to start 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

5.9. 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. Erased |
| 2. Events |
| 3. Access codes |
| 4. Activate options |
| 5. Various |
| 6. Communications |
| 7. Language |
| 8. Update software |
| 9. Backup copy |

5.8.1 Erased

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

5.8.2 Events

For each of the events that Agrónic records, the type and how it will act when it occurs are configured.

As an exception, there are events from 33 to 44, which are the determining factors and which are configured for each one in parameters.

The complete list of events can be seen in section [9.3.].

Event (01 ... 60): event number to configure.

Anomaly (Yes ... No):

- **Yes**: the event is recorded as an anomaly. When it occurs it is indicated in the general query. It is shown in the anomalies section and in the action record. It is for events, to see them quickly when they occur.
- **No**: the event is recorded as an action. It is shown in the action record section. It is for events that are not important to see when they occur.

The following parameters are only requested if the modem is installed.

SMS to tel. A (Yes ... No): when the determining factor is activated, send an SMS to phone A.

SMS to tel. B (Yes ... No): when the determining factor is activated, send an SMS to phone B.

SMS to tel. C (0 ... 6): when the determining factor is activated, send an SMS to phone C with the selected text.

Urgent send (Yes ... No): only used if the GPRS modem is deactivated on a schedule.

- **Yes**: if the modem is deactivated, it is activated to send the SMS and deactivated again.
- **No**: if the modem is deactivated, the SMS will be sent when it is activated by schedule.

5.8.3 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.

5.8.4 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.

5.8.5 Various

Programs

- **Sector limit** (1 ... 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** (1 ... 4): sectors than can be activated in each irrigation program. Here you configure how many sectors are asked in the program.
- **Alternating sequential** (Yes ... No): when you want a program sequence to not always start with the same on. For example, if programs 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?** (Yes ... No): set to '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** (Yes ... No): set to Yes to set a maximum irrigation time when the units are configured by volume. This time is given for safety.
- **Active schedule** (Yes ... No): with 'Yes' it will ask the



active schedule in **Function - 1.Program**'.

- **Active period** (Yes ... *No*): with 'Yes' it will request the active period in **Function - 1.Program**'.
- **Activations** (Yes ... *No*): with 'Yes' it will ask in **Function - 1. Program**' for activations.
- **Outside of active hours, end irrigation** (Yes ... *No*):
 - **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 m3* | *0000.0 m3* | *000.00 m3*) | (*00000 L* | *0000.0 L* | *000.00 L*): when the units are by volume, this determines the format they will be entered in.

Fertilization

- **Fertilizer type** (*series* | *parallel* | *uniform*): indicates how the fertilizers are injected into the irrigation, one after another [series], all at the same time (parallel) or all at the same time in different doses (uniform).
- **Fertilizer units** (*hh:mm* | *mm' ss"* | *liters* | *liters/ha*): indicates which fertilizer units will be used: time or volume. These units are common for all programs. Irrigation units are configured for each program.
- **Stop when cleaning filters** (Yes ... *No*): with 'Yes' the fertilization is temporarily stopped when the filters are cleaned.

Sectors

- **Flow detector. Postpone** (*00'00"* ... *99'59"*): when the sector changes from open to closed, this unit waits for this time before checking that no water passes through. When the sector changes from closed to open, this is the delay time before checking that water is passing through. Delays caused by communications if there are modules or by filling pipes must be taken into account.

Inputs and outputs

- **Latch valve** (*2 wires* | *3 wires* | *2 w.inv*): if the base of the Agronic 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** (Yes... *No*):
 - **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.

The option of inputs allows reading 4-20 mA or 0-20 V sensors. The type must be indicated for each input. It must be related to the switch position on the analog input board.

- **Type anal. input 1** (*4-20 mA* | *0-20 V*): select how analog input 1 will work.
- **Type anal. input 2** (*4-20 mA* | *0-20 V*): select how analog input 2 will work.
- **Continuous reading** (Yes... *No*):
 - **Yes**: in latch models, the analog sensors are powered and read every minute to save power. By activating continuous reading, the sensors will be read every second.

5.8.6 Communications

See the 'Agronic 2500 Communications' manual.

5.8.7 Language

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

5.8.8 Update software

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

5.8.9 Backup copy

Saves a copy of all the Agronic 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.

5.10. SOLAR IRRIGATION

Solar irrigation is used when the installation has a hybrid power system: grid power or diesel and solar panels.

| SOLAR IRRIGATION PARAMETERS |
|-----------------------------|
| Activated: yes |
| Schedule: 00:00 – 00:00 |
| |
| Determining factors: |
| 00 00 00 00 00 |
| 00 00 00 00 00 |

With solar irrigation activated, the Agrónic selects where it must use the power from through the pumps:

- **P1:** activated when power is from the grid or diesel
- **P2:** activated when the power is solar.

Sectors that use the hybrid system must have both pumps assigned. The Agrónic, depending on the parameters it has configured, will decide whether to activate P1 (mains or diesel) or P2 (solar). Both pumps are never activated at the same time.

Activated (Yes... No):

- **Yes:** the installation has a hybrid power system.
- **No:** the installation has a single power system. Normal use of Agrónic.

Schedule: only solar power is used within the schedule configured here. Outside of these hours, both types of power can be used. If it is left at 0 all day, both types of power will be used.

Determining factors (00 ... 30): up to ten determining factors that affect solar irrigation can be configured. Leaving 0 there is no determining factor. The determining factors are conditional stop and normally linked to a radiation sensor. Radiation indicates whether there is enough power to carry out solar irrigation. These determining factors are used to decide whether to use solar power, grid power or diesel.



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.

GENERAL OUTPUTS

| | 0 00 00 | | Description |
|--------------|---------|---------|--------------------------------|
| 0: base | 00 | 01 - 27 | |
| 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: agroBee-L module 1 output 2.

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 |
| 1: agroBee | 01 - 16 | 01 - 09 | Depends on the AgroBee model |
| 2: virtual | 00 | 01 | Unique code to indicate that the sensor is virtual. There can be as many virtual sensors as desired |
| 3: agroBee-L | 01 - 20 | 01 - 09 | Depends on the AgroBee-L model |



Example

00101: digital input that indicates whether there is voltage on the outputs.

30201: agroBee-L module 2 digital input 1.

ANALOG INPUTS

| | 0 00 00 | | Description |
|--------------|---------|---------|---|
| 0: Base | 00 | 01 - 02 | 4-20 mA inputs. Extension on the base. Option 2 EA |
| | 01 | 01 - 03 | 01: internal temperature 02: input voltage 03: modem/WiFi RSSI level |
| | 02 | 01 - 04 | 4-20 mA inputs. Extension on the base. SDI-12 + 4EA option |
| 1: AgroBee | 01 - 16 | 01 - 09 | 01 to 12: depends on the AgroBee model 13: battery voltage 14: panel voltage 15: rSSI level 16: IQI level |
| 2: Virtual | 00 | 01 | Unique code to indicate that the sensor is virtual. There can be as many virtual sensors as desired |
| 3: AgroBee-L | 01 - 20 | 01 - 09 | 01 to 13: depends on the AgroBee-L model 14: battery voltage 15: panel voltage 16: radio signal level |
| 4: SDI-12 | 01 - 08 | 01 - 24 | Depends on the unit model |
| 5: Davis | 00 | 01 - 33 | Davis weather station. See the manual for the unit |



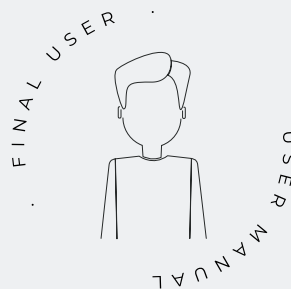
Example

30713: agroBee-L module 7 analog input 13 (battery voltage).

00201: sDI-12 + 4EA option analog input 1

00002: option 2 EA analog input 2

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



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 a meter sensor has to be created to read that input and configured to be Digital type, the pulse value and the total value in m3 (see section [Meter Sensor Parameters](#)). To indicate that it is an irrigation meter, it must be related to the sectors (see [Sector Parameters](#) section).

Configure a pressure sensor – stop irrigation if there is no pressure

First find out which analog input the pressure sensor has been connected to. Then an analog sensor has to be created to read that input (see [Analog Sensor Parameters](#) section). A Temporary Stop determining factor originating from the analog pressure sensor. Configure here the pressure required to irrigate. Below this pressure, the program stops (see section [Determining Factor Parameters Conditional Stop](#)). The determining factor is assigned to the programs that you want to stop if there is not enough pressure (see [Program Parameters](#) section).

Configure a rain gage – stop irrigation if it rains

First, find out which digital input the rain gage has been connected to. Then a meter sensor has to be created to read that input and configured to be the Rain Gage type, the pulse value and the total value in L/m2 (see [Meter Sensor Parameters](#) section). The daily total rainfall can be seen in '[Function - 3. Readings - 4. History - 2. Meter Sensor](#)' (see section 5.4.2 Meter sensor history readings, in the User Manual). To stop irrigation, a determining factor such as 'End due to rain' must be configured with a meter sensor origin (see section [Filter Pressure gage Determining factor Parameters](#)). The determining factor is assigned to the programs to be stopped if it rains (see [Program Parameters](#) section).

Create an anti-frost program

First find out which analog input the temperature sensor has been connected to. Then an analog sensor has to be created to read that input (see [Analog Sensor Parameters](#) section). A Start or Start-Stop determining factor originating from the temperature sensor. Here, configure the temperature at which it must be activated (see section [Determining factor Parameters Start and Stop](#)). Assign this determining factor to the anti-freeze program (see [Program Parameters](#) section).

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 (see [Diesel option parameters](#) section).

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 - 10. 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. See the [Various Parameters](#) section for further information.



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 - 9. Agrónic](#)' and check that there is voltage in the output part and that the motherboard is correctly configured (see section 6.7 of the user manual).

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 - 10. 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 - 10. Installer - 5. Various - Digital Meter Sensor](#)' (see [section 5.8](#)).

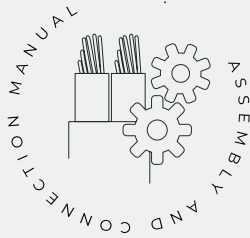
An input is not read from the base

Go to '[Consult - 9. Agrónic](#)' and check that there is voltage in the output part and that the motherboard 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 - 9. 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.



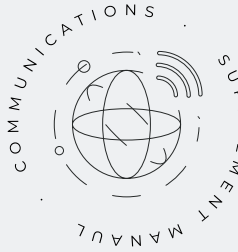
9 TECHNICAL SUPPORT

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



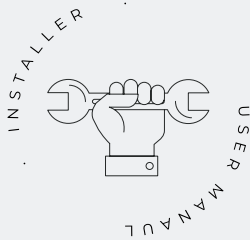
Assembly and connection manual *r2465*

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.



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.

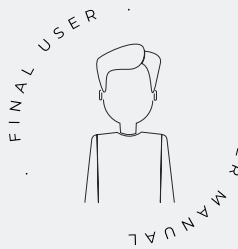


Installer's manual

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.



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.

Pivot manual

r2485



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

Solar irrigation manual

r2006



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

Installing the options

Installation Option GPRS

Installation Option USB (r1933)

Installation Option WiFi

Installation Option AgroBee

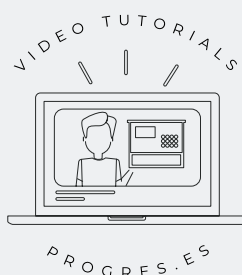
Installation Option AgroBee-L (r2367)

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

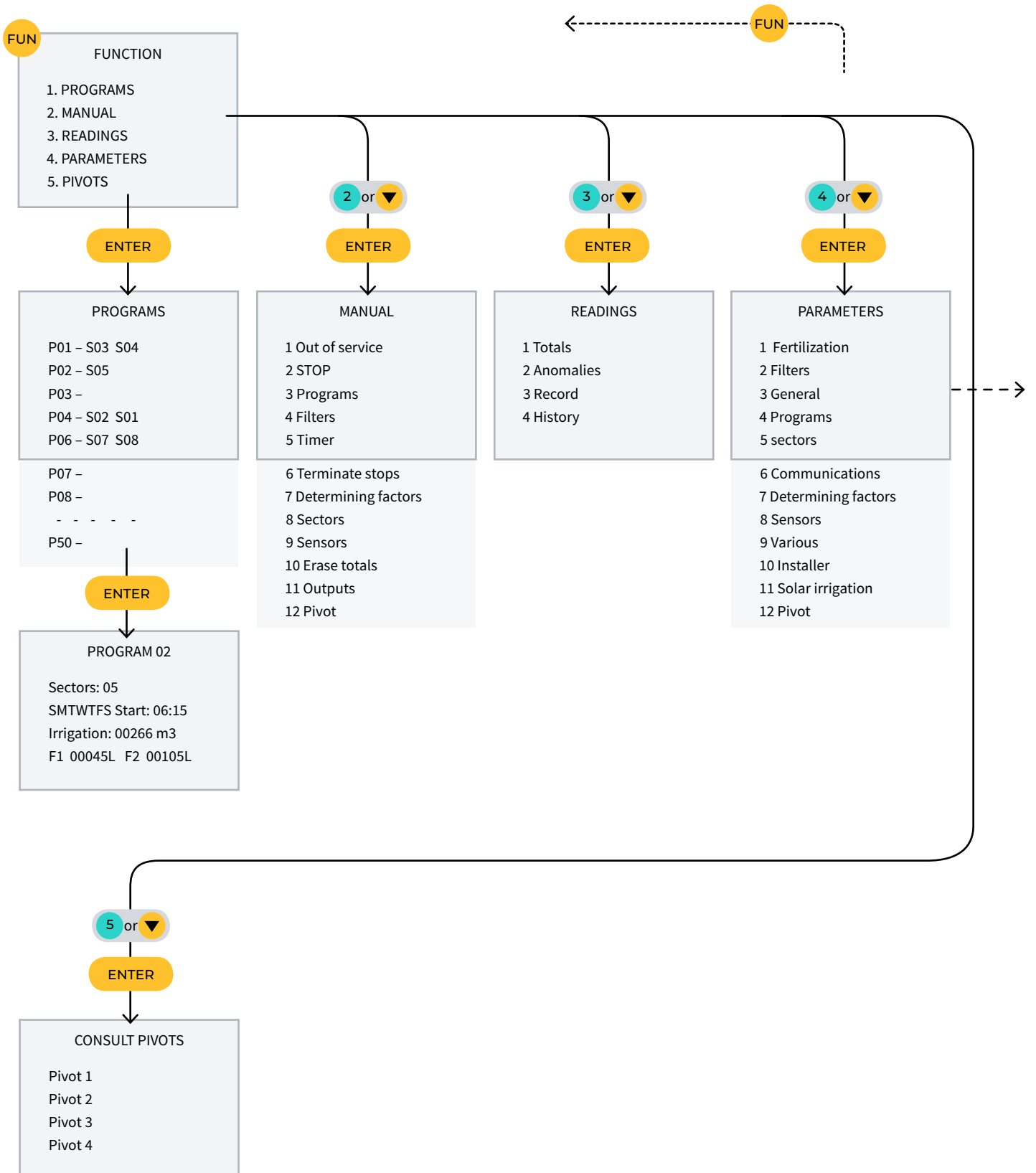


Video tutorials

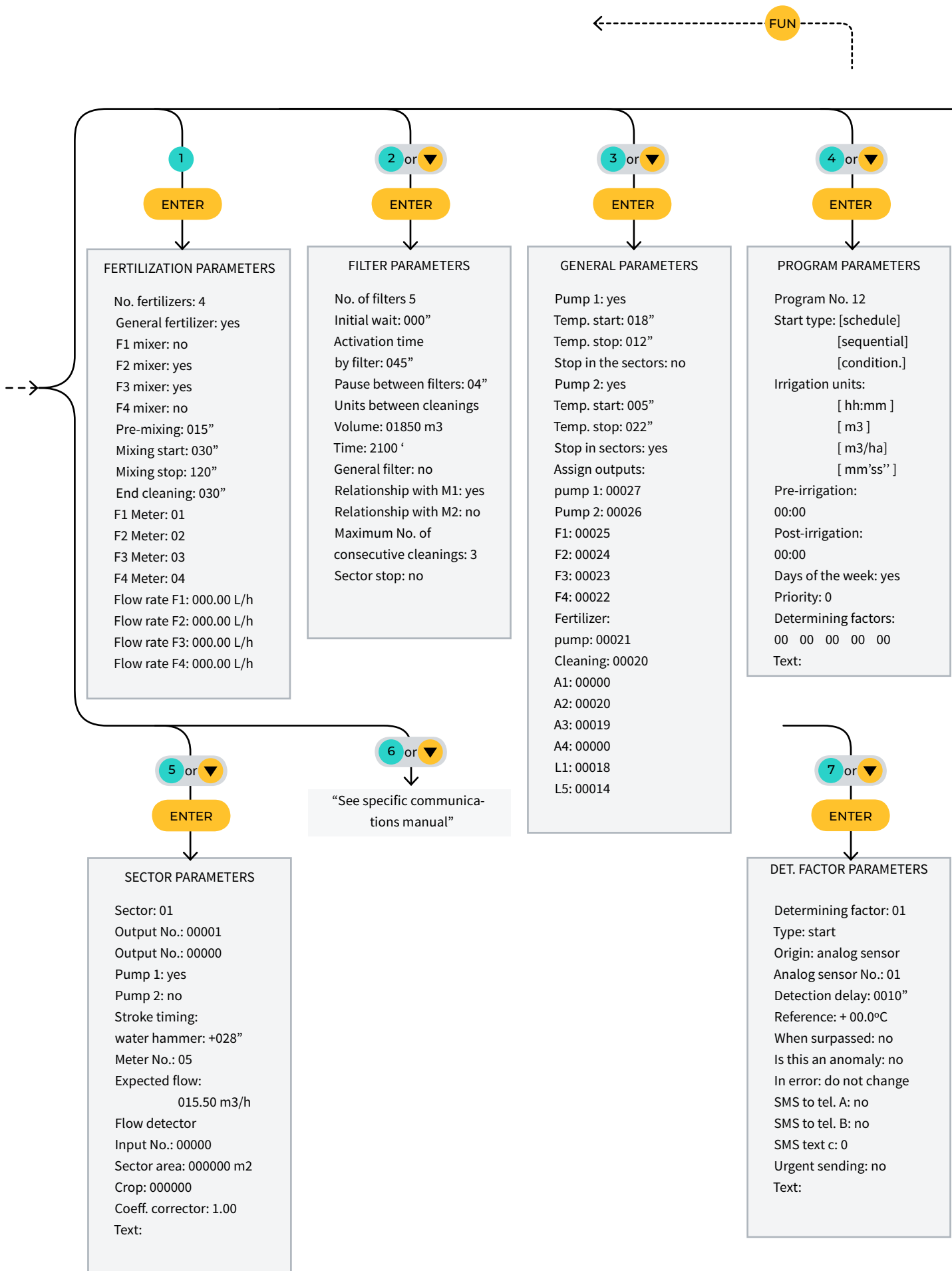
There are instruction videos on the Progrés website explaining the most frequently asked questions step-by-step. Please consult them if you have any questions or problems, you may find the solution there.

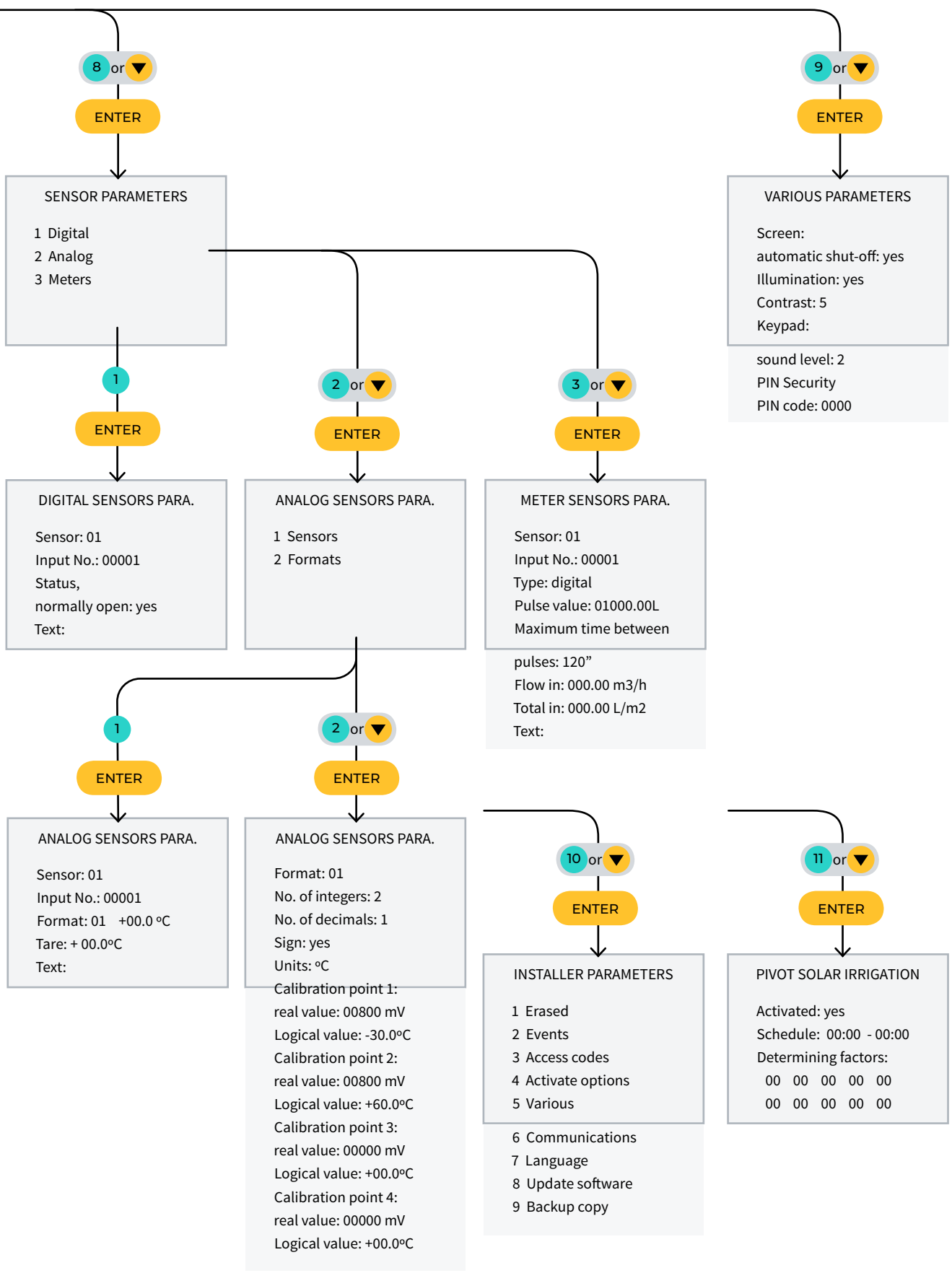
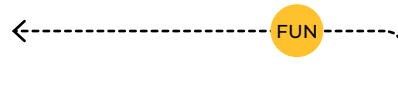


10 FUNCTION SCREEN



11 PARAMETERS SCREEN







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.

Sistemes Electrònics Progrés, S.A.

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