# AGRÒNIC 2500

Complete fertigation controller, entirely configurable with great potential to use and with many extension and communication possibilities.


Equipped to control irrigation, fertilization, pumping, filter cleaning and malfunctions detection, providing detailed chronological records of events and totals.

Models have 9, 18 and 27 configurable outputs and 6 digital inputs on the base, having also several versions and options.

Extensions are available to accommodate readings from 2 analog sensors on the own base or by using the AgroBee radio system to have more inputs and outputs, reaching up to 30 irrigation sectors, 2 pumps, 4 fertilizers and mixers, 1 fertilizer general, 9 filters, 1 filter general, 20 digital sensors, 10 meter sensors, and 20 analog sensors.


Programming according to time and volume for both irrigation and fertilization, as well as filter cleaning, with the option to have independent working actions for each program.

Starting conditions and irrigation or fertilizer units can be influenced using climate or crop-based sensors.

Remote management using “Agronic App”, SMS messages, as well as PC connections to three users or to an Irrigation Community software.

Basic model is completely scalable, very easy to use, and has an additional list of options to become a high-performance model.

## IRRIGATION

Up to 30 irrigation sectors can be controlled, which are governed by 50 separate programs with their corresponding extensions, with the possibility of linking programs together to execute irrigation sequences.

Each program can activate 1 to 4 irrigation sectors simultaneously. Simultaneous activation can be limited from 1 to 8 sectors with various programs.

Each program can start running at a specific time, selecting the days of the week, at the end of another program, or triggered by an input when a contact is closed. Optionally, it can be activated when a sensor reaches a certain value (°C, soil moisture, etc.), by mobile phone via SMS, by irrigation frequency (irrigating every day, every two days, every 3 days, etc.) or even irrigating everyday with several activations. In addition, the time of year when the unit must be operative can be indicated. When starting using sensors, an active schedule or margin time between start-ups can be selected.

Irrigation units can be in time (hh:mm), in volume ($m^3$) and, optionally, by hectare volume ($m^3$/ha), and by hectare time (hh:mm/ha), independently by program. There are time-limited units when operating by volume.

Readings from each meter are proportionally distributed to totals and records, according to the planned flow values for the simultaneous active sectors that are related to that meter.

Optionally, the modification of the irrigation and fertilization units by sensors may be influenced by the values detected from the prior irrigation, such as rainfall, evapotranspiration, integrated solar radiation, etc. or by using a virtual sensor (by manual or SMS command) to modify the irrigation units of all the programs at the same time.

Optionally, one program currently irrigating can be temporarily suspended by sensor values, such as wind, temperature, level, etc.

Optionally, complete monitoring for the instantaneous flow of irrigation meters is also available, with programming of the planned flow in each sector and tolerances percentage based on excessive or default values. Detects lack of pulses or leakage.

## FERTILIZATION

Number of fertilizers in separate tanks can be configurable from 0 to 4.

Pre and post irrigation values independent for each program.

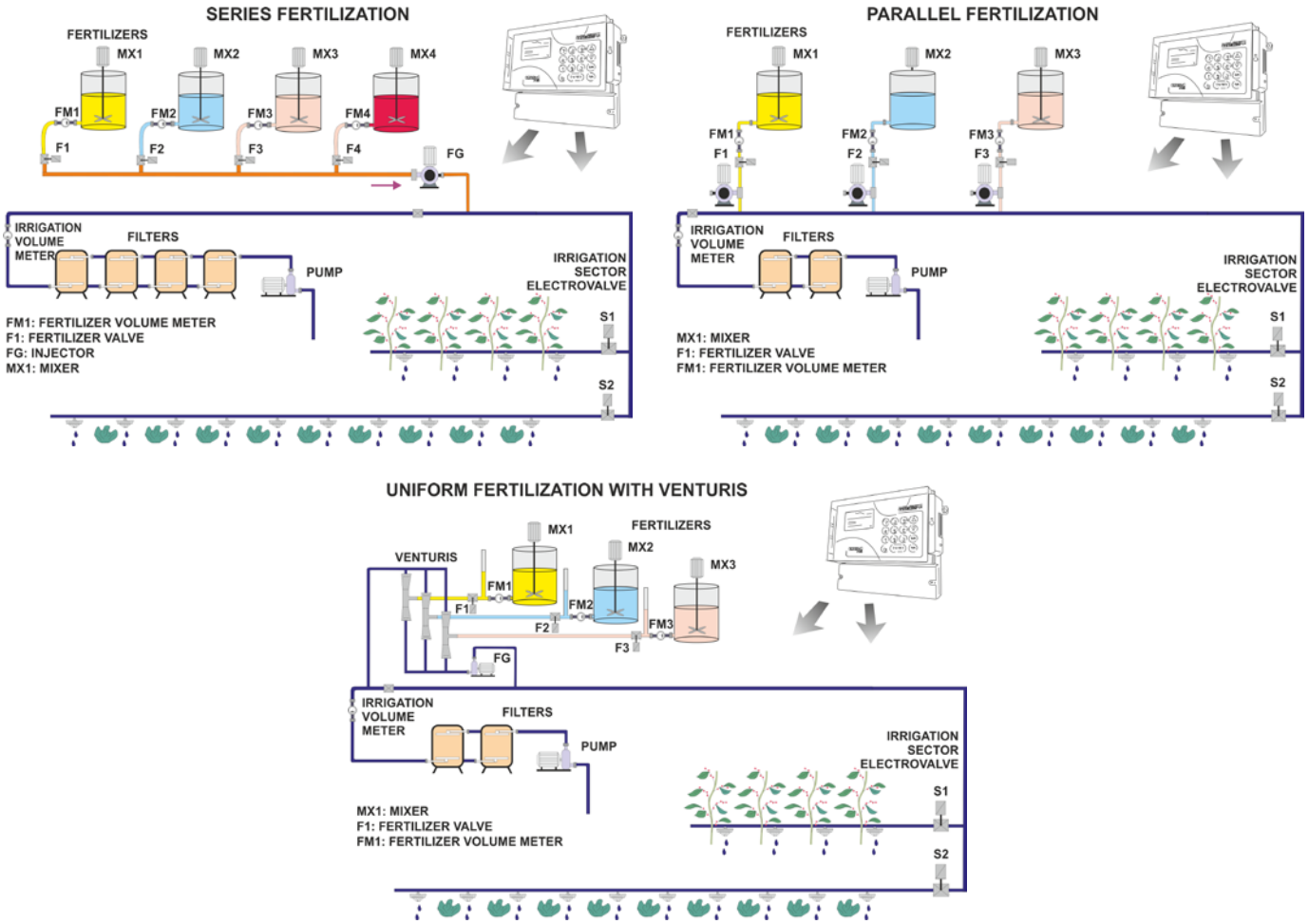
Fertilization units measured by time (hh:mm), volume (L) or optionally, by hectare volume (L/ha).

Mixers use can be configured to be active or inactive, 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 (optional): applies and distributes each type of fertilizer uniformly between pre and post irrigation. Applied in parallel.

Detection of the lack of pulses or water leakage is optional for volume sensors. Readings from each meter are proportionally distributed to totals and records, according to the planned flow values for the sectors that are related to that meter and that are being simultaneously fertilized.




## PUMPING

There are 1 to 2 general irrigation outputs, or pumps, with activation sectors assignment and with separate activation and deactivation temporizations. Temporizations are set to input and output for each sector.

Optionally, a diesel engine or generator unit can also be controlled. Outputs for start-up, stop, contact and preheating functions are available. Electrical pump start-stop control, as well as malfunctions detection is also performed.

## FILTER CLEANING

Configurable for 0 to 9 filters, with selectable cleaning time. Pause between filters is programmable.

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

Is it configurable to stop or not the irrigation sectors and fertilizers while the filters are being cleaned.

Control over malfunctions due to continuous cleanings.

## MANUAL

Manual commands can be used to start, stop, and remove irrigation programs from service, or suspend them for certain times, sectors can be placed in manual or automatic mode, activate general out of services or stops, start or stop filter cleaning, and finalize alarms and malfunctions. Optionally, virtual sensors can be modified or outputs can be directly activated.

## DISPLAY

Full display using a LCD screen, 128x64 pixel graphics, LED automatic backlighting.
Watertight keypad features 15 keys with sound indicators when pressed.
Available in Spanish, English, French, Italian, Portuguese, and Catalan.
Entire program information is shown onscreen simultaneously.

## READINGS

The unit stores all totals in non-erasable memory. Optionally, the events history and records of last days anomalies can also be saved.

- 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.

Furthermore, optionally:

- Detailed records of every event occurring in the unit.
- Separate history per irrigation sector with the units in time and volume of the irrigation and fertilizer applied everyday.
- History of every analog sensor with average value, with maximum and minimums in 10-minute fractions.
- History of every meter sensor with the irrigation or fertilization values as well as leakages in 10-minute fractions.

## SMS MESSAGES

This option offers the possibility of receiving SMS messages from the Agrónic 2500 regarding alarms, incidents, and selected workings, as well as the ability of users to send commands to start, stop or modify a program, set to “Stop”, etc.

It can also send SMS messages to other controllers or devices related to an event or determining factor.

## DETERMINING FACTORS

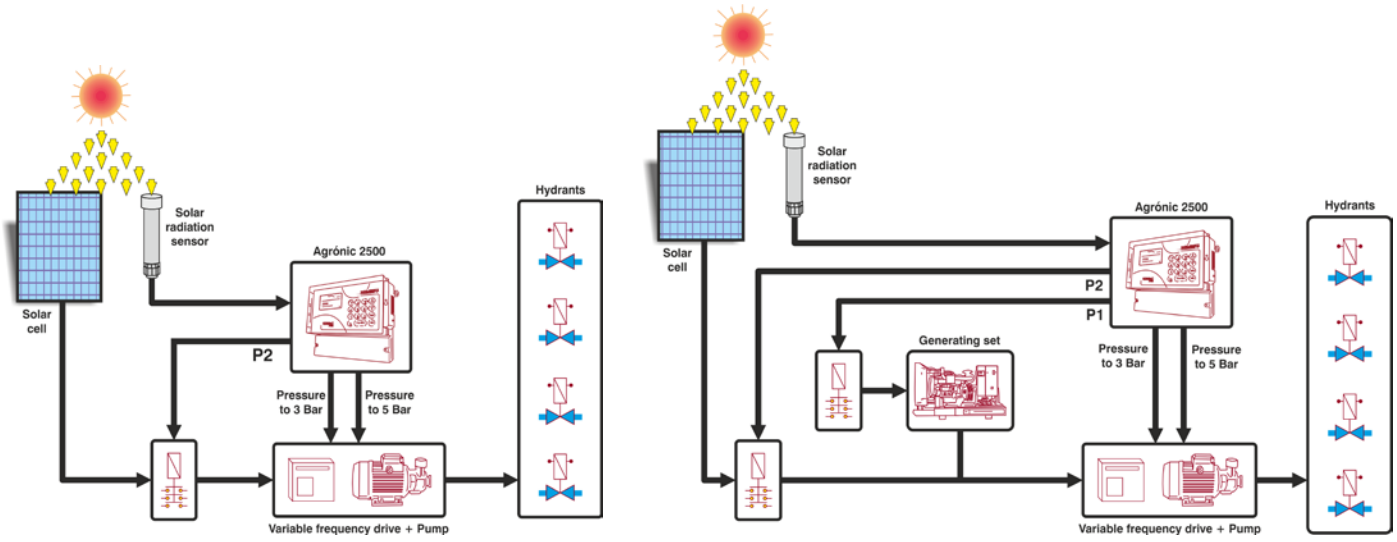
Optionally, the unit has a total of 30 completely configurable determining factors to trigger actions that take into account certain conditions or values from digital or analog sensors and meters. There is a wide variety of actions possible, such as the ability to make definitive, temporary or determined stops that are applied to specific programs or to 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 integrated value from a previous irrigation, etc. Moreover, each determining factor can be configured to create a malfunction or send an SMS message to two private telephones and an SMS message to another machine.

To give a few examples, it can be used to terminate irrigation due to a broken pipe, delay irrigation due to the lack of water level or excessive wind, modify the volume of each irrigation according to the value of the soil moisture 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.

| TYPE of determining factor | Origin Digital sensor | Origin Analog sensor | Origin Meter sensor | Origin Flow error |
|---|---|---|---|---|
| Definitive stop | ■ | ■ | ■ | ■ |
| Temporary stop | ■ | ■ | ■ | ■ |
| Conditional stop | ■ | ■ | ■ | |
| Start | ■ | ■ | ■ | |
| Start / Stop | ■ | ■ | ■ | |
| Warning | ■ | ■ | ■ | ■ |
| Modify irrigation | ■ | ■ | ■ | |
| Modify fertilizer | ■ | ■ | ■ | |
| Terminate due to rain | | | ■ | |
| Filter pressure gauge | ■ | ■ | | |
| Diesel pressure gauge | ■ | | | |
| Fertilizer stop | ■ | ■ | ■ | ■ |

## SOLAR IRRIGATION

Optionally, irrigation management on installations with solar panels connected directly to a variable frequency drive to activate a irrigation pump. It also allows having hybrid installations with energy from the power grid or from a power generator set. This operation has different priorities for irrigation at different pressures. The radiation sensor conditions the irrigation until there is enough energy to generate the working pressure.




## CONTROL PIVOTS

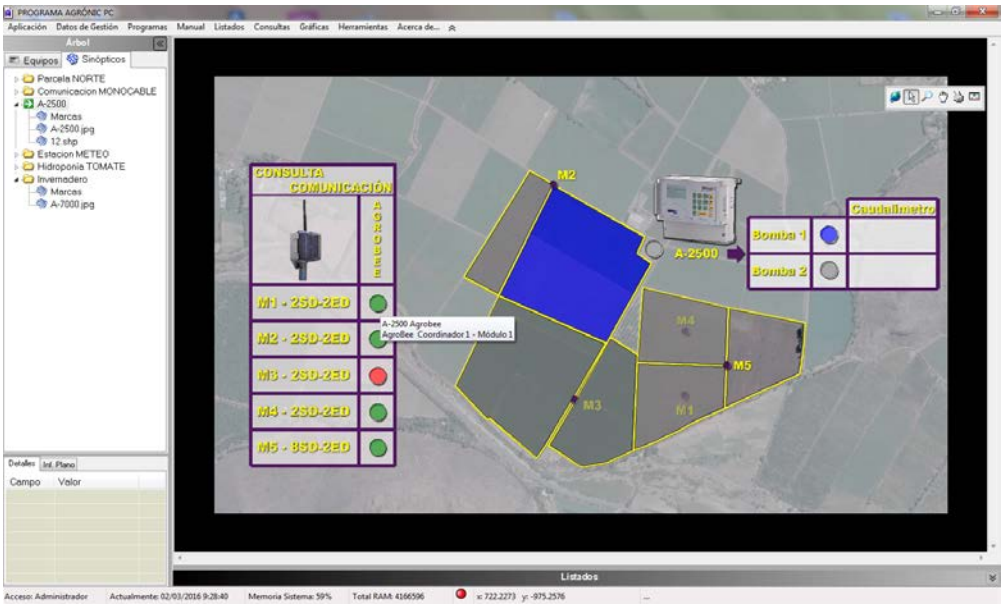
Optionally, management of up to 4 pivots with start and stop control, positioning, auto-reverse, speed control, sectoring and alarms (application under development).

## PC MANAGEMENT

Optionally, the unit can be managed using a personal computer by the AGRÓNIC PC program.

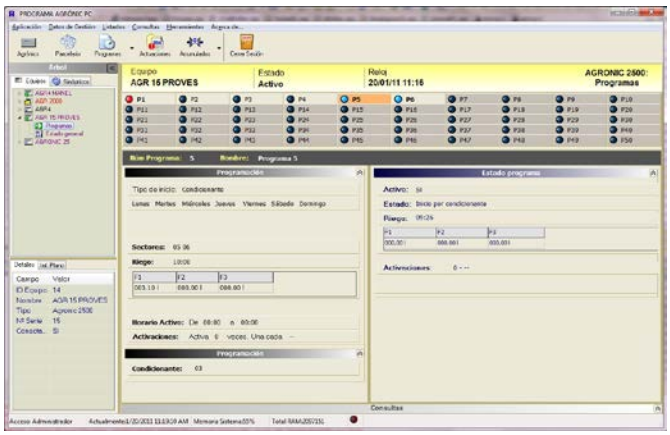
The connection options are via cable (USB, RS485), by telephone modem (GSM/GPRS) or radio (Radio Link, Wifi).

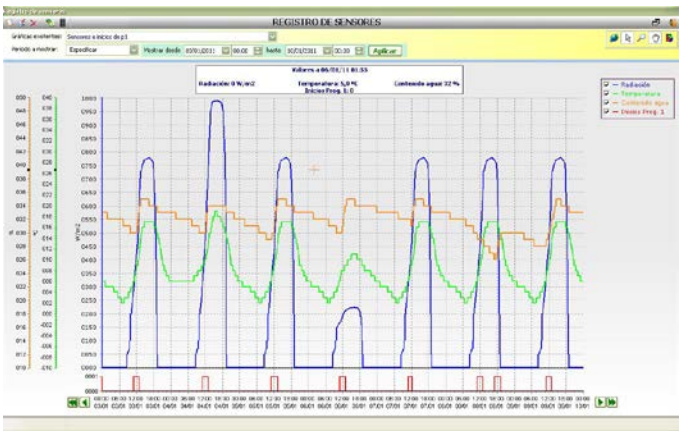
- Cable: local or medium-distance managing.
- Modem: long distance or even from another country. Requires coverage, cost per usage, and to include the SMS. Connection socket TCP-Customer or Server.
- Wifi: LAN connection at short distance, and Internet connection at long distance.
- Radio: distances from 1 to 20 km, according to orography. Shares the radio channel with other units in order to be grouped into property dispersion or communities.




From the AGRÓNIC PC, punctual information can be obtained from the controller (history, incidents, irrigation situation, etc.), with the capability to modify parameters, programs, ranges, etc., from anywhere using a PC. The connection can be permanent and grouped together with other controllers (Agrónic 2000, Agrónic 4000, Agrónic 7000, Agrónic BIT).

The Agrónic 2500 manages the communication between three users; the information modified by one user automatically updates the other two. The connection of the three users to the unit can be simultaneous and permanent, according to the established link. This is useful for the interaction between, for example, the owner, ranch manager and installer.






## EXTERNAL MODULES

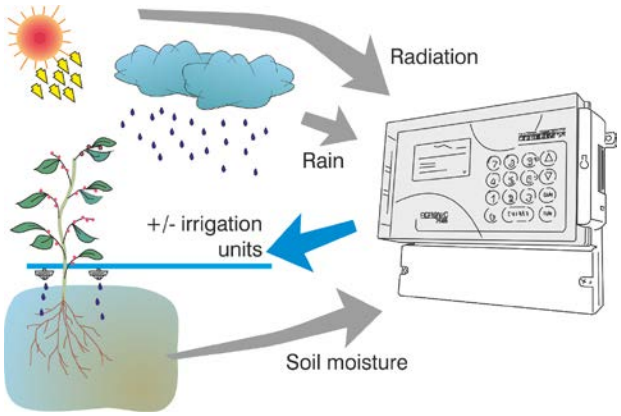
Optionally, it allows the connection to AgroBee radio modules, increasing the extension possibilities and the use of new features. This system is based on the ZigBee protocol operating at 868/915 MHz bands. Using different modules in the product line, digital sensors, analog sensors and the meters can be easily allocated away from the irrigation valves.

## PLUS OPTION

The PLUS option for the AGRÓNIC 2500 offers a notable increase in features to the basic model, which may come from the factory with the options pre-activated or carried out at any time during its operable lifespan to meet any new demands that arise in the installation.

- In the **Programs** function, in addition to the classic irrigation operation based on days of the week, there is a **day frequency** option, allowing irrigations to be repeated every certain amount of days, for example, every two days, one day on, one day off, etc.
- **Programs** with **several activations** separated by an amount of time in hours and minutes, allowing a pulsed irrigation.
- **Programs** with **active schedules** to limit the irrigation application within a schedule; useful when starting irrigation by sensor.
- **Programs** with **active periods** to limit the operation of each program to specific dates.
- **Programs** with **safety times** (hh:mm) between irrigation starts to prevent continuous commands orders; useful when commands are sensor activated and an incident occurs.
- **Uniform fertilization.** The uniform application in parallel and by volume is added in order to distribute fertilizer more homogenously within the irrigation units.
- **New format** in the irrigation and fertilization programming, in **cubic meters per hectare** ($m^3$/ha) and **liters per hectare** (L/ha), respectively. The equipment carries out the calculations for the units applied at the start of every irrigation.
- **Determining factors:** the number of determining factors has been increased from 5 to 30. Furthermore, they can affect all the equipment or be assigned to specific irrigation programs; digital, analog or meter sensors can be used, or the integrated data from a previous irrigation; they can cause only a record or anomaly to be created and send off warning SMS messages.

  Operatives:
  - Definitive stop.
  - Temporary stop.
  - Conditioned stop.
  - Start and stop irrigation programs.
  - Warning.
  - Modify irrigation.
  - Modify fertilizer.
  - Terminate due to rain.
  - Filter pressure gauge.
  - Diesel pressure gauge




- **Text** descriptions for programs, sectors, sensors and determining factors.
- Possibility for **10 meters** (up to 4 for fertilizers and the rest for irrigation) plus **20 analog sensors** and **20 digital sensors**.
- **Manual commands,** allowing **programs** to be placed out of service, to be suspended for a certain number of hours or to be modified in order to change the days frequency counter or pending activations. In what regards the **determining factors**, a manual command can disable them or it can terminate a definitive stop. Concerning the **sectors**, they can be left in automatic or manual start mode or in manual stop mode. As for **sensors,** the manual commands permit values to be entered on a virtual sensor.

- As for **Readings,** there are new **record** and **history** sections**.** Chronological and detailed records are made of each event occurring in the equipment. The history of the irrigation and fertilizer totals is based on the time and volume applied per sector, grouped in days in the equipment and in 10-minute fractions in the Agrónic PC program. The history of each analog sensor shows the average, maximum and minimum values per day in the equipment and in 10-minute fractions on the PC. The history of each meter sensor shows the irrigation or fertilizer values as well as the leakage value in daily values or in 10-minute fractions on the PC.

## MODELS AND OPTIONS

- Models for 9, 18 and 27 outputs. Models for 9 and 18 outputs can always be expanded to 27 if desired, sending the unit back to the factory.
- Version at 12 Vdc power and outputs at 12 Vdc or 24 Vac. However, it is also available with 220/24 Vac by means of a 220 Vac to 12 Vdc external power supply and a 50VA transformer for outputs from 220 Vac to 24 Vac. Power and outputs protection with reset-table thermal fuses.
- Version with unit housed in wall-hung **box** with see-through window.
- Version with unit housed in box to build in inset in a case or closet.
- Diesel option for automatic start-up of pump motors or generator sets.
- Double-voltage option for generator sets.
- Options with outputs for 2 or 3 wire latch solenoids. Due to the very low power consumption of the equipment and electrovalves they operate these versions are highly recommended for battery-operated facilities that do not have diesel motors or solar panels to recharge them.
- Option PLUS, which adds features such as uniform fertilization, additional determining factors, sensors, record, history, text description of each feature, more than one irrigation meter, totals per meter and, concerning the irrigation programs, the option to operate by day frequency, by activations, by schedule and by active periods.
- Option to link to the AGRÓNIC PC program.
- Option to link to AGRÓNIC APP.
- SMS messages option (includes GSM/GPRS modem).
- USB link option.
- Wifi link option.
- Radio link option.
- Option to link to AgroBee system.
- Option to connect two analog sensors to the base equipment.
- Battery recharging option.

## GUARANTEE

Agrónic 2500 meets all the norms set by the CE.

The products created by PROGRÉS offer a two-year warranty against all manufacturing defects.



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