Fertirrigation

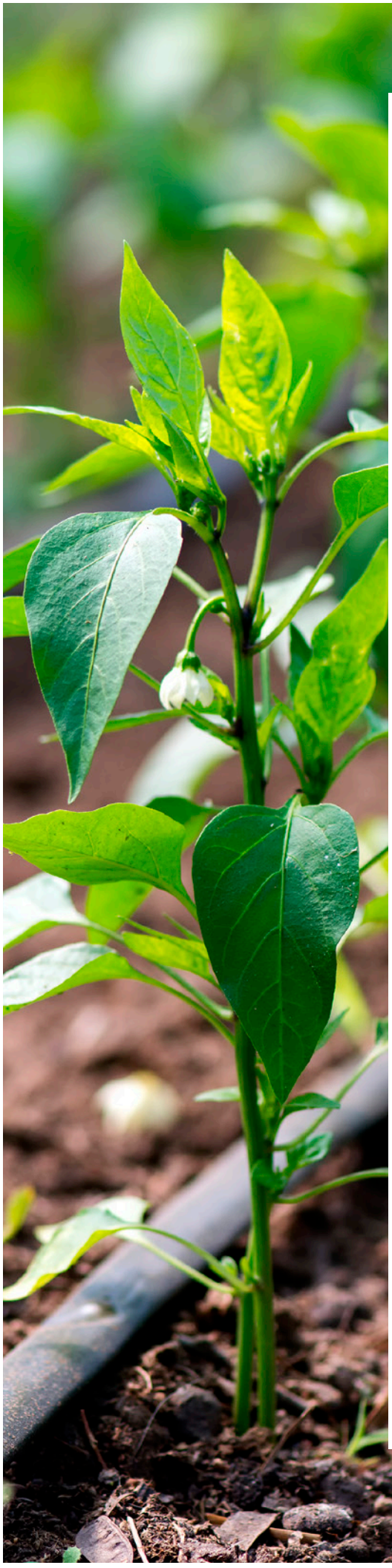
AGRÓNIC 4000

The most complete conventional fertirrigation controller,

fully configurable and adaptable to the needs of each user.

GUARANTEE OF QUALITY AND SERVICE · SINCE 1985 ·

SISTEMES ELECTRÒNICS
PROGRÈS



Description

The most complete conventional fertirrigation controller, fully configurable and adaptable to the needs of each user.

Equipped for the control of irrigation, fertilization, pH, pumping and cleaning of filters, with fault detection, etc.

Models with 16, 24, 32, 48, 64, 80 and 96 configurable outputs, plus 12 digital inputs on the base. Possibility of configurable output extensions as well as inputs for reading analog and digital sensors: by direct connection to the equipment, by the Agrónic Monocable and Agrónic Radio systems.

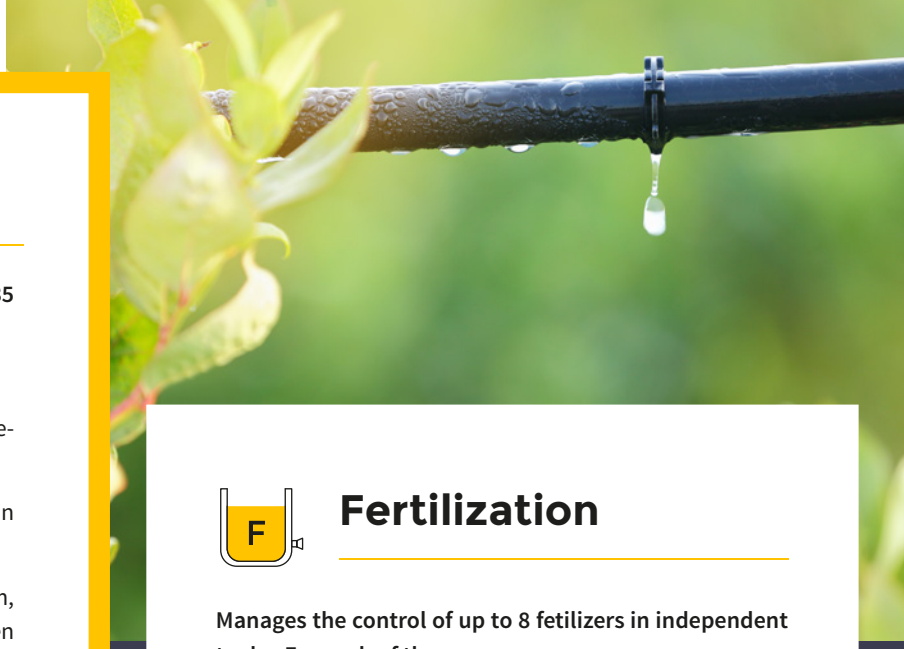
Programming by time and volume, both in irrigation and fertilization and in cleaning filters, with the possibility of mixed actions (independent for each subprogram).

It offers, through climate or cultivation sensors, the possibility of influencing the starting conditions of the irrigation and fertilization units.

Remote management of the controller through Agrónic APP, Agrónic Web and Agrónic PC.

Available in Spanish, English, French, Italian, Portuguese and Catalan.

There are two types of format, wall box or to be embedded in cabinets of desks.



Irrigation

It manages the control of 99 irrigation sectors ordered by 35 programs.

Each program can:

- Configure a maximum of 12 subprograms (automatic sequential).
- Simultaneously activate from 1 to 10 irrigation sectors in each subprogram.
- Start by days of the week, at the end of another program, by digital input when closing a contact or by analog input when arriving at a reference (with security time between starts).
- Irrigation units in time (hh:mm, mm:ss) and volume (m3, liters, m3/ha) independent for each subprogram.
- Irrigate by frequency of days (every other day, day if day does not ...) and postpone its start.
- Irrigate with several activations separated by a time in hours and minutes, thus performing a pulsed irrigation.
- Activate schedule to limit the application of schedule irrigation; useful at the beginning of sensor irrigation.
- Active period to limit the operation of each program to specific dates.
- Modify the irrigation and fertilizer units, through the integration of analog sensors.
- Modify the irrigation units using the manual factor.
- Temporary or conditional suspension of a program due to sensor values.

Fertilization

Manages the control of up to 8 fetilizers in independent tanks. For each of them:

- Fertilizer auxiliary in case that exist more than one injector.
- Cleaning output at the end of the fertilizer to clean the injector.
- 4-20 mA analog output with analog I/O option.

Fertilizers can be applied in three different ways:

- **Serial**: one type of fertilizer after another, with a single injector. In proportional fertilization, independent proportions for each fertilizer.
- **Parallel:** Several fertilizers at once, with one injector for everyone. In proportional fertilization, independent proportions for each type of fertilizer and subprogram.
- **With uniform application**: for an efficient distribution within the irrigation, with 4-20 mA outputs for frequency inverter or pulsed outputs for Venturi valve.

In addition:

- General fertilizer output.
- Units of time or volume applicable for each subprogram.
- Control over 8 agitators so that they work continuously or intermittently with preagitation.
- With the option of “pH Control”, and through pulses or analog signal 4-20 mA, the acid injection can be regulated with a reference value for each subprogram. Possibility of performing in the pre-irrigation and post-irrigation.
- Configuration of alarm values for excees and defect in the pH reading and electrical conductivity (EC).

Flows

Each irrigation sector is assignable to one of the 4 possible volumetric counters to irrigate in liters, m3 or m3/ha.

Control of the instantaneous flow by means of programming of the expected flow in each sector, and percentage of tolerance so much by excess as by defect. In addition to, flow detector by sector for opening and closing.

In the accumulated ones, the volume of irrigation and fertilizer is distributed proportionally to the nominal flow assigned to each sector.

The fertilizer is programmed in liters, deciliters or centiliters, with the possibility of one counter per type of fertilizer.

Connection of counters that work by impulses and frequency.

Determining factors

The controller has 4 determining factors per program, which it performs direct actions to the programs, taking into acount:

Information about

- Digital sensors
- Analog sensors
- ETo (virtual)

Determining factors

Types of determining factors

- Start the irrigation
- Modify irrigation units
- Modify fertilizer units
- Tempory or conditional stop

Programs

Pumping

It has 1 to 4 general outputs or irrigation pumps that can be assigned to sectors, with independent activation and deactivation timings.

By means of the “Water pressure regulation option” an analog 4-20 mA output can be obtained to connect it to a frequency inverter and maintain a pressure in the independent irrigation pipe for each sector.

Assignment of the nominal pressure in each sector and for cleaning filters.

Optionally control of a diesel engine, with outputs for starting, stopping, contact and preheating, as well as for electro-pump in the generator sets.

Digital and analog inputs

It has **12 digital inputs** (expandable) to operate with 48 digital functions such as tempory/conditional/definitive stop, irrigation/fertilizer impulse counter, general breakdown, intrusion alarm, rain gauge, start of irrigation programs, diesel oil pressure switch of engine stop.

Reading of **40 analog sensors** connectable in the base or in external modules. Possiblity of performing instant reading or conditioning the irrigation/fertilizer in different sectors. Capacity to make a historical record of 14 sensors.

Cleaning filters

Up to 4 groups of independent filtering with unlimited number of filters.

Configurable the number of filters to use in each group. Two wash times for each filter group. Pause time between filters. The beginnig of the washing can be due to the differential pressure and/or the time or volume of water circulation. Stop or not of the sectors when cleaning filters. Assignment of generals and counters. Continuous cleaning control.

Alarms

Option to activate up to three configurable alarm outputs when an event occurs.

It also has a digital input for intrusion alarm.

Manual control

Through manual orders, the system can:

- Start, stop and cancel irrigation programs.
- Start of stop cleaning filters.
- Completion of alarms and breakdowns.
- Direct activation of the outputs.
- Modify internal parameters of the program, such as days between irrigations, pending activations and frequency between activations.
- Remain out of general service.

Readings

It has the following readings, always updated:

- **Anomalies** occurred over a period of several weeks such as: power cut, flow, filter cleaning, fertilizer without control, irrigation or fertilizer counter, fertilizer left over, proportional fertilization, lack of communication with external modules, general fault inputs, definitive stoppage, temporary or conditional, intrusion alarm, pH and EC sensors, start and pressure in diesel engine, etc. All of them with the day and time they occurred and the most relevant data in relation to the type of anomaly.

New anomalies: this record shows the anomalies that have occurred since the previous visualization.

- **Accumulated** of the sectors and one of general to show the units of irrigation, in time and volume, plus the calculated volume and the applied units of each one of the fertilizers.

- **History** of the beginning of each of the programs, the cleaning of filters performed, sensors irrigation, accumulated rainfall of the day and evapotranspiration. In addition, for each sector, the irrigation units are recorded in time and volume, the average of EC and PH applied and the fertilizer units. When there is a PC/Web/App connection, the values of 14 analog sensors can be recorded every 10 minutes.

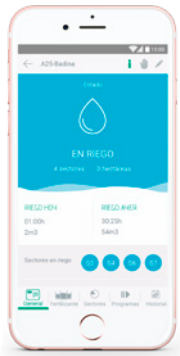
- **Sensors**: with the instantaneous value of the different sensors connected to external modules or connected to the Agrónic 4000.

External module Agrónic Monocable

Communication bus with 2 wires cable that allows communication and power up to 120 field modules robustly up to 10Km long. In less than 2 minutes we have the information of all modules in the central station.

External module Agrónic Radio

Telecontrol system that works with radio frequency by free band 433 MHz, can reach a maximum distance of 2.8 km, depending on orography.



Agrónic APP

Application for mobiles that allows to manage from any place the irrigation and fertilization of the plots where an Agrónic is installed.

It allows you to consult and edit the controller, know the status of the plots of land by list or on a map, act manually on irrigation programs or sectors, consult graphs of the sensors and sectors, and much more.

Any event generated in the controller can send a warning to a mobile device through a “Notification” or an “Alarm”.

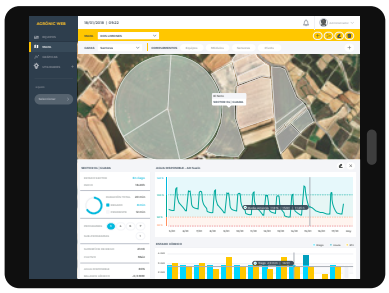
Agrónic PC

Program for Windows, which allows you to configure, program and consult all the features of the controller in real time, in a more intuitive and easy way.

It lets you consult, edit, and configure programs, sectors, external modules, fertilizers, filters, sensors, and determining factors.

Synoptics can be created to see an overview of the plots, and graphics for wider monitoring.

Agrónic Web



Ideal tool for the analysis and optimization of irrigation and fertilization of the plots where an Agrónic controller is installed, through the computer browser or tablet.

Agrónic Web collects information on the status of sensors (soil, plant, climate, and consumption) connected to the controller and data from APIs and processes them to be visualized through graphs and records.

It allows for consultation, editing, and configuration of programs, sectors, pivots, external modules, fertilizers, filters, sensors, and conditions.

You can create maps of the installations and check the status of sectors, external modules, and sensors, and control actions on all of them.

Through multi-user management, the main user can create sub-users and give them different permissions (consultation, editing, and configuration) on all their controllers.

Options

Options to expand the controller's features.

Cloud

(Agrónic APP + Agrónic Web) License to connect the devide to the cloud.

PC + Cloud

(Agrónic PC + Agrónic APP + Agrónic Web) License to connect up to 3 PCs/ Servers to the computer

GPRS Link

Option to connect via GPRS.

USB link

Option to connect via cable.

RS232 link

Serial port to connect via cable or GSM modem.

SMS Messages

Option to send and receive SMS messages.

RS485 link

Serial port to connect via RS485 + USB connections box.

Agrónic Radio

Option to connect to external Agrónic Radio modules.

Agrónic Monocable

Option to connect to external modules Agrónic Monocable.

Analog Inputs / outputs

Board with 6 analog inputs and 5 analog/pulsed outputs. Possibility of adding a second board.

Ph regulation and EC reading

Option to regulate the pH and EC reading.

Double voltage generator sets over 12V

Option to operate with double voltage when there is a generator and electric pump.

Diesel engine control

Option for the automatic start of a motor pump of a generator set.

Water pressure regulation

Opción to regulate the inlet water.

Determining factors programs

Option to condition actors in the programs, mainly with the use of sensors.

Extensions

RS232 and RS485 port, and USB and RS485 port.

Summary of benefits

Models

- 16 digital outputs expandable to 96 plus 12 digital sensors.
- Double voltage.
- 6 analog inputs expandable to 12.
- 2 or 3 wire latch or relay outputs.
- Power supply at 12 Vdc and 220 Vac and outpus for 12 Vdc or 24 Vac.

Funcionalities

- 99 sectors.
- 35 irrigation programs with up to 12 subprograms each.
- 48 digital sensors.
- 40 analog sensors.
- 12 meter sensors (4 irrigation and 8 fertilizers).
- 11 types of determining factors.
- 8 fertilizers.
- 1 acid.
- 4 filter cleaning groups.
- Automatic start and stop of diesel engine.

Warranty

The Agrónic 4000 complies with
the CE marking directives.

The products manufactured by
Progrés enjoy a guarantee of two years
against any manufacturing defect.

Compensation for direct and indirect
damage caused by the use of the controller
is excluded from the guarantee.

Sistemes Electrònics Progrés, S.A.

Since 1985, we have been dedicated to the design and manufacture of electronic equipment for agricultural fertirrigation such as drip irrigation, spraying, and hydroponics and other water controls such as remote management in irrigation communities, parks, and gardens, and also for environmental control in greenhouses and on farms.

Our range of irrigation controllers is one of the most complete in existence and some of our models have been pioneers worldwide.

Because it is configurable, our systems can be adapted to the particular needs of each installation.

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ISO 9001 BUREAU VERITAS Certification

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