External modules

AGROBEE-L

Radio modules used for the activation of valves and other irrigation elements, as well as the reading of sensors and meters.

GUARANTEE OF QUALITY AND SERVICE
SINCE 1985

SISTEMES ELECTRÒNICS PROGRÉS

Description

Radio modules used for the activation of valves and other irrigation elements, as well as the reading of sensors and meters.

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

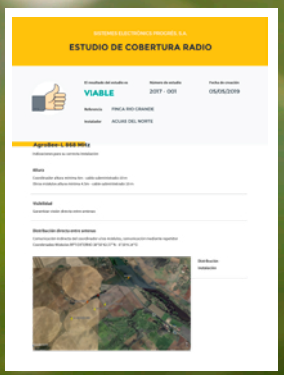
It is the best solution to save costs as a substitute for the cable, avoid incidents of the microtube installation, overcome obstacles, expand sectors, perform temporary installations, etc.

Its low consumption allows it to operate with a solar panel integrated in the module, storing the energy in supercapacitors or battery (depending on the model), offering a long operating life.

Currently, the AgroBee-L modules can be incorporated into the Agrónic 2500, Agrónic 5500 and Agrónic Bit Con fertirrigation controllers.

Coverage study

For the supply of radio controller, it is essential to have a coverage study. This study verifies the viability of the system according to the profile of the terrain, the location of the points to be controlled, and the distance between them. The study is delivered along with the controller offer.



System

The AgroBee-L system consists of a coordinator device located in the controllers and by field elements with different functions, depending on the model in question.

This system does not include the use of repeater elements, so all modules must connect directly with their coordinator.

The field modules manage their consumption by activating the communication in the precise time of the exchange; the rest of the time, they are asleep or attending to irrigation control.

The maximum number of modules that an Agrónic controller can manage is 20 units in standard mode, which can be configured as modules of any of the available types. There is also a priority mode, which makes it possible for the modules to communicate more often: in this case, the number of modules (10) is halved.

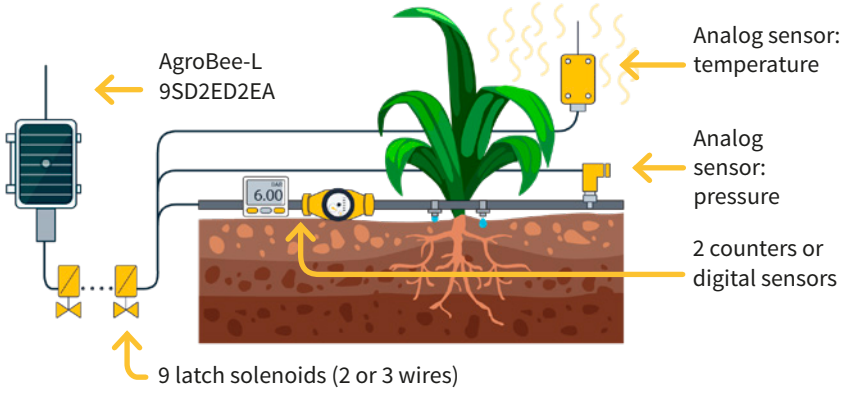
To use AgroBee-L modules, it is necessary to assign their outputs to the sectors or generals of the controller in question, and their inputs to the digital, analog, or counters sensors.

Features

- Operation in 868 MHz, 433 MHz and 915 MHz free bands.
- Availability of 13 communication channels plus 18 transmission modes, which allow for the operation of more than one network in the same area working on the same channel.
- Availability of network code, which allows for filtering the information of several networks configured with the same parameters.
- Self-adjustable communication rate according to the chosen transmission mode and the timing mode:
  - Timing in standard mode (60 –200”). Up to 20 modules.
  - Timing in priority mode (30 –100”). Up to 10 modules.
- Distances of up to 2500 metres between any module and its coordinator (depending on the orography).
- Manual actions, consultations, and configuration of the network number, channel, transmission mode, and communication timing (standard/priority):
  - In-situ: Through the Module Reader
  - From a distance: Through the Agrónic.
- Battery/charge level reading and solar panel (if any).
- Reading SNR level (signal-to-noise ratio) reception in the module and coordinator (in [%]).
- Reading the status of the last 16 communications and remaining time indicator until the next communication.

9SD2ED2EA, 6SD6ED2EA, 2SD2ED1EA, 8SD2ED, 2SD2ED Models

Modules for the activation of latching solenoids and reading of digital and analog sensors.
Models also available in IP68 format devised for the gardening sector.



9SD2ED2EA

- 9 2-wire or 3-wire latch solenoids
- 2 counters or digital sensors or rain gauges
- 2 analog 4-20 mA or 0-20V sensors

6SD6ED2EA

- 6 2-wire or 3-wire latch solenoids
- 6 counters or digital sensors or rain gauges
- 2 analog 4-20 mA or 0-20V sensors

2SD2ED1EA

- 2 2-wire or 3-wire latch solenoids
- 2 counters or digital sensors or rain gauges
- 1 analog 4-20 mA or 0-20V sensor

8SD2ED

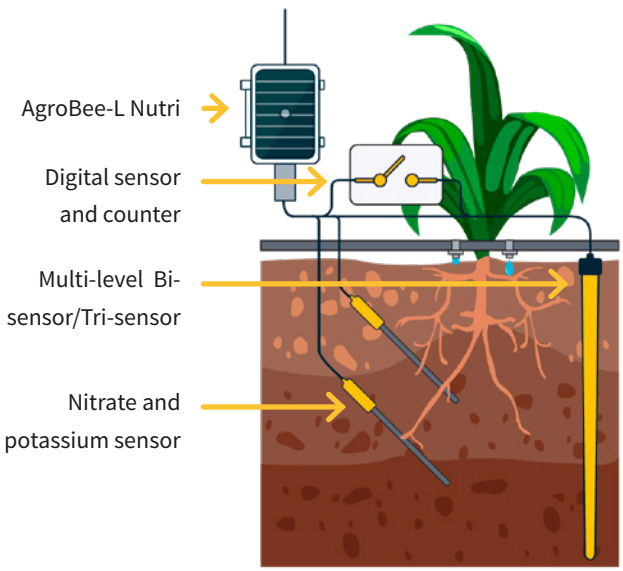
- 8 2-wire or 3-wire latch solenoids
- 2 counters or digital sensors or rain gauges

2SD2ED

- 2 2-wire or 3-wire latch solenoids
- 2 counters or digital sensors or rain gauges

Nutri Model

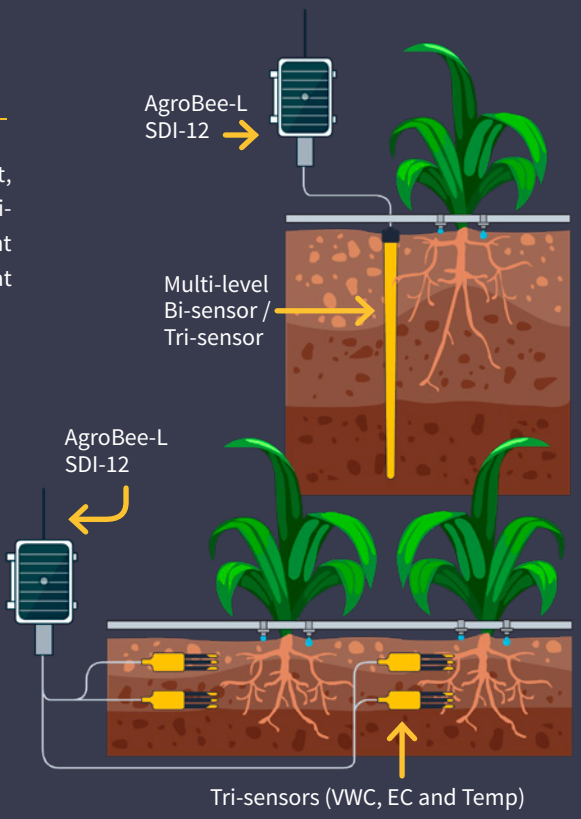
Module for reading 2 Nutrisens sensors; 1 soil water content sensor (VWC: Volumetric Water Content) and temperature up to 4 levels AquaCheck or Drill & Drop type through SDI-12 communication bus; and 1 digital sensor or counter.



- 4 analog inputs for reading 2 NutriSens sensors (NO3-, K+)
- 1 digital input with SDI-12 communication bus for managing 1 multilevel sensor to choose between different options of the following type:
  - AquaCheck: 4 VWC levels and 4 temperature levels (the 4 highest)
    - · VWC levels [cm]: 20, 40, 60, 80
    - · Temp. levels [cm]: 20, 40, 60, 80
  - Sentek Drill&Drop: 4 VWC levels and 4 temperature levels
    - · VWC levels [cm]: 20, 40, 60, 80
    - · Temp. levels [cm]: 20, 40, 60, 80
- 1 counter or digital sensor or rain gauge input

SDI-12 Model

Module for reading up to 4 (VWC: Volumetric Water Content) soil water content, Temperature, and EC (electric conductivity) or VIC (Volumetric Ion Content) tri-sensors through an SDI-12 communication bus that allows you to connect different sensors to the same point, since each one of them has a certain direction that distinguishes it from the rest.

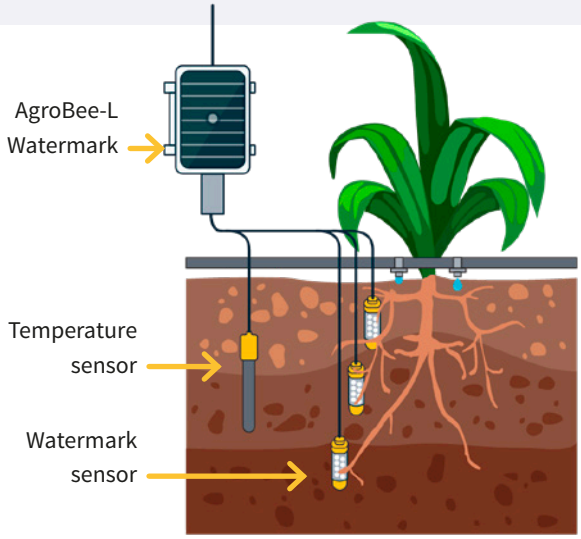


- 1 digital input for a maximum of 4 soil water content, temperature, and EC tri-sensors with the following type of SDI-12 communication bus:
  - Decagon 5TE: VWC, EC, and Temperature
  - Decagon GS3: VWC, EC, and Temperature
  - Campbell CS650: VWC, EC, and Temperature
  - Stevens Hydraprobe-II: VWC, EC, and Temperature
  - AquaCheck-4 (maximum 1 sensor): VWC and Temperature
  - AquaCheck-8 (maximum 1 sensor): VWC and Temperature
  - Sentek Drill&Drop Moisture-Temperature (maximum 1 sensor) : VWC and Temperature
  - Sentek Drill&Drop TriScan (maximum 1 sensor): VWC, VIC (Volumetric Ion Content) and Temperature
  - Meter Group TEROS-12: VWC, EC, and Temperature
- 1 counter or digital sensor or rain gauge input

Watermark Model

Module for reading Watermark 220SS soil water potential sensors.

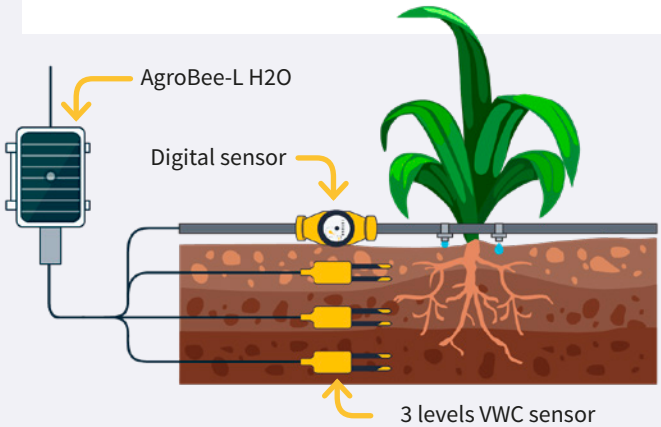
- 3 analog inputs for soil water potential sensors of the following type:
  - "Watermark 200SS"
- 1 counter or digital sensor or rain gauge input
- Includes an external temperature sensor (from -32.7ºC to +32.7ºC) for compensating the reading provided by the Watermark sensor.



H2O Model

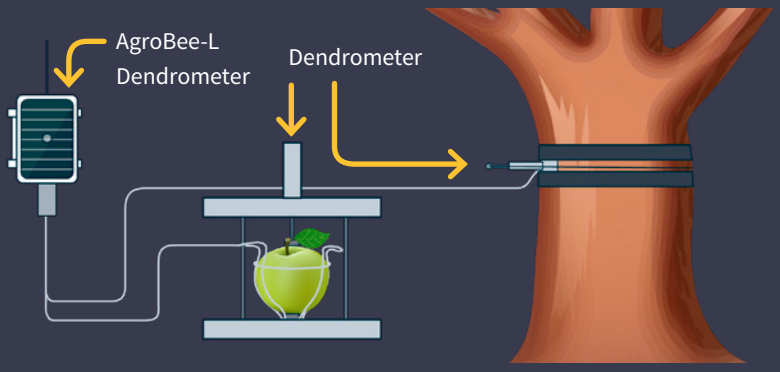
Module for reading VWC (Volumetric Water Content) in the soil or wet leaves (LWS: Leaf Wetness Sensor) and reading digital sensors.
Models also available in IP68 format devised for the gardening sector.

- 3 analog inputs for soil water content sensors (VWC) or wet leaf sensors (LWS) of the following type:
  - Decagon 10HS (VWC)
  - Watermark 200SS + 200SS-VA + 200TS (VWC)
  - Solfranc SF-S210 (VWC)
  - Decagon LWS (LWS)
  - Decagon EC-5 (VWC)
  - Decagon GS1
  - Meter Group TEROS-10 (VWC)
- 1 counter or digital sensor or rain gauge input



Dendrometer Model

Module that offer measures of changes in the diameter of plant stems or the diameter of the fruits.



OPTION 1 (1 DENDROMETER SENSOR)

- 1 dendrometer sensor with differential outputs and a full configurable scale:
  - ECOMATIK Sensor DC2, DF (15 mm full scale)
  - ECOMATIK Sensor DC1, DD-S, DD-L, DR, DV, DRO (11 mm full scale)
  - ECOMATIK Sensor DC3 (25 mm full scale)
  - VERDTECH PLANTSENS Sensor (full adjustable scale)
- 1 counter or digital sensor or rain gauge input

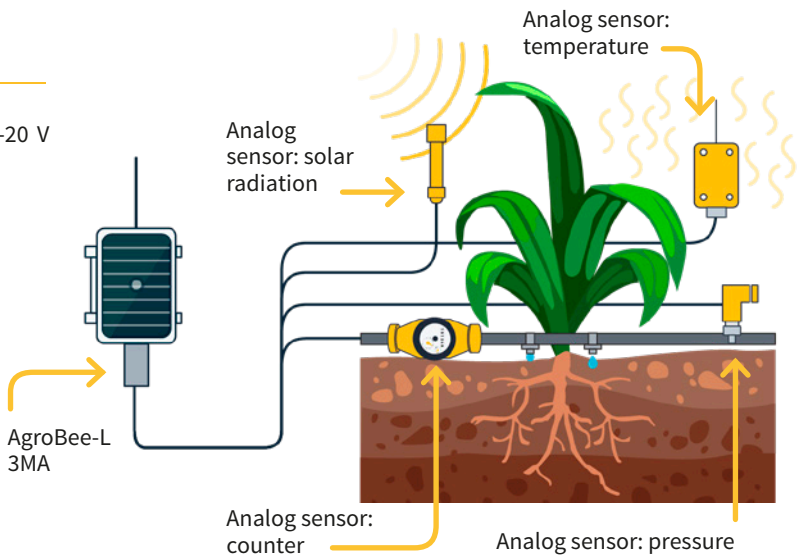
OPTION 2 (2 DENDROMETER SENSORS)

- 2 dendrometer sensors with differential outputs and a full, configurable scale:
  - ECOMATIK Sensor DC2, DF (15 mm full scale)
  - ECOMATIK Sensor DC1, DD-S, DD-L, DR, DV, DRO (11 mm full scale)
  - ECOMATIK Sensor DC3 (25 mm full scale)
  - VERDTECH PLANTSENS Sensor (full adjustable scale)
- 1 counter or digital sensor or rain gauge input

3MA Model

Module for reading sensors of any type with 4-20 mA or 0-20 V outputs, and for reading digital sensors

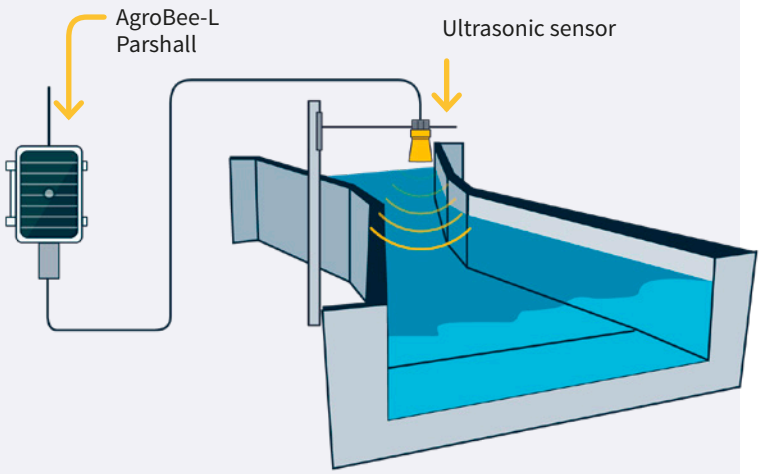
- 3 analog sensor inputs:
  - 2 4-20 mA inputs
  - 1 4-20 mA or 0-20 Volt input
- 1 counter or digital sensor or rain gauge input



Parshall Model

Module for open canal flows based on Parshall gauges through an ultrasonic sensor that forms part of the controller.

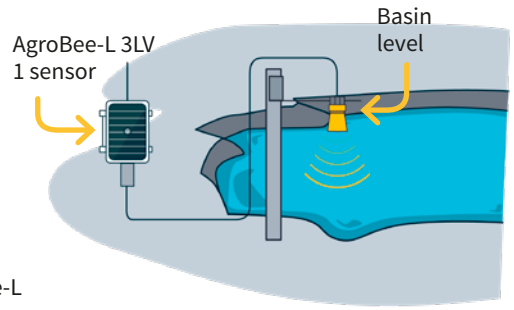
- 1 ultrasonic sensor:
  - 1 sensor with TTL output for measurements up to 9 metres with 1mm precision
  - 1 counter or digital sensor or rain gauge input

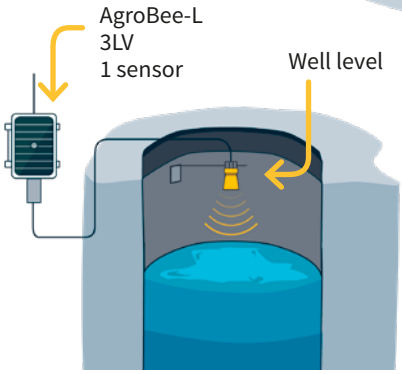


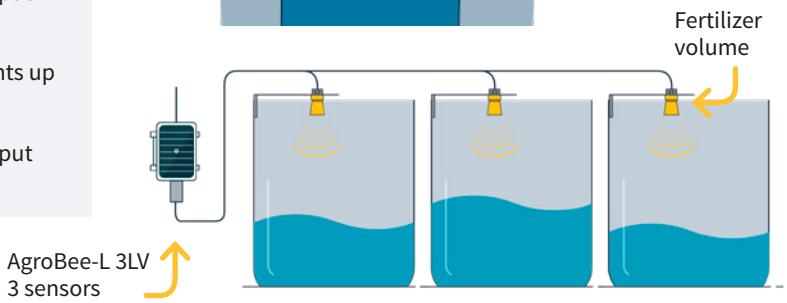
3LV Model

Module that provide measurements of distances, levels, and volumes by reading ultrasonic sensors, which are part of the controller.

- 1 ultrasonic sensor:
  - sensor with TTL output for measurements up to 9 metres with 1mm precision
  - 1 counter or digital sensor or rain gauge input
- 2 ultrasonic sensors:
  - 2 sensors with TTL output for measurements up to 9 metres with 1mm precision
  - 1 counter or digital sensor or rain gauge input
- 3 ultrasonic sensors:
  - 3 sensors with TTL output for measurements up to 9 metres with 1mm precision
  - 1 counter or digital sensor or rain gauge input





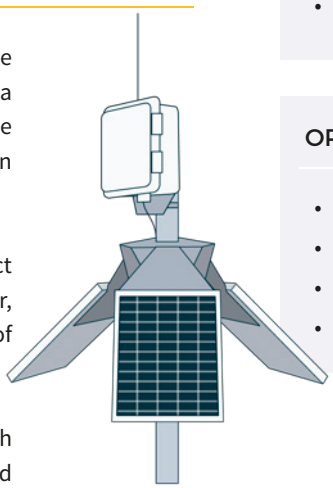


GNSS Model

The GNSS (Global Navigation Satellite System) is a module that integrates a GPS-GLONASS receiver to determine the geographical position of the module in question.

In pivots it allows to know the exact position in degrees of the last tower, respect to a reference, and its direction of movement.

It also allows the activation of latch solenoids and the reading of digital and analog sensors.

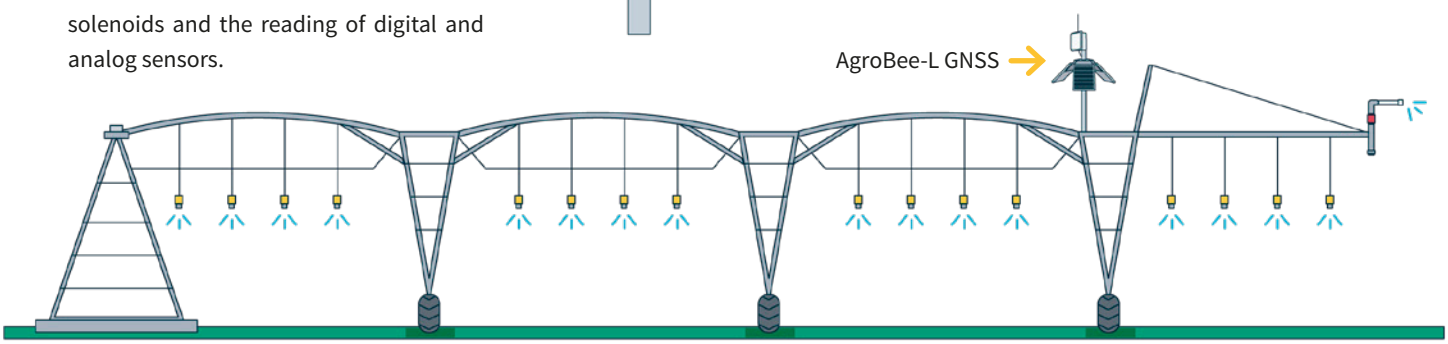


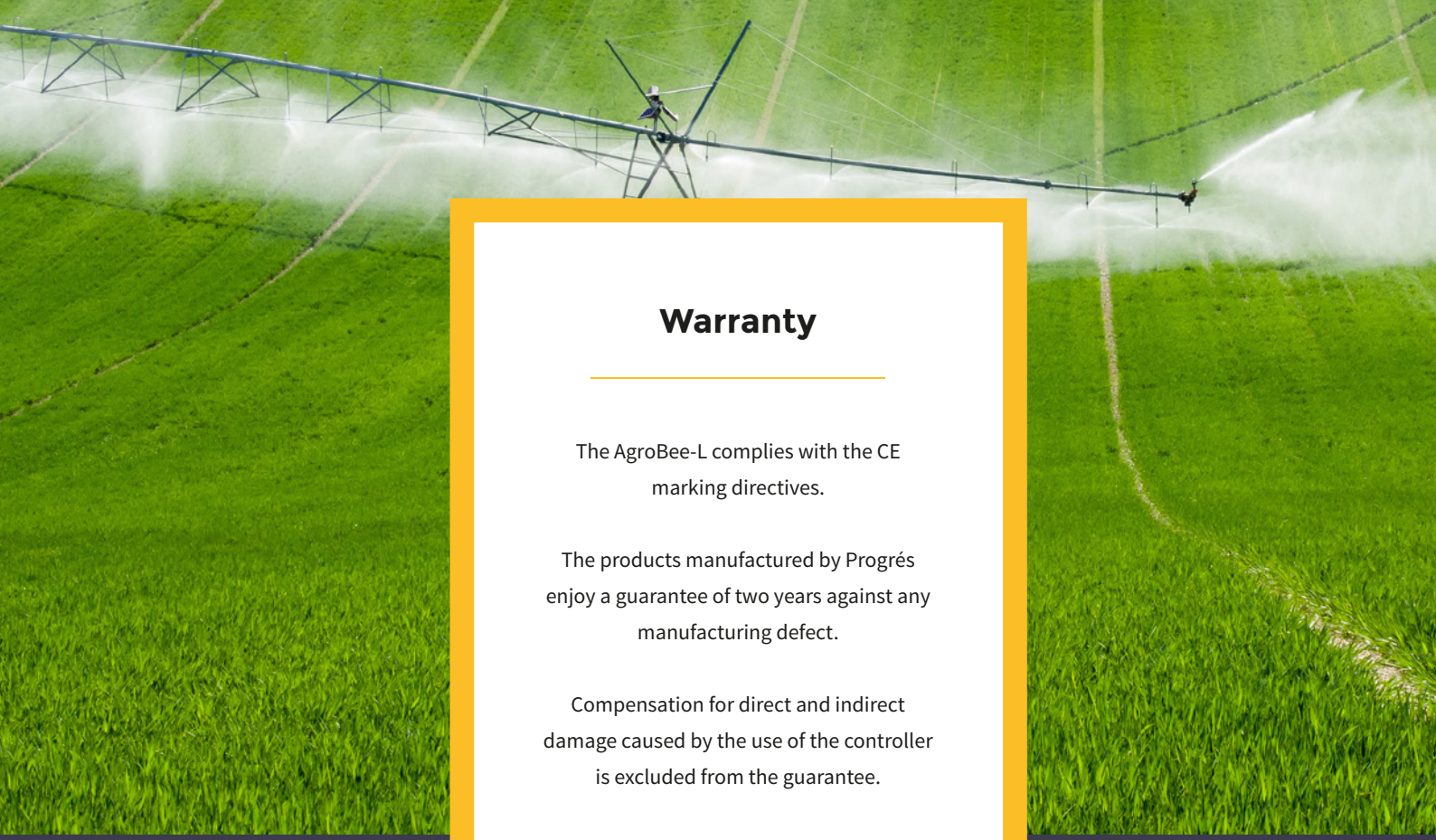
OPTION 1

- Determination of geographic position

OPTION 2

- Determination of geographic position
- 2 2-wire or 3-wire latch solenoids
- 1 counter or digital input or rain gauge
- 2 4 -20mA analog sensors





Warranty

The AgroBee-L 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 design and manufacture electronic controller for agricultural fertigation (drip irrigation, sprinkler irrigation, hydroponics, etc.) and other water controls such as the irrigation telemanagement for irrigation communities, parks and gardens, etc., as well as for the environmental control in greenhouses and farms.

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

Because of its configurable condition, our equipments can even be adapted to the particular needs of each installation.

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