SISTEMES ELECTRÒNICS PROGRÉS, S.A.

AMBITROL 100
controlador ambiental

Ambitrol 100 is an electronic system for the automatic control of environmental parameters in premises such as farms, greenhouses, drying sheds, cold rooms, etc. with 8 analogical inputs (for sensors) and 1 or 2 digital inputs (to condition working), plus 3 or 8 analogical outputs (from 0/10 V) and 8 or 16 relay outputs (all/nothing), with ten control programs.

Being configurable means the installer can adapt it to the particular necessities of each installation. With the same unit and these ten programs, we can control temperature, relative humidity and light sensors, etc, and control numerous windows, fans, heaters, cooling systems, humidifiers, irrigation, alarms, lighting, engines, etc.

For example: the same equipment can be used both to control the fans of 7 rooms, with their respective alarms of maximum and minimum, and the heating, ventilation (fans + windows), and lighting of three rooms, with their respective alarms.

PROGRAMS

The unit has a capacity for ten complete programs (we define program as working which is pre-set in the controller for automatic execution).

The programs are identified by an order number and with a text description chosen by the user of the work they carry out, for example, heat-1 (heating nº 1).

Every program is configurable for inputs, outputs, conditioners, differential and reference values, curves, maximum and minimum alarms, types of working, etc.

INPUTS

A program usually needs to read from a sensor placed in the installation to compare this value with the pre-set one, and then act on the corresponding output.

Every program can read from one or two sensors (if there are two, it takes the average).

One sensor can also be read by several programs.

The measuring units that the equipment can control, with the corresponding sensors or counters, and whose abbreviations are shown on the screen, are:

01 Temperature	ºC	08 Radiation	Wm^2
02 Humidity	%HR	09 Units	Us
03 Brightness	Klux	10 Pressure	Psi
04 Relation	%	11 Flow	m^3/h
05 Speed	Km/h	12 Flow	l/h
06 Direction	º	13 Carbon dioxide	CO2
07 Acidity	pH	14 Ammonia	NH_3

OUTPUTS

All the programs have an output. This could be a relay or analogical. The former only starts or stops the output and the latter activates the output by raising or lowering the voltage according to the difference between the value read by the sensor and the pre-set value in the program.

Several programs can work on the same relay output.

The relay outputs can also work with modulation of the starting time, proportional to the changes in the sensors.

The analogical value of the outputs goes from 0 to 10V and corresponds to 0 to 100% of the output value which will be shown on screen. (It can also work with inverted signal from 10 to 0V).

Minimum and maximum limits of output voltage can be established for, for example, speed regulators which need to work between 2 and 8 volts, etc.

CONDITIONERS

A program may not have a working output assigned but, under certain circumstances, it could be used to condition other programs.

For example, when strong winds make it necessary to modify the working of one or several programs which control windows, or when it is necessary to condition the reading of a sensor to a certain timetable.

Any program can be "conditioned" by another and can be "condition" others. They can also be conditioned by one of the two digital inputs (to connect external security elements to the unit).

REFERENCES AND CURVES

The references are generally those reading values from which we wish to start or stop an output.

Differential is the difference in value desired between the starting and stopping of an output, or vice versa.

The references can be programmed manually (modifying these personally whenever necessary) or following pre-set curves established by the user and which are modified automatically with time, according to the forecast. One or two curves per program are available, depending on the type.

The use of pre-set behavior curves gives great agility to those controls whose references must be changed periodically, as for example, temperature in the fattening of chickens, lighting times for laying hens.

ALARMS

Maximum and minimum values which are used to detect malfunctions and other problems in the premises or other auxiliary elements they control can also be pre-set for each program, except in 2 types.

These values are constantly added to (maximum) and subtracted from (minimum) the program reference. If the controlled value exceeds the maximum or minimum values for a period of time longer than 30 seconds, an output is started, which can be connected to an electrical, light, telephone or radio alarm.

ANOMALIES AND RECORDS

The system keeps a register of the last 15 incidents which have taken place in the installation, and which are known as anomalies. It memorizes the alarms and power cuts produced, etc.

The record is a statistical register of the last seven days for each program.

Among other data it indicates on a day to day basis, are the times when the output has been activated (if it has been activated by relay) or the average percentage of the value of the output (if it is analogical), as well as the average, highest and lowest readings from the sensor.

It can also register the daily consumption of water and feed or other products.

CONSULT

Using the consult key, programs can be checked one by one for the current day and time, the anomalies registered, the value of the parameters controlled by the sensors, full details of the status of the outputs, the time remaining to finish working in the timing program, etc.

VERSIONS AND OPTIONS

Extension to 16 relay outputs.

Version without box for building into another cupboard.

220 Vac and 12 Vdc (battery) versions.

Ambitrol 101 (without analogical outputs), Ambitrol 102 (with 3 analogical outputs, which can be extended to 4) and Ambitrol 103 (with 8 analogical outputs).

"100H" version for humidifying different sheds or greenhouses by activating electric valves sequentially, one after the other with a single pump. The working time for each electric valve is regulated according to the phase difference between temperature and relative humidity.

"100HFA" version which incorporates "100H" version function and moreover in working type number 9 changes the way it works.