Management System
ISO 9001:2015

www.tuv.com
ID 9105017955

ITC
DOSING PUMPS

WATER CONTROLLER 3000

ENGLISH

INDEX

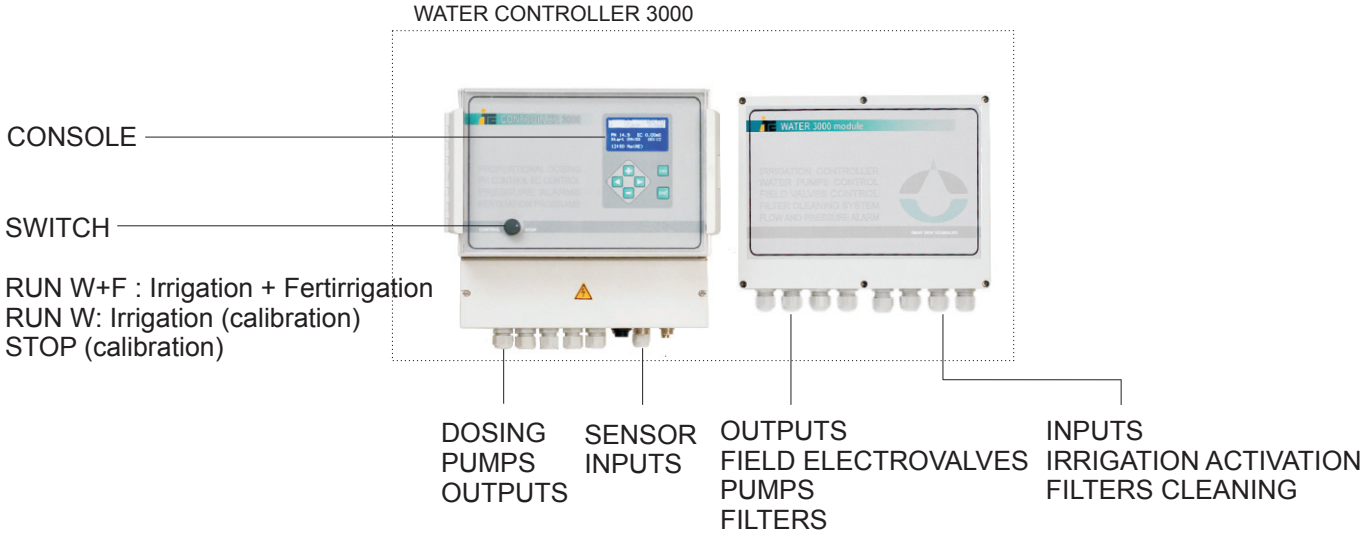
WATER CONTROLLER 3000

1 GENERAL DESCRIPTION

Simplicity in irrigation control.
Control of 96 blocks through 50 irrigation programs with 15 daily starts up. Easy and intuitive programming allows the user to avoid schedule problems such as valve overlaps. Automatic filters cleaning and pumps starter function are available, as well as the Watering Factor to modify the duration of all the irrigation programs.

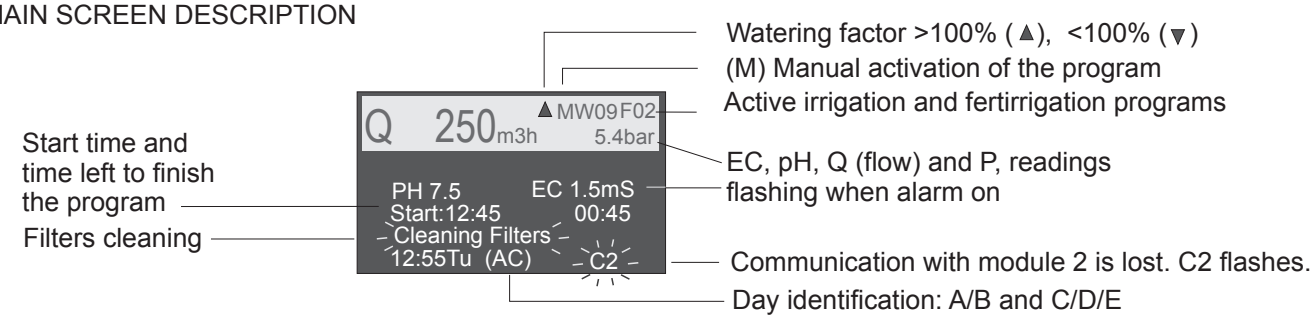
Precision in dosing.
Fertigation control by means of 48 programs, which can be linked to the watering programs. The PIQ algorithm developed by ITC, can control the addition of 6 different products proportionally to water flow and simultaneously according to EC and pH set points.

1.1 EQUIPMENT DESCRIPTION

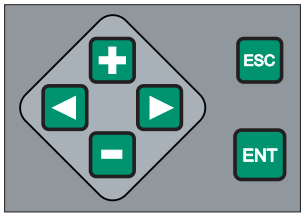


1.2 CONSOLE DESCRIPTION

MAIN SCREEN DESCRIPTION

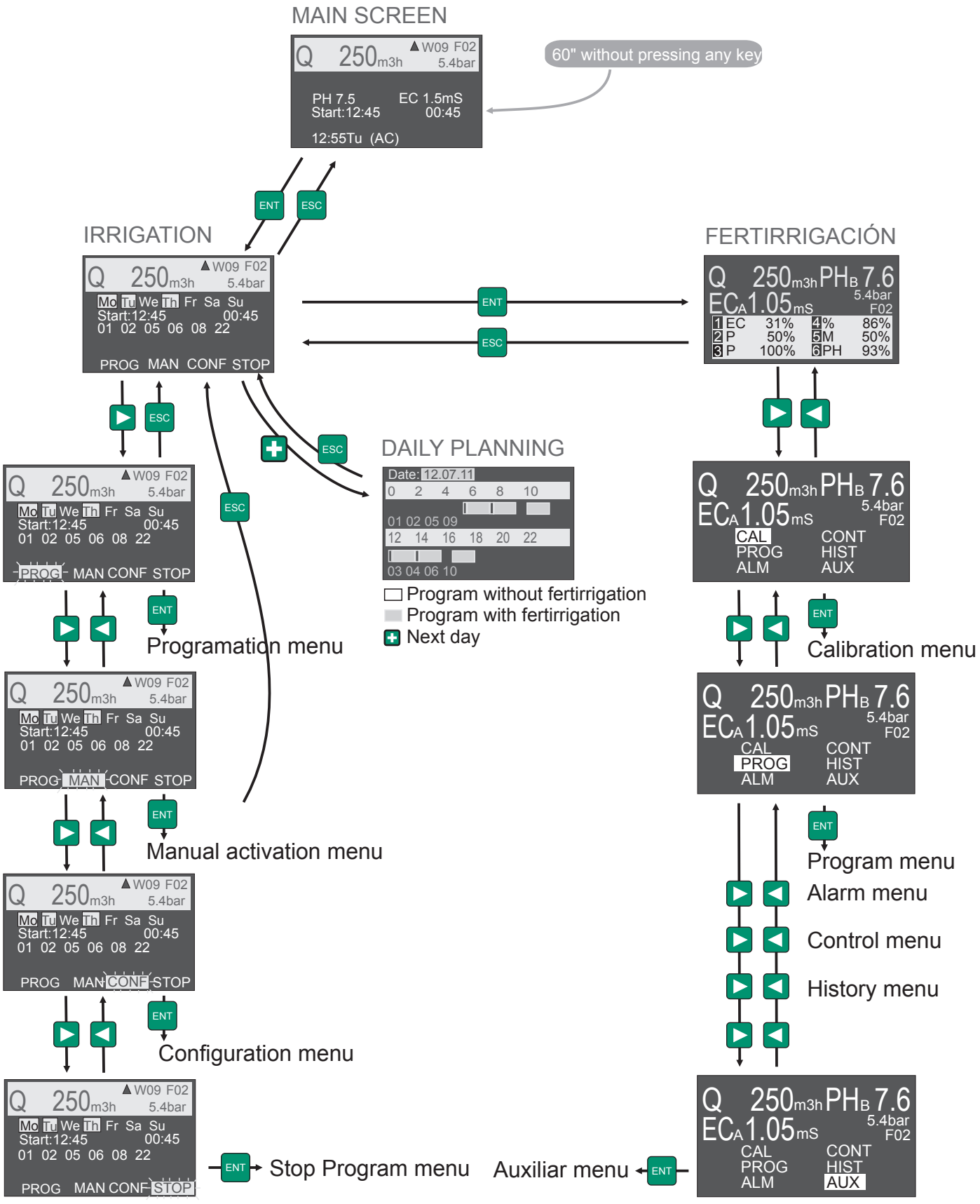


DESCRIPTION OF THE KEYBOARD

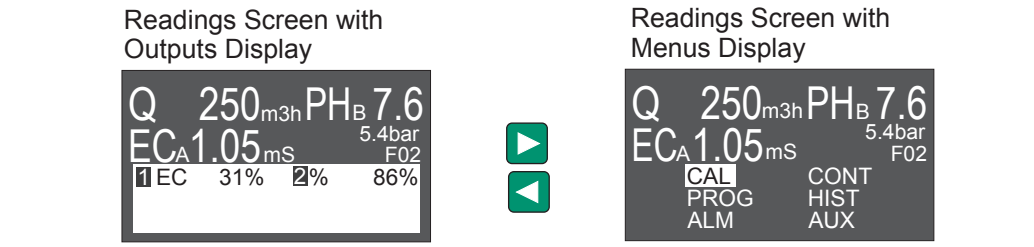


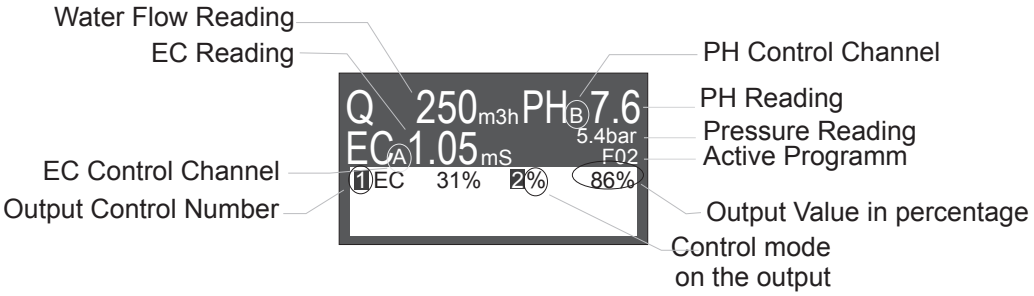
+ / - to increase / decrease a value.
< / > menús broser
ESC To finish a menu without saving
ENT To enter a menu and to validate a value

1.3 MENU SCHEME

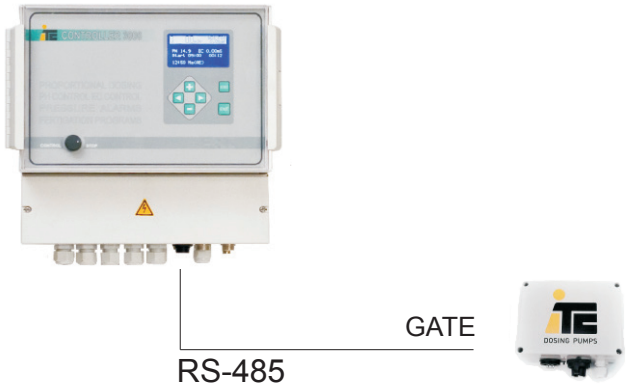


1.4. FERTIRRIGATION MENUS





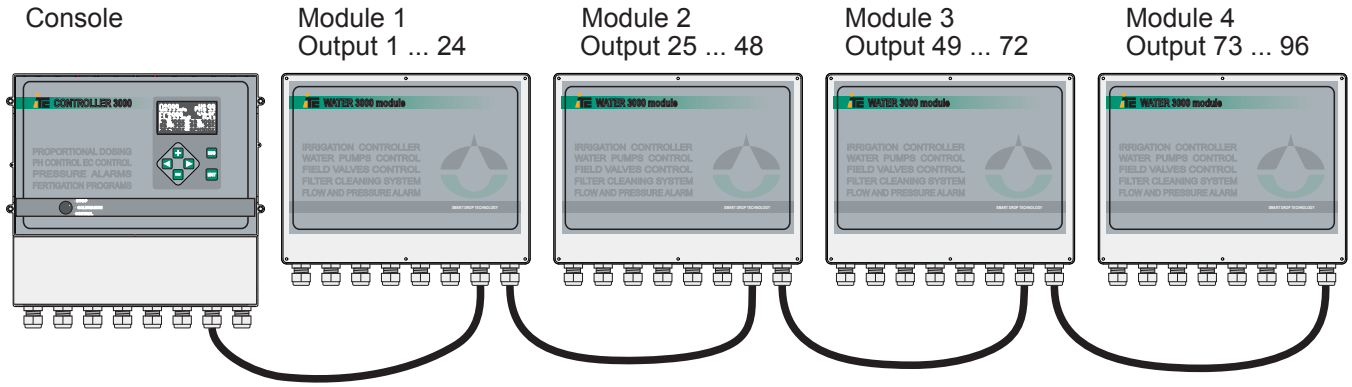
1.5. RS-485 COMMUNICATION PORT



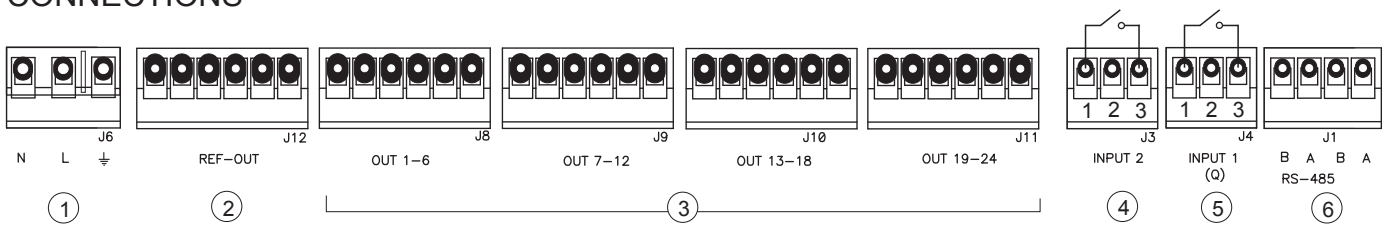
RS-485 port
Connection of a GATE, for a real time evolution of the readings of the sensors and the regulation of the dosing pumps.

2. INSTALLATION

2.1 WATER CONTROLLER 3000 INSTALLATION



CONNECTIONS



① 230Vac

② Common 24Vac outputs

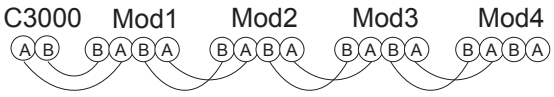
③ 24Vac outputs

Module 1:	Output 1...6	Output 7...12	Output 13...18	Output 19...24
Module 2:	Output 25...30	Output 31...36	Output 37...72	Output 43...48
Module 3:	Output 49...54	Output 55...60	Output 61...66	Output 67...72
Module 4:	Output 73...78	Output 79...84	Output 85...90	Output 91...96

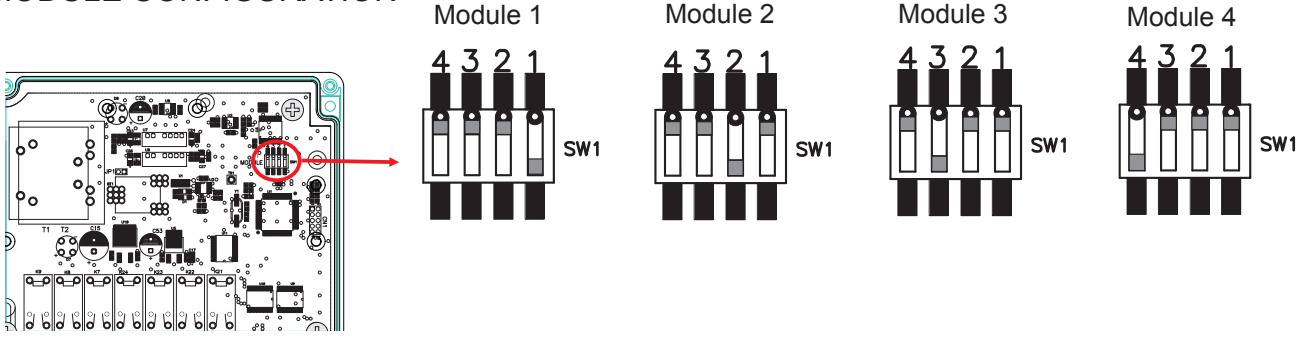
④ Input 2: Module 1: Cleaning filters (switch). Activated when contact closed.
Module 2: External activation of irrigation program. Close contact activation.
Module,3, 4: N.d.

⑤ Input 1: Module 1: Irrigation Start / Stop. Activated when contact closed.
Module 2: External activation of irrigation program. Close contact activation.
Module 3, 4: N.d.

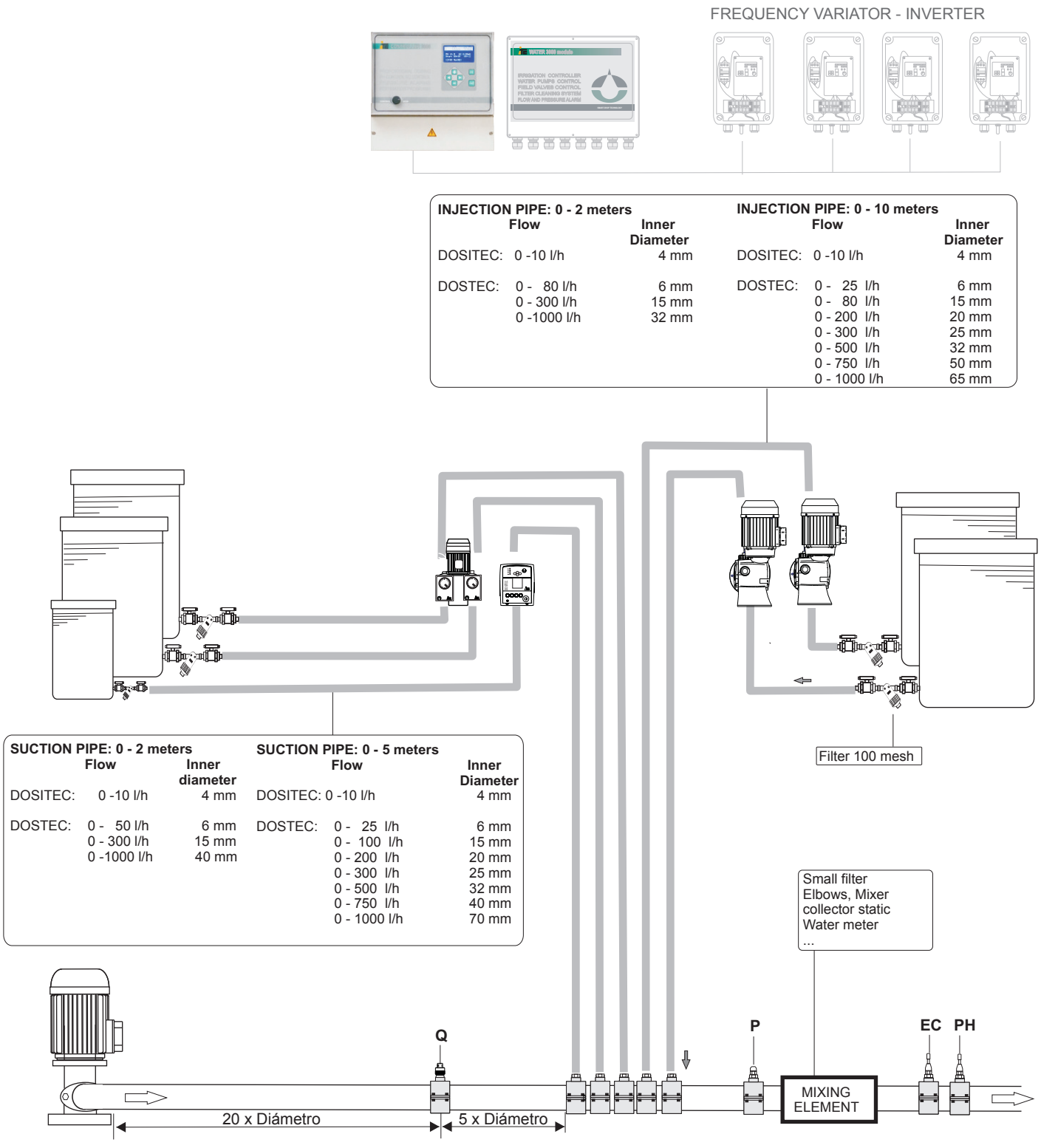
⑥ RS-485: Module-module and módule -Controller 3000 communication.



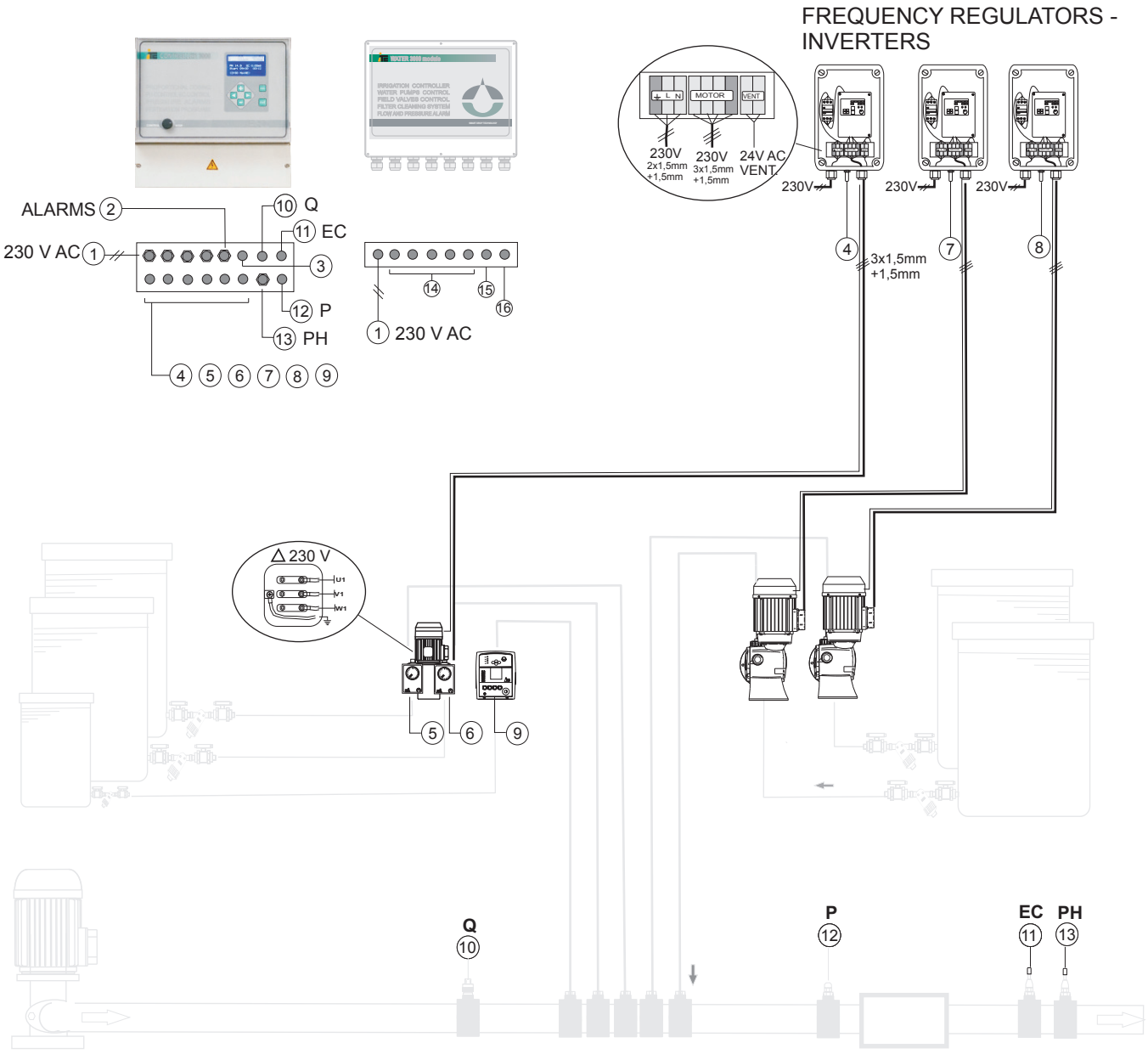
MODULE CONFIGURATION



2.2 HYDRAULIC SCHEME



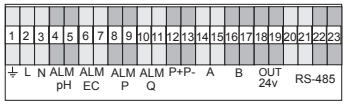
2.3 ELECTRIC SCHEME



① Power 230 V AC +/- 20%, 50/60Hz
② Alarm outputs. Relay outputs NO, 24V AC-1A máx
③ RS-485 output, for connection to a Gate.
④ Output 4-20 mA, nº1 (5 pins connector)
⑤ Output 4-20 mA, nº2 (5 pins connector)
⑥ Output 4-20 mA, nº3 (5 pins connector)
⑦ Output 4-20 mA, nº4 (5 pins connector)
⑧ Output 4-20 mA, nº5 (5 pins connector)
⑨ Output 4-20 mA, nº6 (5 pins connector)
⑩ Input for flowmeter (3 pins connector)
⑪ Input for EC sensor (4 pins connector)
⑫ Input for pressure transmitter
⑬ Input for pH sensor (connector BNC)
⑭ 24 Outputs 24Vac
⑮ Input 1 and 2
⑯ RS-485

TERMINAL CONNECTION

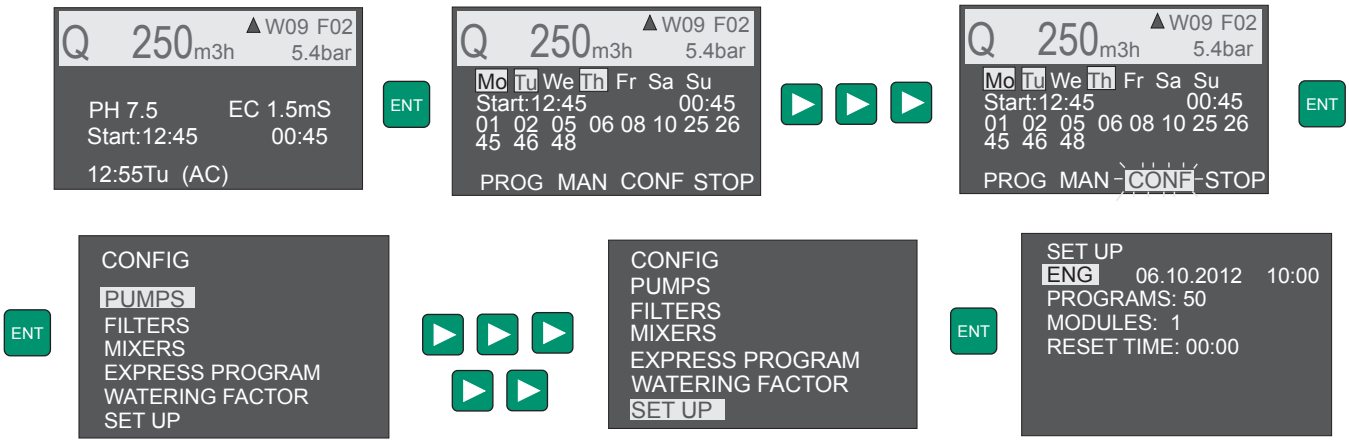
WATER CONTROLLER 3000-6/24
WATER CONTROLLER 3000-2/24



3. CONFIGURATION

3.1. SET UP

SET UP menu

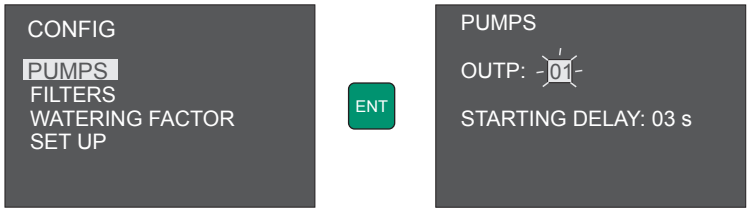


Use “<” / “>” to navigate menus and ENT to access selected submenu.

1.- **Language:** selects language for names of the days
2.- **Date and time:** modifies date and time
3.- **PROGRAMS:** number of programs to use (1-50)
4.- **MODULES:** number of Water 3000 modules installed (1-4).
5.- **Reset time:** when all the not activated programs are reset

3.2. IRRIGATION PUMPS SETUP

PUMPS menu to configure pump outputs



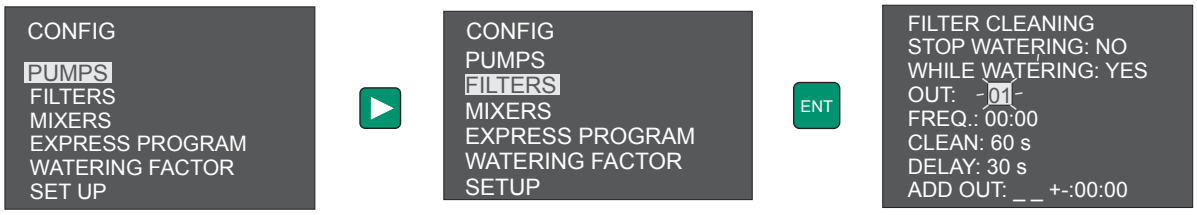
Use “<” / “>” to navigate the menu. Press ENT to save and ESC for not saving.

OUTP: select outputs asing to pumps.
STARTING DELAY: delay time between the activation of two pumps to be activated at the same time.

> Top amount of 6 outputs activated at the same time for module. If more than 6 outputs are activated then lowest number of the outputs have higher priority.

3.3. FILTERS SETUP

FILTERS menu



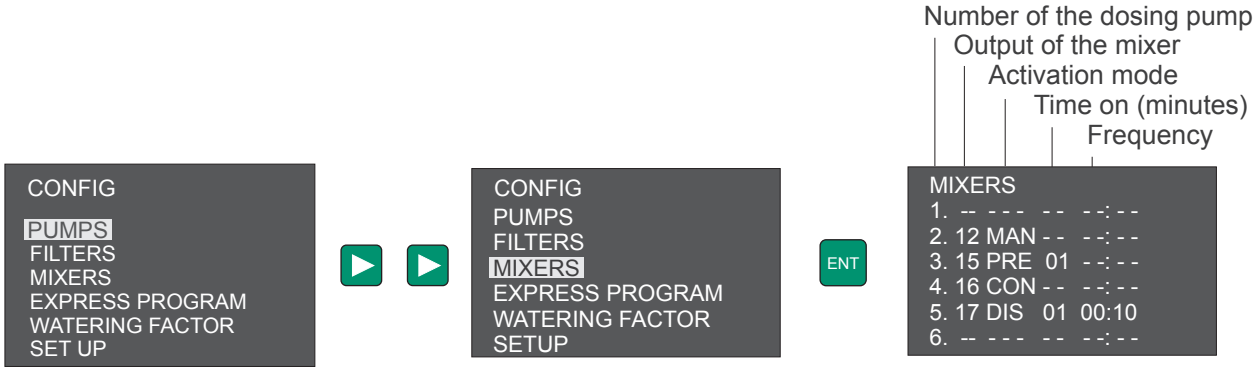
Use “<” / “>” to navigate the menu. Press ENT to save and ESC for not saving.

1.- **STOP WATERING: YES:** stops irrigation while filters are cleaned.
NO: irrigation continues while filters are cleaned.
2.- **WHILE WATERING**: **YES:** cleans filters ONLY if there is irrigation.
NO: cleans the filters no matter if there is irrigation or not.
3.- **OUT:** outputs assign to filters (0-6).
4.- **FREQ:** Frecuency in hours:minutes to clean filters. If FREQ = 00:00, it will only clean when it is ordered through the input of cleaning filters (Input2).
5.- **CLEAN:** duration of the cleaning in seconds.
6.- **DELAY:** delay time when activating two filters at the same time.
7.- **ADD OUT:** more outputs activated when a filters cleaning starts.

3.4. MIXERS

Mixers are linked to the fertirrigation program pumps.

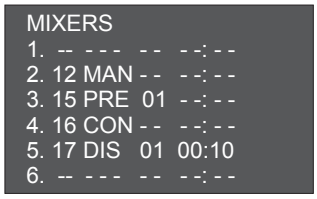
MIXERS menu



Use “<” / “>” to navigate the menu. Press ENT to save and ESC for not saving.

Select an output for each mixer, each output will be linked to the dosing pump.

Activation mode of a mixer



Manual (MAN): It only activates if it is activated in the irrigation program. It´s not linked to the fertirrigation program.

Previous fertirrigation (PRE): if the fertirrigation program activates the pump linked to the mixer, in the pre irrigation time the mixers will be activated the time programmed. If the time of the mixer is higher than the pre irrigation time, mixer working time will overlap with the fertirrigation time.

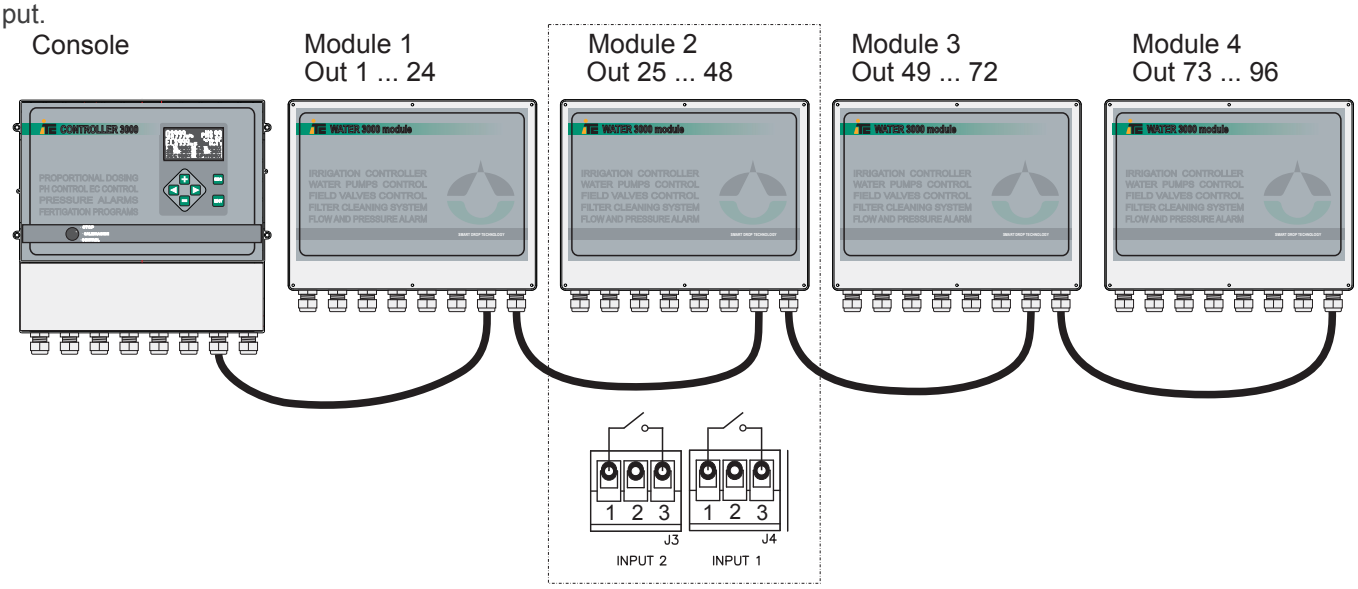
Continuous (CON): if the fertirrigation program activates the dosing pump linked to the mixer, the mixer will be activated in pre irrigation time and irrigation time.

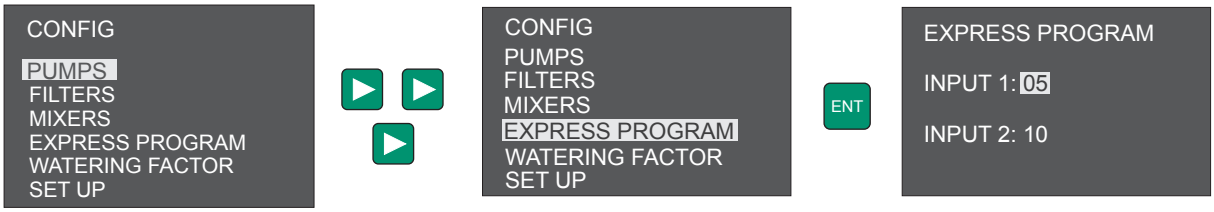
Discontinuous (DIS): if the fertirrigation program activates the dosing pump linked to the mixer, the mixer will be activated in the pre irrigation and irrigation time in a discontinuous working time. It will depend on the time (minutes), and frequency (hh:mm) programmed.

NOTE: In the post irrigation time, all the mixers are off.

3.5. EXTERNAL ACTIVATION OF AN IRRIGATION PROGRAM

For an external activation of an irrigation program it´s required to use the inputs of the module 2. One program for each input.

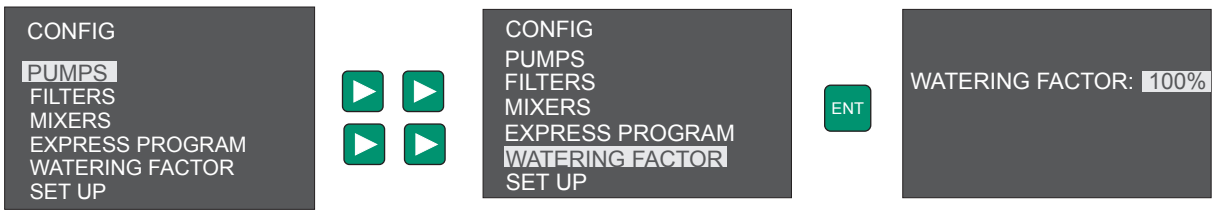




In this example, when activating input 1, irrigation program 5 is activated.

3.6. WATERING FACTOR

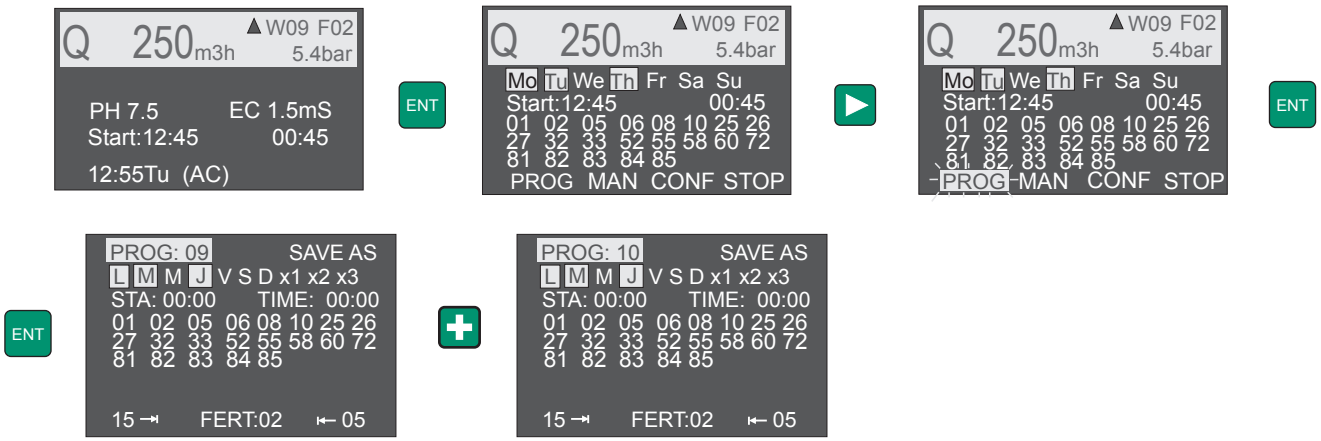
WATERING FACTOR menu allows to increase or decrease proportionally all the irrigation time of all the programs. Pre-irrigation time and post-irrigation time are not afected by watering factor.



Use “<” / “>” to navigate the menu. Press ENT to save and ESC for not saving.

3.7. IRRIGATION PROGRAM

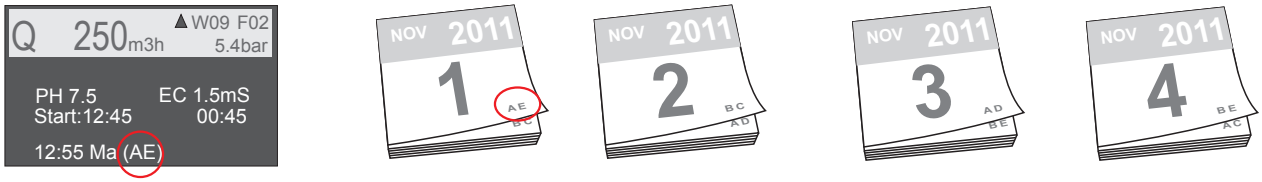
PROGRAMATION menu.



Use “<” / “>” to navigate the menu. Press ENT to save and ESC for not saving.

1.- **PROG**: To go to a program using + or -.
2.- **SAVE AS:** Duplicates the program (New program will not be saved if ENT is not used)
3.- **Irrigation days setup**
    M T W T F S S, weekly irrigation days, selectables with “+” and “-”.
    x1: daily
    x2: every two days (A/B).
    x3: every three days (C/D/E)

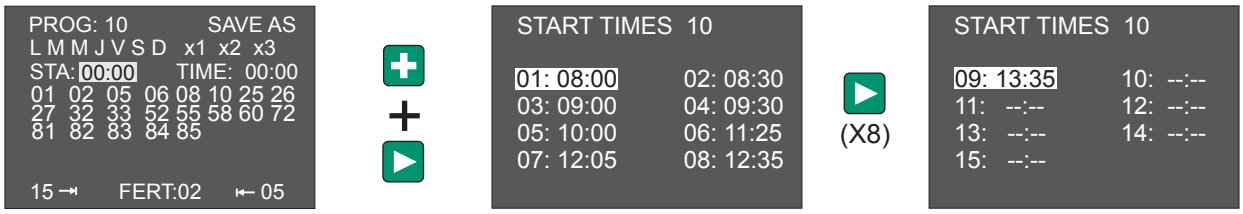
For irrigation programs every two days (x2) or for irrigation programs every three days (x3), Water 3000 classifies the days as A/B and C/D/E.



4.- **START:** time of irrigation start

> When an irrigation program starts, and two or more programs should be activated, the program with lowest number has priority.

Start times screen to configure up to 15 daily start up.



Priorities of the program to start are:

1.- Start time of the program.
2.- If the program only has mixer outputs.
3.- Índex of the starting time (If it is the first starting time of the program, the second, etc...).
4.- Lowest program number.

5.- **TIME:** irrigation duration.
6.- **Outputs** to activate in the program. 6 is the maximum number of output to activate at the same time for module, includes pumps and filters.

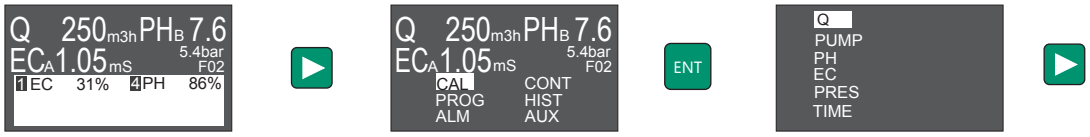
> Limit of 6 outputs activated at the same time for module. If more are activated, outputs with lower number have priority.

7.- ⇥ Pre irrigation time.
8.- **FERT:** Fertirrigation program to activate.
9.- ⇤ Post irrigation time.

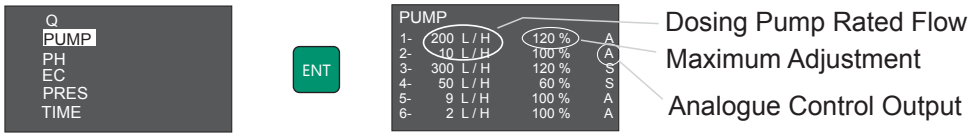
3.8 FERTIRRIGATION

3.8.1 CALIBRATION MENU

> To Calibrate, set the switch to **STOP**



3.8.1.1 DOSING PUMPS CONFIGURATION



Change Values by pressing +/-, press <> to scroll on the Menu, and validate the Configuration of the 2 Outputs by pressing ENT.

Rated Flow:
Introduce the Rated Flow at 50 Hz of the dosing pump.
Leave "--" when the Output is V.

Maximum flow in %
%<100: Introduce a percentage lower than 100 to limit the 4-20mA Output to a value lower than 20mA, for example due to an over sized pump or when an acid too concentrated is dosed.

%>100: Only for dosing pumps with frequency variator, when this is programmed to work at frequency higher than 50Hz. For maximum Frequency of 60 Hz the maximum Adjustment will be 120%.

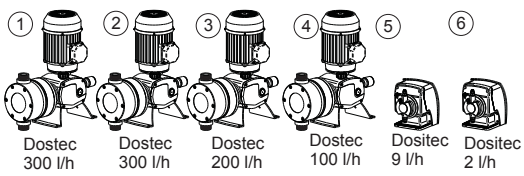
Type of output:
A: Analogue independent Output: for Electromagnetic Pumps (Dositec) and Pumps with Electric Motor and Frequency Variator (Dostec).

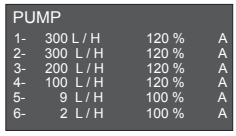
V: Analogue Master Output for a Variator in multihead Pump with Servos: to control the Output that regulates the speed of the Motor of a multihead Pump (MF-Multifertic) provided with Servos for the independent Adjustment of each Head.
Only one V-type Output can be configured, and there should be an Output configured as S.

S: Analogue Output for Servos in multihead Pump, with Adjustment of the Motor by Frequency Variator (V Output)

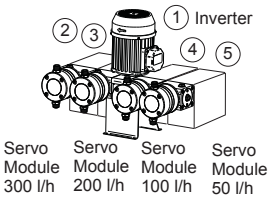
EXAMPLES OF DOSING PUMPS CONFIGURATION

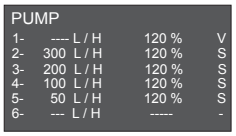
4 Dostec with frequency inverter
2 Dositec.



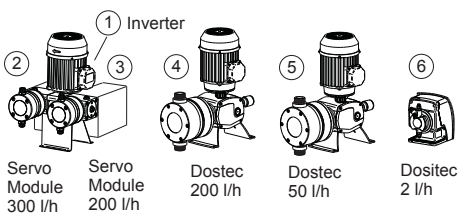


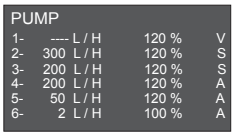
Multifertic 4 heads with
Servos in each module.



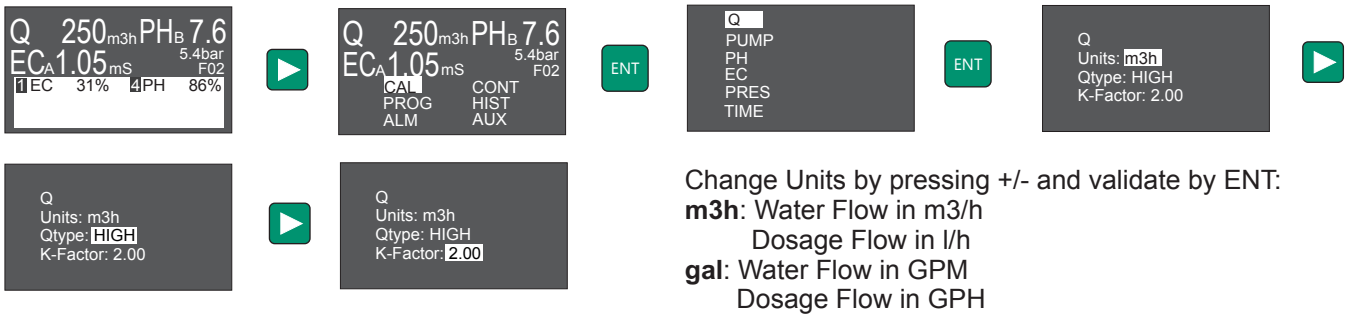


Multifertic 2 heads with servos
2 Dostec 1 Dositec.





3.8.1.2 FLOWMETER CALIBRATION



Change Units by pressing +/- and validate by ENT:
m3h: Water Flow in m3/h
Dosage Flow in l/h
gal: Water Flow in GPM
Dosage Flow in GPH

To configure a water counter, select LOW.

K-Factor (pulses/litre or pulses/gallon):
Please refer to Manual Instructions of Flow Meter in accordance with the type and size of the pipes where it is installed.
Change Value by pressing +/- and validate by ENT
W.COUNTER: liters/pulse of a water counter
Q=0: time when it´s considered there is no flow.

Flowmeter Burkert 8020

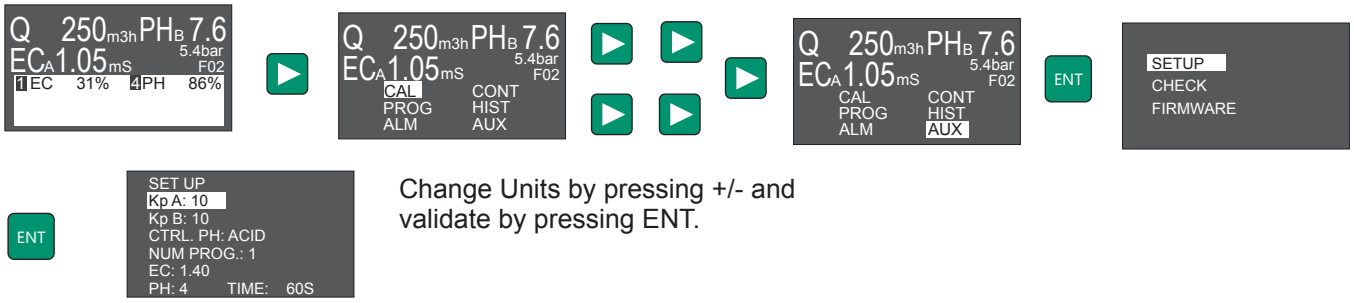
Diameter(Inch)	1	1 ¼	1 ½	2	2 ½	3	4	5	6	8	10	12	16
Diameter (mm)	32	40	50	63	75	90	110	125	160	200	250	315	400
K-factor (pulse/liter)	57	30	18.6	15.6	12.3	7.6	5.3	4.0	2.0	1.4	0.8	0.4	0.2
K-factor (pulse/gallon)	214	113	71.5	59	47	29	20	15.1	7.7	5.2	3.0	1.6	0.9

Flowmeter GF 2536

Diameter(Inch)	1	1 ¼	1 ½	2	2 ½	3	4	5	6	8	10	12	16
Diameter (mm)	32	40	50	63	75	90	110	125	160	200	250	315	400
K-factor (pulse/liter)	78.5	45	27.4	15.7	9.2	6.6	4.3	3.6	2.2	1.3	0.74	0.52	0.27
K-factor (pulse/gallon)	297	170	104	59.5	35	25	16.3	13.6	8.2	4.8	2.8	2.0	1

3.8.1.3 EC AND PH CALIBRATION

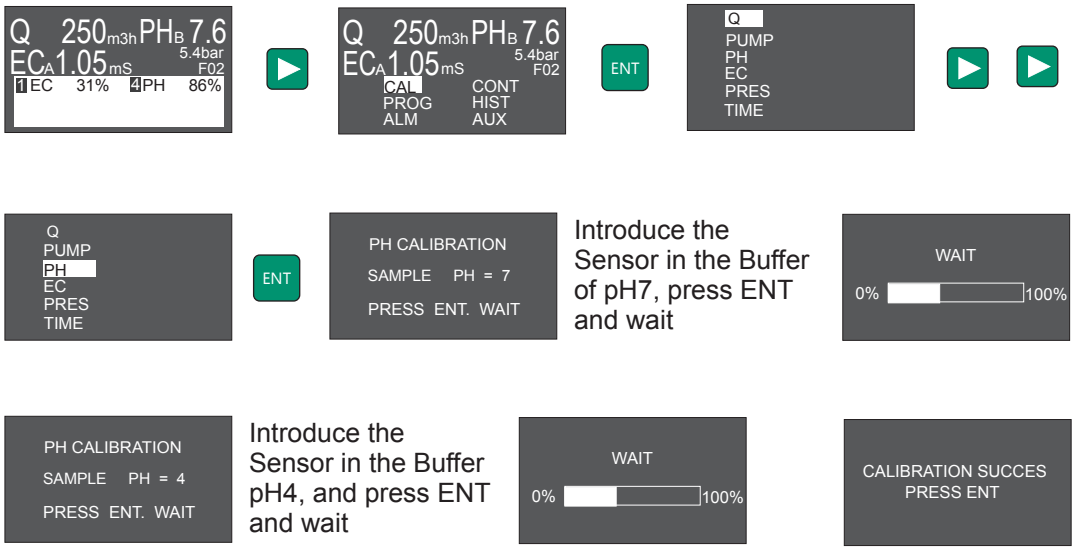
3.8.1.3.1 Calibration set up



Change Units by pressing +/- and validate by pressing ENT.

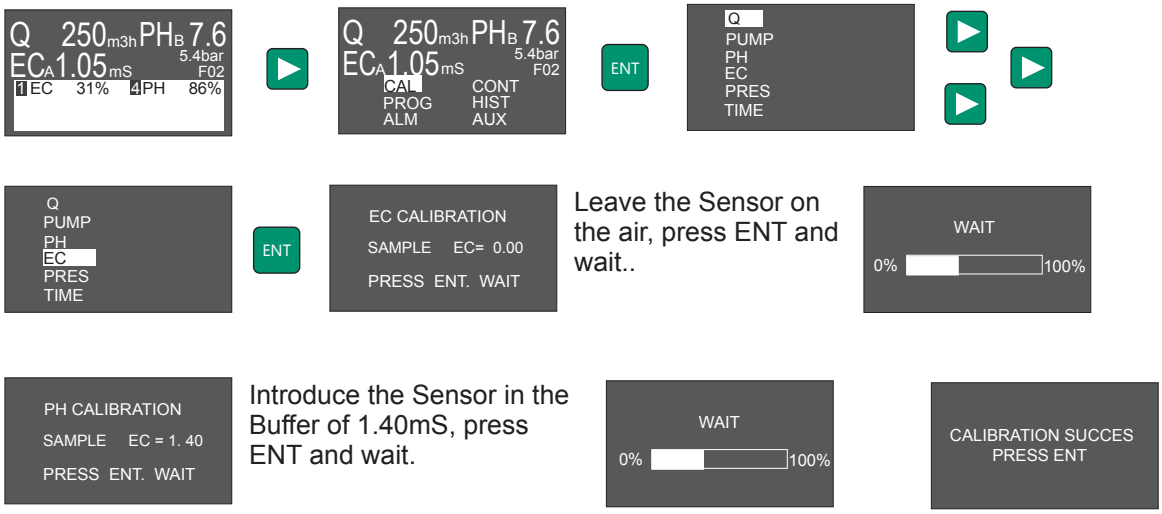
CTRL. PH: ACID/ALKALINE: defines if the pH Control is executed by adding Acid (ACID) or Base (ALKALINE)
EC:1.40: defines the EC buffer used. It can be modified by pressing +/-
PH: 4 Time 60s: defines the pH Buffer and the Stabilization Time for the Sensor Calibration.

3.8.1.3.2. PH SENSOR CALIBRATION .



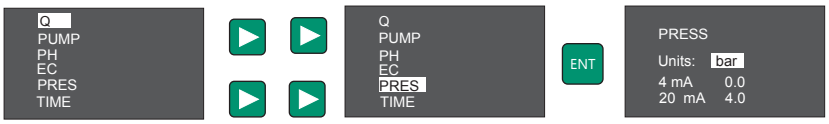
Validate the pH Calibration by pressing ENTER.

3.8.1.3.3 EC SENSOR CALIBRATION.



Validate the EC Calibration by pressing ENTER.

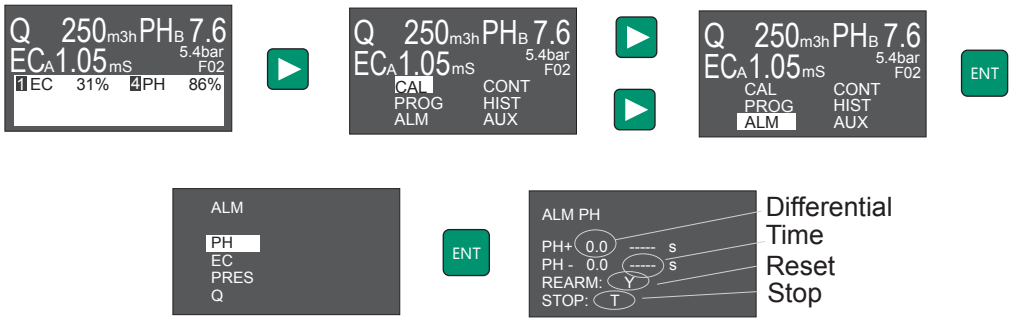
3.8.1.4 PRESSURE TRANSMITTER CALIBRATION



Change Units by pressing +/-. Press > to scroll on the Menu and introduce the Pressure corresponding to 4mA and 20mA. Validate values pressing ENT.

3.8.2. ALARMS

3.6.2.1 PH ALARM

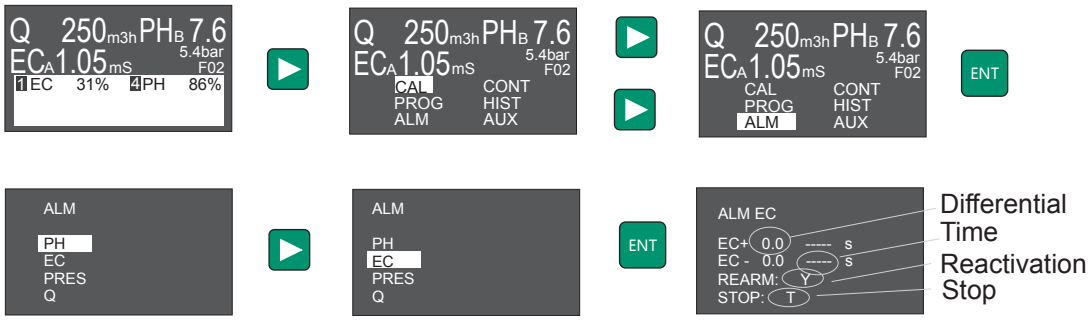


Change Units by pressing +/- and validate with ENT:

Differential: Value to add/ subtract from the Set Point, from which the Alarm is activated
Time: Time required for activating the Alarm
Reset: automatic Reset of the Alarm when the Reading returns to correct Values.

- **Y**: Reset activated
- **N**: There is no Reset. Press ESC to deactivate the Alarm
- **STOP**: in case of Alarm it stops the Control of:
  - **T**: Total, stop all the dosing pumps
  - **A**: Pumps in Channel A
  - **B**: Pumps in Channel B
  - **N**: Nothing

3.8.2.2 EC ALARM



Change Units by pressing +/- and validate by ENT.

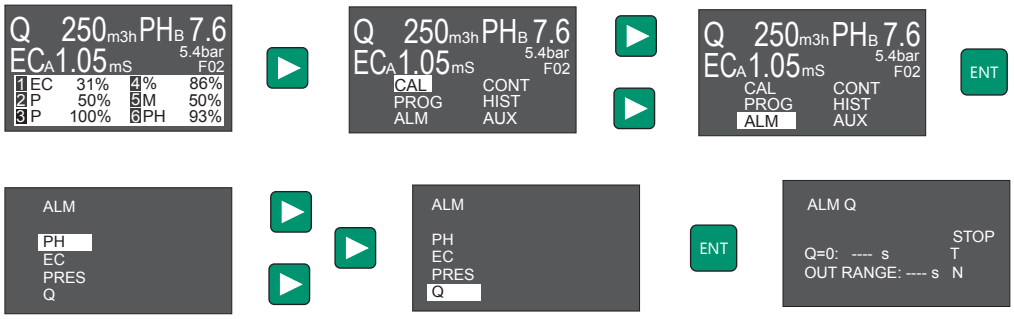
Differential: Value to add/ subtract from the Set Point, from which the Alarm is activated
Time: Time required for activating the Alarm
Reset: automatic Reset of the Alarm when the Reading returns to correct Values.

- **Y**: Reset activated
- **N**: There is no Reset. Press ESC to deactivate the Alarm
- **STOP**: in case of Alarm it stops the Control of:
  - **T**: Total, stop all the dosing pumps
  - **A**: Pumps in Channel A
  - **B**: Pumps in Channel B
  - **N**: Nothing

3.8.2.3 PRESSURE ALARM

Change Units by pressing +/- and validate by ENT:
MAX: Maximum Pressure
MIN: Minimum Pressure
Time: Time required for activating the Alarm
STOP: in case of Alarm stops:
T: Total, stop all the dosing pumps and the irrigation program.
N: Nothing

3.8.2.4 FLOW ALARM



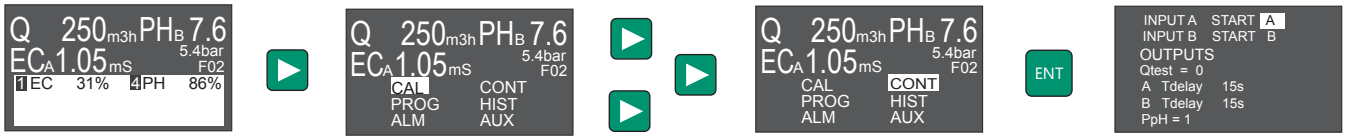
Change Units by pressing +/- and validate by ENT.

Q=0: Alarm when there is no Flow and the Control is activated.
OUT RANGE: Alarm of Dosing Flow out of the capacity of the Pump.
Time: time required for activating the Alarm
STOP: in case of Alarm stops:
T: Total, stop all the dosing pumps and the irrigation program.
A: Pumps in Channel A
B: Pumps in Channel B
N: Nothing

3.8.3 ADVANCED CONTROL OPTIONS.

3.8.3.1. REMOTE CONTROL: CONFIGURATION CHANNELS A/B.

Configuration from channels A and B.

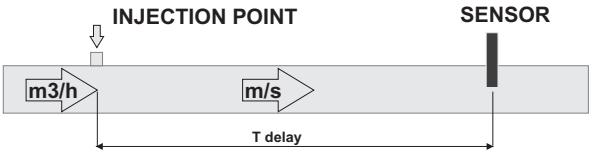


Change Units by pressing +/- and validate by ENT.

INPUTS: Configuration of the Remote Control Inputs in Channels A and B. It allows configuring each Input with its Channel, and activating both Channels just by one Input.
A START: A. Activates pumps programmed A when 24Vac are used at the terminals of channel A.
A+B. Activates pumps programmed A or B when 24Vac are used at the terminals of channel A.
B START: A. Activates pumps programmed A when 24Vac are used at the terminals of channel A.
A+B. Activates pumps programmed A or B when 24Vac are used at the terminals of channel A.

3.8.3.2. PI CONTROL PARAMETERS

OUTPUTS:
Delay Time Configuration in the System for Channels A and B, corresponding to the Time passed between two consecutive Orders from the Controller (see System Start-Up).



A fixed Delay Time can be defined (Q Test=0) or proportionally inverse to the Flow.
Q Test=0: it allows establishing a Flow as Reference for defining the Delay Time (Tdelay) changeable by the Flow. If Q Test =0 Delay Time is constant.
A Tdelay: 15s Delay Time in Channel A
B Tdelay: 15s Delay Time in Channel B

Example:
For 8" Pipe, Flow 100m3/h, water Speed is approximately 1m/s. If the distance between the Injection and Sensor Point is 10m, the Delay Time of the System will be 10 seconds.

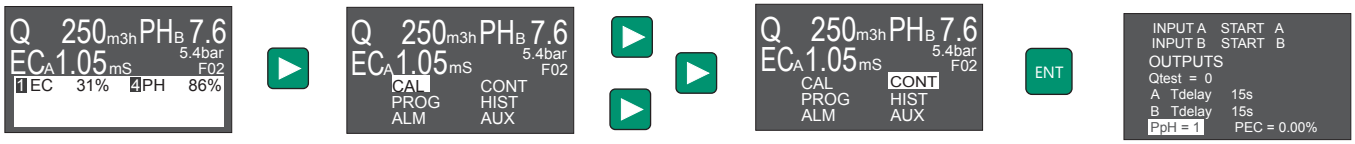
The Sensor will have a Reaction Time (approximately 10 seconds for the pH Sensor), which should be added to the Delay Time of the System. Therefore, we should set a Tdelay = 20 seconds.

If there is a Filter between the Injection and Sensor Point, the Calculation of 10metersx1m/s = 10 seconds is no more valid.

Therefore, **TDelay** changes when the Flow of the System change. To optimize the Adjustment, the TDelay can be associated with a certain Flow (Q Test), so Controller 3000 changes **TDelay** according to Water Flow. **TDelay** is limited from 5 to 120 seconds.

How to find Tdelay
1.-Start the irrigation make sure that there is no dosage of products.
2.-Wait until the readings of the sensors are stable.
3.-Start manually a dosing pump, for example fertilizer. In the same moment start a chronometer.
4.-After some time the reading of the sensor will start increasing up until its stable. In this moment the chronometer will stop, and Tdelay is found.

3.8.3.3 CONFIGURATION FOR A pH CONTROL IN PIQ MODE (PPH)



Change Units by pressing +/- and validate by ENT.

PIQ control mode for the pH adjustment is a PI algirithm conditioned by the water flow. By means of the PpH parameter the system set an initial proportional dosage. Later on the controller modifies the dosing flow following a standard PI adjustment.
PpH can only be activated by independent pumps (outputs type A to dosify acid). It gives a better stability of pH even with very variable flow and gives a better answer of the system to reach and keep readings at Set Point value.

PARAMETERS OF CONTROL PIQ:
PpH=0: PIQ disabled
PpH = 1-200 The variable PpH corresponds to the initial concentration of applied reagent, expressed in parts for 100.000.

Example: For a flow of 200.000 l/h of water and a PpH = 1, the proportional dosage of acid corresponds to: (1 / 100.000) x 200.000 l/h = 2 l/h

The necessary proportion of reagent to reach a certain pH will depend not only on his nature and concentration, but also on the nature of the water to treat and of the rest of dosed products that they could influence this parameter. Next we detail the status of values PpH advised for a fast answer and stability in the pH.

The following table for different acids is an approach of the value PpH for these acids according to the correction of necessary pH (1 or 2 points of pH).

Table for nitric acid.

A	1point	2 points
60%	4-10	10-20
40%	8-15	15-30
10%	30-60	60-120
5%	60-110	120-200

Table for phosphoric acid.

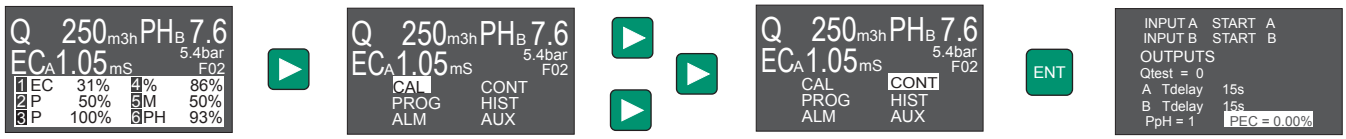
A	1point	2 points
80%	3-8	8-15
50%	6-15	15-25
10%	30-60	60-120
5%	60-110	120-200

Table for sulphuric acid.

A	1point	2 points
95%	1-3	2-5
50%	2-5	4-10
10%	10-25	20-50
5%	20-50	40-100

Note: The A column corresponds to the concentration of acid.

3.8.3.4 CONFIGURATION FOR A EC CONTROL IN PIQ MODE (PEC)

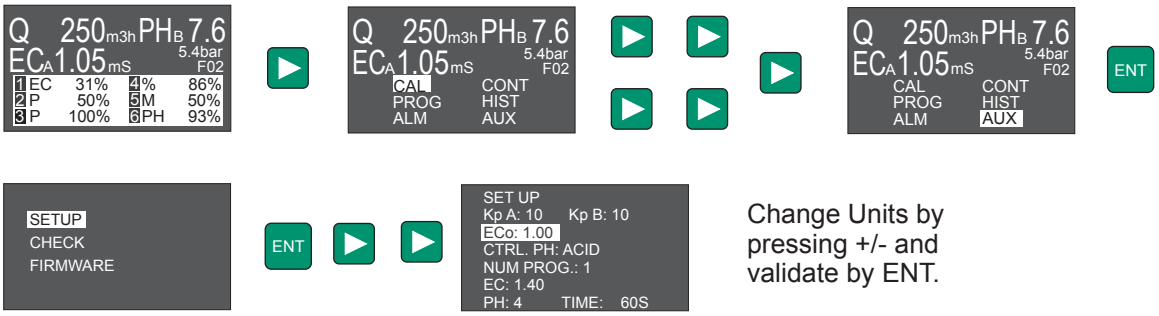


Change Units by pressing +/- and validate by ENT.

PIQ control mode for the EC adjustment is a PI algirithm conditioned by the water flow. By means of the PEC parameter the system set an initial proportional dosage. Later on the controller modifies the dosing flow following a standard PI adjustment.

PEC=0 Control PI. PIQ disabled.
PEC= 0.01 - 2% Initial proportional flow in %.

It is necessary to define the clean water EC value (ECo)in the Set UP menu.



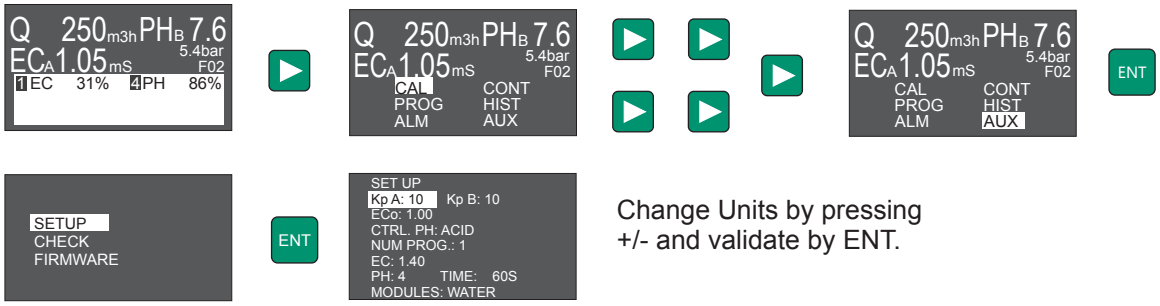
Change Units by pressing +/- and validate by ENT.

The initial proportional value PEC must be introduced for the fertigation program with lower EC set point (The set points lower han ECo are not considered).

The initial proportional value for the other fertigation programs is odified proportionally to the difference between Set Point and ECo.

3.8.4. ADVANCED SET UP OPTIONS.

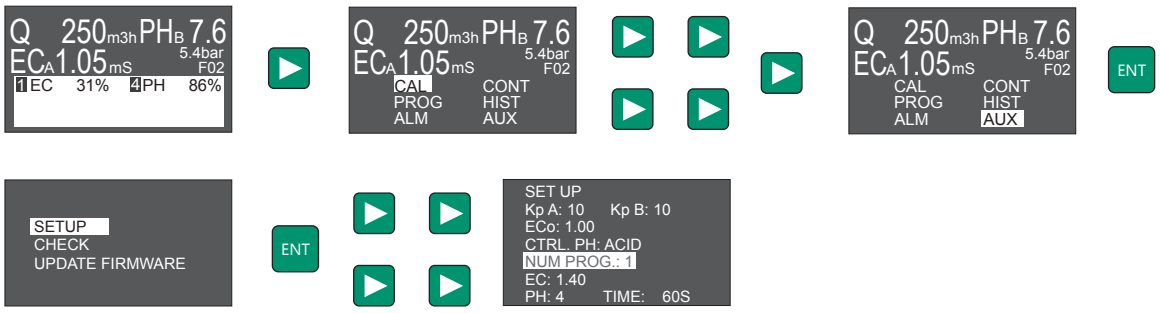
3.8.4.1. ADVANCED CONFIGURATION OF PI CONTROL PARAMETERS



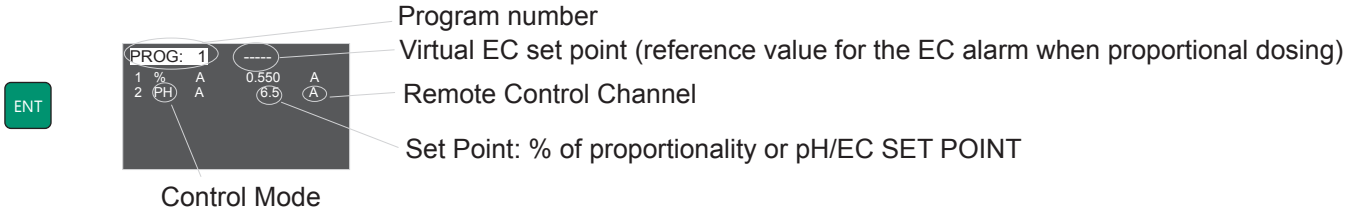
Change Units by pressing +/- and validate by ENT.

Constant Kp of channel A: it is recommended to maintain the value of 10. A higher value, it will get to the Set Point quicker, but it will not be stable quickly, if the value is too high it can unstabilize the dosage.
Constant Kp of channel B: it is recommended to maintain the value of 10. A higher value, it will get to the Set Point quicker, but it will not be stable quickly, if the value is too high it can unstabilize the dosage.

3.8.4.2. CONFIGURATION OF NUMBER OF FERTIGATION PROGRAMS.



3.8.5. CONTROL MODES



Change the program to edit by pressing +/- and validate by ENT.
Use <> to scroll on the Menu and validate the Program by ENT

CONTROL MODE

M - Manual: Manual Adjustment of the Dosage, in %.

% - PROPORTIONAL: Proportional Dosage of the Irrigation Flow, in %.

EC - EC Set Point: Dosage of one or some Products to reach a certain EC Value (Set Point).

P - Dosify more than one Product by EC Set Point, a Proportion (P) between these Products must be established. In this case, **Virtual EC Set Point** must be used to introduce the EC Set Point, and specify a Proportion of Relation between the Outputs configured as P.

PH - PH Set Point: Dosage of one or some Products to reach a certain pH Value (Set Point).

SET POINT OR DOSE IN % :

When the Outputs are configured as EC or pH, the Value for this field corresponds to the Set Point Value.
For Outputs configured as %, the Value of this Field corresponds to the Proportion Value.
For Outputs configured in manual Mode, the Value of this field corresponds directly to the % of Dosage Adjustment.

CONTROL CHANNEL A/B:

It is possible to select two different Remote Control Channels: A and B. Each Channel has an independent Activation Input, which allows to start-up the Pumps programmed for a Channel and keep the Pumps of the other Channel stopped.

Each Control Channel has its PI Control Parameters (see Control Menu), to see each adjustment, pH and EC.

> If an intermitent value appears when validating by ENT, it indicates the Program is not correct. Check for errors.

Errors of programming are available in section 4.3 Errors of programming.

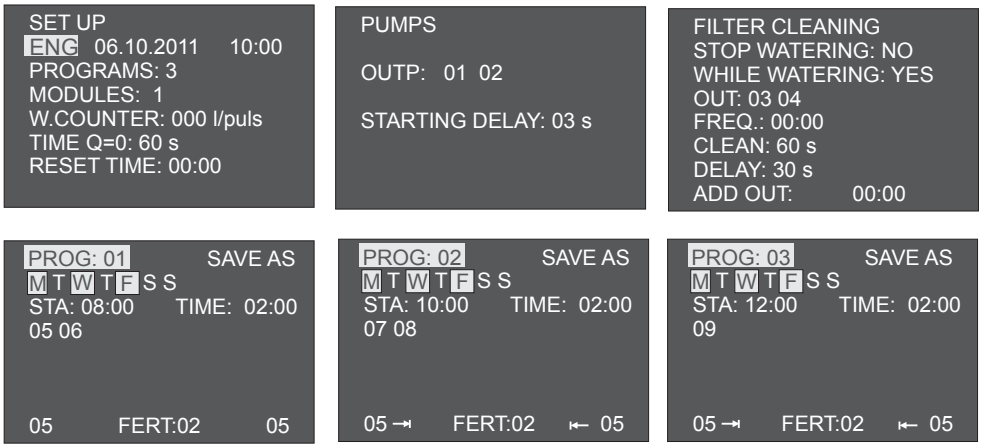
4. PROGRAMATION

4.1 EXAMPLES OF IRRIGATION PROGRAM

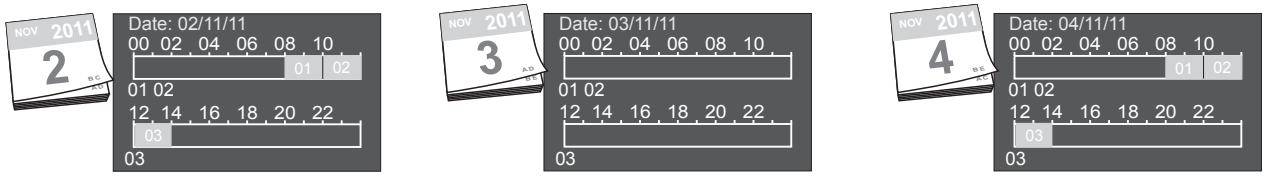
EXAMPLE 1:

Instalation with 2 pumps, 2 filters, 3 programs, 24 outputs

- 3 irrigation programs
- Reset Time: at 00:00 all the programs not activated yet are reset.
- 2 water pumps assigned to outputs 1 and 2. Delay between pumps start 3 seconds.
- Filter cleaning activates outputs 3 and 4 for 60 seconds with a delay time of 30 seconds between them. It will only be activated when an irrigation program is activated. There is not a frequency for cleaning filters, so it will only be activated for the switch input (Input2).
- Irrigation programs will be activaten on Monday, Wednesday and Friday, all run for 2 horas and are activated one after the other.
- Fertirrigation program is F02 and there is a pre irrigation time and post irrigation time of 5 minutes.



DAILY PLANNING SCREEN

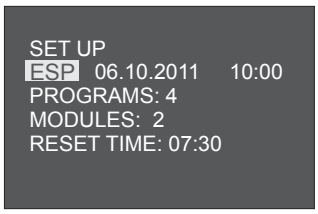


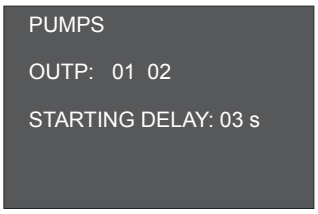
EXAMPLE 2:

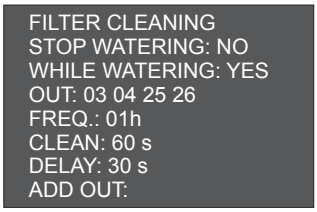
Instalation with 2 water pumps, 4 filters, 48 outputs (2 modules Water 3000), water counter.

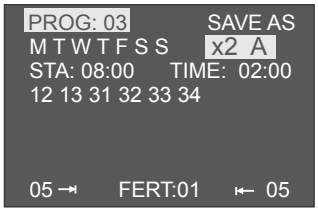
- 4 irrigation programs
- Reset Time: at 07:30 all the programs not activated are reset.
- Water counter of 1000 liters/pulse, flow is 0 after 60 seconds without a pulse.
- 2 water pumps (outputs 1 and 2). Delay between pumps start of 3 seconds.
- Filters cleaning activates outputs 3, 4, 25, 26 for 60 seconds with a delay of 30 seconds between them. Filter cleaning will be activated only when an irrigation program is activated. It will be activated once per hour or when the switch input is activated (Input2).
- Programs: All are activated at the same time, with priority the lowest number, so they will be activated one after the other:

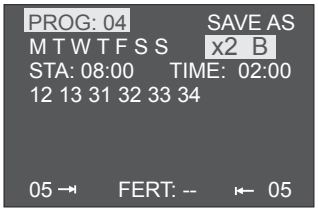
01: active 3 days /week. Fertirrigation program F02. 5 minutes of pre and post irrigation
02: active everyday. Fertirrigation program F01. 5 minutes of pre and post irrigation
03: active each 2 days (A).Fertirrigation program F01. 5 minutes of pre and post irrigation
04: active each 2 days (B). No fertirrigation





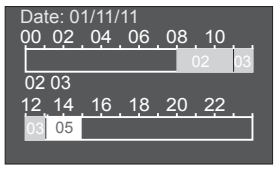




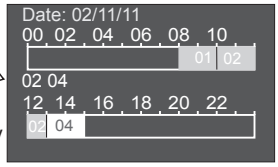


DAILY PLANNING SCREEN

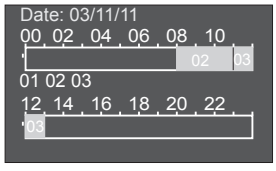
Tuesday
01/11/11
(AE)



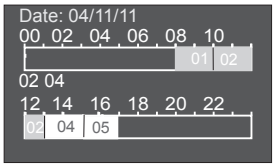
Wednesday
02/11/11
(BC)



Thursday
03/11/11
(AD)



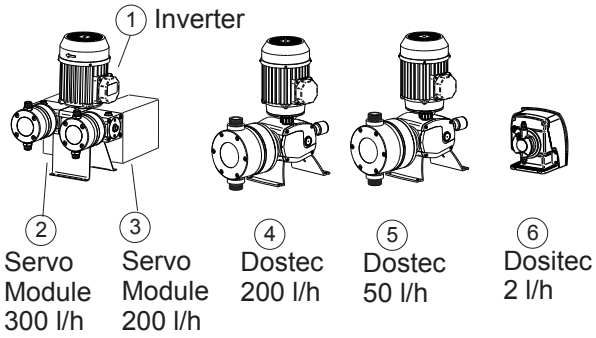
Friday
04/11/11
(BE)



Program without fertirrigation
Program with fertirrigation

4.2. EXAMPLE: FERTIRRIGATION PROGRAM

1x Multifertic 2 heads with 2 servos, 2x Dostec, 1xDositec.



Pumps configurationss

PUMP				
1-	----	L / H	120 %	V
2-	300	L / H	120 %	S
3-	200	L / H	120 %	S
4-	200	L / H	120 %	A
5-	50	L / H	120 %	A
6-	2.0	L / H	100 %	A

Example 1:
Outs 1,2,3: Modular pump for a proportional addition of 2 products (out 2 and 3)
Proportionality out 2: 0.200%
Proportionality out 3: 0.300%
Out 4: Dosing pump for and addition of a product acording to an EC set point.
EC set point out 5: 2.50mS
Out 5: Dosing pump for a proportional addition of one product
Proportionality out 5: 0.100%
Out 6: Dosing pump for a pH control.
pH set point out 6: 6.5

Programming

PROG: 1				
1	%	V	0.500	A
2	%	S	0. 200	A
3	%	S	0. 300	A
4	EC	S	2.50	A
5	%	A	0.100	A
6	PH	A	6.50	B

Remote control
The fertilizer outputs are linked to the A channel and the acid control to the B channel. Then the fertilizer can be switch on / off independently to the acid, and the PI parameters too.

Alarm:
The refrence value for the EC alarm is the EC set point.

4.3 . ERRORS REGARDING THE PROGRAMMING.

Errors referred to EC Programming:

-Only one EC Set Point is possible

-If there is any Output configured as P (Proportion), an Ec Set Point must have been introduced.

If Control Outputs configured as P (Proportion) are Servo Outputs (S) the EC Set Point must be introduced in the V Output.

If Control Outputs configured as P (Proportion) are independent analogue Outputs (A) the EC Set Point must be introduced as Virtual EC Set Point. It is not possible to assign EC Set Point to an Output between 1 and 6.

-To establish a Relation between some Products that regulate to get the EC Set Point, each output of these products must be programmed with P. Therefore, it is necessary at least two Outputs configured as P.

-An Output configured as V (Variator for Multifertic on Servos) programmed to work with EC Set Point, allows only the Servos Outputs (S) to be programmed as P (Proportion), PH, or M (manual), but not as %.

-Only one pH Set Point is possible.
Errors referred to pH Programming:
-Only one pH Set Point is possible.

Errors referred to % Programming (Proportionality)
-When there is a Control Output configured as V, and it is programmed by Proportionality (%), Servos Outputs (S) must be programmed as % (Proportionality), PH, M (manual) or also a Servo Output as EC, but never as P (Relation of Proportion).

Errors referred to manual Programming (M)
-When there is a Control Output configured as V, and it is programmed as manual (M), Servo Outputs (S) must be programmed as M (manual) or PH.

5. OPERATION

5.1. SWITCH FUNCTIONS

WATER CONTROLLER 3000

SWITCH

RUN W+F : Water+Fertirrigation
RUN W: Water(calibration)
STOP (calibration)

Options selectable from the Switch:

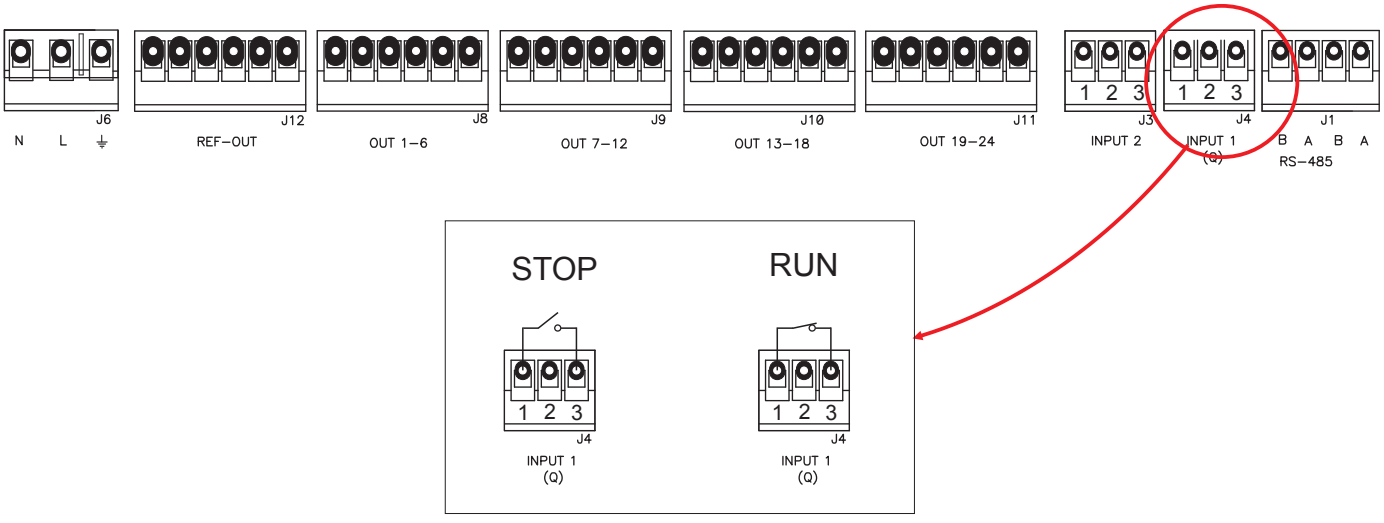
STOP (calibration):
Stops irrigation and fertigation. When selecting another position of the switch irrigation continues from the program that was stopped.
Best position to calibrate pH and EC sensors.

RUN W:
Irrigation (calibration). In this position of the switch irrigation is active, but not the fertigation. Allows calibration, but only if the pH and EC sensors are installed in an external sensor holder.

RUN W+F:
Irrigation and fertigation. Normal position of the switch.

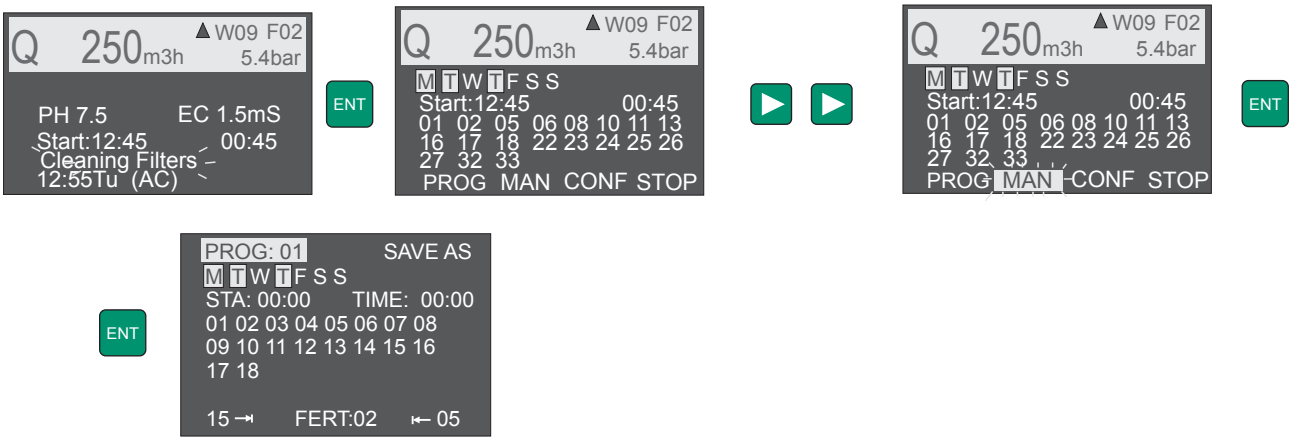
5.2. REMOTE STOP

Stop and irrigate is controlled from Input1 in Module 1. This function is used by the switch at the STOP position, so when the contact is closed, the irrigation program continues where it was stop.



5.3. MANUAL ACTIVATION OF IRRIGATION PROGRAM

MANUAL menu.

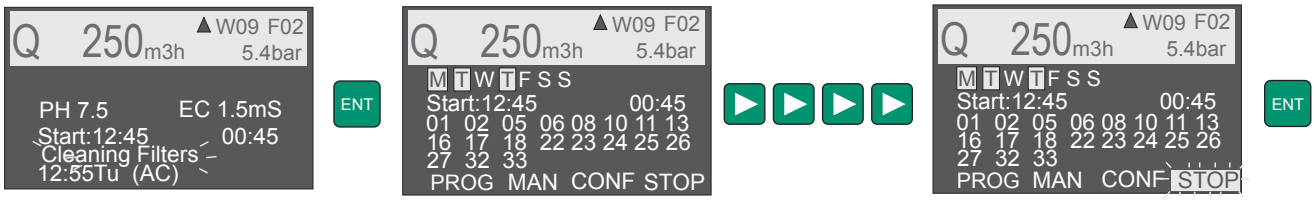


The program to be activated manually is selected using + / -.
Pressing ENT starts the program selected.

If a program is active when manually select another, means that irrigation will stop and manual program will start.
As soon as the manual program is finished, the program that was stop will be activated again until it fulfills its time, or until it is stop manually.

5.4. STOP AN IRRIGATION PROGRAM

STOP menu.



Selecting STOP menu, it will stop the active program, without afecting the rest of programation.

6. TECHNICAL FEATURES

Power supply: 230VAC (+/-10%) 50/60Hz

W3000 módule 24 outputs 24Vac: max.350mA

Protection: IP55

Working temperature: 0 - 45ºC

Relative humidity: 95% (without condensation)

Modules: Up to 4 modules of 24 outputs each.

Inputs:

Pulse input flow optically insulated for high-frequency flowmeters (pallets or electromagnetic)

EC: Input optically insulated for ITC conductivity sensor

PH: Input optically insulated for connecting a pH sensor

Pressure: 4-20mA analogue input for a pressure transmitter

Module 1, Input 2: Activates filters cleaning by a switch. Activated in open contact.

Module 1, Input 1: Emergency stop. Stops at open contact, activated at closed contact.

Module 2, Input 2: External activation of an irrigation program. Close contact activation.

Module 2, Input 1: External activation of an irrigation program. Close contact activation.

Outputs (optically isolated):

24 relay outputs (for each module) for electrovalves, filters and pumps.

4 outputs for pumps

6 salidas for filter

Maximum of 6 outputs active at the same time for module, includes electrovalves, pumps and filters.
Maximum current for output: 1(A)
Maximum total current for outputs: 1.8(A)

2/6 outputs 4-20mA for dosing pump.

Flow alarm output: Relay output NO. 24 VAC -1A max

EC alarm output: Relay output NO. 24 VAC -1A max

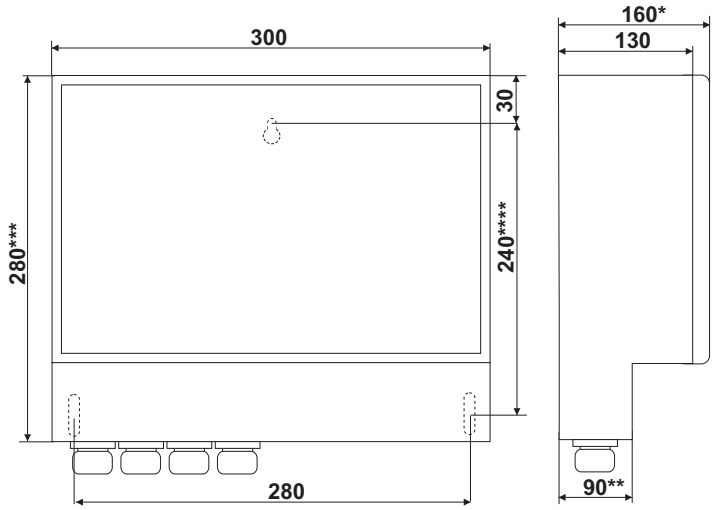
PH alarm output: Relay output NO. 24 VAC -1A max

Pressure alarm output: Relay output NO. 24 VAC -1A max

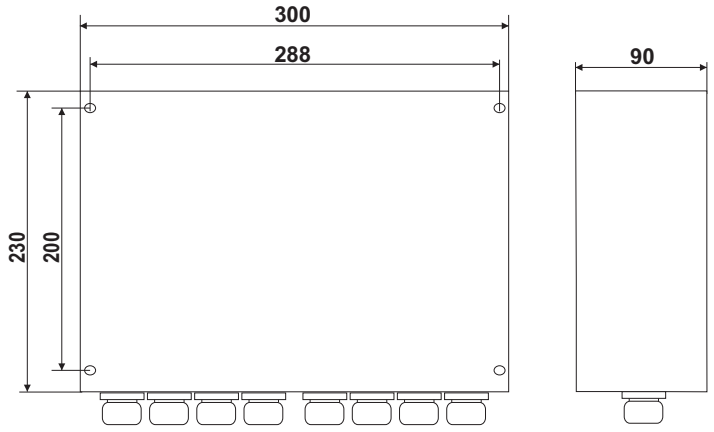
Communications:

- Rs485: for connection console-module, and module to module.
- USB: for permanent connection to a Gate.

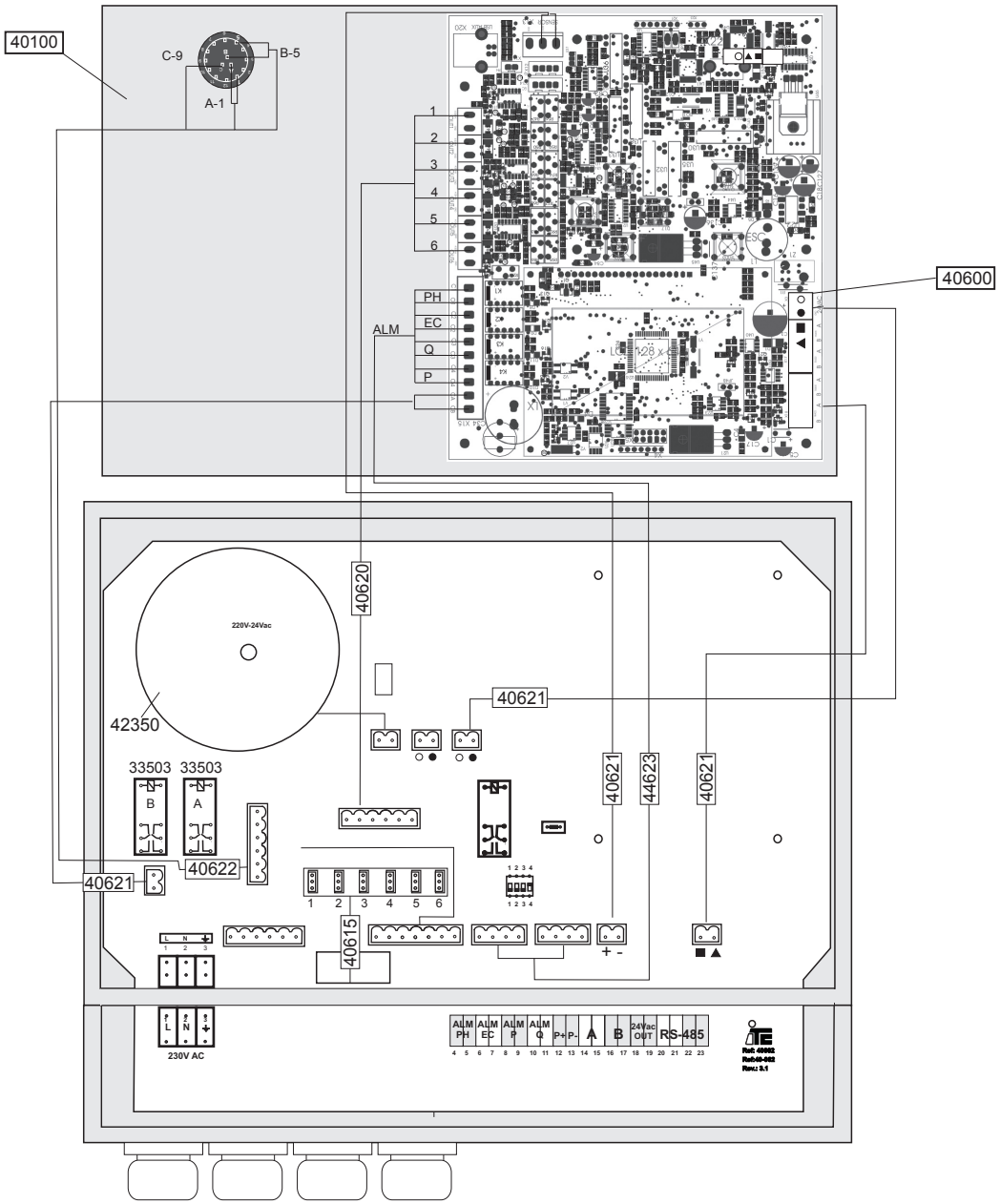
DIMENSIONS



*Water Controller 3000-2: 118 mm
**Water Controller 3000-2: 48 mm
***Water Controller 3000-2: 255 mm
****Water Controller 3000-2: 210 mm



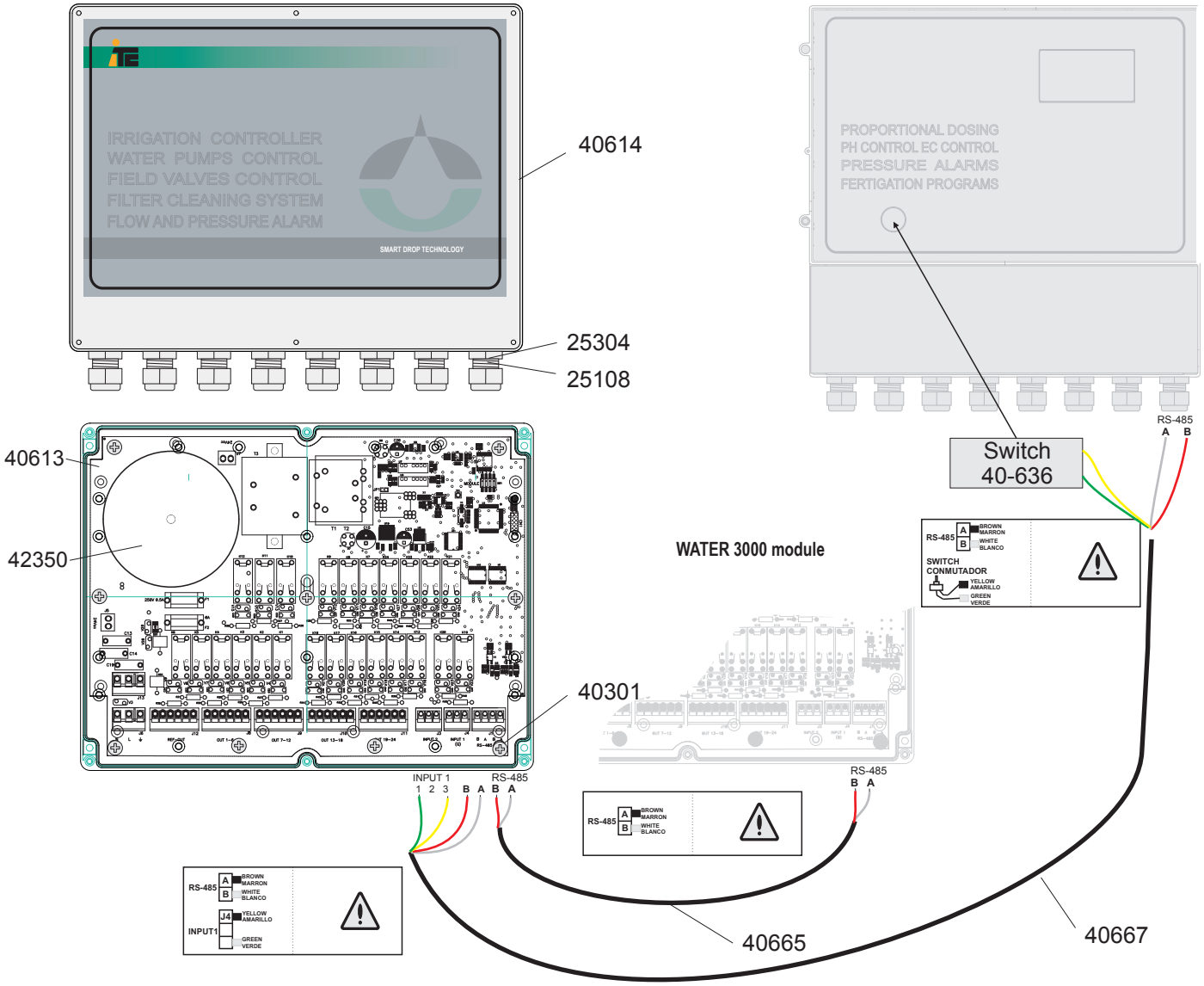
7. MAINTENANCE



CODE	DESCRIPCTION	UNITS
33503	Relay 24 v ac two circuits	2
40100	Frontal Controller 3000	1
40600	C3000 electronic board	1
40615	Cable C3000 4-20 c-c5p	2/6
40620	Cable 6 wire female connector	1
40621	Cable 2 wire female connector	5
40622	Cable C3000 6x0,25x150 with switch	1
42350	Transformer 220-24V 80VA	1
44623	Cable manguera 4x0,25x240	1
Assembly		
40-050	Assy C3000 board	0
40-052	Connection board	1

6. MAINTENANCE.

WATER CONTROLLER 3000



Reference	Description	Quantity
40614	Box 230x300	1
40613	Electronic Board 24 outputs	1
42350	Transformer 220-24V 80VA	1
25108	Prensaestopas M20	8
25304	Tuerca prensaestopas M20	8
40301	Tornillo 4,2x9,5 DIN7981	9
40665	1m communications wire(module to module)	1
40666	25m communications wire (module to module)	
40667	1m communications wire (module to C3000)	1
40668	25m communications wire (module to C3000)	
40-636	Switch W3000	1

EC DECLARATION OF CONFORMITY

I.T.C S.L..
Vallès, 26
Polígono Industrial Can Bernades-Subirà
08130 Santa Perpètua de Mogoda

Declares that all the Models of the Controller 3000 Products identified with the Serial Number and Year of Manufacture fulfil the Low Voltage Directive D73/23/EC and D93/68/EC and the Electromagnetic Compatibility Directive D89/336/EC, as long as the Installation, the Use and the Maintenance will be executed in accordance with the current rules and following the instructions of the Manual.

Anton Planas
General Manager

WARRANTY

ITC DOSING PUMPS

***ITC** warranties the Product specified in this Document for 1 year period from the Purchase Date, against any manufacture or material Defect, and as long as the Installation, Use and Maintenance have been correct.*

The Equipment must be sent, all inclusive charge, to our workshop or to the authorized ITC Technical Service, and its Return will be executed carriage forward.

The Equipment must be accompanied by the Warranty Document with the Purchase Date and the stamp of the Seller's Establishment, or a copy of the Account of goods purchased.

MODEL
_____

SERIAL NUMBER
_____

Purchase Date and Stamp of the Seller's Establishmentr

DATE: _____

Original manual

Ed: 08/05/2019 - EN

DOSING PUMPS

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