IRRCO10X-V2

User and installation manual

Intended for firmware version:

6.0.4s / 6.0.4se

Auteur: JJ van Bentem

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1 START OVER 12:28:38
2 WACHTEN
3 IRRIGEREN 12:22:13
4 START OVER 3 DAGEN
IRRCO10X
001 002 003 004 005 006 007 008 009 010
011 012 013 014 015 016 017 018 019 020
021 022 023 024 025 026 027 028 029 030
031 032 033 034 035 036 037 038 039 040
041 042 043 044 045 046 047 048 049 050
051 052 053 054 055 056 057 058 059 060
061 062 063 064 065 066 067 068 069 070
071 072 073 074 075 076 077 078 079 080
081 082 083 084 085 086 087 088 089 090
091 092 093 094 095 096 097 098 099 100

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1. Introduction

1.1. Introduction

The IRRCO10XV2 is a user-friendly and affordable irrigation controller for agriculture and horticulture. Ease of use is central to its design. An industrial rotary knob and a simple display are sufficient for intuitive operation. Thanks to its modular design, customized solutions can be provided. The IRRCO10X was primarily developed to control alternating current, but it can also supply direct current. With alternating current, it can deliver approximately 1.3A. With direct current, approximately 750mA.

1.2. Objective

After reading the manual, you will be able to install and operate the IRRCO10XV2.

1.2. Disclaimer

This document uses the most up-to-date images possible. Despite great care being taken, the images used may differ from reality. This manual applies only to the firmware versions as indicated on the front page of this manual.

1.3. Warranty

A warranty period of 2 years applies to the IRRCO10XV2, subject to the provisions set out in Article 11 of the general terms and conditions of delivery. Normal wear and defects that do not significantly affect the operation of the device are not covered by the warranty. Bentrons' general terms and conditions of delivery were provided with the order confirmation and are available digitally via www.bentrons.com.

2. Product information

2.1. What is the IRRCO10XV2

The IRRCO10X irrigation controller is characterized by a modular design and easy operation. It can be simply configured as a basic irrigation controller or expanded into a multi-zone irrigation system. Ease of use is central to its design.

2.2. Overview of Components

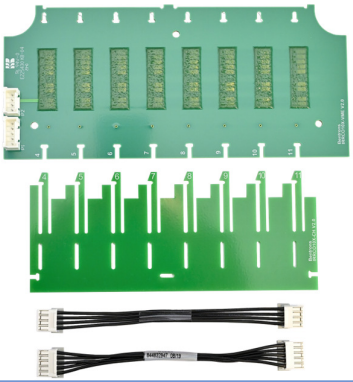
This overview provides a list of the components currently available.

Base unit
Robust industrial rotary knob, display, 10 outputs, and 1 input. You can choose between simple mode (1 zone) and expert mode (4 zones). Shown here are 100 outputs with switches and LEDs.

RM10-V2 outputs and input board
Contains 10 outputs and 1 input.

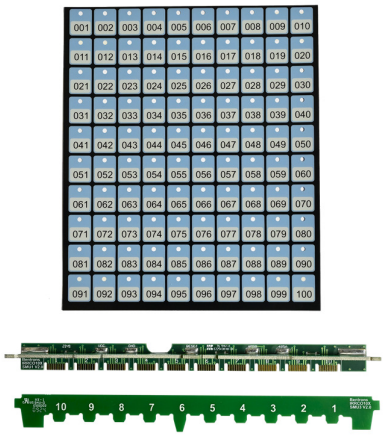
NOTE: Use only the RM10-V2. The old RM10 is NOT compatible and does not fit in the new IRRCO10X-V2.

SM10-W switch board (white LEDs)
Switches and LEDs provide even more ease of use and a clear overview of the status of the valves/zones.



RM10-V2 extensionkit

A standard base unit can accommodate 3 RM10 boards. When the RM10 extension kit is installed, it can be expanded to a maximum of 10 RM10 boards. The IRRCO10X then has 100 outputs and 10 inputs.



SM10 extensionkit

If the IRRCO10X needs to be equipped with switches and LEDs, an extension kit must be installed.

Connection Notes

Before getting started, it is advisable to have a clear plan. A template for taking notes can be downloaded via www.bentrons.com

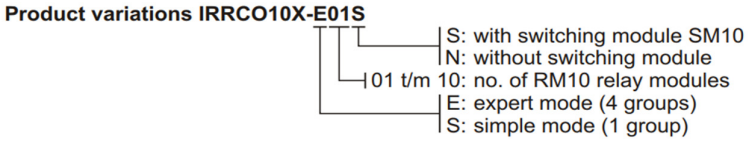
2.3. Packaging, Storage, and Transport

The contents of the package include the IRRCO10X controller configured for you, a power cord, and this user manual. After transport, check the packaging for damage or signs of rough or careless handling. Any damage must be reported to the carrier and to Bentrons within 10 days of receiving the package. Store the product in a dust-free, dry location. Expansion modules are packaged in ESD-safe packaging. Keep the ESD packaging closed for as long as possible..

2.4. Disposal

When your IRRCO10X is decommissioned, it can be disposed of in accordance with local regulations. Many materials from old electrical devices can be recycled, saving resources and reducing waste. Proper collection also prevents hazardous substances and electronics from entering the environment.

2.5. Product Variantions



- • SM10: Optional expansion for visually monitoring irrigation processes and quickly adjusting irrigation variables.
- RM10: Board with 10 outputs and 1 input. The functions are defined in the installation menu.
- Expert mode: The IRRCO10X can be divided into a maximum of 4 zones. Each zone has its own outputs. Depending on whether they share pumps, have their own pump, or are connected to a pressure system, the zones can irrigate simultaneously or wait for each other.
- Simpel mode: The IRRCO10X has 1 zone.

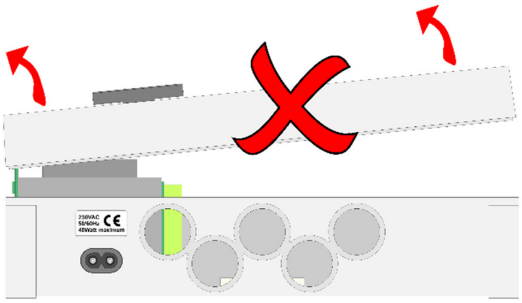
2.6. Technische specificaties

Mains voltage	: 230VAC 50/60Hz +/- 10%
Power Consumption	: max 40VA
Mains Voltage Protection	: Safety transformer with short-circuit protection
Output Voltage	: 24VAC/28VAC/24VDC/28VDC
Total Output Current	: 1.3A AC / 750mA DC (40VA)
Backup battery	: CR2032
Ambient Temperature	: 0…45°C
Housing	: Polycarbonaat IP51

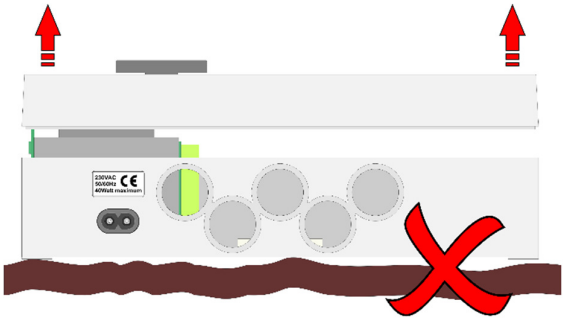
3. Installation

3.1. Mechanical installation

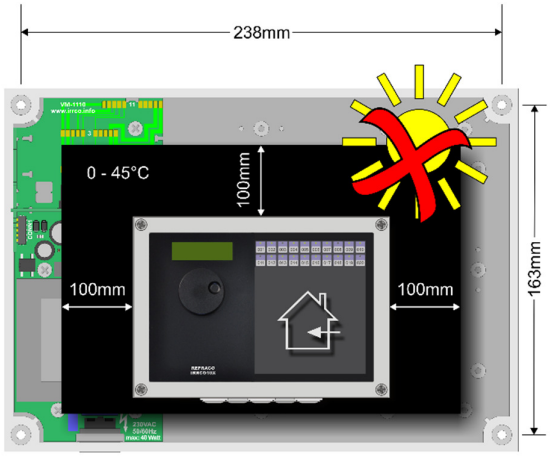
When opening the enclosure, ensure that the cover is removed straight off.



The IRRCO10X must be mounted on a flat surface.



Care should be taken to ensure it is not placed in direct sunlight or near heat sources. Keep the IRRCO10X free from rain, condensation, and irrigation water.

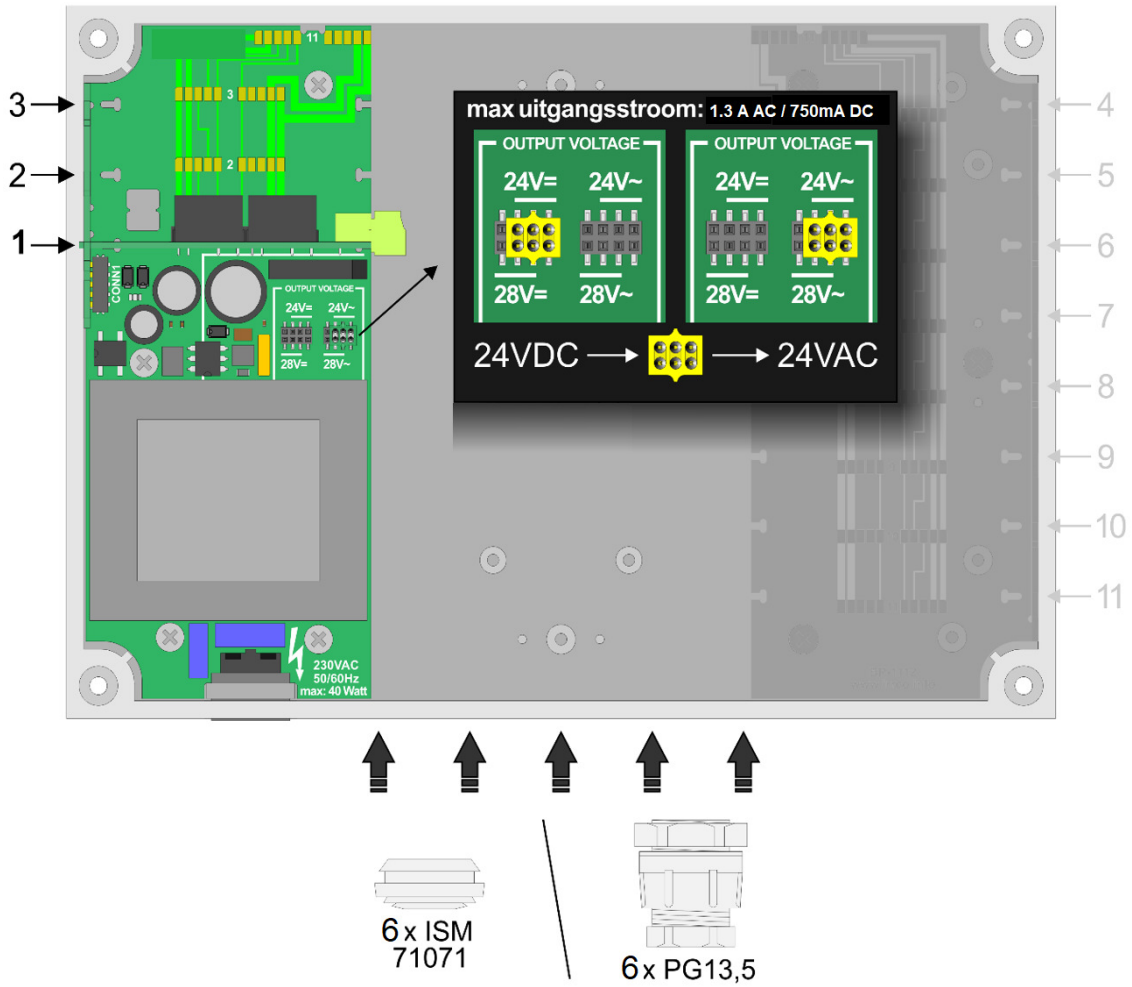


3.2. Connecting Mains Power to the IRRCO10X

The IRRCO10X is designed for the European market and must be connected to a mains voltage of 230VAC ±10% / 50–60Hz. The built-in transformer features thermal protection, which disconnects the mains voltage if the transformer overheats..

3.3. AC / DC field voltage

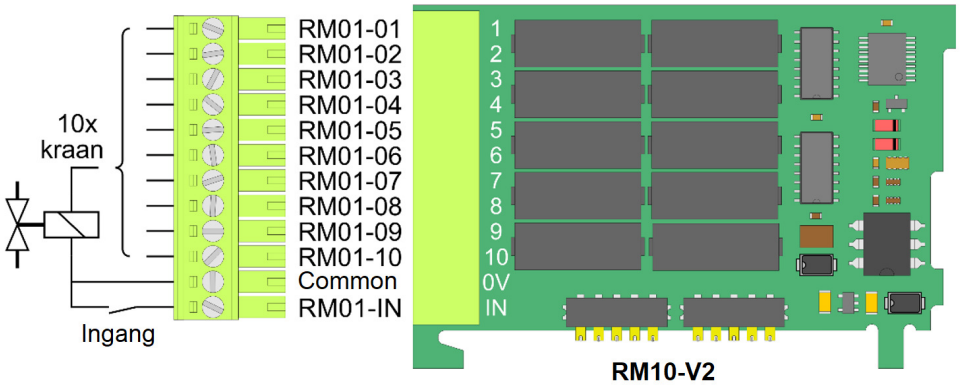
Ensure that the IRRCO10X is always disconnected from power when performing any work. The IRRCO10X is primarily intended for AC valves but can also be used with DC valves if desired. However, AC and DC cannot be used simultaneously. A choice must be made in the IRRCO10X for the field voltage supplied to the valves: either 24VAC or 24VDC. When long cables are used, 28VAC or 28VDC can be selected to compensate. The maximum total current that can be supplied is 1.3A AC, while the maximum DC current is approximately 750mA. In case of overload, the IRRCO10X will intervene immediately. The selection is made easily by moving a jumper..



3.4. RM10 board connections

The RM10 is supplied with a detachable connector. An RM10 has 10 outputs and 1 input. Positions 1 to 10 are the outputs, position 11 is the common (Common), and position 12 is the input. Valves are connected between an output and the common. An active input is a closed, potential-free contact between the input and the common..

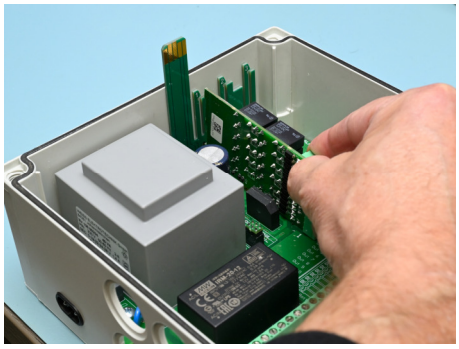
Each RM10 board has its own Common, which must be used for that specific board. Common connections can be combined. All outputs supply the same voltage that was selected earlier (see the previous paragraph).

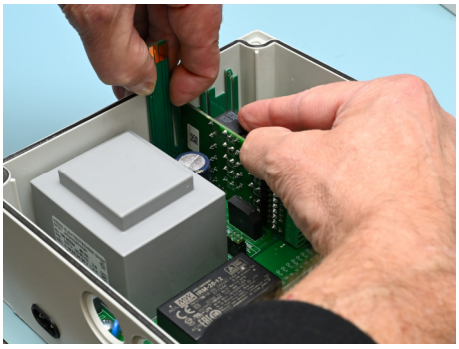


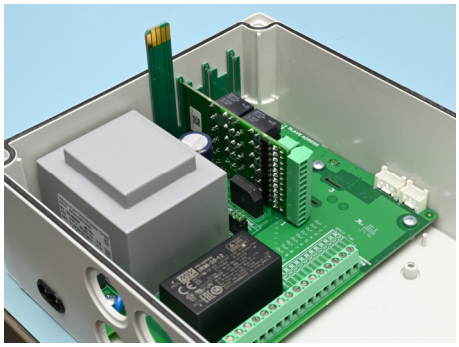
The use of a relay to separate pump and alarm outputs from the IRRCO10X is recommended.

3.5. Adding an RM10

Ensure that the IRRCO10X is switched off and disconnected from the mains. Work in an ESD-safe environment. Thanks to the modular design, it is relatively easy to add extra RM10 boards. The RM10s are supplied in ESD-safe packaging. Keep this packaging closed for as long as possible. Install the additional RM10 boards as shown in the images below..



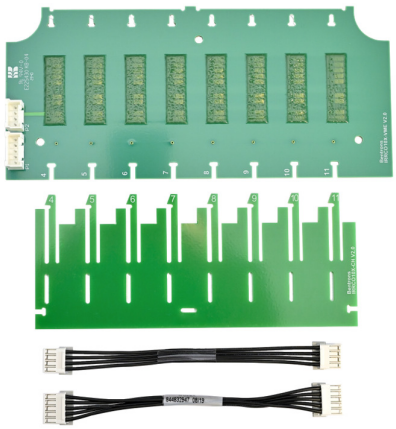




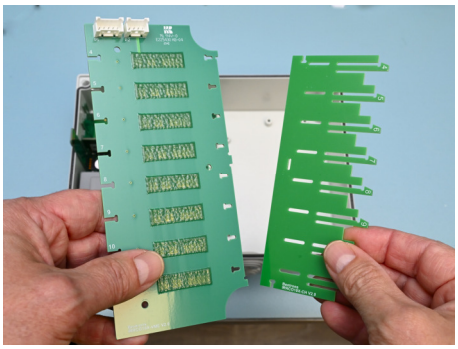
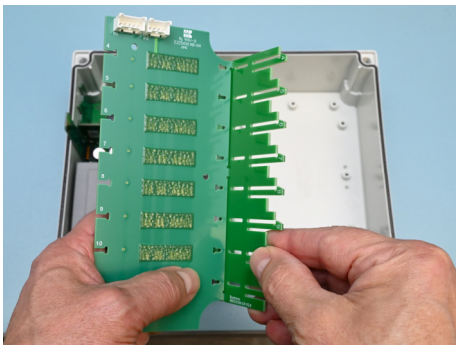
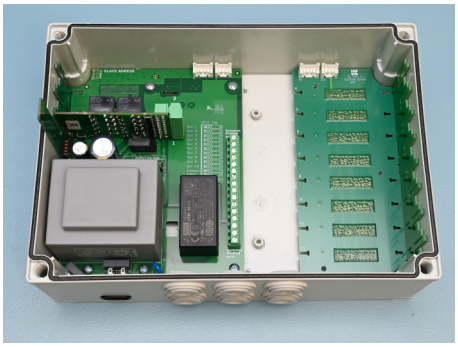
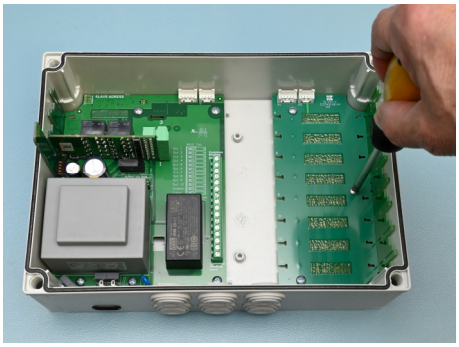
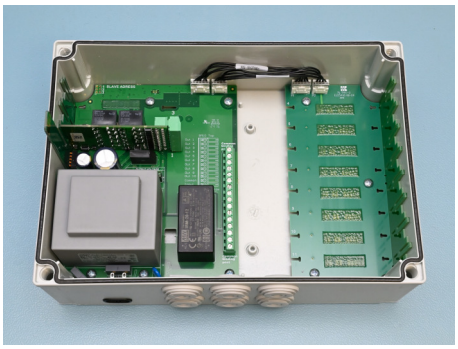
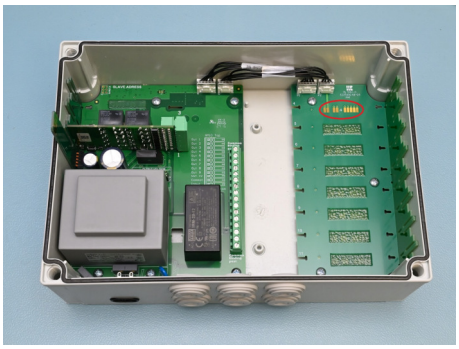
An RM10 can be removed in the reverse order. Make sure to push the side latch backward when doing so..

3.6. Installing the RM10 Expansion Kit

Ensure that the IRRCO10X is switched off and disconnected from the mains. Work in an ESD-safe environment. By default, 3 RM10 boards can be installed. If more RM10 boards are needed, an expansion kit can be installed. The kit is supplied complete with screws if ordered. See the image below:



The following images show the order of assembly.

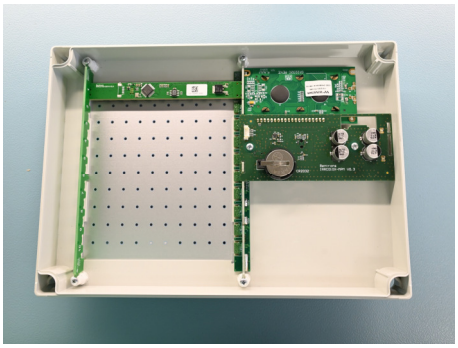
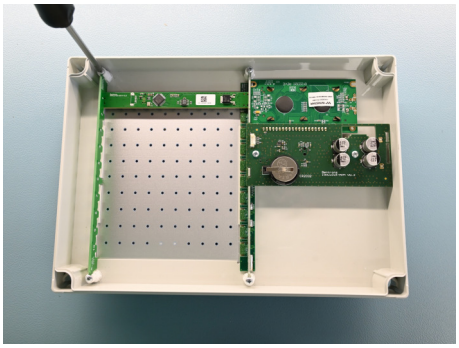
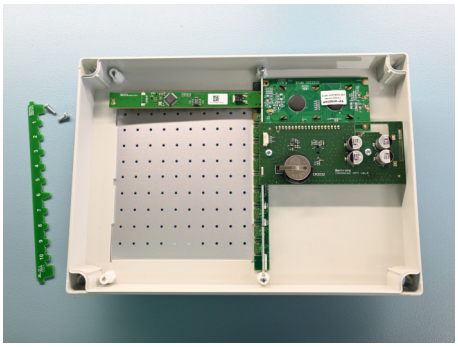
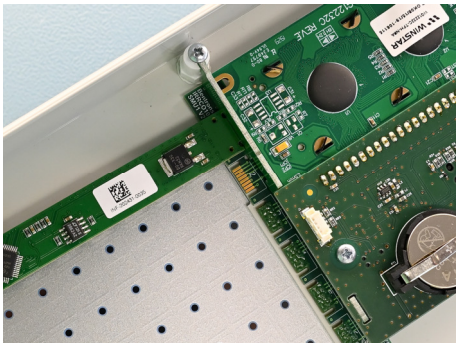







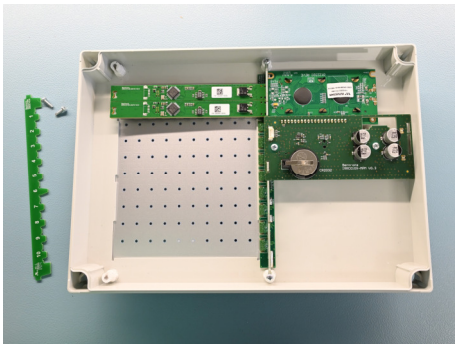
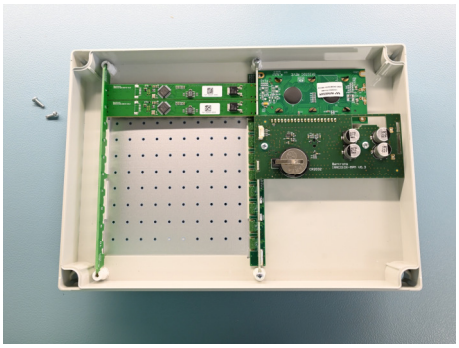
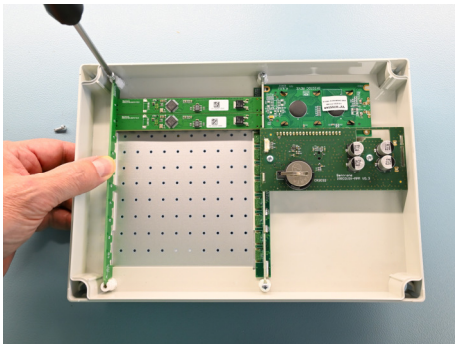
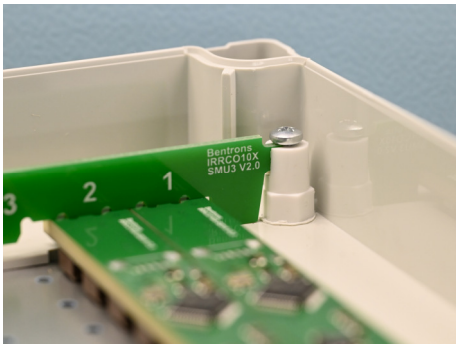
Finally, remove the peeling kit from the positions that will be used. Do not touch the contacts with your hands.

3.7. Adding an SM10

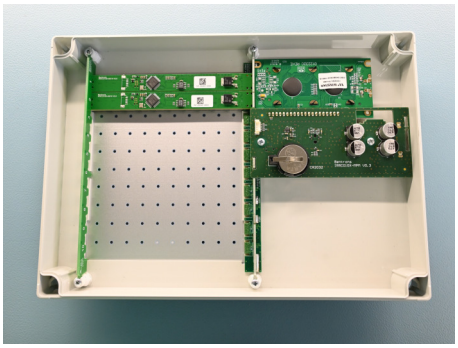
Ensure that the IRRCO10X is switched off and disconnected from the mains. Work in an ESD-safe environment. Thanks to the modular design, it is relatively easy to add extra SM10 boards. The SM10s are supplied in ESD-safe packaging—keep this packaging closed for as long as possible. Install the additional SM10 boards as shown in the images below.

WARNING: When tightening the screws, tighten only enough to secure the boards. Over-tightening can cause damage to the boards and mounting points..

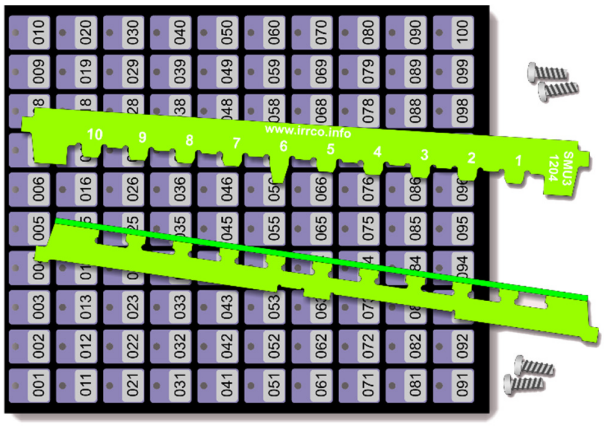





Caution: Do not overtighten the screws. Securing the boards is sufficient. Tightening them unnecessarily can stress the boards and damage the mounting points..

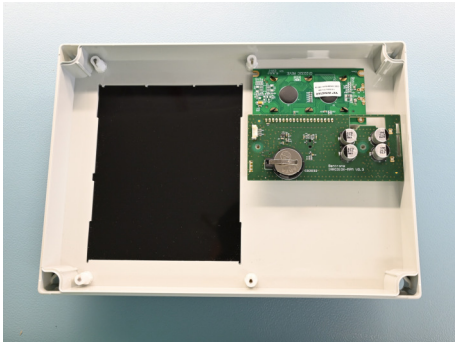


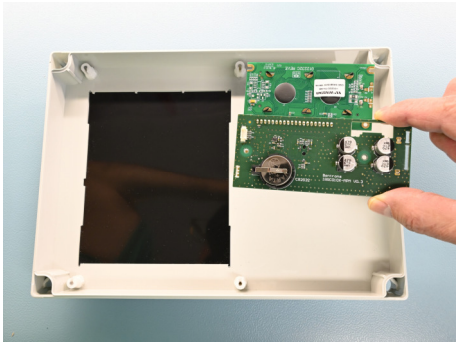
3.8. Installing the SM10 expansion kit

Ensure that the IRRCO10X is switched off and disconnected from the mains. Work in an ESD-safe environment. If the IRRCO10X was delivered without switches, it is still possible to install them. The kit is supplied complete with screws if ordered. See the image below:



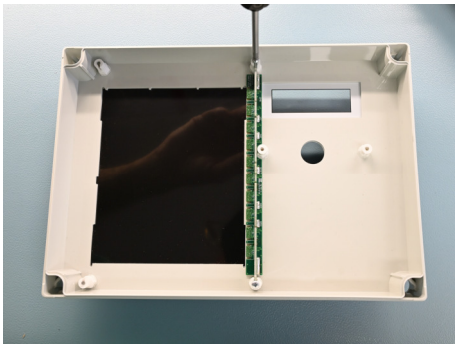
First, remove the microprocessor board.

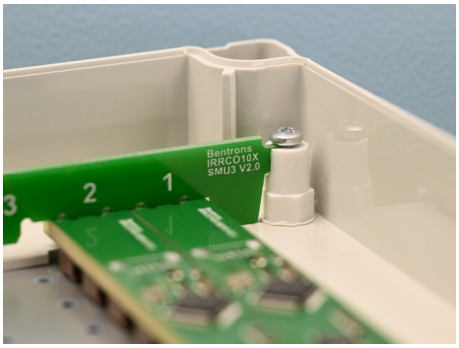




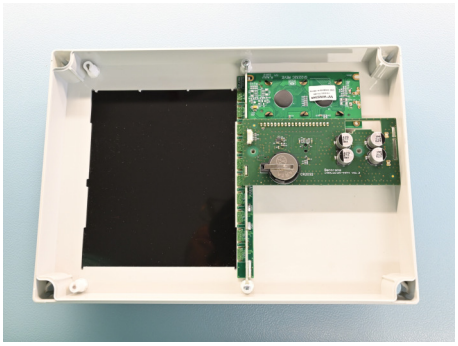
Next, install the SMU1 and SMU2 units, which are mounted perpendicular to each other.

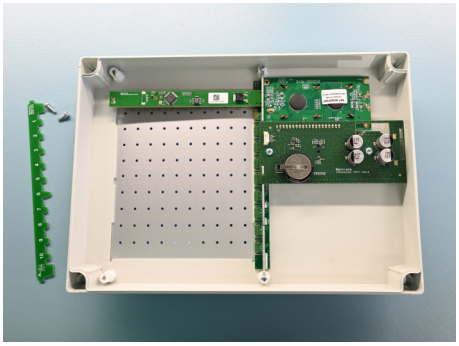
WARNING: When tightening the screws, tighten only enough to secure the board. Over-tightening can cause damage to the mounting point.

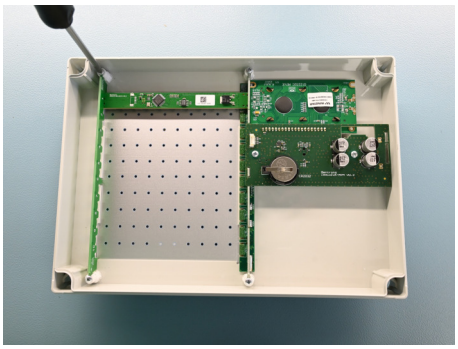


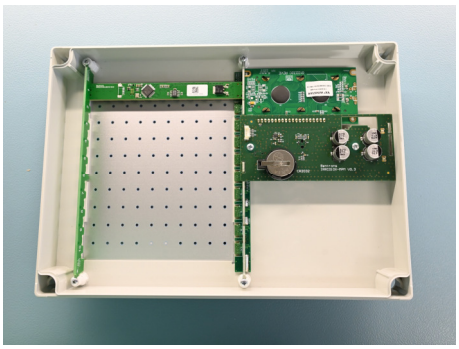


Next, the SM10 boards can be installed as described in section 3.7.









4. IRRCO10X features

The IRRCO10X has a modular design. By default, it provides 10 outputs and 1 input, housed on an RM10 module. Up to 10 RM10 modules can be installed in an IRRCO10X, providing a total of 100 outputs and 10 inputs. Outputs can be assigned to specific functions in the installation menu. The available functions are:

- Valve Output
- Pump Output
- Fertilizer Output, for example for a Dosatron
- Alarm Output

When you have 10 outputs and assign one output to a pump, you have 9 outputs remaining for other functions.

The IRRCO10X is available in two functional versions:

- Simpel mode
- Expert mode

4.1. Simpel mode

All valves are available in 1 zone. The available features are::

- Maximum of 100 outputs in 1 zone
- 9 irrigation timers
- Per timer: period timer with restart or start timer with a set number of repetitions
- When the period ends, any ongoing irrigation cycle is completed
- Choice between weekly or interval calendar
- Maximum of 3 valves operating simultaneously
- Option to add fertilizer (1 valve at a time)
- External stop (input) to interrupt the irrigation process
- External start (input) to start the irrigation process (possibly in combination with timers)
- Active current monitoring
- Output test menu with built-in amp-meter
- Irrigation measured in seconds, minutes, and volume (liters)
- Flow monitoring in combination with a water meter
- Adjustable water application percentage from 10% to 400%
- Manual start of a selected group of valves, with input for water percentage, optional fertilizer, and number of repetitions
- Adjustable pre- and post-run times for pump control
- Adjustable opening and closing times for valves
- Test menu for all outputs, including current measurement.

4.2. Expert mode

In addition to all the features of the simple mode, the expert version allows all valves to be divided into a maximum of 4 zones. Each zone can have its own valves, pump, alarm output, and fertilizer output. Inputs can also be assigned separately. Zones with their own pump can operate independently of each other (essentially providing up to 4 simple versions in one enclosure)

In the expert version, certain functions can also be shared. Zones can then use the same hydraulic circuit. Functions that can be shared are:

- Pump output
- Fertilizer output
- Alarm output
- Inputs
- Flow meter

Features of a Shared Hydraulic Circuit:

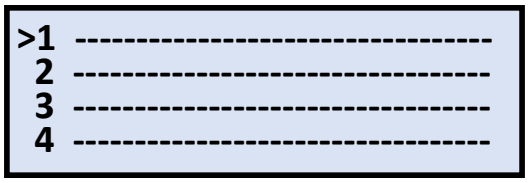
- Zones that share a pump wait for each other according to their start times

- If a zone is scheduled to start but the hydraulic circuit is still in use, the zone will be put on hold until the circuit becomes available
- If no pump is assigned to zones, a pressure system (hydrofor) is assumed. In this case, zones will also wait for each other as if they are sharing the hydrofor
- Zones with their own pump operate independently of other zones

5. Starting up the IRRCO10X

When the IRRCO10X is connected to the mains, it will start up. The software version is displayed, and a scan is performed for the installed modules. The number of modules is briefly shown. After this, the IRRCO10X is ready for use. In the simple version, only one group is visible. In the expert version, you have up to 4 groups.

Main screen of an IRRCO10X in simple mode on first startup



Main screen of an IRRCO10X in expert mode on first startup

6. Navigating with the rotate-press knob

The IRRCO10X is designed with simplicity and long service life in mind. At the center is the industrial rotate-press knob. Pressing the knob allows you to enter menus or makes variables start blinking. Turning the knob left or right lets you navigate through menus or adjust variables. For larger adjustments, such as setting long irrigation times for valves, turning the knob faster will temporarily accelerate the change. This increases the step size until the rotation speed decreases again. A schematic overview of the menu structure is shown further in paragraph: schematic overview of the menu structure.

7. Inputs and outputs

The IRRCO10X have inputs and outputs. Inputs can serve the following functions:

- Start input
- Stop input
- Puls input, for example for a flow meter

In the installation menu, there is a menu item for each function.

Inputs must always be potential-free. This can be achieved using a suitable relay or reed switch. Per zone, a free input can be assigned to only one function. An input cannot be assigned simultaneously to a stop input, start input, and a flow meter.

Zones can share inputs with each other. Two zones can use the same input for the same function. For example, an input in zone 1 can serve as a stop function and also act as a stop function in zone 2. However, an input cannot serve as a stop input in zone 1 and a start input in zone 2. Pay close attention to this when configuring..

Outputs can be divided across 4 zones (expert mode) or assigned to a single zone (simple mode/expert mode). Outputs can have different functions:

- Valve output
- Pump output
- Fertilizer output (Dosatron)
- Alarm output

A pump output can be shared between multiple zones. When a pump is in use, another zone will be put on hold. Once the running zone is finished, the waiting zone will start. Zones with their own pump can operate simultaneously with other zones. If no pump is assigned to a zone, it is assumed that an external pump with a pressure regulator is available. Zones without an assigned pump will wait for each other.

- Zones sharing a pump wait for each other
- Zones without an assigned pump wait for each other
- Zones with their own pump operate independently of other zones

Always ensure that the total maximum output current does not exceed 1.3 A AC or 750 mA DC. (The IRRCO is primarily designed for AC.)

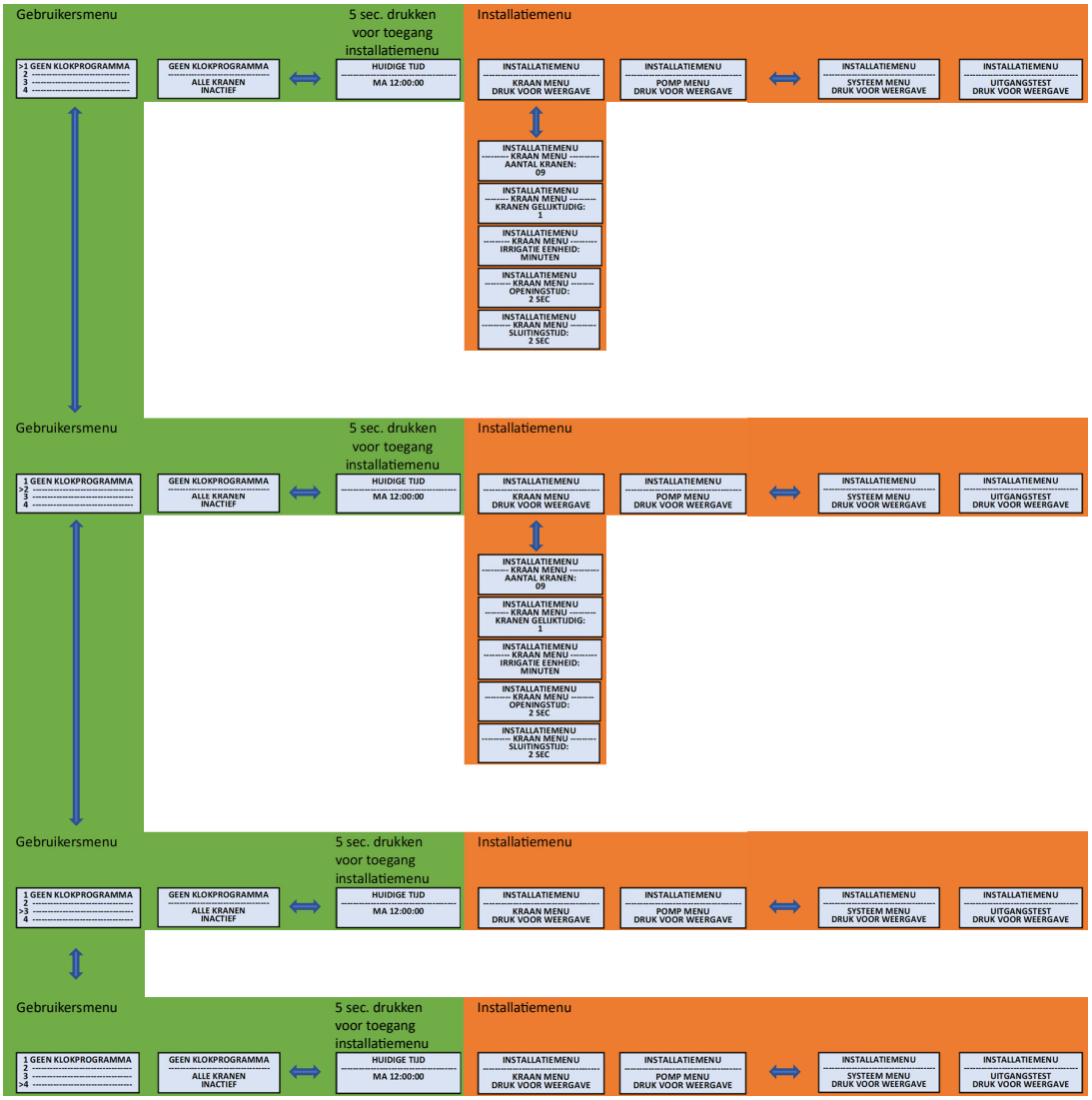
8. Menu structure explanation (simple mode/expert mode)

8.1. Introduction

The menu structure for simple mode and expert mode is almost identical. In simple mode, only one zone is available, containing all the valves. In expert mode, there is an additional screen where you can select from up to 4 zones. By selecting a zone, you enter that zone, and the structure is otherwise the same as in simple mode. The menu structure can be divided into two sections:

- The first part that appears immediately after startup, used for daily operation, is called the user menu (green).
- The second part, where settings for configuring the IRRCO10X are made, is often set only once and therefore does not need to appear in the user menu. This is called the installation menu (orange).

8.2. Schematic Overview of the Menu Structure



9. Connecting the IRRCO10X using a plan

9.1. Introduction

Compared to the old IRRCO10X, the configuration method has changed. The assignment of outputs can now be partly determined by the user. This may seem more complex than the old IRRCO10X, but the previous system had certain limitations. It is now possible to simply add an RM10 and assign the corresponding outputs without having to shift everything. However, the user must carefully plan the wiring in advance and document it properly. A separate template for this is available for download on the website. Following the step-by-step plan below should make configuration straightforward.

9.2. Template for documentation

Make sure you have the template at hand to document the configuration. This template can be downloaded from the website.: www.bentrons.com

9.3. Creating a wiring plan

Consider the following:

- How many zones will be created
- How many valves per zone
- How many (shared) hydraulic circuits
- Carefully decide which outputs will be used for pump, alarm, and fertilizer. These are now permanently configured and will not change if the number of valves changes.

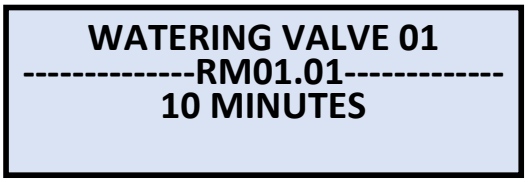
9.4. Setting outputs in the installation menu

Access to the installation menu is described elsewhere in this manual. By default, no valves or pump are assigned. For first-time use, this must be done first, and careful consideration is required. It is recommended that if a pump is used, it be assigned to an output first. Instructions for this are provided in the installation menu chapter. This output is then reserved for the pump. Next, the number of valves can be set. All available unassigned outputs are assigned to the valves in order.

When the IRRCO prompts for “save & restart,” this must be confirmed to apply the settings. By turning the knob, you can also choose “cancel & restart” or “back.” Selecting “back” allows you to continue setting parameters. If changes are needed to previously assigned inputs or outputs, these must first be freed, followed by a “save & restart” before making new assignments. The outputs are then permanently available for the new configuration. When exiting the installation menu, any structural changes always require choosing either “save & restart” or “cancel & restart.” During configuration, this may occur several times and is normal.

Example:
By default, the IRRCO10X comes with at least 10 outputs. First, we assign an output to the pump. If we use a fertilizer output and an alarm output, we assign these as well. In this example with only a pump, we take the last output, RM01.10. We can choose to “save & restart,” but it is also possible to set the number of valves directly in the “Valve Menu.” By increasing the number of valves here, the IRRCO will assign available outputs in order. Outputs that were manually assigned, such as pump, fertilizer, or alarm, are skipped because they are reserved. When done carefully, this results in neat, consecutive sequences.

It is important to make the connection notes! As long as the IRRCO is in “installation mode,” the connection number will be shown for each specific valve, as shown in the image below.



Always record the configuration and keep it with the IRRCO.

Setting the parameters is described in the chapter “Installation Menu.” To maintain a logical overview, it is recommended to follow the sequence below when configuring. This approach keeps the process organized:

- Determine the output for the pump(s) and set it, then select “save & reboot”
- Determine the output for the fertilizer control and set it, then select “save & reboot”
- Determine the output for the alarm and set it, then select “save & reboot”
- Set the number of valves in the installation menu. Outputs are assigned automatically, then select “save & reboot”

10. User menu simple mode

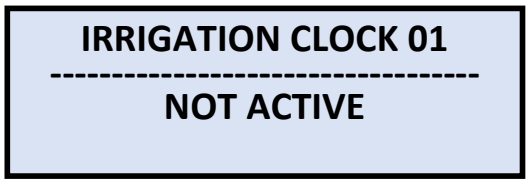
When the IRRCO10X has started, it is ready in the user menu. By turning the knob described above, you can scroll through the various screens. By default, the user menu in simple mode looks as follows:

Main screen in simple mode. This shows the status.

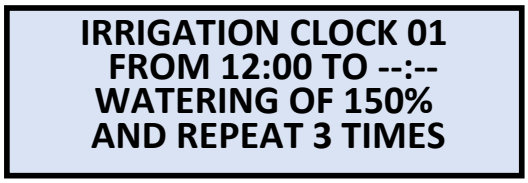
10.1. Setting irrigation days

Display of the days on which irrigation occurs. In the installation menu, you can choose between a weekly calendar or an interval calendar in the clock menu. By pressing and turning the knob, you can select the days. A long press (about 2 seconds) inverts all days at once. If all days are marked 'X,' they will all become 'V.' If the days are mixed, the inversion will flip each day's current state. For example, 'X V X…' becomes 'V X V…'.

10.2. Setting irrigation clock



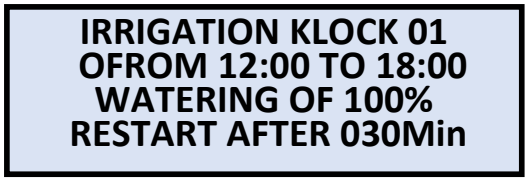
The number of timers is determined in the installation menu and will be displayed sequentially in the user menu. A timer is activated by pressing it and configuring its settings.



A timer can be set as a start timer with a repeat function or as a period timer with a restart function. If the end time is omitted, it functions as a start timer with a repeat function.

If no irrigation timers are active, an external start can initiate a cycle. If a timer is programmed, the external start acts as an additional condition.

For a start timer, if an external stop is active, it can last indefinitely because there is no end time. A time-out can be set in the installation menu under the "external stop" menu.



If an end time is specified, the timer functions as a period timer with a restart function. The restart time begins after the last irrigation of the cycle has finished. An end time can never be earlier than the start time; if it is, the timer is automatically converted to a start timer. By entering an end time later than the start time, it can function again as a period timer.

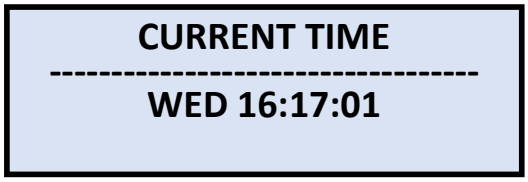
An irrigation timer can be turned off by pressing and holding the knob in its screen until the message shown beside it appears. All settings are retained. By pressing and holding again (about 2 seconds), a timer that was turned off can be reactivated.

10.3. Setting valve times

After all timers, all valves belonging to that zone are displayed in order. In expert mode, the top left indicates which zone you are in. Using the rotate-press knob, you can adjust the irrigation time for each valve.

Depending on the selected water application, the setting will be displayed in minutes, seconds, or liters. When the IRRCO10X is equipped with SM10 modules, direct access can be obtained by selecting the corresponding valve. Adjustments are again made using the rotate-press knob. Confirm changes by pressing the knob or by selecting the next valve on the SM10..

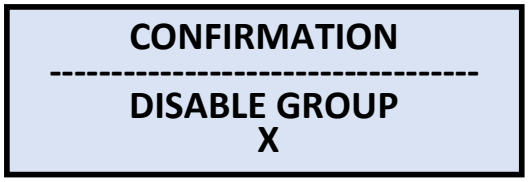
10.4. Setting system time



After all the valves of the zone have been displayed, the time is shown. A short press will prompt whether the time should be changed. By changing the 'X' to a 'V,' you can modify the time. Pressing and holding for about 5 seconds will take you into the installation menu.

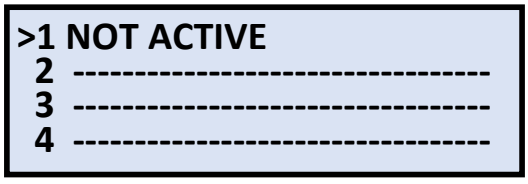
10.5. Completely turning a group/zone off and back on

A group or zone can be completely turned off. From the main screen of the zone, pressing and holding the knob will display the screen shown below.



By changing the 'X' to a 'V,' you confirm the shutdown. All settings are retained, and any ongoing irrigation is stopped.

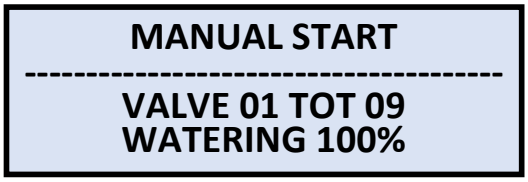
The screen will display the message shown beside it. By pressing and holding the knob again, the group or zone can be reactivated while retaining all settings.



This is also possible from the expert screen. The same procedure can be followed. When pressing and holding while irrigation is active, you will first be asked to stop the irrigation. After that, pressing and holding again will turn off the zone. A short press will take you into the ("inactive") zone as described above.

10.6. Manual start

From the zone menu, you can manually start an irrigation cycle.



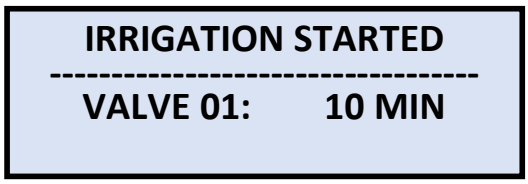
Set the sequence of active valves here. If valve 01 is not active, the sequence will start with valve 02. Then, set the water application percentage from 10% to 400%.

Set the number of times the cycle should be repeated here.

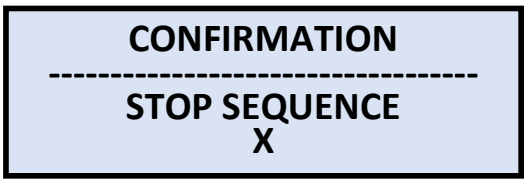
You now have 5 seconds to cancel the irrigation by pressing the knob. If this is not done, the irrigation will start.

10.7. Manually stopping a running cycle or timer

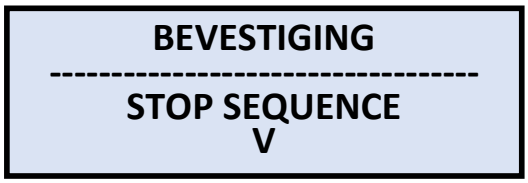
A running irrigation can always be stopped. This cannot be done by power cycling, because the IRRCO interprets this as a power interruption and will resume irrigation once power is restored. You can stop the irrigation or timer as follows:



When you are on the main screen and irrigation is active, the screen will look like the one shown beside it.



If you now press the knob briefly, you will be asked whether you want to stop the cycle or timer. When stopping a cycle, this procedure must be repeated to stop the timer as well.



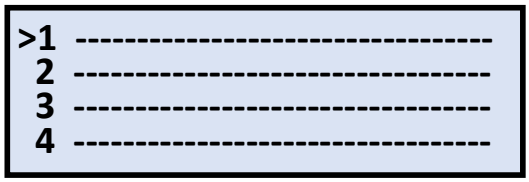
By changing the 'X' to a 'V,' you confirm stopping the cycle/timer. The timer is now stopped, and the system will wait for the next scheduled timer.

Tip: If the timer needs to be reactivated, this can be done by turning the entire zone off and then back on. When reactivated, all conditions are checked again.

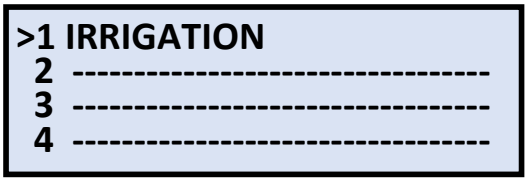
11. User menu expert mode

11.1. Expert main screen

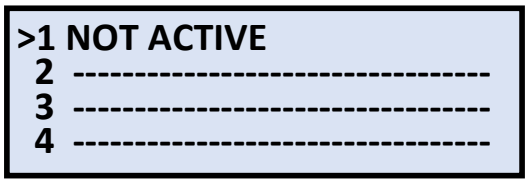
When the IRRCO10X is delivered in the expert version, you have a different main screen. On this screen, the 4 zones or groups are displayed. The inputs and outputs of the IRRCO10X can be distributed across the 4 zones.



The main screen looks as shown at first use. By briefly pressing the specific zone, you enter the settings for that zone. The installation menu and user menu are otherwise identical.



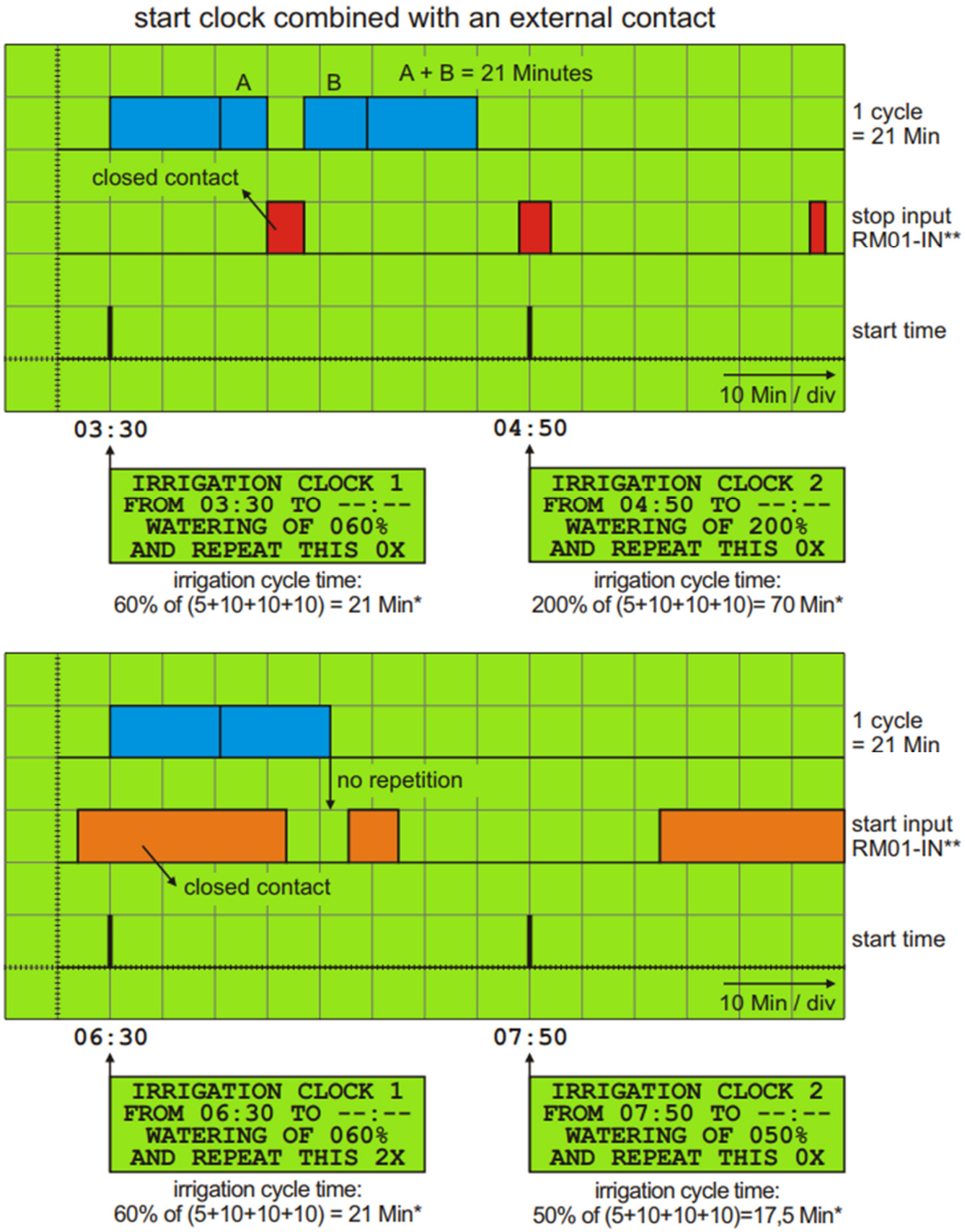
From the expert screen, it is also possible to stop irrigation. The same procedure as in simple mode can be followed.



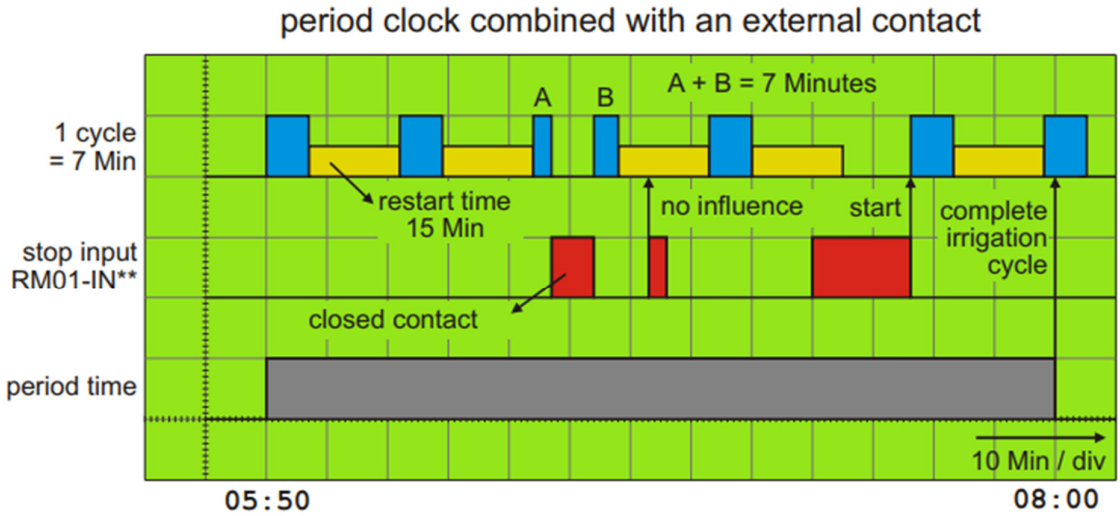
When pressing and holding while irrigation is active, you will first be asked to stop the irrigation. Pressing and holding again will then turn off the zone. A short press will take you into the ("inactive") zone as described above.

12. Timing of start timers & period timers

12.1. Start timer in combination with an external contact



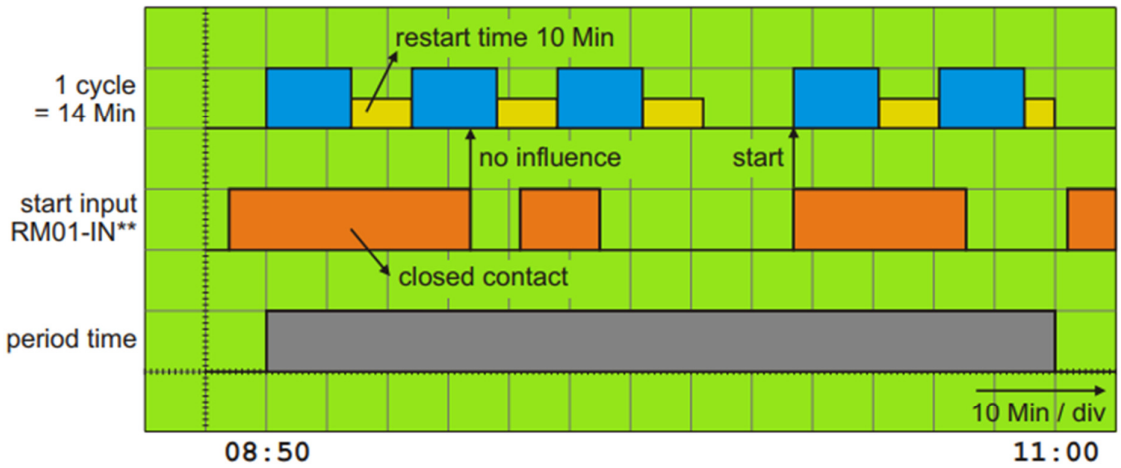
12.2. Period timer in combination with an external contact




```
IRRIGATION CLOCK 1
FROM 05:50 TO 08:00
WATERING OF 020%
RESTART AFTER 015Min
```

irrigation cycle time:
20% of (5+10+10+10) = 7 Min*

* in this example the water delivery of valve 01 to 05 is respectively: 005, not active, 010, 010, 010 Minutes.




```
IRRIGATION CLOCK 1
FROM 08:50 TO 11:00
WATERING OF 040%
RESTART AFTER 010MIN
```

irrigation cycle time:
40% of (5+10+10+10) = 14 Min*

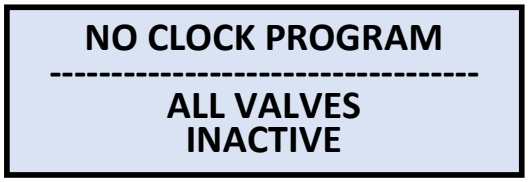
** in this example the start or stop input in the installation menu is linked to RM01-IN. If no start or stop input has been linked in the installation menu, the irrigation clock will follow its configuration without an external interruption.

13. Installation menu

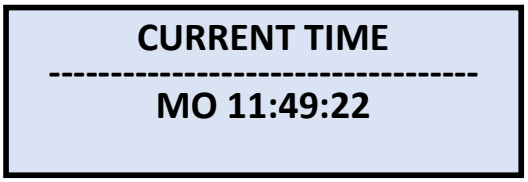
13.1. Introduction

In the installation menu, the configuration can be set according to the desired application. All available inputs and outputs can be assigned. It is advisable to plan this carefully in advance, as described elsewhere.

When the IRRCO10X has started, it is ready in the user menu. To access the installation menu, scroll clockwise until the time is displayed.



Main screen in simple mode. This shows the status.



When you have turned the knob all the way clockwise, you reach the screen shown beside it. **By pressing and holding for about 5 seconds, you enter the installation menu.**

If the knob is pressed briefly, you will be asked whether the system clock should be set. To confirm, change the cross ('X') to a check mark ('V'). If the cross is confirmed or left unchanged, nothing will happen, and the current time will be displayed after a short while.

Warning: When settings are changed, the new settings will be saved automatically after 2 seconds of inactivity. It is therefore important not to disconnect the IRRCO10X immediately after changing settings. The IRRCO10X may occasionally prompt for a full restart after a major configuration change. This is normal and must be carried out before proceeding.

Once in the installation menu, all settings are grouped into submenus. A short press gives access to a submenu. By scrolling left or right, you navigate through the submenu. If you scroll back quickly, you stay within the submenu without returning to the main installation menu. If you scroll back slowly, you will exit the submenu after the first item.

When you have access to the installation menu, you can also scroll through the user menu consecutively—temporarily creating one large menu. After 5 minutes of inactivity, the IRRCO10X will return to the main screen of the user menu and exit the installation menu..

13.2. Valve menu

By briefly pressing and releasing the knob, you enter the submenu for valve settings.

INSTALLATION MENU --------- VALVE MENU ---------- NUMBER OF VALVES: 09	Here, you can select the number of valves for the respective group.
INSTALLATION MENU -------- VALVE MENU --------- CONCURRENT VALVES: 1	Here, you can select the number of valves that are allowed to irrigate simultaneously for this group.
INSTALLATION MENU --------- VALVE MENU --------- WATERING UNIT: MINUTEN	Here, you can select the unit for irrigation: minutes or seconds. If a water meter is defined in the pulse menu, irrigation can also be set in volume.
INSTALLATION MENU --------- VALVE MENU -------- OPEN TIME: 2 SEC	Here, an opening time can be specified. This is the time needed to fully open a valve. The default setting is 2 seconds, with a range of 2 to 10 seconds.
INSTALLATION MENU ---------- VALVE MENU --------- CLOSE TIME: 2 SEC	Here, a closing time can be specified. This is the time needed to fully close a valve. The default setting is 2 seconds, with a range of 2 to 10 seconds.

13.3. Pump menu

INSTALLATION MENU ---------- PUMP MENU PRESS TO DISPLAY	By briefly pressing and releasing the knob, you enter the submenu for pump settings.
INSTALLATION MENU --------- PUMP MENU --------- OUTPUT: RM01.10	Here, you select an output for the pump. **Note: Any free output can be assigned. In expert mode, the pump can be shared.**
INSTALLATION MENU --------- PUMP MENU --------- PRE-RUN: 2 SEC	Here, a pre-run time can be specified. This is the time required for the pump to start and build pressure. The default setting is 2 seconds, with a range of 2 to 10 seconds.

A post-run time can be specified. The default setting is 2 seconds, with a range of 2 to 10 seconds.

13.4. Fertilizer menu

By briefly pressing and releasing the knob, you enter the submenu for fertilizer control settings.

Select an output for the fertilizer.

Note: Any free output can be assigned. In expert mode, the fertilizer can be shared.

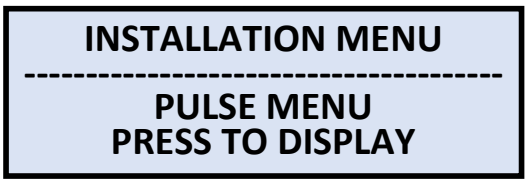
13.5. Alarm menu

By briefly pressing and releasing the knob, you enter the submenu for alarm output settings.

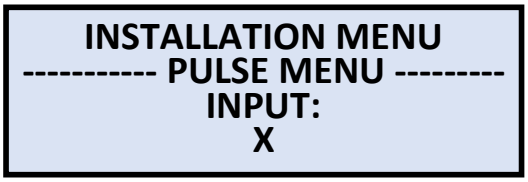
Select an output for the alarm.

Note: Any free output can be assigned. In expert mode, the alarm can be shared.

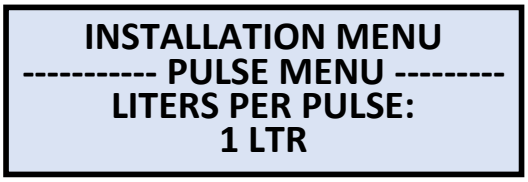
13.6. Pulse menu



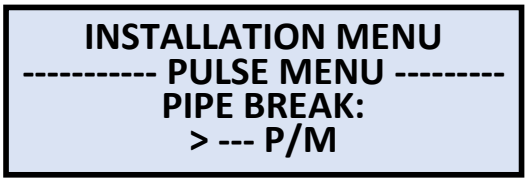
By briefly pressing and releasing the push button, you enter the submenu for configuring a pulse input. This can be used for a liter counter.



Select an input for a pulse counter.
Note: Any available input can be assigned. Inputs can be shared. By default, no input is selected.

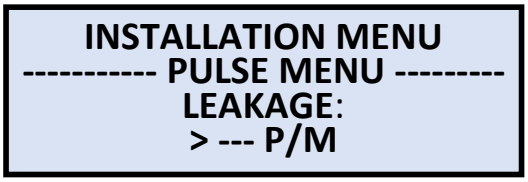


Select how many liters of water correspond to 1 pulse. This depends on the type of water meter.



If the number of pulses exceeds a set maximum within 5 minutes, an alarm will be triggered. This function is only active during irrigation.
'---' = inactive

If the number of pulses does not reach a set minimum within 5 minutes, an alarm will be triggered. This function is only active during irrigation. **'---' = inactive**



If the number of pulses exceeds a set maximum within 5 minutes, an alarm will be triggered. This function is only active when irrigation is not taking place. **'---' = inactive**

13.7. External start menu

By briefly pressing and releasing the push button, you enter the submenu for configuring an external start input.

Here you select an input for the start function.
Note: Any available input can be assigned. By default, no input is assigned. If no outputs are available, they need to be added or freed.

13.8. External stop menu

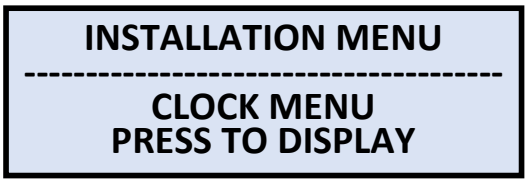
By briefly pressing and releasing the push button, you enter the submenu for configuring an external stop input.

Select an input for the stop function.
Note: Any available input can be assigned. By default, the RM01 input is assigned. If no outputs are available, they need to be added or freed.

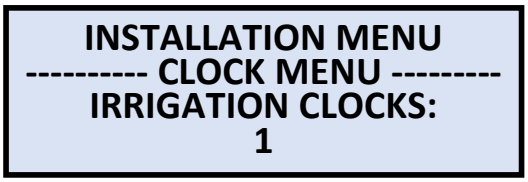
Note: This function only applies to a start timer or manual start.

- X: Remains in pause as long as the input is active
- DIRECT: Switches off immediately when the input is active. The input must remain active for the entire duration of the cycle being interrupted.
- 1, 2, 3, … MIN: Remains in pause while the input is active, but switches off when the set time has elapsed.

13.9. Irrigation Clock menu



By briefly pressing and releasing the push button, you enter the submenu for setting the number of irrigation timers for the selected zone.



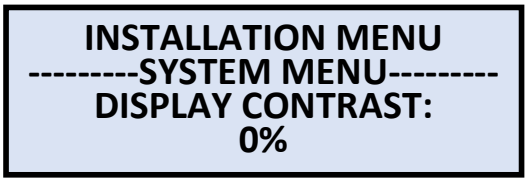
Here you choose the number of irrigation timers.

Select the calendar view. The options are a weekly calendar or an interval calendar.

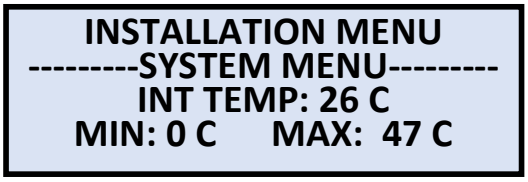
13.10. System menu

In the system menu, you configure the general settings for the IRRCO. By briefly pressing and releasing the push button, you enter the submenu for the settings.

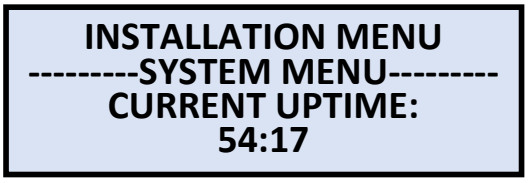
The available languages at this time are: Dutch, English, and German.



The contrast can be adjusted if necessary.



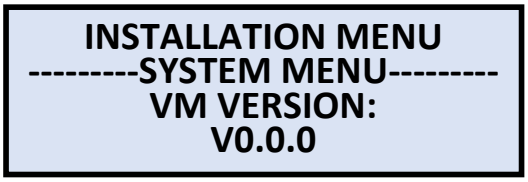
This field shows the minimum and maximum temperatures to which the IRRCO has been exposed internally.



Here you can see the number of hours the IRRCO has been active since the last startup.

Here you can see the total operating hours of the IRRCO10X.

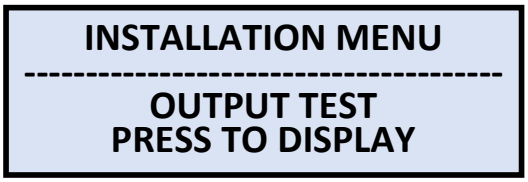
Shows current MPM firmware version



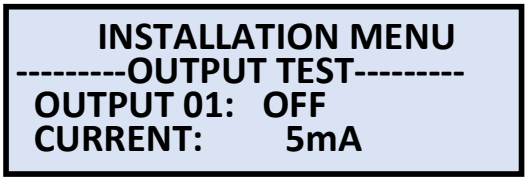
Shows current VM firmware version

Here a full system reset can be performed. Depending on the version, you may also be able to switch between simple and expert mode.

13.11. Output test menu



This menu is specifically for testing the outputs of the IRRCO10X.



In this menu, all outputs can be tested individually. The current can be read in the menu when an output is activated. Using the rotary push button, each output can be activated separately.
Note: The SM10 push buttons now represent all outputs instead of just the valves.

14. SM10 switches

14.1. Introduction

The SM10 switch panel is an optional extension for visually monitoring irrigation processes and quickly adjusting irrigation variables. The switches represent the valves only, not all outputs. Therefore, the pump and other special outputs cannot be controlled via the SM10s. All valves within a zone/group are connected consecutively. The sequence is first all valves of zone/group 1, then 2, and so on.

14.2. SM10 functionality

- With an SM10 switch module, it is still possible to activate or deactivate valves and adjust the water amount via the user menu. It is also possible to control the lower-numbered valves via an SM10 module and the subsequent valves via the user menu.
- The numbers on the front correspond to the valve numbers in the user menu. They do not correspond to the other outputs such as pump, fertilizer, or alarm.
- When a valve is activated via an SM10 module, the water amount for the corresponding valve appears on the display and can be adjusted using the rotary knob without confirmation. Pressing the button is therefore not necessary..
- Copying the water amount works as follows:
  1. When a valve is activated via an SM10, the water amount for the corresponding valve appears on the display. It can be adjusted using the rotary knob.
  2. Now press the button and hold it down.
  3. On the switch panel, consecutively press the buttons to which the water amount should be copied.
- By “swiping” across the switch panel, valves can be quickly activated or deactivated in sequence, or the water amount of consecutive valves can be quickly adjusted.

14.3. SM10 status

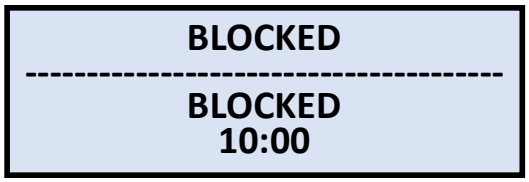
LED off	**The corresponding valve is inactive. Press the button to activate the valve and/or adjust the water amount.**
LED on	**The corresponding valve is active. Press the button to deactivate the valve. The setting will be retained.**
LED is blinking	**The corresponding valve is currently irrigating.**
LED is blinking rapidly	**The corresponding valve has been turned off due to, for example, a short circuit.**
Group of LEDs is blinking rapidly	**The corresponding group has been turned off due to, for example, a pipe break.**
All LEDs are blinking rapidly	**After, for example, a short circuit, all groups wait for the fuse to be restored.**

15. Alarm Messages

15.1. Introduction

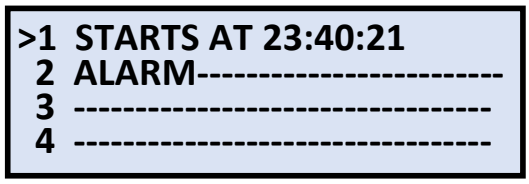
When alarms occur, the IRRCO will notify you via an alarm menu, which only appears when there are active messages. In simple mode, this appears before the main screen; in expert mode, it appears between the main screen and the screen for the specific zone/group. If the alarm is of such a nature

that irrigation for that zone is not possible, the main screen for that zone will display the message “BLOCKED” along with a counter showing how long the situation has persisted.

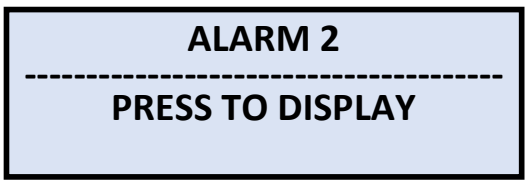


Example: simple mode where a fault has occurred, making irrigation impossible. This fault has lasted for 10 minutes.

If you move one screen to the left, you enter the

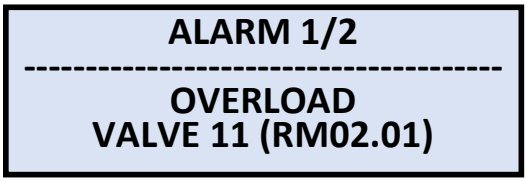


Example: expert mode where group 2 is reporting a fault. By pressing zone 2, you go directly to the alarm menu. If you scroll one more screen, you reach the main menu of the corresponding zone/group. The screen backlight will continue to blink during the alarm after 5 minutes of inactivity to keep drawing attention.

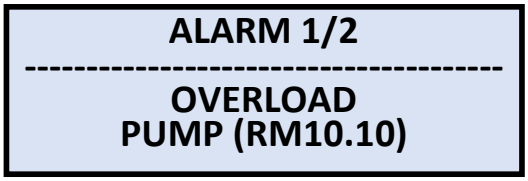


The alarm menu looks like the image on the left. At the top, the number of messages is displayed—in this case, two. By pressing the button, you enter the menu to view the

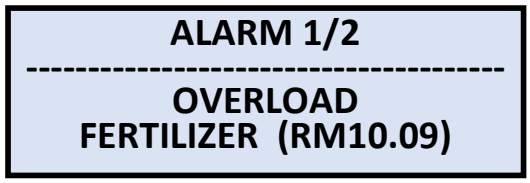
15.2. Types of Alarm Messages



Overload on valve 11. The valve is skipped, and irrigation continues.



Pump overload. Irrigation is not possible for groups using the pump.



Fertilizer output overload. Irrigation is possible for the groups, but without fertilizer.

ALARM #/# **----------** **I/O CONFLICT** **RM01**	An RM10 module is not detected. Irrigation is not possible.
ALARM #/# **----------** **BATTERY EMPTY**	System battery on the MPM is empty (CR2032).
ALARM #/# **----------** **LEAKAGE**	Flow is being measured during a prolonged period of inactivity.
ALARM #/# **----------** **NO SUPPLY** **VALVE 11 (RM02.01)**	No flow is detected for a period of 'x' time. Irrigation continues with the next valve.
ALARM #/# **----------** **PIPE BREAK**	Water meter indicates excessive flow.

16. Possible Problems and Solutions

- IRRCO shows no display ➔ no power supply present?
- No field power ➔ short circuit on outputs?
- All valves blocked ➔ check alarms in alarm menu?
- All valves blocked ➔ if the field voltage was briefly lost, irrigation will attempt to resume/restart after 5 minutes.
- Irrigation not executed ➔ zone/group/timer is turned off?

GEBLOKKEERD **----------** **GEBLOKKEERD** **5:00**	If the field voltage is briefly interrupted due to a voltage dip, this message may also appear. If nothing else is wrong, the IRRCO will resume/restart after approximately 5 minutes.