

# User Manual



# BIC1 Landscape Irrigation Controller

Drip Irrigation | Micro Sprinklers | Sprinklers



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# 1. Introduction

Thank you for purchasing BERMAD's BIC 1 Single Station Battery Operated Irrigation Controller. This manual describes how to get the BIC 1 Controller up and running quickly.

After reading this manual and becoming familiar with the Controller's basic functionality, the user may further use this manual as a reference for the controller's less common tasks and operations.

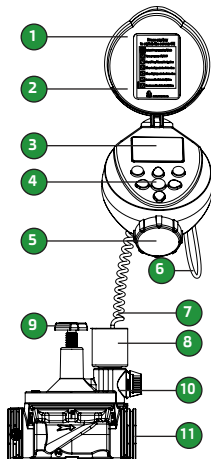
# 2. About BERMAD BIC 1 Controller

The BIC 1 controls a single irrigation station or a single irrigation section and is powered by two AA Alkaline batteries that can last for up to 3 years. The controller includes a rain sensor connection for efficient and economical water usage.

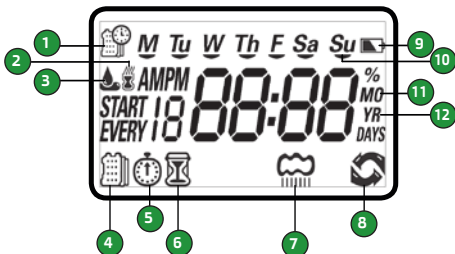
The controller enclosed in a compact, outdoor waterproof housing that protects it from the elements.

# 3. Components Identification

1. Lid
2. Quick reference guide
3. LCD display with icon based functions
4. 7 buttons keypad used for programming, system on/off, manual run and reviewing programs.
5. Batteries compartment cover for two AA alkaline batteries (not included).
6. Rain sensor Yellow wire connection
7. Solenoid connection spiral cable
8. DC solenoid
9. Flow control selector
10. Manual operation valve
11. Irrigation valve



## 4. LCD Display and Keyboard








### LCD Display

- 1. Time and Date Icon** - Indicates current time and day.
- 2. Rain Sensor Icon** - Appears when a rain sensor is active or when the yellow wire loop has been cut and watering is halted.
- 3. Watering Icon** - Appears when valve is open.
- 4. Set Irrigation Days Icon** - Select specific irrigation days, odd/even days, irrigation every X hours, or irrigation in up to every 30 days interval. hours, or up to once every 30 days.
- 5. Start-time Icon** - Set up to 4 start times per day.
- 6. Run-time Icon** - Select irrigation duration from 1 minute up to 5 hours and 59 minutes.
- 7. Rain Delay Icon** - Enables irrigation delay from 1 to 99 days, irrigation resumes automatically.
- 8. Manual Start Icon** - Appears when the manual start button is pressed.
- 9. Battery Level Indicator** - Flashes when the batteries are low and need to be replaced.
- 10. Days of the Week Icons** - The irrigating days of the week are underscored.
- 11. Current Month Icon** - Displays the current month.
- 12. Current Year Icon** - Displays the current year.

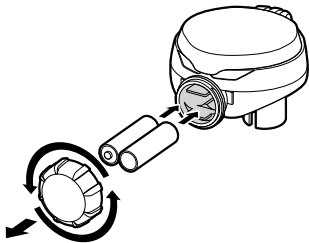
## 4. LCD Display and Keyboard (cont.)

### Keypad control buttons:

-  Select programming mode
-  Turn program(s) ON/OFF
-  Start/stop a manual cycle
-  Move left/right to select a value
-  Raise/lower the selected value

## 5. Installing the Batteries

1. Open the batteries compartment cover by turning it counter-clockwise.
  2. Install two, fresh, brand name, AA alkaline batteries (not included).
- Attention:** note for the proper polarity direction as marked on the bottom underside of the controller's housing
3. Insert and screw the batteries cover clockwise. Tighten the cover firmly with hand force only. The controller display starts with the day, PM, and the hour digit flashing. The controller is ready for programming.







## 6. Programming the Controller

The BIC 1 controller can be programmed for the following irrigation methods:


- Irrigation on selected days of the week
- Irrigation on even days of the week only
- Irrigation on odd days of the week only
- Irrigation cycle set between every hour to every twelve hours interval
- Irrigation in days interval, from once a day to once a thirty days interval.

For every irrigation day the BIC 1 controller can be programmed for up to four start times per day. The duration of irrigation for each such cycle can be programmed from 1 minute up to 5 hours and 59 minutes.

This section describes the programming method and the steps required for setting the irrigation schedules.



To program the controller use the  button for selecting the desired irrigation mode. Use the  button to select the desired value and make it flashing. Use the  &  buttons to change the value.

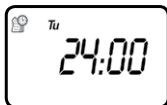
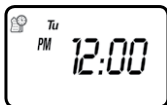
### Remarks:

- Values can be changed only when they are flashing
- If the value stops flashing before you finished to program it, press the  button again and repeat the programming steps.

## 7. Setting Time & Date



The controller displays the time in either a 12 or 24 hour format. Changing the time format is done at the main screen of the controller:

Press the  button for three seconds until the Time/Date icon  switches the time format (the AM/PM label disappears).




### Setting the current Time and Date


In order to ensure proper operation make sure that the controller time and date are matching the actual current time and date.


1. Press the  button until the Time/Date Icon  appears along with the current controller's time and day of the week values.

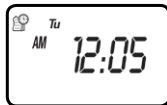


2. If the displayed time is not correct press the  button until the time digits start flashing.

3. Use the  &  buttons to update the time.  
Please note the AM/PM labels.

4. In order to set the correct minutes press again the  button until the minutes digits start flashing.

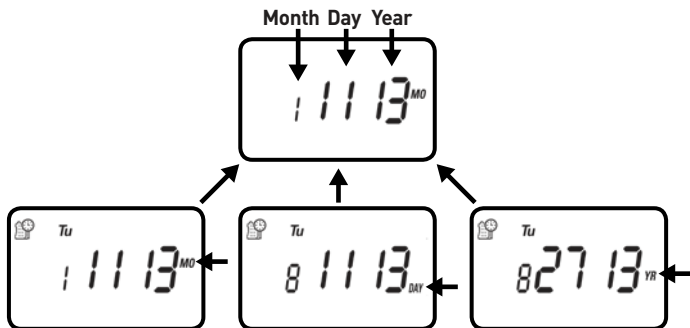
Use the  &  buttons to update the minutes.






5. Repeat the same steps and update the Date.

Please note that the date format is American; Month, then Day and finally the Year. The day of the week is automatically set according to the date set.

## 7. Setting Time & Date



Press the  button for programming the irrigation days ( icon) or for checking the existing irrigation programs.

Use the  button to return to the previous programming steps.



## 8. Setting Irrigation Days Schedule



### Method 1 - irrigating on specific days of the week:

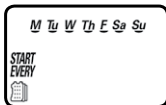
The next list of steps describes the method of selecting the days of the week for irrigation.









Choose either irrigating on specific days of the week, EVEN/ODD days or cyclical from daily up to once every 30 days.

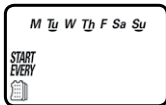
The controller's default setting is to irrigate on every day of the week.



**Example:** Irrigating every Tuesday, Thursday and Sunday:

1. Press the  button until the  icon and the days of the week appear.



2. Press the  button until the letter M (Monday) starts flashing.
3. Press the  button until the underscore under the M letter disappears. This action excludes Monday from the irrigation days.
4. Press the  button twice until the letter W (Wednesday) starts flashing.
5. Press the  button until the underscore under the W letter disappears. This action excludes Wednesday from the irrigation days.
6. Press the  button twice until the letter F (Friday) starts flashing.
7. Press the  button until the underscore under the F letter disappears. This action excludes Friday from the irrigation days.
8. Press the  button twice until the letters Sa (Saturday) start flashing.
9. Press the  button until the underscore under the Sa letters disappear. This action excludes Saturday from the irrigation days.








10. Press the  button for setting the start hours (the  icon) or for checking the existing irrigation programs.

## 8. Setting Irrigation Days Schedule


### Method 2 - irrigating on even or odd days of the week only:

The next list of steps describes the method of selecting the even or odd days of the week irrigation.



**Example:** irrigating only on the odd days of the week:

1. Press the  button until the  icon and the days of the week appear.
2. Use the  and the  buttons to exclude all the days of the week from the irrigation program.
3. Press the  button until the word EVEN appears flashing.



4. Press the  button until the word ODD appears flashing.










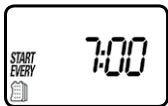
5. Press the  button for setting the start hours (the  icon) or for checking the existing irrigation programs.



## 8. Setting Irrigation Days Schedule

### Method 3 - irrigating every X hours:

Example: irrigating every 7 hours:

1. Press the  button until the  icon and the days of the week appear.
2. Use the  and the  buttons to exclude all the days of the week from the irrigation program.
3. Press the  button until the word ODD appears flashing.
4. Press the  button again until the digits 1:00 appear flashing.
5. Press the  button several times until the digits 7:00 appear.











Press the  button for setting the start hours (the  icon) or for checking the existing irrigation programs.

## 8. Setting Irrigation Days Schedule






### Method 4 - irrigating every X days:

Example: irrigating every 10 days:

1. Press the  button until the  icon and the days of the week appear.
  2. Use the  and the  buttons to exclude all the days of the week from the irrigation program.
  3. Press the  button until the word EVEN appears flashing.
  4. Press the  button again until the digits 1:00 appear flashing
  5. Press the  button again until the digit 1 day appears flashing
- Pres the  button several times until the digits 10 days appear.





### How to return to irrigation according to specified days of the week:

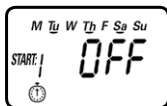
1. Press the  button until the words START EVERY and the  icon appear on the lower left corner of the screen.
2. Press the  button until the days of the week appear on the upper part of the screen.
3. Press the  button for setting the start hours (the  icon) or for checking the existing irrigation programs.







## 9. Setting Irrigation Start Hours

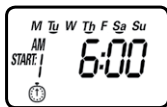
The BIC 1 controller can be programmed for up to 4 start times per each irrigation day.


(Remark: When the controller is programmed to start irrigation every X hours only one start time per day can be programmed)

1. Press the  button until the  icon appears.  
The value START 1 (the first start time) displays the value OFF or the value of the last programmed start time.



2. Press the  button until the value OFF (or the previous programmed value) starts flashing.
3. Use the  and the  buttons for setting the hour for the first start time. Please note the AM/PM label.
4. Press the  button until the minutes value starts flashing.
5. Use the  and the  buttons for setting the minutes for the first start time.



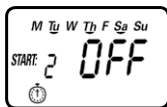
6. Press the  button again. The value START 2 (the second start time) displays the value OFF or the value of the last programmed start time.






Repeat the above mentioned steps to set (if required) the second, third and fourth start times for the irrigation day.

During programming, if the irrigation is according to the days of the week, the irrigation days are displayed underscored.

## 9. Setting Irrigation Start Hours

For canceling a start time:



1. Press the  button until START 1 appears.
2. Press the  button until the start hour to be canceled appears.
3. Press the  button until the word OFF appears.
4. Press the  button for moving to the irrigation duration () programming or for checking the existing irrigation programs.



## 10. Setting Irrigation Duration

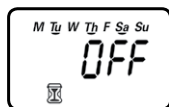
The next list of steps describes the method of setting the duration (length of time) of irrigation once the controller opens the irrigation valve. The BIC 1 controller allows the valve to remain open from 1 minute up to 5 hours and 59 minutes.

For example, setting the irrigation time to 10 minutes for irrigation on certain days of the week, will turn-on the water for 10 minutes on each of the selected irrigation days and at every programmed start time.


Remark: if the controller is set to irrigate every X hours, the maximum irrigation duration is 59 minutes.

For setting the Irrigation duration: 

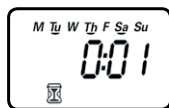
1. Press the  button until the icon  appears.






The irrigation duration value displays OFF or the previously programmed duration of irrigation. Please note that the word OFF appears when the duration of irrigation is set to zero.

2. Press the  button until the value 0:00 (or the previously programmed value) starts flashing.

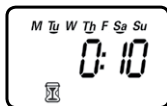
3. Use the  and the  buttons for setting the hour for the irrigation duration.





4. If the required irrigation duration is less than an hour press the  button in order to move to the minutes digits that start flashing.
5. Use the  and the  buttons for setting the minutes for the irrigation duration.

During programming, if the irrigation is according to the days of the week, the irrigation days are displayed underscored.

## 10. Setting Irrigation Duration



Press the  button for programming the rain delay (the  icon).

At this point the controller's programming is completed.

Exit the programming mode In order to monitor the existing irrigation programs.










## 11. Setting Optional Rain Delay

This option is used to suspend the irrigation programs for a predefined number of days when a signal is received from the rain sensor.

For example, during rainy weather regularly scheduled programs can be suspended for duration of 1-99 days. At the end of the designated period, regularly scheduled programming resume operation automatically.


To set a rain delay:

1. Press the  button until the  icon and the word OFF appear.
2. Press the  button until the value OFF starts flashing.
3. Use the  and the  buttons for setting the maximal rain suspension days between 1 to 99 days.
4. The rain suspension of the program can be cancelled at any time by re-entering the Rain Delay screen and changing the setting to OFF.  
(Press  or  until the word OFF appears.)








Remark:

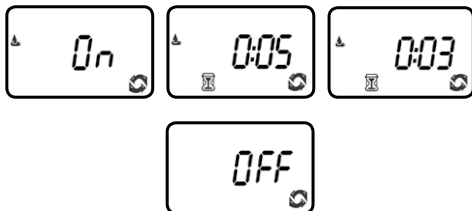
The word OFF appears between the 99 and the 1 values.


Exit the programming mode by pressing the  button in order to monitor the existing irrigation programs.

## 12. Manual Irrigation

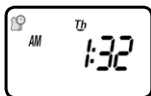
1. Press the  button until the icons  and  appear.  
The value ON appears for short time and afterwards the controller displays the duration of the previous irrigation by the  and  icons.

The controller opens the valve and within 5 seconds starts to display the time left till the end of the current irrigation (time left till the closing of the valve).

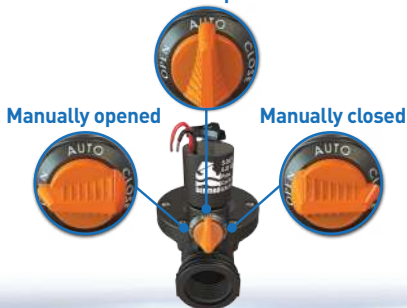


2. Press the  button in order to stop the manual irrigation.
3. After 5 seconds the controller resumes displaying the current time and date.

The user may also operate the irrigation valve manually as depicted in this figure.




Automatic operation




## 13. Rain Gauge Connections

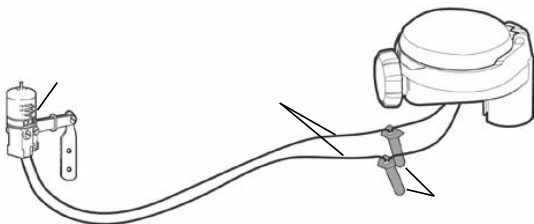
Most “normally closed” rain sensors can be connected to the BIC 1 Controller. The function of the sensor is to suspend automatic irrigation during rainfall.

To connect the sensor to the controller, please follow these steps:

1. Cut in the middle the yellow wire loop that hangs out of the controller's housing lower side.
2. Strip approximately ½” of the insulation from the ends of the cut yellow wire.
3. Connect the two yellow wires to the wires of the rain sensor. Use waterproof wire connectors to secure the connections.
4. When the sensor is active and automatic irrigation is suspended, the  icon appears on the screen.



Remark: the  icon appears when the sensor is active or when the yellow wire loop is cut opened.



### Attention:

The rain sensor is not part of this product and it is not supplied with it.

## 14. Replacing the Batteries

The BIC 1 controller's batteries can last up to 3 years when using good quality AA alkaline batteries.

Actual battery life depends on the batteries sensitivity to temperature variations the controller is exposed to, and to the number of valve operations per day.




To ensure proper operation, it is recommended to regularly check the BIC 1 batteries and replace them once the low battery indication starts flashing.

In order not to reset the time and date settings the BIC 1 controller is designed to retain the current time settings for up to 60 seconds with the batteries removed.

To change the batteries, see section 5.

## 15. Maintenance, Troubleshooting and Repairs

To reset the controller to its factory default settings:

1. Press the  button until the icon  appears and the words START EVERY appear on the lower left corner of the screen.
2. Press and hold the  button for 3 seconds.
3. The controller returns to the main screen (Time and Date screen) and all values return to their default settings. The current Time and Date settings remain.

### Symptom: The valve fails to open automatically or manually.

**Possible cause** - low water pressure

**Solution** - open the water supply line

**Possible cause** - the manual throttling valve is closed

**Solution** - turn the flow control knob counterclockwise to open

### Symptom: the valve operates manually but not automatically.

**Possible cause** - The controller is in OFF mode

**Solution** - make sure that the word OFF is not displayed instead of the current Time and Date

**Possible cause** - The AM/PM setting is not set correctly

**Solution** - check the start time and if needed change the AM/PM setting

**Possible cause** - the rain sensor is suspending the irrigation

**Solution** - set the rain sensor to OFF mode

**Possible cause** - the yellow wire is cut

**Solution** - reconnect the yellow wire with water proof connectors.

**Possible cause** - The rain sensor is connected and suspends the irrigation

**Solution** - check the rain sensor and its connections. Make sure it is of NC (Normally closed) type.

### Symptom: the screen is blank

**Possible cause** - no key was pressed during the last 15 minutes

**Solution** - press any key on the keypad

## 15. Maintenance, Troubleshooting and Repairs

### Symptom: the controller fails to close the valve

**Possible cause** - the solenoid is loose

**Solution** - tighten the solenoid by hand, turning it clockwise

**Possible cause** - the valve is installed backwards

**Solution** - Check the flow arrow and verify that the arrow points in the flow direction – reverse the valve installation if necessary

**Possible cause** - the solenoid is clogged

**Solution** - close the water supply, unscrew and remove the solenoid clean and reinstall it.

**Possible cause** - the system flow-rate is too low (drip irrigation system)

**Solution** - increase the flow-rate by adding more water emitters.

**Possible cause** - the drip irrigation flow rate is below the minimal required flow-rate.

**Solution** -slightly close the throttling valve and recheck the system.

### Symptom: the rain sensor dose not suspend the irrigation

**Possible cause** - the sensor is of NO (Normally Open) type, the sensor is faulty or incorrectly wired.

**Solution** - make sure that the Rain Icon appears on screen when the sensor is manually set to rain detection mode. Check the sensor connections

### Symptom: the controller irrigates more that once a day

**Possible cause** - the controller is programmed for more than one start time per day

**Solution** - set the 2, 3 and 4 start times settings to OFF

## BERMAD Standard International Warranty

BERMAD manufactured products are guaranteed to be free from defect in material and/or workmanship and to perform as advertised when properly installed, used and maintained in accordance with current instructions, written or verbal.

Should any item prove defective within the period set forth for that item, but in any case not later than within 12 (twelve) months from the time that product left BERMAD's premises, and shall be received by BERMAD or its authorized representative, or written notice thereof from the purchaser within 30 days of discovery of such failure – BERMAD will repair or replace any item proven defective in workmanship or material, or will refund the purchase price, at its sole option.

BERMAD will not be responsible for, nor does this warranty extend to, any consequential or incidental damages or expenses of any kind or nature, of any kind, regardless of the nature thereof, including without limitation injury to persons or property, loss of use of the products, loss of goodwill, loss of profits, or any other contingent liabilities of any kind or character alleged to be the cause of loss or damage to the purchaser.

This warranty does not cover damage or failure caused by misuse, abuse or negligence, nor shall it apply to our products upon which repairs or alternations have been made by other than an authorized BERMAD representative.

This warranty does not extend to components, parts or raw materials used by BERMAD but manufactured by others, which shall be covered only to the extent warranted by the manufacturer's warranty.

There are no warranties, express or implied, except this warranty, which is given in lieu of any other warranties, express or implied, including any implied warranty of fitness for a particular purpose.



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