TORO®

Count on it.

- 1, 2, 4 & 6-Station Models
- Uses Two 9-Volt Batteries (Not Included)
- Operates DC Latching Solenoids
- Sensor Compatible
- Non-Volatile Memory
- Operate Valves Up to 200ft (61m) When Using #18 AWG
- Integrated Infrared Interface (With Optional Integrated Radio Interface)
- Waterproof (IP68 Rated)
- RoHS Compliant

TBC™WP Controller

User's Guide & Installation Instructions

English | Español | Français

Specifications

Mechanical

Cabinet: Waterproof (IP 68 Rated 2m), UV Resistant

Operating Temperature: 14ºF to 120ºF (-10ºC to 50ºC)

Storage Temperature: -22ºF to 149ºF (-30ºC to 65ºC) (Excluding Battery)

Electrical

TBC™WP Input Power: 9-volt DC (Up to two 9V Alkaline Batteries; Not Supplied)

Maximum Wire Length per Station Terminal Output:

AWG #18 (1.0mm^2) Multi-Strand Wire – 200ft (61m)

AWG #16 (1.5mm^2) Multi-Strand Wire – 305ft (100m)

AWG #14 (2.5mm^2) Multi-Strand Wire – 500ft (150m)

AWG #12 (4.0mm^2) Multi-Strand Wire – 820ft (250m)

TBC™WP Station Output Power: Operates one DC Latching Solenoid per Station.

CE

Technical Support Information

- U.S./Canada:
  Phone: 1-877-345-TORO (8676) (7:30 am–4 pm, M–F, PT)
  E-mail: irrigation.support@toro.com
- Europe:
  Contact your local Toro distributor
  E-mail: intlirrigation.support@toro.com
- Australia:
  Phone: 1300-130-898
  E-mail: intlirrigation.support@toro.com

Introduction

The Toro Battery Controller - Waterproof (TBC™WP) controller is the most versatile battery operated controller in the market today. The TBC™WP controller is equipped with an infrared interface with an optional radio interface for communication. The controller's enclosure design is weather and vandal resistant. The TBC™WP controller is perfect for installations where AC power sources are not available.

The TBC™WP controllers are available in one, two, four or six-station models.

The TBC™WP controllers feature:

- Four independent programs (A, B, C & D)
- 10 start times per program
- One minute to 12 hours of irrigation run time per station
- Day of the week, 31-day interval, Odd and Even watering schedules with day exclusions
- 0–300% monthly water budgeting in 10% increments
- Manual, semi-auto or auto activation
- Optional dual-communication function; radio & IR models available
- Programmed with Toro TBC™HH Programmer and other non-Toro hand-held programmers
- Power capacitor can retain the current time during battery replacement for up to one minute. Programs are stored in flash memory which is unaffected by power loss
- Designed to connect to a normally-closed sensor (i.e. Toro RainSensor™).
- Fully compatible with Toro and most competitor's DC latching solenoids
- Station short circuit detection with use of Toro TBC™HH Programmer
- Unique power feature confirms there is sufficient battery power to turn off all stations

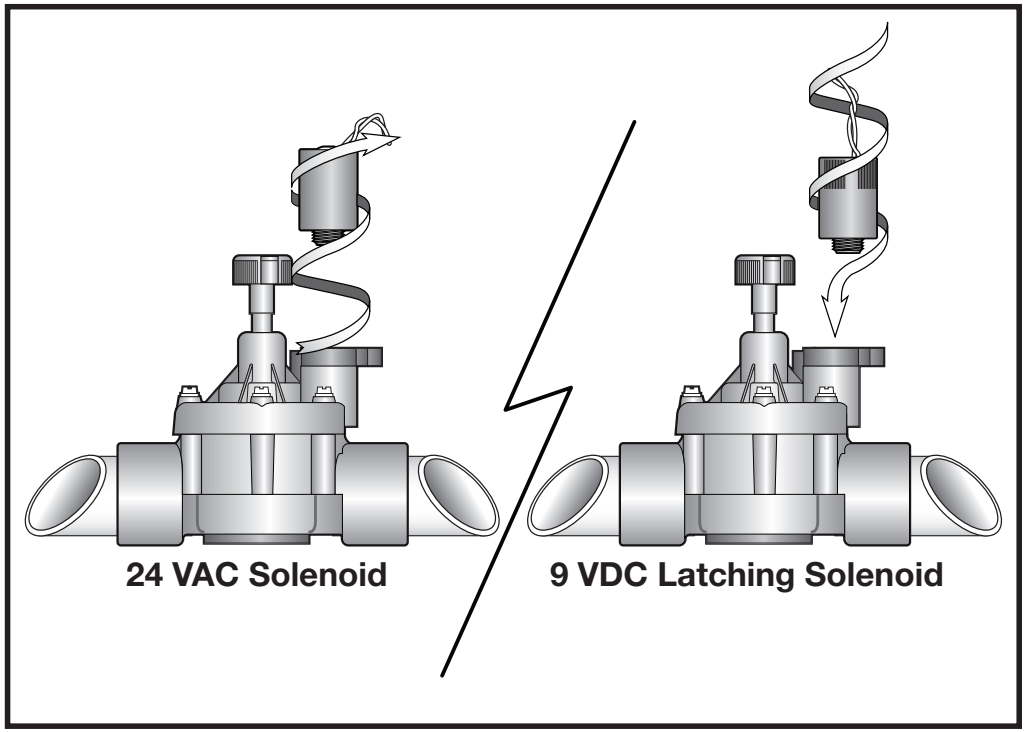
To replace AC solenoids with DC Latching solenoids

Step 1 – Locate and shut off the water supply that services the irrigation system.

Step 2 – Disconnect the wiring from the existing solenoid and unscrew it from the valve.

Step 3 – Install the DC Latching solenoid onto the valve.

Step 4 – Strip approximately 1/2" (1.25 cm) of the insulation from the DC Latching solenoid's wires.



Step 5 – Refer to "**Connecting The Valve**" section on page 5 for wiring instruction and diagram.

NOTE: The use of Toro DC latching solenoids is recommended.

Connecting the Valve

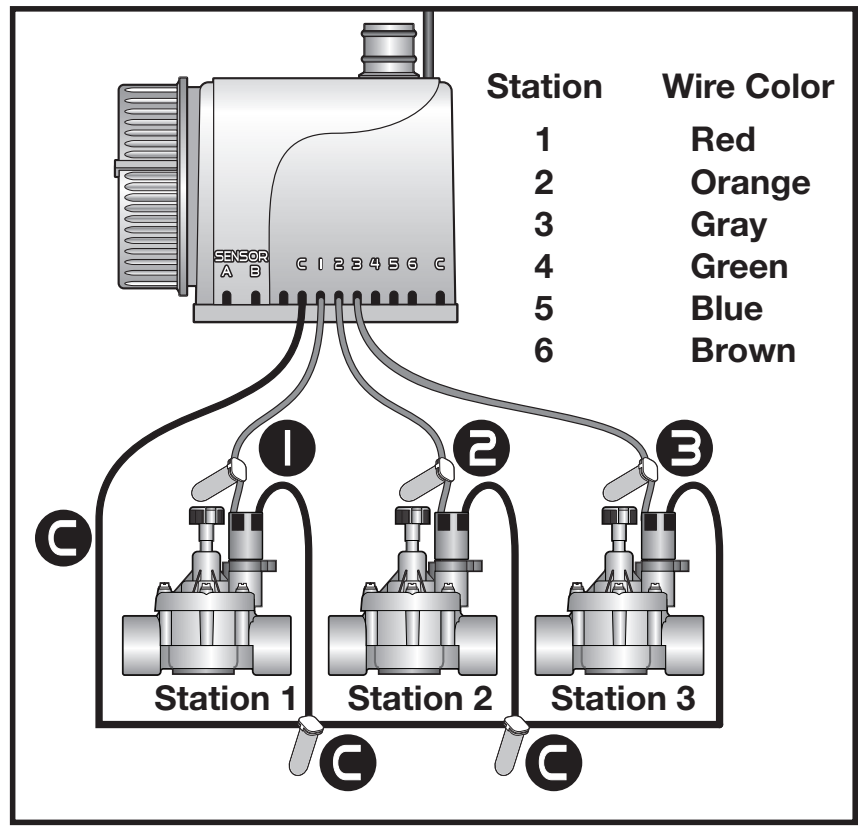
The TBC™WP controller can only operate valves equipped with a DC Latching solenoid. Verify that the device being controlled is equipped with the proper solenoid.

Connecting the Valves

Step 1 – If connecting more than one valve, determine the station designation for each valve. For programming purposes, note the zone that each valve/station will service.

Step 2 – Connect the TBC™WP controller's station 1 wire to the positive (red) wire lead from Station 1 solenoid. Connect the TBC™WP controller's C (common) wire (black) to the negative (black) solenoid wire. Connect the remaining Station wires (colored) to their respected soleoid wires in the same manner.

NOTE: Use water sealed/ proof wire connectors (not supplied) for this application.



Step 3 – Check the valve(s) and controller for proper operation. (Refer to TBC™HH User's Guide for operation.)

Connecting the Rain Sensor

The TBC™WP sensor is designed for a normally closed sensor.

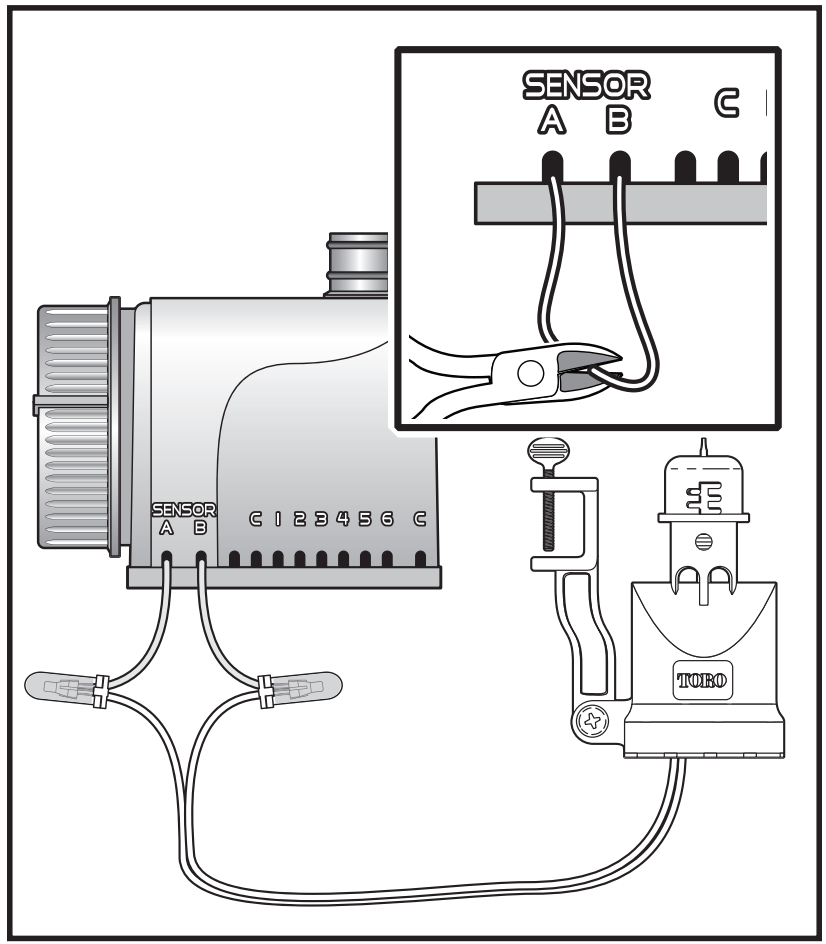
The following example will illustrate how to connect a wired Toro RainSensor™ to the controller. Other normally closed sensors can be installed to the controller as well, such as moisture, rain, etc.

Step 1 – Route wires from the rain sensor to the TBC™WP controller.

Step 2 – Cut the wire loop (yellow) from TBC™WP controller's Sensor A and B. Strip approximately 1/2" (1.25 cm) of insulation from the wires and connect them to the rain sensor wires. Wire polarity is not observed in this application.

NOTE: Use water sealed/proof wire connectors (not supplied) for this application.

IMPORTANT: If a rain sensor is not installed, the TBC™WP controller's Sensor A and B wires must be connected together. Otherwise, the controller will assume that rain is being detected and it will prevent programs from activating.



Battery Installation

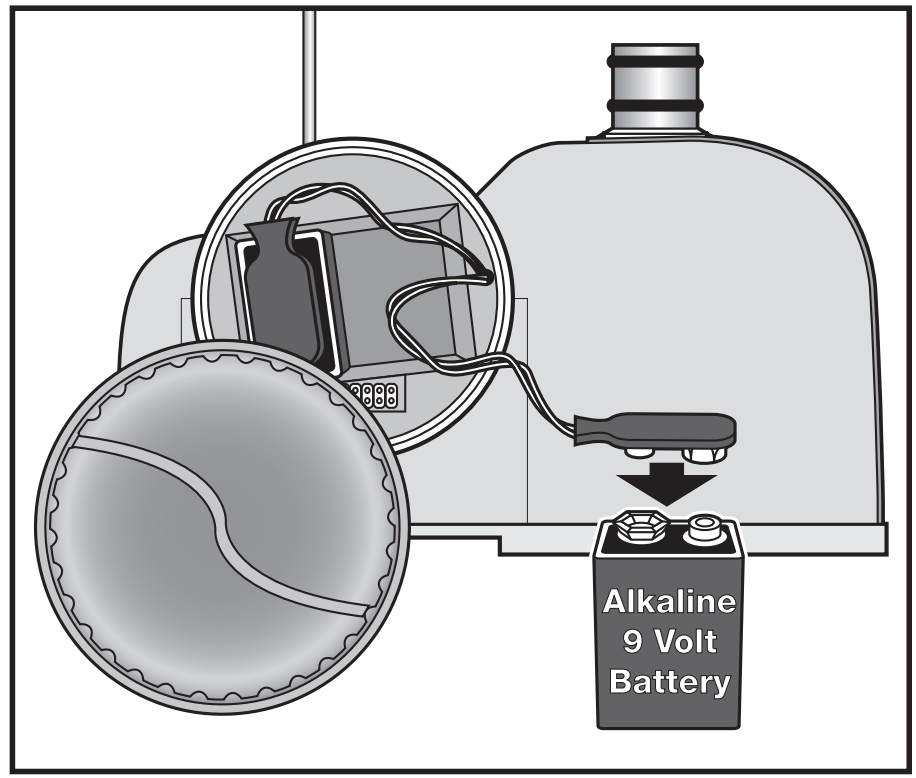
The TBC™WP controller is powered by two 9 VDC alkaline batteries (not supplied). The use of two high-quality alkaline batteries is recommended to maximize performance. Fresh high quality batteries will provide sufficient power to last an entire irrigation season.

Step 1 – Unscrew the battery cap to access the battery compartment.

Step 2 – Install two 9 VDC alkaline batteries onto the two battery connectors located inside the compartment.

⚠ **IMPORTANT:** Make sure no water is present in the battery compartment.

Step 3 – Position the batteries inside the compartment and replace the cover.



NOTE: **Hand-tighten the battery cap only. Do not over tighten.** The cap is equipped with a gasket and an O-ring to provide a waterproof seal. Over tightening the cap might damage these seals.

Installing the TBC™WP Controller Module

Install the TBC™WP controller next to the valve(s), inside a valve box.

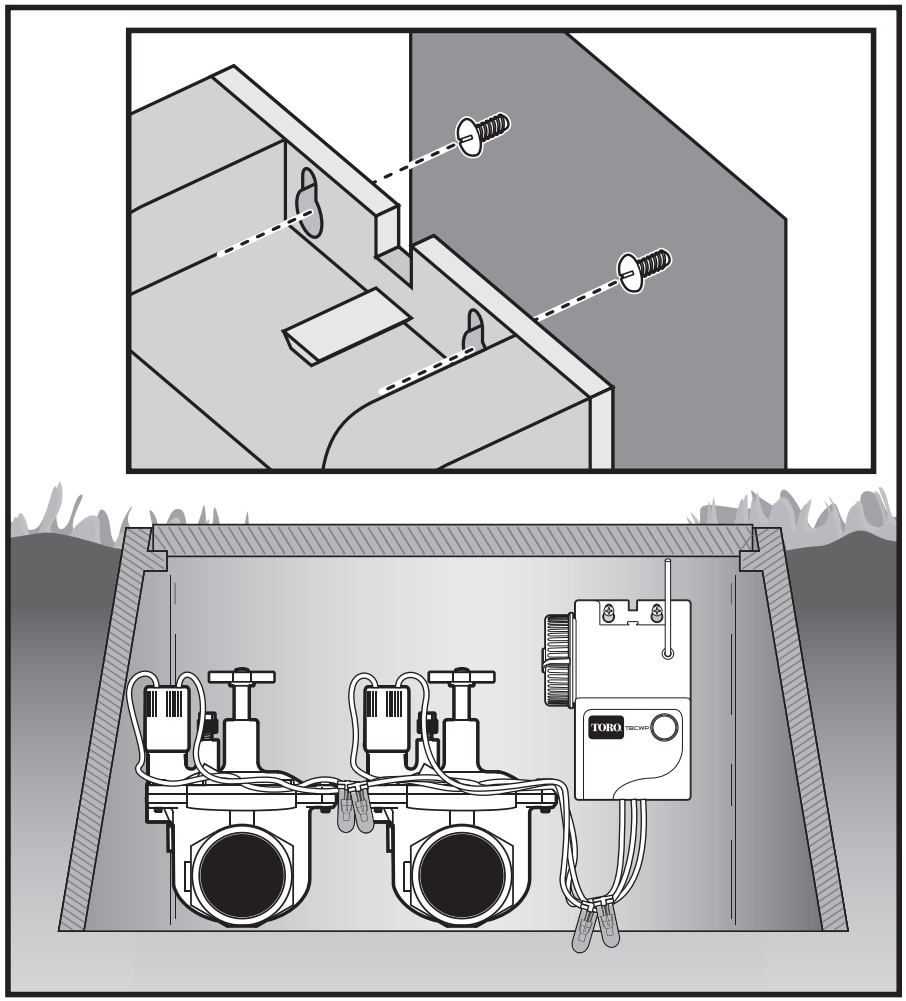
Step 1 – Position the TBC™WP controller inside the valve box. Select a position such that the battery compartment and the IR port can be easily accessed. Mark the screw hole position on the valve box.

Step 2 – Secure the two mounting screws on the marked location. Leave approximately 1/4" (6mm) of the exposed screw.

Step 3 – Hang the controller onto the screws. Verify that the screws are seated properly at the top of the keyhole slot.

Step 4 – Tighten the screws to secure the controller.

⚠ **IMPORTANT:** For controller with integrated radio interface, position the antenna upright for optimum performance.



Step 5 – Write the hand-held and controller module numbers on the provided label. See TBC™HH manual for details.

Troubleshooting Guide

The following problem samples are listed to help you troubleshoot your TBC™WP controller in case you encounter performance issues.

Many of the problems involving the TBC™WP controller are commonly associated with transmission/reception. These are usually caused by low battery power or improper battery connection. Other causes can also be improper wire connections or a dirty IR connector.

Problem:	**Faulty Transmission**
Possible Cause:	Low battery power
Solution:	Replace the batteries
Possible Cause:	Improper battery connection
Solution:	Verify that the batteries are connected properly
Possible Cause:	The TBC™WP controller IR port is dirty
Solution:	Clean the TBC™WP IR port
Possible Cause:	Improper connection between hand held and controller
Solution:	Reconnect the IR port and verify that connection is secure
Possible Cause:	The TBC™WP microprocessor did not properly reset
Solution:	Reset the controller by removing the batteries from the controller. Ground both battery lead terminals for 1-minute. Reinstall the batteries.
Possible Cause:	If using the integrated radio, the controller and hand held identification codes do not match.
Solution:	Reset the controller by removing the batteries from the controller. Ground both battery lead terminals for 1-minute. Follow the controller setup in the TBC™HH User's Guide.

Problem:	**Station Fails to Start**
Possible Cause:	No programmed station run time.
Solution:	Modify program to include station run time.
Possible Cause:	The On-Off mode is activated.
Solution:	Enable irrigation by deactivating On-Off mode.
Possible Cause:	Low battery power.
Solution:	Replace the batteries.
Possible Cause:	Improper wire connection.
Solution:	Verify the wire connections. If necessary, redo the splices and connectors.
Possible Cause:	TBC™WP sensor input is active.
Solution:	If a rain sensor is not installed, verify that Sensor A & B wires are connected together. If a sensor is installed, verify proper operation of that sensor.
Possible Cause:	Short circuit in the solenoid or the wiring to the solenoid.
Solution:	Verify with TBC™WP Programmer that a short was detected on the station. If a short is detected, replace the solenoid and/or wiring to the solenoid.
Possible Cause:	Improper solenoid operation.
Solution:	Repair or replace solenoid.

Problem:	**Station stops when it should start or vice versa**
Possible Cause:	Station wires are reversed.
Solution:	Verify that the DC Latching solenoid's colored wire is connected to the TBC™WP station wire. Verify that the black solenoid wire is connected to the TBC™WP common (C) terminal.
Possible Cause:	Solenoid is out of phase with the controller.
Solution:	Reset the controller. During the start-up, the controller will synchronize with the solenoid.

Limited Three-Year Warranty

The Toro Company and its affiliate, Toro Warranty Company, pursuant to an agreement between them, jointly warrants, to the owner, against defects in material and workmanship for a period of three years from the date of purchase.

Neither The Toro Company nor Toro Warranty Company is liable for failure of products not manufactured by them even though such products may be sold or used in conjunction with Toro products.

During such warranty period, we will repair or replace, at our option, any part found to be defective.

Return the defective part to the place of purchase.

Our liability is limited solely to the replacement or repair of defective parts. There are no other express warranties.

This warranty does not apply where equipment is used, or installation is performed, in any manner contrary to Toro's specifications and instructions, nor where equipment is altered or modified.

Neither The Toro Company nor Toro Warranty Company is liable for indirect, incidental or consequential damages in connection with the use of equipment, including but not limited to: vegetation loss, the cost of substitute equipment or services required during periods of malfunction or resulting non-use, property damage or personal injury resulting from installer's negligence.

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

All implied warranties, including those of merchantability and fitness for use, are limited to the duration of this express warranty.

Some states do not allow limitations of how long an implied warranty lasts, so the above limitation may not apply to you.This warranty gives you specific legal rights and you may have other rights which vary from state to state.

FCC Compliance Information

This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a FCC Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient the receiving antenna.
- Relocate the irrigation controller with respect to the receiver.
- Move the irrigation controller away from the receiver.
- Plug the irrigation controller into a different outlet so that the irrigation controller and receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful: "How to Identify and Resolve Radio/TV Interference Problems." This booklet is available from the U.S. Government Printing Office, Washington, DC 20402. Stock No. 004-000-00345-4.

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