# NODE-BT Irrigation Controller Product Specification

**Part 1 – General**

* 1. The controller shall be a full-featured residential/commercial product for the purpose of irrigation operation, management, and monitoring of control valves and sensors. The controller shall be of a fixed design that is provided in a one-, two-, or four-station model.

**Part 2 – Controller Enclosures**

* 1. The controller shall be available in the following options:

1. Single-station, no solenoid
2. The controller shall be Hunter Industries model NODE-BT-100-LS.
3. The preassembled controller shall have a height of 3¼" (8 cm) and a diameter of 3½" (9 cm).
4. The controller shall be furnished in an outdoor, weather-resistant enclosure.
5. The controller shall provide one station.
6. The enclosure shall be IP68 rated.
7. Single-station with DC-latching solenoid
8. The controller shall be Hunter Industries model NODE-BT-100.
9. The preassembled controller shall have a height of 3¼" (8 cm) and a diameter of 3½" (9 cm).
10. The controller shall be furnished in an outdoor, weather-resistant enclosure.
11. The controller shall provide one station.
12. The enclosure shall be IP68 rated.
13. The controller shall use a DC-latching solenoid.
14. Two-station
15. The controller shall be Hunter Industries model NODE-BT-200.
16. The preassembled controller shall have a height of 3¼" (8 cm) and a diameter of 3½" (9 cm).
17. The controller shall be furnished in an outdoor, weather-resistant enclosure.
18. The controller shall provide two stations.
19. The enclosure shall be IP68 rated.
20. The controller shall use a DC-latching solenoid.
21. Four-station
22. The controller shall be Hunter Industries model NODE-BT-400.
23. The preassembled controller shall have a height of 3¼" (8 cm) and a diameter of 3½" (9 cm).
24. The controller shall be furnished in an outdoor, weather-resistant enclosure.
25. The controller shall provide four stations.
26. The enclosure shall be IP68 rated.
27. The controller shall use a DC-latching solenoid.
28. Single-station with PGV-101G NPT Valve and DC-latching solenoid
29. The controller shall be Hunter Industries model NODE-BT-100-VALVE.
30. The preassembled controller shall have a height of 3¼" (8 cm) and a diameter of 3½" (9 cm).
31. The controller shall be furnished in an outdoor, weather-resistant enclosure.
32. The controller shall provide one station.
33. The enclosure shall be IP68 rated.
34. Single-station with PGV-101G-B BSP Valve and DC-latching solenoid
35. The controller shall be Hunter Industries model NODE-BT-100-VALVE-B.
36. The preassembled controller shall have a height of 3¼" (8 cm) and a diameter of 3½" (9 cm).
37. The controller shall be furnished in an outdoor, weather-resistant enclosure.
38. The controller shall provide one station.
39. The enclosure shall be IP68 rated.
40. Optional solar panel installation P/N: SP-NODE-BT
41. The optional solar panel shall have a height of 11" (275 mm), a width of 8" (205 mm), and a length of 3" (75 mm).
42. The solar panel shall be mounted to a ball-mount bracket secured to a pole or wall structure, shall wired to the charging cell, and shall not exceed greater than 200' (61 m) away from the controller using 18 AWG (1 mm2).
43. The solar panel wire shall be UL rated 18 AWG (1 mm2) for outdoor sunlight exposure and shall be placed in direct sunlight for at least four hours daily.
    1. Warranty
44. The controller shall be installed in accordance with the manufacturer’s published instructions. The controller shall carry a conditional two-year exchange warranty. The automatic controller(s) shall be the NODE-BT Series Controller as manufactured for Hunter Industries Incorporated, San Marcos, California.

**Part 3 – Controller Hardware**

* 1. Control display

1. All programming, manual station, manual program, and manual run operation shall be accomplished by a smartphone app via Bluetooth® connection.
2. Manual station operation and battery status buttons shall be located on the controller.
3. A protective rubber cover shall protect the buttons and LEDs from dirt and moisture.
   1. Control panel
4. The controller shall be equipped with non-volatile memory that retains current time, date, and program data.
   1. Controller power
5. The controller shall be powered by one or two 9 V alkaline batteries or a solar panel with a 750 mAh charging cell.
6. Each station output shall supply 11 VDC with a capacity of up to 1.5 mA.
7. The valves attached to the controller shall have only DC-latching solenoids P/N: 458200.
   1. Sensor inputs

A. The controller shall be compatible with an external wired weather sensor that shall automatically stop irrigation based on local weather conditions for maximum water savings. The external weather sensor shall include rain or freeze shutoff functions.

1. The external weather sensor shall be Hunter Industries model Mini-Clik®, Freeze-Clik®, or Rain-Clik®.
2. The sensor input shall also be compatible with standard, normally closed rain or other sensors for shutdown purposes.

B. The controller shall be compatible with an external soil sensor probe that shall stop the controller from irrigating when the moisture level reaches a trip point for maximum water savings. Programming shall be set within the controller app.

1. The sensor input shall be Hunter Industries model SC-PROBE.
   1. Pump/master valve (P/MV) outputs
2. The controller shall have one built-in P/MV (11 VDC) output with a capacity of 1.5 mA.
   1. Common wire
3. A common wire shall be provided on the controller.

3.7 Bluetooth information

A. The controller shall be equipped with a built-in Bluetooth 5.0 BLE module.

**Part 4 – Programming and Operational Software**

4.0 Programming

1. The controller shall have three independent programs with unique day schedules, start times, and station run times.
2. Only one program shall be running at any given time in conjunction with a P/MV.
3. Each program shall offer up to eight start times.
4. The controller programs shall have four schedule options to choose from:
5. Seven-day calendar
6. Up to 31-day interval calendar
7. Odd-day programming and even-day programming
8. 365-day calendar clock to accommodate true odd-even watering
9. Each station shall be programmable in seconds of run time, from one second to 12 hours with Cycle and Soak capabilities.
10. The controller shall be equipped with programmable Non-Water Days to prevent watering on selected days of the week.
11. A P/MV circuit shall be included and shall be programmable by station (Hunter Industries models NODE-BT-200, NODE-BT-400, and NODE-BT-600 only).
12. The controller shall be equipped with a rain sensor bypass function that allows the user to override a sensor that has suspended watering.
13. The controller shall have programmable station delay between each zone, starting at a maximum of 36,000 seconds.
14. The controller shall have programmable days off for up to 99 days.
15. Program backup shall be provided by a non-volatile memory circuit that shall hold the program data indefinitely.

4.1 Software

1. The controller shall connect to the NODE-BT App on Apple® and Android™ devices.
2. The software shall display a unique controller serial number, battery strength, signal strength, and watering status.
3. The software shall allow for the controller to be in a permanent off state.
4. The controller shall have global and monthly Seasonal Adjust settings.
   1. The global seasonal adjustment range shall be 10% to 300%.
   2. The monthly seasonal adjustment range shall be 0% to 300%.
5. The controller shall be capable of determining and displaying the total run time input for each program for the day and for the week.
6. The software shall allow for setting the manual run-time button on the controller from one second to 12 hours.
7. The software shall allow for renaming of the controller, stations, and program names.
8. The software shall allow a photo to be uploaded to each station and controller and assigned a location.
9. The software shall have battery-change reminder notifications.
10. The software shall allow for switching from battery-powered mode to solar-powered mode.
11. The software shall store and send irrigation logs.
12. The software shall allow a passcode to protect the controller from schedule changes.
13. The software shall allow for over-the-air firmware updates.
14. The software shall allow for factory reset of the controller.

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