# NODE Irrigation Controller Written 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 1-, 2-, 4-, or 6-station model.

**Part 2 – Controller Enclosures**

* 1. Controller shall be available in following the options:
1. 1-station controller, no solenoid
2. The controller shall be Hunter Industries model NODE-100LS.
3. Pre-assembled controller shall have a height of 2½" (6.4 cm) and a diameter of 3½" (8.9 cm).
4. The controller shall be furnished in an outdoor, weather-resistant enclosure.
5. The controller shall provide 1 station.
6. The enclosure is IP68 rated.
7. 1-station controller with DC-latching solenoid
8. The controller shall be Hunter Industries model NODE-100.
9. Pre-assembled controller shall have a height of 2½" (6.4 cm) and a diameter of 3½" (8.9 cm).
10. The controller shall be furnished in an outdoor, weather-resistant enclosure.
11. The controller shall provide 1 station.
12. The enclosure is IP68 rated.
13. 2-station controller
14. The controller shall be Hunter Industries model NODE-200.
15. Pre-assembled controller shall have a height of 2½" (6.4 cm) and a diameter of 3½" (8.9 cm).
16. The controller shall be furnished in an outdoor, weather-resistant enclosure.
17. The controller shall provide 2 stations.
18. The enclosure is IP68 rated.
19. 4-station controller
20. The controller shall be Hunter Industries model NODE-400.
21. Pre-assembled controller shall have a height of 2½" (6.4 cm) and a diameter of 3½" (8.9 cm).
22. The controller shall be furnished in an outdoor, weather-resistant enclosure.
23. The controller shall provide 4 stations.
24. Enclosure is IP68 rated.
25. 6-station controller
26. The controller shall be Hunter Industries model NODE-600.
27. Pre-assembled controller shall have a height of 2½" (6.4 cm) and a diameter of 3½" (8.9 cm).
28. The controller shall be furnished in an outdoor, weather-resistant enclosure.
29. The controller shall provide 6 stations.
30. Enclosure is IP68 rated.
31. 1-station controller with PGV-101G NPT valve
32. The controller shall be Hunter Industries model NODE-100-VALVE.
33. Pre-assembled controller shall have a height of 2½" (6.4 cm) and a diameter of 3½" (8.9 cm).
34. The controller shall be furnished in an outdoor, weather-resistant enclosure.
35. The controller shall provide 1 station.
36. 1-station controller with PGV-101G-B BSP valve
37. The controller shall be Hunter Industries model NODE-100-VALVE-B.
38. Pre-assembled controller shall have a height of 2½" (6.4 cm) and a diameter of 3½" (8.9 cm).
39. The controller shall be furnished in an outdoor, weather-resistant enclosure.
40. The controller shall provide 1 station.
	1. Warranty
41. The controller shall be installed in accordance with the manufacturer’s published instructions. The controller shall carry a conditional 2-year exchange warranty. The automatic controller(s) shall be the NODE series controller as manufactured for Hunter Industries Incorporated, San Marcos, California.

**Part 3 – Controller Hardware**

* 1. Control display
1. Display shall be 2.0" (5 cm) diagonal LCD.
2. All programming shall be accomplished by use of a programming dial and selection buttons with user feedback provided by an LCD display.
	1. Control panel
3. The controller shall be equipped with non-volatile memory that retains current time, date, and program data.
	1. Controller power
4. All models will use 1 or 2 9V alkaline batteries.
5. Each station output shall supply 11 VDC with a capacity of up to 1.5 mA.
6. Optional solar panel kit (P/N SPNODE) provides maintenance-free operation.
	1. Sensor inputs

A. The controller shall be compatible with an external weather sensor that can change seasonal adjustment automatically, based on local weather conditions, for maximum water savings. The external weather sensor shall include rain and 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.
	1. P/MV outputs

A. The controller shall have one built-in P/MV (11 VDC) output with a capacity of up to 1.5 mA.

* 1. Common wire
1. A common wire is provided on the controller.

**Part 4 – Programming and Operational Software**

4.1 Programming

1. The controller shall have 3 independent programs with unique day schedules, start times, and station run times.
2. Each program shall offer up to 4 start times.
3. The controller programs shall have 4 weekly schedule options to choose from:
4. 7-day calendar
5. Up to 31-day interval calendar
6. Odd-day programming and even-day programming
7. It shall also have a 365-day calendar clock to accommodate true odd-even watering
8. Each station shall be programmable in minutes of run time, from 1 minute to 6 hours.
9. The controller shall be equipped with programmable Non-Water Days to prevent watering on selected days of the week.
10. A pump start/master valve circuit shall be included, and shall be programmable by station (NODE-200, NODE-400, and NODE-600 only).
11. The controller shall be equipped with a rain sensor bypass function that allows the user to override a sensor that has suspended watering.
12. Program backup shall be provided by a non-volatile memory circuit that will hold the program data indefinitely.

4.2 Software

1. The controller shall have Global Seasonal Adjust settings of 10% to 150%.
2. The controller shall be capable of determining and displaying the total run time input for each program.
	* + 1. It shall have the capability to store a program in backup memory for easy retrieval, and shall also have a test program for quick system checks.
3. The controller shall allow Easy Retrieve® backup of all programming and configuration to preserve the original configuration, which may be restored at any time.

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