

Wireless Valve Link System Written Specifications

Part 1 – General

1.1 The Wireless Valve Link System shall function as a wireless output for station (valve) activation from a compatible host controller.

Part 2 – Parts and Materials

2.1 The Wireless Valve Link System shall be available with the following options:

A. Wireless Valve Output Module

1. The Wireless Valve Output Module shall be Hunter model WVOM (North America) or WVOM-E (international).
2. The controller shall permit installation of a single Wireless Valve Output Module in any standard station expansion slot in compatible host controllers.
3. The host controller shall be selected from among the Hunter ICC2 or HCC models listed below:
 - a) Hunter model I2C800P (plastic enclosure), I2C800M (metal enclosure), I2C800SS (stainless steel), or I2C800PP (plastic pedestal)
 - b) Hydrawise® model HCC800PL (plastic enclosure), HCC800M (metal enclosure), HCC800SS (stainless steel), or HCC800PP (plastic pedestal)
4. The Wireless Valve Output Module shall be equipped with a detachable antenna. The output module package shall include a 1.5" (38 mm) diameter hole saw to facilitate installation of the individual Wireless Valve Links in plastic valve box lids.
5. The Wireless Valve Output Module shall include Bluetooth® access from a free smartphone application to enable station programming and diagnostic functions. The Bluetooth application shall have passed third-party security audit testing and shall include an optional, personal PIN code for enhanced security.
6. The Wireless Valve Output Module shall communicate with up to 55 Wireless Valve Links (including pump/master valve) to operate standard irrigation valves with 9 V DC-Latching Solenoids. Communications must be bidirectional, allowing the remote Wireless Valve Links to acknowledge commands and report vital status and health data back to the output module.

7. The Wireless Valve Output Module shall detect any failures to communicate with the Wireless Valve Links and generate an audible alarm beep to alert the user. The alarm shall also be visible in the host controller display. If the controller is connected to central control software, the alarm shall be sent to the user's mobile device.
8. The wireless components shall use license-free LoRa[®] wireless communications with the appropriate frequencies for the region. North American models shall operate on channels in the 915 MHz range. International models shall operate on channels in the 433 MHz range.
9. The Wireless Valve Output Module shall coexist in the same controller with conventional wiring output modules and two-wire output modules so that all three output options may be used in the same installation.

B. Wireless Valve Links

1. The Wireless Valve Links shall be Hunter models WVL-100, WVL-200, or WVL-400 (North America) or WVL-100-E, WVL-200-E, or WVL-400-E (international).
2. The Wireless Valve Links shall be fully waterproof with an IP68 rating and shall be designed for installation in an irrigation valve box, or comparable location, near the valves to be operated. The Wireless Valve Links shall be available in at least 1-, 2-, and 4-station configurations to maximize efficiency in multi-valve manifold locations. The Wireless Valve Link outputs shall operate 9 V DC-Latching Solenoids at distances up to 100' (30 m).
3. The Wireless Valve Link shall be designed to reduce the above-ground profile of the installation to no more than 0.75" (19 mm) above the plane of the valve box lid to reduce the possibility of damage by groundskeeping equipment and foot traffic.
4. The Wireless Valve Link shall be powered by two replaceable 9 V alkaline batteries, stored in a waterproof compartment. The waterproof battery compartment shall also house control buttons for station assignment, manual test activation, and radio coverage functions.
5. The Wireless Valve Link shall also accept an optional solar power accessory, including a solar panel with a rechargeable battery pack.
6. The Wireless Valve Link shall be mounted inside the valve box with a threaded column protruding through the valve box lid, secured in place by a low-profile attachment on the upper side of the lid.

7. The Wireless Valve Link shall include a radio test feature in the battery compartment that displays when a signal from the controller is heard. The installer shall perform this test at the valve box prior to beginning the installation to verify that the communications will be successful. Failed communication tests may indicate the need for antenna elevation at the output module and/or a Repeater in the system for distant or challenging locations.
8. The installer shall verify the location of the Wireless Valve Link Assembly in the valve box to allow sufficient clearance for the valve before drilling. The Wireless Valve Link shall require a minimum 4.25" (10.8 cm) diameter and 6.25" (15.9 cm) vertical clearance below the valve box lid. The installer shall use the hole saw supplied with the Wireless Valve Output Module, or other tools as appropriate, to drill the hole for mounting the Wireless Valve Link.
9. All solenoid wiring connections shall be made with professional, gel-filled, waterproof connectors.

C. Solar Panel Kit

1. The Solar Panel Kit for individual Wireless Valve Links shall be Hunter model SP-WVL (global).
2. The solar panel accessory shall include a multi-position mounting attachment suitable for pole, wall, or surface mounting. The installer shall position the solar panel in direct sunlight to maximize solar exposure.

D. Repeater

1. The Wireless Solar Repeater shall be Hunter model RPT (North America) or RPT-E (international).
2. The Repeater shall include a solar panel, an adjustable antenna, a universal ball-mount mounting mechanism, and a rechargeable lithium iron phosphate (LiFePO₄) 9 V battery pack in a weatherproof enclosure.
3. The Repeater shall be positioned at an elevated location in direct sunlight with the panel oriented for maximum sunlight exposure throughout the day. The antenna shall be rotated so it's vertical, or perpendicular to the ground. The Repeater shall be positioned high enough to maximize coverage around terrain, buildings, and foliage. The location shall be selected to allow occasional maintenance access to clean the solar panel or to replace the long-life, rechargeable battery.
4. Only one Repeater shall be installed in any one Wireless Valve Link System. All control access to the Repeater shall be wireless. The Repeater status shall report health and status to the output module in the host controller, which shall be visible in a free Bluetooth smartphone application.

E. Antenna Extension Kit

1. The Antenna Extension Kit shall be Hunter model ANTEXTKIT (global).
2. The wireless range may be extended with an optional, wireless Antenna Extension Kit. The Antenna Extension Kit shall include a 9' (3 m) antenna cable, and the antenna may not be extended further.
3. The Antenna Extension Kit shall be required with any metal controller enclosure to locate the antenna outside of the metal enclosure.
4. The Antenna Extension Kit shall be designed for wall or pole mounting. The antenna and Antenna Extension Kit shall be placed as high as possible on an external wall. Controllers installed in buildings, pump stations, or other enclosures must have the antenna routed outside to an external surface.

F. Smartphone Application

1. The smartphone application shall be Hunter WVL, as identified in the App and Google Play stores. It shall be required by all technicians and operators of the Wireless Valve Link System. The application shall be available free of charge for both Android® and iOS® platforms.
2. The smartphone application shall have passed a third-party security audit. The application shall appear in any of 16 different languages. The screens shall adopt the user's smartphone language settings.
3. The smartphone application shall be used to assign station numbers to individual Wireless Valve Links.
4. The smartphone application shall display each device's signal strength, battery status, firmware version, and time of last update from the devices, including the Repeater if present. The smartphone application shall include a manual refresh function for each device to view current status within a minute.
5. Should the user's language not be available, the application shall display in English. Available languages shall include:

- Arabic
- Chinese
- Czech
- Dutch
- English
- French
- German
- Greek
- Hebrew
- Hungarian
- Italian
- Polish
- Portuguese
- Russian
- Spanish
- Turkish

2.2 Warranty

- A. Each component, including optional items, in the Wireless Valve Link System shall carry an exchange warranty as stated below.
1. ICC2 Controller: 5 years
 2. HCC Controller: 2 years
 3. Wireless Valve Output Module (WVOM or WVOM-E): 2 years
 4. Wireless Valve Link (WVL): 2 years
 5. Solar Panel Kit (SP-WVL): 2 years
 6. Repeater (RPT or RPT-E): 2 years
 7. Antenna Extension Kit (ANTEXTKIT): 2 years

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