X2[™] Irrigation Controller Product Specification

Part 1 – General

1.1 The controller shall be a full-featured professional 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 with a standard 4-, 6-, 8-, or 14-station controller. The controller shall be available in outdoor domestic, Australian, and European models.

Part 2 – Controller Enclosures

- 2.1 Controller shall be available in following the options:
 - A. 4-station plastic
 - 1. The controller shall be Hunter Industries model X2-40X.
 - Pre-assembled controller dimensions shall be: height: 9" (23 cm); width: 7½" (19 cm); and depth: 3%" (9.8 cm), with one ¾" (2 cm) and two ½" (1.3 cm) knockouts for field wires.
 - 3. The controller shall be furnished in an outdoor, weather-resistant, wall-mount plastic enclosure, with an option for locking.
 - 4. The controller shall provide four stations.
 - 5. All station outputs shall have MOV and copper induction coil surge suppression.
 - 6. Outdoor cabinet is NEMA 3R, IP54 rated.
 - B. 6-station plastic
 - 1. The controller shall be Hunter Industries model X2-60X.
 - Pre-assembled controller dimensions shall be: height: 9" (23 cm); width: 7½" (19 cm); and depth: 3%" (9.8 cm), with one ¾" (2 cm) and two ½" (1.3 cm) knockouts for field wires.
 - 3. The controller shall be furnished in an outdoor, weather-resistant, wall-mount plastic enclosure, with an option for locking.
 - 4. The controller shall provide six stations.
 - 5. All station outputs shall have MOV and copper induction coil surge suppression.
 - 6. Outdoor cabinet is NEMA 3R, IP54 rated.
 - C. 8-station plastic
 - 1. The controller shall be Hunter Industries model X2-80X.
 - Pre-assembled controller dimensions shall be: height: 9" (23 cm); width: 7½" (19 cm); and depth: 3%" (9.8 cm), with one ¾" (2 cm) and two ½" (1.3 cm) knockouts for field wires.

- 3. The controller shall be furnished in an outdoor, weather-resistant, wall-mount plastic enclosure, with an option for locking.
- 4. The controller shall provide eight stations.
- 5. All station outputs shall have MOV and copper induction coil surge suppression.
- 6. Outdoor cabinet is NEMA 3R, IP54 rated.
- D. 14-station plastic
 - 1. The controller shall be Hunter Industries model X2-140X.
 - Pre-assembled controller dimensions shall be: height: 9" (23 cm); width: 7½" (19 cm); and depth: 3%" (9.8 cm), with one ¾" (2 cm) and two ½" (1.3 cm) knockouts for field wires.
 - 3. The controller shall be furnished in an outdoor, weather-resistant, wall-mount plastic enclosure, with an option for locking.
 - 4. The controller shall provide 14 stations.
 - 5. All station outputs shall have MOV and copper induction coil surge suppression.
 - 6. Outdoor cabinet is NEMA 3R, IP54 rated.

2.2 Warranty

A. 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 X2 series controller as manufactured for Hunter Industries Incorporated, San Marcos, California.

Part 3 – Controller Hardware

- 3.1 Control Display
 - A. Display shall be 2" (5 cm) diagonal backlit LCD.
 - B. All programming shall be accomplished by use of a programming dial and selection buttons with user feedback provided by an LCD display or smartphone or desktop device with a connection to the controller and Hydrawise[™] software.

3.2 Control Panel

- A. Operation shall be via dial and buttons.
- B. Battery backups shall be done without the need for installing or using a replaceable battery.
- C. The controller shall have a hard-reset feature returning existing settings to factory conditions.
- 3.3 Controller Power

- A. Transformer input shall be 120 VAC 60Hz, 230 VAC 50Hz, or 240 VAC 50Hz with plug depending on requirements.
- B. Transformer output shall be 24 VAC, 1 amp. Maximum output per station shall be 24 VAC, up to 0.56 amps.
- 3.4 Controller Surge Protection
 - A. The controller transformer shall be equipped with an internal, self-resetting thermal circuit breaker to protect against overheating.
- 3.5 Station Terminals
 - A. The controller shall have 4-, 6-, 8-, or 14-station metal screw and washer terminals.
 - B. The controller shall have a terminal output for a remote control.

3.6 Sensor Inputs

- A. The controller shall be compatible with an external weather sensor shall include rain and freeze shutoff functions, 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.

3.7 Pump/Master Valve Outputs

A. The controller shall have one built-in P/MV (24 VAC) output with a capacity of up to 0.28 amps.

3.8 Common Wire

A. One or two fixed common wire terminals shall be available within the controller chassis to be used in conjunction with station output and P/MV wiring.

3.9 SmartPort[®]

- A. The controller shall be compatible with a SmartPort connector for easy connection of optional wireless remote controls.
- B. For international or short-range uses, the wireless remote control shall be the Hunter model ROAM with a useful range up to 1,000' (330 m).
- C. For the U.S. and longer-range uses, where permitted, the wireless remote shall be Hunter model ROAM-XL with a useful range up to 2 mi. (3 km).

4.0 Optional Wireless Capability

- A. The controller shall be capable of accepting Bluetooth[®] and Wi-Fi adapter for remote management.
- B. The wireless chip shall be 802.11 b/g/n 20 MHz with Bluetooth 5.0.
- C. The frequency shall be 2.4 GHz.
- D. Security shall have the ability to auto detect and offer the following security settings: WPA/WPA2, WPA Personal, TLS, and SSL.

Part 4 – Programming and Operational Software

4.0 General

A. The controller shall have optional language customization kits that allow the front panel, display, and programming instructions inside the door to be changed from English to Spanish, French, Italian, German, Portuguese, Turkish, or Russian.

4.1 Programming

- A. The controller shall have three independent programs with unique day schedules, start times, and station run times.
- B. Each program shall offer up to four start times.
- C. The controller programs shall have four weekly schedule options to choose from:
 - 1. Seven-day calendar
 - 2. Up to 31-day interval calendar
 - 3. Odd day programming and even day programming
 - 4. It shall also have a 365-day calendar clock to accommodate true odd-even watering
- D. Each station shall be programmable in minutes of run time, from 1 minute to 6 hours.
- E. The controller shall be equipped with programmable Non-Water Days to prevent watering on selected days of the week.
- F. Each program may be assigned a programmable delay between stations, to allow for slowclosing valves or pressure recharging.
 - Delays between stations shall be programmable in 1-second increments from 0 to 60 seconds and in 1-minute increments from 60 seconds up to 4 hours.
 - 2. A pump start/master valve circuit shall be included, and shall be programmable by station.
- G. The controller shall be equipped with a rain sensor bypass switch that allows the user to override a sensor that has suspended watering.
 - 1. The controller shall allow the sensor input to be programmed by station, to exempt specified stations from sensor shutdowns.

- H. Program backup shall be provided by a non-volatile memory circuit that will hold the program data indefinitely.
 - 1. The controller shall also track time of day and date during power outages by means of a built-in battery.

4.2 Software

- A. The controller shall have manual Seasonal Adjust settings in 10% to 200% in 5% increments.
- B. The controller shall have test programming to verify each station running successfully.
- C. The controller shall have a diagnostic function to identify field wiring problems.
- D. 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.
- E. The controller shall allow Easy Retrieve[™] backup of all programming and configuration to preserve the original configuration, which may be restored anytime.
- F. The controller shall connect to Hydrawise software via X2-Hydra Wi-Fi adapter accessory through web login or as a mobile app on Apple[®] and Android[™] devices.
- G. When X2-Hydra is installed, the controller shall utilize Predictive Watering[™] adjustments to automatically modify irrigation scheduling based on local weather data and forecast information.
- H. When X2-Hydra is installed, the controller shall receive the schedule and settings from the software and the controller UI shall be disabled and only allow for manual operation and system off mode.
- I. When X2-Hydra is installed and offline, the software shall allow the controller to have manual Seasonal Adjust settings from 0% to 300%.

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