WWA-02 Wireless Water & Freeze / Temperature Alarm, Instruction Manual

Products that speak Z-Wave work together better.™

Thank you for purchasing this Wireless Water & Freeze / Temperature Alarm. This product will provide you with peace of mind and the protection you expect. Leaking pipes, corroded water heaters, fixtures in bathrooms and laundry rooms, refrigerator drip pans, etc. can all cause water damage. The WWA-02 is a Z-Wave™ enabled device that will send a water alert on your Z-Wave™ network. *Devices performing other functions and from other manufacturers can also be part of your* Z-Wave™ *network and can act as repeaters to extend your network range.*

Functionality:

The WWA-02 alarms when water is detected and will also provide a Z-Wave™ alarm signal when the temperature drops below a low temperature setpoint or rises above a high temperature setpoint. ***The WWA-02 functionality is based on wireless (RF) transmissions. Any wireless transmission can be subject to RF interference and, although unlikely, this interference may cause the unit to not operate as intended. The WWA-02 must not be used in life support and/or safety applications. Information provided in this manual is for your convenience and may be superseded by updates. The specifications and this manual are subject to change without notice. It is your responsibility to ensure that the WWA-02 meets your specifications.***

Specifications:

Power:	One 3.6V 1/2AA 1200mAh Lithium Battery, ER14250H, LS14250 or equivalent
Battery Life:	Calculated to be 1 to 2 years with no alarms and default Z-Wave™ network settings
Frequency Range:	908.4MHz (US); 868.4MHz (EU)
Distance Range:	Max 100ft line of sight in unobstructed environment
Size (LxWxD) and Weight:	2.4" x 1.6" x 0.8" 0.2 lb
Operating Temperature:	-10ºC (14F) to +70ºC (158F)
Reported Temperature:	Reported temperature is at the unit and has a +/- 2 degC accuracy
System Requirement:	Any Z-Wave™ enabled network and controller.

Using the WWA-02 in a Z-Wave™ Network

Program Switch for Inclusion or Exclusion

The button in the rear casing is used for including or excluding the WWA-02 in a Z-Wave™ network. Refer to your controller's User Manual for specific details on network inclusion, exclusion, and association.

Inclusion in (adding to) a network: 1) Set up the inclusion mode at the controller; 2) Briefly press the button once and the controller will indicate the unit has been included in the network. Also, the LED will blink when the inclusion completes. *Inclusion and exclusion are always done at normal transmit power mode.*

Exclusion from (removing from) a network: 1) Set up the exclusion mode at the controller; 2) Press and hold the button for approx. 2 seconds until the controller indicates the unit has been removed from the network. The LED will blink when the exclusion completes.

Associations: Once in a network, a controller can be used to associate the WWA-02 with other devices in the Z-Wave™ network, such as a light or another remote audible alarm. *Refer to your controller's documentation on how to associate WWA-02 with another device in your network.* The WWA-02 supports three association groups with a maximum of 5 devices in each group. Basic Set commands are sent at 30-minute intervals to the associated groups while alarms are active.

- A Basic Set Command is sent to the associated nodes, if any, assigned to Group1 to indicate that EITHER a Water Alarm OR Heat Alarm (under or over temperature) is active.
- A Basic Set Command with value = 0xFF is sent to the associated nodes, if any, assigned to Group2 to indicate that a Water Alarm is active. When the water alarm is cleared by drying the contacts, one additional report with value = 0x00 is sent.
- A Basic Set Command is sent to the associated nodes, if any, assigned to Group3 to indicate that a Temperature Alarm (over or under temperature) is active. When the temperature alarm is cleared due to temperature change, one additional report with value = 0x00 is sent.

Node Info / Keep-Alive: While not in a network, the WWA-02 will send the Z-Wave™ Node information frame when the button is briefly pressed. This is primarily used for inclusion as described above. The node information frame will also be sent while in network when the button is pressed and held for 2 seconds. In either case, the WWA-02 will 'stay awake' for approximately 30 seconds after this to allow time for configuration commands from the controller. Refer to Status indications below for LED feedback.

Wakeup Notification: The WWA-02 will wakeup and send a notification every 4 hours (default) to allow a controller to query and update the status of the unit. A brief button press while in network will also cause the WWA-02 to wakeup and send a notification. The device stays awake for 5 seconds during this time or longer if communicating with the controller.

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Status LED Indications*

Number of Blinks	Meaning
Fast Blinks, Normal Operation	
1	Wakeup Notification Sent (after quick button press while in Network)
2	Water Alarm
3	Temperature Alarm (either high or low setpoint triggered)
4	An active alarm has been cleared (when a water alarm or a temperature alarm is no longer active)
5	Low Battery (repeated every approx. 40 seconds)
Slow Blinks, After Battery Replacement or Inclusion / Exclusion	
1	In-Network (also, after button held while in-Network)
3	Out of Network (also given if inclusion was not completed)

*If the LED remains continually on after inserting a battery, please remove the battery and contact FortrezZ, LLC customer service.

Choosing a mounting location

The WWA-02 is suitable for use in dry, interior locations only. Avoid placing the unit close to a metal frame, or other metal enclosures that may affect RF range. Place the unit so that any leaks that may occur will not drip directly on the unit.
Recommended WWA-02 uses: Under sink, Next to Sump pumps, Water Heaters, Laundry Room, Bathroom Floor, Storage Area, Garage, Utility Sink, Vacation/Recreation homes, Boats, etc.

During an alarm

If water is detected at the monitoring location or an over/under-temperature conditions is detected, the unit will send an alert message(s) to the Z-Wave™ network (if included in the network). The type of alert message depends on how the WWA-02 is configured. If associations are configured, Basic Set messages will be sent as described above under *Associations*. If Water or Heat Alarms have been configured (via Alarm Command Class V2 Set commands), then the WWA-02 will send alert messages to the Node ID that configured the alarm. Association alert messages and Alarm alert messages may both be configured and sent. Drying the sensor contacts will clear the Water Alarm. If an over/under temperature Alarm occurred and the temperature alarm conditions are no longer present, an 'alarm clear' message is also sent to the Z-Wave™ network (if included in the network).

Also, depending on your Z-Wave™ controller, it is possible to receive a remote alert. For example, with some gateway controllers, you can receive an email or cell phone text message when an alarm is activated. Depending on your specific controller's capabilities you will be able to remotely check the status of any WWA-02 in your network.

Testing the WWA-02

Moisten a paper towel and place over both of the small metal pads on the water sensor until you observe two quick LED blinks. The water alarm indication may take up to 4 or 5 seconds. If the LED fails to blink, your battery may be old or dead or incorrectly installed, the sensor may not be moist enough, or the water sensor may be damaged. If you see the LED blink, remove the moistened paper towel and clean the small metal pads of any water residue and the LED should blink four times. You can then add the WWA-02 to your Z-Wave™ network using your controller. Examples of Z-Wave™ controllers can be found on the FortrezZ website (www.fortrezz.com).

Battery / Low Battery

The WWA-02 will send an alert on the Z-Wave™ network at regular intervals when it detects a low battery condition. In addition, it will periodically blink the LED. Your controller may be able to be configured to monitor the unit's wake up notifications. If these stop, then this might also be an indication that the battery has died or that transmissions from the WWA-02 are no longer being received.

After a water leak, please ensure that there is no moisture in the unit and around the battery. Do not install batteries that appear damaged or unsealed. When replacing batteries, the water seal may be broken around the screws. After screwing the parts back together, the use of some sealant, such as silicone caulk, around the screws is recommended.

Configuring the WWA-02

The high and low temperature setpoints in the WWA-02 can be configured. The low temperature setpoint must always be set at least two degrees below the high temperature setpoint. The low temperature setpoint cannot be set less than –10 degrees C and the high temperature setpoint cannot be set greater than 70 degrees C. The temperature setpoints can be configured via a 'smart' controller after inclusion; details are provided in the technical appendix.

Temperature Reports

If your controller sends the wakeup interval set command, the controller will also become the Wakeup Master node. The WWA-02 will automatically send temperature reports to this Wakeup Master node within a half hour of a 1 degree C change in temperature.

FCC Compliance Statement Statements

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
1. This device may not cause harmful interference, and 2. This device must accept any interference received, including interference that may cause undesired operation. **Contains Transmitter Module FCC ID: XCT-Z3US**

FCC Warning (Part 15.21). Changes or modifications not expressly approved by the party responsible for compliance could void he user's authority to operate the equipment.
FCC Interference Statement (Part 15.105 (b)). This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful 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 of the following measures:
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Industry Canada Statement per Section 4.0 of RSP-100

The term "**IC:**" before the certification/registration number only signifies that the Industry Canada technical specifications were met.
Section 7.1.5 of RSS-GEN. Operation is subject to the following two conditions: 1) This device may not cause harmful interference, and 2) This device must accept any interference received, including interference that may cause undesired operation.
From section 5.2, RSS-Gen, Issue 2, June 2007 Equipment Labels: **Contains IC: 8156A-Z3X**
From section 7.1.1 RSS-Gen, Issue 2, June 2007

a) The host device, as a stand-alone unit without any separately certified modules, complies with all applicable Radio Standards Specifications.
b) The host device and all the separately certified modules it contains jointly meet the RF exposure compliance requirements of RSS-102, if applicable.
c) The host device complies with the certification labeling requirements of each of the modules it contains.

Europe

The WWA-02 module has been certified for use in European countries.
Test standard: ETSI EN 300 328 V1.7.1 (2006-10)

	The Waste Electrical and Electronic Equipment (WEEE) directive (2002/96/EC) was approved by the European Parliament and the Council of the European Union in 2003. This symbol indicates that this product contains electrical and electronic equipment that may include batteries, printed circuit boards, liquid crystal displays or other components that may be subject to local disposal regulations at your location. Please understand these regulations and dispose of this product in a responsible manner.

Limited Warranty

THE PRODUCT IS PROVIDED WITH ONE YEAR LIMITED MANUFACTURER WARRANTY. FORTREZZ, LLC warrants its products to be free from defects in material and workmanship under normal use for one year, and is not responsible for consequential damages or installation costs of any nature. FORTREZZ, LLC. expressly disclaims all implied warranties, including but not limited to the implied warranties of merchantability and fitness for a particular purpose. FORTREZZ, LLC. does not warrant, guarantee, or make any representations regarding the use or the results of the use of the products or any accompanying materials in terms of their correctness, accuracy, reliability or otherwise. In no event shall FORTREZZ, LLC. be liable to Purchaser hereunder or in respect of any products ordered or delivered to Purchaser, whether in contract, tort including negligence or otherwise for a loss of profits or loss of use or for any incidental, consequential, special or indirect damages howsoever caused whether or not FORTREZZ, LLC. has been advised of the possibility of such loss or damage. FORTREZZ, LLC's maximum liability to Purchaser under these conditions shall in no event exceed the amount paid by Purchaser for the products that are the subject of the claim and in respect of all claims for products ordered from FORTREZZ, LLC. to which these conditions apply to the amount paid by Purchaser for the products which are the subject of the claims. If you are not comfortable with your limited warranty, or not completely satisfied with the WWA-02, or the WWA-02 does not perform as expected we encourage you to return the WWA-02 to your DISTRIBUTOR for an exchange or for a full refund within 30 days of purchase. Or, you can return the WWA-02 to FORTREZZ with an RGA number.

All products to be returned to FORTREZZ, LLC. must have a valid Returned Goods Authorization (RGA).
Send the returned unit to: **FortrezZ, LLC Warranty Replacement, 3667 W. Auburn Rd. Rochester Hills, MI 48309,** postage prepaid with a payment of US$ 9.95 to cover the cost of return shipping, postage and handling. You must use the original packaging and include a proof of purchase (photocopy of receipt) along with the RGA # and the returned Wireless Water and Freeze Alarm.

TECHNICAL APPENDIX

MANUFACTURER ID 0x0084
PRODUCT ID varies
PRODUCT TYPE ID 0x0023 (US) 0x0021 (EU)
DEVICE CLASS Generic Type Sensor MultiLevel, Specific Type Routing Sensor Multilevel

COMMAND CLASSES SUPPORTED (in addition to COMMAND_CLASS_BASIC)

COMMAND_CLASS_ALARM_V2
COMMAND_CLASS_WAKE_UP_V2
COMMAND_CLASS_CONFIGURATION
COMMAND_CLASS_ASSOCIATION
COMMAND_CLASS_BATTERY
COMMAND_CLASS_MANUFACTURER_SPECIFIC
COMMAND_CLASS_SENSOR_MULTILEVEL
COMMAND_CLASS_VERSION

WATER ALARM

- Sampling every 4 seconds
- Z-Wave™ transmissions (every approx. 30 minutes while alarm is active): 'Basic Set' with Value = 0xFF sent to associated nodes in Group 1 and/or Group 2 and/or an Alarm Command Class V2 Water Leak Report (Event = Water Leak Detected, Unknown Location, 0x02 with Alarm Level = 0xFF. What is sent depends on whether associations are configured and/or Water Leak Alarm is enabled with a non-zero destination Node ID (see Alarm Factory Default State under OTHER below).
- Visual indication of water alarm via LED
- Alarm Command Class V2 Get (Sensor Type = 0x05, Water Leak) can be used to request water alarm state
- When water alarm is no longer active, sends 'Basic Set' with Value = 0x00 to association nodes as above and/or Alarm Command Class Water Leak Report (Unknown Event, 0xFE) with Alarm Level = 0x00

UNDER-TEMPERATURE / OVER-TEMPERATURE ALARM

- Sampling every 4 seconds with averaging algorithm
- Sensor has an accuracy of approx. +/-2 degC. Default alarm trigger points set at approx. 4 degC and 70 degC
- Z-Wave™ transmissions (every approx. 30 minutes while alarm is active): 'Basic Set' with Value = 0xFF sent to associated nodes in Group 1 and/or Group 3 and/or Alarm Command Class V2 Heat Report with Alarm Level = 0xFF and Event = [Overheat Detected, unknown location, 0x02 or Underheat Detected, unknown location, 0x06]. What is sent depends on whether associations are configured and/or Heat Alarm is enabled with a non-zero destination Node ID (see Alarm Factory Default State under OTHER below).
- Visual Indication of temperature alarm via LED
- Alarm Command Class V2 Get (Sensor Type = 0x04, Heat) can be used to request heat alarm state
- When temperature alarm is no longer active, sends 'Basic Set' with Value = 0x00 to association nodes as above and/or sends Alarm Command Class Heat Report (Unknown Event, 0xFE) with Alarm Level = 0x00

BATTERY STATUS

- Battery level percentage estimated based on number of Wakeup1's (see below) since battery insertion
- In addition, battery voltage readings can trip the low battery state
- Low battery report (Battery Command Class) every approx. 30 minutes after low battery becomes active
- Visual indication of low battery every approx. 40 seconds

WAKEUPS

- Wakeup1: Power saving design wakes up every 4 seconds to test water and freeze sensor
- Wakeup2: Once every approx. 4 hours (default) unit wakes up to send a notification either to a wakeup node or broadcast. The unit stays awake for approx. 5 seconds or while communicating with a controller. Sensors are not checked during this time.
- The Wakeup node is the node configured to receive the Wakeup Notification command. This is set in the WWA-02 by the Wakeup Interval Set command and is typically the Controller node. Only one value for the wakeup interval, the default interval of 0x003840 (4 hours), can be set.

MULTILEVEL SENSOR

- Multilevel Sensor Report sent with current Temperature (Degrees C) in response to Multilevel Sensor Get command
- Unsolicited Multilevel Sensor Report sent to Wakeup Node within 30 minutes of a 1 degree temperature change (if Wakeup node is set); filtering is applied to avoid 'oscillating' report transmissions and conserve battery life; transmission is independent of a Wakeup Notification

CONFIGURATION

- Parameter 1 sets Low Temperature Trigger Point (degrees Centigrade, 1 signed byte, Default = 4)
- Parameter 2 sets High Temperature Trigger Point (degrees Centigrade, 1 signed byte, Default = 70)

KEEP-ALIVE

- Button activated causes 30 sec RF receiver-on time intended for Controller configuration after network inclusion
- Sensors not checked during Keep-Alive time

OTHER

- Alarm Factory default state = Enabled; unsolicited alarm reports (under heat, overheat, and water leak) will be sent to Node 0x01 (after inclusion). This Node ID can be changed via the Alarm Set Command (Alarm Command Class V2)
- All Network Inclusions / Exclusions are at normal power levels
- Up to 5 nodes allowed in each association group
- Basic Report sent in response to a Basic Get with value equal to Multilevel Sensor Type (Temperature, 0x01)
- Built with Z-Wave™ SDK 4.51

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