

FTS05 / FTS05P - Wireless Flood and Temperature Sensor, User Manual



INTRODUCTION

The FTS05x sensor is a Z-WavePlus™ Security-enabled device that detects water leaks and measures temperature. In case of leak or high/low temperature conditions it will send alerts on your Z-Wave™ network. The FTS05x is compatible with other Z-Wave™ and Z-WavePlus™ certified products. The FTS05x sensor comes in four part numbers for each geographic region (where 'yy' below indicates, for example, US or EU):

- FTS05LB-yy and FTS05LW-yy (Battery only version with black and white cases)
- FTS05PLB-yy and FTS05PLW-yy (Battery/AC version with water/temperature probe and black and white cases)

For the latest User Manual, go to www.fortrezz.com

SPECIFICATIONS

| | |
|-------------------------|---|
| Power: | Two AA alkaline batteries (and AC Adapter, FTS05P version) |
| Battery Life: | Calculated to be 1 to 2 years depending on battery capacity/quality and 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 |
| Enclosure Size (LxWxD): | 3" (76 mm) x 2.1" (53mm) x 1.1" (30mm) |
| Weight: | 0.25 lb (110 g) |
| Operating Temperature: | -10°C (14F) to +70°C (158F) |

WARNINGS AND PRECAUTIONS

- **Do not store highly flammable items such as oily rags or other combustibles near your FTS05x.**
- **Do not apply electrical power to the unit unless the unit is fully assembled.**
- **Install unit in accordance with electrical codes and regulations. In case you are unsure about any parts of these instructions consult an electrician or Z-Wave™ home automation specialist.**
- **FTS05x functionality is based on wireless (RF) transmissions. Any wireless transmission can be subject to RF interference or loss of communication. This interference or loss of communication may cause the unit to not operate as intended. You, the end-user, are responsible for ensuring that the FTS05x functionality and installation meets your desired requirements.**
 - **WARNING - The FTS05x must not be used in life support and / or safety applications.**
- **Do not place FTS05x on or near metal objects. This decreases range and/or blocks wireless transmissions.**
- **Information provided in this manual is for your convenience and may be superseded by updates. This manual is subject to change without notice. It is your responsibility to ensure that the FTS05x functionality meets your needs and specifications.**

Using the FTS05x in a Z-Wave™ Network

Program Switch for Network Add/Remove The switch is used for adding into or removing from a Z-Wave™ network. Refer to your controller's User Manual for specific details. A Security-Enabled controller must be used to fully utilize the FTS05x.



Add (Inclusion) into a network: 1) Set up the Add/Inclusion mode at the controller; 2) Briefly press the switch once and the controller will indicate the unit has been added into the network. Also, the LED will blink when complete. *Add/Inclusion and Remove/Exclusion are always done at normal transmit power mode. This product can be added and operated in any Z-Wave network with other Z-Wave certified devices from other manufacturers and/or other applications. All non-battery operated nodes within the network will act as repeaters regardless of vendor to increase reliability of the network.* The FTS05x can be added either securely (ZWave S0 Security) or non-securely depending on your controller settings.

Remove (Exclusion) from a network: 1) Set up the Remove/Exclusion mode at the controller; 2) Press and hold the switch for approx. 2 seconds and then release. The controller will indicate the unit has been removed from the network. The LED will blink when complete.

Associations: Once in a network, a controller can be used to associate the FTS05x with other devices in the Z-Wave™ network, such as a light or a remote audible alarm. Refer to your controller's documentation on how to associate FTS05x with another device in your network. The FTS05x supports eight association groups with a maximum of 2 devices in each group. Refer to the Association section below.

Node Info / Keep-Alive: While not in a network, the FTS05x will send the Z-Wave™ Node information frame when the switch is briefly pressed. This is primarily used for adding as described above. The node information frame will also be sent while in network when the switch is pressed and held for 2 seconds. In either case, the FTS05x 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 FTS05x will wake up and send a notification every 4 hours (default) to allow a controller to query and update the status of the unit. A brief switch press while in network will also cause the FTS05x to wake up and send a notification. The device stays awake for 10 seconds during this time or longer if communicating with the controller.



FTS05 / FTS05P - Wireless Flood and Temperature Sensor, User Manual



Status LED or Buzzer Indications

| Number of Blinks or Beeps | Meaning |
|---------------------------|--|
| Fast Blinks | |
| 1 | (switch pressed; continually on while switch is pressed) |
| 2 | In-Network After Battery Replacement or Add/Inclusion (also, after button held while in-Network) |
| 4 | Out of Network After Battery Replacement or Remove/Exclusion (also given if Add was not completed) |
| 5 | Low Battery (repeated every approx. 40 seconds) |
| Slow Blinks | |
| 1 | Firmware Update (OTA) mode has been started; continuous while waiting for update to start |
| 2 | Water Alarm |
| 3 | Heat 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) |

Choosing a mounting location

The FTS05 is suitable for use in normally dry, interior locations only. The FTS05P (only) allows the water / temperature sensor in the external probe to be submerged. 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 FTS05x uses: Under sink, Next to Sump pumps, Water Heaters, Laundry Room, Bathroom Floor, Storage Area, Garage, Utility Sink, Vacation/Recreation homes, Boats, etc. Additionally, the FTS05P is intended for applications where a certain water level should be maintained.

During an alarm

This section describes the main Alarm/Notification functionality of the FTS00xx device. Refer to the *Technical Appendix* for details of all the alarms (Notifications). If water is detected or missing (FTS05P only) at the monitoring location or an over/under-temperature condition is detected, the unit will send an alert message(s) to the Z-Wave™ network (if added into the network). The type of alert message depends on how the FTS05x is configured. If associations are configured, Basic Set messages will be sent as described below under *Associations*. If Water or Heat Alarms have been configured (via the Notification Command Class), then the FTS05x will send alert messages to the Lifeline group (Association Group 1). Both Association (Basic Set) messages and Alarm alert messages may be configured and sent. Drying or submerging (FTS05P only) 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.

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 FTS05x in your network.

Initial Test of the FTS05x

Moisten a paper towel and place over both of the small metal pads on the FTS05 or around both metal prongs on the FTS05P probe 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 FTS05x 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 FTS05x will send an alert on the Z-Wave™ network at regular intervals when it detects a low battery condition. (See the Lifeline description in the Association section below.) These messages will initially be 'Replace Battery Soon' messages. When the battery gets low enough, the message will change to 'Replace Battery Now'. 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 FTS05x 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.



FTS05 / FTS05P - Wireless Flood and Temperature Sensor, User Manual



Configuring the FTS05x

The high and low temperature setpoints in the FTS05x 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 adding; details are provided in the technical appendix. Additionally, the FTS05P can be configured for either water detect or water missing mode. In either model, the state of the Basic Set (for association group 2) can be configured to send either ON (default) or OFF when a water alarm occurs.

ASSOCIATIONS

Once in a network, your controller can be used to associate the FTS05x inputs with other devices in the Z-Wave™ network, such as a light or remote audible alarm. For example, when a water leak is detected, the FTS05x can be set up to automatically send a command to turn on a device(s) associated with that alarm type. *Refer to your controller's documentation on how to associate the FTS05x with another device in your network.* The FTS05x supports eight association groups with a maximum of 2 associated devices in each group. The association groups and functionality are listed in the table below. The Lifeline association should be automatically set up by your controller if it is Z-Wave™ Plus compatible.

Note that association groups 5 through 8 allow the temperature to be sent to an associated device (such as the controller). The FTS05x allows the sending rate of the reports to be optimized so that the battery life can be maximized by using the longest acceptable interval between temperature updates. The temperature report was not included in the Lifeline so that you have the most flexibility for optimizing battery life and getting updates for your specific application. If you want temperature updates, you should **only select one** of these association groups to send to a particular device. *Caution – More frequent notification will decrease battery life!*

| Association Group (Name) | Max. Associations per Group | Supported Events (Command Classes) |
|--|-----------------------------|--|
| 1 (Lifeline – the controller should automatically set up this association) | 2 | <ul style="list-style-type: none"> • Device Reset Locally (via 3 quick presses of the program switch) • Battery Report (when calculated battery life percentage changes) • Notifications <ul style="list-style-type: none"> ○ Water (Type 5; Event Waterleak_Detected) ○ Heat (Type 4; Event Underheat_Detected) ○ Heat (Type 4; Event Underheat_Detected) ○ Power (Type 8; Events Power_Applied, Replace_Soon, Replace_Now) |
| 2 | 2 | Basic Set Command ON (default, 0xFF) or OFF (0x00) is sent to the associated nodes to indicate that a Water Alarm is active. This depends on the parameter 4 configuration value. When the water alarm is cleared, one additional report with the opposite value is sent. |
| 3 | 2 | Basic Set Command with value = 0xFF is sent to the associated nodes to indicate that a Temperature High condition has been detected. When the temperature is back in the normal range, one additional report with value = 0x00 is sent. |
| 4 | 2 | Basic Set Command with value = 0xFF is sent to the associated nodes to indicate that a Temperature Low condition has been detected. When the temperature is back in the normal range, one additional report with value = 0x00 is sent. |
| 5 | 2 | Temperature report (Multilevel Sensor) when the temperature has changed (with filtering/hysteresis to avoid continuous transmissions at a transition point). |
| 6 | 2 | Temperature report (Multilevel Sensor) every 5 minutes |
| 7 | 2 | Temperature report (Multilevel Sensor) every 20 minutes |
| 8 | 2 | Temperature report (Multilevel Sensor) every 60 minutes |

FTS05 / FTS05P - Wireless Flood and Temperature Sensor, User Manual



OTHER PROGRAM BUTTON PRESS ACTIONS

Reset the device to factory Defaults - Press and hold the program button for longer than 15 seconds. When complete, the LED will flash approx. 30 times. This can be done while the device is either in or out of a network. Please use this procedure only when the network primary controller is missing or otherwise inoperable. **Caution – When this is done in-network, the device will no longer be in the network and all configurations and associations will be set to default.**

Over-the-Air (OTA) Firmware Update mode – If running on batteries, a firmware update should only be done with new batteries. Quickly press the program button 3 times while in-network and then activate your controller's update mode. **Caution – This should not be done unless a firmware update will be immediately started at the controller. Do not allow the OTA mode to continue indefinitely without starting the firmware update at your controller.** Refer to your controller's manual for update procedures. Press the button once to exit the OTA mode.

TROUBLESHOOTING

The FTS05x has been tested with various controllers from other vendors. However, it is not possible to test with every controller on the market. For specific troubleshooting procedures, please refer to your controller instruction manual and/or contact your controller manufacturer. Also, check the FortrezZ, LLC website www.fortrezz.com for helpful FAQs and updates to the User Manual / Technical Appendix.

REGULATORY INFORMATION

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: WRD-FM5202**

FCC Warning (Part 15.21). Changes or modifications not expressly approved by the party responsible for compliance could void the 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-FM5202; PN: Model: FM5202-US-SMT**

From section 7.1.6, RSS-Gen, Issue 2, June 2007

Digital Circuits:

If the device contains digital circuitry that is not directly associated with the radio transmitter, the device shall also have to comply with ICES-003, Class A or B as appropriate, except for ICEC-003 labeling requirements. The test data obtained (for the ICES-003 tests) shall be kept by the manufacturer or importer whose name appears on the equipment label, and made available to Industry Canada on request, for as long as the model is being marketed in Canada.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Note: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

HELPFUL WEB SITE: Industry Canada <http://www.ic.gc.ca/>



FTS05 / FTS05P - Wireless Flood and Temperature Sensor, User Manual



Europe

The FTS05x module has been tested for use in European countries. The following testing has been completed:

Test standard EN 300 220 ; (2012-05)

Test standards ETSI EN 301 489-1 ; (2011-09)

A helpful document that can be used as a starting point in understanding the use of short range devices (SRD) in Europe is the European Radio Communications Committee (ERC) Recommendation 70-03 E, downloadable from the European Radio Communications Office (ERO) <http://www.ero.dk>. **The end user is responsible for ensuring compliance with harmonized frequencies and labeling requirements for each country the end device is marketed and sold.** A Declaration of Conformity must be issued for each of these standards and kept on file as described in Annex II of the R&TTE Directive.



The Waste Electrical and Electronic Equipment (WEEE) directive (2002AA/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 MIMO, or the FTS05x does not perform as expected we encourage you to return the FTS05x to your DISTRIBUTOR for an exchange or for a full refund within 30 days of purchase. Or, you can return the FTS05x to FORTREZZ, LLC 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, 5440 Highway 55, Lake Wylie SC 29710**, 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 product.



FTS05 / FTS05P - Wireless Flood and Temperature Sensor, User Manual



TECHNICAL APPENDIX

Z-Wave™ INFORMATION

Node Information Frame (NIF): Always listening flag set, Optional functionality flag set
Manufacturer ID 0x0073 (FTS05, US), 0x00A3 (FTS05P, US)
Product ID varies

Device Type / Supported Command Classes

Generic Device Type: GENERIC_TYPE_SENSOR_NOTIFICATION
 Specific Device Type: SPECIFIC_TYPE_NOTIFICATION_SENSOR

COMMAND_CLASS_ZWAVEPLUS_INFO_V2
 COMMAND_CLASS_VERSION_V2
 COMMAND_CLASS_MANUFACTURER_SPECIFIC_V2
 COMMAND_CLASS_DEVICE_RESET_LOCALLY_V1
 COMMAND_CLASS_ASSOCIATION_GRP_INFO (Info about Root Associations)
 COMMAND_CLASS_NOTIFICATION_V3 (Power Management, System Fault, Water, and Heat alarm handling)
 COMMAND_CLASS_ASSOCIATION_V2 (Refer to Association Section)
 COMMAND_CLASS_POWERLEVEL
 COMMAND_CLASS_BASIC (for controlling associated nodes when Water and Heat alarms exist; Basic commands to the water sensor are ignored)
 COMMAND_CLASS_SENSOR_MULTILEVEL_V9 (Temperature value type)
 COMMAND_CLASS_CONFIGURATION
 COMMAND_CLASS_WAKE_UP
 COMMAND_CLASS_BATTERY

COMMAND CLASS CONFIGURATION

Configuration Command Class Parameters

| PARAMETER | DESCRIPTION | DEFAULT VALUE | SIZE (bytes) | POSSIBLE VALUES |
|-----------|---|--------------------------|--------------|---|
| 1 | Temperature low threshold | 0x04 (4°C) | 1 | 0xF6..0x45 (-10..69°C) |
| 2 | Temperature high threshold | 0x46 (70°C) | 1 | 0xF7..0x46 (-9..70°C) |
| 3 | Water Alarm Mode - can only be set in the FTS05P (cannot be changed in the FTS05; always returns 0 for 'water detect' mode) | 0 | 1 | 0x00 (water detect) or 0xF0 (water level) |
| 4 | Water Alarm Association Mode (send Basic Set ON or Basic Set OFF when alarm detected) | 0xF0 (send Basic Set ON) | 1 | 0x00 (send OFF) or 0xF0 (send ON) |

COMMAND CLASS NOTIFICATION

Notifications are sent for the following types and events:

Power Management

| | |
|------------------------------|--------------------|
| EVENT_INACTIVE | 0x00 |
| EVENT_POWER_HAS_BEEN_APPLIED | 0x01 |
| EVENT_AC_MAINS_DISCONNECTED | 0x02 (FTS05P only) |
| EVENT_AC_MAINS_RECONNECTED | 0x03 (FTS05P only) |
| EVENT_REPLACE_BATTERY_SOON | 0x0A |
| EVENT_REPLACE_BATTERY_NOW | 0x0B |

Heat

| | |
|--------------------------|------|
| EVENT_INACTIVE | 0x00 |
| EVENT_OVERHEAT_DETECTED | 0x02 |
| EVENT_UNDERHEAT_DETECTED | 0x06 |

Water

| | |
|--------------------------|--------------------|
| EVENT_INACTIVE | 0x00 |
| EVENT_WATERLEAK_DETECTED | 0x02 |
| EVENT_WATERLEVEL_DROPPED | 0x04 (FTS05P only) |

System

| | |
|-------------------------------|------|
| EVENT_INACTIVE | 0x00 |
| EVENT_SYSTEM_HARDWARE_FAILURE | 0x03 |

Parameter = 0x01, Probe disconnected / Thermistor open
 Parameter = 0x02, Thermistor shorted