REM_ZXT120
Z-Wave to IR Extender

Firmware Version : 1.1

Quick Start

S This device is a Z-Wave Sensor. Single click on the large middle button (PROG) confirms inclusion and exclusion. Depending on power supply (battery or 5 V external) the device will we always active or run in a pseudo active mode (FLIRS) preserving battery power. To switch between FLIRS and Active mode press and hold the the PROG button for 4 seconds - the LED will stay off. Now release the PROG switch and press it 3 times within 2 seconds. The LED will either flash two times (indicates FLIRS) or four times (indicates active mode).

Please refer to the chapters below for detailed information about all aspects of the products usage.

What is Z-Wave?

This device is equipped with wireless communication complying to the Z-Wave standard. Z-Wave is the **international standard for wireless communication** in smart homes and buildings. It is using the **frequency of 868.42 MHz** to realize a very stable and secure communication. Each message is reconfirmed (**two-way communication**) and every mains powered node can act as a repeater for other nodes (**meshed network**) in case the receiver is not in direct wireless range of the transmitter.

Z-Wave differentiates between Controllers and Slaves. Slaves are either sensors **(S)** transmitting metered or measured data or actuators **(A)** capable to execute an action. Controllers are either static mains powered controllers **(C)** also referred to as gateways or mobile battery operated remote controls **(R)**. This results in a number of possible communication patterns within a Z-Wave network that are partly or completely supported by a specific device.

1. Controllers control actuators
2. Actuators report change of status back to controller
3. Sensors report change of status of measured values to controller
4. Sensors directly control actuators
5. Actuators control other actuators
6. Remote controls send signals to static controllers to trigger scenes or other actions
7. Remote controls control other actuators.
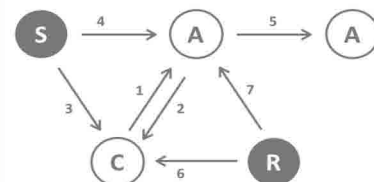
There are two different role a controller can have. There is always one single primary controller that is managing the network and including/excluding devices. The controller may have other functions - like control buttons - as well. All other controllers don't manage the network itself but can control other devices. They are called secondary controllers. The image also shows that its not possible to operate a sensor just from a remote control. Sensors only communicate with static controllers.

Product description

This device is a 100% interoperable Z-Wave to IR extender to control Air Conditions. It transmits IR control code with a wide range including the temperature and supports Z-Wave compliant Home Gateways and portable Controllers. It also has an integrated 5-direction IR emitter hemispherical coverage, a programmable power level (high or low) for external IR emitter to aviod saturation of IR receivers. The device is also with built-in temperature sensor which allows gateway or controller to get the current room temperature.

Batteries

The unit is operated by batteries. Use only batteries of correct type. Never mix old and new batteries in the same device. Used batteries contain hazardous substances and should not be disposed of with household waste!

Battery Type: 3 * AAA

Installation Guidelines

Mounting Locations

- Before mounting, check the material and structure of the mounting location. If the location does not have the proper material or structure, the ZXT-120 can fall and cause injuries.
- Use commercial items that best match the wall structure and material for the screws and other fixtures.

- Do not mount near a kitchen counter, humidifier, or other location in which it can be exposed to smoke or steam. Doing so could cause a fire or electrical shock.

- Do not mount in locations with high humidity or large amounts of dust. Doing so could cause a fire or electrical shock.

- Do not mount to locations subject to high temperatures, high humidity, or exposure to water. Doing so could cause a fire or electrical shock.

- Do not mount to locations subject to large amounts of vibration, large jolts, or large forces. These could cause an injury if the ZXT- 120 falls and breaks.

Mounting Process

The ZXT-120 can be mounted to a wall or wooden racks using the two key holes in the bottom case.

- Obtain two screws suitable for the wall strength and material.

- The positional relationship between the ZXT-120 key holes and the screw mounting positions are shown in the figure below.
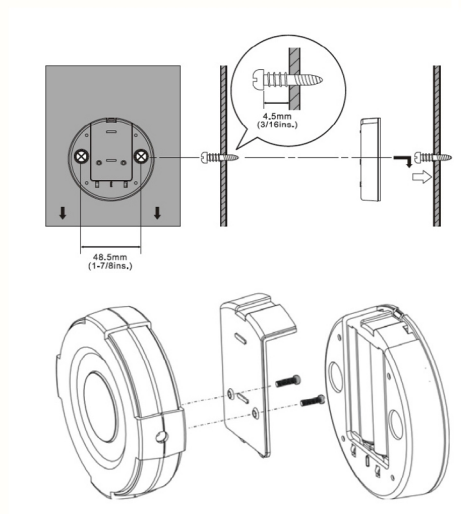
- Insert the ZXT-120 key holes onto the two screws mounted to the wall, and then slide downward to secure in place.

- After securing the ZXT-120 to the wall, connect the USB Power or batteries and IR emitter cable to the ZXT-120.

- When removing the ZXT-120 from the wall, lift up the ZXT-120, then pull it towards you.

- Detach the main unit from the battery chassis by move toward to top position.
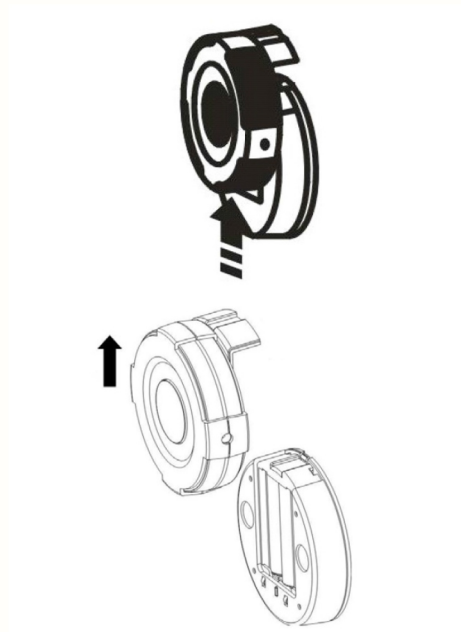
Behavior within the Z-Wave network

On factory default the device does not belong to any Z-Wave network. The device needs to join an existing wireless network to communicate with the devices of this network. This process is called **Inclusion**. Devices can also leave a network. This process is called **Exclusion**. Both processes are initiated by the primary controller of the Z-Wave network. This controller will be turned into exclusion respective inclusion mode. Please refer to your

primary controllers manual on how to turn your controller into inclusion or exclusion mode. Only if the primary controller is in inclusion or exclusion mode, this device can join or leave the network. Leaving the network - i.e. being excluded - sets the device back to factory default.

If the device already belongs to a network, follow the exclusion process before including it in your network. Otherwise inclusion of this device will fail. If the controller being included was a primary controller, it has to be reset first.

Single click on the large middle button (PROG) confirms inclusion and exclusion.

Operating the device

The Built in IR code library supports most of the popular air conditioner brands in the market. Z-Wave gateway and controller does not need to have any IR control code knowledge. User can use ZWave controller or gateway to select the IR code according to the ZXT- 120 code list separately provided through Z-Wave configuration command.
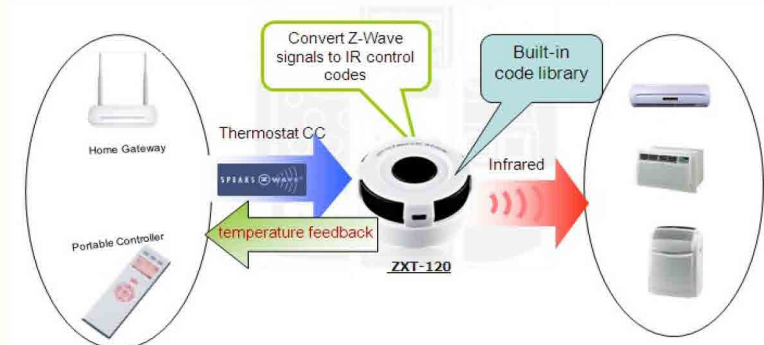
A complete list of all supported AC devices can be downloaded from the manufacturers homepage http://www.remotec.com.hk/zaspx/support.aspx

Infrared Code Learning

In case none of the code on the code list works for the targeted air conditioner, user can use IR code learning function using configuration according to below steps:

- Go to configuration setting page on the gateway and input parameter number "27" and parameter value "000" to select the dedicated AC code number "000" for learning. LED flashes once when ZXT-120 receives the configuration setting

- Set the configuration parameter #25 to the desired value you want to control (on off, cooling temperature, etc.) ZXT-120 is now ready to learn

- Bring the original air conditioner remote at ZXT-120 within 1-3 inches and execute the original control function. LED flashes twice if learning is successful. LED flashes 6 times if it's failed.

- Press "power on" button on the original air conditioner remote. If the learning is failed, repeat the previous steps.

Reset of the Device

Press and hold "PROG" button for 10seconds on ZXT-120. The LED will flash twice until reset process is completed.

Node Information Frame

NI The Node Information Frame is the business card of a Z-Wave device. It contains information about the device type and the technical capabilities. The inclusion and exclusion of the device is confirmed by sending out a Node Information Frame. Beside this it may be needed for certain network operations to send out a Node Information Frame.

Single click on the large middle button (PROG) sends a Node Information Frame.

Configuration Parameters

Z-Wave products are supposed to work out of the box after inclusion, however certain configuration can adapt the function better to user needs or unlock further enhanced features.

IMPORTANT: Controllers may only allow to configure signed values. In order to set values in the range 128 … 255 the value sent in the application shall be the desired value minus 256. For example: to set a parameter to 200 it may be needed to set a value of 200 minus 256 = minus 56. In case of two byte value the same logic applies: Values greater than 32768 may needed to be given as negative values too.

Indicate a location for IR code learning and start learning (Parameter Number 25, Parameter Size 1)
In case none of the code on the code list works for the targeted air conditioner, user can use IR code learning function. See manual at section "IR Code Learning" for a description of the procedure.

Value	Description
0	OFF
1	ON (resume) (Default)
2 — 11	19°C cool - 28°C cool

12 — 21	19°C heat - 28°C heat
22	Dry mode

Learning status register (Parameter Number 26, Parameter Size 1)

Note: The status value 0x01 and 0x04 will be reset to 0 when the ZXT-120 receive a get command to this parameter

Value	Description
0	Idle - this IR channel is idle (Default)
1	OK - the latest learning process successful and completed
2	Learning - the ZXT-120 is busy processing previous learning request
4	Failed - the latest learning request failed

IR code number for built-in code library (Parameter Number 27, Parameter Size 1)

Look up the code list of ZXT-120 according to your AC brand.

Value	Description

External IR Emitter power level (Parameter Number 28, Parameter Size 1)

Value	Description
0	normal power mode
255	high power mode (Default)

Surround IR control (Parameter Number 32, Parameter Size 1)

To avoid the IR interference by disabling the surrounding IR emitter if 2 air-conditioners in a room are used. Extend the battery life by disabling the Surround IR Emitters

Value	Description
0	disable Surround IR Emitters
255	enable Surround IR Emitters (Default)

AC function "Swing" control (Parameter Number 33, Parameter Size 1)

Value	Description
0	SWING OFF
1	SWING AUTO (Default)

Learn location status (Parameter Number 35, Parameter Size 4)

Bit mask = 1, learn location has learn data. Otherwise, Bit mask = 0.

Value	Description

Command Classes

Supported Command Classes

- Basic (version 1)
- Thermostat Mode (version 2)
- Thermostat Setpoint (version 2)
- Thermostat Fan (version 2)
- Version (version 1)
- All Switch (version 1)
- Battery (version 1)
- Configuration (version 1)
- Multilevel Sensor (version 1)
- Manufacturer Specific (version 1)

Technical Data

Battery Type	3 * AAA
Explorer Frame Support	Yes
SDK	4.54.01
Device Type	Slave with routing capabilities
Generic Device Class	Thermostat
Specific Device Class	Thermostat General V2
Routing	No
FLiRS	No
Firmware Version	1.1

Explanation of Z-Wave specific terms

- **Controller** — is a Z-Wave device with capabilities to manage the network. Controllers are typically Gateways, Remote Controls or battery operated wall controllers.
- **Slave** — is a Z-Wave device without capabilities to manage the network. Slaves can be sensors, actuators and even remote controls.
- **Primary Controller** — is the central organizer of the network. It must be a controller. There can be only one primary controller in a Z-Wave network.
- **Inclusion** — is the process of bringing new Z-Wave devices into a network.
- **Exclusion** — is the process of removing Z-Wave devices from the network.
- **Association** — is a control relationship between a controlling device and a controlled device.
- **Wakeup Notification** — is a special wireless message issued by a Z-Wave device to annonces that is is able to communicate.
- **Node Information Frame** — is a special wireless message issued by a Z_Wave device to announce its capabilities and functions.

Disposal Guidelines

The product contains batteries. Please remove the batteries when the device is not used.

Do not dispose of electrical appliances as unsorted municipal waste, use separate collection facilities. Contact your local government for information regarding the collection systems available. If electrical appliances are disposed of in landfills or dumps, hazardous substances can leak into the groundwater and get into the food chain, damaging your health and well-being.