

ZXT-120
(Z-Wave-to-AC IR Extender)



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Z-Extender™ ZXT-120

(Z-Wave-to-AC IR Extender)
Operating Instructions

Introduction

The ZXT-120 is a Z-Wave to air-conditioner (AC) IR Extender (Figure 1) and it works with any Z-Wave compliant gateway or portable controller by translating Z-Wave's Thermostat commands to AC IR control code. The user can set the IR code from the built-in code library of ZXT-120 through the configuration commands. ZXT-120 also built-in a temperature sensor that allow to report the current room temperature to home gateway.

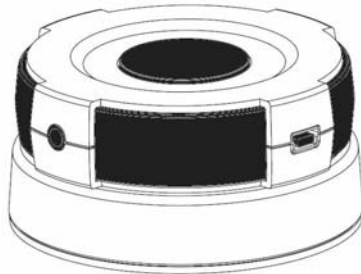


Figure 1 ZXT-120

It also supports Z-Wave networks with multiple gateways and controllers. Like every Z-Wave accessory, the user will need to include the ZXT-120 into his Z-Wave network using the primary controller. Then, the user can use either the primary controller or secondary controller to configure and setup the ZXT-120 using Z-Wave's configuration command class. Once the configuration and setup is complete, the controller can use Z-Wave's "Thermostat commands class" to control their IR-controlled air-conditioner with the ZXT-120. ZXT-120 also supports battery operation which makes it very convenience as user can place it in anywhere at home. The user can enjoy the fully wireless control and home automation system anywhere around the world.

Controller and Gateway Requirements

The ZXT-120 is architected to work with any Z-Wave compliant controller or gateway supporting the following Z-Wave commands.

- Configuration Command Class
- Multilevel Sensor Command Class
- Sensor Configuration Command Class
- Thermostat Command Class
 - Thermostat Mode Command Class
 - Thermostat Fan Mode Command Class
 - Thermostat Set-point Command Class

Built-in IR code library

The built-in IR code library enables the ZXT-120 to work with any Z-Wave compliant gateway and controller. Gateway and controller will not need to have any knowledge related to IR control code. It also eliminates the need for complex set up procedures and proprietary Z-Wave commands to configure the system. The IR code library supports various brand name air conditioners found in the today's market. The user can use his controller or gateway to send a 3 digits AC IR code number (include the brand selection) using standard Z-Wave configuration command.

Glossary

Device or Node	Devices and nodes are all terms to describe an individual Z-Wave device. These are all interchangeable when setting up your Z-Wave network.
Inclusion	Add a Z-Wave device to the network.
Exclusion	Delete a Z-Wave device from the network.
Remove	To take a device out of a group, scene or association group while that device still exists in the same Z-Wave network.
Z-Wave Network	A collection of Z-Wave devices is controlled by primary and secondary controllers operating on the same system. A Z-Wave network has its own unique ID code so that controllers not in the network cannot control the system.
Primary Controller	The first controller is used to set up your devices and network. Only the Primary Controller can be used to include or delete devices from a network. It is recommended that you mark the primary controller for each network for ease in modifying your network.
Secondary Controller	A controller containing network information about other devices within the network and is used for controlling devices. Secondary controller is created from the Primary Controller and cannot include or delete devices to the network.
Inclusion Controller	A controller containing network information about other devices within the network and is used for controlling devices. Inclusion controller is created from the Primary Controller in a SIS enabled Z-Wave network. Inclusion Controllers have the ability to add and remove devices from the network.

ZXT-120 Operations

Before using the ZXT-120, please read the [INSTALLATION] if it is needed to mount the ZXT-120 to a wall. Power up the ZXT-120 by the USB Power 5Vdc or Dry battery AAA x 3pcs.

- 3xAAA batteries are required for operation.
- Please refer to the section of [MOUNTING PROCEDURE].
- Remove the battery cover on the back of your ZXT-120 battery chassis.
- Mount the battery cover into the main unit with 2 screws.
- Check the polarity of the batteries and the "+/-" marks inside the battery compartment.
- Insert the batteries.
- Push the battery cover and main unit back in place.

CAUTION (battery and power adaptor safety)

- Use new batteries of the recommended type and size only.
- Never mix used and new batteries together.
- To avoid chemical leaks, remove batteries from the ZXT-120 if you do not intend to use the remote for an extended period of time.
- Dispose of used batteries properly; do not burn or bury them.

(Please carefully read through the following then store the manual for future reference.)

Configurations

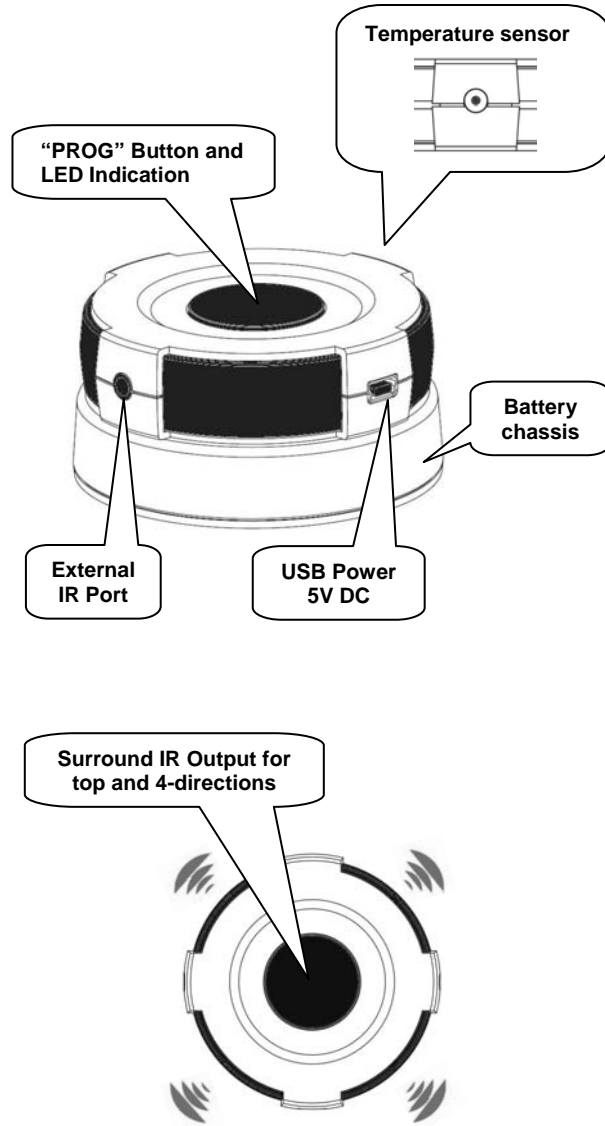


Figure 2 PROG Key and IR Port of ZXT-120

ZXT-120 Information

How to get the NIF “Node Information Frame” on ZXT-120

Step	Setup Key	LED Indication Status on ZXT-120
1	Press the PROG button on the ZXT-120	<ul style="list-style-type: none">• LED flashes once then stay off (ZXT-120 will report the supported command class)

Parameter No. and Parameter Value of configuration command class in ZXT-120

Parameter Number	Definitions	Value
27 (0x1B)	IR code number for built-in code library	Refer “Code list” for details
28 (0x1C)	External IR Emitter power level	0x00 : normal power mode 0xFF : high power mode (default)
32 (0x20)	Surround IR control <ul style="list-style-type: none">- to avoid the IR interference by disabling the surrounding IR emitter if 2 air-conditioners in a room are in use- extend the battery life by disabling the Surround IR Emitters	0x00 : disable Surround IR Emitters 0xFF : enable Surround IR Emitters (default)

Parameter Table

Important Information

- If you are using Gateway or other z-wave controllers to operate ZXT-120, Please follow the instruction from the gateway or other controller.
- You can check either the specifications in the manual of your ZXT-120 or also check online at www.remotec.com.hk for a full list of products that can be used with your ZXT-120.

Reset ZXT-120 to factory default

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

INSTALLATION

MOUNTING THE ZXT-120 TO A WALL

MOUNTING LOCATION PRECAUTIONS

- 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 PROCEDURE PRECAUTIONS

- Do not modify parts or use the ZXT-120 in ways other than its intended use. Doing so could cause the ZXT-120 to fall and result in an injury.
- Be sure to fully check that there are no electrical wires or pipes inside the wall before mounting.
- If any of the screws are loose, the ZXT-120 can fall and cause an injury. Do not mount the ZXT-120 with the screws still loose.
- Check that the two screws mounted to the wall are fully inserted into the key holes of the ZXT-120. Otherwise, the ZXT-120 can fall and cause an injury.
- Do not mount the ZXT-120 so that it sticks out from the wall edge. It could get hit by people's bodies or objects and cause an injury.
- Supplier will not be liable for any accidents or injuries that occur due to improper mounting or handling.
- When mounting, be careful not to get your fingers pinched or injure your hands.

MOUNTING PROCEDURE

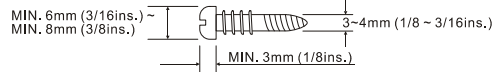
The ZXT-120 can be mounted to a wall or wooden racks using the two key holes in the bottom case.

Note 1: The reception sensitivity varies depending on the antenna

direction.

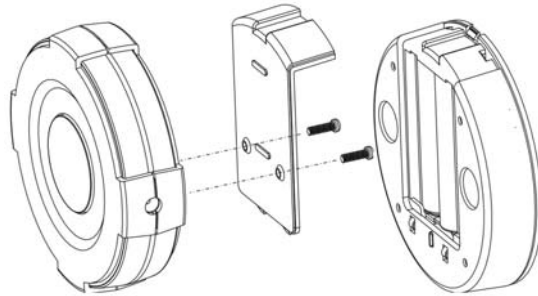
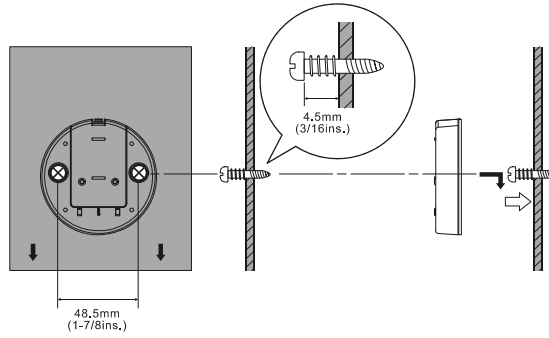
Note 2: Before mounting to a wall, be sure to fully read the precautions.

1. Obtain two screws suitable for the wall strength and material.
The screw size is shown in the figure below.



2. The positional relationship between the ZXT-120 key holes and the screw mounting positions are shown in the figure below.

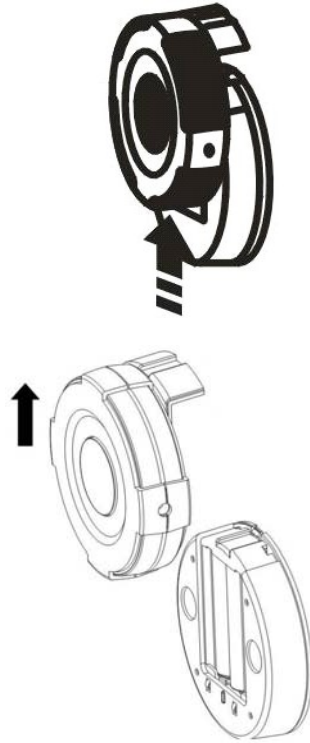
Note 1: When mounting the screws to the wall, leave a space between the wall and screw cap as shown in the figure.



3. Insert the ZXT-120 key holes onto the two screws mounted to the wall, and then slide downward to secure in place.
4. After securing the ZXT-120 to the wall, connect the USB Power or batteries and IR emitter cable to the ZXT-120.

Note 1: Check that the ZXT-120 is firmly secured to the wall.
Note 2: Insert USB plug or batteries and IR emitter cable so that they are firmly connected to the ZXT-120.

5. When removing the ZXT-120 from the wall, lift up the ZXT-120, then pull it towards you.
6. Detach the main unit from the battery chassis by move toward to top position.



WIRELESS INFORMATION

Wireless range:

This device has an open-air line-of-sight transmission distance of 100 feet which complies with the Z-Wave standards. Performance can vary depending on the amount of objects in between Z-Wave devices such as walls and furniture. Every Z-Wave device set up in your network will act as a signal repeater allowing devices to talk to each other and find alternate routes in the case of a reception dead spot.

Radio frequency limitations:

1. Each wall or object (i.e.: refrigerator, bookshelf, large TV, etc) can reduce the maximum range of 65 feet by up to 25 to 30%.
2. Plasterboard and wooden walls block less of the radio signal than concrete, brick or tile walls which will have more of an effect on signal strength.
3. Wall mounted Z-Wave devices will also suffer a loss of range if they are housed in metal junction boxes which could also reduce the range by up to 25 to 30%.

MAINTENANCE

- 1 Do not expose your ZXT-120 to dust, strong sunlight, humidity, high temperatures or mechanical shocks.
- 2 Do not use old and new batteries together as old batteries tend to leak.
- 3 Do not use corrosive or abrasive cleansers on your ZXT-120.
- 4 Keep the unit dust free by wiping it with a soft, dry cloth.
- 5 Do not disassemble your ZXT-120, it contains no user-serviceable parts.

FREQUENTLY ASKED QUESTIONS

Z-Wave Frequently Asked Questions

Q Why won't my ZXT-120 work with the Z-Wave devices I purchased from another country?

A Due to different countries regulations Z-Wave products from different regions are set to different frequencies. Before purchasing new devices make sure you have checked that the device is compatible in your region.

Q How do I know which product is compatible with my ZXT-120?

A ZXT-120 should work with any Z-Wave controller or gateway that has control capability for "Thermostat" devices. You can check either the specifications in the manual of your ZXT-120 or also check online at www.remotec.com.hk for a full list of products

that can be used with your ZXT-120. All Z-Wave products also come with the Z-Wave logo.



Q Can I use the USB port to configure ZXT-120?

A No, the mini USB port only provides an alternative option for user to power the ZXT-120.

Q Do I need an electrician to install Z-Wave products in my house?

A Installation can be simple. In some cases all you need to do is mount the ZXT-120 to a wall or wooden racks. You also can place the ZXT-120 on the desk and power it with dry cell batteries.

Q How to select my air-conditioner IR code from ZXT-120?

A You should refer to the code list and look into the brand and try the code no. sequentially until you find the right code. You can record down your device code under the table for future reference after setting up the ZXT-120 correctly.

Q ZXT-120 is working on top and 4-directions IR output, but there is no response on the IR emitter socket, why?

A ZXT-120 supports two IR power levels for the external IR emitter to avoid saturation of the IR receiver. You can set the IR output power level by the Parameter Table value (normal or high power mode) or adjust the position of your external IR emitter.

Q Can I use 2 or more ZXT-120 in my house? What is the max. units if yes?

A Yes and it is very depend on the capability of gateway / controller. For example, gateway can supports up to 8, 16 or 32 ZXT-120 in a network.

Q How to avoid the IR interference if I am using 2 identical air-conditioners in same location but want to control them individually?

A User can disable the Surround IR Output function, connect the external IR emitter and aim it at the specific AC unit. The operating distance of external IR emitter is around 100cm (High power mode) and 50cm (Low power mode) but it is also depends on the sensitivity of the IR receiver.



Q Where can I keep up to date with the latest Z-Wave products for my house?

A You can keep up to date by visiting the www.remotec.com.hk website where we will have information and ideas for using Z-Wave technology.

TECHNICAL SPECIFICATIONS

Model no.	BW8377EU (ZXT-120EU)
Model no.	BW8377AU (ZXT-120AU)
Model no.	BW8377US (ZXT-120US)
Model no.	BW8377IN (ZXT-120IN)
RF Frequency	868.4MHz (EU) (ZXT-120EU)
RF Frequency	921.4MHz (AU) (ZXT-120AU)
RF Frequency	908.4MHz (US) (ZXT-120US)
RF Frequency	865.22MHz (IN) (ZXT-120IN)
RF operating distance	up to 80ft outdoor line of sight, in unobstructed environment
IR operating distance	up to 25ft line of sight, in unobstructed environment
Temperature	Measurable range: 32 – 104 °F / 0 – 40 °C Operation: 0 - 40°C Storage: -20 - 60°C
Powered by	USB Power DC 5V 100mA or Dry battery AAA x 3pcs
Dimension	Dia.=70mm, T = 18mm (Main unit) Dia.=70mm, T = 15.5mm (Battery chassis)
Weight	35g (Battery chassis excluded) 60g (Battery chassis included) 90g (Main + Battery chassis + AAA x3pcs)

Z-Wave device type			
Basic Device Class: BASIC_TYPE_ROUTING_SLAVE			
Generic Device Class: GENERIC_TYPE_THERMOSTAT			
Specific Device Class: SPECIFIC_TYPE_THERMOSTAT_GENERAL_V2			
Z-Wave Command Class	Version	Controlled	Supported

COMMAND_CLASS_THERMOSTAT_MODE	Version2	NO	YES
COMMAND_CLASS_THERMOSTAT_SETPOINT	Version2	NO	YES
COMMAND_CLASS_THERMOSTAT_FAN_MODE	Version2	NO	YES
COMMAND_CLASS_BATTERY	Version1	NO	YES
COMMAND_CLASS_CONFIGURATION	Version2	NO	YES
COMMAND_CLASS_BASIC	Version1	NO	YES
COMMAND_CLASS_VERSION	Version1	NO	YES
COMMAND_CLASS_SENSOR_MULTILEVEL	Version1	NO	YES
COMMAND_CLASS_SENSOR_CONFIGURATION	Version1	NO	YES
COMMAND_CLASS_POWERLEVEL	Version1	NO	YES
COMMAND_CLASS_SWITCH_ALL	Version1	NO	YES
COMMAND_CLASS_MANUFACTURER_SPECIFIC	Version1	NO	YES

You can record down your device code under the below table for future reference after setting up the ZXT-120 correctly.

AC device programmed to your ZXT-120
Code no.:

CHECKING THE ACCESSORIES

After opening the cover of the packing box, check that the following accessories are included.

- ZXT-120 (Z-Wave-to-AC IR Extender)
- Screws (bottom cover) x 2pcs
- ZXT-120 User Manual (download from our website)
- AC Code List (download from our website)

FCC NOTICE

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.

WARNINGS

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

- **RISK OF FIRE**
- **RISK OF ELECTRICAL SHOCK**
- **RISK OF BURNS**
- **The socket-outlet shall be installed near the equipment and shall be easily accessible.**
- **Use only power supplies listed in the user instructions.**

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.

CAUTION

- RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE.
- DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.

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