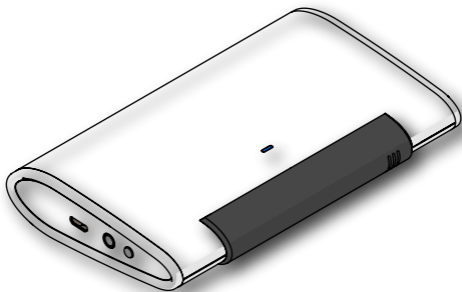


# ZXT-600

## AC MASTER

INSTALLATION GUIDE





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## **Introduction**

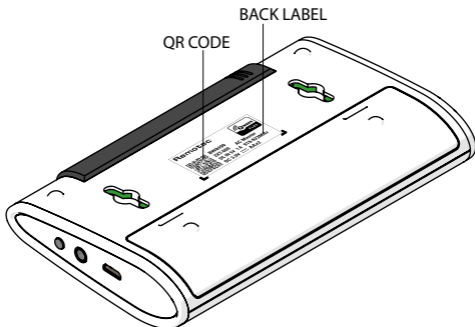
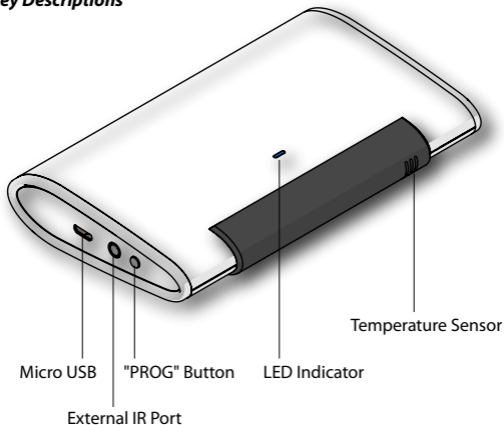
ZXT-600, AC Master, is a Z-Wave plus compliant Z-Wave-to-IR Bridge to control split air conditioner by receiving Z-Wave command and translating to Infrared command. With its comprehensive built-In and cloud-stored IR database (library). ZXT-600 can control different brands and models of air conditioners worldwide.

ZXT-600 is a security enabled Z-Wave plus device. A security Enabled Z-Wave Plus Controller must be used in order to fully utilize the product.

ZXT-600 is a Z-Wave slave device, it depends on gateway to setup particular AC brand with correct IR code. Different gateway has different user interface for setup.

## Product Overview

### Key Descriptions



## Features

- Working as a Z-Wave thermostat
- Support classic inclusion and NWI
- Built-in air conditioner IR codes, as well as cloud-based IR code library
- IR learning back up
- Built-in temperature sensor for room temperature report
- Working on battery (2x AA batteries) or USB power
- Support firmware upgrades via Over-the-air (need Gateways support)

## Z-Wave 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	Remove 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.
Network Wide Inclusion (NWI)	Network Wide Inclusion (NWI) enables both end-user friendly, Plug and Play like Z-Wave network installation as well as professional installation scenario where the inclusion process, in terms of time will be reduced significantly. NWI is a feature supported by a new frame type named Explorer which enables the Z-Wave protocol to implement Adaptive Source Routing.

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 remove devices from a network. It is recommended that you mark the primary controller for each network for ease in modifying your network.
FLiRS Mode	FLiRS is abbreviation for "Frequently Listening Routing Slave". FLiRS mode is targeted for battery operated applications and will enter sleep mode frequently in order to conserve battery consumption. The response to Z-Wave command is not as quick as Always Listening Device. Normally there is 1-2 seconds latency.
Always Listening Mode	Always Listening Mode is targeted for AC power operated applications and it can act as a repeater, which will re-transmit the RF signal to ensure that the signal is received by its intended destination by routing the signal around obstacle and radio dead spots. The response to Z-Wave command is immediate.
Association	Association is used to organize nodes in different groups allowing the device to identify the nodes by a group identifier. The groups can also be copied to other devices.

## Get Started

- Open the box
- ZXT-600 AC Master x 1pc

### **Step 1 Apply Power to ZXT-600**

- 2x AA batteries or micro USB
- ZXT-600 will detect the first applied power source to decide what Z-Wave device role it will be in after included into the Z-Wave gateway: battery= sleeping device (FLiRS mode). USB power = always awake device (Always Listening mode), refer to Z-Wave Glossary for more information.
- Once the ZXT-600 is included into a Z-Wave network, the working mode (sleeping or awake) cannot be changed, unless it is excluded and re-apply the power.
- ZXT-600 can be included 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.

### **Step 2 Include ZXT-600 to a Z-Wave Gateway**

Step	Procedure / Description	Status Indicator
1	Refer to your primary controller to enter into the Inclusion Mode or Exclusion Mode	
2	When it is prompted to enter it, please triple click the "PROG" button within 1 second.	Green Indicator flashes TWICE then stay off



### Notes:

1. It is recommended to perform the Remove (Exclude) procedure before performing an Add (Include) procedure.
2. Red Indicator flashes TWICE then stay off to represent the Add / Remove process failed, please repeat the above step again.
3. If the Add (Include) process fails, try Remove (Exclude) and /or resetting the AC Master to Factory Default and repeat the above step.

### **Step 3 Setup Automatic Status Report Association to Gateway**

Please consult your Gateway supplier for more detail. Normally, User can ignore this step during the setup.

ZXT-600 supports 1 association group

Association Group #1

Association Group #1 (max. 1 node) is default to associate with the primary controller (Gateway/Hub/Controller) for AC Master Status change report, refer to below for report details:

- Current Room Temperature (report in precision of 0.5°C or 1°F) (It will be according to Configuration Parameter 39 setting to decide the trigger level)
- Current Battery Level (Only apply in Low Battery Warning happened)
- Device Reset Locally Notification (Only report when the AC Master has been triggered the RESET TO DEFAULT)

### **Step 4 Setup Air Conditioner IR code**

- The UI of set up the IR code varies from different gateways. If gateways have dedicated UI for the IR code setup please refer to the gateway UI and ignore the below steps.
- If your gateway does not have dedicated UI for ZXT-600 IR code setup, but support Z-Wave thermostat Command Class and Configuration Command Class. You may refer to below steps to setup the IR code using the configuration options in your gateway

Step	Procedure / Description	Status Indicator
1	Refer to your primary controller user manual, enter to the browser page that can input the Configuration parameter.	
2	Input parameter number "27" and parameter value (Please use QR Code scanner to scan the QR code label (refer to product overview page), then it will reach to our Code Finder Webpage to obtain the Code Number). Then complete the Configuration process.	Green Indicator will turn on. If fail, Red Indicator will flash TWICE.
3	Go back to the control page of AC Master on the gateway's Browser and try the function such as (Cool, Temperature Set). If the Air Conditioner does not respond to the command you set on the Gateway (Cool, Heat, Auto, Temperature Set, etc....), repeat Step 2 and 3 to Select the next IR Code on the search list.	Green Indicator flashes ONCE every time if receives a command from Gateway

## Important Information

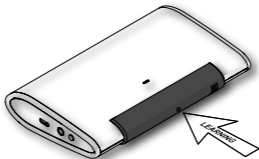
- Different brand or model of air conditioner has different function. For example, some air conditioner only support temperature set from 18°C - 30°C, if user set 17°C on gateway, AC Master will not respond.
- There are more than 1 code for each brand, some does not support Heat, if User selected a code that does not support Heat but Original air conditioner supports Heat Function, please continue to try next code until the correct one is selected.
- You can record down your Device Code for future reference after setting up the AC Master correctly.
- It is not allowed to set up the IR Code when the Battery Level equal or below to 50%

AC Device programmed to your AC Master

Code Number :

## IR Code Learning

Step	Procedure / Description	Status Indicator
1	Refer to your primary controller user manual, enter to the browser page that can input the Configuration parameter	
2	Look up Below mapping table for learning, and decide the IR setting you intend to learn next.	
3	Open the Gateway's Configuration Browser page input parameter number "25" and parameter value (according to below Mapping Table), then complete the Configuration process.	Then Green Indicator still turns ON for indicating the IR Code Learning Start
4	Aim the Original Air Conditioner Remote at AC Master according to below position within 1-3cm Press "Power ON" button on the Original Air Conditioner Remote. If the Learning is failed, repeat Step 3 to step 4 To learn next IR code, repeat Step 2 to step 4.	Successful: Green Indicator flashes TWICE Unsuccessful: Red Indicator flashes TWICE.
5	Once you finished the IR Code Learning, please go to Configuration setting page on the Gateway browser and input parameter number "27" and parameter value "000" to select the dedicated AC code number "000" for learning.	Green Indicator flashes ONCE every time if receives a command from Gateway



## Tips

- Make sure your Original Remote is in Power OFF Status.
- Make sure your Original Remote set FAN Speed to AUTO and FAN SWING to AUTO/ON
- Press and Hold the Power Key on Original Remote UNTIL AC Master indicate Successful or Not.
- User need at least Learn the OFF (Parameter Value 0), and one Temperature Mode (Parameter Value 2 ~ 28) to complete the usage model.
- Keep away from Incandescent Light or Direct Sunlight during learning.
- Make sure IR Transmitter of your Original Remote align with learning diode of AC Master, you may also slight adjust closer or further away the distance of two devices. Some of Remotes the IR transmitter is hidden behind lens and may not be installed at the center of remote.
- Make sure the power is good on both devices, especially the Original remote. Use Fresh Batteries in both devices recommended. ZXT-600 will not implement the learning process if the battery level is Equal or below 50% .

## IR Learning Mapping Table (Parameter Number 25)

Parameter Value (Storage Location)	Thermostat Command & IR Setting	
	Storage in Celsius Unit	Storage in Fahrenheit Unit
0	OFF	OFF
1	ON (RESUME)	ON (RESUME)
2	17°C COOL	63°F COOL
3	18°C COOL	64°F COOL
4	19°C COOL	66°F or 67°F COOL
5	20°C COOL	68°F or 69°F COOL
6	21°C COOL	70°F or 71°F COOL
7	22°C COOL	72°F or 73°F COOL
8	23°C COOL	74°F or 75°F COOL
9	24°C COOL	76°F COOL
10	25°C COOL	77°F or 78°F COOL
11	26°C COOL	79°F or 80°F COOL
12	27°C COOL	81°F or 82°F COOL
13	28°C COOL	83°F or 84°F COOL
14	29°C COOL	85°F COOL
15	30°C COOL	86°F COOL
16	17°C HEAT	63°F HEAT
17	18°C HEAT	64°F HEAT
18	19°C HEAT	66°F or 67°F HEAT
19	20°C HEAT	68°F or 69°F HEAT
20	21°C HEAT	70°F or 71°F HEAT
21	22°C HEAT	72°F or 73°F HEAT

22	23°C HEAT	74°F or 75°F HEAT
23	24°C HEAT	76°F HEAT
24	25°C HEAT	77°F or 78°F HEAT
25	26°C HEAT	79°F or 80°F HEAT
26	27°C HEAT	81°F or 82°F HEAT
27	28°C HEAT	83°F or 84°F HEAT
28	29°C HEAT	85°F HEAT
29	30°C HEAT	86°F HEAT
30	DRY MODE	DRY MODE
31	AUTO MODE	AUTO MODE
32	FAN MODE	FAN MODE

## Important Information

After all learning completed, User can go back to the ZXT-600 control page on the gateway for normal operation.

- On the Gateway UI, User can only use the Temperature range from the mapping table, OFF, ON(RESUME), COOL, HEAT, DRY MODE, AUTO MODE and FAN MODE.
- If User only learnt ON(RESUME), OFF, or part of the settings according to the above table, ZXT-600 will send the learnt data to the Air Conditioner only. For example, User only learnt ON(RESUME), OFF, 22°C COOL, 24°C HEAT, ZXT-600 will not send the IR Data to Air Conditioner if User set 27°C Cool on the gateway.
- User can still use gateway to set up Scene and Schedule with ZXT-600. For example, to have AC turn on at 23°C every day at 7am, 25°C at 11pm. Just make sure the set code is learnt.
- The learning mapping table is for split Air Conditioner, which Remote Control is with LCD Display. For Window type Air Conditioner (which Remote Control is without LCD Display), the mapping table with temperatures do not apply, due to different type of IR Control Protocol. However, User may still use OFF, ON(RESUME), DRY, AUTO or FAN Key for Learning.
- (Because the POWER key on the Original Remote (without LCD Display) is toggle, user can choose either ON key or OFF key to learn Power key. After Learning is done, press once to turn on the Air Conditioner if the Air Conditioner is OFF, press once to turn OFF if the Air Conditioner is ON)

## Other Setup Options through Configuration

Functions	Parameter Number	Parameter Value	Size ( bytes)
Learn IR code	25 (0x19)	Default: 0x0000 range: (0x0000 to 0x20) refer to learning mapping table	2
Check IR Code Learning Status (Read Only)	26(0x1A)	Default: 0x00 range: 0 to 4 (0x00 to 0x04) 0(0x00) : Idle - IR Channel is idle 1(0x01) : OK - the last learning operation was completed successfully 2(0x02) : Learning - ZXT-600 is busy processing previous learning request 3(0x03) : Full – All locations are being used. 4(0x04) : The last learning request was failed Note:The status value 0x01 and 0x04 will be reset to 0x00 after ZXT-600 receives a get command to this parameter.	1
Set IR Code number from built-in code library	27 (0x1B)	Refer to Code Finder Webpage.	2



<p>Set Built-in IR Emitter Control ( If there have two or more Air Conditioners with the same code set that are used in the same room, user can disable the built-in IR emitter and use the external IR emitter cable to control each air conditioner</p>	<p>32 (0x20)</p>	<p>Default: 0xFF 0 or 255 (0x00 or 0xFF) 0(0x00): Disable 255(0xFF): Enable (Default)</p>	<p>1</p>
<p>Control Air Conditioner "SWING" function</p>	<p>33 (0x21)</p>	<p>Default: 0x01 Range 0 to 1 (0x00 or 0x01) 0(0x00) : Swing OFF 1(0x01) : Swing Auto (Default)</p>	<p>1</p>

Calibrate temperature reading	37 (0x25)	<p>Temperature offset value.</p> <p>0(0x00) = 0°C (Default)</p> <p>1(0x01) = 1°C</p> <p>2(0x02) = 2°C</p> <p>3(0x03) = 3°C</p> <p>4(0x04) = 4°C</p> <p>5(0x05) = 5°C</p> <p>255(0xFF) = -1°C</p> <p>254(0xFE) = -2°C</p> <p>253(0xFD) = -3°C</p> <p>252(0xFC) = -4°C</p> <p>251(0xFB) = -5°C</p>	1
Set Auto Report Condition Trigger By Room Temperature change	30 (0x1E)	<p>0(0x00) = Disable AUTO report function (Default) (for saving battery life)</p> <p>Auto report if room temperature is different from last report.</p> <p>1(0x01) = 1°F (0.5°C)</p> <p>2(0x02) = 2°F (1°C)</p> <p>3(0x03) = 3°F (1.5°C)</p> <p>4(0x04) = 4°F (2°C)</p> <p>5(0x05) = 5°F (2.5°C)</p> <p>6(0x06) = 6°F (3°C)</p> <p>7(0x07) = 7°F (3.5°C)</p> <p>8(0x08) = 8°F (4°C)</p>	1
Set Auto Report Condition By Time Interval	34 (0x22)	<p>Auto report by the following time interval.</p> <p>1(0x01) = 1 Hr</p> <p>2(0x02) = 2 Hrs</p> <p>3(0x03) = 3 Hrs</p> <p>4(0x04) = 4 Hrs</p> <p>5(0x05) = 5 Hrs</p> <p>6(0x06) = 6 Hrs</p> <p>7(0x07) = 7 Hrs</p> <p>8(0x08) = 8 Hrs (Default)</p>	1

Note:

All the above Parameter Number and Value is in Hexadecimal Numbering Format, if the Gateway only support decimal numbering format, please change it to decimal value accordingly.

### Mapping Information

- BASIC Set Value 0x00 will map to Thermostat mode OFF 0x00
- BASIC Set Value 0xFF will map to Thermostat mode Resume 0x05
- Energy Saving Mode will map to Thermostat mode OFF
- Comfort Mode will map to Thermostat mode Resume 0x05

## Reset to Factory Default

Press and Hold "PROG" button for 3 seconds on AC Master, the Green Indicator will light up. DO NOT Release the "PROG" Button until Green Indicator flashes TWICE.

**Important** : ZXT-600 will not implement the reset to factory default when the battery level equal or below 50%

*Remark : All the setting and data will be permanently deleted. Please use this procedure only when the network primary controller is missing or otherwise inoperable.*

## Mounting

### **Required tools and supplies**

- Phillips Screwdriver
- Drill
- Drill bit (3/16" for drywall, 7/32" for plaster)
- Hammer
- Pencil
- Level (optional)
- AA Alkaline Battery 2pcs (Not Included) or 5VDC 1A Power Adaptor with 1.5m long Micro USB Cable (Not Included)

### **CAUTION**

- 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-600 if you do not intend to use the device for an extended period of time.
- Dispose of used batteries properly; do not burn or bury them.

## **Mounting Location Tips**

The ZXT-600 should be mounted on an inner wall about 5ft (1.5m) above the floor where it is readily affected by changes of the general room temperature with freely circulating air.

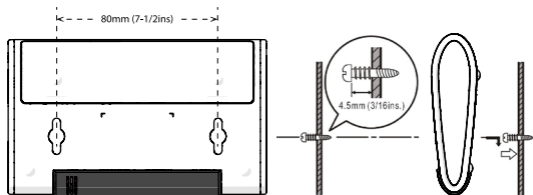
Before mounting, check the material and structure of the mounting location. If the location does not have the proper material or structure, the ZXT-600 can fall and cause an injury.

Avoid mounting above or near hot surfaces or equipment (e.g. TV, Heater, Refrigerator). Avoid mounting where it will be exposed to direct sunshine, drafts, or in a laundry room or other enclosed space.

Better to mount your device where it has no any obstacle or blocked object between the device and your AC Appliance.

## **Mounting the ZXT-600**

- Position ZXT-600 on wall, level and mark hole positions with pencil.
- Drill holes at marked positions, then tap in supplied wall anchors.
- Insert and tighten mounting screws as below figure



## Technical Specifications

Model no.	BW8490US (ZXT-600US) BW8490EU (ZXT-600EU) BW8490AU (ZXT-600AU) BW8490JP (ZXT-600JP) BW8490KR (ZXT-600KR) BW8490IN (ZXT-600IN) BW8490CN (ZXT-600CN)
RF Frequency	908.4MHz (ZXT-600US) 868.4MHz (ZXT-600EU) 921.4MHz (ZXT-600AU) 922.5MHz (ZXT-600JP) 920.9MHz (ZXT-600KR) 865.2MHz (ZXT-600IN) 868.4MHz (ZXT-600CN)
RF Operating Distance	Up to 132ft outdoor line of sight, in unobstructed environment
Temperature Measurement	Measurable range : 0°C ~ 40°C / 32°F ~ 104°F Report resolution : 0.5 Degree C / 0.5 Degree F
Operating Ambient Temperature	0°C ~ 40°C, non-condensing
Storage Temperature	-10°C ~ 50°C
Powered By	USB Power DC 5V 1A or Alkaline Primary Batteries AA x 2pcs
Dimension (L x H x T)	128mm x 78mm x 22mm
Weight	84g (Batteries excluded)

## **WARRANTY**

**ONE-YEAR LIMITED WARRANTY:** Remotec warrants this product to be free from defects in materials and workmanship under normal use and service for a period of one year from the original date of purchase from the distributors or dealer.

REMOTEC shall not be liable for:

- Damages caused by defective devices for indirect, incidental, special, consequential or punitive damages, including, inter alia, loss of profits, savings, data, loss of benefits, claims by third parties and any property damage or personal injuries arising from or related to the use of the device.
- Service trips to provide instruction on product use.
- Shipping costs for replacement products.

This warranty is limited to the repair or replacement of this product only, if the purchase date cannot be substantiated, the warranty period will begin on the date of manufacture as indicated on this product. All warranty claims must be made to Remotec appointed distributors or dealers during the applicable warranty period. This warranty gives you specific legal right and you may also have other rights which vary in each country.

*Website : <http://www.remotec.com.hk>*

## Regulatory information

FCC ID : M7N-BW8490

### FCC Compliance Statement

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

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 or more 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.

Notice : Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user authority to operate the equipment.



## IC Notice

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions:

- This device may not cause interference, and
- This device must accept any interference, including interference that may cause undesired operation of the device.

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:

- l'appareil ne doit pas produire de brouillage, et
- l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

## Warnings

- Do not modify the unit in any way.
- Risk of fire.
- Risk of electrical shock.
- Risk of burns.
- 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.
- There is no user serviceable parts in this unit.

## Caution

- Risk of explosion if battery is replaced by an incorrect type.
- Dispose of used batteries according to the instructions.