zipato®

IR EXTENDER

Z-WAVE® | Infrared

USER GUIDE

V1.1

How can I have Z-Wave and IR interoperability with one easy, intuitive and efficient solution?

This guide describes how to install, program and operate Zipato IR Extender.

COPYRIGHT

© 2015 Tri plus grupa d.o.o. All Rights Reserved. Copyright by Tri plus grupa d.o.o.
No part of this manual may be reproduced or transmitted in any form without the expressed, written permission of Tri plus grupa d.o.o.

TRADEMARKS

Zipato and the Zipato logo are registered Trademarks.
All other product names mentioned herein may be trademarks or registered trademarks of their respective companies.

NOTICE

Although Zipato has attempted to ensure the accuracy of the content of this manual, it is possible that this document may contain technical inaccuracies, typographical, or other errors. Zipato assumes no liability for any error in this publication, and for damages, whether direct, indirect, incidental, and consequential or otherwise, that may result from such error, including, but not limited to loss of data or profits. Zipato provides this publication “as is” without warranty of any kind, either express or implied, including, but not limited to implied warranties of merchantability or fitness for a particular purpose. The published information in the manual is subject to change without notice.

Zipato reserves the right to make changes in the product design, layout, and driver revisions without notification to its users.

IMPORTANT SAFETY INFORMATION

To avoid contact with electrical current:

- Never install an Ethernet connection in wet locations unless that connector is specifically designed for wet locations.
- Do not place Ethernet wiring or connections in any conduit, outlet or junction box containing electrical wiring.
- Installation of inside wire may bring you close to electrical wire, conduit, terminals and other electrical facilities. Extreme caution must be used to avoid electrical shock from such facilities. Avoid contact with all such facilities.
- Ethernet wiring must be at least 2 m from bare power wiring or lightning rods and associated wires, and at least 15 cm from other wire (antenna wires, doorbell wires, wires from transformers to neon signs), steam or hot water pipes, and heating ducts.

ELECTROMAGNETIC COMPATIBILITY

When operated according to manufacturer instructions, the product complies with all applicable CE harmonised standards from EMC Directive 2004/108/EC and Part 15 of the FCC Rules. The connections conducting HF signals must not be damaged or altered in any way by the user.

CONTENTS

INTRODUCTION

The ZXT-120 is a Z-Wave to IR extender for air-conditioning (AC) devices, (Figure 1), it works with any Z-Wave compliant gateway or controller by translating Z-Wave Thermostat Commands to AC IR control code. User can select the IR code from the built-in code library of ZXT-120, or use learning function, by using Z-Wave Configuration Commands according to the parameter table. IR Extender also comes with built-in temperature sensor which allows gateway or controller to get the current room temperature.

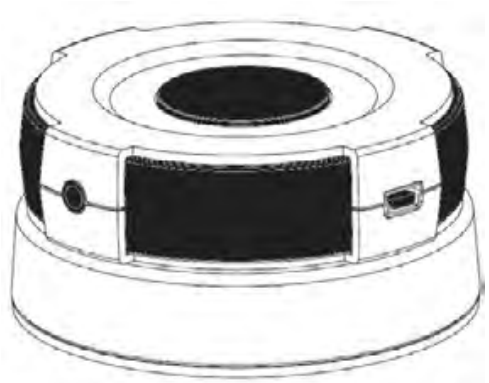


Figure 1 ZXT-120

ZXT-120 can be configured as either “Frequently Listening Routing Slaves” FLiRS (if you are using battery) or “Always Listening” (if you are using 5V DC adaptor) before inclusion process. Refer to Glossary for definition of “FLiRS” and “Always Listening” mode.

ZXT-120 supports Network Wide Inclusion (NWI) and Explore Frames. It also supports Z-Wave networks with multiple gateways and controllers. Once the configuration and setup is complete, the gateway or controller can use Z-Wave "Thermostat commands class" to control their IR-controlled air-conditioner through the ZXT-120.

CONTROLLER AND GATEWAY REQUIREMENTS

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

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

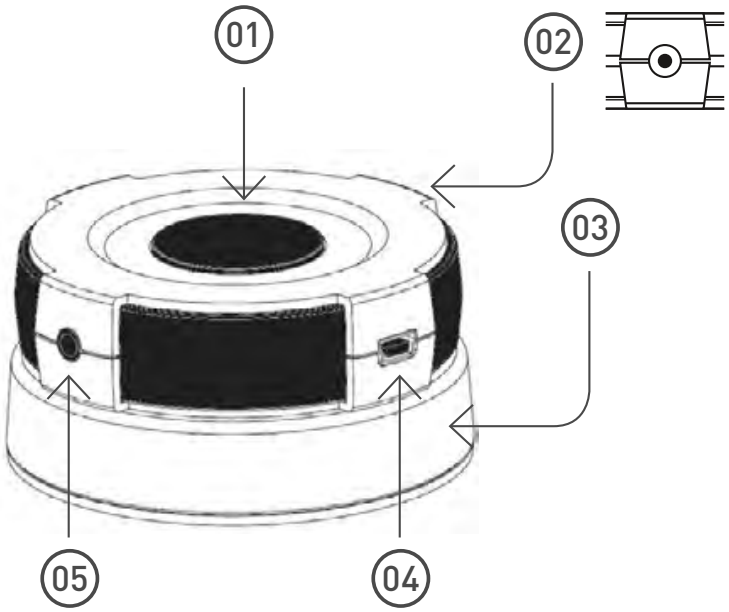
BUILT-IN IR CODE LIBRARY

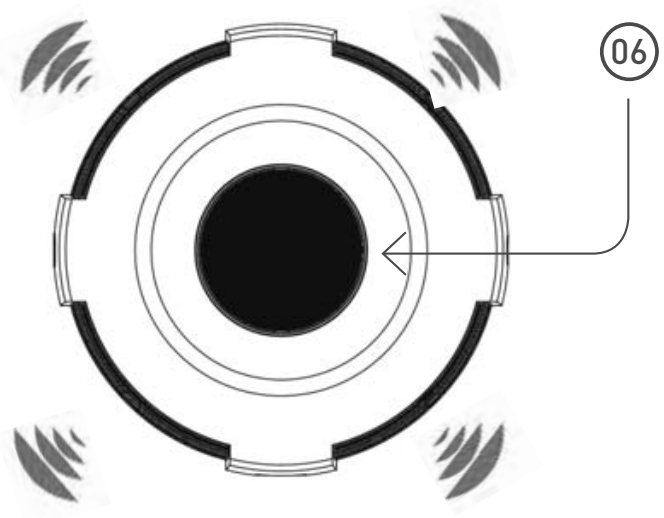
The Built-in IR code library supports most of the popular air conditioner brands in the market. Z-Wave gateway and controller does not need to have any IR control code knowledge. User can use Z-Wave controller or gateway to select the IR code according to the ZXT-120 code list separately provided through 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.
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.
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.

OVERVIEW





01 "PROG" Button, Learning and LED indication

02 Temperature sensor

03 Battery Chassis

04 USB Power 5V DC

05 External IR port

06 Surround IR Output for top and 4-directions

PACKAGE CONTENT

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

- ZXT-120 (Z-Wave to AC IR Extender)
- USB cable
- Screws (bottom cover) x 2pcs
- User Manual

IR EXTENDER OPERATIONS

If you need to mount the ZXT-120 to a wall, Please read the “Installation” chapter .

Power up the ZXT-120 by the USB Power 5V DC or Dry battery AAA x 3pcs.

- Plug-in 5V DC power into the USB socket if operated at Always Listening mode, or
- Install 3xAAA batteries if operated at FLiRS mode.
- 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.

LISTENING MODE CHANGE (DEFAULT MODE IS FLIRS)

Before inclusion, ZXT-120 can be configured as either "Frequently Listening Routing Slave" (FLiRS) if you are using battery or "Always Listening" if you are using 5V DC adaptor. Refer to Glossary for definition of "FLiRS" and "Always Listening" node.

Important:

It is not allowed to change ZXT-120's listening mode without exclusion process (do not change ZXT-120 listening mode while ZXT-120 is included in a network).

How to switch ZXT-120 listening mode from "Always Listening" to "FLiRS" (or vice verse)

Step	Setup Key	LED Indication Status on ZXT-120
1	Press and hold the PROG button on the ZXT-120 for around 5 seconds	LED turns ON after PROG key hold for 5 seconds
2	Release the button and then press the PROG button 3 times within 2 seconds	LED flashes twice then stays off (ZXT-120 set in FLiRS mode) **OR** LED flashes four times then stays off (ZXT-120 set in Always Listening mode)

Inclusion/Exclusion

Step	Setup Key	LED Indication Status on ZXT-120
1	Refer to your primary controller instructions to process the inclusion / exclusion setup procedure.	-

2	When prompted by your primary controller, click once on the PROG button	LED flashes once then stays off (ZXT-120 will report the supported command class)

The primary controller should indicate that the action was successful. If the controller indicates the action was unsuccessful, please repeat the procedure.

IR Code Selection

ZXT-120 comes with built-in IR AC code library, user can select the IR code using Configuration Command Class.

Step	Setup Key	LED Indication Status on ZXT-120
1	After including ZXT-120 to Z-Wave controller or Gateway, go to device setup for configuration on gateway or controller.	-
2	Input parameter number “27” and parameter value (please look up the code list of ZXT-120 according to your AC brand). Then complete the configuration process.	LED flashes twice when ZXT-120 receives the configuration setting
3	Press the PROG button on the ZXT-120.	LED flashes once when ZXT-120 receives the configuration setting.
4	Go back to the control page of ZXT-120 on the gateway and try the function such as (cool, temperature set). If the air conditioner does not respond to the command you set on Gateway (Cool, Heat, Auto, Temperature set etc.), repeat step 2 and 3 to select the next code on code list.	LED flashes once every time it 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, ZXT-120 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 the 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 ZXT-120 correctly.

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

• If none of the code works on the target air conditioner, or the air conditioner brand is not shown on the code list, please select code "000" for IR code learning (refer to instruction of IR Code Learning)

IR 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:

Step	Setup Key	LED Indication Status on ZXT-120
1	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 twice when ZXT-120 receives the configuration setting.
2	Look up below mapping table (value 0-22) for learning, and decide the IR setting you intent to learn next. For example "22°C, cool" which matches value "5" (IR code to be learnt will locate at "5" in ZXT-120). Set your original air conditioner remote at "22°C, cool" and turn it off. (Besides temperature and mode, you may set other desired settings, such as Fan, Swing etc.)	-
3	Go to configuration setting page on the gateway and input parameter number "25" and parameter value "5" (in this case).	-

4	Press the PROG button on the ZXT-120.	LED flashes once when ZXT-120 receives the configuration setting. ZXT-120 flashes once again to start learning
5	Aim the original air conditioner remote at ZXT-120 from distance within 1-3 inches. Press "power on" button on the original air conditioner remote. If the learning is failed, repeat step 3 to step 5. To learn next IR code, repeat step 2 to step 5.	LED flashes twice if learning is successful. LED flashes 6 times if it has failed.

When you encounter problem, check followings:

- Make sure your original remote is switched to power off.
- Press the key on original remote before learning mode timeout.
- Keep away from incandescent light and direct sunlight during learning.
- Make sure IR Transmitter of your original remote alight with learning diode of ZXT-120, you may also slightly adjust closer or further away the distance of two devices.
- Make sure the power is good on both devices, especially the original remote. Use fresh batteries.

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	19 °C cool	67 °F cool
3	20 °C cool	68 or 69 °F cool
4	21 °C cool	70 or 71 °F cool

5	22 °C cool	72 or 73 °F cool
6	23 °C cool	74 or 75 °F cool
7	24 °C cool	76 °F cool
8	25 °C cool	77 or 78 °F cool
9	26 °C cool	79 or 80 °F cool
10	27 °C cool	81 or 82 °F cool
11	28 °C cool	83 or 84 °F cool
12	19 °C heat	67 °F heat
13	20 °C heat	68 or 69 °F heat
14	21 °C heat	70 or 71 °F heat
15	22 °C heat	72 or 73 °F heat
16	23 °C heat	74 or 75 °F heat
17	24 °C heat	76 °F heat
18	25 °C heat	77 or 78 °F heat
19	26 °C heat	79 or 80 °F heat
20	27 °C heat	81 or 82 °F heat
21	28 °C heat	83 or 84 °F heat
22	Dry mode	Dry mode

The “IR Learning Mapping Table” is the mapping information “degree C” vs “storage location” or “degree F” vs “storage location”. It is not related to “F to C” or “C to F” unit conversion.

Important Information

After all learning is completed, user can go back to the ZXT-120 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, If user press the button of FAN, or other function on the gateway UI which is not listed in above table, ZXT-120 will not respond.
- If user only learned ON, OFF, or part of the settings according to the above table, ZXT-120 will send the learned data to the air conditioner only. For example, user only learned ON, OFF, 22°C Cool, 24°C Heat, ZXT-120 will not send IR data to air conditioner if user set 27°C Cool on the gateway.
- ZXT-120 has been pre-defined default cool at 26°C, default heat at 22°C, when user press Cool on gateway without setting temperature, ZXT-120 will send the learned data of 26°C Cool to air conditioner. When user press Heat on gateway without setting temperature, ZXT-120 will send the learned data of 22°C Heat to air conditioner.
- There is only one code for dry mode, user can set it at any preferred temperature.
- User can still use gateway to set up scene and schedule with ZXT-120, for example, to have AC turn on at 23°C every day at 7pm, 25°C at 11pm. Just make sure the set code is learned.
- 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 the OFF, or ON/RESUME, DRY 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)

RESET ZXT-120 TO FACTORY DEFAULT

Press and hold “PROG” button for 10 seconds on ZXT-120. During the press and hold period, RED LED lights up at around 5 seconds, then, it will flash twice until reset process is completed at around 10 seconds.

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.zipato.com for a full list of products that can be used with your ZXT-120.

ZXT-120 INFORMATION

How to get the NIF "Node Information Frame" on ZXT-120 (Inclusion)

Step	Setup Key	LED Indication Status on ZXT-120
1	Press the PROG button on the ZXT-120	LED flashes once then stays off (ZXT-120 will report the supported command class)

Z-Wave Configuration Parameters

Parameter Number	Definitions	Parameter Value
25 (0X19)	Indicate a location for IR code learning and start learning	0-22 (0x00 0x16)
26 (0X1A)	Learning status register Note: The status value 0x01 and 0x04 will be reset to 0 when the ZXT-120 receive a get command to this parameter	0 (0x00): Idle - this IR channel is idle (default) 1 (0x01): OK - the latest learning process successful and completed 2(0x02): Learning - the ZXT-120 is busy processing previous learning request 4 (0x04): Failed - the latest learning request failed
27 (0X1B)	IR code number for built-in code library	Refer "Code list" for details
28 (0x1C)	External IR Emitter power level	0 (0x00): normal power mode 255(0xFF): high power mode (default)

32 (0x20)	Surround IR control -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	0(0x00): disable Surround IR Emitters 255(0xFF): enable Surround IR Emitters (default)
33 (0x21)	AC function "SWING" control	0(0x00): SWING OFF 1(0x01): SWING AUTO(Default)
35 (0x23)	Learn location status	Bit mask = 1, learn location has learn data. Otherwise, Bit mask = 0 See figure "Learn location" as below

On below example, listed below function has been learned
location 1 : ON (resume)
location 7 : 24°C cool
location 8 : 25°C cool
location 12 : 19°C heat
location 16 : 23°C heat

7	6	5	4	3	2	1	0
1	0	0	0	0	0	1	0

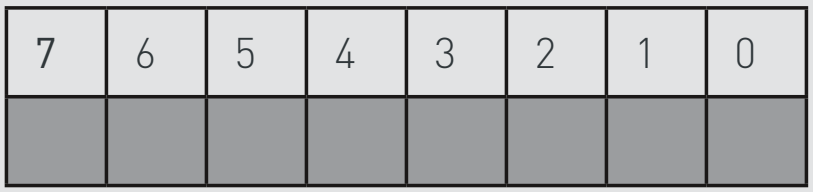
Bit Mask Byte 1
Location 0-7

7	6	5	4	3	2	1	0
0	0	0	1	0	0	0	1

Bit Mask Byte 2
Location 8-15

7	6	5	4	3	2	1	0
	0	0	0	0	0	0	1

Bit Mask Byte 3
Location 16-22

		Bit Mask Byte 4 [Reseved]
37 (0X25)	Sensor temperature compensation (This parameter is used to compensate the temperature error at temperature sensor)	Temperature offset value. Formula: Display temperature = sensor reading value + offset value (unit = degree C) 0x00 = 0°C (Default) 0x01 = 1°C 0x02 = 2°C 0x03 = 3°C 0x04 = 4°C 0x05 = 5°C 0xFF = -1°C 0xFE = -2°C 0xFD = -3°C 0xFC = -4°C 0xFB = -5°C

Mapping Information

- BASIC Set Value 0x00 will map to Thermostat mode Off 0x00.
- BASIC set Value 0xFF will map to Thermostat mode Resume 0x05.

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 PRECAUTIONS

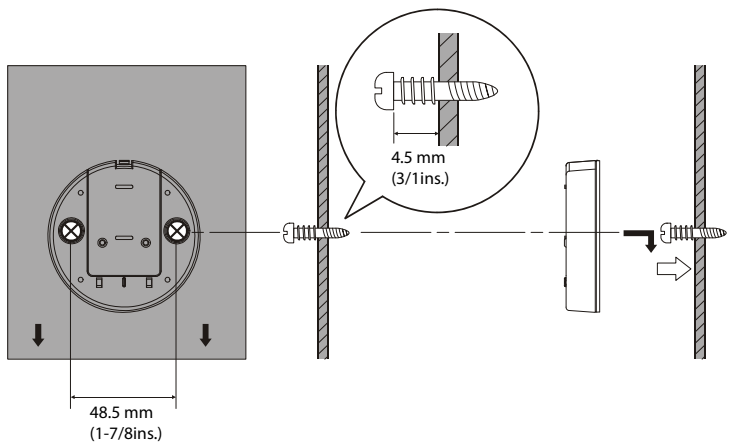
The ZXT-120 can be mounted to a wall or wooden racks using the two key holes in the bottom case.

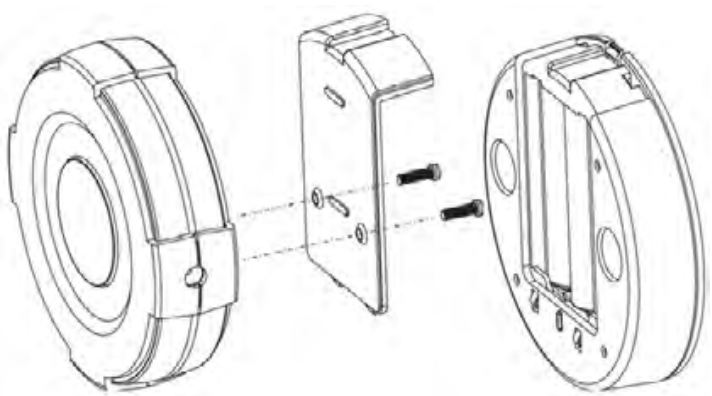
Note 1: The reception sensitivity varies depending on the antenna direction.

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.
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.



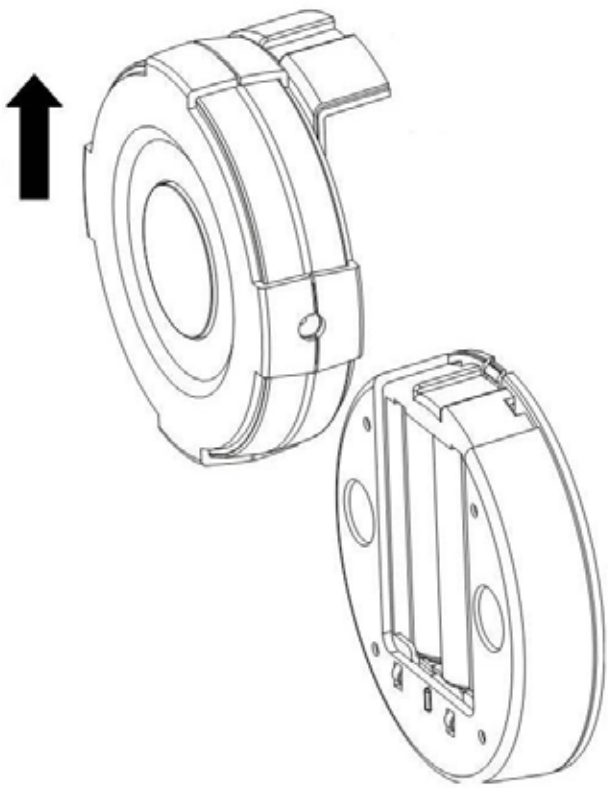


3. Insert the ZXT-120 key holes onto the two screws mounted to the wall, and then slide downward to secure in place.
4. After securing the ZXT-120 to the wall, connect the USB Power or batteries and IR emitter cable to the ZXT-120.

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 25m (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:

- Each wall or object (i.e.: refrigerator, bookshelf, large TV, etc) can reduce the maximum range of 20m by up to 20 to 30%.
- Plasterboard and wooden walls block less of the radio signal then concrete, brick or tile walls which will have more of an effect on signal strength.
- 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 20 to 30%.

MAINTENANCE

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

TROUBLESHOOTING

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

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.

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

ZXT-120 should work with any Z-Wave controller or gateway that has control capability for "Thermostat" devices. All Z-Wave products also come with the Z-Wave logo.

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

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

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

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.

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

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.

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

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.

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

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.

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

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.

SPECIFICATIONS

MODEL NO.

- rm-zxt120.eu
- rm-zxt120.is
- rm-zxt120.in
- rm-zxt120.ru
- rm-zxt120.us

RF FREQUENCY

- 868.4MHz (EU) (rm-zxt120.eu)
- 916.02MHz (IS) (rm-zxt120.is)
- 865.22MHz (IN) (rm-zxt120.in)
- 869.02MHz (RU) (rm-zxt120.ru)
- 908.4MHz (US) (rm-zxt120.us)

TEMPERATURE

- Measurable range: 32 – 104 °F / 0 – 40 °C
- Report resolution: 1 degree C
- Operation: 0 - 40°C
- Storage: -20 - 60°C

POWERED BY

- USB Power DC 5V 100mA or
- Dry battery AAA x 3pcs

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

IR LEARNING

- Max. 23 commands

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	Version1	No	Yes
COMMAND_CLASS_BASIC	Version1	No	Yes
COMMAND_CLASS_VERSION	Version1	No	Yes
COMMAND_CLASS_SENSOR_MULTILEVEL	Version1	No	Yes
COMMAND_CLASS_SWITCH_ALL	Version1	No	Yes
COMMAND_CLASS_MANUFACTURER_SPECIFIC	Version1	No	Yes

SUPPORTED FUNCTION IN THERMOSTAT COMMAND CLASS

How to get the NIF "Node Information Frame" on ZXT-120 (Inclusion)

Z-Wave command class	Description	Supported
Thermostat Fan mode	Auto/Auto Low	Yes
	Low	Yes
	Auto High	Yes
	High	Yes
	Auto Medium	Yes
	Medium	Yes
Thermostat Set point	Heating	Yes
	Cooling	Yes
	Furnace	No
	Dry Air	Yes
	Moist Air	No
	Auto changeover	Yes
	Energy Save heating	No
	Energy Save cooling	No
	Away heating	No
Thermostat Mode	Off	Yes
	Heat	Yes
	Cool	Yes

Thermostat Mode	Auto	Yes
	Auxiliary/Emergency Heat	No
	Resume	Yes
	Fan only	Yes
	Furnace	No
	Dry Air	Yes
	Moist Air	No
	Auto Changeover	Yes
	Energy Save Heat	No
	Energy Save Cool	No
	AWAY	Yes

ZXT-120 FUNCTIONS AND PARAMETERS SUMMARIES:

FUNCTIONS	AIR CONDITIONER FUNCTION	Z-WAVE COMMAND CLASS	Z-WAVE COMMAND	COMMAND PARAMETER
POWER	POWER ON	COMMAND_CLASS_ THERMOSTAT _MODE	THERMOSTAT_ MODE_SET	MODE = 5
		COMMAND_CLASS_ BASIC	BASIC_SET	VALUE = 0XFF
	POWER OFF	COMMAND_CLASS_ THERMOSTAT _MODE	THERMOSTAT_ MODE_SET	MODE = 0
		COMMAND_CLASS_ BASIC	BASIC_SET	VALUE = 0X00

MODE	AUTO	COMMAND_CLASS_THERMOSTAT_MODE	THERMOSTAT_MODE_SET	MODE = 3
	COOL	COMMAND_CLASS_THERMOSTAT_MODE	THERMOSTAT_MODE_SET	MODE = 2
	FAN	COMMAND_CLASS_THERMOSTAT_MODE	THERMOSTAT_MODE_SET	MODE = 6
	HEAT	COMMAND_CLASS_THERMOSTAT_MODE	THERMOSTAT_MODE_SET	MODE = 1
	DRY	COMMAND_CLASS_THERMOSTAT_MODE	THERMOSTAT_MODE_SET	MODE = 8
	AUTO Changeover	COMMAND_CLASS_THERMOSTAT_MODE	THERMOSTAT_MODE_SET	MODE = 10
TEMPERATURE SETTING	HEAT mode Temperature	COMMAND_CLASS_THERMOSTAT_SETPOINT	THERMOSTAT_SETPOINT	SETPOINT TYPE = 1
				TEMPERATURE VALUE
	COOL mode Temperature			SETPOINT TYPE = 2
				TEMPERATURE VALUE
	DRY mode Temeprature			SETPOINT TYPE = 8
				TEMPERATURE VALUE
	AUTO mode Temperature			SETPOINT TYPE = 10
				TEMPERATURE VALUE

FAN SPEED	FAN AUTO	COMMAND_CLASS_THERMOSTAT_FAN_MODE, v1	THERMOSTAT_FAN_MODE_SET	FAN MODE = 0
		COMMAND_CLASS_THERMOSTAT_FAN_MODE, v2	THERMOSTAT_FAN_MODE_SET	FAN MODE = 0, 2, or 4
	FAN LOW (1/3)	COMMAND_CLASS_THERMOSTAT_FAN_MODE, v1	THERMOSTAT_FAN_MODE_SET	FAN MODE = 1
		COMMAND_CLASS_THERMOSTAT_FAN_MODE, v2	THERMOSTAT_FAN_MODE_SET	FAN MODE = 1
	FAN MID (2/3)	-	-	-
		COMMAND_CLASS_THERMOSTAT_FAN_MODE, v2	THERMOSTAT_FAN_MODE_SET	FAN MODE = 5
	FAN HIGH (3/3)	COMMAND_CLASS_THERMOSTAT_FAN_MODE, v1	THERMOSTAT_FAN_MODE_SET	FAN MODE = 3
		COMMAND_CLASS_THERMOSTAT_FAN_MODE, v2	THERMOSTAT_FAN_MODE_SET	FAN MODE = 3
SWING	SWING ON/ SWING AUTO	COMMAND_CLASS_CONFIGURATION	CONFIGURATION_SET	PARAMETER NO. = 33
				SIZE = 1
				VALUE = 1
	SWING OFF	COMMAND_CLASS_CONFIGURATION	CONFIGURATION_SET	PARAMETER NO. = 33
				SIZE = 1,
				VALUE = 0

IR CODE SETUP		COMMAND_CLASS_CONFIGURATION	CONFIGURATION_SET	PARAMETER NO. = 27
				SIZE = 2
				VALUE = (CODE#)
IR TRANS-MISSION POWER LEVEL	NORMAL POWER LEVEL	COMMAND_CLASS_CONFIGURATION	CONFIGURATION_SET	PARAMETER NO. = 28
				SIZE = 1
				VALUE = 0
	HIGH POWER LEVEL	COMMAND_CLASS_CONFIGURATION	CONFIGURATION_SET	PARAMETER NO. = 28
				SIZE = 1,
				VALUE = 0xFF
FRONT IR TRANS-MISSION CONTROL	DISABLE	COMMAND_CLASS_CONFIGURATION	CONFIGURATION_SET	PARAMETER NO. = 32
				SIZE = 1
				VALUE = 0
	ENABLE	COMMAND_CLASS_CONFIGURATION	CONFIGURATION_SET	PARAMETER NO. = 32
				SIZE = 1,
				VALUE = 0xFF
BATTERY LEVEL		COMMAND_CLASS_BATTERY	BATTERY_GET	
VERSION		COMMAND_CLASS_VERSION	VERSION_GET	
MANUF'ER SPECIFIC		COMMAND_CLASS_MANUFACTURER_SPECIFIC	MANUFACTURER_SPECIFIC_GET	

TEMPERA-TURE SENSOR		COMMAND_CLAS_SENSOR_MULTILEVEL	SENSOR_MULTILEVEL_GET

IR EXTENDER CODE LIST

Ascon	463									
Acura	94									
Aikira	174									
Aircon	42	57	58							
Airwell	276	432								
Americool	430									
Apton	67									
Ariagel	13									
Aucma	413	414								
Aux	189	407	21	190	398	399				
Azure	424									
Beaver	184									
Carrier	108	109	112	88	96	97	98	99	100	101
	102	103	104	105	106	107	110	111	396	397
	431									
Chang Hong	178	179	180	5	121	122	123	124	125	126
	127	134	135	136	148					
Chigo	186	42	57	58						
Chuanhua	37	113								

Chunlan	19	150	151							
Classic	46									
Comfortstar	35	78								
Conrowa	37	70	113							
Consul	468	469								
Coolrech	4									
Coolwex	18	428								
Corona	288									
Daewoo	70									
Daikin	6	11	1	26	313	321	324	367	2	30
	32	50	211	290	325	29	162	163	261	264
	265	267	31	33	266	268	269	270	366	289
Delonghi	13	46	91							
Ecoair	42									
Elco	432									
Electra	432	433	465	466	467					
Electrolux	55	295	297							
Elgin	57									
Elsonic	81									
Emailair	34	153								
Fedders	276									
Frigidaire	273	274	275							
Fujitsu	16	199	200	201	202	55	27	34	203	204
	205	206	227	158	159	160	161			

Galanz	4	70	83	86	277	381				
General	25	27	34	57						
General (FUJITSU)	16									
Gorenje	46	55								
Gree	18	69	292	376	429	154	155	195	15	
Guangda	20	37	113							
Guqiao	4									
Haier	76	210	256	23	75	77	156	172	198	207
	208	209	257	197						
Heran	421									
Hisene	68	80	382	9	427	10				
Hitachi	52	53	120	227	258	259	260	291	298	299
	472	39	50	51	255	262	263	375	436	
Hualing	37	56	70	193						
Huifeng	113									
INYCIN	70									
Kang Li	43									
Kelon	411	12	13	14	143					
Kelvinator	17	46	87							
Kolin	44									
Komeco	46	88								
Konka	42	70								
Lennox	15	18	69							

LG	91	464	17	81	82	294				
Lloyd	186									
McQuay	196	470								
Midea	54	46	40	79	55	113	78			
Midea_ Toshiba	48									
Miller	40	42	46	54	55	57	58			
Mirage	15	18	69							
Mitsubishi	194	232	233	278	280	281	282	283	284	285
	286	287	302	303	304	305	307	314	320	113
	244	245	246	247	248	249	42	279		
Mitsubishi Electric	4	176	228	229	230	231	233	234	235	236
	237	238	239	240	315	326	392	35	37	57
	93	153	287	70						
Mitsubishi (Heavy Industries)	20	36	42	184	243	250	20	38	113	114
	115	116	117	118	119	131	132	133	164	165
	251	252	253	254	278	306	316	317	319	322
Natinal	369	402	211							
NEC	127	128	129	130	135	136	137	138	139	140
	141	142	146	147	148	152	166	167	168	169
	170									
Neo	186									
Panda	28									
Philco	41									

Panasonic	64	95	183	191	323	368	47	61	62	63
	65	92	241	242	365	378	379	437	461	462
	185	293								
Pioneer	40									
Rasonic	394									
Sampo	422									
Samsung	73	74	84	425	49	300	301	438	149	171
Sanyo	45	59	60	127	128	129	130	134	135	136
	137	138	139	140	141	142	146	147	148	152
	166	167	168	169	170	187	218			
Schnerider Elecric	42									
Shangling	70									
SHARP	90	318	426	8	192	213	143	144	145	157
	212	214	215	216	217	193	7	66		
Shinco	22	85								
Shining	70									
Siemens	46									
Springer	88									
Super General	57									
Surrey	55									
Tadiran	40	46	48	54	471					
TCL	24	380	434							
Teco	423									

TONAL	188									
Tornado	40	46	48							
Toshiba	182	56	175	177	181	186	220	221	222	223
	224	225	226	219	71					
Toyo	42									
Toyo Cool	42									
Trane	69	3	173	174						
Videocon	186									
VOLTAS	4	377	46							
Westpoint	88									
Whirlpool	13	211	271	272						
White-Westinghouse	395									
Xileng	150									
YORK	18	15	55	89	296					
Yutu	70									

LIMITED PRODUCT WARRANTY

GENERAL TERMS

Nothing in this Limited Product Warranty affects your statutory rights as a consumer. The Limited Product Warranty set forth below is given by Tri plus grupa d.o.o. (Europe) (herein referred to as "ZIPATO"). This Limited Product Warranty is only effective upon presentation of the proof of purchase. Upon further request by ZIPATO, this warranty card has to be presented, too.

—

EXCEPT AS EXPRESSLY SET FORTH IN THIS LIMITED WARRANTY, ZIPATO MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. ZIPATO EXPRESSLY DISCLAIMS ALL WARRANTIES NOT STATED IN THIS LIMITED WARRANTY. ANY IMPLIED WARRANTIES THAT MAY BE IMPOSED BY LAW ARE LIMITED IN DURATION TO THE LIMITED WARRANTY PERIOD.

TO THE EXTENT ALLOWED BY LOCAL LAW, THE REMEDIES IN THIS WARRANTY STATEMENT ARE CUSTOMER'S SOLE AND EXCLUSIVE REMEDIES AGAINST ZIPATO. THEY DO NOT, HOWEVER, AFFECT OR RESTRICT THE RIGHTS YOU HAVE AGAINST THE BUSINESS YOU BOUGHT A ZIPATO PRODUCT FROM. IN NO

EVENT WILL ZIPATO BE LIABLE FOR LOSS OF DATA OR FOR INDIRECT, SPECIAL, INCIDENTAL, CONSEQUENTIAL (INCLUDING LOST PROFIT OR DATA), OR OTHER DAMAGE, WHETHER BASED IN CONTRACT, TORT, OR OTHERWISE.
HOWEVER, NOTHING IN THIS AGREEMENT LIMITS ZIPATO'S LIABILITY TO YOU (I) IN THE EVENT OF DEATH OR PERSONAL INJURY TO THE EXTENT RESULTING FROM ANY FRAUDULENT MISREPRESENTATION ON THE PART OF ZIPATO, OR (III) TO THE EXTENT ARISING UNDER PART 1 OF THE CONSUMER PROTECTION ACT 1987 OF THE UNITED KINGDOM. SOME STATES OR COUNTRIES DO NOT ALLOW: (1) A DISCLAIMER OF IMPLIED WARRANTIES; (2) A LIMITATION ON HOW LONG AN IMPLIED WARRANTY LASTS OR THE EXCLUSION; OR (3) LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES FOR CONSUMER PRODUCTS. IN SUCH STATES OR COUNTRIES, SOME EXCLUSIONS OR LIMITATIONS OF THIS LIMITED WARRANTY MAY NOT APPLY TO YOU. THIS LIMITED WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS. YOU MAY ALSO HAVE OTHER RIGHTS THAT MAY VARY FROM STATE TO STATE OR FROM COUNTRY TO COUNTRY. YOU ARE ADVISED TO CONSULT APPLICABLE STATE OR COUNTRY LAWS FOR A FULL DETERMINATION OF YOUR RIGHTS.

—

This Limited Product Warranty applies to ZIPATO branded hardware products (collectively referred to as "ZIPATO Hardware Products") sold by ZIPATO (Europe), its European subsidiaries, affiliates, authorized resellers, or country distributors (collectively referred to as "ZIPATO Resellers") with this Limited Product Warranty. The term "ZIPATO Hardware Product" is limited to the hardware components and all its internal components including firmware. The term "ZIPATO Hardware Product" DOES NOT include any software applications or programs.

GEOGRAPHICAL SCOPE OF THE LIMITED PRODUCT WARRANTY

This Limited Product Warranty is applicable to Hardware Products sold by Zipato Resellers in all countries listed at the beginning of this document under the heading "Countries in which this ZIPATO Limited Product Warranty applies". The Limited Product Warranty will be honored in any country where ZIPATO or its authorized service providers offer warranty service subject to the terms and conditions set forth in this Limited Product Warranty. However, warranty service availability and response times may vary from country to country and may also be subject to registration requirements.

LIMITATION OF PRODUCT WARRANTY

ZIPATO warrants that the products described below under normal use are free from material defects in materials and workmanship during the Limited Product Warranty Period set forth below ("Limited Product Warranty Period"), if the product is used and serviced in accordance with the user manual and other documentation provided to the purchaser at the time of purchase (or as amended from time to time). ZIPATO does not warrant that the products will operate uninterrupted or error-free or that all deficiencies, errors, defects or non-conformities will be corrected.

This warranty shall not apply to problems resulting from: (a) unauthorized alterations or attachments; (b) negligence, abuse or misuse, including failure to operate the product in accordance with specifications or interface requirements; (c) improper handling; (d) failure of goods or services not obtained from ZIPATO or not subject to a then-effective ZIPATO warranty or maintenance agreement; (e)

improper use or storage; or (f) fire, water, acts of God or other catastrophic events. This warranty shall also not apply to any particular product if any ZIPATO serial number has been removed or defaced in any way.
ZIPATO IS NOT RESPONSIBLE FOR DAMAGE THAT OCCURS AS A RESULT OF YOUR FAILURE TO FOLLOW THE INSTRUCTIONS FOR THE ZIPATO HARDWARE PRODUCT.

LIMITED PRODUCT WARRANTY PERIOD

The Limited Product Warranty Period starts on the date of purchase from ZIPATO. Your dated sales or delivery receipt, showing the date of purchase of the product, is your proof of the purchase date. You may be required to provide proof of purchase as a condition of receiving warranty service. You are entitled to warranty service according to the terms and conditions of this document if a repair to your ZIPATO branded hardware is required within the Limited Product Warranty Period.
[Other than in respect of products for domestic use (in particular those listed in the first and last boxes in the table below), this Limited Product Warranty extends only to the original end user purchaser of this ZIPATO Hardware Product and is not transferable to anyone who obtains ownership of the ZIPATO Hardware Product from the original end-user purchaser.

PRODUCT WARRANTY PERIOD TABLE

PRODUCT TYPE	Product Warranty Period
IR EXTENDER	One (1) year

IMPORTANT: The content of "Product Type" listed above is subject to change; please refer to the **www.zipato.com** for latest update.

PERFORMANCE OF THE LIMITED PRODUCT WARRANTY

If a product defect occurs, ZIPATO's sole obligation shall be to repair or replace any defective Zipato Hardware Product free of charge provided it is returned to an Authorized ZIPATO Service Centre during the Limited Warranty Period. Such repair or replacement will be rendered by ZIPATO at an Authorized ZIPATO Service Centre. All component parts or hardware products that are replaced under this Limited Product Warranty become the property of ZIPATO. The replacement part or product takes on the remaining Limited Warranty Period of the replaced part or product. The replacement product need not be new or of an identical make, model or part; ZIPATO may in its discretion replace the defective product (or any part thereof) with any reconditioned equivalent (or superior) product in all material respects to the defective product.

—

WARRANTOR

Tri plus grupa d.o.o.
Banjavciceva 11
10 000 Zagreb
CROATIA
TEL +385 (0)1 4004 404
FAX +385 (0)1 4004 405

DECLARATION OF CONFORMITY

CE

The manufacturer Tri plus grupa d.o.o declares under our sole responsibility that the product:

Marketing model: IR Extender
Regulatory model: rm-zxt120
Trade/Brand name: Zipato

is in conformity with the Low Voltage Directive 2006/95/EC, EMC Directive 2004/108/EC, R&TTE Directive 1995/5/EC and carries the CE marking accordingly.

The following harmonised standards were applied:

R&TTE (1995/5/EC)
EN 300 220-1: V2.4.1
EN 300 220-2: V2.4.1

EMC (2004/108/EC)

EN 301 489-1: V1.9.2

EN 301 489-3: V1.6.1

LVD (2006/95/EC)

EN 60669-2-1:2004 + A1:2009 + A12:2010 used in conjunction with EN 60669-1:1999 + A1:2002 + A2:2008

—

Changes or modifications not expressly approved by Tri plus grupa d.o.o. for compliance could void the user's authority to operate the equipment.

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.

—

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 Zipato for compliance could void the user's authority to operate the equipment. 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.

DISPOSING AND RECYCLING YOUR PRODUCT

This symbol on the product or packaging means that according to local laws and regulations needs to be disposed of separately from household waste. Once this product has reached the end of its life, please take it to a collection point (recycle facilites) designated by your local authorities, some will accept your product for free or simply drop it off at your Zipato re-seller store. By recycling the product and its packaging in this manner you help to conserve the environment and protect human health. At Zipato, we understand and are committed to reducing any impact our operations and products may have on the environment. To minimize this impact Zipato designs and builds its products to be as environmentally friendly as possible, by using recyclable, low toxic materials in both products and packaging.

make your home smart

www.zipato.com