

# ZIRC Z-Wave/Infra-Red Audio Video Remote Control

User Manual  
Version 1.1




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## QUICK START GUIDE


### Using ZIRC in Z-Wave Mode with STB

- Step 1. Enable STB Z-Wave Add-Node (refer to STB User Manual)
- Step 2. Insert 2 x AAA batteries into ZIRC.  
ZIRC in Factory Default state will be Z-Wave Learn Mode once battery is inserted.
- Step 3. Wait for indication.  
GREEN Light flashes 3 times indicating Successful operation.

	X 3
Flashes 3 times for Successful operation	

OR


RED Light flashes 3 times indicating Fail operation.

	X 3
Flashes 3 times for Fail operation	


If operation fail, RESET ZIRC to Factory Default (refer to section “*RESET TO FACTORY DEFAULT*”), and repeat Step 1 to 3 in this section.

### Using ZIRC in Infra-Red Mode with STB

- Step 1. Insert 2 x AAA batteries into ZIRC.
- Step 2. Press-and-Hold SETUP and RED for 5 sec
- Step 3. Wait for indication.  
GREEN Light flashes 1 times indicating Successful operation.

	X 1
Flashes 1 time for Successful operation	

- Step 4. YELLOW Light flashes 1 times with any key pressed on ZIRC indicating ZIRC is in Infra-Red Mode.

	X 1
Flashes 1 time for any key pressed indicating ZIRC is in Infra-Red Mode	

## INTRODUCTION

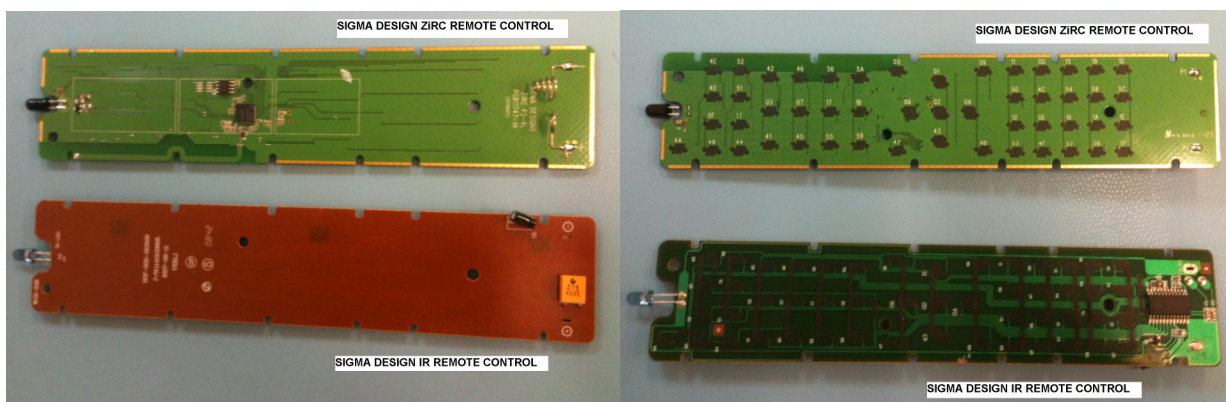
ZIRC is a Z-Wave™ enabled Remote Control. ZIRC is mainly to be used as the AV (Audio Video) remote control for a Sigma Designs Media SetTop Box which is also supporting Z-Wave™; allowing user to remotely control the SetTop Box using RF instead of the conventional infra red technology. Having said that, ZIRC also supports Infra-red remote feature; demonstrating the build-in IR ready feature of Z-Wave 400 series chip set.

Besides controlling Sigma Designs Media SetTop Box, ZIRC is also compatible with any Z-Wave™ enabled network and devices (supporting AV Command Class) from a range of manufacturers. Z-Wave is an interoperable two way RF mesh networking technology.



*Figure 1 ZIRC Z-Wave / Infra-Red Remote Control*

ZIRC is adopting an old casing of a Sigma Designs Infra-Red (IR) Remote Control to demonstrate the possibility of converting an existing IR remote control to a Z-Wave™ enabled Remote Control. ZIRC also retain the infra-red capability, in which it can be used to remote control older series of Sigma Design Set Top boxes supporting only the conventional infra-red remote control.



*Figure 2 Sigma Design Conventional IR Remote Control & ZIRC (Z-Wave / IR Remote Control)*

### SYMBOLS

The following symbols are used in this document:



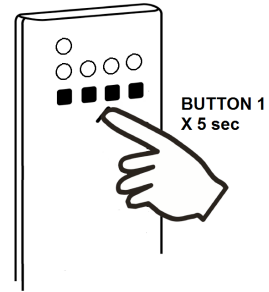
Flashing Green Light



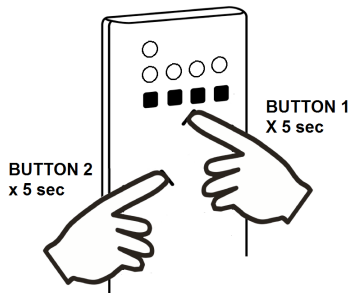
Flashing Red Light



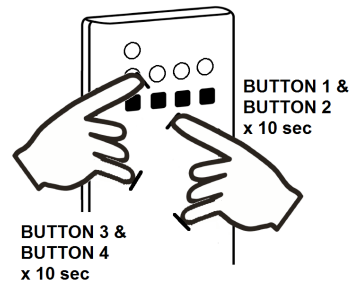
Flashing Yellow Light



Press-and-Hold Button 1 for 5 sec



Press-and-Hold  
Button 1 & Button 2 for 5 sec




Press-and-Hold Button 1, Button 2,  
Button 3 & Button 4 for 10 sec

## RESET TO FACTORY DEFAULT

When set to Factory Default state, ZIRC is not in any network and is in Z-Wave mode. This feature is generally used to remove ZIRC from its existing network.

- Step 1. Press-and-Hold SETUP and INFO for 10 sec
- Step 2. Wait for indication.  
GREEN Light flashes 3 times indicating Successful operation. ZIRC is now set to Factory Default.

	X3
Flashes 1 time for Successful operation	

- Step 3. ZIRC is now ready to Learn into a new network. It will transmit up to 17 Frames of Node Info Frame continuously and then stop transmitting.
- ZIRC will again transmit up to 17 Frames of Node Info with any key pressed.

### Note:

If ZIRC is not in a network OR in factory default, re-inserting battery OR any key pressed with activate or deactivate Learn Mode where Node Info will be transmitted continuously. ZIRC will stop transmitting Node Info if:

- it successfully learned into a successfully, or
- any key is pressed to stop Inclusion Mode, or
- up to 17 frames of Node Info has been transmitted.

## LEARN INTO A NETWORK

Before ZIRC can be used to control a STB, it needs to be added into the STB Z-Wave network.

Step 1. Reset ZIRC to Factory Default (Refer to “*RESET TO FACTORY DEFAULT*”).  
Remove Battery (removing battery is optional).

Step 2. Enable STB Z-Wave Add-Node (refer to STB User Manual)

(a) Insert 2 x AAA batteries into ZIRC.


ZIRC in Factory Default state will be Z-Wave Learn Mode once battery is inserted.

OR

(b) Press any key to activate / de-activate Z-Wave Learn Mode


Step 3. Wait for indication.

GREEN Light flashes 3 times indicating Successful operation.

	X 3
Flashes 3 times for Successful operation	

OR

RED Light flashes 3 times indicating Fail operation.

	X 3
Flashes 3 times for Fail operation	

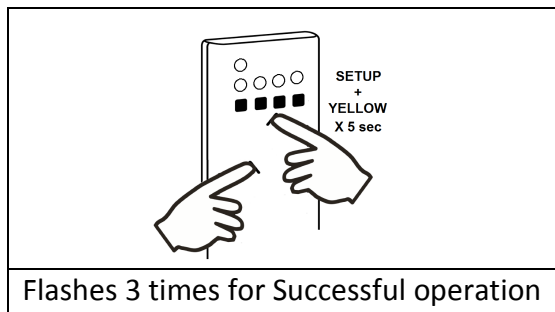
If operation fail, RESET ZIRC to Factory Default (refer to section *RESET TO FACTORY DEFAULT*), and repeat Step 1 to 3 in this section.

## UPDATE ASSOCIATION

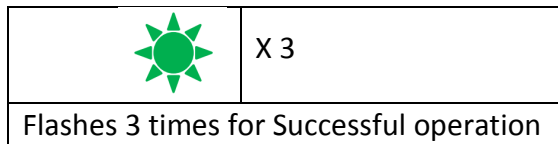
STB may create associations with other STBs using Z-Wave network features to allow simultaneous control from a single ZIRC.

To support this feature, ZIRC will obtain this information (if any) from its current STB.

Step 1. Press-and-Hold SETUP and YELLOW for 5 sec.

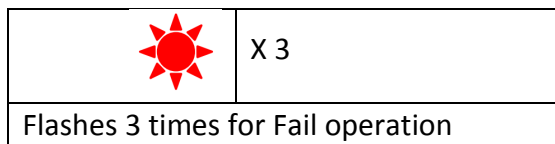


Step 4. Wait for indication.  
GREEN Light flashes 3 times indicating Successful operation.



OR

RED Light flashes 3 times indicating Fail operation.



If operation fails, repeat from Step 1 to 4 in this section.




## SWITCHING BETWEEN Z-WAVE AND INFRA-RED MODES


The Infra- Red standard supported by ZIRC is NEC format with address of 0xCB04.

### Switching ZIRC from Z-Wave Mode to IR Mode

- Step 1. Press-and-Hold SETUP and RED for 5 sec
- Step 2. Wait for indication.  
GREEN Light flashes 1 times indicating Successful operation.


	X 1
Flashes 1 time for Successful operation	

- Step 3. YELLOW Light flashes 1 times with any key pressed on ZIRC indicating ZIRC is in Infra-Red Mode.



	X 1
Flashes 1 time for any key pressed indicating ZIRC is in Infra-Red Mode	

### Switching ZIRC from IR Mode to Z-Wave Mode

- Step 1. Press-and-Hold SETUP and RED for 5 sec
- Step 2. Wait for indication.  
GREEN Light flashes 1 times indicating Successful operation.









	X 1
Flashes 1 time for Successful operation	

- Step 3. GREEN OR RED Light flashes 1 times with any key pressed on ZIRC indicating ZIRC is in Z-Wave Mode

 OR 	X 1
GREEN Flashes 1 time for any key pressed indicating success in Z-Wave communication	
RED Flashes 1 time for any key pressed indicating failure in Z-Wave communication	

## STATUS INDICATORS

The light indicator on ZIRC provides the following information

Event	Light Indicator	Description
IR Mode		ZIRC is in IR Mode
Test Mode		Test Mode is in progress
Z-Wave network management activities:		Z-Wave network operation is successful
(a) Learn into network (b) Update Association		Z-Wave network operation is successful
ZIRC controlling STB through Z-Wave		ZIRC successfully control STB through Z-Wave
		ZIRC fails to control STB through Z-Wave
Reset ZIRC to factory default		ZIRC is reset to factory default successfully.
Switching between Z-wave and IR Mode		Mode switching is successful

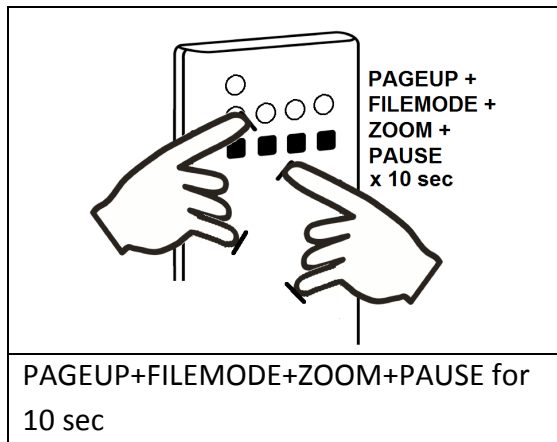
## TEST MODES

The following features are not a normal user function but rather an advanced function used for testing.

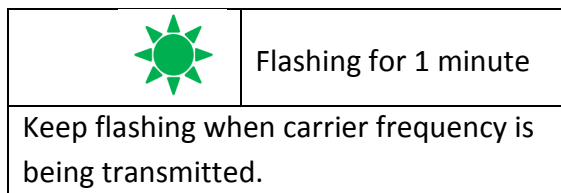
### Carrier Frequency

With a specific combination of 4-key pressed, ZIRC may be set to send carrier frequency @ 908.4MHz continuously for 1 minute.

- Step 1. Do NOT press any key and wait for 5 sec (min)
- Step 2. Press PAGEUP+FILEMODE+ZOOM+PAUSE for 10 sec



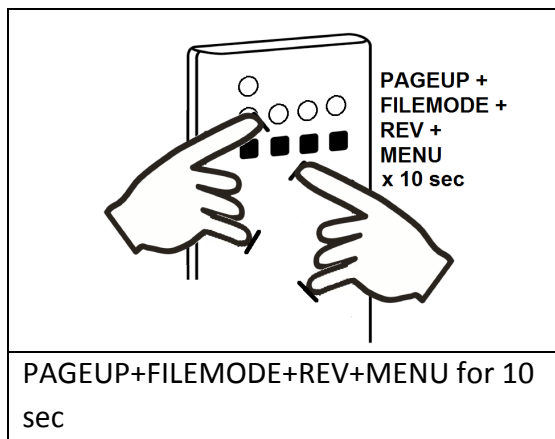
- Step 3. Wait for indication.  
GREEN Light will keep flashing during the duration when carrier frequency is being transmitted.



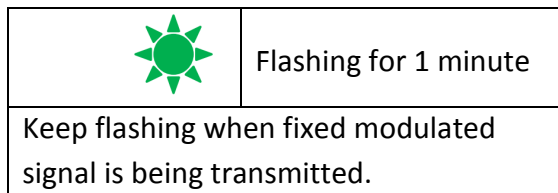
### Modulated Signal

With a specific combination of 4-key pressed, ZIRC may be set to send a fixed modulated signal @ 908.4MHz continuously for 1 minute.

- Step 1. Do NOT press any key and wait for 5 sec (min)
- Step 2. Press-and-Hold PAGEUP+FILEMODE+REV+MENU for 10 sec



- Step 3. Wait for indication.  
GREEN Light will keep flashing during the duration when carrier frequency is being transmitted.



## FCC NOTICE TO USERS

### FCC Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

To assure continued compliance, any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

### Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment and it also complies with Part 15 of FCC RF Rules. Operation is subject to the following two conditions:

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

### Caution

The manufacturer is not responsible for any radio or TV interference caused by unauthorized modification to this equipment. Such modifications could void the user's authority to operate the equipment.