

User Guide for Remote Control RC4803202/01R

The remote control has been programmed to control your set-top box and can be programmed to control your TV.

Installing Batteries

The remote requires 2xAAA batteries. A diagram inside the battery compartment of the remote indicates proper placement of the batteries. When batteries are properly installed, the light on the remote blinks each time a key is pressed

Know your Remote

The diagram below describes each key on your remote control. Functions may vary between different services. Refer to the user guide for your set-top box for descriptions of specific functions.



4. General Product Description

4.1 Overview

This remote control is primarily designed with Bluetooth SIG standards (www.bluetooth.com) to control the host device, with following application features:

- The RCU has 32 keys, BLE transceiver, microphone, IR transmitter, RGB LED indicator.

- The RCU supports BLE (HID keys, voice & OTA), IR-Database.

Keys	Key Type	STB-RF Mode (BLE paired)	STB-IR Mode (BLE unpaired)
Power, Volume +, Volume -	Set as TV keys	universal TV IR (via DB search)	universal TV IR (via DB search)
	Set as STB keys	STB BLE key code	STB IR key code
Mode	Pure STB keys	STB BLE key code	STB IR key code
All the other keys except above 4 keys	Pure STB keys	STB BLE key code	STB IR key code

The following TV IR Control keys are only active when the Mode key is being held down for more than 1.5 seconds. The Red LED will give a confirmation blink. While the Mode key is being held down, pressing the following keys will send out the corresponding TV IR code.

TV IR Control Keys	Key Type	STB-RF Mode (BLE paired)	STB-IR Mode (BLE unpaired)
Up, Left, Right, Down, OK	Set as TV keys	universal TV IR (via DB search)	universal TV IR (via DB search)
	Set as STB keys	STB BLE key code	STB IR key code
TV Input*	Set as TV keys	universal TV IR (via DB search)	universal TV IR (via DB search)

* There is no dedicated TV Input button on the RCU, the TV Input function is sent by pressing and holding the Mode Button for > 1.5 seconds, followed by pressing once on the Guide button.

4.2 Control STB

The RCU can be set-up to control a RF STB.

4.2.1 Control STB - BLE

The RF platform is BLE, using HOGP (HID Over GATT Profile) as the top layer.

4.2.2 Control STB - IR

The IR protocol to control the STB is 38K GI. All features that rely on RF communications are disabled when STB is in IR mode.

4.3 Control TV - IR

The RCU has a TV IR Database, and the following 9 keys can switch between STB and TV IR Control keys.

TV IR Control Keys	Key Number	Key Name	TV Database?	STB Key?	Activation Method
TV Power	K2	Power	Y	Y	Mode Key Toggle
TV VOL+	K14	VOL+	Y	Y	
TV VOL-	K16	VOL-	Y	Y	
TV Up	K6	Up	Y	Y	
TV Left	K7	Left	Y	Y	Press & Hold
TV OK	K8	OK	Y	Y	Mode Key for > 1.5 followed by pressing the TV IR Control Keys
TV Right	K9	Right	Y	Y	
TV Down	K10	Down	Y	Y	
TV Input*	N.A.	Input	Y	N	

* There is no dedicated TV Input button on the RCU, the TV Input function is sent by pressing and holding the Mode Button for > 1.5 seconds, followed by pressing once on the Guide button.

4.4 STB Mode Switching

4.4.1 Switching to BLE Mode

- If pairing is successful, STB-LED will provide a confirmation blink. STB keys automatically switch to STB-BLE mode.
- If pairing is successful, the STB keys will fall back to STB-IR mode when BLE is not available.
Press any of the STB keys will set the RCU into advertising mode, timeout duration is 2 seconds:
- If RCU reconnected with STB successful, the STB keys switch to STB-BLE mode.
- If RCU reconnected with STB fail, the STB keys remain in STB-IR mode.

4.4.2 Switching to IR Mode

- If RCU is unpaired with the STB and disconnected successful, the STB keys switch to STB-IR mode.
- Factory Reset will set STB keys in STB-IR mode.

5.4.4 Auto Pairing

After factory reset, RCU is in STB-IR mode and not paired.

Press < Mic> key will trigger auto pairing:

1. A specific IR command for pairing is sent to inform STB to start BLE scan. The IR is 38K GI protocol of which command code is 0x55 and it will repeat 3 frames.
2. RCU starts the undirected advertising packets for pairing. STB-LED blinks on for 200 ms, off for 200 ms, and repeats until successful or timeout.

When pairing does not occur after 60 seconds (because remote controls timeouts), <Mic> keypress will set the remote control into advertising mode again. Timeout duration remains the same.

5.4.5 Manual RF Pairing

Manual pairing can put RCU into discoverable mode (start undirected advertising) under any mode

(STB-IR/STB-RF, paired/unpaired). Below is the process of manual pairing:

1. The user presses the <<Flow + OK>> simultaneously for 3 seconds. During the initial 3 seconds, the STB-LED will provide a confirmation blink.
2. A specific IR command for pairing is sent to inform STB to start BLE scan. The IR is 38K GI protocol of which command code is 0x55 and it will repeat 3 frames.
3. RCU starts the undirected advertising packets for pairing. STB-LED blinks on for 200 ms, off for 200 ms, and repeats until successful or timeout.
4. If pairing is successful, STB-LED will provide a confirmation blink. RCU automatically switches its STB control medium to RF mode.
5. If pairing is failed, STB-LED will provide an error blink.

Note:

During discoverable mode, IR keys are still workable.

During discoverable mode, pressing <MIC> key of pairing will restart counting the discoverable timeout.

During the discoverable period while not paired yet and before timeout, it is allowed for user to abort the discoverable state by pressing <Back> key. RCU stops pairing and remains unpaired state.

The discoverable mode timeout is 60 seconds. In case no pairing is triggered during the timeout period, RCU stops advertising. STB-LED provides an error blink.

5.4.6 IR Fallback

When BLE is disconnected and upon a key pressing, the RCU will first attempt to establish connection by reconnecting advertising. RCU will start reconnecting.

The key code of the initial key will be sent via IR, and RCU will continue reconnecting advertising.

During the reconnecting phase, RCU is in IR fallback mode and key code is transmitted via IR during this mode.

RCU exits IR fallback after it gets reconnected with host, then key codes will then be transmitted via BLE.

In case RCU has not gotten reconnected after reconnecting advertising timeout of 2s, RCU enters sleeping until next key press triggers a new reconnecting process again.

5.6.1 General

All Setup features are meant to change the settings of the RCU. Each feature is triggered by a special combo keys. An overview of the Setup features and the corresponding key-press is shown in the table below.

Notation: < > normal key-press, < >> hold these keys for 3 seconds, { } hold for > 1.5 seconds.

Setup Feature	Combo Keys
Set STB control medium to IR (see 5.6.2)	<<4 + 6>>
Set STB control medium to RF (see 5.6.2)	<<7+9>>
Auto Search (see 5.6.3)	<<1 + 3>>
Manual code-set ID Setup (see 5.6. 4)	<<1 + 6>>
Factory Reset (5.6.5)	<<1 + 6>>, <9>, <8>, <1>

Code-set ID blink out (5.6.6)	<<1 + 6>>, <VOL->, <1> [..blink..], <2> [..blink...], <3> [..blink..], <4> [.....blink...]
ATV Send Bug Report (5.6.7)	<Back + OK>
Send TV IR Code for SRC/INPUT action (5.6.8)	{ Mode }, <Guide>
Send TV IR Code for DPAD action (5.6.9)	{ Mode }, <Up> or <Down> or < Left> or < Right>
Send TV IR Code for OK action (5.6.10)	{ Mode }, <OK>

Note:

Before entering setup mode via combo keys, RCU will firstly check if battery voltage is at LVD status. Setup modes are only allowed to enter when battery is not LVD status, otherwise RCU returns to user mode w/o active setup mode.

5.6.2 Set STB Control Medium

1). Set to IR Mode:

Press << 4 + 6 >> simultaneously for 3 seconds.

RCU sets STB control medium to IR mode and STB-LED will give a confirmation blink.

Now RCU STB control medium becomes IR so that STB keys will send IR codes.

2). Set to RF Mode:

Press << 7 + 9 >> simultaneously, there will be 2 kinds of consequence:

- RCU has been paired -- Press << 7 + 9 >> simultaneously for 3 seconds, RCU sets STB control medium to RF mode successfully and STB-LED will give a confirmation blink. STB keys will send BLE codes.
- RCU is unpaired -- Press << 7 + 9 >> simultaneously for 3 seconds, RCU cannot set STB control medium to RF mode. STB-LED will give an error blink. STB keys will still send IR codes but no BLE codes.

User has to use manual pairing to make RF mode working after paired with STB.

5.6.3 Auto-Search Setup

<<1 + 3>>, <<Power>><test keys...>, <Back>

Another function is to search through all universal code-sets (auto-search).

1. Press <<1 + 3>> simultaneously for 3 seconds. During the initial 3 seconds, the LEDs will remain off, then the TV-LED will provide a confirmation blink and remain on.
2. Release both keys. Remote has entered this setup interface.
3. User presses and holds the <Power> key for 2 seconds. If the user presses this key for less than 2 seconds, nothing happens.
4. While user still holds the <Power> key, the RCU starts sending Power toggle codes in the TV IRDB and waits 1.5 seconds. The RCU repeats this until the user releases the <Power> key when the user realizes TV has been powered off.
5. User releases the <Power>. The last sent < Power> code set will then be programmed into nonvolatile memory. TV-LED will provide a confirmation blink to signal the RCU is now configured.
6. Remote exit from this setup interface and back to normal mode.

Notes:

If the auto search is repeated next time, the RCU will restart with the next codeset in the list.

The RCU will iterate all IR-codes only once. If the RCU run a whole circle of the list, it will return to normal mode.

- Followings are observed as incorrect actions in this setup interface:

Situation	Description
A	TV-LED will give error blink as indication.
B	In this user interface, only <Power> and mentioned digit keys are allowed. If other keys are pressed during search, the RCU will give error blink as indication.

5.6.4 Manual Code-set ID Setup

<<1 + 6>>, <1st digit>, <2nd digit>, <3rd digit>, <4th digit>

7. Press <<1 + 6>> simultaneously for 3 seconds. During the initial 3 seconds, the LEDs will remain off, then the TV-LED will provide a confirmation blink and remain on.

8. Release both keys. Remote has entered into this setup interface.

9. Enter a 4 digits code-set ID code from load list (chapter 6.1). When a digit is pressed, the TV-LED gives a short inverse blink.

10. If the 4-digit code is recognized: TV-LED will provide a confirmation blink, program the new Code-set ID code to non-volatile memory.

If the 4-digit code is not recognized: TV-LED will provide an error blink and no changes are stored.

Example:

Program a valid code-set ID code < 0541 > into RCU.

Key Input: <<1 + 6 >>, <0>, <5>, <4>, <1>

Note:

The followings are observed as incorrect actions in this setup interface.

Situation	Description
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A	No key is input within 30 seconds during key input prompt. TV-LED will give error blink as indication
B	In this user interface, only all digit keys are allowed. If other keys are pressed, the TV-LED will give error blink as indication.

5.6.5 Factory Reset

<<1 + 6>>, <9>, <8>, <1>

1. Press <<1 + 6>> simultaneously for 3 seconds. During the initial 3 seconds, the LEDs will remain off, then the TV-LED will provide a confirmation blink and remain on.
2. Release both keys.
3. Enter digit sequence <9>, <8>, <1>. When a digit is pressed, the TV-LED gives a short inverse blink.
4. After a valid key press sequence, the RCU deletes all settings and returns to factory default mode as described in 5.1. After this the TV-LED turns off, STB-LED and TV-LED performs Factory Reset Success blink and back to normal mode.

Notes:

The followings are observed as incorrect actions in this setup interface.

Situation	Description
A	No key is input within 30 seconds during key input prompt. TV-LED will give error blink as indication.
B	In this user interface, only mentioned digit keys are allowed. TV-LED will give error blink as indication.

FCC ID:2AGOFRC480F

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.

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

NOTE: 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.