HCS RC344F Remote Control User Manual

Contents

HCS RC344F Remote Control

Product Information

Specifications

- Product Name: Remote Control RC3441540/01BR
- STB IR Key Code Table: Available
- STB RF Key Code Table: Available

Product Introduction
The Remote Control RC3441540/01BR is a versatile remote control designed for use with Set-Top Boxes (STB). It features both IR and RF capabilities, allowing for seamless control of your STB. The remote control supports firmware upgrades through Over-The-Air (OTA) technology, allowing for easy updates to enhance functionality. Additionally, it includes a Battery Voltage Monitor to ensure optimal performance.

Product Usage Instructions

OTA Firmware Upgrade
The RCU software supports upgrade via OTA (Over-The-Air). The STB can transfer the RCU firmware by the BLE link. The OTA process can be triggered either by the user using the RCU or by the STB itself. To perform an OTA

firmware upgrade:

1. Ensure that the RCU and STB are within range and connected via BLE.
2. Download the RCU OTA IMAGE into the STB.
3. Trigger the OTA process using either the RCU or the STB.
4. Wait for the OTA process to complete.
5. Your RCU will now have a new firmware installed.

Battery Voltage Monitor
The Remote Control RC3441540/01BR includes a Battery Voltage Monitor with Low Voltage Detection (LVD) capabilities. The LVD check is triggered after a signal key is released in User Mode. If the LVD is detected (Battery Voltage < threshold), the remote control will notify the user of low battery status.

FAQ

- **Q: How can I trigger an OTA firmware upgrade?**
  A: You can trigger an OTA firmware upgrade either by using the RCU or by allowing the STB to initiate the process.
- **Q: What happens after an OTA firmware upgrade?**
  A: After an OTA firmware upgrade, your RCU will have a new firmware installed, which may include enhanced functionality or bug fixes.
- **Q: How does the Battery Voltage Monitor work?**
  A: The Battery Voltage Monitor checks the battery voltage level after a signal key is released in User Mode. If the voltage falls below a certain threshold, it will trigger a low battery notification.

User Guide for Remote Control RC3441540/01BR

The Remote Control has been programmed to control your Set-Top Box.

Installing Batteries
The Remote Control requires AAA Battery * 2. A diagram inside the battery compartment of the remote indicates proper placement of the batteries. When batteries are properly installed, the Remote Control can start work.

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.

STB IR Key Code Table

The IR protocol to control the STB is NEC. Carrier frequency is 38KHz and device code is 0x45BA.

In below table the NEC command code of each STB IR key is defined:

1 POWER 0x12		2 SEARCH 0x26
	3 MENU 0x16	
4 BACK 0x1C		5 CLOSED CAPTION 0x2F
	6 UP 0x80	
7 LEFT 0x51	8 OK 0x21	9 RIGHT 0x4D
	10 DOWN 0x81	
11 PREVIOUS 0x23		12 NEXT 0x24
	13 PLAY 0x55	
14 REW 0x19		15 FFW 0x13

STB RF Key Code Table

Below key codes are defined in form of: usage page / usage code (in hexadecimal).

For HID consumer control keys, usage page = 0x0C.

1 POWER 0x0C/0x30		2 SEARCH 0x0C/0x0221
	3 MENU 0x0C/0x40	
4 BACK 0x0C/0x0224		5 CLOSED CAPTION 0x0C/0x61
	6 UP 0x0C/0x42	
7 LEFT 0x0C/0x44	8 OK 0x0C/0x41	9 RIGHT 0x0C/0x45
	10 DOWN 0x0C/0x43	
11 PREVIOUS 0x0C/0xB6		12 NEXT 0x0C/0xB5
	13 PLAY 0x0C/0xCD	
14 REW 0x0C/0xB4		15 FFW 0x0C/0xB3

Product Introduction

- **Overview**
  - The RCU supports both IR & BLE mode.
  - The RCU is OT A upgradable over BLE.
- **STB Mode**
  - The RCU can be set-up to control BLE or IR keys (mutually exclusive).
- **STB Mode – BLE**
  - The RF platform is BLE, using HOGP (HID Over Gatt Profile) as the top layer.
  - Before the RCU can work in BLE mode, the RCU must pair with the STB first.
- **STB Mode-IR**
  - The IR protocol to control the STB is NEC.
  - All features that rely on RF communications are disabled when RCU is in IR mode.

STB Mode Switching

- RCU works in IR mode by default when it is unpaired.
- RCU automatically switches its STB control medium to BLE mode once it gets paired.
- User could switch RCU back to IR by either a factory reset (5.7.2) or the combo key of switching to IR (5.7.3).
- And RCU can be switched back to BLE by the combo key (5.7.4) in case BLE is paired and it is switched to IR.

Pairing

Manual RF Pairing

Manual pairing can put RCU into discoverable mode under any mode (STB-IR/STB-RF, paired/unpaired). Below is the process of manual pairing:

1. The user presses the combo <<MENU+OK>> simultaneously for 3 seconds.
2. RCU starts the undirected advertising packets for pairing. LED remains on to indicate RCU is in discoverable now.
3. LED provide a confirmation blink in case pairing is successful.
4. LED will provide an error blink in case pairing is failed or timeout.

Advertising Duration

- Discoverable advertising timeout: 60s
- Reconnecting advertising timeout: 60s

Device Information

- At any one time, the RCU can only pair with 1 STB.
- The RCU keeps connection unless the host terminates the connection or out of range.
- The device name is: “Kaleidescape Remote”.
    - **Vendor ID:** 0x057A (Omni Remotes).
    - **Product ID:** 0x009E

LED Operations
The LED operation will differ under different cases. See below LED blinking patterns:

Setuo Action	**LED**	**Timina**
Confirmation Blink	Red LED indicator	Blink 2 times (200ms on / 200ms off).
Error Blink	Red LED indicator	Blink 4 times (50ms on / 50ms off).
LVD Warning Blink	Red LED indicator	Blink 4 times (100ms on / 100ms off).
Key press	Red LED indicator	Turned on when key is pressed down.

Setup Features

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

Setup Feature	Combo Keys
Manual Pairing (see 5.4.1)	<< MENU + OK >> for 3s
Factory Reset (see 5.7.2)	<< MENU + BACK>> for 3s
Switch to IR (see 5.7.3)	<< MENU + UP>> for 3s
Switch to BLE (see 5.7.4)	« MENU + DOWN » for 3s

- “Manual pairing” and “Factory reset’ can be triggered no matter STB control medium is IR or BLE.
- While triggering setup combo, RCU will firstly check if battery LVD status. Setup modes are only allowed to enter when battery is not low, otherwise LED blinks LVD warning, and RCU just returns to user mode w/o active setup mode.

Factory Reset

- « MENU + BACK»
- Pressing « MENU + BACK» simultaneously for 3 seconds, RCU restores all settings to factory reset state(5.1): RCU becomes unpaired and in IR mode.

Switch to JR

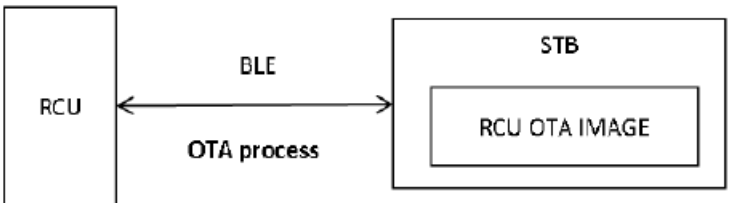
- << MENU + UP>>
- When RCU works in BLE mode, pressing« MENU+ UP» simultaneously for 3 seconds, RCU will perform a confirmation blink and switch to IR mode.

Switch to BLE

- « MENU + DOWN »
- When RCU works in IR mode and BLE has been paired, pressing « MENU + DOWN » simultaneously for 3 seconds, RCU will perform a confirmation blink and switch to BLE mode.
- Note RCU cannot switch to BLE if it has not been paired. In this case, RCU will provide an error blink and still stay in IR after pressing the combo.

OTA

- The RCU software supports upgrade via OTA (Over-The-Air).



- From diagram above, the STB can transfer the RCU firmware by the BLE link.
- The OTA process can be triggered by the user using the RCU or by the STB itself.
- The RCU OTA IMAGE need to be downloaded into the STB itself. After the OTA is completed, the RCU will have a new firmware.

Battery Voltage Monitor

LVD (Low Voltage Detection) check will be triggered after a signal key is released in User Mode.

1. When the LVD is detected (Battery Voltage <2.3V);
2. While RCU works in BLE Mode, it supports Bluetooth standard service of battery level notification. The paired host is then able to get battery level of the RCU.

FCC information

FCC ID:2AGOFRC344F
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.

Attention that changes or modification not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note:

- This product 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 product 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 product 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.

Please take attention that changes or modification not expressly approved by the party responsible 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.

This device complies with Industry Canada's license-exempt RSSs. 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.

Documents / Resources

	HCS RC344F Remote Control [pdf] User Manual RC344F Remote Control, RC344F, Remote Control

References

- User Manual