



# Maxi LNX Remote Pairing Guide

Technical Information

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A	18/04/18	C Delf	First draft
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## Document Conventions

Formatting	Usage
< ... >	Indicates a value that you need to replace with a system specific value (except where used in HTML or XML examples, where it is used in tags, as normal).
[ ... ]	Indicates optional parameters - for example in commands or functions.
...   ...	Indicates choices - for example where an input can take one of several values.
<code>code font</code>	Indicates input and output values (for example, at a command line), as well as function, configuration, parameter and file names.
<b>bold text</b>	Used for emphasis.
grey text	Commands or settings which are not in general use (for example, configuration settings that are reserved for Amino internal use).
<a href="#">blue text</a>	Cross-references (this is a “clickable” hyperlink if you are viewing the document electronically).

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# Maxi LNX Remote Pairing Guide

## 1.0 Introduction

This document gives detailed information about the features of the Amino Maxi LNX remote control.

The remote control has two modes of operation, a Bluetooth Low Energy (BLE) radio-frequency (RF) mode, or an infra-red (IR) mode. Features include auto and manual pairing with a set-top box (STB), auto and manual searching for TV brand and a learning function to learn a key operation from another remote control.

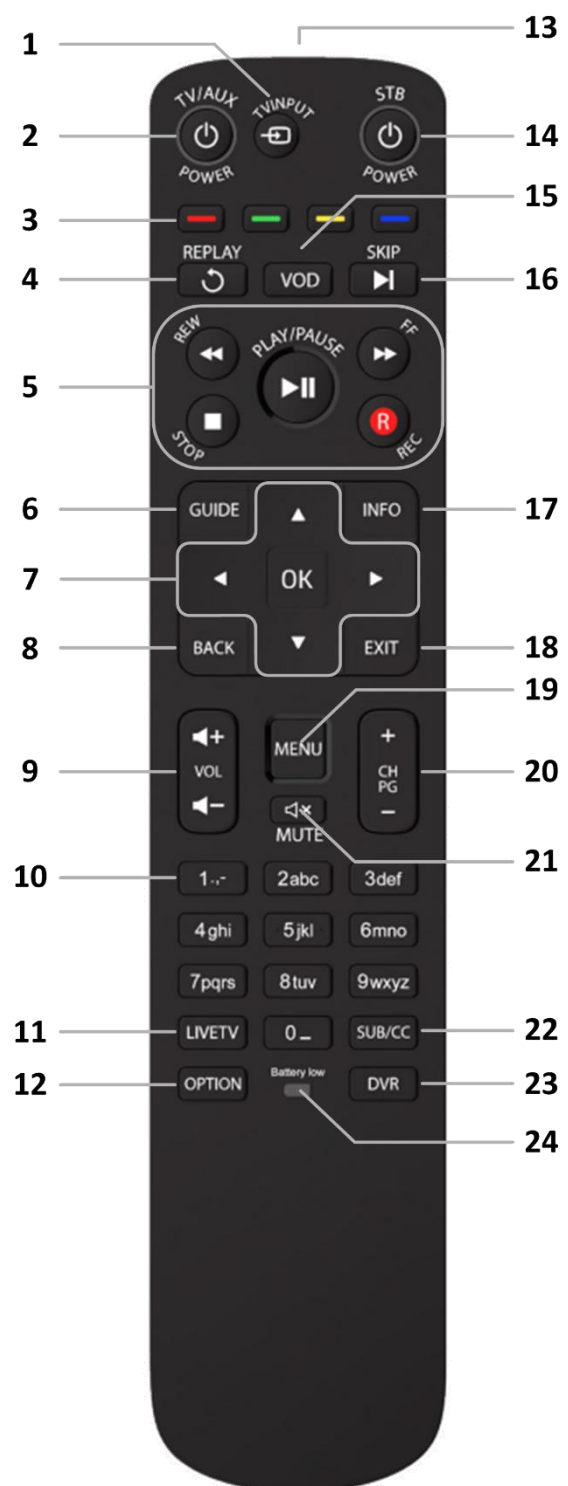
### 1.1 Definitions

The following definitions are used in this document:

STB-POWER-LED	The back-lit LED of the STB POWER key (top right corner) on the remote control.
TV-LED	The back-lit LED of the TV/AUX POWER key (top left corner) on the remote control.
STB-LED	The power LED on the front of the STB.
Confirmation flash	An LED flash at an interval of 0.2 seconds.
Error flash	An LED flash at an interval of 0.05 seconds
Inverse flash	A short flash 'off' when an LED is on.

## 2.0 Maxi LNX remote control layout

1	TV input source select
2	TV/AUX power/standby
3	Colour navigation
4	Replay VOD or recorded video
5	STB PVR transport keys
6	Electronic Program Guide
7	Navigation and OK
8	Back
9	Volume up and down
10	Channel select and text entry
11	Go to Live TV
12	Option (function mapped by the service provider)
13	Infra-red (IR) window
14	STB power/standby
15	VOD menu
16	Forward VOD or recorded video
17	Information
18	Exit
19	STB menu
20	Channel/Page up and down
21	Mute
22	Subtitles/closed captions
23	DVR /recordings menu
24	Battery low warning LED



### 3.0 Maxi LNX general description

The remote control can transmit RF and IR. It can be set up to control an RF or an IR STB (mutually exclusive). There is an embedded TV IR database and an IR learning feature for a TV or Home Theatre device.

The table below shows the key code type under RF and IR modes:

Keys	Key Type	STB-RF Mode	STB-IR Mode
TV/AUX POWER, TV INPUT	TV keys only	universal TV IR (either from database or learned)	universal TV IR (either from database or learned)
VOL+, VOL-, MUTE	Set as TV key	universal TV IR (either from database or learned)	universal TV IR (either from database or learned)
	Set as STB key	STB BLE key code (when paired) or advertising (when unpaired).	STB IR key code (RC6)
all other keys except those shown above	STB keys	STB BLE key code (when paired) or advertising (when unpaired).	STB IR key code (RC6)

### 4.0 STB control

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

The IR protocol to control the STB is RC6.

All features that rely on RF communication are disabled when the STB is in IR mode.

#### 4.1 TV control: IR

The remote control has an embedded TV IR database, and the five key functions shown below can be programmed for each brand in the database. These keys can also learn IR functions, see [IR learning](#).

Key Name	Key Number	TV IR DB	IR learning	STB Key
TV INPUT	1	Y	Y	N
TV/AUX POWER	2	Y	Y	N
VOL+	9	Y	Y	Y
VOL-	9	Y	Y	Y
MUTE	20	Y	Y	Y

TV INPUT and TV/AUX POWER are TV IR keys which have no STB key functions:

VOL+, VOL- and MUTE support both TV IR keys and STB keys. See [Volume keys mode](#) Volume keys mode for information on how to set them as TV keys or STB keys.

## 5.0 Factory default settings (out-of-box state)

The factory default state for the remote control is:

- BLE mode
- VOL+, VOL- and MUTE keys are set to BLE mode
- unpaired
- default IR TV code of 1150 (Samsung)
- IR learning data is empty

## 6.0 Data retention

Data retention is required for the remote control to retain all settings during a battery change. The data stored in non-volatile memory is:

- the STB control medium i.e. RF or IR
- the mode of the volume keys VOL+, VOL- and MUTE, i.e. TV keys or STB keys.
- IR DB code-set ID and brand ID.
- IR learning data.
- BLE pairing data.

## 7.0 Key code tables

### 7.1 BLE mode

All STB RF key codes are transmitted through BLE HOGP profile, using either Keyboard (0x07) or Consumer Control (0x0C).

Keyboard Key Report:

	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte 0	0x02 (Report ID)							
Byte 1	Key Modifier							
Byte 2	Reserved							
Byte 3	Keycode 1							
Byte 4	Keycode 2							
Byte 5	Keycode 3							
Byte 6	Keycode 4							
Byte 7	Keycode 5							
Byte 8	Keycode 6							

Consumer Control Report:

	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte 0	0x03 (Report ID)							
Byte 1	Consumer Control Code (LSB)							
Byte 2	Consumer Control Code (MSB)							

**RF key code table**

1 TV PWR N/A(TV key)	2 TV INPUT N/A (TV key)	3 STB PWR 0x0C/0x30	
4 RED 0x07/0x3B	5 GREEN 0x07/0x3C	6 YELLOW 0x07/0x3D	7 BLUE 0x07/0x3A
8 REPLAY 0x0C/0xBC	9 VOD 0x0C/0x85	10 SKIP 0x0C/0xCE	
11 REW 0x0C/0xB4		12 FAST FWD 0x0C/0xB3	
	13 PLAY/PAUSE 0x0C/0xCD		
14 STOP 0x0C/0xB7		15 REC 0x0C/0xB2	
16 GUIDE 0x0C/0x8D	17 UP 0x0C/0x42	18 INFO 0x0C/0x60	
19 LEFT 0x0C/0x44	20 OK 0x0C/0x41	21 RIGHT 0x0C/0x45	
22 BACK 0x0C/0x224	23 DOWN 0x0C/0x43	24 EXIT 0x0C/0x46	
25 VOL+ 0x0C/0xE9	26 MENU 0x0C/0x40	27 CH+ 0x0C/0x9C	
28 VOL- 0x0C/0xEA	29 MUTE 0x0C/0xE2	30 CH- 0x0C/0x9D	
31 Digit 1 0x07/0x1E	32 Digit 2 0x07/0x1F	33 Digit 3 0x07/0x20	
34 Digit 4 0x07/0x21	35 Digit 5 0x07/0x22	36 Digit 6 0x07/0x23	
37 Digit 7 0x07/0x24	38 Digit 8 0x07/0x25	39 Digit 9 0x07/0x26	
40 LIVE 0x0C/0x89	41 Digit 0 0x07/0x27	42 SUB/CC 0x0C/0x61	
43 OPTION 0x0C/0x19F		44 DVR 0x0C/0x92	



## 7.2 IR mode

1	TV PWR N/A (pure TV key)	2	TV INPUT N/A (pure TV key)	3	STB PWR 012
4	RED 109	5	GREEN 110	6	YELLOW 111
				7	BLUE 112
8	REPLAY 140	9	VOD 240	10	SKIP 076
11	REW 041			12	FAST FWD 040
		13	PLAY/PAUSE 044		
14	STOP 049			15	REC 055
16	GUIDE 204	17	UP 088	18	INFO 015
19	LEFT 090	20	OK 092	21	RIGHT 091
22	BACK 131	23	DOWN 089	24	EXIT 085
25	VOL+ 016	26	MENU 084	27	CH+ 032
28	VOL- 017	29	MUTE 013	30	CH- 033
31	Digit 1 001	32	Digit 2 002	33	Digit 3 003
34	Digit 4 004	35	Digit 5 005	36	Digit 6 006
37	Digit 7 007	38	Digit 8 008	39	Digit 9 009
40	LIVE 021	41	Digit 0 000	42	SUB/CC 075
43	OPTION 019			44	DVR 208

## 8.0 RF pairing

### 8.1 Manual pairing

Manual pairing can be triggered by the remote control at any time, either in BLE or IR mode, paired or unpaired. You can only pair manually when the STB is in pairing mode.

The STB is in pairing mode:

- for two minutes after the STB boots up.
- when there are remote control pairing instructions shown by the middleware (depending on the middleware application).

During pairing only the STB POWER key on the remote control will work. If you want to abort pairing or use another function you must press the STB POWER key.

#### ***To manually pair the remote to the STB:***

1. Press keys **MENU** and **OK** simultaneously for at least three seconds until the STB-POWER-LED flashes to confirm the key press.

The remote control is available for pairing for 60 seconds, and the STB-POWER-LED remains on during this time.

2. If pairing is successful:

the STB-POWER-LED flashes once to confirm pairing and the remote control changes to BLE mode. (The STB-LED may flash to confirm the pairing depending on the middleware or firmware version.)

If pairing is unsuccessful or times out:

the TV-LED flashes once to indicate an error. (The STB may indicate this change depending on the middleware or firmware version.)

### 8.2 Auto pairing

Before the STB can be controlled, you must pair it with the remote control. This section gives the auto-pairing procedure for a new remote control or one that has been factory reset (i.e. it is in BLE mode and not paired to any STB).

Auto-pairing can be triggered by the remote control in two cases:

- after the batteries have been inserted. (Pairing is not lost when the batteries are replaced, the pairing remains for at least 1 hour.)
- after any key is pressed, and the STB-POWER-LED flashes to confirm the key press.

***To auto pair the remote control to the STB:***

1. Ensure the STB is powered on and the STB-POWER-LED on the remote is off.
2. Point the remote control at the STB so the IR command is received correctly.
3. Press keys **MENU** and **OK** simultaneously for at least three seconds until the STB-POWER-LED flashes to confirm the key press.
4. If pairing is successful:  
the STB-POWER-LED flashes once to confirm pairing and the remote control changes to BLE mode. (The STB-LED may flash to confirm the pairing depending on the middleware or firmware version.)

If pairing is unsuccessful or times out:

the TV-LED flashes once to indicate an error. (The STB may indicate this change depending on the middleware or firmware version.)

### **8.3 Aborting pairing**

You can abort pairing by pressing the STB POWER key on the remote control.

After pairing is aborted, the remote control remains in the mode it was in before pairing, and you can now use the other remote control functions.

### **8.4 Unpairing**

If the remote control is unpaired, it will disconnect from the STB immediately. The remote control is then put into IR mode.

***To unpair the remote control from the STB:***

1. Press keys **1** and **6** simultaneously for at least three seconds.  
After three seconds the TV-LED will flash twice then remain on.
2. Enter the key sequence **9 8 2**.  
After you have entered the key sequence, the TV-LED turns off and the STB-POWER-LED flashes twice to confirm unpairing.

The remote control then returns to IR mode.

### **8.5 General RF parameters**

At any one time, the remote control can only pair with one STB. To start a new pairing, the remote control will always erase a previous pairing before entering discoverable mode.

The remote control enters sleep mode 30 seconds after the last RF transmission.

Device name: "RC5344407"

Manufacturer name: "OMNI REMOTES"

Vendor ID: 0x057A (Omni Remotes)

Product ID: 0x0003

## 9.0 LED operation

The TV-LED key lights when a TV key is pressed, the STB-LED lights when an STB key is pressed.

During setup features the LED operation will differ under different cases. The following table gives the possible LED flashing patterns:

Setup action	LED	Timing
Confirmation Flash	either STB-POWER-LED or TV-LED	Long flash twice
Error Flash	either STB-POWER-LED or TV-LED	Short flash five times
LVD Warning Flash	LVD-LED	Short flash four times

## 10.0 Setup features

Each setup feature is triggered by a special key combination. An overview of the setup features and the corresponding key presses is shown in the table below.

Setup Feature	Combo Keys: < > normal key-press << >> hold for at least three seconds
Set STB control medium to IR (see <a href="#">Setting BLE and IR modes</a> )	<<MENU + 1>>
Set STB control medium to RF (see <a href="#">Setting BLE and IR modes</a> )	<<MENU + 2>>
Set Volume keys as TV keys (see <a href="#">Volume keys mode</a> )	<<MENU + 3>>
Set Volume keys as STB keys (see <a href="#">Volume keys mode</a> )	<<MENU + 4>>
<a href="#">Brand search/auto search</a>	<<1 + 3>>
<a href="#">Manual code-set ID entry</a>	<<2 + 6>>
<a href="#">IR learning</a>	<<4 + 6>>, <key>
<a href="#">Clearing learning data</a>	<<4 + 6>>, <target key>, < target key>
<a href="#">Resetting the TV configuration</a>	<<1 + 6>>, <9>, <9>, <6>
<a href="#">Clearing the pairing table</a>	<<1 + 6>>, <9>, <8>, <2>
<a href="#">Factory reset</a>	<<1 + 6>>, <9>, <8>, <1>
<a href="#">Code-set ID flash out</a>	<<1 + 6>>, <VOL->, <1> [...flash...], <2> [...flash...], <3> [...flash...], <4> [...flash...]
<a href="#">Brand ID flash out</a>	<<1 + 6>>, <VOL+>, <1> [...flash...], <2> [...flash...], <3> [...flash...], <4> [...flash...]

All setup modes can be triggered in either IR or RF control mode, and all setup modes can be triggered irrespective of whether the volume keys are set to TV keys or STB keys.

Before entering the setup mode using key combinations, the remote control will check if the battery voltage is at LVD status. You can only enter setup mode when the battery is **not** in LVD status.

## 10.1 Setting BLE and IR modes

### *To set to RF mode*

Press keys **MENU** and **2** simultaneously for at least three seconds.

1. If the remote control is paired:

The STB-POWER-LED flashes once to confirm. The remote control is now in BLE mode.

2. If the remote control is unpaired:

The STB-POWER-LED flashes to indicate an error and the remote control will remain in IR mode. In this case, a manual pairing will be required to pair the remote control to the STB.

### *To set to IR mode:*

Press keys **MENU** and **1** simultaneously for at least three seconds.

The STB-POWER-LED flashes twice to confirm. The remote control is now in IR mode and the keys will send IR codes.

## 10.2 Volume keys mode

The three volume keys VOL+, VOL-, MUTE can work as either TV IR keys or STB (IR/RF) keys. You can select the mode using the key combination shown below. Note that this mode only affects the behaviours of the three volume keys and does not change the behaviours of other keys.

### *To set volume keys as TV keys*

Press keys **MENU** and **3** simultaneously for at least three seconds.

The TV-LED gives a confirmation flash and the three volume keys now act as TV keys. They will now send TV IR codes (either from the DB or learned).

### *To set volume keys as STB keys*

Press keys **MENU** and **4** simultaneously for at least three seconds.

The TV-LED gives a confirmation flash and the three volume keys now act as STB keys. They will now send STB codes, either IR or RF depending on the mode of the remote control setting. (See [Setting BLE and IR modes.](#))

## 10.3 Brand search/auto search

The brand search/auto search feature consists of two functions:

- search through the TV code-sets under a certain brand (brand-search).
- search through all TV code-sets (auto-search).

**To do a brand search/auto search**

1. If you do not know the brand code for your TV, go to <https://www.aminocom.com/legal/docs> > Remote Control User Guide > TV Brand Codes. Click **TV Brand Codes for Willow, Oak, Birch, Mini, Maxi**. Search for your TV brand and note the brand code.
2. Ensure the TV is turned on (the STB does not have to be turned on).
3. Press keys **1** and **3** simultaneously for at least three seconds. Afterwards the TV-LED flashes twice and remains on.
4. Release the keys. Enter the 4-digit brand code for the TV brand. (Alternatively you can enter 9999 or no digits for auto search.) When a key is pressed, the TV-LED gives a short inverse flash. After entering the fourth digit, the remote control checks if the brand code is valid:
  - if valid, the TV-LED gives a confirmation flash and remains on.
  - If invalid, the TV-LED gives an error flash and the remote control returns to user mode.
5. Press the **TV/AUX-POWER** or **MUTE** key continuously; after two seconds a “Power Toggle” or “Mute Toggle” IR command is transmitted for the next universal code-set in the list of code-sets. The LED will turn off during transmission of the IR-command.

No new IR commands are sent during the next two seconds (for brand-search) or 1.5 seconds (for auto-search). If the TV does not turn off or mute, then continue to press the button. The remote will then try the next universal code-set in the list for the selected brand.
6. The search stops when all code-sets of the selected brand are tested twice (for a brand search), or when all code-sets of the database are tested once (for an auto search). In this case the remote performs an error flash. TV code-sets are no longer sent, the TV-LED stops inverse flashing and the remote control returns to user mode.
7. When the TV turns off or mutes, release the TV/AUX-POWER or MUTE key. This confirms the current code-set and tells the software that the last transmitted IR-command is the code-set required. This code-set will then be programmed into non-volatile memory.
8. To confirm the correct code-set has been found, press the TV keys **TV/AUX-POWER**, **TV-INPUT**, **VOL+**, **VOL-**, **MUTE** to check they work with the TV.
9. You can end the DB search mode by pressing **STB-PWR**. The remote will exit setup mode and return to user mode.
10. If you want to continue the search, press the **TV/AUX-POWER** or **MUTE** key again for at least 2 seconds, in which case the brand search/auto search continues.



You can only continue to search using the same key as earlier in step 5 (TV/AUX-POWER or MUTE).

When the remote control is in setup mode and there is no key press for approximately 30 seconds, the remote control flashes the TV-LED and returns to user mode. If this 30-second timeout elapses while in step 6 or 7, then the new universal code set has already been programmed into non-volatile memory.

---

## 10.4 Manual code-set ID entry

If you know the code-set ID, it can be entered manually.

### *To manually enter the code-set ID*

1. Press keys **2** and **6** simultaneously for at least three seconds. During the initial three seconds, the LEDs will remain off. After three seconds the TV-LED will flash twice and remain on.
2. Enter the 4-digit code-set ID for your TV:
  - If valid, the TV-LED will give a confirmation flash and return to user mode.
  - If invalid, the TV-LED will give an error flash, and return to user mode.



A successful manual code-set ID entry will program the new code-set ID into non-volatile memory. All universal keys will be programmed immediately with codes from the DB.

All the existing IR setup (DB setup/learning) will be overwritten by this new code-set ID.

---

## 10.5 IR learning

In IR mode, the remote control can learn a key function from another 'source' remote control. You can choose a 'target key' that learns the code of a key from another remote control. The target key must be one of the five TV keys: TV-PWR, TV-INPUT, VOL+, VOL- or MUTE.

### *To set IR learning*

1. If the remote control is not in IR mode, press keys **MENU** and **1** simultaneously for three seconds to set it to IR mode.
2. Press keys **4** and **6** simultaneously for three seconds. During the initial three seconds, the LEDs will remain off. After three seconds the TV-LED will flash twice and remain on. The remote is now in learning mode.
3. Press the target key:
  - If the selection of the target key is valid, the TV-LED gives a confirmation flash.
  - If the selection of the target key is invalid, or you do not press a target key within 30 seconds timeout, the TV-LED gives an error flash and the remote control returns to user mode.
4. Release the target key. The remote control enters learning state and waits for the IR signal from the source remote control.
5. Hold the remote control approximately 3 – 6 cm in front of the source remote. Press the target button on the source remote control so that it emits the IR signal towards the remote control to enable it to learn the key code.
6. After the learning attempt:
  - If the IR signal is received correctly, the remote stores the learned code in non-volatile memory. (This can overwrite a previously-learned code.) The TV-LED gives a confirmation flash and the remote control returns to user mode.

- If the IR signal is incorrect, or not received within 30 seconds timeout, the TV-LED gives an error flash and the remote control returns to user mode.
7. If any key is pressed on the remote control while it is waiting for the IR signal, it gives an error flash and returns to user mode. However, if the key pressed is the target key then the currently learned code for the target key is cleared.

## 10.6 Clearing learning data

### *To clear the learning data*

1. Press keys **4** and **6** simultaneously for three seconds. During the initial three seconds, the LEDs will remain off. After three seconds the TV-LED will flash twice and remain on.
2. Press the target key twice to clear existing stored learned codes (if any). The TV-LED gives a confirmation flash and the remote control returns to user mode.
3. The target key will now send the IR code from the last setup, or the default IR code if there has not been a previous setup.

## 10.7 Resetting the TV configuration

### *To reset the TV configuration*

1. Press keys **1** and **6** simultaneously for three seconds. During the initial three seconds, the LEDs will remain off. After three seconds the TV-LED will flash twice and remain on.
2. Enter the key sequence **9 9 6**. When a key is pressed, the TV-LED gives a short inverse flash.
  - After a valid key sequence, the remote control deletes the TV configuration, i.e. all DB setup code-sets and learned data, so the five TV keys are reset to their default code-set. The TV-LED gives a confirmation flash and the remote control returns to user mode.
  - If the key sequence is invalid, or not received within 30 seconds timeout, the TV-LED gives an error flash and the remote control returns to user mode.

## 10.8 Clearing the pairing table

### *To clear the pairing table*

1. Press keys **1** and **6** simultaneously for three seconds. During the initial three seconds, the LEDs will remain off. After three seconds the TV-LED will flash twice and remain on.
2. Enter the key sequence **9 8 2**.
  - After a valid key sequence, the remote control deletes the pairing data and returns to IR mode. The TV-LED turns off, the STB-LED gives a confirmation flash and the remote control returns to user mode.
  - If the key sequence is invalid, or not received within 30 seconds timeout, the TV-LED gives an error flash and the remote control returns to user mode.



## 10.9 Factory reset

After a factory reset, the remote control is not paired and is in BLE mode. All data stored in the remote control is removed.

### *To do a factory reset:*

1. Press keys **1** and **6** simultaneously for three seconds. During the initial three seconds, the LEDs will remain off. After three seconds the TV-LED will flash twice and remain on.
2. Enter the key sequence **9 8 1**.
  - After a valid key sequence, the remote control deletes all settings and returns to factory default mode. The TV-LED turns off, the STB-LED gives a confirmation flash and the remote control returns to user mode.
  - If the key sequence is invalid, or not received within 30 seconds timeout, the TV-LED gives an error flash and the remote control returns to user mode.

## 10.10 Code-set ID flash out

The code-set ID flash out is a feature that enables you to read the stored code-set in the form of a number of flashes for each digit. The keys 1, 2, 3 and 4 flash a number of times that correspond to the digit in position 1, 2, 3 and 4 of the code-set, e.g. for the Samsung code 1150 the flash response will be:

Press 1 and the TV-LED flashes once

Press 2 and the TV-LED flashes once

Press 3 and the TV-LED flashes five times

Press 4 and the TV-LED does not flash

### *To enable code-set ID flash out*

1. Press keys **1** and **6** simultaneously for three seconds. During the initial three seconds, the LEDs will remain off. After three seconds the TV-LED will flash twice and remain on.
2. Press **Vol-** The TV-LED gives a confirmation flash then turns off.
3. Press **1** - the number of flashes of the TV-LED indicates the first digit of the code-set ID.
4. Press **2** - the number of flashes of the TV-LED indicates the second digit of the code-set ID.
5. Press **3** - the number of flashes of the TV-LED indicates the third digit of the code-set ID.
6. Press **4** - the number of flashes of the TV-LED indicates the fourth digit of the code-set ID.

After the flashes for the fourth digit have finished, the remote control returns to user mode without further flashing.



No flashes after a key is pressed indicates a digit value of zero.

You must press the keys in the order **1,2,3,4** otherwise the sequence is considered invalid.

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## 10.11 Brand ID flash out

The brand ID flash out is a feature that enables you to read the stored brand ID in the form of a number of flashes for each digit. The keys 1, 2, 3 and 4 flash a number of times that correspond to the digit in position 1, 2, 3 and 4 of the brand ID, e.g. for the Samsung code 2448 the flash response will be:

Press 1 and the TV-LED flashes twice

Press 2 and the TV-LED flashes four times

Press 3 and the TV-LED flashes four times

Press 4 and the TV-LED flashes eight times

### *To enable brand ID flash out*

1. Press keys **1** and **6** simultaneously for three seconds. During the initial three seconds, the LEDs will remain off. After three seconds the TV-LED will flash twice and remain on.
  2. Press **Vol+** The TV-LED gives a confirmation flash then turns off.
  3. Press **1** - the number of flashes of the TV-LED indicates the first digit of the brand ID.
  4. Press **2** - the number of flashes of the TV-LED indicates the second digit of the brand ID.
  5. Press **3** - the number of flashes of the TV-LED indicates the third digit of the brand ID.
  6. Press **4** - the number of flashes of the TV-LED indicates the fourth digit of the brand ID.
- After the flashes for the fourth digit have finished, the remote control returns to user mode.



No flashes after a key is pressed indicates a digit value of zero  
You must press the keys in the order **1,2,3,4** otherwise the sequence is considered invalid.

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## 11.0 Other information

### 11.1 Stuck key timeout

Stuck key timeout is used to conserve battery life.

When a key is pressed continuously for 30 secs (+/- 3 secs), the remote control will stop all IR/RF key code transmission automatically. It will resume operation only after all keys are released.

During DB auto-search/brand-search, while pressing TV/AUX-POWER or MUTE for searching, the stuck key timer is disabled so that a long search is allowed.

### 11.2 Multiple key press

Key code transmission will be stopped if more than one key is pressed simultaneously, except when using the setup key combinations.

### 11.3 Battery voltage monitor (low voltage detection)

A low voltage detection (LVD) check is triggered after a signal key is released in user mode.

If an LVD is detected (battery voltage < 2.3 V), then on the key release the Battery low LED gives a warning blink (except when in setup mode).

While the remote control is in BLE mode, it supports the Bluetooth standard service of battery level notification. The paired host can obtain the battery level of the remote control.

Battery level report:

	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte 0	0x05 (Report ID)							
Byte 1	Battery level in percentage (0 – 100%)							

### 11.4 Sleep mode

When the remote control is inactive it enters sleep mode for power saving. The sleep mode behaviour is:

1. all LEDs are off
2. IR and RF communications are stopped
3. any key press will wake up the remote control

### 11.5 Over-the-air (OTA)

The remote control supports OTA upgrading for the Bluetooth firmware. Note that key scan / LED / IR database / IR learn are not available to upgrade due to the dual-MCU design of the remote control, and only Bluetooth firmware can be runtime-upgraded via OTA.