



APPENDIX H

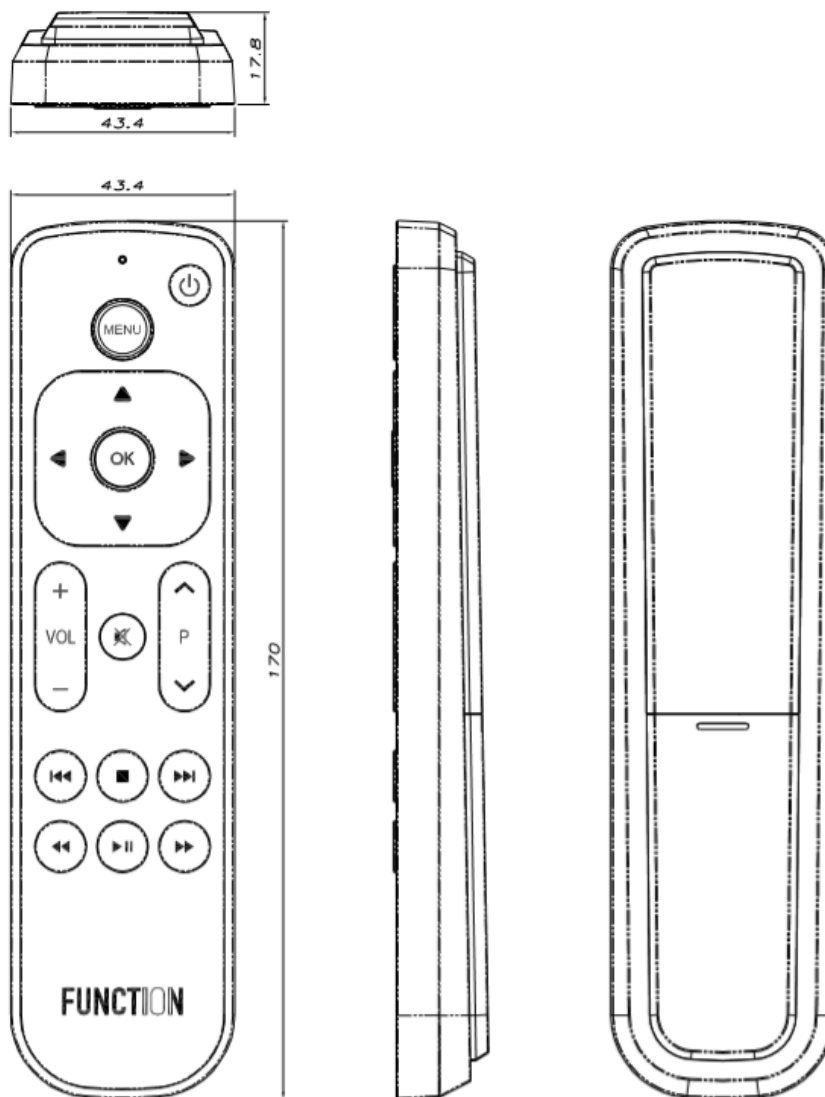
: USER'S MANUAL

B905-FTN-TA MANUAL

1 - Mechanical Requirements

1.1 - Design

- Dimensions : 170.2 x 43.4 x 17.8mm



BOTTOM CASE BATTERY COVER	MATERIAL	XG 569C
	MATERIAL COLOR	BLACK
RUBBER BUTTON	MATERIAL	SILICONE
	MATERIAL COLOR	BLACK
	PRINT COLOR	WHITE
	SURFACE TREATMENT	SILICONE COATING

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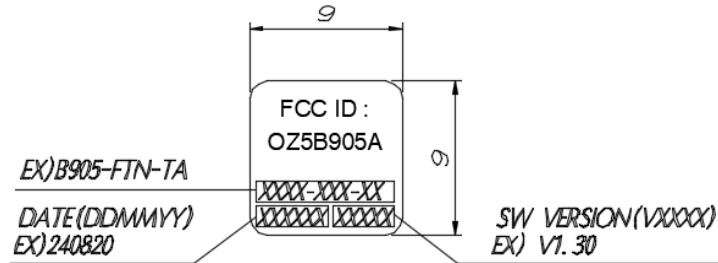
1.2 - Picture (for reference only)



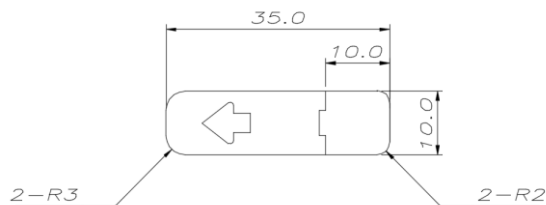
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1.3 - Batch Number

Adhesive label is attached at the inside part of the battery cover



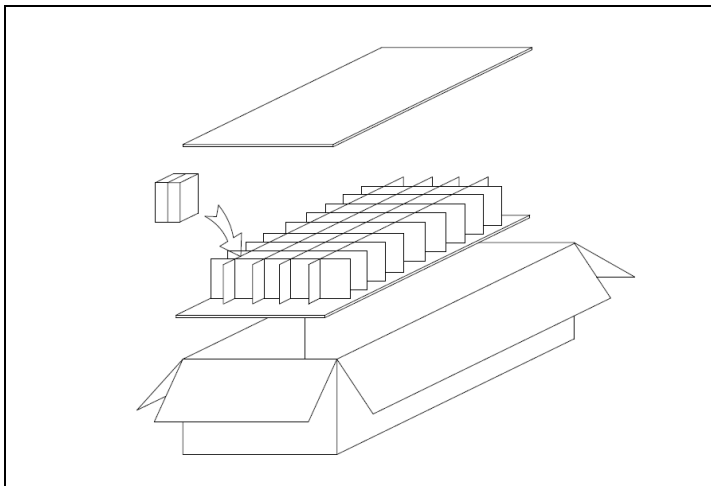
1.4 - Slip



- Slip length changed to 35mm

1.5 - Packing

1.5.1 - Packing Process



- PE bag dimensions : 83 x 286 mm (LDPE 0.05t)
- Quantity Per Box: 140pcs

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- Box dimensions : W 600 x D 400 x H 240 mm

1.2.2 - Pallet definition

- Pallet dimension : W 1200 x D 800 x H 170 mm
- Full pallet dimension : W 1200 x D 800 x H 1850 mm
- Quantity per pallet : 3,920pcs (4 boxes / layer - 7 layers)

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2 - Electrical Requirements

2.1 - Electrical Characteristic

Parameter		Condition	Spec	Unit
Frequency Range		Bluetooth Low Energy Specification	2.402 ~ 2.480	[GHz]
Channel			40	[Num]
RF Power			8	[dBm]
Test channel		TC-3000 (RF measuring instrument)	19	[Num]
RF Power	PAvg		-20~+10	[dBm]
	PMax		+8	[dBm]
	Pmin		-20	[dBm]
Modulation Characteristics	Δf1 avg		225~275	[KHz]
	Δf2 avg		≥ 185	[KHz]
	Δf2/Δf1		0.8	
	Δf2min		≥ 92.5	[KHz]
	Δf2rate		≥ 99	[%]
Carrier Frequency Offset and Drift	fTx-fn		≤ 150	[KHz]
	Δf0-fn		≤ 50	[KHz]
	f1-f0		≤ 20	[KHz]
	Δfn-f(n-5)		≤ 20	[KHz]
Operating Voltage		RF (Bluetooth)	2.2~3.6	[V]
LVI Voltage		Low Voltage Indicate	2.1±0.1V	[V]
Operating current (IR)		Power: 3V	≤ 50	[mA]
Operating current (RF KEY)		Power: 3V Non-directional distance	≤ 10	[mA]
Operating current (RF+Voice)			≤ 20	[mA]
Leakage current			10	[μA]
RF range (distance)			≥10	[m]
IR Range		Direct	≥12	[m]
		Horizontal	7 (±15°)	[m]

3 - Software Requirements

3.1 – Bluetooth 5.0 LE identification

- a) Device Name: FUNCTION101 RC
- b) Vendor ID: 0x0957
- c) Product ID: 0x1000

3.2 – Pairing mode

- a) Before RCU paired or after Factory Reset, RCU works in IR.
- b) Press [OK] + [MUTE] keys for longer than 4 seconds.
- c) After 4 seconds, the LED turns ON so that to confirm the remote has entered into pairing mode.
- d) After RCU has entered pairing mode, RCU can send the IR signal.
- e) If pairing is successfully made, the LED blinking 2 times and goes OFF. The remote starts working in Bluetooth.
- f) If pairing is not successfully made for 60 seconds, the LED blinking 5 times quickly and goes OFF.

3.3 - Re-pairing

- a) After RCU paired, Press [OK] + [MUTE] keys for longer than 4 seconds.
- b) After 4 seconds, RCU erases existing pairing table, and the LED turns ON so that to confirm the remote has entered into pairing mode.
- c) After that, it is the same as in Section 3.2

3.4 – Un-pairing

- a) After RCU paired, Press [MUTE] + [STOP] keys for longer than 4 seconds.
- b) After 4 seconds, the LED blinking 2 times and goes OFF. RCU deleting the existing pairing table and works in IR.

3.5 – Initial default set-up

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- a) STB ----- #0001 (Only Apple TV)
- b) TV & Soundbar ----- #0505 (TV)

3.6 – TV & Soundbar Key

- a) TV & Soundbar Key: Power, Vol+, Vol-, Mute
- b) This key acts as the key of the last configured device.

3.7 – Number Call

- a) Press the [MENU] + [OK] key for more than 3 seconds to enter the set-up mode.
Then the LED will turn on.
- b) If any key press is not followed for next 20 seconds, LED will be switched OFF and get out of set-up mode automatically.
- c) If [Rewind] key is pressed, LED will blink to indicate the set-up number of TV.
- d) If [Fast Forward] key is pressed, LED will blink to indicate the set-up number of Soundbar.
If TV0851 is set up, 10 time blink _ Pause _ 8 tims blinks_ Pause_5 times blinks_Pause _ one times blinks. It should be counted correctly when LED blinks.
(if the number is “0”, LED will blink 10 times)
- e) Then LED will be switched OFF and get out of set-up mode automatically.

3.8 – TV Set-up

3.8.1 - 16 Brands Auto Search

- Auto search method for 16 brands. The following Brands Auto Search shall be supported:

Number	Brand	Number	Brand	Number	Brand
1	Samsung	7	Brandt	13	Sanyo
2	LG	8	JVC	14	Pioneer
3	Sony	9	Sharp	15	Insignia
4	Philips	10	Thomson	16	Hisense
5	Panasonic	11	VIZIO		
6	TCL	12	Toshiba		

- a) Press the [MENU] + [OK] key for more than 3 seconds to enter the set-up mode.
Then the LED will turn on.
-

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- b) If any key press is not followed for next 20 seconds, LED will be switched OFF and get out of set-up mode automatically.
- c) If an user presses [P+] key, the remote control will send [VOL+] code of next TV code on every [P+] key press.
- d) If an user presses and holds [P+] key, the remote control will send [VOL+] code of next TV code every 2 seconds.
- e) If the end of the DB is reached, the LED will blink 3 times.
If the [P+]key is pressed and held, the remote control will repeat [VOL+] commands another cycle.
- f) In set-up mode, an user can test the [VOL+], [VOL-], and [Mute] keys.
- g) If OK key is pressed, the changed setting value is saved and the remote control will exit the set up mode. The remote control will blink the LED three times to let user know that the remote control was exiting set-up mode.

3.8.2 - All Brands Auto Search

- Auto search method for All Brands.

- a) Press the [MENU] + [OK] key for more than 3 seconds to enter the set-up mode.
Then the LED will turn on.
- b) If any key press is not followed for next 20 seconds, LED will be switched OFF and get out of set-up mode automatically.
- c) If an user presses [P-] key, the remote control will send [VOL+] code of the next TV code set on every [P-] key press.
- d) If an user presses and holds [P-] key, the remote control will send [VOL+] code of the next TV code set every 2 seconds.
- e) If the end of the DB is reached, the LED will blink 3 times.
If the [P-]key is pressed and held, the remote control will repeat [VOL+] commands another cycle.
- f) In set-up mode, user can test the [VOL+], [VOL-], and [Mute] keys.
- g) If OK key is pressed, the changed setting value is saved and the remote control exits the set up mode. Then the remote control will blink the LED three times to let user know that remote control was exiting set-up mode.

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3.9 – Soundbar Set-up

3.9.1 - 10 Brands Auto Search

- Auto search method for 17 brands. The following Brands Auto Search shall be supported:

Number	Brand	Number	Brand	Number	Brand	Number	Brand
1	Logitech	6	Bose	11	Vizio	16	Nakamichi
2	Samsung	7	JBL	12	Pioneer	17	Polk Audio
3	LG	8	Harmann Kardon	13	Denon		
4	Sony	9	Arcam	14	Onkyo		
5	Philips	10	Jamo	15	Yamaha		

- Press the [MENU] + [OK] key for more than 3 seconds to enter the set-up mode.
Then the LED will turn on.
- If any key press is not followed for next 20 seconds, LED will be switched OFF and get out of set-up mode automatically.
- If an user presses [UP] key, the remote control will send [VOL+] code of next Sound Bar code on every [UP] key press.
- If an user presses and holds [UP] key, the remote control will send [VOL+] code of next Soundbar code every 2 seconds.
- If the end of the DB is reached, the LED will blink 3 times.
If the [UP]key is pressed and held, the remote control will repeat [VOL+] commands another cycle.
- In set-up mode, an user can test the [VOL+], [VOL-], and [Mute] keys.
- If OK key is pressed, the changed setting value is saved and the remote control will exit the set up mode. The remote control will blink the LED three times to let user know that the remote control was exiting set-up mode.

3.9.2 - All Brands Auto Search

- Auto search method for All Brands.

- Press the [MENU] + [OK] key for more than 3 seconds to enter the set-up mode.
Then the LED will turn on.
- If any key press is not followed for next 20 seconds, LED will be switched OFF and get out of set-up mode automatically.

- c) If an user presses [DOWN] key, the remote control will send [VOL+] code of the next Soundbar code set on every [DOWN] key press.
- d) If an user presses and holds [DOWN] key, the remote control will send [VOL+] code of the next Soundbar code set every 2 seconds.
- e) If the end of the DB is reached, the LED will blink 3 times.
If the [DOWN] key is pressed and held, the remote control will repeat [VOL+] commands another cycle.
- f) In set-up mode, user can test the [VOL+], [VOL-], and [Mute] keys.
- g) If OK key is pressed, the changed setting value is saved and the remote control exits the set up mode. Then the remote control will blink the LED three times to let user know that remote control was exiting set-up mode.

3.10 – Factory Reset

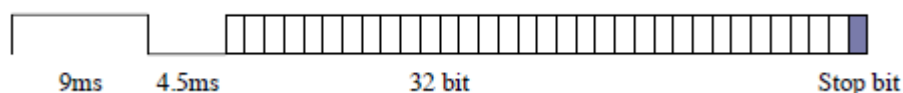
- a) Press [MENU] + [STOP] key for 3 seconds.
- b) The Factory reset will be initialized as LED blinks 5 times.
- c) Factory Reset initializes the TV settings.
- d) RCU deleting the existing pairing table and works in IR.

3.11 – Low Voltage Indicate

- a) If the battery power reaches up to $(2.0V \pm 0.2V)$ and any key is pressed and released, LED will blink 10 times to indicate that the battery power is low.

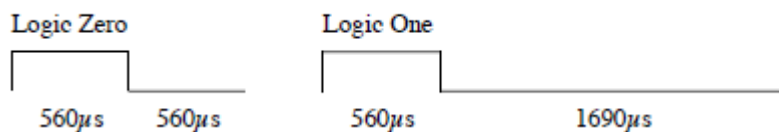
3.12 – IR Protocol (Apple IR Protocol)

- a) This protocol uses the NEC Infrared remote control transmission format. Each packet in the NEC format contains up to 32 bits of binary data.
- b) IR Carrier
 - Carrier frequency = 38 kHz.
 - Recommended duty cycle = 0.3 or 30%
- c) Standard Packet



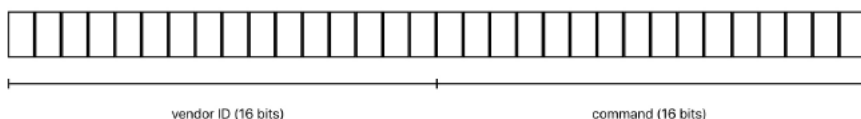
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- Bit Configuration

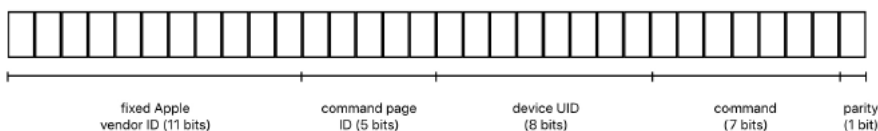


- The following figure shows the 32 data bits in the NEC format and how they are partitioned in the Apple IR protocol. Each 16-bit data word is transmitted fully before the next word begins. Within each word, the least significant bit (LSB) is transmitted first.

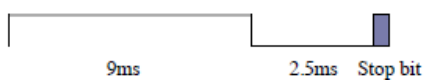
NEC IR Standard Usage



Apple IR Usage



d) Repeater Packet



e) Frame Interval



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3.13 – Key codes

- Key codes is detailed in Table 1

KEY LABEL CHART		KEY NAME	FUNCTION	Command Page ID	Command		HID	
					Short Key (< 2sec)	Long Key (> 2sec)	Usage Page	Usage ID
	K1	Power	IR TV Code	N/A	N/A			
	K1	Power	Apple TV	0x5	-	0x15	0x0C	0x0030
	K2	Menu	Apple TV	0xE	0x1		0x0C	0x0046
	K3	D-PAD Up	Apple TV	0x5	0x1		0x0C	0x0042
	K4	D-PAD Left	Apple TV	0x5	0x3		0x0C	0x0044
	K5	OK (Select)	Apple TV	0x5	0x5		0x0C	0x0041
	K6	D-PAD Right	Apple TV	0x5	0x4		0x0C	0x0045
	K7	D-PAD Down	Apple TV	0x5	0x2		0x0C	0x0043
	K8	VOL +	IR TV Code	N/A	N/A			
	K9	VOL -	IR TV Code	N/A	N/A			
	K10	Mute	IR TV Code	N/A	N/A			
	K11	P +	Apple TV	0x5	0x11		TBD	TBD
	K11	P+	Apple TV	0x5		0x20	TBD	TBD
	K12	P -	Apple TV	0x5	0x12		TBD	TBD
	K12	P-	Apple TV	0x5		0x20*	TBD	TBD
	K13	Skip Back	Apple TV	0x5	0x13		0x0C	0x00C7
	K14	Stop	Apple TV	0x5	0x18		0x0C	0x00B7
	K15	Skip Ahead	Apple TV	0x5	0x17		0x0C	0x00C6
	K16	Rewind	Apple TV	0x5	0xE		0x0C	0x00B4
	K17	Play/Pause	Apple TV	0xE	0x2F		0x0C	0x00CD
	K18	Fast Forward	Apple TV	0x5	0xD		0x0C	0x00B3

Table 1: Code list

*) When [P-] Key is pressed more than 2 seconds, Remote send 0x20 Command 2 times.

4 - Environmental Tests

4.1 - Temperatures Conditions

- Operating Temperature: 0°C ~ +50°C
- Storage Temperature: -30°C ~ +60°C

5 - Certification

Assesment of compliance of the product to the requirements relating to Electromagnetic Compatibility is based on the following standards:

- FCC Part 15 subpart C 15.247

Federal Communication Commission

Interference 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 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.

Warning!

Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

Note: The manufacturer is not responsible for any Radio or TV interference caused by unauthorized modifications to operate the equipment.

FCC Caution

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
2. This device must accept any interference received, including interference that may cause undesired operation. Any changes or modifications not expressly approved by the party responsible for compliance could void the authority to operate equipment. The antenna(s) used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Federal Communication Commissions (FCC)

Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. The device has been evaluated to meet general RF exposure requirement. The device can be used in portable exposure condition without restriction.

6 – Appendix

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6.1 – Appendix 1: Batteries specifications

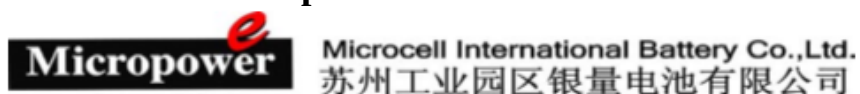
See the next page.

6.2 – Appendix 2: Brand List

Importer : _____

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Appendix 1 : Batteries specifications



PRODUCT SPECIFICATIONS LR03/ AM4 ALKALINE AAA SIZE

- Designation:** LR03 / AM4 / ALKALINE AAA SIZE
- Kind of products specified:** Alkaline-Manganese dry cell battery
- Nominal Voltage:** 1.5V
- Dimensions:** 44.5±0.5mm × ø10.5±0.5mm
- Approximate Weight:** 11g
- Capacity:** 895 mAh, (Discharge at :10Ω, 1h/d, to 0.9V, at 20℃±2℃)
- Appearance:** There is no stain, scratch, nor deformation which will cause trouble in practical use is observed.
- Terminal:** Standard snap fastener stud (+) and socket (-)
- Electrolyte-Leakage resistance:**

After testing by Table 1, shall be no leakage and deformation by visual inspection.

Table 1

ITEM	CONDITIONS			
	Temperature	Relative Humidity	Load Resistor	Term
Overdischarge electrolyte leakage	20.5±1.5 °C	65 ± 10%	20 Ω	48hrs

10. Mercury content:

Test condition	Standard demand	Test results	Judgement
Atomic absorption spectrophotometric method	$\leq 1 \times 10^{-4}\%$	$\leq 3.4 \times 10^{-5}\%$	qualified

- 11. Markings on product:**
- (1). Battery type: LR03-----Best Quality
 - (2). Brand: "Micropower"
 - (3). Polarity: "+" and "-"
 - (4). With KC mark, Application No:B053R5010-18005
 - (5). Other specified markings



12. Output Service:

Road Resistance	10 Ω	600mA	5.1 Ω	75 Ω
Discharge Method	1h/d	10s/min, 1h/d	4min/h, 8h/d	4h/d
End-point voltage	0.9V	0.9V	0.9V	0.9V
IEC 60086:2000	5.0h	140pulse	130min	44h
Actual Performance	7.3h	316pulse	190min	71h

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Microcell International Battery Co.,Ltd.
苏州工业园区银量电池有限公司

PRODUCT SPECIFICATIONS LR03/AM4 ALKALINE AAA SIZE

- 13. Characteristics:**
- (1). No Mercury & Cadmium Added, Environmental Friendly
 - (2). Super Long Lasting Power
 - (3). Excellent Leakproof, as a result of pure material
 - (4). Extra Long Life Span
 - (5). Exel working in low temperature or high-drain discharging

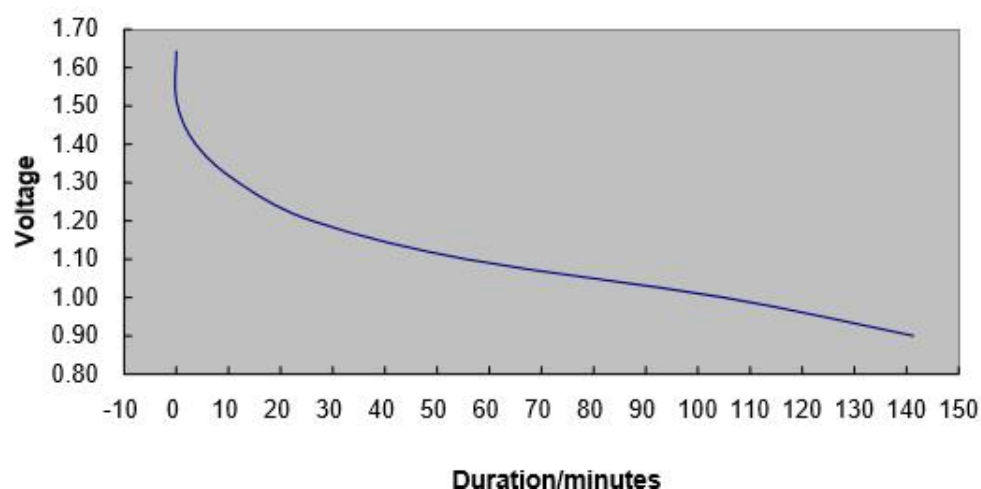
14. Warranty: Within **36** months after delivery

15. Battery structure:



16. Discharge Curve:

3.9Ω, 24h/d, to 0.9V continuously discharge



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