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BIGTIDE

VER:A0

SPECIFICATON

Remote control wireless receiver/11368802
Wireless remote control/11368793



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1 Scope

This document establishes the detail specification of the CT Remote Control for SSME in terms of electrical, mechanical, environmental characteristics. Also included are the brief specifications of the major components and their configuration methods.

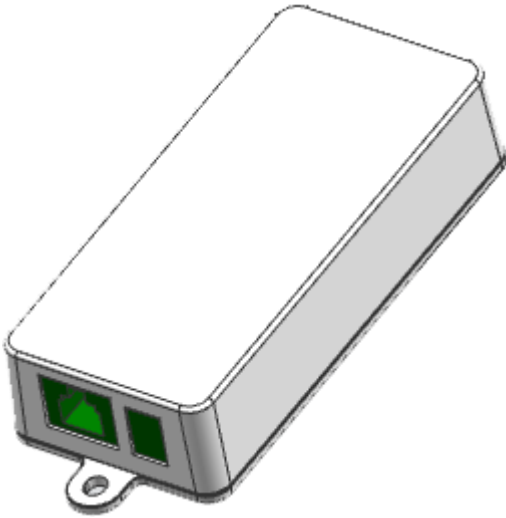
1.1 References

EPH WRCC functional specification251106

1.2 RC components:



Wireless remote control/11368793



Remote control wireless receiver/11368802

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2 Electrical Specifications

2.1 Power Electrical characteristics

		Unit	Min	Type	Max
Battery	Voltage	Vdc		1.2V	1.35V
	battery capacity	mAh		1800mAh	
Handset	Supply Voltage	Vdc	2.0V	1.2V*2	2.8V
	Current	mA	7mA	30mA	70mA
Charger	Input Voltage	Vdc	4.75V	5V	5.25V
	Charger Current	mA	10mA	270mA	300mA
Receiver terminal	Supply Voltage	Vdc	21.6V	24V	26.4V
	Current	mA	20mA	35mA	80mA

2.2 Remote control wireless receiver/ interface pinout

Pin#	Defines	Descriptions
1	CAN_H	CAN bus to wireless receiver board
2	CAN_L	CAN bus to wireless receiver board
3	GND	CAN bus ground
4	NC	
5	NC	
6	NC	
7	GND	Ground for 24V
8	24V	Power supply
Shield		Protective Earth

2.3 BLE Characteristics

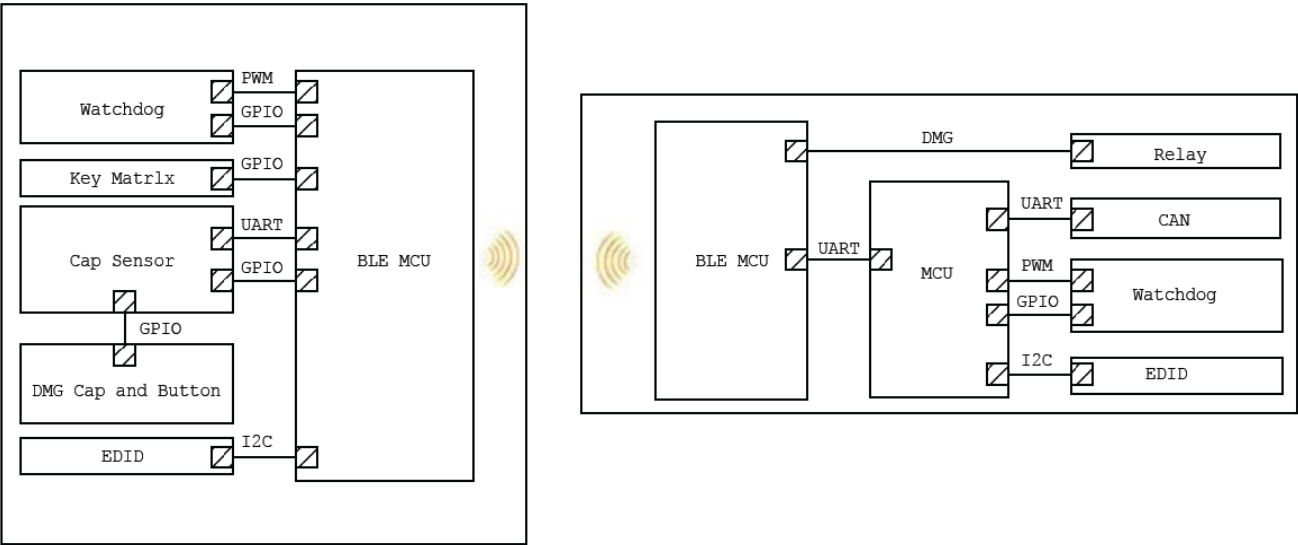
ITEM	Parameter	Remarks
Center frequency	2.36-2.5MHz	Programmable
Modulation	GFSK	2/1Mbps, Long range: 125/500kbps, 802.15.4-2006: 250kbps
Output power	-20 - +8dBm	
Receiving sensitivity	-103dBm	125kbps(long range)
Receiving current	4.8mA	@1Mbps
Transmitting current	14mA	TX Power 8dBm
Transmitting current	4.9mA	TX Power 0dBm
MCU	Nordic nRF52833	Cortex M4F
Antenna	PCB Type F or IPX	

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2.4 Wireless RMC electrical functions

The wireless RMC transmit the signal to system control board by receiver that installed in the gantry.

Operating area of wireless remote control shall be at least 7m.

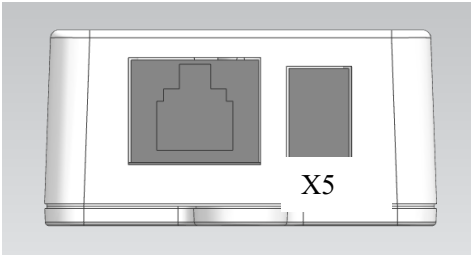
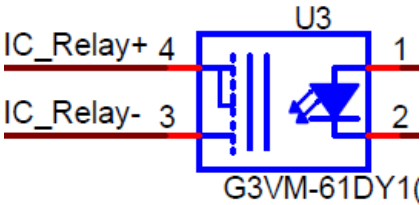


2.5 Transceiver CAN Isolation

The CAN interface of the transceiver shall provide an isolation of 1.5KV AC.

2.6 DMG Isolation

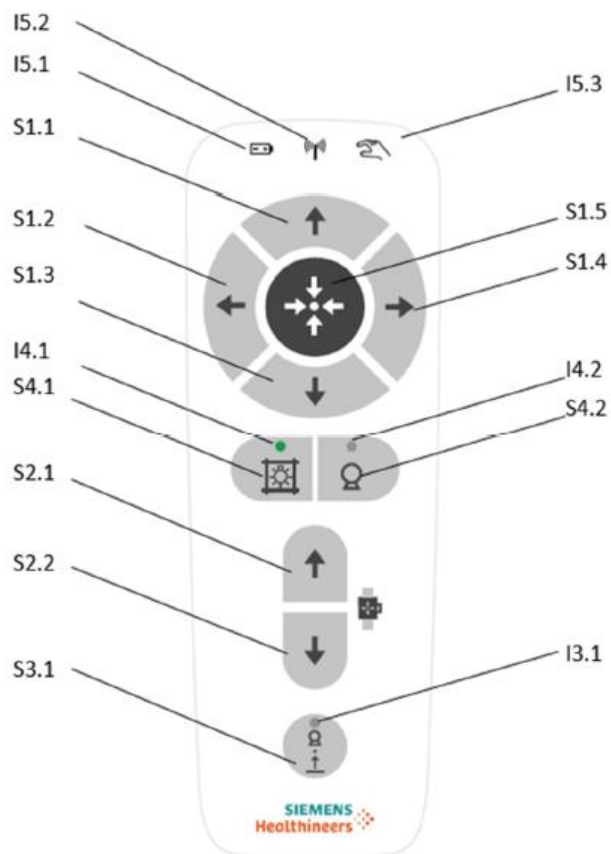
K1 relay is DMG output on X5,



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3 Panel Function Specifications

3.1 Panel Operating Elements



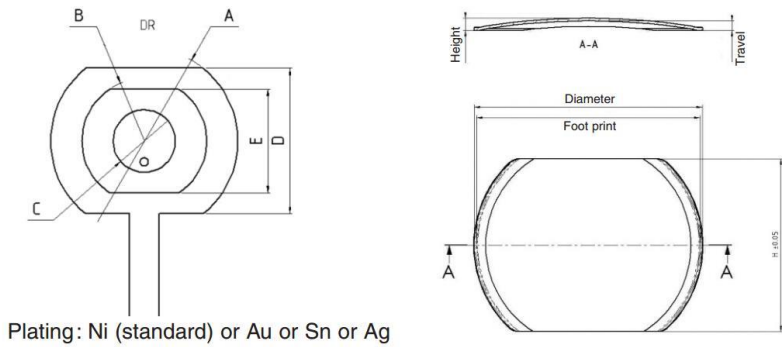
3.2 Key and Indicator list

H/R	Function	LED Color	K/L	Description
I5.1	Battery power indicator	Red/Yellow	LED	
I5.2	BLE Signal indicator	Yellow	LED	
I5.3	Button pressed indicator	Yellow	LED	
S1.1	Open vertical		KEY	
S1.2	Close horizontal		KEY	
S1.3	Close vertical		KEY	
S1.4	Light localizer ON/OFF		KEY	
I4.1	Light ON/OFF	Green	KEY&LED	
S1.5	Open horizontal		KEY	
S2.1	BWS up		KEY	
S2.2	BWS down		KEY	
S3.1	Tracking		KEY	
I3.1	Tracking indicator	White	KEY&LED	
S4.1	Position1#		KEY	
S4.2	Position2#		KEY	

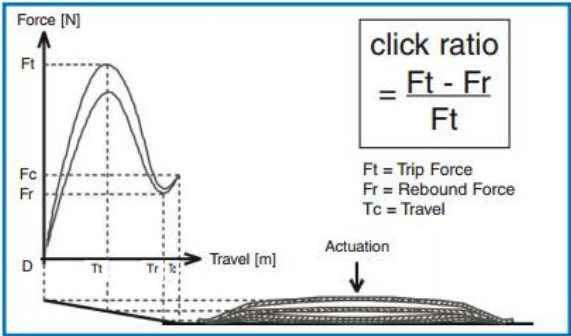
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3.3 Dome

Foot print and diameter



Mechanical characteristics



- Trip force: 180±25N
- Rebound force: 80±30N
- Height: 0.23±0.05mm
- Total travel: 0.17±0.05mm
- Diameter: 4±0.05mm
- Square size: 9.90±0.10mm
- Click ratio: 40-70%
- Life cycle: >1'000'000 cycles

3.4 LED

The Green/Yellow/Orange color devices are made with AlGaInP on GaAs substrate Light Emitting Diode.
 All backlights for buttons shall be visible under ambient light conditions of 1000 lux. This requirement shall still be fulfilled after 40000h of operation.

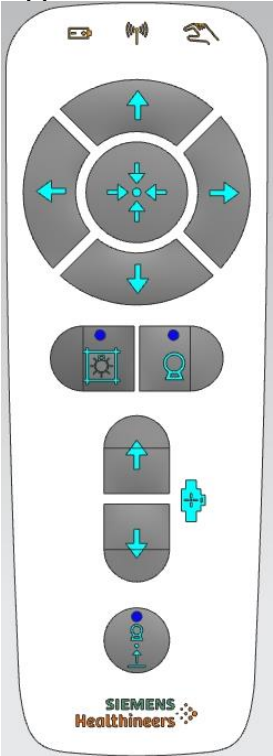
Characteristics:

	Green	Yellow	white
Dominant Wavelength	570nm	587nm	595nm
Luminous	50mcd/m2	80mcd/m2	60mcd/m2
Operating Current	15mA	7mA	15mA

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3.5 Membrane

Appearance and color define:



- Size: 138*55mm
- Material: Silicone + ABS
- Thickness: 2mm/6mm
- Flame grade: UL94 V0

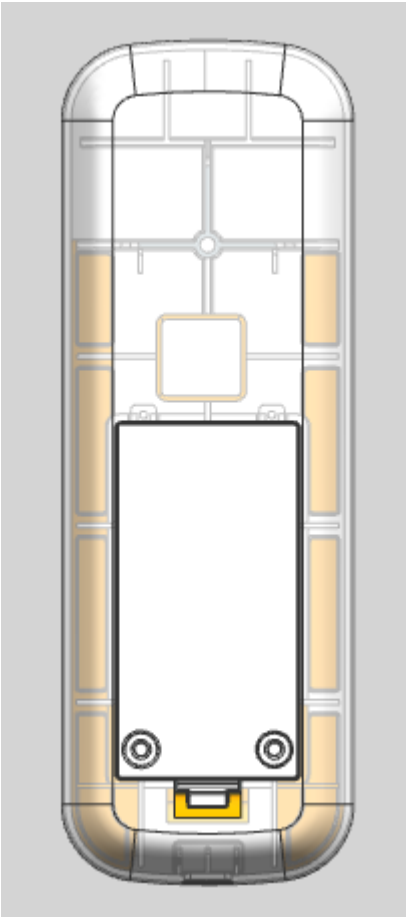
3.6 Deadman

A general dead man grip shall be available to avoid unintended activation of any button, The dead man grip shall be activated as soon as the user takes the remote control in the hand or on the cradle. There shall be no conscious action needed for this.

3.6.1 CAP Sensor

CAP sensor shall be used for enable on hand. The effective area is shown as below. User must make sure the touch area above 10cm2 CAP sensor will be activated.

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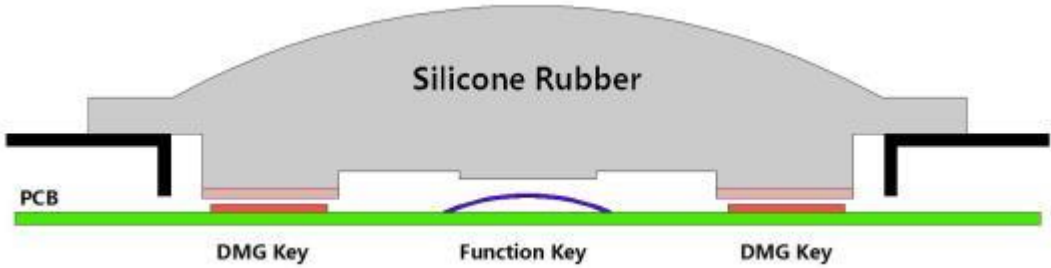
CAP Sensor

3.6.2 Double Key

Every key is composed of two independent channels,one is digital and the other is DMG.

As shown in the figure below, the red DMG keys on both sides, due to their short travel distance, are prioritized for activation during the downward stroke.

The central blue function button is fully pressed, and the elastic deformation reaches the limit when the button is pressed down, enabling conduction.

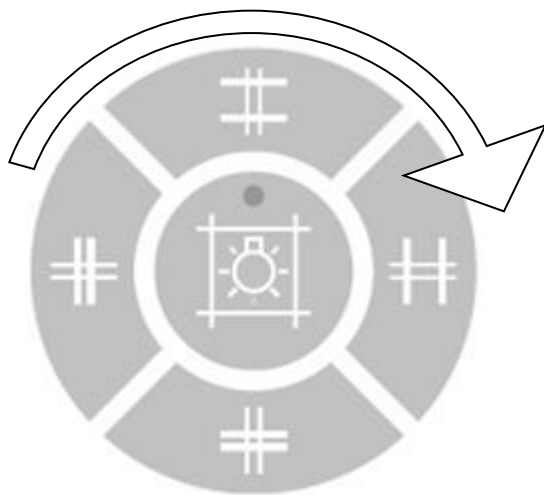


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3.7 BLE Pairing

Pairing process step:

- System scan and detect RMCs to set pairing with one of it.
- All the RMCs which is received pairing request will turn on four indicators (up,down,in,out) and waiting for matching.



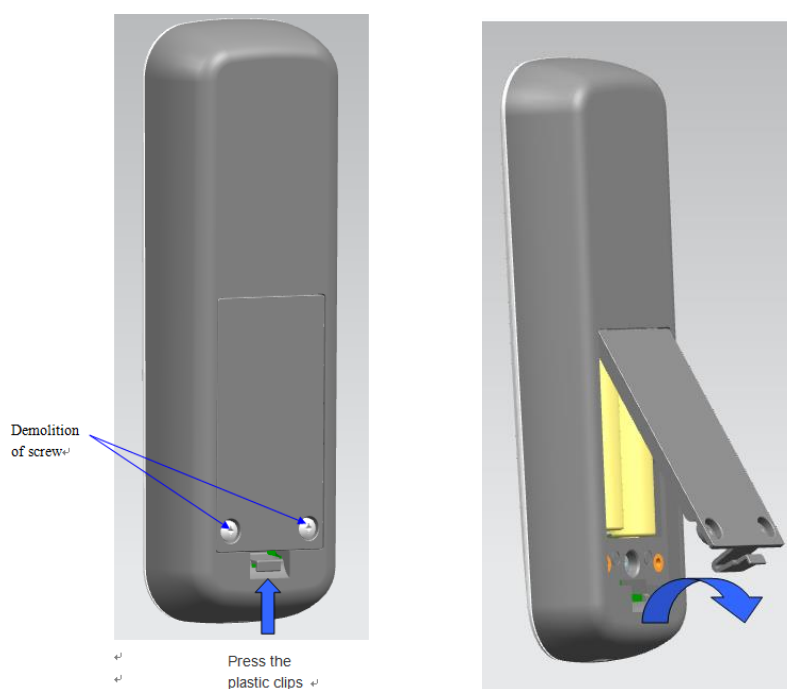
Signal indicator



- Press the button in turn, when the signal indicator is off, pairing is successful for one of RMC.

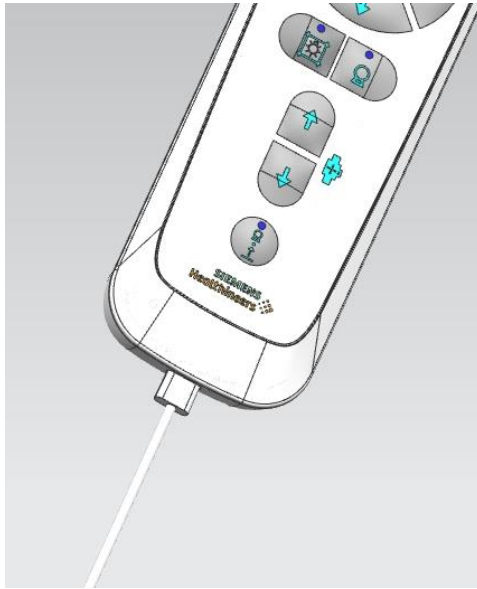
3.8 Battery and Charging

- RMC battery is replaceable as the following show.
- It only can be used Ni-MH type battery which is 1.2V operating voltage in handset.
Charging for Li-Po or alkaline battery is forbidden.



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- When battery volage is lower than 2.0V,the battery indicator(Red) will be on.
- When battery indicator is on you have to charging from Type-C port, and then the battery indicator(Yellow) will blink, until indicator keep on ,charging is complete.
- Charging port can be connected to PC USB port or 5V power supply from standard USB cable.



Battery indicator

3.9 Power save

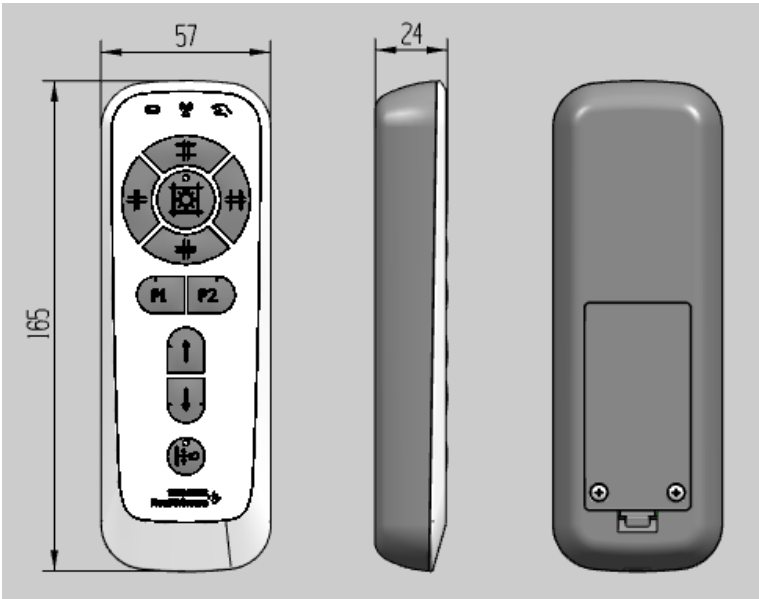
- If BLE signal is disconnected, handset will go to sleep mode to saving battery consumption.
- Press any keys, handset will be waken up to connect again, the five indicators which are up,down,in,out,move,battery will be set on for 0.3 second, but this key action is ignored.

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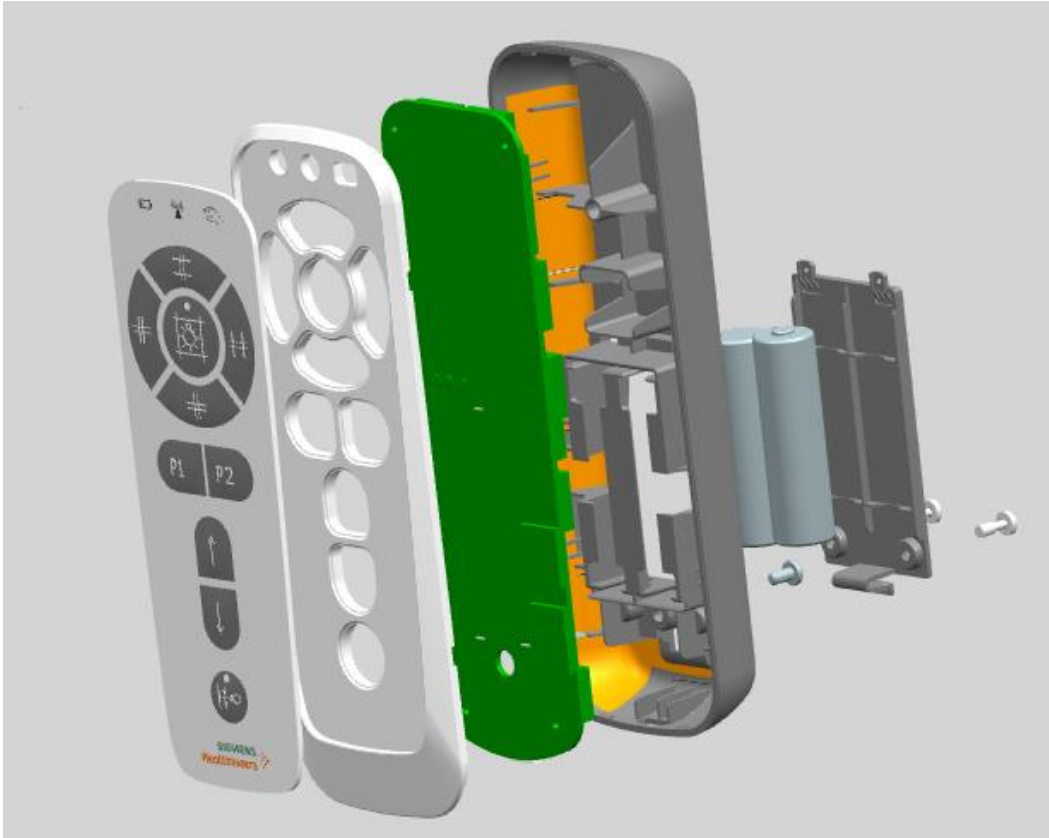
4 Machical specifications

4.1 Outline Dimensions

Unit :mm



Assembly drawing:

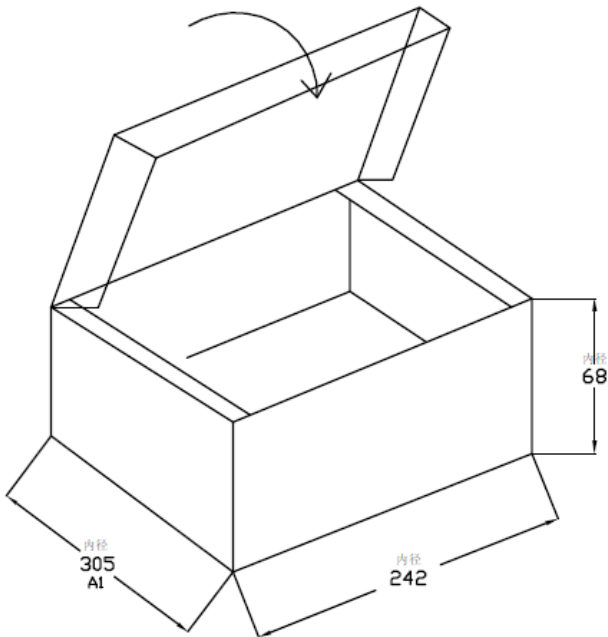


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Item	Set	
	Width	55
	Depth	22
	Height	138
Housing components	ABS UL94-V0	
Net weight	Approximate 120g	

4.2 Packaging

The carton box figure and list is shown as follows.



Item	Carton Box	
	Width (mm)	242
	Depth (mm)	305
	Height (mm)	68
Gross weight	Approximate 515g	

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5 Regulations and standards

5.1 Operation environment

Operation temperature range	0 - 50°C
Storage temperature range	-20 - 60°C
Operation temperature humidity	20% - 80%
Storage temperature range	20% - 95%
Barometric pressure	700 hPa to 1060 hPa

5.2 Key reliability

Key repeat	1'000'000 times
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5.3 Transport conditions

Mechanical class (Transport)	IEC60721 -3-2 2M4
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FCC Statement:

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.

IC Statement:

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

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

L'appareil contient des émetteurs/récepteurs exempts de licence qui sont conformes aux CNR exempts de licence d'Innovation, Sciences et Développement économique Canada.

L'exploitation est soumise aux deux conditions suivantes :

- (1) l'appareil ne doit pas produire de brouillage,
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

20cm warning for Model No.11368802:

FCC:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

IC:

This equipment complies with IC RSS-102 radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

ce matériel est conforme aux limites de dose d'exposition aux rayonnements, CNR-102 énoncée dans un autre environnement.cette equipment devrait être installé et exploité avec distance minimale de 20 entre le radiateur et votre corps.