

User Manual

Applicant	:	Zhuhai Rocateq Technology Company Ltd D,3rd Floor 1# Factory 8, Chuang Xin Liu Road, Xiangzhou District, Zhuhai, Guangdong, 519085, P.R. China
Manufacturer	:	Zhuhai Rocateq Technology Company Ltd D,3rd Floor 1# Factory 8, Chuang Xin Liu Road, Xiangzhou District, Zhuhai, Guangdong, 519085, P.R. China
Trade Mark	:	Rocateq
EUT	:	Intellibox
M/N	:	Intellibox

IC Note:

This device complies with Industry Canada's licence-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.

Cet appareil est conforme aux CNR exemptes de licence d'Industrie Canada. Son fonctionnement est soumis aux deux conditions suivantes :

- (1) Ce dispositif ne peut causer d'interférences ; et
- (2) Ce dispositif doit accepter toute interférence, y compris les interférences qui peuvent causer un mauvais fonctionnement de l'appareil

FCC Statement

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.

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the 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, 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,

- 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.

FCC RF Radiation Exposure Statement

The equipment should be installed and operated with minimum distance 20cm between the radiator and your body.

1. Subject content and scope of application

This standard specifies Rocateq's production of Intellibox, technical requirements, experimental methods, inspection rules, markings, packaging and storage.

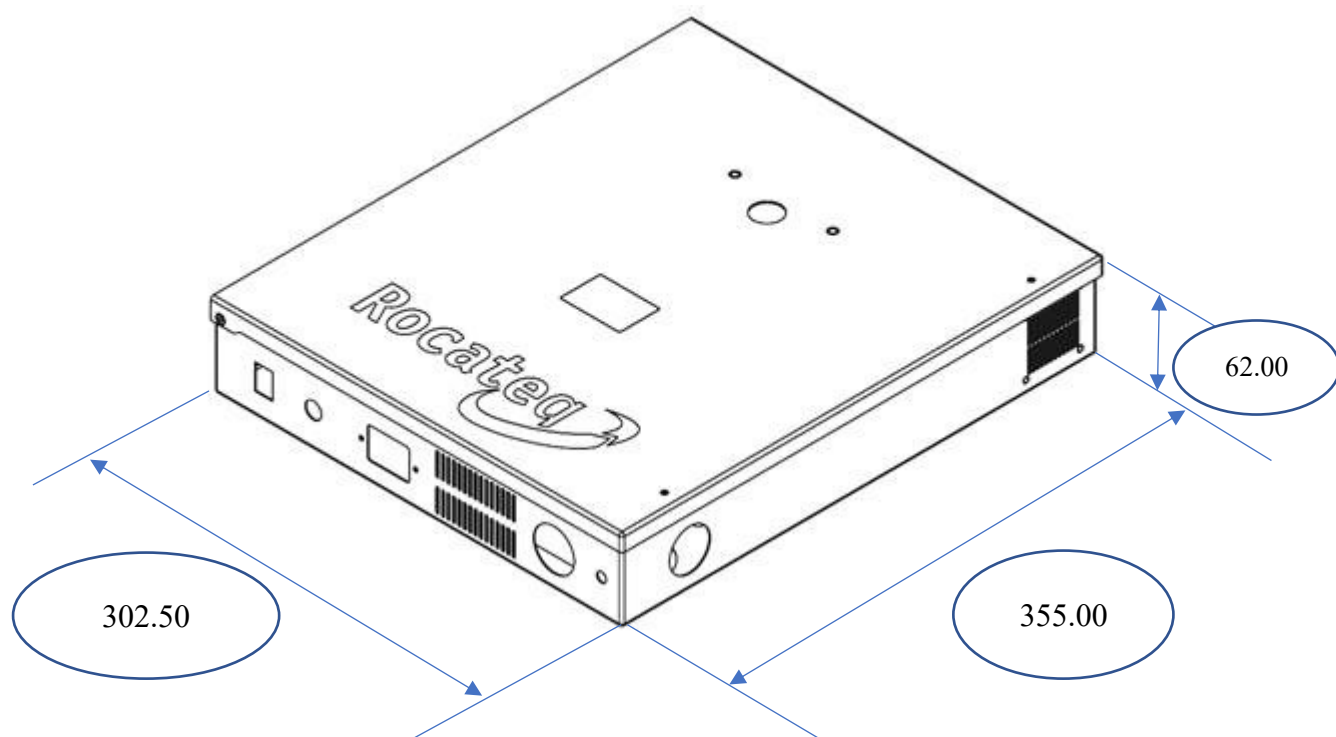
2. Reference criteria

ANSI/ASQZ1.4-2003 Successive Inspection Sampling and Sampling Table (Suitable for Continuous Batch Inspection)

3. Terminology and code

31 Intellibox emits A signal (8.13KHz), C signal (8.13KHz), H signal (8.13KHz), and receives alarm signal (2.4 GHz). Relevant shopping cart casters receive two A signals (8.13KHz) and lock. Intellibox receives alarm signal and will alarm.

4. Shell size (Fig. 1) (Unit: mm)



5. Electrical Performance and Testing

Electrical Performance of Intellibox

No.	ITEM	Parameters			Others
		Normal temperature	Environmental Tests - 20-60	Over/Low voltage test	
1	working voltage	100-240VAC	100-240VAC	100-240VAC	
2	LOOP A PP value (level 9)	3V $\pm$ 5%	3V $\pm$ 5%	3V $\pm$ 5%	
3	LOOP C PP value (level 9)	3V $\pm$ 5%	3V $\pm$ 5%	3V $\pm$ 5%	
4	LOOP H PP value (level 9)	3V $\pm$ 5%	3V $\pm$ 5%	3V $\pm$ 5%	
5	Transmitting frequency (A/C/H)	8.13KHz			
6	Receiving frequency	2.4GHz			

Testing conditions

5.4.1 The ambient temperature ranges from -20°C to 60°C .

5.4.2 Operating voltage: 100-240VAC;

5.4.3 Accessories: Power Meter, Multimeter, Remote Controller, OCS RFID Casters and Oscilloscopes

5.4.4 Test methods:

1. Power-on debugging: connect Intellibox to power meter and 220VAC, and adjust the output of internal switching power supply 13V after power-on.

2. LOOP A debugging and testing: LOOP A connects 2.2 ohm load, adjusts A signal to level 9, oscilloscope clamp connects both ends of load, debugs sinusoidal wave, adjusts frequency to 8.13KHz, P-P value to 3 V $\pm$ 5%; OCS RFID casters will lock when they receive two A signals.

3. LOOP C debugging and testing: LOOP C connects 2.2 ohm load, adjusts C signal to level 9, oscilloscope clamp connects both ends of load, debugs sinusoidal wave, frequency is 8.13KHz, P-P value is 3 V $\pm$ 5%; OCS RFID casters initialize the program after receiving C signal, and do not lock after receiving A signal.

4. LOOP H debugging and testing: LOOP H connects 2.2 ohm load, adjusts H signal to level 9, oscilloscope clamp connects both ends of load, debugs sinusoidal wave, frequency is 8.13KHz, P-P value is 3 V $\pm$ 5%; OCS RFID casters receive C signal and A signal after 30 seconds, receive B signal after 10 seconds and receive A signal without

locking; receive B signal and receive A signal within 10 seconds. Then lock.

5.Power test: LOOP A/C/H is connected with 2.2 ohm load, the A/C/H signal is adjusted to level 9, the power of input power meter is less than 20W.

6.Alarm function test: Intellibox receives 2.4 GHz alarm signal through antenna, sends 2.4 GHz alarm signal with special remote controller, or receives two AA signals locked and 2.4 GHz alarm signal with OCS RFID casters. Intellibox alarms after receiving the signal, silences after receiving the remote control muffling signal, the receiving distance is more than 10 meters.

7.Reset button test after 24 hours: 24 hours after the Intellibox is turned on, the remote control can not be set. The reset button can be set by remote control only after pressing the reset button.

5. Inspection Rules

5.1.1 Exit Inspection Contents See 5.1-5.4

5.1.2 Exit inspection shall be carried out batch by batch according to ANSI/ASQZ1.4-2003.

5.2 type inspection

5.2.1 When Intellibox has one of the following conditions, it should be type checked:

A. Trial-formulation type identification of new or old products transferred to factories;

B. When the design, process and material of the product have changed significantly;

C. When production is suspended for more than eight months and put into operation again;

D. Normally continuous production of products, once a year;

E. When the State Quality Supervision Authority puts forward the requirements for type inspection.

5.2.2 When any item of Intellibox in type inspection is not qualified, double sampling should be taken from the same batch of products and the unqualified items should be re-examined .If any item in the reexamination is not qualified, the batch of products will not be qualified .Unqualified products shall be re-submitted for testing after improvement or repairs.

5.3 Check before acceptance

The orderer accepts the products according to the ex-factory inspection items. In case of quality disputes, both the supplier and the demander review the products according to the supply agreement.

6. Marking, packaging and storage

6.1 Marks, which should include trademarks

6.2 Packing

Battery switches should be properly packed for each factory

6.3 Keep in storage

Intellibox (including packed Intellibox) should be stored in a well-ventilated warehouse with no corrosive gases and no more than 80% relative humidity for 12 months.

Intellibox schematics work description

This product is used for supermarket entrance and exit. A 8.13KHz wireless signal is transmitted to the shopping cart casters through the external LOOP line, and the signals from different positions are transmitted to the shopping cart casters, so that the shopping cart can move within the specified range, and the wheels can be locked and stopped beyond the range, so as to achieve the safety purpose.

Power supply part: 110VAC/220VAC is used, and 13VDC is output by switching power supply (LRS-100-15) to supply power to Intellibox main board and fan.

Intellibox display board is connected to the motherboard by a wiring arrangement for power supply and signal transmission.

Intellibox main board part: MCU uses NRF52832, 32.768KHz and 32 MHz external crystal oscillators of NORDIC, working frequency is 64MHz.

The signal receiving circuit of 2.4 GHz is LC resonant circuit. The external RF antenna receives 2.4 GHz wireless signal. When the lock signal is received, the MCU drives the buzzer to alarm.

Three groups of waveform generators generate three 8.13KHz sinusoidal signals, and three ON/OFF signals output by MCU are combined with 8.13KHz signals (A/C/H) via MOS transistors. A/C/H signal is amplified by power amplifier TDA7850, filtered by LC circuit and transmitted by external LOOP line.

A relay is controlled by MCU. The normal state is normally on and the alarm state is normally off. Another relay is controlled by MCU. The normal state of the relay is normally open, the alarm state is normally closed, the relay is normally closed all the way, and the other way outputs 12VDC. Key-press part: Set the power of transmitting 2.4 GHz signal and the delay parameters of 2.4 GHz signal by key-press.

Reset button: When the transmitter works 24 hours, if it can not be set, press this button to restore the settable state.

Intellibox display board part: The receiving part can receive the external infrared light signal through two infrared receivers to set the power of LOOP signal.

The power of A/C/H and corresponding signals are displayed by 8 digital tubes in the display section.

Fan part: fan and a temperature switch (KSD-01F H50 °C) are connected in series. When the temperature switch detects that the radiator temperature of power amplifier is below 50°C, the fan is not electrified. When the temperature switch detects that the radiator temperature of power amplifier is above 50°C, the fan is electrified.

