Magi’c Box

User manual

Electromechanical Control Business Division

Industrial Solutions Company

Panasonic Corporation

Product description	Magi’c Box
Part Number	-
Panasonic’s part number	-
Country of origin	Japan
Application	Consumer wireless control system
Model number	ZERS1901

Panasonic

1. System Overview

This product is a two-button switch unit used in consumer wireless control system. When the switch button is pressed by the operation of a lever etc. into which this product is embedded, electric power is generated by its mechanical operation. The generated electric power is used to transmit information such as which of the two buttons is pressed using 2.4GHz to a wireless receiver of a wireless control system installed at a remote location. The wireless receiver that has received the signal reads the switch unit ID and the state of each button from the signal, and outputs the read signal to the external devices as a control signal.

The following diagram shows the wireless control system example for the demonstration purpose. It consists of one Magi'c box (transmitter switch) and one receiver and a windows 64bit PC.

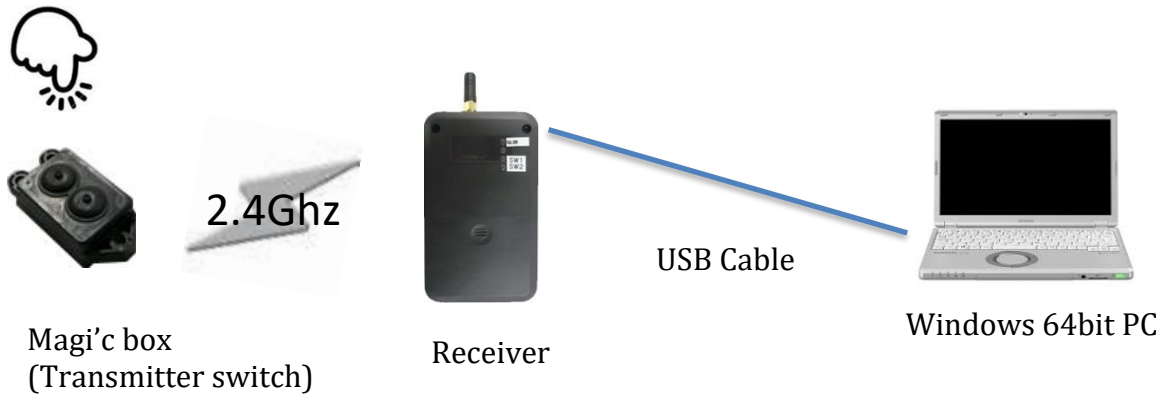

Fig.1 System Overview of wireless control system

Panasonic

1.1. Precautions

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.

FCC CAUTION

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, 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.

This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment and meets the FCC radio frequency (RF) Exposure Guidelines as this equipment has very low levels of RF energy.

2. Magi’c Box Overview

The following pictures shows the Magi’c box appearance.

It has two button, A and B. It transmit data when these buttons are pushed.

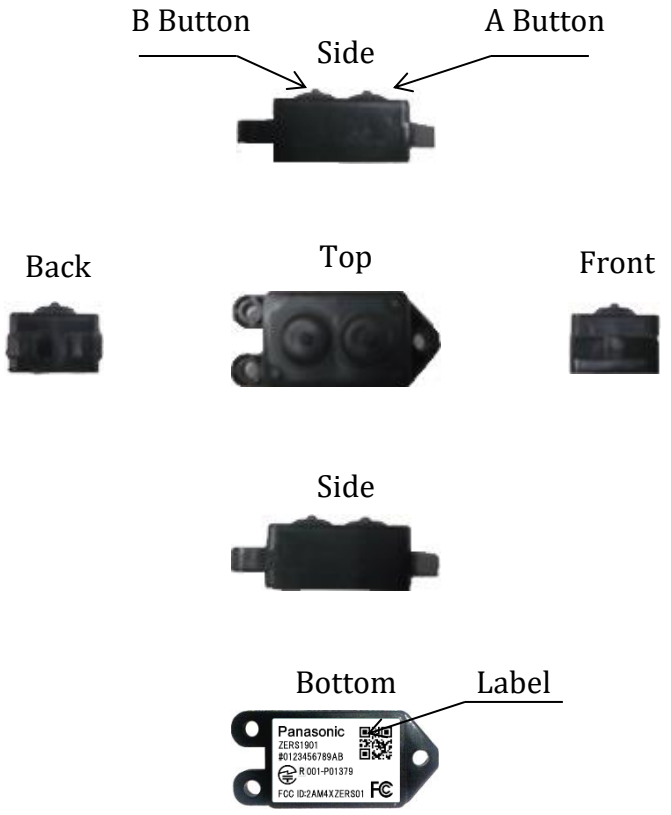

Fig.2 Pictures of Magi’c box

Panasonic

3. Test Receiver

The following pictures shows the test receiver for theMagi'c box switch.

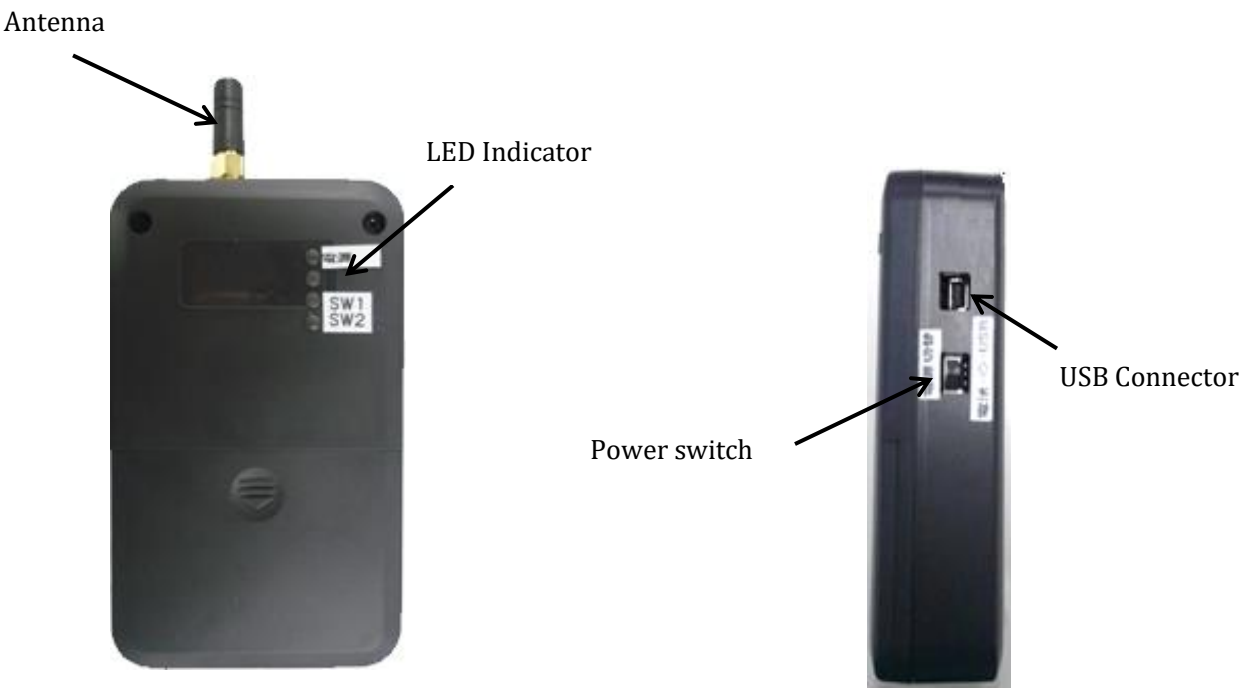

Fig.2 Pictures of Test Receiver

3.1. LED

Test receiver has three LED and those display is defined as follows.

LED name	Lights up	Blink
Power	Power active	3 times blink : cypher key exchanged done
SW 1	-	Received signal (SW1 ON)
SW2	-	Received signal (SW2 ON)

4. Setup of test receiver

4.1. Installing USB driver to PC

Prior to connect the test receiver to PC, please install the USB driver which is provided by FTDI, D2XX Direct driver (CDM v2.12.28 WHQL Certified.zip) to you PC. The driver should be for Windows OS 64bit version.

4.2. Installing application software to PC

Please install application software, Setup_Test_Receiver_1.0.xlsm on your PC. It is a Microsoft Excel Macro. It can be installed to any directory. The dll file, cypher_gen64.exe should be installed to c:\test_receiver

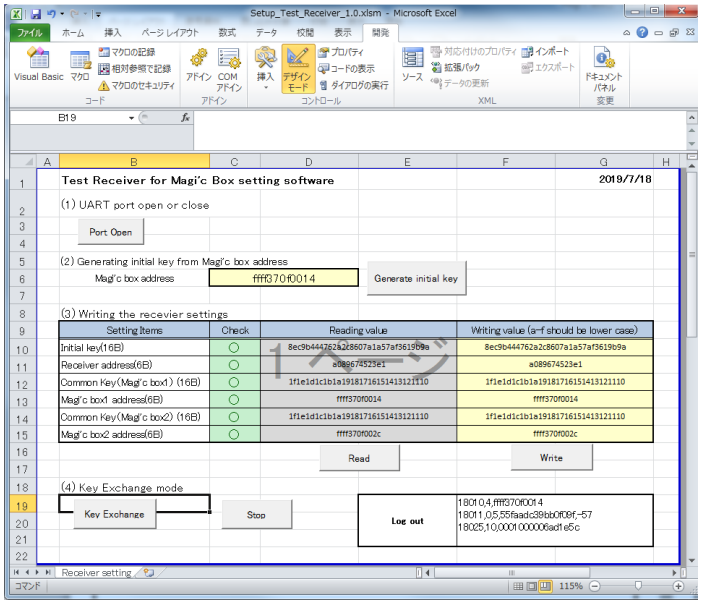

Fig.4 Image of Setup_Test_Receiver_1.0.xlsm

Panasonic

4.3. Setting of Test receiver

(1) Power slide switch should be set to USB side

(2) Connect test receiver to PC by USB cable

(3) Check if the power indicator lights up or not.

(4) Start a terminal software, like “tera term” on PC

(5) Set the the terminal software to be as follows

Serial port communication

Baud rate : 115200

Data: 8bit

Parity: none

Stop bit : 1 bit

Flow control : none

Terminal return code setting : CR+LF (both TX and RX)

Local echo : ON

4.4. Connecting serial port of test receiver with PC

Push the button as follows to connect serial port of test receiver with PC.

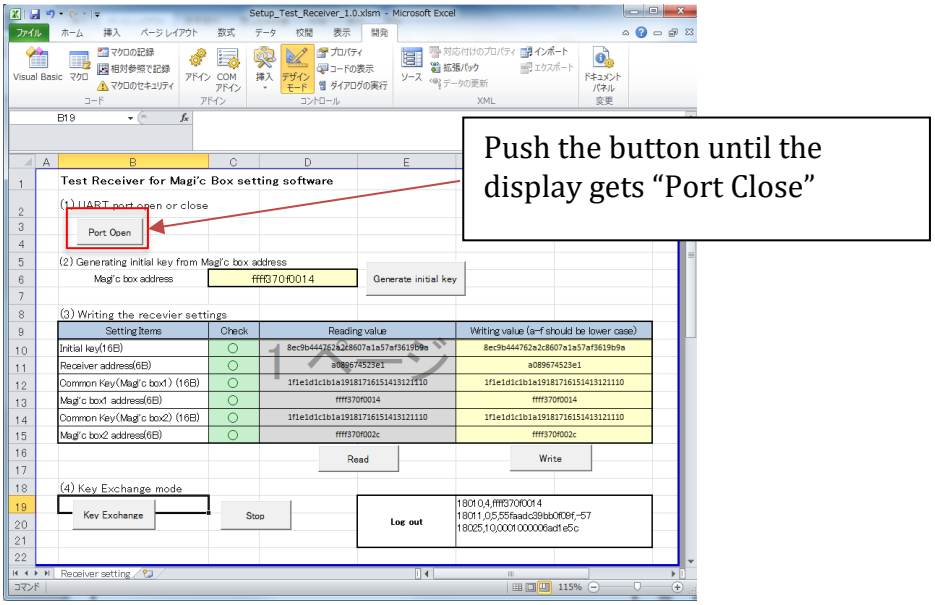

Fig.5　Connecting serial port test receiver with PC

4.5 Paring Magi’c box to test receiver

(1) Enter the address of Magi’c box that you want to pair to yellow box.

The length of address should be 12 characters 0-9, a-f

(2) Push the “generate initial key” button

(3) Push the “Write” button

(4) Push the “Read” button to check if writing has been done correctly.

(5) Push the “Key exchange” button

(6) Push the Magi’c box button several times.

Panasonic

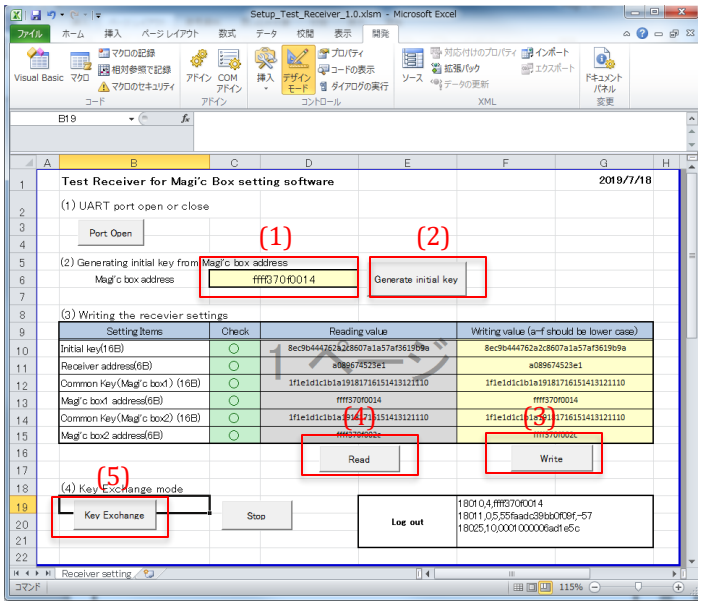

Fig.6 Paring Magi'c box to test receiver

5 Logout message

The example of Logout messages are shown as below.

If the pairing has not been completed, the payload cannot be decrypted as the third line message.

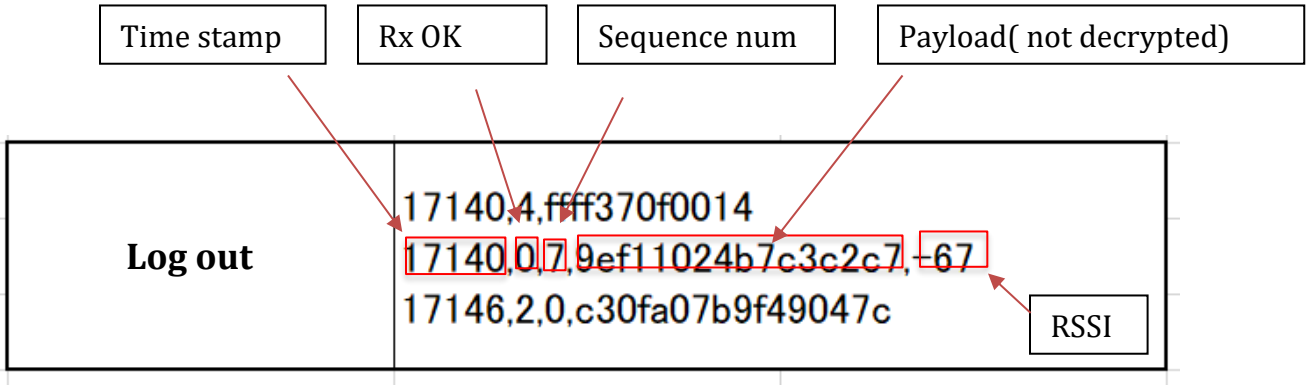

Fig.7 Logout message example when pairing is not complete

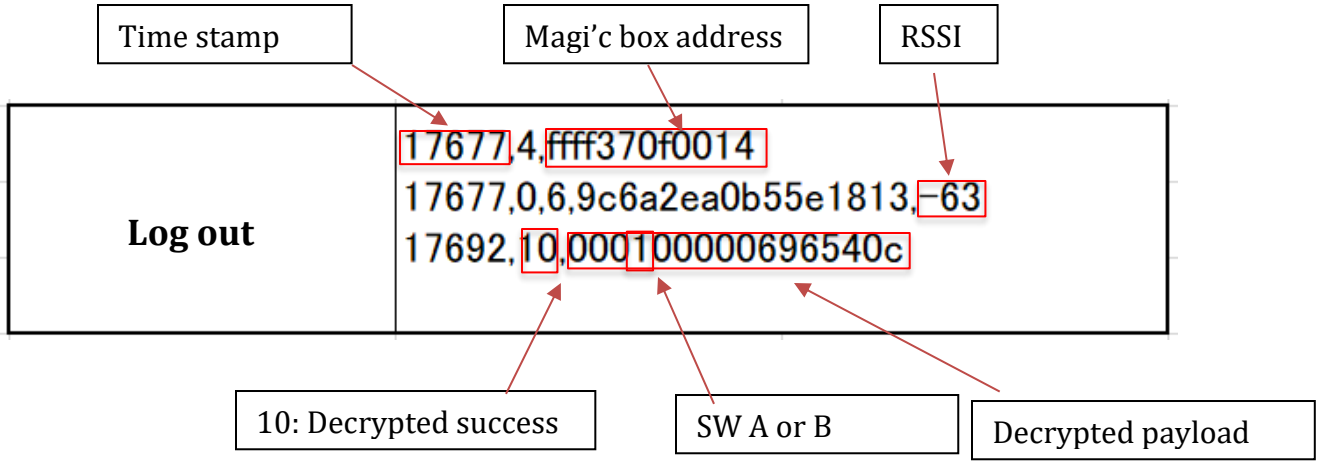

Fig.8 Logout message example when pairing is complete

6 Contacts

(1) USA

Panasonic Industrial Devices Sales Company of America

Address：205 Ravendale Drive, Mountain View, CA 94043
+1-201-341-6081

(2) Japan

Electromechanical Control Business Division
Industrial Solution Company
Panasonic Corporation

Address：1006 Oaza Kadoma Kadoma City, Osaka 571-8506
+81-50-3487-8129

Panasonic