• WARRANTY SERVICE CARD

WARRANTY CARD

PRODUCT NAME	Wireless Transceiver System	PERIOD
MODEL NAME	KS-2400	1 YEAR From the date of purchase.
PURCHASE DATE	. . 201_	
WARRANTY PERIOD	. . 201_	

CUSTOMER'S ADDRESS :	NAME :
	TEL :
AGENT'S ADDRESS :	NAME :
	TEL :

* Be sure to fill in blanks when the unit is sold

We grant 1 year warranty on the product commencing on the date of purchase. Within the warranty period, the manufacturer will correct, free of charge, any defect in the unit resulting from faults in materials or workmanship, either by repairing or replacing the entire unit as manufacturer may choose.
This warranty does not cover: damages due to improper use, normal wear and tear, or defects that have a negligible effect on the value or operation of the unit. The warranty is void if repairs are undertaken by unauthorized persons and if original parts are not used.
To obtain service within the warranty period, bring in or ship the complete unit with your purchase invoice to a Customer Service Center.

KS-2400

WIRELESS TRANSMITTER SYSTEM

User's Guide

- Read this user's guide carefully for safe operation and proper use of the product .
- Features and specifications are subject to change without notification.

WARNING

* **Please turn off the power before connecting or disconnecting any cables.**

- Do not immerse in water or keep in humid areas
- Do not place near TV, speakers, or other electronic devices
- Before installation, check power supply and voltage to avoid hazards
- Do not apply force or shock to the unit
- Do not disassemble the unit

TECHNICAL SPECIFICATIONS

Operating Voltage	TX: 3.7VDC RX: 12VDC
Frequency Range	2400MHz ~ 2483MHz
Operating Range	Up to 1800 feet at the open field * Note : Operating Range can be different according to the environment
Operating Temperature	10 ~ 110 °F
LED Indicators	TX: low battery warning, Out of Range, Talk On, Mute RX: Charging indicator, Talk On
Jacks	8 pin RJ-45 for power, audio out, and trigger out
Battery	Capacity: Lithium-Ion-Polymer 3.7V DC/1300mA Charging time: 3 hours Talk Time: Max. 16 Hours

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.

CAUTION : Changes or modifications not expressly approved by the party responsible for compliance could void the user authority to operate this device.

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.

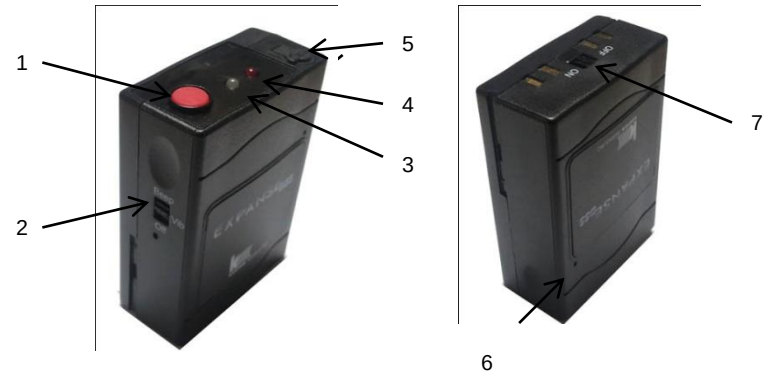
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

- Consult the dealer or an experienced radio/TV technician for help.

FCC RF Radiation Exposure Statement

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body. This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.

OPERATION (TX)



1	Rec Talk , Mute On/Off	6	Internal MIC
2	BEEP and Vibration	7	Power On/Off
3	Talk , Mute and out of range LED		
4	Battery LED		
5	Microphone Jack		

1. REC On/Off button
   * LED : REC & Talk On – Green LED On
   Mute On – Red LED On
   Low Battery – 50 ~ 25% Red LED blinking
   25% under Red LED on
   Out of Range – Green LED blinking
2. Beep: Beep Tone
3. Mode: Beep and Vibration
4. Mute On/Off:
   When user want to mute the voice in the Communication.
   Press the Red button to mute and press the button again to talk.
5. Microphone Jack (* Lapel MIC is optional)
6. Internal MIC
7. Power On/Off: Turn on/off the power of unit. When this is turned off, Unit will not work.

Warning

(1) Immediately discontinue use of the battery if, while using, chargi ng, or storing the battery, the battery emits an unusual smell, feels hot, changes color, changes shape, or appears abnor mal in any other way. Contact your sales location or Panaso nic if any of these problems are observed.

(2) Do not place the batteries in microwave ovens, high-pressure co ntainers, or on induction cookware.

(3) In the event that the battery leaks and the fluid gets into one's ey e, do not rub the eye. Rinse well with water and immediatel y seek medical care. If left untreated the battery fluid could c ause damage to the eye.

Caution

(1) If the device is to be used by small children, the caregiver sho uld explain the contents of the user's manual to the childr en. The caregiver should provide adequate supervision to insure that the device is being used as explained in the u ser's manual.

(2) When the battery is worn out, insulate the terminals with adhe sive tape or similar materials before disposal.

Danger

Be sure to follow the rules listed below while charging the battery. Failure to do so may cause the battery to become hot, ex plode, or ignite and cause serious injury.

· When charging the battery, either use a specified battery charg er or otherwise insure that the battery charging conditions specified by Panasonic are met.

· Do not attach the batteries to a power supply plug or directly to a car's cigarette lighter.

· Do not place the batteries in or near fire, or into direct sunlight. When the battery becomes hot, the built-in safety equipm ent is activated, preventing the battery from charging furt her, and heating the battery can destroy the safety equip ment and can cause additional heating, breaking, or igniti on of the battery.

PIN DESCRIPTION

RJ-45 Connector Pin Description

Pin# 1: Audio Signal

Pin# 2: Ground

Pin# 3: Transmitter Status

Pin# 4: Transmitter Control

Pin# 5: TXD

Pin# 6: RXD

Pin# 7 : DC 12V

Pin# 8 : Ground

BATTERY CHANGE

- Unscrew these nuts on backside of TX
- Then separate battery back with connector
- Insert a new battery with connector.
- Assemble battery cover as initial
- Tighten these screws on backside of TX
- Before using, please assemble battery cover completely

Li-Ion Battery Safety Precautions (sample document)

1. When Using the Battery

Danger

(1) Misusing the battery may cause the battery to get hot, explode, or ignite and cause DANGER serious injury.

Be sure to follow the safety rules listed below:

.Do not place the battery in fire or heat the battery.

.Do not install the battery backwards so that the polarity is revers ed.

.Do not connect the positive terminal and the negative terminal of the battery to each other with any metal object (such as wire).

.Do not carry or store the batteries together with necklaces, hairpi ns, or other metal objects.

.Do not penetrate the battery with nails, strike the battery with a h ammer, step on the battery, or otherwise subject it to stro ng impacts or shocks.

.Do not solder directly onto the battery.

.Do not expose the battery to water or salt water, or allow the batt ery to get wet.

(2) Do not disassemble or modify the battery. The battery contain s safety and protection devices which, if damaged, may c ause the battery to generate heat, explode or ignite.

(3) Do not place the battery on or near fires, stoves, or other high-temperature locations. Do not place the battery in direct s unshine, or use or store the battery inside cars in hot wea ther. Doing so may cause the battery to generate heat, ex plode, or ignite. Using the battery in this manner may als o result in a loss of performance and a shortened life exp ectancy.

(4) Do not insert the battery into equipment designed to be herme tically sealed. In some cases hydrogen or oxygen may be discharged from the cell which may result in rupture, fire or explosion.

OPERATION (RX)

1	Antenna connection (external Antenna)
2	LED : Recording ON/OFF, ID Matching
3	LED : Battery Charging Status
4	Charging PIN
5	RJ-45 Jack

1. Antenna Connection
2. LED : REC & Talk On/Off – Green LED On/Off
   ID Matching On – Green LED blinking
3. LED : Battery Charging – Red LED on
   Battery is fully charged – Red LED off
4. Charging Pin
5. RJ45 Jack for the cable

Warning

Do not continue charging the battery if it does not recharge within the specified charging time. Doing so may cause the battery to become hot, explode, or ignite.

Risk of explosion if battery is replaced by an incorrect type.

Dispose of used batteries according to the instructions.

2. While Charging

Caution

The temperature range over which the battery can be charged is 10˚C to 45˚C. Charging the battery at temperatures outside of this range may cause the battery to become hot or to break. Charging the battery outside of this temperature range may also harm the performance of the battery or reduce the battery's expectancy.

3. When Discharging the Battery

Danger

Do not discharge the battery using any device except for the specified device. When the battery is used in devices aside from the specified device it may damage the performance of the battery or reduce its life expectancy, and if the device causes an abnormal current to flow, it may cause the battery to become hot, explode, or ignite and cause serious injury.

Caution

The temperature range over which the battery can be discharged is -10˚C to 60˚C. Use of the battery outside of this temperature range may damage the performance of the battery or may reduce its life expectancy

FUNCTIONS

- 95 Channel Possible in the 2400~2483MHz Bandwidth
- Transmission Range up to 1800 feet in open field
- Audible and LED indicator out of range warning.
- Better voice quality.
- 40 bits security code combination.
- Charger Status Indicator
- Mute function On/Off Key (Transmitter)
- Auto link (When the system On/Off is On mode)
- Recorder On/Off Switch
- Transmitter Power On/Off switch
- Low Battery Indicator (Transmitter)
- Link LED indicator (Transmitter & Receiver)
- Beep Mode and Vibration Mode Selectable for user's convenience

TROUBLESHOOTING

Problems	Check Points
No reception	- Check the battery status - Check the connection and cables - Check the communication range
Poor reception, static, noise	- Change the location of RX Set - Check the communication range - Check to see if unit is placed near TV, speakers, or other electronic devices
Unit does not respond	- Check the battery status - Check the power switch on the bottom of the unit - Check the connection and cables

FUNCTION

SVM 2G4HZ Frequency hopping

The number of used frequencies (NUF) in the hopping algorithm is 95.

In base and handset a Primary Hopping lndex Number (PHIN) exist.

This number is incremented modulo NUF in the end of the normal downlink half-frame. It is broadcast in Q0 message instead of PSCN.

To a simplex or established duplex bearer a Hopping Index Offset (HIO) is assigned, which is an analogue to the used RF carrier in a FDMA system. This value is broadcast in place of CN in Q0 message. In the base in all unable slots in up-link direction the receiver is scanning with HIO=0. the receiver is scanning with doesn't exclude RF-carriers.

Different base use different hopping sequences. The different sequences are derived from the hopping table by adding an offset, SeQuenceCode (SQC).

A hopping table maps an index I to a carrier number: CN = f(I)

The physical RF carrier is calculated by the formula:

CN = (f ((PHIN+HIO) mod NUF) +SQC)mod NUF for 10.368000 MHz crystal frequencies are derived as: Frequency : 2401.056 MHz + CN*0.864000 MHz

Fast Frequency Hopping : (DCT 2G4) , up to 800 hops/sec

This wireless microphone is connected with DVR and record by audio receiving.

MEMO