

UHF Synthesized Transmitter

Operating Instructions

WRT-8B

Sony Corporation © 2002 Printed in Japan

Owner's Record

The model and serial numbers are located at the rear of the unit. Record the serial number in the space provided below. Refer to these numbers whenever you call upon your Sony dealer regarding this product.

Model No. WRT-8B Serial No. _____

Notice for customers in the U.S.A.

Use of Sony wireless devices is regulated by the Federal Communications Commission as described in Part 74 subpart H of the FCC regulations and users authorized thereby are required to obtain an appropriate license.

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

IMPORTANT NOTE: To comply with the FCC RF exposure compliance requirements, no change to the antenna or the device is permitted. Any change to the antenna or the device could result in the device exceeding the RF exposure requirements and void user's authority to operate this device.

Notice for customers in Canada

Use of Sony wireless devices is regulated by the Industry Canada as described in their Radio Standard Specification RSS-123.

A licence is normally required. The local district office of Industry Canada should therefore be contacted. When the operation of the device is within the broadcast band, the licence is issued on no-interference, no-protection basis with respect to broadcast signals.

Operation of this device 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.

The term "IC:" before the radio certification number only signifies that Industry Canada technical specifications were met.

Notice for customers in Europe



U.K.	854.125 - 862 MHz
Germany	798 - 822 MHz
Norway	800 - 820 MHz
Luxembourg	800 - 830 MHz, 854.125 - 862 MHz
Belgium	854.125 - 862 MHz
Denmark	800.100 - 819.900 MHz
France	470 - 830 MHz
Italy	800 - 820 MHz
Sweden	800 - 820 MHz
Switzerland	800 - 820 MHz
Finland	800 - 814 MHz
Iceland	800 - 814 MHz
Austria	774 - 790 MHz
Netherlands	774 - 782 MHz

Hereby, Sony Corporation, declares that this WRT-8B is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.

Note:

In some countries additional frequency bands may be used with the agreement of the national authority.

Note for customers in Austria:

Before use, it is necessary to obtain individual permission of the local telecommunications spectrum authority.

Note for customers in Switzerland:

Before use, a request of concession for a wireless microphone (Frequency Class 3) has to be submitted to Bakom.

Note for customers in Finland:

To own and use, it is necessary to obtain an individual licence of the Telecommunications Administration Center.

Note for customers in Luxembourg:

Before any use of an equipment, the frequencies required have to be, if necessary according to the regulations in force, assigned prior to usage by the "ILT".

Note for customers in Italy:

The use of this product within Italy is subject to article 334 of the Postal and Telecommunications regulations.

Nota per i clienti in Italia:

L'uso del prodotto sul territorio italiano è soggetto alle regolamentazioni del Codice Postale e delle Telecomunicazioni art. 334.

Note for customers in Belgium:

Using this transmitter with 50 mW RF output power is not allowed. Be sure to set the RF output power to 10 mW.

Note for customers in Norway:

Using this transmitter with 50 mW RF output power requires the frequency license.

Overview

The WRT-8B is a transmitter for a UHF synthesized wireless microphone system to be used for broadcast or movie production purpose. This transmitter is suitable for Electronic News gathering (ENG) and Electronic Field Production (EFP).

The microphone/transmitter and tuner of the wireless microphone system are classified by frequency band.

A 24-MHz (USA and Europe)/14-MHz (Australia) frequency band is assigned to each microphone/transmitter and tuner model. In building a UHF wireless microphone system, be sure to combine a microphone/transmitter and a tuner having the same wireless channel (frequency).

Features

The features of the WRT-8B are:

- Phase Locked Loop (PLL) synthesized system
- Compact and lightweight
- Selectable RF power output: 50 mW and 10 mW
- Switchable input level and variable attenuator
- Remote battery alarm on tuner
- Operation powered by easily available batteries
- LCD for coordinated operation control
- Compatibility with Sony lavalier microphone
- RF carrier with tone signal
- Wide dynamic range and low noise

Precautions

- The unit is designed for use in ambient temperature range of 0°C to 50°C (32°F to 122°F).
- Do not place the unit on or near heat sources, such as lighting equipment, power amplifiers, or in a place subject to direct sunlight or excessive moisture. In such places, the external finish or internal parts of the unit may be damaged.
- If the unit is used in a very humid or dusty place or in a place subject to exposure to an active or corrosive gas, clean its surface as well as the connectors with a dry, soft cloth soon after use.

Lengthy use of the unit in such places or not cleaning it after its use in such places may shorten its life.

- When cleaning the unit, never use organic solvents such as thinners or benzene, which will damage the finish of the unit.
- The unit has been factory adjusted precisely. Do not tamper with its internal parts or attempt to repair it.

Specifications

Transmitter and modulator section

Oscillator	Crystal controlled PLL synthesizer
Carrier frequencies	Model available in USA: 470 to 710 MHz, 758 to 806 MHz Model available in Europe: 470 to 606 MHz 614 to 862 MHz Model available in Australia: 792 to 806 MHz
Operating frequency band	Model available in USA and Europe: 24 MHz Model available in Australia: 14 MHz Refer to the "Sony Wireless Microphone System Frequency List" supplied with this manual.
RF power output	50 mW/10 mW e. r. p.
Tone signal	32.768 kHz
Battery condition signal	32.768 kHz
Type of antenna	1/4-wavelength wire
Pre-emphasis	50 µs
Deviation	±5 kHz (-60 dBV, 1 kHz input, MIC) ±5 kHz (-20 dBu, 1 kHz input, LINE)
Maximum deviation	±40 kHz
Frequency response	40 to 20,000 Hz
Signal-to-noise ratio	60 dB or more (A-weighted, modulation frequency 1 kHz, with ±5 kHz deviation at tuner)

0 dBV = 1 Vrms

Power section

Power requirements	3.0 V DC (two LR6/size AA alkaline batteries)
Battery life	Approx. 6 hours at 25°C (77°F) with Sony LR6 alkaline batteries (50 mW) Approx. 13 hours at 25°C (77°F) with Sony LR6 alkaline batteries (10 mW)

General

Operating temperature	0°C to +50°C (32°F to 122°F)
Storage temperature	-30°C to +60°C (-22°F to +140°F)
Dimensions	63 × 83 × 17 mm (w/h/d) (2 1/2 × 3 3/8 × 1 1/16 inches)
Mass	Approx. 140 g (4.9 oz) including batteries

Supplied accessories

Operating Instructions (1 set)
Sony Wireless Microphone System Frequency List (1)
Soft case (1)
Scribble sheet (supplied with European model only) (1)
Battery case (1)
Microphone cable (1)

Optional accessories

Lavalier microphones
ECM-44BC, ECM-77BC, ECM-166BC, ECM-310BC, ECM-350BC

Design and specifications are subject to change without notice.

Error Messages

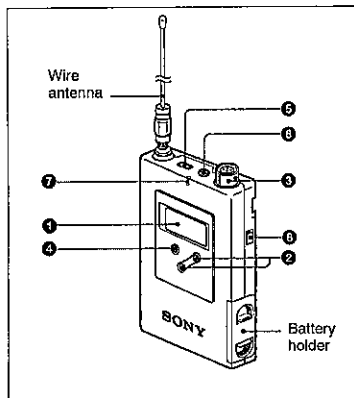
When a problem occurs, one of the following error message may appear on the display.

Messages	Contents	Measures
ERROR 11	An error occurred in backup memory data.	Turn the transmitter OFF, then turn it ON again to clear the backup memory. Channel group is reset to 00 (European model only), channel is reset to 01, and RF output power is reset to H, respectively.
ERROR 21	The PLL synthesized circuit is in trouble.	Turn the transmitter OFF, then turn it ON again. If it does not work, contact your Sony dealer.
ERROR 31	The battery voltage exceeds the allowable value.	Use the specified batteries.

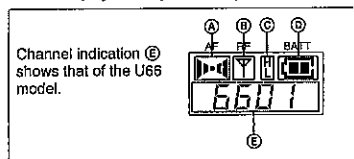
Notes on Microphone System Operation

- To operate with two or more channels, maintain a distance of at least 30 cm (one ft.) between each pair of transmitters.
For details of operation with two or more channels, refer to the Operating Instructions for the WRR-802/805/855/862, or WRT-8N with MB-8N, etc.
- Ensure that the tuners set to channels not being used are either turned off or set to the minimum output level.
- When powering the transmitter on or off, to keep the noise to a minimum, set the audio output level from the tuner or mixer to a minimum.
- Powering the transmitter on without checking the channel selection first may interfere with the operation of other microphones/transmitters, if the current setting is already being used.
- To prevent noise generation, set the RF power output to L (10 mW) when multiple channels are used simultaneously, and keep the microphones and transmitters at least 3 m (10 feet) away from the antennas when the system is operated using a group which allows selection of up to 8 channels, and at least 6 m (20 feet) away when using a group which allows selection of 9 channels.
For details on how to set the RF output power, see "Changing the RF Output Power" on the reverse side.
- When there is a strong interference signal around the microphone system, such as an interference caused by an active landline, noise may occur on the microphone system.

Parts Identification



1 LCD (liquid-crystal display) display



A AF (audio input) indication

Appears whenever an audio signal stronger than the reference level is received.

B RF (antenna output) indication

Appears during signal transmission from the antenna.

C RF power indication

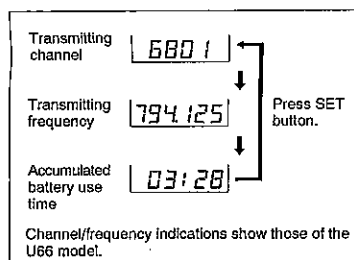
Shows the RF output power setting. See "Changing the RF Output Power."

D BATT (battery) indication

Shows the battery condition. See "Battery indication" in "Power Supply" section.

E CH (channel) indication

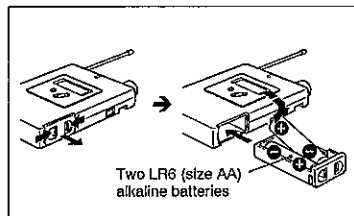
Shows transmitting channel. Each time you press the SET button in Transmitting mode, the channel indication changes as follows.



Transmitting channel: The current transmitting channel setting.
Transmitting frequency: The current transmitting frequency setting.

Power Supply

The transmitter can operate on two LR6 (size AA) alkaline batteries continuously for about 6 hours at 25°C (77°F).



Installing the batteries

- Slide the battery-holder catches inward (in the direction of the arrows →) to take out the battery holder.
- Match the polarities and insert the batteries.
- Set the battery holder in the original position.

Battery indication

When you turn the power on, the battery status appears in the BATT indication on the display section as shown on the right column.

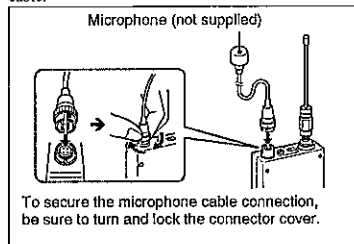
Accumulated battery use time: The accumulated time of battery use (in one-minute increments).

2 + (+ selection) / - (- selection/reset) buttons

In setting mode, select the transmission channel, frequency and RF output power setting using either of these buttons, or reset the time-of-use indication to "00:00" with the - button.

3 Audio input connector

Connect the output connector of the following Sony lavalier microphones: ECM-44BC, ECM-77BC, ECM-166BC, ECM-310BC, ECM-350BC, etc. You can also use your wired microphone by connecting it to this connector with a microphone cable.



Caution

When connecting a microphone to the unit, be sure to turn the unit off.

4 SET button

- In Transmitting mode, press this button to change the indicated items in the lower half of the LCD display.
- The SET button is also used to enter the Setting mode and select the item to be set.

5 POWER switch

Turns the transmitter ON or OFF.

Note

Be sure to connect a microphone before turning the power ON.

6 AF LEVEL control

Adjusts the audio level from the audio input connector.

7 PEAK indicator

Lights up when the input signal level is too high.

8 MIC/LINE select switch

Set according to the equipment connected to the audio input connector.

For details, on the use of this switch, see "Adjusting the Audio Input Level."

	1	2	3	4
BATT indication	Lights	Lights	Flashes	Goes off
Battery condition	Good	Less than half-charge	Almost exhausted	Completely exhausted

When the batteries reach stage 3 shown in the table, the BATT indication on the WRR-802/805/862 and WRU-806/8N also starts flashing.

Note

The indication may be incorrect if the batteries are not new when installed. If you plan to use the transmitter for a long period, it is best to replace the batteries with new ones.

Notes on batteries

- Use new alkaline batteries.
- Do not pair different types of battery.
- Always replace the two batteries together.
- The batteries are not rechargeable.
- Be careful to install the batteries with the correct polarity.
- When not using the transmitter for a long period, remove the batteries to avoid leakage. If the batteries do leak, clean all leakage from the battery holder case and the unit. Leakage left in the holder case and the unit may cause poor battery contact. If there seems to be poor battery contact, consult your Sony dealer.

Settings

For the transmitting channels and frequencies selectable on your transmitter, see the "Sony Wireless Microphone System Frequency List" supplied with this manual.

Initiating Setting Mode

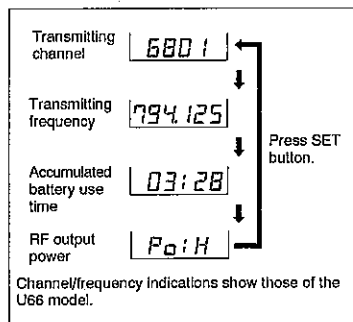
In Setting mode, you can change the transmission channel/frequency and the RF output power level, or reset the accumulated time indication.

To enter Setting mode

While holding down the SET button, set the POWER switch to ON.

The transmitter enters Setting mode and the indication before the transmitter was previously turned OFF flashes on the display section.

Each time you press the SET button, the setting items are cyclically switched as shown below.



Changing the Transmitting Channel

The transmitting channel can be selected through either the channel number or the frequency.

- Set the transmitter to Setting mode. If the channel number (or frequency) indication does not appear, press the SET button until the channel number (or frequency) indication appears.
- Press the + or - button to select the channel number (or frequency).

Pressing the + button cycles the indication in the order shown in the tables in the "Sony Wireless Microphone System Frequency List" supplied with the manual. Pressing the - button cycles the indications in the opposite direction.

Hold down the button to change the channel number (or frequency) quickly.

Note on the model available in Europe

On the model available in Europe, the transmitting channels are grouped in four sets. Select the group number before selecting the channel number as follows.

- When the left two digits flash, select the group number by pressing the + or - button.
- When the desired group number appears, press the SET button. The right four digits start to flash for channel number selection.
- Select the channel number by pressing the + or - button.
- When the desired channel number appears, press the SET button.

Group selection	Channel selection	Frequency selection
0062 17	0062 17	000 125
↓ ↑	↓ ↑	↓ ↑
0062 01	0062 18	000 250
↓ ↑	↓ ↑	↓ ↑
Group, channel and frequency selection examples for the model available in Europe (CE62)		

- When the desired channel number (or frequency) appears, set the POWER switch to OFF to release Setting mode, or press the SET button to continue operations in Setting mode.

The next time you turn on the transmitter (by setting the POWER switch to ON), the transmitter will enter Transmitting mode with the selected channel number (or frequency).

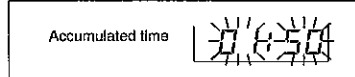
Notes

- The transmitter cannot transmit in Setting mode.
- Make sure that the channel selected on the transmitter is the same as that selected on the tuner being used in the same system.
- Depending on the noise or interference conditions, all selectable channels may not be usable. If necessary, you can determine which channels are usable by cycling the channel selection through a number of channels on the tuner with the unit set to OFF. Those channels for which the RF indicator on the tuner does not light are usable.
- If there is a TV broadcasting station near by, do not use the station's channel.
- The transmitter may not operate correctly if it is turned on immediately after being turned off in Setting mode. Wait for a few seconds before turning the power on again.
- The channel numbers and frequencies of your transmitter are shown on the "Sony Wireless Microphone System Frequency List" supplied with the manual.

Resetting the Accumulated Time Indication

The time indication accumulates time in hours and minutes when the WRT-8B is on. Reset the indication to "00:00" whenever you replace the batteries so that it can display the running time of the batteries.

- Set the transmitter to Setting mode.
- Press the SET button until the accumulated time indication appears on the display.

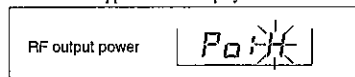


- Press the - button. The time indication resets to "00:00." While you see "00:00" indication, you can go back to previous value by pressing the + button.
- Set the POWER switch to OFF to release Setting mode. Or, press the SET button to continue operations in Setting mode.

Changing the RF Output Power

You can select the RF output power from the levels of H (50mW) and L (10 mW) in Setting mode. Set the RF output power to L (10 mW) for simultaneous operation of multiple channels, and set it to H (50 mW) for long-distance operation.

- Set the transmitter to Setting mode.
- Press the SET button until the RF output power indication appears on the display.



- Press the + or - button to select the settings: H (50 mW) or L (10 mW).
- Set the POWER switch to OFF to release Setting mode. Or, press the SET button to continue operations in Setting mode.

The next time you turn on the transmitter by setting the POWER switch to ON, the transmitter enters Transmit mode with the selected RF output power.

Adjusting the Audio Input Level

You can change the audio input level in a range of -60 dBV to -20 dBV (when the MIC/LINE selector is at MIC position) or -20 dBu to +20 dBu (when the MIC/LINE selector is at LINE position).

- Set the MIC/LINE select switch according to the equipment connected to the audio input connector. When a microphone is connected to this unit, set the selector to MIC position; when a mixer, etc., is connected, set it to LINE position.
- Turn the AF LEVEL control so that the PEAK indicator does not light continuously. Occasional lighting of the PEAK indicator is acceptable.