SONY

3-866-667-11

# UHF Synthesized Transmitter



## WRT-822B

## 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-822B 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 licence.

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

**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.

**Avis pour les clients au Canada:**

L'usage des appareils sans-fil Sony est réglé par l'Industrie Canada comme décrit dans leur Cahier des Normes Radioélectriques CNR-123. Une licence est normalement requise. Le bureau de l'Industrie Canada doit être contracté. Lorsque l'opération de l'appareil est dans les limites de la bande de radiodiffusion, la licence est émanée sur la base de non-interférence, non-protection avec les signaux de radiodiffusion.

English

# Table of Contents



# 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 an active 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 benzine, 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.

# Overview

The WRT-822B is a transmitter for a UHF synthesized wireless microphone system to be used for general purpose.

The other system components include the WRT-807A UHF Synthesized Wireless Microphone, the WRT-805A/822B UHF Synthesized Transmitter, the AN-820A UHF Antenna, the WD-820A UHF Antenna Divider, the WRR-805A UHF Synthesized Tuner, the WRR-802A/855A UHF Synthesized Diversity Tuner.

## Transmitting Channel Band

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

An 24-MHz frequency band (TV channel 30 to 69 use) 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 TV channel number.

## Features

**Phase Locked Loop (PLL) synthesized system**
The WRT-822B has a refined phase locked loop (PLL) synthesizer circuit.

**Compact and lightweight**
Innovative high-density mounting technology and magnesium case have enabled the creation of this compact and lightweight transmitter, which lets you move anywhere for Electronic News Gathering (ENG) and Electronic Field Production (EFP).

**Remote battery alarm on tuner**
This transmitter has capability of transmitting "Battery status information" to the WRR-802A/805A to give advance warning of battery depletion.
The information is sent to the WRR-802A/805A in approx. one hour advance to battery exhaust so that they can safely replace batteries of the transmitter.
When the WRR-802A/805A receives the information, the LED and the LCD on the panel start flashing.

**Operation powered by easily available batteries**
The built-in high efficiency DC-DC converter allows stable operation, for about 8 hours continuously, with two LR6 (size AA) alkaline batteries.

**LCD for coordinated operation control**
The built-in CPU controls operation of the unit, including the PLL circuit function. The LCD shows the current channel number/frequency, the residual battery power, input attenuation setting, AF input level and RF output.
An accumulated operation time indication is also provided for simple control of the time of battery use (in one-minute increments).

**Saved channel and input attenuation settings**
The unit stores the channel and the input attenuation setting when it is turned off. The saved settings are retained even if the batteries are removed. Therefore, when using the unit next time, you need not make the same settings again.

**Highly reliable electronic attenuator**
The built-in input level attenuator is adjustable in a range of 0 to 21 dB in 3-dB steps. It reduces signal distortion when an excessively strong audio signal is inputted.

**Compatibility with Sony lavalier microphone**
The transmitter is compatible with Sony lavalier microphones, including the ECM-77BC.

**RF carrier with tone signal**
The unit transmits the RF carrier accompanied by a tone signal, enabling the tuner with a tone squelch circuit to take out only the target audio signal received.

**Wide dynamic range and low noise**
The compander (compressor/expander) system enables transmission over a wide dynamic range with minimum noise.

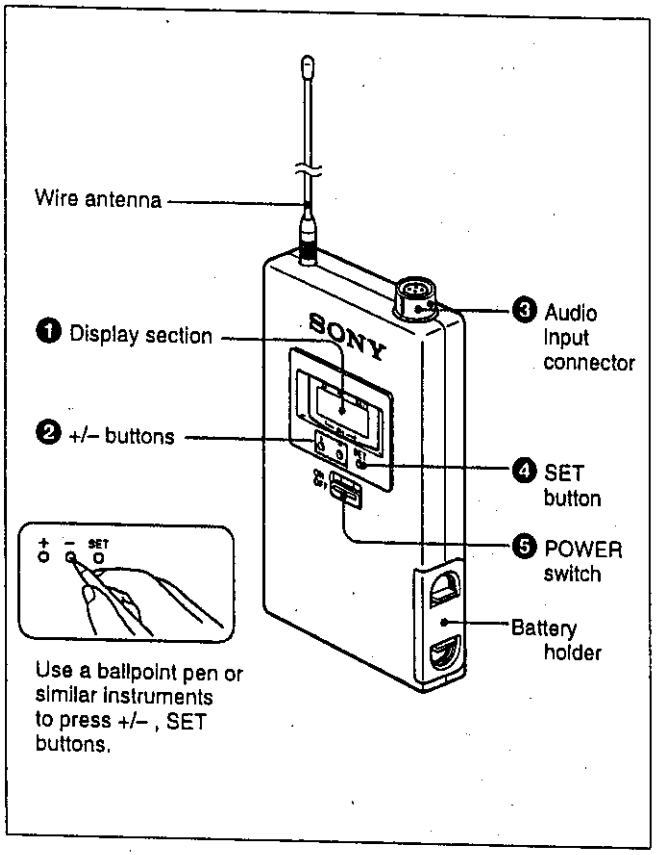
## System Configuration

The WRT-822B can be used with the tuners listed below.

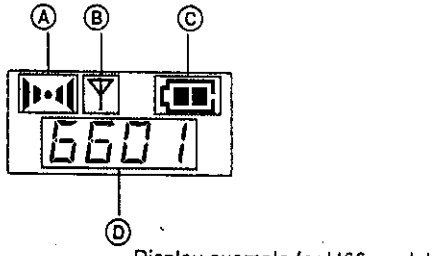
Configuration example

| WRT-822B | Frequency band | | Model name | |
|---|---|---|---|---|
| | TV channel | Frequency (MHz) | Transmitter or microphone | Tuner |
| U30 | 30 | 566.125 - 571.875 | WRT-805A<br>WRT-807A<br>WRT-822B | WRR-802A<br>WRR-805A<br>WRR-855A<br>MB-806A |
| | 31 | 572.125 - 577.875 | | |
| | 32 | 578.125 - 583.875 | | |
| | 33 | 584.125 - 589.875 | | |
| U50 | 50 | 686.125 - 691.875 | | |
| | 51 | 692.125 - 697.875 | | |
| | 52 | 698.125 - 703.875 | | |
| | 53 | 704.125 - 709.875 | | |
| U66 | 66 | 782.125 - 787.875 | | |
| | 67 | 788.125 - 793.875 | | |
| | 68 | 794.125 - 799.875 | | |
| | 69 | 800.125 - 805.875 | | |

# Parts Identification




## ❶ Display section



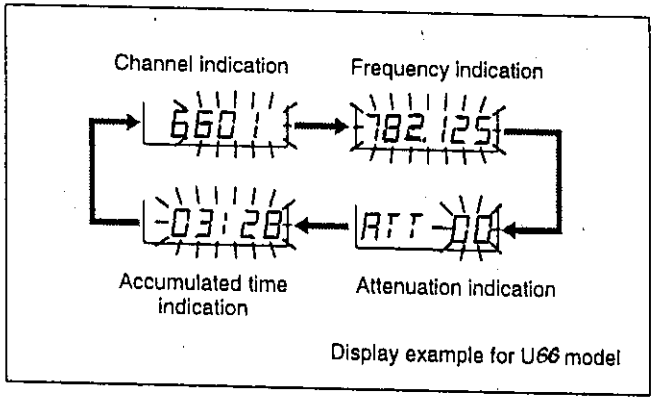
Display example for U66 model

**Ⓐ AF (audio input) indication**
Lights when an audio signal over the reference level is being supplied.

**Ⓑ RF (antenna output) indication**
Lights when a signal is being transmitted from the antenna.

**Ⓒ BATT (battery) indication**
Displays the status of the batteries.
*See "Battery indication" on page 9.*

**Ⓓ CH (channel) indication**
Displays the transmission channel.
Each time you press the SET button in normal Transmit mode, the channel indication changes to the frequency, input attenuation and accumulated time indications as shown on the next page.




Display example for U66 model

**In Attenuation indication mode,** it displays the input attenuation setting in dB, which can be changed in a range of 0 to 21 dB in 3-dB steps.
**In Accumulated time indication mode,** it displays the accumulated time of battery use (in one-minute increments).
*For adjustments, see "Changing the Transmitting Channel" on page 11, "Changing the Input Attenuation Setting" on page 13 or "Resetting the Accumulated Time Indication" on page 14.*

### ❷ + (+ selection) / – (– selection/reset) buttons

In setting mode, select the transmission channel, frequency and attenuator level using either of these buttons, or reset the time-of-use indication to "00:00" with the – button.
*For Setting mode, see "Settings" on page 11.*

### ❸ Audio input connector

Connect the output connector of the following Sony lavalier microphones: ECM-44BC, ECM-55BC, ECM-66BC, ECM-77BC/FC, ECM-166BC, ECM-310BC, ECM-350BC. You can also use your wired microphone by connecting it to this connector with an optional EC-1.5CF microphone cable.
*See "Connections" on page 10.*

### ❹ SET button

In normal Transmit mode, this button changes the indication items of the display section as shown on the left column.
In Setting mode, this button selects the item to be set. To initiate the setting mode, set the POWER switch to ON while holding this button down.
*For setting the transmit channel, input attenuation or resetting the time-of-use indication in Setting mode, see "Settings" on page 11.*

### ❺ POWER switch

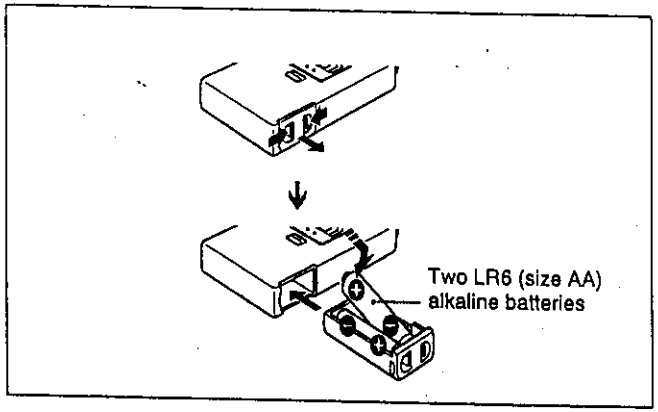
Turns the power of the transmitter ON or OFF.
When you set this switch to ON without holding any other button, the transmitter is set to normal Transmit mode and transmits the signal of the selected channel.
When you set this switch to ON while holding the SET button down, Setting mode is initiated. No signal is transmitted in Setting mode.

**Note**

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

# Power Supply

The transmitter can operate on two LR6 (size AA) alkaline batteries continuously for about 8 hours at 25°C (77°F).




## Installing the batteries

1 Slide the battery-holder catches inward (in the direction of the arrows ➡ ⬅) to take out the battery holder.

2 Match the polarities and insert the batteries.

3 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 in the table below.

| | 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 tuner 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 batteries.
- 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.

# Connections

**Caution**

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

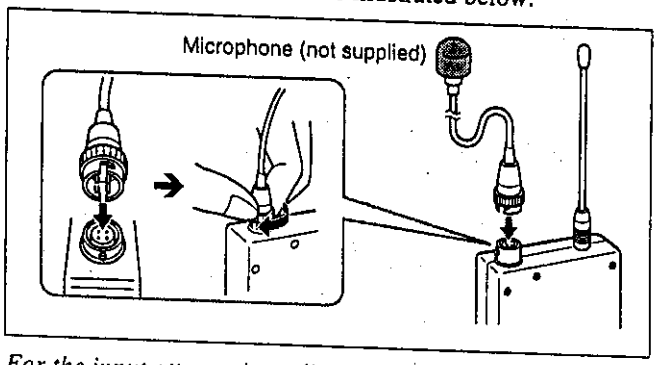
## To connect a microphone

The WRT-822B accepts the following Sony lavalier microphones:

ECM-44BC ECM-55BC ECM-66BC
ECM-77BC/FC ECM-166BC
ECM-310BC ECM-350BC

You can also use your wired microphone by connecting it to this connector with an optional EC-1.5CF microphone cable.

To secure the microphone cable connection, be sure to turn and lock the connector cover as illustrated below.




*For the input attenuation adjustment, see page 12.*



# 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 tuner which is used with the WRT-822B.*
- 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, 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 11 channels, and at least 6 m (20 feet) away when using a group which allows selection of 12 channels.

# Settings

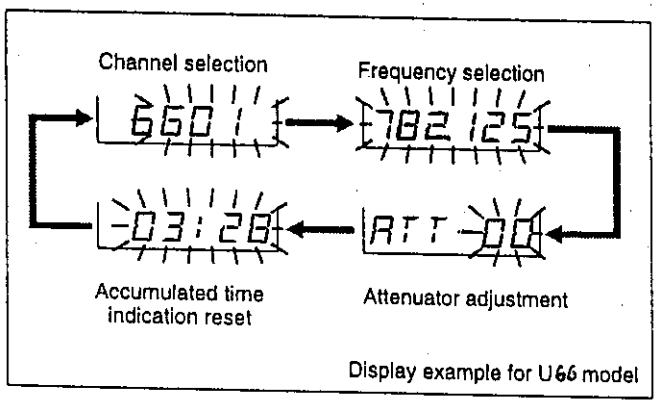
## Initiating Setting Mode

In Setting mode, you can change the transmission channel/ frequency and the attenuation 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.

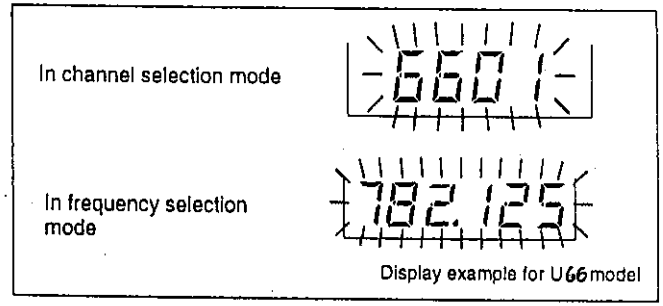
Each time you press the SET button, the setting items are cyclically switched as shown below.



Display example for U66 model

## Changing the Transmitting Channel

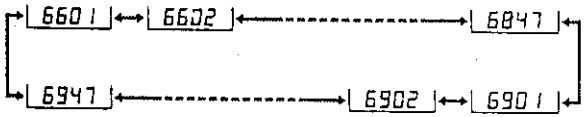
**1** Confirm that the channel number flashes on the display. If not, set the unit in Setting mode, and press the SET button so that the channel number flashes.
If you want to change the channel in frequency indication, press the SET button one more.



Display example for U66 model

**2** Press the + or – button to select the channel.

Pressing the + button cyclically changes the channel indication in the order shown on pages L-1 to L-3.
Pressing the – button changes it in reversed order.
If you keep either button pressed, the channel number will be incremented or decremented successively.



**3** Once the desired channel number 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 power only by setting the POWER switch to ON, the transmitter will be set to Transmit mode with the selected channel.

**Notes**

- The unit cannot transmit in Setting mode.
- Make sure that the channel selected is the same as that selected on the tuner used in the same system.
- Depending on the noise or interference conditions, the selectable channels may not necessarily all be usable. If necessary, you can determine the usable channels by stepping the channel selection through a number of channels on the tuner with the microphone/transmitter set to OFF. Those channels on which the RF indicator of the tuner does not light are usable.
- If there is a TV broadcasting station near by, do not use the station's channel.
- The unit may not operate correctly if it is turned on again immediately after turning off the power while in setting mode. Pause for a few seconds or more before turning on the power again.
- When operating two or more UHF wireless microphone systems using channels in different groups, ensure that the systems are at least 100 m (330 feet) apart from each other. (The same applies also when using channels in a group if the different UHF wireless microphone systems are installed where they are within sight of each other.)

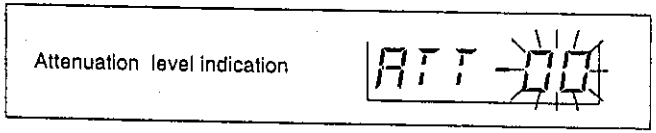
## Changing the Input Attenuation Setting

You can change the input attenuation setting in 3-dB steps in a range of 0 to 21 dB. You can change it either in Setting mode or in Transmit mode.

### Changing in Setting mode

**1** Set the unit in Setting mode.

**2** Press the SET button until the attenuation level indication appears on the display.




**3** Press the + or – button to select the attenuation level.

If you keep either button pressed, the level will be incremented or decremented successively.

4 Once the desired level 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 power only by setting the POWER switch to ON, the transmitter will be set to Transmit mode with the selected attenuation setting.

### Changing in Transmit mode

You can also change the input attenuation level during transmission.

1 If the attenuation level is not displayed, press the SET button until the attenuation level indication appears on the display.

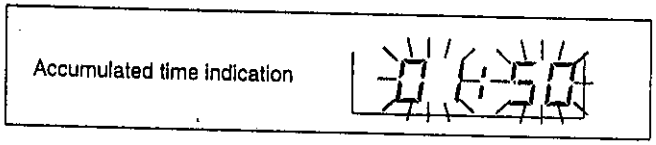
2 Press the + or – button to select the level.

## Resetting the Accumulated Time Indication

The time indication accumulates time in hours and minutes when the WRT-822B is on.
Reset the indication to "00:00" whenever you replace the batteries so that it can display the running time of the batteries.

1 Set the unit in Setting mode.

2 Press the SET button until the accumulated time indication appears on the display.




3 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.

4 Set the POWER switch to OFF to release Setting mode.

# Error Messages

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

| Messages | Contents | Measures |
|---|---|---|
| Error 11 | An error occurred in backup memory data. | The data was initialized. Set the transmitting channel and the input attenuation again. |
| Error 21 | The PLL synthesized circuit is in trouble. | Contact your Sony dealer. |
| Error 31 | The battery voltage exceeds the allowable value. | Use the specified batteries. |
| Error 41 | Defect of an internal circuit | Contact your Sony dealer. |
| Error 51 | Defect of the A/D converter | |
| Error 61 | Defect of an internal circuit | |

# Specifications

**Transmitter and modulator section**

| | |
|---|---|
| Oscillator | Crystal controlled PLL synthesizer |
| Type of emission | F3E |
| **Carrier frequencies** | (Refer to the frequency list) |
| U30 model : | 566.125 – 589.875 |
| U50 model : | 686.125 – 709.875 |
| U66 model : | 782.125 – 805.875 |
| **RF power output** | 20 mW |
| Frequency stability | Within ±15 kHz |
| Tone signal | 32.768 kHz |
| Type of antenna | 1/4-wavelength wire |
| Pre-emphasis | 50 µsec |
| Deviation | ±5 kHz (–60 dBv [1], 1 kHz input) |
| Frequency response | 70 to 13,000 Hz |
| Signal-to-noise ratio | 60 dB or more (A-weighted, with reference deviation at WRR-800A/801A/ 805A/ 810A/820A/840A/850A/ 855A/860A) |
| Audio attenuator | 0 to 21 dB, variable in 3-dB steps |
| Input level | –60 dBv at audio attenuator 0 dB |

**Power section**

| | |
|---|---|
| Power requirements | 3.0 V DC (two LR6/size AA alkaline batteries) |
| Battery life | Approx. 8 hours at 25°C (77°F) with Sony LR6 alkaline batteries |

**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 × 103 × 17 mm (w/h/d) (2 1/2 × 4 1/8 × 11/16 inches) |
| Mass | Approx. 145 g (5.1 oz) including batteries |

**Supplied accessories**

Operating Instructions (1)
Soft case (1)

**Optional accessories**

Lavalier microphones
ECM-44BC, ECM-55BC, ECM-66BC, ECM-77BC/FC, ECM-166BC, ECM-310BC, ECM-350BC
Microphone cable
EC-1.5CF

Design and specifications are subject to change without notice.

1) 0 dBv = 1 Vrms