TOA

OPERATING INSTRUCTIONS

WIRELESS TUNER WT-4800

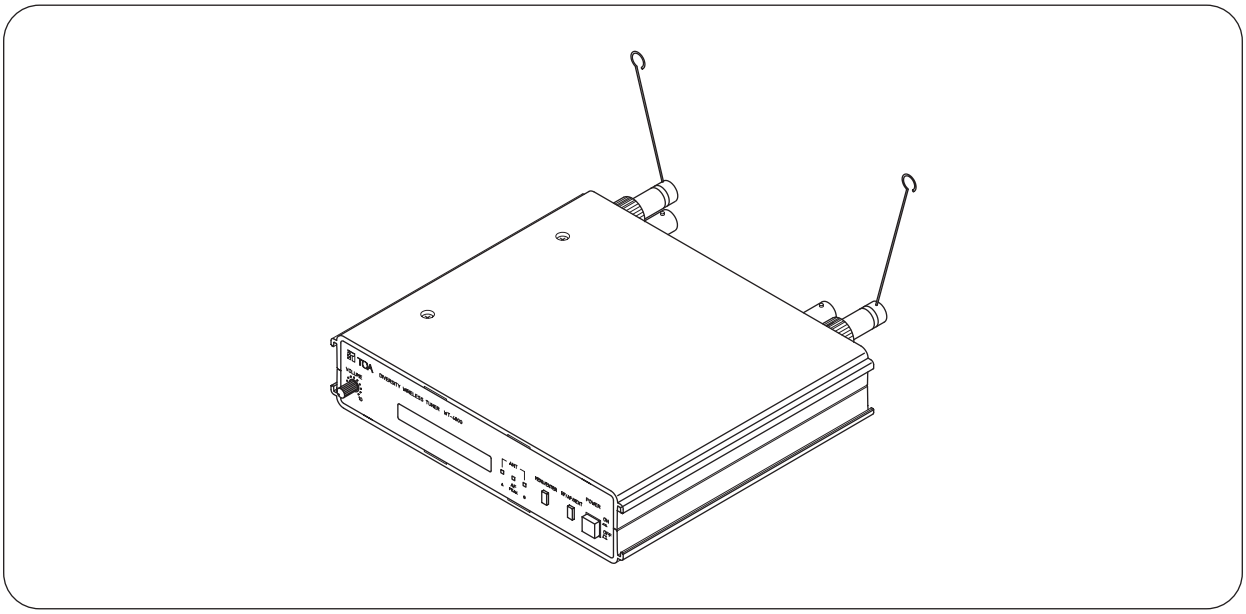


TABLE OF CONTENTS

1. SAFETY PRECAUTIONS 2

2. GENERAL DESCRIPTION 4

3. FEATURES 4

4. HANDLING PRECAUTIONS 4

5. NOMENCLATURE AND FUNCTIONS

Front 5

Rear 5

6. OPERATION

6.1. Basic Operation 6

6.2. Channel/Bank Number Settings 6

6.3. Microphone Sensitivity Adjustment 7

7. HOW TO CHECK AND DEAL WITH INTERFERENCE

7.1. Order of Actions (Action Flowchart) 8

7.2. RF Check Mode Setting 9

7.3. Channel Detection 9

7.4. Squelch Adjustment 9

8. CONNECTION EXAMPLES 10

9. RACK MOUNTING 11

10. FIRMWARE VERSION 11

11. SPECIFICATIONS 12

Accessories 12

Please follow the instructions in this manual to obtain the optimum results from this unit.
We also recommend that you keep this manual handy for future reference.

TOA Corporation

1. SAFETY PRECAUTIONS

- Be sure to read the instructions in this section carefully before use.
- Make sure to observe the instructions in this manual as the conventions of safety symbols and messages regarded as very important precautions are included.
- We also recommend you keep this instruction manual handy for future reference.

Safety Symbol and Message Conventions

Safety symbols and messages described below are used in this manual to prevent bodily injury and property damage which could result from mishandling. Before operating your product, read this manual first and understand the safety symbols and messages so you are thoroughly aware of the potential safety hazards.

⚠ **WARNING**	Indicates a potentially hazardous situation which, if mishandled, could result in death or serious personal injury.

When Installing the Unit

- Do not expose the unit to rain or an environment where it may be splashed by water or other liquids, as doing so may result in fire or electric shock.
- Use the unit only with the voltage specified on the unit. Using a voltage higher than that which is specified may result in fire or electric shock.
- Do not cut, kink, otherwise damage nor modify the power supply cord. In addition, avoid using the power cord in close proximity to heaters, and never place heavy objects -- including the unit itself -- on the power cord, as doing so may result in fire or electric shock.
- Avoid installing or mounting the unit in unstable locations, such as on a rickety table or a slanted surface. Doing so may result in the unit falling down and causing personal injury and/or property damage.
- To prevent lightning strikes, install the unit at least five meters away from a lightning rod, and yet within the protective range (angle of 45°) of the lightning conductor. Lightning strikes may cause a fire, electric shock or personal injury.
- Since the unit is designed for in-door use, do not install it outdoors. If installed outdoors, the aging of parts causes the unit to fall off, resulting in personal injury. Also, when it gets wet with rain, there is a danger of electric shock.

When the Unit is in Use

- Should the following irregularity be found during use, immediately switch off the power, disconnect the power supply plug from the AC outlet and contact your nearest TOA dealer. Make no further attempt to operate the unit in this condition as this may cause fire or electric shock.
  - · If you detect smoke or a strange smell coming from the unit.
  - · If water or any metallic object gets into the unit
  - · If the unit falls, or the unit case breaks
  - · If the power supply cord is damaged (exposure of the core, disconnection, etc.)
  - · If it is malfunctioning (no tone sounds.)
- Do not place cups, bowls, or other containers of liquid or metallic objects on top of the unit. If they accidentally spill into the unit, this may cause a fire or electric shock.
- Do not touch the unit's antennas during thunder and lightning, as this may result in electric shock.

⚠ CAUTION Indicates a potentially hazardous situation which, if mishandled, could result in moderate or minor personal injury, and/or property damage.

When Installing the Unit

- Never plug in nor remove the power supply plug with wet hands, as doing so may cause electric shock.
- When unplugging the power supply cord, be sure to grasp the power supply plug; never pull on the cord itself. Operating the unit with a damaged power supply cord may cause a fire or electric shock.
- When moving the unit, be sure to remove its power supply cord from the wall outlet. Moving the unit with the power cord connected to the outlet may cause damage to the power cord, resulting in fire or electric shock. When removing the power cord, be sure to hold its plug to pull.
- Avoid installing the unit in humid or dusty locations, in locations exposed to the direct sunlight, near the heaters, or in locations generating sooty smoke or steam as doing otherwise may result in fire or electric shock.
- Leave the installation of an antenna to your TOA dealer because the installation requires expert knowledge. The falling of an antenna may cause electric shock.

When the Unit is in Use

- Do not place heavy objects on the unit as this may cause it to fall or break which may result in personal injury and/or property damage. In addition, the object itself may fall off and cause injury and/or damage.
- Make sure that the volume control is set to minimum position before power is switched on. Loud noise produced at high volume when power is switched on can impair hearing.
- Never open the unit case as there are high temperature parts inside the unit, which may cause a burn if touched. Refer all servicing to your nearest TOA dealer.
- Use the dedicated AC – DC adapter for the unit. Note that the use of other adapter may cause a fire.
- If dust accumulates on the power supply plug or in the wall AC outlet, a fire may result. Clean it periodically. In addition, insert the plug in the wall outlet securely.
- Switch off the power, and unplug the power supply plug from the AC outlet for safety purposes when cleaning or leaving the unit unused for 10 days or more. A fire or electric shock may result.

2. GENERAL DESCRIPTION

The WT-4800 Wireless Tuner is designed for use on the UHF band, and suitable for vocal or speech reinforcement applications. It features a compander circuit which minimizes the influence of ambient noise.

3. FEATURES

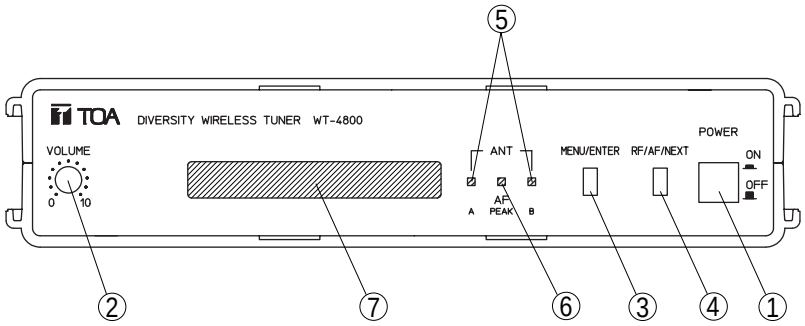
- 64 different operating frequencies (4 banks x 16 channels)
- Optimized PLL-synthesizer drastically minimizes the oscillation frequency drift resulting from the ambient temperature changes.
- The Scan function indicates available idle channels and is useful when changing the operating frequency.
- The LCD screen indicates the current operating frequency, as well as RF and AF levels.
- Antenna distribution outputs and audio cascade inputs facilitate connection of another unit to build a dual-channel system.
- Compact size and high reliability

4. HANDLING PRECAUTIONS

- Make sure that the power switch is switched OFF after use.
- When mounting in an equipment rack, select the position which does not expose the unit to high temperature.
- When installing, keep the unit as far away as possible from fluorescent lamps, digital equipment, personal computers, and other equipment which generate high frequency noise.
- Only the same bank wireless systems can be used in the same location. Avoid using the systems in combination with those of different banks because interference or noise could be generated.
- Wireless tuners to be installed in the same location must differ from each other in channel number. Setting them for the same channel number could result in noise. Wireless microphones must be identical to wireless tuners in both bank and channel numbers.
- When using two or more wireless microphones, keep them at least 50 cm away from each other to avoid malfunctions or noise.
- Keep the wireless microphone at least 3 m away from the receiving antenna. Using the microphone in close proximity to the antenna could result in malfunctions or noise.
- Be sure to connect at least two receiving antennas (one each for Channels A and B). Connect four antennas (two each for Channels A and B) when installing the unit in the place of wide area or where dead spots are frequently encountered.

5. NOMENCLATURE AND FUNCTIONS

[Front]



1. Power switch
Press this switch to switch on the power, and press this switch again to switch off the power.

2. Volume control
Controls an output level.

3. Menu/Enter key
Selects and registers the desired function.

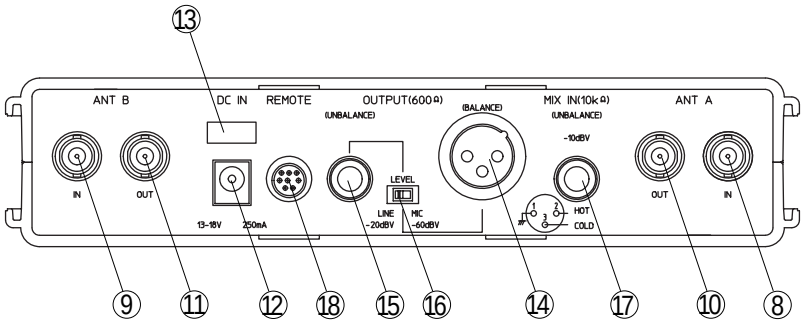
4. Indication selector key
Selects the RF or AF level or receiving frequency to be displayed on the screen.

5. Reception lamps
Either lamp, A or B, lights when the tuner receives a radio signal.

6. AF peak lamp
Lights when the output level reaches the point of about 3 dB below the clipping level.

7. Screen
Displays the receiving frequency or RF or AF level for each signal in 11 steps.

[Rear]



8. Antenna input A
For signal routing A. Input: 75 Ω, BNC
For the wireless system covering a relatively narrow area, use the supplied two rod antennas, one of which should be mounted at a 45° angle outwards from a vertical line.

9. Antenna input B
For signal routing B. Input: 75 Ω, BNC
For the wireless system covering a relatively narrow area, use the supplied two rod antennas, one of which should be mounted at a 45° angle outwards from a vertical line.

10. Antenna distribution output A
75 Ω, BNC

11. Antenna distribution output B
75 Ω, BNC

12. DC input jack
Connect the DC power supply unit to this jack.

13. Cable hanger
Hook the power cable onto this part.

14. AF output
Balanced XLR connector, male type
(Pin #2: Hot)

15. AF output
Unbalanced phone jack

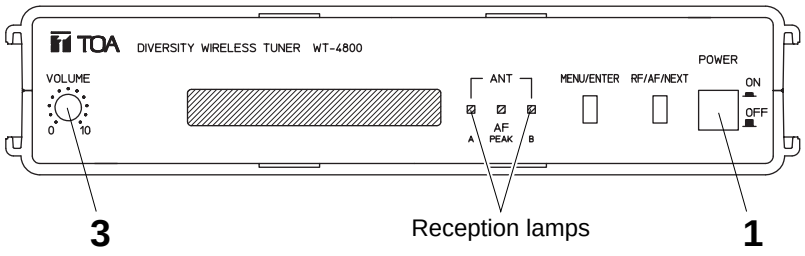
16. AF output level selector
Selects the output level of either –60 dB/600 Ω or –20 dB/600 Ω. (0 dB = 1 V)

17. AF mixing input (Unbalanced)
Connects to other unit's AF output.
Input level: –20 dB, 10 kΩ (0 dB = 1 V)

18. Communications port
Use this port when connecting a PC.

6. OPERATION

6.1. Basic Operation

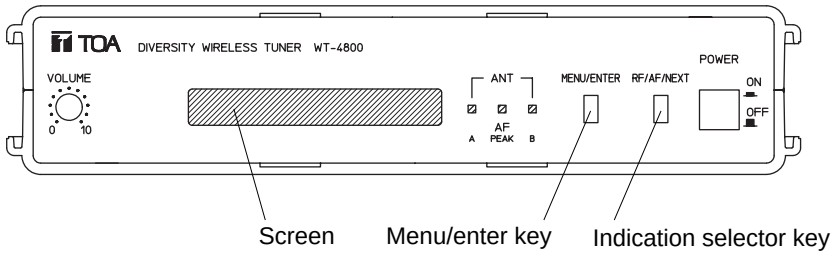


Step 1. Turn power on, and the power indicator lights.

Step 2. Set the microphone switch to the ON position.
The reception lamp lights when the tuner receives the same frequency signal.

Step 3. Adjust the volume control.
The output level increases as the control is rotated clockwise, and decreases as rotated counterclockwise.

6.2. Channel/Bank Number Settings



6.2.1. Channel (frequency) setting

Step 1. Press the Indication Selector key (RF/AF/NEXT key) until the screen displays the channel (frequency).

Step 2. Pressing the Menu/Enter key continuously for over a second will place the unit in setting mode, and the "SET FREQUENCY" indication is first displayed. The display then cycles through the "SET BANK," "SET SQ LEVEL," "Rf CHECK," "CHANNEL CHECK," "INDEX," and "END SETTING" indications with each subsequent depression of the Menu/Enter key.

Step 3. Press the Indication Selector key when the "SET FREQUENCY" indication is displayed. The screen displays the ">>" indication representing the setting mode, which is followed by the currently-set channel number and frequency. (Example: >> 03 805.000MHz). Subsequent depression of the Indication Selector key cycles the display through 16 channel numbers (frequencies).

Step 4. Select the desired frequency, then press the Menu/Enter key. The ">>" indication will disappear to register the setting and only the channel number will be displayed together with the frequency.

6.2.2. Bank number setting

Step 1. To make the Bank number setting, press the Indication Selector key when the setting mode is "SET BANK." The screen will display the ">>" setting mode indicator, followed by the currently-set Bank number. (Example: >>BANK=B)

Step 2. The display cycles through the Bank numbers with each further depression of the Indication Selector key.

Step 3. Select the desired Bank number. The ">>" setting mode indicator will disappear to register the Bank number setting and the Bank number will be displayed together with both the channel number and frequency. (Example: C 03 807.000MHz) In this event, the last channel number before the set Bank number registration is displayed.

6.3. Microphone Sensitivity Adjustment

Although the audio level is preset by the factory, it can be adjusted depending on the user's voice level.

Step 1. Holding the microphone body, rotate the microphone grip counterclockwise to remove it.

Step 2. Turn on the power of the tuner and microphone.

Step 3. Adjust the microphone's audio level control using a screwdriver. The sensitivity increases as the control is rotated clockwise, and decreases as rotated counterclockwise.

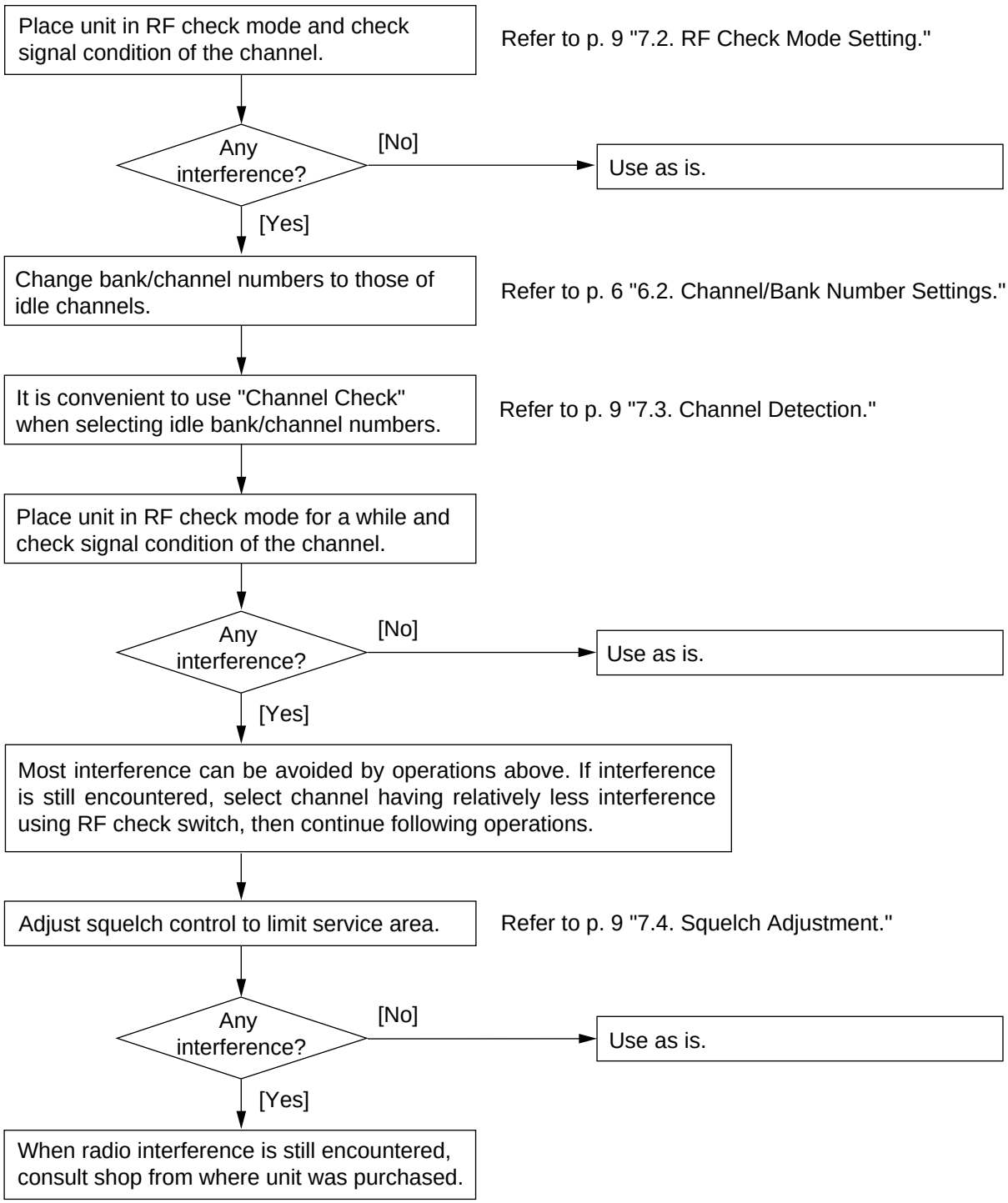
Step 4. Set the volume control so that its knob points to the 2 o'clock position. If the AF PEAK lamp remains lit, readjust the microphone's audio level control so that the lamp only flashes when the signal reaches its highest peak.

Step 5. Replace the microphone grip.

The tuner's AF PEAK lamp lights when the tuner output level reaches the point of about 3 dB below the clipping level. The PEAK lamp operates in response to the volume control position.

7. HOW TO CHECK AND DEAL WITH INTERFERENCE

7.1. Order of Actions (Action Flowchart)



7.2. RF Check Mode Setting

Step 1. Adjust the volume control to decrease the volume. (Big noise is output if the unit is placed in RF check mode when no signal is present.)

Step 2. Press the Menu/Enter key for over a second to place the unit in setting mode.

Step 3. Select the item of "Rf CHECK." (Different setting items are displayed on the screen each time the Menu/Enter key is pressed. Holding down the Menu/Enter key causes the display to cycle through the setting items in rapid sequence.)

Step 4. Press the Indication selector key to check idle channels by hearing the sound. (Antenna A alternates with Antenna B with each depression of the Indication key.)

Step 5. After check completion, press the Indication selector key to exit the RF check mode.

7.3. Channel Detection

Step 1. Press the Menu/Enter key for over a second to place the unit in setting mode.

Step 2. Select the item of "CHANNEL CHECK." (Different setting items are displayed on the screen each time the Menu/Enter key is pressed. Holding down the Menu/Enter key causes the display to cycle through the items in rapid sequence.)

Step 3. Press the Indication selector key. Channel detection begins and idle channels of the "VACANT Ch=X" indication are displayed in sequence.

Step 4. Press the Menu/Enter key after check completion and exit channel detection mode.

7.4. Squelch Adjustment

The WT-4800 tuner has the squelch function that silences its output in the condition that a radio signal to be received is a certain level of signal strength. This strength level can be varied by means of the squelch control.

7.4.1. Squelch Level Setting

Step 1. Press the Menu/Enter key for over a second to place the unit in setting mode.

Step 2. Select the setting item of "SET SQ LEVEL." (Different setting items are displayed on the screen each time the Menu/Enter key is pressed. Pressing the Menu/Enter key causes the display to cycle through the setting items in rapid sequence.)

Step 3. Press the Indication selector key to display the indication of ">>SQ Level=XX." (The value increases as the key is pressed.)

Step 4. Select the desired value and press the Menu/Enter key. This registers the selected SQ level and terminates the SQ level setting.

The squelch control is graduated from "0" to "10". The wireless tuner's sensitivity is the highest and radio signals can be received in wide areas when the control is in the "0" position, while the "10" position makes the sensitivity the lowest, limiting signal reception only to narrow areas.

The wireless microphone's signal transmission distance varies largely depending on its ambient conditions. The table below provides guidelines on the squelch control vs. transmission distance.

Squelch Control Graduation	0	1	2	3	4	5	6	7	8	9	10
Transmission Distance (%)	100	85	70	60	50	40	35	30	25	20	15

Note : Transmission distance when in "0" position is 100%.

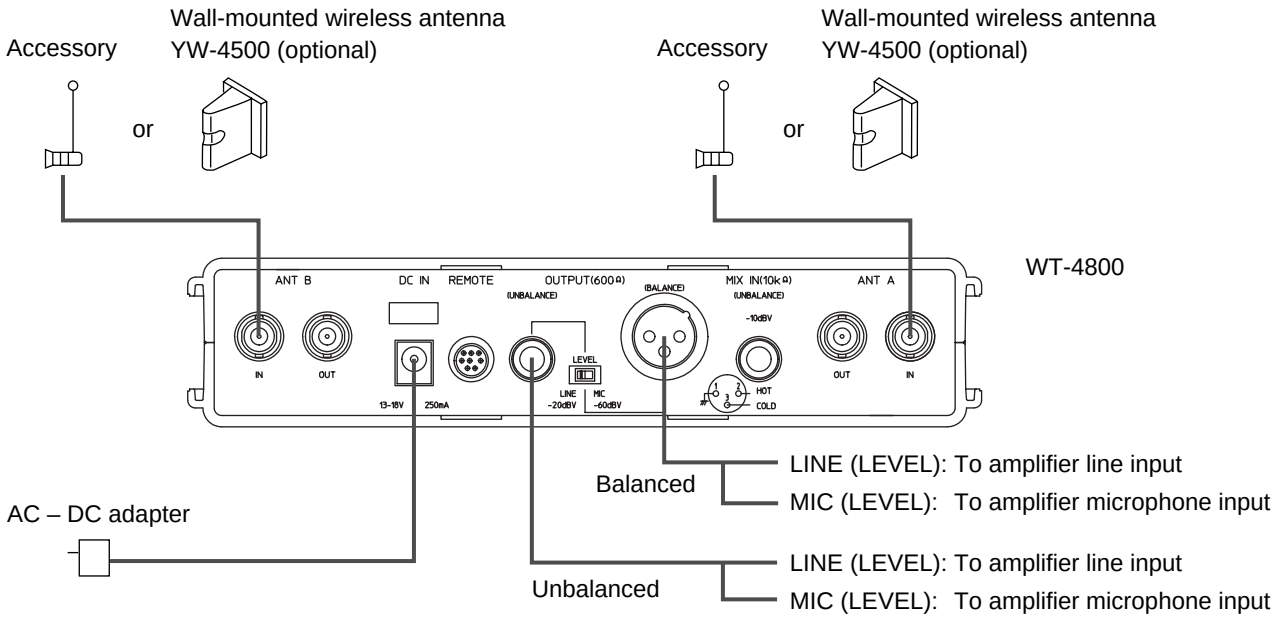
7.4.2. Squelch control setting position

- Set the control to the "0" position in locations free from interference.
- Set the control to the position that does not cause any reception loss of wireless microphone signals.

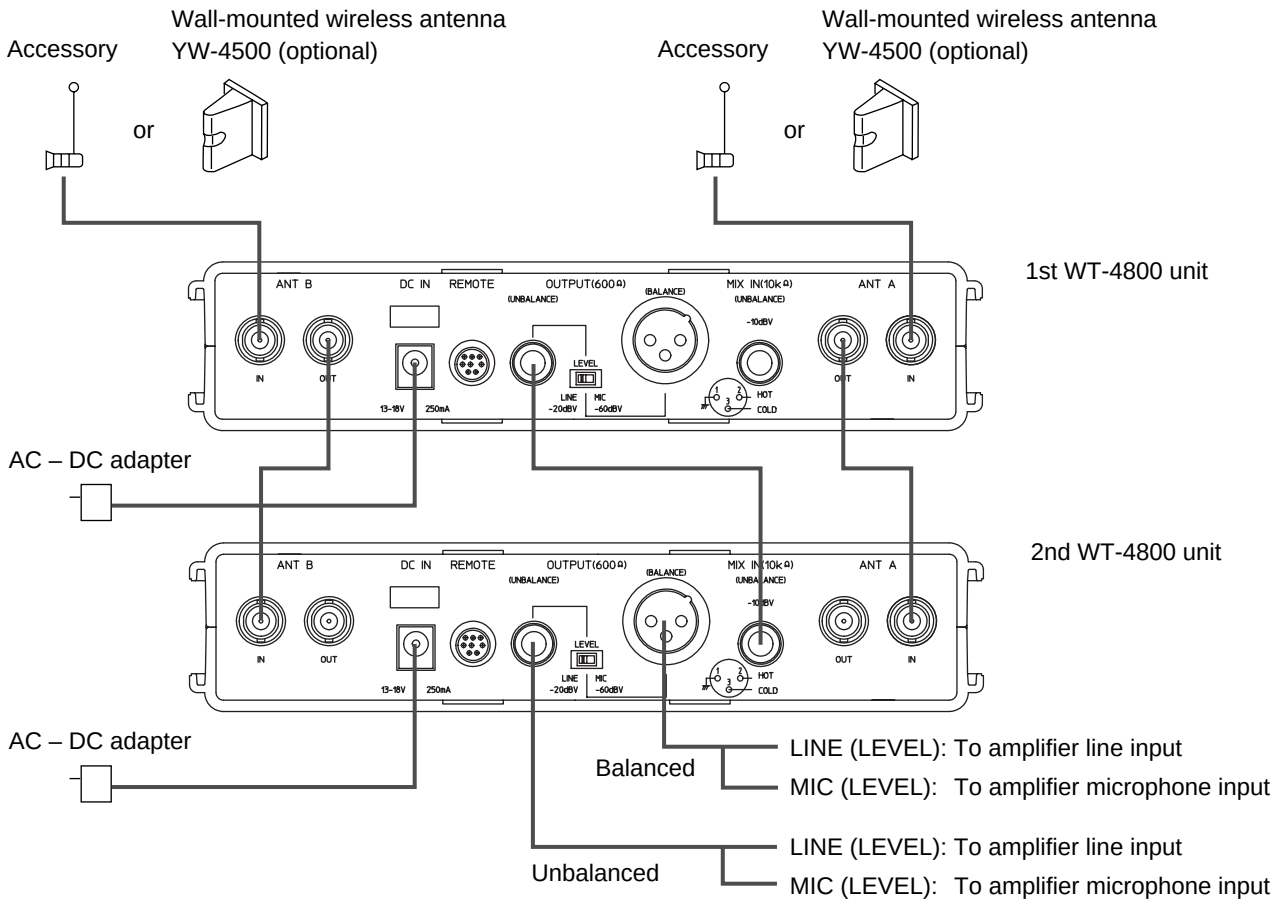
8. CONNECTION EXAMPLES

Be sure to connect at least two receiving antennas (one each for Channels A and B).

[Example 1.]

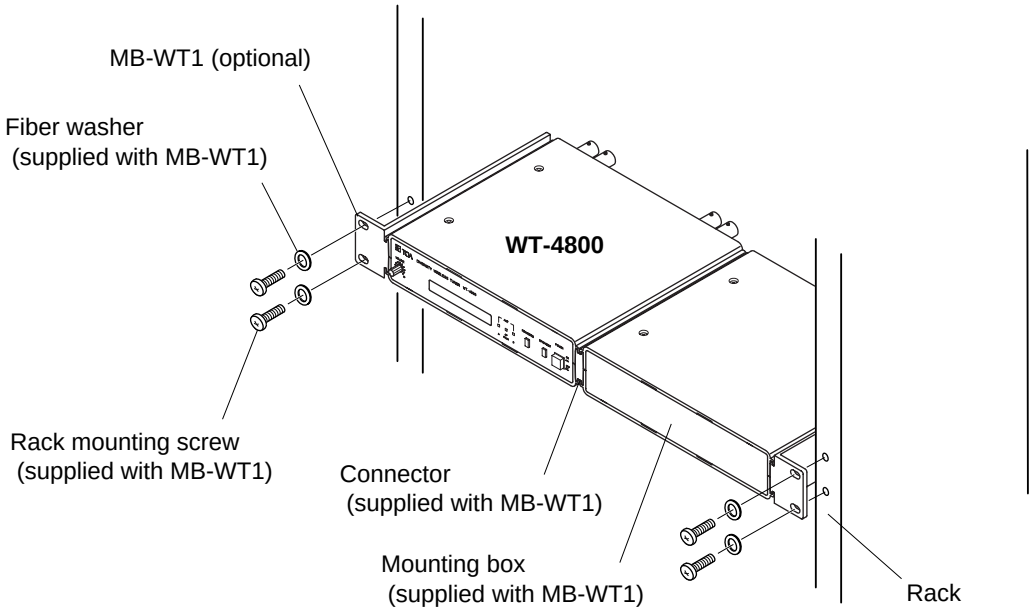


[Example 2.]

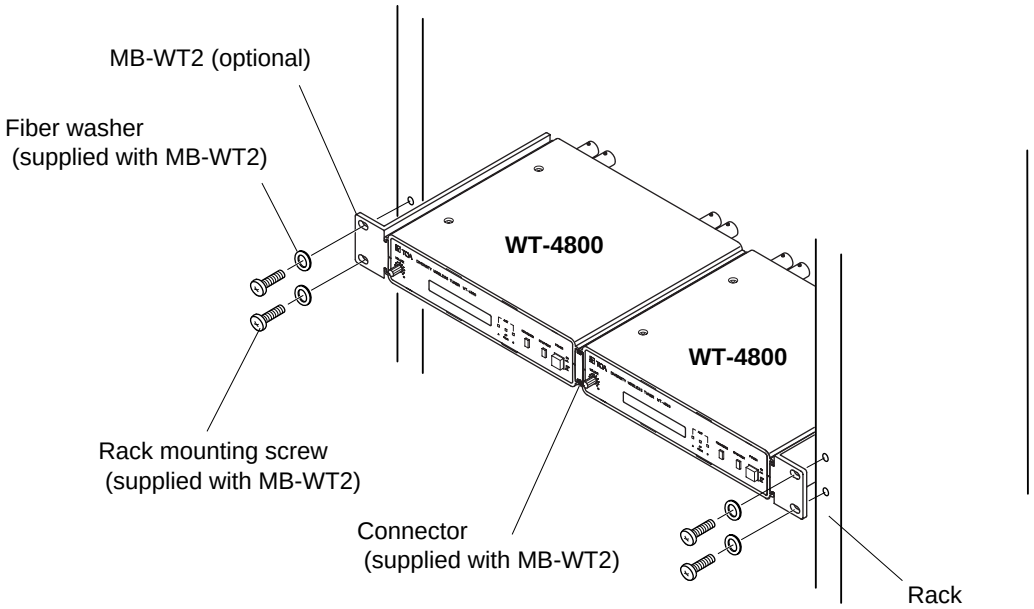


9. RACK MOUNTING

• When mounting one WT-4800 unit, use an optional mounting kit MB-WT1.



• When mounting two WT-4800 units, use an optional mounting kit MB-WT2.



10. FIRMWARE VERSION

Step 1. Press the Menu/Enter key for over a second to place the unit in setting mode.

Step 2. Select the setting item of "INDEX." (Different setting items are displayed on the screen each time the Menu/Enter key is pressed. Pressing the Menu/Enter key causes the display to cycle through the setting items in rapid sequence.)

Step 3. Press the Indication selector key to display the firmware version.

Step 4. Press the Menu/Enter key to exit the firmware display mode.

11. SPECIFICATIONS

* 0 dB = 1 V

Power Source	AC mains (Supplied AC – DC adapter must be used.)
Power Consumption	250 mA (12 V DC)
Receiving Frequency	690 – 865 MHz, UHF
Selectable Channel	64 frequencies
Receiving System	Double superheterodyne
Diversity System	Space diversity
Mixing Output	MIC: –60 dB*/LINE: –20 dB*, 600 Ω Phone jack (unbalanced), XLR-3-31 type connector (balanced)
Mixing Input	–20 dB*, 10 kΩ Phone jack (unbalanced)
Antenna Input	75Ω, BNC (phantom powering for antenna), 9 V DC, 30 mA (max)
Antenna Output	75Ω, BNC (Gain 0 dB)
Receiving Sensitivity	Better than 80 dB, S/N ratio (20 dBμV input, 40 kHz deviation)
Squelch Sensitivity	18 – 40 dBμV variable
Squelch System	Using together of noise SQ, carrier SQ and tone SQ
Tone Frequency	32.768 kHz
Indicator	Audio (11 steps), RF (11 steps), ANT A/B, Audio (peak)
Channel Check	Usable frequencies scanning
Digital Controlled I/O	Usable frequencies reading, frequencies input
S/N Ratio	Better than 110 dB (A-weight, balanced output)
Harmonic Distortion	Less than 1%
Frequency Response	100 – 12,000 Hz, ±3 dB
Other Function	Frequency (Bank/Channel) selection by PC
Operating Temperature	–10 to +50°C
Finish	Resin, black
Dimensions	210 (w) x 44.6 (h) x 180 (d) mm
Weight	2.35 kg
Optional Product	Mounting bracket kit: MB-WT1 (for rack mounting one WT-4800 unit) MB-WT2 (for rack mounting two WT-4800 units)

Note: The design and specifications are subject to change without notice for improvement.

• Accessories

AC – DC adapter 1
Rod antenna 2

License requirement

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.

TOA Corporation

Printed in Taiwan
133-07-183-80