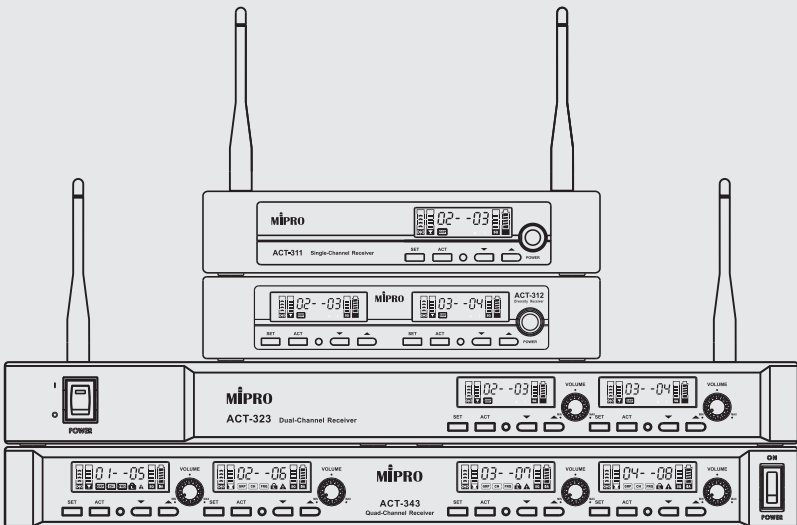


MIPRO®

ACT-311 / ACT-312 / ACT-323 / ACT-343

Diversity Wireless Receivers

User Guide




! IMPORTANT SAFETY INSTRUCTIONS !


1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with a dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarised or ground plug: A polarised plug has two blades with one wider than the other. The wide blade is provided for your safety. When the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plug, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with a cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.
16. Apparatus should not be exposed to dripping or splashing and no objects filled with liquids, should be placed on the apparatus.
17. Use only with the battery which specified by manufacturer.
18. The power supply cord set is to be the main disconnected device.
19. Where the MAINS plug or an appliance coupler is used as the disconnect device, the disconnect device shall remain readily operable.




WARNING

1. **FOR OUTDOOR USE:**
To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.
2. **UNDER WET LOCATION:**
Apparatus should not be exposed to dripping or splashing and no objects filled with liquids, such as vases should be placed on the apparatus.
3. **SERVICE INSTRUCTIONS:**
CAUTION - These servicing instructions are for use by qualified service personnel only. To reduce the risk of electric shock, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.



 This symbol indicates that dangerous voltage constituting a risk of electric shock is present within this unit.

 This symbol indicates that there are important operating and maintenance instructions in the literature accompanying this unit.

FC & IC - ID

THIS DEVICE COMPLIES WITH PART15 OF THE FCC RULES AND RSS-123 ISSUE2 OF CANADA. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS:

- (1) This device may not cause interference.
- (2) This device must accept any interference, including interference that may cause undesired operation of the device. This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment.

Disposal Dispose of any unusable devices or batteries responsibly and in accordance with any applicable regulations.



Disposing of used batteries with domestic waste is to be avoided!

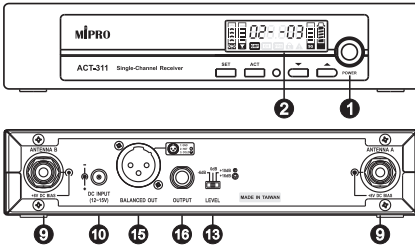
Batteries / NiCad cells often contain heavy metals such as cadmium(Cd), mercury(Hg) and lead(Pb) that makes them unsuitable for disposal with domestic waste. You may return spent batteries/ accumulators free of charge to recycling centres or anywhere else batteries/accumulators are sold.

2005-08-13

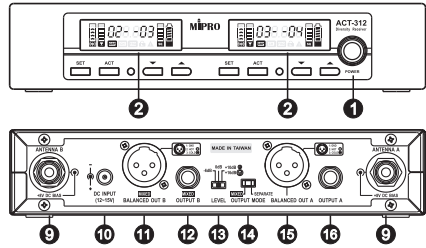
By doing so, you contribute to the conservation of our environment!

I. Part Names. Fig. 1

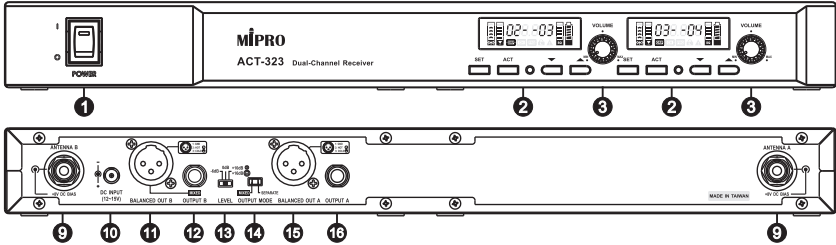
1. ACT-311 Single-Channel



2. ACT-312 Dual-Channel



3. ACT-323 Dual-Channel



4. ACT-343 Quad-Channel

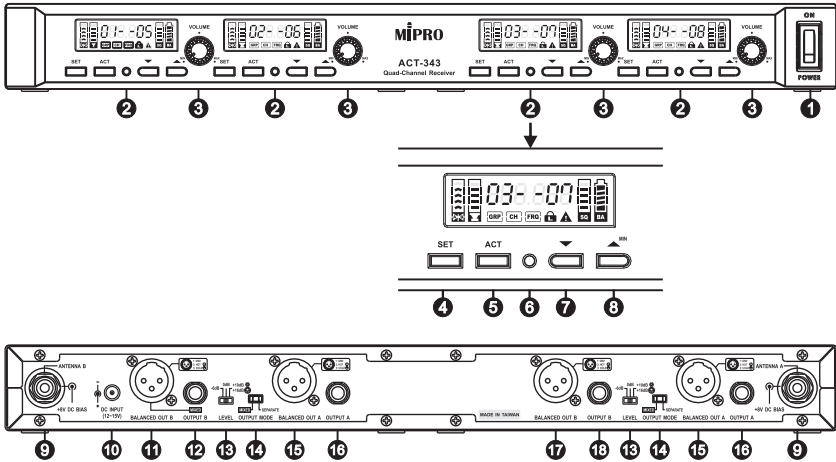


Fig. 1

- | | |
|-------------------------------------------|----------------------------------------------------|
| ❶ Power Switch | ❸ B/A Antenna Connector |
| ❷ LCD Screen | ❹ DC Input Jack |
| ❸ Volume Control | ❺ Mixed Balanced Audio Output B XLR Connector |
| ❹ SET Button | ❻ Mixed Unbalanced Audio Output B 6.3 Ø Phone Jack |
| ❺ ACT Button | ❼ Balanced and Unbalanced Volume Level Switch |
| ❻ ACT Sync Port | ❽ Balanced and Unbalanced Output Mixed Switch |
| ❼ ▼ Down Button: Decrease parameter value | ❾ Balanced Audio Output A XLR Connector |
| ❽ ▲ Up Button: Increase parameter value | ❿ Unbalanced Audio Output A 6.3 Ø Phone Jack |
| | ⓫ Balanced Audio Output B XLR Connector |
| | ⓬ Unbalanced Audio Output B 6.3 Ø Phone Jack |

II. Receiver Installation

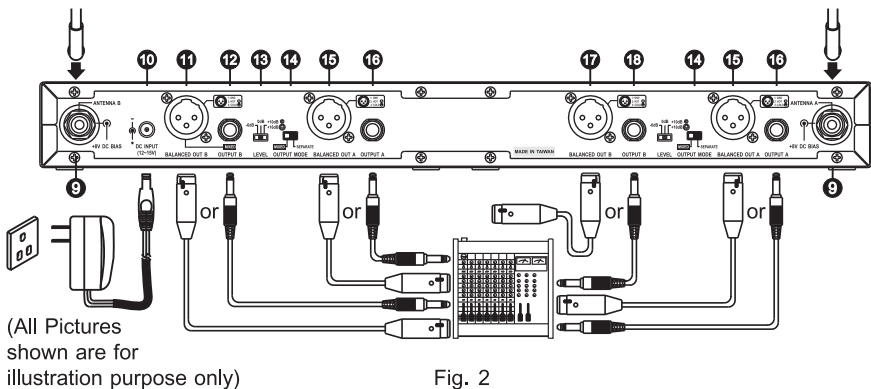


Fig. 2

1. **Antenna Connection:** Connect an antenna to each of the antenna connectors ❹ on the rear panel. Fig. 2. Antenna connectors provide an 8-volt DC bias to work with MIPRO antenna boosters. If the antenna cable is longer than 10 meters, it is advisable to install an antenna booster to ensure optimal reception.
2. **Power Connection:** Connect the power supply to the receiver DC input ❿ and plug it into an AC power source. Fig. 2.
3. **Audio Output Connection:**
 - (A) When connecting the audio output to the MIC IN jack of the mixer or amplifier, switch output level switch ⓫ to 0 dB. When connecting to LINE IN jack, set output level switch to +16 dB when using balanced XLR connector or set output level switch to +10 dB when using unbalanced (6.3 Ø) connector. When connecting to an amplifier with non-standard gain, set output level switch to -6 dB when there is distortion at the maximum output level.

- (B) Output for electric guitar/bass: Use a 6.3 Ø phone cable. One end to receiver's unbalanced output jack and the other end to guitar/bass amplifier's input jack. Switch the output level to the "+10 dB" position.
- (C) Use an XLR cable to connect the receiver audio output jacks ⑪⑮⑰ to a mixer or an amplifier's MIC IN jack.
- (D) Use a PHONE cable to connect the unbalanced phone jacks ⑫⑯⑱ to a mixer or an amplifier's LINE IN jack.
- (E) To mix the multiple channel outputs, connect to the mixed output jacks ⑩ or ⑬ and switch the output switch ⑭ to the MIX position.
- (F) See Fig. 4 for a 3-pin XLR connector wiring diagram.

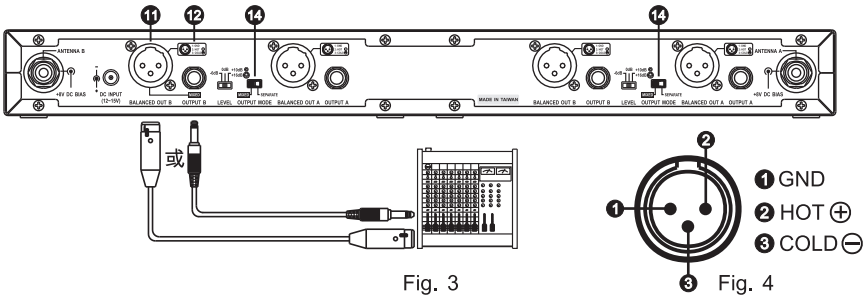


Fig. 3

Fig. 4

III. Receiver Operation

1. Before turning on the receiver, ensure all transmitters are powered off and the mixer's volume control is set to a minimized setting. When the receiver is turned on and the LED screen glows, it is working normally.
2. RF meter level ② glows when a transmitter is powered on. Once the audio signal is received from the transmitter, the AF level meter glows in accord with signal strength. The system is abnormal if the RF indicator or AF meter does not glow, then adjustment or repair might be required.
3. (For ACT-311/ACT-312 only) The microphone volume is adjusted at the amplifier or mixer. No adjustment is needed at the receiver.

IV. Rackmount Installation for Receivers

1. Single half-rack or single 1-rack receiver: Install the optional rack mount kit and fasten with screws on both sides. Fig. 5

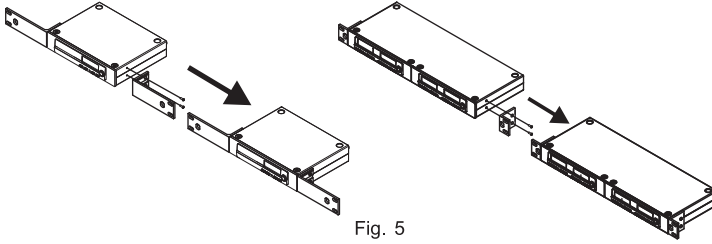


Fig. 5

2. Receiver Rack-Mount Kits (optional). Fig. 6

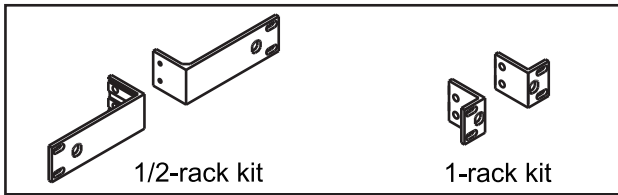


Fig. 6

3. Fasten the receivers on an EIA standard 19-inch rack case. Fig. 7

4. For ideal reception range, install the receiver at least 1 meter above the ground and away from EMI / RFI “noise” sources. Besides, place the transmitter at least 1 meter away from the receiving antenna, as shown in Fig. 8.

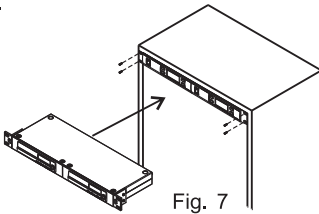


Fig. 7

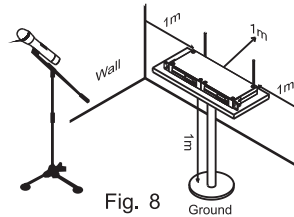


Fig. 8

5. Proper install of antennas affects the operating efficiency of the receiver. The main principle is to minimize the distance between the receiving antenna and transmitter for best reception quality.
6. Use MIPRO supplied antennas to ensure proper receiver sensitivity.
7. The antenna connector provides an 8V DC bias output. Short circuits should be avoided.
8. Install MIPRO directional antennas and boosters if extended reception distance is required.
9. Use the antenna distributor in the multiple channel wireless systems to simplify the antenna installation and improve receiving efficiency.

- For multiple wireless systems operations, it is recommended to select MIPRO's factory preset interference-free channels within the same group to ensure optimum performance.

V. LCD Screen

- LCD Screen displays functions and parameters. Fig. 9:



Fig. 9



LCD Screen displays all parameter values

- | | |
|-----------------------------------|------------------------------------|
| 19 Antenna A/B Indicator | 25 Squelch Meter |
| 20 Group | 26 Transmitter Battery Meter |
| 21 Channel | 27 RF Signal Meter |
| 22 Frequency | 28 Audio Signal Meter |
| 23 Lock Mode | 29 Group/Channel/Frequency Display |
| 24 Interference Warning Indicator | |
- Receiver Parameters: Use the 'SET' button 4 to select one of 4 functions. Each function can be programmed by pressing ▼ 7 or ▲ 8 button. Fig. 10



Fig. 10

- Programmable Parameters:

(A) GRP: GROUP Setting. Fig. 11

Group number & cursor are blinking

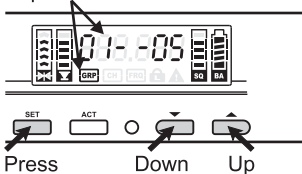


Fig. 11

- Press the 'SET' 4 button until both GRP 20 cursor and a group number start blinking to denote it is ready to accept parameter change.
- During blinking, press ▼ 7 or ▲ 8 button to select one of the factory preset groups.

(B) CH: CHANNEL Setting. Fig. 12

Channel number & cursor are blinking

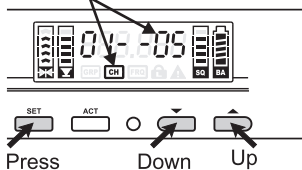


Fig. 12

- (1) Press the 'SET' **4** button until both CH **2** cursor and a channel number start blinking to denote it is ready to accept parameter change.
- (2) During blinking, press **▼ 7** or **▲ 8** button to select one of the factory preset channels.
- (3) In GRP 1~2, the channel number changes 01, 02, 03, ..., 08, 01 accordingly;
In GRP 3~7, the channel number changes 01, 02, 03, ..., 16, 01 accordingly.
(Frequency bands dependent)

- (C) FRQ: FREQUENCY Display. Press the 'SET' button to locate FRQ **2** and the screen displays the frequency of the preset channel. GRP 7 (frequency bands dependent) is user-defined and designated for frequency programmable only. Otherwise, frequencies are listed and corresponded to preset channels and cannot be programmed.

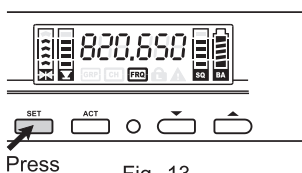


Fig. 13

(D) FRQ: FREQUENCY Setting. Fig. 14

FREQUENCY number blinks

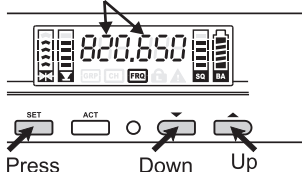


Fig. 14

- (1) Press the 'SET' button until the GRP cursor blinks. Press **▼** or **▲** button to select group 7 (frequency band dependent).
- (2) Press the 'SET' button again to the desired channel 01~16 (frequency band dependent).

- (3) Press the 'SET' button to the FRQ cursor. Press 'SET' again. The first 3 numbers start blinking to denote it is ready to accept parameter change.
- (4) Press ▼ or ▲ button to move down or up by 1 MHz step.
- (5) Press the 'SET' button during blinking and the last 3 numbers start blinking to denote it is ready to accept parameter change.
- (6) Press ▼ or ▲ button to move down or up by 25 kHz step.

(E) SQ: SQUELCH Setting. Fig. 15:

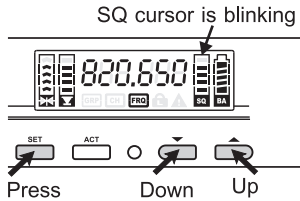


Fig. 15

- (1) Press the 'SET' button until the SQ cursor starts blinking to denote it is ready to accept parameter change.
- (2) During blinking, press ▼ or ▲ button to increase or decrease one squelch level.
- (3) Decreased SQ level setting has higher sensitivity level resulting in a longer reception range.

(F)  Lock & Unlock Receiver Panel. Fig. 16:

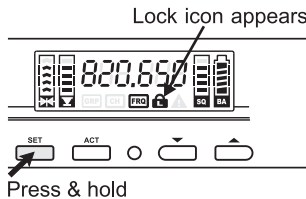
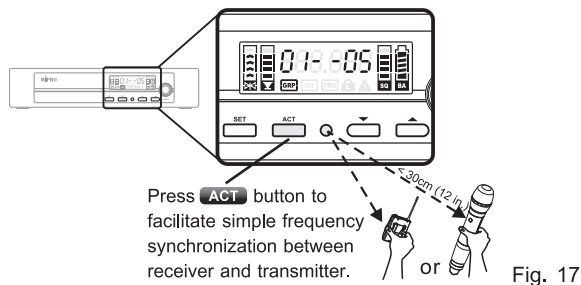


Fig. 16

- (1) To Lock: Press and hold the 'SET' button until the Lock icon appears. The display panel is locked and the parameters are not allowed to be changed.
- (2) To Unlock: Press and hold the 'SET' button until the Lock icon disappears.

(G) ACT Sync Setting. Fig. 17:



- (1) Press the ACT button and the GRP/CH numbers start blinking to denote the synchronization process starts.
 - (2) Ensure transmitter is powered-on. Align the ACT IR port of both transmitter and receiver within 30 cm.
 - (3) Once the sync is completed, the ACT function will stop automatically and the full grid of RF meter glows. The LCD on the transmitter also displays the same group and channel of the receiver.
4. BA displays the battery meter in percentage (%) indication of remaining battery life when received the transmitter signal. Replace with new, fresh batteries when battery indicators fall to 10% (1 indicator remaining), as shown in Fig. 18.

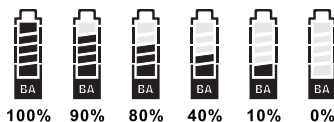


Fig. 18

5. Error Message: ERR01 indicates internal data error.
6. LCD Backlight Display Status: Setting status is deactivated automatically if no function controls are pressed in 5 seconds. Half lightened, standby status is activated if no transmitter signal is received or function controls are not pressed in 10 seconds.
7. Power on the receiver and the LCD screen glows. Later, the LCD screen is half lightened denoting standby status. When the transmitter signals are received or function controls are pressed, the LCD screen will be fully lightened.
8. Design and specifications are subject to change without prior notice. Refer to actual product in the event of product discrepancy.
9. Frequency range, output power, and maximum deviation to adhere to local telecom regulations.

MIPRO[®]
MICROPHONE PROFESSIONALS

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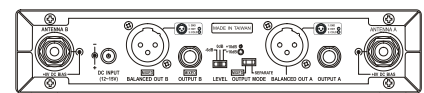


2 CE627D

ACT-312 1/2U Dual-Channel Receiver

Features

- EIA standard metal chassis equipped with a green backlit LCD screen and electronic buttons on the front panel. The LCD screen will automatically turn bright when receiving a signal to identify “Working” and “Standby” mode.
- The most reliable 24 MHz narrowband high dynamic range receiving circuit greatly decreases intermodulation distortion and increases interference-free compatible channels.
- Industry’s first "PiloTone & NoiseLock" circuits and the RF interference warning indicator for proper adjustments of the SQ level to avoid interference.
- MIPRO Auto Scan and ACT™ function provides the transmitter’s frequency with precise and rapid sync to the receiver.
- There are 7 preset groups with a total of 80 pre-saved frequencies. The user-defined group allows users to choose 8 working channels from 961 available frequencies.
- Each channel has separate audio output with 3 switchable levels and presets the output level equals the sensitivity of the microphone capsule at 0 dB. All is to ensure the microphone operates within proper sensitivity and dynamic range, free from distortion.
- Designed and made in Taiwan ensures high quality and value.



Specifications

Chassis	EIA-Standard 19" 1/2U metal chassis
Frequency Range	UHF 480 ~ 934 MHz (country dependent)
Bandwidth	24 MHz
Receiving Mode	Diversity receiving
Sensitivity	10 dB μ V @ S/N > 80 dB
Frequency Response	50 Hz ~ 18 kHz
Dynamic Range	> 106 dBA
Audio Output	Balanced: +16dB / 0dB/ -6dB; Unbalanced: +10dB / 0dB/ -6dB
Antenna	Detachable. 50 Ω TNC female connector provides bias for the antenna systems.
Power Supply	External 100~240V AC switching power supply
Dimensions	210 × 44 × 165 mm (W×H×D)
Weight	Approx. 0.9 kg
Note	Refer to the actual product in the event of product discrepancy.



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Specifications are subject to change without prior notice. MI022/01

ACT-32HC Rechargeable Handheld Transmitter

Key Features

- Innovatively designed metal housing in MIPRO's distinctive aesthetic and ergonomic style.
- Interchangeable capsule module with premium condenser or dynamic options for easy and fast changeovers. The unique multi-layered metal grille protects the capsule against impact, rolling and pop noise, ensuring clarity of sound. The upper grille is easy to detach for cleaning and hygiene practice.
- Patented capsule suspension design virtually eliminates vibration and handling noises.
- Built-in high-efficiency antenna.
- Backlit LCD displays all operational parameter information.
- World's first ACT™ function provides precise and rapid frequency sync to the receiver.



Microphone Capsules

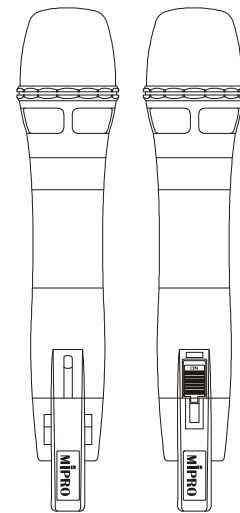
MU-39	Dynamic Capsule
MU-59	Professional Dynamic Capsule
MU-70	Condenser Capsule
MU-80	Condenser Capsule
MU-90	Condenser Capsule

Accessories

MS-20	Desktop Microphone Tripod
MD-20	Handheld Transmitter Microphone Holder
MP-20	Battery Charger
MP-8	One-slot Charging Station
MP-80	3-in-1 Transmitter Charging Station
MPA-30	Handheld Transmitter Holder
SW-20	Foam Windscreens

Technical Specifications

Frequency Range	UHF 480 – 934 MHz
Bandwidth	24 MHz
Oscillation Mode	PLL Synthesized,
Channel Set-Up	ACT Sync
RF Output Power	10 ~ 30 mW (country dependent)
Deviation	< ±40 kHz
Spurious Emission	< -55 dBc
Display	LED Indicator
Max. SPL	140 dB SPL
Battery	1 × ICR-18500 rechargeable lithium battery
Operating Time	Min. 13 hours
Current Consumption	High Power: approx. 125 mA; Low Power: approx. 100 mA
Dimensions (Ø × L)	51 × 250 mm 2.0 × 9.8 "
Weight	Approx. 251 g 8.9 oz



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MP-80 3-in-1 Transmitter Charger Station

Introduction

The MP-80 is a new generation of charging station designed exclusively for MIPRO rechargeable transmitters. Each station has two charging slots. Each slot has a 3-in-1 charging design, enabling multiple charging options:

- Two handheld transmitters
- Two bodypack transmitters
- Two ICR18500 lithium-ion batteries
- One handheld & one bodypack transmitter
- One handheld transmitter & one ICR18500
- One bodypack transmitter & one ICR18500

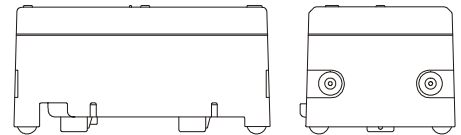
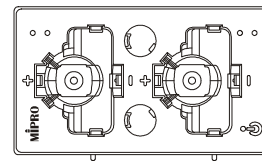
Each station also provides two storage slots for 2 spare ICR18500 lithium-ion batteries. Precise charging status with red (charging) & green (charged) indicators for easy reading by the users. Multiple charging stations can be easily connected for more charging options.

Key Features

- Two charger slots provide convenient charging for MIPRO rechargeable handheld & bodypack transmitters and ICR18500 rechargeable batteries.
- Intelligent charging circuitry provides efficient and safe charging.
- Precise charging status with red (charging) & green (charged) indicators.
- The reverse polarity protection circuit prevents charging errors.
- Two spare ICR18500 battery storage slots.
- Storage compartment for charging cable.
- Two or more chargers can be easily interconnected for more charging options.

Technical Specifications

Input Voltage Range	DC 10 – 15 V / 1 A
Battery Type	ICR18500 3.7V Li-ion Battery
Charge Method	Termination by 20% regulation current
Charge Current	Approx. 500 mA by regulation current
Current Consumption	Approx. 600 mA / 12 V, for two batteries charging at the same time
Dimension (W × H × D)	92 × 78 × 158 mm / 3.6 × 3.1 × 6.2 "
Weight	Approx. 313 g / 11 oz



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