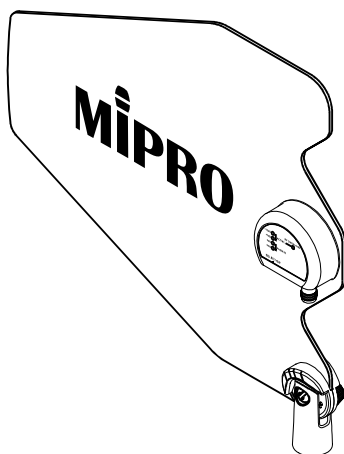


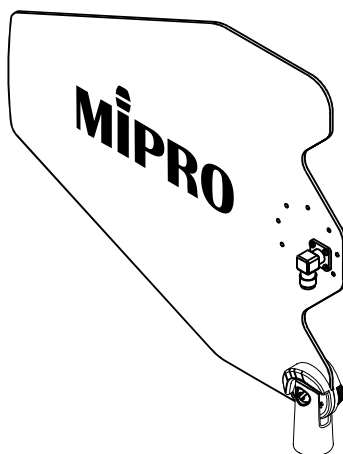
AT-90A

Directional Active Antenna



AT-90P

Directional Passive Antenna



! 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.



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.

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

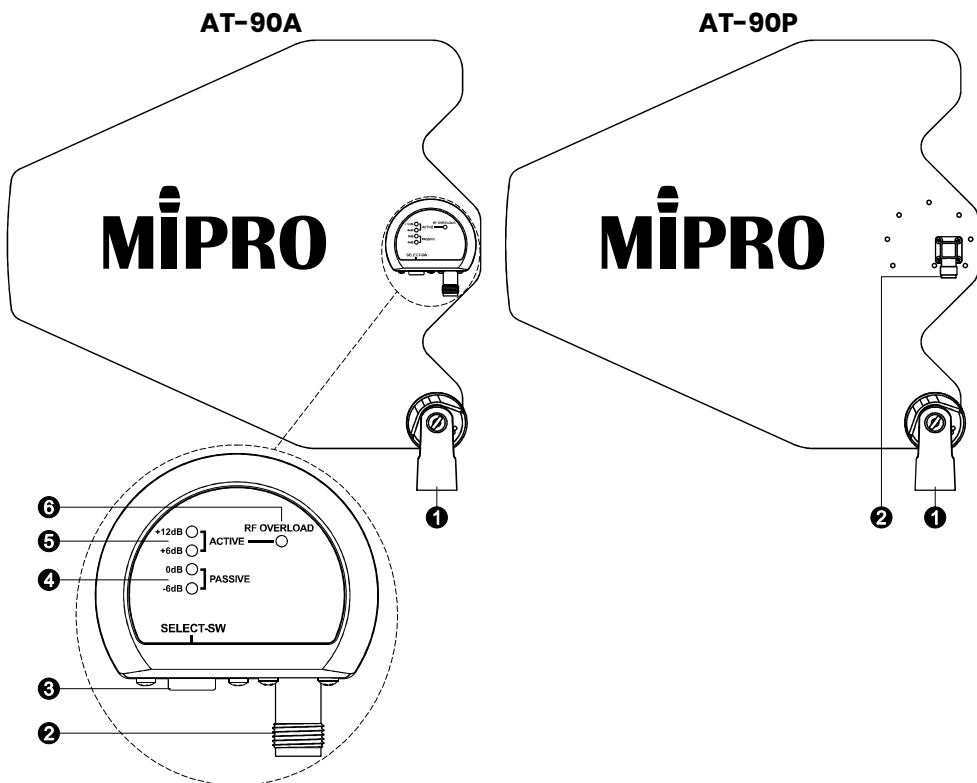


Disposing of used batteries with domestic waste is to be avoided!

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.

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

Parts Name

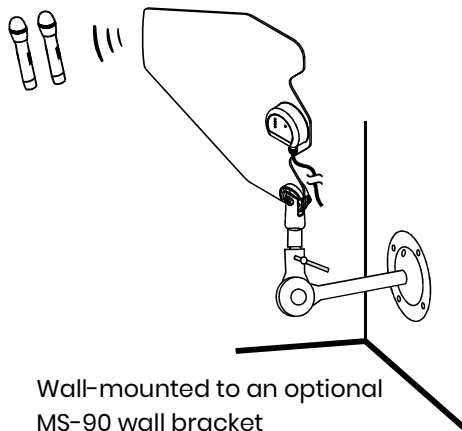
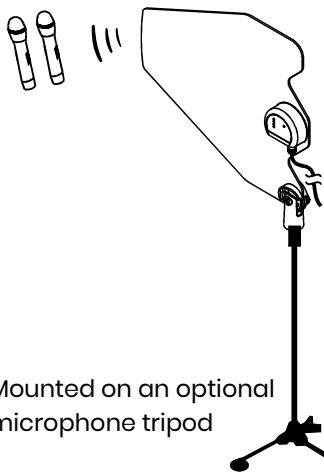


- ❶ **Base:** Used to mount the antenna. Can be installed on a tripod or the MIPRO MS-90 suspension mount.
- ❷ **Antenna Cable Connector:** Connects to an antenna booster, antenna distributor, or the TNC input of a receiver, or to the TNC output of a transmitter.
- ❸ **Gain Selection Switch:** Provides four gain settings. When switching, the indicator LEDs described in items 4–6 will simultaneously display the current gain status. The switch is protected by a waterproof cover and is operated by sliding left or right (not by pressing). When adjusting, ensure correct direction; do not apply excessive force once it reaches its limit.

- ④ **PASSIVE 0 dB / -6 dB:** The signal bypasses the active amplifier. Output can be set to **0 dB (direct signal pass-through)** or **-6 dB (signal attenuated by 6 dB)**.
- ⑤ **ACTIVE +12 dB / +6 dB:** The signal is amplified by the active amplifier, with selectable gain of **+12 dB** or **+6 dB**.
- ⑥ **RF OVERLOAD Indicator:** Lights up when the received RF signal is too strong, indicating the possible presence of high-energy signals or harmonic interference in the environment. This may cause severe intermodulation interference or signal blocking in the receiving system. This function operates only in **ACTIVE mode**.

Installation Instructions

- Mount the base onto a tripod with a tube diameter of 35 mm or onto the top of a MIPRO MS-90 suspension mount, aligning with the stand's locking hole.



- The active AT-90A features a built-in amplifier with gain adjustment. Gain control is available only when connected to an external DC power supply. The antenna operates normally within a DC input range of 8V–18V.
- When the AT-90A is connected to a device that does not supply DC power, the antenna will still function normally. In this case, the antenna automatically switches to **BYPASS mode**, equivalent to a passive AT-90P antenna.
- The **RF OVERLOAD** indicator threshold is -6 dBm. When the indicator lights up, it means the RF signal in the environment is too strong, which may cause receiver overload or intermodulation interference. This indication serves as a reference for adjusting system gain and setup; however, it does not guarantee that issues can be fully resolved or eliminated.

Note: The gain adjustment (+12 dB / +6 dB) operates only when DC power is supplied. Without DC power, this function is inactive.

- Adjust the antenna's orientation angle to the correct direction (as shown), to achieve optimal reception and performance.

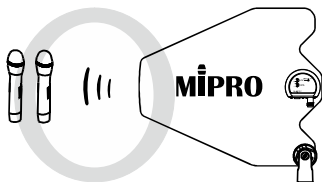


Fig. Left: ○ Correct,
antenna facing forward



Fig. Right: × Incorrect,
antenna facing backward

Precautions

- When connected to an RX unit, note that the RX TNC connector supplies DC power. Ensure that the inner conductor of the antenna coaxial cable does not come into contact with the outer shield or ground, to avoid a short circuit. A short circuit may cause the AT-90A to shut down or fail to operate properly.
- The active AT-90A can still be used normally even if gain adjustment is not correctly set, and it is also compatible with MIPRO UHF transmitters. In such cases, the antenna will automatically switch to **BYPASS mode**, equivalent to 0 dB gain. However, when used with other brands of transmitters, it is recommended to manually set the gain to 0 dB.
- It is recommended to maintain a distance between the transmitter and receiver. Within a 10-meter range, keep at least 3 meters apart to avoid signal saturation or excessive attenuation caused by strong RF fields.
- The -6 dB setting of the AT-90A is intended for high RF energy environments or situations with severe intermodulation interference that cannot be completely eliminated. For example, in locations such as underground parking areas with small wireless communication base stations, strong interference may occur. Additionally, some digital systems are particularly sensitive to RF interference and have lower tolerance. In such cases, reducing gain appropriately can help eliminate interference. This is also an important consideration for system engineers when handling special environments.
- The **OVERLOAD (RF Overload)** indicator on the AT-90A serves as an important reference for the above conditions. When it lights up, it indicates that gain reduction is required. Although this may reduce reception range, such adjustments are typically predictable and controllable. In comparison, eliminating interference is more beneficial for overall system reliability.
- Specifications are subject to change without prior notice. Actual product performance shall prevail.

General Specifications of 50Ω Coaxial Cable

Cable Type	Signal Loss (dB/10m)		Maximum Length (m)
	200MHz	1.0GHz	
RG-58A/U	2.3	5.8	30
3D-2V	2.1	5.2	33
5D-2V	1.5	3.8	45
8D-2V	0.9	2.2	80
5D-SFA		1.8	95
8D-SFA		1.2	140

Note: Characteristics of above coaxial cables are industry standard. Signal loss might vary depending on each brand's specifications. Hence, for the most accurate calculation, always refer to the specifications provided by the manufacturers.

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