

mAT-50 INSTRUCTIONS

Automatic antenna tuner

Please **READ ALL INSTRUCTIONS** carefully and completely before using this tuner.

■ IMPORTANT

- ◆ **NEVER** touch the antenna or antenna connector with your hand when the transceiver is transmitting, it will cause burns!
- ◆ **NEVER** use the antenna tuner during a lightning storm. It may result in an electric shock, cause a fire or damage the tuner. Always disconnect the antenna before a storm.
- ◆ **NEVER** operate the tuner with its cover removed. Contact with the components inside the tuner while transmitting will result in painful RF burns.
- ◆ **NEVER** short the coupler's RF socket "TUNER" or it will be damaged. This socket has DC voltage.
- ◇ Only a single coaxial cable connection is allowed between the coupler and the tuner, no other devices or components are allowed.
- ◇ The coupler is not waterproof, please use it indoors or take necessary protection to avoid water.
- ◇ We cannot guarantee the mAT-50 tuner will work well with those transmitters which are released later than the tuner.

■ INTRODUCTION

The mAT-50 is a multipurpose tuner that does not require a control cable. It consists of two parts, the tuner and the coupler. The model of the tuner is mAT-50. The coupler is available in two models, mAT-50-Y and mAT-50-M, for YAESU and ICOM/KENWOOD transmitters respectively.

mAT-50 adopts advanced carrier control technology. The coupler couples the RF signal, control commands, and DC power together and transmits them to the tuner via a coaxial cable. So that users no longer need to lay extra control cable.

By adapting correct couplers, the mAT-50 tuner can be used with Yaesu, ICOM, or KENWOOD transmitters to achieve simple and convenient "one-key tuning".

The mAT-50 can also be used as a universal tuner for all transmitters if the coupler is connected to an external DC power supply and no control cable is connected. This coupler can be either mAT-50-Y or mAT-50-M. You can operate the tuner manually.

■ TUNER

There are two wing nuts on the top of the tuner, which are used to connect the antenna and the ground wire respectively.

There is an SO-239 socket on the bottom of the tuner, this socket is connected to the coupler's "TUNER" socket via a 50 ohm coaxial cable.

Note: this coaxial cable is not allowed to be split by any device or component. It has to be a simple coax cable.

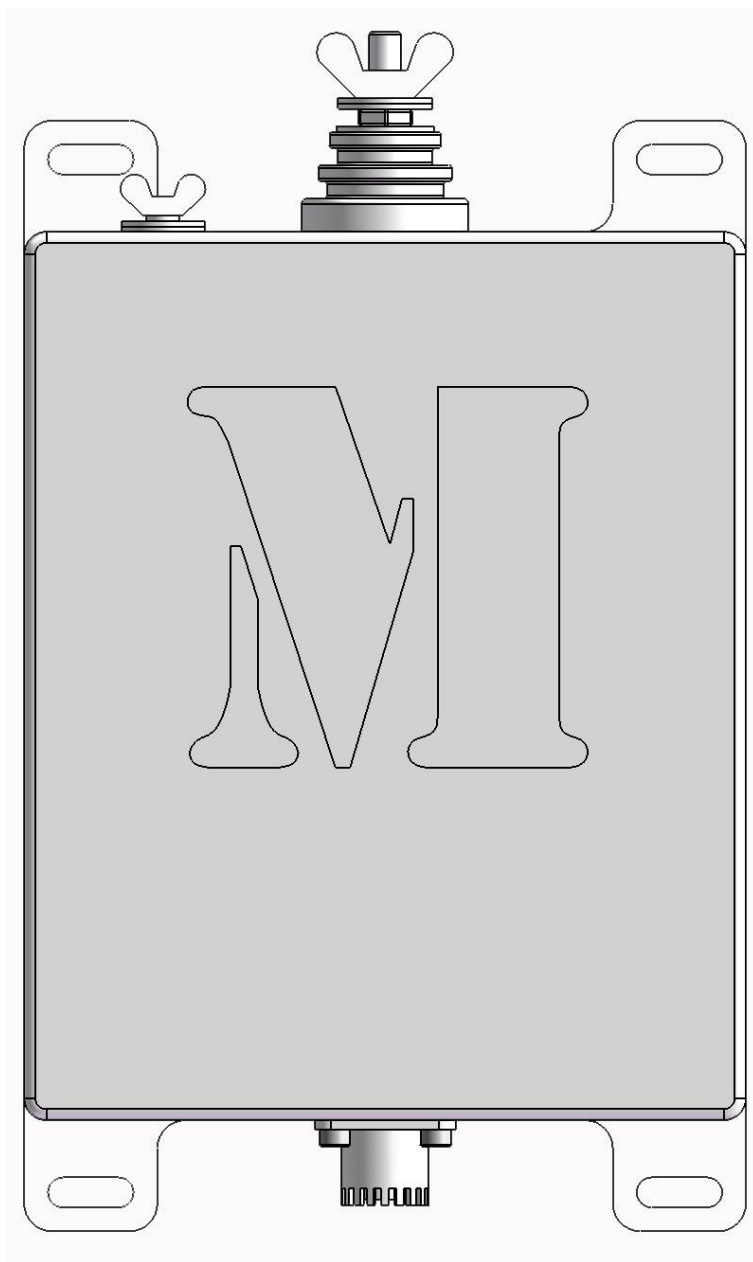
The tuner also has four oval mounting holes for fixing the tuner to a wall or mast.

This tuner has a sturdy case and excellent water resistance. It can be used outdoors. When installing the tuner, please waterproof the coaxial cable connector to avoid short circuit.

■ COUPLER

mAT-50-Y for Yaesu transmitter. If you want tuner to work with a Yaesu transmitter, choose this coupler. Coupler comes with a cable mAT- CY.

mAT-50-M for ICOM&KENWOOD transmitter: If you want tuner to work with an ICOM transmitter, choose this coupler. Coupler comes with a cable mAT-CI. If you want the tuner to work with a KENWOOD transmitter, also



choose this coupler, and you need to specify that the coupler comes with the mAT-CK cable, or buy it extra.

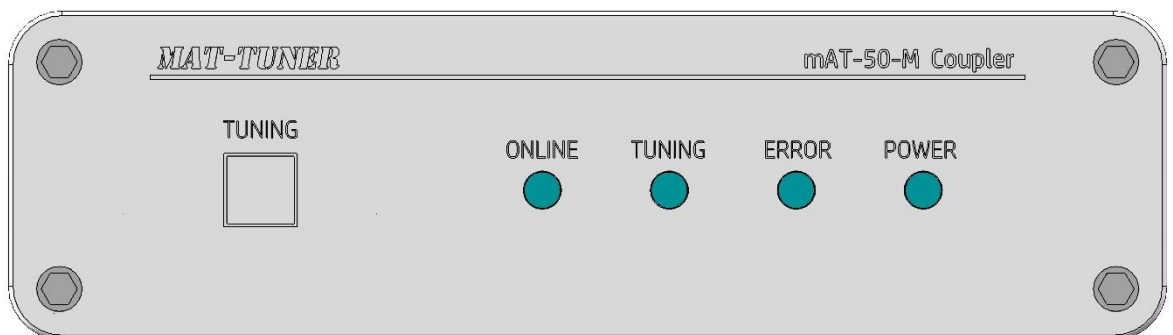
Whether the mAT-50 tuner is equipped with a mAT-50-Y or mAT-50-M coupler, it has two modes, Dedicated and General mode.

Dedicated: When the coupler is connected to the "TUNER" socket of the transmitter by a specific control cable, mAT-50 is a dedicated tuner. The transmitter supplies power to the coupler and tuner via this cable, no additional power supply is required, and keep the "DC" socket of the coupler free.

General: When the coupler is not connected to the "TUNER" socket of the transmitter, mAT-50 is a general tuner. The coupler's "DC" power socket should be connected to a 12-14V DC power supply. Tuner will work with any transmitter.

The couplers mAT-50-M and mAT-50-Y have the same appearance. The pictures below are their front and rear panels.

Front panel has 1 button and 4 indicators.



TUNING key: When the coupler is working in general mode, this button is used to switch ONLINE/BYPASS state and start a tuning cycle. This button has no effect when the coupler is in dedicated mode.

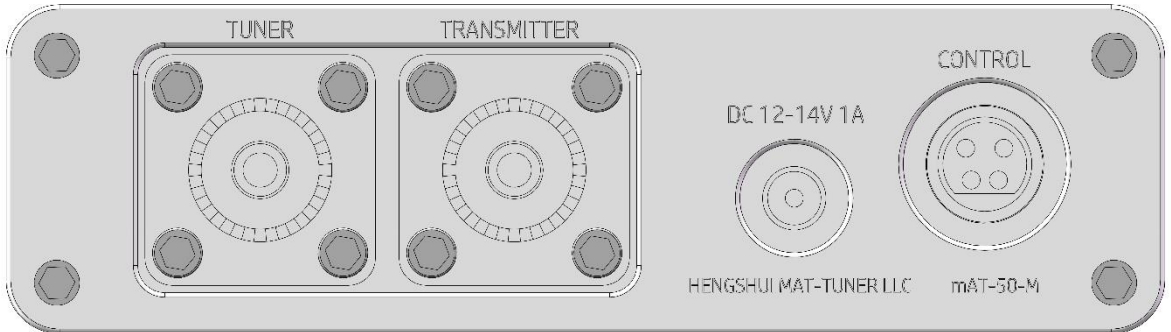
ONLINE light: Lights up when the tuner is ONLINE, and off when the tuner is BYPASS.

TUNING light: During the tuning cycle, this indicator will be lit.

ERROR light: Error indicator. When it is lit red, means the coupler is not detecting correct tuner, please check the coaxial cable between tuner and coupler. If it flashes red, the coupler's "TUNER" socket is shorted, coupler should be powered off immediately. The coupler's "TUNER" socket and coaxial cable should be checked.

POWER light: Power Indicator.

Rear panel has 4 sockets:



TUNER: Connect the tuner via a 50 ohm coaxial cable.

TRANSMITTER: Connect the transmitter's "ANT" socket via a 50 ohm coaxial cable.

DC 12-14V 1A: External DC power supply. When the coupler is not connected to transmitter via control cable, this socket needs to be connected to power supply, and tuner works in general mode. This socket is not used if the coupler is connected to transmitter via a control cable.

CONTROL: Control cable socket. If this socket is connected to the "TUNER" socket of transmitter via a control cable, the coupler will work in dedicated mode. mAT-50-M coupler comes with a mAT-CI control cable and mAT-50-Y coupler comes with a mAT-CY control cable.

■ INSTALLATION

Please select the correct coupler and control cable for your transmitter.

Installation

1. Please install the tuner firmly, and protect the coaxial cable socket from water after connecting the coaxial cable.
2. Connect the antenna and system ground to the corresponding terminals of the tuner and tighten the screws.
3. Connect the other end of the coaxial cable to the "TUNER" socket of the coupler. Please note that only a single feeder can be used between the tuner and the coupler, no equipment or components should be connected. The "TUNER" socket of the coupler should not be short circuited, otherwise the coupler and transmitter may be damaged.
4. Use another coaxial cable to connect the coupler's "TRANSMITTER" socket to the transmitter's "ANT" socket.
5. If you want the tuner to work in dedicated mode, use correct control cable to connect the coupler's "CONTROL" socket to the transmitter's "TUNER" socket. If you want the tuner to work in general mode, connect the coupler's "DC" socket to a 13.8V DC power supply.

Important:

1. The coupler is not waterproof, please use it indoors.
2. The coaxial cable mentioned above is not an accessory of the tuner and needs to be provided by the user.

■ OPERATION**General, mAT-50-Y&mAT-50-M:**

In general mode, the operation of mAT-50 tuner is the same whether using mAT-50-Y coupler or mAT-50-M coupler.

Switch ONLINE/BYPASS: Press the [TUNING] button on the coupler. If the indicator "ONLINE" is lit, it means the tuner is online, otherwise it is bypass.

Start a tuning cycle:

1. Switch the transmitter to FM, FSK or RTTY mode and reduce the RF power to 10 watts. Press and hold the PTT of the transmitter.
2. Press and hold the [TUNING] button for more than 1 second. The coupler's "TUNING" indicator light on, indicating that the tuner is tuning.
3. Wait for the "TUNING" indicator to go out, the tuner has finished tuning. Return the transmitter's mode and power level to their original settings. Tuning is completed.

Dedicated, mAT-50-Y:

In this mode, the mAT-50 tuner is fully compatible with Yaesu tuners. Before using the tuner, please read the operating manual of the transmitter and make necessary menu settings so that the transmitter can correctly recognizes external tuner. You can use the mAT-50 as a Yaesu tuner, the transmitter has the same menu settings and operations. usually by pressing the transmitter's "TUNE" key.

Dedicated, mAT-50-M:

The mAT-50 using this coupler is fully compatible with ICOM/KENWOOD tuners. Before using this tuner, please read the operating manual of the transmitter and make necessary menu settings so that the transmitter can correctly recognizes external tuner. When used with an ICOM transmitter, the mAT-50 is fully compatible with AT-130 tuner, and the transmitter's menu settings and operations are the same.

When used with KENWOOD transmitters, the mAT-50 tuner is fully compatible with KENWOOD tuners, and the transmitter's menu settings and operations are the same. Please read the transmitter's operating manual.

■ PACKING

mAT-50 tuner	1pc
Operation Manual	1pc
mAT-50-Y Coupler & mAT-CY control cable	(Optional)
mAT-50-M Coupler & mAT-CI control cable	(Optional)
mAT-50-M Coupler & mAT-CK control cable	(Optional)

■ TECHNICAL SUPPORT

- Frequency range: 1.8 ~ 54 MHz
- Maximum input power: 120W(SSB), 60W(DATA mode)
- Tuning power required: 0.5-15W
- Tuning time: Maximum 5 seconds (Full tuning)
0.1 seconds (Memory tuning)
- Usable temperature: -10°C ~ +60°C, 14°F ~ 140°F
- Number of memories: 16000
- Power supply: DC 12-14V, Max 1A
- Tuner dimensions: 223 x 130 x 45mm, 8.8 x 5.1 x 1.8 inches
- Coupler dimensions: 128 x 105 x 43mm, 5.0 x 4.1 x 1.7 inches
- Weight: Tuner 1100g, 38.8oz. Coupler 400g, 14.1oz.

■ TECHNICAL SUPPORT

Visit the web: <http://www.mat-tuner.com/> for more information and operation manual. In order for you to get better service, we recommend you to buy my products from your local distributor.

DECLARATION OF CONFORMITY(DOC)

This device is declared CE ENC and Rohs compliant by the manufacturer MAT-TUNER.

This material must be recycled and not thrown in the trash.



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