

HF-50MHz Portable Telescopic Antenna

MODEL **HFJ-350M Toy-Box**

**Instruction Manual**

For : 1.8 / 3.5 / 7 / 10 / 14 / 18 / 21 / 24 / 28 / 50 MHz

Thank you for purchasing our products.

**For your safety :**

Read this manual carefully for proper handling and operation before using.  
Keep this manual in a safe place for future reference.

**[ Features ]**

- It is a 4-division structure that is convenient to carry.
- Telescopic antenna for multi-band HF to 50 MHz band, whose frequency can be easily changed by short plug.
- Round-shape solderless Terminal for counterpoise is included. (Stranded wire: 3.5 sq [AWG12] compatible)

**[ Specifications ]**

Antenna type :  $1/4 \lambda$  base loading type antenna

Frequency : 1.8 / 3.5 / 7 / 10 / 14 / 18 / 21 / 24 / 28 / 50 MHz 10-Bands

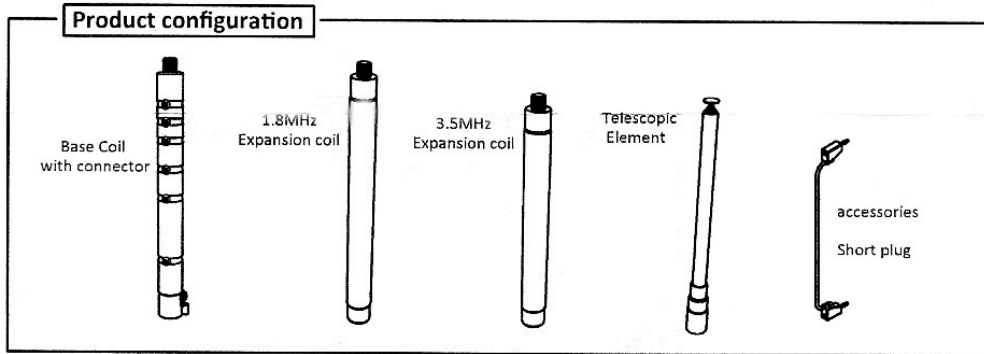
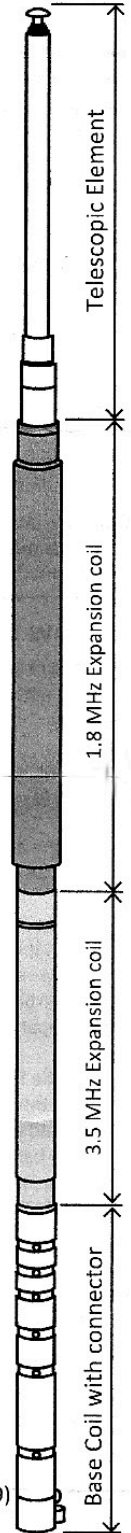
Max.Input Power : 100W (Peak) 50W (Ave.) [1.8 MHz], 75W (SSB) [3.5 MHz], 100W (SSB) [7 - 50 MHz]

Impedance : 50Ω

Length : Min. 370 mm , Max. 1920 mm

Weight : approx. 405g (included 1.8 and 3.5MHz expansion coil)

Antenna Connector : M-P (PL-259)



**⚠ Cautions on installation**

- ◆ To use this product, capacitive coupling with grounding or counterpoise is required. Note that if the ground capacitance is insufficient, the VSWR characteristics will deteriorate, especially in the low frequency band, and there is a high possibility that adjustment will not be possible.
- ◆ On the structure shortened by the loading coil, the tuning band is narrow. If you want to check where the tuning frequency is, we recommend using an antenna analyzer such as CAA-500Mark II.
- ◆ Make sure that the connector of the connection cable and the antenna connector are of the same type. If it is a different type, it can not be connected or it may be damaged.
- ◆ This product is not suitable for mobile use. Please do not set it on the vehicle and drive.
- ◆ If there are other antennas or obstacles such as buildings near this antenna, this will cause SWR degradation and resonance frequency shift. In that case, please change the mounting position of the antenna.

**⚠ Handling and operation precautions**

- When installing or removing the antenna or adjusting the element, be careful not to open your eyes at the end of the rod.
- Do not touch the antenna during and immediately after transmission. The fever can cause burns.
- Tighten the fixing screws firmly so that there are no accidents.
- When extending the rod, always keep in mind that there are no obstacles in the height direction.
- Do not use it outdoors when it is wet, as it is not waterproof.
- Do not use when the surface is wet, and use completely dry.

M-P(PL-259) Connector

**[Product image]**

1.8, 3.5 MHz expansion coil connection & Telescopic element shortest

## [How to connect and adjust]

### When using 1.8 MHz or 3.5 MHz band

- Connect a 3.5 MHz expansion coil to the upper thread of the base coil and connect the telescopic element on it.  
When using 1.8 MHz, connect a 1.8 MHz expansion coil to the upper thread of the 3.5MHz expansion coil.
- Adjust the frequency by adjusting the length of the telescopic element without using a short plug.

### When using 7 to 50 MHz band

- Connect the telescopic element directly to the upper thread of the base coil without using a 3.5 MHz expansion coil.
- In the case of 7 MHz, do not use a short plug, but adjust the length by adjusting the length of the telescopic element.
- ▲ When using other than 7 MHz, use a short plug.

#### ●Connection example

In case of 14 MHz Connect Common term. and term.2  
28 MHz Connect Common term. and term.4  
50 MHz Connect Common term. and term.5

- ▼If you want to lower the tuning frequency, stretch the rod element.
- ▼If you want to increase the tuning frequency, shrink the rod element.
- ◆Shrink the element from the upper narrow part.

Notice : Since the number of turns of the loading coil is increased by design, the tuning band is narrow and it may be difficult to find the tuning frequency.

**Attention** : SWR may not fall depending on conditions such as the grounding condition and the installation position of the antenna. We recommend using an antenna tuner.

## [ How to use ]

1. Make sure that the telescopic length and short between terminals match the setting corresponding to the operating frequency.
2. Firmly insert the antenna into the connector and screw it in clockwise to connect.
3. Install the antenna as vertically as possible for better communication.
4. Since one R-shaped solderless terminal is provided near the connector, it is recommended to attach a polyvinyl chloride insulated wire etc. to be a counterpoise. Since the length of the counterpoise changes depending on the environment, please prepare a longer one.
5. Check the SWR of the antenna by adjusting the telescopic length, counterpoise length, and how the wires are arranged. In particular, it may not be possible to adjust well in low frequency bands such as 1.8MHz, 3.5MHz and 7MHz. In that case, please consider using an antenna tuner separately. (COMET CAT-300 is recommended.)

If the frequency to be used repeatedly is decided, it is recommended to write down the element length.

### ⚠ Caution

- This product is designed for amateur radio communication only.
- If a phenomenon that seems to be abnormal occurs during use, stop using it immediately and check the antenna status.
- Check if the antenna connector fits into the radio connector.
- During continuous output, there is a possibility of element heat and deterioration of SWR. In that case, please reduce the output or increase the output interval.
- Repairs and modifications by the customer themselves may cause damage.
- If the telescopic element is bent, it is impossible to repair. Please handle it carefully.

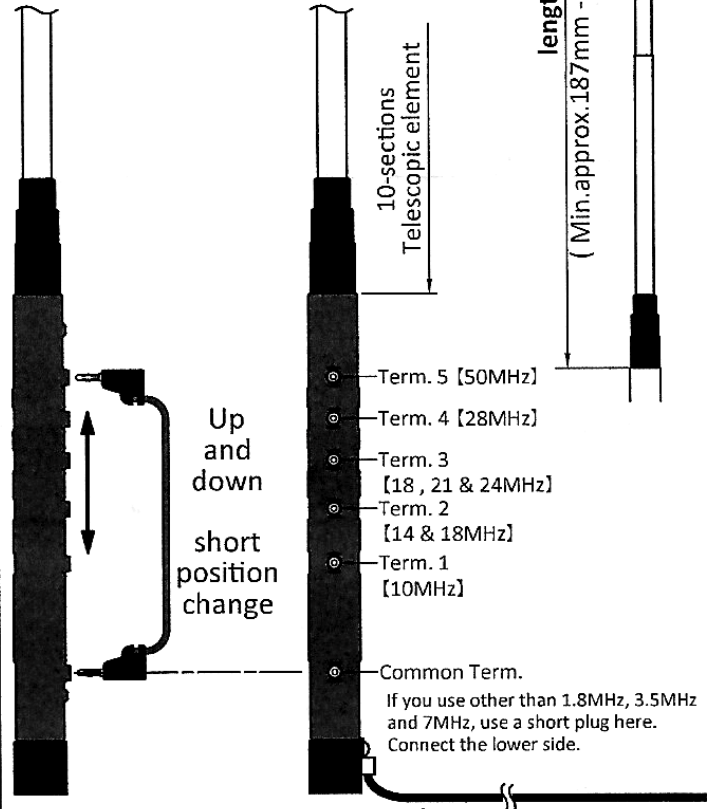
### Standard value of adjustment length L

1.8 MHz : 1170 mm	18 MHz : 1070 mm(※)
3.5 MHz : 910 mm	21 MHz : 750 mm
7 MHz : 960 mm	24 MHz : 530 mm
10 MHz : 990 mm	28.5 MHz : 1000 mm
14 MHz : 800 mm	51 MHz : 950 mm

(※) Length when using terminal 3

### Amount of change per 1 cm (standard value)

1.8 MHz : 7 kHz/cm	18 MHz : 50 kHz/cm
3.5 MHz : 20 kHz/cm	21 MHz : 80 kHz/cm
7 MHz : 25 kHz/cm	24 MHz : 100 kHz/cm
10 MHz : 40 kHz/cm	28.5 MHz : 120 kHz/cm
14 MHz : 60 kHz/cm	51 MHz : 100 kHz/cm



The figure above shows that Common Term. and Term.5 are shorted when using 50 MHz.

Connect wire etc. to be counterpoise here.  
Stranded wire : 3.5SQ [AWG12]

**For 1.8 MHz, 3.5 MHz and 7 MHz,  
Do not use short plugs.**

Also, the 18 MHz band has a length of By changing this, a resonance point appears at terminal 2 or 3.

**Standard length of counterpoise line**  
1.8MHz: 40m ,  
3.5MHz: 20m , 7MHz: 12m  
\* Depending on conditions, longer lines may be necessary.

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■ Specifications or appearance is subject to change without notice.