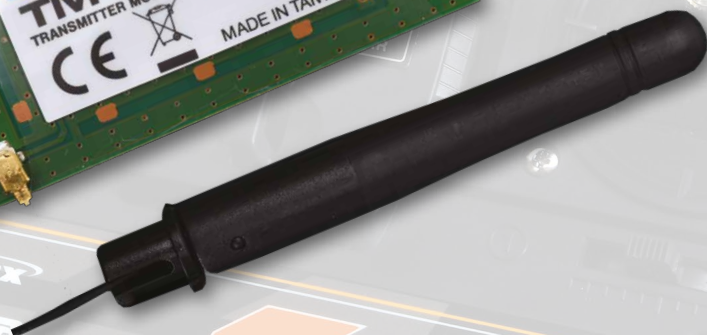


Futaba

powered by
Ripmax

TM-24

FUTABA 2.4 GHz T-FHSS Module F-Series



2.4GHz
T-FHSS

F-14
MULTI OPTION MODULE SYSTEM

Telemetry System

Item-No. P-FTM-TFH

INSTRUCTION MANUAL

SAFETY INSTRUCTIONS



Please read carefully the safety instructions within the manual of your transmitter!

TM-24 T-FHSS Module

This transmitter module is developed to convert existing Futaba transmitters to the 2.4 GHz frequency band with previous 35/40 MHz transmission frequencies. The following instruction manual explains in detail the connection and operation of the TM-24 Module with the Futaba F-14 transmitter as an example. The connection can be done with almost all transmitters via existing plug connections, but some transmitters require simple soldering. The installation can also be done by our Futaba service against payment.

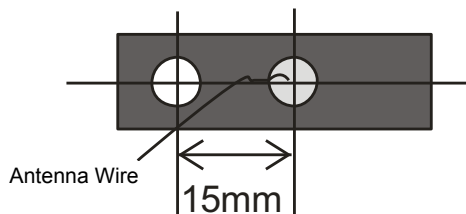
Installation Of 2.4 GHz Antenna



Two of the switch holes on the front side of the transmitter are required to mount the transmitter antenna. The clear cover plate can remain, only the holes have to be opened.



If the existing holes are already fully occupied with switch / prop modules, the transmitter antenna socket can also be attached to the left or right front of the transmitter. For this, two holes with $D = 6\text{mm}$ must be drilled. The illustrated drilling template can be used for this purpose. (See pictures, also for the status LED).



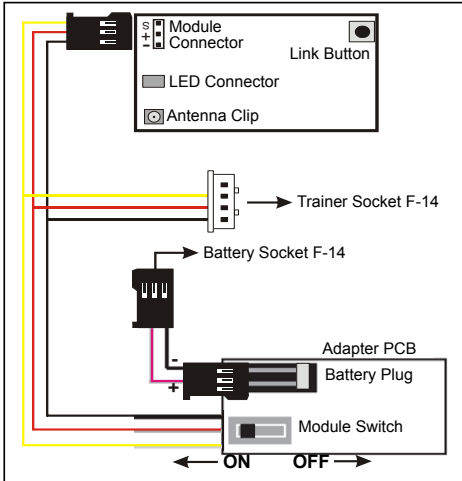
Drilling template for antenna mounting on the front side of the transmitter

Connecting The Module To The Transmitter

For connection, the enclosed adapter cable with PCB is used.

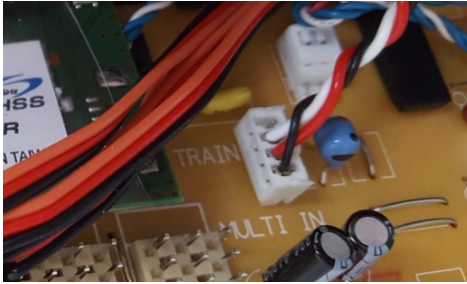


The 3-pin connector (servo plug) of the adapter cable F-14 with additional board is connected to the corresponding plug-in contact (module connection) of the TM-24 module. Observe polarity! The black connecting wire of the plug cable must point inwards towards the module board (minus). It is important to ensure that all 3 contacts are plugged in at all times. The white connection wire must point to the outer edge of the module (signal line).

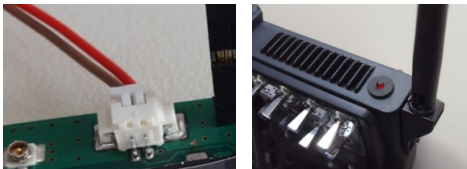


Connection To Transmitter

The signal connector for the TM-24 module is connected to the Trainer socket (4-pin) of the transmitter F-14 using the adapter cable-trainer connector. The plug-in contact is reverse-polarity protected, but do not forcefully press it. One pin of the plug is not used.



LED Connector



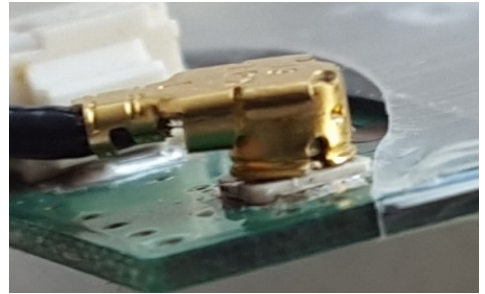
The connector of the LED is connected to the LED connector. It is not possible to reverse the polarity, but it should be done with a little „sensitivity“ in order not to damage the plug.

ity“ in order not to damage the plug.

The LED with bracket is installed either in an existing hole on the switch mounting brackets or as shown in the figure.

Antenna Clip

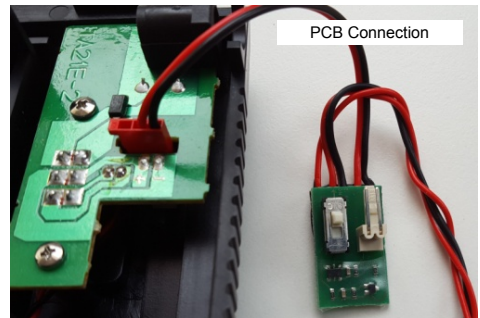
The antenna cable has a connection clip, the counterpart is seated on the module board (see photo). The clip must be positioned carefully and centrally to the round edge of the clip onto the counterpart (antenna socket) and then depressed carefully until a noticeable snapping action occurs.

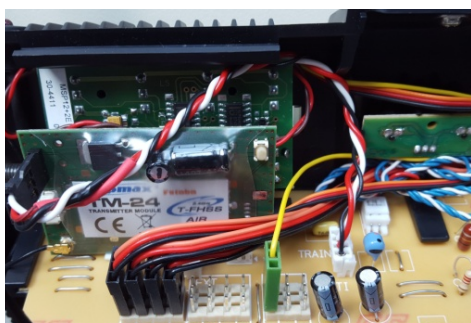
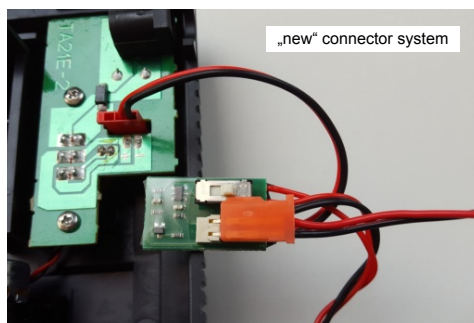
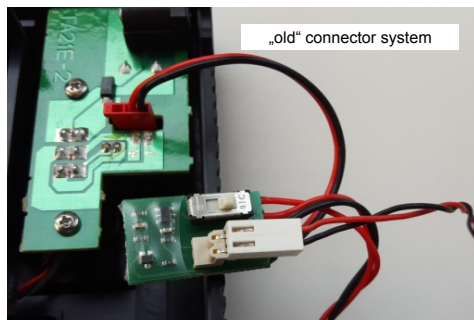


ATTENTION! This is an important task for the safe operation of the F-14, which can have a significant impact on the achievable range and transmission safety, so perform this procedure accurately and correctly.

Connecting To TX Battery

The adapter board allows Futaba TX batteries to be connected to the „old“ plug system and the





current, standardized plug system.

If a battery is connected with the current plug-in system, please observe polarity (see figure above). The positive pole is located on the side of the switch, one contact remains free.

To operate the TM-24 module, the switch on the adapter board must be set to „ON“ (see connection diagram above). This will power the TM-24 module. For operation, the main switch of the transmitter must be additionally actuated.

Installation Of Module

After all connections have been made, the module has to be attached at a suitable location in the transmitter interior (for example, with double adhesive tape).

Depending on whether multi-switch modules are installed or not, the installation site or the installation type can change. The flat PCB fits virtually anywhere in the transmitter housing.

Binding Procedure

The TM-24 module can be linked and operated with all Futaba T-FHSS receivers or with the TMA-1 telemetry display interface (not included). With the TMA-1 the telemetry data can be displayed on an Android smartphone or tablet.

For first-time operation, a binding process must be carried out between the transmitter (TM-24 module) and the receiver or the TMA-1 module. After that the transmitter module and the receiver or the TMA-1 form a pair, that no other 2.4 GHz transmitter can interfere. The binding process must be carried out only once with each receiver (or TMA-1).

Binding Procedure With T-FHSS Receiver

Preparation: All devices switched OFF. Transmitter ready for use, the battery is connected. Keep the receiver near to the module together with a receiver battery. The link button on the TM-24 module should be easily accessible. An additional servo at the receiver as a function display for the binding process is very helpful.

1. Turn the transmitter ON
2. Push the link button on the TM-24 module for more than 1 second until the red LED flashes once per second.
3. Turn the T-FHSS receiver ON (connect the receiver to the battery).
4. The binding process begins. When the red LED on the TM-24 module and the green LED on the receiver lights up the binding is finished. This can take up to 30 seconds.
5. The servo must now be controllable.

Binding Procedure With TMA-1

Preparation: All devices switched OFF. Transmitter ready for use, the battery is connected. Keep the TMA-1 module near to the module together with the associated power supply (smartphone). The link button on the TM-24 module should be easily accessible.

1. Turn the transmitter ON
2. Push the link button on the TM-24 module for more than 1 second until the red LED flashes once per second.
3. Turn the T-FHSS receiver ON (connect the receiver to the battery).
4. The binding process begins. When the red LED on the TM-24 module and the green LED on the receiver and the TMA-1 light up the binding is finished. This can take up to 30 seconds.
5. Telemetry data can now be viewed by smartphone and the Futaba App. The test servo must be controllable.

Orientation Of The Transmitter Antenna During Model Operation

The transmitting antenna has a directional effect. In practice, this means that the radiation is exactly the same in the direction of the beam. The best antenna position for practical operation is therefore always to orient the antenna slightly obliquely upwards and outwards (see the following picture).

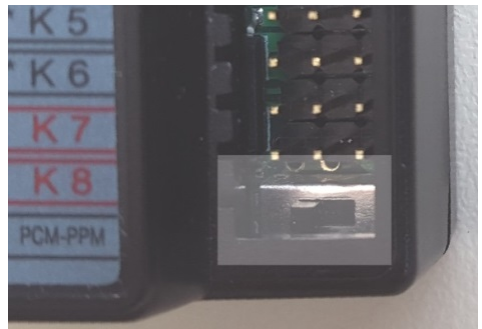


Operating Multiswitch/Multiprop Devices

All suitable extension modules are installed and operated in the transmitter as described in the respective instruction manuals.

The Multi-Switch or Prop-decoders are operated on the Futaba T-FHSS receiver, as described in the respective instructions.

Make sure that the mode switches on the decoder modules are brought into the switch position „PCM“.



Further Operation Notes

- For operating the transmitter with 2.4 GHz the 40 MHz crystal **MUST** be removed.
- For operating a model with a frequency other than 2.4GHz, e.g. with the built-in 40 MHz transmitter, the TM-24 module must be disabled by turning the switch on the adapter cable to the OFF position.

- The 40 MHz crystal has to be re-installed in this case.
- When the TM-24 module is used in other transmitters than the Futaba F-14, it must have 8 proportional control channels.

For more information, refer to the F-14 remote control manual or the transmitter used, and the instructions for the Multi-Switch or Multi-Prop devices.

Failsafe: Failsafe programming is not possible with this module. When the transmitter signal is missing, the receiver is set to „Hold“ (last valid positions of the channels).

Range Test: A special mode for the range test is not integrated into this module, check regularly the full range (on the ground approx. 500 - 800m) and the perfect function.

Compatible Futaba Transmitters To The TM-24 Module

FC-16, FC-18, FC-28: A suitable adapter is needed, more information can be found on our homepage at www.ripmax.com.

3rd Party Transmitters

It is also possible to equip 3rd party PPM transmitters using 35 or 40 MHz with the module, also more info on our homepage at www.ripmax.com.

Technical Specifications

TM-24 Module 2.4 GHz

Dimension:..... 54x34x9 mm
 Weight: 12 Gramm
 Frequency:..... 2.4 GHz
 Output power: 100 mW
 Voltage:..... 5-12 V
 2.4 GHz-System: T-FHSS w. Telemetry
 Current approx.:..... 30 mA

Compatible Futaba Receivers To The TM-24 Module

All Futaba receivers with T-FHSS system (e.g., R3006SB or R3008SB) can be used.

Content TM-24 Module



WARRANTY

Our products are equipped with the statutory 24 months warranty. Should you wish to claim a legitimate warranty claim, please always contact your dealer, the guarantor and the handling department. During this time any malfunctions occurring as well as manufacturing or material errors will be repaired free of charge. Further claims, eg consequential damages, are excluded.

Transport to the service center must be free, the return transport to you is also free. Unfree shipments can not be accepted. We can not accept liability for transport damage or loss of your consignment. We therefore recommend appropriate insurance.

Please send your device to the service center responsible for the country concerned

The following prerequisites must be fulfilled to process your warranty claims:

- Include your shipment receipt (Cash register / invoice copy).
- Operation of the device according to the instruction manual in the non-commercial sector.
- Only recommended power sources and recommended accessories have been used.
- Moisture damage, foreign interference, wrong polarity, overloading and mechanical damages did not occur.
- Include detailed information on the error or the defect.

DISCLAIMER OF LIABILITY

We can not monitor the adherence to the assembly and operating instructions as well as the conditions and methods for the installation, operation, use and maintenance of the remote control components. We therefore accept no liability whatsoever for any loss, damage or expense arising out of or in any way connected with improper use and operation.

In general Ripmax does not assume any liability for the whole function chain „Model“.

Ripmax shall not be liable for any loss, consequential damage, damage or expense arising out

of or in any way connected with improper use and operation.

As far as legally permissible, the obligation of Ripmax to pay damages, irrespective of the legal basis, is limited to the invoice value of the goods of Ripmax directly involved in the event of damages.

APPROVAL PROVISIONS

Directive „RE“ is the European Directive on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity. The Directive establishes, inter alia, the placing on the market and the putting into service of radio equipment in the European Community.

The CE symbol is affixed as a sign that the devices comply with the valid European standards. This marking is the same for all countries in the European Union. This product can be used in all EU countries and in Switzerland. We would like to draw your attention to the fact that the user is responsible for a radio installation that complies with the guidelines.



DECLARATION OF CONFORMITY

Hereby, Ripmax Ltd. declares that this device is in accordance with the essential requirements and other relevant regulations of the corresponding EU directives. The original declaration of conformity can be found on the Internet at www.ripmax.com, in the respective device description by calling the „Declaration of conformity“ link.

DISPOSAL



This symbol means that electrical and electronic equipment must be disposed of separately from household waste at the end of their useful life. Dispose of the appliance at your local, municipal collection center or recycling center. This applies to all countries of the European Union as well as in other European countries with a separate collection system.

PUT ON THE MARKET BY

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