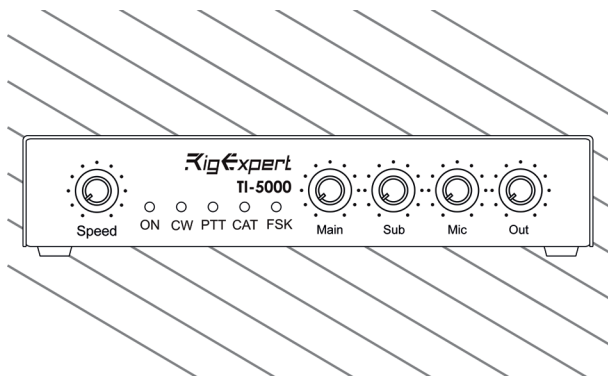


# TI-5000

USB Transceiver  
Interface

RigExpert®



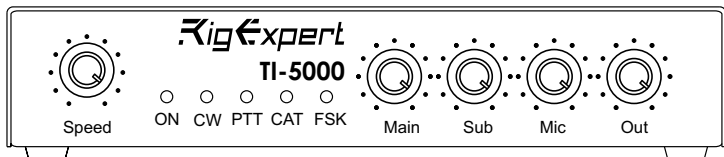
User's manual



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# Introduction



Thank you for purchasing a **RigExpert TI-5000** USB Transceiver Interface! We did our best to make it powerful yet easy to use.

RigExpert TI-5000 is a device for operating phone, CW and digital modes using personal computer with USB port.

It provides:

- **Transceiver audio interface**

Analog audio interface is a connection to transceiver audio output (external speaker connector or line output) and transceiver audio input (microphone connector or line input). Audio interface enables operating digital modes, recording and playing voice, as well as other useful functions (such as measuring levels of a signal from the air) by using a computer.

Input (main and sub channels) and output volume levels are adjusted by potentiometers on the front panel of the device.

- **CAT interface for various transceiver models**

CAT (Computer Aided Transceiver) system provides control of transceiver frequency, operating mode and other functions by computer software. Normally, modern transceivers have serial (with various signal levels) link providing CAT interface.

A separate COM port is created for the CAT system so the computer software can communicate to the transceiver.

- **FSK output**

FSK (Frequency Shift Keying) is a popular method of transmitting digital messages over radio primarily used in radioteletype (RTTY) mode. Most transceivers provide FSK modulator feature to make the RTTY signal stable and clear.

A separate COM port is created for the FSK function.

- **PTT and CW output functions**

Transceivers provide PTT (Push To Talk) and CW (Continuous Wave) keyer inputs to allow setting the transmitter on or off and operating CW using external device (PTT pedal, CW bug or paddle, terminal node controller, or personal computer).

A separate COM port is created for PTT/CW outputs.

- **Squelch input**

Some software, such as EchoLink, requires the interface to provide a squelch input to detect if the radio channel is busy.

In RigExpert TI-5000, the squelch input is assigned to the DCD line of the COM port used for PTT and CW outputs.

- **CW keyer**

Built-in RigExpert implementation of WinKey.

WinKey is a Morse keyer that is designed to attach to a PC's serial port and provide accurate transmitter keying from a Windows based ham radio software.

A separate COM port is created for WinKey.

- **Microphone and foot switch inputs**

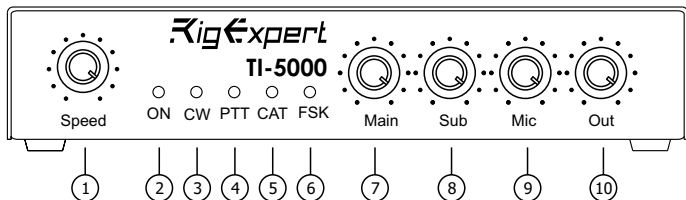
This function enables using the TI-5000 in voice modes. When the foot switch is pressed, audio from microphone is immediately transmitted by the rig. In addition, audio stream is fed into the computer (via left audio channel) to be recorded by voice keyer software. Microphone level is adjustable.

# Operating the TI-5000

## Front and rear panels

### Front panel:

1. Speed. CW speed pot for the WINKEY keyer. May be deactivated by software.
2. ON. Lights when the RigExpert TI-5000 device is plugged in and the drivers are installed.
3. CW. Shows transmissions in CW mode.
4. PTT. Indicates when the transceiver transmits.
5. CAT. Monitors CAT data exchange between transceiver and computer.
6. FSK. Lights when RigExpert TI-5000 is sending FSK data.
7. Main. Input level, channel 1 (main receiver audio).
8. Sub. Input level, channel 2 (sub-receiver audio).
9. Mic. Microphone signal level.
10. Out. Output level (audio to the transceiver).



### Rear panel:

11. MIC1. Microphone input connector (3.5 mm).

12. MIC2. Microphone input connector (3.5 mm).

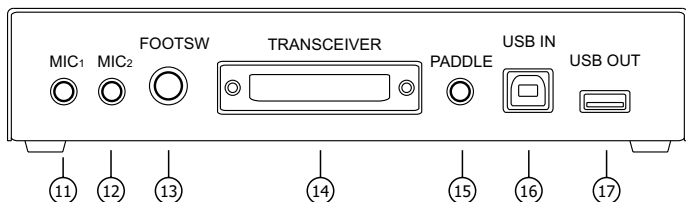
13. FOOTSW. Foot switch, RCA socket.

14. TRANSCEIVER. 25-pin transceiver connector.

15. PADDLE. CW paddle input (3.5 mm).

16. USB IN. Connect to the computer USB port.

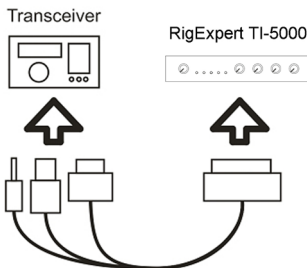
17. USB OUT. USB hub output to connect USB devices such as computer mouse.



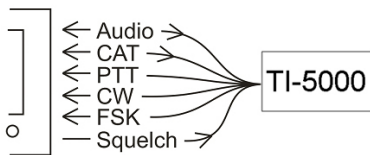
# Transceiver and computer connection

The connection to your transceiver is made by using a specialized cable. A specific type of the cable depends on the manufacturer and the model of the transceiver.

Please watch the marking to make sure all plugs are inserted properly to corresponding sockets located on your transceiver.



You may either order a transceiver cable with your TI-5000 or assemble it yourself. See the schematic diagrams on our website, [www.rigexpert.com](http://www.rigexpert.com).



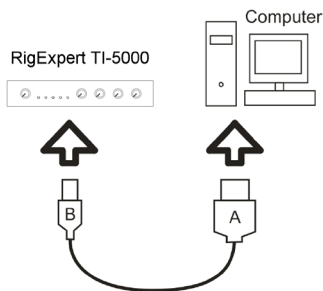
A number of analog and digital signals are routed between your transceiver and RigExpert TI-5000. Cables for most modern rigs (Icom, Kenwood, Yaesu, Ten-Tec, Elecraft) are available; future rigs are supported by design of the universal 25-pin connector of RigExpert TI-5000.

The squelch connection is not available in all cables manufactured by our company. The user has to add this connection, if necessary.



Use a standard USB A-B cable (up to 5 meters long) to connect your RigExpert TI-5000 to a USB port of your computer. It is recommended to use USB sockets located at the back panel of the PC.

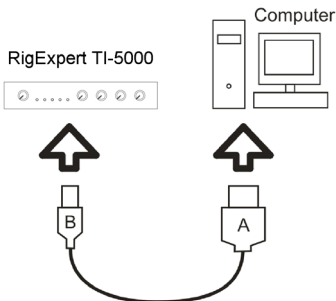
Once the cable is connected, computer detects a new device. No drivers required for modern operating systems. More info on [www.rigexpert.com/ti-5000](http://www.rigexpert.com/ti-5000).



## Updating the firmware

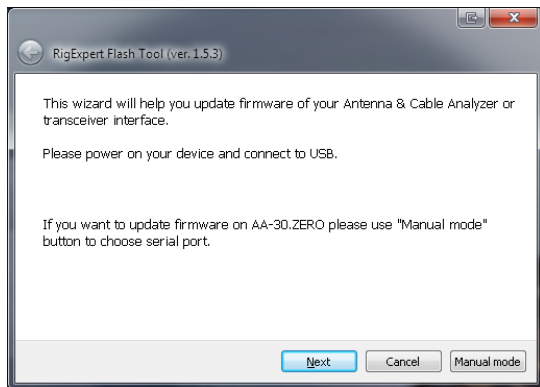
- Connect your RigExpert TI-5000 to your computer

Use a standard USB A-B cable (up to 5 meters long) to connect your RigExpert TI-5000 to a USB port of your computer. It is recommended to use USB sockets located at the back panel of the PC.

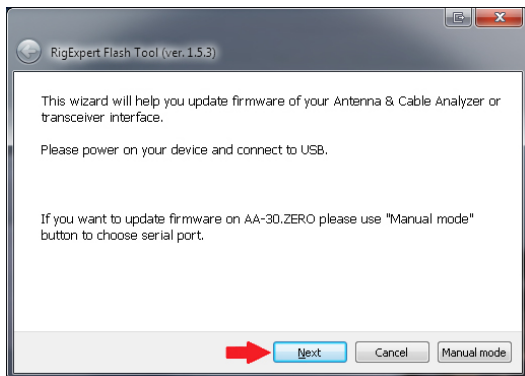


- Start the RigExpert Flash Tool

You may find Flash Tool at the Downloads section of the website, [www.rigexpert.com](http://www.rigexpert.com).

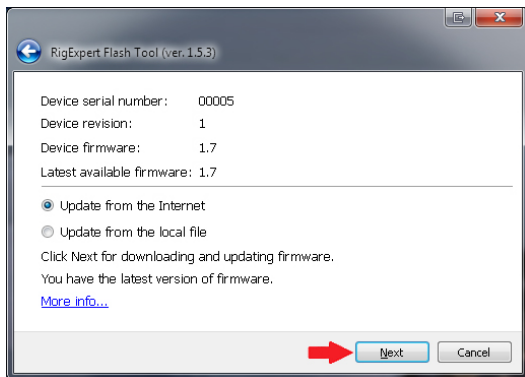


- Press Next to continue

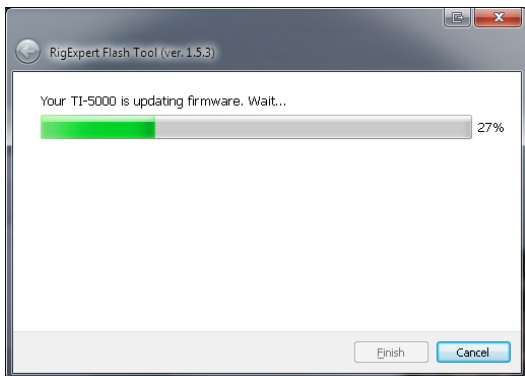


- Choose the option of update

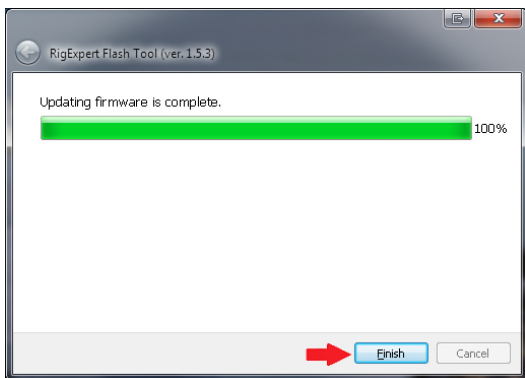
You may update your TI-5000 via Internet or with local file (you may find firmware file at the Downloads section of the website, [www.rigexpert.com](http://www.rigexpert.com)). After choose press Next button.



- Wait until RigExpert Flash Tool will finish the update firmware of your TI-5000



- Press Finish button



Now your TI-5000 is ready for use!  
This process is fail-safe: in case of a problem, just start over.



# Annex 1

## Specifications

### General features:

- Transceiver audio interface for operating digital modes, voice recording and playback
- Microphone and foot switch inputs
- CAT (Computer Aided Transceiver) system
- FSK output
- PTT and CW outputs
- CW keyer (WinKey)
- Squelch input

### Computer connection:

- USB (Universal Serial Bus) connector
- Powered from the USB port (consuming 100 mA maximum)
- No external power supply needed

### Audio interface:

- Insulated from digital nets
- Maximum input/output amplitude is 1V
- Input/output samplerate: 8 to 48 kHz
- True 16-bit DAC/ADC used
- Volume levels are adjusted by the front panel potentiometers
- External microphone input with level control
- Recording QSO audio stream

### CAT serial port:

- Baudrate: 300–115200 baud
- Electrical compatibility: RS-232, CI-V, TTL or inverted-TTL (Yaesu, Icom, Kenwood, Ten-Tec, Elecraft and JRC transceivers)

### PTT/CW outputs:

- PTT output: open collector and TTL-level
- CW output: open collector
- Maximum current is 500 mA

### System requirements:

- Desktop or laptop computer with USB 1/2/3 compliant port
- Windows XP/Vista/7/8/10 (32 or 64-bit), Mac OS or Linux operating system

### External microphone and foot switch inputs

- Electret or dynamic microphone
- Microphone level is adjusted by front panel potentiometer and on-board jumper
- Foot switch input accepts “dry contact” or open-collector sources

### FSK output:

- Baudrate: 45–1200 baud
- Open collector output

**Transceiver connection:**

- Single 25-pin connector for transceiver cable
- Various transceiver models supported

**Dimensions:** 20 x 10 x 4 cm  
(7.9 x 3.9 x 1.6 in)

**Operating temperature:** 0...40 °C  
(32...104 °F)

**Weight:** 300 g (10.58 oz)

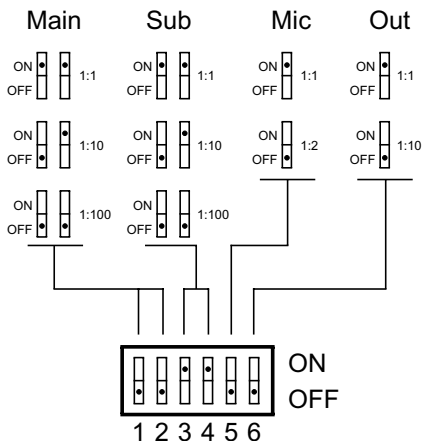
**Warranty:** 2 years

**RigExpert TI-5000 is made in Ukraine.**

## Annex 2

### Adjusting input and output audio levels

You can adjust input and output audio levels by regulators on the front panel. However, it is possible to increase range of input and output audio levels by using 6 switches which are located on bottom side of TI-5000.







<http://www.rigexpert.com>

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Made in Ukraine



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