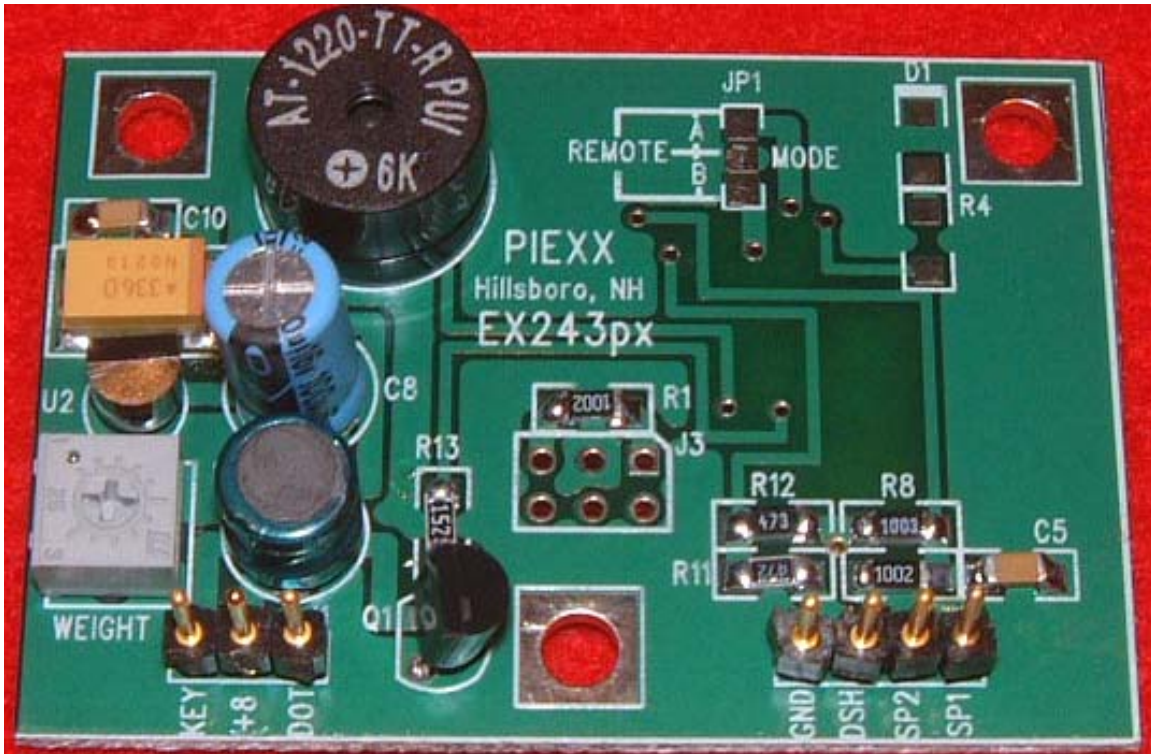




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PIEXX IC-EX243 px Installation Instructions



The PIEXX IC-EX243 px is a physical and electrical replacement for the original ICOM IC-EX243 Keyer.

Specifications:

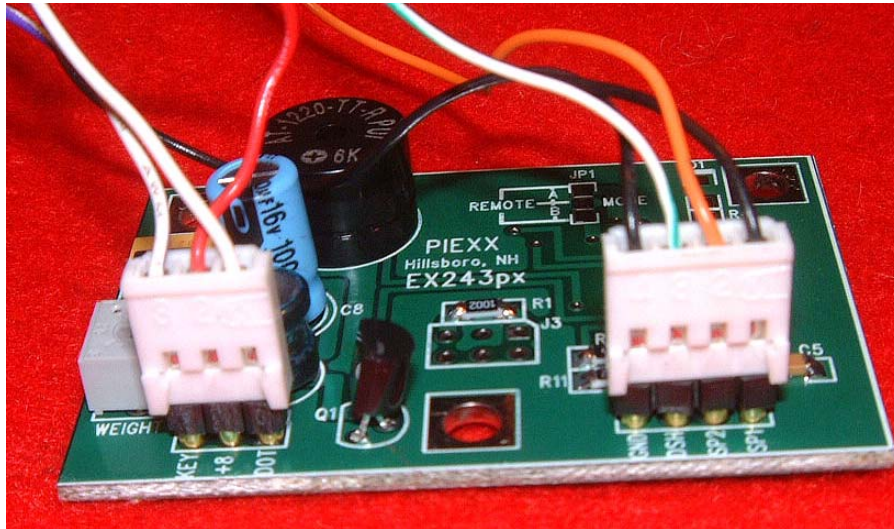
- Sends at speeds of 5-50 WPM
- Operates in Iambic A, B or Ultramatic mode
- Self completing dots and dashes
- Dot and dash memory
- Weight and Iambic mode can be set externally
- Built in side tone

IC-EX243px Installation

Before installing the IC-EX243px keyer in your radio you will need to decide how you would like to set up its operating modes. In the remote setup mode, you can adjust all of the operating parameters from the controls outside of your radio; this is by far the best way to do it! You can, however, hard wire the keyer for a particular operating mode via jumper JP1. JP1 is a 3 pin solder pad jumper. Jumpers are installed on JP1 by soldering adjacent pads as outlined below:

- Remote operation – No Solder Pads installed. **Recommended!**
- Iambic Mode A with weight adjusted on board -Solder pad across the A terminals of JP1.
- Iambic Mode B with weight adjusted on board -Solder pad across the B terminals of JP1.
- Ultramatic Mode, with weight adjusted on board - Solder pad across all three JP1 terminals.

The IC-EX243px keyer module can be used in a several Icom radios including the IC-735, IC-745, IC-740 and IC-970A/H. You should follow the installation instructions provided in your radios users manual. However, care must be taken in order to insure the proper alignment of the two interconnecting cables, that come from your radio, with the headers installed on the IC-EX243px board. If you examine the 3 and 4 pin connectors, you will notice that on one side of the connector the pins are visible. The visible pin side of the connectors should face the outside of the board as shown below.

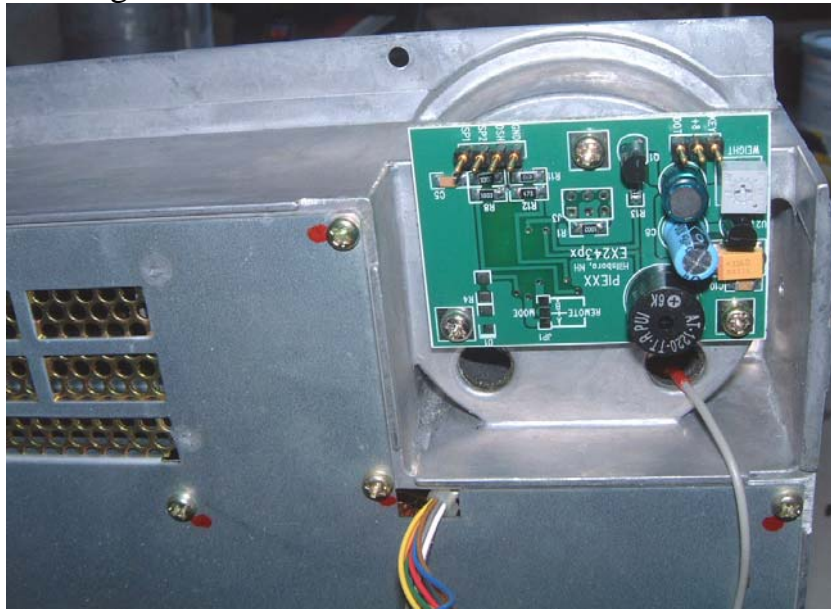


IC-EX243px connecting cables orientated so pins are visible.

Installation in IC-735 transceiver.

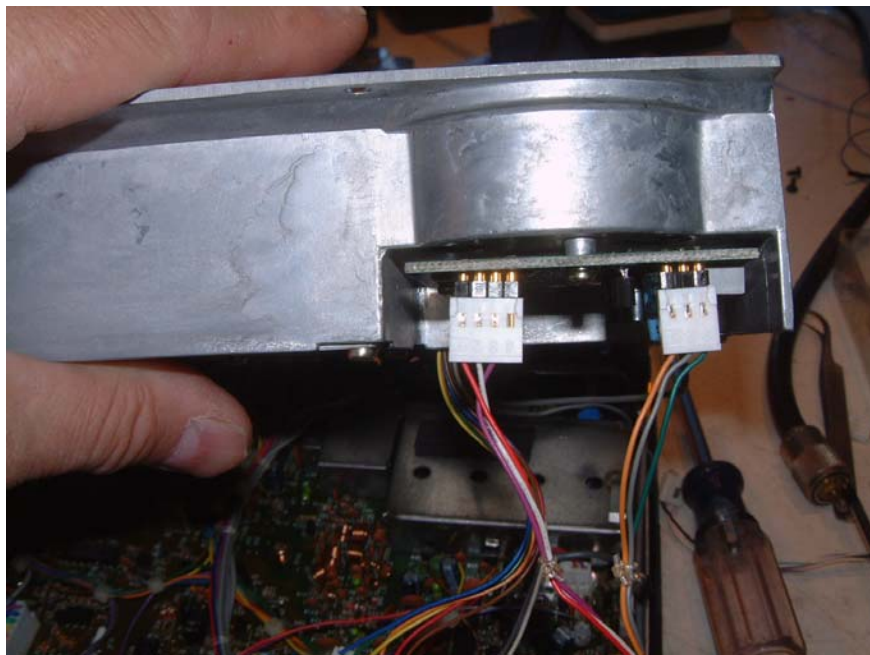
The following instructions detail the installation of the PIEXX IC-EX243px keyer board in the Icom IC-735 transceiver.

1. Remove the top cover of the IC-735 transceiver. Yes, you must remove the 4 screws around the speaker as well to free the top cover.
2. Remove the four screws securing the PA Unit, and pivot the PA Unit to disclose its bottom side. You may need to disconnect some of the cables to ease access to the bottom of the PA Unit.
3. Locate the 3 mounting points for the keyer beneath the speaker. Mount the IC-EX243px here with the provided screws. Be sure to securely tighten the 3 mounting screws as the board grounding is made through this mechanical connection.



IC-EX243px board mounted in IC-735 Beneath the Speaker on the PA Unit.

4. Unplug P27 from connector J23 on the PL board. P27 is marked '27' on its housing. You should now attach connector P27 to J1 on the IC-EX243 board. Make sure the connector is oriented with the visible pin side towards the outside of the keyer board as previously indicated.
5. Plug the 4 pin connector, P28 from the PL board, into J2 on the keyer. Again, make sure the connector is oriented with the visible pin side towards the outside of the keyer board.



IC-EX243px cabling installation in IC-R735

6. Re-install the PA Unit and the top cover on the IC-735.

Setup

The IC-EX243px keyer has four operating parameters that must be set. These parameters are:

1. Calibration of the speed pot.
2. Enable / disable the onboard side tone.
3. Set the Iambic mode of operation.
4. Set the weight parameter.

The first two parameters should always be set, the last two parameters are only set if the keyer is jumpered for remote operation. This is why the remote operation is desirable, if you have hard jumpered the keyer for its iambic mode, by installing the solder pad jumpers on JP1, then you will not be able to change the iambic mode or the weight after the board is installed in the radio.

To enter your keyers setup mode:

1. Turn the power off to your radio.
2. Press and hold your iambic key on its dot side.
3. While holding the key in the dot position, turn your radios power back on. Continue to hold the key in the dot position.
4. The side tone on your IC-EX243px keyer will beep four times followed by the message SET, in morse code of course. Your keyer is now in the setup mode, and you can release the dot paddle.

Calibrating the Speed Pot

After you have entered the setup mode, the first thing your keyer will request is the lowest position of the speed pot. The keyer will prompt you for this by sending **PL** on the side tone. You should now move your speed pot to its lowest setting. The lowest setting on the IC-735 is with the MIC GAIN / Speed pot moved down toward the SPEED label. On other radios the lowest setting is often with the speed control positioned in its most counterclockwise position. Once the pot is positioned correctly, press the dash paddle on your key once. The keyer will acknowledge your entry by changing to the **PH**, or pot high message. Move your speed pot to the highest setting, up on the IC-735 slider or clockwise on other radios, and then press the dash paddle on your key once.

If you made a mistake during the pot calibration, the keyer will notify you of this by sending error, that's 8 dots in cw, and then start the pot calibration over prompting with **PL** on the side tone.

Side Tone On / Off

After successfully performing the speed pot calibration, the IC-EX243px keyer will move to the side tone on / off setting mode. The keyer will prompt for this by sending either **SO**, if the side tone is to be on, or **SF**, if the side tone will be off. You move between the on and off positions by moving the speed pot. The fastest speed turns the side tone on and the slowest speed turns the side tone off. To complete the side tone mode, press the dash paddle on your key once. If your keyer is hard coded for the iambic mode, that is a solder pad jumper is installed on the JP1 jumper pads, then pressing the dash paddle on your key will have no more effect. The keyer will stay in the side tone mode. **At any time you can leave the setup mode by pressing the dot paddle on your key. The keyer will respond by sending 73 and then returning to normal operation.**

Iambic Mode

The Iambic mode, or the way that the keyer reacts when both the dot and dash paddles are engaged simultaneously, is the next setup mode entered. The iambic mode is indicated when the keyer sends **IA** Iambic A mode, **IB** Iambic B mode, or **IU** for ultramatic mode. The mode is changed, again, by changing the position of the speed pot. When the keyer sends the mode that you would like to operate in, as obtained by changing the speed pot position, you can save the setting and continue by pressing the dash paddle on your key once.

Weight Mode

The weight mode, or the way that the keyer sets the on / off duty cycle for dots, is the next setup mode entered. The weight mode is indicated when the

keyer sends **W** followed by a string of **V**s. You can vary the weight setting by moving the speed control. If the speed control is set for its lowest setting, the weight selected will be the normal 50 percent. As you increase the speed pot setting, the weight will first change to 25 percent, which is a very staccato sounding dot, and then, as you keep increasing the speed pot position, the duty cycle will transition from this 25 percent setting to a maximum 75 percent duty cycle. When the keyer sends with the weight value that you would like to use, you can complete the setup mode by pressing the dot paddle on your key. The keyer will indicate leaving the setup mode by sending **73**. If you press the dash key, to complete the weight mode setting, the keyer will cycle back to the side tone mode. You will need to set the speed pot to the correct side tone value, once again, before exiting with the dot paddle press.

Iambic Mode Definitions

The iambic mode specifies the way that the keyer reacts when both the dot and dash paddles are engaged simultaneously. In all three modes the keyer begins by sending the element, dot or dash, whose paddle is first pressed. From that point the three modes differ as follows:

- Iambic A – The keyer will alternately send dot and dashes until the keys are released. If the keyer was sending an element, that element will be completed.
- Iambic B – The keyer will alternately send dot and dashes until the keys are released. If the keyer was sending an element, that element will be completed then, one more element opposite the last will be sent. So, in iambic mode B, if you hold both paddles to send the letter K and release the keys during the last dash in the K, the keyer will send one more dot resulting in the letter C being sent.
- Ultramatic – The keyer will send the element whose paddle was pressed last. So, if you press the dash key, dashes will be sent. If, while holding the dash key, you press the dot key the keyer will respond by sending dots. If you then release the dot key, while continuing to hold the dash key, the keyer will resume sending dashes.