Radioddity QT80 Digital/data mode operation

V1.1, September 11th 2024

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Strong partnerships enable us to offer you the latest technologies with an excellent price/performance ratio under the Radioddity brand name. Our experienced and responsive customer service team helps us to deliver on our promise to you and better meet your everyday needs. Whether it's offering you the latest and greatest DMR, HF and analog radios, accessories and related products, providing outstanding technical support or working with amateur radio industry leaders to develop helpful content to assist you with your purchase: Your concern is our concern. We want to provide you with quality radios at great prices. If you feel we are not delivering on this promise in any way, please let us know by e-mail:

support@radioddity.com

1 Preface

Your Radioddity QT80 can support digital/data mode operation (FT8, SSTV, RTTY, etc.) using the built-in VOX modes, without the need for external interfaces. This is a DIY option, and the following information is provided to assist with the creation of a cable that will provide the necessary connections; between a computer running digital/data mode software and the radio.

2 What you will need

There are not many parts needed to get our own data-cable prepared.

- For the connection to the Radioddity QT80 you will need a 6-pin GX16-A6P plug, often called “aviation plug”.
- For the connection to your PC, you will either need a shielded stereo audio-cable with 3.5mm TRS plugs on both ends or two shielded open end stereo audio cables with 3.5mm TRS plug.
- If your PC does not have a built-in sound-card you will also need a USB soundcard with 3.5mm TRS sockets for MIC-in and Audio-out.

3 Electrical connection

The following example is the most basic form of the cable that can be built. The cable connects between a PC soundcard or an external USB soundcard and the Radioddity QT80 front Microphone connector. This provides all the necessary connections for VOX based digital/data mode operation. The input and output signals will appear on the LEFT channels of the PC soundcard.

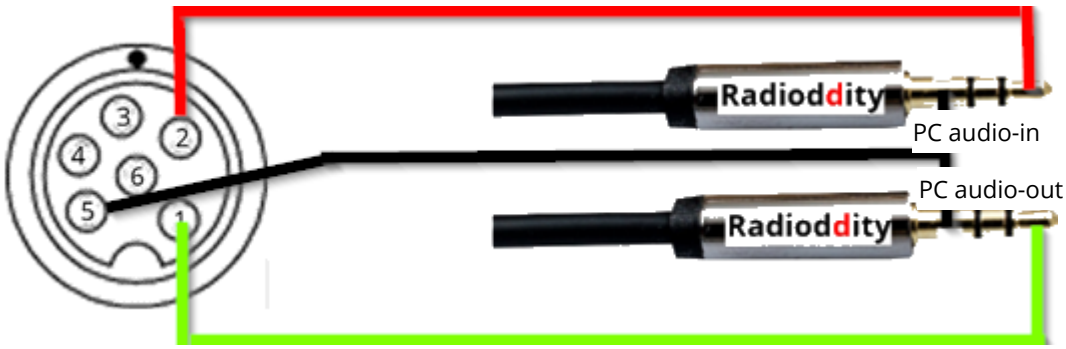
The required connections are as follows:

Pin	Signal	Computer signal
1	Microphone	Tip of 3-pin TRS audio-out
2	External audio frequency	Tip of 3-pin TRS audio-in
3	Push To Talk (PTT)	not connected
4	Microphone Key	not connected
5	Ground (GND)	Sleeve of 3-pin TRS Audio Out Sleeve of 3-pin TRS Audio In
6	+DC	not connected

Pins as seen when looking onto the 6-pin socket of the Radioddity QT80

- Pin 1 is the Radioddity QT80 input signal which needs to be connected to the computer audio-out signal (speaker-out).
- Pin 2 is the Radioddity QT80 output signal which needs to be connected to the computer audio-in signal (microphone-in).
- Pin 5 is the ground signal which needs to be connected to both ground connections (audio-in and audio-out of the PC).

The resulting electrical connections of your cable should look as follows:



The wires shown in black color represent the cable shields as well.

4 Radio Menu settings:

The following Radioddity QT80 MENU settings are required/recommended to enable VOX based TX and RX via the Radioddity QT80 front microphone socket. To enter the MENU long press the [FUNC] key and use the large channel selector knob to navigate to the required parameter. With careful adjustment of the Radioddity QT80 settings and your PC software settings, good performance can be achieved.

- Menu 04: MIC.GAIN = Set to a low level, adjust as needed.
- Menu 05: MIC.TYPE = DYNA
- Menu 07: VOL.PATH = BOTH or MIC.JACK
- Menu 24: VOX = ON (note: during PTT you can also press the FUNC key to turn VOX ON/OFF)
- Menu 25: VOX-L = 2 or 3 is recommended, adjust the VOX level as needed.
- Menu 26: VOX-T = 1 or 2 is recommended, adjust VOX delay time as needed.
- Menu 27: VOX.SPK = ON (allows VOX to enable PTT when there is open squelch / RX audio)

5 Notes and tips:

The following recommendations will assist in achieving the best results:

- **Always use LOW RF POWER** for digital/data modes. Many of these modes are high duty cycle TX, and are very efficient only requiring low power for excellent results. High power is not required and will result in higher heat which should be avoided.

- **Isolation**: The DIY cable described in this document is shielded for good results when your PC soundcard levels, and radio are set correctly. "Isolation transformers" may be added to the cable if required to avoid ground loops or interference/noise. The use of clip-on ferrites can also assist with noise or feedback issues, if they occur.

- **Levels**: Check the signal levels to ensure they match the requirements of your PC interfaces and radio equipment. Always start at a low volume/gain levels and increase gradually as required. Adjust your PC soundcard settings and radio MIC.GAIN, VOX-L and VOX-T to ensure audio is properly transmitted and received. Be aware that any sounds played by your PC might be transmitted with VOX, so always ensure other sound sources are disabled before enabling VOX (VOX is enabled with Menu 24: VOX = ON).

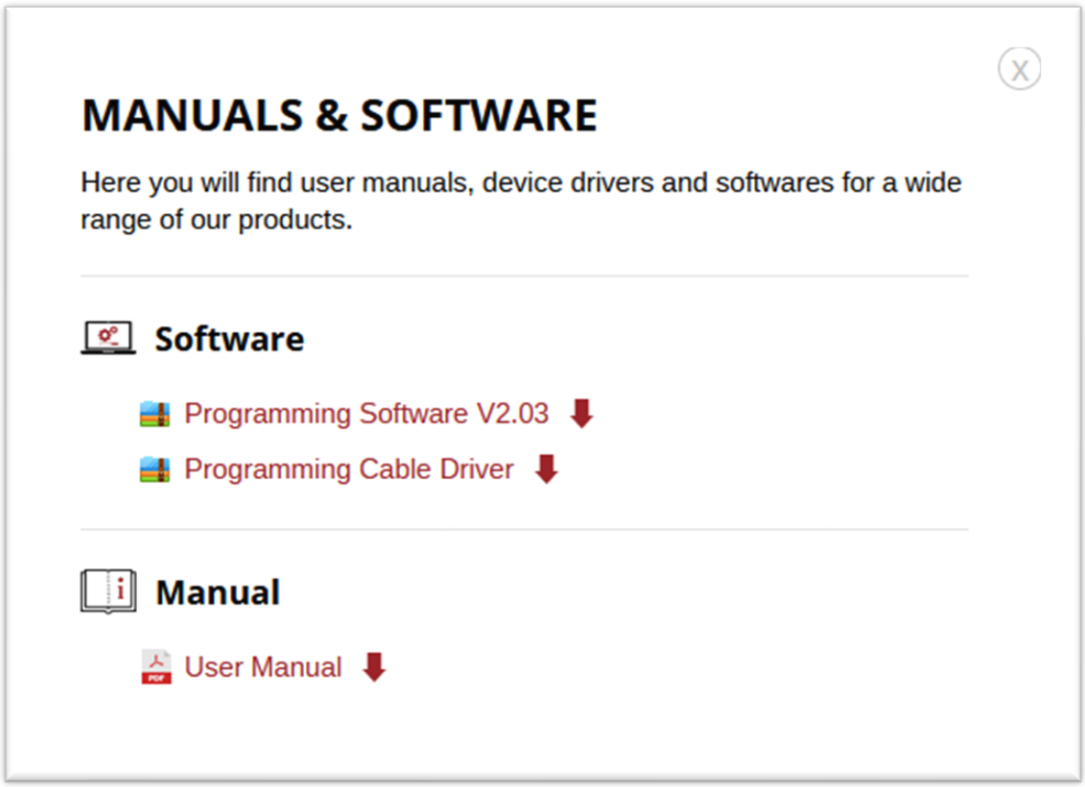
- **Testing**: After making connections, test the setup with your digital mode software. Most software will contain a "VOX PTT" option that should be selected.

6 Radioddity support area

Please note that you can find all firmware, software and user manuals in the support section of our official Radioddity website by following these steps:

https://www.radioddity.com/ → Support → Radioddity → QT80

For the Radioddity QT80, the resulting support page looks something like this:



As soon as a new file is available (e.g., firmware updates, updated manuals or other items), these files will be published in our support area.

Note:	*The list 'Manuals & Software' can be found below the 'Software' section on the website. Use the scroll bar to navigate.*

We would like to thank all Radioddity customers for their constructive feedback.

If you find an error in the firmware of the Radioddity QT80 or in this documentation, or if you miss a function that you would have expected, or even if a detail has not been described to the needed extent, please feel free to write a message to support@radioddity.com. The use of non- Radioddity firmware for this radio is strongly discouraged and may invalidate your warranty.

Thank you for shopping at Radioddity!

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