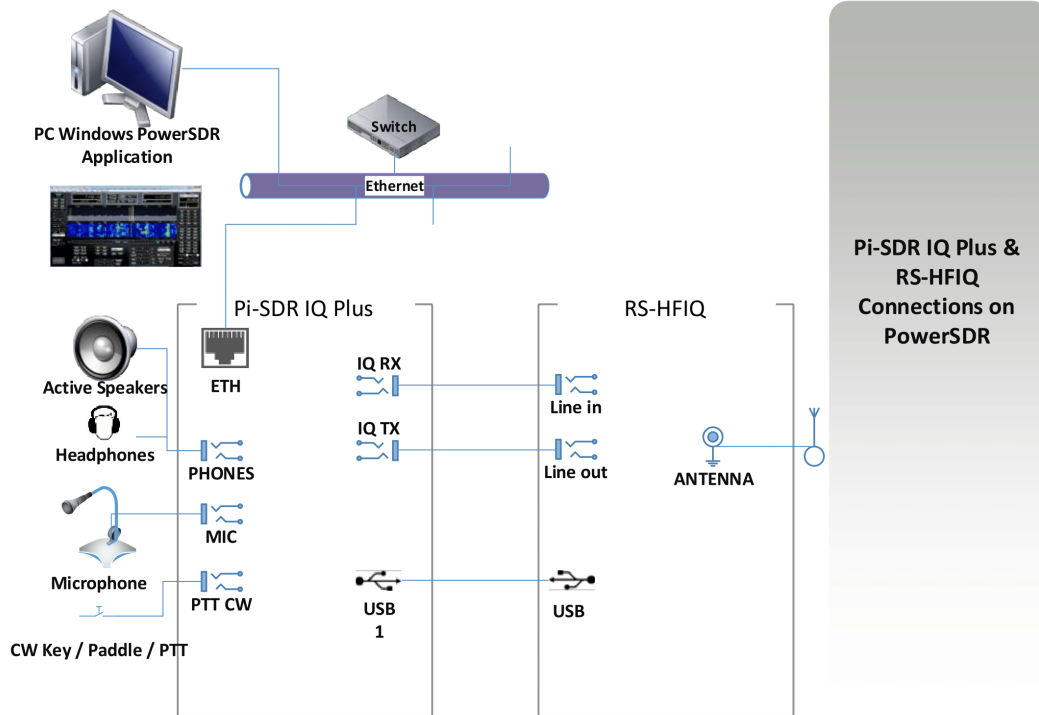# Pi SDR for RS-HFIQ Hardware Setup

Overall schematic connections for Pi SDR IQ Plus for RS-HFIQ

As the connection schematic indicates, we have to connect the Win/10 PC that executes PowerSDR to the local Ethernet network. Connection speed has to be at least 100MBps (100Base-TX).

Another ethernet cable will connect Pi DSR IQ Plus to the same Ethernet network

Here is an overview of Pi SDR IQ Plus connections
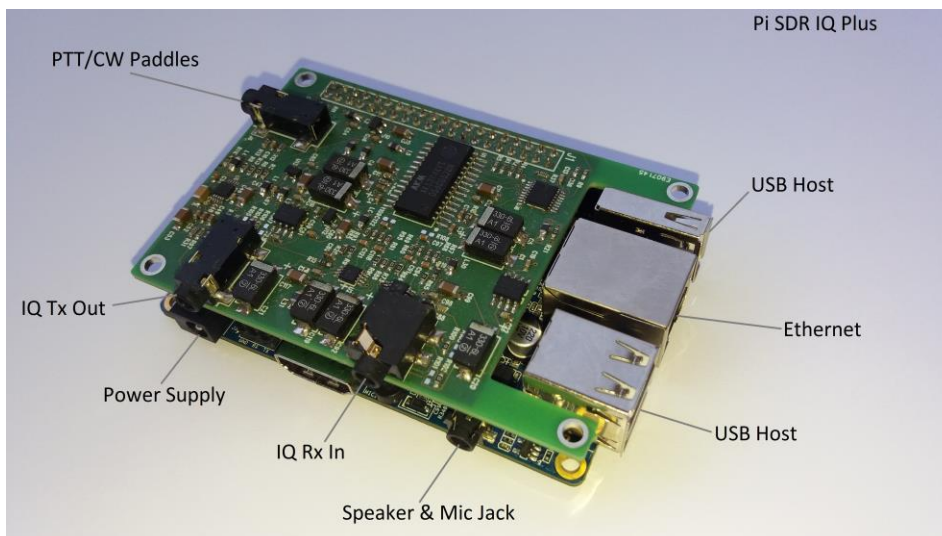
Pi SDR IQ/IQ Plus jack pinouts

Pi SDR IQ/IQ Plus, Speaker & Mic jack

The Speaker & Mic jack, is a 4 pins 3.5mm TRRS connector, conforms to the OMTP standard. It provides headphones or active speakers drive. Mic connection provides bias voltage. To use both, for example separate headphones and mic, an OMTP splitter cable is required in order to have dedicated headphones and mic jack connections.

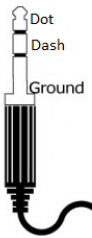| |
|---|
| • Tip: Left Channel Out Audio |
| • Ring 1: Righ Channel Out Audio |
| • Ring 2: Mic |
| • Sleeve: GND |

IQ Rx In, IQ Tx Out jacks

The IQ Rx in & IQ Tx Out jacks, are 3 pins 3.5mm TRS connectors
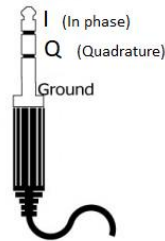
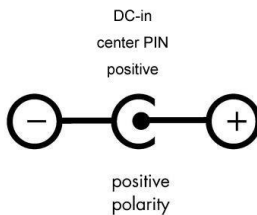| |
|---|
| • Tip: I (In phase) (Left Channel) |
| • Ring : Q (Quadrature) (Right Channel) |
| • Sleeve: GND |

PTT/CW jack

The PTT/CW jack, is a 3 pins 3.5mm TRS connector

• Tip: PTT/Dot
• Ring : Dash
• Sleeve: GND

Power Supply connector

The power supply jack, is a positive polarity 4mm DC connector

• Inside Tip: **+5V DC**
• Outer Sleeve: GND

Attention : To avoid damage to the Pi SDR device, power supply should provide 5VDC and not exceed that voltage rating. Also a good quality with 2.5Amp. current power supply is required.

Pi SDR IQ Plus for RS-HFIQ Hardware Setup

After unpacking of the received Pi SDR IQ Plus, here are the included items

1 x Pi SDR IQ Plus, microSD card with latest firmware placed in slot, 3D printed case
1 x Power cable
1 x Audio cable with Speaker/Mic splitter connectors (OMTP)

Make sure that the firmware microSD card is firmly placed in its slot and not moved, you can push it to unlock and push it again to lock in place.

Proper side and way for the microSD card to fit in the slot
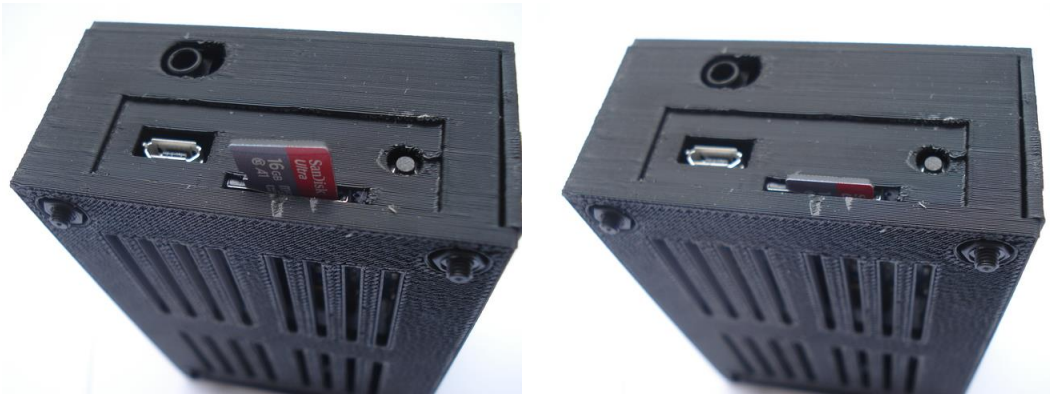
A power cable with a USB style connector on one end and a 4mm round connector is provided. User will need to provide 5V, 2.5 amp USB style power supply.

The user provided power supply needs to have three requirements, first to have a USB connector to connect with the provided power cable, second to be rated 5V 2.5Amp and finally to be 'quiet' in terms of electrical noise effects.

Pi SDR IQ Plus 5V current has been measured at 1.2Amp during operation, though to be on the safe side a 2.5Amp at least is specified.

Any USB charger adapter that has USB connection (for the provided power cable), rated 5V 2.5Amp and is electrically noiseless, is just fine.
Various chargers can be used provided they have good quality and are rated 5V, 2.5Amp
https://www.amazon.com/s?field-keywords=USB+Wall+Charger+5v+2.5Amp

An Audio cable with Speaker/Mic splitter connectors (OMTP) is also provided to have Headphones/Active Speaker output and Mic input with bias voltage.

Cable is composed of two parts, a converter part (for OMTP) and a splitter part, both need to be in series connected.

NOTE: Most PC headsets (if they have a 4 pin, 3.5mm TRRS connector) use the CTIA standard therefore will not work when plugged directly into the Pi-SDR IQ Plus. An OMTP to CTIA adapter cable is provided with the Pi-SDR along with a 4 pin TRRS splitter cable for headsets with separate MIC / PHONE TRS 3.5mm connectors.

Two stereo cables are needed

One for Rx IQ connection, it should be connected to IQ-OUT RX output of RS-HFIQ and to the right upper side connection of Pi SDR IQ Plus

And one for Tx IQ connection, it should be connected to IQ-IN TX input of RS-HFIQ and to the left upper side connection of Pi SDR IQ Plus

Pi SDR to RS-HFIQ USB control connection

A USB cable should be connected to a Pi SDR IQ Plus USB port and on the USB port of RS-HFIQ.

Ethernet connection

An ethernet cable is needed in order to connect Pi SDR IQ Plus to your local ethernet network

An overview of all connected cabling

Power On sequence

After all cables have been connected, the power on sequence is

1. Power on RS-HFIQ

2. Power on Pi SDR IQ Plus

3. Wait 60 seconds to complete the firmware boot sequence

4. Start PowerSDR windows application selecting SDR1000

5. Upon clicking on the "Start" PowerSDR button, the system auto-detects Pi SDR IQ Plus and starts operation.