

Sectus Technologies



Security Checkpoint Solutions

Hardware / Technical



Speaker Microphone Pin Out



Dual PTT Switching



Programming Cables



SMA Antenna Connection



Extended Antenna Threads



Erratic Charger Behavior



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Radios



**Ham / GMRS
Commercial
Repeaters
Duplexers**



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Speaker Microphone Pin Out

Anytone, BTech, Baofeng, Kenwood, Wouxun

3.5mm Plug

Sleeve	Mic -	PTT	Rx Data	(to the radio)
Ring	Mic +			
Tip	+V			(from the radio)

2.5mm Plug

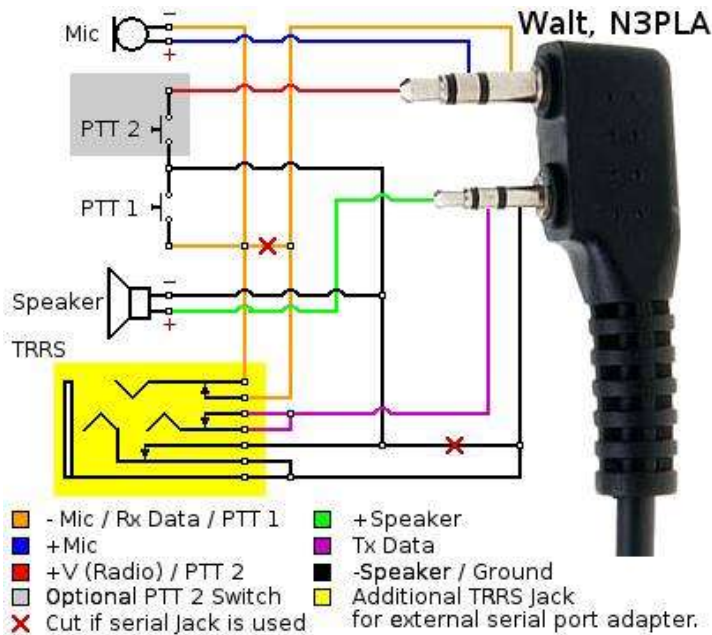
Sleeve	Speaker -	PTT	Data GND
Ring	TX Data		(from the radio)
Tip	Speaker +		

Connect Sleeve to Sleeve for PTT



Graphic by electronicholas

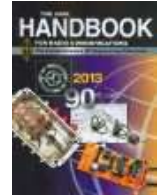
Walt, N3PLA, took the diagram to the next level and added the Dual PTT and a TRRS jack. Great job, Walt.



This Diagram details both single and dual PTT configurations. Although the jack used is TRRS, only a TRS plug is used for serial adapters. This could be USB or RS-232 line level adapter.



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Dual PTT Switch

Baofeng UV-82 series

A standard single button remote spkr/micr will select Display B (the bottom display) when keyed.

There are earpiece/microphones available that incorporate two PTT buttons. The wiring configuration for these is shown below.

Connecting contacts X to A will key the transmit channel in the upper display. Connecting X to B will key the lower channel.

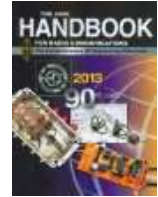


Recently, a Dual PTT Spkr/Micr was put on the market for the UV82 series. The top button selects display A, the side button selects display B. ([Amazon Link](#))

Keep in mind, this microphone was designed for radios having the Dual PTT option as part of the radio. Adding the extra switch to the microphone will Not add the function to your radio.



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PROGRAMMING CABLES

for Anytone, Kenwood, Wouxun, Baofeng

Provided by Jim KC9HI, Paul AE5JU

The **RXD** line from the module goes to the **sleeve** of the **3.5MM** plug.

The **TXD** line from the module goes to the **ring** of the **2.5MM** plug.

The **GND** line from the module goes to the **sleeve** of the **2.5MM** plug.

There are several variations of CP2102 boards available.
The pin location and labels may vary.

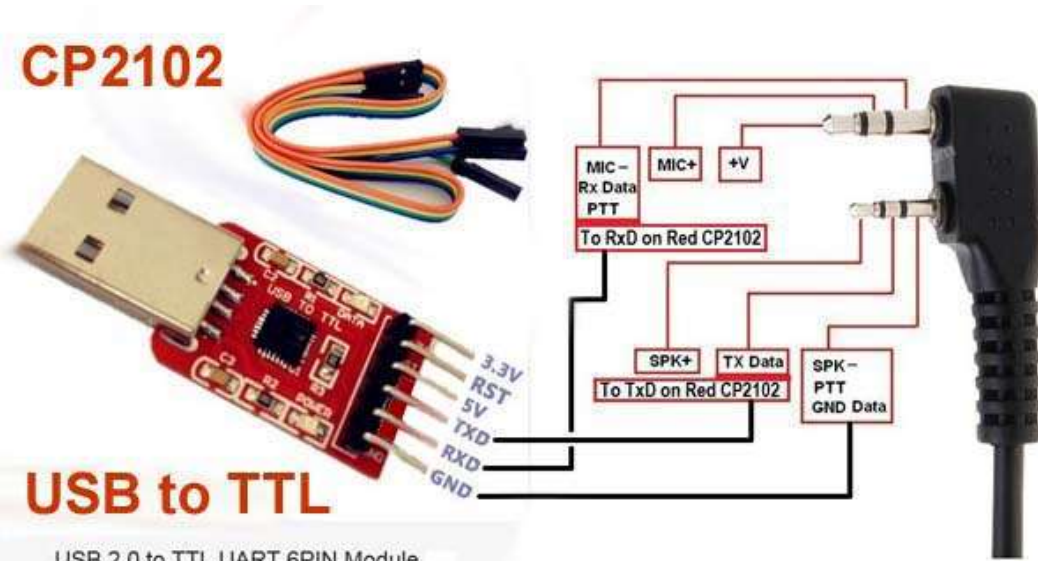
Below are two examples.

Builders Note: Some boards have the TXD and RXD pin labels reversed. If your cable does not work, switch the TXD and RXD wires.

CP2102

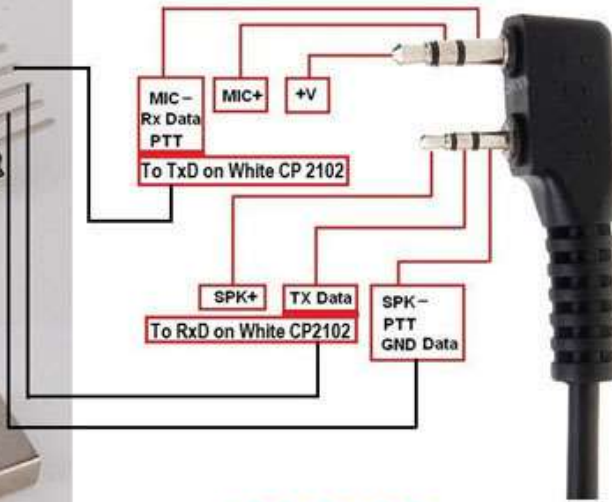
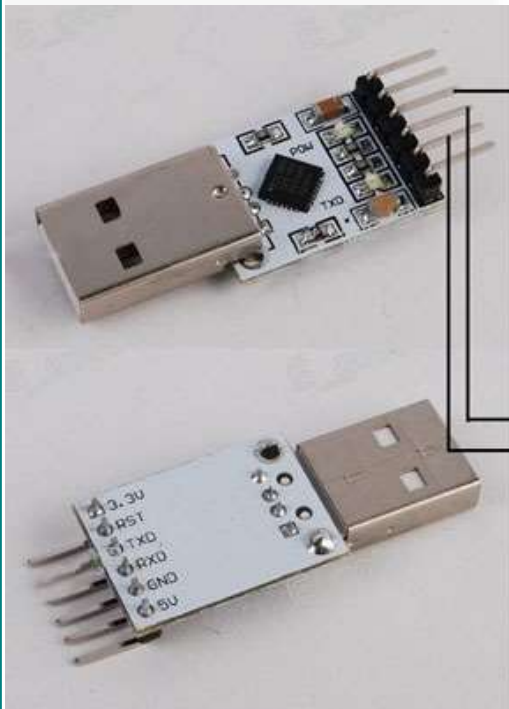
USB to TTL

USB 2.0 to TTL UART 6PIN Module
Serial Converter CP2102 STC PRGMR



For All
of Your
Airport
Needs

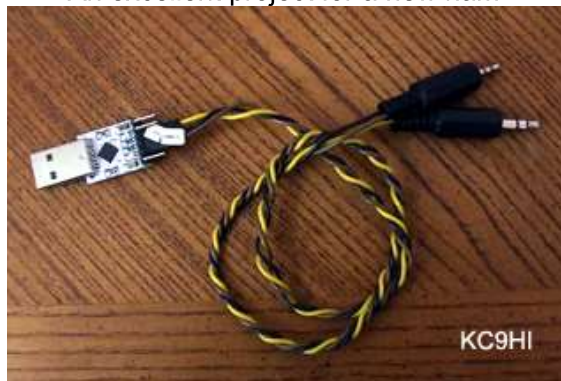
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CP2102 USB to TTL

Contact Us

Below is a sample cable constructed by Jim, KC9HI
An excellent project for a new ham.



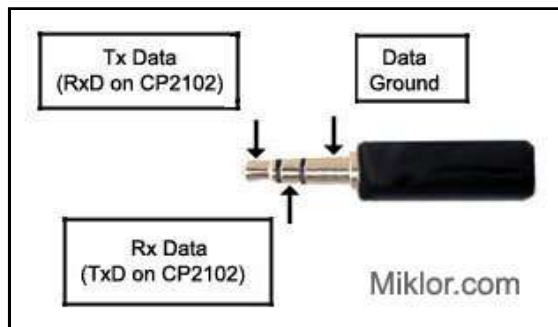
KC9HI

A Project describing how to build a programming cable can be found [HERE](#)

Radios requiring a 3 pin 3.5mm plug,

BTech UV-2501/5001, 25X2/X4, 50X2
QYT KT8900 / KT-UV980, Juentai JT6188, etc

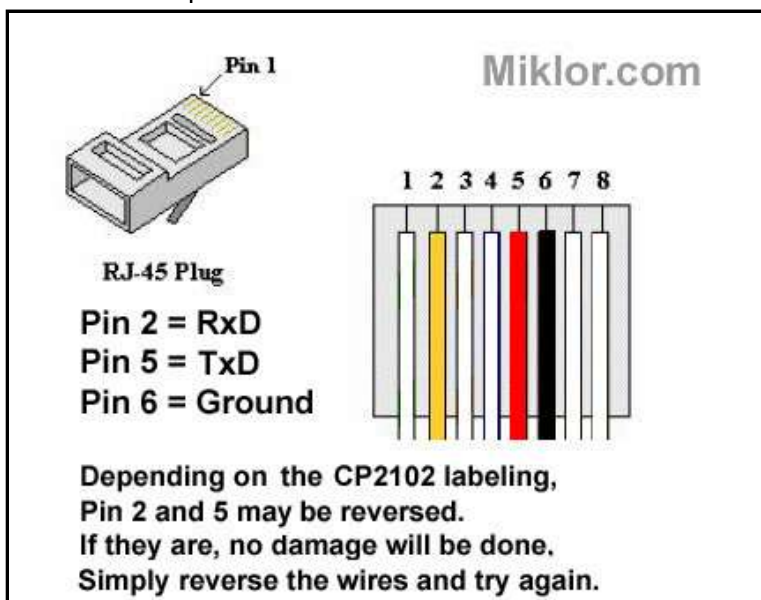
use the following configuration.



A Project describing how to build a programming cable can be found [HERE](#)

The Leixen series (VV808 / 898)

requires an 8 contact RJ45 connector



A Project describing how to build a cable using an RJ-45 be found [HERE](#)

Yaesu FT-7800, 7900, 8100, 8800, 8900

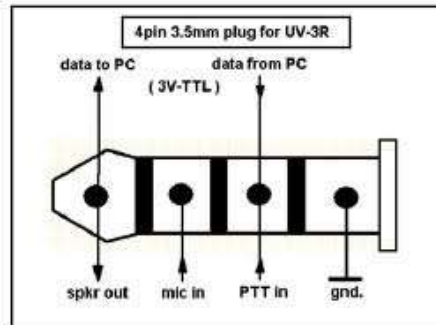
[Link to Cable Diagram](#)

(My thanks to **Ettore IZ3ZVO**)

The CP2102 USB-UART is by Silicon Labs and can be found on eBay (\$2).
 Windows, MAC and Linux drivers can be downloaded at: [SiLabs_Drivers](#)

Builders Note: Using an old Cloning or Programming Cable/Plug may not work. The wires in some are hair thin and many can't be soldered.

PROGRAMMING CABLES for Baofeng UV-3R



UV-3R



UV-3R+

Miklor.com

ANTENNA CONNECTION

Most **Anytone & Baofeng** radios
require an antenna with an **SMA Female** fitting.

Most **Wouxun KG-UVxx** models require an **SMA Male** fitting.

Baofeng UV-3R requires **SMA-Male**, **UV-3R+** requires **SMA-Female**

Unlike horseshoes, close doesn't count.
Always confirm the connector type before ordering.



example of SMA Female

SMA RP (Reverse Polarity) and
SMA Male are NOT compatible.

Note: SMA-RP connectors are found on most Wi-Fi Routers.

Examples of Various SMA Formats



Reversed SMA-Female Connectors are commonly found on Wi-Fi Routers

[RF Connector Identification Chart](#)

To use an antenna with a BNC Male requires the following adapter:

SMA Female (above) to mate with the radio
BNC Female to mate with the BNC Male antenna.

Another option is a jumper (pigtail). This relieves the stress of a heavier cable when using an external mobile or fixed antenna.



SMA-F Antenna Extended Threads

Some antennas with SMA-F connectors have an extended thread. Most radios such as the UV-5R and UV-3R+ require a standard SMA-F.

The illustration shows two different Nagoya NA-771 antennas. Some antennas with extended threads ship with a spacer to fill the gap.



Note: If the radio requires extended threads, such as a **BF-888S**, an antenna with standard threads will not make connection unless you trim the outer shell or lip of the antenna so it is flush with the base.

If the antenna has extended threads and there is a gap or airspace, a #8 O-Ring can be used to fill the gap. Some antennas include this in the package.

If there is no gap or airspace, do Not add the O-Ring. This may actually prevent your antenna from making a good contact and cause damage your radio.

The wrong threads (if too short) will result in poor reception and over heating of the transmitter as there is no solid antenna connection.

Erratic Charger Behavior

This includes: Battery not charging, Light staying Red and Erratic Light behavior.

On many chargers, internal contact to the circuit board is made via tension clips. If there clips do not have the proper tension or the copper pad is not clean or is oxidized, a good contact will not be made. This is normally an easy fix.

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