
QRPver
7.122.000
SSB 2400Hz AGCL
LSB S9 RX 100Hz
B/USB
BYPASS
ACC
STEP
Mode
Lock
Menu

User's Manual

The transceiver is built on the scheme of superheterodyne with a single frequency conversion and four crystal quartz filter.

The device is controlled by a microcontroller. As an oscillators used frequency synthesizer on chip SI5351

This transceiver is designed to operate in the lower (LSB) and upper (USB) as the sideband phone (SSB) and telegraph (CW). Also you can work in the digital modes (DIGI).

The transceiver is small size 100x74x29 mm and light weight of 350 gr. It is suitable for work on the road, and for the daily work.

Specifications:

Supply voltage to 10.5-14.2. (Nominal 13.8v)

Current amperage in receive mode with an average volume of 100 mA.

In the transmit mode of 600-800 mA. (average 700)

Receiver sensitivity better than 0.4 mkV.

Transmitter output power 3W. rated. (Max. 4W).

ULF Output Power 0.7W.

Intermediate Frequency 6 MHz.

CF Bandwidth 2.9 kHz at -6dB.

Switchable low-pass filter receiving channel with a sharp decrease.

Carrier suppression more than 50dB.

Suppression inoperative sideband more than 45 dB.

Functional:

LSB/USB

CW/SSB/DIGI

Two modes AGC (Fast/Low)

Signal level indicator (S-Meter)

Vertical and semi-automatic CW key

Enabling / disabling transmission by CW key

Enabling / disabling transmission by LF signal at the input for digital modes (DIGI-VOX)

Offset frequency for CW (CW SHIFT)

Self-control for CW

Lock encoder

Low voltage indicator (10v.)

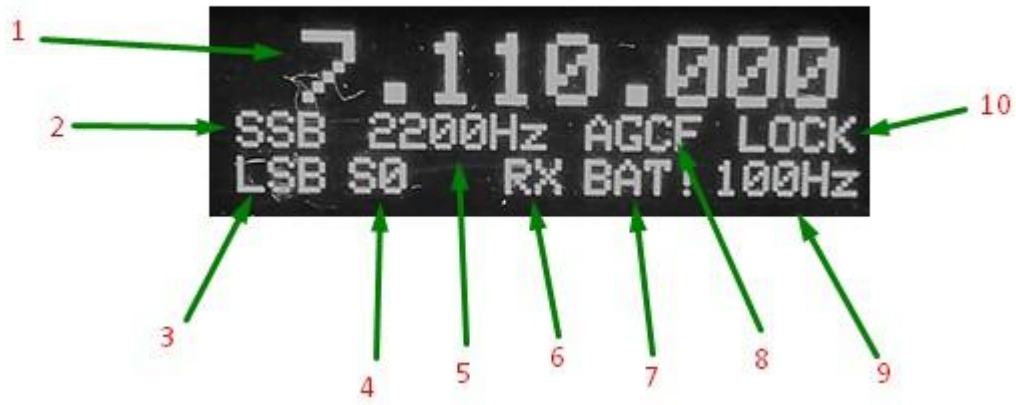
Controls:

All controls are located on the front panel of the transceiver.
In order to keep the small size body and extend the functionality of the device, we have tried to use a minimum of buttons, making them multi-tasking.

1. Volume control
2. The encoder button. Frequency tuning, scrolling and setting menu items
   Step frequency adjustment **1,10,50,100 Hz, 1.10 kHz** (short press)
3. Selecting the sideband **LSB / USB** (short press)
   Choosing the mode of work **CW / SSB / DIGI** (Press & Hold more than 0.4 seconds)
4. Switching the reception low-pass filter **200 - 2900 Hz.** (Short press)
   Encoder Lock **LOCK** (Press & Hold more than 0.4 seconds)
5. Selecting the **AGC AGC FAST / AGC LOW / AGF OFF** (short press)
   Enter/Exit to the menu (Enter - Press & Hold more than 0.4 seconds, Exit - short press)
6. Display

Transceiver display:

Almost all the information about the state of the radio is displayed on a small LED display size 128x32 px.



1. Current frequency transceiver 7.110.000
2. Type of radiation (MODE). Microphones SSB, digital mode DGI, Telegraph CW
3. Lower or upper sideband work. Lower sideband LSB, Upper sideband USB
4. Signal level indicator (S-Meter) S0
5. Receiving channel bandwidth (200-2900 Hz) 2200Hz
6. Mode (Reception / Transmission) RX TX
7. Low voltage levelof the transceiver indicator BAT!
8. AGC Mode. Fast AGCF, Slow AGCL, OFF AGC-
9. Step frequency tuning 100Hz
10. Lock encoder inicator LOCK

Меню:

To enter the menu, press and hold "Menu" button for more 0.4 seconds 

To exit the menu, you need to press the same button once more.

Rotate the encoder to scrolling menu options and settings. 

In one of the menu items used the "Mode" 

The menu items and operations with them:

1. 

In this menu item you can adjust the "detuning" receiver to work in telegraph mode (CW). That is, you will receive the signal on the selected value with an offset of the actual frequency shown on the display, and transmit with the same like on the display. Here you can select the offsets from 200 to 1500 Hz.

To adjust, press the button “STEP” 

which is on the encoder axis. You will see a sign “=” 

Rotate the encoder to select the desired offset, 

Then again, click on the encoder button for recording in the memory of your chosen value “CW SHIFT”.

2. 

Enabling telegraph key self-control. When this option is enabled, you will hear a self-control tone in the speaker , the frequency of which is equal to the frequency detuning “CW SHIFT”. Press the encoder at this point, and rotate it clockwise and counter-clockwise to enable or disable this option. 

click on the encoder button again to save the settings.

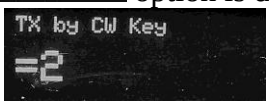
3. 

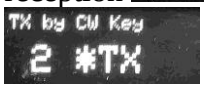
In this menu item you can set your telegraph key “CW KEY”
Enter the setup mode by pressing the encoder button. Rotate the encoder to select the desired value. “Manual” is a vertical key. Next come the speed values for semi-automatic key, from 30 to 200. 

.
During the setting speed, you can press the telegraph key and choose the desired value at the hearing, in the speaker of the transceiver you will hear the tone of self-control.
And so, if you have chosen “Manual” then you have chosen the vertical key, if you select a value from 30 to 200, you choose semiautomatic. Press the encoder button to save the settings.

4. 

Here you can configure the switch and the transmission delay by clicking on a telegraph key. Enter the setup mode by pressing the encoder button. Rotate the encoder to select the desired value. “OFF” 

option is disabled. The value of 2 to 20 is the transmission delay before the transition to the reception 

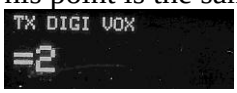
Delay settings can be controlled by pressing a telegraph key. 

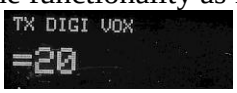
by pressing a key, it will appear the sign 

with delay you selected after it is released. Press the encoder button to save the settings.

At the touch of a button “Mode” 

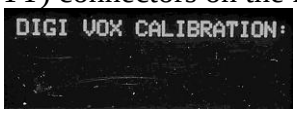
you go in this same menu, but for the mode “DIGI” 

t his point is the same functionality as for “TX by CW Key” 



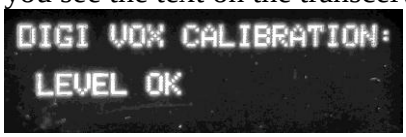
except that you need to apply the LF signal from your software from a computer that would control the delay 

If you do not plan to use these modes, then leave them in the "OFF", and to enable transmission using contacts (PTT) connectors on the rear of the transceiver (pinout contacts below on this user a manual).

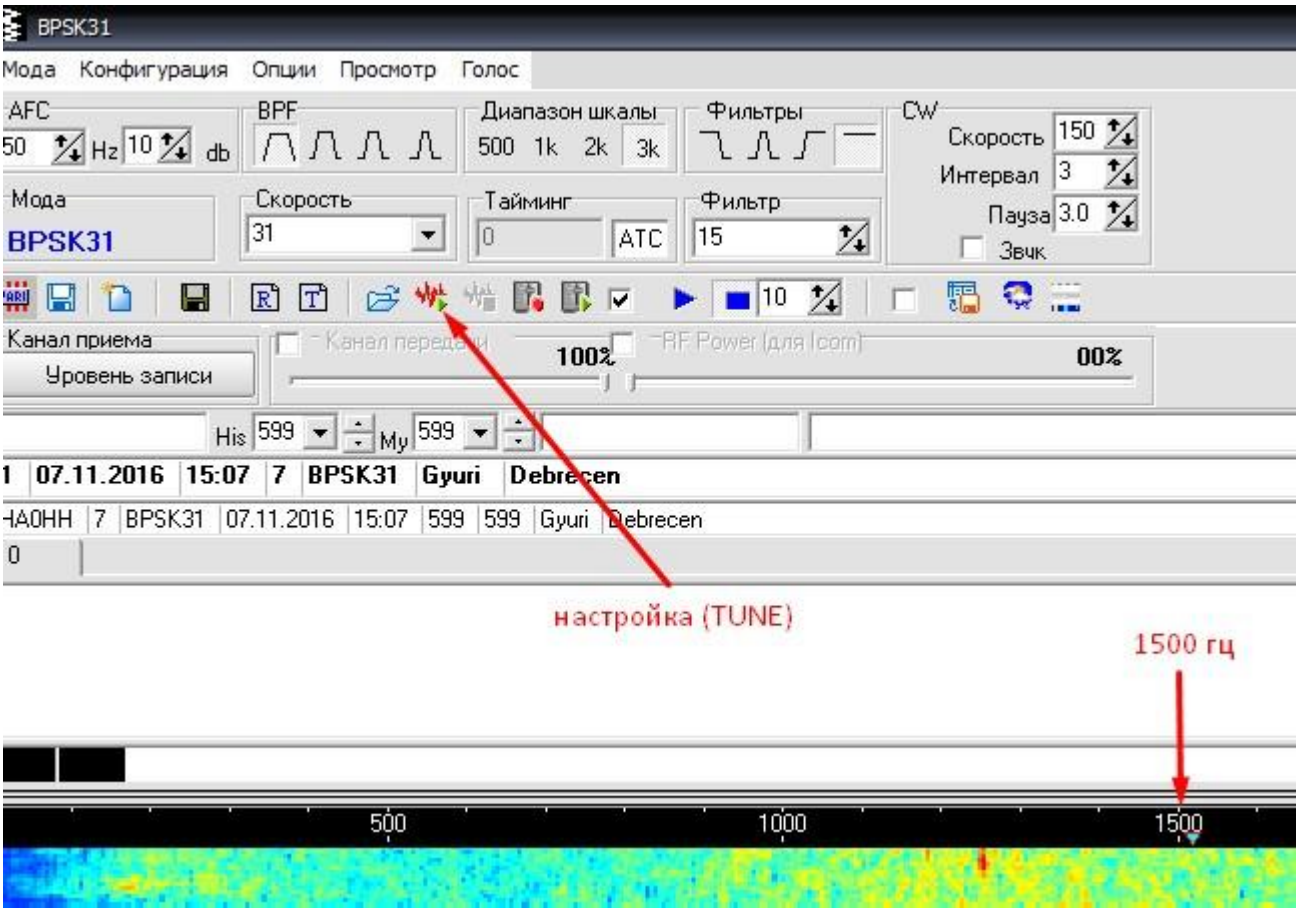
5. 

This item is designed specifically for the level of the signal from your computer sound card.

Connect the special cable from the transceiver to the input and output of your sound card.
Start your software for digital modes.
Adjust the volume slider of the sound card to the minimum. Setup in your the software in checkbox in the middle of the frequency of “waterfall”, usually it 1500 Hz. Press button “TUNE” gradually raising the volume slider, until you see the text on the transceiver display 



At this stage the level of the signal from your sound card to the input of the transceiver is completed.


BPSK31
Мода Конфигурация Опции Просмотр Голос
AFC
50 Hz 10 db
BPF
Диапазон шкалы
500 1k 2k 3k
Фильтры
CW
Скорость 150
Интервал 3
Пауза 3.0
Звчк
Мода
BPSK31
Скорость
31
Тайминг
0
ATC
Фильтр
15
10
Канал приема
Уровень записи
Канал передачи
RF Power (для Icom)
100%
00%
His 599
My 599
1 07.11.2016 15:07 7 BPSK31 Gyuri Debrecen
HA0HH 7 BPSK31 07.11.2016 15:07 599 599 Gyuri Debrecen
0
настройка (TUNE)
1500 гц
500
1000
1500

Connecting peripherals to the transceiver:

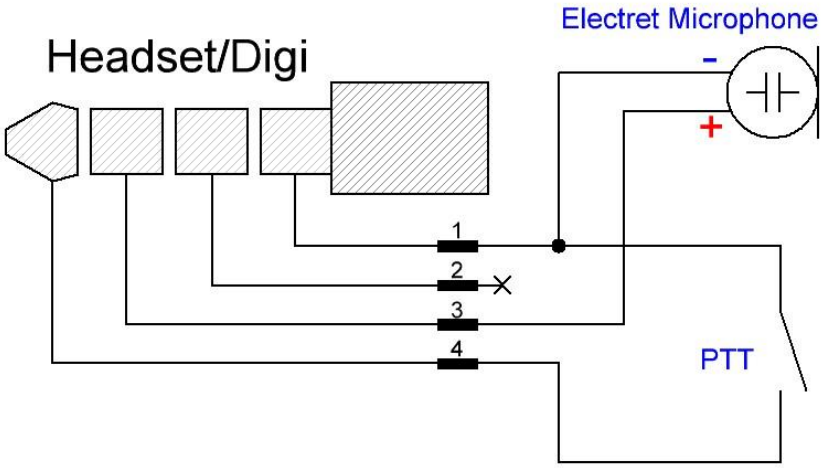
On the rear side of the transceiver are all the connectors for peripherals…
Microphones, headphones, sound card, telegraph key, antenna, power supply.

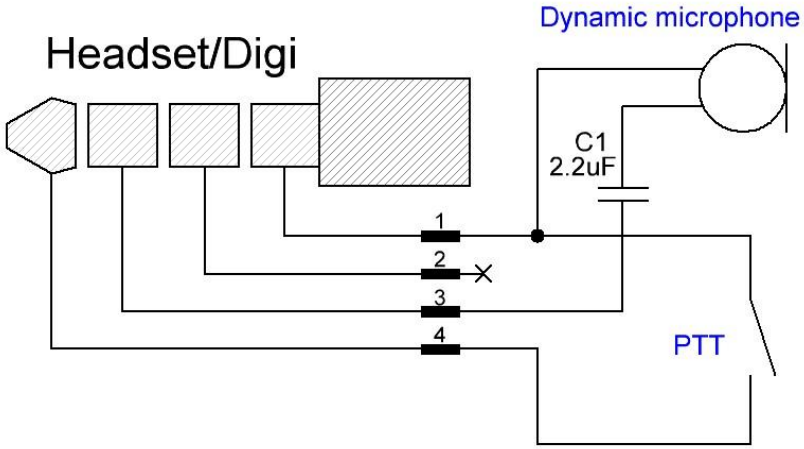
1. BNC type connector for connecting the antenna (50 ohms)
2. Four-socket 3.5 mm for connection to a computer or PTT
   (GND, PTT, MIC, Line Out)
3. Four-socket 3.5 mm for connection to a telegraph key
   (GND, PTT, Key-DE, Key-Dot)
4. Four-socket 3.5 mm for connection to a external speaker or headphones
5. Power connection 3.5 mm

Connector pinout:

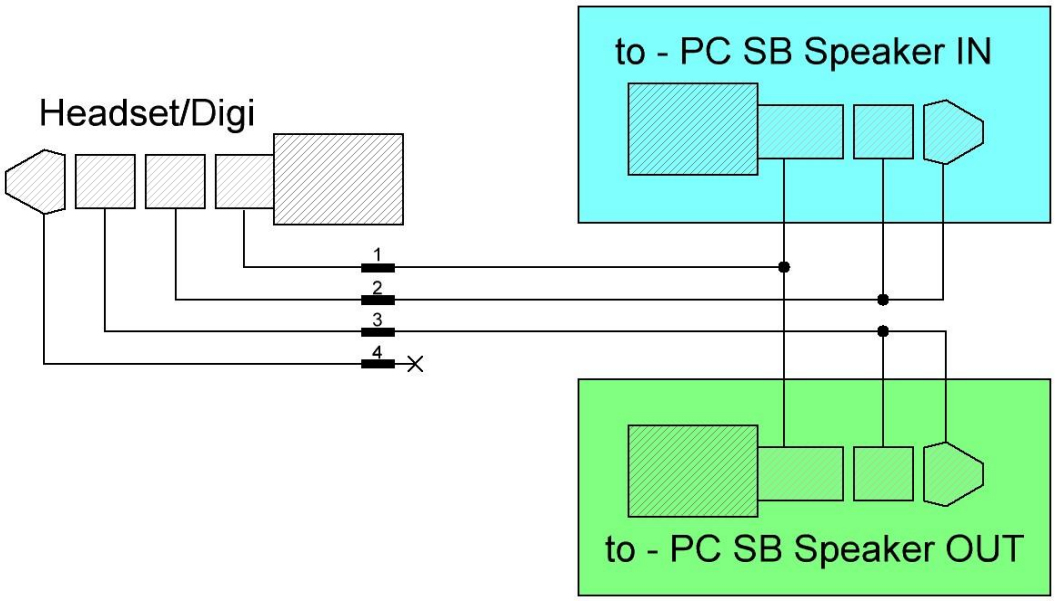
***Jack Headset/Digi(3.5 mm, 4pin Audio Jack)**:*

Connecting the PTT button and electret microphone



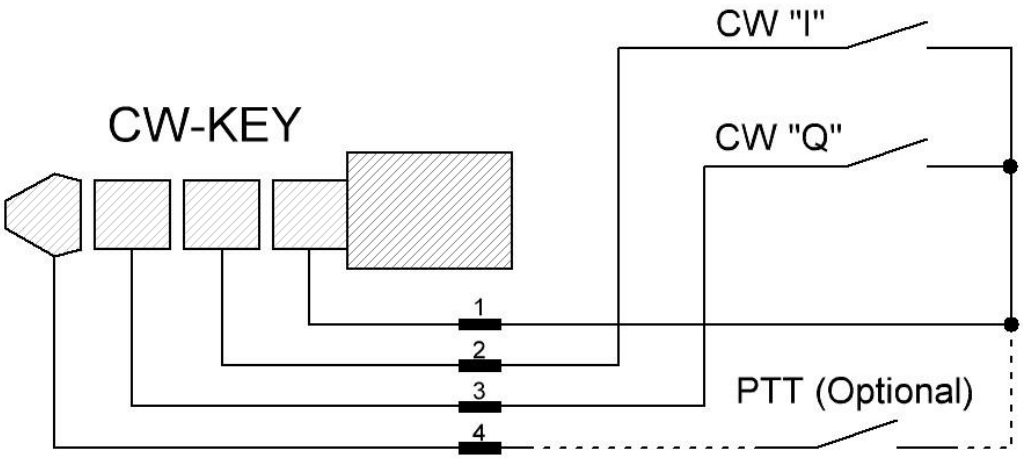


Connecting to a PC sound card



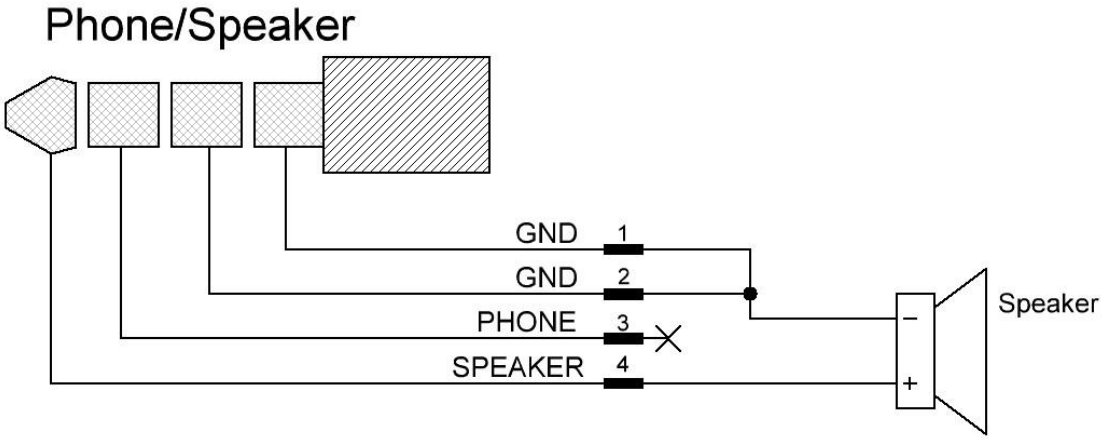
***Jack CW-KEY (3.5 mm, 4pin Audio Jack)**:*

*Connecting a telegraph key (In vertical mode, key contacts **de** and **dot** equivalent)*

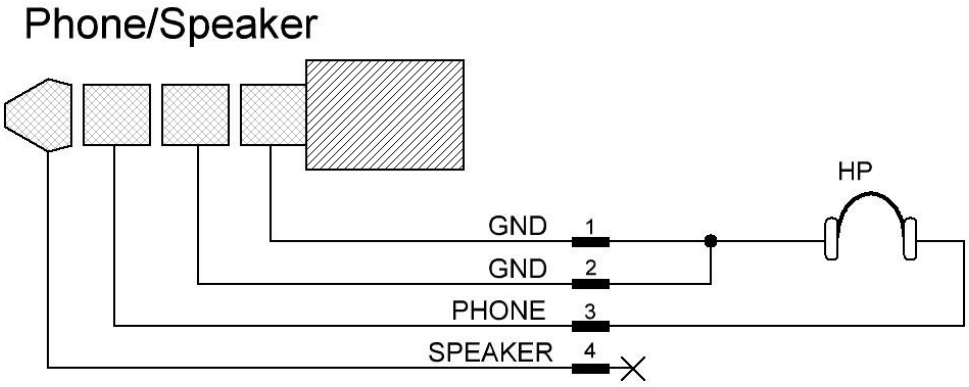


***Jack Phone-Speaket (3.5 mm, 4pin Audio Jack)**:*

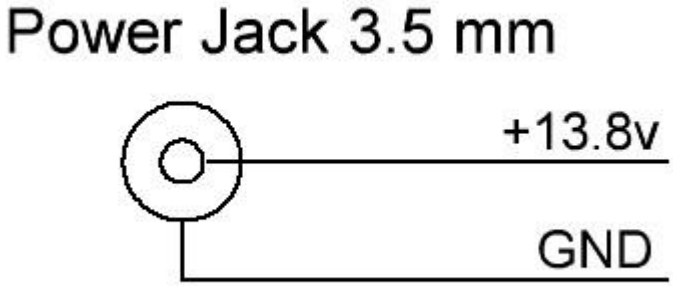
Connecting an external speaker (0.5-3w 8-32 Ohm)

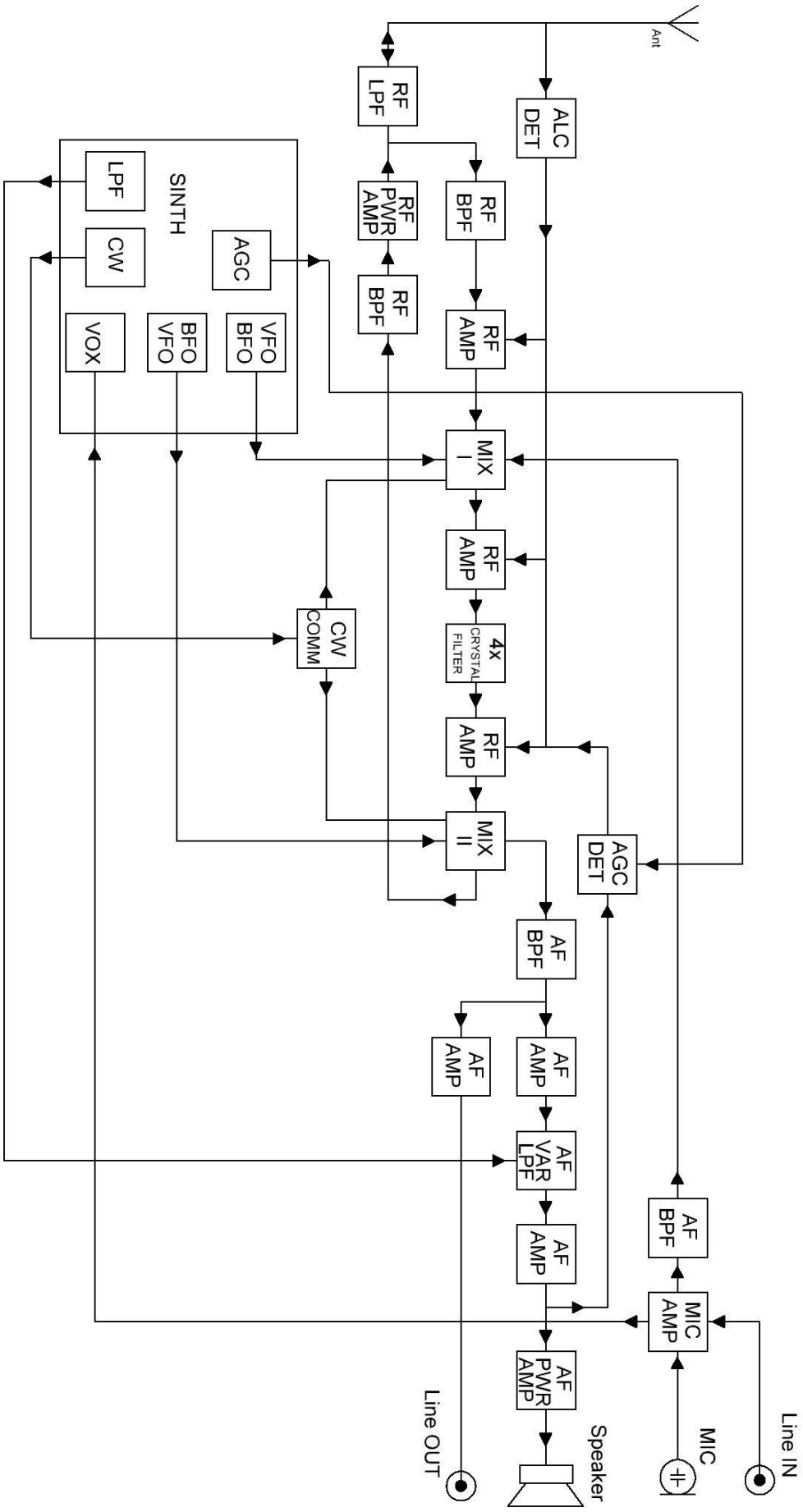


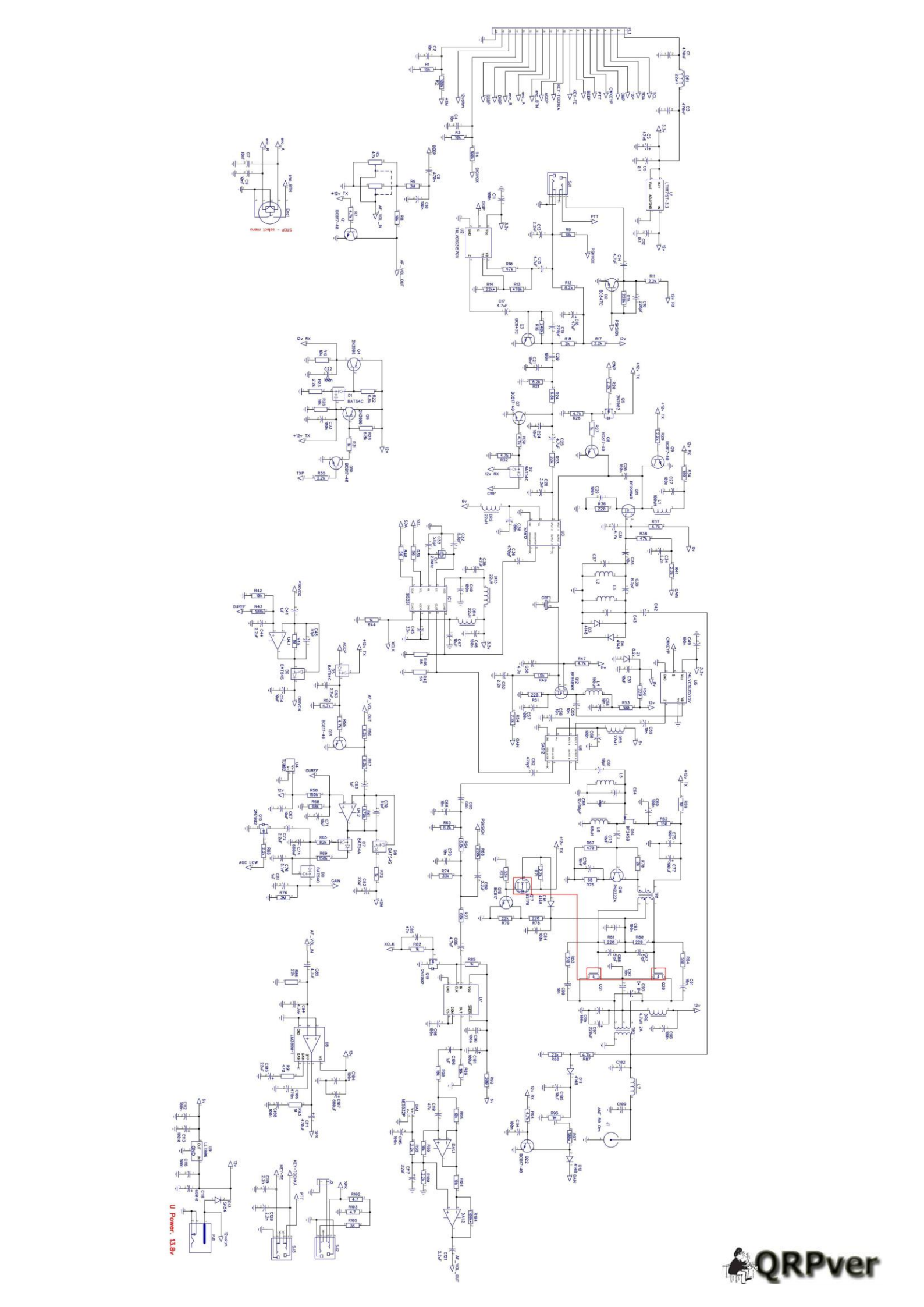
Connecting headphones (8-150 Ohm)

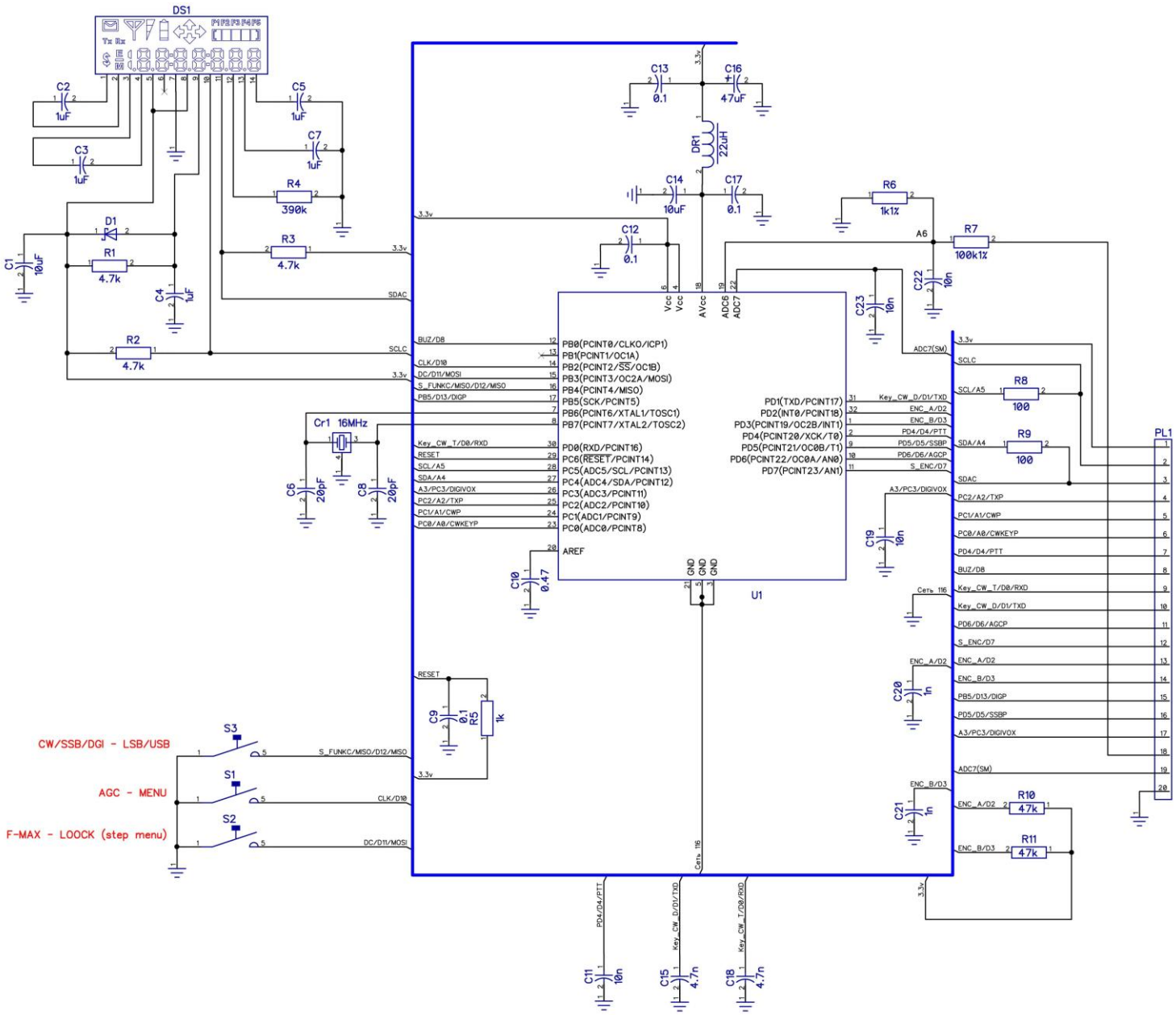


Jack POWER:




Ant
RF LPF
ALC DET
RF BPF
RF PWR AMP
RF BPF
RF AMP
SINTH
LPF
CW
VOX
AGC
BFO VFO
VFO BFO
MIX I
RF AMP
CW COMM
4x CRYSTAL FILTER
RF AMP
MIX II
AGC DET
AF BPF
AF AMP
AF AMP
AF VAR LPF
AF AMP
AF BPF
MIC AMP
AF PWR AMP
Line OUT
Speaker
MIC
Line IN


U Power, 13.8v
QRPver


DS1
C2
1uF
C3
1uF
C5
1uF
C7
1uF
R4
390k
D1
R1
4.7k
C1
10uF
C4
1uF
R3
4.7k
R2
4.7k
3.3v
SDAC
SCLC
CLK/D10
DC/D11/MOSI
S_FUNKC/MISO/D12/MISO
PB5/D13/DIGP
Cr1 16MHz
C6
20pF
C8
20pF
Key_CW_T/D0/RXD
RESET
SCL/A5
SDA/A4
A3/PC3/DIGIVOX
PC2/A2/TXP
PC1/A1/CWP
PC0/A0/CWKEYP
C10
0.47
AREF
C13
0.1
C16
47uF
DR1
22uH
C14
10uF
C17
0.1
C12
0.1
Vcc
Vcc
AVcc
ADC6
ADC7
PB0(PCINT0/CLKO/ICP1)
PB1(PCINT1/OC1A)
PB2(PCINT2/SS/OC1B)
PB3(PCINT3/OC2A/MOSI)
PB4(PCINT4/MISO)
PB5(SCK/PCINT5)
PB6(PCINT6/XTAL1/TOSC1)
PB7(PCINT7/XTAL2/TOSC2)
PD0(RXD/PCINT16)
PC6(RESET/PCINT14)
PC5(ADC5/SCL/PCINT13)
PC4(ADC4/SDA/PCINT12)
PC3(ADC3/PCINT11)
PC2(ADC2/PCINT10)
PC1(ADC1/PCINT9)
PC0(ADC0/PCINT8)
PD1(TXD/PCINT17)
PD2(INT0/PCINT18)
PD3(PCINT19/OC2B/INT1)
PD4(PCINT20/XCK/T0)
PD5(PCINT21/OC0B/T1)
PD6(PCINT22/OC0A/AN0)
PD7(PCINT23/AN1)
GND
GND
GND
U1
R6
1k1%
A6
R7
100k1%
C22
10n
C23
10n
ADC7(SM)
R8
100
R9
100
PD4/D4/PTT
BUZ/D8
Сеть 116
ENC_A/D2
ENC_B/D3
PD5/D5/SSBP
PD6/D6/AGCP
S_ENC/D7
C19
10n
C20
1n
C21
1n
R10
47k
R11
47k
PL1
RESET
C9
0.1
R5
1k
S3
CW/SSB/DGI - LSB/USB
S1
AGC - MENU
S2
F-MAX - LOOCK (step menu)
C11
10n
C15
4.7n
C18
4.7n

Notes:

The concept may be some differences from a specific device instance, that do not affect or impair its performance.

Contacts:

Web Sites: http://qrpver.com
E-mail: support@qrpver.com