

HF TRANSCEIVER

V1.0

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Foreword

First of all, please allow me, on behalf of our team, thank you for choosing X108 type HF transceiver. This is a small radio transceiver, we put it positioned as a portable model, you can pick up with one

hand. It can meet your daily basic needs, can be used as your QRP main models, the same is also suitable as a HAM's first entry-level HF transceiver.

This year, we greatly enhance product quality, from the exterior to the internal circuit design, each link hard to do, to seriously consider the needs of users, to enhance the user experience, excellent X108 is in such an environment, the birth of a great performance the small machines. We hope it will bring you a surprise, bring joy to use, bring a different feel. We also hope to prove that China-made trustworthy!

73

BG8HT
2014.08

One, the whole design specifications parameters

The basic parameters

Frequency range: Receive: 0.5 ~ 30MHz (Continuous)

Transmitting: All HF Amateur bands including WARC bands

Operating mode: SSB (J3E)

CW (A1A)

AM (A3E)

minimum frequency stepping: 1Hz

Antenna impedance: 50Ω

Operating temperature range: -10 °C ~ + 60 °C

Frequency stability: ± 1.5ppm @ Open the power about 1 minute, -10 °C ~ + 60 °C (Standard Edition)

± 0.5ppm @ Open the power about 1 minute, -10 °C ~ + 60 °C (TCXO-M, Matching)

Operating voltage: 12 ~ 14.5V DC

Current draw: Receiving: 600mA

Transmitting: 7.5A Max

Dimensions (mm): 120 * 45 * 180 (mm) [Does not include the Front and rear handles and the Knob etc bulge.]

Transmitter parameters

Transmitter power:

Modulation mode: SSB balanced modulation:

AM Low level modulation

Spurious response rejection: ≥40dBc

Carrier suppression: ≥45dBc

IF filter: SSB 2.4kHz (-6dB)

CW 500Hz (-6dB)

Receiving parameters

IF Frequency: 10.7MHz

receive sensitivity: 0.2uV

Receive Frequency bands: 1.8 ~ 2.0MHz

3.5 ~ 4.0MHz

5.0 ~ 5.5MHz

7.0 ~ 7.3MHz

10.0 ~ 10.2MHz

14.0 ~ 14.5MHz

18.0 ~ 18.2MHz

21.0 ~ 21.6MHz

24.8 ~ 25.0MHz

28.0 ~ 28.8MHz

0.5 ~ 30.0MHz (*)

Dynamic range: Better than 95db

RIT Frequency control range: \pm 1kHz

audio output: 0.5W @ 8 Ω

Two, Description of equipment

2.1 Front panel Description

2.2 Rear panel Description

- 1 Antenna Interface
- 2 external audio input / PTT Interface
- 3 audio output interface
- 4 manual / automatic telegraph key interface
5. USB communication port
- 6 DC Power Interface
- 7 Ground

2.3 Key Description microphone in hand

- 1 CLOCK lock button
- 2 PTT button
- 3 Up / Down
- 4 receiving indicator
- 5 multi-function keypad
- 6 FIL filter selection buttons
- 7 MODE mode selection button
- 8 function indicator
- 9 function keys
- 10 MW button
- 11 V / M switch button
- 12 XFC button
- 13 CALL button

Three equipment operating instructions

3.1 Description screen displays information

- 1
- 2
- 3

- 4

A preamplifier / pre-fader current state

2, currently set frequency information

3, the current VFO status, operating mode, the filter bandwidth, different frequency transceiver status, NB status

4, CW telegraph key hand / self status, automatic key rate information

5678

5, the channel information

6, voice compression ratio / host input voltage

7, local time

8, multifunction menu

913

10

11

12

9, the reception field strengths

10, real-time power meter

11, the power set value 1415

12, firing standing table

13, send and receive status display

14, frequency tuning display
15, AGC status display

3.2 multifunction screen menu instructions

[PRE] preamp on / off
[ATT] pre-fader on / off
[MODE] work mode selection, USB - LSB - CW - AM
[AGC] AGC on / rate selection
[NB] noise suppressor on / control the depth of selection

[A / B] VFOA / VFOB switch
[A = B] will be set consistent with VFOA VFOB of
[SPLT]-frequency transceiver mode on / off
[RIT] frequency tuning on / off
[POW] transmit power setting

[V / M] Frequency Mode / Channel mode switching

[M> V] will set the parameters given the current channel current frequency mode

[MW] The current frequency mode setting parameters are stored into the channel

[MC] clear the current channel settings

[BW] filter bandwidth selection

[KEY] CW telegraph key manual / automatic telegraph key mode selection

[KSPD] key rate is set automatically (after the speed must be set in order to use the automatic key function)

[TIME] clock settings

[SQL] squelch settings

[VCMP Voice compression settings

3.3 Functions Operating Instructions

3.3.1 Set the current operating frequency

Method 1: Press the front panel UP / DN button, move to the desired frequency step-bit bit, then rotate the frequency knob to change the current frequency value.

Method 2: On the multifunction digital microphone in hand, press

This button, and then enter the frequency directly, such as: 14.27, then press the F-INP ENT button again to complete the frequency settings.

3.3.2 Mode Switching

Method 1: Press the frequency knob to switch the current menu page, then press MODE corresponding multifunction button, complete mode.

Method 2: In the multi-purpose microphone in hand, press

This button to complete the mode switching.

3.3.3 filter switching

Method 1: Press the frequency knob to switch the current menu page, then press the multi-function button corresponding BW complete filter switching.

Method 2: In the multi-purpose microphone in hand, press

This button, complete filter switching.

3.3.4 preamp on / off

Press the frequency knob, switch to [PRE] where the menu page, and then press the corresponding function key, you can open PRE preamplifier, while the screen corresponding character will be highlighted in green.

This button is pressed again, the preamplifier off, while the screen corresponding character will appear as dark.

3.3.5 pre-fader on / off

Press the frequency knob, switch to the [ATT] where the menu page, and then press the corresponding function key, you can open the ATT pre-fader, while the screen corresponding character will be highlighted in green.

This button is pressed again, the closed pre-fader, while the screen corresponding character will appear as dark.

When the pre-fader open, providing 10dB of attenuation.

3.3.6 AGC AGC on / off

Press the frequency knob, switch to the [AGC] where the menu page, and then press the corresponding function key, you can open the AGC AGC functions, and optional FAST or SLOW AGC rate while the corresponding area of the screen displays the current status of AGC .

Press this button again to close the AGC.

3.3.7 NB pulse interference suppressors on / off

Press the frequency knob, switch to the [NB] where the menu page, and then press the corresponding function key, you can open the NB function, and optional NB control the depth of NB1 ~ NB4, while the corresponding region of the screen will show the current AGC status:

3.3.8 VFOA / VFOB switch

Press the frequency knob, switch to the [A / B] where the menu page, and then press the corresponding function key, you can toggle between VFOA and VFOB.

3.3.9 The two VFO is set to the same settings

Press the frequency knob, switch to the [A = B] where the menu page, and then press the corresponding function key, you can set the VFOB with VFOA same parameters.

3.3.10 open-frequency transceiver mode

Press the frequency knob, switch to [SPLT] where the menu page, and then press the corresponding function key, you can open different frequency transceiver mode. In this case, the host will choose VFOA frequency of the received frequency, when the PTT is pressed, it will select VFOB frequency of transmission frequency.

3.3.11 frequency tuning settings

Press the frequency knob, switch to the [RIT] where the menu page, and then press the corresponding function key, you can open frequency tuning function. At this point, turn the frequency knob to change the frequency tuning of the value and role of the receiver to the current. When you press the function key again to exit frequency tuning mode, and will fine-tune the value to zero.

3.3.12 transmit power setting

Press the frequency knob, switch to [POW] where the menu page, and then press the corresponding function key, you can enter the transmit power settings. At this point, the power setting of the on-screen status Ps will be highlighted, turn the frequency knob to change the transmit power value. Press the function key again to save the current settings and exit this power.

3.3.13 Frequency Mode / Channel mode switching

Press the frequency knob, switch to the [V / M] where the menu page, and then press the corresponding function key to move between frequency mode and channel modes.

3.3.14 will read out the current channel data to the frequency mode

In channel mode, press the frequency knob, switch to [M> V] where the menu page, and then press the corresponding function key, you can store the relevant information about the current channel and switch to reading frequency mode.

3.3.15 store the current settings to the channel

In frequency mode, press the frequency knob, switch to the [V / M] where the menu page, and then press the corresponding function key to switch to the channel mode, turn the frequency knob to select an empty channel, this time, the top of the screen "BLANK "character will be highlighted. Press again [V / M] button to return to the frequency mode, set the frequency, operating mode and other information, and press [MW] button, you can complete storage.

3.3.16 delete the current channel

In channel mode, press the frequency knob, switch to [MC] where the menu page, and then press the corresponding function key, you can clear the information stored in the current channel.

3.3.17 manual / automatic telegraph key switch

Press the frequency knob, switch to the [KEY] where the menu page, and then press the corresponding function key, ie manual telegraph key, automatic _ left telegraph key, switch between automatic _ right telegraph key.

3.3.18 Automatic key rate setting

Press the frequency knob, switch to [KSPD] where the menu page, and then press the corresponding function key, turn the frequency knob to set the automatic key rate.

3.3.19 Set the local time

Press the frequency knob, switch to the [TIME] where the menu page, and then press the corresponding function key, microphone set the local time by hand.

3.3.20 Setting SQL Squelch

Press the frequency knob, switch to the [SQL] where the menu page, and then press the corresponding function key, turn the frequency knob to set the SQL squelch depth. Press this button again to save the squelch setting and exit.

3.3.21 Set the voice compression ratio

Press the frequency knob, switch to [VCMP] where the menu page, and then press the corresponding function key, select the appropriate voice compression ratio.

3.4 expansion interface connector

[AUX] external audio input, external expansion board interface

[SPK] External loudspeaker connector

This is the speaker output, before connecting headphones, be sure to turn down the volume.

[KEYER] telegraph key interface

Telegraph key interface for hand / from one interface, the connection as shown.

Manual / automatic telegraph key function in the corresponding menu to switch.

[USB] USB interface

The USB port can be connected to control the PC side, the new firmware can also be updated.

[DC IN] Power Interface

Power socket polarity as shown

[Cap] Ground

Note: The power input range of 11 ~ 14.5V

Do not reverse the power!

[Ground] Ground screw holes

After grounding the housing can improve reception.

3.5 Advanced menu settings

! Note:

You are about to operate this machine's advanced engineering menu. This menu is directly related to the operation of the machine, please exercise caution.

If operational needs, the recommended action before all of the data within the menu to do a backup, to prepare for contingencies.

In shutdown mode, press and hold the F1 key to boot (be careful not to loosen) until the screen displays data engineering menu, as follows:

- 1, IF SSB: SSB IF
- 2, IF CW: CW IF
- 3, BFO LSB: BFO value LSB mode
- 4, BFO USB: BFO value USB mode
- 5, BFO CW: BFO value of the CW mode
- 6, CW Tone: CW side tone pitch frequency adjustment
- 7, CW TDly: CW launch delay
- 8, TOT:

- 9, Britns:
- 10, Cntrst
- 11, DDSCLK: System Clock
- 12, DCLKx6: DDS multiplier settings

For an exact match, crystal filters for each machine are precisely measured and entered into the system settings, so we can guarantee the filtering properties of each device is excellent. So, the first parameter 1 to item 5, can not be freely modified, otherwise it will lead to abnormal transceiver, serious or even not work.

Item 6, for CW transceiver side tone pitch adjustment. Users can according to their preferences and habits, adjust CW side tone. This adjustment data transceivers are valid.

Item 7, for CW transceiver delay. Users can operate according to their own habits, appropriate modifications this parameter to match the transmitter speed.

Fourth, the kit assembly

X108 kit form for large users simply alignment, you can feel the X108's excellent performance. Before assembly, please read this section alignment instructions, just follow the steps to install, can be a success.

4.1 Preparations

Before installing, make an inventory of items, confirm complete:

X108 master movement (bottom transition plate has been installed installed) 1

X108 fuselage 1

The front panel (already installed lens) 1

The rear panel (already installed antenna socket) 1

Silicone keys 6

Volume knob (small) 1

Frequency knob (large, with a rubber ring) 1

Hand tighten the screws a

M3 * 14 hex screws 8

M3 * 5 countersunk head screws 5

M3 * 26 copper stud 4

M3 * 8 head screw 4

Front and rear handle 4
Within T1.5 hex wrench 1
Within T2.5 hex wrench 1
Thermal Grease a bag
Phillips screwdriver 1 (bring your own)
Lens cloth 1 (own)

4.2 assembly process

Before installing, please understand the assembly process, as follows:

Apply thermal grease the bottom of the movement ----- the movement pushed into the housing bottom screws fastening the cabinet ----- card into the power outlet front panel mounted panel ----- Rear panel installation silicone keys ----- check the appearance of the front panel installation ----- install two knobs to tighten all the screws at the bottom of the remaining ----- complete installation

The first step, the bottom of the movement applied thermal grease

The second step, is pushed into the inside of the casing type

The third step is part of the screws, tighten the bottom of the chassis

The fourth step, the power socket snap into the rear panel

The fifth step, installing the rear panel

The sixth step, into the silicone keys

Seventh step, install the front panel

The eighth step, check the appearance of the

The ninth step, the installation of two knobs

The tenth step, the pan all the remaining screw fastening

Congratulations, you have completed the X108 assembly, you can begin to experience the magic of HF communication

Five general troubleshooting

The following table lists the equipment troubleshooting method general issues, such as still unable to eliminate equipment failures, please contact us and Depot Repair, do not own openings, in order to avoid failure to expand.

Symptom

The reason

Workaround

Does not boot

Power cord not connected

Connect the power cord

Power is not turned on

Turn on the power

Power cord is bad

Replacement (repair) power line

Anti-power plug

Depot Repair

No reception

Antenna Missed

Connect the antenna

Antenna failure

Replacement (repair) Antenna

No spread

Make sure that the current wave propagation characteristics

Other

Depot Repair

No launch
Antenna Missed
Connect the antenna

Supply voltage is low
Please replace the power

Power shortage
Please replace the power

Large antenna VSWR
Please check the antenna

Incorrect operating mode
Please select the correct operating mode

Other
Depot Repair
No display screen
Power cord not connected
Connect the power cord

Not boot
Normal boot

Other
Depot Repair
Equipment smell

Depot Repair
Hand microphone operation exception
Not good PTT interface into the machine
Re-plug the microphone in hand

Please confirm the current frequency band is not prohibited launch
Re-set frequency

No response buttons
Re-plug the microphone in hand