

HT-1A Dual Band CW QRP Transceiver

User Manual

Rev B, June 24, 2018

Designed by **BD4RG**

Exclusively distributed by **CRKITS.COM** and its worldwide distributors

Join the group <http://groups.io/g/crkits> to get help or share experience with other users



Specifications

Chassis Dimensions	110 x 59 x 104 mm (not including protruding parts like knobs)
Weight	About 400 grams
Power supply	9-15 V DC
Current consumption	
During RX	About 60 mA when backlight is on, about 45 mA when backlight is off
During TX	About 0.8 A (@ 12 V)
Frequency Range	
RX	5.9-16 MHz continuous (peak sensitivity only in 40 m and 20 m bands)
TX	7.0-7.2 MHz, and 14.0-14.35 MHz
Local oscillator	DDS, reference frequency 54 MHz
Display	LCD
RF output power	About 5 W (@ 12V)
Side tone	500, 600 or 700 Hz selectable, default to 600 Hz
Keyer	Built in, 5-40 wpm adjustable
Memory	16 memories, user programmable
RX mode	CW, SSB (LSB only if it is below 10 MHz, and USB only if it is equal or above 10 MHz)
AGC	Audio derived AGC with S-meter to show relative strength just for reference
QSK	Full break-in

Radio Connections

External Power Supply

You can connect any 9-15 V DC power supply or battery pack through DC In jack, center positive. The radio has internal power supply polarization protection to avoid damage.

Built-in Battery

The main board has reserved a connector for built-in battery pack, and you can connect rechargeable Li-ion or other type of battery packs of about 12 V.

Warning: If you have installed rechargeable battery pack, the DC In jack only can be used for specific charger now, no longer for external power supply.

Headphone

Connect a stereo headphone (impedance 8~32 ohms) to the PHONE jack.

Antenna

You can directly connect any resonant antenna to the BNC type antenna connector. Use antenna tuner for other antennas not resonant.

Key

You can connect hand key or paddle to the KEY/PADDLE jack. HT-1A can automatically detect paddle or hand key if you wire keys as below. The radio will automatically detect when it is powered on. The LCD will show Paddle or Hand Key. (To enable hand key, only plug in key BEFORE the radio power on.)



Paddle: Dit
Hand Key: Key

Paddle: Dah
Hand Key: Ground

Paddle: Ground
Hand Key: Ground



3.5 mm stereo connector

Radio Operations

Power Supply and Gain Control

The small knob on the left side of the front panel is the Gain control. The power switch is located at the bottom right corner.

Tuning Knob

The big knob on the right side of the front panel is the Tuning knob. In memory mode, turning the knob to change memory channels, and in VFO mode, turning the knob to change operating frequency.

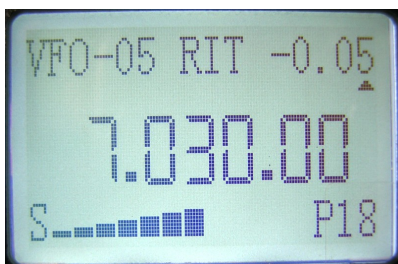
M/V/SAV Button



Tap this button to switch between memory and VFO modes and the top left corner of the LCD will show MEM-** or VFO-** respectively (** is a decimal number between 01 and 16).

Press and hold M/V/SAV button for more than 2 sec, and it will save the current frequency and mode into the current memory, and the LCD will show Sav-**. The default frequency and mode at radio power on is the last saved frequency and mode.

R/T/SPD Button



Tap this button to enter or exit RIT and XIT. The LCD will show RIT or XIT and the trimming value. To switch between RIT and XIT, tap the Tuning knob button during trimming mode.

Turning the Tuning knob will trim RX or TX frequencies. RIT step is 10 Hz and XIT step is 100 Hz.



Press and hold R/T/SPD button for more than 2 sec and it will enter keyer speed setup mode. The bottom right corner of the LCD will show an arrow of up and down. At this time, release the button and turn the Tuning knob will change speed. Tap R/T/SPD button to exit speed setup mode and save the new speed. (This function is not available for hand key.)

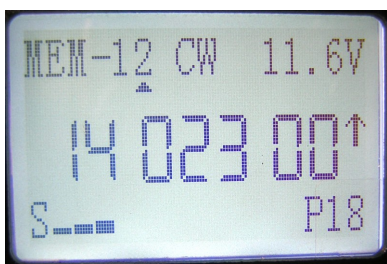
If you keep holding the button after entering keyer speed setup mode for another 1 sec, it will change MODE to switch between CW and SSB.

Change Tuning Step



Tap Tuning knob and it will switch tuning step among 10 Hz, 100 Hz, 1 kHz and 100 kHz. The small arrow on the LCD will show the current tuning step. This function is only valid in VFO mode, not for MEM.

Auto Scan Mode



In MEM mode, press and hold the Tuning knob for more than 2 sec and it will enter memory auto scan mode, and it will scan the 16 memorized channels. During the scan, tap M/V/SAV button or R/T/SPD button and it will change scan direction. In VFO mode, press and hold the Tuning knob for more than 2 sec and it will enter frequency auto scan mode, during the scan, tap M/V/SAV button or R/T/SPD button and it will change scan direction. There are two scan steps 10 Hz and 100 Hz, and you can choose by tapping the Tuning knob button. The LCD will show scan direction. Press and hold the Tuning knob again for more than 2 sec and it will exit the auto scan mode.

Select Backlight Mode



Press and hold both M/V/SAV and R/T/SPD buttons for more than 2 sec and it will enter backlight setup mode. Now turn the Tuning knob and it will change backlight setting. There are 3 settings available: ON means always on, OFF means always off, and AUTO means it will be on for about 10 sec then auto turn off if there is no operation of the buttons and Tuning knob, and it will be on automatically if you operate the buttons and Tuning knobs again. Press and hold both M/V/SAV and R/T/SPD buttons again for more than 2 sec and it will exit backlight setup mode.

Select Side Tone

The default side tone is 600 Hz. You can change the side tone to your preference like this:

Press and hold **R/T/SPD** key and then power on, after the splash screen, the screen will show the current side tone. Now release **R/T/SPD** key, and tap it again to select among 500, 600 and 700 Hz. Tap **M/V/SAV** key to confirm the selection and exit. Note: You will need to open the case to adjust C16 to keep the received tone same as the side tone.



Transmission



Valid frequency range for transmission: 7.0-7.2MHz and 14.0-14.35MHz. The red LED on the top of the Tuning knob will be on during keying.

Other frequencies are not permitted to transmit (LED will not be on), but side tone can be heard, so you can use it for practicing.

Alignment for kit only

On the main board, there are 2 variable inductors L3 and L4 and 2 trimmer capacitors C3 and C16. L3 and L4 are used to peak receiver sensitivity of 20 meter band, and trimmer capacitor C3 is used to peak sensitivity of 40 meter band. Trimmer capacitor C16 is used to adjust beat frequency to about 600 Hz.

On the display PCB, the trimmer resistor [VR1](#) is used to calibrate the display of the power supply voltage. You can adjust it if you see tolerance.

To know more detail about kit building and modifications, see another document [HT-1A Kit Building Instructions](#).

Modification warnings

Warning: It is at your own risk if you modify the transceiver and it will void the warranty if something goes wrong. The speaker connector on the main board is not directly for connecting the built-in speaker, instead it is used to connect the audio amplifier board. The battery connector on the main board is not protected against short circuit or over charging or over discharging.