

Ultimate QRSS kit

Written by Hans Summers

Tuesday, 29 May 2012 22:59 - Last Updated Thursday, 11 July 2013 12:39

The ultimate QRSS Transmitter Kit is produced by Steve G0XAR and Hans G0UPL in **30, 40, 80 and 160m versions**

The price is 15.39 GBP + shipping. This is approximately 19 EUR or 24 USD.

To order: [PLEASE VISIT THE SHOP](#)

Instructions

[DOWNLOAD KIT INSTRUCTIONS BY CLICKING HERE](#) - printed instructions are not supplied with the kit.

[SPANISH KIT INSTRUCTIONS v1.04 CLICK HERE](#) - many thanks to Luis EA2COA who generously spent a lot of his time translating the instructions into Spanish.

[Firmware Version History](#) - please [CLICK HERE](#)

The kit supports the following modes:

- QRSS mode (plain on/off keyed slow CW)

- FSK/CW mode (frequency shift keyed slow CW)

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- DFCW mode (dual frequency CW)

- WSPR mode (Weak Signal Propagation Reporter)

- Slow-Hellschreiber (frequency shifted slow-Hell)

- Full-speed Hellschreiber

- Half-speed ("DX") Hellschreiber

- CW (plain CW)

- Customisable FSK patterns

Other features:

- 24-character LCD + two-button user interface

- User-programmable (callsign, message, speed, FSK, mode, etc.), settings stored in EEPROM

- GPS interface, for locking the frequency in slow-speed modes

- On-chip generation of WSPR encoded message (no PC required)

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- WSPR maidenhead locator can be generated from GPS-derived latitude/longitude

- Selectable "frame" size, for stacked QRSS reception

- Plain CW callsign identifier at selectable interval

- Produces 150mW RF output, or AF output for driving an SSB transceiver

- Higher output power by additional PA transistor and/or higher PA supply voltage

The kit contains the PCB, LCD, programmed microcontroller and all board-mounted components. Download the instruction manual using the link above. The PCB is quite compact and moderate care is required in the construction. A rich array of functionality is provided by the design; please read the instruction manual to understand the facilities provided. Builder modifications will be shown on this page as they are developed!

Note for WSPR users: the 30m kit has a 10.140MHz crystal which is suitable for either the QRSS sub-band or the WSPR frequency. Therefore on 30m the kit can be used as a standalone WSPR transmitter. On other bands you may need to supply a suitable crystal for the WSPR frequency on that band. Alternatively you could use this kit in the AF output mode, fed into a conventional SSB transmitter set to the frequency of your choice.

Kit photos (click for larger versions):

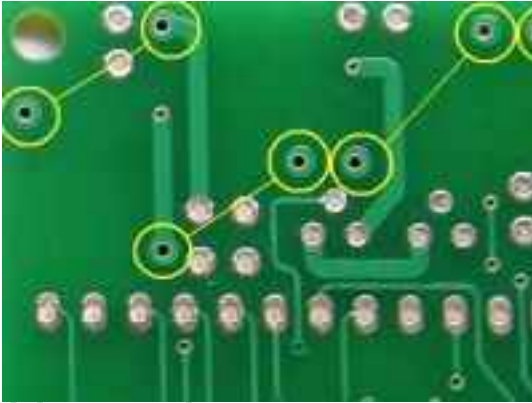
{gallery}qrsskitmm/1{/gallery}

Updates

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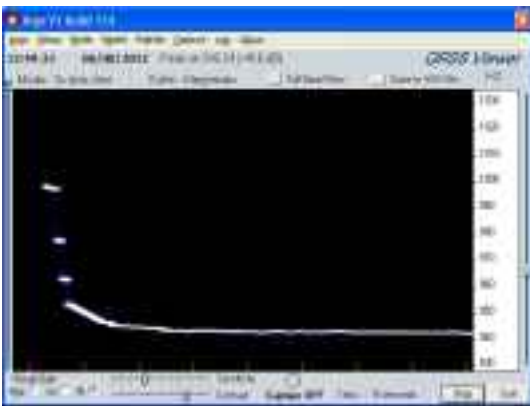
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Solder mask error

The PCB has an error, where solder-mask is incorrectly applied to the toroid pads. This is easy to scrap

[Read more...](#)



GPS Notes

Here are some notes about which GPS module to use, what to consider when purchasing a GPS modul

[Read more...](#)

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Right-angled LCD mounting

[Ben W6RZ](#) sent photos and an explanation of how to connect the LCD at right-angles to the PCB, con



LCD connection method of Mike G8NXD

[Mike G8NXD](#) had problems soldering the LCD pins to connect wires, and describes his solution.



LCD connection method of David G8OQW

[David G8OQW](#) describes an elegant display connection solution using a ribbon cable connector.



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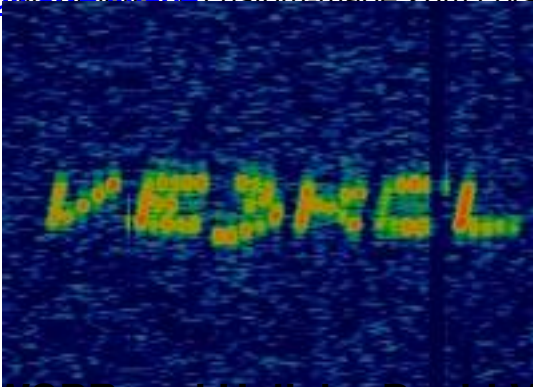
One night's 30m WSPR operating, by Tony G0BZB

[Full size image](#) of operating 30m WSPR using the bare kit gave plenty of WSPR hits for Tony G0BZB (09



One night's 20m WSPR operating, by Philip G4JVF

[Full size image](#) custom-made 20m crystal from QuartzlabUK (costing more than the kit price!) with the k



WSPR and Hell, by David VE3KCL in Toronto

[Full size image](#), operates [W1HBK Toronto EN04](#) and [700 kHz station](#). (David uses two BS170's with heatsink,

Kit version history:

Version	Date	Features
v1.00	19.May.2012	- Original kit firmware version
v1.01	23.Jun.2012	- Bug fix: to the "Frame" parameter (beacon can so
- Lowered the minimum frequency from 1,000,000 Hz to 450,000 Hz		
v1.02	22.Jul.2012	- Bug fix: correcting the operation of the on/off key
v1.03	31.Jul.2012	- Bug fix (cosmetic only): baud rate setting so it on
- Bug fix (cosmetic only): "frame" mode, waiting display was incorrect		
- Improved GPS stabilisation algorithm		
- Added ability to use different cursor types on the display		
v1.04	07.Aug.2012	- Bug fix: correcting the conversion of GPS latitude
v1.05	28.Aug.2012	- Bug fix: When "Start" is non-zero, it always trans
- Removed the restriction on zero "FSK (Hz)" parameter		
- Output a high signal on connector F0 when the GPS is enabled and the frequency is locked		
- Now a space character in a custom message turns off the carrier		
- New TEST2 mode cycles the frequency range in 128 frequency steps.		
v1.06	23.Sep.2012	- New "Reset to factory" feature

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- Output a high signal on connector pin F2 while transmitting a frame.

v1.07

12.Oct.2012

- Ignore any invalidly decoded GPS locator (no no

- Bug fix: rare Latitude/Longitude to Maidenhead locator conversion problem.

v1.08

01.Jul.2013

- Bug fix: after GPS fix, waiting time might not be r