{gallery}ultimate3/0{/gallery}

The Ultimate3S QRSS/WSPR Transmitter Kit is the new edition of the third version in the "Ultimate" QR

The price is USD $29.00. To order please visit QRP Labs .

The U3S kit was launched in January 2015. It is the new edition of the earlier U3 kit produced from November 2013 to December 2014. The U3S uses an Si5351A frequency synthesiser kit rather than the pre-built AD9850 DDS kit used in the earlier U3 kit . The AD9850 DDS kit prices are rising and they are becoming less easily available. The Si5351A frequency synthesiser kit was developed to ensure continued low cost of the Ultimate QRSS/WSPR kit series.

Please also see the original version Ultimate QRSS kit and Ultimate2 QRSS kit pages, and the earlier U3 kit page to appreciate the heritage. Much of the information in these earlier pages is still relevant and informative.

The Ultimate3S QRSS/WSPR transmitter kit includes an Si5351A synthesiser module kit and plug-in low pass filter modules which are also available separately for bands from 2200m to 6m. The kit can transmit on any frequency from the amateur 2200m (137kHz) to 2m (145MHz) bands. Changing bands is a matter of plugging in the appropriate low pass filter kit to attenuate unwanted harmonic output. The relay-switched LPF kit may be used to automatically switch between up to 6 different bands.

**The kit supports the following modes:**

- QRSS mode (plain on/off keyed slow CW)
- FSK/CW mode (frequency shift keyed slow CW)
- DFCW mode (dual frequency CW)
- WSPR mode (Weak Signal Propagation Reporter)
- WSPR-15 experimental WSPR mode with 15-minute frames
- Opera modes (8 speeds)
- PI4 beacon mode
- Slow-Hellschreiber (frequency shifted slow-Hell)
- Full-speed Hellshreiber
- Half-speed ("DX") Hellshreiber
- CW (plain CW)
- FSK (0-999Hz shift, fast-speed FSK CW)
- Customisable FSK patterns
- manually-keyed CW/FSK transmitter

**Other features:**

- Si5351A synthesised output frequency (no SMD soldering!)
- Plug-in low pass filter boards (available for 10 HF and 2 LF bands)
- 2-row by 16-character blue back-lit LCD + two-button user interface
- User-programmable settings stored in EEPROM
- GPS interface, for frequency lock, timing and location information
- On-chip generation of WSPR encoded message (no PC required)
- WSPR maidenhead locator from GPS-derived latitude/longitude
- Selectable “frame” size, for stacked QRSS reception
- Plain CW callsign identifier at selectable interval
- Produces 250mW RF output on 30m (lower output on higher bands)
- Higher power with more PA transistors and/or higher PA supply voltage

# Instructions

**Printed** [illegible] manual and the Low Pa

Many thanks Toru JG1EIQ for the Japanese translation. Toru also translated the v3.07 operating manua

firmware page

Assembly instructions PCB rev 1 click here!

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|---|---|---|
| Assembly JAPANESE | Japanese translation | click here! |

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|---|---|---|
| Operating manual | Download from firmware page (Japanese version also available)! | |
| Si5351A manual | Si5351 Assembly: download here! | |
| Low pass filter kit | Download from page here | ! |

Version upgrades can be purchased at QRP Labs or you can upgrade your own firmware using the .hex and .eep files from the Yahoo forum.

**Firmware Version History** - please **CLICK HERE**

The kit contains the PCB, back-lit blue LCD, programmed microcontroller and all board-mounted components. It also includes the separate Si5351A synth kit and a LPF kit for one band of your choice. Download the instruction manuals using the link above. The PCB is quite compact and care is required in the construction. A rich array of functionality is provided by the design; please read the instruction manuals to understand the facilities provided. Builder modifications will be shown on this page as they are developed!

Dimensions: the LCD module is 80mm x 36mm. The main board is 80 x 37mm.

## Kit photos (click for larger versions):

{gallery}ultimate3/1{/gallery}

More photos...

These photos show a working U3, complete with attached relay-switched Low Pass Filter board, available for GBP 9. The relay-switched LPF board can have up to five additional LPF's plugged in, permitting the U3 to sequence between 6 bands (including the LPF on the main U3 board). Note that my photos show NO additional LPF's plugged in (as I only have one built LPF here right now).

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