

Quantum Spectrum DSP M4-Plus

*An ultra portable Intelligent SDR
Stand-alone transceiver or Integrated Pan-adapter*

STANDARD FEATURES

- **Extended Coverage:** 160-10 meter ham bands; Gen-coverage RX from 1.5 to 100+ MHz. Optional 6m (54 MHz) support via M4+ extension.
- **All-Mode Excellence:** High-fidelity SSB, CW, AM, NB-FM, and four Digital sub-modes.
- High-power: 0-20 Watts of RF
- **Visual Excellence:** Anti-glare 5.0" XGA (800x480) Touchscreen with 1000 CD/m² brightness for full sunlight readability.
- **Unrivalled Processing:** 32-bit floating-point ARM Cortex M7 delivering 1,024 DMIPS (Over 1 Billion DSP ops/sec).
- **Slip-Tune™:** Dynamic spectrum visualization from 6 kHz up to 768 kHz real-time bandwidth.
- **Silent Operation:** High-speed, silent FET T-R switching (no noisy relays).
- **Customizable Audio:** 8-band TX and RX EQ, DSP Speech Processing, and studio-grade 5W high-efficiency output.

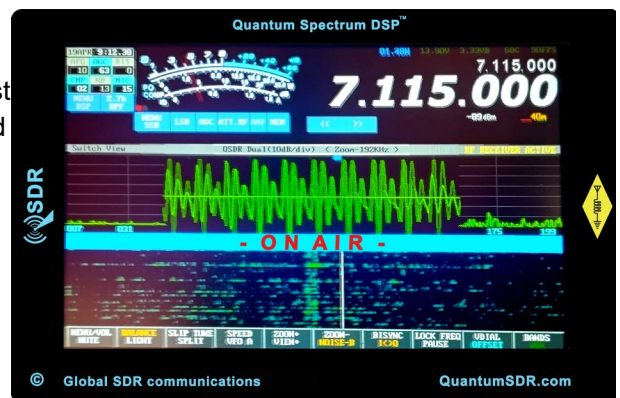


The **Quantum SDR M4** is the smallest and lightest low-power, state-of-the-art all-mode HF transceiver, receiver, or pan-adapter, offering a spectrum scope that rivals or exceeds the display size of most high-end commercial base-station transceivers, yet still fits in a jacket pocket!

A dedicated digital signal processing workhorse, the low-noise design provides immense processing power to provide a remarkably clear receive audio with noticeably low background hiss.

INTELLIGENT FEATURES & AI

- **AI Engine:** Machine-Learning ready for automated station search, identification, and call-sign logging.
- **Advanced Spectral Analysis:** Utilizes a high-resolution Fast Fourier Transform (FFT). By concentrating signal energy and leveraging a 27.1 dB processing gain, the device achieves a visual noise floor below -138 dBm.
- **WiFi Connected:** Integrated 802.11b/g for NTP time-sync, network logging, and monthly firmware updates.
- **Native App Suite:** Downloadable stand-alone apps for FT8, WSPR, RTTY, PSK, and SSTV—no PC required.
- **Broadcast IQ:** Dual USB architecture supports 48-192 kHz broadcast-grade IQ and audio streaming.
- **Future ready:** Highly expandable architecture to support new modes, applications and head units with smooth tuning dial.



TX Voice scope monitor

TRANSMITTER & CW PERFORMANCE

- **Hyper-Speed CW:** Integrated keyer with a massive 5 to 140 WPM range; fast, full-break-in keying.
- **Intelligent CW Sending:** Support for virtual and USB keyboards with 24 customizable message memories for automated CQ and intelligent responses.
- **Class-E PA:** High-efficiency Sokal-design PA providing 10-20 W typical (up to 74% efficiency)
- **Protection:** Fully SWR* and over-current protected final amplifier stage.*VSWR with head unit.

MECHANICAL SPECIFICATIONS

Parameter	Metric	Imperial
Width	131.5 mm	5.18 in
Height	85.0 mm	3.35 in
Depth	27.0 mm	1.06 in
Transceiver Weight	391 g	13.8 oz
Head-Unit Only	298 g	10.5 oz

RECEIVER PERFORMANCE

- Tayloe quadrature front-end delivers ultra-low-noise, low-loss IQ performance with outstanding HF clarity
- Sensitivity (160-10m): -132 dBm MDS
- Visual Noise Floor: -138 dBm (1024-bin FFT Gain)
- Noise Figure: ~3 dB to 6 dB (below atmospheric noise floor)
- Dynamic Range*: Dual 5.4 MS/s 16-bit ADCs advanced hardware oversampling, up-sampled to 24-bit
- Current Drain: 38–185 mA (Standby/Receive Mode LCD set at indoor brightness)

*Maximizing Dynamic Range: Based on the ADCs' hardware oversampling units to perform real-time accumulation and decimation. By utilizing the analog front-end's thermal floor as a dither source, stochastic resonance permits sub-LSB resolution. The dual-ADC architecture provides an additional 3 dB of SNR improvement, allowing the 16-bit hardware to deliver a 24-bit data stream with a dynamic range that effectively tracks signals below the standard 16-bit quantization floor.

Optimized low-power operation:

- **M4-Plus Total RX Draw:** 38–185 mA (Integrated solution).
- RadioBerry/Pi4 Draw: 700–1200 mA (Modular solution).
- **The M4-Plus advantage:** ~90% reduction in power overhead compared to Linux-based SDRs.

Options and accessories:

- Hand microphone and side paddle.
- Protective carbon fiber zip case.
- M4+ head unit with 8 band-filters and smooth spinning dial. (Launching late 2026)

Personalized technical support for Group members:

- Technical support by email, phone and Whatsapp
- 2-year back to base warranty
- Upgrade boards at cost price for all Group members

Quantum SDR is a Group project aimed at developing new radio technology

QuantumSDR.com | Innovative Global Communications
4539 N 22d Street, STE R, Phoenix, AZ 85016
Email: info@quatumsdr.com

