



# POWERFUL EEG/ERP

## with tCS and Multimodal Capability in a Flexible and Portable Package

The Explorer system is Ripple Neuromed's new line of human clinical and research tools for up to 256 channels of transcranial recording and stimulation. The complete Explorer system includes a Quest HD or Quest HD+Stim processor, one or more lightweight Front Ends, and the Trellis Software Suite. With wireless technology and full on-board processing capabilities, the Explorer system gives you the freedom to conduct mobile experiments and push the limits of neuroscience research.



- HD EEG
- MOBILE WIRELESS
- STIMULATION
- MULTI-MODAL RECORDING
- HYPERSCANNING
- ACTIVE FRONT ENDS
- ONBOARD PROCESSING
- FLEXIBILITY FOR BCI
- CUSTOM APPLICATIONS

### FEATURING

**HD EEG:** The Quest HD can be configured for up to 256 channels of EEG & ERP recording offering the ultimate spatial resolution for your research and translational studies. Explorer processors allow integration with third-party sensor caps and nets, including standard 1.5 mm Touchproof connectors.

**Mobile Wireless:** Untether your research using the Quest HD's mobile, wireless and battery-operated solution. At merely 700g, the Quest HD is the lightest 512 channel platform on the market. This feature coupled with onboard processing and data storage open seamless possibilities for truly dynamic recordings with subjects in real world settings, as well as closed-loop Brain Computer Interface (BCI) experiments.

**Stimulation:** Along with the Quest HD+Stim, the EEG+tES Front Ends can deliver selectable transcranial electrical stimulation. With a full spectrum of stimulation and concurrent recording abilities, the Quest HD+Stim system provides a complete neuro-feedback setup.

**Multi-Modal Recording:** The Quest HD is designed with growing multi-modal application demands in mind and supports 64 channels of EMG or peripheral nervous recordings in addition to 256 channels of EEG/ERP. All bio-signals are co-acquired using one clock to ensure syncing with sub-millisecond precision. Integration with stimulus presentation systems, eye trackers, imaging systems, and most other third-party devices is achieved using our versatile Analog and Digital Input and Output modules.

**Hyperscanning:** Expand your research capabilities with the ability to record from two subjects simultaneously to study behavioral and social interactions. Using a single clock for maximum precision of data and trigger information, the Quest HD provides a solution for cutting edge research applications like hyperscanning.

**Active Front Ends:** Explorer Front Ends use our compact circuit design to digitize EEG signals right at the base of the cap. This provides the noise immunity of active electrodes with the flexibility and robustness of passive caps.



**Onboard Processing and Complete Flexibility for BCI, Biofeedback and Custom Applications:** Quest HD processors offer an open architecture by supporting third-party code to be run directly on the processor. This functionality enables custom, real-time data processing and streaming with low latency. Our advanced API provides complete flexibility with an easy to use programming library.

**Ease of Use and Turn-Key:** Quest HD processors include our Trellis Software Suite for recording data and for streaming real-time to third-party tools. Trellis automatically detects connected hardware and provides an appropriate default configuration to allow you to start recording data shortly after opening the box. Trellis is fully integrated with BCI2000, LSL and other third-party software for both real-time and offline applications.

**Unmatched Warranty and Customer Support:** Explorer processors come with an industry leading two-year warranty. All devices are designed and manufactured in-house to conform to our strict quality controls, and to ensure rapid delivery and service lead times. Quest HD processors also come with a lifetime of support from Ripple Neuromed's renowned support team.

## SPECIFICATIONS

### Processors

Channels	up to 256 EEG/ERP with up to 64 EMG
Analog I/O	up to 28 Inputs and 28 Outputs
Digital I/O	up to 20 Inputs and 20 Outputs, plus 2 Strobes
Battery Life	Internal, up to 2 hours External, up to 6 hours
PC Communication	Gigabit Ethernet or Wi-Fi
Dimensions	183 mm x 95 mm x 36 mm
Weight	700g

### Stimulation (Quest HD+Stim)

Waveforms	tDCS, tPCS, tACS, tRCS, user defined
Current Range	100 $\mu$ A – 15 mA
Compliance Voltage	$\pm$ 9 V to $\pm$ 30 V (configurable)
Pulse Width Min	33.3 $\mu$ s
Frequency	DC to 15kHz

### Recording

Resolution	24-bit
Inferred Noise	<1 $\mu$ Vrms
Common Mode Rejection	-110 dB
Sample Rate	up to 7.5 ksp/s
Input Range Min	$\pm$ 0.1875 V, gain of 24
Input Range Max	$\pm$ 2 V, gain of 1
Input Impedance	1 G $\Omega$ , 20 pF
Bandwidth	DC to 2 kHz



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