BEL
Brain Electrophysiology Lab

Product Brochure

Table of Contents

BEL EEG
System One

The new standard for **Human Neurophysiology Research**

Available in 130 and 280 channels, the **BEL EEG System One** delivers unprecedented resolution and reproducibility

BEL
Brain Electrophysiology Lab

The Brain Electrophysiology Laboratory Company (BEL) is led by the scientific team of **Dr. Don Tucker**, PhD and CEO, and **Dr. Phan Luu**, Chief Science Officer. Almost 30 years ago, **Dr. Tucker** pioneered geodesic tessellation for electrodes (Tucker, 1993), providing dense array, whole head coverage of EEG electrodes.

The **BEL** team has now created a new technology in dense array EEG for improved fit, comfort and usability, and introduces **BEL's Geodesic Head Web®** in different channel counts and sizes.

GEODESIC® HEAD WEB

The Geodesic Head Web® uses **BEL's** patented design of the **Modular Pentagonal Element (MPE)** to achieve a better fit to all human head shapes and sizes. Elegant electrode wire management and a small, lightweight connector give the **Geodesic Head Web** high marks in usability.

A new single cord lock system provides a fast and first-fit advantage.

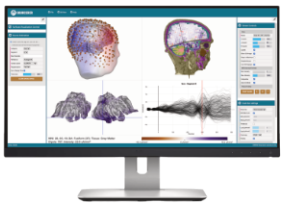
Along with the **Geodesic Head Web®**, **BEL** announces a new complete EEG solution for human neurophysiology researchers:

BEL EEG System One

Geodesic Head Web®

BEL Amp One

BEL View



SOURCERER + FLOW

The BEL EEG System One is a complete system for **EEG acquisition and analysis**. Designed with new hardware architecture for accuracy, efficiency, miniaturization, portability, and on-board storage and computation, the **BEL Amp One** amplifier offers innovations like no other. The **BEL View software** for acquisition and simple review is intuitive and easy to use, suitable for all applications and experience levels.

BEL
Brain Electrophysiology Lab

It's not just another Geodesic EEG system.

It’s a Geodesic EEG Ecosystem.

The BEL EEG System One is the foundation of the **Geodesic EEG Ecosystem** – an environment built for human neurophysiology research. From the moment of dense array electrode acquisition with our new, comfortable **Geodesic Head Web**®, through the mobile and wireless **BEL Amp One**, to elegant visualization in our **BEL View software**, your research comes to life with cutting edge technology. With the integration of **FLOW**, your data is permanently stored, managed and protected. Your customizable workflows are easily shared with colleagues. All the software is web browser-based and enables **access from any computer**.

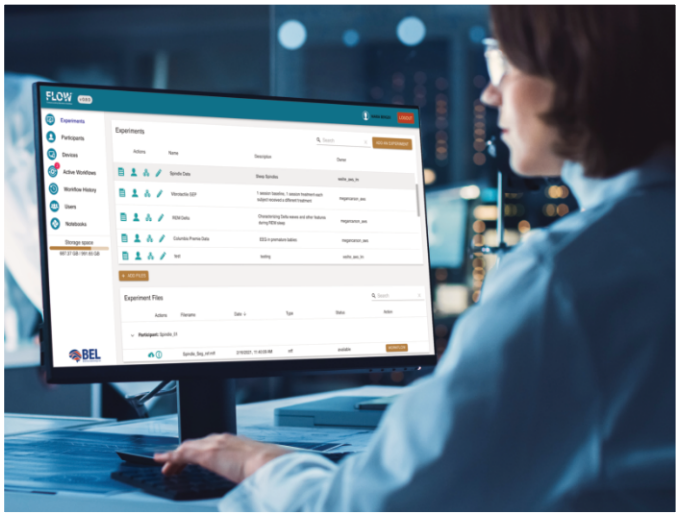
Where will your next experiment take you?

Inside **FLOW**, researchers create analysis pipelines using **Docker container** technology. This container technology ensures that the analysis script will perform exactly the same on every device, **giving reproducibility to your collaborators**. Containers can be built with specific workflows, such as event-related potential (ERP) derivations, using open-source analysis tool-boxes, such as **EEGLAB and MNE**, and these containerized workflows are supported by FLOW.

BEL
Brain Electrophysiology Lab

FLOW

Forward Looking Operations Workflow



Taking the human neuroscience laboratory beyond EEG acquisition, the **BEL EEG System One** includes **FLOW**, a laboratory information system, providing an ecosystem for collaboration with others, using open-source software in workflows, data review and analysis, with integral file storage and management.

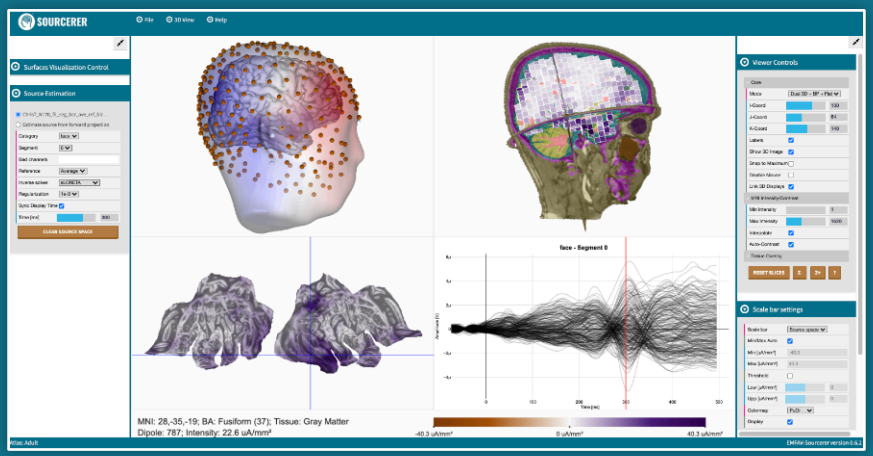
FLOW is an all-in-one solution for **EEG database management**, ERP analysis pipelines, and visualization, with AWS cloud or on-premises server implementation. **Containerization technology** runs **ERP analysis Python scripts** as modular units with I/O to the **FLOW** database, thus facilitating reproducibility across different stages of analysis.

Interested in mapping EEG features to brain anatomy?

Add **SOURCERER** to the **BEL EEG System One**

Designed with state-of-the-art software architecture that speeds computation, **SOURCERER** is fast, intuitive and includes the new **Bayesian multiple sparse priors and Frequency Localization.**

Contact us



BEL

Brain Electrophysiology Lab

FLOW®

One platform, one copy of data, multiple workflows

Structured data science platform provides a secure database, user authentication, user permission levels, search, storage, status, and analytic workflows.

Scripting, linking technology, and Docker containers support analytic worfklows with various data types to execute **consistently and reliably for scientific rigor and reproducibility.**

High performance computing includes **machine learning**, with a first functional application for **sleep staging.**

Integrating user scripts and workflows from the **open source community (MNE, EEGLAB)** into structured containers allows improved reproducibility for cross-laboratory sharing and dissemination. Includes **Jupyter notebooks** integration.

Remote data access shared with your collaborators without ever having to copy any of the data.

BEL
Brain Electrophysiology Lab

ERP and Cognitive Neuroscience Studies

Cognitive Neuroscience of Sleep Research

Brain Computer Interface and Real Time Feedback

Clinical Neuroscience Research

BEL EEG System One

Functional Brain Connectivity

Kinesiology Research

Intraoperative & EMU Research

Traumatic Brain Injury

Developmental Neuroscience across all ages from infants to adults

Product Specifications

Geodesic Head Web

Number of Channels:	130, 280
Sizes:	Small (54 - 57cm); Large (57 - 60cm); future sizes in Child and Infants
Hardware Reference Electrode:	Cz
Montage:	10-20, Double Banana
Storage Temperature:	0° to 47° C (32° to 116° F)
Operating Temperature:	10° to 35° C (50° to 95° F)
Relative Humidity:	5% to 95% noncondensing

BEL Amp One

Number of Channels:	130, 280
Power Supply:	Wall Power and Battery Power
Battery Life:	4 hours of EEG recording
Weight	4 lbs
On-board Storage	200 GB
Data Communication:	Ethernet and Wi-Fi
External Digital Communications:	Supported, as with PST Chronos Device
Resolution:	24-bit
Digital Inputs:	16
Analog Inputs:	8
Input Noise:	< 1.3 uV RMS
Amplifier Native Sampling Rate:	8,000 s/s
Sampling Rate:	250, 500, 1000 s/s

BEL
Brain Electrophysiology Lab

1776 Millrace Drive, Eugene, OR 97403
+1.541.525.9799 info@BEL.company

www.bel.company

Contact us

All of the BEL products are developed under BEL's quality system to meet regulatory standards.
BEL products are not yet cleared as medical devices.