



**Cervello**

DESIGNING THE FUTURE



## Introducing Cervello Elite: the next step in EEG monitoring systems technology



### **About Blackrock NeuroMed**

Blackrock NeuroMed, founded in 2011, is a spin-out of sister company Blackrock Microsystems, LLC. The companies are located in the University of Utah Research Park in Salt Lake City, Utah, USA.

Our mission is to leverage the core data acquisition system technologies of Blackrock Microsystems to deliver to our worldwide customers a next-generation, sophisticated EEG and single cell recording system.

Our vision is to provide enabling technologies for the neuroscience, neural engineering, and neuroprosthetics clinical communities worldwide. This is achieved through a strong collaborative approach of applied research and development tied to the specific needs of researchers, scientists and clinicians throughout the neuroscience community.

Blackrock NeuroMed was founded by Professor Florian Solzbacher, University of Utah. Dr. Solzbacher is Executive Chairman and President of Blackrock NeuroMed Microsystems, Director of Utah Nanofabrication Laboratory and co-Director of the Utah Nanotechnology Institute.



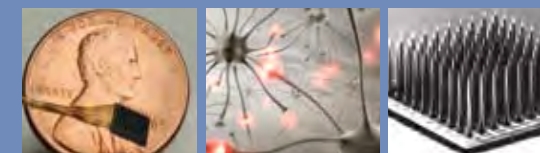
## The Blackrock NeuroMed Research System



Core to the next-generation capabilities of the Cervello Elite EEG Monitoring System is the company's multichannel data acquisition system specifically designed for real-time monitoring and recording of human brain and peripheral nerve electrical activity. The sophisticated system is capable of simultaneous recording, monitoring, and analyzing of up to 256 channels of single unit action potentials through application of Blackrock's high-density Utah Array.

Through Blackrock NeuroMed's core technology the Cervello Elite EEG Monitoring System captures, processes, and analyzes (in real-time) single unit action potentials (spikes), field potentials and other physiological signals as well as experiment state events.

Cervello Elite is also compatible with individual stiff wire electrodes, microelectrode and microwire arrays, planar silicon probes, subdural ECoG grids, and epidural and scalp EEG electrodes, providing clinicians with unsurpassed flexibility in patient monitoring options. Flexible I/O options also facilitate interfacing to third-party equipment such as behavior, stimulus, and video systems.



*The Blackrock Microsystems Utah Array is the global standard for multichannel high-density neural recordings of large populations of neurons. Over the past two decades the Utah Array has been refined for application in a variety of species and tissue preparations. The result is a proven and well-documented microelectrode array technology suitable for stable, long-term neural recordings of action potentials (spikes) and field potential in brain and peripheral nerve tissue.*

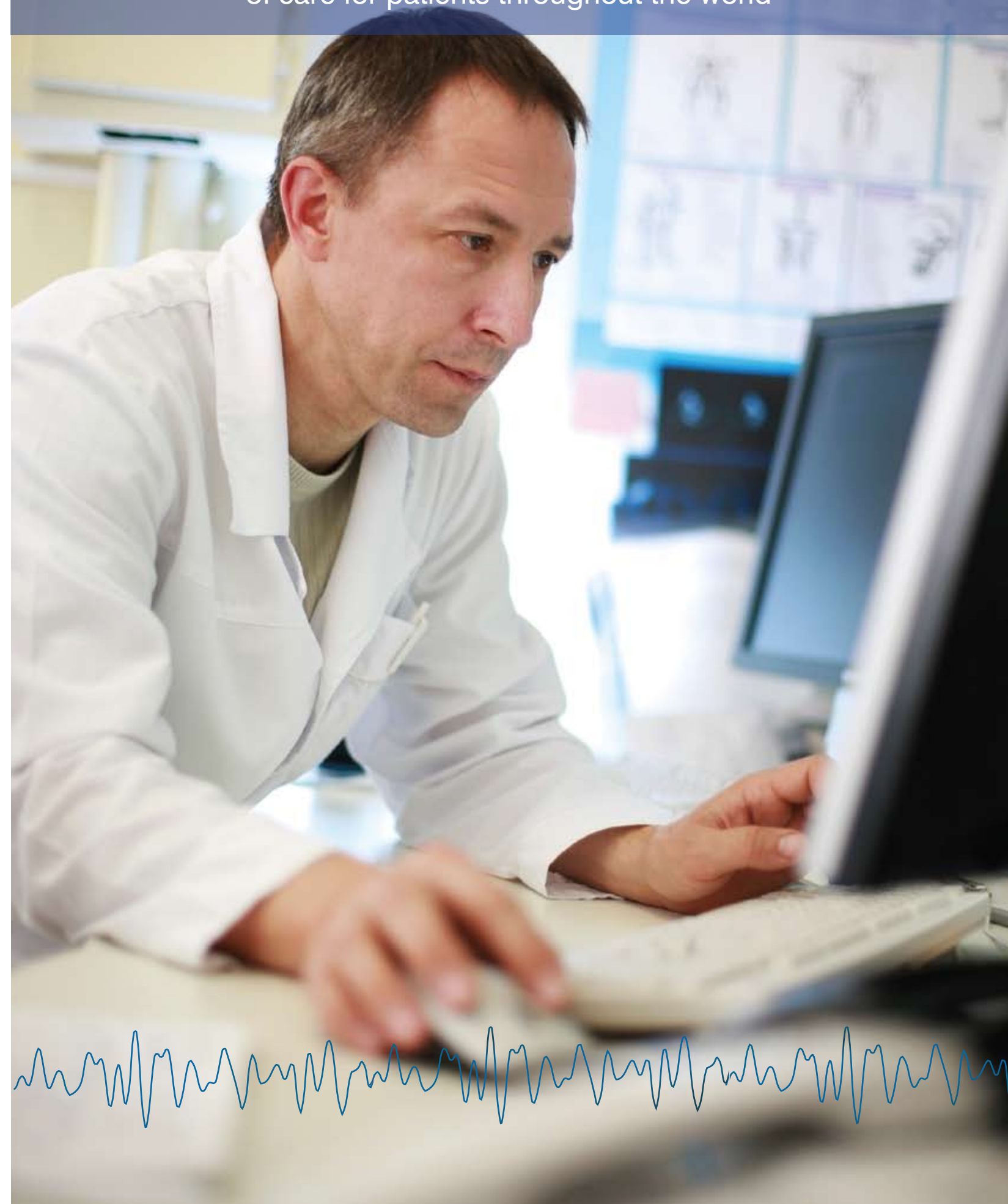
## Hardware

- Compatible with traditional surface EEG/EMG/EKG electrodes, ECoG grids (macro and micro), individual metal microelectrodes, microelectrode arrays, and planar silicon probes
- Same recording capabilities as traditional EEG systems PLUS ability to record and monitor signals from high-impedance electrodes
- Fiber-optic link for reduced system noise
- Real-time processing of spikes and field potentials, and other physiological signals
- Scalable up to 256 channels
- Feasible I/O options for synchronizing with behavior, stimulus, and video systems

## Software

- Continuous recording of spikes and potentials (16 bit, 30 kHz)
- Per-channel selection of digital filter/sampling rate
- Digital noise (line, magnetic) cancellation
- Interface to NeuroExplorer, Spike2, MATLAB, C/C++, and, other 3rd-party software
- Adaptive spike detection, 3D spike sorting
- Remote control of data acquisition and storage
- Video synchronization and playback

Blackrock NeuroMed blends world class research technology with clinical tools that offer the gold standard of care for patients throughout the world



## Cervello Elite research and clinical applications together in a powerful EEG system

- FDA cleared and CE marked system for both research and clinical use
- Up to 256 channels
- 32 optional analog input channels
- Sampling rates from 256 Hz to 30 kHz each channel
- Three separate data streams
- This state-of-the-art system captures, processes, and analyzes (in real time) action potentials
- Fully compatible with traditional surface electrodes, ECoG grids, microarrays, and all penetrating electrodes
- Network integration – remote control high definition cameras (remote review)



Cervello Elite is a powerful EEG system that serves both research and clinical needs



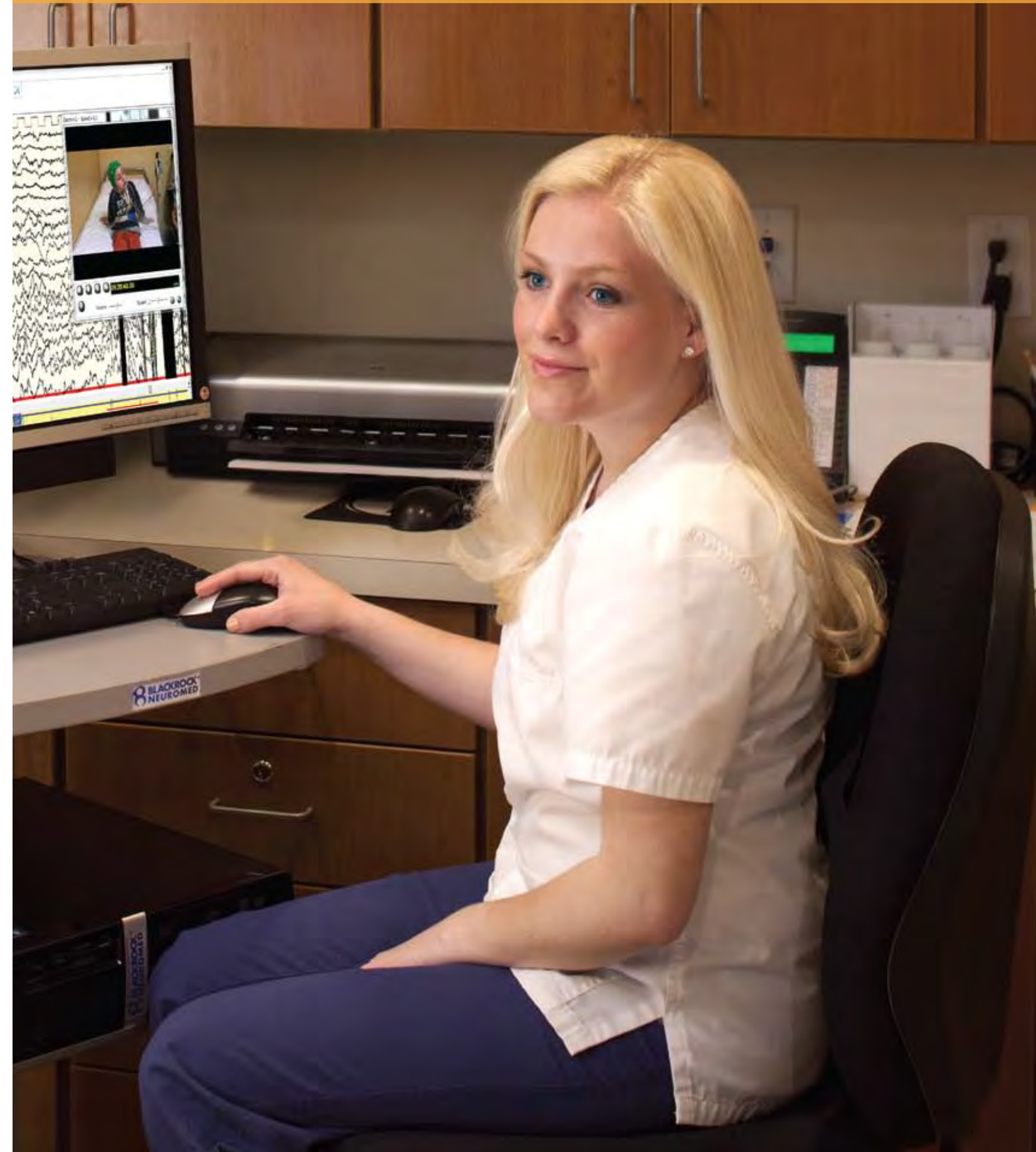
## Long-term monitoring system

- Advanced amplifier design
- Self-contained data acquisition system
- 32, 64 or 128 channel EEG monitoring systems
- Amplifier Headbox can be used as an ambulatory recorder
- Automatic selection of data transmission mode by cable, USB, fiber optic or wireless
- Power supply via cable or standard "AA" type batteries
- Sampling rates up to 2048 Hz for every channel
- 22 bit AD, noise <0.16 microvolt rms
- Extremely light 10.58 oz minimum size 14 x 8 x 4 cm
- High definition video with MPEG 4 technology
- Quick and easy EEG and video editing
- Automatic data archiving for long term monitoring
- On-line or off-line trending or topographical brain mapping of amplitude and frequency

## Patient monitoring flexibility

Through Bluetooth wireless connectivity EEG recording patients can be actively disconnected from the Cervello base system while maintaining seamless data transmission and recording. This portability feature allows patients to be transported to other clinical labs within the hospital while Cervello continues to record and store EEG data. Upon return or reattachment of the headbox unit to the base system Cervello continues to record data without any interruption or data loss.

Cervello Elite's continuous, flexible and long-term monitoring capabilities give you the ability to produce superior results



## ICU

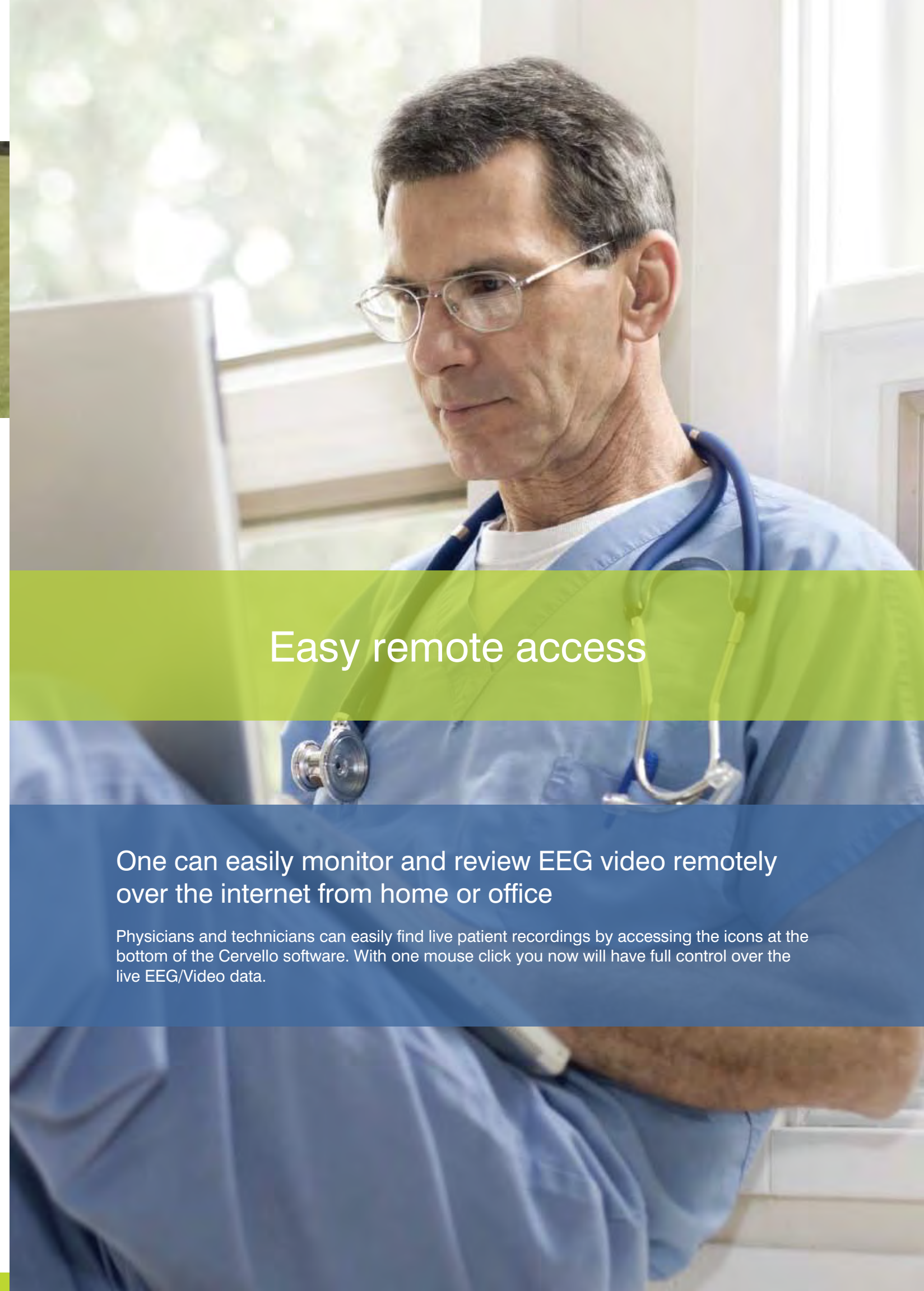
- Touch screen PC for smaller footprint in the ICU
- On-line EEG trending to quickly identify pathological signals for immediate intervention
- Remote monitoring and full control over data collection
- Cervello software provides continual monitoring of patient's EEG data, trends and patient event alarms across the network





## Cervello 32 Ambulatory System

- Can be used as headbox or ambulatory recorder
- Variable sampling rates
- Standard “AA” batteries
- Data transfer cable or bluetooth
- Patient event button
- Sound playback of the EEG data during review for faster EEG reporting
- 72+ hours battery life for longer recording times
- Large graphical LCD display showing:
  - Impedance measurement (graphs and numerical)
  - Patient information
  - All recorder settings
  - Signal data for visual inspection



Easy remote access

One can easily monitor and review EEG video remotely over the internet from home or office

Physicians and technicians can easily find live patient recordings by accessing the icons at the bottom of the Cervello software. With one mouse click you now will have full control over the live EEG/Video data.



## Product support that meets your needs

### **Worldwide Technical Service and Support**

Blackrock NeuroMed offers quality products backed by quality service and support. The company tailors its system solutions to the unique needs of our customers throughout the world and each configuration is fully supported by a trained support staff. VPN-based remote technical assistance brings the Blackrock team to your site for 24/7 support and consultation. The company also provides local field and telephone support.

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