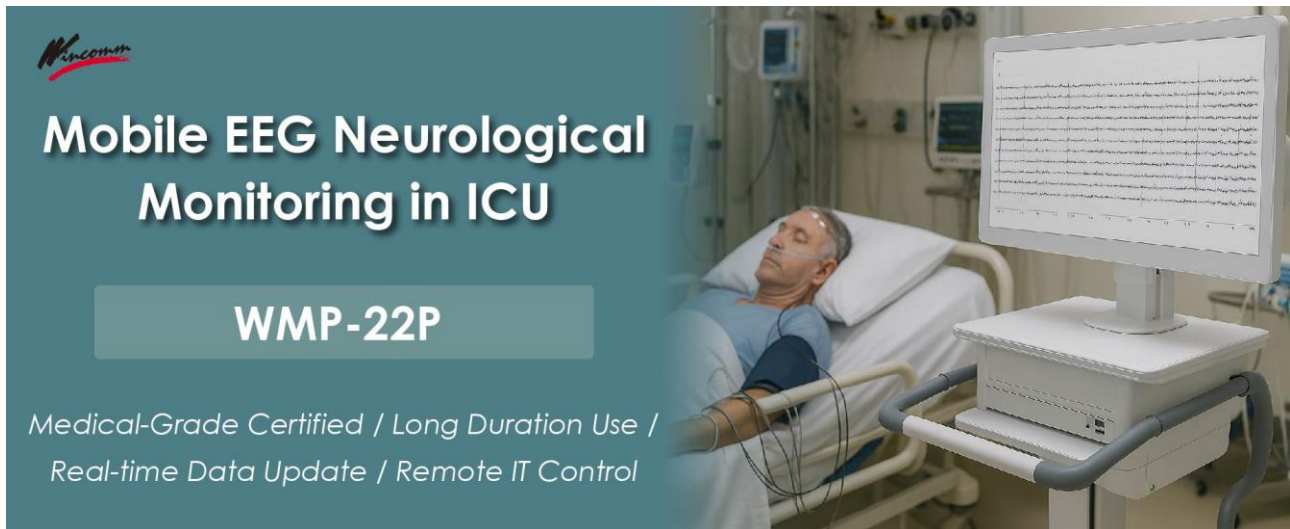


## Deploying Wincomm WMP-22P for Mobile EEG Neurological Monitoring in ICU



### Background & Challenge

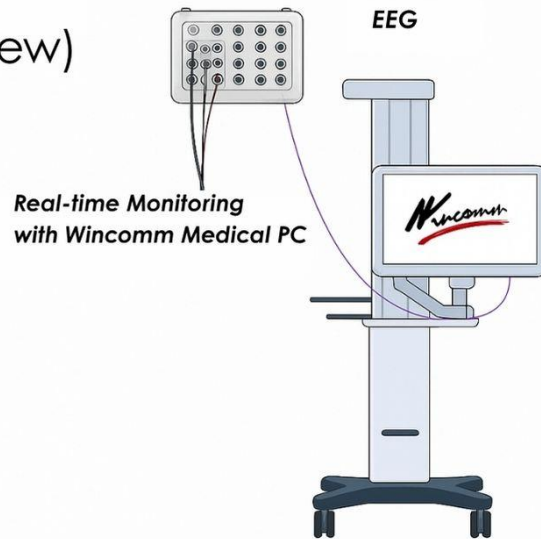
A leading tertiary hospital sought a reliable, medical-grade computing platform for real-time EEG (Electroencephalogram) monitoring in both ICU and intraoperative settings. The system needed to support high-resolution, continuous brainwave monitoring, remote access by neurologists, and mobility without sacrificing electrical safety or hygiene.

### Wincomm Solution: WMP-22P Medical Panel PC

To meet these requirements, the hospital selected the **Wincomm WMP-22P**, a 21.5" fanless medical-grade panel PC with advanced features:

- **UL/cUL 60601-1 & IEC 60601-1-2 certified** for medical safety
- **IP65 front panel** with antimicrobial coating for easy disinfection
- **Hot-swappable triple battery system**, enabling 8–10 hours of continuous operation on a mobile cart
- **PCIe x4 expansion slot** to integrate capture and signal processing cards
- **Multiple I/O (USB/WiFi/LAN) and video inputs (DP/HDMI)** for EEG-video synchronized monitoring
- **i-Control™ power/thermal management suite** for reliable long-duration use
- **Intel® vPro support** for remote IT control and software updates

## Mobile EEG (Application Overview)



### Implementation Process

#### 1. System Integration

- The WMP-22P was mounted onto a battery-powered medical cart.
- A multi-channel EEG capture PCIe card was installed.
- Pre-configured EEG analysis software enabled real-time visualization, seizure detection, and alerting.

#### 2. Deployment in ICU & OR

- The system was networked via 1GbE/2.5GbE LAN for real-time data upload.
- Neurologists could remotely access live EEG readings using secure hospital intranet systems.

#### 3. In-Use Monitoring

- High-contrast 21.5" FHD AHVA touchscreen allowed clinicians to assess EEG signals directly.
- The fanless design ensured silent operation, ideal for ICU and surgical settings.

### Outcomes & Impact

| Metric               | Result                                      |
|----------------------|---|
| EEG Data Loss        | < 0.5%                                      |
| Continuous Operation | ≥ 10 hours on battery                       |
| Clinician Feedback   | "Stable, responsive, and clear EEG display" |
| Safety Performance   | Zero thermal or electrical safety incidents |
| IT Maintenance       | Fully remote; no in-person servicing needed |



### Clinical Benefits

- Enabled **real-time, mobile EEG diagnostics** for acute neurology cases.
- Enhanced **intraoperative and ICU seizure detection** responsiveness.
- Reduced infection risk with **easy-to-sanitize, fanless, antimicrobial housing**.
- Improved system uptime and reduced IT burden through **vPro remote management**.
- Scalable design allowed integration of **AI-powered EEG analytics** via PCIe expansion.

### Summary

The deployment of **WMP-22P** in EEG neurological diagnostics delivered a high-performance, mobile, and medically safe solution. Its integration-friendly architecture, fanless silent design, and battery-powered operation made it ideal for real-world ICU and surgical environments.

This case demonstrates **Wincomm's commitment to enabling smarter, safer, and scalable edge computing in clinical neurophysiology**.