BIOPAC PRODUCTS
For the life sciences

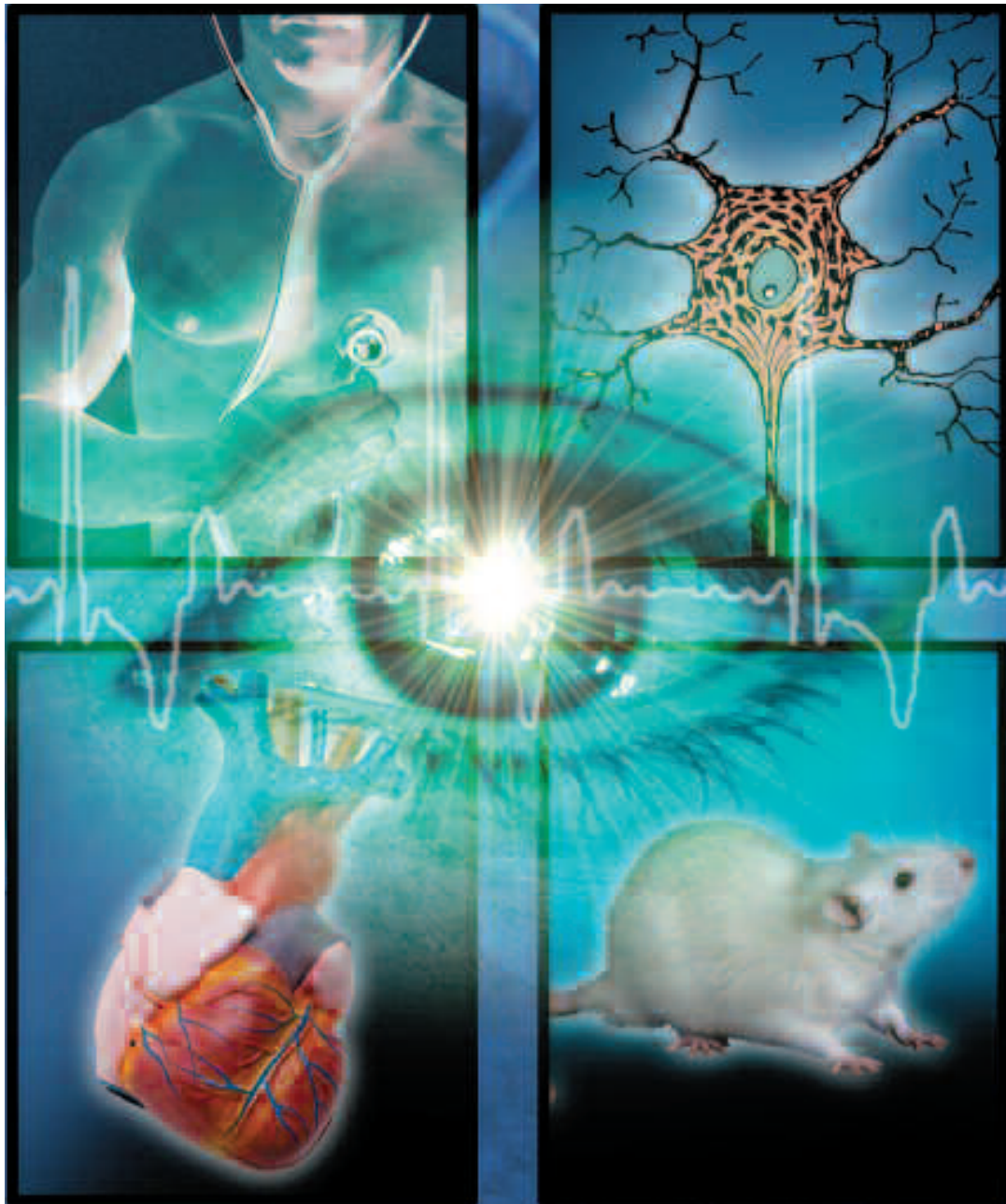**BIOPAC®**
Systems Korea

Intuitive data acquisition and analysis solutions for the life sciences.

EEG

ERS: Evoked Response

Psychophysiology

Electrical Bioimpedance / Cardiac Output

EOG: Eye Movement

Plethysmography

Sleep Studies

ECG: Cardiology

Cardiovascular Hemodynamics

EGG: Electrogastrogram

Continuous Noninvasive Blood Pressure

In-vitro Pharmacology

Laser Doppler Flow

Micro-electrode Recording

Pulmonary Function

Exercise Physiology

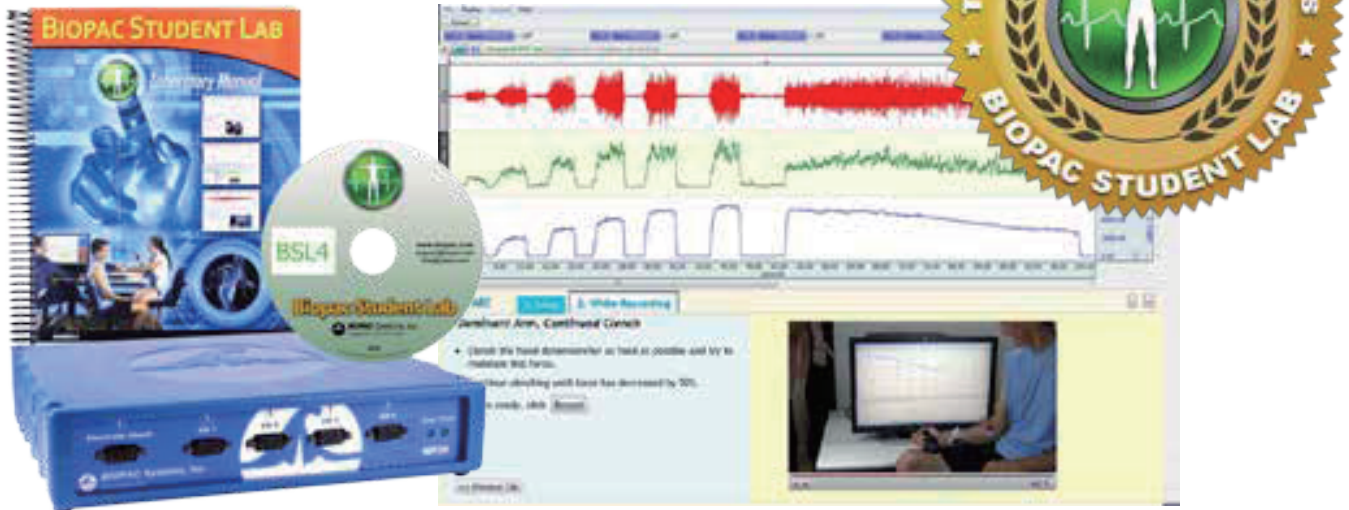EMG

Biomechanics

Remote Monitoring

Stand-alone Amps & Interfaces

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Noninvasive Blood Pressure Monitoring System

Real-time, continuous, noninvasive blood pressure

- Accurate noninvasive blood pressure values
- Comfortable for subjects to wear
- Set up & calibrate in less than three minutes
- Suitable for small children (~4-5 years) to large adu

BP100D provides a continuous, beat-to-beat, blood pressure signal—uses
finger cuff that is comfortable for the subject and easy to place. The cuffs
ed with system) come in three sizes. Outputs a continuous BP waveform an
s values for systolic, diastolic, mean blood pressure, and heart rate. Use wi
owledge for automated BP analysis.

EYE-TRACK-BAR   REMOTE SCREEN-BASED EYE TRACKING

Robust Eye Tracking in a Compact Module
Eye Tracking Fully Integrated with Acq*Knowledge*
Large head motion box & reliable fixed data rate
40 Hz • 60 Hz • 120 Hz • 200 Hz

This mini screen-based remote eye tracking bar provides gaze position, dwell time, blink rate, pupil size, and more. Use with an Acq*Knowledge* Eye Tracking Integration License (ACK100W-EYE) to access valuable eye tracking metrics: Gaze Path, Gaze Plot, Heat Map, and Attention Map. Create user-defined Areas of Interest (AOI) and select Scarf Plot, String Plot, Pie Chart, and Key Performance Indicator (KPI) metrics. For concurrent physiological data such as Heart Rate, EDA, SCR/SCL, etc., record biometrics from a Wireless Smart Center, MP160, MP36R Research System, or other BIOPAC hardware.

- **Small and Rugged** The housing is an inch shorter than its predecessor and has the USB connection in the back where it is protected from bumps and knocks.
- **Increased Head Motion Tolerance** New 10 mm lens provides a 15% increase in head motion box.
- **Improved Accuracy Outdoors** Strobing IR lights enable robust tracking in all types of lighting. In addition, an optical filter integrated into the front cover improves tracking near windows and other tough lighting conditions.
- **Less Distraction** Smaller tracking indicator lights on the front reduce distraction.
- **Compatible** with Microsoft Eye Control.

AEye Technology Benefits

AEye technology consists of the latest generation of EyeTech Digital Systems' algorithms, software, and hardware, as well as offers a superior experience for users. This includes robust tracking performance, instant acquisition, and a greater tolerance for head motion.

B-ALERT®X10

Wireless acquisition of 9 channels of high fidelity EEG plus ECG

AcqKnowledge adds powerful analysis tools, including automated scoring and reporting options

EEG Sites
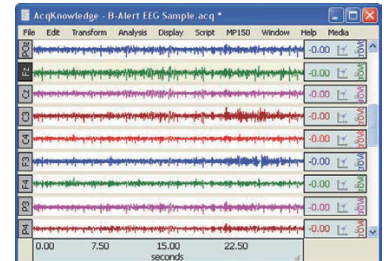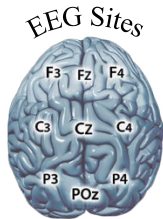
- Comfortable and nonintrusive—set up in less than 5 minutes!
- Patented real-time artifact decontamination
- Automated EEG analysis routines for filtering & displaying EEG frequency bands, removing EOG artifacts, and performing a complete frequency analysis
- Multiple options for data synchronization with up to six simultaneous subjects
- Real-time cognitive state metrics add-on available for engagement, confusion/distraction, drowsiness, workload, and stress
- Neurocognitive assessment of susceptibility to effects of sleep deprivation & apnea

Cognitive State Metrics

For real-time monitoring of subject fatigue, stress, confusion, engagement and workload, add the B-Alert Cognitive State software with proprietary metrics to classify data from B-Alert Wireless EEG systems. The GUI intuitively represents both the raw and processed data for greater clarity and understanding.

Easy-to-read B-Alert dashboard facilitates analysis and is fully customizable:
  - Gauges display B-Alert's highly validated second-by-second metrics
  - Heat maps display EEG power spectral densities (PSD) for the traditional Hz bands
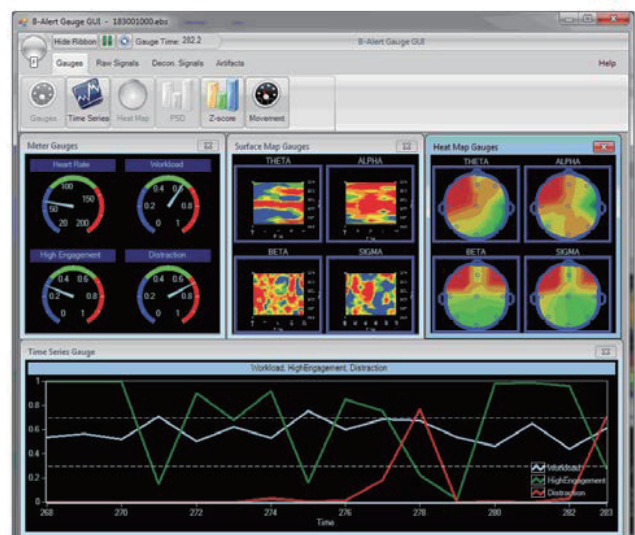
Real-time GUI displays B-Alert Cognitive State gauges with timeline, as well as EEG heat maps and spectograms

GAUGES
Engagement, Workload, Drowsiness, Heart Rate

HEAT MAPS
Spatial & Temporal EEG PSD Beta, Alpha, Theta, Sigma

BIONOMADIX SERIES

The BioNomadix system is a wireless, multi-channel physiological recording platform. Its untethered design allows for nearly unlimited freedom of movement and unsurpassed comfort, enabling subjects to easily relax into their protocol. There are twelve different BioNomadix modules sets, each consisting of a matched transmitter and receiver specifically optimized for desired physiological signals. Multiple BioNomadix module sets (typically eight maximum) can be used to create a customized BioNomadix system.

Each BioNomadix module set is capable of recording of two independent channels, with the exception of the Accelerometer module, which records three channels.

BIONOMADIX TRANSMITTER AND RECEIVER SETS

BN-ACCL3	BioNomadix Accelerometer	BN-DYNEMG	BioNomadix Dynamometry and EMG
BN-ECG2	BioNomadix 2-Channel ECG	BN-EOG2	BioNomadix 2-Channel EOG
BN-EEG2	BioNomadix 2-Channel EEG	BN-NICO	BioNomadix Cardiac Output
BN-EGG2	BioNomadix 2-Channel EGG	BN-RSP2	BioNomadix 2-Channel Respiration
BN-EMG2	BioNomadix 2-Channel EMG	BN-RSPEC	BioNomadix RSP and ECG
BN-PPGED	BioNomadix PPG and EDA	BN-SKT2	BioNomadix 2-Channel Skin Temp
BN-GONIO	BioNomadix 2-Channel Goniometry	BN-STRIKE	BioNomadix 2-Channel Heel/Toe Strike

BioNomadix BN-GYRO-75 and BN-GYRO-300 Angular Rate Sensors are discontinued items.

BIONOMADIX TRANSMITTER ONLY

BN-ACCL3-T	Accelerometer	BN-DYNEMG-T	Dynamometry and EMG
BN-ECG2-T	2-Channel ECG	BN-EOG2-T	2-Channel EOG
BN-EEG2-T	2-Channel EEG	BN-NICO-T	Cardiac Output
BN-EGG2-T	2-Channel EGG	BN-RSP2-T	2-Channel Respiration
BN-EMG2-T	2-Channel EMG	BN-RSPEC-T	RSP and ECG
BN-PPGED-T	PPG and EDA	BN-SKT2-T	2-Channel Skin Temp
BN-GONIO-T	Goniometry	BN-STRIKE-T	2-Channel Heel/Toe Strike

➲ Click to view a BioNomadix System Diagram.

BIONOMADIX LOGGER (BN-LOGGER)   *Get the real-world data your application demands!*

BioNomadix Loggers wirelessly record physiological data as subjects freely and naturally live their lives—record from up to three dual-channel wearable BioNomadix Transmitters* plus a built-in accelerometer. Sync the BioNomadix Logger with GPS for a correlation between physiological and location data.

Use as a stand-alone system with Acq*Knowledge* or combine with BioNomadix Receivers and a computer running Acq*Knowledge*:

• Sync Transmitters to the Logger mode for remote data logging.

• Combine Transmitters with BioNomadix wireless Receivers to operate in the lab for real-time telemetry.

The compact Logger device provides a color display for visual feedback, speaker for auditory feedback, vibration for haptic feedback, voice journal for participant comments, event markers, and alarms. Includes micro-USB to USB cable for charging/data transfer, AC Charger and belt case.

* Existing BioNomadix devices require a firmware upgrade to be compatible with Loggers—see BN-TX-UPG online for details.

NOTE: BioNomadix Logger requires Acq*Knowledge* software version 4.4.1 or higher.

High-Quality Data for Human and Animal MRI Studies

- **BIOPAC provides physiological data acquisition and analysis systems specifically for human and small animal MRI life science research applications.**

- BIOPAC offers data acquisition systems, MRI Smart Amplifiers, transducers, stimulus options, electrodes, and leads with advanced software tools for safe data collection, subject monitoring, and cleaner physiological signals in the MRI environment.
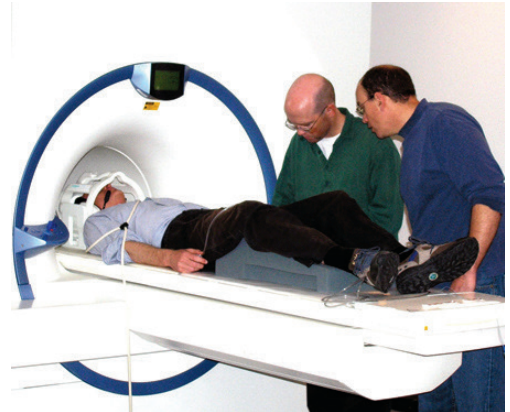
Amplifier & Transducer Options:
- Biopotentials:ECG,EEG,EGG,EMG,EOG • Airflow & Gas Analysis • Blood Pressure—Human and Animal
- Differential Pressure • Electrodermal Activity (EDA) • Gating Units (digital trigger) • Force • Laser Doppler Flow
- Micro Pressure Measurement • Pulse • Respiration • Stimulation • Subject Feedback • Temperature • SpO2

SMART AMPLIFIER 100D SERIES

Biopotential Smart Amplifiers: ECG100D, EEG100D, EGG100D, EMG100D, fEMG100D (facial EMG), EOG100D, ERS100D

Transducer Smart Amplifiers: EDA100D, NICO100D, PPG100D, RSP100D, SKT100D

FEATURES:

- High quality, low noise signals equivalent to or exceeding data quality of 100C-Series amplifiers

- Small, light form factor, comfortable for the subject

- Connect directly to the AMI100D interface

- Co-exist with other connected C-Series modules

- Quick, automated setup in Acq*Knowledge* software

- Acq*Knowledge* provides signal type information for connected Smart Amps and software options for signal-appropriate derived signals (e.g. heart rate)

- Acq*Knowledge* software detects when amplifiers are not connected properly

- Use BN-Series electrode leads and transducers

- Compatible with Acq*Knowledge* software version 5.0.4 or higher

MP160 data acquisition and analysis systems with Acq*Knowledge* 5 software provide a flexible tool for life science research.

MP160 SYSTEM SPECIFICATIONS

Analog Inputs

Number of Channels:	16
Absolute Maximum Input:	±15 V
Operational Input Voltage:	±10 V
A/D Resolution:	16 Bits
Accuracy (% of FSR):	±0.003
Input impedance:	1.0 mA

Analog Outputs

Number of Channels:	2
Max output with acquisition:	2 channels
Output Voltage Range:	±10 V
D/A Resolution:	16 bits
Accuracy (% of FSR):	±0.003
Output Drive Current:	±5 mA (max)
Output Impedance:	100 ohm

Digital I/O*

Number of Channels:	16
Voltage Levels:	TTL, CMOS
External Trigger Input:	TTL, CMOS compatible - See also: External Trigger Inputs

*Digital signals accessed with optically isolated STP100C/STP100C-C and STP-IO—separate purchase

Time Base

Min Sample Rate:	2 samples/hour
Trigger Options:	Internal, External or Signal Level

Power

Amplifier Module Isolation:	Provided by the MP unit, isolated clean power
CE Marking:	EC Low Voltage and EMC Directives
Leakage current:	<8 µA (Normal), <400 µA (Single Fault)

Device specs	MP160
Max Sample Rate MP Internal Memory:	200 K samples/sec (400 K aggregate)
PC Memory/Disk:	200 K samples/sec (400 K aggregate)
Internal Buffer:	6 M samples
Waveform Output Buffer:	500 K samples
Dimensions:	10 cm x 11 cm x 19 cm

SIGNAL CONDITIONING MODULE COMPATIBILITY

- O$_2$100C/ CO$_2$100C
- DA100C
- EBI100C
- ECG100C/ECG100D
- EEG100C/EEG100D

- EDA100C/EDA100D
- PPG100C/PPG100D
- RSP100C/RSP100D
- SKT100C/SKT100D
- HLT100C

- EGG100C/EGG100D
- EMG100C/EMG100D
- fEMG100D
- EOG100C/EMG100D
- ERS100C/ERS100D

- AMI100D
- LDF100C
- MCE100C
- STM100C
- OXY100E