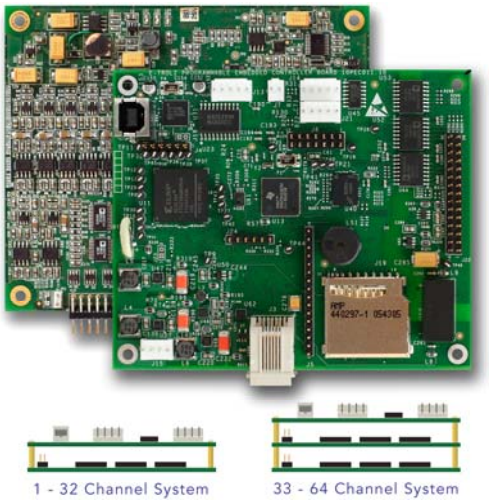
EPM064 Wide Ranging Electrophysiological Platform

OEM Solutions

- Powerful electrophysiological monitor/recorder/analyzer
- Wide dynamic range bipolar or monopolar inputs
- Built in calibration & impedance quality check
- Low-power, portable platform
- Fully integrated solution – ready to program
- 510K approved use – 4 KV patient protection
- Custom configurations available



Overview

E-TROLZ's EPM064 Electrophysiological Monitor / Recorder / Analyzer is a powerful embedded platform for medical device OEMs. With wide dynamic range inputs, high-precision adjustable gain amplification, built-in calibration and impedance check, and configurable bi/monopolar inputs, the EPM064 is ideally suited for all electrophysiological applications. The 64 configurable channels are digitized at a full 16 bits and at selectable sample rates up to 1,000 Hz.

Through the use of plug-in SD cards and USB, the EPM064 is highly configurable, immensely capable, and yet cost effective. By selecting the data storage capacity and wireless communications type to meet your application requirements, you select the exact functionality needed to meet your cost target. Furthermore, the EPM064 delivers exceptional portability based on its small size and stingy power consumption.

The EPM064 is a fully integrated, ready to program, OEM solution. With the RTOS fully integrated from the hardware through the system and user I/O, up to an I/O API, the EPM064 is ready to program out of the box with standard C, C++, or C# tools. In fact, most of the application programming is already implemented in the E-TROLZ I/O API. This I/O API delivers fill-in-the-blank configuration of digitization parameters, oversampling routines, calibration functions, impedance functions, data file parameters, and communications parameters.

Beyond monitoring and recording applications, the EPM064 has the power to analyze the digitized data in real-time. With an on-board 32-bit DSP, advanced data analysis delivers immediate and possibly life saving information to the patient, service provider, or eHealth network.

The EPM064 embodies the most advanced E-TROLZ technology: the Dual-Partition TriCore Architecture, DPTCA™. The EPM064 is used in Class II, 510K FDA approved devices.

Channel Features

- 1 – 64 input channels
- Ultra low noise
- Configurable referential / differential
- Patient protection
- 16-bit resolution
- Selectable sample rates up to 1,000 Hz
- High common mode rejection
- Calibration & electrode impedance test
- Programmable 16-bit DAC output

Platform Features

- SD data storage up to 2 GB
- Optional wireless communications
- Powerful real-time analysis with DSP
- Windows drag & drop functionality
- High-speed USB 2.0, RS-232
- LCD & pushbutton/keypad user interface
- Low power consumption
- Small footprint 3.75 x 4.5 in.
- IEC60601-1, FDA, CSA, UL compliant

Applications

- EEG – Neurodiagnostics
- ECG – Cardiodiagnostics
- PSG – Sleep Diagnostics
- EOG – Optical Diagnostics
- EMG – Motor Diagnostics
- Mental Health Screening
- ADD Screening

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Specifications	
Processor Board	
Primary Multi-core Processor	TI OMAP 5910 – ARM9, C55x DSP, 150MHz
E-TROLZ Coprocessor	XilinX CPLD
RTOS	Windows CE 5.0
Memory	8 MB flash, 16 MB RAM
Electrophysiological Analog Board	
Monopolar / Bipolar Operation	Software selectable by card
Cards per system	1 or 2 (supports 1 – 32 or 33 – 64 channel configurations)
Channel count (AC / DC)	30 / 2 per card, customizable
Calibration & Impedance Check	Built-in, on board 16-bit DAC
Patient Protection	4 KV RMS
Channel Conditioning (nominal)	
Input Impedance	> 10 GOhms
Common Mode Rejection	> 100 dB
Channel Cross Talk	< -60 dB
Input Noise	< 1.8 µV P-P @ 0.5 – 100 Hz @ 3σ
Gain (all channels)	5 – 10,000 configurable by channel
DC Input Range	± 100 mV
Channel Digitization	
Resolution	0.061 µV/bit (16-bit A/D)
Sample Rate	64 KHz (2 KHz per channel) max, record at 100, 200, 400, 1000 Hz
Data Format	16-bit Raw, EDF+ or WFDB
Test Duration – Storage Based (2GB SD card)	
8 / 16 / 32 / 64 Channels @ 100 Hz	356 / 178 / 89 / 44 hours
8 / 16 / 32 / 64 Channels @ 200 Hz	178 / 89 / 44 / 22 hours
Communications	
USB 2.0	1 High Speed, host & client mode
RS-232	2 channels, data synchronized with ECG/EEG data
802.11b/g, Blue Tooth 2.0, Wireless USB	Optional USB plug-in
User Interface	
Display	2 or 4 line x 20 character LCD (QVGA – XGA custom configuration)
Tone / Pushbutton, switch	1 programmable / 8 inputs
Physical	
Size (H x W x D 1-32 / 33-64 channels)	9.5 x 11.4 x 3.3 / 5.1 cm (3.75 x 4.5 x 1.3 / 2.0 in) customizable
Weight (1-32 / 33-64 channels)	170 / 227 g (6 / 8 oz)
Power Consumption	120 mA + 3 mA/channel
Voltage	3V from 2 AA batteries (alternatively 3V power supply)
Classification & Safety	
FDA / EU Risk	Class II device / 2B
IEC 60601-1	Medical Electrical Devices, General Requirements
UL2601.1	Including US National Deviations for IEC 60601-1
CSA22.2	Including Canadian National Deviations for IEC 60601-1