



Features

- 3-pin Single-Cell Li-ion
- Battery Charging: Wireless, MicroUSB
- Battery Time: 6 Hrs at 1350 mAh on Normal Use
- Data Storage: 32MB
- Communication: USB 2.0, Bluetooth 2.1+EDR
- Dimensions: 70.6(2.78) x 121.9(4.8) mm(in)

Temperature Sense

- Range: -20°C - 100°C
- Precision: 0.01°C

Electrochemical Sense

- 8 Electrochemical Recording Channels
- Current Ranges of $\pm 500\text{pA}$ to $\pm 10\text{mA}$ (16 levels) or Potential Ranges of $\pm 62.5\text{mV}$ to $\pm 1\text{V}$ (12 levels)
- 4th Order Low-Pass Filter
 - Configurable Cutoff Frequency of 100Hz or 1kHz
- Input Impedance: $> 100\text{Gohm} \parallel 11\text{pF}$
- 3-Electrode or 2-Electrode Connection
- Resolution: 0.1% of range

PH Sense

- 2-Electrode Connection with Active Guarding
- 10Hz, 20Hz or 50Hz Sampling Rate

Waveform Generator

- Applied DC-Potential Range: 0V-4.096V
- Applied DC-Potential Resolution: 0.06mV
- Ramp Rate: 1V/sec at 62.5 μV step
- Update Rate: 16kHz
- Waveforms: Cyclic, DC, Normal Pulse, Differential Pulse or Square Wave Voltammetry

Microfluidic Controller

- 16-Channels Digital Switch Driver
- Voltage Level: 10V, 20V or 30V
- Maximum Switching Frequency: 1kHz

Impedance Analyzer

- Frequency Range: 0.1 μHz -100kHz
- Frequency Resolution: 10 or 100 frequencies per decade
- Measured Impedance Range: 8K-3.2M Ω
- Measured Impedance Accuracy: 0.5%

PCR Temperature Regulation

- Six Temperature Regulation Channels
- 10kHz Pulse Frequency
- 0%-100% Duty Cycle with 3.125% Resolution
- 6W per channel for a total of 36W

Electrical Lysis

- Two Lysis Cell Controller
- Voltage Level: 32V
- Frequency Range: 1kHz-100kHz
- Frequency Resolution: 0.1%
- Frequency Accuracy: 1.1%

Applications

- Electrochemical Sensing
- DNA/Protein Sensing
- Assay Automation
- Microfluidics
- Environmental Monitoring

Description

eSEN-II is the second generation of the eSEN family of products. eSEN-II builds upon the functionalities of eSEN-I adding new and updating existing features. The eSEN-II uses a modular product design to provide customers the choice between different configurations catering to their needs for chemical and biological sample preparation, regulation, sensing and identification. Currently, there are 8 sensing and peripheral modules to choose from in the eSEN-II product line. The modules are eCONTROL-I, eAMP-I, ePOT-I, ePH-I, eWAVE-I, eFLUIDIC-I, eIMP-I and ePCR-LYSIS-I. The eSEN-II products can be configured in any way as long as the eCONTROL-I is present in the system.

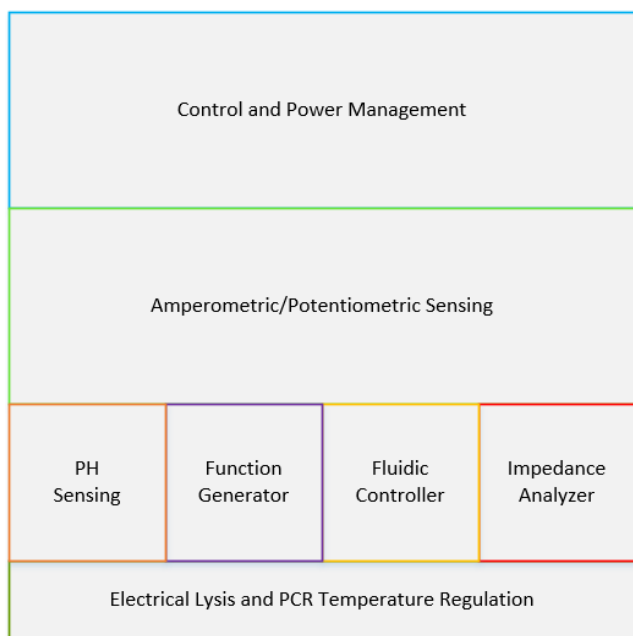


Fig. 2, Top level system diagram

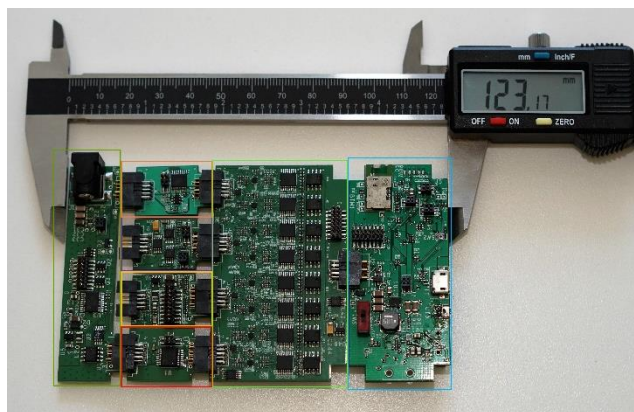


Fig. 2, eSEN-II PCB board (top view)

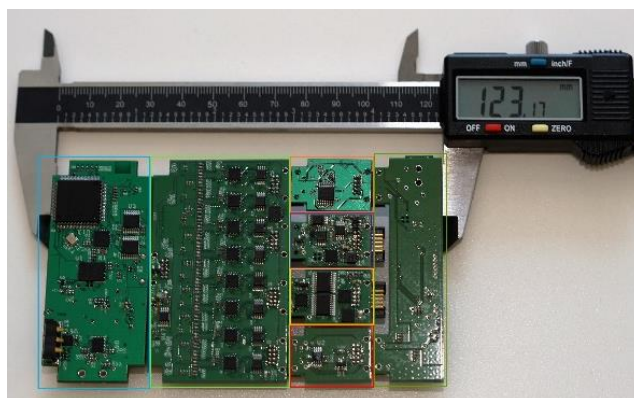


Fig. 2, eSEN-II PCB board (bottom view)

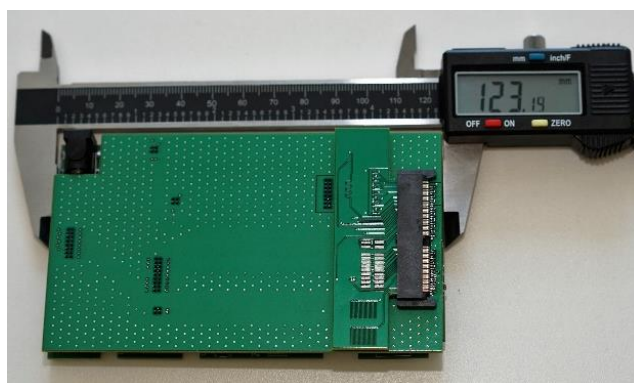


Fig. 2, eSEN-II PCB board assembly