EnviroSen
For a future more sensitive to the environment.

# ePOT-I

Potentiometric Sensing Module

## Features

- Eight Voltage Recording Channels
- Potential Ranges: ±40mV to ±2V (16 levels)
- Max Measured Voltage: ±2V (typical)
  ±1.9V (minimum)
- 4th Order Low-Pass Filter
  - Cutoff Frequency: 100Hz or 1kHz Configurable
- Input Impedance: >100Gohm || 11pF
- PCB Dimensions: 70.6(2.78) x 43.2(1.70) mm(in)

### ADC

- Input Voltage Range: 0-4V
- 16-bit Resolution
- Max 250 Samples/s for >4 Channels Active
- Max 500 Samples/s for ≤4 Channels Active

### Resolution

- SNR @ 1Hz: Better than 68dB for all ranges
- 0.05% of potential range, 39.1µV at lowest range

| Range | Resolution | Range | Resolution |
|---|---|---|---|
| **±2V** | 1.95mV* | **±222mV** | 217µV* |
| **±1V** | 977µV* | **±200mV** | 195µV* |
| **±667mV** | 651µV* | **±182mV** | 178µV* |
| **±500mV** | 488µV* | **±143mV** | 140µV* |
| **±400mV** | 391µV* | **±111mV** | 109µV* |
| **±333mV** | 326µV* | **±90.9mV** | 88.8µV* |
| **±286mV** | 279µV* | **±80.0mV** | 78.1µV* |
| **±250mV** | 244µV* | **±40.0mV** | 39.1µV* |

*Values are subject to ±1% board-to-board variation

## Applications

- Electrochemical Sensing
- DNA/Protein Sensing
- Environmental Monitoring

## Description

The ePOT-I consists of 8 voltage-to-voltage (V/V) converters with input voltage range of ±40mV to ±2V for interfacing with a wide range of voltage mode electrochemical sensors. Each V/V stage is followed by a 4th order low-pass filter and the analog input channels are interfaced with four 2-channel Analog-to-Digital Converter.

## Block Diagram

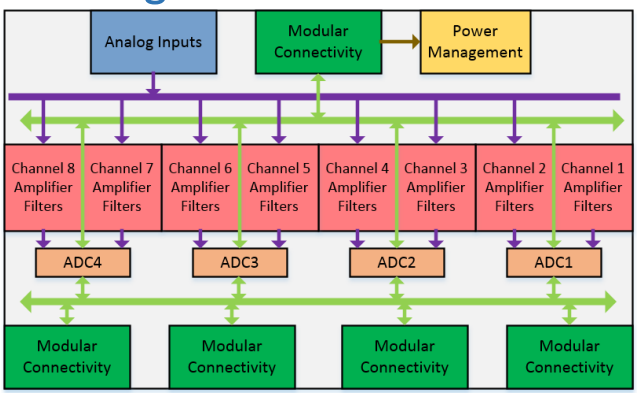


Fig. 1, Top level system diagram

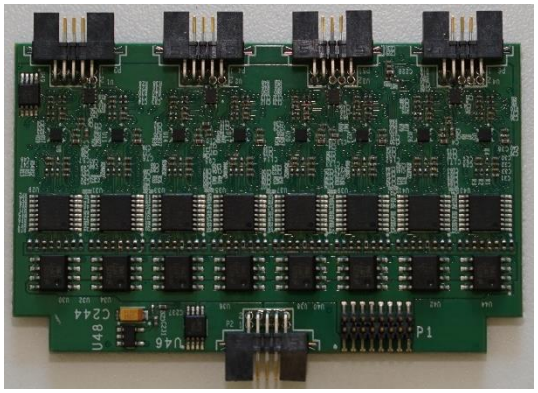

Fig. 2, ePOT-I PCB board (top view)

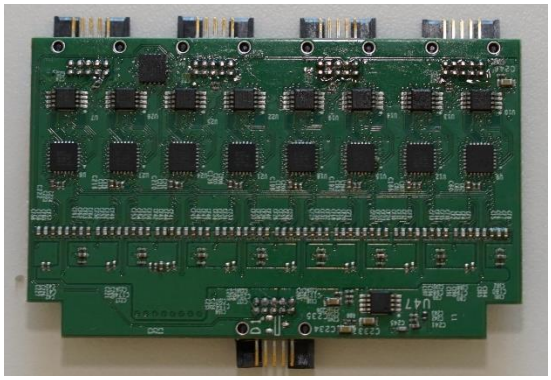

Fig. 3, ePOT-I PCB board (bottom view)

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