SMU-4 High-Precision, Simultaneous 1kS/sec/ch, 4-Channel Measuring System

FEATURES

- 4-Channel Simultaneous Sampling utilizing low-noise 24-bit ADCs per channel
- High-Speed Sampling up to 1kS/sec per channel
- All channels are Software-Selectable for supporting different sensor/transducers:
  - Strain-Gauge(Quarter-, Half- and Full-Bridge)
  - Strain-Gauge Based Transducer
  - Potentiometer
  - MEMS Voltage Accelerometer
- Suitable for both dynamic and static sampling(0.1-1000 samples/sec/channel)
- High-precision stable complement resistors for strain measurement on each channel
- USB interface for connecting to PC
- Configuring, Controlling and Acquiring data from the SMU-4/8/12/16 is done by BlueApple-Log Software

Description and Applications

SMU-4 is a high-precision, Simultaneous data acquisition system intended for both static and dynamic test and measurement applications including:

- Laboratory Test and Measurement
- Strain Measurement
- Vibration Measurement
- Modal Analysis
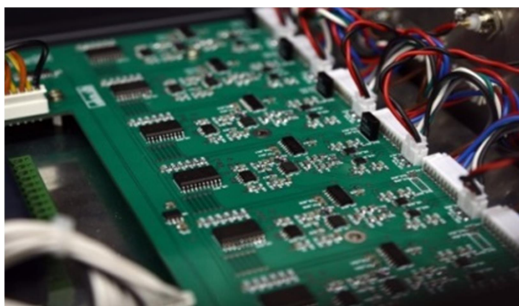
Supported Sensors/Transducers

SMU-4 supports different types of sensor/transducers and is suitable for test and measurement applications where there are numerous sensor/transducers like strain gauges, load cells, displacement transducers, accelerometers, pressure transmitters, etc.

Each channel can be defined, via software, to be one of the following sensor types:

- Strain-Gauge(Quarter-, Half- and Full-Bridge)
- Strain-Gauge-Based Transducer(Load Cell, Accelerometer, Displacement Transducer, …)
- Potentiometer
- MEMS Voltage-Based Sensors(Analog Accelerometer, Pressure Sensor, …)
- Voltage

VIBRATION MEASUREMENT

SMU-4 has special features that made it suitable for vibration measurement applications and Laboratory and Field Modal Analysis:

- Supports both strain-gauge-based and MEMS voltage-based Accelerometers.
- Sampling rates up to 1 kHz/channel allows Medium-frequency vibration signals to be acquired without aliasing problems.
- Software on-line FFT provides early detection of signal frequency contents

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SMU-4 *High-Precision, Simultaneous 1kS/sec/ch, 4-Channel Measuring System*

STRAIN GAUGE SUPPORT

SMU-4 has special features that made it a suitable tool for simple, fast and accurate strain measurement.

- Each channel supports strain gauges in Quarter- Half- and Full-Bridge configurations.
- Supports Quarter-bridge in 3-wire circuit for eliminating cable resistance changes over temperature in long period measurements.
- Supports Half-bridge in 5-wire circuit for eliminating cable resistances in long cables.
- Bridge configuration for each channel is selected through the *BlueApple-Log* Software.
- Each channel has high-precision 120-ohm completion resistor for Quarter-bridge configuration.
- R-Calibration capability

SIMULTANOUS SAMPLING

Each channel has its own 24-bit analog-to-digital converter and sampling of all channels is performed simultaneously.

Thanks to the use of a new-technology ADC, it is possible to achieve low-noise measurement even in high rate sampling. Supported sampling rates vs. noise are listed below:

Sampling Rate (Sample/sec/channel)	ADC Noise peak to peak Resolution(bits)
5	24
10	24
20	23.7
100	22.5
200	22.1
500	21.3
1,000	20.7

OTHER SPECIAL FEATURES

- Two excitation voltages per channel with short-circuit protection capability.
- Excitation circuitry utilizes feedback for compensating voltage drops in long cables

GENREAL INFORMATION

Power supply: 220VAC
Dimensions: 220 × 80 × 195 cm
Accessories: USB cable and Power cable

BlueApple-Log SOFTWARE

Configuring, controlling and acquiring data from the *SMU-4/8/12/16* is done by Windows®-based *BlueApple-Log* Software. *BlueApple-Log* has following features:

- Online monitoring of all channels
- Different selectable sampling frequencies from 0.1 to 1000 Sample/sec/Ch.
- Saving Data-files in ASCII format
- Easy and Fast Measurement
  - Simple menus for choosing sensor/transducer type(strain gauges, strain-gauge-based transducers, potentiometers, and voltage sensors)
  - Auto-zero button for each channel
  - Two-point calibration capability
  - Saving and restoring calibration settings

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