

# Kelunji EchoPro SBM

KELUNJI ECHOPRO STRAIN BRIDGE MONITOR

## FEATURES

- Continuously monitors 12 quarter-bridge strain gauges & one thermistor
- Thermistor value displayed in Ohms & degrees C
- Data recorded to USB memory stick
- USB memory stick not required for operation only for recording
- Time & date of recording encoded in the filename
- Manual time & date setting via the keypad/LCD
- Time & date saved in battery-backed real-time-clock
- Ability to null the offset at any time
- Ability to start & stop recording at any time
- Recording status displayed on the LCD
- Every time a new recording is started, a new file is created
- Adjustable LCD contrast
- Time displayed on the LCD (updated each second)
- Displays battery voltage, internal temperature & USB memory statistics
- USB memory stick automatically mounted/unmounted when inserted or removed
- LCD backlight turns off 2 minutes after last keypress
- Firmware upgradeable via USB memory stick
- Data only recorded if USB stick is actually inserted

LOGGERS / READOUTS



Environmental Systems & Services' strain bridge monitor logger is a portable instrument for the measurement of resistance strain gauges and strain gauge based instruments. It's particularly adapted for use with the CSIRO Hollow Inclusion Stress Cells.

Commonly used in mining, civil and laboratory applications it can measure 12 quarter-bridge strain gauges and one thermistor continuously.

Many strain gauge based transducers are available for measuring force, pressure, acceleration, soil stress, water potential and other parameters.

CSIRO Hollow Inclusion Stress Cells are used to measure triaxial stress in rock or concrete.



**ISO 9001  
CERTIFIED**

**es&s** [www.esands.com](http://www.esands.com)

## TECHNICAL SPECIFICATIONS

## SCREENSHOTS

### SENSOR INTERFACE

- All 12 gauge values simultaneously displayed on LCD
- Resolution down to 0.5uV, LCD displays resolution to 1µ
- Range is ± 99,999µ full-scale, ie, ± 0.1V
- 24-bit ADC on 12 channels-Thermistor ADC is 10 bits
- Data written to file every 5 seconds
- Files written to USB memory in DOS.CSV format
- ADCs sampled at 10 SPS

### POWER

- Operates from 7-18V DC
- Optional internal Li-Ion battery
- Maximum current consumption @ 12.0V = 0.7A (LCD backlight on), 0.6A (LCD backlight off)

### MAIN PROCESSOR BOARD

- 180MHz processor clock speed
- Linux operating system
- USB 2.0 support

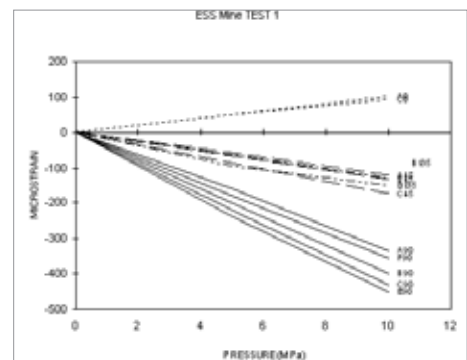
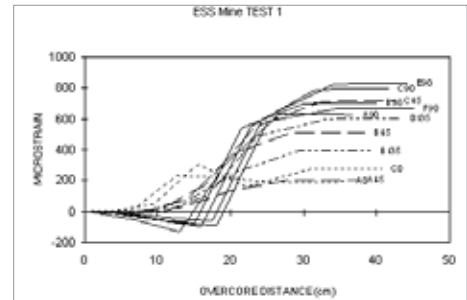
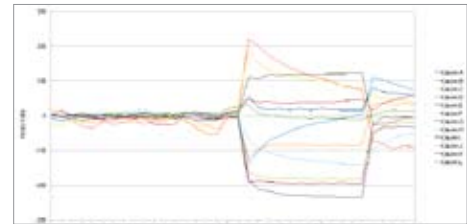
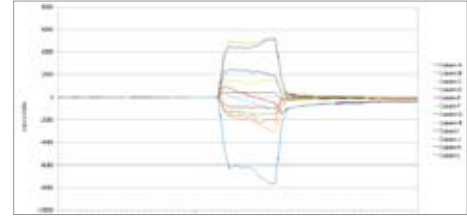
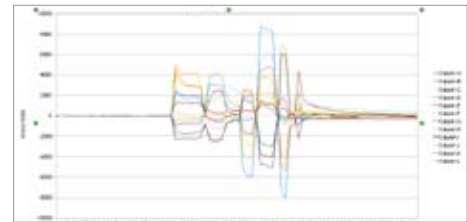
### HOUSING

- Compact S3 case with external LCD and keypad
- W26cm x D23cm x H13cm

### OTHER

- Continuously monitors 12 quarter-bridge strain gauges & one thermistor
- All 12 gauge values simultaneously displayed on LCD (+/- 99,999µ full-scale, ie, ± 0.1V)
- Thermistor value is displayed in Ohms & degrees C

- Data recorded to USB memory stick
- USB stick not required for operation, only recording
- Time & date of recording encoded in filename
- Manual time & date setting via the keypad/LCD
- Time & date saved in a battery-backed real-time-clock
- Null the offset at any time (by pressing Zero)
- Start & stop recording at any time (press Start/Stop button)
- Recording status is displayed on LCD
- New file created every time a new recording is started
- User can adjust LCD contrast
- Current time displayed on LCD (updated each second)
- User can check battery voltage, internal temperature & USB memory statistics
- USB memory stick automatically mounted/unmounted when inserted or removed
- Data is written to file every 5 seconds
- Files are written to USB memory in DOS.CSV format
- LCD backlight turns off 2 minutes after last keypress
- Press ON button to refresh LCD & turn backlight on
- Firmware upgradeable via USB memory stick
- Data only recorded if USB stick is actually inserted
- Maximum current consumption @ 12.0V = 0.7A (LCD backlight on), 0.6A (LCD backlight off)
- ADCs sampled at 10 SPS
- ADCs can resolve down to 0.5uV
- LCD displays resolution to 1µ
- Gauge ADCs are 24 bits
- Thermistor ADC is 10 bits



### OPERATING PRINCIPLE

The strain bridge monitor logger provides bridge excitation and simultaneous digital display output for up to 12 strain gauge inputs of quarter bridge configuration. The unit is supplied in a rugged carry case together with internal rechargeable batteries and a 220/240V AC mains recharger.

The HI Cell is simply wired directly into the rear panel. The logger has a convenient start function to begin and stop logging prior to or at the conclusion of overcoring.

It will record the entire process smoothly without the need of pausing drilling to take readings as in the past. Recording status is displayed on the LCD screen allowing the user to track measurements while drilling progresses. Ten samples per second are recorded while data is written to the USB every five seconds. Data is easily transferred from logger to PC via the USB stick. The file format is the same as the stress Isotropic program allowing simple hassle free download and data analysis. The logger has the ability to null the offset at any time by pressing the Zero button. Temperature is recorded and displayed on the LCD in both ohms and degree Celsius. This is handy for keeping track of drill water temperature during overcoring. Firmware is upgradeable via the USB stick.