

# Kelunji EchoPro

BLAST, VIBRATION & EARTHQUAKE RECORDER

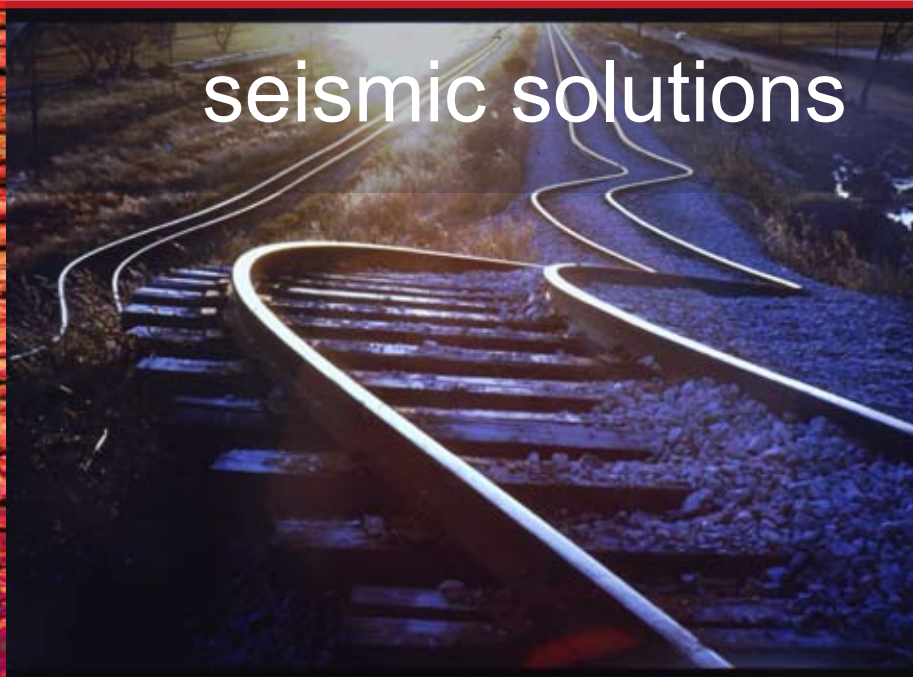
## FEATURES

- 24-bit ADC on 6 or 12 channels
- Up to 2kHz sampling on 6 channels (1kHz on 12 channels)
- Locked to absolute time using GPS or NTP
- USB data storage for continuous recording
- Ethernet connection for remote web login
- Optional LCD panel & keypad for field settings
- Optional internal battery
- Optional internal triaxial accelerometer

## APPLICATIONS

Perfect for earthquake monitoring - available with 6 or 12 external channels, all with high dynamic range 24-bit digitisers, sampling at up to 2000 samples per second.

Designed to advance the game in blast monitoring. Forget 12-bit blast monitors - improve your recording resolution and sensitivity by a factor of over 4000 with EchoPro. No longer do you need wire-break triggering to synchronise your waveforms - with GPS time-locked recording and USB storage, you can set recorders to run all day recording continuously and triggering, with up to 6 channels recorded at 2kHz from your geophone and microphone.



“ The Kelunji EchoPro performs seamlessly in the field. This is state-of-the-art instrumentation for blast vibration and airblast measurement. ”

Michael J Noy Ph.D.  
Orica Mining Services

EchoPro is here, and it's the fastest, most powerful, and easiest to use Kelunji we've ever made. The compact and rugged design is perfectly suited to earthquake and blast monitoring applications.

- HIGH RESOLUTION
- MULTI-CHANNEL
- RUGGED
- GPS TIMING
- LINUX OS

# TECHNICAL SPECIFICATIONS

<b>Overview</b>	Robust case containing motherboard with 4GB storage memory, 4- or 6-channel sensor interface (optional expansion to 12-channels), internal GPS receiver, internal serial and alarm output ports
<b>Channels &amp; Sampling</b>	6-channel interface, 24-bit ADC on each channel Differential inputs with $\pm 10V$ input range 140dB Dynamic Range @ 100sps (RMS to RMS) Sample rates of 2000, 1000, 500, 100, 50, 25, 10, user selectable Triaxial groups factory configured as either: - single-ended constant current inputs; or - differential voltage inputs Supports all seismic sensors, pressure microphones
<b>Main Processor Board</b>	- 180MHz processor clock speed - Embedded Linux operating system - 10/100 Ethernet and USB 1.1/2.0 support - On board GPS receiver
<b>Power</b>	- Operates from 7-18V DC - Minimum power consumption 1.92W
<b>Standard Case includes</b>	External Ethernet port, 12V input power connector, GPS connector and GPS aerial with 5m cable, two mil-spec connectors (3+3 channels or 3+1 channel)
<b>Standard Case Options</b>	- Internal VRLA battery: 12V 9Ah with external I/O switch - Internal modem with external line connection - Internal triaxial accelerometer - External LCD and keypad ( <i>see below, case on right</i> )
<b>Rugged Case Features</b>	Internal water resistant face plate, internal Li-Ion battery, internal LCD & keypad, internal high-gain GPS aerial, internal I/O switch, charger socket & USB socket, Li-Ion charger, external Ethernet port, earthing lug ( <i>see below, case on left</i> )
<b>Internal Accelerometer (optional)</b>	Triaxial MEMS technology components Absolute full scale range of $\pm 2g$ RMS noise of $15\mu g$ Dynamic range greater than 100dB @ 100sps



RUGGED CASE

STANDARD CASE

STANDARD CASE WITH LCD



EchoPro SMA (Strong Motion Accelerograph) also available with internal  $\pm 2g$  100dB or  $\pm 3g$  120dB accelerometer