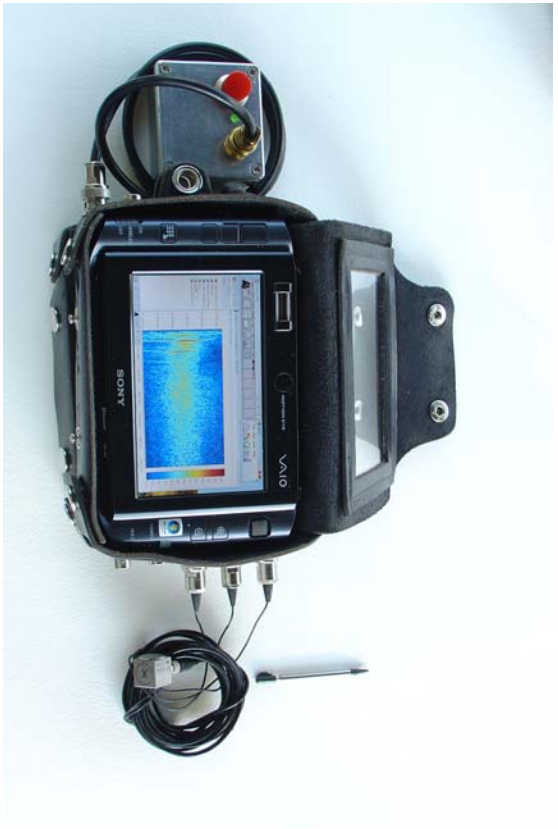
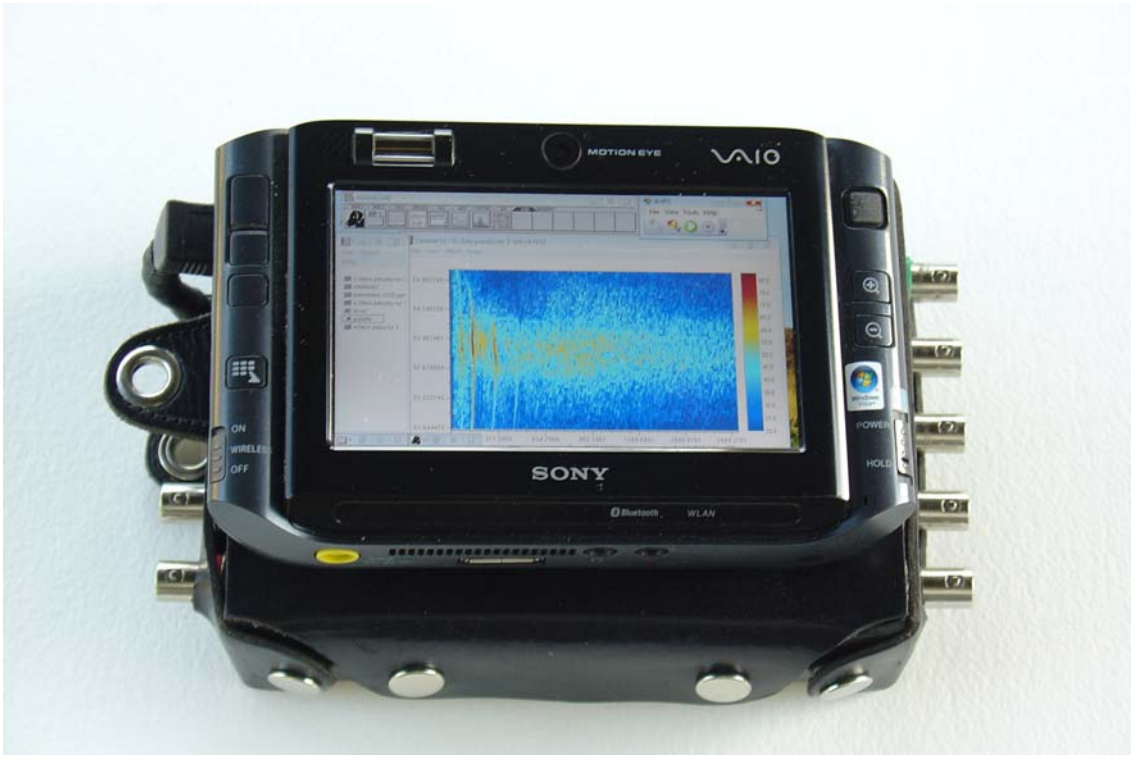
Bay Acquisition & Recording System - BARS

Record and analyse data using a full function micro PC with 4-32 acquisition channels.
A 4ch system weighs <1.1 kg and is battery powered.



Ultra Portable Data Acquisition - BARS

Suitable for use in outside sunshine (photographed outside in summer sunshine)



Bay Systems' Mission Statement

To provide effective NVH solutions; that increase productivity by being : -
1. Easy to learn and use; they should help do a job not become the job.
2. Application focused; they should provide the answers that are needed not more data.
3. Affordable; both to purchase and maintain.

Making better products is about communication of:-
Ideas,
Designs,
Prototypes,
Test Results,
Customer Reactions.

Facilities and systems play an important part in this process by providing reliable numbers upon which decisions can be based.

Reliable numbers are not the automatic result of testing. They are only produced when systems, technicians and engineers are working in harmony with each other.

The user interface and how it relates to the job is the key to a more productive working environment. A stable design, that is easy to understand and use, is the basic requirement.

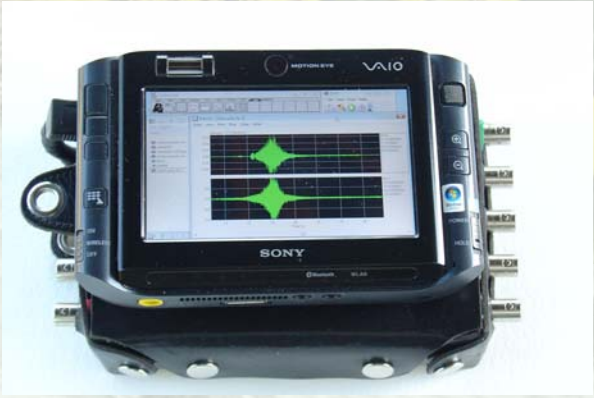
For acquisition BARS puts every control within two mouse clicks or screen taps and every graph is easily found, displayed and understood. A full QWERTY keyboard can be revealed that allows you to write the report or make notes. The two built in cameras allow you to photograph what you have measured and the GPS fixes the position.

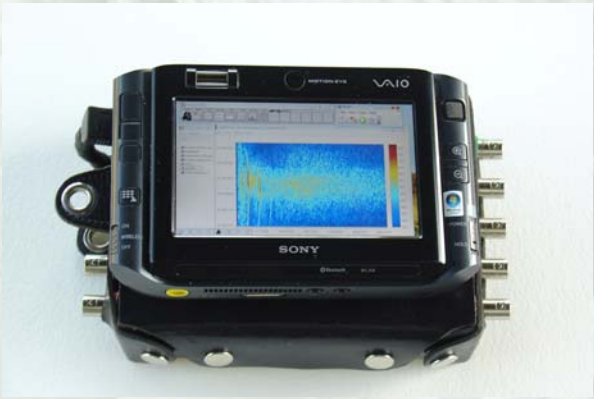
The data acquisition hardware modules are securely attached underneath the micro PC, cushioned and protected inside a military grade leather case..

Why would you choose to carry a note book + front end weighing perhaps 10+kg. When you can use BARS weighing <1.1 kg and small enough to hold in one hand?

** All photographs used in this brochure were taken in summer sunlight. Yes BARS is the system you can use outside and still see your data!*

What you are looking at weighs less than 1.1kg; runs for 1+ hours on it's battery and from a DC/AC supply.





*

Smaller, Lighter, Faster and Best Value For Money was the request.

BARS is a solution for both low, mid and high channel count data acquisition, importantly our offer is at a purchase and through life price that every user can afford.

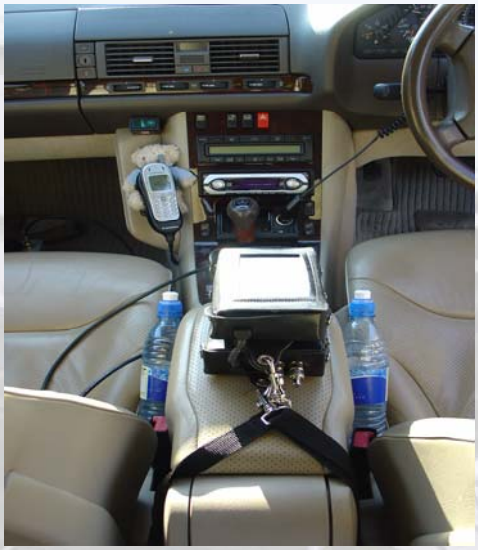
Exceptional Quality
Very high performance 24 Bit Analogue to digital and digital to analogue conversion
High quality branded micro-PC with genuine daylight readable 1024 x 600 screen
Easy to use recording software designed for the small screen size
Ruggedly packaged in strong, military grade leather cases to protect the micro PC and acquisition system.

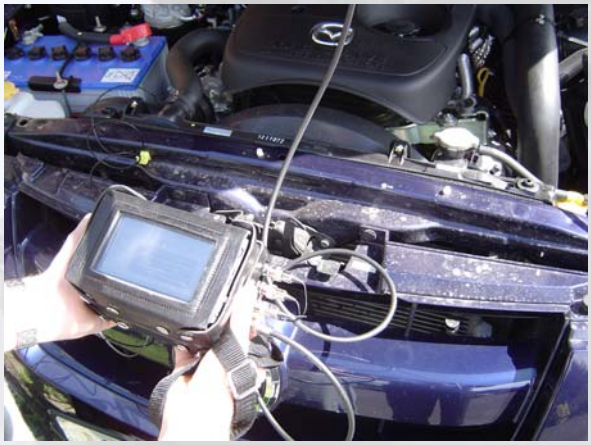
BARS Micro System

- 24 bit ADC
- Parallel sample and hold
- IEPE 4ma transducer power
- Anti-alias protection
- AC/DC coupling
- Tachometer input
- Trigger input
- Analogue output
- …

Channel counts from 4 to 32 and a card configuration to suite most applications.

BARS is a battery powered, ultra portable data recording system that lets you inspect and analyse your data whilst in the field.
It is the natural successor to the instrumentation tape recorder, with more storage space and channels while costing less.
All of the post processing and specialist modules work both with the BARS micro-system and larger format USB II connected systems.
For customers who have Sony EX systems the BARS system will integrate with the Sony PCscanIV post processing software.





Sample rates on all channels up to 225,000 samples per second per channel written to disk on a standard note book PC.
The slowest system samples at 52kHz per channel – fast enough for all NVH work.
All cards sample at many lower rates to suite all applications and conserve disk space.

Data Acquisition System Feature	Specifications
Number of analogue input channels	4, single-ended, simultaneous 8,12,16,24, 28, 32channels with additional input cards of 4 or 8 channels each.
Resolution	24 bits
Ranges and gains	±10 V (gain of 1), ±1 V (gain of 10)
Gain error Gain of 1: Gain of 10:	 ±0.02% ±0.5%
A/D type	Delta-Sigma
Maximum sample rate per channel of standard system. Maximum sample rate of available cards	52.734 kHz per channel 225kHz per channel
Minimum sample rate of standard system	195.3 Hz
Group delay	38/Sample Frequency
Stop-band	0.49 x Sample Frequency
Pass-band ripple	±0.005 dB
Signal/noise (typical)	106 dB
Total harmonic distortion (–0.5 dB) using 1 kHz sine wave, sampled at 50 kHz	 –90 db typical
Spurious free dynamic range (SFDR) using a 1 kHz sine wave, sampled at 50 kHz 10 V full-scale signal (–0.5 dB): 1 V signal (–20 dB): 100 mV signal (–40 dB): 0 V signal:	 –90 dB typical –105 dB typical –115 dB typical –115 dB typical
Data encoding	Offset binary
Maximum input voltage (without damage) Power on: Power off: Input impedance Overvoltage protection (power on/off) ESD protection Arc: Contact: Current source Compliance voltage Current noise @ 1 kHz bandwidth Current source accuracy DC offset AC coupling at –3 dB	 ±30 V ±20 V 1 MΩ, 20 pF (cable capacitance of typically 30 pF per foot must be added) ±40 V 8 kV 4 kV 4 mA 18 V 5 nA rms ±1.0% 1.5 mV 0.5 Hz

Data Acquisition System Feature	Specifications
Input impedance	1 MΩ, 20 pF (cable capacitance of typically 30 pF per foot must be added)
Overvoltage protection (power on/off)	±40 V
ESD protection Arc: Contact:	 8 kV 4 kV
Current source	4 mA
Compliance voltage	18 V
Current noise @ 1 kHz bandwidth	5 nA rms
Current source accuracy	±1.0%
DC offset	1.5 mV
AC coupling at –3 dB	0.5 Hz
Number of analogue output channels	1 –6
Resolution	24 bits
Output range	±10 V
Data encoding	Offset binary
Output current	±1 mA maximum load (10 V across 10k)
FIFO	8192 Samples, total per 4 channels
ESD protection	
Arc:	8 kV
Contact:	4 kV
DC offset	±1.5 mV
Gain error	±3.0%
2-pole, low-pass Butterworth filter	10 kHz
Time delay (typical)	34/output frequency
Power fault and reset	Goes to 0 V ±10 mV if the USB cable removed or the power fails
Total harmonic distortion (typical at 1 kHz)	0.0015%
Internal clock	output frequency x 256
Sample frequency	46.875 kHz
Pass band ripple (typical ±0.002 dB)	0.454 x output frequency
Pass band (typical)	0.454 x output frequency
Stop band (typical)	0.546 x output frequency
Weight of 4 channel ADC system	500 grams
Size of ADC system	100 x 200 x 18 mm

Feature	Computer Technical Specifications
Processor	Latest Intel Centrino Intel® Core™ Solo Processor U1500 (1.33GHz , 2MB L2 Cache)
Screen size	4.5" Wide XBRITE SVGA LCD, Touch Screen (1024x600) Daylight readable
Memory	1GB RAM
RAM Disc	40GB HD None Volatile RAM disc
Networking	Intel® PRO/Wireless 3945ABG Network Connection (802.11a/b/g)
Navigation	GPS Navigation.
Audio	Built-In Speakers
Graphics processor	Intel® Graphics Media Accelerator 950 with 224MB dynamically allocated RAM/Video memory
Ethernet connectivity	Fast Ethernet 10BASE-T/100BASE-TX (RJ-45)
Additional none volatile memory supplied	16Gig Byte - The accessory slot supports Optional Memory Stick DUO™ media with MagicGate® Optionally 32GByte data storage may be specified or upgraded to later.
Wi-Fi	Integrated Wireless Wide Area Network (WAN) accessing high speed wireless EDGE Network with SmartWi™ technology.
	Supports speeds up to 247.4 kbps.
Camera x 2	2 Built-in Cameras (front: 0.3M pixels and back: 1.3M pixels)
Microphone	Built-in microphone
USB	USB 2.0 Port
Audio connections	Microphone jack, Headphone jack
Security	Biometric Fingerprint Sensor
Power	110V-240V AC Adapter compatible with Voltage in the United Kingdom
Battery Life	Up to 7 Hours Battery Life
Operating System	Windows Vista Business. Language upgrade available
Weight	500grammes

Accessories included

GPS Navigation.
AC Adapter
Port Replicator - 1 4-pin i.LINK® interface, 3 USB 2.0, Ethernet, VGA-Out, A/V-out and DC-in
Soft Carrying Case
Power Cord
Stylus
VGA/LAN Adapter - Ethernet, VGA-Out and A/V-Out
Strap, Detachable Stand, 2 Additional Stick Pointer Caps

Application Software

Data Acquisition	BARS standard software supports calibration of channels, sample rate, IEPE,AC/DC coupling, storage location, ASAM and other file exports allowing the BARS to be used a simple data recorder. The data can then be accessed by any post processing package supporting industry standard file formats e.g. ASAM, SDF, UFF, WAV...
Post processing using nVision	Optional post processing modules that provide all spectral and time domain DSP functions: - Spectrum, PSD, Cross Spectra, FRF, Coherence, Wavelet…
Displays	Graph (XY) Multiple (8) overlay, Bode Log Mag/Frequency, Colour Contour, Waterfall, multi channel time trace, overlay time, third octave with text readout...
Arithmetic functions	Add, sub, mult, divide, ave , record max and min values, calculate lin (rms) overall value. Calculate A,B,C,D and user defined overall level. Apply ABCD&U weight to data (both narrow and octave band) Multiple channels together and by a constant in time and frequency domains

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