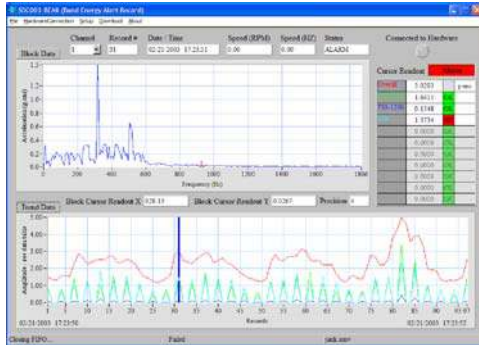


MACHINE PROCESS MONITOR Band Energy Alert / Recorder (BEAR™)



Monitoring the energy contained in spectral bands is a simple yet highly sophisticated method to determine the health and integrity of a machine or process. The ability to trend this data provides a view of the evolving condition of the machine or process. The vibration signature (spectrum) of a machine provides a reliable indication of its health and the consistency of its operation. By selecting bands associated with a particular machine or process it is possible to focus on a single machine or process, filtering extraneous information from unrelated energy sources.

Using SDC003-BEAR application software, The Modal Shop's LanSharc hardware can be setup to monitor up to 10 individual spectral bands for each of up to 4 dynamic input channels in real-time. Bands may be set based upon either frequency or order. By monitoring and trending critical frequency bands or orders, problems are detected on-line during early stages. Potential quality issues are identified immediately, equipment maintenance costs are minimized and machinery life maximized, reducing down time and minimizing inventory of expensive parts. Either time waveforms or frequency and order based spectra can be stored for further evaluation and detailed root-cause analysis. External triggering and solid state relay outputs make the BEAR process-friendly with existing PLC or SCADA systems.

TYPICAL APPLICATIONS:

- Dynamic process monitoring
- Machinery health monitoring
- Condition trending of rotating machinery
- Smart vibration limit switch
- End-of-line quality inspection

TYPICAL MACHINERY/EQUIPMENT:

- Gearboxes, Motors and Engines
- Compressors, Pumps and Blowers
- Turbines and Generators
- Dynamometers

BENEFITS:

- Provides economical on-line, full-time process monitoring
- Alerts of dynamic exceedances indicative of quality issues and/or machine reliability
- Minimizes equipment maintenance costs while maximizing machinery life
- Capable of stand-alone, autonomous operation or networked via internal Ethernet
- Meets tough industrial standards including NEMA4 and CE mark
- Trends overall levels and band energies
- Logs either time waveform or spectrum for detailed root cause analysis
- Onboard solid state relays facilitate real-time alarming



MODEL BEAR

Based upon the proven LanSharc™ hardware platform, BEAR systems can be permanently installed as a stand-alone, autonomous module, or PC-based connected via Ethernet. Multiple systems may be networked over a hardwired Ethernet LAN or wireless network to a central PC computer where the status of all systems can be monitored with direct access to any single unit for data upload or review and control. The standard LanSharc hardware provides:

- **Up to 4 dynamic inputs to monitor ICP® transducers signals such as vibration**
- **1 digital input for external event trigger**
- **1 tachometer input for machine speed measurement, and**
- **4 solid-state relay outputs for trip-off or PLC.**

The BEAR software provides:

- **GUI to setup hardware**
- **Summary view**
- **Trend plot**
- **Spectrum or time plot**
- **Export of data**

The BEAR firmware provides:

- **10 frequency or order-referenced alert/alarm bands per channel**
- **Alert/alarm levels configurable in units of acceleration or velocity (rms or peak) or in generic engineering units**
- **Up to 10 harmonic comb bands expandable to 30 harmonics**
- **Time stamped records via realtime clock**

SYSTEM SPECIFICATIONS:

LanSharc Smart Digital Controller

Dynamic Inputs	1, 2 or 4 channels (2-pin or 18-pin ConXall)
Input Channel Conditioning	5 mA constant current sensor excitation (ICP®)
Input Channel	AC Couple -3 dB at 20 Hz (optional 0.5 Hz)
Input Voltage Range	+/- 2.5 Vpk
Digital Inputs	2 (tachometer and external event trigger)
Monitor Output	1, buffered analog (BNC jack)
Digital Outputs	4, solid state relay (9-pin ConXall)
ADC Resolution	24 bit
Dynamic Range	110 dB
Maximum Sample Rate	128 kHz
SDRAM Memory	16 MB
Flash Memory	8 MB
Power Requirements	24 VDC (3-pin ConXall)
Power Usage	150 mA
Communication	232 or Ethernet
Mechanical Enclosure	NEMA4, 2x4x7 inches

BEAR Application Firmware/Software

Sensor Units	Acceleration or Engineering Unit
Alarm Options	2 low and 2 high
Alarm Types	Acceleration, Velocity or Engineering Unit
Band Types	Frequency and/or Order
Band Settings	10 per input channel
Maximum Analysis Range	50 kHz
Minimum Analysis Range	500 Hz
Analysis Resolution (Blocksize)	512 to 8196 lines
Average Modes	None, Linear or Peak Hold
Trigger Modes	Free Run, Input Channel, RPM or Digital Input
Window Selection	Uniform, Hanning and Flattop
Data Logging	Time History or Spectrum
Event Logging (upon)	Completed Average, Time Event, RPM Event and Alert/Alarm Event
Spectrum Storage Capacity	2376 records (single channel with 1024 blocksize)
Time Waveform Storage Capacity	990 records (single channel with 1024 blocksize)

The Modal Shop 3149 E Kemper Road, Cincinnati, OH 45241 USA

Toll free 800-860-4867 / Phone 513-351-9919 / Fax 513-458-2172

E-mail info@modalshop.com Web site www.modalshop.com

© 2010 PCB Group, Inc. In the interest of constant product improvement, specifications are subject to change without notice.
® PCB and ICP are registered trademarks of PCB Group, Inc.