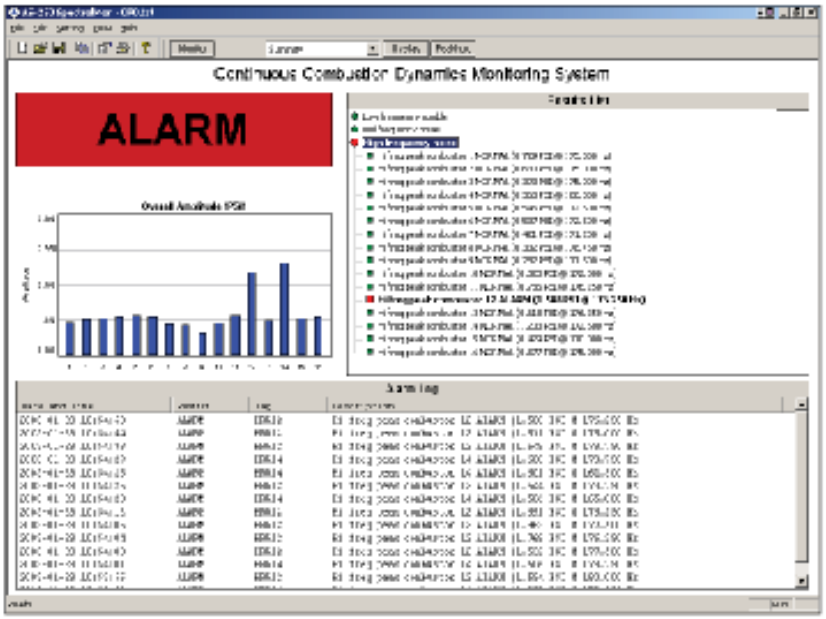
AS-250 SpectralMon™ Datasheet

Real-Time Dynamic Monitoring and Analysis System



In many industrial applications, there is a need to monitor the dynamic characteristics of large machinery (such as turbines and compressors) or processes (such as steel and paper production).

To meet this need, Alta Solutions has designed SpectralMon™ to provide round-the-clock dynamic monitoring. It uses powerful spectral and time analyses to detect changes in the dynamic signature of your machinery or process.

The system has a rich set of alarm criteria to catch a wide range of problems. User-defined and rpm-based energy bands and spectrum windows can be configured to identify the presence of significant frequencies. Time thresholds and statistical criteria detect spikes and changes in the time waveform.

Once a dynamic event is detected, the system instantly informs the control system or other external devices. This information can be used to alert the operator to change process settings or schedule maintenance.

The system provides a detailed historical log of the events to help correlate hanges in the process or deterioration in the machinery.

Sensors including accelerometers, velometers, proximity probes, displacement sensors, pressure transducers, and microphones can easily be connected to the SpectralMon™ system. Flexible signal conditioning provides anti-alias filtering, overload protection, AC/DC coupling and IEPE transducer power.

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Ordering Information

ANALOG INPUTS

Number of Analog Inputs	2 to 40 in increments of 2
A/D Resolution	24 Bits
Sampling	All inputs simultaneously sampled
Dynamic Range	110 dB (typical)
Signal-to-Noise Ratio	110 dB (typical)
Input Voltage	-20 V to +20V
Input Impedance	100 KOhm
Frequency Spans	DC to 20 kHz
Amplitude Error	<1%
Phase Accuracy	± 1° between channels
Connector Type	BNC and terminal strip
Input Circuit	Single ended / floating ground
Programmable Coupling	AC, DC, and IEPE
Low-Pass Cut-Off:	0.01 Hz (Digital subtraction)
IEPE Power	3.9 mA, 22 VDC
Over-Voltage Protection:	±30 V pk
Overload Detection:	LED indication

TACHOMETER INPUTS

Number of Tachometers:	2 to 4 (factory configured)
Speed Range:	24 to 1,000,000 RPM
Trigger Threshold:	-20 V to +20 V
Trigger Slope:	Rising and Falling
Pulses Per Revolution:	0.01 to 10,000
RPM Error:	<1%
Input Voltage:	-20 V to +20 V
Input Impedance:	100 K Ohm
Connector Type:	BNC and terminal strip
Programmable Coupling:	AC and DC

Ordering Information

EXTERNAL INTERFACES

Data Input:	Digital Inputs Modbus (Master and Slave) User Defined Tags
Data Output:	Electromechanical Relays Alarm (Event) Logging Time/Spectrum Logging Digital Recording (FIFO) Spreadsheet (Comma-Delimited) HTML Report E-Mail Modbus (Master and Slave) OSI PI Historian
External Interfaces:	TCP/IP Socket Protocol (full system control and data retrieval) Serial RS-232/RS-485
Export Formats:	ASCII - Comma-Delimited Matlab (Mathworks) MEScope (Vibrant Technology) WAV UFF (Universal File Format)

DIGITAL RECORDER

Speed:	Data streaming (all channels)
Controls:	Playback, Pause, Step Forward, Step Backward, Slider Position
Playback Speed:	1/4x to 4x speed
Triggering:	Manual or On Event
Pre-Trigger Samples:	400,000 per channel

Ordering Information

PHYSICAL ATTRIBUTES

Voltage Requirements:	24 VDC (or 110 VAC using power transformer-supplied)
Power Consumption:	8 W (typical for 10 channel)
Size:	Width: 205 mm (8.05") Height: 43 mm (1.70") Depth: 181 mm (7.16")
Weight:	1 kg (2.2 lbs)
Operating:	Temperature: 0 °C to 70 °C Relative Humidity: 10 to 85%
Storage:	Temperature: -55 °C to 85 °C
Vibration (sine wave):	5 G (5 - 500 Hz)

DATA VISUALIZATION

Plot Types:	
Readouts:	Alarm/Normal Status Historical Alarm Log Results List Channel Statistics Barmeter Field Text Table Tags
Spectrum:	Magnitude, Phase, Real, Imaginery
Time:	Waveform, Orbit, Trend
Transfer Function:	Magnitude, Phase, Coherence Real, Imaginery
Cursor:	Select Data with Mouse and Keyboard Tracking Cursor (Spectrum) Numerical Cursor Readout Multi-Plot Cursor Locking
Data Markers:	Peak, Harmonic, Sideband, Order, Delta Time, Delta Frequency, User Defined

Ordering Information

ANALYSIS CRITERIA

Spectrum:	Overall Amplitude Spectrum Window, Order Window, Spectrum Envelope, Energy Band, Order Band, Phase, Order Phase, Total Harmonic Distortion
Time:	Time Level Threshold, Overall Amplitude (peak to peak), Time Envelope, Pulse Width, Time Trigger, Time Crossings, Crest Factor, K Factor, Form Factor
Statistical:	Mean, Standard Deviation (sigma), Skew, Kurtosis
Modal:	Damping (Q), Resonant Frequency, Transfer Function Window, TF Magnitude, TF Phase
Other:	Hilbert Envelope, Speed, Delta RPM, Sound Pressure Level (SPL)

ANALYSIS PARAMETERS

Data Analysis:	Live, Average, Waterfall
Math Operations:	Integration and Differentiation
Spectral Resolution:	100, 200, 400, 800, 1600, 3200, 6400, and 12800 lines
Window Functions:	Rectangular, Hamming, Hanning, Blackman-Harris, Flat-top
Overlap Processing:	0%, 25%, 50%, 75%, and 90%
Data Triggering:	Freerun, Channel, Delta RPM
Trending:	Any analog or process variable
Averager Types:	Linear or Exponential
Averager Emsemblee:	1 to 1000
Waterfall Storage:	Time, Spectrum, Synthetic Tachometer
Waterfall Records:	10 to 500
Waterfall Stop Condition:	When Full, Continuous

ORDERING INFORMATION

Example : AS-250R-1050-C10-T4-PJ-EC-OPTIONS

Configuration:	AS-250S - Stand-alone AS-250R - Rack-mount AS-250L - Laptop
Channel Options:	Option C2 - Two Channels Option C4 - Four Channels Option C8 - Eight Channels Option C10 - Ten Channels Option C14 - Fourteen Channels Option C16 - Sixteen Channels Option C20 - Twenty Channels
Tachometer Options:	Option T2 - Two tachometers Option T4 - Four Tachometers
Ethernet Connectrion:	Option EC - Copper (RJ-45) Option EF - Fiber (LC connector)
Power Connector:	Option PJ - DC Jack (2.1 mm) Option PT - Terminal Strip
Optional Mounting:	Option MB - Mounting Bracket *Contact Factory for Additional Configurations and Options*

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