



Modern Vibration Test Control System

PANTHER COMPLETE MISO SOFTWARE SUITE™

MISO CONTROL SOFTWARE ANALYSIS SOFTWARE (Multiple Input Single Output)

• Sine

- Random
- Shock
- Sine on Random
- Random on Random
- Shock Synthesis
- Road Simulation

• **FFT**

- 1/n Octave
- Statistics
- Modal Data Acquisition
- Playback
- Transient Capture
- Rotating Machinery

SYSTEM HARDWARE

- 24 Bit resolution > 110 dB **Dynamic Range**
- 262,144 Samples per Second
- IEPE, TEDS, 8 Gain Ranges, Auto Gain
- Phase Synch < 1 degree
- Expandable to 32 channels fully phase synched accurate to < 1 degree
- True Gaussian random generation with multiple filters and advanced settings for fast control and accurate displays
- Optimal adaptive tracking filters and accurate swept sine generation for fast control and accurate transfer functions
- Proprietary multiple filters for complex waveforms including Sineon-Random generation and optimal fast control
- Specific linear phase filters for both shock and shock synthesis waveform generation and control
- Multiple filters for adaptive control of time domain replication waveforms
- Adaptive control as opposed to iteration

Spectral Dynamics, Inc.

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Versatile Test Capabilities

Panther is the culmination of over eighty years of experience in vibration instrumentation.

- Extraordinary accuracy
- Optimum Dynamics Control
- Unparalleled adjustability
- Expandability in both Hardware and Software

Panther combines simplicity of operation required for production screening with the power and versatility required for R&D prototype testing.

Superior Control: Panther is no ordinary controller when it comes to vibration testing. To meet the most stringent test requirements, the immense compute power allows separate advanced digital filters and patented adaptive digital vibration control methods for each type of test.

User Friendly: Panther graphical user interface provides test operators with friendly operation from setup to report preparation. You can customize the interface so that it's easy to use whether you are a new user or an expert.



TECHNICAL SPECIFICATIONS

	Input Subsystem		Output Subsystem	
	Input channels	8 channels expandable up to 32	Dynamic Range	> 100 dB
	Dynamic Range	>110 dB	DAC	20 Bit
	ADC	24 Bit	Max Output Amplitude	+/- 12 volts Peak
	Amplitude Accuracy	\pm 0.20% of value or \pm 0.03% of full scale whichever is greater	Max Output Current	16 mA
	Amplitude Linearity	\pm 0.20% of value or \pm 0.03% of full scale whichever is greater	Max Attenuator Rate	Software Selectable
	Voltage Ranges Auto Ranging	\pm 12 V to \pm 0.5 V in 8 steps Yes	Max Output Rate	262,144 samples per second



Input Subsystem		Output Subsystem	
Overload Detection	Full scale on all channels, analog and digital detection	Image Attenuation	< 96 dB
Voltage Coupling	AC or DC or GND	Frequency Accuracy	± 5ppm
IEPE Power	4 mA (24V max into open circuit)	Freq Range Reduction	10 stage smoothing filters
Max Rated Input Signal	± 35 Volts Peak	Reconstruction Filters Cut-off Frequency	1 Hz to 25 kHz auto select
Max Sampling Rate	262,144 samples per second	Image Attenuation Pass Band Ripple	> 96 dB Within \pm 0.15 dB
Sampling Interval	Simultaneous on all channels	Output Offset RemovalType Accuracy Stopband Attenuation	Digitally Controlled > ± 0.5% of Full Scale < -100 dB
Frequency Accuracy	± 5 ppm	Output Impedance	60 Ω
Freq. Range Reduction	Digital decimation and filtering using on- board FPGA and DSP	COLA Output Level	± 1V
Anti-Aliasing Filters Analog Filter Cutoff Frequency Alias Attenuation Pass Band Ripple Digital Filter Cutoff Frequency Stop Band Atten. Pass Band Ripple	Fixed @ 120 KHz > 105dB Within ± 0.10dB Variable > 96dB @ Nyquist frequency Within ± 0.15 dB	Output Type	Pseudo-Differential 10 Ω to System Ground Lo side return
Channel-Channel Match Amp Phase Single Unit Crosstalk Phase between Units	Better than ± 0.25 dB Better than ± 1.0 degrees to 100 KHz < - 100dB Better than ± 1.0 degrees to 100kHz	Output Cable	Designed to drive up to 50 feet of shielded 50 Ω coaxial cable
Offset Removal Type Accuracy (compressed)	Digitally Controlled Better than $\pm 0.5\%$ of full scale for each input range	Calibration	Automatic Internal digital calibration, NIST referenced
Input Impedance	1 Μ Ω	Calibration Constants	Digital Calibration Constants stored in ASCII file
Connector Type	BNC	Host to Unit Communication	USB or Ethernet
Connection Type	Pseudo-differential, 10Ω to system ground, Lo side return		
Calibration	Internal digital calibration, NIST referenced		
Calibration Constants	Digital Calibration Constants stored in ASCII file		
TEDS Compliant	Yes		

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