



Panther™

BY SPECTRAL DYNAMICS

Modern Vibration Test controller

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

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

A COMPLETE SOFTWARE SUITE

MISO Control software :
Sine, Random, Shock, Sine on Random, Random on Random, SRS, Road simulation

Analysis software available:
Signal Analysis, Transient capture, 1/n Octave, Modal data acquisition, Statistics, Rotating Machinery, Transient capture



Sine



Random



Shock



SRS



Dwell



SOR



ROR



Analyzer



Road Simulation

TECHNICAL SPECIFICATIONS

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.

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 Sine on 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



PANTHER™ HARDWARE DETAILS

Input subsystem

Input channels	8 channels expandable up to 32
Dynamic range	>110 dB
ADC	24 Bit
Amplitude accuracy	$\pm 0.20\%$ of value or $\pm 0.03\%$ of full scale whichever is greater
Amplitude linearity	$\pm 0.20\%$ of value or $\pm 0.03\%$ of full scale whichever is greater
Voltage ranges	± 12 V to ± 0.5 V in 8 steps
Auto range	Yes
Overload detection	Full scale on all channels, analog and digital detection
Voltage coupling	AC or DC or GND
IEPE power	4 mA (24V max into open circuit)
Max. rated input signal	± 35 Volts Peak
Max. Sampling rate	262,144 samples per second
Sampling interval	Simultaneous on all channels
Frequency accuracy	± 5 ppm
Freq. range reduction	Digital decimation and filtering using onboard FPGA and DSP
Anti-aliasing filters	
Analog filter	
Cutoff frequency	Fixed @ 120 KHz
Alias attenuation	> 105dB
Pass band ripple	Within ± 0.10 dB
Digital filter	
Cutoff frequency	Variable
Stop band atten.	> 96dB @ Nyquist frequency
Pass band ripple	Within ± 0.15 dB
Channel-to-channel match	
Amp.	Better than ± 0.25 dB
Phase single unit	Better than ± 1.0 degrees to 100 KHz
Crosstalk	< - 100dB
Phase between units	Better than ± 1.0 degrees to 100kHz
Offset removal	
Type	Digitally Controlled
Accuracy (compressed)	Better than $\pm 0.5\%$ of full scale for each input range
Input Impedance	1 M Ω
Connector Type	BNC
Connection Type	Pseudo-differential, 10 Ω to system ground, Lo side return
Calibration	Internal digital calibration, NIST referenced
Calibration Constants	Digital Calibration Constants stored in ASCII file
TEDS Compliant	Yes

Output subsystem

Dynamic range	>100 dB
DAC	20 Bit
Max Output Amplitude	± 12 volts Peak
Max Output Current	16 mA
Max attenuator Rate	software selectable
Max output Rate	262 144 samples per second
Image Attenuation	< 96 dB
Frequency accuracy	± 5 ppm
Freq range reduction	10 stage smoothing filters
Reconstruction filters	
Cutoff frequency	1 Hz to 25kHz auto select
Image attenuation	> 96 dB
Pass band ripple	Within ± 0.15 dB
Output offset	Digitally controlled
Removal type Accuracy	> $\pm 0.5\%$ of Full Scale
Stopband Attenuation	<-100dB
Output Impedance	60 Ω
COLA Output Level	± 1 V
Output Type	Pseudo-differential, 10 Ω to system ground, Lo side return
Output Cable	Designed to drive up to 50 feet of shielded 50 Ω coaxial cable
Calibration	Automatic Internal digital calibration, NIST referenced
Calibration Constants	Digital Calibration Constants stored in ASCII file
Host to Unit communication	Ethernet



SPECTRAL DYNAMICS SAS

8 rue Léon Béridot,
38500 Voiron FRANCE
T : +33 (0)4 58 09 04 04