VENZO 8160 Vibration Controller

VENZO 8160 Shaker Control System

State-of-the-art Hardware

·2~16 Analog input channels

·1~2 Drive Channel (can be adopted in 2-axis control application)

·450MHz DSP Processing

·100 Mbps Ethernet port connecting to PC (without grounding problem)

·-30~70℃Working Temperature

·No-fans structure to reduce the background noise

·160 dB / Octave Anti- aliasing Filter

·1 AUX Channel

·24-bit ADC/DAC, 130dB dynamic range

·204.8 kHz Sampling Rate, 40kHz Frequency Range

·1GB Internal Flash Memory Stores Test Configuration

·Floating Ground Design Reduces Ground Loop Problems

Full and Innovative Control Functions

·Random

·Random-on-Random

·Sine, Step Sine, Resonance Search and Tracked Dwell

·Sine and Random-on-Random

·Classical Shock, Transient Time History, SRS

·Field Data Replication

·Sine-on-Random

·Kurtosis Control

·Sine-on-Sine

·Limiting and Notching

·Multivariable Control

Analysis Capabilities and Auxiliary Functions

·THD Detection

·Data Recorder

·FFT Analysis

·SRS Analysis

·FRF

·Waterfall View

·Signal Calculation

·Signal Cache

·Signal Editor

·Word/PDF Test Report

·Email Report

·Off-line view

·Transient Capture, Force/Deflection Analysis,

·Shock Response Analysis

Mixed Modes

Random on Random (RoR)

RoR performs up to 16 narrow spectral bands superimposed on the broad random background.

Random Tones: 1 to 16 independent narrow spectral bands.

Frequency Range: 20 kHz, optional up to 40 kHz

Lines: 3200 lines, extendable to 25,600 lines

Sine on Random (SoR)

SoR performs up to 16 sine tones superimposed on the random background.

Sine Tones: 1 to 16 sine tones configurable independently

Frequency Range: 20 kHz, optional up to 40 kHz

Lines: 3200 lines, extendable to 25,600 lines

Frequency of Sine Tone: can be in or out of broad band random

Independent Resolution in Sine Tones: 2048 lines, optional up to 8192 lines

Sine on Sine (SoS)

SoS performs up to 16 sine tones superimposed on a sine background.

Sine Tones: 1 to 16 sine tones configurable independently

Frequency Range: 20 kHz, optional up to 40 kHz

Lines: 3200 lines, extendable to 25,600 lines

Independent Resolution in Sine Tones: 2048 lines, optional up to 8192 lines

Sine and Random on Random (SRoR)

Analog sine sweeps and narrow band Gaussian random dwells/sweeps on wide band Gaussian random distribution.

Tones: 1 to 16 sine tones and 1 to 16 narrow bands

Frequency Range: 20 kHz, optional up to 40 kHz

Lines: 3200 lines, extendable to 25,600 lines

Independent Resolution in Sine Tones: 2048 lines, optional up to 8192 lines

Software Options

Kurtosis Control

Usually in random test we adopt Gaussian distribution however, Kurtosis Control allows a none-Gaussian distribution to be used. In probability theory and statistics, kurtosis is any measure of the "peakedness" of the probability distribution of a real-valued random variable. A high kurtosis distribution has a sharper peak and longer, fatter tails, while a low kurtosis distribution has a more rounded peak and shorter, thinner tails.

Notching and Limiting Control

Assign limiting/notching parameters to measurement channels, the drive output will be limited to keep the response of limiting/notching channel below the defined profile, to protect UUT from over excitation.

Multivariable Control

Multivariable control is adopting displacement control in low frequencies while acceleration control in high frequencies. This method is greatly expanding the frequency control range, VENZO vibration controller can realize continuous sine sweep test from 0.01Hz to 80 kHz, the dynamic range of controllable sine acceleration signal is up to 150dB. Especially for hydraulic shaker, join with the displacement control channel, greatly improving the low frequency control precision.

Hardware Specifications

·Input:2~16 channels

·Input Interface:BNC Connector

·Input Resolution:24-bit ADC

·Coupling:AC Gnd, AC Dif, DCGnd,DC Dif, Charge, IEPE

·TEDS:IEEE 1451.4 compliant, automatic-reading

·Anti-aliasing Filter:analog and digital anti-aliasing low-pass filters

·Input Dynamic Range:135dB

·SNR:> 100dB

·Input Voltage Ranges:±10, ±1 or ±0.1 VPEAK

·Input Impedance:1MΩ（Single-ended）2MΩ（differential）

·Input Protection Voltage:± 36VPEAK without damage

·Input Channel Crosstalk:<-100dB@1kHz

·Amplitude Channel Match:0.1 dB

·Channel Phase Match:better than ±1.0 degree, up to 20 kHz

·Input Signal Type:Charge, Voltage, High-integrated

·Input / Output Channel Crosstalk:<-100dB

·Total Harmonic Distortion:<-100dB

·Frequency Accuracy:as fine as 0.000001Hz

·Output:1~2 Drive Channels

·1 AUX Channel:can be adopted in 2-axis control application

·Output Interface:BNC Connector

·Output Resolution:24-bit DAC

·Max. Sampling Rate:204.8kHz

·Frequency Range:80kHz

·Dynamic Range:≥108dB

·Output Voltage Range:10V F.S

·Max Output Current:20 mA

·Total Harmonic Distortion:<-100dB@1kHz

·PCConfiguration:Windows XP/Vista/ 7 /8 Operating System and an Ethernet port. Microsoft Word / Excel and PDF are recommended.

Main Classis

·Dimension (mm):290*210*60 (VENZO 820); 390*280*60 (VENZO 880); 430*280*60 (VENZO 8160)

·Weight:2.6 kg (VENZO 820), 4.2 kg (VENZO 880), 5.0 kg (VENZO 8160)

·Front-end Panel:three LED lights indicate the status of "Power", "Ready" and "Control". The red Abort button is for emergency stop of the vibration test system.

·Rear Panel:connectors include 2/8/16 Analog Input Channels, a Drive Channel, a100 BASE-T Network Port, an AUX channel (only for VENZO 880, can be adjusted to 2-axis drive control channel), a grounding-end, an External Emergency Abort Jack and a terminal block of digital I/O lines.

·Working Temperature:-30~70℃

·Humidity:5%~95% RH

·Consumption:10W (VENZO 820), 20W (VENZO 880)

·Power:100～240VAC（50～60Hz）

·Enclosure Rating:IP43

·PC Connection:high-speed standard Ethernet interface

·Anti-vibration Performance:10-60 Hz @ 0.15 mm peak；60-150 Hz @ 2 gn, conform to IEC 60068-2-6;

·Anti-impact Performance:10 gn for 16 ms，conform to IEC 60068-2-27

·In Accordance with EMC Standards:EN61326-1:2006, EN61000-3-2:2006+A1:2009+A2:2009, EN 61000-3-3:2008

·Safty:EN 61010-1:2001

·Compliance:CE Marking

THD Detection

Check the Total Harmonic Distortion of the vibration test system.

Waveform Editor Waveform Editor allows you to import and edit time signal waveforms. This function is standard with FDR.AUX Options AUX provides outputs including Sine Constant Output Level Amplitude (COLA), differential output, and reference frequency point.Test Report Generation Easy one-click-generation of WORD/PDF report, report layout can be customised to suit user requirements.Email Report Wherever you are in the world, Email Report can automatically send you a report upon test completion.Off-line Viewer Standard with all control applications

Analysis Functions Provides FFT Analysis (random), FRF Analysis(random & sine), Historic Signal Analysis, Signal Calculation, Waterfall Analysis, Off-line View, In addition, it is optional for SRS analysis function in Classical shock and Transient Time History test modes.Hardware Calibration

Automatic hardware calibration can be completed using the calibration software with full calibration report, includes permanent licence. (Requires calibration equipment package which includes, BNC cables and converter)