VCS 201

Vibration Control System

Fields of Application

The VCS 201 Vibration Control System is a digital measuring and control system to be used in vibration engineering. Thus it is employed as standard control module in vibration test systems by SPEKTRA. It is used to set up and control the test equipment and visualize the test criteria for the simulation of environments of objects under test according to DIN EN 60068-2, military or manufacturer's standards.

The VCS 201 is suitable as control module for any kind of equipment mentioned above. I.e. the VCS 201 can also be used without any trouble for updating existing systems.

A special application of the VCS 201 Vibration Control System is used as SRS-35 in the CS18 Calibration System by SPEKTRA for the calibration of accelerometers.

Example of Applications

Vibration testing of sensors up to 400 g_n using the VCS 201 on a vibration exciter SE-R101

Applications

Typical applications of the VCS 201 Vibration Control System in combination with a vibration exciter are systems for:

- the simulation of environments in the lab,
- vibration exposure testing in the production of susceptible modules (e.g. CD drives)
- balancing systems for vibration sensors (e.g. airbag sensors)

Features

Selectable modes:

- Sine - fixed frequencies (table)
- Swept sine
- Noise (optional extra)
- Shock (optional extra)

The frequency range of the control action is identical for all modes:

- 5 Hz ... 5 kHz (optional extras: other ranges, up to 0.4 Hz up to 50 kHz)

Other features (subset)

- Remote control option by DCOM or DLL
- Observation channels (notch)
- Laservibrometer as velocity sensor
- Sensor curve correction

Option: Plug-in module I/O13 for generating +24 V switching signals.

This plug-in module is needed when the VCS 201 is part of an automatic test stand and control signals have to be supplied or processed.

Design and Configuration

The Vibration Control System VCS 201 is a Vibration Control Unit VCU13 (front-end hardware in 19" modular design) in conjunction with the PC software VCS 201 for WINDOWS.

In its basic version, the VCS 201 includes the following plug-in units: (1 TE = 5.08 mm)

- Dual-channel measuring amplifier ANA13.5 (10 TE)
- Signal generator CPU13.5 (10 TE)
- Signal processor/controller (SHARC) DSP13 (4 TE)
- Power supply unit PS13.5 (14 TE).

Depending on the application, the plug-in units are housed either in a laboratory case or in a 19" module frame to be used as a plug-in for rack mount.

In its basic version, channel 1 of the measuring amplifier carries the reference signal used for control and channel 2 is used as a supplementary measuring channel. Each channel has three inputs which can be selected electronically and to which the following sources can be directly connected:

- Charge transducers, CHAx
- Transducers with integrated amplifiers, ICPx
- Voltage signal, DIR

There is a RS-232, USB or ethernet interface for communication with the control PC.

The VCS 201 can be upgraded by adding two more measuring channels (1 plug-in unit ANA13.5).

The VCS 201 software is optionally also available for all CS18 calibration systems.

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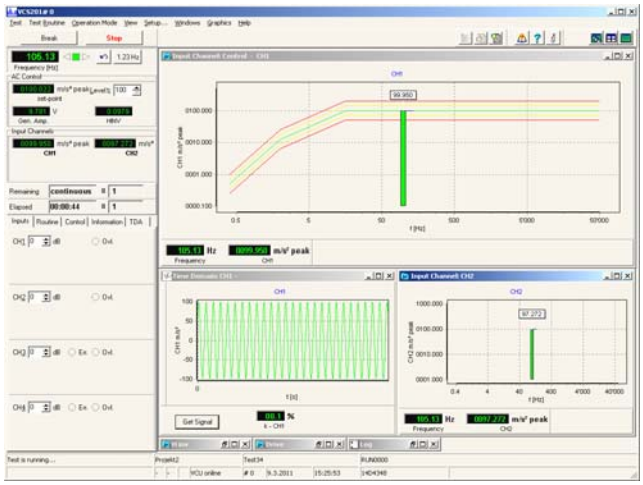
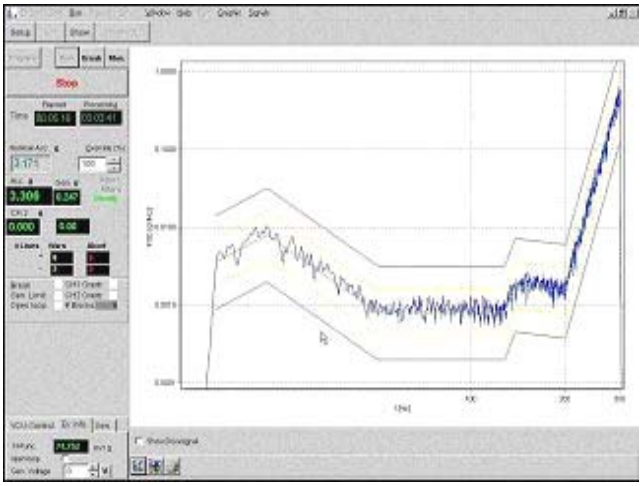
Vibration Control System



Sine sweep 0.4 Hz … 50 kHz with interfaces a, v, d



Noise in a frequency range with stress profile

Specification

Signal generation:	5 Hz ... 5 kHz (option: 0.4 Hz ... 50 kHz with 0.01 Hz resolution, to be set in discrete steps
Swept-sine excitation:	Linear or logarithmic frequency sweep
Noise excitation:	controlled noise up to 2,000 lines **2 Hz … 5 (32) kHz**
Shock excitation:	half sine, trapezoid, saw tooth 0.25 ms … 40 ms
Signal inputs:	- DIR input for AC signals, e.g. from a measuring amplifier - CHA input for directly connecting charge sensors - ICP® input for directly connecting ICP® sensors, incl. 4 mA supply
Gain:	to be programmed for each channel in 6 dB steps between - 12 dB and 78 dB for combined inputs DIR / ICP®
Interfaces:	RS 232 / USB / Ethernet
AD conversion:	16 Bit resolution: 128 / 64 / 32 / 16 / 8 kHz sampling frequency
AC signal output:	10 V (0 V_{RMS} ... 7,071 V_{RMS}) to external power amplifier
COLA output:	Constant level output
AC output:	OUT X analog input for checking the waveform for each channel
Power supply:	230 V / 50 Hz // 115 V / 60 Hz
Dimensions (W x H x D):	Width depending on configuration 19 “ x 3 U x 320 mm

Vibration Control System VCS 201 with power amplifier PA14-500