



EDM 6.0 General Release Notes

Engineering Data Management for Dynamic Signal Analysis, Vibration Control, and Post Analysis

INTRODUCING EDM 6.0

Dynamic Signal Analysis, Vibration Control, Post Analyzer Standalone

Major EDM Updates

- Windows 10 Support
- IP Configuration Simplified
- Report Improvements and Customization Options
- Customizable quantity and EU
- Expanded Foreign Language Options (Russian)

RELEASE HIGHLIGHTS

DSA

New Hardware Supported by EDM 6.0



CoCo-80X

SPIDER-80Xi

SPIDER-20E

The three new hardware front-ends supported by EDM 6.0 are CoCo-80X, a handheld touchscreen dynamic signal analyzer, Spider-80Xi, a compact and lightweight high channel count measurement system, and Spider-20E, the Ethernet version of Spider-20, a wireless 18-ounce dynamic signal analyzer and digital data recorder. All three new hardware front-ends combine distinct portability with high functionality.

The Dynamic Signal Analysis (DSA) functions of EDM now support “Black Box” mode, which allows the Spider platform from Crystal Instruments to function as a stand-alone data recording system that does not require a separate computer. The Spider stops and starts recording in accordance to a preset run schedule which does not require constant user commands.

New DSA Software Features

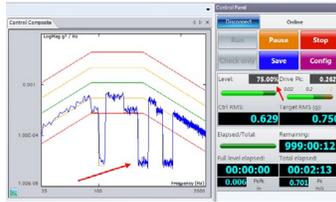
- Time Trace signals and Recording continuously to PC for unlimited time
- Recording on High Channel Count system in Black Box mode
- Supports many types of sensors and measurement quantities on Spider-80SG

VCS

New VCS Software Features



Spider-80SG enables strain measurement



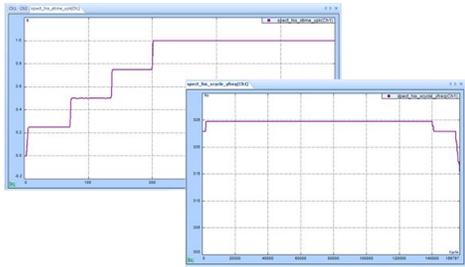
Notching can be scaled by run level

Location ID	Enabled	High limit	Unit
Ch1	<input type="checkbox"/>		g
Ch2	<input checked="" type="checkbox"/>	50	g
Ch3	<input checked="" type="checkbox"/>	2	in/s
Ch4	<input type="checkbox"/>		in/s
Ch5	<input checked="" type="checkbox"/>	30	in

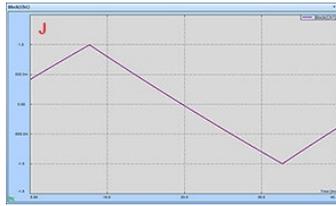
Time domain limit of all input channels

A new VCS feature of EDM 6.0 is the ability to measure strain in vibration control mode through the Spider-80SG, which can be seamlessly synchronized as one system with the Spider running the vibration tests. Newly introduced Time Trace signals on a Sine RSTD test allows for valuable parameters, such as drive peak or control peak, to be traced and displayed over time for the duration of the test. Another feature of VCS in EDM 6.0 is that notching may be enabled before the level reaches 100%. This is to guarantee that the spectrum will never exceed the range of the notch limit.

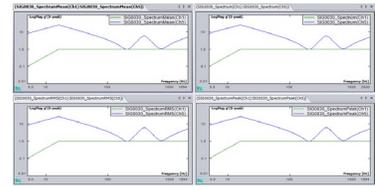
EDM 6.0 also introduces time domain limits of all input channels, user-defined quantity and EU for all hardware platforms, and a measurement strategy applied to each individual channel in Sine.



Time trace signals and recording to PC for unlimited time



User defined quantity and EU for all hardware platforms

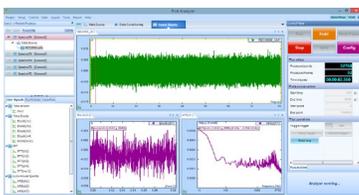


Measurement strategy applied to each individual channel in Sine

PA

Introducing a brand new way for customers to request, purchase, install and utilize post analysis functions. With the 6.0 software release, Post Analyzer will not be associated to the serial number of the hardware. Its installation will be separate from EDM to operate as a standalone feature, offering users the benefits of our unique post data processing ability.

The newly developed Online License Management website will expedite and simplify the license key process, with online payment options planned for future releases.



Now a standalone product: no hardware purchase required



Crystal Instruments Online License Management (OLM)

Crystal Instruments Online License Management (OLM) is a web-based tool to manage software lic
 Submit Request: Add a purchase request for certain functions of software and define the subscript
 Order Status and Activation: View the order and activation status of account. The software optio
 found here.



Supports GPS/Can-Bus with CoCo-80X

MAJOR EDM UPDATES

Windows 10 Support

After Windows 10 was released, we started to test the compatibility of EDM and fixed a few bugs. Now EDM works with Windows 10 seamlessly.



IP Configuration Simplified

The IP configuration page has a simpler UI and new technology to detect devices faster.

The software can automatically assign an IP address to each front-end in a high channel count system and avoid IP conflict with other Spiders on the local network. The user only has to define the IP range and does not have to manually assign IP addresses to multiple Spiders.

Serial Number	IP Address	Static/DHCP
9	192.168.3.142	Static
1	192.168.3.117	Static
2	192.168.3.102	Static
2	192.168.1.178	Static
2	192.168.3.104	Static
2	192.168.3.111	Static
2	192.168.3.121	Static
2	192.168.3.155	Static
2	192.168.3.127	Static
2	192.168.3.135	Static
4	192.168.3.129	Static

Report Improvements

Several new features and significant improvements have been introduced into the report feature to enable the user to define and create reports with many flexible customization options.

• Customizable font selection for title, headings and body of the report

The user now has the ability to define the font type, font size, font style and color for report title, headings and text.

Test Report

Test Report

Test Report

• Customizable Header and Footer

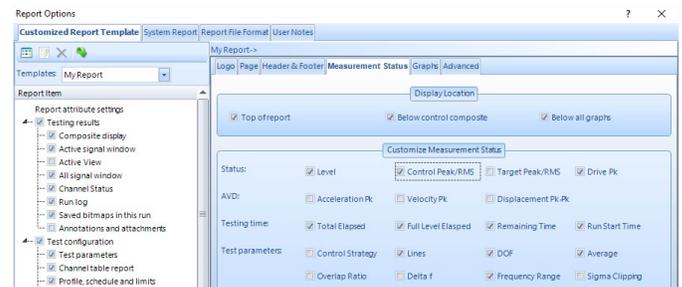
The header and footer can be defined to include any of the characteristics of an on-going or a completed test.

The customization also includes multiple lines of user-defined text to appear in the user-defined style for the header, footer or both, enabling flexibility for the user to enter anything in this field including the company name or title of the person performing the test.

• Customizable Measurement Status

Users can define the characteristics of a test that need to go into the report. Several parameters for each type are available for selection.

The selected options could appear together 1) at the top of the report 2) below control composite 3) below all the graphs, or 4) all three locations.



• Improved Options for Display of Plots

Several customizations can be done to the way graphs are displayed on the report. Some special graphs are also introduced which can be enabled to be included in the graph even when these signals are not actively measured or displayed.

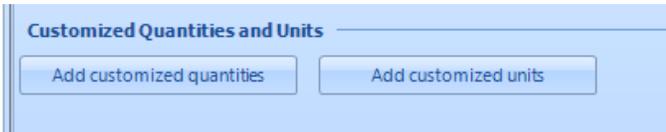
Above all, the customizations can be saved to the report template, which means unlimited combinations of customizations can be done and saved as report templates.

MAJOR EDM UPDATES

Continued

Customizable quantity and EU for all Hardware Platforms

Measurement quantities and units for any quantity are now unlimited. With the introduction of customizable quantity and engineering units, users can define a new quantity that doesn't exist in the predefined list, e.g., Energy or Luminous Intensity, by defining the physical dimensions of the quantity in standard physical dimensions. Users can also add additional units to existing quantities. For example, users can add micro g as one of the units for Acceleration.



Customized Quantities

Customized Quantities	Base Unit	Physical Dimension
Energy	J	L:2 M:1 T:-2 I:0 O:0 N:0 J:0 RAD:0
e.g. Energy	e.g. J	

Note: these measurement quantities will be added in addition to existing quantities. The maximum count of customized quantities is 10.

OK Cancel

Customized Units

Quantity	Customized Unit		Reference 1 Customized Unit = Ratio * (Reference Unit) + Offset e.g.: 1 (ug) = 1e-6(g)		
			Ratio	Offset*	Reference Unit
Voltage	uV	=	1E-06	0	V
Acceleration	ng	=	1e-9	0	g
Measurement quantity	Customized unit		1	0	

Note: Use this dialog box to add units to existing measurement quantities.
* Only time domain signals can be converted to customized units with offset. Frequency domain signals can not be used.

OK Cancel



OTHER EDM UPDATES

Support the CA-08 external charge amplifier



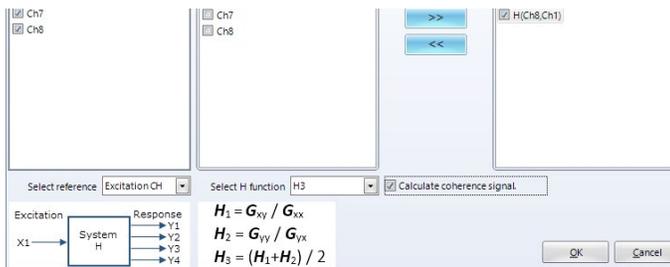
An option “External Charge Amplifier” is added to support a new hardware product CA-08 External Charge Amplifier, which gives analyzers or controllers the ability to use charge sensors.

Crystal Instruments’ Model CA-08 is an eight channel charge amplifier that is compatible with any instrument requiring voltage input when charge mode sensors are used. It converts the high impedance output from various charge sensors to low-impedance voltage output, which is then fed into the voltage input of instruments. The CA-08 has excellent noise performance with a frequency range from 0.3Hz to 20 kHz. Each channel is set into one of three types of sensitivity when the on/off dip switches of the CA-08 are changed.

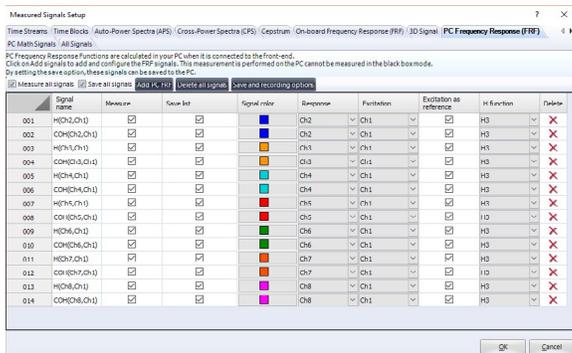
Add H3 to PC FRF function

H3 evaluation of Frequency Response Function is added to the PC FRF Signals. Besides the choice of H1 or H2, H3 which is the linear average of H1 and H2 is available now.

To add H3 type of FRF, click Add PC FRF on the Measured Signals Setup window. The following Create PC FRF Signals windows will pop up:

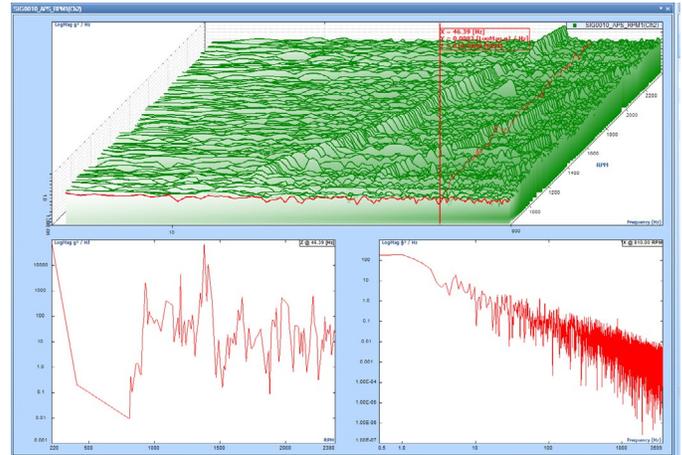


Check the response channels and excitation channel, also pick the type of H function, i.e., H3, and click the >> button to have the Signals list filled. Click Ok button, brings the following window, with PC FRF signals added.



Improved 3D Waterfall Display and Save to PC

EDM 6.0 introduces a saving feature for 3D waterfall plots and also introduces a user-customizable number of traces for a 3D waterfall plot.



Annotation to saved signals and recordings

A test name and run number are added to Run description by default. A run description now is saved to signal properties as user annotation so that the user knows which test and which run the signal is from.

Revamped Recording settings in DSA mode

In previous versions, recording options were set up via event-action rules and run schedule. While this design allowed flexibility, it was not intuitive.

Since the 6.0 release, a dedicated page titled “Record Time Streams” lists all events that start and stop recording. The user may select the event that fits the application most.

The function “Recording when input signal is triggered according to trigger condition” is improved. Duration of each trigger event and the number of trigger events to be recorded may be predefined.

Added Review Mode in DSA mode

Review mode was first available in VCS mode. It is available in DSA mode starting with the 6.0 release.

Allow Users to rename a record file before recording starts

Under the setup of Record Time Streams, enable the function to give name to the file before recording.

NEW HARDWARE SUPPORTED BY 6.0



SUPPORTS SPIDER-80Xi

The Spider-80Xi is a compact dynamic signal analyzer and vibration controller, based on the original hardware of Crystal Instruments' Spider-80X. The mechanical design of Spider-80Xi eliminates the enclosure of each modular card inside of chassis. Light weight and manageable, it is ideal for applications where portability and size are critical to the usage and where exchangeability of cards is not required.

The Spider-80Xi system comes with two different chassis, one that can host up to 64 input channels, one up to 32 input channels. Multiple chassis can be scaled to hundreds of channels, all sampled simultaneously. Multiple Spider-80Xi front-ends are accurately synchronized through the IEEE 1588v2 protocol, making sure all measurement channels are on the same time base.

Accurate time synchronization results in excellent phase match in the frequency domain between all channels, either on the same Spider front-end or across different front-ends. Channel phase match, even between separate Spider front-ends, is within 1.0 degree at 20 kHz which is suitable for high quality structural and acoustics applications requiring cross-channel measurement.

The Spider-80Xi system with the 64 channel chassis is power by AC power, 100 to 240 VAC . The Spider-80Xi system with the 32 channel chassis is power by the DC power, 10V to 22V. The latter can be easily used together with an external battery pack. With Spider-Battery, a special model of battery developed by Crystal Instruments, the 32 channel Spider-80Xi can run up to 4 hours without interruption. Spider-80Xi front-ends have voltage, IEPE, which are ideal for shock, vibration, acoustic, or general purpose voltage measurements.





SUPPORTS SPIDER-20E

Spider-20E is a compact yet powerful dynamic signal analyzer and digital data recorder. It provides four 24-bit precise high-fidelity input channels, and a unique software –selectable tachometer-input/signal-source output channel.

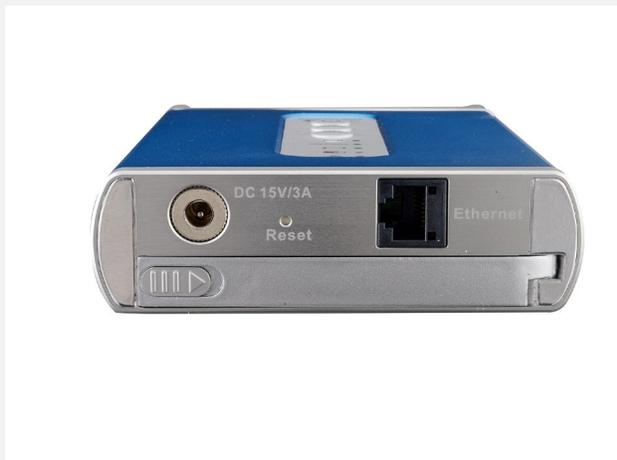
Spider-20E is a diminutive 5.3 x 4.3 x1 inch tool weighing only 18 ounces. It can run over 6 hours on its internal rechargeable battery which can be replaced in field with a backup battery. Data is recorded on its built-in 4GB flash memory.

EDM functions supported by Spider-20E

- FFT
- Octave analysis and Sound Level Meter
- Order analysis
- Swept Sine analysis
- Sine Reduction
- Time waveform recording
- Automated schedule and limiting
- Real-time digital filters
- SRS analysis
- Spider-20E communicates with EDM or EDM app running on iPad

Setup and view or record time histories as well as perform spectrum analysis or measure frequency response and coherence functions.

Spider-20E is the Ethernet version of Spider-20. Spider-20E communicates with the world through Ethernet interface. It requires additional wireless router to communicate with iPad.





SUPPORTS **CoCo-80X**

The CoCo-80X is a new generation of handheld data recorder and dynamic signal analyzer from Crystal Instruments. It is ideal for a wide range of industries including petrochemical, paper, steel and other metals, automotive, aviation, aerospace, electronics and military. These industries demand quick, easy, and accurate data recording and analysis, as well as a real-time machine condition monitoring solution.

The CoCo-80X is a rugged, lightweight, battery-powered handheld system with unparalleled performance and accuracy. Combined with hard keys, the multi-point touch functionality touchscreen is designed for an intuitive user interface that provides a wide variety of analysis functions.

Building on the success of the original CoCo-80, the new CoCo-80X boasts improved speed, a bigger screen, and more connection options. A significantly more powerful processor frees DSP resources for faster, more reliable, and more complex processing in real time. The handheld system is equipped with a bright 7.0 inch color LCD display with multi-point touch functionality as well as a physical keypad.

Flexible connections via a USB 2.0 port, 100Base-T Ethernet port, 802.11 b/g/n Wi-Fi connection, SD card interface, HDMI interface, CAN-Bus/serial port, stereo headphone and microphone jack, and GPS.

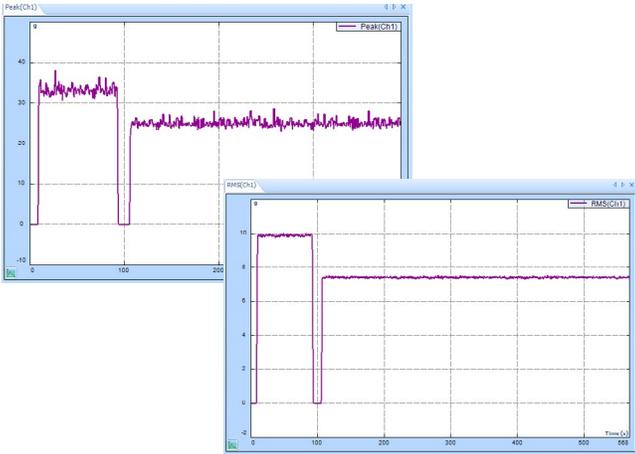
The CoCo-80X is equipped with 8 software-enabled input channels. Every CoCo-80X ships with 8 fully populated and functionally tested input channels.



NEW DSA SOFTWARE FEATURES

Introduced Time Trace signals and Recording continuously to PC for unlimited time

Time Trace signals have been introduced in DSA – FFT test and in Sine RSTD test. In DSA, these signals plot the Peak or RMS of any channel vs the time continuously for the duration of the test. The recording is done on the PC and can be viewed at any time during the test. The recorded signals for the entire duration are automatically available in the PC after the test is completed or while the test is still running.



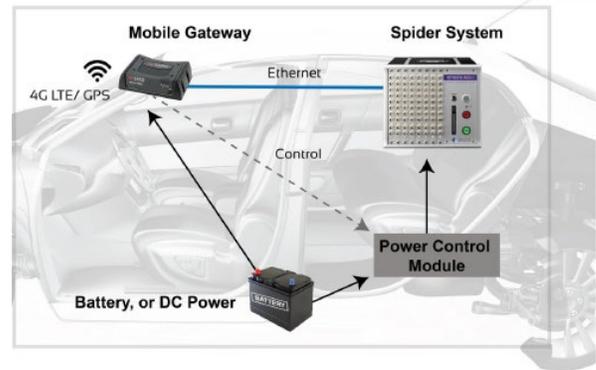
Time or Cycles can be chosen as the X axis and the user has a choice of selecting channel peak, channel RMS or drive frequency as the Y axis.

Any amount of time trace display can be viewed and recorded up to the memory limitation of the PC.

Recording on High Channel Count system in Black Box mode

The Spider platform from Crystal Instruments operates as a real-time data acquisition and analysis system while connected to a desktop PC. It can also function as a stand-alone data recording system that does not require a separate computer. This stand-alone mode is called Black Box mode, and is unique to Crystal Instruments' products.

Beginning with EDM 6.0, a high channel count system may run a recording function in Black Box mode. It starts and stops recording according to a pre-set run schedule which does not require constant user commands.



Supports many types of sensors and measurement quantities on Spider-80SG

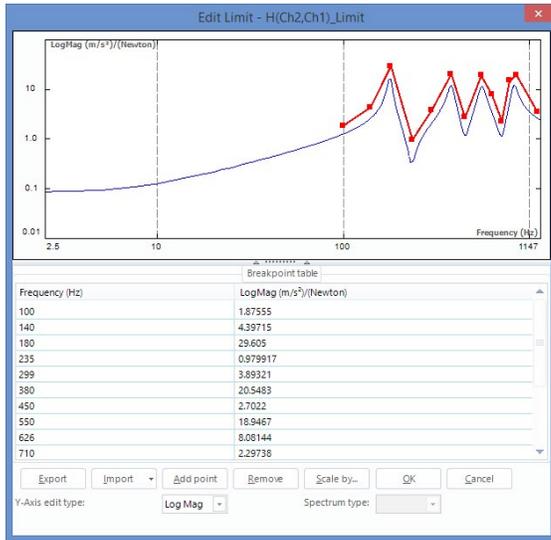
A Strain Gage module can also be used to output a DC voltage of 5 V or 10 V which can be used as a power supply to power up various sensors and measure acceleration and other quantities.

ID	Channel	Module	Measurement	Quantity	Input mode	Range	High Pass Filter	Low Pass Filter	Anti-aliasing	Power supply
130	Control	CH1	Acceleration	AC SingleShot	...	...	...	...	...	...
216	Control	CH2	Acceleration	AC SingleShot	...	...	...	...	...	...
302	Control	CH3	Acceleration	AC SingleShot	...	...	...	...	...	...
400	Control	CH4	Acceleration	AC SingleShot	...	...	...	...	...	...
516	Strain	CH5	Acceleration	AC SingleShot	...	...	...	...	...	...
602	Strain	CH6	Acceleration	AC SingleShot	...	...	...	...	...	...
700	Strain	CH7	Acceleration	AC SingleShot	...	...	...	...	...	...
816	Strain	CH8	Acceleration	AC SingleShot	...	...	...	...	...	...
902	Strain	CH9	Acceleration	AC SingleShot	...	...	...	...	...	...
1016	Strain	CH10	Acceleration	AC SingleShot	...	...	...	...	...	...
1102	Strain	CH11	Strain	DC SingleShot	...	...	...	...	...	5.0V
1216	Strain	CH12	Strain	DC SingleShot	...	...	...	...	...	5.0V
1302	Strain	CH13	Strain	DC SingleShot	...	...	...	...	...	5.0V
1416	Strain	CH14	Strain	DC SingleShot	...	...	...	...	...	5.0V
1502	Strain	CH15	Strain	DC SingleShot	...	...	...	...	...	5.0V
1616	Strain	CH16	Strain	DC SingleShot	...	...	...	...	...	5.0V

Limit Editor Improvements in EDM Spider DSA mode

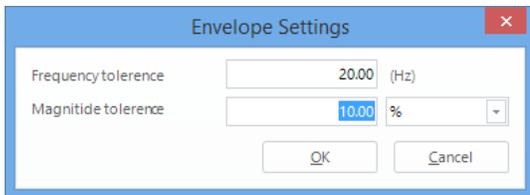
When running a test to measure the FRF of a structure, or the Octave spectrum from a microphone channel, the measured data may be checked against a predefined limit profile to see whether the measured signal has any point or portion over the limit.

The limit profile can be entered from the breakpoint table as following:

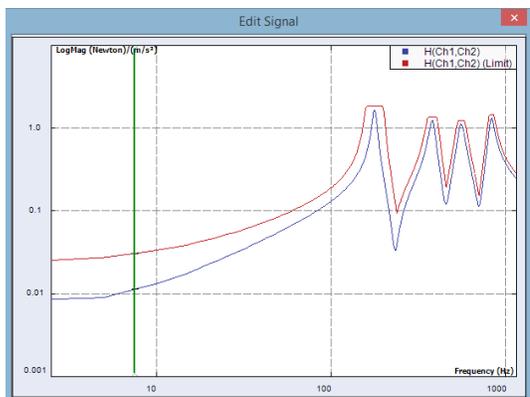


Alternatively, the limit can be imported from an ASCII text or csv file.

A new feature of limit editor is the “Envelope” function. Click the “Envelope” button to bring up the following Envelope Settings window. With the definition of Frequency tolerance in Hz, and Magnitude tolerance in percentage, the Envelope of the imported file will be created and serves as the limit profile.



The following graph illustrates the limit profile which is the envelope over the imported FRF signal.



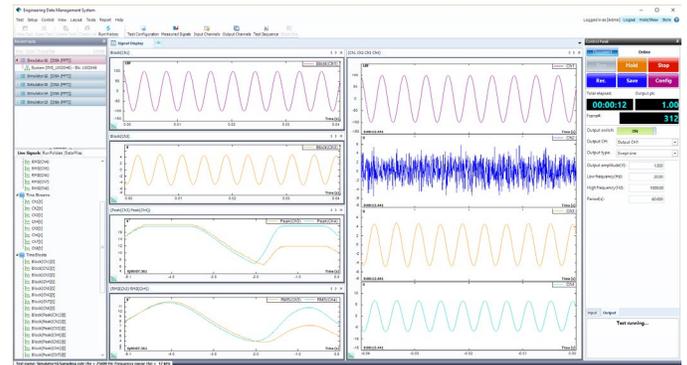
The max number of points for the limit profile is 100. In case the envelope file has more points than 100, the “reduce points to” function can be used. Select the desired number of points, for example, 40, and click the “Apply” button. The algorithm will keep the limit profile shape but with a smaller number of points.

On the Edit limit window, the “Scale by” button allows user to scale up or down the limit profile without re-entering the limit profile breakpoints. The Scale can be defined as a linear scale factor, or a log scale in dB.

Time trace of RMS, Mean, Max, Min

When the FFT spectral test is created, user can select to enable the time trace of RMS, and/or Peak.

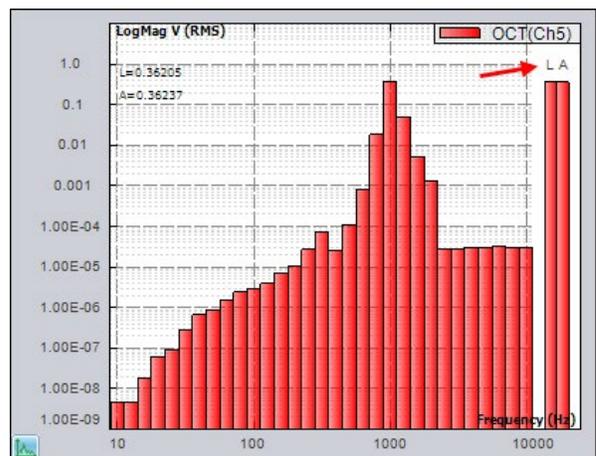
Then, the time trace of RMS signals will be available for online display. It will also be saved with other type of waveforms and spectra.



Allow Users to import signals in non-voltage units as playback profile and scale

Change the display of L and A in DSA mode, octave spectrum

Move the weighting indication to above bands for better visibility.



NEW VCS SOFTWARE FEATURES

Supports many types of sensors and measurement quantities on Spider-80SG



a. Strain gage module(s) (Spider-80SG) can now be included in a system while performing a VCS test.

On/Off	Channel	Type	Location ID	Module/Ch	Measurement	Severity	Input mode	Input range	Sensor
On	2M0	Control	020	DAQ04-200702	Acceleration	100000000.0	AC Single End	Auto	None
On	3M0	Control	030	DAQ04-200702	Acceleration	100000000.0	AC Single End	Auto	None
On	4M0	Control	040	DAQ04-200702	Acceleration	100000000.0	AC Single End	Auto	None
On	5M0	Monitor	050	DAQ04-200702	Acceleration	100000000.0	AC Single End	Auto	None
On	6M0	Monitor	060	DAQ04-200702	Acceleration	100000000.0	AC Single End	Auto	None
On	7M0	Monitor	070	DAQ04-200702	Acceleration	100000000.0	AC Single End	Auto	None
On	8M0	Monitor	080	DAQ04-200702	Acceleration	100000000.0	AC Single End	Auto	None
On	9	Monitor			Strain	100	AC Single End	Auto	None
On	10	Monitor			Strain	100	AC Single End	Auto	None
On	11	Monitor			Strain	100	AC Single End	Auto	None
On	12	Monitor			Strain	100	AC Single End	Auto	None
On	13	Monitor			Strain	100	AC Single End	Auto	None
On	14	Monitor			Strain	100	AC Single End	Auto	None
On	15	Monitor			Strain	100	AC Single End	Auto	None
On	16	Monitor			Strain	100	AC Single End	Auto	None

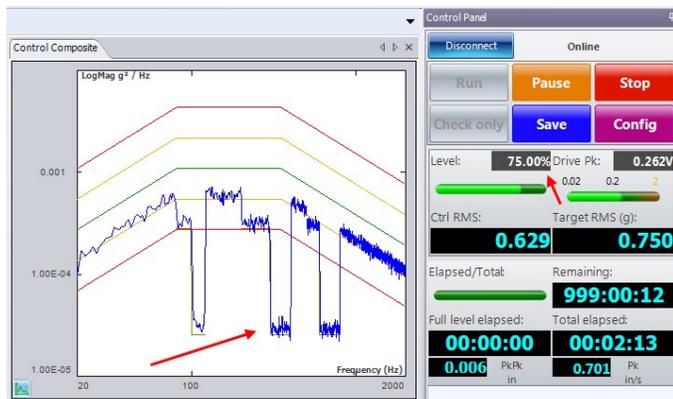
Spider-80SG can be a slave module in a Spider system so that it measures strain in VCS tests along with controlling the test object for any desired test type.

b. A Strain Gage module can also be used to output a DC voltage of 5 V or 10 V which can be used as a power supply to power up various sensors and measure acceleration and other quantities.

On/Off	Channel	Type	Location ID	Module/Ch	Measurement	Severity	Input mode	Input range	Sensor	High Pass	Contouring	Power Spect
On	1M0	Control	010	DAQ04-200702	Acceleration	100000000.0	AC Single End	Auto	None	0.001	0.001	0.001
On	2M0	Control	020	DAQ04-200702	Acceleration	100000000.0	AC Single End	Auto	None	0.001	0.001	0.001
On	3M0	Control	030	DAQ04-200702	Acceleration	100000000.0	AC Single End	Auto	None	0.001	0.001	0.001
On	4M0	Control	040	DAQ04-200702	Acceleration	100000000.0	AC Single End	Auto	None	0.001	0.001	0.001
On	5M0	Monitor	050	DAQ04-200702	Acceleration	100000000.0	AC Single End	Auto	None	0.001	0.001	0.001
On	6M0	Monitor	060	DAQ04-200702	Acceleration	100000000.0	AC Single End	Auto	None	0.001	0.001	0.001
On	7M0	Monitor	070	DAQ04-200702	Acceleration	100000000.0	AC Single End	Auto	None	0.001	0.001	0.001
On	8M0	Monitor	080	DAQ04-200702	Acceleration	100000000.0	AC Single End	Auto	None	0.001	0.001	0.001
On	9	Monitor			Strain	100	AC Single End	Auto	None	0.001	0.001	0.001
On	10	Monitor			Strain	100	AC Single End	Auto	None	0.001	0.001	0.001
On	11	Monitor			Strain	100	AC Single End	Auto	None	0.001	0.001	0.001
On	12	Monitor			Strain	100	AC Single End	Auto	None	0.001	0.001	0.001
On	13	Monitor			Strain	100	AC Single End	Auto	None	0.001	0.001	0.001
On	14	Monitor			Strain	100	AC Single End	Auto	None	0.001	0.001	0.001
On	15	Monitor			Strain	100	AC Single End	Auto	None	0.001	0.001	0.001
On	16	Monitor			Strain	100	AC Single End	Auto	None	0.001	0.001	0.001

Notching can be scaled by run level

Notching may start before a level reaches 100% by enabling the option. This is to guarantee that the spectrum will never exceed the limit within the range of notch limit.



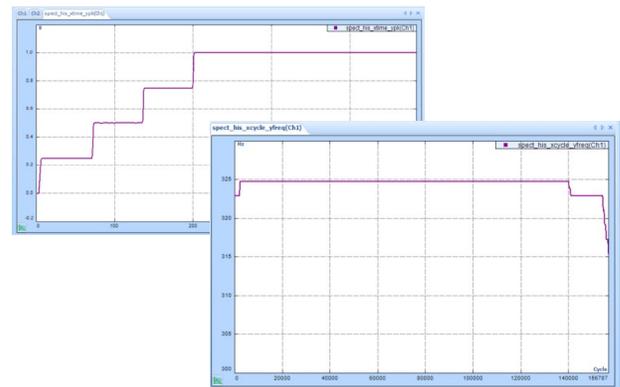
Time domain limit of all input channels

Time domain limits of input channels are introduced to all types of VCS tests. The user may define the raw data (peak) or RMS limit of each channel (may have different units). When any of the limits are exceeded, the software will take actions defined under the system events as “Time Signal RMS Limit Exceeded” or “Time Signal High Limit Exceeded.”

Event name	Action rules
Sensor Overload	None
Channel Overload	Flash Screen and Beep
User Pressed Stop	Flash Screen and Beep
Time Signal RMS Limit Exceeded	None
Time Signal High Limit Exceeded	None
Control RMS Lower than Alarm	Flash Screen and Beep
Control RMS Lower than Abort	Flash Screen and Beep, Save results to PC
Control RMS Higher than Alarm	Flash Screen and Beep
Control RMS Higher than Abort	Flash Screen and Beep, Save results to PC
Control Below Low Alarm Line	Flash Screen and Beep
Control Below Low Abort Line	Flash Screen and Beep, Save results to PC

Introduced Time Trace signals and Recording continuously to PC for unlimited time

PC Time Trace signals have also been introduced in Sine RSTD test. A valuable parameter such as drive peak or control peak, can be traced and displayed over time for the duration of the test. These signals can be continuously recorded to the PC over the entire duration of the test and can be viewed in real time or after the test is complete.

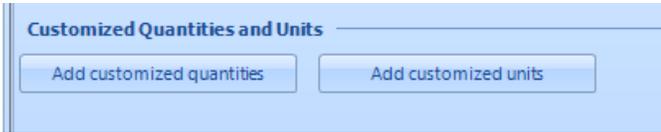


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Any amount of time trace display can be viewed and recorded up to the memory limitation of the PC.

User defined quantity and EU for all hardware platforms

Measurement quantities and units for any quantity are now unlimited. With the introduction of customization quantity and engineering units, users can define a new quantity that doesn't exist in the pre-defined list, e.g., Energy or Luminous Intensity, by defining the physical dimensions of the quantity in standard physical dimensions. Users can also add additional units to existing quantities. For example, users can add micro g as one of the units for Acceleration.



Customized Quantities

Customized Quantities	Base Unit	Physical Dimension
Energy	J	L:2 M:1 T:-2 I:0 Θ:0 J:0 RAD:0
e.g. Energy	e.g. J	

Customized Units

Quantity	Customized Unit	Reference	1 Customized Unit = Ratio * (Reference Unit) + Offset e.g.: 1(ug) = 1e-6(g)		
			Ratio	Offset*	Reference Unit
Voltage	uV	=	1E-06	0	V
Acceleration	ng	=	1e-9	0	g
Measurement quantity	Customized unit		1	0	

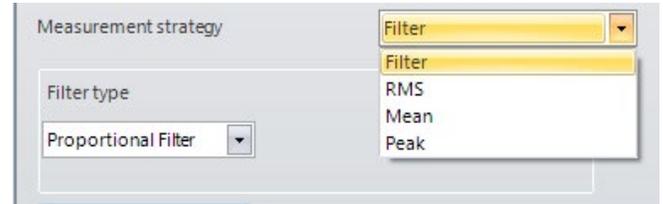
Note: Use this dialog box to add units to existing measurement quantities.
* Only time domain signals can be converted to customized units with offset. Frequency domain signals can not be used.



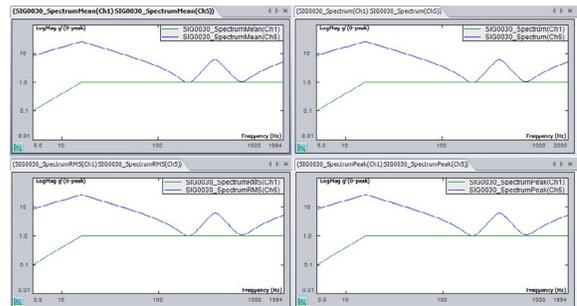
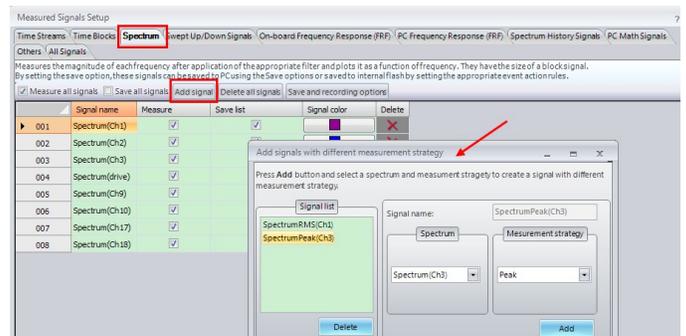
Measurement strategy applied to each individual channel in Sine

Different measurement strategies can be applied to different channels.

In a test configuration, the selected measurement strategy is applied to all channels. Parameters of tracking filter are also defined.



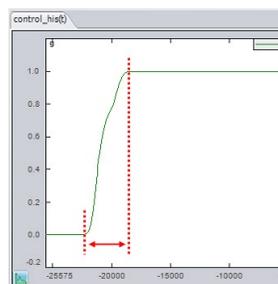
To apply different measurement strategies, add the corresponding spectrum on the Spectrum page in the measured signals setup. All 4 strategies may be applied to the same channel at the same time.



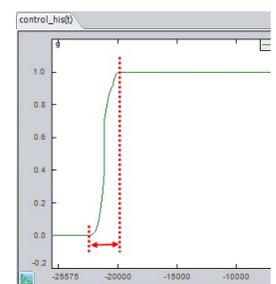
"Fastest" Ramp Up Option in Random and Sine

Ramp-up rate options now include "slow" (2dB/s), "fast" (20dB/s) and "fastest." In Sine, the user can define the dB for "fastest."

"Fast" Ramp Up



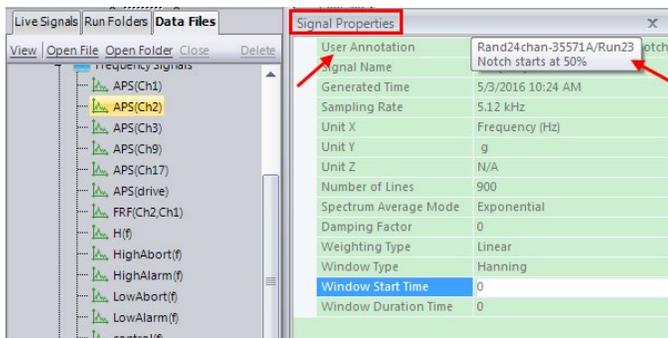
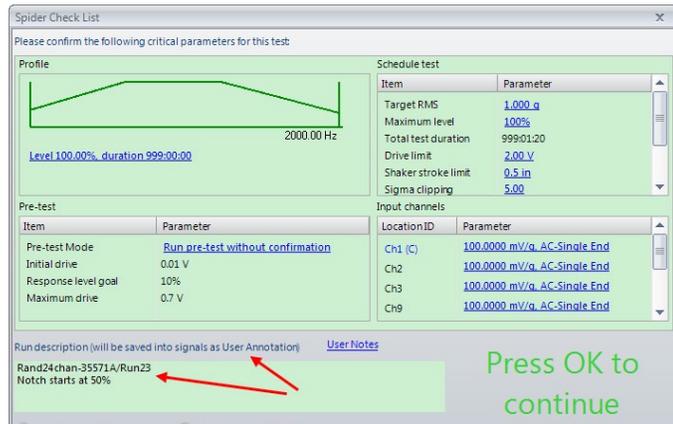
"Fastest" Ramp Up



MORE VCS SOFTWARE FEATURES

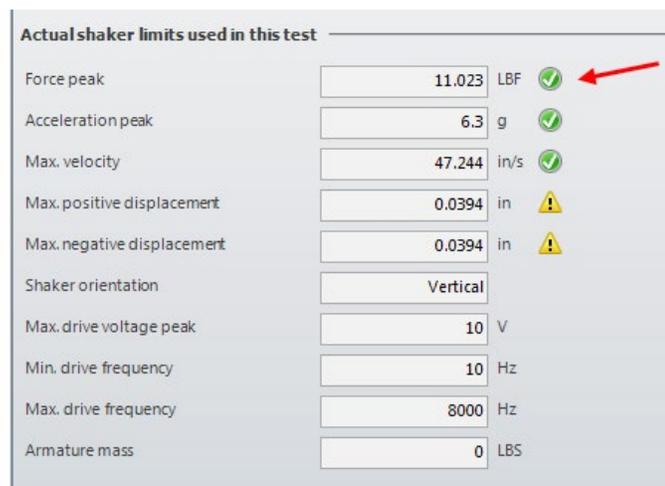
Annotation to saved signals and recordings

A test name and run number are added to Run description by default. A run description now is saved to signal properties as user annotation so that the user knows which test and which run the signal is from.



On the shaker parameter page, check profile against shaker limits

The shaker parameters page itself shows if the profile is within the limits of the shaker or not. Users do not need to navigate through multiple panes to find out the shaker limits of the profile.

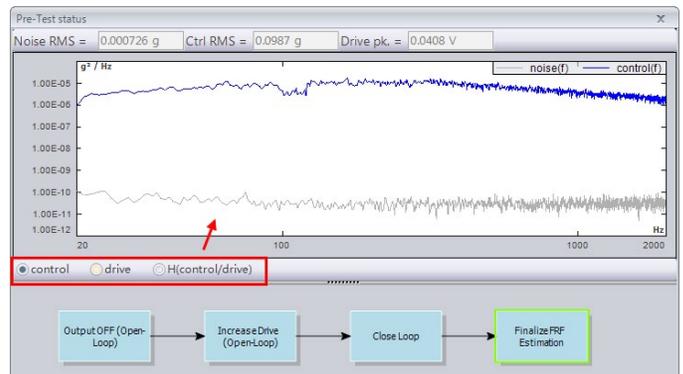


Add save every xxx sweep/pulse in Sine/Shock

Signals of sweeps or pulses can be saved regularly.

Display H and drive signal in pretest

In the pre-test dialog box, a signal display can be switched between control, drive, and the system transfer function.



Add test time to run log, add test name, test description, run number and run description to the log file

Test name, test description, run number and run description are added to the run log.

Display run description when the mouse hovers to each item on the run folder list

Mouse over a run folder and the run description is displayed.

FRF saved to skip pre-test is located in the test folder, instead of the run folder

All FRF's saved to skip pre-test are located in the same folder.

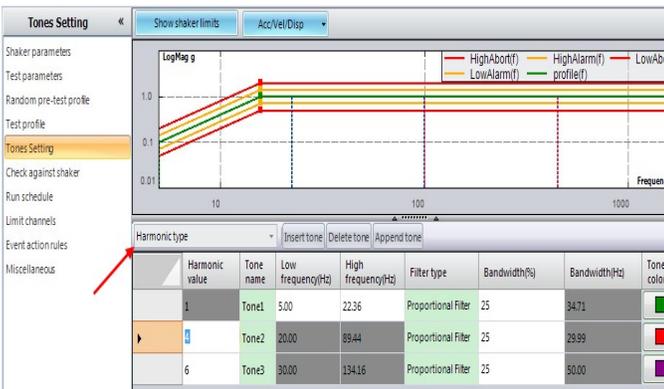
Waveform editor is a standard function of EDM VCS

SINE/RSTD

Support harmonic sweep in multi-sine

Harmonic sweeps, a new type of bandwidth test, is added.

In addition to the bandwidth test divided by tones equally or the ranges defined by the user, harmonic sweeps allow the user to define the first tone as the fundamental frequency and the rest of the tones as harmonics.



Support the smallest sweep rate from 0.01 to 0.00001 oct/min

Compression Rate in a Sine test should go down to 0.01dB/sec, and don't ramp down when level changes while tracking in RSTD

Compression rate value can be selected down to 0.01 dB / sec.

Introduce level changes while Amplitude/Phase tracking

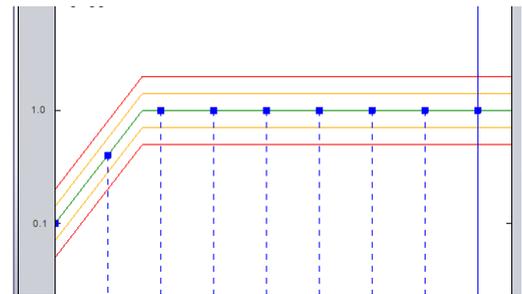
Resonance track can now be gradually incremented in steps. This will ensure that the resonance of a structure is tracked starting from the smallest magnitude of interest.

#	Selected	Frequency(Hz)	Tracking(%)	Dwell time(...	Dwell cycles#	Level(%)	Gs(g)
1	<input checked="" type="checkbox"/>	322.92	5.00	00:01:00	19,375.20	25.00	
	<input checked="" type="checkbox"/>	322.92	5.00	00:01:00	19,375.20	50.00	
	<input checked="" type="checkbox"/>	322.92	5.00	00:01:00	19,375.20	75.00	
	<input checked="" type="checkbox"/>	322.92	5.00	10:00:00	6,458.40	100.00	

Add "Sweep rate increment" parameter, 0.01~6 oct/min, 0.001~2 dec/min, 0.001~6Hz/sec

When user presses the "Inc. Speed" or "Dec. Speed" button on the control panel, the increment of the sweep rate can be defined.

Improved display for dwell sine with dot lines



Customized color for sweep cursor

Customizable color of sweep cursor so it is more visible when the background is black.



Display the tracking range in the FRF window in the track and dwell entry in RSTD test

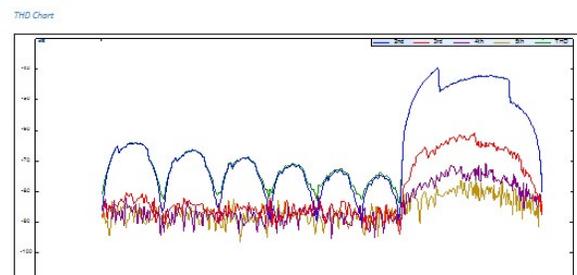
While tracking on a resonance in a RSTD test. The dotted lines indicate the tracking range whenever the resonance is lost.



Improved THD report

THD Report now has the plot and associated table with the THD values.

Test Report
 Report time: May-19-2016, 12:08:52
 Test name: Sine46
 Test status: Test Running
 Data measured at: May-19-2016, 12:08:52
 Test type: VCS (Swept Sine)
 Run folder: Run2 May 19, 2016 12:07:53



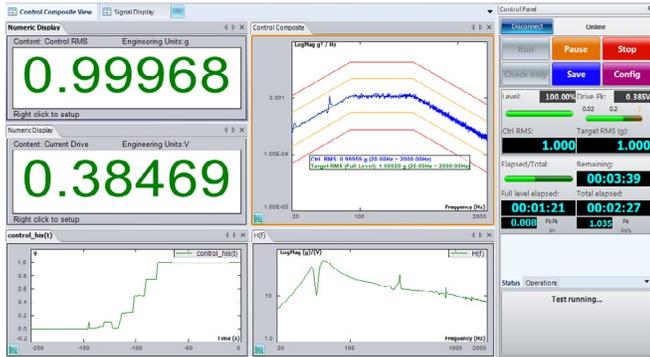
RANDOM

Rearrange buttons for Random Profile editor

Rename the “Import” button to “Import/Analyze” and move the function of generating Fatigue Damage Spectrum as the test profile to here. The function is called “Analyze from signal” now.

Adjust high alarm/abort by level in pre-test

A Random display from EDM 6.0



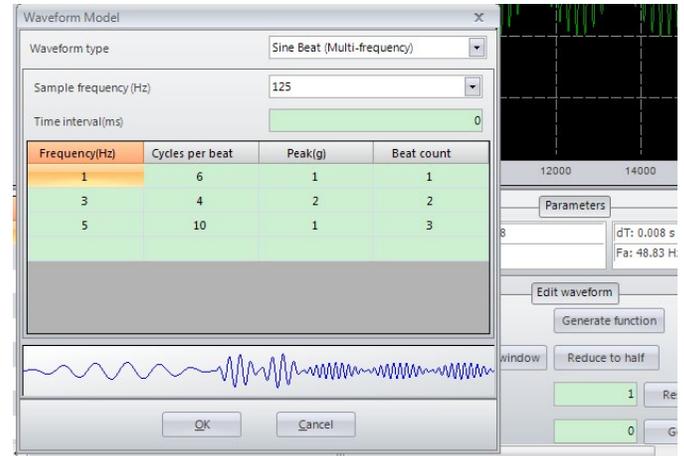
SHOCK/TTH/SRS

Customize Sine Beat in TTH profile

TTH profile can be generated from a pre-defined waveform type “Sine beat”.

Now, each sine beat may have different frequency, different peak value, and different number of cycles.

The waveform preview is also added to the bottom of the editor.

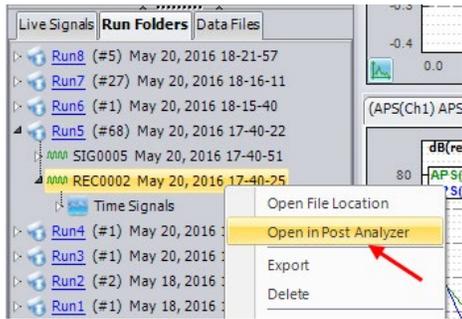


NEW FEATURES IN POST ANALYZER

Import test settings from EDM into PA

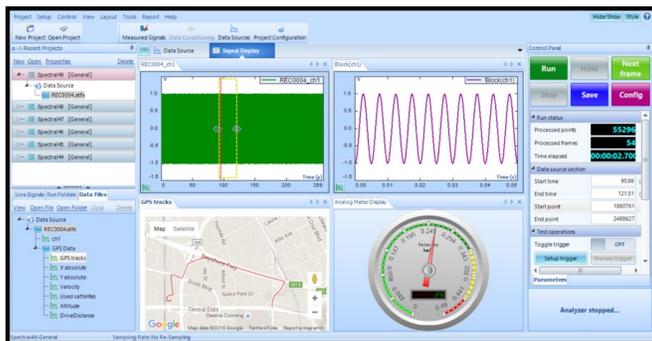
Better integration between EDM and PA.

In EDM, right-click on a recording file in a run folder and select "Open in Post Analyzer". The selected recording will be imported to a PA test for post analysis.



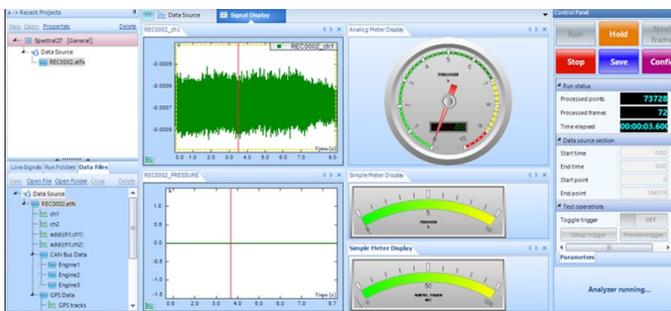
Display and make report for GPS signals acquired by CoCo-80X

With GPS capability, CoCo-80X may put a location and time stamp on recorded signals. When EDM displays such signals, the GPS trace identifies when and where the signal was recorded.



Support CAN-bus signals

The CAN-bus is an important communication protocol, a central networking system which connects all the modules working throughout the vehicle so they can work together. PA now supports CoCo-80X recorded time files with CAN bus data.

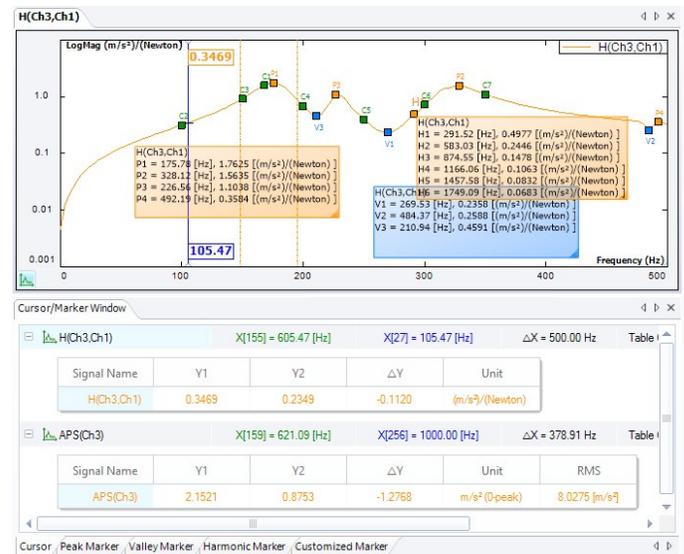


Switch time stamp between processed time or acquired time

The processed signals' absolute time now can be specified as either processed time when the data is processed, or acquired time when the data is acquired, with Post Analyzer.

Improved the cursor value display

Cursor/Marker window is designed to display the Cursor and/or Marker values. Cursors and different type of markers are listed under different tab of the Cursor/Marker Window. More signals can be added to the graph window, while corresponding cursor and marker values will be added to the cursor/marker window. The table of cursor/marker values in the cursor/marker window can be exported to Excel spreadsheet file.



Different naming scheme for PA projects to be distinguished from EDM run folders

Signals saved under PA can go into the same run folder where similar signals are saved under EDM. To differentiate the PA related saved signals, the folder for the PA signals is named as "Saved Files May 02, 2016 ..". And the PA signals are all named with _PA inserted.

Implement PA Viewer mode

PA viewer mode is implemented to allow user to create all types of project, view previous created projects without purchase any PA license. The limitation is that user cannot run the project to perform any analysis.

Optimization for many channels and large block size and faster signal display

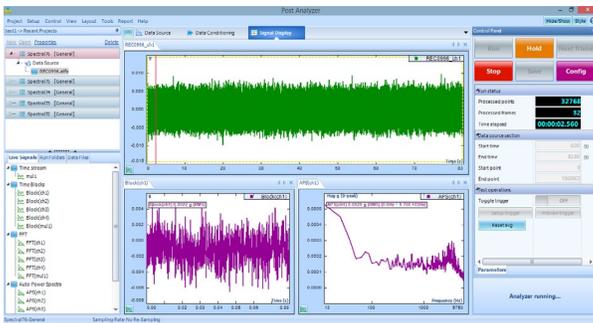
File converter is a standard function in PA

NEW FEATURES IN PA Continued

Configuration Change

For convenience of ordering, we created three bundles of PA: **PA Viewer** allows the user to view data and create reports; **PA Basic** has FFT spectral analysis, curve fitting, demodulation spectrum and 3D signal display functions; **PA Premium** has more advanced functions including File Converter, offline sine reduction, real-time filters, octave filters and order tracking.

After the user has purchased the PA Basic, advanced functions can be ordered separately. This major change in this release allows the user to spend less money and gain the advanced processing functions as they need.



Online License Management



Crystal Instruments Online License Management (OLM)

Crystal Instruments Online License Management (OLM) is a web-based tool to manage software licenses, options include Post Analyzer and File Converter.

Submit Request: Add a purchase request for certain functions of software and define the subscription and software maintenance period.

Order Status and Activation: View the order and activation status of account. The software options purchased are listed along with the activation period. Activation process is found here.

Contact: Crystal Instruments Corporation, 2370 Owen Street, Santa Clara, CA 95054, USA. Phone: +1 (408) 966-8888 | Fax: +1 (408) 634-7810 | email: sales@go-ci.com

<http://license.go-ci.com/>

A customer will begin by creating an account in OLM and submitting a request for Post Analysis functions. They will then await a quotation response via email from CI Sales. Upon receiving a payment, the sales team will create a license and again send an email. The customer may then download the Post Analysis software and use the newly issued license key.

SOFTWARE RELEASE HISTORY

Type	Release	Exact version	Release date
Release	EDM 3.1	CI 3.1.3.2	11/28/2011
Release	EDM 3.2	CI 3.2.2.5	7/31/2012
Release	EDM 4.0	CI 4.0.2.7	11/11/2012
Release	EDM 4.1	CI 4.1.0.1	4/16/2013
Patch	EDM 4.1.5	CI 4.1.5.5	10/10/2013
Release	EDM 4.2	CI 4.2.0.3	2/28/2014
Patch	EDM 4.2.0	CI 4.2.0.14	7/2/2014
Release	EDM 5.0	CI 5.0.0.2	11/27/2014
Patch	EDM 5.0.1	CI 5.0.1.3	2/27/2015
Release	EDM 5.1	CI 5.1.0.6	8/12/2015
Release	EDM 6.0	CI 6.0.0.1	5/20/2016

MINIMUM SYSTEM REQUIREMENTS

- Operating System Support: Windows XP SP3 or higher
- Operating System Type: 32-bit or 64-bit
- Minimum Processor Speed: 1.5 GHz Dual-Core x86
- Minimum RAM: 4 GB
- Minimum Free space: 10 GB
- Libre Office (version 4.2 or newer) or Open Office to support the Report feature in Open XML format.
- Microsoft Office 2003 or newer to support the Report feature in Word and PDF format.
- Microsoft Office 2007 or newer to support the Active Report feature.

Recommended system requirements for Spider systems over 16 channels

- Operating System Type: 64-bit
- Processor: Intel Core i7, 2.0 GHz or higher
- RAM: 8 GB DDR3 1600
- PC storage type: SSD (solid-state drive)

<i>Version Compatibility:</i>	
Spider-80X/80Xi	Firmware Versions
EDM 6.0.0.1	EDM 6.0.0.1
Spider-81 (v7.x)	Firmware Versions
EDM 6.0.0.1	EDM 6.0.0.1
Spider-81B (v7.x)	Firmware Versions
EDM 6.0.0.1	EDM 6.0.0.1
Spider-80SG	Firmware Versions
EDM 6.0.0.1	EDM 6.0.0.1

Spider-81 (v5.x)	Firmware Versions
EDM 6.0.0.1 (last version supporting v5.x)	0728
Spider-81B (v3.x)	Firmware Versions
EDM 6.0.0.1 (last version supporting v3.x)	0715