CRYSTAL INSTRUMENTS

EDM 10.0

Engineering Data Management Software Release Notes

SPIDER VIBRATION CONTROL SYSTEMS (VCS)
MULTIPLE-INPUT MULTIPLE-OUTPUT VIBRATION CONTROL SYSTEMS (MIMO VCS)
DYNAMIC SIGNAL ANALYSIS (DSA)
POST ANALYZER (PA)
EXPERIMENTAL MODAL ANALYSIS (EMA)
REMOTE CONDITION MONITORING (RCM)
VIBRATION DIAGNOSTIC SYSTEM (VDS)

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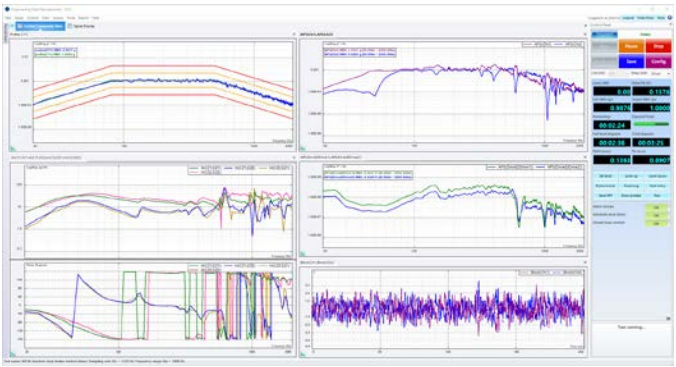
RELEASE HIGHLIGHTS

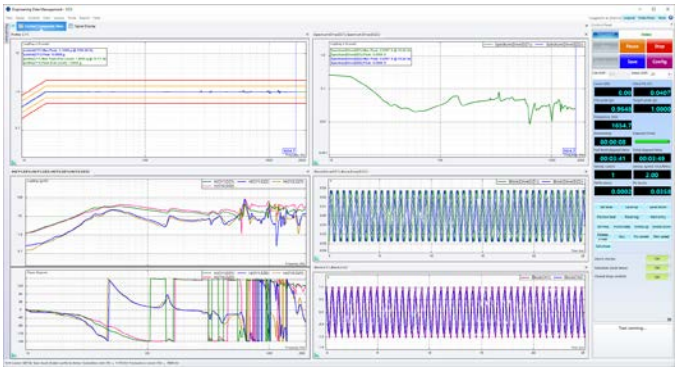
MESA Random

Multiple Exciter Single Axis (MESA) control is commonly used to work with a large or long Unit Under Test (UUT). MESA random requires one control profile and utilizes the weighted average control. Different control modes provide identical drives, drives with different phases, and drives with different mag/phase.



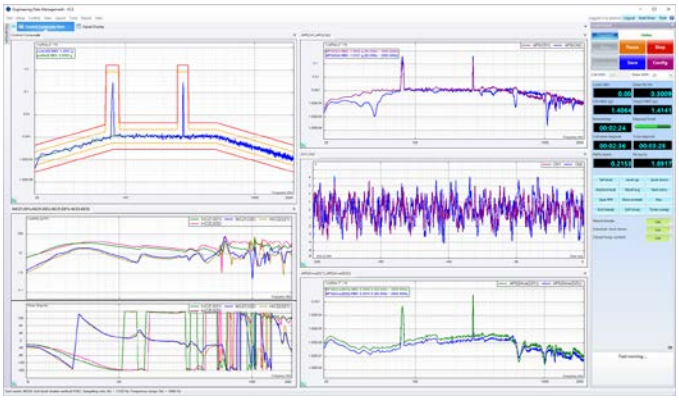
MESA Sine

Multiple Exciter Single Axis (MESA) control is commonly used to work with a large or long Unit Under Test (UUT). MESA Sine requires one control profile and utilizes the weighted average control. Different control modes provide identical drives, drives with different phases, and drives with different mag/phase.



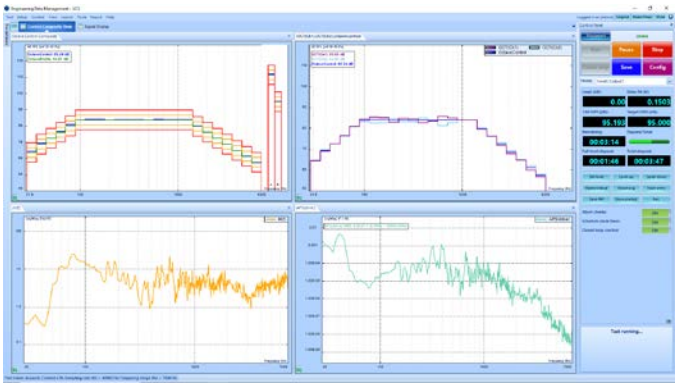
MESA SoR

Multiple Exciter Single Axis (MESA) control is commonly used to work with a large or long Unit Under Test (UUT). MESA SoR requires one control profile and utilizes the weighted average control. Different control modes provide identical drives, drives with different phases, and drives with different mag/phase.



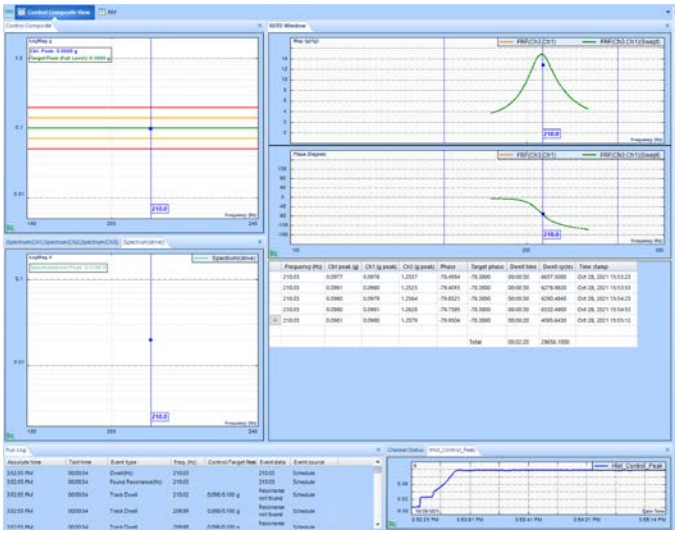
Acoustic Control

Acoustic Control provides accurate control for high-level noise testing of reverberant chambers or progressive wave tubes. Based on the Spider hardware platform, Acoustic Control achieves quick and reliable control of the noise level to the reference octave spectrum and the overall sound pressure level (OASPL). Included safety features guarantee the safety of the unit under test.



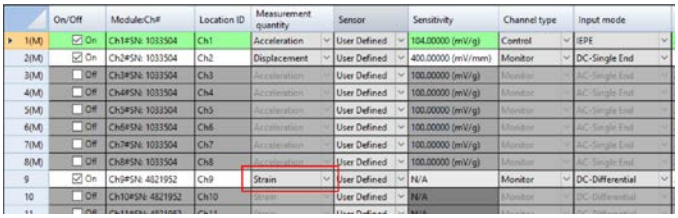
Turbine Blade Fatigue Test

The Turbine Blade Fatigue Test simulates the vibrations a turbine blade is subjected to in its working environment. This test type is based on the current Resonance Search and Dwell test with additional features added to enhance test routines and conveniently track resonances and control on various materials.



Strain Measurements in Blade Fatigue Testing

Spider hardware is a powerful and flexible platform. Users can combine a Spider supporting vibration control software and a Spider-80SG data acquisition system with strain gage measurement. The combined system can run vibration tests with strain gage measurements. EDM VCS software provides a comprehensive display and reports in one convenient location.

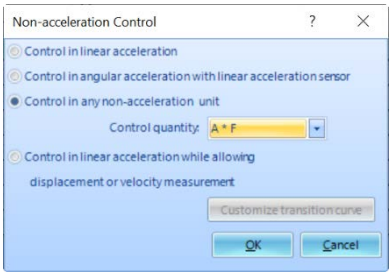


	On/Off	Module/Ch#	Location ID	Measurement quantity	Sensor	Sensitivity	Channel type	Input mode
1(M)	On	Ch14#SN: 1033504	Ch1	Acceleration	User Defined	104.00000 (mV/g)	Control	IEPE
2(M)	On	Ch2#SN: 1033504	Ch2	Displacement	User Defined	400.00000 (mV/mm)	Monitor	DC-Single End
3(M)	Off	Ch3#SN: 1033504	Ch3	Acceleration	User Defined	100.00000 (mV/g)	Monitor	AC-Single End
4(M)	Off	Ch4#SN: 1033504	Ch4	Acceleration	User Defined	100.00000 (mV/g)	Monitor	AC-Single End
5(M)	Off	Ch5#SN: 1033504	Ch5	Acceleration	User Defined	100.00000 (mV/g)	Monitor	AC-Single End
6(M)	Off	Ch6#SN: 1033504	Ch6	Acceleration	User Defined	100.00000 (mV/g)	Monitor	AC-Single End
7(M)	Off	Ch7#SN: 1033504	Ch7	Acceleration	User Defined	100.00000 (mV/g)	Monitor	AC-Single End
8(M)	Off	Ch8#SN: 1033504	Ch8	Acceleration	User Defined	100.00000 (mV/g)	Monitor	AC-Single End
9	On	Ch9#SN: 4821952	Ch9	Strain	User Defined	N/A	Monitor	DC-Differential
10	Off	Ch10#SN: 4821952	Ch10	Strain	User Defined	N/A	Monitor	DC-Differential

*A*F Control*

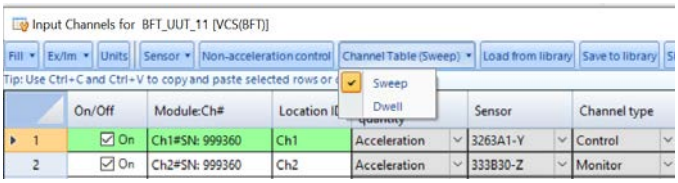
During the process of blade fatigue testing, a test usually needs to run twice. One test finds the frequency and target level for dwelling. The other is the dwelling test.

While running a close-loop test, EDM provides the three most popular control quantities: acceleration, displacement, and A*F control.



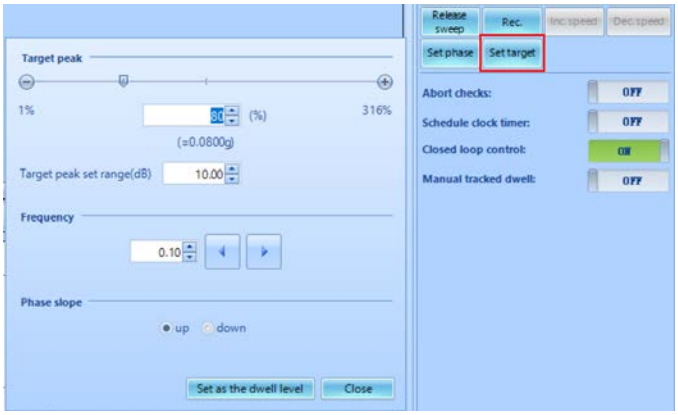
Sweep/Dwell Channel Table

Some scenarios of blade fatigue testing use different channel tables in the sweep test and the dwell test. Users can click a button to quickly switch between the two without accidentally selecting the other one.



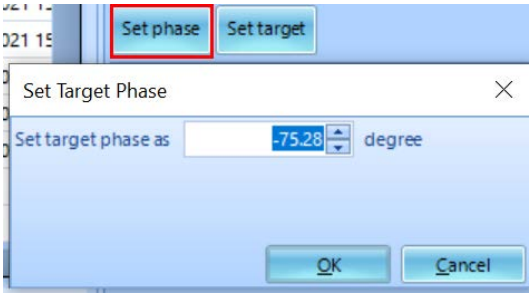
Set the Dwelling Level

Set the dwelling level before and during the dwelling test.



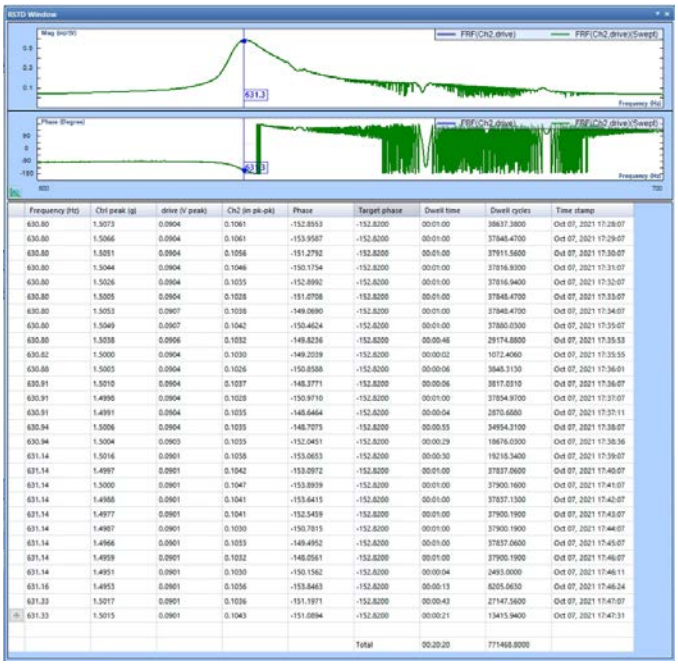
Set the Target Phase

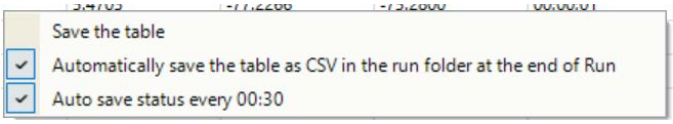
Set the target phase before and during the dwelling test.



Improved Dwelling Table

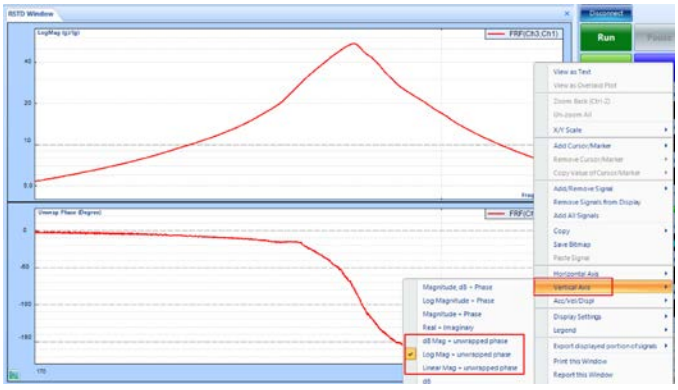
The improved dwelling table shows and records desired test information. The table can be manually saved, automatically saved by given frequency, and saved at the end of a test.





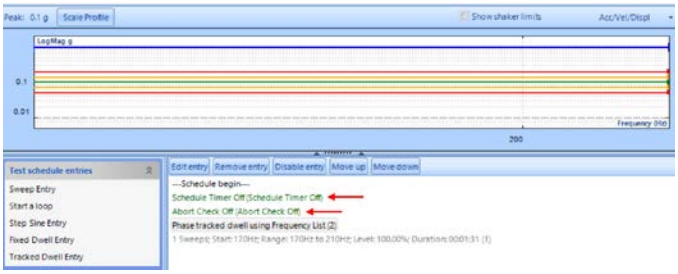
More Enhancements

- Three more options for vertical axis: dB Mag/LogMag/LinearMag + unwrapped phase

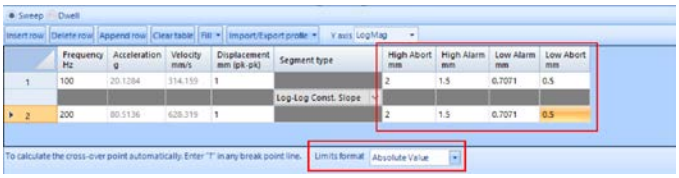


- Automatically pauses the schedule before dwelling to allow fine-tuning at the test level.

  Automatically turns off the abort check before dwelling to allow a test to run at levels higher than the tolerance.

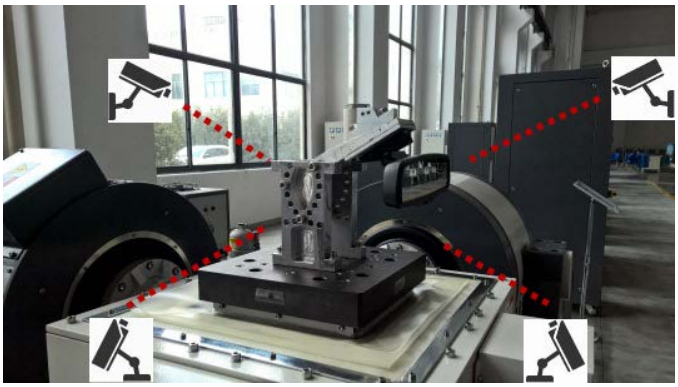


- Tolerances can be specified by absolute values, for both acceleration and non-acceleration control.



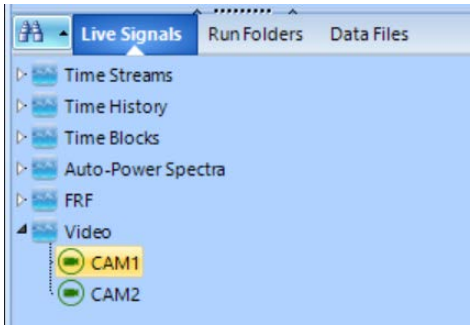
Video Capture

Video capture is a new EDM extension that works with selected cameras for test condition monitoring. It allows real-time video monitoring, video recording, and taking snapshots of the test process.



Real-time View

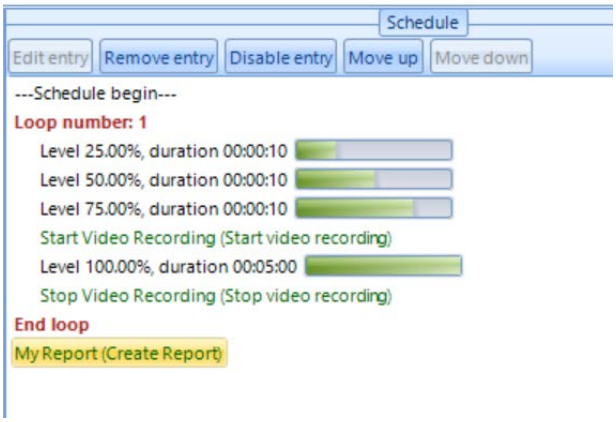
Available cameras appear in the Live Signals list. Double-click to display the real-time view in a window. The window displays the real-time video and provides functions to take snapshots, record videos, and PTZ control.

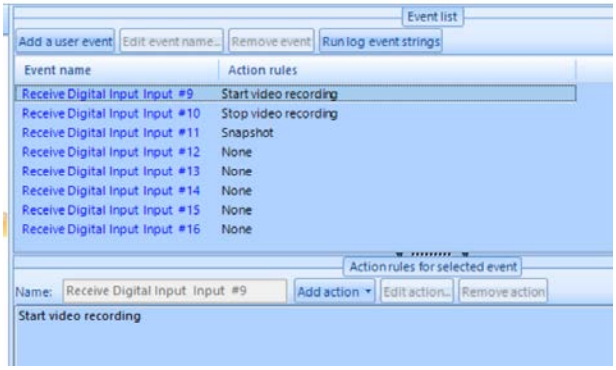


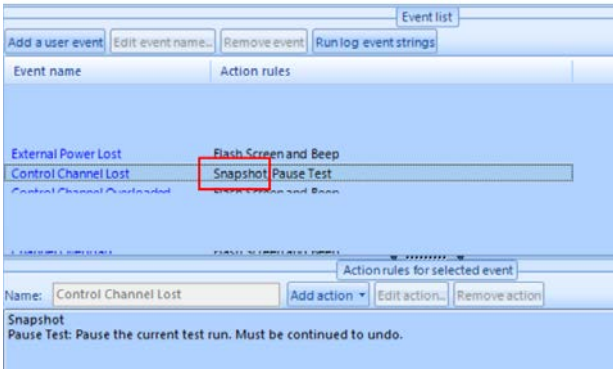
Recording Videos and Taking Snapshots

Videos and snapshots are saved on the computer. These can be taken manually or automatically from individual camera or multiple cameras.

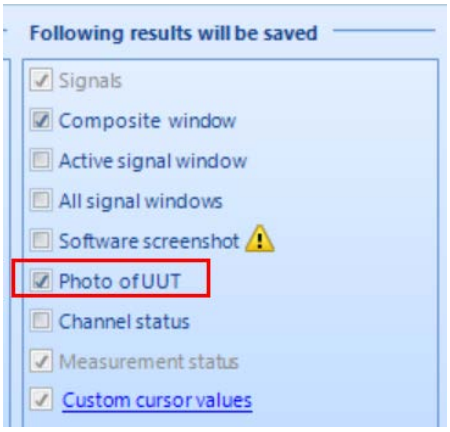
Videos and snapshots can be taken automatically according to event-action rules and a schedule.







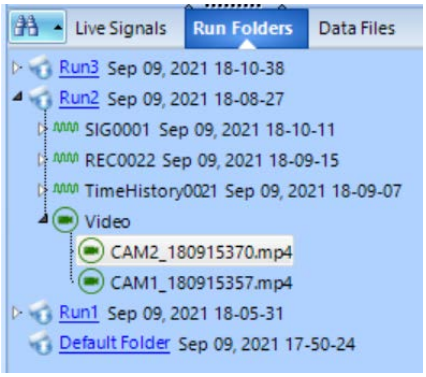
Users can take snapshots with signal saving.



Users can record videos with time signals recording.

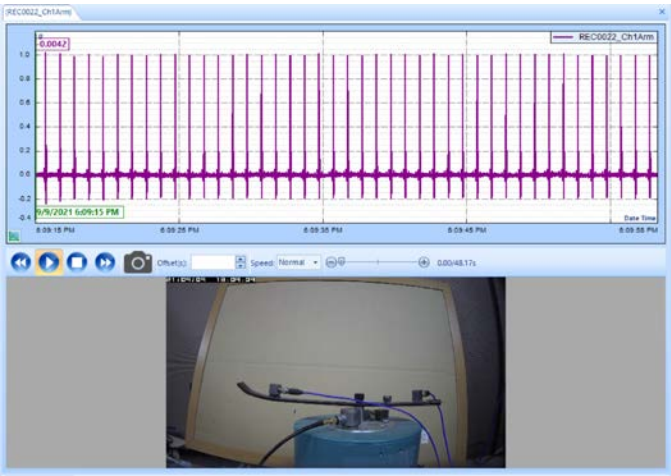
Video and Snapshot Viewing in EDM

Videos are saved in mp4 format. Snapshots are saved in jpeg format. Users can open these files with supported applications.



Advanced functions are offered when viewing videos in EDM.

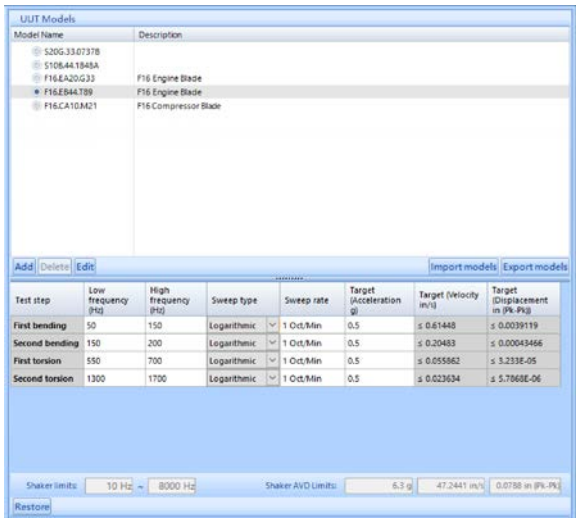
- Synchronized display of video and signals
- Adjustable offset between video and signals
- Adjustable playback speed
- Video jumps to the frame with the cursor on the signal



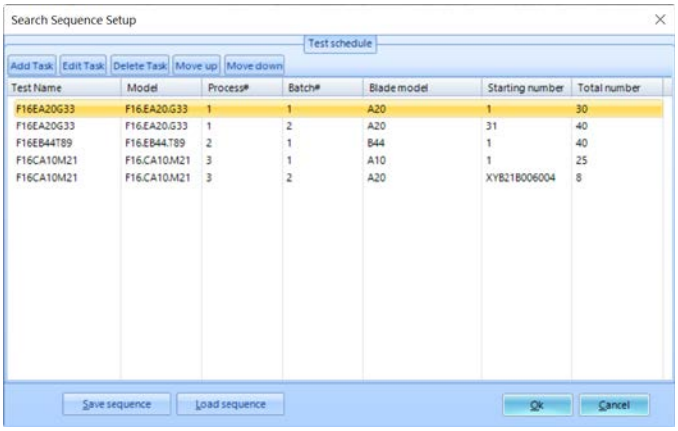
Resonance Search

Resonance Search is a production testing tool that allows users to quickly search for the first bending, second bending, first torsion, and second torsion frequencies from a set of UUTs of the same model. The traditional way of testing involves driving the shaker with a constant amplitude and variable frequency sine wave, which is called open-loop testing. In EDM VCS, this feature is implemented in close-loop control mode, which includes many safety features to protect the shaker systems and UUTs.

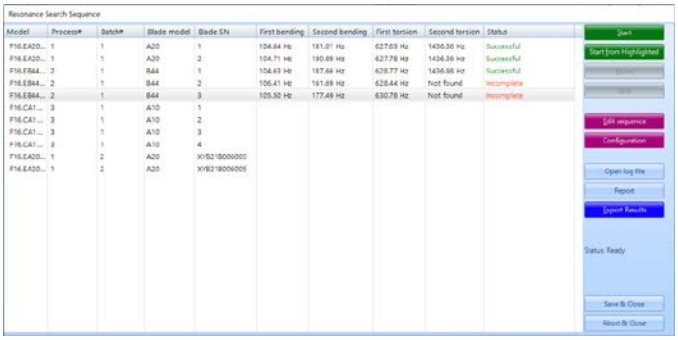
The following screenshot displays a library of UUT models. The sweep range, sweep type, sweep rate, and shaker amplitude are defined for each frequency. Only one model is selected for a test.



The following screenshot displays the test schedule, which is defined as a list of tasks. Each task is defined by the selected test (UUT model), process#, batch#, blade model, and UUT number.



When the test schedule is determined, it is expanded as the Resonance Search Sequence. The following screenshot is the main interface of running Resonance Search Sequence. It shows the entire list of UUTs and results of each UUT. The interface provides buttons for operations, configuration, and reporting.



Introducing CoCo Testing Plan to Modal Testing

The hand-held instruments from the CoCo hardware platform makes it extremely convenient for users to acquire measurements in the field. The rugged system with a compact display provides quick, easy, and accurate data recording and analysis. Combining this powerful hardware system with the industry leading EDM Modal software provides a seamless integration of the modal analysis process. Users can transfer the testing plan and 3D model

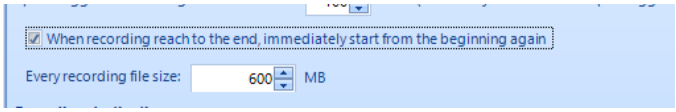
geometry created in EDM Modal to CoCo hardware for acquiring modal measurements. The testing plan provides an overview of the measurement process and allows users to customize the measurement entries. Including the visual display of the test specimen model results in an efficient, intuitive, and simple workflow.

Added Moving Linear Average to Modal Analysis

A linear average is a powerful averaging method that provides smaller variance by assigning equal weightage to each data point. However, at certain times the most recent data points are more reliable and consistent than the initially collected data. The new running linear average feature allows users to skim through the initial data points and consider the most recent data for averaging and obtaining a low varying dataset.

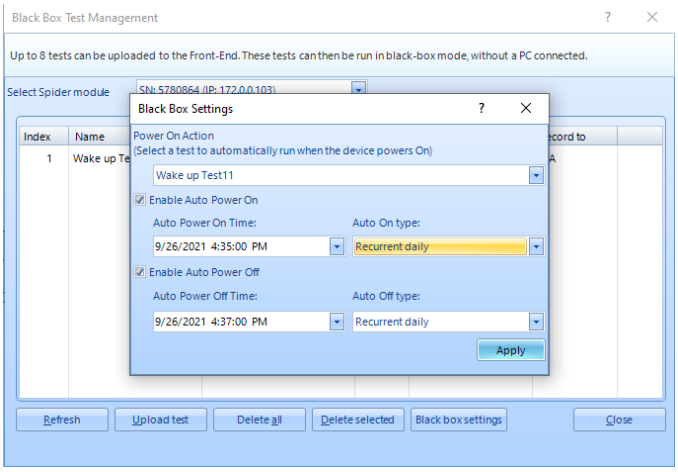
Introducing Circular Buffer Recording in Dynamic Signal Analyzer

This powerful feature provides users with the option to preset a buffer size for recorded data. Long term monitoring and the option to capture long pre trigger data is provided. The Spider system can continuously record and overwrite data until a preset trigger or condition is met which results in capturing and saving all preexisting data, partially overwriting the existing data or completely overwriting with new data.



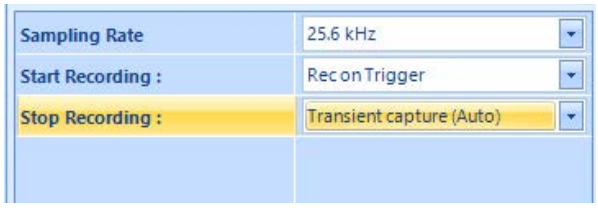
Auto Wake and Timer Functions with S20 E

This new powerful feature allows the Spider-20 to turn on at a specified time to automatically execute one or several sequential tests and turn off at a preset time interval. This feature is helpful in specialized or remote applications requiring routine monitoring with restrictive access for the Spider system.



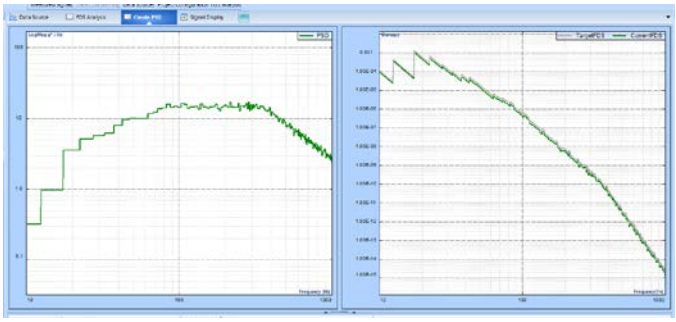
Introducing Transient Recording

EDM TDA now provides an option to enable transient recording. This setup allows the Spider to record data as long as the trigger condition exists. Users will find this feature extremely useful when dealing with an event of uncertain length, it ensures the entire event is caught and unnecessary data is not stored, resulting in an increase of the overall Spider storage memory capacity.



PA Fatigue Damage Spectrum (FDS)

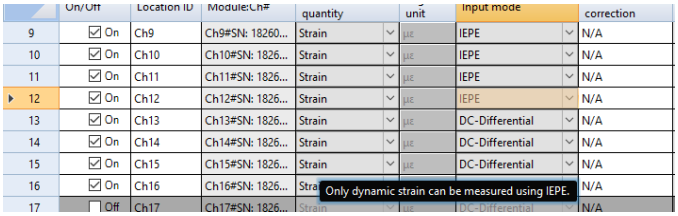
This new powerful feature allows users to import raw time waveform data from field testing under multiple conditions and build a combined mission profile. Then based on the expected number of life hours (or cycles), the lifetime damage can be calculated. A new accelerated PSD can then be developed with an equivalent damage potential as the original life cycle but at a fraction of the necessary testing time.



NEW FEATURES

Spider-80SG Systems Support Dynamic Strain Sensors

The Spider SG systems now support both static strain as well as IEPE dynamic strain sensors on the same module. The input modes can be set to DC differential for static strain of IEPE dynamic strain.



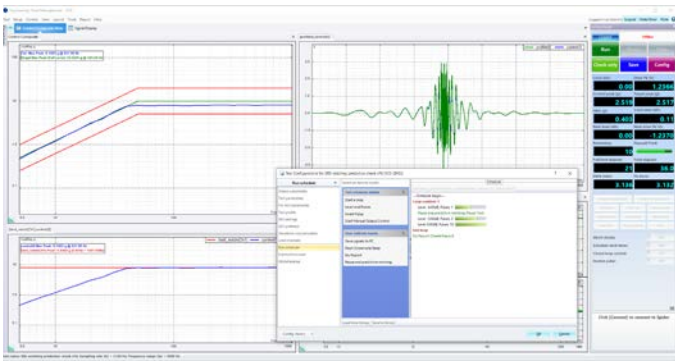
	On/Off	Location ID	Module:Ch#	quantity	unit	Input mode	correction
9	On	Ch9	Ch9#SN: 18260...	Strain	με	IEPE	N/A
10	On	Ch10	Ch10#SN: 1826...	Strain	με	IEPE	N/A
11	On	Ch11	Ch11#SN: 1826...	Strain	με	IEPE	N/A
12	On	Ch12	Ch12#SN: 1826...	Strain	με	IEPE	N/A
13	On	Ch13	Ch13#SN: 1826...	Strain	με	DC-Differential	N/A
14	On	Ch14	Ch14#SN: 1826...	Strain	με	DC-Differential	N/A
15	On	Ch15	Ch15#SN: 1826...	Strain	με	DC-Differential	N/A
16	On	Ch16	Ch16#SN: 1826...	Stra			N/A
17	Off	Ch17	Ch17#SN: 1826...	Strain	με	DC-Differential	N/A

Only dynamic strain can be measured using IEPE.

New Features in EDM-VCS Vibration Control Software

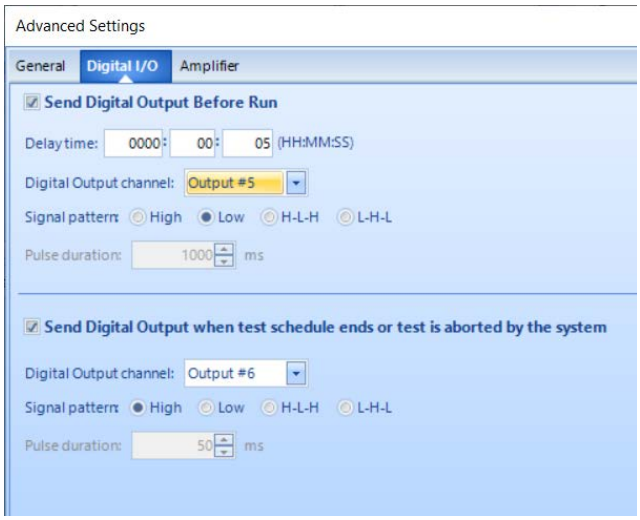
SRS Predictive Notching

The SRS predictive notching allows users running a low-level SRS test to apply limits to the required channels and predict target responses. The notched control SRS signal becomes the new RRS and another round of synthesis is carried out. The newly synthesized time waveform can be uploaded, and a full level test will be carried out.



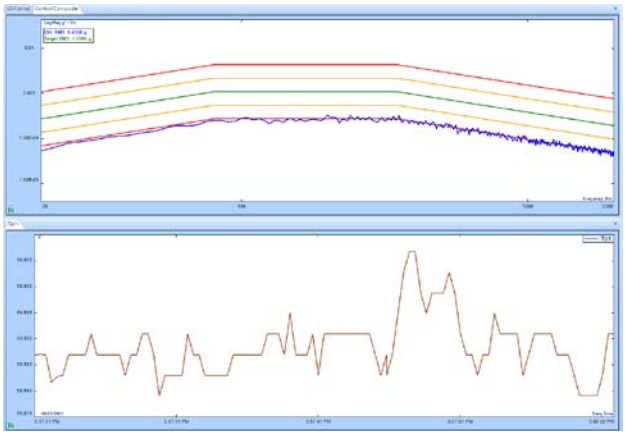
Consolidated Digital Output for Test Start / End

Supports resetting a single digital output channel for all cases before a test starts and after a test ends. For instance, an amplifier waiting on a digital output signal can be configured to turn on and off in step with the vibration test. Located under **Test Parameters > Advanced Settings, Digital I/O tab.**



Vibration Testing Integrates Temperature Measurements by Spider-80Ti

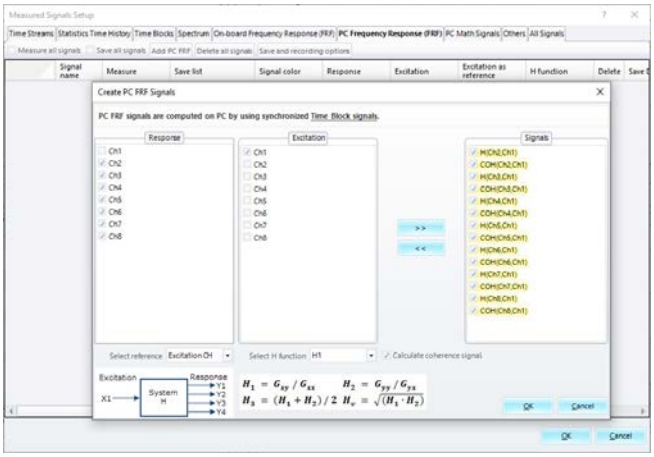
EDM 10.0 allows users to integrate Spider-80Ti and temperature measurements with Sine, Random and Shock tests to provide a complete DAQ measurement solution for VCS tests.



New Features in MIMO Vibration Control Software

MIMO Sine PC FRF

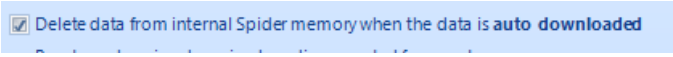
PC FRF is implemented in MIMO Sine control. Users can select the response and excitation channels to calculate the FRF. Coherence can be included. Supported FRF estimations are H1, H2, H3 and Hv.



New Features in EDM Dynamic Signal Analysis

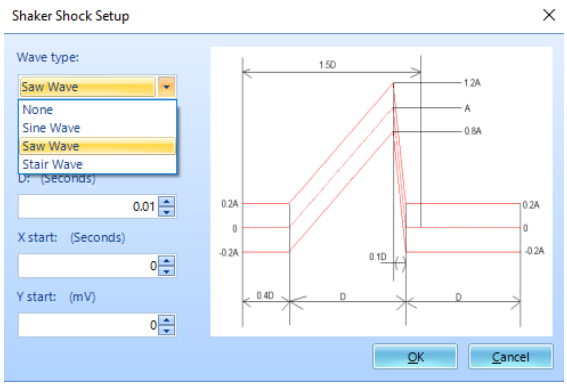
Automatic Data Management with Data Download

DSA 10.0 allows users to configure tests to automatically record data, download it from internal memory and then delete it from internal storage to free up space. The need for manual actions is eliminated and the user is assisted to setup a long term, completely autonomous test.



Shock Reference Profile

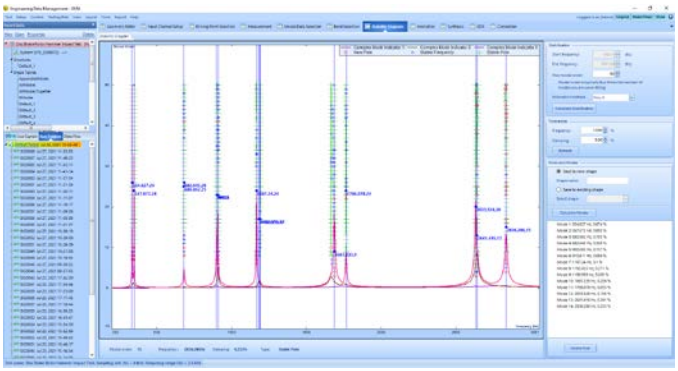
Various shock reference profiles can be set up in EDM DSA with user customizable parameters, which allows the user to set up DSA as a monitor system for shock testing.



New Features in EDM-Experimental Modal Analysis

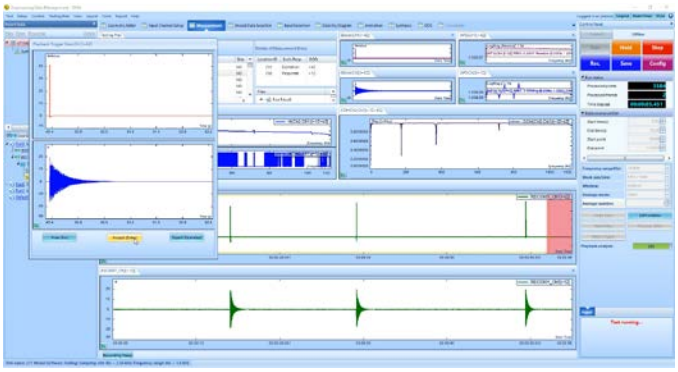
Optimization of Stability Diagram

Curve-fitting FRFs is the most crucial step of the modal analysis process. The frequency band and the polynomial order along with the estimation method produce the stability diagram. The modal order and the quality of the estimated modes are indicated on the stability diagram. The user can hover the cursor over each mode to view the pole characteristics. To further optimize the stability diagram, the tolerances for the frequency and damping of the mode can be tightened to estimate modes with lower variance. This feature assists in the more accurate estimation of modal characteristics.



Enhancement of Playback Analysis

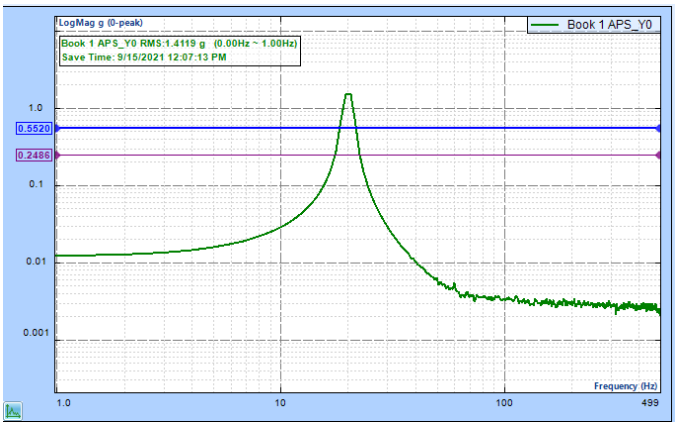
The playback analysis feature allows the user to post-process all time data recordings from onsite measurements. The user can execute modal measurements in the field and post-process data in the lab PC by configuring the FFT analysis parameters. Major improvements and enhancements have been made to this feature to optimize the recording and processing capabilities. These changes result in easier and faster analyzing of modal data. This function is available in Hammer Impact, MIMO FRF and Operational Modal Analysis testing from the EDM Modal suite.



New Features in Post Analyzer

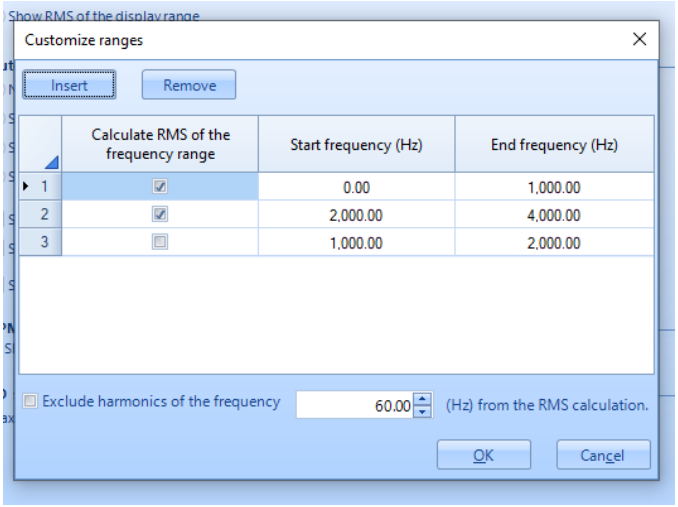
Support Multiple Horizontal Cursors

PA allows users to add multiple horizontal cursors in addition to vertical cursors and various peak markers.



Display RMS Values of Multiple Frequency Bands in the Same Window

PA 10.0 can display multiple RMS band values in the same window and also features the ability to exclude the 60 Hz of electric noise and its harmonics from the RMS calculations.



New Features in EDM-THV/EDC

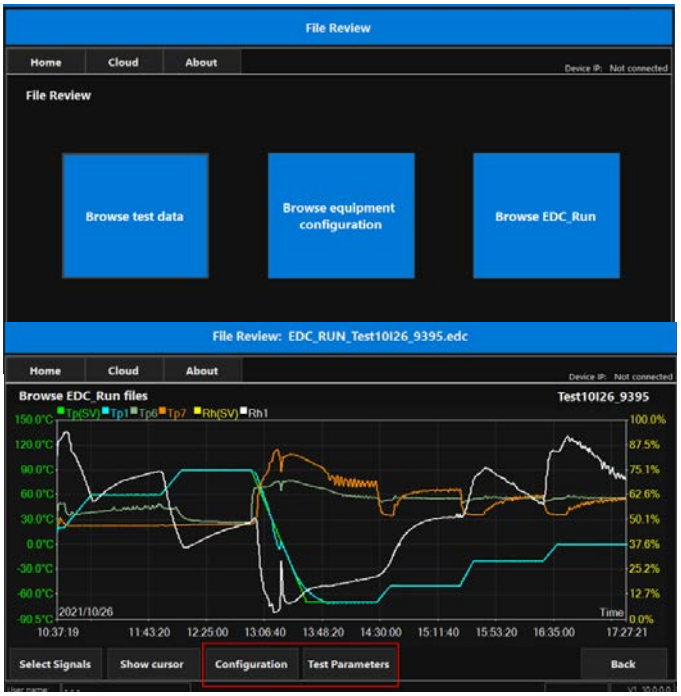
EDC Viewer

EDC Viewer allows users to view test signals, test parameters, and the chamber and controller configurations.

Users can view the following three file types in EDC Viewer.

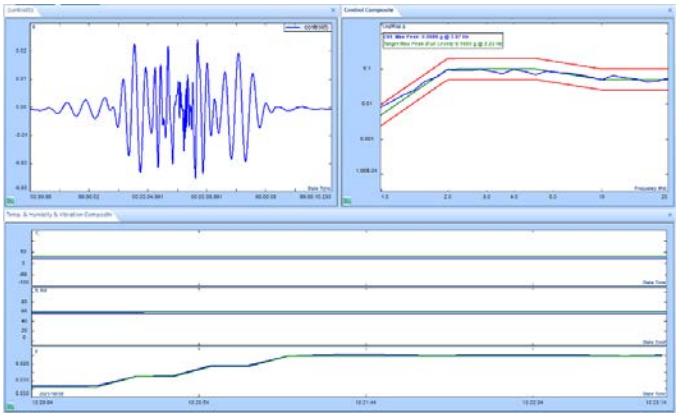
- **Signal File:** contains signals saved after each test run.
- **Equipment Configuration File:** contains chamber configurations.
- **EDC Run File:** contains test signals, test parameters, and the chamber and controller configurations.

The control performance of a chamber may rely heavily on test parameters and the chamber configurations, which can be included with test signals in an EDC Run file. EDC Viewer is the perfect tool for the support or engineering team to view these files and analyze test results since EDC Run includes all the necessary information.



EDM THV: Supports Earthquake Control Test

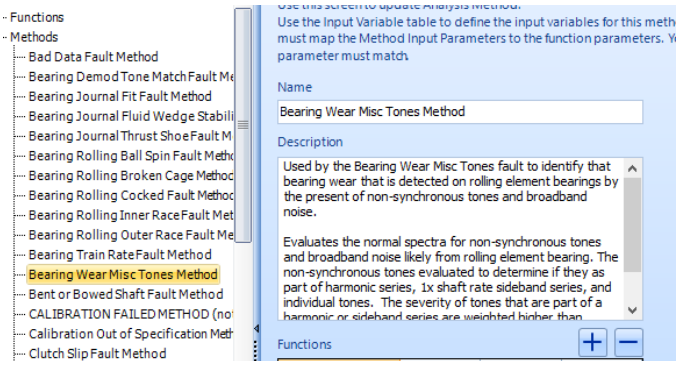
The earthquake testing control package provides controls to meet a target Required Response Spectrum (RRS) specifically designed for earthquake testing. It has been available in EDM VCS (vibration control) software and is now extended to the EDM THV (Temperature, Humidity, Vibration) control software.



VDS NEW FEATURES

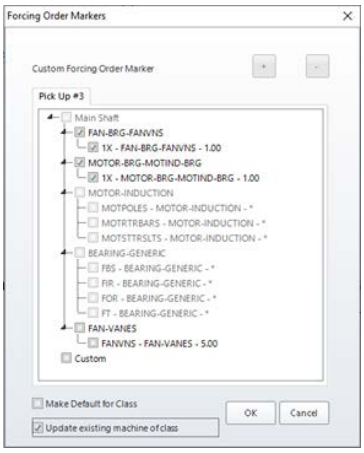
Rule Manager Method Descriptions

CI's VDS shipping rule base now contains descriptions for faults and methods, and these can be viewed directly in the Rule Manager.



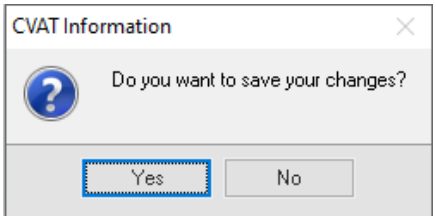
Update Forcing Order Marker Setup of Existing Machines

Allows the user to propagate Forcing Order Markers of one machine to other machines of this Machine Class. If the user selects this checkbox, then machines of this Machine Class will have their Forcing Order Market setup updated with the setup specified in the dialog window. Machines in the database may have different Forcing Order Marker Setups, and these will be discarded and replaced with the setup specified in the dialog window.



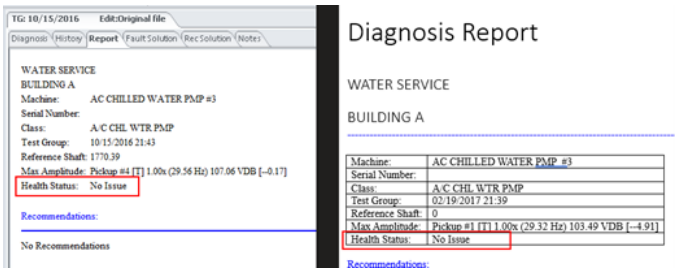
Diagnosis Window Allows Users to Save Work After Clicking on Another Machine

When the user clicks on another Machine, the Diagnosis View will update. If the user makes changes to the Diagnosis but does not save them, the Diagnosis view will not be updated. Instead of changing the Diagnosis display to correspond with the machine and Test Group the user clicked on, it will display a message box asking the user if they want to save their work. If "no" is clicked it will proceed with the view update.



Health Status Added to Diagnosis Reports

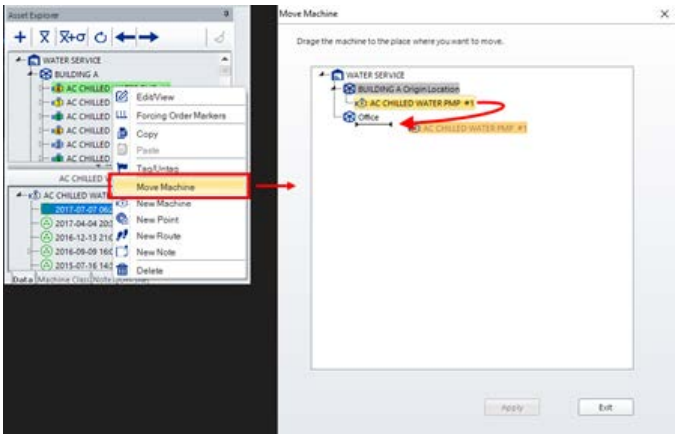
The Diagnosis Report now includes Health Status, which was previously only shown in the Diagnosis View.



The health status will also indicate whether the machine is Out of Commission or Not Tested.

Move Machine Feature

The Move Machine feature allows moving machines between spaces. It brings all the points, entries, and associated data with it.

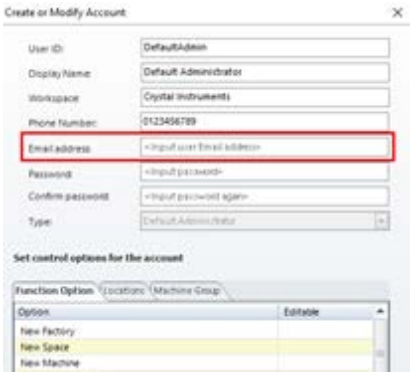


Asset Explorer Window Tree Nodes Closed by Default

The Asset Explorer tree nodes are now collapsed by default.

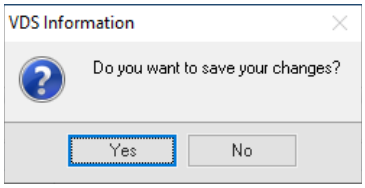
Add Email to User Profile

Added Email Address to the user profile.



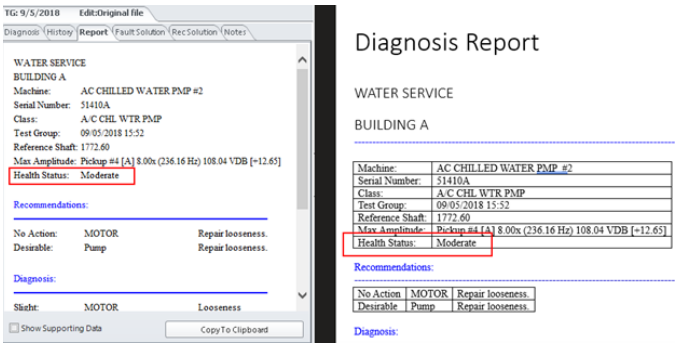
Diagnosis Window Allows Users to Save Work After Clicking on Another Machine

Previously, when users clicked on another machine, the Diagnosis View would update to the new machine. Now it no longer updates the Diagnosis View if the user did not save their work. Instead, it will now display a message box asking the user if they want to save their work. This prevents users from unintentionally losing their work when selecting another machine.



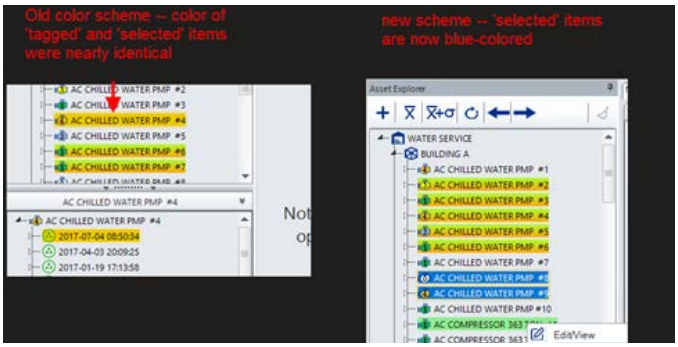
Health Status Now Included in Diagnosis Reports

Diagnosis View includes an output line labeled Health Status. It is now displayed in the report tab of Diagnosis view and in the Diagnosis Report.



Selected Item(s) in Asset Explorer Window Highlighted Blue

The color of selected items in the Asset Explorer window are highlighted in blue to provide better contrast.

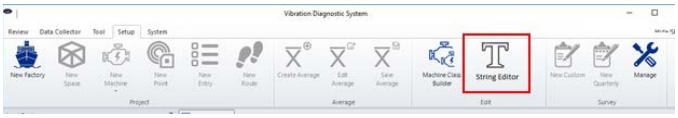


Add VDSDBEdit (String Editor) Application

Added a button to launch the VDSDBEdit application from the Setup/Edit tab (labeled “String Editor”). The VDSDBEdit application accepts command line parameters. Launch the VDSDBEdit with the database server name and database name in the command line.

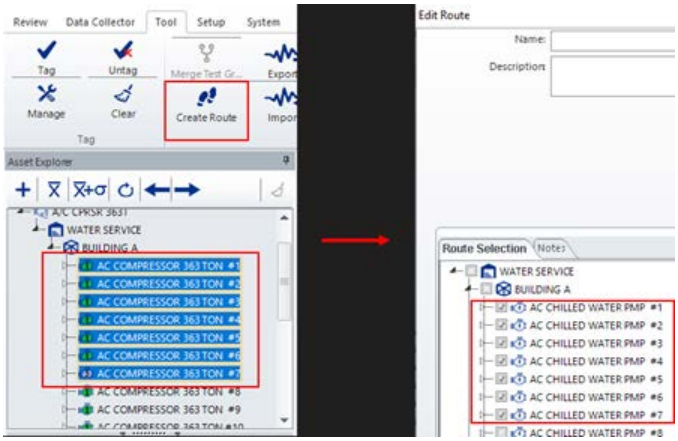
Example Command Line Argument:

“localhost\SQL2016” cvat_export_test



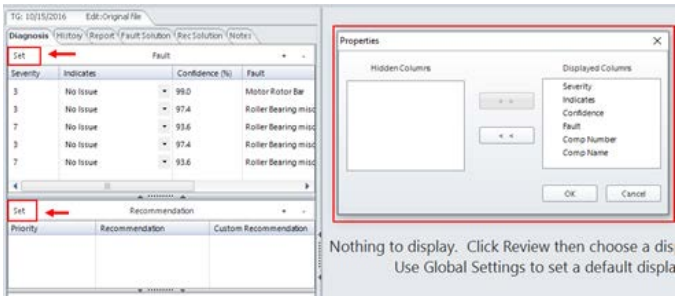
Build Route from Tagged Machines

A Create Route button has been added to the Tool/Action menu. When this feature is used, it will automatically select machines in the route dialog based on the tagged machines.

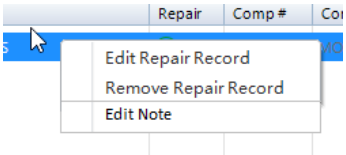


Diagnosis Window Update

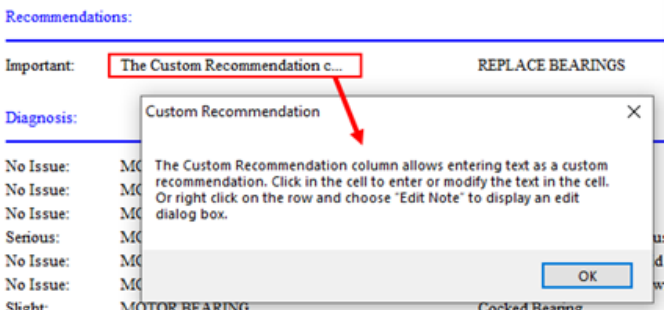
Click this icon to display a dialog that allows users to choose which columns to display. This feature works for the Fault table and the Recommendation table.



The Custom Recommendation column allows users to enter text as a custom recommendation. Click in the cell to enter or modify the text in the cell. Or right click on the row and select “Edit Note” to display an edit dialog box.

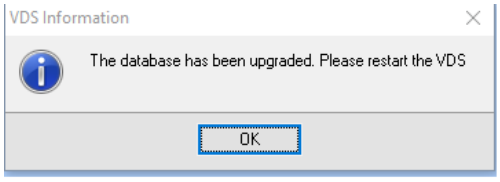


The Report tab now displays the Recommendation Name in the second column if the Note is empty. Otherwise, it displays the Custom Recommendation test in that column. If the text is too long to be completely displayed in the column, then it will display the complete text in a floating window when it is clicked.



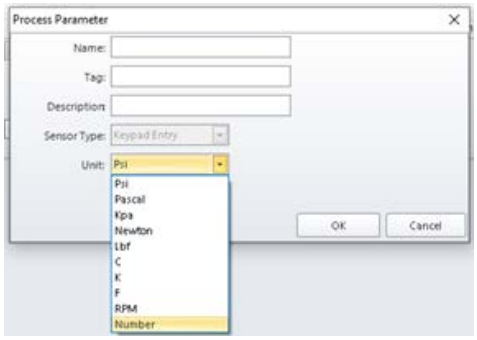
Automatic Database Update

VDS will recognize when a database is on an older version and will automatically update the database.



Add a Process Entry Unit Labeled “Number”

This feature can be used to collect an equipment serial number as a process value. The serial number is comprised of only numbers, no letters.

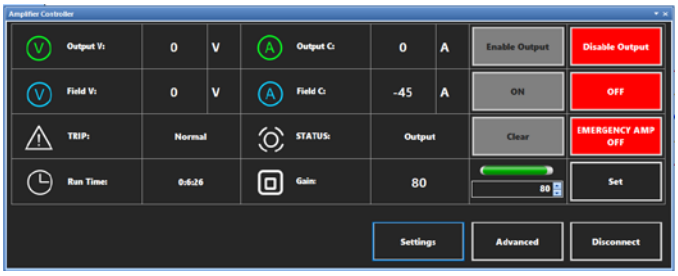


MAJOR IMPROVEMENTS

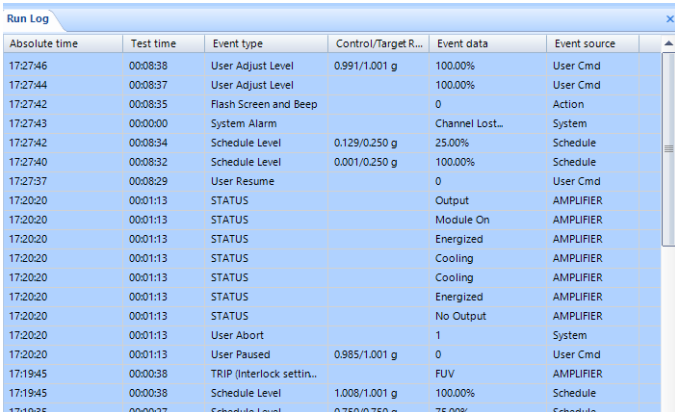
EDM Vibration Control Software

Improvements to the Amplifier Controller Software

The layout and operation logic of the interface is updated to match the physical amplifier control panel to maintain the same user experience and avoid confusion and mis-operation.

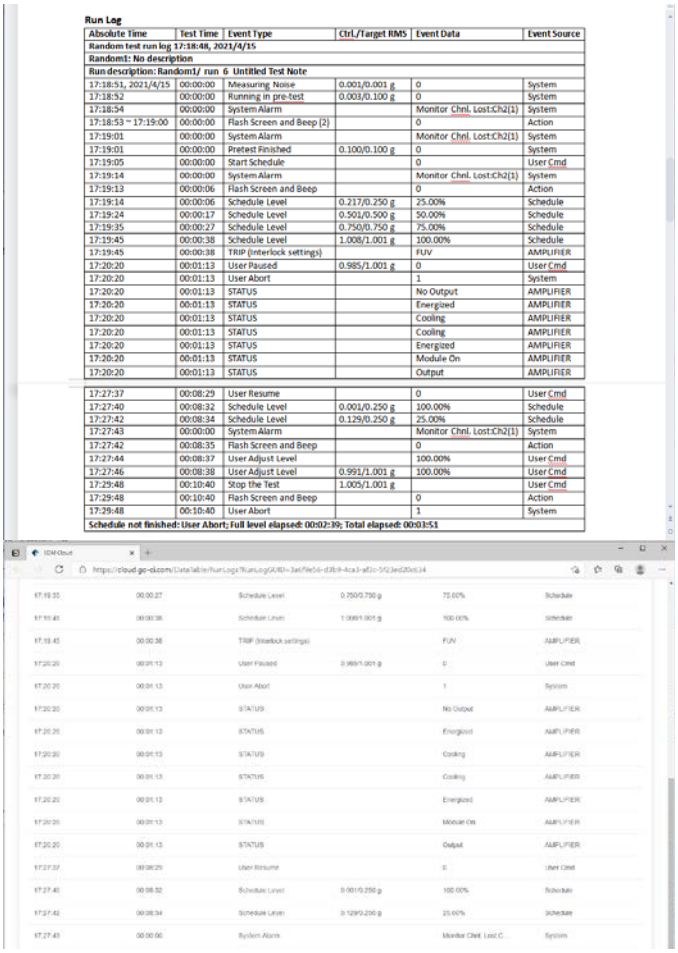


The amplifier status is recorded in Run Logs, which appears in EDM software, report, and EDM Cloud for in-test view, post-test view, and remote view.



Run Log

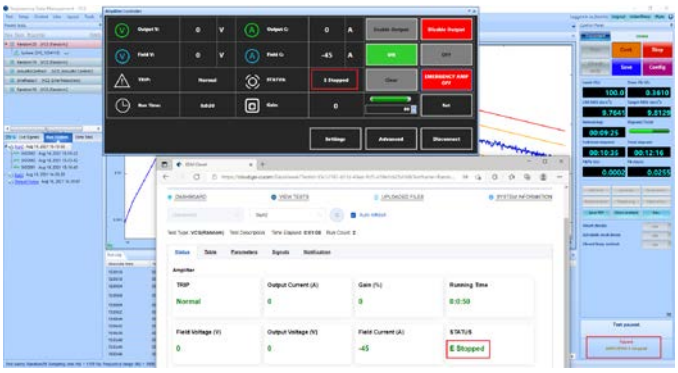
Absolute time	Test time	Event type	Control/Target R...	Event data	Event source
17:27:46	00:08:38	User Adjust Level	0.991/1.001 g	100.00%	User Cmd
17:27:44	00:08:37	User Adjust Level		100.00%	User Cmd
17:27:42	00:08:35	Flash Screen and Beep		0	Action
17:27:43	00:00:00	System Alarm		Channel Lost...	System
17:27:42	00:08:34	Schedule Level	0.129/0.250 g	25.00%	Schedule
17:27:40	00:08:32	Schedule Level	0.001/0.250 g	100.00%	Schedule
17:27:37	00:08:29	User Resume		0	User Cmd
17:20:20	00:01:13	STATUS		Output	AMPLIFIER
17:20:20	00:01:13	STATUS		Module On	AMPLIFIER
17:20:20	00:01:13	STATUS		Energized	AMPLIFIER
17:20:20	00:01:13	STATUS		Cooling	AMPLIFIER
17:20:20	00:01:13	STATUS		Cooling	AMPLIFIER
17:20:20	00:01:13	STATUS		Energized	AMPLIFIER
17:20:20	00:01:13	STATUS		No Output	AMPLIFIER
17:20:20	00:01:13	User Abort		1	System
17:20:20	00:01:13	User Paused	0.985/1.001 g	0	User Cmd
17:19:45	00:00:38	TRIP (Interlock settin...		FUV	AMPLIFIER
17:19:45	00:00:38	Schedule Level	1.008/1.001 g	100.00%	Schedule



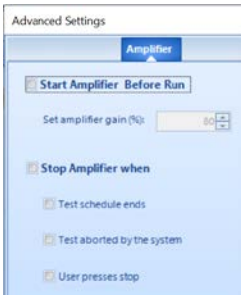
Run Log

Absolute Time	Test Time	Event Type	Ctrl./Target RMS	Event Data	Event Source
Random test run log 17:18:48, 2021/4/15					
Random1: No description					
Run description: Random1/ run 6 Untitled Test Note					
17:18:51, 2021/4/15	00:00:00	Measuring Noise	0.001/0.001 g	0	System
17:18:52	00:00:00	Running in pre-test	0.003/0.100 g	0	System
17:18:54	00:00:00	System Alarm		Monitor Chnl. Lost:Ch2(1)	System
17:18:53 ~ 17:19:00	00:00:00	Flash Screen and Beep (2)		0	Action
17:19:01	00:00:00	System Alarm		Monitor Chnl. Lost:Ch2(1)	System
17:19:01	00:00:00	Pretest Finished	0.100/0.100 g	0	System
17:19:05	00:00:00	Start Schedule		0	User Cmd
17:19:14	00:00:00	System Alarm		Monitor Chnl. Lost:Ch2(1)	System
17:19:13	00:00:06	Flash Screen and Beep		0	Action
17:19:14	00:00:06	Schedule Level	0.217/0.250 g	25.00%	Schedule
17:19:24	00:00:17	Schedule Level	0.501/0.500 g	50.00%	Schedule
17:19:35	00:00:27	Schedule Level	0.750/0.750 g	75.00%	Schedule
17:19:45	00:00:38	Schedule Level	1.008/1.001 g	100.00%	Schedule
17:19:45	00:00:38	TRIP (Interlock settings)		FUV	AMPLIFIER
17:20:20	00:01:13	User Paused	0.985/1.001 g	0	User Cmd
17:20:20	00:01:13	User Abort		1	System
17:20:20	00:01:13	STATUS		No Output	AMPLIFIER
17:20:20	00:01:13	STATUS		Energized	AMPLIFIER
17:20:20	00:01:13	STATUS		Cooling	AMPLIFIER
17:20:20	00:01:13	STATUS		Cooling	AMPLIFIER
17:20:20	00:01:13	STATUS		Energized	AMPLIFIER
17:20:20	00:01:13	STATUS		Module On	AMPLIFIER
17:20:20	00:01:13	STATUS		Output	AMPLIFIER
17:27:37	00:08:29	User Resume		0	User Cmd
17:27:40	00:08:32	Schedule Level	0.001/0.250 g	100.00%	Schedule
17:27:42	00:08:34	Schedule Level	0.129/0.250 g	25.00%	Schedule
17:27:43	00:00:00	System Alarm		Monitor Chnl. Lost:Ch2(1)	System
17:27:42	00:08:35	Flash Screen and Beep		0	Action
17:27:44	00:08:37	User Adjust Level		100.00%	User Cmd
17:27:46	00:08:38	User Adjust Level	0.991/1.001 g	100.00%	User Cmd
17:29:48	00:10:40	Stop the Test	1.005/1.001 g		User Cmd
17:29:48	00:10:40	Flash Screen and Beep		0	Action
17:29:48	00:10:40	User Abort		1	System
Schedule not finished: User Abort; Full level elapsed: 00:02:39; Total elapsed: 00:03:51					

The amplifier status can be viewed live on EDM Cloud.



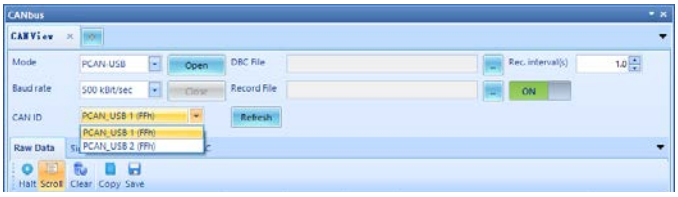
The amplifier can be automatically turned on and off with the EDM VCS controller software when a test starts or stops



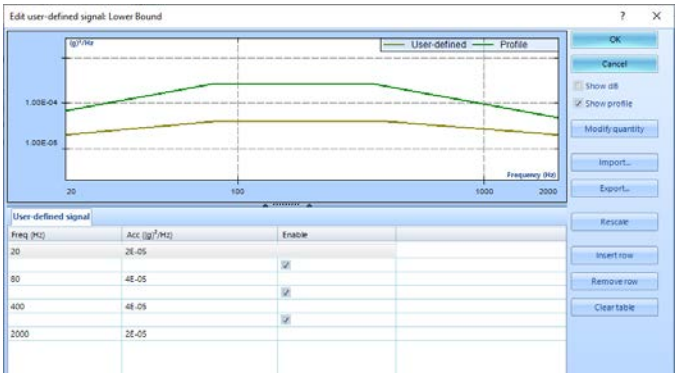
SQL server installations under all conditions are listed in the following table.

Existing SQL Server Version	Operating System	SQL Server version to be installed during EDM installation
None	Win 7 x86 Win 7 x64 Win 8/10 x86	SQL Server 2014
None	Win 8/10 x64	SQL Server 2016
Only SQL Server 2008 R2	Win 7 x86 Win 7 x64 Win 8/10 x86	Keep SQL Server 2008 R2 with an option to install SQL Server 2014
Only SQL Server 2008 R2	Win 8/10 x64	Keep SQL Server 2008 R2 with an option to install SQL Server 2016
SQL Server 2014 or higher	Win 7 x86 Win 7 x64 Win 8/10 x86 Win 8/10 x64	Keep current SQL Server version

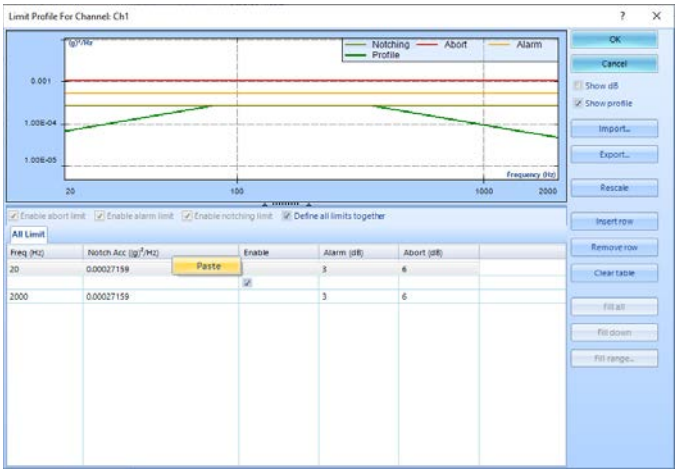
CAN Bus Alarm and Abort UI Improvements: support for selecting between multiple PCAN adapters, consolidated incoming CAN message display, memory optimization, UI fixes.



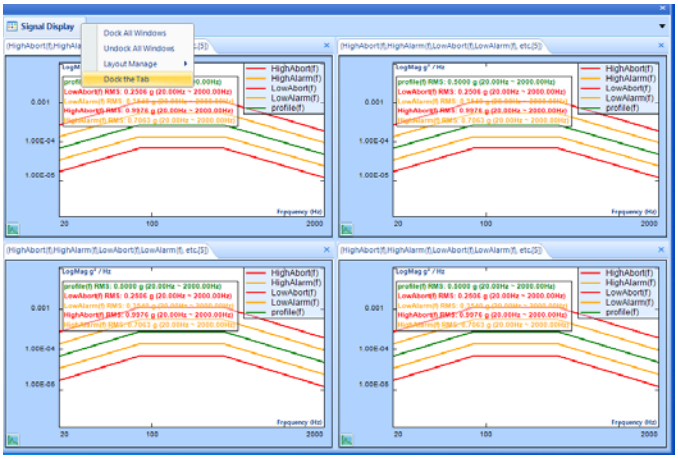
Plot custom user-defined signals overlaid onto Random, Sine and Shock tests (**Config > Limit channels > User-defined signals**). Can be used to evaluate if a current vibration test also satisfies another standard's requirements.



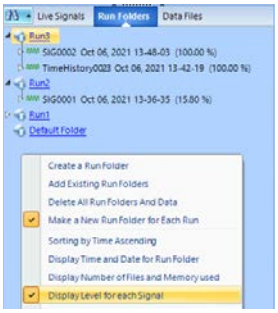
Limit Channel table function for paste column.



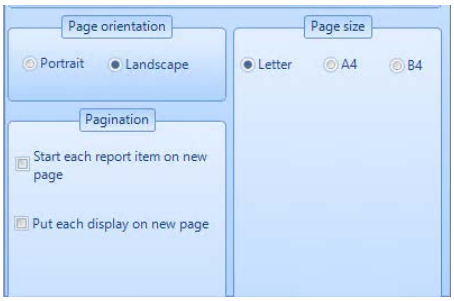
Ability to undock and drag a **Signal Tab** to another monitor. (Right-click to dock/undock tab.)



Display Run Level (in dB or percentage) next to Saved Signals under **Run Folders** tab.

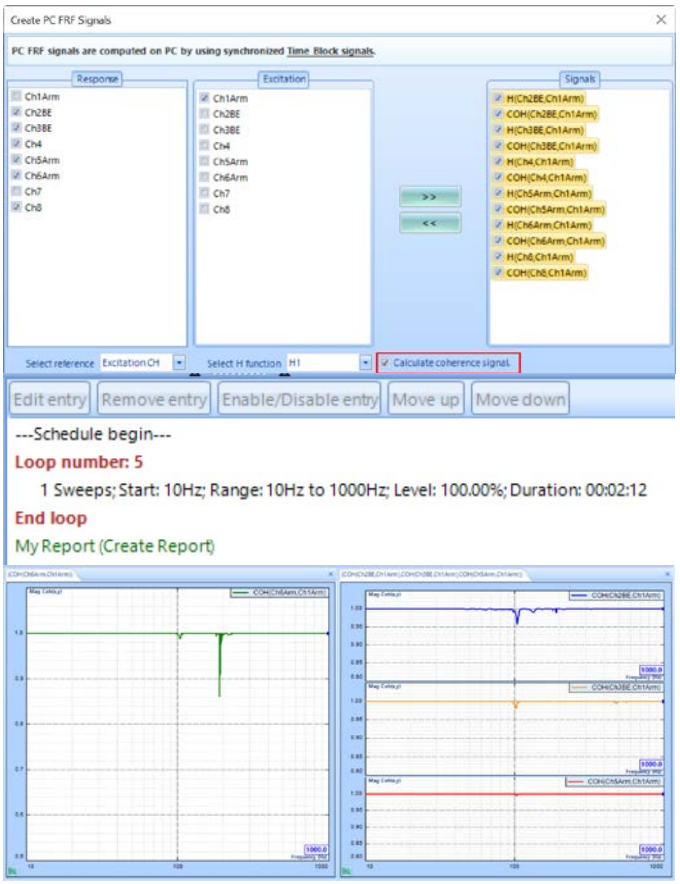


Additional Report option to add page break before new display.

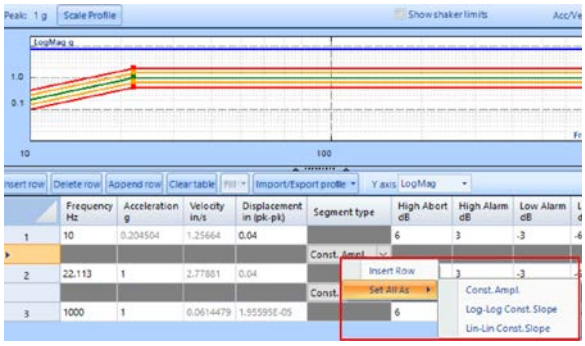


Improvements in Sine/RSTD/Multi-sine

PC Coherence signals are implemented in Sine tests.

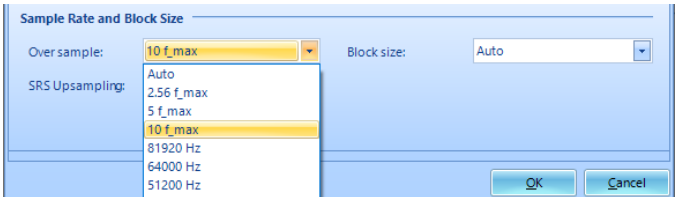


Set all segment type in a Sine profile.

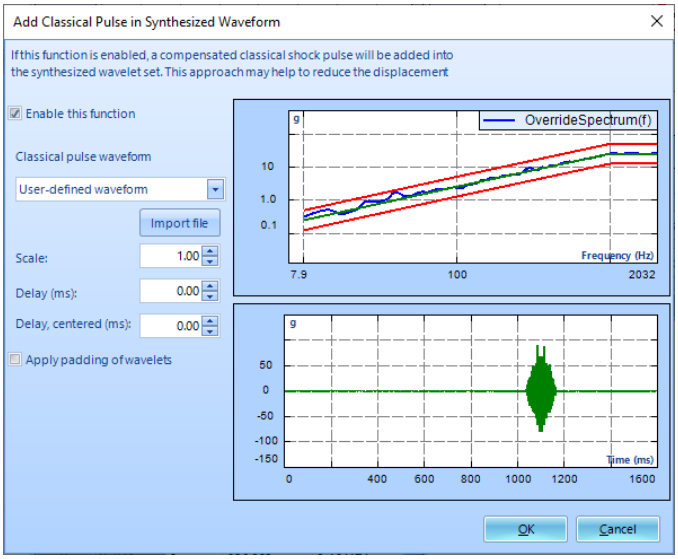


Improvements in Shock/TTH/SRS/Earthquake Testing/ Transient Random

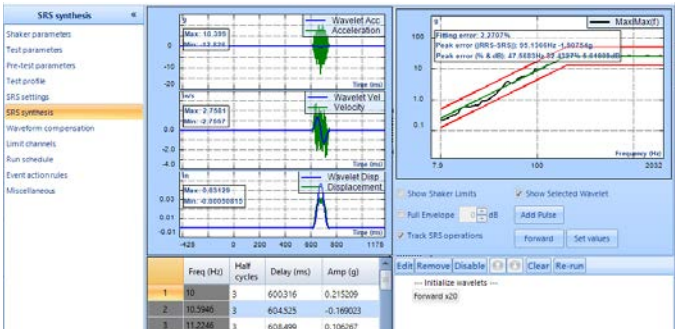
SRS over-sampling rate options based on f_max (under **Test Parameters > Advanced Settings**), and optional up sampling feature.



SRS option to add custom user-defined pulse to synthesis table.



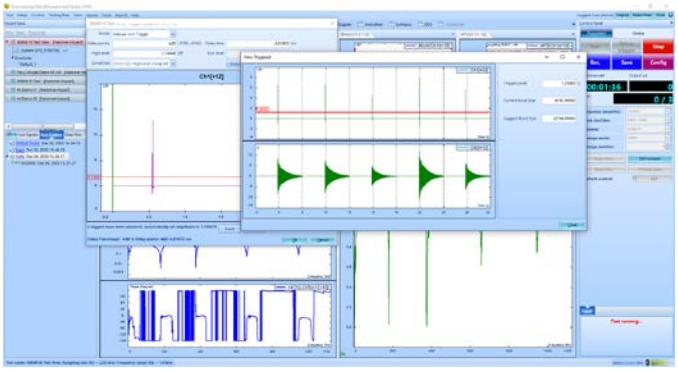
SRS operations feature re-runs synthesis operations, automatically iterates multiple times, or directly set values (duration, half cycles, frequency, etc.).



Experimental Modal Analysis

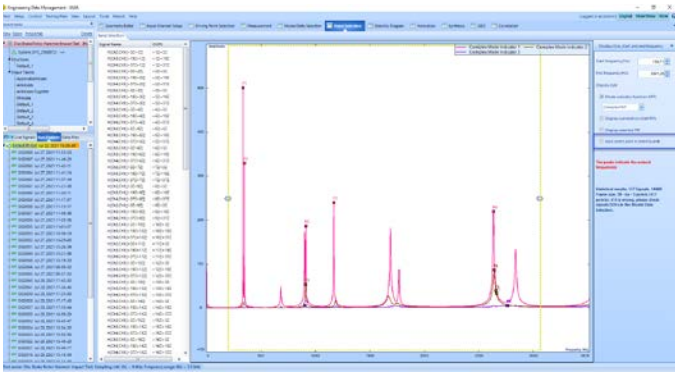
Suggested Trigger Level and Block Size

The manual arm trigger settings for a modal hammer impact test have been optimized to improve the trigger suggestions for a modal test. This change improves the user-friendly interface and is helpful for new users to execute modal analysis.



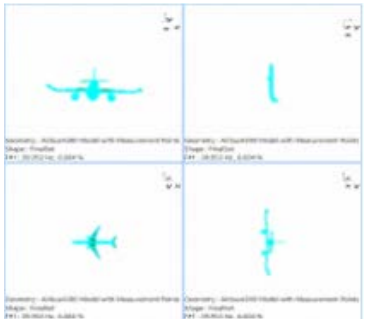
Automatic Pole Selection

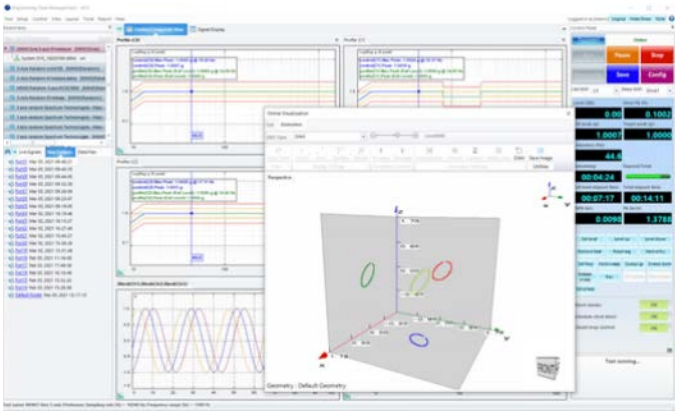
Enhancements to this feature ensures that the stable poles are automatically chosen by EDM Modal software to display the natural frequency and damping of the modes. This major improvement automates and significantly simplifies the curve-fitting process.



Enhancement of Online ODS Capabilities

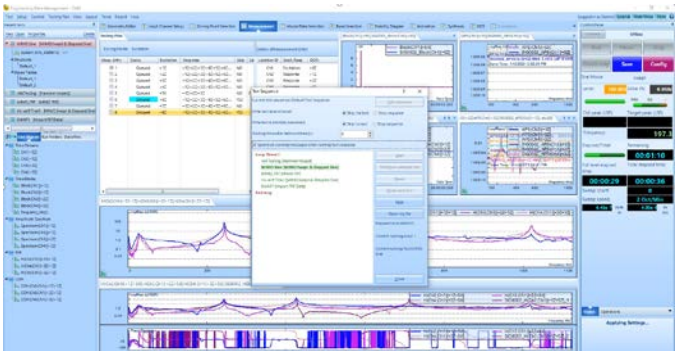
Major improvements to the Online ODS function and orbit plot features allow users to easily interpret and visualize time and frequency domain data by animating the experimental measurements.





Improvement of Factory Acceptance Test

The major improvement in the test sequence function provided in EMA allows different modal tests to be planned and executed without any manual operation.



EDM Temperature, Humidity, Vibration Control Software

Spider-101i Supports K- and T-type Thermocouple Sensors

Type K and type T thermocouple sensors can be calibrated, and readings can be shown in EDM THV and EDC software.

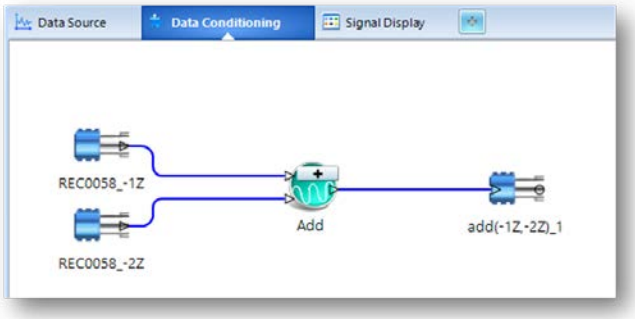
EDM THV: Control Temperature/Humidity When Test is Paused

Enable “Continue to control after pause” to maintain the temperature/humidity when the test is paused.

Post Analyzer

Data Conditioning Modules Reflect the Original Channel Name/Number

It is now easier to track conditioned signals as these will retain their original name from the measured signals.



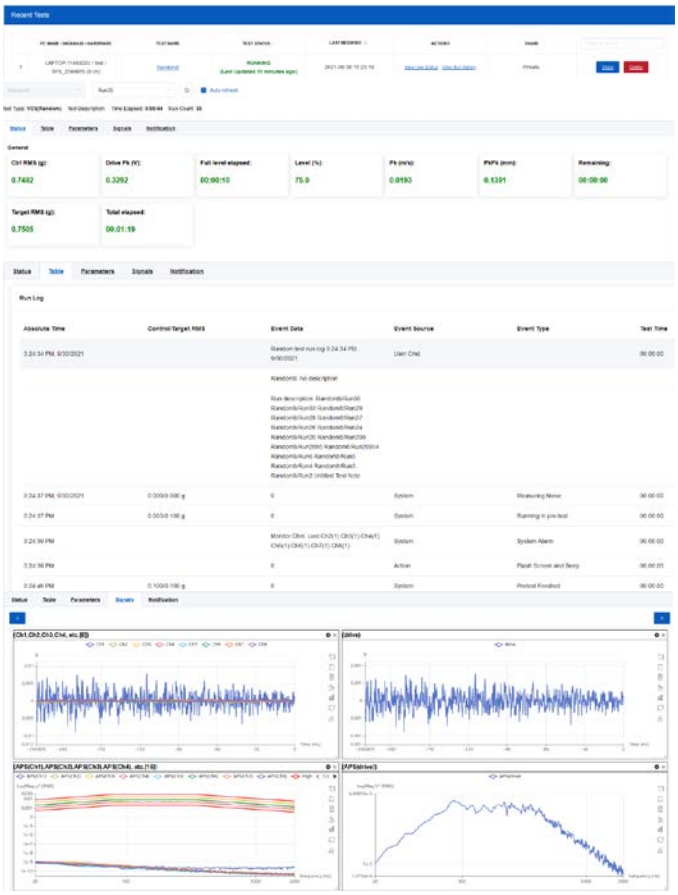
Simultaneously Processing up to 1024 Channels

EDM PA 10.0 a powerful analysis tool for working on large data sets of up to 1024 channels in spectral analysis combined with other features such as batch processing.

EDM Cloud

Test Information and Signal Visualization Viewable in Website

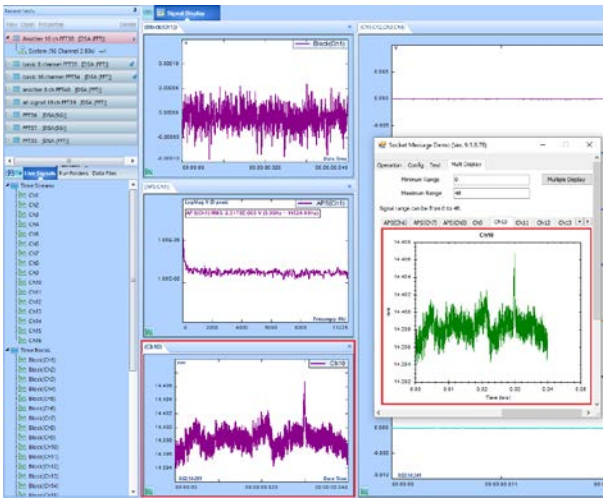
Clicking the test name will open a page that contains information about the test from EDM, such as the status, shaker, test parameters, run log, input channels, notifications and so on.



Socket Message

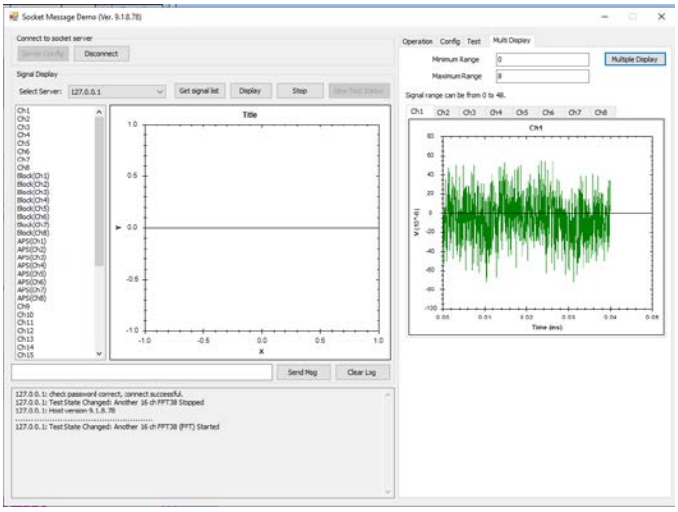
Multi Module Support

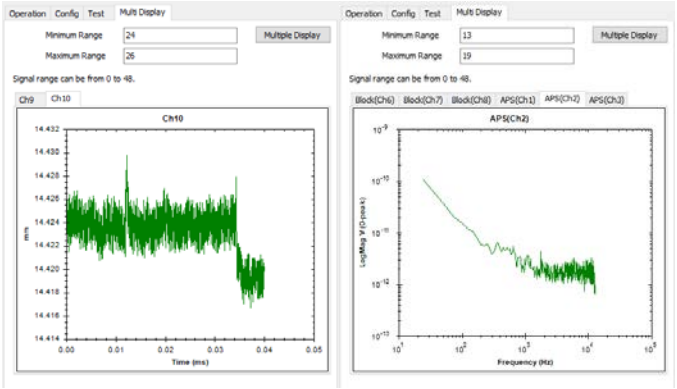
The new EDM 10.0 release for Socket Message supports sending out multiple channels of measurements in separate socket messages per Spider device.



Multi Display Charts in Demo Program

The Socket Message Demo Program has a new tab that can create new charts depending on a requested range of signals and displays them one at a time. The signal range in the UI updates according to the number of signals EDM has in its current test.





GENERAL IMPROVEMENTS

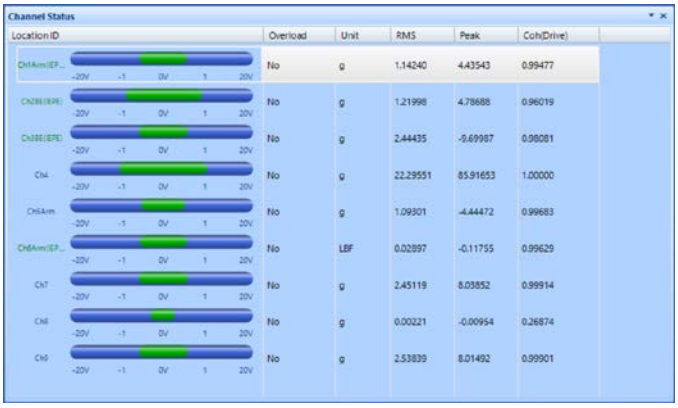
User-Defined Signals

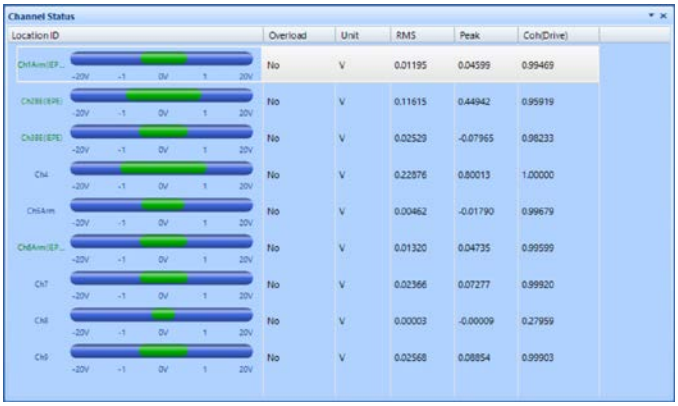
User-defined signals are signals that are defined by breakpoint tables. They are deterministic and can be overlaid with live signals and saved signals for visual comparison.

Test Types	Supported Types of User-Defined Signals
Random	APS
Sine	Spectrum, FRF, Coherence
Shock	SRS
SRS control	SRS

Channel Status Displays Measurements in EU or Voltage

In earlier versions, measurements in the channel status window are displayed in engineering units only. Now, these can be displayed in voltage. The column width is also adjustable.





Barcode Scanner Support for Limit Functions (DSA)

The barcode scanner support is added to the limit function in DSA. It supports up to two barcode scanners.

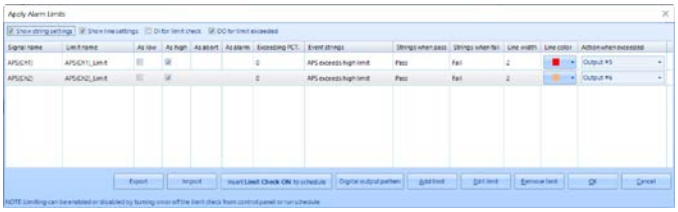
1. Define alarm limits. To communicate with an external device, the "Action when exceeded" column should be defined.

   In the following example, limits of APS(ch1) and APS(ch2) are defined.

   When the APS(ch1) limit is exceeded, the Spider system sends a signal from digital output #5.

   When the APS(ch2) limit is exceeded, the Spider system sends a signal from digital output #6.

   The output pattern is defined in "Digital Output Pattern".



2. In the Barcode Scanner Settings:

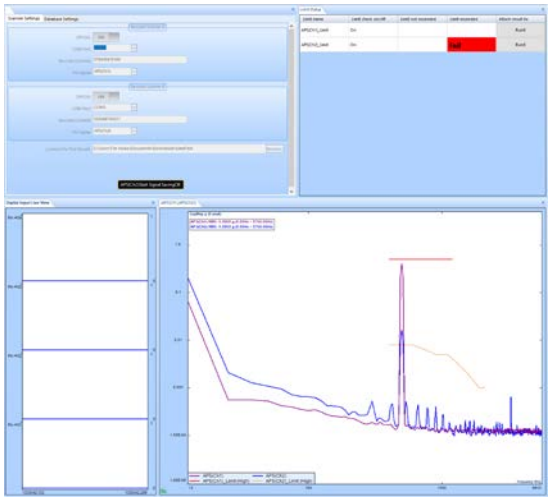
   ON/OFF: turn on to save the barcode content and the selected signal to an Excel file when the digital input #1 receives a signal.

   COM port: the port name of the barcode scanner.

   Barcode content: content read by the scanner before the run starts.

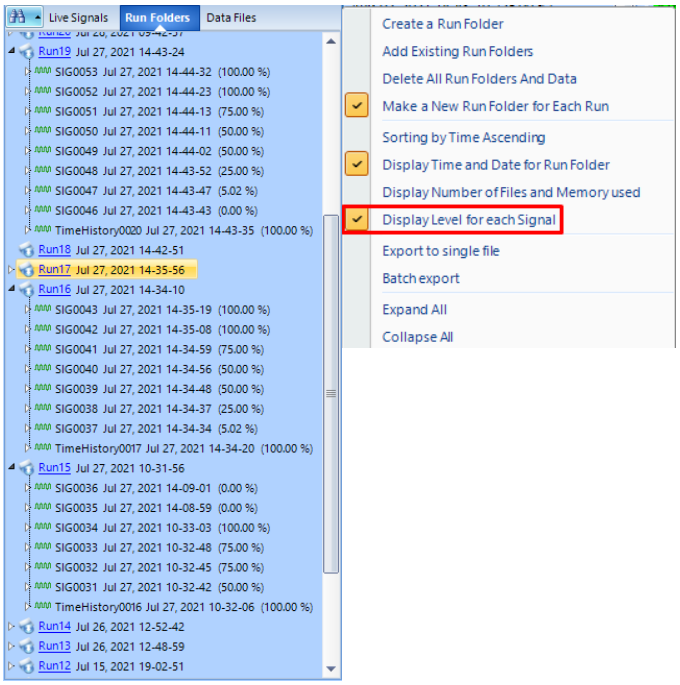
   For signal: the signal attached to the limit and content.

3. Operations:
   - Configure barcode settings (scan barcode and select a signal.)
   - Run the test.
   - When the signal and barcode are to be saved together to an Excel file, send a signal to the digital input. The Start Signal Saving OK message appears and data is saved.



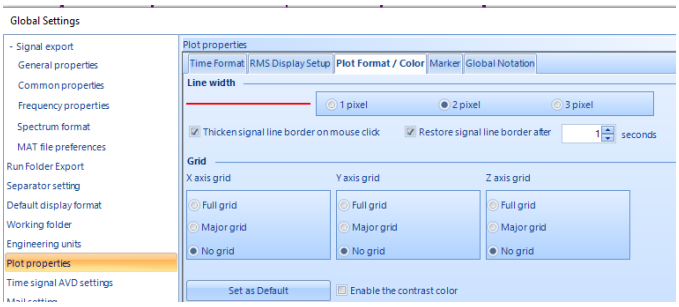
Display Level Next to Signals in Run Folder

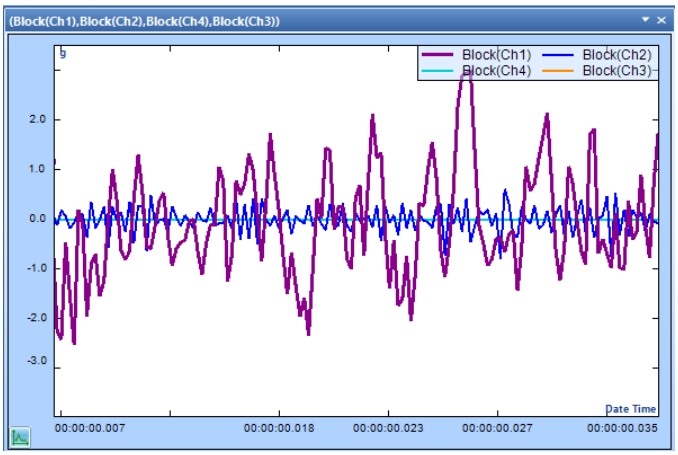
A saved signal can display the level it was saved at among other identifiable information.

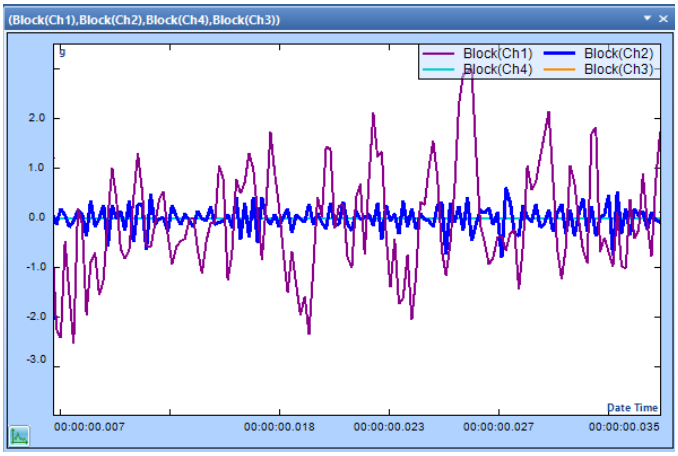


Signal Lines Can be Bolded

Signals will become bolded upon being clicked for a set time. Users can turn this feature on or off in the Global Settings under Plot Properties in Plot Format / Color.







Hardware Refresh

Spider-81 v7.8

Updated Spider-81 hardware supports future software development.

Spider-80SGHi

The new Spider-80SGHi hardware can combine with the Spider-80Hi/80Ci modules to form a general purpose high-channel-count data acquisition system.

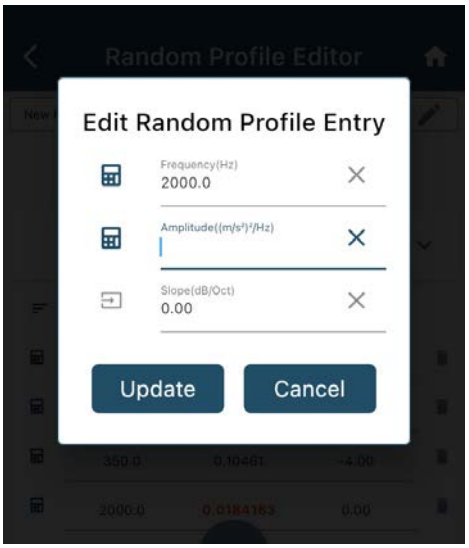
Spider-80M v8.0

The new Spider-80M hardware can combine with the Spider-80Hi/80Ci modules to form a high-channel-count vibration control system or modal data acquisition system.

Vibration Utilities

Breakpoint Table Crossover Point Calculation Based on Slope

The frequency or amplitude of the breakpoint can be calculated by providing one of the values and the determined slope.



SOFTWARE RELEASE HISTORY

Dates of software releases

Type	Release	Exact Version	Release Date
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	5/19/2016
Patch	EDM 6.0.2	CI 6.0.2.9	8/9/2016
Release	EDM 6.1	CI 6.1.0.4	2/7/2017
Patch	EDM 6.1	CI 6.1.0.27	8/22/2017
Release	EDM 7.0	CI 7.0.0.6	2/1/2018
Patch	EDM 7.1	CI 7.1.0.7	7/19/2018
Release	EDM 8.0	CI 8.0.0.1	2/02/2019
Release	EDM 8.1	CI 8.1.0.1	11/13/2019
Release	EDM 9.0	CI 9.0.0.4	06/05/2020
Release	EDM 9.1	CI 9.1.0.0	02/03/2021
Release	EDM 10.0	CI 10.0.0.2	10/26/2021

Type	Release	Exact Version	Release Date
Release	VDS 1.2	VDS 1.2.0.6	2/8/2019
Release	VDS 1.3	VDS 1.3.0.6	10/10/2019
Release	VDS 1.4	VDS 1.4.2.16	7/6/2020
Release	VDS 1.5	VDS 1.5.0.4	10/16/2020
Release	VDS 1.6	VDS 1.6.0.1	4/9/2021
Release	VDS 1.7	VDS 1.7.0.6	10/27/2021

SYSTEM REQUIREMENTS

Minimum System Requirements:

- **Operating System Support:** Windows 7 SP1 or higher
- **Operating System Type:** 32-bit or 64-bit
- **Processor Speed:** 1.5 GHz Dual-Core x86
- **RAM:** 4 GB
- **Available Storage Space:** 10 GB

VDS Minimum System Requirements:

- **Operating System Support:** Windows 7 SP1 or higher
- **Operating System Type:** 32-bit or 64-bit
- **Processor Speed:** 1.5 GHz Dual-Core x86
- **RAM:** 4 GB
- **Available Storage Space:** 10 GB

Recommended System Requirements (Minimum for Spider Systems Higher than 16 Channels):

- **Ethernet Speed:** at least 1 Gbps Ethernet port on the computer
- **Network Cables:** provided by Crystal Instruments
- **Operating System:** Windows 10, 64-bit
- **Processor:** Intel Core i7, 2.0 GHz or Higher
- **RAM:** 8 GB DDR3 1600 or higher
- **Available Storage Space:** 10 GB or higher
- **Spider-HUB Firmware Version:** 2.0.5.17 or higher

VERSION COMPATIBILITY

Product and Software Version	Firmware Versions
Spider-80X/80Xi/80Hi/80Ci	
EDM Testing 10.0.0.x	10.0.0.x
Spider-81 (v7.x)	
EDM Testing 10.0.0.x	10.0.0.x
Spider-81B (v7.x)	
EDM Testing 10.0.0.x	10.0.0.x
Spider-80SG/SGi	
EDM Testing 10.0.0.x	10.0.0.x
Spider-20HE/20i	
EDM Testing 10.0.0.x	10.0.0.x

Product and Software Version	Firmware Versions
CoCo-80	
EDM 6.0.2.x	4.0.x
CoCo-70X	
EDM Testing 9.1.0.x (EDM CoCo for DSA)	2.0.x
Vibration Diagnostic System 1.4.2.x	2.0.x
CoCo-80X/90X	
EDM Testing 9.1.0.x (EDM CoCo for DSA)	2.0.x

Product and Software Version	VDS Version
CoCo-70X/80X/90X	
ECX 2.0.6	1.7.0.6
CoCo-80	
ECX 4.0.62	1.7.0.6

Crystal Instruments Corporation
2090 Duane Avenue
Santa Clara, CA 95054
USA
Phone: +1 (408) 986-8880

www.crystalinstruments.com

Crystal Instruments Lab
1548A Roger Dale Carter Boulevard
Kannapolis, NC 28081
USA
Fax: +1 (408) 834-7818

info@go-ci.com