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Simcenter Testxpress

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Simcenter Testxpress

Qualifying the noise, vibration and durability of products

Traditional analyzers are extremely flexible tools for qualifying the noise, vibration or durability of products. They are easy to operate and immediately show the frequency content of a vibration, sound or fatigue signal. They are, however, also very limited. Why restrict measurements to just two or four channels when productivity could be so much higher with eight channels or more? What about direct connectivity of all sensors; from standard accelerometers and microphones, strain gauges and temperature sensors to Global Positioning System (GPS) receivers and controller area network (CAN) bus systems? How much could be gained by running Fast Fourier Transform (FFT), order, rainflow and octave analysis in real time and in parallel?

Simcenter Testxpress software is a no-compromise sound, vibration and durability analyzer. It combines the ease of use of a traditional analyzer with the high-speed performance and quality of an advanced measurement system. It is the perfect solution for a wide range of vibration and acoustical International Organization for Standardization (ISO) standards and comes with an easy-to-use interface. Simcenter Testxpress integrates 30 years of engineering experience and is part of a complete portfolio of scalable testing and engineering solutions.

Fit for the job from troubleshooting to certification testing

Simcenter Testxpress has been designed for ease of use and optimal productivity for different types of vibration, acoustics or durability related tasks, such as troubleshooting, verification work, mobile testing or qualification and certification testing. Simcenter Testxpress addresses all industry needs – from automotive manufacturing or white goods to machinery components or business electronics.

The intuitive user interface is available in different languages and the system displays all relevant parameters. For the ISO certification testing, all checks and requirements from the ISO standards have been hard coded into the software so users need not worry about details; just clicking a few buttons will generate the ISO standardized report, allowing inexperienced operators to perform the tests

With the interactive screen layout, users can drag-and-drop data, add displays and easily compare measurements. This provides a short learning curve and optimal efficiency.

Providing real-time power, faster testing and easier diagnosis

Designed for optimal productivity, Simcenter Testxpress provides the right combination of acquisition and analysis capabilities. The system shows instant results and saves raw time data for backup or further postprocessing.

Simcenter Testxpress offers easy access to advanced online tools such as filtering, smoothing, averaging and a mathematical combination of channels. In combination with specific solutions for ISO certification testing, it provides a full platform for all daily tasks and enables you to:

- Perform FFT, order, octave and throughput in parallel while displaying real-time results on screen
- Validate data quality on the spot – diagnose problems during measurements

The ideal tool for troubleshooting and certification testing

Simcenter Testxpress features powerful capabilities to automate specific measurement campaigns, from measurement setup and dedicated postprocessing to the final report generation in MS Office, enabling you to:

Automate measurement procedures from acquisition to report

- Prepare measurement campaigns upfront and reduce setup and execution time
- Use predefined ISO templates for certification testing
- Lock critical parameters to safeguard data quality and consistency

Delivering optimal flexibility for lab and field testing
Simcenter Testxpress is seamlessly integrated with the state-of-the-art Simcenter SCADAS™ Mobile hardware and Simcenter SCADAS XS data acquisition hardware. The flexibility of the hardware allows you to cover measurement scenarios from six to hundreds of channels. Both systems support a wide range of sensors for direct connectivity, ranging from integrated circuit piezoelectric (ICP) accelerometers, microphones over temperature sensors and strain gauge sensors to built-in GPS sensors and CAN bus systems.

Investment protection: a scalable solution that adapts to future needs
The Simcenter Testxpress system is scalable up to hundreds of channels. It is an open system: engineers can easily import and export external formats, or exchange data from the Simcenter Testlab™ software suite. It is possible to extend the Simcenter Testxpress system with advanced Simcenter Testlab sound and vibration engineering tools while using the same Simcenter SCADAS frontend so you can have:

- Scalable frontend systems and software solutions
- Full data compatibility
- Easy import and export of external data formats

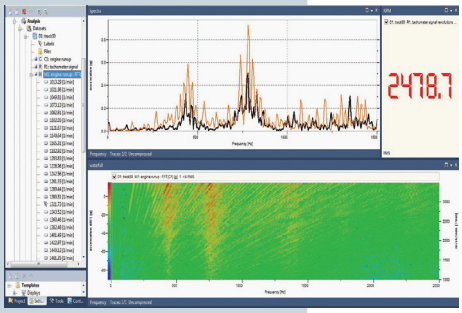
Simcenter Testxpress

Integrated acquisition and analysis capabilities

FFT analyzer

The functionality in Simcenter Testxpress offers real-time analysis of FFTs, power spectral densities (PSD), crosspowers, frequency response function (FRF), coherences, etc. Users can determine resonances, damping values or harmonic content from the frequency spectrum. All functions can be averaged or tracked to a specific channel. The FFT analysis can be combined with any other analyzer function.

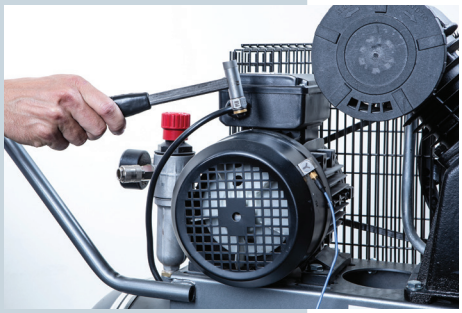
- Real-time narrow-band frequency analysis
- Multiple real-time frequency calculations on one data set
- Simultaneous multi-analysis without performance loss



Modal impact testing

Simcenter Testxpress Modal Impact Testing software supports interactive and easy measurement using impact hammer excitation according to roving or fixed-hammer techniques. The calibration wizard guides the user through the calibration process. Calibrator, channel information and data visualization in time and frequency domains are clearly displayed. Impact hammer trigger detection is fully automated with the trigger detection wizard.

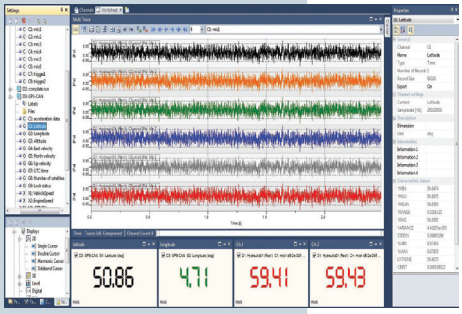
- Real-time and parallel measurements, such as windowed/un-windowed time data, auto power spectrum (APS), FRF and coherence
- Trigger setting wizard for hammer hit
- Versatile graphical displays for measurement control



Throughput recorder

Parallel to the analyzer applications, Simcenter Testxpress can function as a throughput recorder. The system directly streams data to disk and saves long data sequences at high bandwidth while maintaining flexible data visualization and manipulation. Throughput of data is also possible in standalone mode. Full data security is ensured with parallel data throughput to a personal computer (PC) and CompactFlash card.

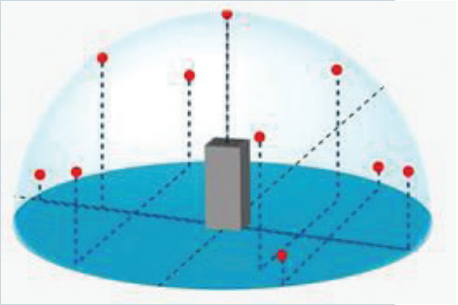
Advanced triggering capabilities with pre- and post-triggers let the system operate independently, and start data recording when a specific event occurs.



ISO sound power

ISO certification testing is made easy with Simcenter Testxpress. To ensure compliance with the ISO measurement process and minimize operator error, the complete procedure is fully automated and protected by a user-defined password. The resulting report in MS Excel and/or Word contains all ISO required information.

- Guided three-step automated measurement procedure according to ISO 3741, ISO 3744, ISO 3745, ISO 3746, ISO 3747 (pressure-based), ISO 9614-1 and ISO 9614-2 (intensity-based)
- Supporting the 2000/14/European Commission (EC) directive and ISO 7779, ISO 6395 and ISO 6396



ISO sound intensity and source localization

Simcenter Testxpress optimally supports sound intensity-based ISO certification tests for both point and scanning methods. Critical results such as ISO field indicators (F1, F2, F3 and F4), calculated levels (sound power, sound intensity and pressure intensity) are presented in tabular format. Corrective actions are suggested if the ISO criteria are not met.

- Guided three-step automated measurement procedure according to ISO 9614-1 and ISO 9614-2
- Results can be used for ISO sound power calculation and source localization
- Compatible with the Simcenter intensity probe and any other intensity probe

ISO human body vibration

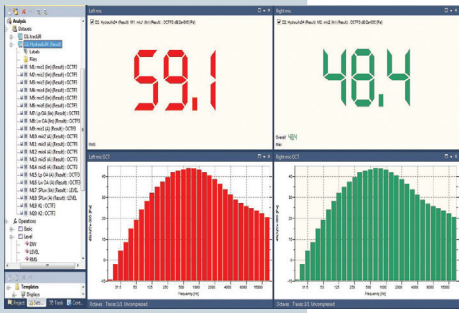
Simcenter Testxpress Human Body Vibration software is a powerful certification tool for ISO 2631 and ISO 5349 standards. The color-coded 2D display gives real-time feedback and clearly indicates limit values and/or violations as specified in the EC directives. In-depth root cause analysis of noncompliant results is obtainable.

- Whole body vibration test according to ISO 2631
- Hand-arm vibration test according to ISO 5349
- Compliance with EC directive 2002/44

Octave analyzer

Simcenter Testxpress Octave Analyzer software is ideal to troubleshoot acoustic problems. The octave filter functions can be averaged or tracked against a specific channel. To perform various analyses simultaneously, combine the octave analysis with any other analyzer function. The Simcenter SCADAS frontend has no cooling fan and provides the silent operation required for acoustic testing, including:

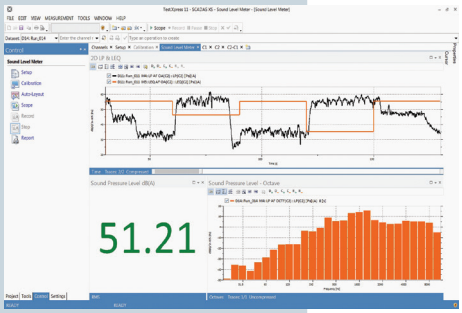
- Real-time octaves according to International Electrotechnical Commission (IEC) 61260 and American Nation Standards Institute (ANSI) S1.11 Class 1 standards
- Octave fractions 1/1, 1/3, 1/6, 1/12 and 1/24
- Reverberation time

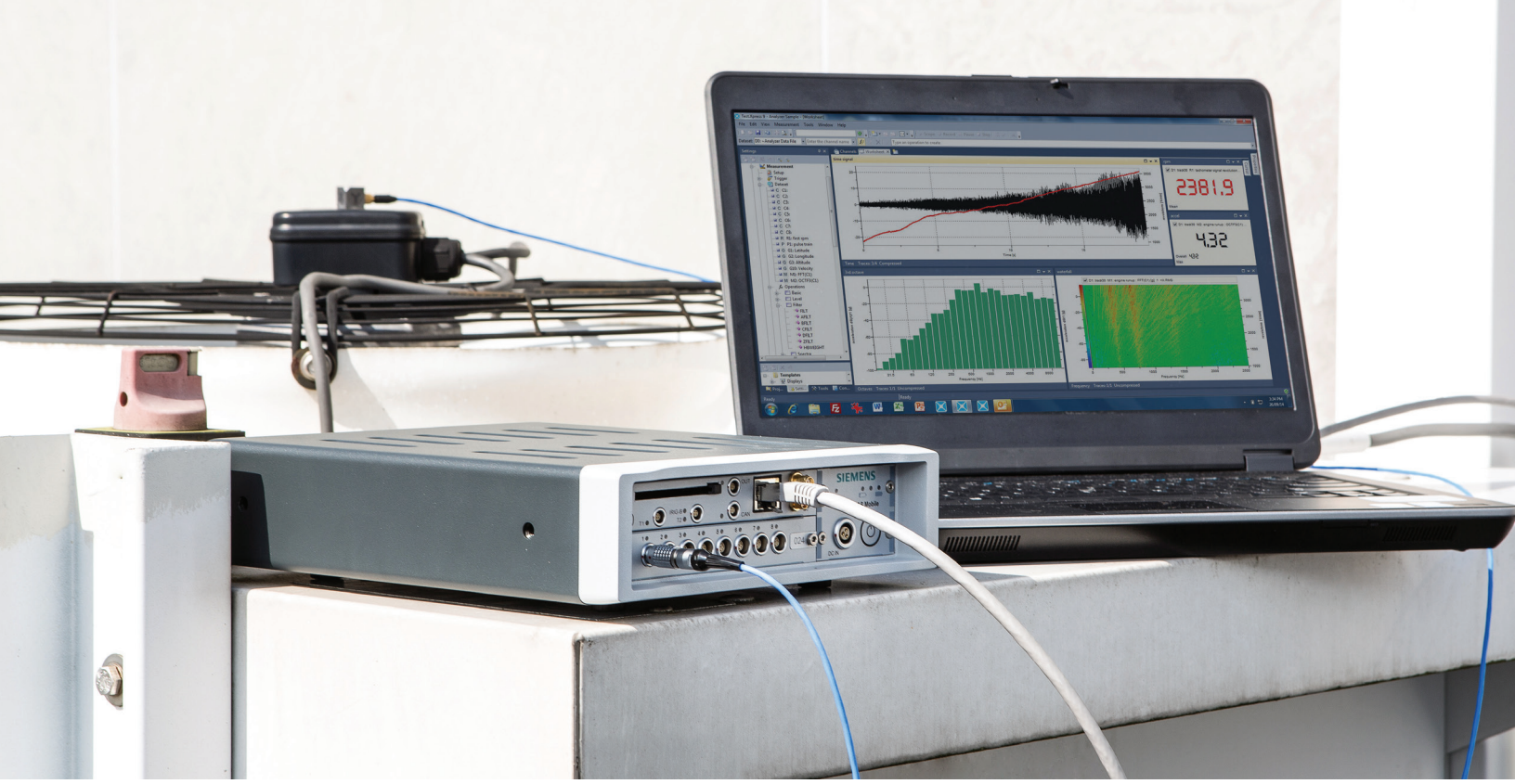


Integrating sound level meter

Simcenter Testxpress Octave Analyzer software also replaces traditional integrating sound level meters. It supports the full set of sound level meter functions while providing calculations on multiple channels, granting users full insight into the data with just one measurement, including:

- Integrating the sound level meter according to IEC 61672
- Unlimited number of channels
- Parallel functions: SPL, Leq, Lmax, Lmin, Lpeak, Lperc, SEL
- Possible parallel combinations: fast-slow-impulsive and A-, C- and Z-weighting

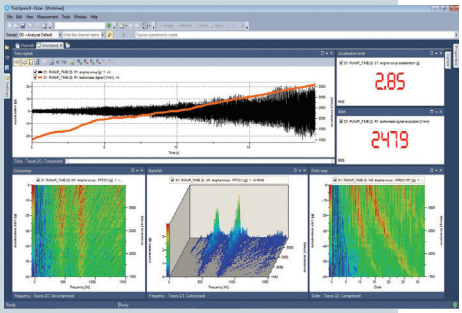




Order analyzer

Simcenter Testxpress Order Analyzer software calculates order maps, single order cuts and overall levels. The system resamples data relative to a specific revolutions per minute (RPM) or speed channel and clearly shows all speed-related phenomena. For industrial applications, it offers tacho conditioning and digital processing tools to guarantee accurate measurement results, even in case of rapidly accelerating shafts.

- Real-time high-precision order tracking
- Two dedicated tacho conditioning inputs
- Any dynamic channel as speed input



Durability analyzer

Simcenter Testxpress Rainflow and Histogram Analyzer software supports in-depth analysis for durability and fatigue. Single value statistics such as maximum, minimum, mean or standard deviations are calculated on streaming channels. Detailed durability analysis includes spectral analysis, rosette calculations, rainflow counting, range-pair counting and time-at-level calculations for easy determination of fatigue behavior in different loading conditions. Video images can be added and compared to measured data to better understand the circumstances of a specific event.

Simcenter SCADAS

Take your mind off the deadline and focus on the test

Test engineers around the world count on Simcenter SCADAS systems to deliver the data quality and format required to get the job done right the first time in the lab or the field with a personal computer (PC) or recording autonomously. Add in seamless integration with Simcenter Testxpress software for accelerated measurement setup and correctly formatted results. Then you'll see why the Simcenter SCADAS system is the tool to deliver reliable results and optimal testing productivity.

From lab to mobile to portable

Your personal testing solution

With solutions specifically designed for in-lab testing as well as mobile front ends that cover the most challenging field test setups, the Simcenter SCADAS series already covers a wide range of testing needs. Simcenter SCADAS XS now adds a truly portable solution to further broaden this successful product range.

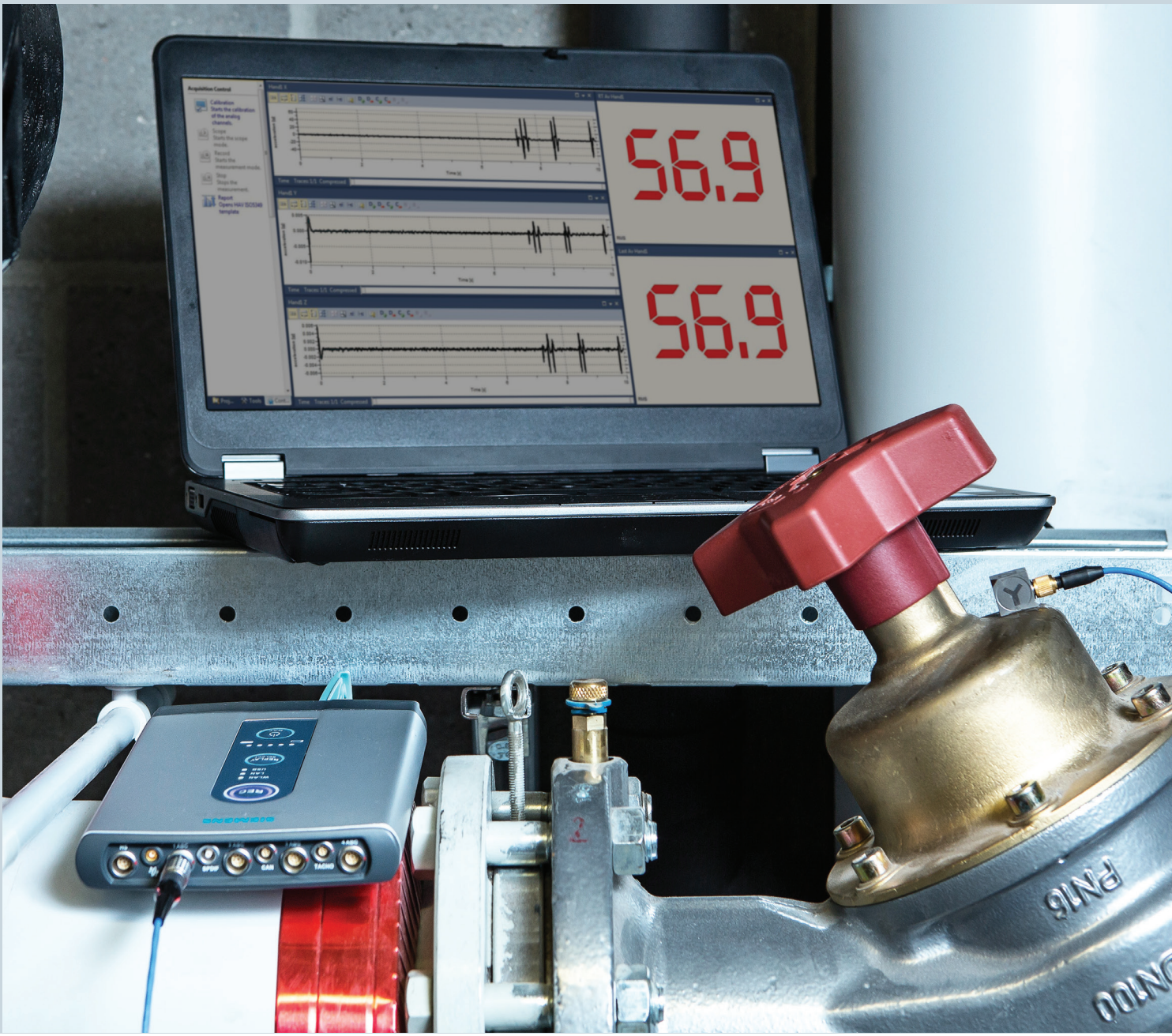
There is continuous pressure these days to test products in real-life circumstances and against ever-stricter deadlines. Simcenter SCADAS XS answers this challenge by allowing on-the-go investigation diagnostics and troubleshooting, even by nonexpert users who need to perform fast and reliable measurements. With its attractive, compact design, Simcenter SCADAS XS literally fits in your hand. Combined with reliable onboard data storage and a full working day of battery autonomy, it offers test engineers the flexibility they need to take testing efficiency to the next level.

Simplify your setups

The days when data acquisition hardware solutions only had to collect data are long gone. The Simcenter SCADAS systems are real all-in-one multitaskers that can handle all types of applications. The highly flexible Simcenter SCADAS hardware features integrated signal conditioning for a variety of transducers, such as strain gauges and accelerometers. The hardware accepts a variety of digital signals, from digital audio to CAN bus, GPS and digital wheel-force sensors. State-of-the-art synchronization guarantees seamless real-time integration of these signals in the data acquisition process. The Simcenter SCADAS family also includes a single universal module. With this one flexible module, you can take all types of noise, vibration and durability measurements. There is no need for separate devices.

Superior data quality for effective testing

An Simcenter SCADAS system offers much more than supreme data quality. It offers built-in process understanding. Test engineers who use Simcenter SCADAS hardware are more efficient because the system lets them skip classic steps like auto-ranging. Not only does this save time, it eliminates risk factors as well. The data is delivered in the purest state possible: low noise, no unnecessary conversion and, best of all, minimal human error. Quality cables and rugged connectors ensure no-compromise data acquisition security.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Simcenter SCADAS XS

Extra small and extra smart

Simcenter SCADAS XS is a data acquisition system designed for typical noise and vibration measurements. Next to supporting 6 or 12 traditional volt, AC or ICP© sensors, it can also be used to measure tacho signals, binaural microphone signals, CAN bus signals and GPS. Its small size allows it to be easily carried while doing remote tests or when traveling. With the Simcenter Testlab Control tablet application, it is possible to verify your measurement on the spot without a PC. The robust design enables it to withstand shocks and vibration levels in the toughest of circumstances. Its autonomy allows you to use it without recharging throughout a working day. Simcenter SCADAS XS is the default tool for any noise and vibration engineer or technician: it can be used in full standalone, with a tablet or in traditional PC setups, in the lab or on the move.

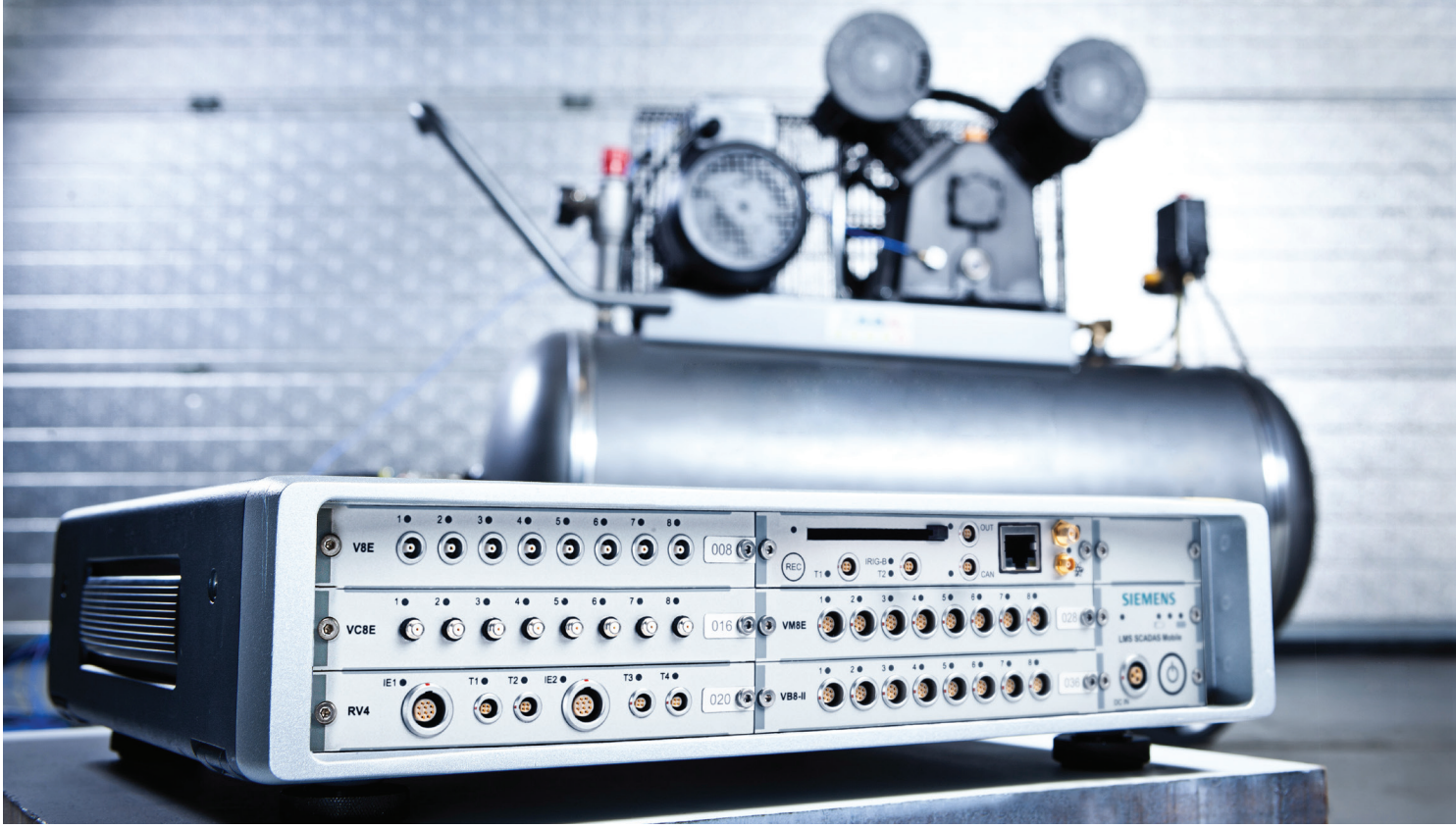
- A pocket-sized, compact and portable solution
- Use in standalone mode with a tablet or PC
- Accommodates 6+ or 12+ channels
- Provides more than six hours of battery autonomy (typical use)
- Set up, monitor and validate on the go
- Replay in full standalone mode

Simcenter SCADAS Mobile

Power and flexibility for mobile and lab testing

Simcenter SCADAS Mobile frontends pack the quality and acquisition power of the renowned Simcenter SCADAS system into a compact and rugged design, offering versatile signal-conditioning and data acquisition capabilities. Designed for high measurement and testing productivity, Simcenter SCADAS Mobile represents one of the most powerful systems in its class. Simcenter SCADAS Mobile is supported by Simcenter Testxpress for a wide range of noise, vibration and durability applications.

- Accommodates eight to 216 channels in a single frame
- Compact size and low weight for optimal mobility
- Rugged design qualified for rough conditions and high temperatures



Simcenter SCADAS Recorder

Go-anywhere reliability

Simcenter SCADAS Recorder can be used as an autonomous recorder, a smart recorder operated by a tablet or a frontend system for in-field and laboratory applications. The integration of data acquisition and analysis considerably improves data consistency and allows users to reliably compare data sets. This extends the Simcenter software platform to the broadest possible range of data acquisition and analysis tasks. Wireless connection with a tablet provides instant data validation during the measurement process. This state-of-the-art remote control allows you to visualize and monitor real-time data, and change settings in the field if required. By eliminating blind recording, Simcenter SCADAS Recorder not only saves you time, it provides the data you need to get the job done. It can be configured as a regular frontend, streaming the data in parallel to a CompactFlash card and a PC through the embedded local area network interface. The data can be visualized, processed and saved on the hard disk in real time.

- Enhanced functionality over Simcenter SCADAS Mobile hardware
- On-the-spot validation prevents errors and annoying reruns
- Autonomous recording
- Wireless operation with tablet

About Siemens PLM Software
Siemens PLM Software, a business unit of the Siemens Digital Factory Division, is a leading global provider of software solutions to drive the digital transformation of industry, creating new opportunities for manufacturers to realize innovation. With headquarters in Plano, Texas, and over 140,000 customers worldwide, Siemens PLM Software works with companies of all sizes to transform the way ideas come to life, the way products are realized, and the way products and assets in operation are used and understood. For more information on Siemens PLM Software products and services, visit www.siemens.com/plm.

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