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DIGITAL INDUSTRIES SOFTWARE

# Simcenter SCADAS portfolio

Accelerating physical testing without compromising data quality

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# Increasing productivity throughout the testing cycle

**Testing is becoming more demanding**
Physical testing remains essential to understand the real-world behavior of products and validate simulation models. Yet, testing teams are facing unprecedented pressure. Product complexity continues to increase while development schedules become shorter. Engineers are expected to evaluate more performance attributes, conduct more tests and deliver results earlier in the product development process.

Today's products combine mechanical, electrical, software and control systems into a single integrated solution. As a result, test engineers must capture and correlate data from multiple physical domains simultaneously, including vibration, acoustics, strain, temperature, pressure, rotational behavior and other critical measurements.

At the same time, organizations strive to reduce prototype costs and accelerate time-to-market. Every test campaign must deliver reliable results the first time, minimizing the need for repeat measurements and enabling immediate use of test data for engineering decisions.

**Productivity across the complete testing lifecycle**
Simcenter™ SCADAS™ hardware addresses data acquisition needs across the entire testing lifecycle, from early concept validation and prototype development to final product certification and validation testing.

The portfolio includes:

- Compact mobile systems for field and operational testing
- Modular acquisition platforms for expanding measurement requirements
- Autonomous smart recorders for long-duration measurements
- Rugged systems for harsh environments
- High-channel-count laboratory solutions for advanced engineering investigations

Since all platforms share common measurement technologies and workflows, engineers can move seamlessly between laboratory, field and vehicle testing without changing their measurement philosophy or retraining teams. This continuity is further enhanced through Siemens Xcelerator, the Siemens business platform that combines software, hardware and services into a connected engineering ecosystem.

**One measurement ecosystem**
The true productivity advantage extends beyond hardware. Simcenter SCADAS systems integrate with a comprehensive ecosystem of software tools designed specifically for testing engineers.

Simcenter Testlab™ software streamlines:

- Test preparation
- Sensor setup and verification
- Data acquisition
- Analysis and reporting
- Simulation correlation

In addition, dedicated web-based applications running on tablets simplify instrumentation, configuration and data collection directly at the test location.

Together, hardware, desktop software and web applications create a connected workflow that helps reduce setup effort, improve consistency and accelerate decision-making.

**Productivity gains throughout the testing cycle**

- ✓ Faster test setup
- ✓ Reduced reconfiguration effort
- ✓ Consistent workflows across teams
- ✓ Earlier validation of measurement quality
- ✓ Fewer costly reruns
- ✓ Faster engineering decisions




**Capturing the right data the first time**

As testing programs become increasingly complex, data quality becomes more critical than ever. Missing channels, synchronization issues or incomplete measurements can lead to costly delays and repeated testing campaigns.

Simcenter SCADAS helps engineers acquire high-quality, synchronized multiphysics data from the start. The platform combines precision measurements with scalable architectures that adapt to changing project requirements, from small investigations to large validation programs involving hundreds or thousands of channels.

Whether testing noise and vibration, structural dynamics, durability, rotating machinery, environmental effects or operational performance, engineers can rely on a common measurement framework that produces trusted results.

**Enabling insight across the entire development process**

Reliable measurements are only valuable when they can be transformed into actionable engineering insight.

Simcenter SCADAS supports this objective by enabling seamless data flow into downstream engineering activities, including:

- Root-cause analysis
- Performance validation
- Durability assessment
- Noise, vibration and harshness (NVH) investigations
- Simulation model correlation
- Digital Twin validation

By connecting physical testing and simulation workflows, organizations can make better decisions faster and increase confidence in product performance.

**Flexible from lab to field**

Testing requirements change throughout development. A system used in a laboratory investigation may later be deployed in a test vehicle, at a proving ground or in harsh operational environments.

Simcenter SCADAS adapts to these changing requirements through a flexible portfolio architecture that supports multiple deployment scenarios while maintaining a familiar user experience and common measurement methods.

This flexibility helps protect existing investments while allowing organizations to scale and evolve their testing capabilities over time.

**Customer experience – Automotive durability testing**

"We use Simcenter SCADAS for all our data acquisition tasks. We are testing more and more electronic components and fewer mechanical parts. The collaboration with Siemens is essential to adapt to these changes and to valid."

Arturo Barreu
Powertrain Test Engineer
Nissan Technical Centre Europe

Testing teams today face increasing product complexity and shrinking test windows. Simcenter SCADAS helps them respond by delivering reliable multiphysics measurements, streamlined workflows and actionable engineering insight across the entire development cycle. The result is faster testing, better decisions and greater confidence in product performance.



# The Simcenter SCADAS portfolio

**One Simcenter SCADAS portfolio with three solution categories and one consistent measurement approach**

The Simcenter SCADAS portfolio is a comprehensive portfolio of data acquisition systems designed to support a broad range of engineering applications across a wide range of industries. Built on a common measurement philosophy and seamlessly integrated with Simcenter software, which is part of the Siemens Xcelerator business platform, the portfolio delivers consistent, high-quality data acquisition from early development through validation and reporting.

To address different testing environments and workflows, the Simcenter SCADAS portfolio is organized into three main solution categories:

- Unit-based
- Handheld
- Frame-based

This enables test engineers to select the appropriate hardware for each application while preserving continuity in setup, data quality and analysis across the entire test campaign.

**Unit-based next-generation solutions – Simcenter SCADAS ES and Simcenter SCADAS RS**

Unit-based solutions combine signal conditioning, synchronization, processing, connectivity and data recording into modular building blocks that can be deployed close to the test object. This architecture enables engineers to create compact or distributed measurement setups that scale with evolving test requirements while maintaining consistent measurement quality and synchronization. Built on a common technology platform, Simcenter SCADAS ES and Simcenter SCADAS RS hardware support the same measurement philosophy, software workflows and data formats across a wide range of testing environments. Combined with embedded browser-based access, multi-user workflows and seamless integration with Simcenter Testlab ensures a smooth transition from measurement to analysis.



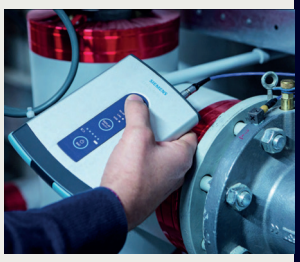
**Simcenter SCADAS RS** is a rugged data acquisition system engineered for use in demanding and harsh environments. It delivers precise **noise, vibration, durability and multiphysics measurements** wherever testing needs to take place, whether in the field, on the test track or in challenging industrial environments. Its robust design, combined with high performance, flexibility and extensive connectivity options, supports reliable data acquisition and cost-effective execution of even the most demanding test campaigns.



**Simcenter SCADAS ES** is a modular data acquisition system designed for universal laboratory and field testing. Its unit-based architecture enables engineers to configure compact measurement setups or large distributed systems using the same hardware platform. Simcenter SCADAS ES helps organizations standardize measurement processes, scale efficiently across applications and teams and accelerate the path from instrumentation to trusted engineering insights in the most common test environments.

**Handheld solutions – Simcenter SCADAS XS**

Simcenter SCADAS XS hardware is a compact, handheld data acquisition solution designed primarily for noise and vibration testing.



Its small form factor and low weight make it ideal for mobile diagnostics and trouble-shooting tasks where speed and ease of use are essential. Combined with a dedicated tablet application, Simcenter SCADAS XS enables engineers and technicians to perform measurements, validate signals and diagnose issues directly at the test location. The intuitive user experience allows both expert and nonexpert users to work efficiently without compromising measurement performance.

**Frame-based solutions – Simcenter SCADAS Lab, Simcenter SCADAS Mobile and Simcenter SCADAS Recorder**

Frame-based solutions within the Simcenter SCADAS portfolio continue to support established testing workflows and selected measurement requirements. While Simcenter SCADAS ES serves as the next-generation foundation for mainstream testing, **Simcenter SCADAS Lab hardware, Simcenter SCADAS Mobile hardware and Simcenter SCADAS Recorder** remain available for established testing workflows and selected application requirements, including environmental testing, ground vibration testing, pass-by noise, stepped sine testing and multiple-input multiple-output (MIMO) swept sine testing.



**Simcenter SCADAS Lab** is a rack-based, high-performance laboratory solution offering channel-count-independent data acquisition with highly reliable, high-speed throughput. It remains the preferred choice for demanding laboratory applications such as aircraft ground vibration testing, environmental testing and turbine testing.



**Simcenter SCADAS Mobile** combines powerful data acquisition with a compact and portable design for laboratory and field testing. It remains widely used across noise, vibration, durability and multiphysics testing workflows, providing proven performance and flexibility in mobile measurement environments.



**Simcenter SCADAS Recorder** enables autonomous, personal computer (PC)-less data recording for long-duration and remote test campaigns. It can operate independently, via tablet control or as a frontend system, making it a proven solution for efficient recording and validation workflows.

**One portfolio for your needs**

Together, these three categories form a unified data acquisition portfolio that scales from quick handheld diagnostics to large, high-channel-count laboratory campaigns. By combining data acquisition systems with integrated software workflows, the Simcenter SCADAS portfolio supports efficient testing, reliable data quality and long-term investment protection across all stages of product development.

# Unit-based next-generation solutions

## Simcenter SCADAS ES for universal lab and field data acquisition

**Simcenter SCADAS ES** is a modular, artificial intelligence (AI)-ready data acquisition platform supporting centralized, distributed and hybrid measurement architectures. Built on an intelligent unit-based design, it enables organizations to standardize testing across laboratory and field environments, scale from compact setups to large distributed systems and accelerate measurement workflows while protecting existing investments.

### Key capabilities

**One platform for every test**
Perform NVH, durability, structural dynamics, electrification, rotating machinery and multiphysics testing using a common hardware architecture.

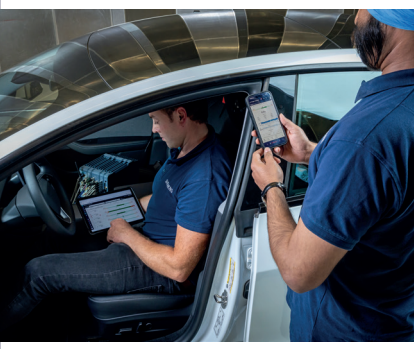
**Scale as requirements evolve**
Build systems ranging from compact measurements to large distributed acquisitions with hundreds of synchronized channels.

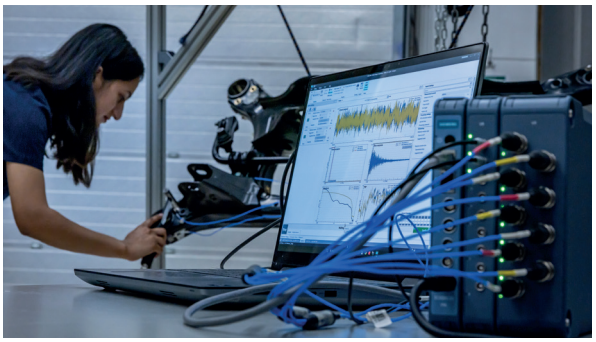
**Access from anywhere**
Use the embedded, license-free Simcenter SCADAS Go application for browser-based setup, monitoring and validation from virtually any device.

**Improve team productivity**
Enable multiple users to simultaneously instrument, monitor and troubleshoot test setups.

**Protect existing investments**
Deploy alongside Simcenter SCADAS RS and existing Simcenter SCADAS systems while preserving established workflows and software environments. Use Siemens Test Connect to connect to third-party software and hardware.

**Ready for future engineering workflows**
Deliver trusted measurement data for analysis, simulation correlation, Digital Twin validation, automation and AI-enabled processes.






**Simcenter SCADAS ES specifications**

- **Usage environment:** Laboratory, field and enterprise-standardized testing environments
- **System architecture:** Modular unit-based platform supporting centralized, distributed and hybrid measurement configurations
- **Channel scalability:** From compact setups to large distributed systems with hundreds of synchronized channels
- **Measurement scope:** NVH, durability, structural dynamics, rotating machinery, electrification and advanced multiphysics testing
- **Signal support:** Voltage, integrated circuit piezoelectric (ICP), bridge, charge, pulse, controller aera network (CAN), CAN flexible data-rate (CAN FD) and FlexRay measurements, depending on configuration
- **Deployment flexibility:** Supports bench-top, laboratory, field and distributed measurement workflows using a common hardware platform
- **Embedded software:** Includes license-free Simcenter SCADAS Go for browser-based setup, monitoring and validation
- **Downstream workflows:** Integrated with Windows-based Simcenter Testlab Go, Simcenter Testlab and Siemens Test Connect for acquisition, analysis, reporting, automation and data management
- **Remote collaboration:** Multi-user access for simultaneous instrumentation, monitoring, validation and troubleshooting from multiple devices
- **Synchronization and integration:** Supports synchronized distributed measurements and mixed-system deployments within the Simcenter SCADAS portfolio
- **Investment protection:** Coexists with Simcenter SCADAS RS and existing Simcenter SCADAS installations while preserving established workflows, software environments and engineering know-how
- **Operation modes:** Operator-controlled, autonomous recording, remote monitoring and distributed measurement operation

## Simcenter SCADAS RS for harsh environments

**Simcenter SCADAS RS** is a rugged, intelligent data acquisition platform designed for test cells, test-track and harsh-environment testing. Its flexible architecture supports centralized, distributed and combined measurement topologies, enabling engineers to acquire high-quality synchronized data closer to sensors while reducing cabling complexity and setup time.

Built for demanding real-world testing, Simcenter SCADAS RS combines accurate multiphysics measurements, onboard processing, remote accessibility and robust environmental protection in a single scalable platform.

**Key capabilities**

**Built for harsh environments**
Engineered to withstand dust, water, vibration and shock while delivering reliable measurements in laboratory, vehicle and outdoor testing conditions.

**Measure closer to the source**
Deploy centralized, distributed or combined topologies to reduce cabling complexity, improve signal quality and accelerate test installation.

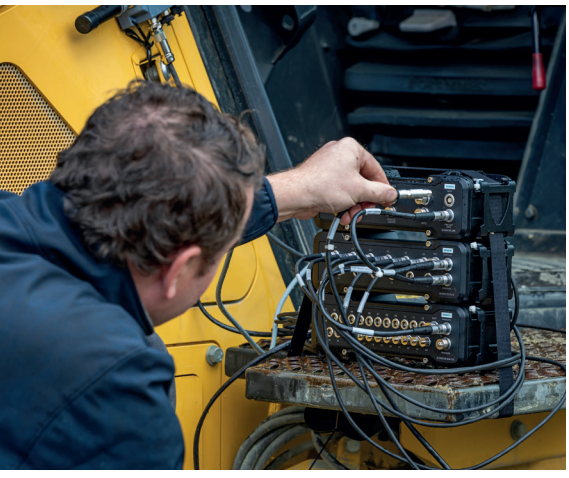
**Smarter testing with onboard intelligence**
Validate measurements in real time and make faster decisions using scalable onboard processing capabilities.

**Access and collaborate from anywhere**
Configure, monitor and collect data securely using the embedded browser-based Simcenter SCADAS Go application from a PC, tablet or smartphone.

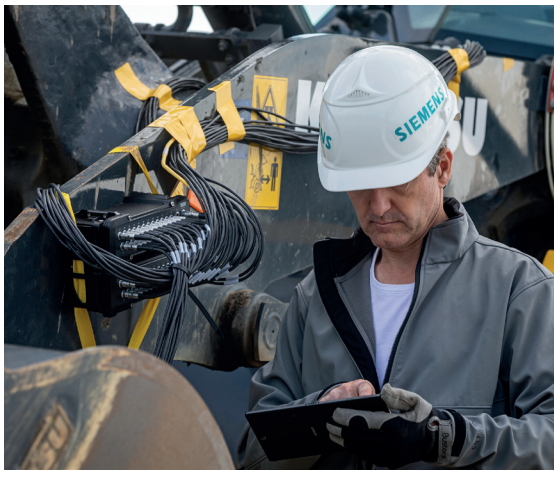
**Open, synchronized and future-ready**
Leverage integrated precision time protocol (PTP) synchronization and XCP over Ethernet to support distributed measurements and seamless integration with modern test environments. Use Siemens Test Connect to connect to third-party software and hardware.

**Simcenter SCADAS RS specifications**

- **Usage environment:** Rugged data acquisition for in-vehicle, test-track and harsh testing environments
- **Channel scalability:** From tens to several hundreds of synchronized channels per system
- **Measurement scope:** NVH, durability, structural dynamics, rotating machinery and multiphysics testing
- **System architecture:** Centralized, distributed or combined configurations with easy mounting and daisy-chain connectivity
- **Environmental robustness:** Designed for shock, vibration, dust and water exposure (IP66/IP67 certified enclosure, operating temperatures from –40 °C to +65 °C, MIL-STD-810F shock (100g) and vibration (10g rms) resistance). Selected units, including U12 and U12-E, support operation up to +85 °C
- **NVH performance:** Dedicated NVH-ready units such as U12-E and S12-E, supporting sample rates up to 204.8 kHz
- **Downstream workflows:** Integrated with Windows-based Simcenter Testlab Go and Simcenter Testlab for acquisition, analysis, reporting and automation
- **Synchronization and openness:** PTP synchronization, support for XCP over Ethernet and Siemens Test Connect to connect to third-party software and hardware
- **Remote access:** License-free browser-based access from PC, tablet or smartphone for configuration, monitoring and data collection via Simcenter SCADAS Go
- **Onboard intelligence:** Integrated processing architecture for online calculations and real-time measurement validation
- **Operation modes:** Operator-controlled, autonomous and PC-less recording workflows







# Handheld solutions

**Simcenter SCADAS XS** provides handheld data acquisition for noise and vibration testing with integrated tablet operation. Its compact form factor allows engineers to perform diagnostics and troubleshooting directly at the test location without complex setup. The result is faster issue identification and immediate validation under real-life testing conditions.

**Handheld solution for real-life testing conditions**

- Combines broad noise and vibration testing functionality with the autonomy and freedom of a handheld solution
- Enables testing directly in real-life operating conditions
- Supports both expert and nonexpert users via an intuitive user interface
- Allows instant setup, monitoring and validation of measurements
- Can be used as a standalone system with a tablet or PC

**Instantly test and troubleshoot your product**

Simcenter SCADAS XS supports fast and reliable measurements and is delivered with a tablet for immediate investigation, diagnostics and troubleshooting. Thanks to its compact design, the system comfortably fits in the hand and can be easily carried to any test location. Reliable onboard data storage and a full working day of battery autonomy provide the flexibility needed to improve testing efficiency without interrupting workflows.

**Replay the entire recorded soundscape**

Simcenter SCADAS XS can be combined with the optional Simcenter SCADAS 3D binaural headset (BHS) to enable cost effective binaural recording and immediate, high-quality data replay. The system supports replay of analog signals, Sony/Philips digital interface format (S/PDIF) sources and headset channels. This integrated replay capability offers an efficient and intuitive way to validate acoustic quality directly after measurement.

**Extending Simcenter SCADAS XS systems**

Multiple Simcenter SCADAS XS systems can be combined in a distributed test setup, with each device operating as an individual frontend. Time synchronization is achieved by streaming all data into a single measurement file using the PTP in accordance with Institute of Electrical and Electronics Engineers (IEEE) 1588. This approach enables flexible star topologies with cable lengths of up to 50 meters using standard Ethernet connections, supporting scalable and synchronized mobile testing configurations.

**Simcenter SCADAS XS specifications**

- **Usage:** Handheld data acquisition for noise and vibration testing
- **Autonomy:** Up to six hours battery autonomy in typical use
- **Channel capacity:**
  - Twelve analog channels
  - Optional Simcenter SCADAS 3D BHS plus BHS digital input (includes equalization)
  - Global positioning system (GPS), CAN and two analog tachometer (tacho) inputs
- **Operation:** Standalone use with tablet or PC
- **Data reuse:** License-free export of time data to multiple software environments


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LAN
USB
REPLAY
SELECT
BAT

# Frame-based solutions

**Simcenter SCADAS Lab** delivers high-perfomance, rack-based data acquisition with channel-count-independent throughput. This capability is critical for large laboratory test campaigns where data consistency, timing, accuracy and throughput must be maintained across hundreds of channels. Therefore, engineers can execute complex structural and acoustic tests with confidence, without compromising performance or data quality.

**Scalable performance for demanding laboratory environments**

- A standard 19-inch rack-mountable frame with an alternating current (AC) power supply
- Scalable configurations ranging from eight to more than 1,000 channels
- Premium data acquisition with constant high throughput and channel density of up to 480 input channels in a single frame



- Support for very high channel counts in demanding laboratory environments
- A powerful system footprint that maximizes performance while minimizing required lab space

**An extensible solution for demanding lab testing**

Simcenter SCADAS Lab supports highly modular system configurations by allowing additional secondary frames to be connected via optical fiber cables. This modularity is particularly well suited for noise and vibration laboratories, where multi-frame systems with more than 1,000 channels are often required. Individual main frames can be assembled into main-secondary configurations and operated as a single system using one main station.

By offering channel-count-independent signal conditioning and exceptional throughput performance, Simcenter SCADAS Lab is ideally suited for applications such as high-channel-count modal testing, aircraft ground vibration testing, acoustic high-speed throughput testing and turbine testing. In addition, lab mobility allows Simcenter SCADAS Lab to be directly connected to Simcenter SCADAS Mobile, Simcenter SCADAS Recorder or next-generation Simcenter SCADAS systems, enabling additional measurements without creating a new test setup.

**Securely test costly items**

Simcenter SCADAS Lab systems can be extended to act as frontends for vibration-control applications, including support for a hardware emergency stop. The system provides a 24-bit effective digital-to-analog converter (DAC) output with tapered startup and shutdown, ensuring controlled excitation of test objects. A dedicated status output enables advanced synchronization, while the hardware emergency stop and power watchdog functionality provide an additional layer of safety when testing valuable or sensitive components.

**Simcenter SCADAS Lab specifications**

- **Usage:** 19-inch rack-mountable laboratory data acquisition system
- **Channel capacity:** Configurable from eight to more than 1,000 channels per system
- Channel density: Up to 480 input channels per frame
- **Throughput capability:** High-throughput acquisition supporting demanding lab applications
- **System architecture:** Distributed lab configurations using optical main-secondary connections with other Simcenter SCADAS Lab/Simcenter SCADAS Mobile/Simcenter SCADAS Recorder mainframes
- **Sampling capability:** Supports high-frequency data acquisition up to 204.8 kHz (module-dependent)
- **Other specific details:**
  - Includes 24-bit analog-to-digital conversion
  - Dynamic range up to 150 dB (module-dependent)
  - Sustained throughput up to 14 MSamples/s
  - Modular signal conditioning with BNC, CAMAC LEMO and Sub-D connectors




**Simcenter SCADAS Mobile** combines high-performance data acquisition with a compact and portable design suitable for field and laboratory testing. This balance allows engineers to reuse test setups across environments without changing measurement workflows. As a result, testing productivity increases while maintaining consistent data quality from field measurements through to lab validation.

**Mobile field measurements**

- A range of frontends delivering versatile signal conditioning and data acquisition in a compact, portable frame
- Support for configurations ranging from eight up to 216 channels in a single frame
- Minimal space requirements, allowing installation in or directly on the test object

- Well suited for mobile and field-based measurement campaigns
- Increased testing productivity through compact, easy-to-deploy systems
- Quiet operation, including fanless cooling, making the system ideal for acoustic measurements

**A complete portfolio for all field and lab testing requirements**

Simcenter SCADAS Mobile hardware includes a broad selection of systems designed to address diverse mobile testing needs. Configurations range from ultralight yet robust systems weighing as little as 2.5 kilograms, with a nominal battery autonomy of 2.5 hours, to laptop-sized systems capable of hosting between eight and 216 channels in a single frame. This flexibility allows engineers to select the right balance between portability, channel count and performance for each test scenario.

**Build a large test setup in the field**

Simcenter SCADAS Mobile supports creating large-scale field test setups by combining multiple frames in main-secondary configurations. This approach enables mobile measurements to scale hundreds of synchronized input channels while storing all data in a single measurement file. Distributed acquisition is achieved using optical cabling, allowing frames to be easily daisy-chained into one coherent and fully synchronized measurement platform. Finally, Simcenter SCADAS Mobile is compatible with our next-generation hardware.

**Component certification testing**

In addition to mobile and field measurements, Simcenter SCADAS Mobile systems can be extended to act as frontends for vibration control applications or certification testing of individual components under operational loads. This versatility allows the same hardware platform to be reused across development, validation and certification activities without changing measurement infrastructure.

**Simcenter SCADAS Mobile specifications**

- **Usage:** Portable data acquisition for mobile and laboratory testing
- **Channel capacity:** From eight to 216 channels, depending on the Simcenter SCADAS Mobile frame
- **System scalability:** Expandable to hundreds of channels using distributed configurations combined with other Simcenter SCADAS Lab and Simcenter SCADAS Mobile systems
- **Sampling capability:** Supports high-frequency data acquisition up to 204.8 kHz (module-dependent)
- **Acoustic suitability:** Ultra-quiet, fanless designs available for noise testing
- **Connectivity:** Supports CAN, tachometer and digital bus measurements
- **Environmental robustness:** MIL-STD 810F qualified for shock and vibration
- **Other specific details:**
  - Includes 24-bit analog-to-digital conversion
  - Dynamic range up to 150 dB (module-dependent)

**Simcenter SCADAS Recorder** enables autonomous data recording without the need for a connected PC. This capability is essential for long-duration or remote test campaigns where continuous operation and minimal user intervention are required. Engineers can validate data on site while ensuring reliable, gapless recording throughout the entire test.

### Autonomous recording

- Operates autonomously as a headless recorder, a tablet-controlled system or a frontend for a laptop or PC, adapting to different test workflows
- Scales from compact configurations up to 216 channels in a single frame
- Supports on-the-spot data validation to prevent errors and avoid costly reruns
- Enables measurements while the test object is in operation

### Increase recorded data quality by combining acquisition with instant analysis

By using a wirelessly connected tablet, engineers can instantly validate data while measurements are being recorded. This immediate feedback helps improve data quality by identifying issues early and avoiding posttest surprises. The remote-control interface allows users to visualize and monitor data in real time and adjust settings directly in the field.

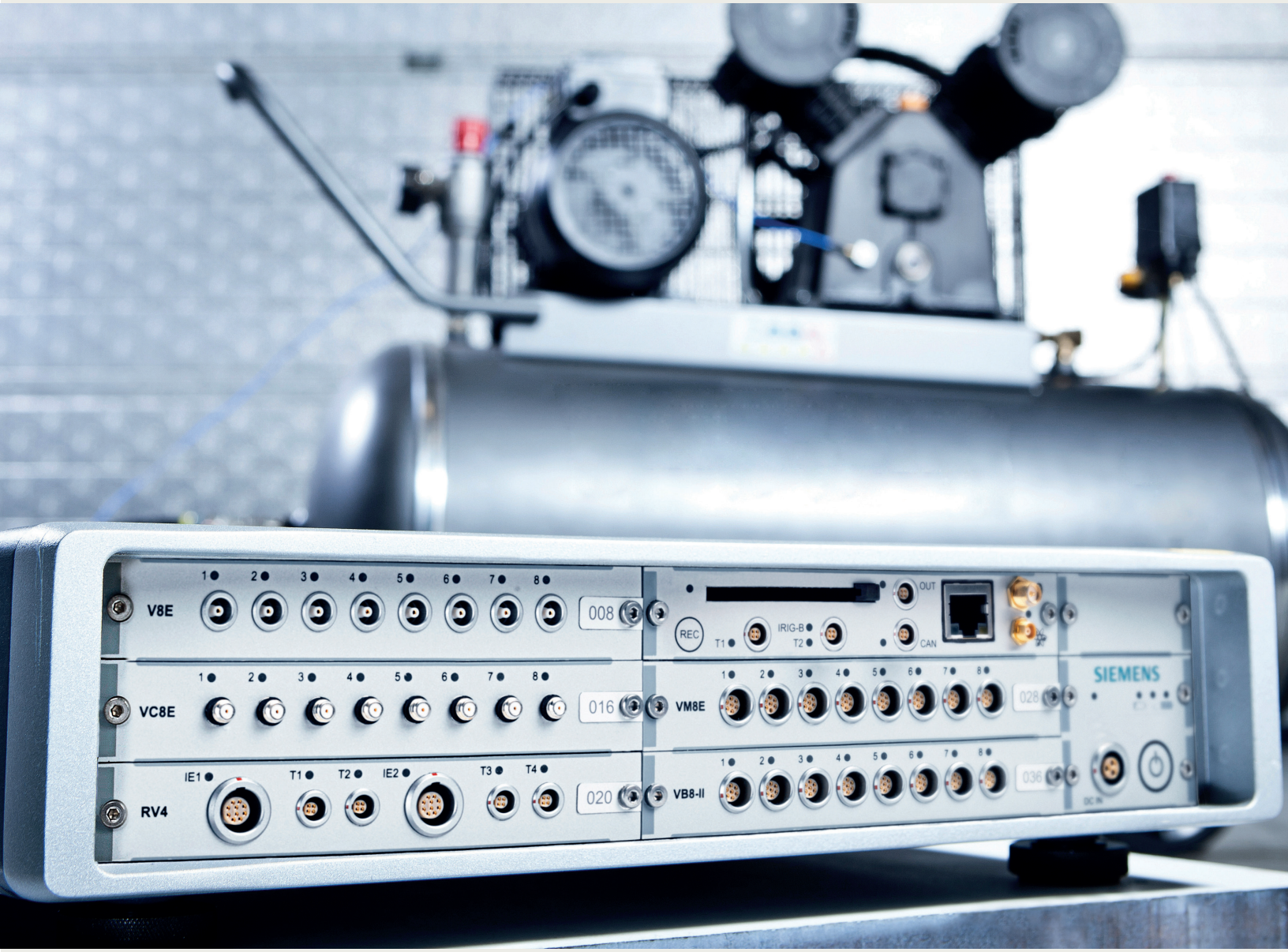
Simcenter SCADAS Recorder can also be operated in frontend mode, controlled from a PC or laptop. Data can be streamed in parallel to the PC and to local flash storage via the embedded local area network (LAN) interface, enabling real-time visualization while data is processed and securely saved.

### Invest on a scale that fits your testing requirements

Simcenter SCADAS Recorder systems are available in a wide range of configurations, from smaller systems hosting four to 24 channels to larger frames supporting up to 216 channels. Multiple systems can be combined in main-secondary configurations to support larger and more complex test setups. In addition, Simcenter SCADAS Mobile is compatible with our next-generation hardware. This modularity allows organizations to scale their investment as testing requirements evolve, without changing workflows or compromising data consistency.

### Simcenter SCADAS Recorder specifications

- **Usage:** Autonomous, PC-less data recording
- **Channel capacity:** From four up to 216 channels, depending on the used Simcenter SCADAS Recorder frame
- **Recording duration:** Designed for long-duration and repetitive test campaigns
- **Data confidence:** On-the-spot data validation to avoid reruns
- **Connectivity:** Wireless remote operation and Ethernet PC frontend capability
- **System integration:** Can operate stand-alone or combined with Simcenter SCADAS Lab and Simcenter SCADAS Mobile systems


V8E
VC8E
RV4
VM8E
VB8-II
SIEMENS
REC
OUT
CAN
IRIG-B
T1
T2
IE1
IE2
T3
T4

# Simcenter SCADAS unit and module overview

## Simcenter SCADAS ES

### Power and network units

#### Simcenter SCADAS ES power network interface (SCES-PNI)



The **SCES-PNI** unit acts as the central connectivity point of a Simcenter SCADAS ES stack. It powers and connects all modules while managing synchronization, communication and system control. This architecture enables seamless system expansion via daisy chaining while maintaining precise synchronization across the entire measurement system.

#### Simcenter SCADAS ES power network unit (SCES-PNU)



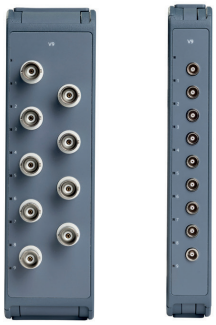
The **SCES-PNU** extends the capabilities of the PNI by adding integrated battery backup, wireless connectivity and advanced power management. Engineers can power the system from external battery sources for mobile testing applications while maintaining reliable operation in environments with unstable or unavailable power. Remote access and autonomous operation further increase deployment flexibility.

### Conditioning units

#### Simcenter SCADAS ES voltage and ICP conditioning (SCES-V9, SCES-V27 and SCES-VSD9, SCES-VSD27)

High-density voltage and ICP acquisition for versatile measurement setups. These units provide high-quality voltage and ICP signal conditioning with flexible input configurations. They support a broad range of sensors, including piezoelectric transducers and externally powered sensors, making them suitable for vibration, acoustic and general system measurements.

To maximize compatibility with existing sensors and cabling standards, Simcenter SCADAS ES voltage conditioning modules are available with multiple connector options, including LEMO, Yamaichi and other variants. This flexibility simplifies integration and supports mixed-technology test environments.

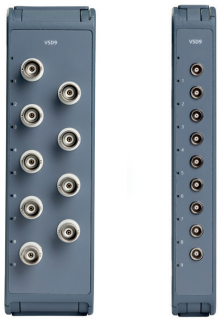


The **SCES-V9** provides nine single-ended voltage or ICP input channels in a compact form factor. Available with either Camac or BNC connectors, it offers a practical solution for low- to medium-channel-count vibration, acoustic and structural testing applications.



The **SCES-V27** expands measurement capacity to 27 channels within a single unit, reducing system footprint while simplifying cabling and installation. Its high channel density enables efficient deployment of medium- to high-channel-count measurement systems while minimizing hardware complexity.

The **SCES-VSD9** offers nine semi-differential input channels, helping engineers maintain measurement quality in installations that are prone to ground loops or electrical interference. It is well suited for applications where reliable signal integrity is essential.



The **SCES-VSD27** combines the channel density of the V27 with the superior noise rejection of semi-differential inputs. It is designed for large-scale measurement systems where both high channel counts and reliable signal quality are essential.



The **SCES-VSD27-L** combines high channel density with integrated signal conditioning in a compact form factor. Its 27-channel architecture is ideally suited for triaxial accelerometer configurations, allowing up to nine triaxial sensors to be connected within a single module while reducing system complexity, cabling effort and installation time.



## Simcenter SCADAS ES sensor interface unit (SCES-S9)

The **SCES-S** unit extends conditioning capabilities by supporting both differential and single-ended sensor inputs in one unit. It is designed for flexible integration of mixed sensor types, including voltage supply, ICP and current loop signals.



## Simcenter SCADAS ES sensor and bridge conditioning units (SCES-VB9-L and SCES-VB9-Y)

The SCES-VB units provide universal signal conditioning for voltage input, ICP and bridge-based sensors within a single module. This flexibility simplifies system configuration while supporting a broad range of transducers and testing applications.

The **SCES-VB9-L** combines voltage, ICP and bridge measurement capabilities in a single unit and uses industry-standard 7-pin LEMO connectors for maximum flexibility. It supports a broad range of sensor technologies, including strain gauges, load cells, linear variable differential transformer (LVDT), rotary veriable differential transformer (RVDT) displacement sensors and resistance temperature detector (RTD) temperature sensors, making it a versatile solution for demanding test applications.



The **SCES-VB9-Y** offers the same measurement and conditioning capabilities as the VB9-L while using 9-pin Yamaichi connectors. This configuration facilitates integration with existing test infrastructures and is particularly suited for organizations that want to maintain compatibility with established Simcenter SCADAS RS-based workflows, sensors and cabling.



## Simcenter SCADAS ES digital bus interface unit (SCES-CN4)

The **SCES-CN4** unit provides high-performance CAN and CAN-FD interfaces, enabling direct acquisition of vehicle and system bus data alongside physical measurements. It ensures accurate time alignment between sensor signals and digital communication data, supporting advanced system-level analysis and validation. The unit is compatible with legacy TCK8 thermocouple modules connected over CAN, allowing synchronized temperature measurements alongside bus and physical sensor data.



### Simcenter SCADAS ES pulse, tacho and DAC functionality units (SCES-PD)

The SCES-PD units integrate analog and digital pulse/tacho inputs with configurable DAC outputs in one compact unit. This dual capability enables simultaneous acquisition of speed and position data while supporting signal output for control, simulation or system interaction.



The **SCES-PD4-L** provides a comprehensive set of pulse, tacho and analog output capabilities for demanding measurement and control scenarios. It supports both analog and digital pulse inputs, including incremental and quadrature encoders, while integrated DAC outputs enable signal generation for simulation, control or external system interaction. Multi-pin LEMO connectors and integrated sensor power provide maximum flexibility for laboratory and development environments.



The **SCES-PD4-B** delivers the essential pulse, tacho and DAC functionality required for many test and monitoring applications, using standard BNC connectors for straightforward integration with existing instrumentation. Its simplified configuration makes it an efficient solution for speed, position and rotational measurements while maintaining the ability to generate output signals for external systems.

### Simcenter SCADAS ES charge, ICP and voltage conditioning units (SCES-VC9, SCES-VC9QS, SCES-VC9MO and SCES-DC6)

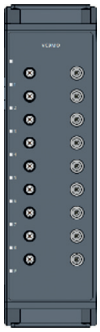
The **SCES-VC** and **SCES-DC** units are designed to acquire charge-based and voltage signals with high precision. They support standard dynamic measurements and quasistatic acquisition, making them particularly suitable for applications requiring low-frequency stability and high sensitivity.



The **SCES-VC9** provides a flexible combination of charge, ICP and voltage inputs, enabling a single module to support a broad range of sensor technologies. It is ideally suited for vibration, acoustic and structural measurements where both dynamic performance and measurement flexibility are required.



The **SCES-VC9QS** extends the capabilities of the VC9 with enhanced low-frequency stability, making it particularly suitable for applications involving slowly varying or near-static signals. It enables reliable long-duration measurements while maintaining the precision required for demanding validation tasks.



The **SCES-VC9MO** combines charge, ICP and voltage conditioning with integrated DAC monitoring outputs. These outputs enable real-time observation or retransmission of measured signals, simplifying system debugging, test bench integration and closed-loop validation workflows.



The **SCES-DC6** is designed for applications where maximum signal integrity is required. Its fully differential charge inputs provide superior immunity to electrical noise and interference, ensuring accurate measurements even in challenging environments. With a lower channel count focused on measurement quality, it is ideal for highly sensitive sensor applications.

### Simcenter SCADAS ES multifunction conditioning units (SCES-V6-PD2-C, SCES-V6-PD2-B and SCES-V6-SP2-C)

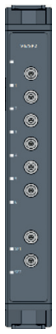
The **SCES-V/PD/SP** units combine voltage and ICP signal conditioning with pulse/tacho inputs, configurable DAC outputs and digital audio (S/PDIF) interfaces. This unique combination enables simultaneous acquisition of sensor, rotational and system signals alongside synchronized digital audio data.



The **SCES-V6-PD2-C** combines voltage and ICP signal conditioning with pulse, tacho, encoder and DAC functionality, providing a highly versatile platform for synchronized acquisition and signal generation. Its combination of Camac and LEMO connectivity offers maximum flexibility for laboratory, development and validation applications involving physical and rotational measurements.



The **SCES-V6-PD2-B** delivers the same measurement and signal-generation capabilities as the PD2-C variant while using standard BNC connectors. This simplifies instrumentation and accelerates setup, making it an excellent choice for test environments that require broad functionality with straightforward connectivity.



The **SCES-V6-SP2-C** combines voltage and ICP measurements with integrated S/PDIF digital audio acquisition, enabling precise synchronization between physical sensor data and digital audio signals. This makes it particularly valuable for acoustic, audio quality and NVH investigations where direct correlation between sound and vibration data is essential.

## Processing unit

### Simcenter SCADAS ES Recorder (SCES-REC)



The **Simcenter SCADAS ES Recorder** unit provides autonomous data recording, precise synchronization and integrated vehicle and auxiliary signal acquisition within a compact single-slot module. With two CAN interfaces and two pulse DAC (PDAC) inputs, engineers can combine measurement, bus and external signals into a single synchronized dataset, simplifying postprocessing and accelerating engineering insight.



# Simcenter SCADAS RS unit overview

## Power unit

### UPS: Uninterruptable power supply unit

The Simcenter SCADAS RS Uninterruptable Power Supply (UPS) unit delivers stable backup power to daisy-chained Simcenter SCADAS RS units using a wide-range direct current (DC) input or a pair of hot-swappable batteries. It can be activated either by a physical button or a remote on/off voltage signal.



## Conditioning units

### U12 and U12-E: Universal units

The Simcenter SCADAS RS U12 unit integrates a wide range of universal signal conditioning channels into a single compact unit. It supports piezoelectric ICP sensors, high-voltage inputs, externally powered sensors and various bridge configurations, including full, half and quarter, using selectable sense lines. Additionally, it accommodates piezo-resistive sensors, potentiometers, inductive sensors (such as LVDT and RVDT), RTD sensors and current loop sensors via shunt and analog tachometers, based on variable reluctance with high voltage tolerance.

Finally, the Simcenter SCADAS RS U12-E unit offers multiple channels of universal signal conditioning with extended bandwidth in a single unit.



### S12-E: Sensor unit

The Simcenter SCADAS RS S12-E unit integrates multiple channels of sensor signal conditioning with extended bandwidth into a single unit. It supports piezoelectric ICP sensors, a wide range of voltage inputs, externally powered sensors and current loop sensors measured over a shunt.



### S24: Sensor unit

The Simcenter SCADAS RS S24 unit integrates a high-density array of sensor signal conditioning channels into one unit. It supports piezoelectric ICP sensors, a wide range of voltage inputs, externally powered sensors and current loop sensors measured over a shunt.



### B24: Bridge unit

The Simcenter SCADAS RS Bridge unit brings together a high channel count of bridge signal conditioning in a single unit. It supports low to moderate voltage inputs, externally powered sensors and configurable bridge types, including full, half and quarter bridges. The unit is also compatible with piezo-resistive sensors, potentiometers, inductive sensors like LVDT and RVDT, RTD sensors and current loop sensors measured over a shunt.



### TC20: Thermocouple unit

The Simcenter SCADAS RS Thermocouple unit integrates numerous channels of universal thermocouple signal conditioning into a single compact unit.



### DI: Digital pulse and CAN unit

The Simcenter SCADAS RS Digital Pulse unit features multiple connectors for digital pulse conditioning alongside several connections for CAN bus communication, all integrated into a single unit. The unit is compatible with legacy TCK8 thermocouple modules connected over CAN, allowing synchronized temperature measurements alongside bus and physical sensor data.



### ECAT: EtherCAT unit

The Simcenter SCADAS RS EtherCAT unit enables seamless digital connection between a Simcenter SCADAS RS system and a real-time Ethernet-based EtherCAT fieldbus, making it ideal for interfacing with test rig controllers.





## Processing unit

### REC: Recorder unit

The Simcenter SCADAS RS Recorder (REC) unit serves as the central hub for data acquisition, collecting information from multiple conditioning units while providing seamless wired and wireless connectivity. In addition, the REC unit features onboard recording capabilities with a high-capacity solid-state drive (SSD) and includes an embedded recorder application, Simcenter SCADAS Go, allowing the hardware to operate completely standalone without requiring any additional software. When needed, the REC unit can be combined with multiple recorder units or integrated with other Simcenter systems such as Simcenter SCADAS Mobile, Simcenter SCADAS Recorder or Simcenter SCADAS Lab configurations, ensuring precise synchronization for large-scale, distributed test campaigns. It collects data from four daisy chains of conditioning units, connects to networks either wired or wireless and synchronizes with other REC units. It integrates advanced communication protocols such as XCP-on-Ethernet for automotive-grade integration, while also handling several CAN buses, multiple digital encoders and offering a connector for a global navigation satellite system (GNSS) antenna to guarantee accurate positioning and time synchronization in complex testing environments. The recorder unit is compatible with legacy TCK8 thermocouple modules connected over CAN, allowing synchronized temperature measurements alongside bus and physical sensor data.



# Simcenter SCADAS Mobile, Simcenter SCADAS Recorder and Simcenter SCADAS Lab modules

**Simcenter SCADAS Mobile modules**

Although the design of Simcenter SCADAS Lab is tailored for stationary, lab based applications, Simcenter SCADAS Mobile is optimized for portability and field use. Despite these design differences, both systems offer comparable module functionalities, including support for a variety of frontends, high channel density and advanced signal conditioning.




### Sixteen-channel analog output module (Simcenter SCADAS Mobile or Simcenter SCADAS Recorder only)

**A016**



AO16 is an output module that provides conditioned, calibrated and normalized analog copies of any input signal you capture with the Simcenter SCADAS Mobile frontend.

### Dual video camera input module (Simcenter SCADAS Recorder only)

**CIM2**



CIM2 enables the acquisition of synchronized video signals on Simcenter SCADAS Recorder frames. The cameras, included with the module, are connected through a LAN interface for power and image transfer.

### Quad CAN bus interface module

**CN4**



CN4 allows synchronous acquisition of up to four CAN buses in parallel with the dynamic signals measured from the Simcenter SCADAS input channels.

### Four-channel general purpose signal output module

**DAC4**



DAC4 runs at a maximum sample rate of 204.8 kHz with useful bandwidth of up to 40 kHz for generating sine, sweep, random or user-defined signals.

### Eight-channel universal durability input module

**DB8**



Supports signal conditioning for voltage, ICP, DC-bridge, alternating current (AC)-bridge, AC-LVDT, active sensors, transmitters and potentiometers.

### Four-channel differential charge input module

**DCH4**



DCH4 supports signal conditioning and processing to measure signals from differential and single-ended piezoelectric sensors.

### Sixty-four-channel EtherCAT output module

**ESO64**



ESO64 connects your Simcenter SCADAS frame to the EtherCAT digital bus. You can select up to 64 input channels to stream in real time to the EtherCAT network (requiring the corresponding input module to be real-time compatible).

### Four-channel input module for rotational vibration

**RV4**



RV4 is a signal conditioner for low-speed and high-speed tachometer signals from analog, digital and/or incremental encoder sources. It accurately conditions, acquires and processes tachometer signals to produce time data, angle data or rotational speed data.

### Eight-channel thermocouple module

**T8**



T8 has eight isolated input channels to acquire dynamic temperature signals with on-board linearization for B, E, J, K, N, R, S and T thermocouples.

### Eight-channel IP67-certified temperature device

**TCK8**



TCK8 extends the capabilities of Simcenter SCADAS Mobile so you can acquire a high number of K-type thermocouple signals. In combination with the CN4 module, up to four TCK8 devices can be connected to Simcenter SCADAS frames to support up to 32 thermo-couple channels per CN4 module.

### Twenty-four-channel voltage/ICP input module

**V24/V24M**



V24/V24M is used to support voltage inputs and piezoelectric ICP sensors or sensors requiring an externally supplied voltage. Each input supports data acquisition in X, Y and Z directions using triaxial accelerometers.

### Four-/eight-channel voltage/ICP input module

**V4/V8**



V4/V8 support voltage inputs and piezoelectric ICP sensors for four or eight channels. In addition, the VS8 modules provide the same specification as V8, but with additional support for S/PDIF digital audio sources.

### Eight-channel universal NVH input module

**VB8-III**



VB8-III supports signal conditioning for voltage, ICP, DC-bridge, AC-bridge, AC-LVDT, active sensors, transmitters and potentiometers.

### Four-channel bridge and dynamic strain module

**VBDS4**



VBDS4 is a bridge, piezoelectric ICP® sensor and dynamic strain amplifier. In bridge mode, it supports full-bridge, half-bridge and quarter-bridge configurations, including bridge completion resistors and shunt calibration under full software control. Its monitoring outputs provide conditioned output signals per input channel.

### Eight-channel input module for voltage, ICP and charge module

**VC8**



VC8 supports signal conditioning and processing for voltage inputs and piezoelectric ICP sensors.

### Eight-channel input module for voltage, ICP and charge module for quasistatic measurements

**VC8-QS**



VC8 supports signal conditioning and processing for voltage inputs and piezoelectric ICP sensors.

### Eight-channel input module for voltage, ICP and charge module with extended range

**VC8-ER**



VC8 supports signal conditioning and processing for voltage inputs and piezoelectric ICP sensors.

### Four-channel input module for floating ICP and charge module (Simcenter SCADAS Lab only)

**VCF4**



VCF4 supports signal conditioning for piezoelectric ICP and charge sensors. Each VCF4 channel offers a unique combination of floating input and an analog monitoring output.

### Eight-channel voltage, ICP differential input and output module with monitoring output

**VD8/VD8MO**



VD8/VD8MO have differential and single-ended inputs, supporting voltage inputs and piezoelectric ICP sensors for eight channels. The VD8MO offers monitoring output in addition to the functionality of the VD8.

### Eight-channel microphone input module

**VM8**



VM8 supports voltage input, piezoelectric ICP sensors and polarized or prepolarized microphones.

### Wheel force interface module (Simcenter SCADAS Mobile or Simcenter SCADAS Recorder only)

**WFI2**



WFI2 is a dual-channel digital interface module used to interface with the KISTLER RoaDyn 2000 wheel force transducer system. By means of an unshielded twisted pair (UTP) connection, a synchronous acquisition of all relevant wheel-force signals is supported: forces and moments in three directions, angle and angular speed, temperature and power.

# Supporting a wide range of engineering applications

By integrating Simcenter SCADAS with dedicated data analysis software, such as Simcenter Testlab, you can fine-tune your product and collect useful information for colleagues in design and simulation for myriad engineering applications, including:

**Structural testing**
- Impact, MIMO frequency response function (FRF), MIMO sine sweep, stepped sine and MIMO normal modes testing
- Modal analysis
- Operational deflection shape and time animation
- Operational and order-based modal analysis
- Ground vibration testing

**Acoustic testing**
- Sound intensity and sound power testing
- Sound quality testing
- Material and component testing
- Array-based holography and focalization
- Interior sound source localization
- In-room and exterior pass-by noise testing

**Transfer path analysis**
- Single reference transfer path analysis (TPA)
- Multi-reference TPA
- Time-domain TPA
- Operational path analysis

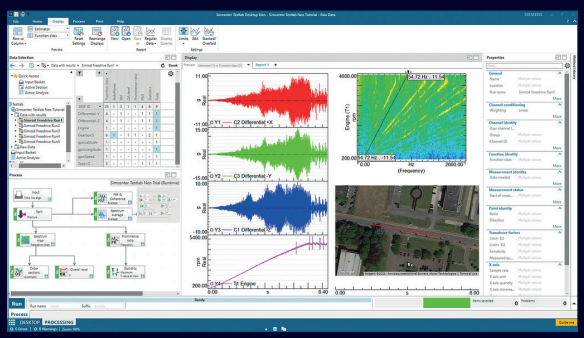
**Rotating machinery testing**
- Signature testing
- Time-data acquisition and processing
- Order tracking, torsional vibration analysis and angle domain processing
- Powertrain testing
- Multiphysics testing

**Durability testing**
- Road load data acquisition and processing
- Engine durability

**Vibration control and environmental testing**
- Closed-loop random vibration and sine testing
- Combined mode testing (sine-on-random, random-on-random)
- Sine notching and random response limiting
- Single-axis waveform replication
- Shock response spectrum limiting
- High-channel-count data reduction testing
- Qualification and acceptance testing

**High-speed throughput testing**
- Turbine testing
- Jet-engine testing
- High-channel-count industrial test benches
- Multiphysics testing







# From data acquisition to Digital Twin

Simcenter SCADAS is a cornerstone for Digital Transformation by delivering high precision, synchronized, multiphysics measurement data as the trusted foundation for Digital Twin workflows. Its flexible system architecture supports a wide range of deployment configurations – from compact and portable setups to large, distributed test systems – while maintaining consistent measurement quality across environments. Combined with secure remote connectivity, engineers can configure, monitor and validate measurements wherever testing takes place.

This high quality physical test data flows through an integrated acquisition, processing and analysis workflow when used with Simcenter Testlab and the broader Simcenter environment. Engineers can validate measurements early, streamline data processing and reuse trusted test data directly for simulation models, enabling advanced simulations, root cause analysis and closed loop validation. With Simcenter Testlab, reporting and data sharing can be automated, ensuring actionable insights are efficiently distributed across engineering teams.

**Key benefits**

- **High precision, multiphysics data:** Capture synchronized mechanical, acoustic, thermal and electrical measurements with consistent accuracy
- **Seamless data flow:** From sensor through processing and analysis to Digital Twin workflows, ensuring data integrity and traceability
- **Flexible deployment:** Adapt configurations to laboratory, mobile, field or distributed testing without changing measurement approaches
- **Remote connectivity:** Configure, monitor and validate measurements securely from anywhere
- **Integrated analytics and automation:** Streamline data processing, validation and reporting using trusted, AI ready measurement data
- **Collaboration:** Share validated results efficiently with design, simulation and management teams

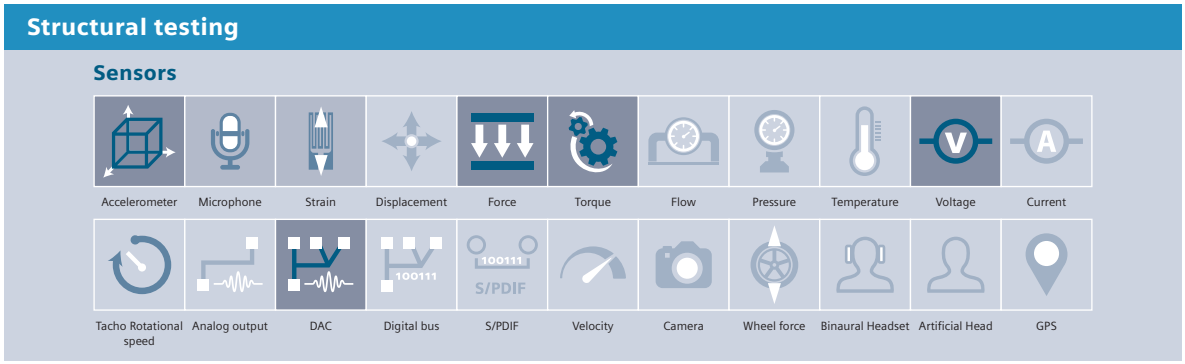
# Power and precision for structural testing

Simcenter SCADAS systems deliver high quality measurement data and accurate phase matching between sensors, which are essential for reliable structural testing across wide frequency ranges. This accuracy enables engineers to confidently analyze structural behavior under both forced and operational excitation and to identify vibration issues early in the development process. Even in large scale test setups with hundreds of synchronized channels, Simcenter SCADAS ensures consistent data quality and efficient test execution.

**Combine Simcenter SCADAS with Simcenter Testlab Structures**

Characterizing the dynamics of a structure used to be a long and complex process involving extensive trial-and-error and time-consuming test setups. This is no longer the case. When combining the Simcenter SCADAS systems with Simcenter Testlab Structures, it becomes easier to perform large-scale modal surveys in hours rather than days.

You can focus on identifying root causes of vibration problems and applying powerful analysis tools to explore the best solution for practically every structural weakness. Our modal testing experience, from impact testing of small structures to large-scale campaigns using hundreds of measurement channels, helps you maximize testing efficiency.





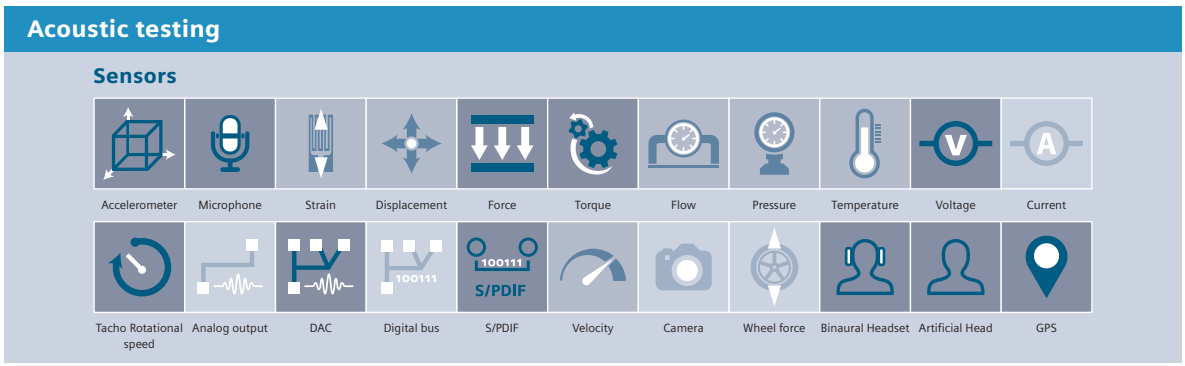

# Versatile acoustic and sound quality testing

Simcenter SCADAS systems provide precise, low noise data acquisition for acoustic measurements ranging from simple sound pressure levels to large microphone arrays and binaural recording. Accurate signal conditioning and synchronization are critical for correctly assessing acoustic performance, sound quality and compliance with international standards. By supporting scalable acoustic test setups with consistent data quality, Simcenter SCADAS helps engineers evaluate noise behavior efficiently across laboratories and real world environments.

**Combine Simcenter SCADAS with Simcenter Testlab Acoustics**

From the signal conditioning of microphones and interfacing with digital heads to the acquisition of sound power levels, real-time octaves and the latest high-tech tools for sound quality engineering, Simcenter Testlab Acoustics helps you conform to the latest international standards and engineering practices.

By directly addressing a wide variety of test-based acoustic engineering challenges that you face on a daily basis, combining Simcenter SCADAS with Simcenter Testlab Acoustics offers a complete and unique solution for acoustics testing and analysis in specific domains. This includes straightforward acoustic analysis, material and component testing, sound power and pass-by noise testing, sound source localization, vibroacoustic engineering and sound-quality and brand-sound engineering.





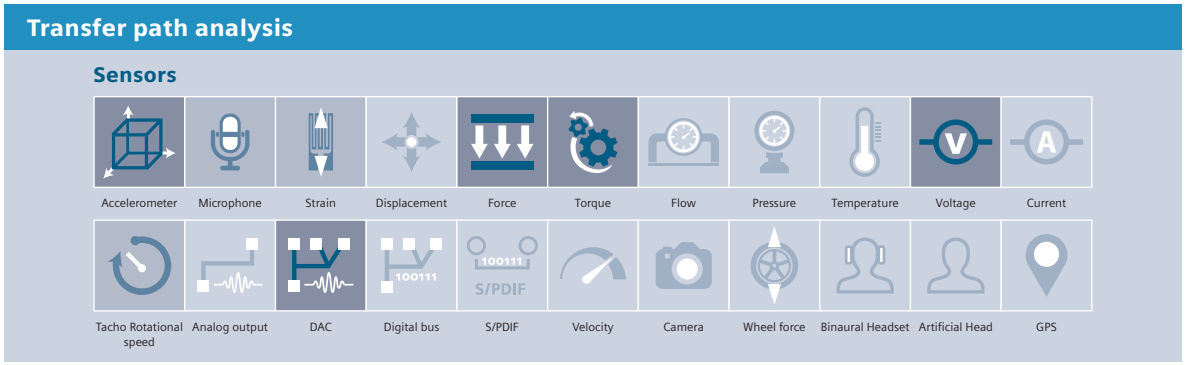

# Understanding the root cause of noise and vibration problems

Simcenter SCADAS systems deliver accurate, phase matched data across structural and airborne paths, which is essential for reliable transfer path analysis over wide frequency ranges. This measurement accuracy allows engineers to correctly identify operational loads and quantify the contribution of individual paths to overall noise and vibration behavior. As a result, root causes can be identified with confidence, even in complex vibroacoustic systems with many coupled sources.

**Combine Simcenter SCADAS with Simcenter Testlab Transfer Path Analysis**

Simcenter Testlab Transfer Path Analysis software provides you with a systematic approach for test-based engineering processes and focuses engineering efforts on the components that matter the most. As a method to fully understand vibro-acoustic behavior, the solution assists you in troubleshooting vibroacoustic issues and setting performance targets for each critical component. Simcenter Testlab Transfer Path Analysis is a highly efficient solution to help you identify noise problems and their origins.

Analysis enhances productivity and is easy to use. It supports fast and efficient data processing and results interpretation. The clear graphical displays facilitate the understanding of path contribution. You can interactively modify loads and/or transfer paths and visually evaluate modifications in real-time, comparing multiple scenarios.





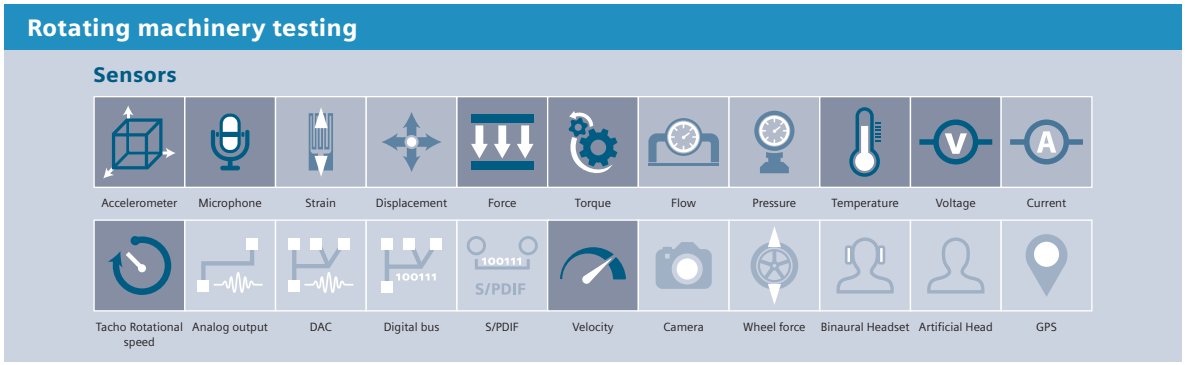

# Collecting data for rotating equipment

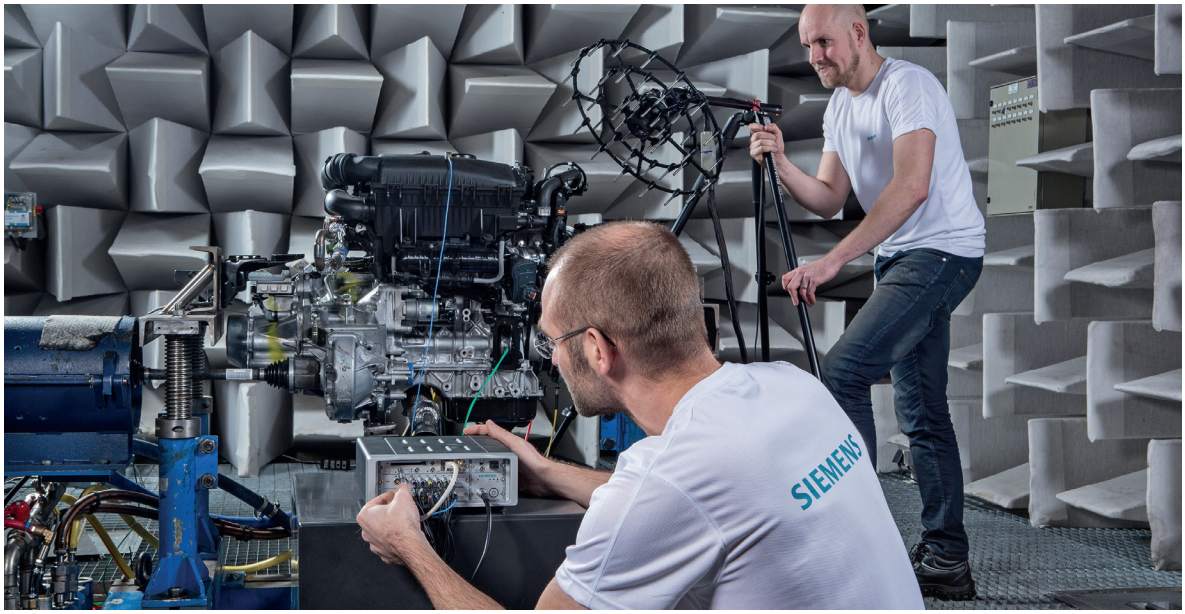
Simcenter SCADAS systems support the accurate acquisition of rotational, torsional, structural and acoustic data required for rotating machinery analysis. Precise synchronization between tachometer signals and dynamic sensor data is essential to correctly perform order tracking, torsional vibration analysis and speed dependent investigations. With scalable hardware and reliable timing, Simcenter SCADAS enables efficient analysis of rotating equipment across a wide range of operating conditions.

**Combine Simcenter SCADAS with Simcenter Testlab Rotating Machinery**

Simcenter Testlab Rotating Machinery provides you with a comprehensive suite of machinery vibration analysis solutions that help you develop quiet, efficient and reliable products. Targeted applications can help you master the complex process of machinery vibration analysis in systems such as engines, compressors, electrical motors, pumps and shafts.

Simcenter Testlab Rotating Machinery offers a comprehensive selection of tools, including waterfall mappings, order tracking, time-data acquisition and processing functions as well as specialized modules to help you analyze and visualize the vast amounts of data that are generated.



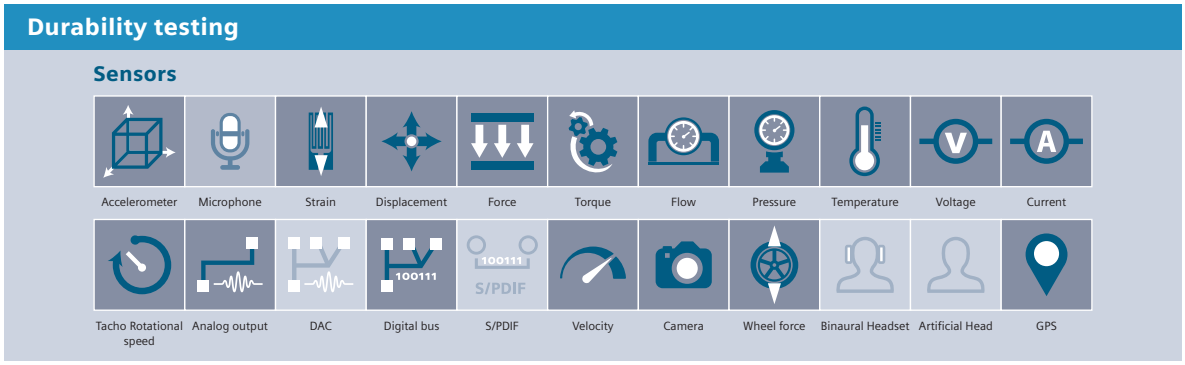



# Reliable systems for durability engineering

Simcenter SCADAS systems provide robust and reliable data acquisition for durability testing in harsh and demanding environments. Accurate load data and synchronized multi sensor measurements are critical to validate component and system durability under real world operating conditions. By combining rugged hardware with scalable channel counts and autonomous operation, Simcenter SCADAS supports efficient durability testing while reducing the risk of reruns and data loss.

**Combine Simcenter SCADAS with Simcenter Testlab Durability Acquisition**

Simcenter Testlab Durability is an integrated, end-to-end solution for load data acquisition. From a single software platform, you have complete control of the full-load data acquisition process. The application combines universal, multichannel data acquisition with a full suite of channel setup, measurement, validation, consolidation, reporting and data sharing tools.






# Secure dynamic vibration control and environmental testing

Simcenter SCADAS systems enable safe and reliable closed loop vibration control and environmental testing of components and complete systems. Accurate timing, high channel count acquisition and built in safety mechanisms are essential to protect valuable test articles while maintaining precise control. Simcenter SCADAS supports complex environmental test setups by ensuring synchronized data acquisition and stable operation throughout demanding test campaigns.

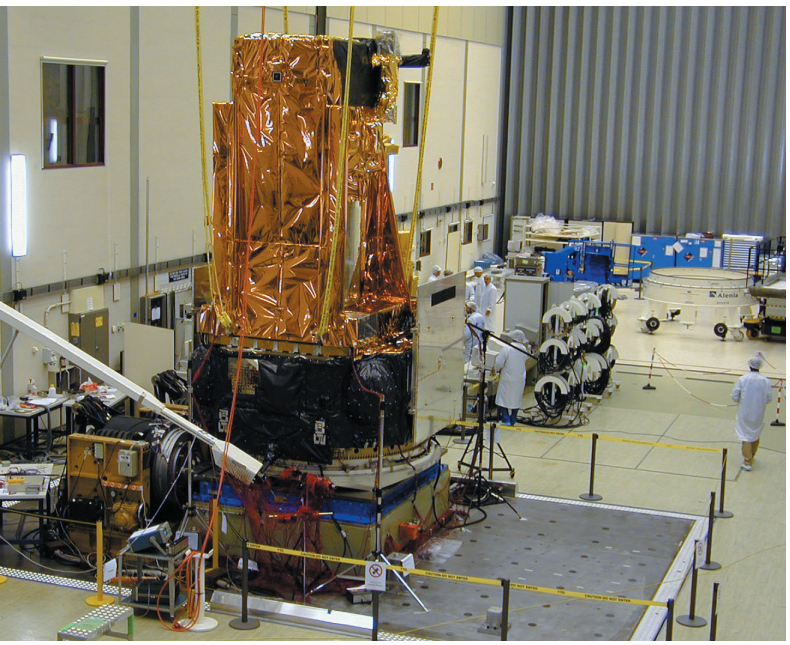
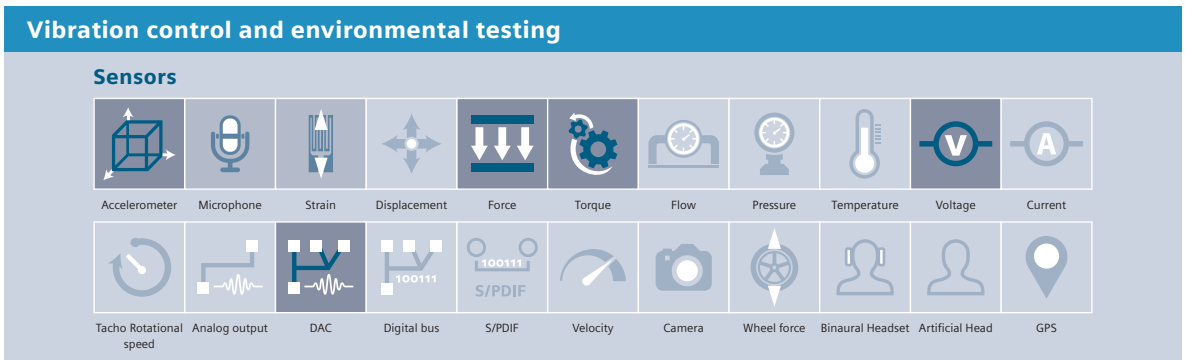


Image courtesy of ESA.

**Combine Simcenter SCADAS with Simcenter Testlab Vibration Control and Simcenter Testlab Environmental**

Simcenter SCADAS combined with Simcenter Testlab Vibration Control provides a complete four to eight channel solution for closed-loop vibration control testing. The vibration control system helps you easily certify and homologate products, ensuring products can operate under external excitation and vibration conditions. Conditions can range from normal to very extreme and include rough transportation circumstances.

Simcenter SCADAS combined with Simcenter Testlab Environmental delivers a complete solution for qualification and acceptance testing on large and sensitive structures, including spacecraft, satellites and system prototypes. It is designed for parallel acquisition and online reduction of vibration channels during random or sine closed-loop vibration control testing, in reverberant rooms and for high frequency transient capture in deployment testing. The environmental testing solution also helps you test and validate the robustness of spacecraft design to guarantee launch survivability by accurately reproducing launch acoustic environment levels in a large reverberation room.



# High speed throughput testing and turbine testing

Simcenter SCADAS systems support gapless, high speed data acquisition required for turbine and high throughput testing applications. These tests demand reliable recording of large numbers of channels at high sampling rates, often over extended periods and under extreme conditions. With integrated signal conditioning and scalable architecture, Simcenter SCADAS enables engineers to capture high quality data with confidence during the most demanding test campaigns.

**Combine Simcenter SCADAS with Simcenter Testlab Turbine Testing**

Simcenter Turbine Testing provides you with an all-digital solution for complex turbine testing. Turbines and compressors in jet engines or power plants are subjected to stringent performance verification testing. This testing is compulsory for certification and is expensive and extremely demanding. Tests need to be performed properly the first time, measurement data has to be safe and usable and personnel and test object safety must be assured.

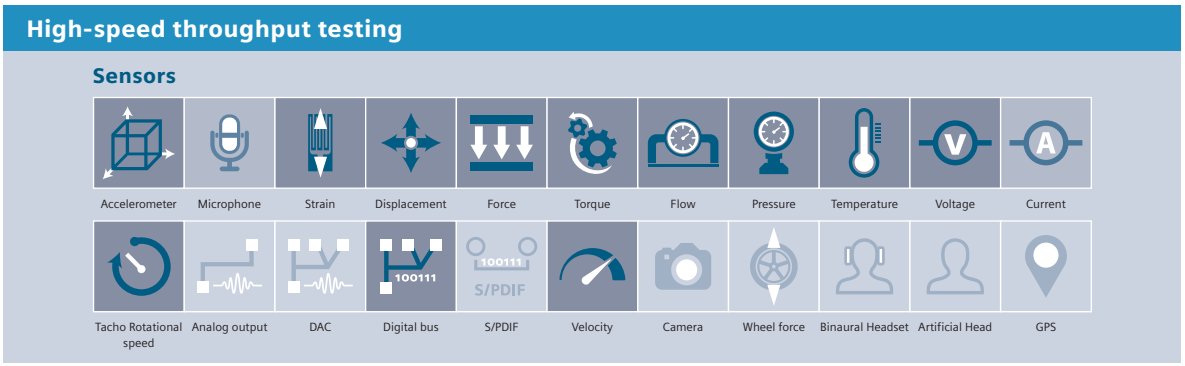





Image courtesy of Airbus Defense and Space.

# Measurement confidence, engineered for the long term

**Investing in reliable, long term measurement confidence**

When you invest in Simcenter SCADAS, you are investing in measurement confidence that lasts.

Siemens Digital Industries Software designs every Simcenter SCADAS system according to rigorous engineering standards, supported by comprehensive quality controls and services aligned with international organization for standardization (ISO) guidelines.

Each system module is carefully tracked throughout its lifecycle, enabling proactive and preventive maintenance by our global services organization. This approach minimizes downtime for calibration or repair and ensures stable, reliable operation during mission critical test campaigns – whether in the field or in the lab.

**Protecting your investment over time**

To help you get the most out of your Simcenter SCADAS system, Siemens offers a comprehensive portfolio of calibration and maintenance services designed to preserve performance, accuracy and availability.

- Annual hardware calibration ensures continuous accuracy leveraging professional adjustment and verification, delivered with clear as found and as left reports fully compliant with ISO 9001:2015
- Hardware maintenance services extend this coverage with preventive checks, detailed reporting and optional warranty extensions, reducing operational risk over the system's lifetime
- In the unlikely event of a hardware failure, your measurement campaign can continue seamlessly by replacing the affected module with an identical, specification matched unit – protecting data consistency and test continuity

For applications requiring the highest level of traceability, both calibration and maintenance services can be extended with ISO/IEC 17025 accredited calibration.

**Simcenter SCADAS suite benefits**

- ISO and MIL certified components for demanding test environments
- Consistent, high quality performance over multiple years of operation
- Reduced system downtime through preventive maintenance and lifecycle tracking
- Robust hardware designed to withstand vibration, shock, water and dust
- A strong global services organization supporting preventive maintenance
- Worldwide technical support and service coverage
- Distributed testing capabilities, enabling synchronized measurements across multiple Simcenter SCADAS systems
- Reduced time-to-market through earlier, more efficient testing cycles
- Remote control and monitoring for next-generation test workflows
- Seamless integration with Simcenter Testlab for analysis and reporting
- Multiphysics measurement capability across diverse test scenarios
- AI ready data generation, supporting advanced analytics and future-proof workflows

# A more productive test workflow with Simcenter SCADAS



**How test engineers work with Simcenter SCADAS**

Simcenter SCADAS supports test engineers across the complete measurement lifecycle – from initial setup to final reporting – using one consistent measurement approach across handheld, rugged and laboratory systems. By reducing complexity and fragmentation, it enables engineers to focus on insight creation rather than tool management, whether testing takes place in the lab, on the test track or in the field.

## Fast setup

A unified user experience and consistent configuration concepts simplify system setup across various test environments. Sensors, channels and measurement parameters can be prepared quickly and reliably, helping engineers move faster from preparation to data capture.

**Outcome: Faster campaign starts with fewer configuration errors.**

## Reliable acquisition

Simcenter SCADAS enables confident data acquisition in controlled and challenging environments. Live monitoring and validation capabilities help ensure data quality during measurement, while flexible operation modes support local and remote testing scenarios.

**Outcome: High-quality, trustworthy data capture across diverse test conditions.**

## Rapid insight

Measurement data flows seamlessly into Simcenter Testlab, allowing engineers to review and process results, investigate anomalies and extract insight without unnecessary delays. A consistent data path from acquisition to analysis accelerates engineering feedback loops.

**Outcome: Faster analysis and informed engineering decisions.**

## Clear reporting

Standardized and customizable reporting capabilities support clear communication of results across teams. Measurement data, analysis results and reports remain aligned within an integrated workflow, enabling efficient collaboration between test, simulation and management stakeholders.

**Outcome: Clear insight sharing and improved cross-team alignment.**

**Supported globally**

Simcenter SCADAS is backed by Siemens' global support network, including technical experts, user communities user communities and training resources. Engineers benefit from reliable support and shared knowledge throughout the testing lifecycle.


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