

DIGITAL INDUSTRIES SOFTWARE

Next-generation Simcenter SCADAS portfolio

One architecture, two hardware options and unlimited testing possibilities

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Introduction

Solution benefits

- Move faster with up to 50 percent faster setup and validation, accelerating test campaigns, reducing instrumentation effort and shortening the path from measurement setup to insight
- Work smarter with trusted, artificial intelligence (AI)-ready multiphysics data, enabling consistent results, automated workflows and a foundation for future AI-driven engineering processes
- Stay future proof with a modular and scalable platform, allowing teams to adapt to changing requirements while protecting investments and reducing long-term acquisition costs

Modern engineering teams rely on physical testing to validate increasingly complex, multi-domain products under demanding development schedules. Electrification, mechatronics, software-defined systems and Digital Twin driven workflows require data acquisition solutions that deliver more than measurement accuracy. They must be scalable, distributed, flexible and easy to deploy across teams, applications and test environments.

The next-generation Simcenter™ SCADAS™ hardware portfolio, consisting of Simcenter SCADAS ES and Simcenter SCADAS RS hardware, is designed to address these challenges. Simcenter is part of the Siemens Xcelerator business platform of software, hardware and services.

Built on a common architecture, the portfolio enables organizations to standardize

measurement workflows while selecting the hardware best suited to their testing environment, from laboratory development and validation to demanding field and durability testing. As part of the Siemens Xcelerator platform, Simcenter SCADAS solutions support synchronized, multiphysics data acquisition with consistent workflows from setup to advanced analysis.

With built-in remote access, browser-based operation and seamless integration with Simcenter Testlab™ software, the Simcenter SCADAS portfolio streamlines the entire testing process from data acquisition to engineering insight. The result is faster deployment, improved collaboration, scalable measurement capabilities and more efficient validation, helping engineering teams turn high-quality test data into confident decisions faster.



The future of testing won't wait

Engineering teams are under increasing pressure to deliver better products in less time. Vehicles are becoming electrified, machines are becoming smarter and products are integrating more sensors, software and connected technologies than ever before. As complexity increases, physical testing remains essential to validate performance, durability, safety and reliability before products reach the market.

At the same time, many testing organizations still rely on workflows and infrastructures that were designed for a different era. Test campaigns are growing in scale, data volumes continue to increase and engineers are expected to generate insights faster while operating with limited budgets and resources. As a result, testing teams around the world face three major challenges.

Need to move faster

Time has become one of the most critical factors in product development. Testing programs often involve hundreds of measurement channels, complex instrumentation processes and geographically distributed teams. Preparing a test setup can take days, while validating measurement quality often requires significant manual effort. When issues are discovered too late, engineers risk repeating tests, delaying projects and increasing costs.

Testing organizations need solutions that reduce setup effort, simplify instrumentation, accelerate validation and enable engineers to make confident decisions while tests are still running.

Common challenges

- High-channel-count instrumentation
- Cumbersome system setup and verification
- Manual data retrieval and validation
- Delayed feedback loops
- Costly test reruns

Need to work smarter

Modern testing generates enormous amounts of data. Unfortunately, that data is often scattered across multiple locations, processed using different tools and managed using inconsistent workflows. These disconnected processes create inefficiencies and make it difficult to ensure data consistency across projects and teams.

The rise of artificial intelligence, virtual sensing and Digital Twin technologies further increase the importance of high-quality data. AI models are only as reliable as the data used to train them. Creating trusted, structured and reusable test data is no longer optional. It is becoming a competitive necessity.

Testing organizations need workflows that transform measurement data into trusted insights instead of spending valuable engineering time searching, validating and reorganizing information.

Common challenges

- Disconnected data sources
- Inconsistent workflows and processing methods
- Lack of data structure and traceability
- Difficulty reusing data across projects
- AI initiatives require trusted, high-quality data

Need to future-proof investments

Technology evolves rapidly, while testing equipment is often expected to remain in service for many years. Engineers frequently face a difficult choice: either invest in systems that exceed their actual needs or purchase solutions that limit future growth and flexibility.

At the same time, testing itself is becoming increasingly multi-disciplinary. Mechanical, electrical, thermal, acoustic, vehicle network and software-related measurements must often be combined into a single synchronized workflow. Organizations need acquisition platforms that can adapt to new applications, support emerging technologies and evolve together with future testing requirements.

Testing organizations need open, modular and scalable solutions that protect today's investment while supporting tomorrow's challenges.

Common challenges

- Budget constraints
- Growing complexity of test campaigns
- Increasing demand for multiphysics testing
- Risk of technology obsolescence
- Need for openness, scalability, and flexibility

Faster. Smarter. Future-proof.
The next generation of testing starts here.

Engineering teams need a new approach to testing

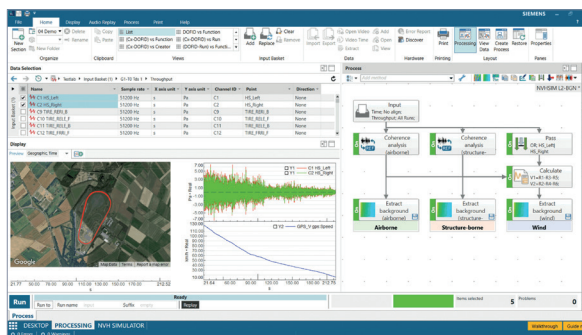
What if testing teams could reduce setup time, accelerate insight generation and protect long-term investments using a single next-generation architecture?

What if engineers could work faster using simplified instrumentation and remote access, work smarter through trusted AI-ready data and future-proof their testing strategy with a modular, open and scalable platform?

What if engineers could maintain backwards compatibility with legacy Simcenter SCADAS measurement systems?

This vision is the foundation of the next-generation Simcenter SCADAS portfolio. Built around one common architecture and designed for the future of physical testing, Simcenter SCADAS ES and Simcenter SCADAS RS help organizations move faster, work smarter and future-proof their testing investments.

Testing organizations need open, modular and scalable solutions that protect today's investment while supporting tomorrow's challenges.



One architecture, two hardware options

Engineering teams face diverse testing requirements. Some applications demand a highly flexible and modular platform for everyday laboratory and field testing. Others require maximum ruggedness for harsh environments, long-distance deployments and extreme operating conditions.

To address both needs, Siemens Digital Industries Software developed the next-generation Simcenter SCADAS portfolio around a single architectural foundation. Rather than creating isolated products, Siemens built a common platform that delivers a consistent user experience, shared workflows and common technology across multiple testing environments.

The architecture is built around five core principles:

- Modularity
- License-free acquisition
- Trusted data
- Open architecture
- Simcenter Testlab integration

This common foundation allows engineers to choose the platform that best matches their testing environment without sacrificing workflow consistency, data quality or future scalability.

Built on a proven foundation

The next-generation journey started with Simcenter SCADAS RS, a platform designed for rugged and distributed testing environments. Since its introduction, Simcenter SCADAS RS has been successfully deployed worldwide, helping customers perform reliable measurements in some of the most demanding testing conditions. Simcenter SCADAS ES builds directly on this proven technology foundation, extending the same architecture into mainstream laboratory, validation and field-testing applications.

As a result, customers benefit from a mature and validated platform rather than a completely new development. The architecture, synchronization technology, software concepts and ecosystem have already been proven in real-world deployments, reducing risk while accelerating adoption.



One architecture with shared advantages

Whether deployed in the laboratory, on a proving ground or in the harshest field environments, Simcenter SCADAS ES and Simcenter SCADAS RS are built on the same next-generation foundation.

Modular scalability

Configure the system you need today and expand channel counts, measurement capabilities and deployment options as requirements evolve. From compact laboratory setups to large distributed test campaigns, the architecture grows with your testing needs.



License-free acquisition

Enable engineers to configure, validate and monitor measurements without additional acquisition software licenses. Browser-based and Windows-based acquisition experiences simplify deployment, improve collaboration and accelerate validation activities.

Trusted data

Capture synchronized, high-quality measurement data across acoustics, vibration, strain, force, temperature, global navigation satellite system (GNSS), vehicle networks and third-party technologies. Advanced signal-conditioning technologies help ensure high-quality, synchronized measurements across channels. Innovations such as active temperature stabilization, custom analog-to-digital converter (ADC) chip and delay compensation to the sample for all conditioning modes and ranges contribute to stable and repeatable results.

Open and connected

Integrate physical measurements, vehicle bus data, digital systems and third-party technologies within one synchronized workflow. The open architecture reduces testing complexity while improving data consistency across teams and projects.

End-to-end testing workflows

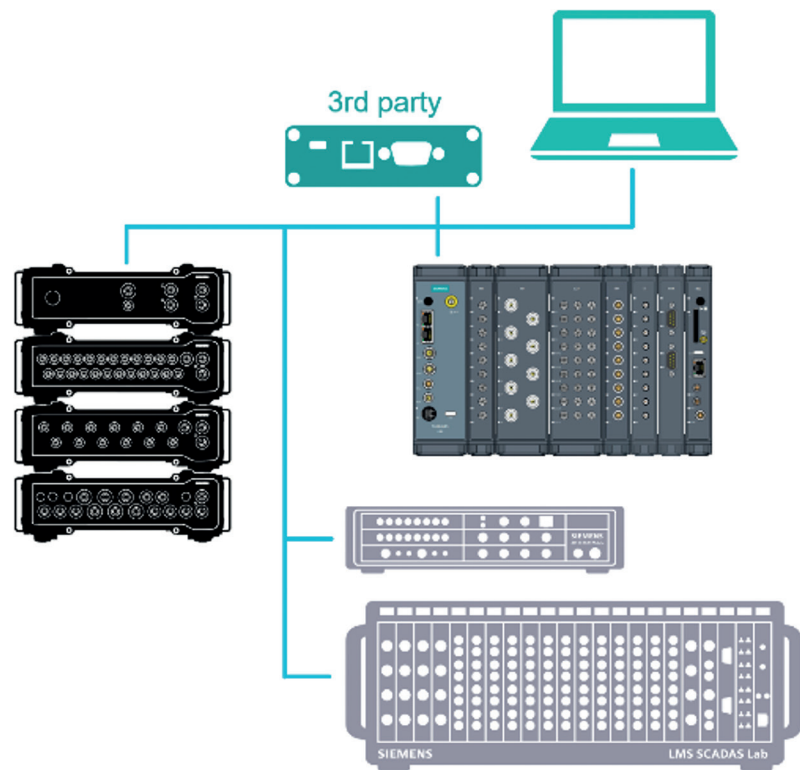
Combined with Simcenter Testlab, the platform extends beyond data acquisition to automated processing, advanced analysis, reporting and data management. The result is a seamless workflow from measurement to engineering insight.

One common architecture and two specialized options

Simcenter SCADAS ES provides a flexible and scalable universal foundation for laboratory, validation and mainstream field testing.

Simcenter SCADAS RS extends the same architecture closer to the point of measurement, enabling reliable data acquisition in environments where shock, vibration, temperature extremes and distributed deployment requirements demand maximum robustness.

Together, they provide the freedom to select the right platform for every testing environment while preserving one common technology foundation, one ecosystem and one future road map. Backwards compatibility with legacy Simcenter SCADAS systems is also supported.



Simcenter SCADAS ES is the new standard for modular data acquisition

Simcenter SCADAS ES is Siemens' next-generation modular data acquisition platform for mainstream laboratory, validation and field testing. It combines trusted measurement performance, flexible system configurations and modern software workflows in a single scalable platform designed to support a broad range of testing applications.

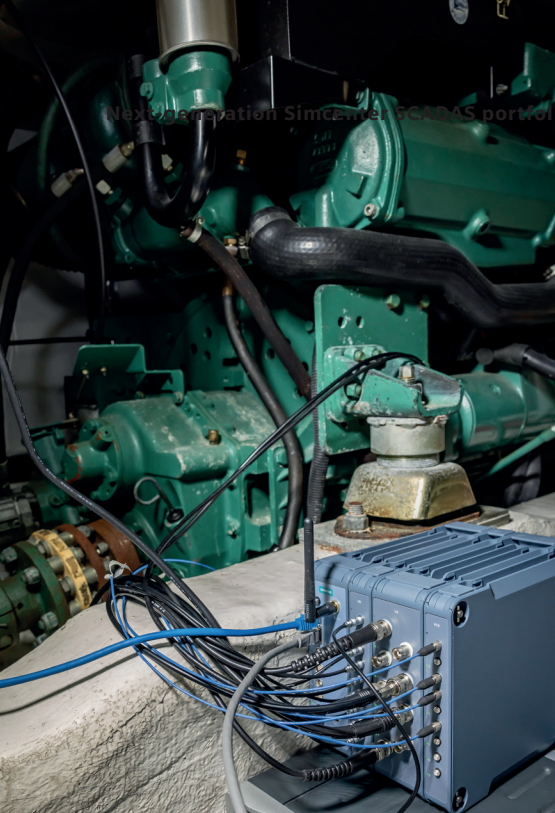
The universal data acquisition system for modern testing

Simcenter SCADAS ES is designed for engineers who need maximum flexibility across a broad range of testing activities. Its modular architecture enables efficient system configuration, straightforward expansion and seamless adaptation to evolving test requirements.

Ideal for

- Laboratory testing
- Validation and verification testing
- Multiphysics measurements
- Multichannel data acquisition
- Real-time monitoring
- Component and subsystem testing
- Test bench integration
- General-purpose engineering testing





Why engineers choose Simcenter SCADAS ES

Simcenter SCADAS ES helps engineers move faster from set up to insight by combining flexible hardware, synchronized multiphysics acquisition and seamless software integration in a single scalable platform. As testing requirements evolve, Simcenter SCADAS ES scales with your needs while protecting existing investments and engineering expertise.

Simcenter SCADAS RS is built for tough test environments

When testing moves beyond the laboratory, measurement systems face vibration, shock, weather, distance and limited accessibility. Simcenter SCADAS RS is purpose-built for these demanding conditions, delivering trusted, high-quality data wherever testing takes place.

The rugged data acquisition system for demanding test environments

Simcenter SCADAS RS is built to operate where conventional systems reach their limits.

- IP66/IP67 protection against dust and water
- High resistance to shock and vibration
- Reliable operation in extreme temperatures
- Field proven architecture trusted in demanding field applications since 2020

Ideal for

- Deploying measurement hardware close to sensors across large test objects
- Reducing cabling complexity and instrumentation time
- Minimizing test object weight using shorter cable runs
- Supporting long-distance and distributed measurements with confidence
- Operating reliably in outdoor and demanding field conditions

Why choose Simcenter SCADAS RS

Rugged, distributed and field-proven, Simcenter SCADAS RS enables reliable testing in environments where traditional data acquisition systems cannot operate effectively.



Out-of-the-box data acquisition in minutes

Two license-free acquisition experiences to start measuring immediately

The next-generation Simcenter SCADAS portfolio includes two complementary license-free acquisition software solutions that help you begin setup and acquisition immediately out-of-the-box. Whether you prefer browser-based access directly on the hardware or a traditional Windows-based experience, you can start measuring immediately without purchasing additional acquisition software licenses.

Simcenter SCADAS Go

Unparalleled connectivity with access from any device, anywhere

Simcenter SCADAS Go is preinstalled directly on Simcenter SCADAS ES and Simcenter SCADAS RS

hardware, providing instant access to data acquisition, setup verification and measurement workflows via a web browser. No software installation, dedicated personal computer (PC) or additional licenses are required.

Why remote access matters

Field testing is often slowed down by physical access constraints. Engineers need to be near the acquisition hardware, troubleshooting requires travel and measurement issues may only be discovered after returning to the office.

Simcenter SCADAS Go removes these limitations. Leveraging browser-based access, users can configure, monitor and validate measurements from virtually any device and location, enabling faster decisions and more efficient testing workflows.



Core capabilities

Remote access from anywhere

Access the acquisition system from a laptop, tablet or smartphone using a standard web browser. Connect locally or remotely using wired or wireless network infrastructure.

Any device, any operating system and any interface

Work from Windows, macOS, Linux, Android or iOS devices without installing dedicated software.

Multi-user collaboration

Multiple engineers can simultaneously access the same system for configuration, monitoring and validation, accelerating setup and troubleshooting activities.

Live monitoring and validation

Visualize measurements while testing is in progress and identify issues before they lead to lost test time or repeated measurements.

Built-in and always available

The software is embedded in the hardware and available immediately without installation or license activation.

Benefits

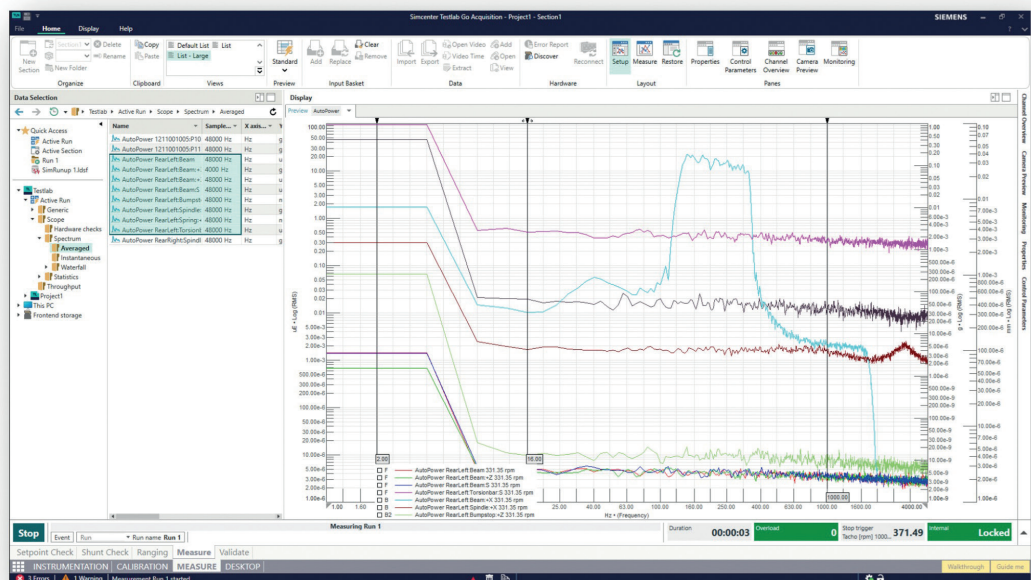
- Reduce instrumentation and setup time
- Accelerate troubleshooting and test validation
- Enable distributed and remote testing workflows
- Support collaboration between field and office engineers
- Increase efficiency via always-available, browser-based access

Monitor live test data from anywhere, on any device.

Simcenter Testlab Go

License-free acquisition software for Windows PCs

Simcenter Testlab Go provides a familiar Windows-based acquisition environment for engineers who prefer to work from a laptop or desktop computer. Delivered license-free, it supports setup and verification, sensor calibration, measurement, validation and export without requiring additional software licenses.



Core capabilities

Windows-based user experience

Perform acquisition directly from a laptop or PC using the familiar Simcenter Testlab desktop environment.

License-free operation

No additional acquisition software licenses are required.

Setup and verification

Configure measurement channels, validate sensor connections and verify acquisition quality before testing begins.

Measurement and validation

Acquire and review measurement data efficiently during everyday testing activities.

Sensor calibration support

Support calibration and verification workflows as part of the measurement process.

Benefits

- Familiar Windows-based workflow
- No acquisition software license costs
- Fast deployment without software investment
- Ideal for everyday measurement and validation tasks
- Seamless integration with the broader Simcenter testing portfolio

Calibrate, measure and validate without additional software cost.

Simcenter SCADAS Go	Simcenter Testlab Go
Built into hardware	Windows PC based
Browser access	Desktop application
Any device, anywhere	Traditional laptop workflow
Multi-user access	Single workstation
Remote monitoring	Local acquisition via cable
No installation required	No license required

From acquisition to insight

Unlock more value with Simcenter Testlab
From data acquisition to actionable engineering insights

Although Simcenter SCADAS ES and Simcenter SCADAS RS provide trusted, high-quality measurement data, Simcenter Testlab helps engineering teams transform that data into actionable insights faster and with greater confidence.

Used together, Simcenter SCADAS and Simcenter Testlab create a complete testing workflow that extends beyond data acquisition to automated processing, analysis, reporting and data sharing. This combination helps teams reduce manual effort, improve consistency and accelerate engineering decisions.

Why customers invest in Simcenter Testlab

Collecting data is only the first step.

The real challenge is efficiently turning measurements into trusted engineering knowledge while maintaining consistency across teams, projects and testing programs.

Simcenter Testlab addresses this challenge by automating repetitive tasks, enabling advanced analysis workflows and creating a structured foundation for data-driven engineering.

Key capabilities

Test planning and scheduling

Plan, organize and schedule test campaigns, measurements and resources to improve coordination, laboratory and field efficiency.

Test annotation and contextualization

Capture engineering notes, events and metadata alongside measurements to improve traceability and preserve engineering knowledge.

Automated data processing

Automatically process measurement data as soon as it is acquired, reducing manual effort and accelerating result availability.

Centralized data management

Store, publish, search and retrieve measurement data across projects and teams, eliminating data silos and improving traceability.

Multi-domain engineering analysis

Analyze data from noise, vibration and harshness (NVH), durability, structural dynamics, acoustics, rotating machinery and other testing disciplines using a common engineering platform.

Automated reporting

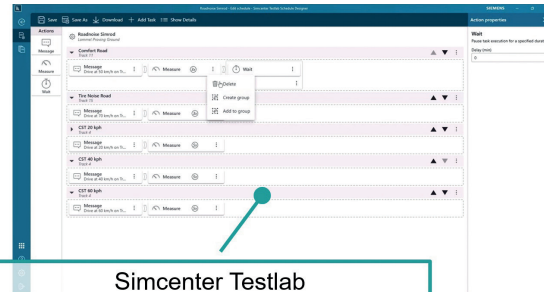
Standardize workflows and generate consistent engineering deliverables while reducing repetitive postprocessing effort.

Future-ready engineering data

Create consistent, structured and trusted measurement datasets that support advanced analytics, virtual sensing and future AI initiatives.

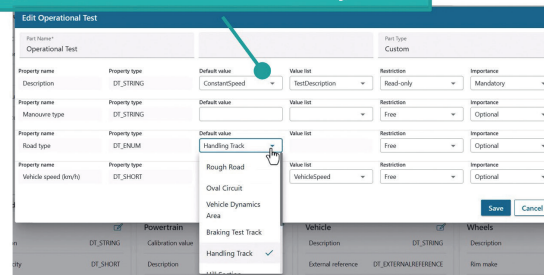
Benefits

- Reduce manual data processing via automated workflows and analysis
- Accelerate engineering decisions with faster access to trusted test results
- Avoid unnecessary test reruns using structured, validated and searchable data
- Capture engineering context directly with measurement annotations and metadata
- Reduce test preparation effort leveraging integrated measurement scheduling and planning
- Automate data publishing, searching and reporting to increase engineering productivity
- Build a trusted foundation for AI-ready data, the Digital Twin and advanced analytics
- Scale from simple measurements to advanced multi-domain testing within one platform



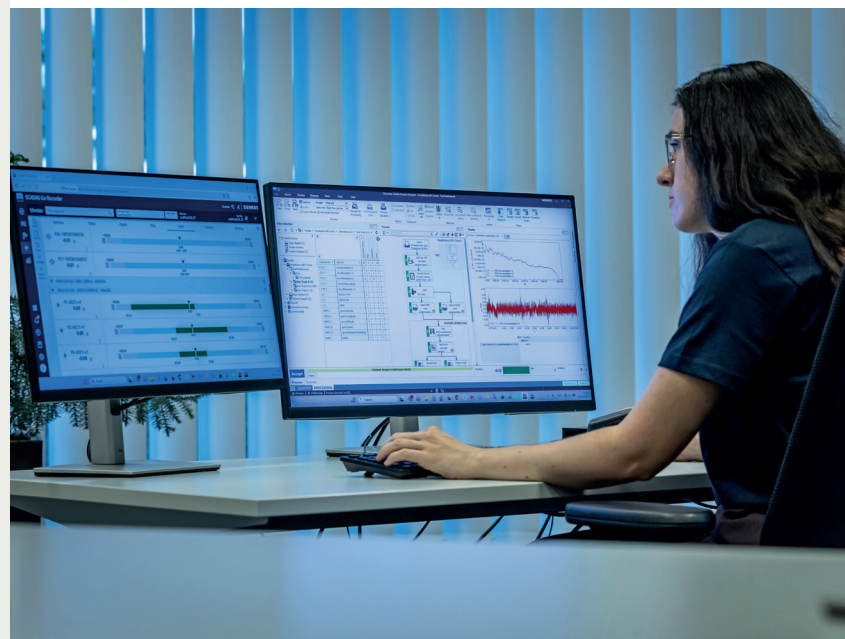
Simcenter Testlab

Avoid unnecessary test re-runs
& create structured AI-ready data



Flexible, scalable licensing

Whether you are performing routine measurements or advanced multi-domain testing, Simcenter Testlab allows you to adopt the capabilities you need and expand over time. Its scalable licensing approach helps organizations align software investments with their current requirements while maintaining a clear path for future growth.



Building blocks of your measurement system

Simcenter SCADAS ES unit overview

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 power network interface (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, SCES-VSD9 and SCES-VSD27)

High-density voltage and integrated circuit piezoelectric (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.

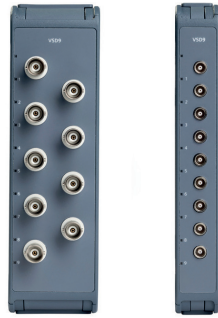
The **SCES-V9** provides nine single-ended voltage or ICP input channels in a compact form factor. Available with either Camac or BNC connectors, it offers a practical solution for low- to medium-channel-count vibration, acoustic and structural testing applications.



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 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) or rotary variable 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 controller area network (CAN) and CAN flexible data-rate (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.



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

The SCES-PD units integrate analog and digital pulse or tachometer (tacho) inputs with configurable digital-to-analog converter (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 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.

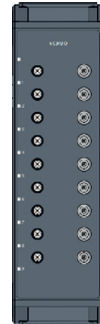
The **SCES-VC9** provides a flexible combination of charge, ICP and voltage inputs, enabling a single module to support a broad range of sensor technologies. It is ideally suited for vibration, acoustic and structural measurements where dynamic performance and measurement flexibility are required.



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.

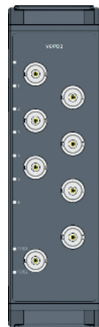


Simcenter SCADAS ES multifunction conditioning units (SCES-V6-PD2-C, SCES-V6-PD2-B and SCES-V6-SP2-C)

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 both 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: Uninterruptible power supply unit

The Simcenter SCADAS RS Uninterruptible 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 piezoresistive 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.

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.



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 on-board 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 stand-alone without requiring any additional software. When needed, the REC unit can be combined with multiple recorder units together or even integrated with other Simcenter systems such as Simcenter SCADAS Mobile hardware, Simcenter SCADAS Recorder hardware or Simcenter SCADAS Lab hardware 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 GNSS antenna to guarantee accurate positioning and time synchronization in complex testing environments.



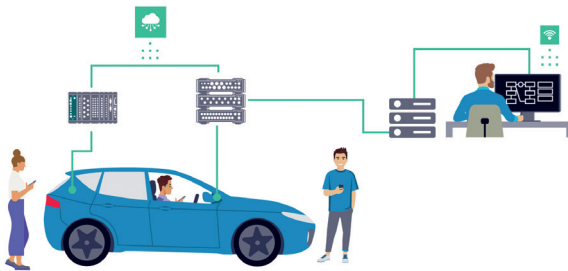
Industry applications

Transportation and heavy equipment

Automotive: Accelerating vehicle innovation

Synchronize NVH, durability, electrification and vehicle network measurements within a single platform to accelerate development from laboratory validation to proving-ground testing.

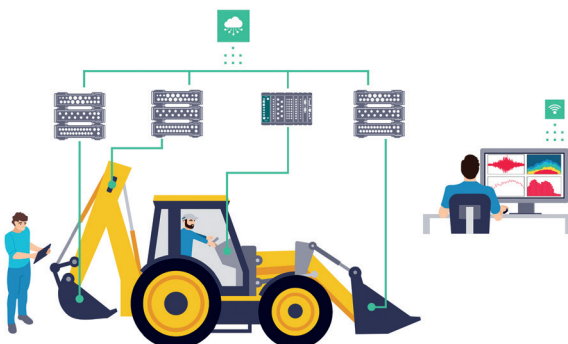
Benefit: Faster development cycles and deeper insight into complex vehicle interactions.



Heavy equipment: Engineered for demanding environments

Capture synchronized multiphysics data under real-world operating conditions to improve durability, reliability and operator comfort.

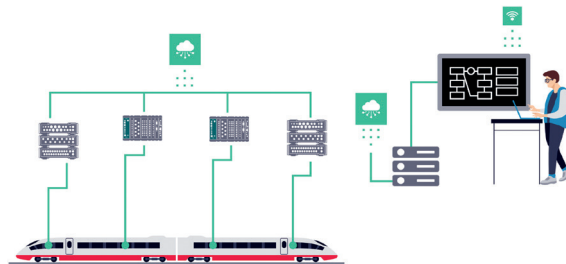
Benefit: Reduced development risk and increased product robustness.



Rail and transportation: Reliability on every journey

Combine distributed measurements and vehicle network data to validate structural behavior, ride comfort and long-term durability.

Benefit: Improved reliability, passenger comfort and operational performance.



Marine: Reliability beyond the shoreline

Measure propulsion systems, structures and onboard equipment in laboratory and field environments.

Benefit: Reduced downtime and improved operational performance.



Aerospace and defense

Aerospace: Confidence from ground to flight

Acquire synchronized structural, acoustic and vibration measurements across ground vibration, modal and flight-test campaigns.

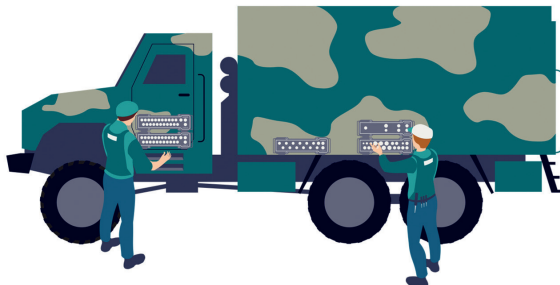
Benefit: Faster certification and greater confidence in engineering decisions.



Defense: Mission ready under the most demanding conditions

Measure structural dynamics, vibration, acoustics and system behavior with synchronized, high-fidelity data acquisition across qualification and validation campaigns.

Benefit: Faster verification, reduced development risk and increased confidence in mission-critical decisions.



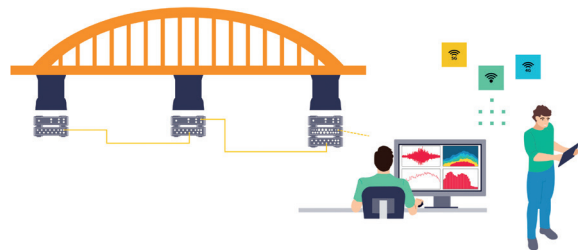
Industrial and energy

Civil engineering and infrastructure:

Protecting critical assets

Monitor large structures using distributed sensor networks and synchronized measurements.

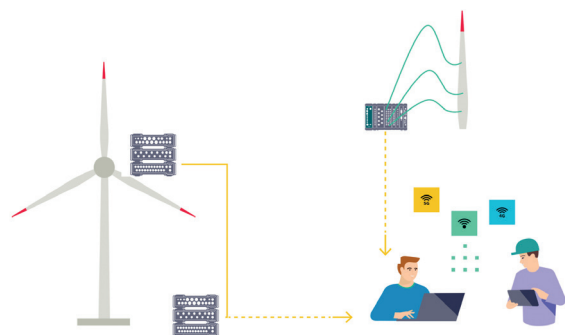
Benefit: Improved safety, structural insight and informed maintenance decisions.



Energy and utilities: Powering a sustainable future

Capture vibration, strain, electrical and thermal measurements across turbines and energy assets within one synchronized platform.

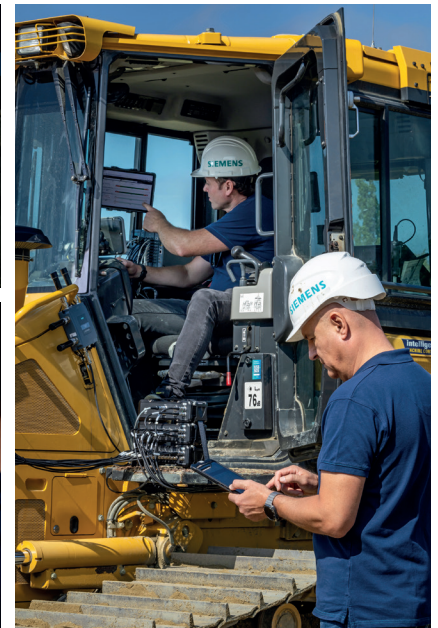
Benefit: Improved efficiency, predictive maintenance and asset availability.



White goods: Engineering quieter, smarter and more reliable products

Capture synchronized measurements across vibration, acoustics, temperature, power consumption and structural performance to optimize appliance design and validate product quality.

Benefit: Reduced noise and vibration, improved energy efficiency and greater product reliability.



Companies benefiting from the next-gen Simcenter SCADAS architecture

The next-generation Simcenter SCADAS portfolio is built on a proven architecture already trusted by customers across industries and applications. From durability testing and operational load measurements to large-scale distributed test campaigns, organizations are already benefiting from the capabilities that now form the foundation of Simcenter SCADAS ES and Simcenter SCADAS RS.

Automotive - Hyundai

Accelerating durability validation with smarter data acquisition

Challenge

Efficiently capturing and validating durability load measurements across extended vehicle testing campaigns.

Solution

Leveraging next-generation Simcenter SCADAS technology, for example, Simcenter SCADAS RS, to streamline measurement and validation workflows.

Benefit

Reduced testing effort and approximately one day saved per week during long-duration test campaigns.



Aerospace

Reducing instrumentation complexity

Challenge

Ground and flight-test campaigns required efficient instrumentation and reliable measurements across distributed environments.

Solution

Distributed acquisition architecture combined with wireless access and remote monitoring capabilities.



Benefit

Reduced instrumentation time and improved testing efficiency.

Scientific research - WSL Institute

Transforming remote measurements into life-saving avalanche insights

Challenge

Capturing reliable field data in demanding environmental conditions to improve avalanche prediction models.

Solution

Automated acquisition of high-quality measurement data from remote monitoring locations.

Benefit

Continuous acquisition of valuable real-world data used to improve prediction accuracy and support safety decisions.

Getting the most out of your investment

The next-generation Simcenter SCADAS portfolio is designed to help engineering teams increase productivity throughout the entire testing process, from setup and measurement to analysis and decision-making. Whether your goal is to accelerate testing, improve engineering efficiency or prepare for future requirements, Simcenter SCADAS helps you get more value from every test campaign.

Move faster while spending less time configuring and more time engineering

The next-generation Simcenter SCADAS portfolio helps engineering teams reduce setup time, validate measurements faster and accelerate decision-making throughout the entire testing workflow.

Key advantages

- Reduce setup and instrumentation time with modular hardware and simplified system configuration
- Validate sensors and measurements directly at the test site using Simcenter SCADAS Go or Simcenter Testlab Go
- Enable multiple engineers to work simultaneously using remote access and multi-user workflows
- Move from measurement to analysis faster with streamlined testing workflows

Work smarter by turning measurement data into engineering insight

From acquisition to analysis and reporting, the next-generation Simcenter SCADAS portfolio helps engineers work more efficiently, collaborate more effectively and extract greater value from every test campaign.

Key advantages

- Acquire trusted multiphysics data within one common platform
- Automate data processing, analysis and reporting with Simcenter Testlab
- Improve collaboration via connected workflows between field and office teams
- Create structured, AI-ready measurement data for future engineering workflows
- Establish a trusted foundation for advanced analytics and digital engineering

Future-proof and protect your investment while preparing for tomorrow

The next-generation Simcenter SCADAS portfolio is built on a common architecture designed to evolve with your testing requirements. Existing users can preserve previous investments while gaining access to next-generation capabilities and future innovations.

Key advantages

- Reuse compatible Simcenter SCADAS hardware, cables and connectors
- Continue working with both Simcenter Testlab Neo software and Simcenter Testlab workflows
- Preserve established testing practices and engineering expertise
- Migrate at your own pace without disrupting ongoing projects
- Scale capabilities over time without replacing your complete measurement system
- One common architecture supporting laboratory, field and distributed testing environments

One ecosystem, two hardware options

Whether your priority is a flexible testing platform or a rugged solution for demanding environments, you benefit from the same next-generation Simcenter SCADAS architecture, workflows, software ecosystem and future road map.

- **Simcenter SCADAS ES:** The scalable foundation for laboratory, indoor and mainstream universal testing applications
- **Simcenter SCADAS RS:** The rugged solution for harsh environments, distributed measurements and demanding field deployments

Experience the next generation of Simcenter SCADAS

Faster. Up to 50 percent faster setup and validation.

Smarter. Trusted AI-ready multiphysics data.

Future-proof. One scalable architecture that is designed to evolve with your testing needs, while helping reduce total cost of ownership by up to 40 percent.

Take the next step

Your journey to faster, smarter and future-proof testing starts here. The next-generation Simcenter SCADAS portfolio combines trusted measurement quality, modular scalability, license-free acquisition software and seamless integration with Simcenter Testlab within one common ecosystem. Whether your testing takes place in the laboratory, on a proving ground or in the harshest field environments, Simcenter SCADAS helps engineering teams acquire trusted data, accelerate decisions and prepare for future challenges.



Discover the difference Simcenter SCADAS ES and Simcenter SCADAS RS can make

- **Request a demo:** See the next-generation Simcenter SCADAS portfolio in action and explore how it can support your testing challenges
- **Talk to an expert:** Work with Siemens specialists to identify the optimal Simcenter SCADAS ES or Simcenter SCADAS RS configuration for your application
- **Access resources:** Download datasheets, case studies and technical guides to understand the full value of your investment
- **Learn more online:** Visit the [Simcenter SCADAS RS](#) and Simcenter SCADAS ES webpage for deeper insights into the measurement system and its modular units

Join the community and get support

Siemens goes beyond hardware and software. Our support and expert network help you **learn, collaborate and get assistance** throughout your testing journey:

- **Join the Simcenter Testing Forum:** Exchange insights with engineers, experts, researchers and practitioners on measurement strategies, test automation, data validation and simulation integration. While you're there, check out the [Quick Start Guide to Simcenter SCADAS RS Hardware](#) for step-by-step setup instructions and practical tips. Visit the forum
- **Contact the Simcenter Physical Testing team:** Contact sales directly for product configuration, purchasing guidance or deployment questions. Reach the team
- **Visit Siemens Support Center:** Access structured knowledge bases, troubleshooting guides, and service request submission. Go to support



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