

DIGITAL INDUSTRIES SOFTWARE

Simcenter SCADAS XS

Handheld Data Acquisition System

Simcenter SC-XS06-EC, SC-XS12-AC, SC-XS12-NC/2406/20240625

Product Information Sheet

Summary

Answering today's testing challenges

Noise and vibration measurements put ever more pressure on today's engineers and technicians.

Customers demand quieter, more comfortable and longer lasting products. Governments impose increasing regulations on noise levels and eco sustainability.

At the same time reduced budgets and increased efficiency targets require more tasks to be done in a shorter time. The portability and ease of use of the Simcenter SCADAS XS maximizes testing efficiency. The system opens up a whole new range of possibilities to engineering teams in noise and vibration testing.

BENEFITS

- Fit for all typical noise and vibration measurement scenarios
- Suitable for field diagnostics, mobile measurements, laboratory testing
- Both for expert and non-expert users

FEATURES

- Portable, easy to carry data acquisition system with built-in battery – be autonomous throughout your working day
- Use in standalone mode, with a tablet or with a PC – fits your remote, mobile or laboratory use cases, or build IEEE1588 synchronized systems
- 12+ channel system, supporting 12 analog V/ICP TEDS sensors in combination with a binaural headset for recording and replay, digital head support, digital CAN, dual analog tacho and GPS
- Tests setups can be preconfigured, stored and handed over for use by non-expert users

This environment has great impact on engineering teams within companies.



Faced with the demand to perform more tests with less people in less time and with reduced budgets, versatility is a key requirement for these departments.

Test equipment needs to fulfill the same needs in order to be justifiable for use by test engineers and technicians.

Your personal testing solution

The Simcenter SCADAS XS is a data acquisition system designed for these typical noise and vibration measurements.

Next to supporting 6 or 12 traditional volt, AC, DC or ICP® sensors, it can also be used to measure tacho signals, binaural microphone signals, CAN bus signals and GPS.



Its small design allows it to be easily carried along while doing remote tests or when traveling.

With the Simcenter Testlab Scope App tablet application, it is possible to verify

your measurement on the spot, without PC.

The robust design enables it to withstand shocks and vibration levels in the toughest of circumstances.

Its autonomy allows you to use it without recharging throughout a working day.

SCADAS XS is the default tool for any noise and vibration engineer or technician: it can be used in full standalone, with a tablet or in traditional PC setups, in the lab or on



the move.

GPS timestamping and synchronization

The GPS receiver input allows the user to annotate measurement data with absolute time, position and velocity. As an additional feature, the Simcenter SCADAS XS system clock can be locked onto the GPS atomic clock source. This means that multiple independent devices can be synchronized on a short- and long-term basis.

Simcenter SCADAS XS Network compatible

Simcenter SCADAS XS (from Simcenter Testlab version 16A) can operate in multi-frame configuration, allowing users to connect multiple devices into a synchronized distributed system topology.

The synchronization is performed through high-precision IEEE1588 protocol.

Connected to a single PC through a dedicated PTP switch provides extended flexibility for measurement campaigns, where more than one Simcenter SCADAS XS in use.

*Note: XS NET operates in frontend mode, PTP switch provides 7 free connections for XS systems



All in one box

An easy to carry travel bag includes all the necessary accessories to start the measurement campaign out-of-the box.

Simcenter Testlab Recording Workbook - License free time export functionality

The Simcenter Testlab Recording Workbook is a license free acquisition setup tool for standalone measurements. The Recording Workbook allows time export functionality to 3rd party file formats.

Software platform	Possible exchange formats
M-BBM PAK	ASAM-ODS atfx, RPCIII
Head Acoustics Artemis	HA HDF, ASAM-ODS atfx, RPCIII
B&K Pulse	ASAM-ODS atfx
National Instruments DIAdem	NI DAT, NI TDM, ASAM-ODS atfx, RPCIII
HBM nCode Glyphworks	nCode DAC, RPCIII, ASAM-ODS atfx
Matlab	Matlab
MS Excel	Simcenter ASCII

For other softwares, the exchange is possible if it supports one of the following formats:

ASAM-ODS atfx, Google kml, HDF, IST RigSys, Lexade, Simcenter ASCII, Matlab, MOOG, nCode DAC, NI DAT & TDM, NMEA, RPCIII. Universal File, SDF, WAV



file.

Hardware Specifications

Sample Rates

Selection: 51.2 kHz, 48 kHz and 44.1 kHz

V/ICP/TEDS inputs

Six (SC-XS06E) or twelve (SC-XS12A/N) single ended voltage inputs through 9-pin LEMO connectors; each connector supports three input channels for direct connection of tri-axial sensors or three single axis sensors through a BNC breakout cable

DC MEMS sensor support

Sensor supply/connector for DC MEMS accelerometers from 6 VDC source

Input voltage

DC coupled: ± 10 V (for XS systems with product code ending on -C)

AC coupled: ± 10 V, ± 3.16 V, ± 1 V, ± 0.316 V, ± 0.1 V

Maximum input voltage

22 Vrms continuously

Input impedance

50 k Ω

Input coupling

DC, AC, ICP

AC coupling

Software selectable 0.6 Hz, 22 Hz

Sensor Supply

ICP: 2.2 mA from 19 V source

DC: 100 mA from 6 VDC source (can be freely distributed over all sensors)

Anomaly detection

Overload check using digital overload detection after the ADC; overloads are transmitted to the host

Dynamic performance

Input range	SNR	Spur. Free Floor	THD
±10V (*)	97 dB	-126 dB	86 dB
±3.16 V	97 dB	-126 dB	82 dB
±1 V	97 dB	-126 dB	84 dB
±0.316 V	94 dB	-124 dB	81 dB
±0.1 V	88 dB	-118 dB	77 dB

(20 kHz bandwidth, AC coupling, 32 k block, 16 averages)

(*) AC and DC range

Note: table shows typical performance

Crosstalk

Between any two channels: 90 dB at 1 kHz typical, independent of input range settings

Gain Accuracy

<0.1% @1kHz at 22°C ±2°C (adjusted)

<0.3% @1kHz between 7°C and 37°C

Residual offset

<0.1% of range at 22°C ±2°C (adjusted)

<0.2% of range between 7°C and 37°C

(with shorted inputs)

Calibration

Factory gain & offset calibration factors are stored in Flash memory

Smart sensor interface

Full support of IEEE 1451.4 smart sensors to read out Transducer Electronic Data Sheet (TEDS)

Phase match

Typically, better than ±0.2° @ 10 kHz

Headset interface with ABH04

Input range: 130 dBA, 120 dBA, 110 dBA (corresponding to ±2.828V, ±0.894V, ±0.283V)

SNR: 90 dB

Noise floor: 27 dBA

Bandwidth: 20 Hz-20 kHz

Accuracy: ±0.2 dB, calibration using TEDS

Analog to digital conversion

24-bit ADC with a maximum sampling frequency of 51.2 kHz; 150 dB/oct. digital filter with 77dB alias protection provides an alias free bandwidth of 21 kHz

SPDIF input

Format: SPDIF (stereo channel) with HMS

Synchronization: through asynchronous sample rate conversion with 110 dB alias protection



Sample rates: 44.1 kHz, 48 kHz, 88.2 kHz, 96kHz

Decimation filter

Reduces bandwidth prior to signal processing; bandwidth can be down-sampled in steps of 2 and 2.5.

Dual tachometer input

Auto ranging differential input with soft clipping

Maximum input without damage: 80 V

Tacho update rate: 20,000 pulses per second maximum

CAN bus

Input signal levels: compliant with ISO11898-2 and ISO11898-3 standards

Message handling: CAN 2.0B compliant; support for J1939 and OBD-2 and for CAN-FD (on XS systems with product code ending with -C)

Note: in case all analog channels, headset and tachometer's are set to maximum sample rate (44.1, 48 or 51.2kHz), CAN-FD bus utilization is limited to 25% at 5Mbit CAN-FD setting.

GPS

Update rate: 4 Hz

On-board Storage

Micro SD card with 32 Gbyte storage capacity is provided with the system.

Supported card type: class 10 micro SDHC of 4 to 32 GByte, formatted for FAT32 and 64k cluster size.



Battery

3.7V, 4600MAH rechargeable Li-ion battery.

Dimensions

170x114x21mm3 (h x w x d)

Weight

SC-XS12: 540 g

SC-XS06: 528 g

Environmental specs

Operating and storage temperature: from -20 °C (14 °F) up to 50 °C (122 °F).

Charging protection circuit prevents battery charging below 0 °C (32 °F) or above 28 °C (82 °F), XS operates from battery or mains power outside this temperature range.

Shock and vibration

Vibration: MIL-STD-810F method 514.5: 7.7g (device activated)

Shock: MIL-STD-810F method 516.5: 50g 11msec half sine, 3 pulses per direction total 18 pulses (device activated)

Drop test: MIL-STD-810F method 516.5 procedure IV

Drop from 1m on concrete (each side, face and corner, total 26 drops, device inactive)

Relative humidity

Up to 95 % non-condensing at 23 °C and 50 % at 45 °C

Interfaces

USB 2.0, WIFI 802.11N or Ethernet

Simcenter SCADAS XS and all its included accessories:

- Simcenter SCADAS XS with USB cable and charger
- Android tablet with USB cable and charger* - SCX-TAB
- Micro SD card (SDHC, 32 GByte) and adapter card – SC-XS-SD32G
- Dual tacho cable – SC-XS-CAS03
- SPDIF cable - SC-XS-CAS02
- CAN cable – SCX-CAS08
- GPS antenna – SCX-GNSS
- 1m 9 pin LEMO to 3 x BNC cables for single axis sensors or microphones – SCX-CAS14
- 2m CAT6E UTP cable (SC-XS12-N only) – SC-XS-LAN2M
- CAT6 RJ45 Ethernet extender plug (SC-XS12-N only)
- Travel case

Ordering information*

Support of Simcenter SCADAS Frames and Modules may be restricted in specific Simcenter Testlab application workbooks.

Please check with your local representative for full details.

SC-XS06-EC:

Simcenter SCADAS XS system with 6 V/ICP/TEDS inputs

SC-XS12-AC:

Simcenter SCADAS XS system with 12 V/ICP/TEDS inputs

SC-XS12-NC:

Simcenter SCADAS XS Network compatible, IEEE1588 enabled system with 12 V/ICP/TEDS inputs

SCX-SWITCH:

8 port IEEE1588 Precision Time Protocol and Power over Ethernet (PoE) switch for multi-frame acquisition. Package contains one switch, one Phoenix to LEMO adapter cable, one DC cigar lighter to Phoenix cable and one AC/DC adapter

SC-XS12-NCU

Upgrade from SC-XS12-AC to IEEE1588 enabled SC-XS12-NC.

(Available for 12 channel devices only)

*Note: Separate product codes are available for ordering Simcenter SCADAS XS without tablet

Optional Accessories (to be ordered separately):

SM-XS.01 -

The Simcenter Testlab Scope App application runs on an Android tablet and allows set up/selection of a measurement and channel settings, control of an Simcenter SCADAS XS measurement, data monitoring during measurement and data validation right after the recording (in time domain or FFT, Octave, ...).

SCx-ABH04 Simcenter SCADAS 3D binaural headset

SCX-ABH04-B Simcenter SCADAS 3D binaural headset adapter cable for VB8-II

SCX-ABH04-C Simcenter SCADAS 3D binaural headset adapter cable audio

Product Information Sheet

SCx-CAS14 Simcenter SCADAS
XS Lemo to 3xBNC breakout for 3
channels

SC-XS-CAS02 Simcenter SCADAS
XS SPDIF adapter CAMAC to RCA

SC-XS-CAS03 Simcenter SCADAS
XS Tacho adapter cable

SCX-CAS08 Simcenter SCADAS
Lemo to Sub-D CAN cable

SCX-CAS20 Simcenter SCADAS
Cable for OBD 2 connection

SC-XS-LAN2M Simcenter SCADAS
XS Mini I/O to CAT6e UTP cable

SC-XS-SD32G Simcenter SCADAS
XS micro SDHC card, 32G plus



When installed in SCM//SCL/SCR/SCD
platforms,

This hardware is in conformity with the
provisions of EU Directives 2014/35/EU,
2014/30/EU, 2014/53/EU (RED) and
2011/65/EU Classification and Export Control
EAR99. This equipment is not listed on
Commerce Control Lists. This equipment is not
classified as dual use. This equipment is
manufactured by Siemens Industry Software
Netherlands B.V, The Netherlands, on behalf of
the intellectual property owner Siemens
Industry Software NV, Belgium.