

DIGITAL INDUSTRIES SOFTWARE

Simcenter SCADAS Recorder Recorder Mainframes

Simcenter/SCR2Exx/2406/20240625

Product Information Sheet

Frame

The Simcenter SCADAS Recorder frame product family is a very compact signal conditioning and data acquisition system that accommodates all functionalities for either fully autonomous stand-alone operation or classical front-end operation.

Simcenter SCADAS Recorders are particularly suited for in-field data recording in rough conditions and offers all the capabilities of a standard mobile front-end, and more:

- Fast local data storage on CompactFlash® up to tens of Gigabytes
- CAN interface and GNSS receiver
- Wi-Fi interface for connection with Simcenter Smart Control on Android tablet

BENEFITS

- Enhanced functionality over the Simcenter SCADAS Mobile hardware
- Ultra compact size, low weight and rugged housing for rough environments
- Fully autonomous time data recording
- Modular system with precision signal conditioning and channel count independent sampling frequency.
- Accommodates 8 to 216 input channels as a single frame configuration or 1024 input channels as a Multi frontend configuration

FEATURES

- Dedicated local CompactFlash® storage allows fully autonomous operation
- Built-in battery for independent operation
- Onboard dual tacho input, SYNC in and output for Sound Camera connection, CAN bus interface, dual signal generator output, GNSS receiver and Wi-Fi interface

Being a modular system, the Simcenter SCADAS Recorders can be fitted with any Simcenter signal condition module of your choice. All of these modules produce 24 bits accurate data and have a dynamic range of up to 150 dB. The embedded capability to capture GNSS and CAN-bus signals allows multiple parameters to be synchronously tracked with the recorded time data.

All measurement data can be transferred to a host computer through the high-speed Ethernet interface, and/or to the local CompactFlash® storage medium. During a recording process, the Simcenter SCADAS Recorder provides instant graphical and tabular feedback on the recording status per channel such as overload, min, max, RMS, RPM, GNSS data (time, position, velocity) and CAN-bus data channels. Measured data is validated through a quick overview of time histories for one or more data channels. Wide range of file format conversions allows the acquired time data to be further processed by various Simcenter or non-Simcenter analysis packages.



A high-end recorder

Measure anywhere

Because of its robustness, exceptional environmental specifications, flexible power requirements and wide operating temperature range, the SCADAS Recorders can be employed in many demanding test campaigns.

Battery operation

The SCADAS Recorders includes a built-in battery for mains independent operation of up to 2½ hours. The battery is charged automatically when external power is connected.

Remote on/off

With the remote on/off functionality, Simcenter SCADAS Recorder switches on/off by an external signal, using SCX-CAS22 breakout box. (Available in Recorder mode and from TL18.1 in Frontend mode if SPM50 or SPM80 power supply is installed in the frame)

Specifications

Number of free slots

SCR2E01: 1 slot
SCR2E02: 2 slots
SCR2E05: 5 slots
SCR2E09: 9 slots
(Each frame has one additional slot dedicated for the system controller)

Main-Secondary interface

Simcenter SCADAS Recorder supports measurements up to 1024 channels in maximum 31 frames (1 main and 30 secondary frames. This function is not available on SCR2E01)

Multi-frame configurations

SCADAS Lab, Mobile and Recorder frames can be combined in a single measurement configuration. All frames can be connected to a single 10Gbit switch that streams the combined data to a single PC running Testlab™.

Maximum throughput is guaranteed up to 186 channels at 204.8kHz (requires PC and hard disk capable of handling these throughputs).

Note: multi-frame functionality is fully supported and available on E-frames only (SCL2Exx, SCM2Exx, SCR2Exx) in combination with conditioning modules of generation E or more recent. Restrictions apply for modules of type WFI2(-KR), CIM2, AO16 and ESO64. Synchronization is based on internal timing mechanisms; GPS is disabled in case of Multi-frame operation. Contact your local representative for more information.

Power input

Wide range DC input from 10.8 VDC to 42 VDC (on the DC-IN connector) with inverse voltage protection; AC operation via external mains adapter. Switch from external DC power to the internal battery operation when DC input at DC-IN drops below 9 VDC.

Power management

ON/OFF switch, automatic sleep mode

Power consumption (maximum)

SCR2E01: 15 W
SCR2E02: 25 W
SCR2E05: 40 W
SCR2E09: 85 W

Rechargeable Li-ion battery charging time

SCR2E01-SCR2E05

Device on: 5 hrs (0.5 A)
Device off: 2.5 hrs (1 A)

SCR2E09

Device on: 10 hrs (0.25 A/batt)
Device off: 2.5 hrs (1 A/batt)
Nominal voltage: 22.2 V
Charging during measurements limits temperature range to 40 °C;

GNSS interface

- GNSS receiver, with antenna, for clock synchronization and time annotation at an update rate of 4 Hz



SCR2E01



SCR2E02



SCR2E09

- The application software supports interpolation of GNSS output up to 4 kHz

GPS and Glonass satellites for position determination

CAN FD support

The Simcenter SCADAS Mobile SYSCON module accommodates CAN-FD bus interface that are compatible with the ISO11898-1:2015 (CAN-FD) standard.

The SYSCON CAN is compliant with the CAN 2.0A/B and CAN-FD message protocol which is widely accepted and used by most vehicle manufacturers and supports the SAE J1939 truck and bus standard.

The raw CAN data stream can be recorded and stored on the disc and it can be decoded later in Testlab. Only selected channels will be resampled during acquisition.

Tacho input*

- Dual analog and digital tacho modes
- Input pulse rates in analog mode up to 40 kHz and in digital mode up to 204.8 kHz (up to 1MHz using 'pulses to skip')
- Tacho accuracy of 1.2 nsec

- Input range from 200 mV to 40 V
- Supporting ICP type tacho sensor
- 5V Voltage sensor supply and current supply 5 mA @ 28 V
- Sensor supply 5 V delivering up to 200 mA per 2 tacho inputs
- ICP sensor supply of 5 mA from 28 V

(*Simultaneous use of DAC and Tacho is not possible.)

IRIG-B support

Synchronization with external IRIG-B source. Supported signal types IRIG-B AM 126 or IRIG-B DCLS 006 (software selectable). Generation of synchronization signal type IRIG-B DCLS 006

Sound Camera support

Configurable SYNC (IRIG-B) output provided on tacho connection for synchronization with HW-SSL-SC45 Sound Camera.

SYNC in/output with IRIG-B Time Code

- Multi-purpose input as SYNC/IRIG-B or Tacho input 2 (software selectable)
- Analog & digital IRIG-B time code mode (software selectable)
- IRIG-B AM (analog) according to B126 code format
- IRIG-B DCLS (digital) according to B006 code format
- External clock and time-of-the-day synchronization
- Isolated TTL input
- Input 2 can be switched to output to generate a digital IRIG-B signal (software selection) for synchronization of external clocks with the SCADAS clock (Note: clock signal is IRIG-B compatible with accuracy required for sample-accurate data acquisition using SCADAS frames)

Signal generator

- Two short circuit protected single ended outputs via grounded LEMO socket
- 24-bit bit-stream DAC
- Dynamic range is 110 dB referred to maximum output signal for 20 kHz bandwidth
- Interpolation filters are a combination of analog reconstruction filters and digital interpolation filters with noise shaping
- Signal generation up to 40 kHz maximum output voltage of ± 10 V (can be attenuated in software down to ± 300 mV)

Data storage modes

- To host PC via Ethernet interface
- To internal CompactFlash® card
- Parallel host & CompactFlash® card

Throughput rates

SCR2E01: 3.8MSa/sec to Compact Flash card, to PC (over Ethernet cable), or in parallel mode

SCR2E02 – SCR2E09:

14 MSa/sec to Compact Flash card or to PC (over Ethernet cable)
8 MSa/sec to Compact Flash card and (in parallel) to PC (over Ethernet cable)
Max length 80m.

Cooling

Heat conduction via printed circuit board connectors; sides of the printed circuit boards are cooled via cold walls connected to cooling block at the rear

Temperature

Operating: -20 °C to +55 °C
Storage: -20 °C to +70 °C

Relative humidity:

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

Pressure operating range

Atmospheric pressure from 0.5 to 1.5 bar

Vibration protection

Random vibration, non-operational, method 514.5 (Procedure 1, Category 24)

Condition: Mounted on a S&V fixture

Test directions: 3, perpendicular

Testing time: 60 min/direction

Designation: MIL-STD-810F, method 514.5

RMS: 7.7 g

Shock protection

Shock test, non-operational, based on 516.5

Condition: Mounted on a S&V fixture

Test directions : 6, (X-, X+, Y-, Y+, Z-, Z+)

Number of shocks per direction: 3

Shock protection

Shock test, non-operational, based on 516.5

Condition: Mounted on a S&V fixture

Test directions : 6, (X-, X+, Y-, Y+, Z-, Z+)

Number of shocks per direction: 3

Shock (Amplitude): 60 gpk

Duration: 11 ms saw tooth shock pulse

Designation: Based on MIL-STD-810F, 516.5, pre-pulse greater than 3 g

Vibration MIL-STD-810F

20-2000 Hz (random): 7.7 grms

Compact Flash card support

Extra cards with 16 or 128 GByte storage can be ordered through your Siemens sales office.

Dimensions & Weight

	Width (m m)	Height (m m)	Depth (m m)	Weight* (kg)
SCR2 E01	203	58	260	2.5
SCR2 E02	216	76	271	3.5
SCR2 E05	340	78	295	6.2

SCR2 E09	345	140	300	10.5
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*in full configuration



SCM-CSFIX05



Ordering information single frames

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.
SCR2E01: Simcenter SCADAS Recorder mainframe with one free slot
SCR2E02: Simcenter SCADAS Recorder mainframe with two free slots
SCR2E05: Simcenter SCADAS Recorder mainframe with five free slots
SCR2E09: Simcenter SCADAS Recorder mainframe with nine free slots

Included accessories

- GPS and Glonass compatible Antenna
- Wi-Fi Antenna

- USB 3.0 to Gigabit LAN Ethernet adapter
- Optional Gigabit PC adapter card can be selected (SCX-HI-E-D)LEMO size 00 connector plug
- LEMO to 2x BNC adapter cable - 50cm
- LEMO to 1x BNC adapter cable - 50cm
- LEMO to 1x SUB-D adapter cable - 50cm
- CAT6 2m FTP cable
- Mobile grounding assembly 1.5m
- AC-DC adapter 160W+24V/6.67A
- DC power cable (banana plug for SCR/SCM09-10 frames, cigar lighter plug for all other frames)

Ordering information upgrades
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.
SCR2E01-U: Simcenter SCADAS Recorder 1 slot frame upgrade to SYSCON 4
SCR2E02-U: Simcenter SCADAS Recorder 2 slot frame upgrade to SYSCON 4
SCR2E05-U: Simcenter SCADAS Recorder 5 slot frame upgrade to SYSCON 4
SCR2E09-U: Simcenter SCADAS Recorder 9 slot frame upgrade to SYSCON 4

Secondary frames
SCM03S: Simcenter SCADAS Mobile secondary frame with three free slots
SCM06S: Simcenter SCADAS Mobile secondary frame with six free slots
SCM10S: Simcenter SCADAS Mobile secondary frame with ten free slots

SCM-MS: Simcenter SCADAS Mobile main-secondary interface option for SCADAS Recorder Main frames (included in Secondary frames)

Accessories
SCR-CF128G:* Simcenter SCADAS Recorder Transcend 1000x 128GB compact flash card
SCR-CF16G:* Simcenter SCADAS Recorder 1000x 16GB compact flash card
SCX-CAS22: Simcenter SCADAS Breakout box for Remote On/Off
SCM-CSFIX05: Simcenter SCADAS Mobile car seat fixing frame for 5/7/9-slots frames



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

*Supported CF cards with Simcenter SCADAS Recorder frames	
All recorder frames	SCR2xx, SCR2Ex
Transcend 16GB 600x SanDisk 16GB Extreme IV	Transcend 128GB 1000x TS128GCF1000
	Transcend 64GB 1000x TS64GCF1000
	Renice X5 128 GB MLC
	Transcend 16GB 1066x UDMA7
	Lexar Professional 256GB 1066x UDMA7
	Sandisk Extreme Pro 256GB UDMA7