DIGITAL INDUSTRIES SOFTWARE

Simcenter SCADAS Mobile Vibration Control Mainframe

Simcenter/SCM2ExxV/2406/20240625

Product Information Sheet

Simcenter SCADAS Vibration Control Mainframe

The SCADAS Mobile is a dedicated modular front-end system for vibration control applications.

It accommodates two 24-bit signal generator outputs, connectivity for hardware emergency stop and one slot for up to 216 input channels.

The Simcenter SCADAS Mobile vibration control frame uses high-speed serial Ethernet with a throughput rate maximum 14 M Samples/sec to transfer data for all channels to the host.

BENEFITS

- Ultra-compact size, low weight and rugged housing for rough environ-ments
- 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 Main-Secondary configuration

FEATURES

- 24-bit effective DAC output for Vibration Control with 40 kHz real-time control bandwidth including tapered start-up and shut-down
- Status output for advanced synchronization purposes
- Safely control via hardware emergency stop and DC power watchdog
- Wide operational temperature range from 20 ºC to +55 ºC
- Ultra-quiet, fan less cooling

Ultra-quiet, no fan cooling
Having no cooling fan, the SCADAS Mobile is the ideal system for critical acoustic measurements. The combination of three advanced techniques eliminates fans:

- The input modules are based on low power components, reducing power consumption to less than 0.5 W per channel.
- Heat is dissipated via an integrated cooling block on the rear of the frame. The heat from the printed circuit boards is transferred via the back-plane connectors and via cold walls and heat pipes.
- An intelligent power management system, monitoring system activity, sets SCADAS Mobile in power-down mode, when no measurements are done.

Safety Precautions

The Simcenter SCADAS Mobile vibration control frame is equipped with 24-bit effective DAC output.
The system supports a controlled shutdown (tapered start-up and shutdown) procedure in case of emergency stop, communication loss with the host or even a power failure.

- The hardware continuously interrogates the host to establish valid communication line. In case of communication loss, the hardware initiates a controlled shutdown process.
- The (recommended accessory) DAC shutdown control unit provides a manual emergency stop action and is additionally equipped with with “Normally Open” and “Normally Closed” contacts for enhanced safety conditions.
- The (recommended accessory) SCM-UPS provides a safety power buffer for safe DAC shutdown in case of external power failure
- Additionally, the built-in battery of the Simcenter SCADAS Mobile provides an internal safety power buffer for controlled shutdown process.

Specifications
Number of slots
SCM2E01: 1 slot
SCM2E02: 2 slots
SCM2E05: 5 slots
SCM2E09: 9 slots
Each frame has one additional slot dedicated for the system controller

Main-Secondary interface
Simcenter SCADAS Mobile supports measurements up to 1024 channels in maximum 31 frames (1 main and 30 secondary frames. This function is not available on SCM2E01)

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.

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 from TL18.1 in Frontend mode if SPM50 or SPM80 power supply is installed in the frame)

Power management:
ON/OFF switch, automatic sleep mode

Power consumption:
SCM2E01V/V-RB: 15W max.
SCM2E02V/V-RB: 25W max.
SCM2E05V/V-RB: 40W max.
SCM2E09V/V-RB: 85W max.

Rechargeable Li-ion battery charging time
SCRME01-SCM2E05
Device on: 5 hrs (0.5 A)
Device off: 2.5 hrs (1 A)
SCM2E09
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 ºC;

Safety:
- Hardware key-switch entry into control system from DAC shutdown control unit with additional N.O & N.C emergency hardware stop
- Slow start and stop
- Safe shutdown in case of AC power or host communication failure

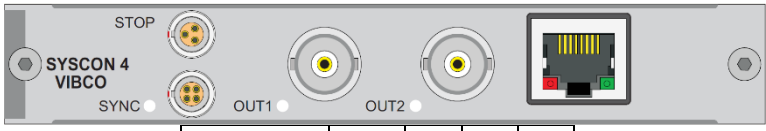
Signal generator:
- Two short circuit protected single ended outputs via grounded BNC socket with an output impedance of 50Ω
- 24-bit via bit-stream DAC
- Dynamic range is 110dB referred to maximum output signal for 20 kHz bandwidth.
- Interpolation filters are a combination of analog reconstruction filters and digital interpolation filters with noise shaping
- Signal generation up to 40 kHz. Note: above 23kHz, the maximum DAC output is limited (smooth roll-off to 80% or ±8V output at 40kHz)
- Maximum output voltage of ±10 V can be attenuated in software down to ±300 mV

Sine output signals
Sine with amplitude and phase control; swept sine with amplitude, phase and sweep speed control

Random output signals
Uncorrelated base-band noise with crest factor of 3.5 in continuous or burst mode

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

SYNC with IRIG-B Time Code
- Multi-purpose input as IRIG-B or Tacho input (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 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)

Tacho mode: (*)
- 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
- Voltage sensor supply 5 V and current supply 5 mA @ 28 V
- 5 V sensor supply 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.)

Ethernet interface:
The industry standard Ethernet host interface connection provides a maximum throughput rate at 24bit:
SCM2E01: 3.8 MSamples
SCM2E02 – SCM2E09: 14 MSamples
Max length 80m.

Dimensions & Weight

	Width (mm)	Height (mm)	Depth (mm)	Weight* (kg)
SCM2E01V	203	58	260	2.5
SCM2E02V	216	76	271	3.5
SCM2E05V	340	78	295	6.2
SCM2E09V	345	140	300	10.5

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

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

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

Pressure operating range
Atmospheric pressure from 0.5 to 1.5 bar

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

Ordering information
SCM2E01V: SCADAS Mobile vibration control mainframe with one free slot
SCM2E02V: SCADAS Mobile vibration control mainframe with two free slots
SCM2E05V: SCADAS Mobile vibration control mainframe with five free slots
SCM2E09V: SCADAS Mobile vibration control mainframe with nine free slots

Included accessories
- 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 1x BNC adapter cable - 50cm2m CAT6 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)

Secondary frame options
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 Mobile Main frames (included in Secondary frames)

Recommended Accessories
SCx-DSCU-II: Simcenter SCADAS DAC shutdown control unit
SCM-UPS: Simcenter SCADAS power buffer (includes SCx-DSCU-II)

Optional Accessories
SCX-CAS22: Simcenter SCADAS Breakout box for Remote On/Off

CE

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 and 2011/65/EU

This equipment is listed on Commerce Control Lists. This equipment is classified as dual use. Dual use classification number 2B116B acc. EU428/2009.

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.