DIGITAL INDUSTRIES SOFTWARE

Simcenter SCADAS Mobile Vibration Control Mainframe with Reduced bandwidth

Simcenter/SCM2ExxV-RB/2406/20240625

Product Information Sheet

Summary

The SCADAS Mobile is a dedicated modular front-end system for vibration control applications with reduced bandwidth up to 5 kHz.

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 environments
- 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 Reduced Bandwidth (V-RB series) with 5 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 AC 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.

Measure anywhere
Because of its robustness, exceptional environmental specifications, flexible power requirements and wide operating temperature range, the Simcenter SCADAS Mobile vibration control frame is suitable for virtually any laboratory or mobile test campaign.

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 Simcenter SCADAS Mobile continuously interrogates the host to establish valid communication line. In case of communication loss, the hardware initiates controlled shut down process.

- 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 “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.

Power management:
ON/OFF switch, automatic sleep mode

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

Internal battery:
Rechargeable Li-ion battery charging time
SCM2E01-SCM2E05
Device on: 5hrs (0.5A)
Device off: 2.5hrs (1A)
SCM2E09
Device on: 10hrs (0.25A/batt)
Device off: 2.5hrs (1A/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 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 50
- 24-bit via bit-stream DAC
- Dynamic range is 110 dB
- Interpolation filters are a combination of analog reconstruction filters and digital interpolation filters with noise shaping
- Signal generation up to 5 kHz
- 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 SYNC/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)

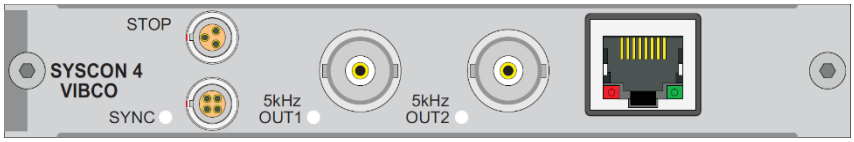
Tacho mode: (*)
- Analog and digital tacho modes
- Input pulse rates in analog mode up to 40 kHz and in digital mode up to 204.8 kHz (up to 1MHz using 'pulses to skip')
- Tacho accuracy of 1.2 nsec
- Input range from 200 mV to 40 V
- Supporting ICP type tacho sensor
- Voltage sensor supply 5 V and current 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-RB	203	58	260	2.5
SCM2E02V-RB	216	76	271	3.5
SCM2E05V-RB	340	78	295	6.2
SCM2E09V-RB	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: -20ºC to +55ºC

Storage: -20°C to +70°C

Pressure operating range

Atmospheric pressure from 0.5 to 1.5 bar

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 grms

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

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.

SCM2E01V-RB: SCADAS Mobile Reduced Bandwidth* vibration control mainframe with one free slot

SCM2E02V-RB: SCADAS Mobile Reduced Bandwidth* vibration control mainframe with two free slots

SCM2E05V-RB: SCADAS Mobile Reduced Bandwidth* vibration control mainframe with five free slots

SCM2E09V-RB: SCADAS Mobile Reduced Bandwidth* vibration control mainframe with nine free slots

*According to EC Treaty 428/2009

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: SCADAS Mobile secondary frame with three free slots

SCM06S: SCADAS Mobile secondary frame with six free slots

SCM10S: SCADAS Mobile secondary frame with ten free slots

SCM-MS: 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

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.