DIGITAL INDUSTRIES SOFTWARE

Simcenter SCADAS RS Digital Pulse & CAN Unit

Simcenter/SCRS-DI/2024/20240610

Product Information Sheet

Summary

Simcenter SCADAS RS

Digital Pulse & CAN Unit

The SCRS-DI is part of the Simcenter SCADAS RS units. It combines 3 connectors for digital pulse conditioning and 2 connectors for 4 CAN Buses in a single unit.

BENEFITS

- 4 CAN Busses
- 3 connectors for Digital Pulses (up to 9 channels) or Encoders
- Inter-connector isolation up to 100V
- Wide temperature range from -40 °C (-40 °F) up to +60 °C (140 °F) (under certain conditions)
- On-board Simcenter SCADAS RS Configuration App

FEATURES

- Easy mounting and instrumentation
- Easy stacking of units without tools
- Centralized and distributed configurations
- Daisy chaining with single cable for power and data
- Low power
- 100 g Shock and 10 g vibration resistance
- Water and dust tight IP66/IP67 certified
- Standardized connector for analog inputs
- Use with Simcenter Testlab or with the on board App (accessible through any web browser)

Simcenter SCADAS RS

Product Family

Simcenter SCADAS RS is part of the Simcenter SCADAS signal conditioning and data acquisition systems and is designed for demanding test conditions.

Units connect in daisy chain to a Recorder unit for autonomous operation or in combination with a PC, tablet, or smartphone.

Use Simcenter Testlab or the on board Simcenter SCADAS RS Configuration or Recorder App for instrumentation, channel setup, calibration, sensor validation, measurement control, data viewing on-line and after a measurement.

Units are powered from an Uninterruptable Power Supply Unit (UPS) with flexible power distribution across multiple units.

Typical Sensors

Incremental encoders, quadrature encoders, TTL pulses, differential pulses (RS-422, RS-485), HTL pulses, CAN Bus.

Conditioning Options

• TTL pulses

• HTL pulses (up to 15 VDC)

• Differential pulses (RS-422, RS-485) with A, B, and ref pulse

• Incremental encoders

• Quadrature encoders

General	
Product code	SCRS-DI
Description	Simcenter SCADAS RS Digital Pulse & CAN Unit
Inputs	2x 2 CAN Bus 3x Digital Pulse Input
Other connections	2x daisy chain (power and data)
Dimensions	W255 mm x H85 mm x D90 mm (W10" x H3.34" x D3.54")
Weight	1.8 kg (4 lb) (approximately, without cables)
Power consumption	14.5 W (unit) Up to additional 10.2 W for 4x loaded CAN buses. Up to additional 8 W for 3x loaded Pulse inputs.
Power input	From daisy chain, UPS or Siemens certified AC/DC adapter

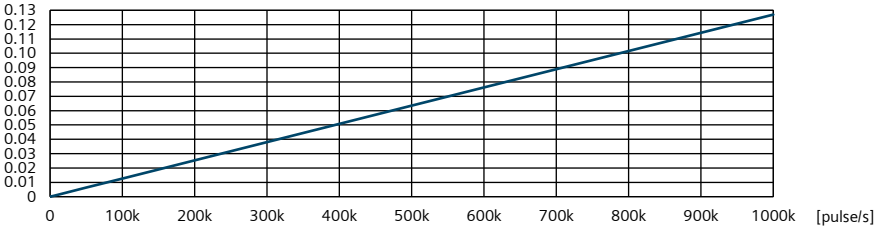
Unit Feedback	
Unit information	Following unit information is reported via LED and to the user interface: · Unit status (booting, upgrading, identification, internal error, active)

Unit Mounting	
Mounting options	Units can be mounted individually (mounting holes available). Units can be stacked (no tools required). Units can be mounted with tie-down straps using mounting clamp (optional).
Maximum distance	Up to 50 m between two units. Extra UPS units may be required, depending on required sensor power and distance between units. It is recommended to add a UPS at the long end of a 50 m cable.

Activation	
Boot time	< 40 s when a REC unit is present in the system

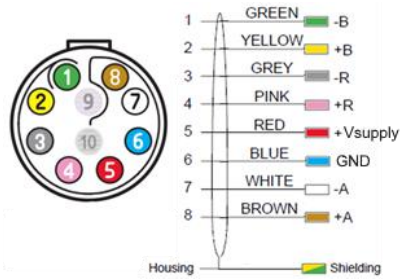
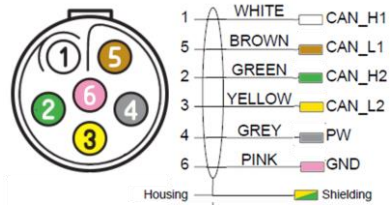
CAN Connection	
CAN connector type	Each CAN connector breaks out to SUB-D connectors (using mating cables)
CAN support	CAN data can be interpreted, interpolated, and stored on the REC unit: • In raw format • In LDSF format CAN2.0A/B and CAN FD ISO 11898-1 compatible. SAE J1939 standard supported. Up to 8xTCK8 (TCK8-A and TCK8-B pair per CAN bus) conditioning units: up to 64x thermocouple channels.
CAN bus speed	CAN-FD up to 8 Mb/s CAN High Speed (ISO 11898-2): up to 1 Mb/s CAN Low Speed (ISO 11898-3): up to 125 kb/s Note: max. 2 CAN bus can be set to CAN-FD (speed above 1 Mb/s)
CAN cable distance	30 m except CAN-FD 10 m
CAN input	Maximum voltage without damage: ±26.1 V
Grounding and isolation	Own signal ground per connector: • Isolated from unit supply • Isolated from chassis Isolation: ±100 V (Class II)
CAN supply power (over full temperature range)	A DC supply of 15 V (±10 %) up to 340 mA is available per connector (2 CAN busses, software selectable).

Digital Pulse Input Connection

Digital Pulse inputs	3 connectors for 9x digital pulse signals (or 3x digital encoders)
Pulse support details	TTL signals HTL signals (single ended and differential) Encoder signals RS-422, RS-485
Pulse conversion	Pulse signals can be converted to: · Frequency (RPM, speed, fuel flow ...) · Counter value up/down (distance, angle ...)
Pulse input coupling	Single Ended and Differential
Pulse speed	Up to 1000000 pulses/s (TTL, RS422) Up to 400000 pulses/s (HTL differential) Up to 200000 pulses/s (HTL single ended)
Pulse oversampling factor	5 or more (786.432 MHz internal clock)
Pulse output format	Count and rate converted signals are made available with next selectable sample rates: 400, 600, 800, 1000, 1200, 2000 and 3000 Hz
Pulse supply (over full temperature range)	A DC supply of 5 V (±8 %) or 12 V (±6 %) up to 220 mA is available (software selectable) When supply is turned on, possible inrush currents up to 400 mA are supported during 70 ms.
Pulse input specifications (over full temperature range)	TTL: L ≤ 0.8 V, H ≥ 2 V HTL single ended: L ≤ 6 V, H ≥ 8 V HTL differential: L ≤ -0.9 V, H ≥ 0.9 V (0 V ≤ Vcm ≤ 25 V) RS422/RS485 differential: L ≤ -0.2 V, H ≥ 0.2 V (-14.8 V ≤ Vcm ≤ 14.8 V) Max level without damage: ±32 V
Rate resolution [%]	
Grounding and isolation	Own signal ground per connector: • Isolated from unit supply • Isolated from chassis Isolation: ±100 V (Class II)
Pulse input impedance	25 kΩ ± 20 %

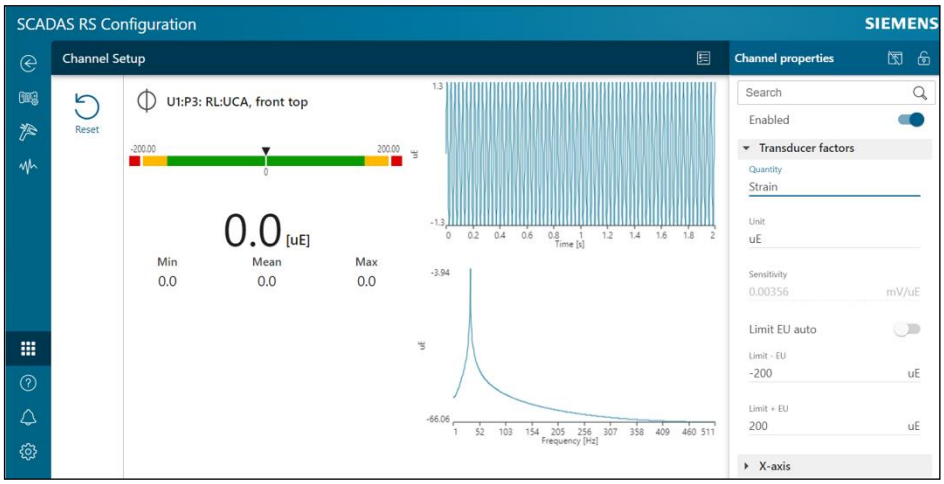
Environmental Certification	
Temperature range	Operating: -40 °C to +60 °C (-40 °F to 140 °F) Storage: -40 °C to +85 °C (-40 °F to 185 °F) Because of internal heating, please exercise caution when touching the housing and connectors and attached accessories at ambient temperatures higher than 40 °C. Ensure proper protection (i.e., gloves) against burns or other injuries.
Ambient pressure	0.5 bar to 1.3 bar. Altitude: -2000 m (mining) to 5000 m (mountains).
Water and dust protection	IP66/IP67
Humidity	Fully protected against humidity. Feet vents equalize internal and external pressure and allow an outgoing path for humidity and moisture, being expulsed during warming up and cooling down during normal usage.
Vibration	MIL-STD-810G, method 514.6, procedure I, category 24, 20-2000 Hz, random vibration 10 g (rms), 1 h per axis. NOTE: Tested against more severe conditions than required by MIL-STD-810G (10 instead of 7.7 grms).
Shock	MIL-STD-810G, method 516.6, procedure I, trapezoidal shock, 100 g (peak), 11 ms, three shocks per direction
Drop	MIL-STD-810G method 516.6, Procedure IV – Transit Drop (26 drops from a height of 122 cm on each surface, edge and corner)
Salt protection	Salt spray test according to ISO 12944-2, ISO 12944-2, class C5I, exterior applications, average lifetime (720 h test corresponding to 10 years life)
ESD	EN61000-4-2 level 4 ISO10605
EMC requirements	IEC 61326-1
Calibration	Compliant with ISO17025. Calibration formally traceable to international measurement standards from our accredited ISO17025:2017 fully compliant laboratory.
Certifications	CE, FCC

Connectors and Pinout

Digital Input connector chassis type	YCP-TIA15BCG-10FPGZX-000X
Digital Input connector plug type	YCP-TPR15BCX-10MSGEX-076X
Digital input connector pinout	
	For single ended wiring, it is not necessary to short negative inputs (-A, -B and/or -R) to GND.
CAN connector chassis type	YCP-TIA15ACG-06FPKZX-000X
CAN connector plug type	YCP-TPR15ACX-06MSKFX-061X
CAN connector pinout	
Daisy Chain connector chassis type	YCP-TIA12FCG-08FPEZX-000X
Daisy Chain connector plug type	YCP-TPR12FCX-08MSEEX-065X

On-board Simcenter SCADAS RS Configuration App

General	License-free software embedded on the SCADAS RS unit. Accessible through any web browser via UTP connection.
Instrumentation	• Single channel setup • Channel list (grid and card views) • Persist settings on unit
Calibration & checks	• DC calibration • Shunt calibration • Offset balancing • Shunt, offset and headroom checks
Monitoring	• Status info: health status, warnings and alarms • Statistics: overall and instantaneous • Time data • Frequency data (FFT) • Variety of customizable displays: digital, analog, strip chart, XY, 2D



Detailed Info	See Simcenter SCADAS RS Configuration App

Ordering Information

SCRS-DI	Simcenter SCADAS RS Digital Pulse & CAN Unit

Options and Accessories

Connectivity	SCRSA-CABD01	Daisy chain cable, 0.4 m
	SCRSA-CABD02	Daisy chain cable, 1 m
	SCRSA-CABD03	Daisy chain cable, 5 m
	SCRSA-CABD04	Daisy chain cable, 10 m
	SCRSA-CABD05	Daisy chain cable, 50 m
	SCRSA-CABN01	Daisy chain cable to RJ45, 5 m
	SCRSA-CAB-ADP2	UTP to USB Ethernet adapter for PC
Measurement	SCRSA-CAB003	Cable CAN 2x SUB-D, 1 m
	SCRSA-CAB005	Cable Pulse pigtail, 3 m
Mechanic	SCRSA-CAB001	Grounding cable, 3 m
	SCRSA-CASE01	Travel case single unit
	SCRSA-CASE02	Travel case 6 units
	SCRSA-ACC-001	Side clamps (set of 2)
	SCRSA-ACC-002	Brackets (set of 2)
	SCRSA-ACC-005	Stacking tools (set of 4)
	SCRSA-CAP005	Protective caps set DI
Power	SCRSA-ACDC-01	AC/DC adapter unit