SC2-32 for imc CRONOS-SL (CRC/SC2-32)

32-channel Differential Amplifier

SC2-32 is a measurement amplifier for 32 channels. This amplifier is available as a plug-in module for imc CRONOS*compact* and as a configuration module for CRONOS-SL. A voltage and current measurement of 32 differential analog channels is possible.

Highlights:

- High sampling rate (100 kHz) for voltage signals
- Supports imc Plug & Measure (Transducer Electronic Data Sheets)

Overview of available variants

Order code	article no.	remarks
CRSL/SC2-32-D	11800013	with DSUB-15 sockets
CRSL/SC2-32-L	11800014	with LEMO sockets

Included accessories

Documents
Getting started with imc CRONOS*compact* & imc CRONOS-SL (one copy per delivery / system)
Device certificate

Integrated sensor supply

Variant with an integrated sensor supply (option upon request: -SUPPLY), requires no extra module expansion. With adjustable supply voltages (globally selectable for 8 channels), output on reserved pins of DSUB terminal.

Technical Specs - CRSL/SC2-32

Parameter	Value typ.	min. / max.	Remarks
Inputs	32		differential, analog, non isolated
Measurement modes DSUB	voltage measurement current measurement transducer with constant current supply		with ACC/DSUB-ICP4 (e.g. ICP™-, DELTATRON®-Sensors)
Measurement modes LEMO	voltage measurement current measurement		with external shunt
Filter (digital) Frequency Characteristic Order	50 kHz, 20 kHz, 10 kHz to 20 Hz		Cauer, Butterworth, Bessel low pass filter 8. order Anti-aliasing filter: Cauer 8. order with $f_{cutoff} = 0.4\ f_s$
Sampling rate		≤100 kHz	per channel total sampling rate 400 kHz
Bandwidth	0 Hz to 20 kHz 0 Hz to 28 kHz		-0.1 dB -3 dB (analogue 5th order Anti-aliasing filter)
Terminal connection DSUB LEMO	 8x DSUB-15 2x DSUB-37 32x LEMO		 4 channels per plug 16 channels per plug 1 channel per plug
TEDS - Transducer Electronic DataSheets	conforming to IEEE 1451.4 Class II MMI		esp. with ACC/DSUBM-TEDS-xx (DS2433)
Characteristic curve linearization	user defined (max. 1023 supporting points)		

Voltage measurement			
Parameter	**Value typ.**	**min. / max.**	**Remarks**
Input ranges	±10 V, ±5 V, ±2.5 V, ±1 V, ±500 mV, ±250 mV		
Overvoltage protection		±40 V	permanent channel to chassis
Input impedance	20 MΩ	±1%	differential, >10 kΩ off-state
Gain: error drift	0.02% ±8 ppm/K·ΔT_a	≤0.05% ±30 ppm/K·ΔT_a	of reading $\Delta T_a = \lvert T_a - 25°C \rvert$; with T_a = ambient temperature
Offset: error drift	0.02% ±20 µV/K·ΔT_a ±1.7 µV/K·ΔT_a	≤0.05% ±40 µV/K·ΔT_a ±3 µV/K·ΔT_a	of range ±10 V to ±2.5 mV ±1 V to ±250 mV $\Delta T_a = \lvert T_a - 25°C \rvert$; with T_a = ambient temperature
Max. common mode voltage		±12 V	
Common mode rejection ranges ±10 V to ±2.5 V ±1 V to ±250 mV	 -87 dB -107 dB	 -72 dB -92 dB	common mode test voltage: ±10 $V_=$ and 7 V_{rms}, 50 Hz
Channel to channel crosstalk ranges ±10 V to ±2.5 V ±1 V to ±250 mV	 -98 dB -116 dB		test voltage: ±10 $V_=$ and 7 V_{rms}, 0 Hz to 1 kHz; range: ±10 V
Noise	23 μV_{rms}	30 μV_{rms}	bandwidth: 0.1 Hz to 10 kHz

Current measurement			
Parameter	**Value typ.**	**min. / max.**	**Remarks**
Input ranges	±50 mA, ±20 mA, ±10 mA, ±5 mA		50 Ω shunt in terminal plug
Max. overload		±60 mA	permanent
Input configuration	differential		50 Ω shunt plug
Gain: error drift	0.02% ±20 ppm/K·ΔT_a	≤0.06% ≤0.1% ±55 ppm/K·ΔT_a	of reading plus error of 50 Ω shunt $\Delta T_a = \lvert T_a - 25°C \rvert$; with T_a = ambient temperature
Offset: error drift	0.02% ±30 nA/K·ΔT_a	≤0.05% ±80 nA/K·ΔT_a	of range $\Delta T_a = \lvert T_a - 25°C \rvert$; with T_a = ambient temperature
Auxiliary supply	+5 V (max. 160 mA / plug) not isolated		e.g. for ICP-expansion plug

Technical specs - sensor supply module

Parameter	Value typ.	max.	Remarks
Configuration options	5 adjustable ranges		The sensor supply module always got 5 selectable voltage ranges. Default ranges: +5 V to +24 V
Output voltage	Voltage / Current / Netpower (+2.5 V) 580 mA 1.5 W +5.0 V 580 mA 2.9 W +10 V 300 mA 3.0 W +12 V 250 mA 3.0 W +15 V 200 mA 3.0 W +24 V 120 mA 2.9 W (±15 V) 190 mA 3.0 W		set globally for all channels of an amplifier special order: +12 V can be replaced by +2,5 V. +15 V can be replaced by ±15 V
Isolation Standard: option, upon request:	non isolated isolated		output to case (CHASSIS) nominal rating: 50 V, Test voltage (10 sec.): 300 V, not available with option ±15 V.
Short-circuit protection	unlimited duration		to output voltage reference ground
Accuracy of output voltage	<0.25 %	0.5 % 0.9 % 1.5 %	at terminals, no load at 25°C over entire temperature range plus with optional bipolar output voltage
Efficiency	typ. 72% typ. 66% typ. 55% typ. 50%		10 V to 24 V none isolated 5 V 10 V to 24 V isolated 5 V
Max. capacitive load	>4000 µF >1000 µF >300 µF		2.5 V to 10 V 12 V, 15 V 24 V