SC2-32 for imc CRONOScompact (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:

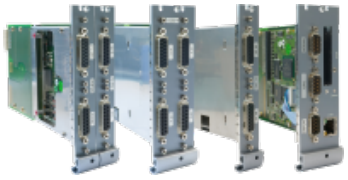
- High sampling rate (100 kHz) for voltage signals
- Supports imc Plug & Measure (Transducer Electronic Data Sheets)

imc CRONOS*compact* - modular measurement system

imc CRONOS*compact* is a modular and reconfigurable hardware a "rack"-based series of devices available in a variety of housing sizes and device frames. imc CRONOS*compact* (CRC) plug-in-modules can be inserted into the system (CRC-400GP).

Once the modules are plugged into a portable or rack-based housing, they are electrically connected to the CRC-system and are supplied by the system with power. The data storage will be managed by the CRC-system.

Rack-based modules ("-R") differ from the standard modules only in terms of the front panel's attachment mechanism.



imc CRONOScompact plug-in-modules

imc CRONOScompact portable housing

Overview of available variants

Standard version		ET version *	
Order Code	article no.	article no.	remarks
CRC/SC2-32	11700052	11710027	for installation in an imc CRONOS*compact* housing
CRC/SC2-32-R	11700116	11710075	for installation imc CRONOS*compact* RACK

* ET: Version in extended temperature range

Included accessories

DSUB-15 plug		
ACC/DSUBM-U4	DSUB-15 plug with screw terminals for 4-channel voltage measurement	13500166

Documents
Getting started with imc CRONOS*compact* (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.

Optional accessories

DSUB-15 plugs

• ACC/DSUBM-TEDS-U4	DSUB-15 plug with screw terminals for 4-channel voltage measurement	13500189
• ACC/DSUBM-I4	DSUB-15 plug with screw terminals for 4-channel current measurement of up to 50 mA (50 Ω shunt, scaling factor: 0.02 A/V)	13500168
• ACC/DSUBM-TEDS-I4	version with TEDS support, according to IEEE 1451.4 for use with imc Plug & Measure	13500192
• ACC/DSUB-ICP4	DSUB-15 plug with screw terminals for conditioning of 4 IEPE/ICP inputs	13500032

Technical Specs - CRC/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	set globally for all channels of an amplifier
	(+2.5 V)	580 mA	1.5 W	special order:
	+5.0 V	580 mA	2.9 W	+12 V can be replaced by +2,5 V.
	+10 V	300 mA	3.0 W	+15 V can be replaced by ±15 V
	+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	
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				at terminals, no load
	<0.25 %		0.5 %	at 25°C
			0.9 %	over entire temperature range
			1.5 %	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