ICPU2-8 for imc CRONOS-XT

8-channel IEPE/ICP-Measurement Module

The ICPU2-8 is a broadband measurement amplifier for the measurement of:

- IEPE/ICP sensors (current-fed 4 mA)
- Voltage (AC and DC coupling)

ICP-compatible sensors (ICP™, DELTATRON®, PIEZOTRON® sensors) can directly be connected via BNC.

CRXT/ICPU2-8

Highlights

- High signal bandwidth of up to 48 kHz
- Finely adjustable input voltage range (from ±5 mV to ±50 V)
- Input coupling switchable via software: DC, AC, AC with current supply
- Each channel with its own adjustable filter (e.g., anti-aliasing filter) and simultaneous A/D converter
- Supports imc Plug & Measure conforming to IEEE 1451.4 (Class I mixed mode interface)

Typical applications

- Ideal for noise and vibration analysis (NVH) and acceleration measurements.

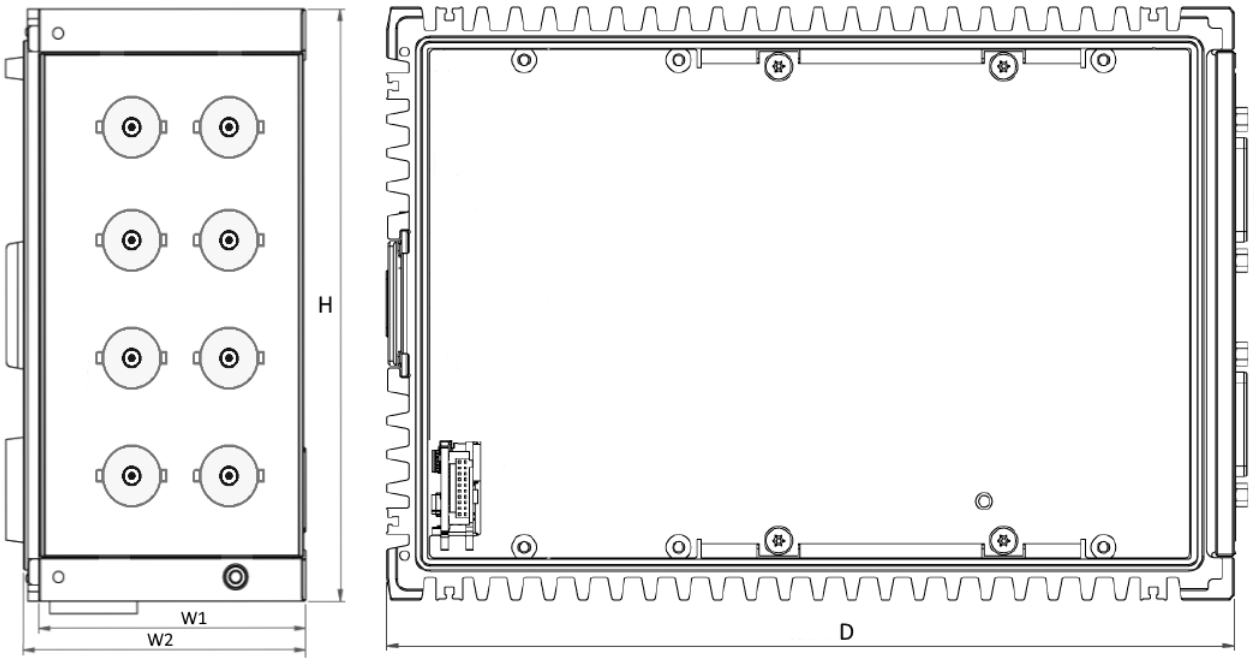
imc CRONOS-XT - Maximizes flexible modularity

An imc CRONOS-XT system is composed of a base unit and one or more imc CRONOS-XT modules. The imc click mechanism offers a mechanically strong connection between several imc CRONOS-XT modules. At the same time, the "click" establishes an electrical connection to the system bus and the power supply.

Overview of the available variants

Order Code	Signal connections	power consumption	weight	housing	article no.
CRXT/ICPU2-8	BNC (IP44)	7.4 W	1.1 kg	XT2	11100020
CRXT/ICPU2-8-70mHz	BNC (IP44) special version: 0.07 Hz cut-off frequency	7.4 W	1.1 kg	XT2	11100060

Dimensions



CRXT/ICPU2-8 shown in standard operating orientation: housing type XT2

Housing type:	XT1	XT2	XT3	XT4	Remarks
W: Width in mm	30.5	61	91.5	116.9	W1: modular spacing (effective stacking width)
	34	64.5	95	120.4	W2: complete width
H: Height in mm	130				
D: Depth in mm	186.5				

Sealing, IP rating and environmental specs

A single CRXT slice cannot achieve an IP protection level at first because it is functionally open at the side. The specified specifications are always only valid for a complete in a controlled environment clicked (closed) CRXT system. Only after it has been combined with a CRXT base unit (plus power module), CRXT slices if applicable, and the final handles to form a CRXT system can an evaluation be made. The specification for shock, vibration and IP degree of protection applicable to the entire device is then derived from the weakest specification of the CRXT slices used in this combination. They assume that the individual CRXT slices are each mounted in conjunction with the additional stabilizing interconnect brackets (included in the standard accessories supplied).

The module ICPU2-8 in particular is equipped with BNC sockets, which fulfill the IP protection degree IP44. This will then also apply to a complete device equipped with this module.

According to IEC 60529 the Ingress Protection (IP) rating refer to protection classes provided by a housing, the protection of the electrical parts within the housing shell. If all functionally accessible contacts of the sockets are also to be protected, the corresponding plugs must be connected to all sockets. In many cases, a protective cover can also be used alternatively on unused sockets.

Included accessories

Mounting accessories		
CRXT/BRACKET-CON	interconnect brackets, intended for increased stability; set of 2 units for top and bottom side	11100040

Documents
device certificate
Getting started with imc CRONOS-XT (one copy per delivery)

Optional accessories

Mounting accessories		
CRXT/BRACKET-CON-BOT	interconnect bracket with mounting option (180°) for the bottom side of the CRXT module	11100084

Documents		
SERV/CAL-PROT	Calibration protocol per amplifier imc manufacturer calibration certificate with measurement values and list of calibration equipment used (pdf).	150000566
SERV/CAL-PROT-PAPER	Calibration protocol per amplifier (paper print) imc manufacturer calibration certificate with measurement values and list of calibration equipment used with signature and seal.	150000578
Device certificates and calibration protocols: Detailed information on certificates supplied, the specific contents, underlying standards (e.g. ISO 9001 / ISO 17025) and available media (pdf etc.) can be found on our website, or you can contact us directly.		

Technical Specs - ICPU2-8

Inputs, measurement modes, terminal connection		
Parameter	**Value**	**Remarks**
Inputs	8	
Measurement modes	voltage measurement IEPE-sensor with current-fed	

Sampling rate, Bandwidth, Filter, TEDS			
Parameter	**Value typ.**	**min. / max.**	**Remarks**
Sampling rate	≤100 kHz		per channel, max system throughput of all module channels: 800 kHz including monitor channels
Bandwidth	0 Hz to 48 kHz 0 Hz to 30 kHz		-3 dB -0.1 dB
Filter (digital) cut-off frequency characteristic order	10 Hz to 20 kHz		 Butterworth, Bessel low pass or high pass filter: 8th order band pass: LP 4th and HP 4th order Anti-aliasing filter: Cauer 8.order with f_{cutoff} = 0.4 f_s
Filter cut-off frequency (high pass, 3rd order,-3 dB)	0.43 Hz 1.06 Hz 0.07 Hz 0.13 Hz		ICPU2-8 standard version ICP, ranges ≤±10 V ICP, ranges >±10 V special version CRXT/ICPU2-8-70mHz * ICP, ranges ≤±10 V ICP, ranges >±10 V
Resolution	16 Bit 24 Bit		output format is selectable for each channel individually: a) 16 Bit Integer b) 32 Bit Float (24 Bit Mantissa)
TEDS	conforming to IEEE 1451.4 Class I Mixed Mode Interface		
Characteristic curve linearization	user defined (max. 1023 supporting points)		

* The special versions are available on request. However, they should only be used when actually needed, as the settling times are correspondingly extended (up to the minute range).

General			
Parameter	**Value typ.**	**min. / max.**	**Remarks**
Overvoltage protection		±50 V	continuous channel to chassis
Maximum input voltage		-11 V to +15 V	between ±IN and CHASSIS; input range ≤±10 V
Input coupling	AC, DC, AC with current feed (ICP)		
Input configuration	differential Single-ended		software-configurable
Input impedance range >±10 V range ≤±10 V	 333 kΩ 0.67 MΩ 1 MΩ 908 kΩ 1.82 MΩ 20 MΩ		at DC-voltage resp. 50 Hz ICP (Single-ended) AC (differential) DC (differential) ICP (Single-ended) AC (differential) DC (differential)

Voltage measurement			
Parameter	**Value typ.**	**min. / max.**	**Remarks**
Input ranges	±50 V, ±25 V, ±10 V, ±5 V, ±2.5 V, ±1 V, ..., ±5 mV		
Gain error	0.02%	≤0.05%	of the reading, at 25°C
Gain drift	(+20 ppm/K)·ΔT_a	(+80 ppm/K)·ΔT_a	ΔT_a=|T_a -25°C|; with T_a = ambient temperature
Offset error	0.02%	 ≤0.05% ≤0.06% ≤0.15%	of the input range, at 25°C >±50 mV ≤±50 mV ≤±10 mV
Offset drift	(±40 µV/K)·ΔT_a (±0.7 µV/K)·ΔT_a (±0.1 µV/K)·ΔT_a	(±200 µV/K)·ΔT_a (±6 µV/K)·ΔT_a (±1.1 µV/K)·ΔT_a	ranges >±10 V range ±10 V bis ±0.25 V ranges ≤±0.1 V
CMRR (common mode rejection ratio) Input ranges: ±50 V to ±10 V Input ranges: ±5 V to ±50 mV Input ranges: ±25 mV to ±5 mV	 62 dB 92 dB 120 dB	 >46 dB >84 dB >100 dB	common mode voltage (DC..60 Hz): ±50 V ±10 V ±10 V
Noise	 14 nV/√Hz 0.4 μV_{rms}		DC coupling 1 kHz bandwidth 0.1 Hz to 1 kHz

Constant current supply	Value typ.	min. / max.	Remarks
ICP current sources	4.2 mA/channel	±10%	
Compliance voltage	25 V	>24 V	
Source impedance	280 kΩ	>100 kΩ	

Contact imc

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imc ACADEMY - Training center

The safe handling of measurement devices requires a good knowledge of the system. At our training center, experienced specialists are here to share their knowledge.

E-Mail: schulung@imc-tm.de

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