imc ACC/DSUB(M)-ICP2I-BNC

Expansion plug for operation with IEPE/ICP sensors

Data Sheet Version 1.3

To support direct connection of current-fed IEPE-sensors such as *ICP™ -*, *DeltaTron® -,* or *PiezoTron®* -sensors, a 4 mA supply current plus AC-coupling are provided. This ICP conditioning is channel-wise-isolated for optimal ground loop suppression and support of both grounded transducers or electrically isolated sensor installations. This plug is intended to extend voltage and bridge amplifiers with DSUB-15 connectors. Such measurement amplifiers can be isolated or non-isolated types.

If the sensors incorporates an integrated Transducer Electronic Data Sheet (TEDS, conforming to standard IEEE 1451.4), this information can be read and imported automatically.

Metal housing (ACC/DSUBM-ICP2I-BNC)

The isolated design allows TEDS support for grounded transducers and triaxial types in particular, that use one common ground reference.

Each channel provides a status LED to indicate error conditions such as probe breakage or short circuit.

Overview of the available variants

Order Code	article number	remarks
ACC/DSUB-ICP2I-BNC	1350157	isolated adapter for 2 ICP inputs
ACC/DSUBM-ICP2I-BNC	1350199	version with metal housing

Terminal connection

- sensor connection via two BNC
- DSUB-15 for the connection to measurement amplifier

Required software version

Basic functionality (ICP-operation) does not require software support and has no associated requirements. However, for support of TEDS functionality and for optimized offset performance it is required that the plug is recognized and supported by the operation software. In particular this involves the activation of an additional digital high pass filter to remove some small residual offset that results from the high impedance AC coupling.

- complete support of the entire functionality for selected amplifier types (see below)
  imc STUDIO 5.0R1 and imc DEVICES 2.8R5, or higher

Device series / Amplifier	CR-PL, CR-SL C-SERIES (-N)	CRC	CRFX
UNI2-8, DCB2-8, B-8	☑	☑	☑
LV3-8	☑	☑	☑
ISO2-8	✓	✓	✓
ISOF-8	---	✓	✓
UNI-4	---	✓	✓
BR2-4	✓	✓	✓
SC2-32	✓	✓	---

--- Module not available for this device series

☑ Full software support by imc STUDIO 5.0 R1 (imc DEVICES 2.8 R5)

✓ Plug is compatible for basic functionality
No complete software support
(no TEDS, limited offset compensation)

Technical Specs - ACC/DSUB(M)-ICP2I-BNC

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Parameter	Value typ.	min. / max.	Remarks
Compatible channel types	Bridge amplifier imc CRONOS device series: DCB2-8, UNI2-8 BR2-4, UNI-4 similar imc C-SERIES devices: Cx-50xx, Cx-70xx, Cx-60xx		imc measurement amplifiers with DSUB-15 connectors
	Voltage amplifier imc CRONOS device series: ISO2-8, ISOF-8, LV3-8, LV-16, SC2-32 similar imc C-SERIES devices: Cx-12xx, Cx-41xx		voltage amplifier with four channels per DSUB-15 support only channel 1 and 3
Inputs	2		isolated, BNC
Input coupling	ICP		current source, 1st order high-pass
Isolation	channel wise isolated ICP-conditioning (current source)		the isolation of each measurement channel depends on the measurement amplifier used (i.e.: ISO2-8 is isolated)
Isolation voltage		≤50 V	to system ground (CHASSIS) and channel-to.channel
Error indication	LED		probe breakage and short circuit recognition
TEDS	conforming to IEEE 1451.4 Class I MMI supported for selected amplifier types: imc STUDIO 5.0R1 / imc DEVICES 2.8R5		sensor with current feed
Measurement with ICP™-, DELTATRON®-, PIEZOTRON®-sensors			
Max. input voltage		<±40 V	at BNC input
Input impedance	0.5 MΩ 8.3 MΩ	>490 kΩ >5 MΩ	depending on input range of the measurement inputs used [2]
High-pass cutoff frequency	250 mHz	<1 Hz	-3dB, depending on selected input range[3]
Digital high pass	supported for selected amplifier types: imc STUDIO 5.0R1 / imc DEVICES 2.8R5		for complete removal of residual offset (parasitic offset caused by AC coupling)
Constant current feed	4.2 mA	±10%	
Voltage swing	24 V	>22 V	
Current source impedance	340 kΩ	>100 kΩ	in parallel with input impedance

[1] ICP is a registered trade mark of PCB Piezotronics Inc. DeltaTron is a registered trade mark of Brüel & Kjær Sound and Vibration. PIEZORON is a registered trade mark of Kistler Instruments.

[2] resulting impedance of 10 MΩ (ICP plug) and amplifier input impedance (depending on selected range)

[3] Resulting cut-off frequency of combined analog and digital high pass (depending on input impedance / selected range)
Digital high pass for complete removal of residual offset: supported for selected amplifier types