

imc CANSAS-IHR (I - High Resolution)

Current measurement at extremely high resolution

Data Sheet Version 2.5

imc CANSAS-IHR provides two independent channels for measurement of currents, with automated and dynamic range switching during a running measurement. This achieves a dynamic response of the measurement range of approx. 30 bits/180 dB.

Features

- measurement of high current and leakage current within an uninterrupted measurement
- Automatic range switching (dynamic Auto-Ranging)
- Nominal current 30 A (permanently) 78 A (peak)

Applications

- Test of current demand by automotive components
- Test of Sleep-mode and energy-saving functions
- DC-currents (directed) at low voltage and on-board power supply voltage level



imc CANSAS-IHR

imc CANSAS general specifications and functions

Each module: physically 2 isolated channels, logically 2 CANSAS modules

Power supply

- DC input 9 V to 32 V
- Autostart with saved configuration

Software

Configuration

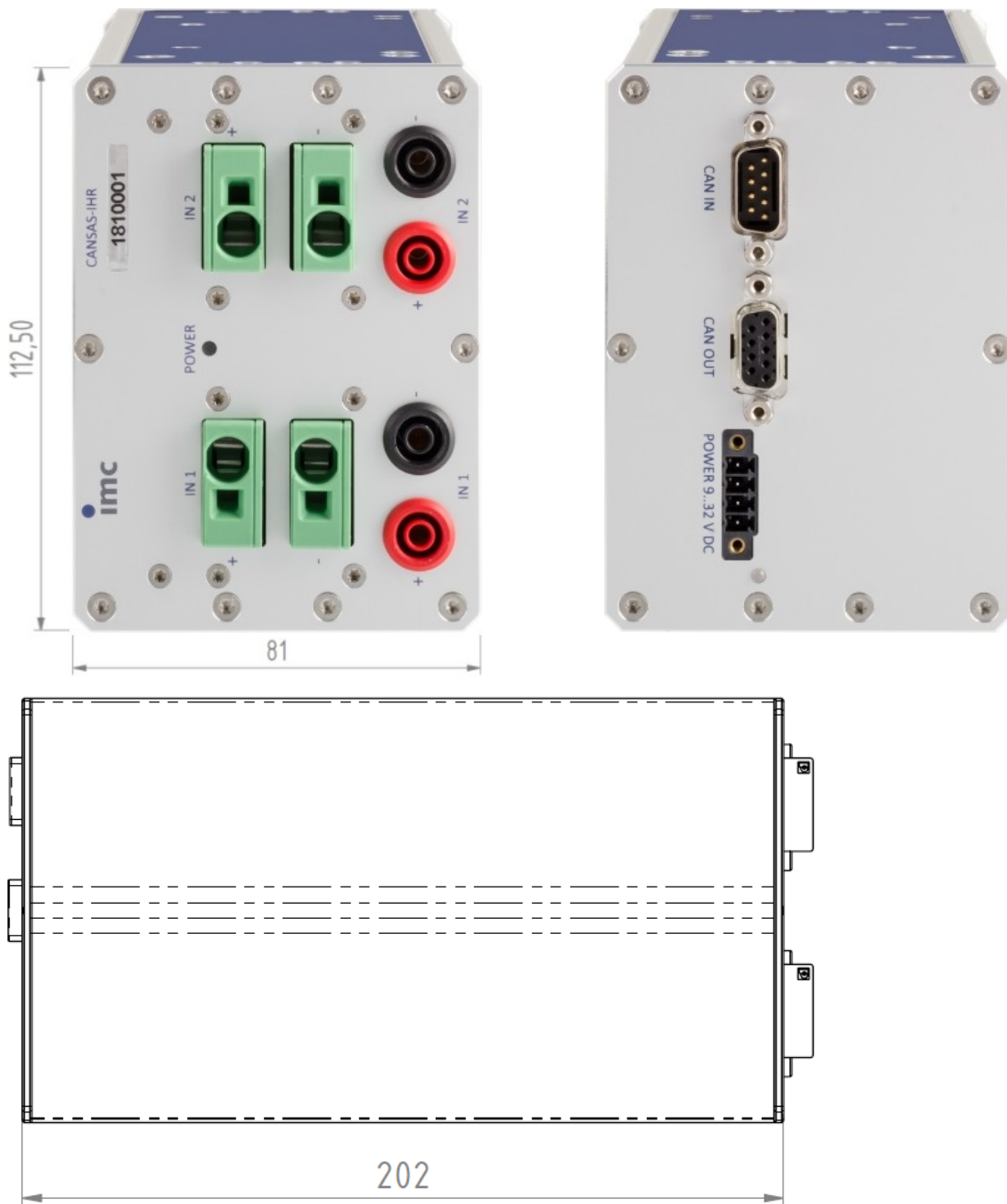
- with imc CANSAS Software as of Version 1.9R10 Build 2015-07-10
- independent starting capability, also factory-configured measurement operation
- easy measurement operation with imc CANSAS_{pro}
with CAN interface such as imc CAN-USB or interfaces from 3rd-party suppliers

imc CANSAS-IHR overview

Order Code		article number
CAN/IHR	Measurement module with two current channels	1050398

Errors and changes excepted
For more information, contact:
Berlin: +49 - 30 - 46 70 90 - 0

Mechanical drawings with dimensions



Required software version

- Supported as of imc CANSAS 1.9R10 Build 2015-07-10



Older imc CANSAS versions should not be used and are not valid for this imc CANSAS-IHR!

Technical Specs - CAN/IHR

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Inputs, Terminal connections		
Parameter	Value	Remarks
Inputs	2	
Terminals front panel measurement connections	clip connector Lab sockets 4 mm	primary alternatively
Terminals rear panel CAN Supply	2x DSUB-9 PHOENIX (MC 1,5/4STF-3,81)	CAN (in/out), power supply alternatively
Output-Values	Current-Mean value Current Maximum-/ Minimum value Point of time of Maximum/Minimum	Default-Name: Channel01 MaxValue / MinValue PositionMax / PositionMin
Output type	CAN	
Sampling rate, Bandwidth		
Parameter	Value	Remarks
Sampling rate	30 kHz 1 Hz, 10 Hz, 100 Hz, 1 kHz	internal primary, per channel Output rate (CAN) for all Output-Values of each channel 1 kHz only in High-Current-Range
Bandwidth	output rate · 0.4	-3 dB
Filter characteristic	Sinc	Sinc-Filter (block averaging)
Resolution	30 Bit 23 Bit	nominal measurement range / minimum measured value resolution (ADC) output rate up to 100 Hz output rate 1 kHz

General		
Parameter	Value	Remarks
Max. load voltage	18 V	Working voltage of the load circuit; load circuit will be disconnected in case of overload via electronic fuse.
Isolation	galvanic isolation all 3 circuits: power supply, channel, and CAN against each other	All 3 circuits are isolated from each other in such a way that their respective potentials at all usual on-board voltages are reliably separated.
Isolation voltages		
Measurement channels	70 V DC	working voltage
Channel - Housing	700 V _{RMS}	1 min test voltage
Channel - Channel	700 V _{RMS}	1 min test voltage
CAN (High, Low, GND)	70 V DC	working voltage
CAN - Housing	450 V _{RMS}	1 min test voltage
Overvoltage		
Supply	35 V DC	working voltage
Overvoltage protection	40 V	avalanche voltage

CAN		
Parameter	Value	Remarks
Baud rate	125 kbit/s, 250 kbit/s, 500 kbit/s, 1000 kbit/s adjustable by imc CANSAS	
Identifier		
Number of identifier	2 or 4	max. 2 CAN messages per channel ¹
ID-No.	freely configurable	exception ID-No. 2032, 2033 ²
Default-settings		device initiation with reset plug
Baud rate	125 kbit/s	
Identifier	Master-ID= 2032, Slave-ID= 2033	
Scaling factor	36,379*10 ⁻⁹	

¹ Sending of: only measurement channels, additionally max.- respectively min-channels and significant instant of the Min-/Max-Value is configurable

² message-format/-configuration is fix

Current measurement		
Parameter	Value	Remarks
Input variable	Current	only positive current direction
Measurement range	0 to +30 A	automatic range-switching
Shunt	2	Kelvin-sensing terminals valid for both shunts High-Current-Range
	2 m	
Switching times	<1 μ s: 2 \rightarrow 2 m <1 ms: 2 m \rightarrow 2	
Switching points	2 \rightarrow 2 m : 100 mA 2 m \rightarrow 2 : 80 mA	typ. typ.
Hysteresis	typ. 20 mA	
Overload performance	<60 A	load circuit divided through electronic fuse up to 60 s up to 1 s
	<78 A	
Max. allowed amperage at 5 A (continuous current) at 30 A (continuous current)	short-time peaks 78 A	thermal limited at 25°C operating temperature up to 40°C operating temperature
	<54 A	
Resolution	36 nA	
Path-resistance	10 m	at 20°C and min. 100 mA
Gain uncertainty	<1%	of respective value
Gain drift	<40 ppm/°K	
Offset uncertainty	\pm 200 nA	
Offset drift	30 ppm/°K + 20 nA/°K	
Noise	200 nA (pkpk)	output rate: 1 Hz
Time uncertainty of the Min-/Max-Values	<50 μ s	

Power supply of the module		
Parameter	Value	Remarks
Supply voltage	9 V to 32 V DC	
Power consumption	3 W at 10 V supply 5.4 W at 32 V supply	both channels
Temperature range	5°C to 40°C	
Dimensions (B x H x T)	81 x 112.5 x 202 mm	
Weight	1.65 kg	

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