

imc CANSAS-IHR (CAN/IHR) (I - High Resolution)

Current measurement with extremely high resolution

imc CANSAS-IHR provides two independent channels for measurement of currents, with automatic and dynamic range switching during a running measurement. This achieves an extremely high resolution of approx. 30 bits/180 dB.

Features

- Measurement of full load operating currents and low standby or leakage currents within an uninterrupted measurement
- Automatic range switching (dynamic Auto-Ranging) with a minimum resolution of 36 nA
- Available in two different variants for relevant electrical systems onboard vehicles:

	nominal current	limit
12 V systems	30 A	60 A
48 V systems	10 A	20 A

Applications

- Testing current consumption of automotive components
- Test of Sleep-mode and energy saving functions
- DC currents (uni-directional) at low voltage such as 12 V or 48 V automotive electrical systems
- Automotive components breadboard testing

imc CANSAS general specifications and functions

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

Power supply and operation:

- DC input 9 V to 32 V (uniform for 12 V and 48 V load circuit versions)
- Autostart with saved configuration

CAN interface:

- configurable baud rate up to 1 MBit/s
- galvanically isolated

Software

Configuration:

- with imc CANSAS Software
- capable of automatic start upon power up with preloaded configuration

Measurement operation:

- Data logger operation

Software: imc STUDIO

Hardware: imc measurement systems with CAN interface such as imc BUSDAQflex,

imc CRONOS series (CRFX, CRC, CRXT, CRSL), imc C-SERIES, imc SPARTAN

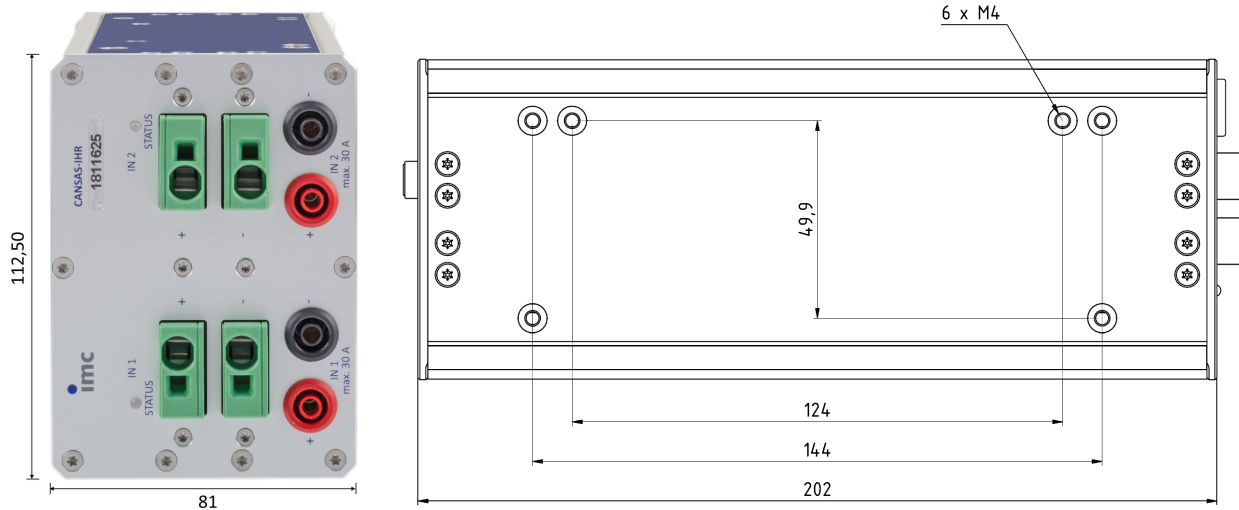
- any 3rd party CAN data logger systems



imc CANSAS-IHR (CAN/IHR)

Order code		article no.
CAN/IHR	module with two current channels (12 V vehicle electrical systems)	1050398
CAN/IHR-48V	module with two current channels (48 V vehicle electrical systems)	1050443

Module shown in specified standard operating position



Included accessories

- Calibration certificate with test equipment verification as per DIN EN ISO 9001 (manufacturer's calibration certificate)
- Getting started with imc CANSAS (one copy per delivery)
- Suitable power input connector: PHOENIX plugable terminal block

Optional accessories

Mounting brackets for fixed installations

- | | | |
|--------------------|------------------------------------|---------|
| • CRFX/BRACKET-90 | mounting bracket 90° (angular 90°) | 1190068 |
| | mounting on a flat surface | |
| • CRFX/BRACKET-180 | mounting bracket 180° (flat) | 1190069 |

These mounting brackets have to be fixed with M4 screws. In order to mount the bracket to the CAN/IHR module (upper and bottom side) use the threaded holes, see [TD_Mounting-Systems.pdf](#).

Configuration set with

1050020

- 1x AC/DC power adaptor for the supply of one module,
- 1x CAN connection cable with terminator, 2 m,
- 1x CANSAS-RESET-plug, female,
- 1x PC-Interface with CAN-Bus connection.

Miscellaneous

Calibration report set for each device: Report set with manufacturer's calibration certificate and individual readings, as well as list of test equipment used (PDF).

Meets requirements of DIN EN ISO 17025

Technical Specs - CAN/IHR, CAN/IHR-48V

Parameter	Value	Remarks
Inputs	2	
Terminals front panel measurement connections	banana sockets 4 mm push-in terminals 0,75 mm ² ... 16 mm ²	SPT 16/1-V-10,0
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 (peak values)	Default name: Channel01 MaxValue / MinValue
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
Bandwidth	output rate · 0.4	-3 dB
Filter characteristic	Sinc	Sinc-Filter (block averaging)
Resolution	30 Bit	nominal measurement range / minimum measured value resolution (ADC)

General	CAN/IHR	CAN/IHR-48V	Remarks
Max. load voltage	15 V	60 V	working voltage of the load circuit; load circuit will be opened in case of overload via electronic fuse operating threshold overvoltage protection (TVS)
Isolation	galvanic isolation of all 3 circuits: supply, channel and CAN against each other		All 3 circuits are mutually isolated so that their potentials are safely separated at all common board voltages.
Isolation voltages			
Nominal all routes (channel, CAN, housing)	70 V DC		permanently
Test voltage			1 min
Channel - Housing	500 V DC		
Channel - Channel	700 V _{RMS}		
CAN - Housing	450 V _{RMS}		

CAN		
Parameter	Value	Remarks
Baud rate	125 kbit/s, 250 kbit/s, 500 kbit/s, 1000 kbit/s	set by imc CANSAS software
CAN messages Number of identifier structure and mapping Identifier No.	2 or 4 fixed freely configurable	max. 2 CAN messages per channel
Default settings Baud rate Identifier	125 kbit/s Master-ID= 2032, Slave-ID= 2033	power on with reset plug
Scaling factor	$36.379 \cdot 10^{-9}$	current, output format 32 Bit Integer

Current measurement			
Parameter	12 V systems (CAN/IHR)	48 V systems (CAN/IHR-48V)	Remarks
Input parameter	current		only positive direction, no inverse-polarity protection
Measurement range nominal	0 to +30 A	0 to +10 A	automatic range-switching continuous operation
Overload protection	reversible electronic fuse		interruption of the load circuit, automatic reset
Tripping characteristic of electronic fuse	30 A to 60 A 60 A to 78 A as of 78 A	10 A to 20 A 20 A to 26 A as of 26 A	detection of indicated current for a maximum duration of: 60 s 1 s immediately
Reset of the electronic fuse	automatically after 60 s		
Max. allowed current rating	limited by thermal load capacity		relevant parameters: average continuous current, temporary peaks, operating temperature
Max. peak current at at 5 A continuous current at 30 A continuous current	78 A 54 A		temporary peaks at 25°C at 40°
For 48 V systems Max. peak current at at 1.7 A continuous current at 10 A continuous current		26 A 18 A	temporary peaks at 25°C at 40°
Shunt	2 Ω 2 mΩ		Kelvin sensing for both shunts High-Current-Range
Switching times	<1 μs <1 ms		2 Ω → 2 mΩ 2 mΩ → 2 Ω
Switching threshold	100 mA (typ.) 80 mA (typ.)		2 Ω → 2 mΩ 2 mΩ → 2 Ω
Hysteresis	20 mA (typ.)		
Resolution	36 nA		

Current measurement			
Parameter	12 V systems (CAN/IHR)	48 V systems (CAN/IHR-48V)	Remarks
Load circuit resistance	<10 mΩ	<20 mΩ	at 20°C and min. 100 mA
Gain error	<1%		of respective value
Gain drift	<40 ppm/°K		
Offset error	±200 nA		
Offset drift	30 ppm/°K + 20 nA/°K		
Noise	200 nA (pkpk)		output rate: 1 Hz
Status LED			
normal operation	LED on		
tripped electronic fuse	LED off		

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

Operating conditions		
Parameter	Value	Remarks
Operating environment	dry, non corrosive environment within specified temperature range	
Rel. humidity	80% up to 31°C, above 31°C: linear declining to 50%	according IEC 61010-1
Operating altitude	up to 2000 m	
Ingress protection rating	IP20	
Pollution degree	2	
Operating temperature	5°C to 40°C	without condensation
Dimensions	81 x 112.5 x 202 mm	W x H x D
Weight	1.7 kg	