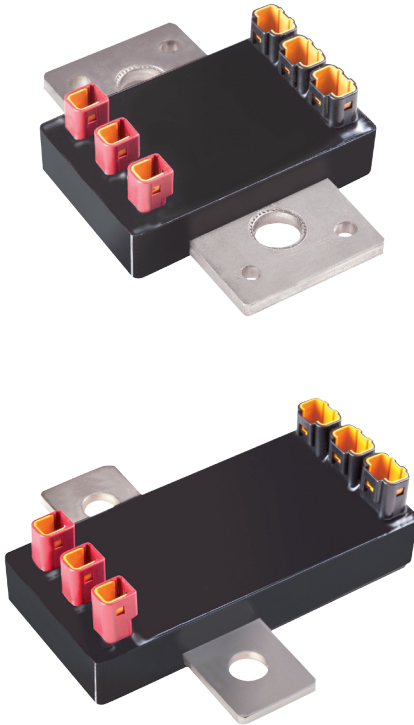


IVT-MODULAR

BRIEF DATASHEET



Description

The IVT-MOD is a high precision current and voltage measurement system. The current measurement enfolded ± 2500 A and the voltage channels include a range of ± 1000 V. At higher currents (i.e. peaks) the measurement range will extend automatically. A variety of different measurement functionalities i.e. coulomb counter can be selected. The IVT with its modular design can be modified to the most applications in automotive and industrial area.

The modularity enfolds

- Isolation against high voltage
- Over current detection
- Hardware trigger
- Six ranges of current measurement
- Up to three voltage measurement channels
- Digital communication (CAN, SPI)

Application

- _ Hybrid and full electric drive / Lithium-Ion battery
- _ UPS systems
- _ Stationary energy storage systems
- _ Fuel cells

Additional Features (optional)

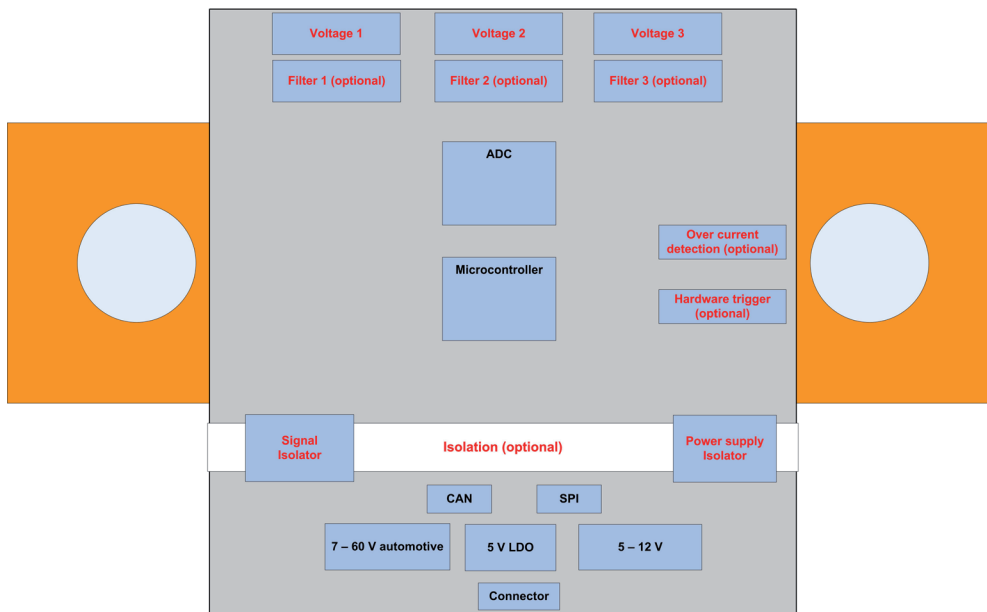
- _ **Software trigger**
With the software trigger it is possible to trigger each channel individually. Find the trigger modes under "Measurement description".
- _ **Safety**
On the one hand the safety feature monitored the microcontroller and on the other hand verified current measurement. An internal temperature measurement submits the temperature with a resolution of one degree. It is placed near the busbar.
- _ **Diagnosis**
Data can be logged as max. current, max. voltage, max. temperature and operating hours.
- _ **Bootloader**
A function for firmware updates.

IVT-MODULAR

Module description

- **Isolation**
This module is designed for isolation against higher voltages. It is possible to isolate up to 800V.
- **Over current signal (OCS)**
The sensor contains an over current detection for both current directions. As soon as the over current is detected the alarm line OCS is activated which signals an over current condition to the external circuit. It is possible to set the over-current threshold and a hysteresis.
- **Hardware trigger**
The sensor provides a hardware trigger. The trigger signal could be used to synchronize the measurement between the module and an external hardware.
- **Ranges**
The sensors have six different measurement ranges depending on the shunt resistance.
- **Voltage measurement**
For a better control system it is possible to assemble the sensor with one, two or three voltage channels.
- **Digital communication**
Communication module can be selected between SPI or CAN.

– Module overview



– Measurement description

Depending on the selected functionality there are up to five measurement output channels (current, temperature and 3 x voltage). Every channel can be set (output transfer rate and value). Based on these variations a high number of applications are possible i.e. a fast current measuring as well as a complete filtered measurement of all channels.

IVT-MODULAR

Technical Data

Operation conditions

Parameter	Min.		Max.	Unit
Operating temperature	-40		+85	°C
Storage temperature	-40		+125	°C
Supply voltage *1	5	5	5	V
	5		12	V
	7		60	V
Supply current *1	20...150			mA
Start up time *1	100...200			ms

*2 depend from module

Current measurement nominal range

Parameter						Unit
Nominal measurement range (depends from shunt)	±100	±300	±500	±1000	±2500	A
Initial Error [-20...+60°C]	0.1					% rdg *3
Total error [-20...+60°C] *2	0.6					% rdg *3
Total error [-40...+105°C] *2	0.8					% rdg *3
Offset	10	32	86	150	600	mA *4
Noise	40	118	320	560	2235	mA pp *4
Resolution	3	10	27	47	186	mA *4

HV voltage measurement parameters nominal range

Parameter	Min.	Typ.	Max.	Unit
Nominal measurement range		800		V
Initial Error [-20...+60°C]		0.1		% rdg *3
Total error [-40...+85°C] *2		0.3		% rdg *3
Offset		100		mV *4
Noise		300		mV (pp) *4
Resolution		30		mV *4

*2 with temperature calibration

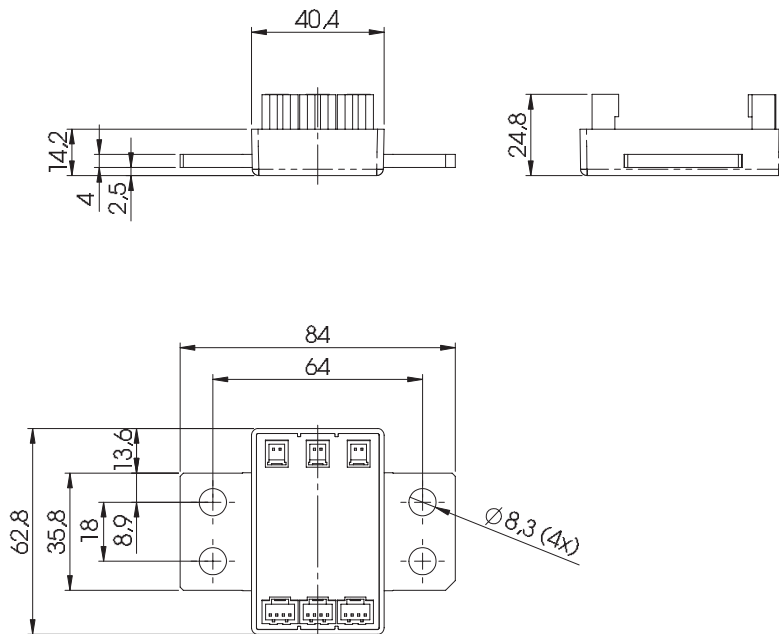
*3 failure of reading

*4 without averaging

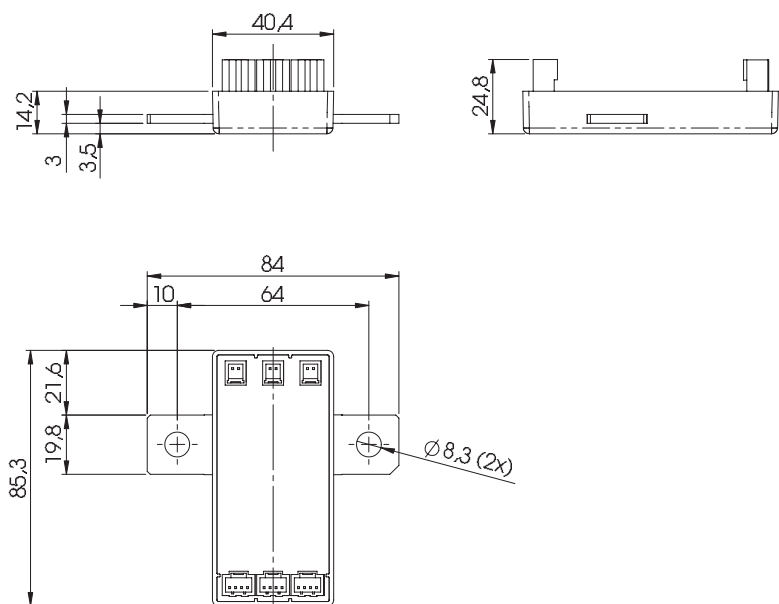
IVT-MODULAR

Mechanical dimension

IVT Modular non isolated

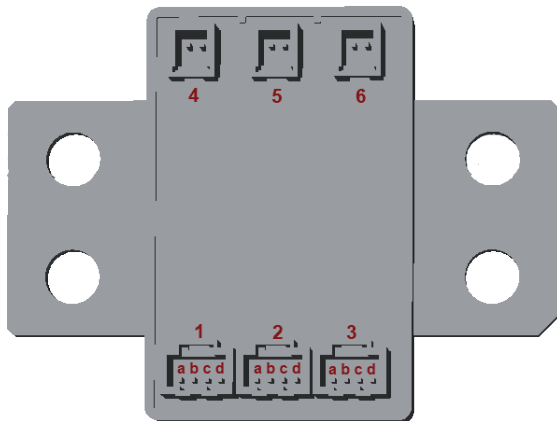


IVT Modular isolated



IVT-MODULAR

Pin configuration (full modularity)



PIN	Description	Remark (module or basic)
1 (a, b)	Power IN	Basic
1 (c, d)	CAN IN	Basic
2 (a, b)	Power OUT	Module
2 (c, d)	CAN OUT	Module
3 (a, b)	Trigger	Module
		PIN a for one sensor or PIN a/b for loop through (> one sensor)
3 (c, d)	OCS (over current signal)	Module
		PIN c for one sensor or PIN c/d for loop through (> one sensor)
4	Voltage measurement 1	Module
5	Voltage measurement 2	Module
6	Voltage measurement 3	Module

Warranty // All information regarding the suitability, workability and applicability of our products, all technical advice and other information are provided to the best of our knowledge and belief, but shall not discharge the buyer from his own examinations and tests. This document is subject to change without notice.

