



DC SENSING SOLUTIONS FOR EVS, CHARGING, AND BMS



INTRODUCTION

Our range of DC sensing solutions encompasses a variety of compact high precision current measurement devices, all built on a platform concept where functional components can be added to adapt to many different use cases. Our latest innovation—the IVT 3.0 Pro version—supports insulation resistance monitoring and 3 or 6 channels of voltage measurement.

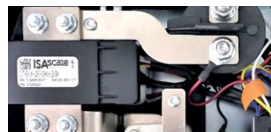
The new IVT 3.0 smart sensing modules are developed according to ISO 26262:2018 (Road vehicles – Functional safety) and are ASIL-rated for EV/automotive applications.

APPLICATIONS

- Hybrid and full electric vehicle drives
- Stationary energy storage systems
- Uninterruptable power supply (UPS) systems
- Battery and storage based applications
- Industrial Applications

SAMPLE APPLICATION FOR A BDU

Determining the state of charge (e.g. for a lithium Ion battery in an electric vehicle) requires a particularly precise and high-resolution total current measurement (in the mA range) to allow for the detection of standby or “leakage” currents. Our DC smart-current sensing modules provide accuracies of up to 0.1% of rdg and resolutions of up to 1mA.



In addition to their highly accurate current sensing functionality, smart sensors from our IVT series can be equipped with high-voltage sensing functionality, which allows for the monitoring of total battery voltage as well as the state of the fuse, relays in the pre-charging circuit and other relays or circuit breakers in the BDU. These highly integrated sensors capture raw data for current, voltage and temperature measurement, while also metering the power, energy and ampere-hours on the software side. These integrated values are transmitted directly to the BMS via CAN bus—completing a dynamic, stable, calibrated, cost-efficient, and compact current/voltage measurement system.



DC Sensing Solutions

	IVT 3.0 Pro	IVT 3.0	IVT-S	ICD-A
Current Measurement (ASIL C rated)	✓ (✓)	✓ (✓)	✓ (N/A)	✓ (N/A)
Nominal Range up to	1000 A	1000 A	2500 A	500 A
Voltage Measurement Channels (ASIL B rated)	3/6 (✓)	0 (N/A)	0/3 (N/A)	1 (N/A)
Insulation Monitoring (ASIL B rated)	✓ (✓)	N/A	N/A	N/A
Temperature Measurement	✓	✓	✓	✓
Galvanic Isolation 1000Vdc	✓	✓	✓	N/A
Firmware update via OBD	✓	✓	N/A	N/A
AUTOSAR 3.0.4	✓	✓	N/A	N/A
CAN 2.0	B	B	A	A/B
SAE J1939	Option	N/A	N/A	N/A
CAN FD / CAN Open	Option	Option	N/A	N/A
CAN Termination	Option	Option	Option	Option
Analog Output	Option	Option	N/A	N/A
Sleep Mode	Option	Option	N/A	✓
Supply Voltage	12 V 24 V	12 V	12V - 24V	12 V

Expect more from Isabellenhütte

Packing more electronics into every vehicle is a daily challenge. Whether you need to drive performance in traditional vehicles or push the boundaries of electrification for all types of vehicles, Isabellenhütte helps you do more—in less space too! We combine 500 years of metallurgical excellence with next-gen engineering. “EXPECT MORE” from us at every turn & see how better quality & precision can take your projects further.

