BRIEF INFORMATION

Intelligent battery sensor (IBS) 12 V Generation II

- Space saving, compact sensor developed for optimal energy management of passenger cars, EVs, agricultural vehicles, last mile vehicles, marine applications as well as motorhomes
- Accurate measurement of voltage, current and temperature battery parameters
- Determination of the battery condition parameters – state of charge (SOC), state of health (SOH) and state of function (SOF)
- Simple electrical and mechanical integration

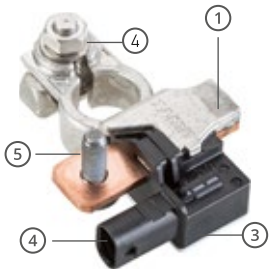
PRODUCT FEATURES

Customer benefits
The intelligent battery sensor (IBS) , generation II, informs you about the current energy balance, allowing you to plan your energy supply.

The IBS generation II also comes with the tried-and-tested CI bus interface, which is increasingly becoming a standard in the caravaning and motorhome industry. This communications interface can be used, for example, to convey the battery's charge status to the charging system, which switches on automatically if necessary.

Application
The intelligent battery sensor (IBS), generation II, from FORVIA HELLA is the key element for vehicle energy management in the vehicle. The IBS generation II reliably and accurately measures the battery parameters: voltage, current and temperature. Information about the battery's state of charge (SOC), state of health (SOH) and state of function (SOF) is calculated algorithmically from the measurements. The IBS generation II is designed for use in starter, gel and AGM batteries to monitor in-vehicle starter or consumer batteries. The IBS generation II can be directly integrated into the vehicle's electrical system (e.g CI BUS) with the standardised LIN protocol.

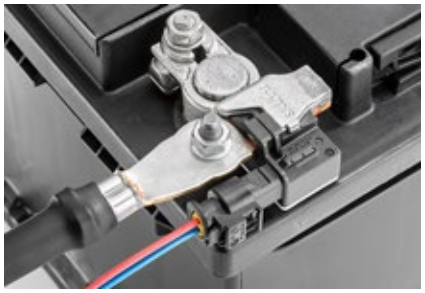
DESIGN AND FUNCTION



1. Shunt at sensor
2. Connector
3. Sensor module
4. Negative terminal clip
5. Screw-on bolt For cable lug contacting (ground cable)

The IBS generation II is attached directly to the negative terminal of the battery via the pole terminal. In addition to the terminal, the mechanical portion of the battery sensor consists of shunt and ground bolt components. The shunt is attached to the vehicle's load path and is used as a measuring resistor to measure the current indirectly. The existing ground cable can be comfortably fixed to the grounding bolt with a cable lug.

The electronics are located in a molded casing with a plug connector, functioning as the interface to the energy management system. The communication interface to the higher-level control unit is the LIN protocol. The supply voltage, used simultaneously as the reference voltage for voltage measurement, is provided by the connection to the positive pole of the battery.

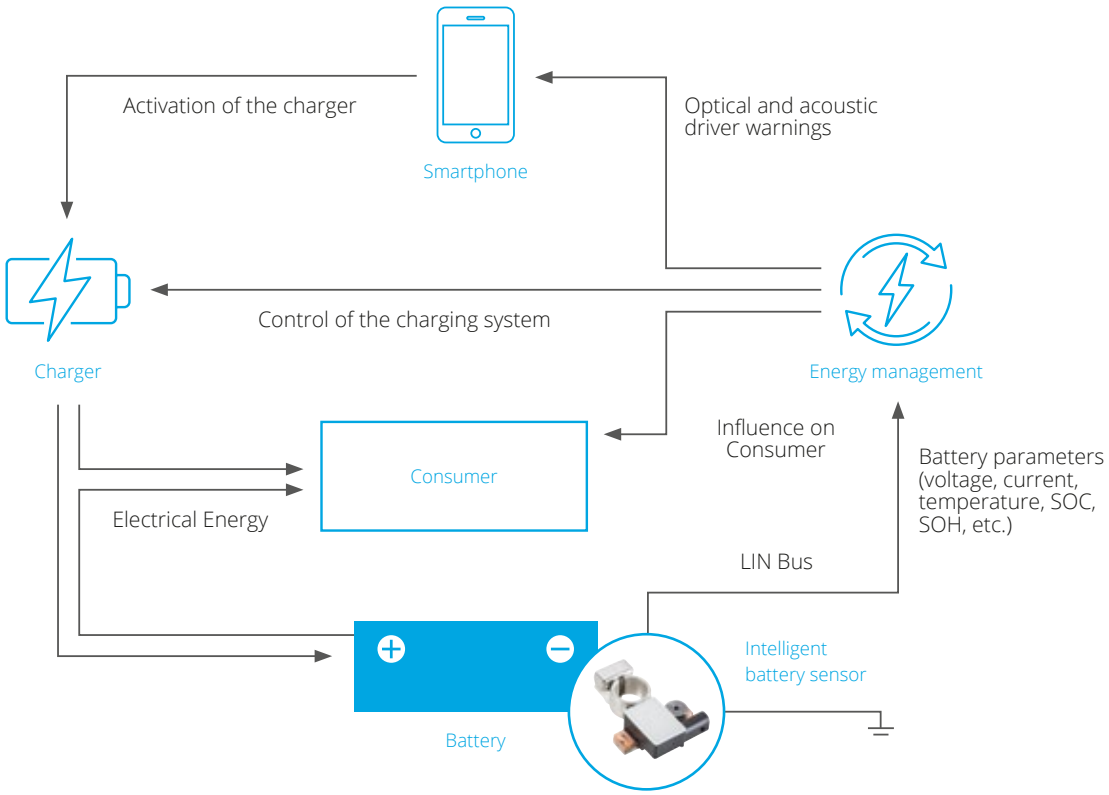


Installation at standard battery pole

Compared to previous generations, the IBS generation II offers the following benefits: This sensor can now also monitor more powerful batteries. Thanks to the higher nominal capacity that can be set, this battery sensor can also be used to monitor several batteries connected in series. Instead of 250 ampere hours they can be configured for up to 500 ampere hours (Ah). This is particularly important in view of the growing energy requirements of motorhomes, passenger cars, EVs, agricultural vehicles and last mile vehicles. These new IBS generation II units are also particularly robust and can reliably detect short-term, high current consumption – for example when bow thrusters are used.

ENERGY MANAGEMENT

By using the intelligent battery sensor, the energy management system can react quickly in the event of a critical battery condition and influence both consumer and charging behaviour.

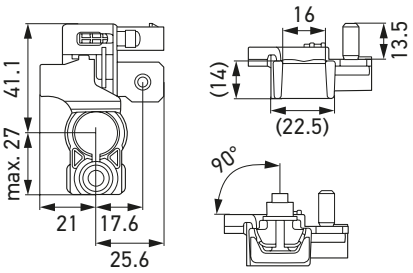


TECHNICAL DETAILS

Technical data	
Operating voltage range	Single-voltage (6 – 16.5 V)
Rated voltage	12 V
Polarity reversal voltage	- 16.5 V / 60 s
Test voltage	13.8 – 14.2 V
Operating current[1)]	10 mA
Idle current[1)]	≤ 200 µA
Nominal resistance (shunt)	68 µΩ
Permanent load current[2)]	± 175 A
Maximum current[2) 3)]	1.500 A
Temperature range	-40 °C to +105 °C
Re-heating temperature	+105 °C to +120 °C
Storage temperature	-20 °C to +55 °C
Defined charge controller	18 V / 60 min
Jump start	27 V / 1 min
Load dump	35 V / 400 ms
Report	LIN 2.0 or higher
Protection class	IP 6K9K
Permissible pole terminal tightening torque	5 Nm ± 1 Nm
Threaded bolt, ground connection	M6
Weight	70 g
Mating connector[4)]	872-857-565
Max. battery capacity[5)]	500 Ah
Approved	ECE-R10

[1)] Condition: $T_a \leq 40$ °C; $U_b = 14$ V
[2)] Typical condition: $T_a \leq 105$ °C; $U_b = 14$ V, Ground cable typical: 35 mm²
[3)] Approved for max. 500 ms. Other configurations on request.
[4)] This accessory is not included in the scope of delivery. Available from Hirschmann Automotive.
[5)] Expandable on request.

Dimensional sketch

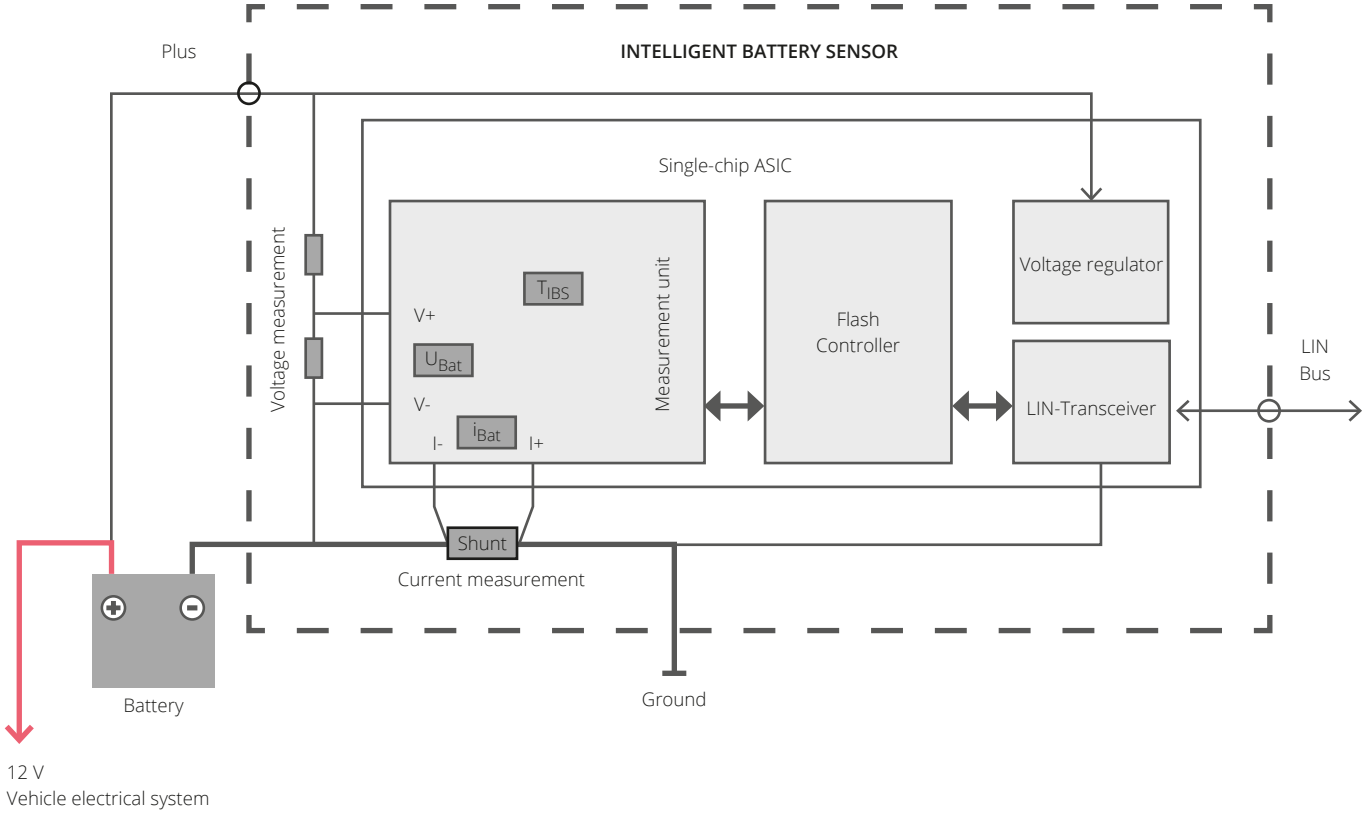


Pin assignment / electrical connection

Pin 1: Connection for B+
Pin 2: Connection for LIN

BLOCK DIAGRAM

The main electronics component for recording measured values and processing them further is the ASIC. Measured value recording in the ASIC is a precision sensor system that represents the central function of the intelligent battery sensor and is used to record physical variables such as current, voltage and temperature.



PROGRAM OVERVIEW

The package space has been optimised in such a way that installation even in locations with difficult access, e.g. under a seat, is easily possible. Furthermore, this product variant has the latest algorithms for battery condition detection. Reliable statements on charge condition and aging are therefore possible even with high idle currents such as can occur, for example in mobile homes.

Description	Operating voltage range	Mating connector	Part number	VPE*
Intelligent battery sensor (IBS) 12 V, Generation II	Single-voltage (6 – 16.5 V)	Hirschmann 872-857-565**	**6PK 013 824-001**	1
			6PK 013 824-007	100

** This accessory is not included in the scope of delivery. It may be purchased from Hirschmann Automotive

OPTIONAL ACCESSORIES

Description	Part number	VPE*
Battery pole adapter for plug and play, installation	**9MK 230 836-007**	**1**

* Packaging unit

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