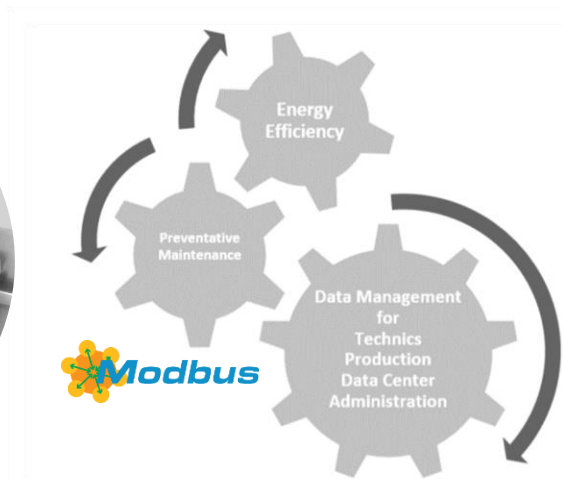


Power metering for energymangement

Use ipsensor (intelligent power sensor) to measure **active power, current, voltage and frequency** of single loads in low voltage systems.

Manage your actions easily within your **energy management system** to improve the **energy efficiency** or to minimize the **down times** by preventive **maintenance / service**



ipsensor - base module for industry 4.0



ipsensor uses the wires in low voltage distribution boards for measuring, for example on the fuses in control cabinets. The system concept guarantees an optimal cost-value ratio through **1%-measuring accuracy, easy installation in retrofit or new installations and very low internal energy consumption.**

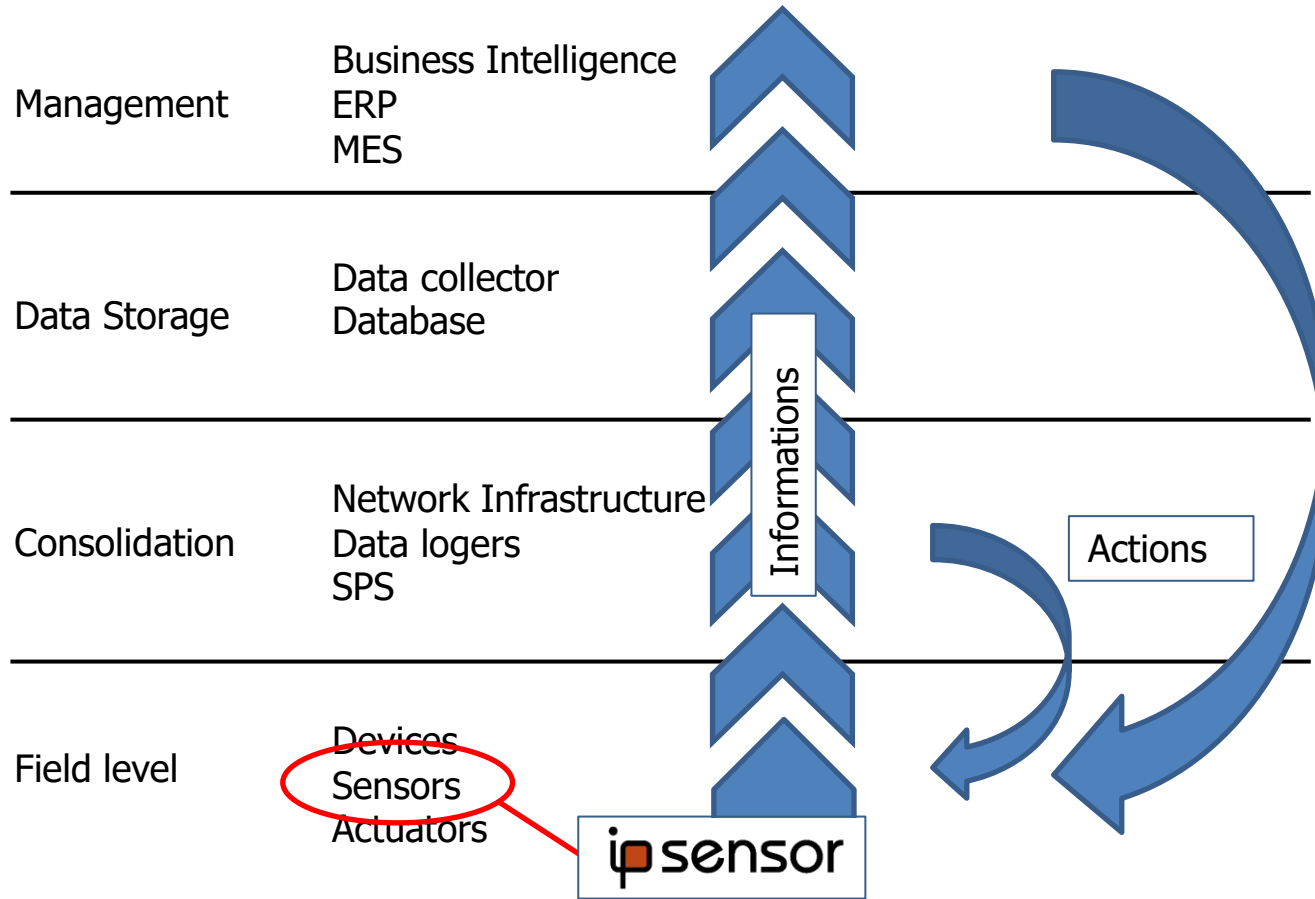
The modular system consists of one base unit (ipsensor Base) and one or more sensors (ipsensor 3, 12). The sensors contain several metering points to measure the active power of the single loads.

You can connect up to 120 metering points by ribbon cable to the base unit with flexible distances. The very fast bus system supports the individual assignment of the correct phase to each individual current metering point, to enable the calculation of the power values. The base unit is mounted on a DIN rail, the sensors are mounted on the fuses or similar devices.

The metered values are read out by modbus protocol (TCP / RTU). You can integrate ipsensor with the ipsensor service tool in your system environment fastly and without any programming knowledge. Preconfigured interface modules are available for a variety of software systems.

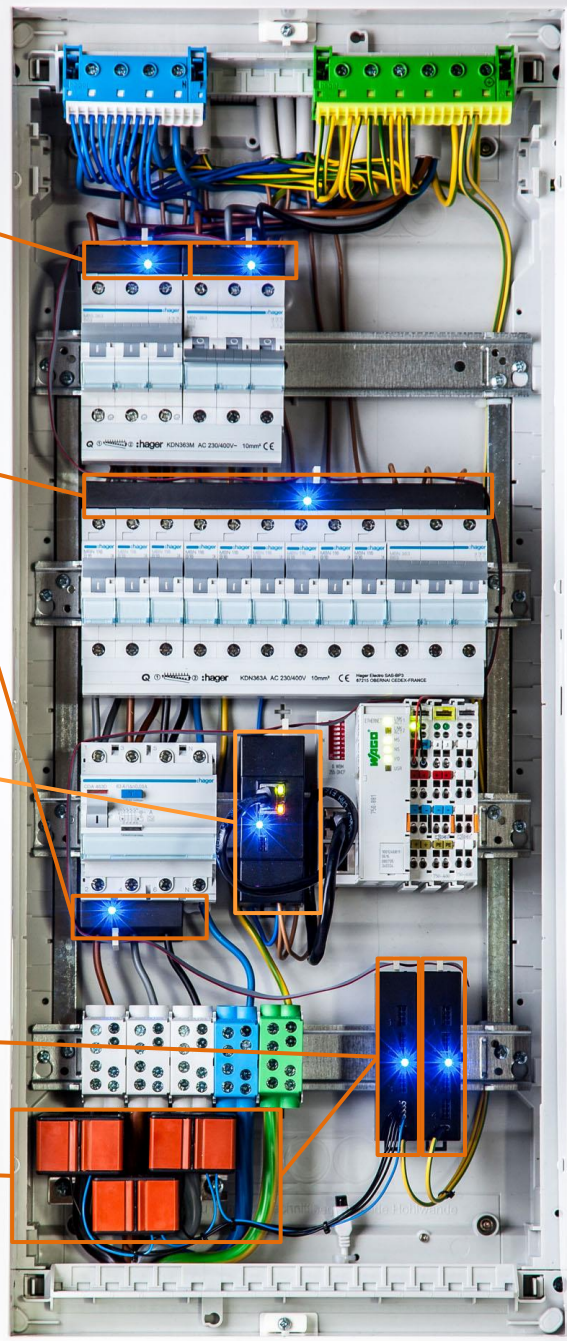


Processing of energy data



Cabinet example

ip sensor



Sensor with 3 metering points

Sensor with 12 metering points

ipsensor-Base TCP Gateway and data collector
-> sensors get connected through Can bus cable

External sensor module
-> up to 12 standard CT's on one module for 5A/1A secondary current

- Accuracy class 1
- Up to 120 metering points with one base unit
- Active power measurement (apparent,- active and idle power)
- Connection via Modbus (TCP/RTU)
- Easy installation in existing cabinets (small formfactor)
- Very low energy consumption
Inexpensive over the lifetime



Keyfacts

- scalable power/energy metering with up to 120 metering points
- easy installation (new/retrofit)
- Minimal installation height
- Very low energy consumption
- Direct connection to EDM-Systems Data Logger, Smart Meter, SPS, and others
- bestcost-to-performance ratio

Electrical connections

Voltage (L1) 230V, 50/60Hz
 Power (max. value with 10 sensors) 5W
 Amperage (min. for the fuse) 1A

Configuration

ipsensorBase up to 10 sensors
 Sensors versions with 3 or 12 metering points
 Different amperage
 Length of connection via flat ribbon cable (max. value) 5 m

Communication interface

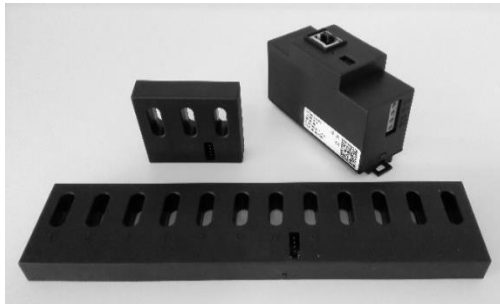
1 x RS485 Modbus RTU, 115,2 kBaud
 1 x Ethernet Modbus TCP, 100 MBit

Dimensions ipsensor base

Height 91mm
 Width 35 mm
 (2 Modules)
 Depth 59 mm

Dimensions sensors

Height 13 mm
 Width 17,5 mm
 (1Module)
 Depth 47 mm



Metering technique

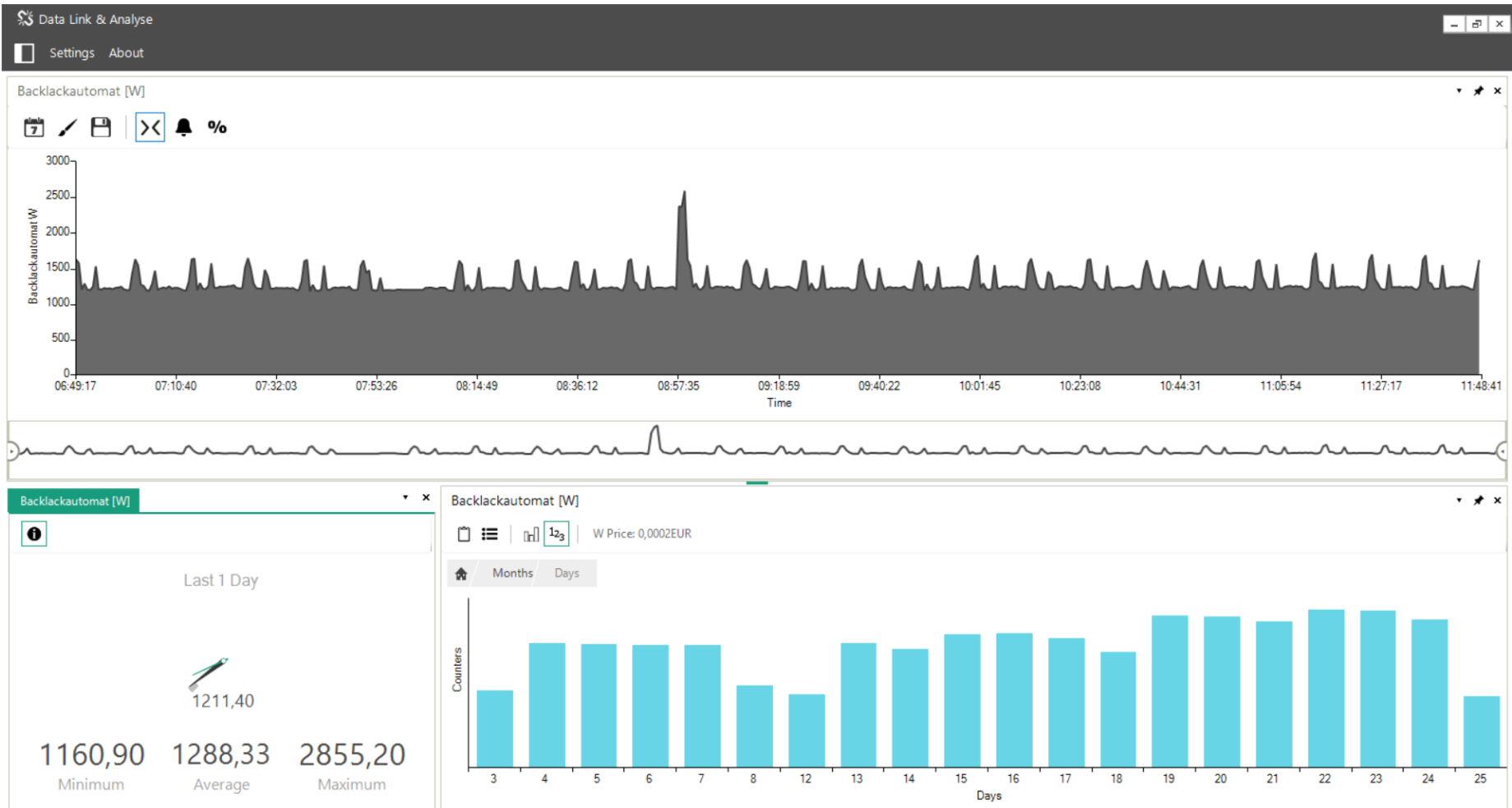
	nominal value	Accuracy
Voltage measuring	3~230/400 V	Class 1 according to DIN EN 60688
Current measuring	40 A	Class 1 according to DIN EN 60688
Frequency measuring	50 / 60 Hz	Class 1 according to DIN EN 60688
Active power Measuring (max)	9,2 kW	(for 40A sensormodule) Class 1 according to DIN EN 62053-21 (applied*)

* The accuracy of the power measuring active power is according to DIN EN 62053-21. The impact of the relevant influencing variables on the measurement accuracy is according to DIN EN 62053-21

www.ipsensor.de

Technical data sheet as of 11.2018

Example of a visual output in an energy management system



Threefold Added Value

Technology

- Scalable and real power measurement on all metering points
- 1% metering accuracy, minimum installation height, impressively flexible mountability and therefore perfect for retrofit and for „mixed“ system environments
- Cooperation with research institutes (Fraunhofer, UNI) to develop complementary products e.g. for improved preventive maintenance

Usecase

- Due to real power measurement there is an universal range of applications for Industry 4.0
- Provides real power values (apparent,- active and idle power) and the actual energy consumption, not just voltage and current curves projected by software
- Integration in simple & complex energy data management solutions or other systems
- Evaluation and management of energy efficiency in buildings, data centers, infrastructure & production environment
- Preventive maintenance of machinery

Costs/Benefits

- PLUS – price per metering point inclusive power measurement is the same as the competition with just current measurement
- PLUS – lower operating costs because of lower energy consumption than competitors