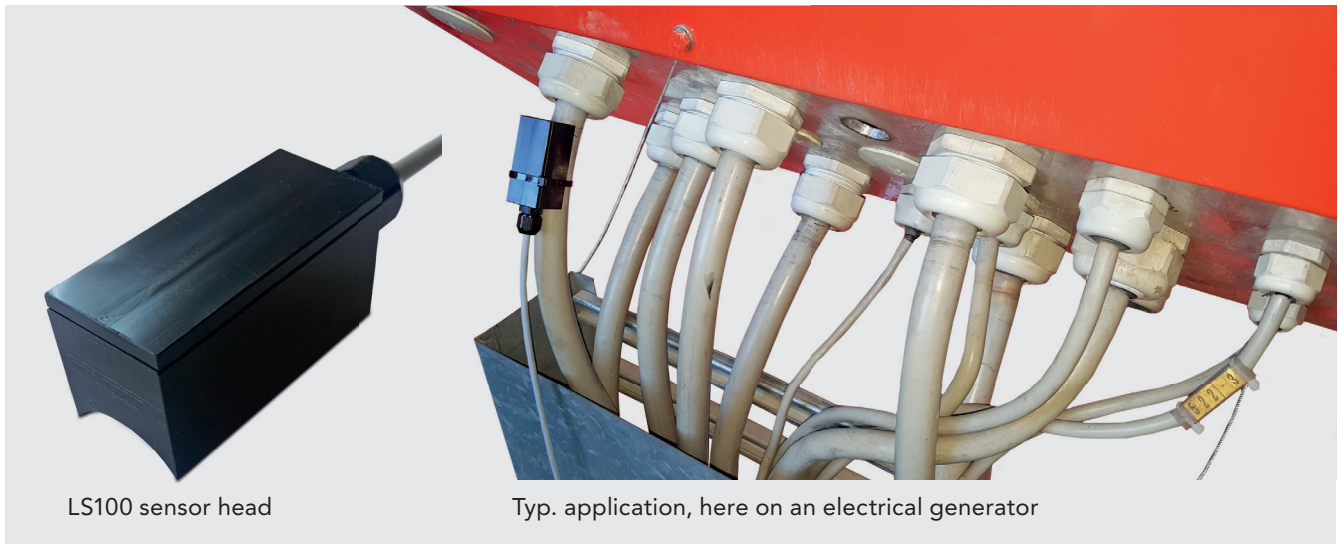


# Loadsensor LS100 for indicating the power level (load) of electrical machines



LS100 sensor head

Typ. application, here on an electrical generator

- Simple and quick retrofit sensor solution for indicating the load level of an electrical machine
- Ideally suited for supplying predictive maintenance and similar tools with power level data
- 100% safe, galvanically isolated from machine control system (field buses) or power cabling
- Sensor based on microchip solutions resulting in a small and slim design
- Applications: current level sensing of electrical installations/machines, busbar current sensing

## Specification

Magnetic field sensor technology: Fluxgate

Supply voltage 5 – 24V DC

Temperature range –20 °C to +60 °C

Fluxgate sensor specification:

- Range  $\pm 1.5\text{mT}$  (can be increased upon request)
- Offset max.  $\pm 8\mu\text{T}$
- Offset Drift typ.  $\pm 5\text{ nT}/^\circ\text{C}$
- Gain error typ. 0.04%
- Gain drift typ.  $\pm 7\text{ ppm}/^\circ\text{C}$
- Linearity  $\pm 0.1\%$
- Noise typ.  $1.5\text{ nT}/\sqrt{\text{Hz}}$
- Bandwidth  $< 47\text{ kHz}$

Output signal digital (I2C) or differential analogue

Digital output 16-bit

Output accuracy <sup>1</sup>  $< 25\text{ kW}$  (typ.  $\leq 10\text{ kW}$  validated on 600 kW machines)

Analogue output  $\pm 3.3\text{ V}$  (differential output)

I2C logic level 3.3V

Datarate over I2C  $< 3.5\text{ kbps}$  (typ. 45 ms per 10 measurements)

I2C address 0x48 (7 bit address)

<sup>1</sup> Subject to cable shielding, cable insulation, interference, dynamic range, data acquisition scheme

## Dimensions and connections

- Case: L = 60 mm (without cable gland), W = 25 mm, H = 28 mm (bottom is concave with  $r = 12.5$  mm)
- Connector pin (6-pin header male 2.54 mm)
  - 1 SDA
  - 2 SCL
  - 3 Gnd
  - 4 Vcc
  - 5 Vout\_P
  - 6 Vout\_N

## Compliance

- 2011/65/EU, 2015/863 (ROHS), 2012/19/EU (WEEE)
- EN 55022 (emission)
- EN 61000-4-2 (ESD)
- EN61000-4-3 (immunity)
- EN 61000-4-4 (burst)
- EN61000-4-5 (surge)
- EN61000-4-6 (immunity)

## Problem solution

Advanced Condition Monitoring and Predictive Maintenance software tools rely typically on artificial intelligence (AI) or machine learning methods, and consequently on a huge number of annotated data. Machine operators prefer non-intrusive data collection, thus the need for safe add-on measurement hardware. The data collected comprises various parameters, however, power consumed or power output is cumbersome to collect without access to the control software. This inexpensive add-on sensor enables the safe data collection of power information by means of measuring the current flow.