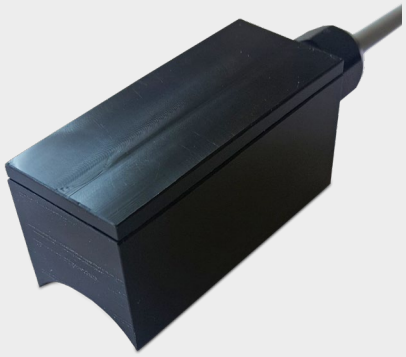
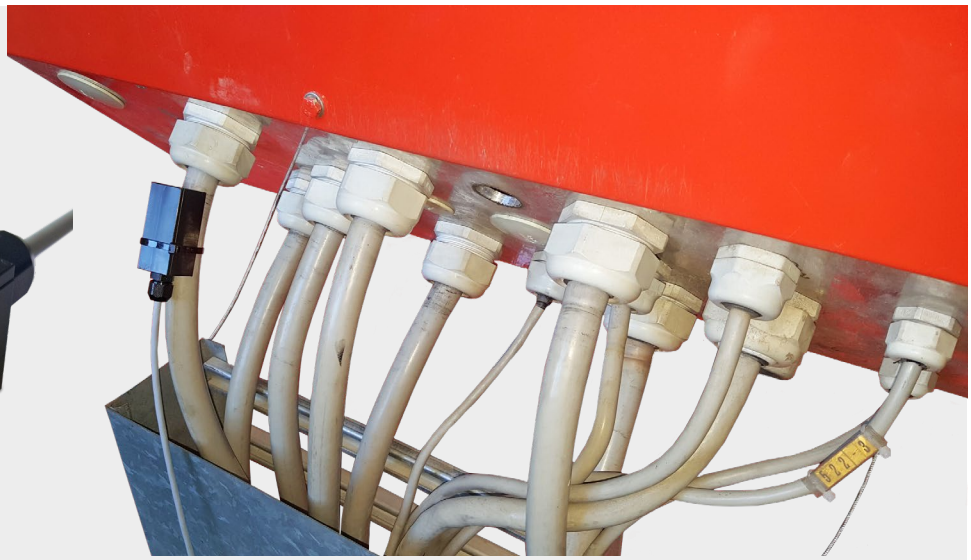
DATASHEET
mechmine llc

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**

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.

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Specification

Magnetic field sensor technology: Fluxgate	
Supply voltage	5 – 24 V DC
Temperature range	– 20 °C to + 60 °C
Fluxgate sensor specification:	
– Range	±1.5 mT (can be increased upon request)
– Offset	max. ±8 µT
– Offset Drift	typ. ±5 nT / °C
– Gain error	typ. 0.04 %
– Gain drift	typ. ±7 ppm / °C
– Linearity	±0.1 %
– Noise	typ. 1.5 nT / √Hz
– Bandwidth	<47 kHz
Output signal	digital (I2C) or differential analogue
Digital output	16-bit
Output accuracy [1]	<25 kW (typ. ≤10 kW validated on 600 kW machines)
Analogue output	±3.3 V (differential output)
I2C logic level	3.3 V
Datarate over I2C	<3.5 kbps (typ. 45 ms per 10 measurements)
I2C address	0x48 (7 bit address)

1 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)