

Typical applications

EPHYMESS sensors can be combined:

Various sensors are combined in a **cable harness** to monitor electric drives.

Resistance thermometers for traction on motors and gearboxes.

Oil temperature sensors for gears in locomotives and in mining machines.

Oil level gauges for the supervision of gear oil in metros, trams or locomotives.

Speed sensors for metros, suburban trains, trams and high-speed trains.

Sensor systems for control of wheel-set bearings in european high-speed trains for more safety.

Since 1990 EPHYMESS supports the railway industry with highly specialized sensors. We offer sensors for the thermal supervision of wheel-set bearings, complete sensor cable harnesses designed according to project-specific requirements, temperature sensors for monitoring motors and oil temperature of gears as well as sensors for the thermal control of gearboxes. In addition speed sensors and oil level gauges are manufactured on a project-specific base.

All sensors, detectors and modules are designed and produced to fulfill the high requirements of the railway technology and comply with the regulations of the ISO/TS 22163 standard (IRIS).

EPHYMESS sensors are configured on customer request and each sensor is tested and qualified before leaving the factory.

We are looking forward to developing the railway sensor according to your specific requirements in cooperation with your engineers.

Our expertise for your product

EPHYMESS GmbH is a competent solution partner of all manufacturers of electrical machines and drives. We consult, develop and produce for our customers individual sensor solutions for safety and control requirements. Our focus is on the following market segments: rail technology, renewable energy and the general industrial segment.

Since 1955 the mid-sized and family-owned company, located in Wiesbaden, manufactures high-quality sensor solutions for monitoring electric drives and machines. Our sensors are used by customers of the following sectors: industry and plant engineering, heavy equipment construction, traffic engineering, wind power stations, refrigeration engineering, air-conditioning technology as well as in the measurement and control technology or in laboratory and research facilities. The product portfolio contains platinum and nickel measuring resistors, thermocouples, PTC / NTC thermistors, KTY sensors, bimetallic switches electric band heaters as well as speed sensors and oil level gauges for use in rolling stock.

Intensive research and development as well as a highly developed quality management ensure our high product standards. EPHYMESS has numerous utility models and patents, IECEx and ATEX certifications, certifications acc. DIN EN ISO 9001, DIN EN ISO 14001 and ISO/TS 22163 (IRIS), TR certificates, Metrological Certificates and 1st Calibration as well as certifications according to UL/CSA (NEC500 / 505) CCC and INMETRO.

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EPHYMESS

Bespoke sensor technology. Worldwide.

Railway sensors

Temperature sensors, speed sensors and components for rolling stock



- ▶ shock-proofed sensors acc. to DIN EN 61373 cat.3
- ▶ reliable sensors for speed & rotation direction
- ▶ multi-sensor harness
- ▶ collision resistant oil level gauges
- ▶ cable connections for harsh environment



Temperature sensors

- temperature range up to +200°C / 392°F
- resistant to shocks acc. to DIN EN 61373:2011-4
- fire behavior acc. to DIN EN 45545-2:2016-2
- free of halogen and silicone
- project-specific cable harnesses
- special design on request



version:	resistance thermometer
temperature range:	-40°C ... +200°C / -40°F ... +392°F
measuring resistant:	Pt100, Pt1000, 2x-Pt100, 2x-Pt1000
mode of connection:	2, 3- or 4-wire circuit
measuring current:	max. 10 mA
insulation resistance:	≥ 200 MΩ / 500 V (higher resistance on request)
protection:	IP66 / IP68
protective hose:	project-specific, on request
connector:	project-specific, on request
plug dimensions:	installation length from 25 mm to 500 mm
supply line:	fixed connected supply line, free of halogen and silicone
shield:	copper tin-plated
length:	acc. to customer specification
conformity:	DIN EN 60751, DIN EN 61373 cat. 3; DIN EN 45545-2, UIC 564-2, DIN EN 50305, DIN EN, 60332-1-2 DIN EN 61034-2

Speed sensors

- measurement of rotation direction and speed by two 90° phase-shifted channels
- switching frequency 0 - 25000 Hz
- resistant to shocks acc. to DIN EN 61373 cat. 3
- fire behavior acc. to DIN EN 45545-2
- free of halogen and silicone
- maintenance- and wear-free
- special design on request



version:	inkremental encoder
measuring principles:	<i>hall sensors</i> (for ferromagnetic cog-wheels), <i>eddy current</i> (non-magnetic, electrically conductive cog-wheels)
temperature range:	-40°C ... +125°C / -40°F ... +257°F
output signal:	<i>square wave signal</i> , also with inverted and galvanically isolated channels, <i>current loop</i>
phase shift:	90° ±10°
switching frequency:	0 - 25000 Hz
module:	1.0 / 1.5 / 2.0 / 3.0
insulation resistance:	≥ 200 MΩ / 500 V
protection:	IP66 / IP68
hose and connector:	project-specific, on request
housing:	brass, stainless steel housing
supply line:	fixed connected supply line, free of halogen and silicone
shield:	copper tin plated
length:	acc. to customer specification
conformity:	DIN EN 61373 Kat. 3, UIC 564-2, DIN EN 45545-2, DIN EN 50305 DIN EN 50121-4-2, DIN EN 60332-1-2, DIN EN 60947-5-2, DIN EN 61034-2

Oil level gauges

- highly resistant to collision due to its two-chamber system
- complete system tightness even if the outer chamber is damaged
- integrated protective grid
- maintenance without opening the oil container
- special design on request



version:	inspection glass
temperature range:	-40°C ... +105°C / -40°F ... +221°F
potecion system:	two-chamber system with a stainless-steel protective grid
collision:	special outer glass pane resistant to impact of objects up to m = 30g / v = 50 m/s
thread:	G1", G1¼", G1½", G2", M48x1,5, M42x1,5, M60x2 (other threads on request)
protection:	IP66 / IP68
housing:	brass, aluminum or stainless steel
protective grid:	stainless steel
special design:	on request
conformity:	DIN EN 61373 cat. 3