



## Typical applications

**EPHY-MESS sensors** can be combined:

Different sensors work in **cable harnesses** to monitor electrical drives.

**Resistance thermometers** for the use in cabinets, motors (traction) and gears.

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

**Oil level gauges** for the supervision of gears in metros, trams and locomotives.

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

**Sensor systems** for wheel bearing control, used in high-speed trains.

Since 1990 EPHY-MESS 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 the oil temperature of gears and 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 accordant to the International Railway Industry Standard (IRIS).

EPHY-MESS sensors are configured on customers request and each sensor is tested and qualified before leaving the factory.

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

## Specialist for tailored sensor technologies

EPHY-MESS GmbH is a competent solution partner of all manufacturers of electrical machines and drives. The medium-sized and family-owned enterprise consults, develops and produces for its customers individual sensor solutions for safety and control requirements. The focus is on the following market segments: rail technology, renewable energy and the general industrial segment. Since 1955 the medium-sized and family owned enterprise produced high quality sensor solutions, detectors and modules for the supervision of electric drives and machines. EPHY-MESS products are delivered to plant engineering and heavy equipment construction, traffic engineering, refrigeration and air-conditioning technology, as well as to laboratory and research facilities. The product portfolio contains platinum and nickel measuring resistors, PTC/NTC thermistors, KTY-sensors, bimetallic switches, thermocouples and flexible band heaters. Especially for the railway sector robust and shake proofed temperature sensors as well as oil level gauges and rpm sensors are produced. Intensive research and development as well as a high developed quality assurance management ensure the high standard of our products. EPHY-MESS possesses numerous patents and utility models, IE-CEX- and ATEX certifications as well as certifications according to DIN EN ISO 9001, DIN EN ISO 14001 and to the International Railway Industry Standard (IRIS). Customers count on EPHY-MESS core competency to modify and adapt products in accordance to their requirements and in short and cost-effective timely manner.

### Your contacts at EPHY-MESS GmbH

#### Sales Director

Aleksandar Lenhart M.A.  
phone: +49 6122 9228-8834  
alexandar.lenhart@ephy-mess.de

#### Business Dev. Segment Rail

Dipl. Phys. Gerhart Herdt  
phone: +49 6122 9228-13  
gerhart.herdt@ephy-mess.de

#### Web Address

[www.ephy-mess.de](http://www.ephy-mess.de)  
Berta-Cramer-Ring 1,  
65205 Wiesbaden, Germany

#### Phone Fax

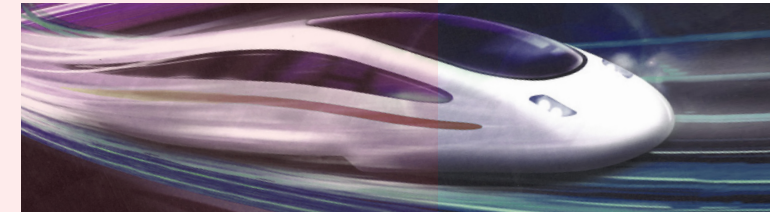
+49 6122 9228 -0  
+49 6122 9228 -99



We reserve the right to modify specification and dimensions. EPHY-MESS®, the EPHY-MESS® Logo and the stylised Triangle are trademarks of EPHY-MESS GmbH. © 2017 EPHY-MESS GmbH. All Rights reserved.

## Railway sensors

Temperature sensors, speed sensors and components for rail vehicles



- ▲ Highly shock-proofed sensors acc. to DIN 61373
- ▲ Reliable sensors for speed & rotation direction
- ▲ Multiple detectors harness
- ▲ Collision resistant oil level gauges
- ▲ Cable connections for harsh environment

www.ephy-mess.de



Rev. 2017-04-03



## Resistance Temperature Detectors

- 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



<b>version:</b>	RTD
<b>temperature range:</b>	-40°C ... +200°C / -40°F ... +392°F
<b>measuring resistant:</b>	Pt100, Pt1000, 2x-Pt100, 2x-Pt1000
<b>mode of connection:</b>	2, 3- or 4-wire circuit
<b>measuring current:</b>	max. 10 mA
<b>insulation resistance:</b>	≥ 200 MΩ / 500 V (higher resistance on request)
<b>protection:</b>	IP66 / IP68
<b>hose and connector:</b>	project-specific, on request
<b>plug dimensions:</b>	installation length from 25 mm to 500 mm
<b>supply line:</b>	firmly secured connecting wire, free of halogen and silicone, copper and tin-plated
<b>shield:</b>	according to customer specification
<b>length:</b>	
<b>conformity:</b>	DIN EN 60751, DIN EN 61373 DIN EN 50305 1:2008-02, UIC 564-2, DIN EN 45545-2:2016-2, DIN EN 60332-1-2:2005-06, DIN EN 61034-2:2014-11

## Speed sensors

- measurement of rotational speed and rotating direction by two 90° phase shifted channels
- switching frequency 0 – 25000 Hz
- 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
- maintenance- and wear-free
- special design on request



<b>version:</b>	RPM
<b>Measuring principles:</b>	Hall sensors (for ferromagnetic cogwheels), eddy current (non-magnetic, electrically conductive cogwheels)
<b>temperature range:</b>	-40°C ... +125°C / -40°F ... +257°F
<b>output signal:</b>	square wave signal, also with inverted and galvanically isolated channels, current loop
<b>phase shift:</b>	90° ± 30°
<b>switching frequency:</b>	0 – 25000 Hz
<b>module:</b>	1.0/1.5/2.0/3.0
<b>insulation resistance:</b>	≥ 200 MΩ / 500 V (higher resistance on request)
<b>protection:</b>	IP66 / IP68
<b>hose and connector:</b>	project-specific, on request
<b>housing:</b>	brass, stainless steel housing
<b>supply line:</b>	solid plugged connecting wire halogen-free and silicone, copper and tin plated shield
<b>length:</b>	according to customer specification
<b>conformity:</b>	DIN EN 61373: 2011-4, DIN EN 50305 1:2008-2, UIC 564-2, DIN EN 45545-2:2016-2, DIN EN 60332-1-2:2005-06, DIN EN 61034-2:2014-11 DIN EN 50121-4-2, DIN EN 60947-5-2:2014-01

## Oil level gauges

- highly resistant to collision due to its two-chamber system
- complete retention of the system-tightness also at damage of the outer chamber
- integrated protective grid
- a quick repair is possible without opening the oil container
- special design on request



<b>version:</b>	OLG
<b>temperature range:</b>	-40°C ... +105°C / -40°F ... +221°F
<b>protection system:</b>	two-chamber system with a stainless-steel protective grid
<b>collision:</b>	outer special sheet of glass is resistant to collision with objects up to m= 30g / v=50m/s
<b>thread:</b>	G1½", G1¼", G2", M48x1,5, other threads on request, M60x2
<b>protection:</b>	IP66 / IP68
<b>housing:</b>	brass, aluminum or stainless steel
<b>protective grid:</b>	stainless steel
<b>conformity:</b>	DIN EN 61373: 2011-4