

# SICK

TMM22E-PKZ045S04

TMS/TMM22

INCLINATION SENSORS

**SICK**  
Sensor Intelligence.



## Ordering information

Type	part no.
TMM22E-PKZ045S04	1117509

Illustration may differ

Other models and accessories → [www.sick.com/TMS\\_TMM22](http://www.sick.com/TMS_TMM22)

## Detailed technical data

## Features

<b>Special device</b>	✓
<b>Specialty</b>	Cable, 2 m Flying leads
<b>Standard reference device</b>	TMM22E-PKG045

## Safety-related parameters

<b>MTTF<sub>D</sub> (mean time to dangerous failure)</b>	961 years (EN ISO 13849-1) <sup>1)</sup>
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<sup>1)</sup> This product is a standard product and does not constitute a safety component as defined in the Machinery Directive. Calculation based on nominal load of components, average ambient temperature 40 °C, frequency of use 8760 h/a. All electronic failures are considered hazardous. For more information, see document no. 8015532.

## Performance

<b>Number of axis</b>	2
<b>Measuring range</b>	± 45 °
<b>Resolution</b>	≤ 0.015 °
<b>Static measurement accuracy</b>	Typ. 0.25°, max. 0.6° <sup>1)</sup>
<b>Repeatability</b>	30 µA <sup>2)</sup>
<b>Compensated cross-sensitivity (2-dimensional)</b>	Typ. ± 0.5°, max. ± 0.9°
<b>Temperature coefficient (zero point)</b>	±0.03°/K
<b>Limit frequency</b>	2 Hz
<b>Sampling rate</b>	400 Hz

<sup>1)</sup> In accordance with DIN ISO 1319-1, position of the upper and lower error limit depends on the installation situation, specified value refers to a symmetrical position, i.e. deviation in upper and lower direction is the same.

<sup>2)</sup> In accordance with DIN ISO 55350-13; 68.3% of the measured values are inside the specified area.

## Interfaces

<b>Communication interface</b>	Analog / Current
<b>Current output</b>	4 mA ... 20 mA
<b>0-set function via hardware pin</b>	✓
<b>Load resistance</b>	200 Ω ... 900 Ω <sup>1)</sup>

<sup>1)</sup> At 24 V DC. Value depends on supply voltage and can be found in the operating instructions.

<b>Status information</b>	LED	2x (green/red)
	Output signal (error state)	2...3 mA
<b>Initialization time</b>		250 ms

<sup>1)</sup> At 24 V DC. Value depends on supply voltage and can be found in the operating instructions.

## Electronics

<b>Connection type</b>	Cable, 5-wire, 2 m
<b>Supply voltage</b>	12 V DC ... 30 V DC
<b>Current consumption</b>	< 30 mA (+ I <sub>loop</sub> ) @ 24 V
<b>Reverse polarity protection</b>	✓
<b>Short-circuit protection of the outputs</b>	✓

## Mechanics

<b>Dimensions</b>	38.8 mm x 30 mm x 10.4 mm
<b>Weight</b>	Approx. 60 g
<b>Housing material</b>	Plastic (PA12), glass-fiber reinforced
<b>Material, cable</b>	PUR

## Ambient data

<b>EMC</b>	EN 61326-1
<b>Enclosure rating</b>	IP66 IP67 IP68 IP69K
<b>Operating temperature range</b>	-40 °C ... +80 °C
<b>Storage temperature range</b>	-40 °C ... +85 °C
<b>Resistance to shocks</b>	100 g, 6 ms (according to EN 60068-2-27)
<b>Resistance to vibration</b>	10 g, 10 Hz ... 2,000 Hz (EN 60068-2-6)

## Classifications

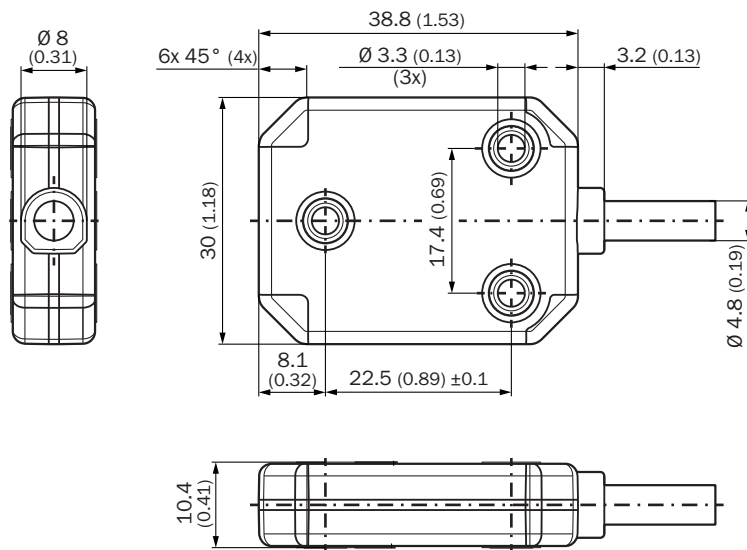
<b>ECLASS 5.0</b>	27270790
<b>ECLASS 5.1.4</b>	27270790
<b>ECLASS 6.0</b>	27270790
<b>ECLASS 6.2</b>	27270790
<b>ECLASS 7.0</b>	27270790
<b>ECLASS 8.0</b>	27270790
<b>ECLASS 8.1</b>	27270790
<b>ECLASS 9.0</b>	27270790
<b>ECLASS 10.0</b>	27271101
<b>ECLASS 11.0</b>	27271101
<b>ECLASS 12.0</b>	27271101
<b>ETIM 5.0</b>	EC001852
<b>ETIM 6.0</b>	EC001852
<b>ETIM 7.0</b>	EC001852

<b>ETIM 8.0</b>	EC001852
<b>UNSPSC 16.0901</b>	41111613

### Certificates

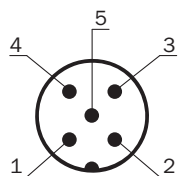
<b>EU declaration of conformity</b>	✓
<b>UK declaration of conformity</b>	✓
<b>ACMA declaration of conformity</b>	✓
<b>Moroccan declaration of conformity</b>	✓
<b>China RoHS</b>	✓
<b>cULus certificate</b>	✓

### Dimensional drawing



Dimensions in mm (inch)

### Anschlussbelegung



PINplug, M12, 5-pin	Wire colors (cable connection)	SignalTMS22E	SignalTMM22E
1	Brown	U <sub>S</sub>	U <sub>S</sub>
2	White	Z-axis	Y-axis
3	Blue	GND	GND
4	Black	n.c.	X-axis
5	Gray	TEACH <sup>1)</sup>	TEACH <sup>1)</sup>

PINPlug, M12, 5-pin	Wire colors (cable connection)	SignalTMS22E	SignalTMM22E
<sup>1)</sup> To activate the zero point setting, connect TEACH (pin 5) to GND (pin 3) for at least 1 second.			

## SICK AT A GLANCE

SICK is one of the leading manufacturers of intelligent sensors and sensor solutions for industrial applications. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

We have extensive experience in a wide range of industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

Comprehensive services complete our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

For us, that is “Sensor Intelligence.”

## WORLDWIDE PRESENCE:

Contacts and other locations –[www.sick.com](http://www.sick.com)