



# TMM22B-PKJ090

TMS/TMM22

**INCLINATION SENSORS**

**SICK**  
Sensor Intelligence.



Illustration may differ

### Ordering information

Type	part no.
TMM22B-PKJ090	1141565

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



### Detailed technical data

#### Safety-related parameters

<b>MTTF<sub>D</sub> (mean time to dangerous failure)</b>	349 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>	± 90°
<b>Resolution</b>	≤ 0.01°
<b>Static measurement accuracy</b>	Typ. 0.1°, max. 0.2° <sup>1)</sup>
<b>Repeatability</b>	Typ. 0.04°, max. 0.12° <sup>2)</sup>
<b>Compensated cross-sensitivity (2-dimensional)</b>	± 0.3°
<b>Temperature coefficient (zero point)</b>	Typ. ±0,0167°/K <sup>3)</sup>
<b>Limit frequency</b>	0.1 Hz ... 10 Hz, 2 Hz, default
<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.

<sup>3)</sup> 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>
<b>Status information</b>	LED 2x (green/red)

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

Output signal (error state)	1...2,5 mA
<b>Parameterising data</b>	Measuring range Zeroseit Limit frequency Preset value Inverting of counting direction Axis assignment Free adjustable outbound
<b>Programmable/configurable</b>	Over PGT-15
<b>Initialization time</b>	100 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, 0.5 m
<b>Supply voltage</b>	8 V DC ... 32 V DC
<b>Current consumption</b>	< 45 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 (EN 60068-2-27)
<b>Resistance to vibration</b>	10 g, 10 Hz ... 2,000 Hz (EN 60068-2-6)

## Classifications

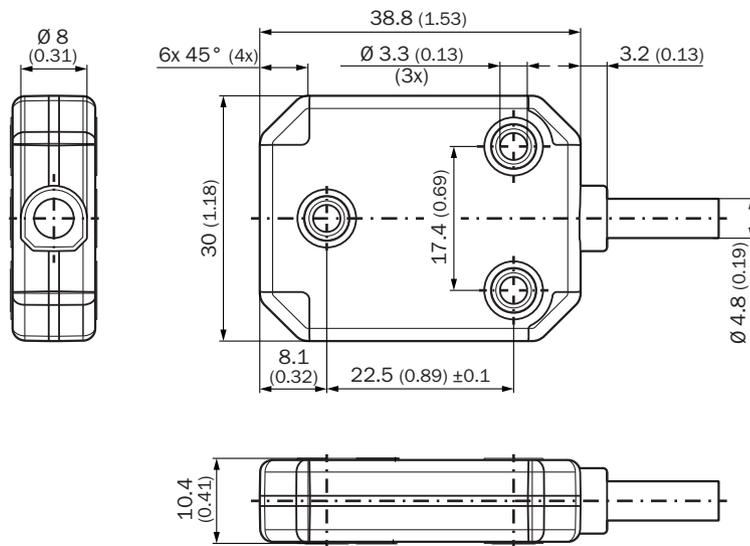
<b>ECLASS 5.0</b>	27270790
<b>ECLASS 5.1.4</b>	27270790
<b>ECLASS 6.0</b>	27270790
<b>ECLASS 6.2</b>	27270790
<b>ECLASS 7.0</b>	27270790
<b>ECLASS 8.0</b>	27270790
<b>ECLASS 8.1</b>	27270790
<b>ECLASS 9.0</b>	27270790
<b>ECLASS 10.0</b>	27271101
<b>ECLASS 11.0</b>	27271101
<b>ECLASS 12.0</b>	27271101

<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

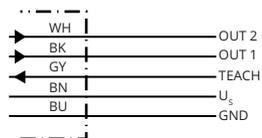
<b>EU declaration of conformity</b>	✓
<b>UK declaration of conformity</b>	✓
<b>ACMA declaration of conformity</b>	✓
<b>Moroccan declaration of conformity</b>	✓
<b>China RoHS</b>	✓
<b>cULus certificate</b>	✓
<b>EAC certificate / DoC</b>	✓

### Dimensional drawing



Dimensions in mm (inch)

### Anschlussbelegung



PINM12 male connector, 5-pin	Wire colors (cable connection)	SignalTMS22B	SignalTMM22B
1	Brown	U <sub>s</sub>	U <sub>s</sub>
2	White	OUT 2 (default: Z)	OUT 2 (default: Y)

PINM12 male connector, 5-pin	Wire colors (cable connection)	SignalTMS22B	SignalTMM22B
3	Blue	GND	GND
4	Black	OUT 1 (default: n.c.)	OUT 1 (default: X)
5	Gray	TEACH <sup>1)</sup>	TEACH <sup>1)</sup>

<sup>1)</sup>To activate the zero point setting, connect TEACH (pin 5) to GND (pin 3) for at least 1 second.

### Recommended accessories

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

	Brief description	Type	part no.
connectors and cables			
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M12, 5-pin, straight, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 1.5 m, 5-wire, PUR, halogen-free</li> <li><b>Description:</b> Sensor/actuator cable, shielded</li> <li><b>Application:</b> Drag chain operation, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>	YF2A25-015UB6XLEAX	2095833
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M12, 5-pin, straight, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 3 m, 5-wire, PUR, halogen-free</li> <li><b>Description:</b> Sensor/actuator cable, shielded</li> <li><b>Application:</b> Drag chain operation, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>	YF2A25-030UB6XLEAX	2095834
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M12, 5-pin, straight, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 5 m, 5-wire, PUR, halogen-free</li> <li><b>Description:</b> Sensor/actuator cable, shielded</li> <li><b>Application:</b> Drag chain operation, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>	YF2A25-050UB6XLEAX	2095733
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M12, 5-pin, angled, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 3 m, 5-wire, PUR, halogen-free</li> <li><b>Description:</b> Sensor/actuator cable, shielded</li> <li><b>Application:</b> Drag chain operation, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>	YG2A25-030UB6XLEAX	2095791
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Male connector, M12, 5-pin, straight, A-coded</li> <li><b>Description:</b> Unshielded</li> <li><b>Connection systems:</b> Screw-type terminals</li> <li><b>Permitted cross-section:</b> ≤ 0.75 mm<sup>2</sup></li> <li><b>Note:</b> For field bus technology</li> </ul>	STE-1205-G	6022083
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M12, 5-pin, straight, A-coded</li> <li><b>Description:</b> Unshielded</li> <li><b>Connection systems:</b> Screw-type terminals</li> <li><b>Permitted cross-section:</b> ≤ 0.75 mm<sup>2</sup></li> </ul>	DOS-1205-G	6009719
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M12, 5-pin, straight, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 2 m, 5-wire, PUR, halogen-free</li> <li><b>Description:</b> Sensor/actuator cable, shielded</li> <li><b>Application:</b> Drag chain operation, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>	YF2A25-020UB6XLEAX	2145583
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M12, 5-pin, straight, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 1 m, 5-wire, PUR, halogen-free</li> <li><b>Description:</b> Sensor/actuator cable, shielded</li> <li><b>Application:</b> Drag chain operation, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>	YF2A25-010UB6XLEAX	2145582
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M12, 5-pin, straight, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 0.6 m, 5-wire, PUR, halogen-free</li> <li><b>Description:</b> Sensor/actuator cable, shielded</li> <li><b>Application:</b> Drag chain operation, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>	YF2A25-C60UB6XLEAX	2145581

	Brief description	Type	part no.
programming devices			
	<ul style="list-style-type: none"> <li>• <b>Product segment:</b> Programming devices</li> <li>• <b>Product family:</b> PGT-15</li> <li>• <b>Description:</b> PC programming unit for programmable TMS/TMM22B inclination sensors. Connects the M12 male connector of the sensor to a PC/laptop, enabling parameterization and diagnostics via SOPAS ET. The cable of the programming unit must not be extended.</li> <li>• <b>Items supplied:</b> 1 x PGT-15-M12 PC programming unit</li> </ul>	PGT-15-M12	1131448
	<ul style="list-style-type: none"> <li>• <b>Product segment:</b> Programming devices</li> <li>• <b>Product family:</b> PGT-15</li> <li>• <b>Description:</b> PC programming unit for programmable TMS/TMM22B inclination sensors. Connects the strands of the sensor to a PC/laptop via the terminal box, enabling parameterization and diagnostics via SOPAS ET. The cable of the programming unit must not be extended.</li> <li>• <b>Items supplied:</b> 1 x PGT-15-WIRE PC programming unit</li> </ul>	PGT-15-WIRE	1131450

## 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)