



# TMS88A-PCI360

TMS/TMM88

INCLINATION SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ

## Ordering information

| Type          | Part no. |
|---------------|----------|
| TMS88A-PCI360 | 1073802  |

Other models and accessories → [www.sick.com/TMS\\_TMM88](http://www.sick.com/TMS_TMM88)



## Detailed technical data

### Performance

|                                             |                                                  |
|---------------------------------------------|--------------------------------------------------|
| <b>Number of axis</b>                       | 1                                                |
| <b>Measuring range</b>                      | 360°                                             |
| <b>Resolution</b>                           | 0.01°                                            |
| <b>Accuracy</b>                             | Typ. ± 0.04°, max. ± 0.12°                       |
| <b>Temperature coefficient (zero point)</b> | Typ. ± 0.008°/K <sup>1)</sup>                    |
| <b>Limit frequency</b>                      | 0.1 Hz ... 25 Hz, 8. range (with digital filter) |
| <b>Sampling rate</b>                        | 80 Hz                                            |

<sup>1)</sup> Referring to the temperature of 25 °C.

### Interfaces

|                                           |                                                                                                                                      |
|-------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| <b>Communication interface</b>            | CANopen                                                                                                                              |
| <b>Device profile</b>                     | CiA DS-301, DS-410 v4.2.0<br>CiA (Device profile for inclination sensors)<br>CiA DSP-305 (Layer Setting Service (LSS) and protocols) |
| <b>Address setting</b>                    | 0...127, default: 10                                                                                                                 |
| <b>Data transmission rate (baud rate)</b> | 10 kbit/s ... 1,000 kbit/s, Default: automatic baud rate detection                                                                   |
| <b>Status information</b>                 | CANopen status via status LED                                                                                                        |
| <b>Bus termination</b>                    | Via external terminator                                                                                                              |
| <b>Parameterising data</b>                | Zeroset<br>Limit frequency<br>Preset value<br>Inverting of counting direction                                                        |
| <b>Programmable/configurable</b>          | Over PGT-12-Pro                                                                                                                      |
| <b>Initialization time</b>                | 200 ms                                                                                                                               |

### Electrical data

|                                    |                                                                    |
|------------------------------------|--------------------------------------------------------------------|
| <b>Connection type</b>             | Male connector, 1x, M12, 5-pin<br>Female connector, 1x, M12, 5-pin |
| <b>Supply voltage</b>              | 8 V DC ... 36 V DC                                                 |
| <b>Current consumption</b>         | < 33 mA @ 24 V                                                     |
| <b>Reverse polarity protection</b> | ✓                                                                  |

<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.

|                                              |                                          |
|----------------------------------------------|------------------------------------------|
| <b>MTTFd: mean time to dangerous failure</b> | 438 years (EN ISO 13849-1) <sup>1)</sup> |
|----------------------------------------------|------------------------------------------|

<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.

## Mechanical data

|                         |                       |
|-------------------------|-----------------------|
| <b>Dimensions</b>       | 66 mm x 90 mm x 36 mm |
| <b>Weight</b>           | + 200 g               |
| <b>Housing material</b> | Plastic PBT           |

## Ambient data

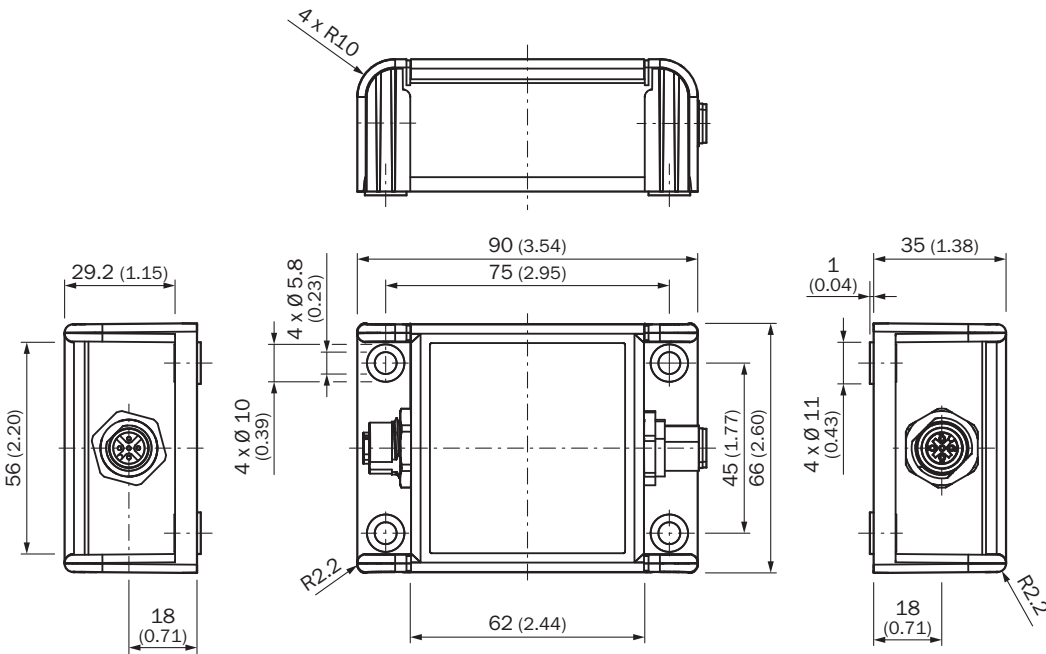
|                                    |                                                      |
|------------------------------------|------------------------------------------------------|
| <b>EMC</b>                         | EN 61326-1, EN ISO 14982, EN ISO 13309               |
| <b>Enclosure rating</b>            | IP65/IP67 (according to IEC 60529)                   |
| <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 (according to EN 60068-2-6) |

## Classifications

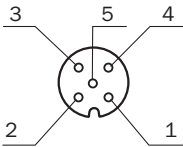
|                       |          |
|-----------------------|----------|
| <b>ECI@ss 5.0</b>     | 27270790 |
| <b>ECI@ss 5.1.4</b>   | 27270790 |
| <b>ECI@ss 6.0</b>     | 27270790 |
| <b>ECI@ss 6.2</b>     | 27270790 |
| <b>ECI@ss 7.0</b>     | 27270790 |
| <b>ECI@ss 8.0</b>     | 27270790 |
| <b>ECI@ss 8.1</b>     | 27270790 |
| <b>ECI@ss 9.0</b>     | 27270790 |
| <b>ECI@ss 10.0</b>    | 27271101 |
| <b>ECI@ss 11.0</b>    | 27271101 |
| <b>ETIM 5.0</b>       | EC001852 |
| <b>ETIM 6.0</b>       | EC001852 |
| <b>ETIM 7.0</b>       | EC001852 |
| <b>UNSPSC 16.0901</b> | 41111613 |

Dimensional drawing (Dimensions in mm (inch))

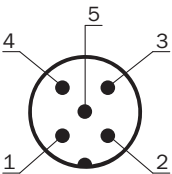
TMx88x-PxI



PIN assignment



| PIN<br>Female connector M12, 5-pin | Signal      | Function       |
|------------------------------------|-------------|----------------|
| 1                                  | CAN Shield  | Shielding      |
| 2                                  | VDC         | Supply voltage |
| 3                                  | GND/CAN GND | 0V (GND)       |
| 4                                  | CAN high    | CAN signal     |
| 5                                  | CAN low     | CAN signal     |



| PIN<br>Male connector M12, 5-pin | Signal      | Function       |
|----------------------------------|-------------|----------------|
| 1                                | CAN Shield  | Shielding      |
| 2                                | VDC         | Supply voltage |
| 3                                | GND/CAN GND | 0V (GND)       |

| PIN<br>Male connector M12, 5-pin | Signal   | Function   |
|----------------------------------|----------|------------|
| 4                                | CAN high | CAN signal |
| 5                                | CAN low  | CAN signal |

## Recommended accessories

Other models and accessories → [www.sick.com/TMS\\_TMM88](http://www.sick.com/TMS_TMM88)

|                                                                                     | Brief description                                                                                                                                                                                                                                                      | Type               | Part no. |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------|
| Programming and configuration tools                                                 |                                                                                                                                                                                                                                                                        |                    |          |
|    | Hand-held programming device for the programmable SICK AHS/AHM36 CANopen encoders, TMS/TMM61 CANopen inclination sensors, TMS/TMM88 CANopen, TMS/TMM88 Analog, and wire draw encoders with AHS/AHM36 CANopen. Compact dimensions, low weight, and intuitive operation. | PGT-12-Pro         | 1076313  |
| Distributors                                                                        |                                                                                                                                                                                                                                                                        |                    |          |
|    | Head A: female connector, M12, 5-pin, A-coded<br>Head B: male connector, M12, 5-pin, A-coded<br>5-pin                                                                                                                                                                  | DSC-1205T000025KM0 | 6030664  |
|    | Head A: female connector, M12, 5-pin, straight, A-coded<br>Head B: female connector, M12, 5-pin, straight, A-coded<br>Male connector, M12, 5-pin, straight, A-coded<br>Cable: CAN, Power, 0.5 m                                                                        | Y-CAN cable        | 6027647  |
| Plug connectors and cables                                                          |                                                                                                                                                                                                                                                                        |                    |          |
|  | Head A: female connector, M12, 5-pin, straight<br>Head B: Flying leads<br>Cable: CANopen, DeviceNet™, shielded, 2 m<br>A-coded                                                                                                                                         | DOL-1205-G02MY     | 6053041  |
|                                                                                     | Head A: female connector, M12, 5-pin, straight<br>Head B: Flying leads<br>Cable: CANopen, DeviceNet™, shielded, 5 m<br>A-coded                                                                                                                                         | DOL-1205-G05MY     | 6053042  |
|                                                                                     | Head A: female connector, M12, 5-pin, straight<br>Head B: Flying leads<br>Cable: CANopen, DeviceNet™, shielded, 10 m<br>A-coded                                                                                                                                        | DOL-1205-G10MY     | 6053043  |
|  | Head A: female connector, M12, 5-pin, straight<br>Head B: male connector, M12, 5-pin, straight<br>Cable: CANopen, DeviceNet™, PUR, halogen-free, shielded, 2 m<br>A-coded                                                                                              | DSL-1205-G02MY     | 6053044  |
|                                                                                     | Head A: female connector, M12, 5-pin, straight<br>Head B: male connector, M12, 5-pin, straight<br>Cable: CANopen, DeviceNet™, PUR, halogen-free, shielded, 5 m<br>A-coded                                                                                              | DSL-1205-G05MY     | 6053045  |
|                                                                                     | Head A: female connector, M12, 5-pin, straight<br>Head B: male connector, M12, 5-pin, straight<br>Cable: CANopen, DeviceNet™, PUR, halogen-free, shielded, 10 m<br>A-coded                                                                                             | DSL-1205-G10MY     | 6053046  |
|  | Head A: female connector, M12, 5-pin, straight<br>Cable: CANopen, DeviceNet™, shielded                                                                                                                                                                                 | DOS-1205-GA        | 6027534  |

|                                                                                   | Brief description                                                                             | Type               | Part no. |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|--------------------|----------|
|  | Head A: male connector, M12, 5-pin, straight, A-coded<br>Cable: CANopen, DeviceNet™, shielded | STE-1205-GA        | 6027533  |
|  | Head A: male connector, M12, 5-pin, straight<br>Cable: CANopen, unshielded                    | STE-1205-GKEND     | 6037193  |
|  | Head A: male connector, M12, 5-pin, straight<br>Cable: CANopen, unshielded                    | CAN male connector | 6021167  |

## 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)