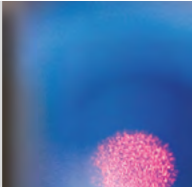




**PSI**  
Technics



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## SENSOR PROTECTION / COOLING

**TPCC Extends Sensor Life Even at High Temperatures**  
Extended application range at temperatures between 104°F and 176°F  
(+40°C and +80°C)

**Increased Sensor Life  
Saves Money  
on a Long-Term Basis**





# SENSOR PROTECTION / COOLING

## The TPCC® has been proven to extend the life span of sensor distance meters.

### Laboratory tests prove:

Under laboratory conditions the temperature of a DME5000 laser sensor diode was measured using the SOPAS software by SICK AG.

The temperature of a diode of an unprotected laser sensor (light blue line) was measured at a room temperature of 77°F (+25°C). The temperature of a laser sensor protected by the TPCC® (green line) was measured at an increased temperature (red line) of 161.6°F (+72°C).

### Laser sensor without TPCC® at room temperature 77°F (+25°C):

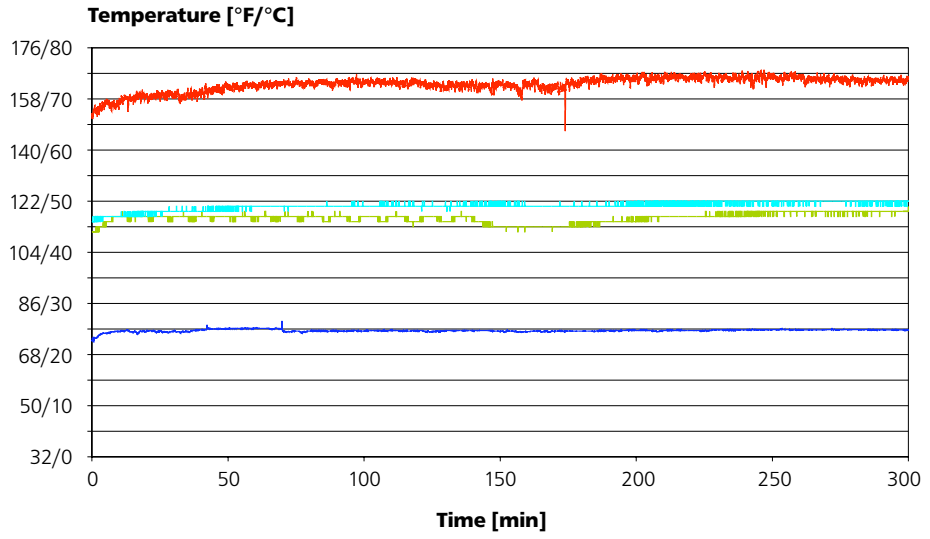
The graph shows that the constant operating temperature of the laser diode kept at a room temperature of 77°F (+25°C) (blue line) is as high as 122°F (+50°C) (light blue line).

### Laser sensor protected by the TPCC® at 161.6°F (+72°C):

When protected by the TPCC®, however, the sensor is kept at a constant temperature of 116.6°F (+47°C) (green line) in a high-temperature environment of 161.6°F (+72°C).

### Measurably extended life span of laser sensors:

- High temperature of approximately 161.6°F (+72°C)
- Laser temperature at room temperature without the TPCC®
- Laser temperature in a high-temperature environment with the TPCC®
- Room temperature approximately 77°F (+25°C)



### The Result:

Even when used in high-temperature environments of up to 161.6°F (+72°C) (see graph) the temperature of the laser sensor diode that is protected by the TPCC® is 5.4°F (3°C) lower than the operating temperature of an unprotected laser sensor at a room temperature of 77°F (+25°C). This temperature drop increases the life span of sensors by 15% (compared to the manufacturer's MTTF\* of 50,000 hours\*\* at 77°F (+25°C)).



## SENSOR PROTECTION / COOLING

**At an environmental temperature of 113°F (+45°C) the TPCC® increases the sensor life span by almost 440%.**

### Example 1:

An unprotected sensor can no longer be used at temperatures exceeding 122°F (+75°C).

When integrated into a TPCC®, however, the sensor's application range extends to 167°F (+75°C) and the sensor's working life increases by 15% compared to the specified MTTF at room temperature.

### Example 2:

A laser sensor can be used without any form of protection at a temperature range of 95°F < T < 122°F (+35°C < T < +50°C). But when integrated into the TPCC®, the MTTF value of the measuring system significantly increases. This is of particular importance because the laser's working life will be shortened without the TPCC®. For every 18°F (10°C) increase in temperature, the sensor's life span will be reduced by 50%, whereas the TPCC® keeps the temperature of sensitive sensors constant at 116.6°F (+47°C).

- >> Safe operation of SICK distance meters, such as the DME5000, in an elevated temperature range of >104°F to 176°F (> +40°C to +80°C).
- >> The TPCC® extends the laser's life span/MTTF\* in high-temperature environments up to 167°F (+75°C).
- >> The TPCC® ensures precise measurements, even at high temperatures.

### Important Facts:

Under normal operating conditions the life span of a SICK DME5000 at 77°F (+25°C) reaches 50,000 hours of operation\*\*.

If the temperature increases by 18°F (10°C) to 95°F (+35°C) the sensor's life span will be reduced by half to 25,000 hours of operation.

\* MTTF: Mean Time To Failure = statistical value for the average working life until first failure (reliability parameter for non-serviceable or non-repairable objects that corresponds to the average life span of an item)

\*\* Source: SICK DME5000 Technical Documentation



### Benefits of Using the TPCC:

- >> At environmental temperatures of 113°F (+45°C) the TPCC increases the sensor's life span by up to 440%.
- >> The average extended working life of lasers protected by the TPCC is 6.6 years as compared to only 1.5 years without the TPCC.
- >> This means that the TPCC pays for itself on average after only 2.5 years.





# SENSOR PROTECTION / COOLING

## Your Advantage: Increase Safety and Reduce Costs



### Your Competitive Advantage:

- >> The TPCC® increases the life span of laser sensors by 15% compared to the manufacturer's MTTF of 50,000 hours at 77°F (+25°C).
- >> At environmental temperatures of 113°F (+45°C) it increases the life span of laser sensor diodes by up to 440%.
- >> Average extended laser usage of 6.6 years (as compared to 1.5 years without the TPCC®).
- >> The TPCC® pays for itself on average after only 2.5 years.

### Our Service Offering:

- >> 36 months warranty for each new SICK sensor\* and for each new TPCC®, when both devices are purchased and used in combination. A corresponding warranty decal for your sensor will be included in your TPCC® shipment.
- >> The TPCC® ships with the required adapter that enables an easy integration of SICK sensors.

\* The extended warranty exclusively applies to the following SICK sensors:  
DME / DS / DT / DMT / DML / DL.

### TPCC® Receives Prestigious Award

The Thermo Protection Cooling Case (TPCC®) developed by PSI Technics is a completely new industrial enclosure designed to protect temperature-sensitive sensors. In October 2008, PSI Technics was awarded the "Innovationspreis Success" (Innovation Success Award) by the Investitions- und Strukturbank Rheinland-Pfalz (ISB GmbH) for developing the TPCC®.



### Awards:



ISB Success 2008, awarded by Innovations- und Strukturbank Rheinland/Pfalz (ISB), Germany



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