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THERMAL PROTECTION OF SENSORS

Extends Sensor Life Even at High Temperatures

Extended application range at temperatures between 104°F and 167°F
(+40°C and +75°C)

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





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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):

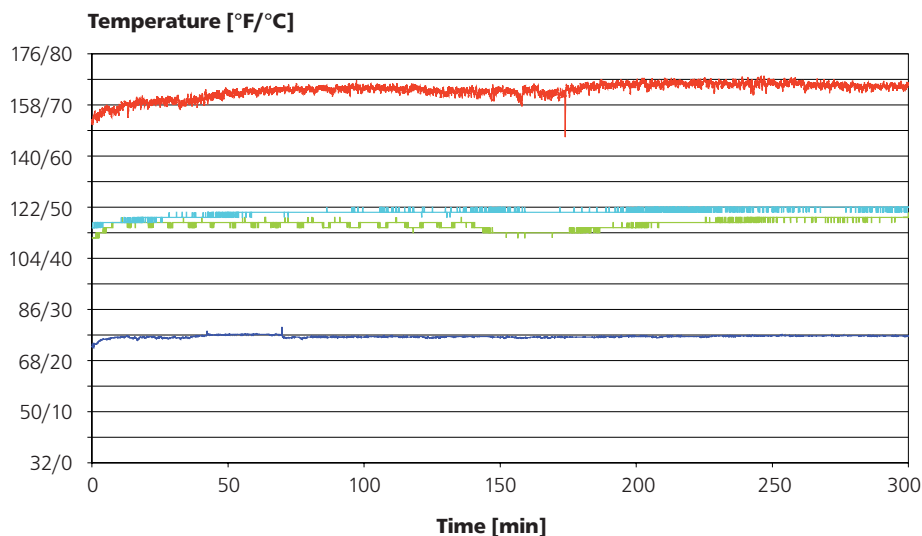
The graph shows that the constant operating temperature of the laser diode kept at a room temperature of 77°F (+25°C) (blue line) is as high as 122°F (+50°C) (light blue line).

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)).



THERMAL PROTECTION OF SENSORS

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

Conclusion:

- >> 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.





THERMAL PROTECTION OF SENSORS

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.

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

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.

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