THERMAL PROTECTION OF SENSORS

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
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).

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)).

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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

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.
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:

TPCC® Registered in U.S. Patent and Trademark Office

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PSI Technics – STORAGE & RETRIEVAL SIMPLIFIED. INCREASE QUALITY. SAVE ENERGY.