



Dexter Research is proud to announce a low-cost, calibrated, non-contact, infrared, Temperature Sensor Module (TSM). Dexter's TSM is based on our leadership in thermopile technology. Programmable outputs, flexible power requirements and multiple sensors support turnkey solutions. Applications include health care; environmental monitoring; HVAC control; temperature measurement and control of home appliances, printers, copiers, manufacturing equipment, and more.

1. Features

- Dexter Research's superior thermopile technology.
- Dexter calibrated IR thermometer with linear digital output.
- Easy to integrate small TO-5/TO-39 package.
- Low-cost, competitive pricing.
- Standard calibration in wide temperature ranges:
 - 40 to 85°C for ambient temperature.
 - 70 to 380°C for object temperature.
- Better than 0.5°C repeatability in the 0-50°C range.
- 0.02°C readout resolution possible.
- Fast refresh rate of up to 244 samples/second.
- Simple emissivity correction by user.
- Continuous temperature readout through PWM (Pulse Width Modulation) output.
- 2-wire SMBus compatible interface for reading temperatures and reconfiguring the sensor.
- Capable of sensor networks of up to 100 modules.
- High reliability and long-term stability.
- Excellent ESD/EMC characteristics.
- Available for 3V and 5V applications. Easy to adapt for voltage sources from 6-24V.
- Power saving mode for battery operation.
- Traceability through unique ID number in non-volatile memory.
- RoHS compliant.



- ▶ Temperature
- ▶ Security/Detection
- ▶ Laser Power and Targeting
- ▶ Gas Analysis
- ▶ Fire Suppression/Detection
- ▶ Imaging
- ▶ Specialty Items
- ▶ Thermopile Selection Guides

TSM Configurations						
	5 volt	3 volt	70° FOV	35° FOV	Medical Grade	Gradient Compensated
P/N	Supply		FOV			
MD-0003	X		X			
MD-0005	X			X		X
MD-0006		X	X			
MD-0007		X		X		X
MD-0008		X	X		X	

Superior TSM performance is driven by **Dexter Research** thermopile technology.

IT ALL BEGINS HERE.
Dexter Research is ISO 9001:2008 Certified

2. Overview of Dexter's unique TSM

Dexter's TSM is a ready-to use, cost-effective, non-contact IR thermometer. Calibrated output provides accurate object temperature sensing. You can customize this unit to accommodate a wide range of temperatures, power supplies, refresh rates and object emissivity. High memory reliability is assured by our TSM's embedded error checking and correction mechanism. Our TSM is housed in a industry standard TO-5/TO-39 package.

Dexter's TSM is ideally suited for handheld portable applications thanks to its low power consumption and sleep mode. Our digital sensor interface offers you a choice of a power-up-and-measure PWM or an enhanced access SMBus compatible protocol. Just two signal lines can accommodate systems with up to 100 modules. A wide variety of freezing/boiling prevention and alert systems are made possible thanks to a built-in thermal relay function.

Applications are found across many disciplines that include:

- Healthcare
- Human and animal body temperature measurement
- Thermal comfort sensor for built-in and portable HVAC control
- Temperature measurement and control of manufacturing equipment
- Temperature measurement and control of home appliances, printers and copiers
- Thermal relay, alarms and notifications – can be integrated with email and text notifications

3. TSM Evaluation Board

The evaluation kit (part number MD-0004 includes TSM MD-0003) is designed to support infrared temperature sensor modules. The communication between your PC and the evaluation board is accomplished via USB.

The main purpose of the evaluation kit is to allow customers to test the TSM for virtually any application. Customers can quickly evaluate the TSM for temperature range, optics, etc. to find the best configuration to meet their application without the need of additional hardware.

The Evaluation Board is based on the Microchip PIC18F4550, which supports cost competitive hardware, low-cost development tools and software that are an excellent starting point for any design. Dexter offers design services and customization of the evaluation board to meet your needs as well.



Please contact Dexter for further information: sales@DexterResearch.com