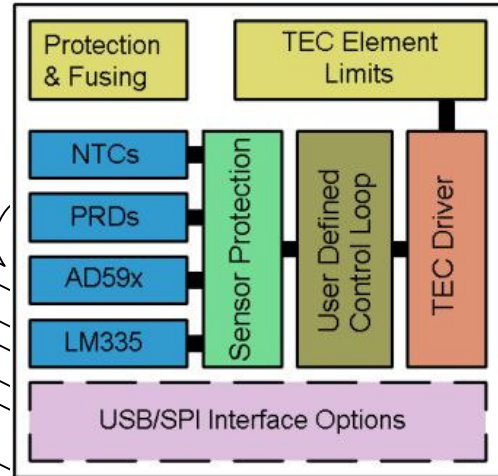




PC2 Precision Peltier Controller

FEATURES

- 0.005°C temperature control capability
- 0-3A bipolar Peltier drive current
- Multiple Temperature sensor capability
- 3-5V DC supply
- PWM operation, very low thermal dissipation, minimal heatsinking required
- Logic level shutdown control
- TEC current analogue monitor
- Reverse and over-voltage protection
- P/PI/PID control options
- USB control and monitoring



APPLICATIONS

This Eurocard sized switch mode precision temperature controller is intended for low to medium drive current bipolar (heating/cooling) Peltier applications, e.g. laser diodes, medical, laboratory and industrial precision temperature control. The added functionality included with the USB/SPI interface option allows full integration of the controller into computer controlled process control and monitoring applications.

DESCRIPTION

The PC2 unit is based on a high efficiency PWM power driver chip combined with a state-of-the-art zero-drift chopper stabilised PID controller circuit. The PID controller circuit can be tuned and optimised using a combination of user tuneable plug-in personality modules and USB control functionality. The unit provides up to +/- 3A Peltier drive current with very little heat dissipation, which can normally be used without an external heatsink. The module is capable, with adequate thermal management and set-up, of temperature control to better than +/- 0.005°C. Temperature set-point control is provided by a combination of two fixed value resistors and a high stability 13 turn potentiometer or via the USB interface. The module provides operator control, by simple potentiometer adjustment, of both the heating and cooling current limits and the maximum voltage which can be applied across the TEC. In the USB option of this controller the setpoint voltages can be monitoring during the set-up procedure using the computer interface. The output of the unit can be switched in and out by use of a 5V logic level shutdown facility and the TEC current can be monitored by reading the output of a single pin or via a PC (USB option). In the USB option the controller PID loop components may be removed completely and the PC used as the method of control.

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BASIC SPECIFICATION

Parameter	Symbol	Ratings	Unit
Operating Temperature	T_{stg}	-40 to +85	°C
Maximum Supply Voltage	V_{supp}	5.5	V
Maximum TEC current	$I_{TEC(max)}$	+/-3	A
Max TEC Voltage	$V_{TEC MAX}$	+/-4.3	V

Order Code

- PC2 (OEM standard PC2 functionality without USB interface)
- PC2-OEM (OEM standard PC2 functionality with USB interface)
- PC2-SL (Standalone controller with USB/SPI functionality)
- PC2-RACK (rack mounted version of standalone unit)

- USB (OEM and standalone controller card)
- USB-RACK (rack mounted version of the above)

Preliminary

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