

## Data Sheet

### TEC Controller TEC 12-50-B / -EL

#### Features

Drives Peltier elements with high efficiency – low noise design  
 Extremely precise digital temperature controller  
 Stackable up to four controller:  
     only one power supply and only one serial interface  
 Standard temperature sensors with preset configuration  
 Further temperature sensors configurable by customer  
 Digital PID controller, tunable by customer  
 LEDs for status notification  
 Serial interface for configuration, controlling and monitoring



#### Specification

Supply voltage	15.0 V ... 48.0 V, max. 50 V
Output voltage	max 45 V
Output current	max +/- 12 A
Output ripple	< 1%
Temperature range TEC	0 °C ... 50 °C
Accuracy	+/- 0.01 °C (with sensor PT100, PT1000)
Internal resolution	< 0.0001°C
Peltier efficiency ( $d\theta/d\theta_{max}$ )	> 99.9%

#### Inputs

Sensor	4-wire / 2-wire connection
Enable	TTL - impedance: 10 kΩ - (default configuration: low active)
Reset	TTL - impedance: 10 kΩ - (default configuration: low active)
Temperature setpoint	0 V ... 5 V (0 °C ... 50 °C) - impedance: 10 kΩ

#### Outputs

Ready	TTL - (high or low active; Totem pole or open collector)
Status	TTL - (high or low active; Totem pole or open collector)
Peltier element	Terminal+, Terminal-

#### General specifications

Ambient temperature	0 ... +45 °C	
Dimensions	B: 121 x 87 x 27 mm	EL: 121 x 87 x 27 mm
Weight	B: 250 g	B: 250

#### Description

The TEC Controller TEC 12-50-B / -EL is a controller and driver for Peltier elements. It is a temperature control system with extreme accuracy. The output ripple is very low due to extensive multistage filters. The output is short circuit proof. The supply voltage can be a standard industrial voltage with 24V or 48V or any other input voltage. The configuration for standard temperature sensors such as Pt100, PT1000, Ni1000 or KTY 11-5 is already integrated. Other temperature sensors can be defined by the customer. The coefficients of the PID controller can be adjusted by the customer. The user can enter a temperature set-point as well as limits for the temperature, for the Peltier voltage and current. It can be operated via hardware inputs / outputs and / or via software control. It is stackable with no additional wiring. Up to four controllers with only one power supply and only one serial interface such as USB or RS 232 are operating in one entity.

Type	Description	Ordering code
TEC 12-50-B-U	TEC 12A with USB interface	10100135
TEC 12-50-B-R	TEC 12A with RS232 interface	10100136
TEC 12-50-EL	TEC 12A Extension Board	10100138
USB cable adapter	USB Mini-B to SubD9F adapter	10385263
USB cable	USB 2.0: A to Mini-B cable	10385120
TEC Software	Control-Software for PC	31000055

Technical subjects to change without notice.

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