

## Data Sheet

### TEC Controller wide range TEC 12-50-B-WR

#### Features

Drives Peltier elements with high efficiency – low noise design  
 Extremely precise digital temperature controller  
 Standard temperature sensors with preset configuration  
 Arbitrary temperature sensors configurable by customer  
 Digital PID controller, tunable by customer  
 LEDs for status notification  
 Serial interface for configuration, controlling and monitoring  
 Analog output for actual temperature



#### 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	-100 °C ... +200 °C
Accuracy	+/- 0.1 °C (with sensor PT100, PT1000)
Internal resolution	< 0.0001°C
Peltier efficiency ( $d\vartheta/d\vartheta_{max}$ )	> 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 (-100 °C ... +200 °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-
Actual Temperature	0 V ... 5 V (-100°C ... +200°C) – impedance: 100Ω

#### General specifications

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

#### Description

The TEC Controller TEC 12-50-B-WR 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 is already integrated. Other temperature sensors characteristic 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.

Type	Description	Ordering code
TEC 12-50-B-U-WR	TEC 12A with USB interface	10100175
TEC 12-50-B-R-WR	TEC 12A with RS232 interface	10100176
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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