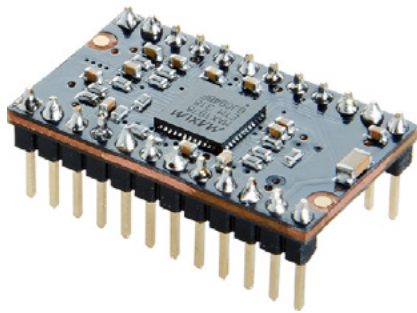


## PL-TEC 1-0305

### Driver for TEC Modules

Rev. 1905



### Product Description

The PL-TEC 1-0305 is a very small, safe and most accurate temperature controller for Peltier thermoelectric cooler (TEC) modules.

An ultra low drift chopper amplifier maintains  $\pm 0.001$  K temperature stability. Output current, rather than voltage, is directly controlled to eliminate current surges. Individual heating and cooling current limits and voltage limits provide the highest level of TEC protection.

The PL-TEC 1-0305 operates from a single supply and provides bipolar  $\pm 3$  A output by biasing the TEC between the outputs of two synchronous buck regulators. Therefore it is possible to keep the temperature constant even by low load currents without "dead zones" or other nonlinearities.

An analog control signal precisely sets the TEC temperature. The actual TEC temperature and current can be monitored via analog outputs. In addition, separate over- and undertemperature outputs indicate when the TEC temperature is out of range. An on-chip voltage reference provides bias for a thermistor bridge. Through the new efficient design, the PL-TEC 1-0305 itself requires no heat sink or other cooling method to reach its full output power.

- Bipolar  $\pm 3$  A output
- Temperature stability up to 0.001 K
- Adjustable TEC current and voltage limiting to protect TEC module
- Direct TEC temperature control
- No additional heat sink required
- Low ripple and low noise design
- Multiple monitoring outputs

### Technical Data\*

Output current	Bipolar 2.5 A, 3 A peak**
Output current limiting range	Heating: 0 .. 3 A Cooling: 0 .. 3 A Independently limitable by external resistor
Max. output voltage (referred to the supply)	- 4.3 .. + 4.3 V (@ +5 V)
Output voltage limiting range	- 2.3 .. + 2.3 V (@ +3 V)
TEC temperature monitor	0 .. 1.5 V**
Supply voltage	+3 .. +5 V single supply
Temperature stability	0.001 K**
Monitor outputs	- TEC temperature monitor - Over- and undertemperature output (open collector) - TEC current monitor - TEC temperature setpoint - enable (TTL level)
Control inputs	- enable (TTL level)
Power dissipation	< 2.5 W
Dimensions in mm	30 x 18 x 7.5
Weight	DIP 24-6 package
Operating temperature	8 g -20 to +55 °C

\* Technical data is subject to change without further notice.  
\*\* See manual for detailed information.

Optional Accessories: PL-TEC BOB