

### Introduction

The DLTC 300 is a Digital Switched-mode Temperature Controller that combines high efficiency with full digital control of PWM (pulse width modulation).

The DLTC 300 has a full digital PID loop with additional optional external correction.

A set of analogue monitors ensures easy system integration. Settings are non-volatile: set up and forget.



### Specification

|                    |  |  |
|--------------------|--|--|
| Features           | <b>Switched Mode Temperature Control for Thermo-Electric Elements and Resistive Heaters</b><br><b>NTC and PTC thermistors as temperature sensors</b><br><b>Internal and External PI control</b><br><b>Temperature stability 0.001 °C</b> |  |
| Applications       | <b>Laser, Detectors, Precision Instrument, OEM application</b>   |  |
| Specifications     | Parameter  | Value  |
| Power              | Single   | +5 V to 30 V (Vdd)   |
| Input sensor       | NTC, PTC thermistor  | 10, 50, 100, 250, 500, 1000, 1500 $\mu$ A activation current |
| Temperature        | Compliance voltage   | 2 V  |
|                    | Internal Set point   | Software selected  |
|                    | External Set point   | 0-5 V through 14 pin connector or software defined           |
| Output             | Stability Over 1 hour  | 0.001 °C ( with 20 K thermistor )                            |
|                    | Bipolar current  | +/-15 A  |
|                    | Current limit  | Symmetrical. User defined between 0 and I <sub>max</sub>     |
| Connectors         | Compliance voltage   | 8V typical maximum value                                     |
|                    | P-I control  | Digital Controlled   |
|                    | Power  | 60 W maximum without heatsink                                |
|                    | Security   | Software programmable voltage and current limits             |
| Monitor            | Power & TEC  | Terminal blocks with M3 Screw                                |
|                    | Digital Control  | USB B  |
|                    | Analog Data  | 14 pin Molex MiniFit (mating part Molex 430251008)           |
| Dimensions (WxHxD) | Actual temperature   | 0-5V following sensor voltage                                |
|                    | Set temperature  | 0-5V requested sensor voltage                                |
|                    | Actual current   | 0-5V following current with 2.5V offset                      |
|                    | Fault  | Active high 5V fault line                                    |
| Communication      | USB 2.0  |  |
| Weight             | 240 g  |  |
| Storage Temp       | -55 to 100 C   |  |
| Operating Temp     | -40 to 85 C  |  |

## Absolute Maximum Ratings

| Symbol          | Parameter               | Ratings    | Unit  |
|-----------------|-------------------------|------------|-------|
| V <sub>dd</sub> | Supply voltage          | +5 to 30   | Volt  |
| T <sub>op</sub> | Operational Temperature | -40 to 85  | Deg C |
| T <sub>st</sub> | Storage Temperature     | -55 to 100 | Deg C |

## Mechanical Information

| Parameter                      | Value   | Unit      |
|--------------------------------|---------|-----------|
| Length                         | 89(3.5) | mm (Inch) |
| Width                          | 89(3.5) | mm (Inch) |
| Height                         | 23(0.9) | mm (Inch) |
| Total Height Including sockets | 23(0.9) | mm (Inch) |
| Weight                         | 240     | Gram      |