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Thermoelectric Cooler Control Unit

The 06 DTC 101 is a low-cost, stand-alone thermoelectric cooler controller designed to provide flexible and stable thermal control of diode lasers, as well as for general purpose laboratory use. The unit can drive up to 16 W Peltier cooler elements commonly used for minimizing center frequency drift, prolonging lifetime or stabilizing operating characteristics of diode lasers. Thermistors, AD 590/592CN and LM335 temperature sensors can be used providing flexibility when selecting a sensor for a specific application. Gain adjust is also provided for optimizing the thermal response and settling time for thermal loads of differing mass.

The intuitive front panel controls and 3-½ digit LED display make configuring and operating the 06 DTC 101 simple. A user-adjustable current limit protects the Peltier cooler from inadvertent damage. Remote control and data acquisition is possible through the unit's temperature modulation input and analog output.

The 06 DTC 101 is compatible with all of the Melles Griot thermoelectrically cooled diode laser mounts and heatsinks described in the following pages. It can also be used in conjunction with the 06 DLD 201 utility diode laser driver described on page 50–20 to form a low-cost system for driving and temperature stabilizing a diode laser.

SPECIFICATIONS: THERMOELECTRIC COOLER CONTROL UNIT

Output

Maximum Current: 2 A

Maximum Voltage: 8 V

Read Resolution: 10 mA

Read Accuracy: ±50 mA

Current Limit Range: 0–2 A

Current Limit Resolution: 10 mA

Current Limit Accuracy: ±50 mA

Temperature Sensing IC Temperature Sensors

IC Sensor Types: AD 590, AD 592CN and LM335

Temperature Range: –20°C to 60°C

Long-Term Drift @ 25°C ±1°C: <0.1 °C, over 1 hour

Resolution: 0.1°C

Accuracy:

±3% AD 590, ±0.5% AD 592CN, ±3% LM335

Thermistors

Range

High: 100 Ω to 199.9 kΩ

Low: 10 Ω to 19.99 kΩ

Long-Term Drift of Heatsink: 0.05% of full scale

Resolution: 100 Ω / 10 Ω

Accuracy: 1% of full scale

Environmental and General

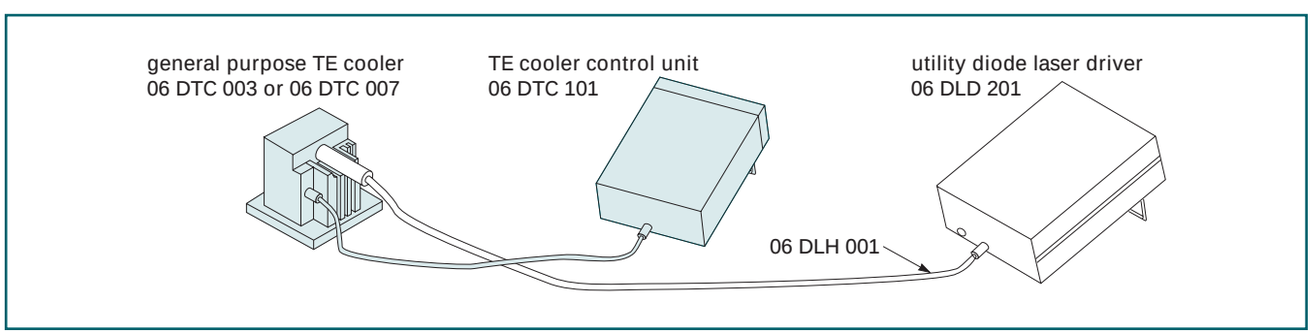
Dimensions: 132 mm (5 in.) × 66 mm (2.5 in.) × 183 mm (7 in.)

Weight: 3 kg (6.6 lb)

Power Requirements: 100-120 VAC, 220-240 VAC, 50-60 Hz

Temperature:

–40°C to +70°C storage, 10°C to 40°C operating



LOW COST DIODE LASER CONTROL SYSTEM, INCLUDING DIODE LASER DRIVER, THERMOELECTRIC COOLER CONTROLLER, AND DIODE LASER MOUNT.

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