CW and Pulsed Laser Diode Driver / Temperature Controller DSc11

The DSc11 laser diode driver / temperature controller allows for the high-precision, reliable, and cost-efficient operation of cw and pulsed diode lasers.

The driver has been designed for the current-stabilized control of laser diodes. In cw mode, the control of the optical power is also possible through an integrated photo-diode input.

With the driver versions that have a regulated voltage of up to 5 volts, up to two laser diodes in series can be driven simultaneously; with the 12 volt version, up to five are possible.

The driver DSc11 can be completely controlled through the RS232 serial interface. Current, voltage, temperature, and their operating limits can be set freely. Pulsed operation is possible internally through a freely configurable oscillator, as well as externally through a modulation input.

One or two PID temperature controllers are integrated in the piece of equipment. The standard set up is for NTC and PT100 sensors. Through a change in the software configuration, the use of silicon and other sensors is also possible.

Every KOMLAS driver passes a final 24-hour test run.

Special Features

- Precise current-controlled cw and pulsed laser driver
- Multiple safety and reliability mechanisms
- Fully digital control through an insulated RS232 serial interface
- Non-volatile pre-configuration (EEPROM)
- Up to two TEC drivers with PID control loop
- Digital and analog modulation inputs
- Very low dissipation loss through active compliance voltage control in cw operation
- Modulatable driver output for pilot laser

Specifications

Laser

- Laser current range: 0 ... 55 A
- Laser current resolution: 15 mA
- Laser current accuracy: < 0.5%
- Laser current noise: < 20 mA rms
- Rise time: $< 25\,\mu s$; fall time: $< 25\,\mu s$
- Compliance voltage range: 2.2 V ... 5 V
- Current limit: 0 ... I_{max} + 2 %
- Current limit resolution: 15 mA
- Current limit accuracy: 2 %
- Bias current in modulation mode
- External digital modulation input: TTL
- External analogue modulation 4V/ I_{max}
- Hardware interlock
- Transient protection

TEC-Driver

- Peltier current: max. -9 A ... +9 A
- Peltier voltage: max. 18 V
- Peltier current limit: 0 ... 9 A
- Peltier current resolution: 20 mA
- Thermo-sensor: NTC10k, PT100, or others
- Temperature control accuracy: <10 mK

General Information

- Over-heating protection for driver and laser
- Supply voltage: 100 ... 230 VAC~, 50 ... 60 Hz
- Dimensions: 140 mm × 190 mm × 300 mm (height × width × length)
- Mass: 4.8 kg