

High Power Laser Diode Drivers

LDTC100A

FEATURES

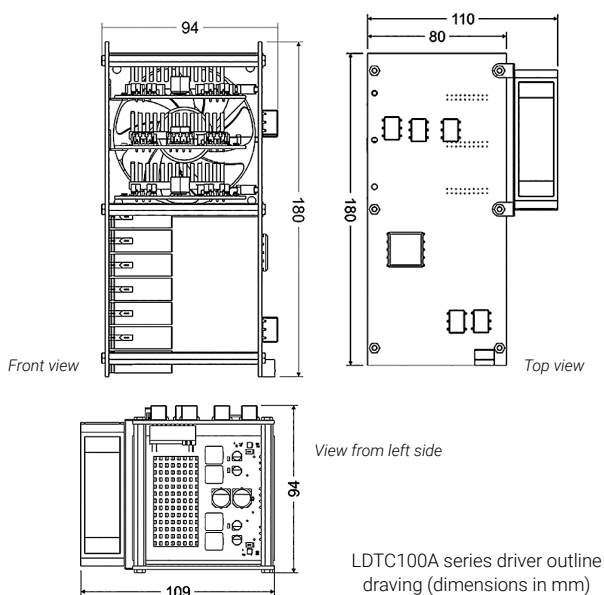
- > OEM design for easy integration
- > Wide current range
- > Broad diode compliance voltage range
- > Thermal sensors supported (NTC10K, PT1000, others on demand)
- > TEC controllers (up to 4 channels)
- > Precision temperature stability
- > Internal / external triggering
- > Computer controlled via supplied software
- > Latest DSP based control technology
- > Frequency response analysis feature allows easy compensation to achieve stable operation with any load and connection cables combination in both CW and QCW modes
- > High efficiency switching mode converter
- > Analog and digital control interfaces
- > Fast installation

LDTC100A Series High Power Laser Diode Drivers are designed specifically for an OEM market. High performance current source is designed specifically for controlling and testing high power laser diodes. This model offers maximum current range from 10 to 100 A QCW with maximum compliance voltages from 3.3 to 32 V. For virtual instrument programming, LabView® instrument drivers are available free of charge.



Specifications ¹⁾

MODEL	LDT100A
POWER SUPPLY INPUTS	
LD power stage	3.3 – 32 V DC
Control stage	12 – 24 V
TEC Stages	5 – 24 V
OUTPUT, QCW (PULSE MODE)	
Diode compliance voltage	1 – 22 V
Max pulse current	100 A
Max Bias Current	10 A
Current pulse raise / fall time	< 6 μ s ²⁾
Max LD RMS current	10 A ³⁾
Repetition rate (internal Trig)	2 Hz – 4 kHz ⁴⁾
Pulse duration (internal & external trig mode)	40...2000 μ s ⁴⁾
TEC REGULATORS	
Four Configurations available:	
W4	4 channels, 6 A max each
W3	3 channels, 1 channel \times 12 A, 2 channels \times 6 A
W2-6	2 channels, 2 \times 6 A max
W2-12	2 channels, 2 \times 12 A max
W1	1 channel, 1 \times 24 A max
Thermal sensors supported	NTC10k, Pt1000 ^{4) 5)}
TEC operation range	10 – 60°C
Temperature resolution	0.012 °C
Temperature stability	0.05 °C rms (typical)



MODEL	LDT100A
ENVIRONMENT	
Operating temperature	15 – 35 °C ⁶⁾
Cooling	Forced air, installed shared fan
PROTECTIONS	
Current transient protection	
LD Open circuit / Undervoltage shut-down	
TEC out-of-range Inhibit for LD operation	
Over temperature shut-down	
Interlock shut-down	
AUXILIARY OUTPUTS	
+12 V @ 100 mA for fan	
QCW OPERATION MODES	
Internal trigger	Pulse duration and Repetition rate of pulses generated internally
External trigger	Each pulse is started by a trigger pulse on the EXT TRIG input. Pulse duration is determined internally
DIGITAL INPUTS	
EXT TRIG	Each pulse is started by a trigger pulse rising edge. LD current Pulse duration is determined internally
LASER START	Switch on and off the laser operation by external switch or TTL signal
DIGITAL OUTPUTS	
SYNC OUT	For synchronization with the LD current pulse
Q-DELAY	Isolated output for synchronization of Pockels cell drivers
PHYSICAL CHARACTERISTICS	
Overall dimensions	185 \times 105 \times 94 mm, (15 mm fan included)
Weight	0.34 kg (80 \times 15 mm fan included)
DIGITAL CONTROL INTERFACE	
Communication with PC is via supplied USB-to-RS232 adaptor cable	
ASCII text command protocol	
Control application is provided	

¹⁾ Due to continuous improvements all specifications are subject to change.
²⁾ At minimal connection cable inductance and sufficient LD stage voltage.
³⁾ Calculated as bias current + averaged pulse current. At headroom voltage 2 V (optimized for 100 A pulse current).

⁴⁾ Other values/types available on demand.
⁵⁾ Factory-configured on order specification.
⁶⁾ De-rate LD RMS current at higher temperature.