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THORLABS

DC2100 - July 30, 2015

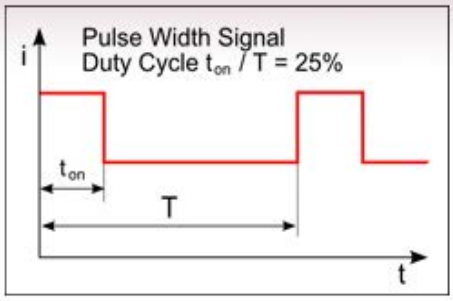
Item # DC2100 was discontinued on July 30, 2015. For informational purposes, this is a copy of the website content at that time and is valid only for the stated product.

HIGH-POWER LED DRIVER WITH PULSE MODULATION

- Ideal for LED Currents up to 2 A and Voltages up to 24 V
- Modulation Frequency: 1 to 100 kHz
- Pulse Width Modulation Mode
- External Modulation Trigger

DC2100

Pulse Width Modulation



Hide Overview

OVERVIEW

Features

- Very Stable LED Driver for Very High Power LEDs
- For Pulse Operation with Individual Pulse Width Control
- External Trigger Input up to 100 kHz Modulation
- Compact and Easy to Use
- 3 Modes of Operation
- USB2.0 Interface for Remote Control
- Compatible with µManager Automation Suite

Applications

- Operation of Very High Power LEDs or High Power LED Arrays
- LED Characterization
- Microscopy Applications with Trigger or Pulse Control Requirements

Thorlabs' DC2100 LED Driver is designed for the operation of very high power LEDs or high power LED arrays. This compact LED source provides a high current up to 2 A and high forward voltage up to 24 V. The pulse width modulation mode allows control of single pulse of a connected LED. The user can adjust: current, pulse frequency, duty cycle, and number of pulses. The user also has the

Key Specifications	
Item #	**DC2100**
LED Current Range	0 - 2 A
LED Current Resolution	1 mA
LED Current Accuracy	±20 mA
LED Forward Voltage	24 V
Modulation Frequency Range	0 - 100 kHz, Sine Wave
Modulation	Arbitrary

LED Controller Selection Guide				
Type	**Max Number of LEDs**	**Max Current**	**Modulation Mode**	**USB**
Compact T-Cube Driver	1	1.2 A	0 - 5 kHz	No
High-Power Driver	1	2 A	0 - 100 kHz	Yes
FLIM LED Driver[a]	1	1 A	0 - 100 kHz	Yes
4-Channel Driver	4	1 A	0 - 100 kHz	Yes

a. The FLIM LED Driver is only compatible with our FLIM LEDs and is sold with them as a kit. It offers an additional internal high frequency modulation mode for 10 to 100 MHz (sine wave)

option of using an external trigger to control the LED current. The external trigger voltage frequency can be modulated up to 100 kHz. This LED driver can be remotely operated via USB2.0 by the included software package with an intuitive GUI and an extensive driver set.

The DC2100 belongs to Thorlabs line of ultra-stable, high-brightness LED drivers for demanding scientific applications that are sensitive to even small high frequency brightness fluctuations. Typical applications range from the operation of very high power LEDs and LED characterization to microscopy applications that need to control individual LED pulses.

LED Options			
			
Fiber-Coupled LEDs	Collimated Microscope LEDs	Mounted LEDs	PCB-Mounted LEDs[a]

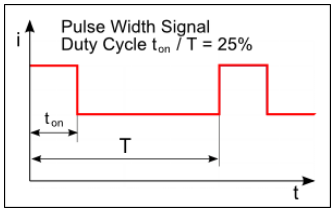
- Requires CAB-LEDD1 Cable

If connected to the Thorlabs MxxxL1 Series Mounted LEDs that are equipped with an EEPROM, the DC2100 automatically reads the stored LED data and adjusts its settings, e.g. the maximum current is read and used to avoid damage of the connected LEDs.

This driver is compatible with µManager, a versatile open source software platform for automated microscopy. A plugin of the µManager allows to control the LED driver from this software out of the box.

The DC2100 includes a universal (100 - 240 V) power supply with a location-specific power cord.

Operation Modes



1. **Constant Current**
   For Visual Inspection, Adjustable LED Current: 0 to 2 A in 1 mA steps.
2. **Pulse Width Modulation Mode**
   Control mode for single LED pulses with adjustable LED current (0 - 2 A), pulse frequency (1 Hz - 10 kHz), duty cycle (1 - 100%), and number of pulses (1 - 100 or continuous pulse emission)
3. **External Control Mode**
   Customizable External Trigger Mode with adjustable modulation frequency up to 100 kHz, Input Voltage 0 to 10 V (1 V corresponds to 200 mA LED Current)

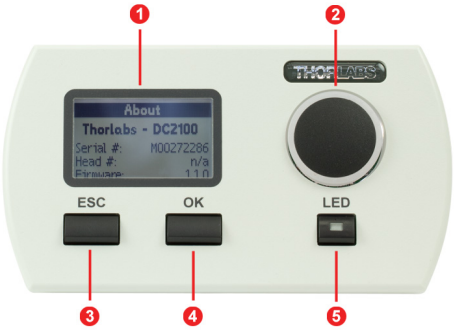
SPECS

Item #	DC2100
Constant Current Mode	
LED Current Range	0 - 2 A
LED Current Resolution	1 mA
LED Current Accuracy	±20 mA
LED Forward Voltage	24 V
Pulse Width Modulation Mode	
PWM Frequency Range	1 Hz - 10 kHz
PWM Frequency Resolution	1 Hz (for Frequencies <1 kHz) 100 Hz (for Frequencies >1 kHz)
Duty Cycle	1 - 100%
Duty Cycle Resolution	1%
External Control Mode	
Modulation Frequency Range	0 - 100 kHz, Sine Wave
Modulation[a]	Arbitrary
Trigger Input Max.	10 V 1 V corresponds to 200 mA
General	
Operating Temperature Range[b]	0 to 40 °C
Storage Temperature Range	-40 to 70 °C
Dimensions (W x H x D) w/o Operating Elements	160 mm x 80 mm x 150 mm
Dimensions (W x H x D) w/ Operating Elements	160 mm x 80 mm x 168 mm
Warm Up Time for Rated Accuracy	<10 min
Weight	<1 kg

a. If modulating with a waveform other than sine, the modulation bandwidth will be reduced.
b. Non-Condensing

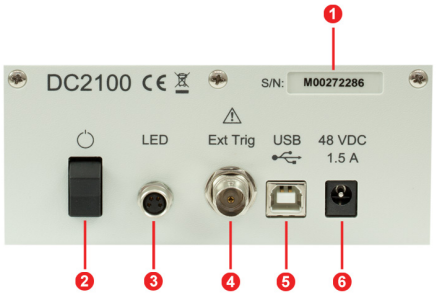
FRONT & BACK PANEL

DC2100 Front Panel



Callout	Connection	Callout	Connection
1	Display	4	OK Button
2	Display Control Knob	5	LED On/Off Button
3	Escape Button		

DC2100 Back Panel



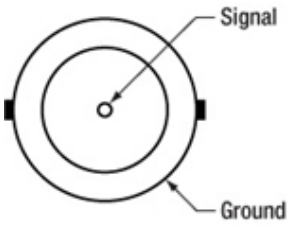
Callout	Connection	Callout	Connection
1	Serial Number of the Unit	4	External Trigger Input (BNC)
2	Power Switch	5	USB Connector
3	LED Connector	6	Voltage Supply Connector

PIN DIAGRAMS

LED Connector M8x1 Female

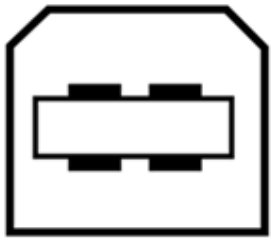
Pin	Description
1	LED Anode
2	LED Cathode
3	EEPROM GND
4	EEPROM I/O

External Trigger BNC Female



0 to 10 V, 0 to 100kHz external LED control.

Computer Connection USB B*



*USB type A to type B cable included.

SOFTWARE

Software for the DC2100 Series High-Power LED Driver with Pulse Modulation

Use this link to download the below software packages:

The available software is organized into the following categories:

1. **Software:** Standard software packages and graphical user interfaces. This is what most users need to operate the device for typical applications.
2. **Drivers:** Instrument drivers for the National Instruments™, LabWindows™/CVI and LabVIEW™ development environments. These are intended for developers who want to extend or adapt the functionality of the device to their special requirements.

Hide High-Power, Single-Channel LED Driver

High-Power, Single-Channel LED Driver

Part Number	Description	Price	Availability
DC2100	High-Power, 1-Channel LED Driver with Pulse Modulation, 2 A, 24 V	$1,820.00	Today

Hide LED Connection Cable

LED Connection Cable

- 4-Pin M8 Connector on One Side
- 4 Bare Wires on Other Side
- 2 m Long, 24 AWG Wires

The 4-Pin M8 connection cable can be used to connect the high-power LEDs on metal core PCB or other custom LEDs to the following Thorlabs LED drivers: LEDD1B, DC2100, DC4100, and DC4104 (the latter two require the DC4100-HUB).

Male M8x1 Connector

Pin	Description	Wire Color
1	LED Anode	Brown
2	LED Cathode	White
3	EEPROM GND	Black
4	EEPROM IO	Blue

Pin Connection - Male

The diagram above shows the male connector for use with the above Thorlabs LED drivers. The connector is a standard M8x1 sensor circular connector. Pins 1 and 2 are the connection to the LED. Please note that the pin connection diagram shown here may not be valid for third-party LED drivers.

Part Number	Description	Price	Availability
CAB-LEDD1	LED Connection Cable, 2 m, M8 Connector, 4 Wires	$15.50	Today