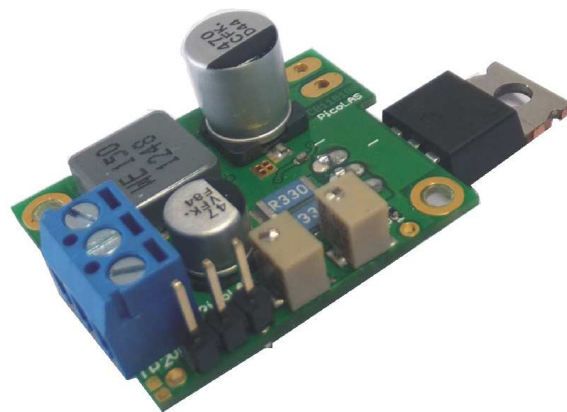




# User Manual

LDP-VRM 025-I2 CA



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## How to use the Manual



### Remark:

Please read all instructions before powering up the device.  
Please see section “Power Dissipation” for more details about thermal power losses during operation.



Please pay attention to all safety warnings.  
If you have any doubt or suggestion, please do not hesitate to contact us!

## Absolute Maximum Ratings (destroying limits)

- All input pins may not exceed the voltage range below zero (GND) and beyond VCC, resp. 5 V TTL.
- VCC Limit: see table in section “Power Supply (#3)”
- Peak output current: 2.5 A
- Operating temperature range: 0 °C .. +60 °C
- Best performance operating temperature range: +10 °C .. +35 °C
- Storage temperature range: -20 °C .. +70 °C

## Dos and don'ts

**Never** ground any output connector.

**Never** use any grounded probes at the output.

**Do not** connect your oscilloscope to the output!

Driver and the probe will immediately be destroyed!



Keep the connecting cables between power supply and driver as well as between driver and laser diode as short as possible.



**Be aware of hot surfaces! Do not touch!**



## LDP-VRM 025-12 CA

### Laser Diode Driver

Rev. 1905

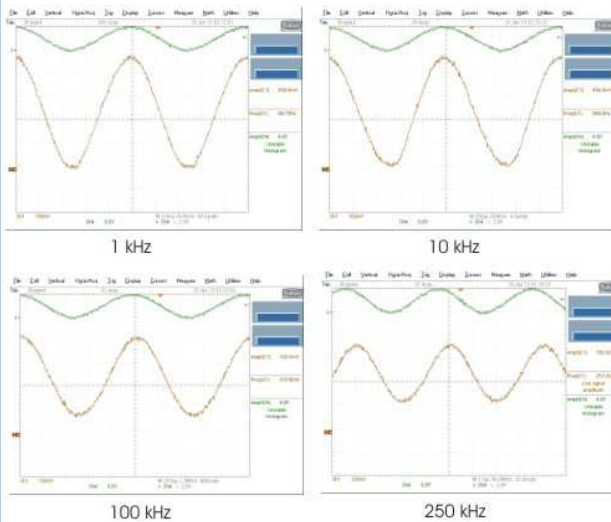


- Analog modulation dc .. 150 kHz
- Output current: 0 .. 2.5 A
- High speed
- Adaptive DC/DC converter

### Technical Data\*

Output current	0 .. 2.5 A
Max. compliance voltage	Single laser diode, up to 12 V
Current noise	< 3 %
Current overshoot	< 5 %
Analog modulation	180 kHz typical 150 kHz guaranteed
Current settling time (full-scale)	
Current setting input	0 .. 5 V
Current monitor	165 mV/A
Trigger	Analog / TTL (jumper)
Supply voltage	12 .. 20 V min 3 V above compliance
Power dissipation	4.5 W
Dimensions in mm	50 x 27 x 15
Weight	10 g
Operating temperature	0 to +55 °C

\* Specifications measured with a fast recovery diode instead of a laser diode. Technical data is preliminary and subject to change without further notice.



### Product Description

The LDP-VRM 025-12 CA is a fast driver for typical laser diodes. With its high output voltage it is suitable for IR, blue Ld's and all kinds of LEDs. The internal DC/DC converter stabilizes the voltage drop across the driving MOSFET to prevent excessive losses.

- Innovative current regulation concept actively prevents laser diode from overshoots and over-current
- Protection against transients through regulated current rise time
- Adaptive DC/DC converter for lowest losses

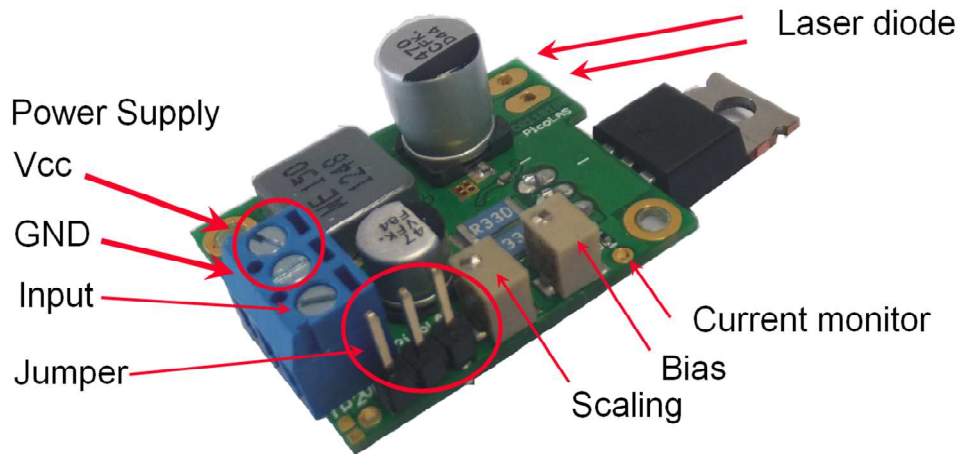
Optional Accessories: None

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## How to get started



The basic settings (scaling and BIAS current etc.) can be adjusted by potentiometer. Bias set a dc output current up to 1.6 A without connecting input signal.



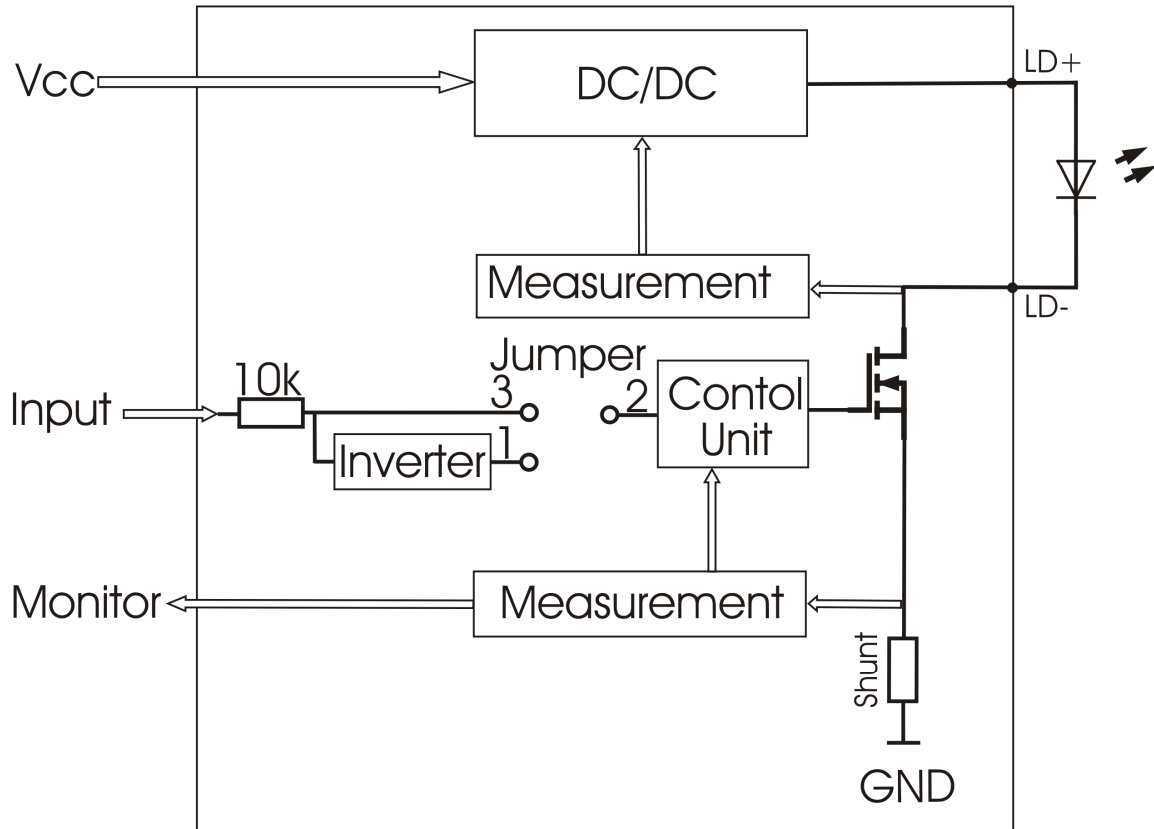
You need an additional waveform generator which has to be connected to the input terminal. There is no AWG included within the driver!

Step	What to do	Check
1	Solder a dummy diode between LD+ and LD-. Alternatively make a short circuit there.	See section “Test Load” range of compliance voltage 0 V .. 12 V.
2	Connect GND, VCC to power connector (power source disabled).	Range of VCC 12 V .. 20 V. Required max. current is about 1.2 A.
3	Connect waveform generator to input terminal (no pulse before enabling power supply).	See all sections discussing input (connector #2).
4	Enable the power source.	
5	Adjust scaling and bias.	See potentiometer for scaling a bias.
6	Feed a signal on the input terminal. For example 1 kHz sine wave with 1 V amplitude.	Make sure not to overload the laser diode or the driver. Range of input signal 0 V .. 5 V.
7	Monitor the current output.	The current monitor measures a signal comparable with the input signal. Use an oscilloscope with a 1 MEG ohm termination. Scale 165 mV/A.
8	Disable the input signal and turn off the power source. Remove the test diode or bypass and assemble the final laser diode.	
9	Turn the power supply for the VCC on again.	Range of VCC 12 V .. 20 V.
10	Feed a signal to the input terminal.	Make sure not to overload the laser diode!

## Required Laser Diode Pinout

The LDP-VRM 025-12 CA is designed for a direct connection to almost all kinds of laser diodes. The solder pads accept 2 and 3 terminal packaged laser diodes. The pitch of the LD+ and LD- connections is 3.5 mm.

## Power Driver Block Diagram



## Description of the Connectors

Connector	Function	
#1	Power connector: VCC	Screw terminal
#2	Power connector: GND for VCC and input signal	Screw terminal
#3	Power connector: input signal	Screw terminal
#4	Jumper	Analog / Digital
#5	Monitor	Scale 165 mV / A

## Power Supply (# 1...3) and absolute maximum Ratings

Pin of conn. #3	Allowed range	Best performance	Destroying limit
1 VCC (laser supply)	12 V .. 20 V	3 V above compliance	25 V
2 (GND)	GND	GND	
3 (Input terminal)	0 V .. 5 V	-	+ 5.3 V

### Input (#3)

The analog setpoint signal is provided via connector #3. The output current follows the input signal proportionally within the driver's limitations (bandwidth, max. current, rise time).

### Jumper

The analog input can be switched to an inverted digital input. Set the jumper left to activate the inverted digital input.

### Current Monitor (#5)

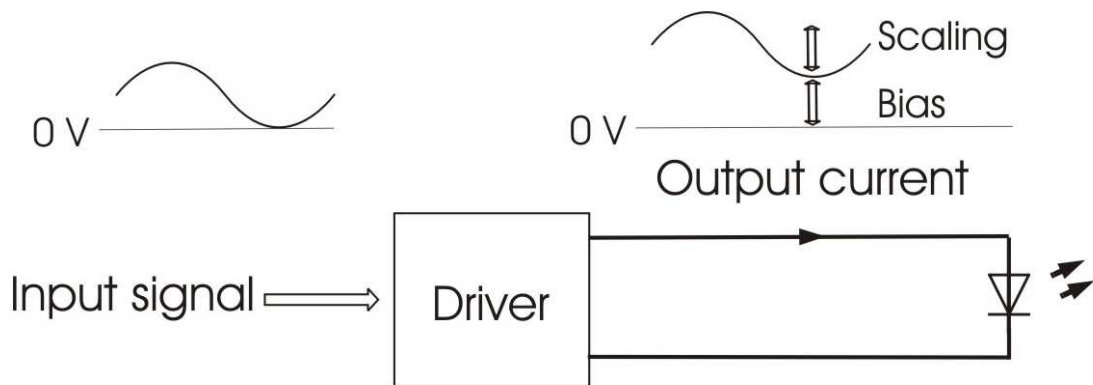
The scale of current monitor is 165 mV / A.

### Bias and scaling Potentiometers

The bias potentiometer sets a DC output current up to 1.6 A which is added to the input signal. Turn it right to increase the bias current.

The scaling potentiometer varies with the scaling of the input signal.

Turn it right to increase the scale from 0 A / V to 0.5 A / V.



### Test Load

For the first test an appropriate test load may be assembled instead of the laser diode. This test load can either be a short circuit or a Schottky diode like the ES3C. Please connect the test load only between anode and cathode (LD+ and LD-) and prevent shorts to any other part of the circuit.

### Power Dissipation

The control of the driver reduces the power dissipation automatically to a minimum. The driver has to be cooled and allows a maximum power dissipation of 4.5 W.

### Mechanical Dimensions

The following dimensions are in millimetres (mm).

width 27 // length 50 // height 15