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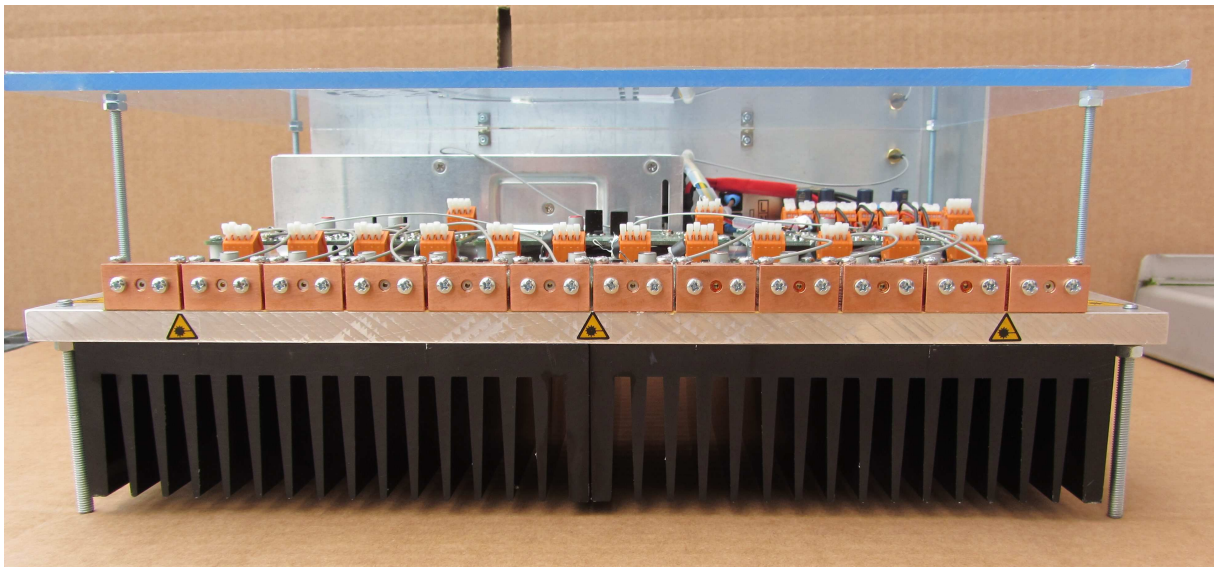
Manual

High Frequency Analog Laserdiode Setup

(Version 1.0 April 5th 2016)



Caution

This Manual describes the installation, control elements and operation procedures of the laser diode setup for common use. The setup consists of a customer specific laser diode driver equipped with high power OSRAM laser diodes. It is a laboratory prototype, not a commercial laser. The device must not be used by unqualified personnel and without careful study of this manual.

LASER SAFETY: TThis is a Laser Class 4 product. Opening the product and manipulation of the setup during operation is prohibited. There is the danger of fire caused by strong laser radiation and the danger of heavy injuries at the eyes and the skin when operating without adapted laser class 4 safeguard measures.

Laser Class 4

CAUTION:
The free space optical outputs emit strong visible laser light during operation of this setup. Do not block it with not heat-resistant material and do not look into it directly.

This Laser Diode Setup is equipped with 12 pcs. passively cooled laser diodes (type: OSRAM PL TB450B). Each of the diodes is operated by a voltage controlled current source. The current of each diode is adjusted simultaneously by one common control input within the range 0A .. 1.5A (corresponds with 0V .. 1.5 V control voltage at the input).

At the rear side of the device is a Power On switch, LED at the single PCB´s reflect the operational conditions. Set the voltage at the current control input to 0V before Power On or Power Off the device with the switch at the rear side!

The operation current range is limited to ~1.5A and negative current to protect the laser diodes. Exceeding the voltage range at the control input causes a current limit.

Be aware that the laser diodes heat up undue under longer DC operation and high environmental temperature. The heat resistance of the diodes itself causes a temperature increase by ~77K at 1.2A DC current. At 25°C environmental temperature the maximum chip temperature of 100°C will be exceed under this circumstance.

There is electromagnetic (RF) emission caused by the open, unshielded setup, in detail with the frequency of the control volatge!

Technical Data

Supply

Voltage	100 .. 244 V, 45 .. 65 Hz
Power	max. 300 W
Fuse:	3,15A T

Optical Specification

Laser Diode	PL TB450B
Channels	12
Laser Class	4
Wavelength	typ. 450 nm
Modulation Bandwidth	typ 100MHz sine

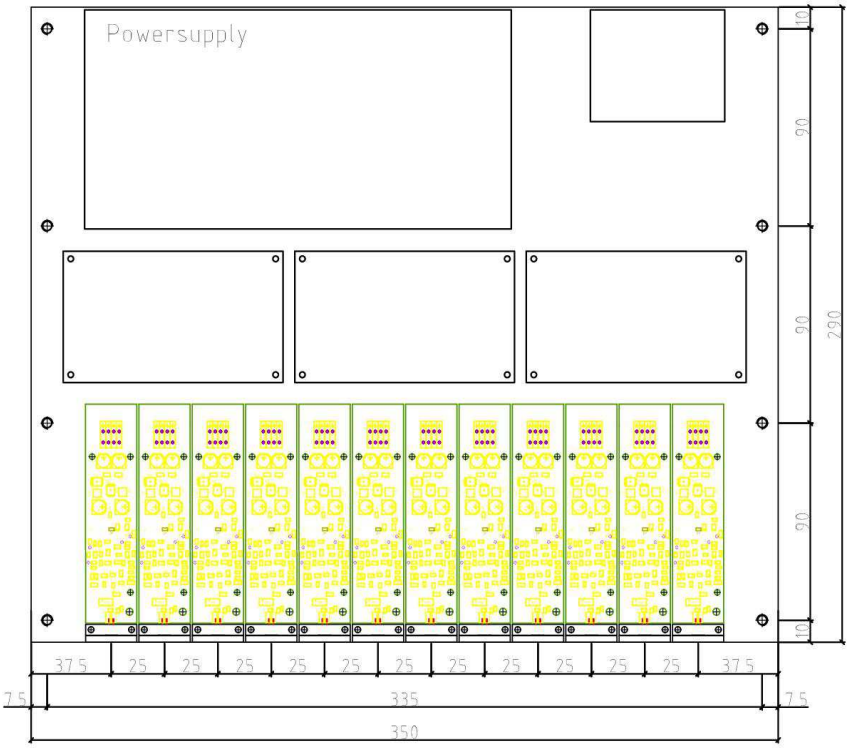
Electrical Specification

Current Control Input	SMA adapter, 50Ohm
Current Control Input Voltage Range	0V .. 1,5V
Conversion Factor	1A/V

Miscellaneous

Heat Resistance (Chip-Environment)	~21K/W
Size (W, D, H)	350 mm x 290 mm x 140 mm
Weight	8 kg
Operation Temperature	15 – 30 °C
Storage Temperature	-40 – 65 °C

Footprint with anchor points (M5)



Attachements

1. Test data channel Kanal 1 ..12 at 10, 80 und 100MHz and a voltage input of 0.3V .. 1,0V

2. Data Sheet PL TB450B