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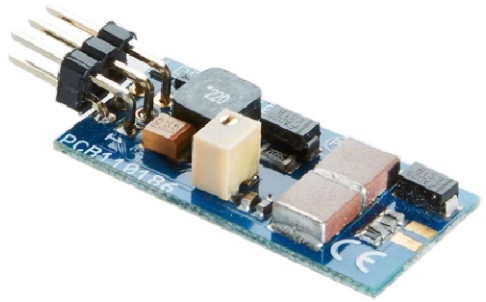
PicoLAS
FOCUSSING POWER TO THE POINT

Rev. 1905

LDP-AV 40-70

Ultra compact Driver Module for pulsed Lasers



- Ultra compact OEM module: 32 x 15 mm
- 8 to 40 A output current
- Fixed pulse duration
- Rep. rates from single shot to 100 kHz
- Single +15 V supply
- Current monitor
- Applications: LIDAR, Measurements, Ignition, Rangefinding, Biochemistry, ...

Product Description

The LDP-AV 40-70 is the smallest available source for nanosecond pulses. The device is optimized for size and functionality, integrating a HV-DC source and the pulsing stage into only 4.8 cm². Its typical application is driving pulsed laser diodes. Those can be mounted directly onto the LDP-AV, eliminating the need for strip lines. The diode must be electrically isolated from earth (chassis) ground.
Despite ist small size, the LDP-AV is designed for ease of use. It eliminates the need for multiple peripheral supply units. A single 15 V DC supply and a triggering signal are all which is required for operation.

Technical Data*

Output current	8 .. 40 A Single LD
Max. output voltage	15 .. 70 V, 0.1 A, 3 W
Int. high voltage	
Trigger delay	Typ. 36 ns, max. 40 ns
Pulse duration	Fixed (standard is N50 = 5 ns)
Trigger range	Single shot to 100 kHz** (refer to diagram with operating limits)
Max. duty factor	0.1 %
Trigger input	5 V into 50 Ω
Current monitor	20 A / V into 50 Ω
Supply voltage	+15 V 0.2 A
Max. power dissipation	2 W
Dimensions in mm	32 x 15 x 8
Weight	4 g
Operating temperature	-20 to +55 °C

* Measured into a short instead of laser diode. Technical data is subject to change without further notice.
** See manual for detailed information.

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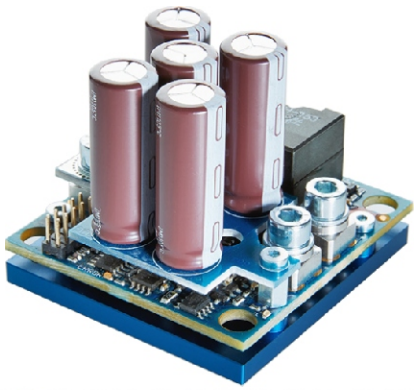
LDP-C 18-05

Rev. 1905

Driver for High Power Laser Diodes



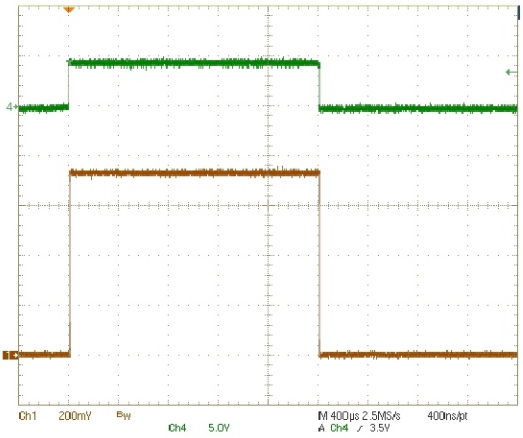


Figure: Current monitor output, scale: 5 A/Div

- Output current: 1 .. 18 A
- Output current between pulses: 0 A
- Compliance voltage: 1 .. 5 V
- Coverage of both cw and qcw range
- Analog modulation up to 16 kHz
- Half brick size OEM module
- Several protective features
- Adjustable current rise time
- High efficiency

Technical Data*

Output current	1 .. 18 A
Max. compliance voltage	5 V
Typ. pulse rise time (10 A)	400 ns .. 1 µs (adjustable)
Typ. pulse trigger delay	200 ns **
Min. pulse width	< 1 µs
Max. pulse width	cw
Max. repetition rate	500 kHz
Current ripple	< 200 mA, > 400 kHz
Current overshoot	< 1 %
Analog modulation (5 A_{pp})	< 16 kHz
Current settling time (full-scale)	< 150 µs
Pulse trigger input	5 V TTL into 500 Ω
Current setting input	0 .. 0.72 V external (25 A/V)
Current monitor	25 A/V
Voltage monitor	0.1 V/V
Supply voltage	4 .. 6 V DC (at least 1 V above compliance voltage)
Max. power dissipation	12 W
Dimensions in mm	60.9 x 57.8 x 54 Half brick size
Weight	194 g
Operating temperature	0 to +55 °C

* Specifications measured with a fast recovery diode instead of a laser diode. Technical data is subject to change without further notice.
** Max. 2 µs at longest rise time.

Product Description

The LDP-C 18-05 is a very affordable, compact and efficient current supply to drive laser diodes. The pulsing capability ranges from single pulses over several hundred kilohertz repetition frequency up to continuous operation. Besides pulsing the diode, analog modulation of the output current is also possible. Its intended field of application is laser soldering and welding as well as generic surface treatment.
The innovative current regulation concept of the LDP-C 18-05 produces, compared to the commonly used linear regulation concept, considerably less losses. Hence, only one supply voltage is needed for the control logic and the power stage. The current consumption drawn from the power supply only needs to cover the average laser power and is typically much less than 18 A.

Designed to shield your laser diode from damage, the LDP-C 18-05 features a number of powerful protective safeguards:

- Innovative current regulation concept actively prevents laser diode from overshoots and overcurrent
- Integrated Soft Start
- Protection against transients through regulated current rise time
- Overtemperature shutdown
- Enable/Disable input
- Driver status output
- Shunt MOSFETs short the output clamps in case of an error
- Protection of the laser diode against reverse currents

Optional Accessories: LDP-C BOB

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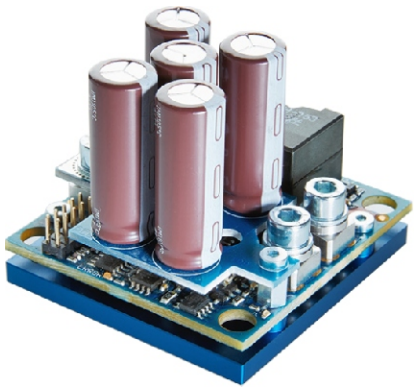
Rev. 1905

LDP-C 40-05

Driver for High Power Laser Diodes



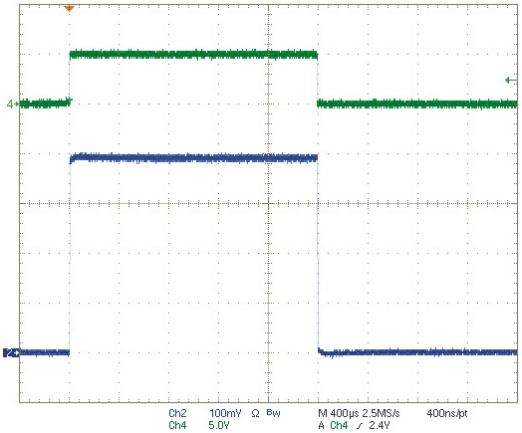


Figure: Current monitor output, scale: 10A/Div

- Output current: 1 .. 40 A
- Output current between pulses: 0 A
- Compliance voltage: 1 .. 5 V
- Coverage of both cw and qcw range
- Analog modulation up to 16 kHz
- Half brick size OEM module
- Several protective features
- Adjustable current rise time
- High efficiency

Technical Data*

Output current	1 .. 40 A
Max. compliance voltage	5 V
Typ. pulse rise time (10 A)	400 ns .. 1 µs (adjustable)
Typ. pulse trigger delay	200 ns **
Min. pulse width	< 1 µs
Max. pulse width	cw
Max. repetition rate	500 kHz
Current ripple	< 400 mA, > 200 kHz
Current overshoot	< 1 %
Analog modulation (10 A_{pp})	< 16 kHz
Current settling time (full-scale)	< 60 µs
Pulse trigger input	5 V TTL into 500 Ω
Current setting input	0 .. 1.6 V external (25 A/V)
Current monitor	25 A/V
Voltage monitor	0.1 V/V
Supply voltage	4 .. 6 V DC (at least 1 V above compl. voltage)
Max. power dissipation	30 W
Dimensions in mm	60.9 x 57.8 x 54 Half brick size
Weight	194 g
Operating temperature	0 to +55 °C

* Specifications measured with a fast recovery diode instead of a laser diode.
Technical data is subject to change without further notice.
** Max. 2 µs at longest rise time

Product Description

The LDP-C 40-05 is a very affordable, compact and efficient current supply to drive laser diodes. The pulsing capability ranges from single pulses over several hundred kilohertz repetition frequency up to continuous operation. Besides pulsing the diode, analog modulation of the output current is also possible. Its intended field of application is laser soldering and welding as well as generic surface treatment.
The innovative current regulation concept of the LDP-C 40-05 produces, compared to the commonly used linear regulation concept, considerably less losses. Hence, only one supply voltage is needed for the control logic and the power stage. The current consumption drawn from the power supply only needs to cover the average laser power and is typically much less than 40 A.

Designed to shield your laser diode from damage, the LDP-C 40-05 features a number of powerful protective safeguards:

- Innovative current regulation concept actively prevents laser diode from overshoots and overcurrent
- Integrated Soft Start
- Protection against transients through regulated current rise time
- Overtemperature shutdown
- Enable/Disable input
- Pulser status output
- Shunt MOSFETs short the output clamps in case of an error
- Protection of the laser diode against reverse currents

Optional Accessories: LDP-C BOB

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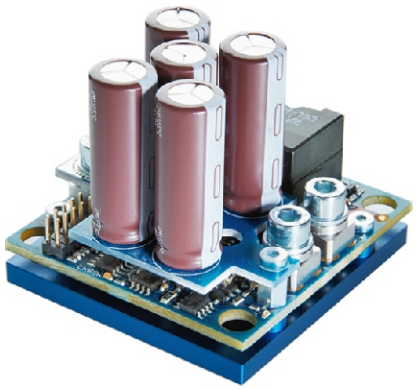
PicoLAS
FOCUSSING POWER TO THE POINT

Rev. 1905

LDP-C 50-05

Driver for High Power Laser Diodes



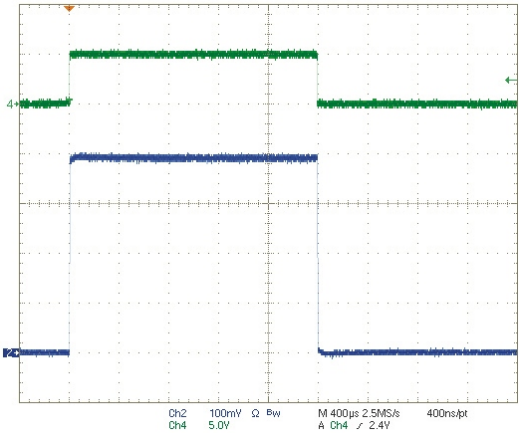


Figure: Current monitor output, scale: 10A/Div

- Output current: 1 .. 50 A
- Output current between pulses: 0 A
- Compliance voltage: 1 .. 5 V
- Coverage of both cw and qcw range
- Analog modulation up to 16 kHz
- Half brick size OEM module
- Several protective features
- Adjustable current rise time
- High efficiency

Technical Data*

Output current	1 .. 50 A
Max. compliance voltage	5 V
Typ. pulse rise time (10 A)	400 ns .. 1 µs (adjustable)
Typ. pulse trigger delay	200 ns **
Min. pulse width	< 1 µs
Max. pulse width	cw
Max. repetition rate	500 kHz
Current ripple	< 400 mA, > 200 kHz
Current overshoot	< 1 %
Analog modulation (10 A_{pp})	< 16 kHz
Current settling time (full-scale)	< 60 µs
Pulse trigger input	5 V TTL into 500 Ω
Current setting input	0 .. 2 V external (25 A/V)
Current monitor	25 A/V
Voltage monitor	0.1 V/V
Supply voltage	4 .. 6 V DC (at least 1 V above compliance voltage)
Max. power dissipation	30 W
Dimensions in mm	60.9 x 57.8 x 54 Half brick size
Weight	194 g
Operating temperature	0 to +55 °C

* Specifications measured with a fast recovery diode instead of a laser diode.
Technical data is subject to change without further notice.
** Max. 2 µs at longest rise time

Product Description

The LDP-C 50-05 is a very affordable, compact and efficient current supply to drive laser diodes. The pulsing capability ranges from single pulses over several hundred kilohertz repetition frequency up to continuous operation. Besides pulsing the diode, analog modulation of the output current is also possible. Its intended field of application is laser soldering and welding as well as generic surface treatment.
The innovative current regulation concept of the LDP-C 50-05 produces, compared to the commonly used linear regulation concept, considerably less losses. Hence, only one supply voltage is needed for the control logic and the power stage. The current consumption drawn from the power supply only needs to cover the average laser power and is typically much less than 50 A.

Designed to shield your laser diode from damage, the LDP-C 50-05 features a number of powerful protective safeguards:

- Innovative current regulation concept actively prevents laser diode from overshoots and overcurrent
- Integrated Soft Start
- Protection against transients through regulated current rise time
- Overtemperature shutdown
- Enable/Disable input
- Driver status output
- Shunt MOSFETs short the output clamps in case of an error
- Protection of the laser diode against reverse currents

Optional Accessories: LDP-C BOB

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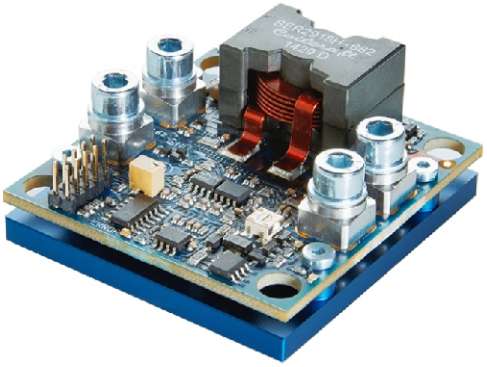
PicoLAS
FOCUSSING POWER TO THE POINT

Rev. 1905

LDP-CW 18-05

Driver for High Power Laser Diodes



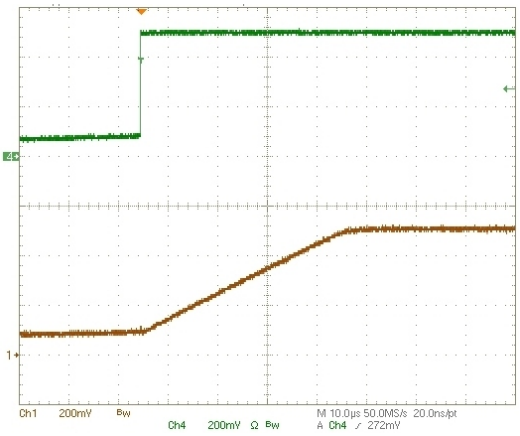


Figure: Current monitor output, scale: 10A/Div

- Output current: 1 .. 18 A
- Compliance voltage: 1 .. 5 V
- Coverage of cw range
- Analog modulation up to 16 kHz
- Half brick size OEM module
- Several protective features
- High efficiency

Technical Data*

Output current	1 .. 18 A
Max. compliance voltage	5 V
Current ripple	< 200 mA
Ripple frequency	> 400 kHz
Current overshoot	< 1 %
Analog modulation (5 A_{pp})	< 16 kHz
Current settling time (full-scale)	< 150 µs
Current setting input	0 .. 0.72 V external (25 A/V)
Current monitor	25 A/V
Voltage monitor	0.1 V/V
Supply voltage	4 .. 6 V DC (at least 1 V above compliance voltage)
Max. power dissipation	12 W
Dimensions in mm	60.9 x 57.8 x 54 Half brick size
Weight	154 g
Operating temperature	0 to +55 °C

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

Product Description

The LDP-CW 18-05 is a very affordable, compact and efficient current supply to drive laser diodes. The capability ranges from continuous output current to analog modulated waveforms like sinusoidal, rectangular or triangular. The modulation is only limited by the dI/dt of the inductor. Its intended field of application is laser soldering and welding as well as generic surface treatment and show lasers.
The innovative current regulation concept of the LDP-CW 18-05 produces, compared to the commonly used linear regulation concept, considerably less losses. Hence, only one supply voltage is needed for the control logic and the power stage. The current consumption drawn from the power supply only needs to cover the average laser power and is typically much less than 18 A.

Designed to shield your laser diode from damage, the LDP-CW 18-05 features a number of powerful protective safeguards:

- Innovative current regulation concept actively prevents laser diode from overshoots and overcurrent
- Integrated Soft Start
- Overtemperature shutdown
- Enable/Disable input
- Driver status output
- Shunt MOSFETs short the output clamps in case of an error
- Protection of the laser diode against reverse currents

Optional Accessories: LDP-C BOB

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Rev. 1905

LDP-CW 20-50

Fully digital cw Driver for High Power Laser Diodes

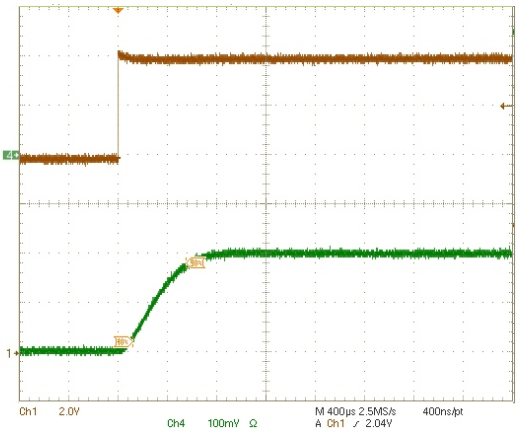

Figure: Soft Start, Current monitor output, scale: 10A/Div

- Output current: 1 .. 20 A
- Compliance voltage: 0 .. 50 V
- Output power: 1 kW
- Coverage of cw range
- Analog modulation
- Half brick size (35 cm²)
- Several protective features
- High efficiency

Technical Data*

Output current	1 .. 20 A
Max. compliance voltage	1 .. 50 V
Current ripple	< 1 %
Ripple frequency	> 1 MHz
Current overshoot	Refer to manual**
Analog modulation (10 A_{pp})	Refer to manual**
Current settling time (full-scale)	Refer to manual**
Current setting input	Analog or digital
Supply voltage	12 .. 55 V DC (min. 5 V above laser diode voltage)
Max. power dissipation	< 45 W
Dimensions in mm	60.9 x 57.8 x 29 Half brick size
Weight	194 g
Operating temperature	0 to +55 °C

* Specifications measured with a fast recovery diode instead of a laser diode.
Technical data is subject to change without further notice.
** Actual values depend on hardware setup

Product Description

The LDP-CW 20-50 is a very affordable, compact and efficient current supply for an output power up to 1 kW.
The capability ranges from continuous output current to analog modulated waveforms like sinusoidal, rectangular or triangular. The modulation is limited usually by the load inductance.
Intended field of application are laser soldering and welding as well as generic surface treatment and show lasers.
The innovative current regulation concept of the LDP-CW 20-50 produces, compared to the commonly used linear regulation concept, considerably less losses. Hence, only one supply voltage is needed for the control logic and the power stage. The current consumption drawn from the power supply only needs to cover the average laser power and is typically much less than 20 A.

Designed to shield your laser diode from damage, the LDP-CW 20-50 features a number of powerful protective safeguards:

- Innovative current regulation concept actively prevents laser diode from overshoots and overcurrent
- Integrated Soft Start
- Overtemperature shutdown
- Enable/Disable input
- Driver status output
- Protection of the laser diode against reverse currents

Optional Accessories: LDP-C BOB
PLB-21

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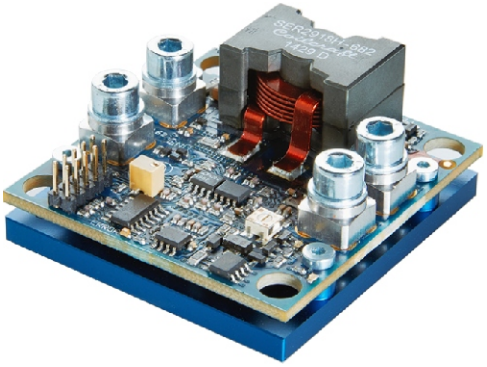
LDP-CW 40-05

Driver for High Power Laser Diodes



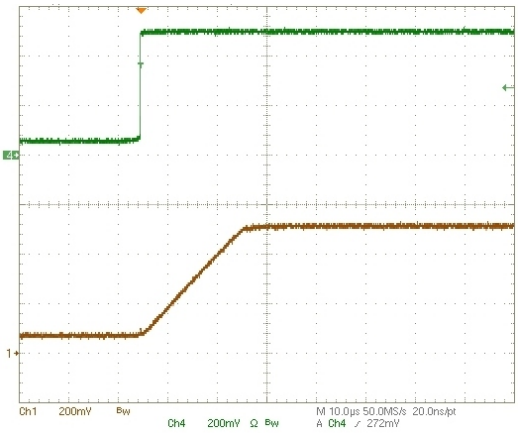


Figure: Current monitor output, scale: 10A/Div

- Output current: 1 .. 40 A
- Compliance voltage: 1 .. 5 V
- Coverage of cw range
- Analog modulation up to 16 kHz
- Half brick size OEM module
- Several protective features
- High efficiency

Technical Data*

Output current	1 .. 40 A
Max. compliance voltage	5 V
Current ripple	< 400 mA
Ripple frequency	> 200 kHz
Current overshoot	< 1 %
Analog modulation (10 A_{pp})	< 16 kHz
Current settling time (full-scale)	< 60 µs
Current setting input	0 .. 1.6 V external (25 A/V)
Current monitor	25 A/V
Voltage monitor	0.1 V/V
Supply voltage	4 .. 6 V DC (at least 1 V above compliance voltage)
Max. power dissipation	30 W
Dimensions in mm	60.9 x 57.8 x 29 Half brick size
Weight	154 g
Operating temperature	0 to +55 °C

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

Product Description

The LDP-CW 40-05 is a very affordable, compact and efficient current supply to drive laser diodes. The capability ranges from continuous output current to analog modulated waveforms like sinusoidal, rectangular or triangular. The modulation is only limited by the dI/dt of the inductor. Its intended field of application is laser soldering and welding as well as generic surface treatment and show lasers.
The innovative current regulation concept of the LDP-CW 40-05 produces, compared to the commonly used linear regulation concept, considerably less losses. Hence, only one supply voltage is needed for the control logic and the power stage. The current consumption drawn from the power supply only needs to cover the average laser power and is typically much less than 40 A.

Designed to shield your laser diode from damage, the LDP-CW 40-05 features a number of powerful protective safeguards:

- Innovative current regulation concept actively prevents laser diode from overshoots and overcurrent
- Integrated Soft Start
- Overtemperature shutdown
- Enable/Disable input
- Driver status output
- Shunt MOSFETs short the output clamps in case of an error
- Protection of the laser diode against reverse currents

Optional Accessories: LDP-C BOB

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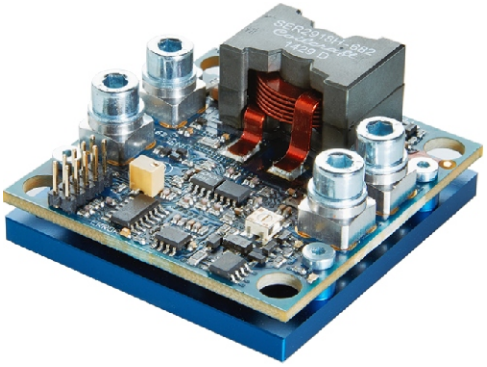
Rev. 1905

LDP-CW 50-05

Driver for High Power Laser Diodes



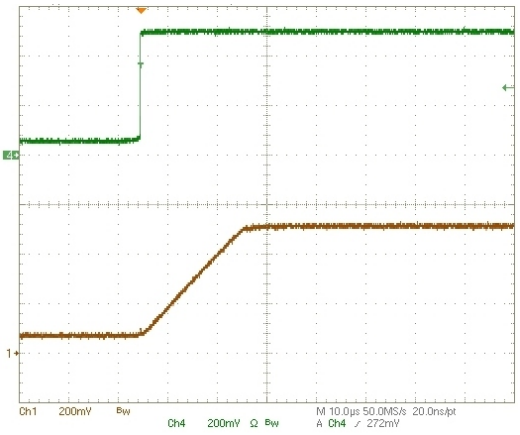


Figure: Current monitor output, scale: 10A/Div

- Output current: 1 .. 50 A
- Compliance voltage: 1 .. 5 V
- Coverage of cw range
- Analog modulation up to 16 kHz
- Half brick size OEM module
- Several protective features
- High efficiency

Technical Data*

Output current	1 .. 50 A
Max. compliance voltage	5 V
Current ripple	< 400 mA
Ripple frequency	> 200 kHz
Current overshoot	< 1 %
Analog modulation (10 A_{pp})	< 16 kHz
Current settling time (full-scale)	< 60 µs
Current setting input	0 .. 2 V external (25 A/V)
Current monitor	25 A/V
Voltage monitor	0.1 V/V
Supply voltage	4 .. 6 V DC (at least 1 V above compliance voltage)
Max. power dissipation	30 W
Dimensions in mm	60.9 x 57.8 x 29 Half brick size
Weight	154 g
Operating temperature	0 to +55 °C

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

Product Description

The LDP-CW 50-05 is a very affordable, compact and efficient current supply to drive laser diodes. The capability ranges from continuous output current to analog modulated waveforms like sinusoidal, rectangular or triangular. The modulation is only limited by the dI/dt of the inductor. Its intended field of application is laser soldering and welding as well as generic surface treatment and show lasers.
The innovative current regulation concept of the LDP-CW 50-05 produces, compared to the commonly used linear regulation concept, considerably less losses. Hence, only one supply voltage is needed for the control logic and the power stage. The current consumption drawn from the power supply only needs to cover the average laser power and is typically much less than 40 A.

Designed to shield your laser diode from damage, the LDP-CW 50-05 features a number of powerful protective safeguards:

- Innovative current regulation concept actively prevents laser diode from overshoots and overcurrent
- Integrated Soft Start
- Overtemperature shutdown
- Enable/Disable input
- Driver status output
- Shunt MOSFETs short the output clamps in case of an error
- Protection of the laser diode against reverse currents

Optional Accessories: LDP-C BOB

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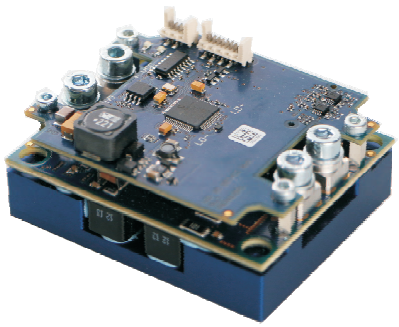
PicoLAS
FOCUSSING POWER TO THE POINT

Rev. 1910

LDP-CW 130-05

Fully digital controlled cw Driver for High Power Laser Diodes



- Output current: 5 .. 130 A
- Compliance voltage: 0 .. 5 V
- Output power: 900 W
- Coverage of cw range
- Analog modulation
- Several protective features
- High efficiency

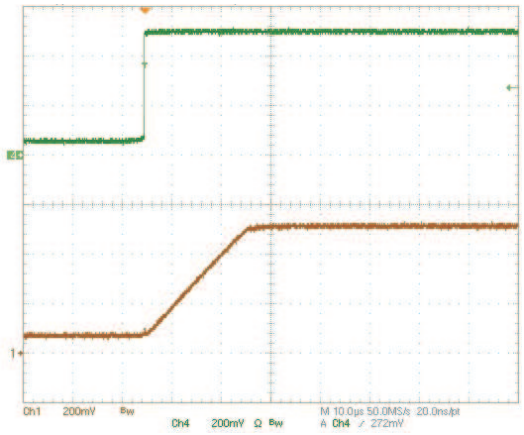


Figure: Soft Start, Current monitor output, scale: 10A/Div

Technical Data*

Output current	5 .. 130 A
Compliance voltage	0 .. typ.5 V (max. 10 V
Current ripple	< 1 %
Current ripple frequency	> 1 MHz
Current overshoot	< 1 %
Analog modulation (10 A_{pp})	TBD**
Current settling time (full-scale)	TBD**
Current setpoint input	Analog or digital
Current monitor	TBD**
Voltage monitor	Via RS-232
Supply voltage	24 V DC
Max. power dissipation	75 W
	Half brick size
Dimensions in mm	75 x 60.9 x 29
Weight	225 g
Operating temperature	0 to +55 °C

* Specifications measured with a fast recovery diode instead of a laser diode.
Technical data is subject to change without further notice.
** See manual for further details

Product Description

The LDP-CW 130-05 is a very affordable, compact and efficient current supply for an output power up to 1 kW.
The capability ranges from continuous output current to analog modulated waveforms like sinusoidal, rectangular or triangular. The modulation is limited usually by the load inductance.
Intended fields of application are laser soldering and welding as well as generic surface treatment and show lasers.
The innovative current regulation concept of the LDP-CW 130-05 produces, compared to the commonly used linear regulation concept, considerably less losses. Hence, only one supply voltage is needed for the control logic and the power stage. The current consumption drawn from the power supply only needs to cover the average laser power and is typically much less than 130 A.

Designed to shield your laser diode from damage, the LDP-CW 130-05 features a number of powerful protective safeguards:

- Innovative current regulation concept actively prevents laser diode from overshoots and overcurrent
- Integrated Soft Start
- Overtemperature shutdown
- Enable/Disable input
- Driver status output
- Protection of the laser diode against reverse currents

Optional Accessories: LDP-C BOB
PLB-21

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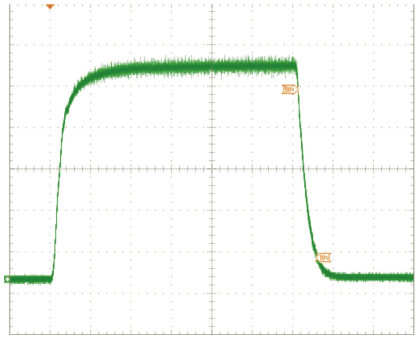
PicoLAS
FOCUSSING POWER TO THE POINT

Rev. 2103

LDP-CW 250-40

Driver for Laser Diode Stacks (10 kW)

- Fast analog modulation
- High efficiency
- Compact design: 5 W / cm³
- Isolated control interface



Technical Data*

Output current	10 A .. 250 A (300 A peak)
Compliance voltage	10 V .. 40 V
Efficiency	> 91 % @ 12 V, > 40 A
Current ripple	< 2.8 % (measured at 250 A)
Current overshoot	< 3.0 % (measured at 250 A)
Analog modulation	0 .. 50 kHz
Modulation voltage	0 .. 3 V (10 mV/A)
Current monitor	0 .. 3 V (10 mV/A)
Current rise time	< 20 µs
Current fall time	< 20 µs
Supply voltage power stage	20 .. 56 V, typ. 48 V
Supply voltage control stage	18 .. 25 V, typ. 48 V
Losses	280 W @ 12 V/250 A
Cooling	Water max. 45 °C
Power connection	Bus bars 5 x 10 mm
Control (18 V .. 60 V / 6 W)	Phoenix RM5.08
Modulation, current Monitor	SMC
Dimensions in mm	310 x 110 x 60
Weight	2.5 kg

* Specifications measured with a fast recovery diode instead of a laser diode and measured at a supply voltage of 24 V. Technical data is preliminary and subject to change without further notice.

Product Description

The LDP-CW 250-40 is a very efficient and compact driver for high power laser diodes and is available in two different versions: Standard and fast modulated (F). Both versions deliver a max. output voltage of 40 V with a current of up to 250 A. This 10 kW driver has an exceptional compact design leading to excellent power density of 5 W/cm³ and a high efficiency of up to 94 %.
The standard version features a very low current ripple of <0.8 %, minimal overshoot of <3 % with a maximum modulation frequency of 1 kHz. The F version increases the maximum modulation frequency to 50 kHz (-3 dB) with a pulse rise time of <20 µs, while keeping the maximum overshoot below 3 %.

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