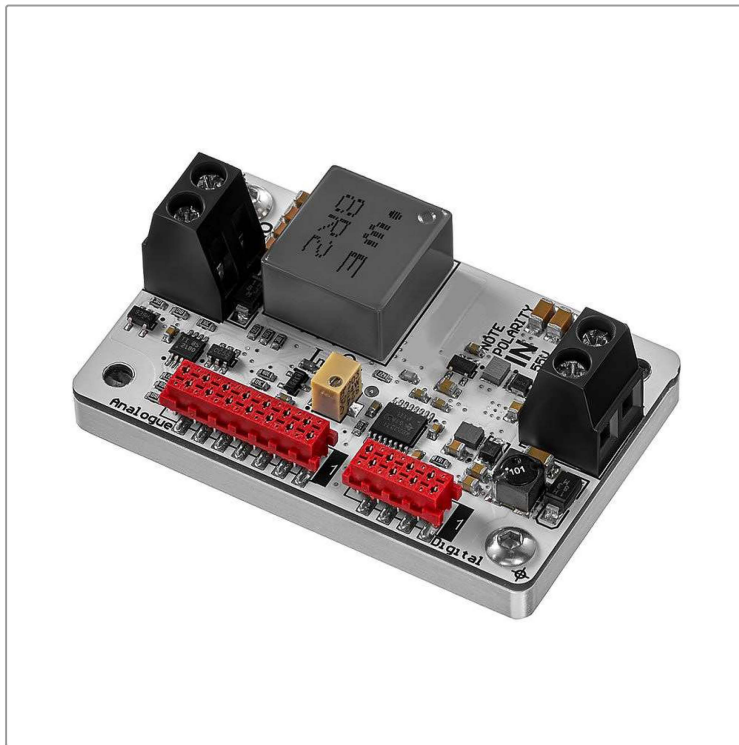
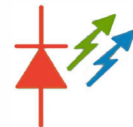


SF6060 15 Amp, 40 Volt Laser Diode Driver Module



LASER DIODE DRIVER MODULE

- ◇ Up to 15 Amp Output Current
- ◇ Up to 40 V Compliance Voltage
- ◇ Soft-Start Current Ramp, Current Limit, Reverse Voltage Protection
- ◇ NTC Thermistor Input for Laser Over-Temperature Fast Shut-Down
- ◇ GUI Control Software Included



**LASER
DIODE
DRIVERS**

v1.0.1 2020

Semiconductor Laser Sources
and Control Instruments

1. Features

- Low current ripple
- No need to adjust voltage
- Soft-start
- Adjustable overcurrent limit
- Thermal warning and shutdown
- Reverse current protection
- Crowbar circuit protection
- Universal controls
- NTC thermistor input
- Own software

2. Applications

- Supplying laser diodes, bars and arrays
- Supplying high power LED arrays

4. Package set

- Driver – 1 pcs
- 50 cm ribbon cable with one 8-pin connector – 1 pcs
- 50 cm ribbon cable with one 14-pin connector – 1 pcs
- Datasheet & User Manual – 1 pcs

5. Overall dimensions and weight

The driver has overall dimensions of 57.9 x 36.8 x 21 mm and a weight of 60 g.

6. Absolute maximum ratings*

	MIN	MAX	UNIT
Vin+ to Vin-	-0.3	60	V
Operating temperature	-40	50	°C
Analog control pins to GND	-0.3	5.5	V
RS-232 RXD to GND	-25	25	V
RS-232 TXD to GND	-13.2	13.2	V
UART RXD to GND	-0.3	5.5	V
UART TXD to GND	-0.3	5.5	V

*Stresses beyond those listed under absolute maximum ratings may cause permanent damage to the device. These are stress ratings only, which do not imply functional operation of the device at these or any other conditions beyond those indicated under recommended operating conditions. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.

3. Description

The SF6060 is a non-isolated DC/DC SMPS (POL) with constant current output. Driver produces high stability and low ripple current. Protection features include an over current protection with adjustable limit, soft-start, thermal warning and shutdown, reverse current protection and crowbar circuit protection. This means the SF6060 can safely drive nonlinear and current quality sensitive loads like laser diodes and LEDs.

The driver can be controlled by analog or digital signals.

SF6060 is available in thermal enhanced quarter-brick package with aluminum base plate to aid thermal dissipation. Driver can be mounted on any thermal conductive surface enough to dissipate driver losses.

7. Recommended operating conditions

	MIN	MAX	UNIT
Input voltage (V_{in})	12	55	V
Operating temperature	-10	40	°C
Analog control pins to GND	0	5	V
RS-232 RXD to GND	-12	12	V
RS-232 TXD to GND	-12	12	V
UART RXD to GND	0	5	V
UART TXD to GND	0	5	V

8. Power supply requirements

The driver requires a DC power supply with line regulation $\pm 1\%$. The power supply must be able to cover the driver output power and losses. The power supply voltage must be at least 27% higher than the voltage drop of your laser diode. Recommended power supply: Mean well SE-1000-48.

9. Electrical characteristics

PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OUTPUT					
Output voltage (V_{out})		5		$0.73 * V_{in}$	V
Output current (I_{out})		0		15	A
Current ripple			15	25	mA
Pulse rate (F)	QCW-mode	0.1		100	Hz
Pulse duration	Set by RS-232 or UART	2	1/F - 2	5000	ms
	Set by analog pin	0.5		1/F	
Rise time (Soft-start time)	$I_{out} = 15A$	60	75	100	us
	$I_{out} = 7.5A$	60	75	100	us
Fall-time (Stop time)		20	60	70	us
Error-triggered fall-time (Stop time)		20		55	us
Output capacitance			13.2		uF

INPUT					
Vin quiescent current	$V_{in} = 48V$, no AUX load	10	20	30	mA
Input capacitance			22		uF

CONTROLS					
Enable pin low threshold				1	V
Enable pin high threshold		2.3			V
Interlock pin threshold				1	V
Interlock pin pull-up resistance			10		k Ω
Current set pin voltage vs. output current			3		A/V
Current set step	Set by RS-232 or UART		0.01		A
Current set accuracy ¹	$5A < I_{out} < 10A$		+/- 5		%
	$10A < I_{out} < 15A$		+/- 1		%
Current set calibration		- 5		+ 5	%

¹ See more at regulation characteristic (Figure 3).

AUX SUPPLY					
+/- 15V accuracy			+/- 2		%
+/- 15V output current			20	30	mA
5V accuracy			+/- 1.5		%
5V output current			200	300	mA

INTERNAL MEASUREMENTS					
Internal measurements accuracy			+/-2		%
Current monitor pin voltage vs. output current			3		A/V
Voltage monitor pin voltage vs. output voltage			5		V/V
External sensor temperature	NTC 10k	-10		150	°C

POWER DISSIPATION					
Driver losses	$V_{in} = 55V, I_{out} = 15A$			20	W

PROTECTIONS					
Crowbar clamp resistance			7.4	9.4	mΩ
Crowbar clamp response time			100	200	ns
Over-temperature warning threshold temp			60		°C
Over-temperature warning hysteresis			2		°C
Over-temperature shut down threshold temp			80		°C
Over-temperature shut down hysteresis			22		°C

PRODUCT WARRANTY:

This product is sold with a full one year warranty. It is warranted to be free from defects in material and/or workmanship for a period of one year from the date of shipment. The warranty does not include damage to the product due to customer mishandling or use of the product outside of its specified maximum ratings.

INSTALLATION SUPPORT OR TECHNICAL SUPPORT FOR THIS PRODUCT:

800-887-5065 extension 1
contact@laserdiodecontrol.com



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