

Sorensen

SFA

High Slew Rate Current Source



Applications

- High power laser diode driver
- Diode pumped solid state laser driver
- Laser diode test and burn-in

SFA: High Slew Rate Current Source

The SFA family builds on the industry leading Sorensen SGA series to provide a high power current source for laser diode applications. State of the art high power laser diodes require well-regulated current control to avoid catastrophic damage. Under anomalous operating conditions, excessive stored energy in the output circuit of the power supply can result in peak stresses that can permanently damage the device. Providing a constant current regulation mode only, the SFA's low stored energy output minimizes damage potential for sensitive devices as well as enabling a current slew rate of up to 400 A/msec.

SPECIFICATIONS

ELECTRICAL CHARACTERISTICS

Control Mode

Current Control

Front Panel Meter Accuracy

Voltage $\pm 0.5\%$ of full-scale + 1 digit

Current $\pm 0.5\%$ of full-scale + 1 digit

Load Regulation

(no load to full load, nominal AC input)

Current 0.1% of rated output current

Line Regulation

($\pm 10\%$ of nominal AC input)

Current 0.05% of rated output current

Current Ripple

1% p-p of full-scale current

Transient Response

Output current recovers to within 1% of current setpoint within 1ms for a 10 to 100% or 100% to 10% step load change

Output Slew Rate

250A/ms rise, 200A/ms fall at full load (minimum)

400A/ms typical

Current Overshoot

Maximum 8% of full-scale for 0 to 100% change into a resistive load

Output Capacitance

60V Models: $< 2\mu\text{F}$

160V Models: $< 3\mu\text{F}$

Stability

$\pm 0.05\%$ of setpoint after 8-hr. warm-up at fixed line, load, and temperature using remote sense

Power Factor

> 0.9 typical for 208/220VAC input

> 0.78 typical for 380/400VAC input

> 0.7 typical for 440/480VAC input

Remote Analog Control

Current Setpoint Accuracy

$\pm 0.8\%$ of full-scale output

Overcurrent Protection

$\pm 1\%$ of full-scale output

Resistive Control

0–5 kW = 0–100% Current

Voltage Control

0–5 or 0–10 VDC = 0–100% Current

Overcurrent Protection

0–5.5 VDC = 0–110%

Efficiency

87% typical at full load, nominal line

Remote Control/Monitor

On/Off control via contact closure, 6–120 VDC or 12–240VAC, and TTL or CMOS switch, current monitor, OCP limit set, summary fault status

Overvoltage Protection

Fixed at approximately 110% of the rating compliance voltage. Reset requires cycling the front panel standby power switch off/on

Isolated Analog Control (option)

Input to Output Isolation: 500 V

Compliant with maximum terminal float voltage.

Recommended operation under SELV normal conditions.

ENVIRONMENTAL CHARACTERISTICS

Ambient Operating Temperature

0 to 50°C

Storage Temperature

-25 to 65°C

Temperature Coefficient

Current Setpoint

0.03%/°C of rated current

Cooling

Internal Fans. Zero clearance stacking

Humidity

0 to 90% at 40°C; 0 to 50% at 25°C

non-condensing

Altitude

Full power at 5,000 feet, 10% derating of full power for every 1,000 feet above 5,000 feet

Regulatory

Certified to UL/CSA 61010 and IEC/EN 61010-1

CE Compliant (LVD and EMC Directives)

INPUT POWER OPTIONS

Configuration

3-phase, 3-wire plus ground. Not phase rotation sensitive. Neutral not used.

Voltage Selection

208/220 VAC $\pm 10\%$, 47 to 63 Hz

380/400 VAC $\pm 10\%$, 47 to 63 Hz

440/480 VAC $\pm 10\%$, 47 to 63 Hz

PHYSICAL

Up to 15kW in 3U

19.00in W x 25.12in D x 5.25inH; 80 lbs.

(48.3cm W x 63.8cm D x 13.3cm H; 36 kg)

15 - 30kW in 6U

19.00in W x 25.12in D x 10.5in x H; 160 lbs.

(48.3cm W x 63.8cm D x 36.7cm H; 73 kg)

RATINGS

Voltage	5kW	10kW	15kW	20kW	25kW	30kW
0-60V	0-83A	0-167A	0-250A	0-333A	0-417A	0-500A
0-160V	0-31A	0-63A	0-94A	0-125A	0-156A	0-188A



P O W E R E V O L V E D

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