

Sorensen SFA Series

High Slew Rate Current Source

Cal Power

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5–150 kW

60–160 V

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.



31–2500 A



208

400

480

ETHERNET



LXI RS232

| Power | 3U | | | 6U | | |
|---------|------------------------------------------------|-------|-------|-------|-------|-------|
| | 5 kW | 10 kW | 15 kW | 20 kW | 25 kW | 30 kW |
| Voltage | Maximum Current (parallel for higher current.) | | | | | |
| 60 | 83 | 167 | 250 | 333 | 417 | 500 |
| 100 | 50 | 100 | 150 | 200 | 250 | 300 |
| 160 | 31 | 63 | 94 | 125 | 156 | 188 |

| Specifications (at nominal AC line and 25°C) | |
|----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Output Slew Rate (10-90% resistive load) | 250A/ms (400A/ms typical) rise, 200A/ms typical fall; 160V model 87A/ms/5kW (145A/ms/5kW typical), 60A/ms, typical, fall |
| Control Mode | Current Control Only |
| 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 |
| Current Overshoot | Maximum 8% of full-scale for 0 to 100% change into a resistive load |
| Output Capacitance | 60V Models $<10 \mu\text{F}$ / 5 kW, 100/160V Models $3 \mu\text{F}$ / 5 kW |
| 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, 0–5k Ω = 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 |
| Ethernet Control (optional) | LXI compliant 10/100 Base T Ethernet remote control with web server for direct control of power supply via web browser. |
| Isolated Analog Control (optional) | Input to Output Isolation: 500 V Compliant with max. terminal float voltage. Recommended operation under SELV normal conditions. |
| Regulatory | Certified to UL/CSA 61010 and IEC/EN 61010-1, CE Compliant (LVD and EMC Directives), Input power options |
| Input Power Configuration | 3-phase, 3-wire plus ground. Not phase, rotation sensitive. Neutral not used. |
| Input Power 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 |
| Environmental | |
| 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 |
| Physical | |
| 5 to 15 kW 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) |
| 20 - 30 kW 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) |
| Accessories | |
| Modifications | AJ: Front panel dust filter - factory installed - 3U unit only |
| K550212-01 / 5550568-01 | 3U Rack Slides (for 5kW, 10kW and 15kW models) / Front panel dust filter - field installation kit - 3U unit only |
| K550213-01 / 9550589-01 | 6U Rack Slides (for 20kW, 25kW and 30kW models) / AC input cover - 3U unit only |

Notes

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