

Sorensen XFR 6-200

## Programmable DC Power Supply



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# XFR 1.2 kW

xantrex

## XFR 1.2 kW Programmable DC Power Supply with Zero Voltage "Soft Switching"



### Provides 1.2 kW of DC Power for OEM Applications

The Xantrex XFR 1.2 kW programmable DC power supply provides clean, reliable power for research, product development, production test applications, and OEM applications where high power and a wide adjustment of output voltage or current are required in a 19-inch rack package. The XFR 1.2 kW is packaged in a 1.75-inch (1 U) high chassis and offers twenty percent more power than any competitive product in a similar package.

The supplies have excellent thermal management allowing for units to be stacked in rack mounts without any ventilation space required between each unit. They also offer high reliability with zero voltage, or "soft switching", which virtually eliminates switching transients for high efficiency, decreased heat generation, and reduced stress on the switching transistors.

### Product Features

- ▶ Zero voltage "Soft Switching"
- ▶ Simultaneous front panel display of output voltage and current
- ▶ Constant voltage or constant current operation
- ▶ Remote sense with 5 V line loss compensation
- ▶ LabVIEW® and LabWindows® drivers

### Protection Features

- ▶ Over voltage protection
- ▶ Over temperature protection

### Options

- ▶ Isolated analog control (ISOL)
- ▶ RS-232 interface card
- ▶ GPIB interface card
- ▶ GPIB-multichannel

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# XFR 1.2 kW

## XFR 1.2 kW Programmable DC Power Supply with Zero Voltage “Soft Switching”

### Electrical Specifications <sup>1</sup>

| Models                                           | 6-200                | 7.5-140      | 12-100     | 20-60  | 35-35       | 40-30  | 60-20  | 100-12  | 150-8     | 300-4    | 600-2    |
|--------------------------------------------------|----------------------|--------------|------------|--------|-------------|--------|--------|---------|-----------|----------|----------|
| <b>Output Ratings</b>                            |                      |              |            |        |             |        |        |         |           |          |          |
| <b>Output Voltage</b>                            | 0-6 V                | 0-7.5 V      | 0-12 V     | 0-20 V | 0-35 V      | 0-40 V | 0-60 V | 0-100 V | 0-150 V   | 0-300 V  | 0-600 V  |
| <b>Output Current</b>                            | 0-200 A <sup>8</sup> | 0-140 A      | 0-100 A    | 0-60 A | 0-35 A      | 0-30 A | 0-20 A | 0-12 A  | 0-8 A     | 0-4 A    | 0-2 A    |
| <b>Output Power</b>                              | 1200 W               | 1050 W       | 1200 W     | 1200 W | 1225 W      | 1200 W | 1200 W | 1200 W  | 1200 W    | 1200 W   | 1200 W   |
| <b>Line Regulation <sup>2</sup></b>              |                      |              |            |        |             |        |        |         |           |          |          |
| <b>Voltage</b>                                   | 2.5 mV               | 2.5 mV       | 2.5 mV     | 2.5 mV | 2.5 mV      | 2.5 mV | 2.5 mV | 2.5 mV  | 2.5 mV    | 5 mV     | 10 mV    |
| <b>Current</b>                                   | 20 mA                | 10 mA        | 10 mA      | 4 mA   | 4 mA        | 4 mA   | 4 mA   | 2 mA    | 2 mA      | 1 mA     | 1 mA     |
| <b>Load Regulation <sup>3</sup></b>              |                      |              |            |        |             |        |        |         |           |          |          |
| <b>Voltage</b>                                   | 3 mV                 | 3 mV         | 3 mV       | 3 mV   | 3 mV        | 3 mV   | 3 mV   | 3 mV    | 5 mV      | 10 mV    | 60 mV    |
| <b>Current</b>                                   | 20 mA                | 10 mA        | 8 mA       | 8 mA   | 5 mA        | 5 mA   | 9 mA   | 4 mA    | 4 mA      | 4 mA     | 4 mA     |
| <b>Meter accuracy</b>                            |                      |              |            |        |             |        |        |         |           |          |          |
| <b>Voltage (0.5% of Vmax + 1 count)</b>          | 0.07 V               | 0.09 V       | 0.13 V     | 0.3 V  | 0.4 V       | 0.5 V  | 0.7 V  | 1.1 V   | 1.6 V     | 4 V      | 7 V      |
| <b>Current (0.5% of Imax + 1 count)</b>          | 2.5 A                | 1.5 A        | 1.1 A      | 0.7 A  | 0.45 A      | 0.4 A  | 0.3 A  | 0.13 A  | 0.09 A    | 0.05 A   | 0.03 A   |
| <b>Output Noise (0-20 mHz)</b>                   |                      |              |            |        |             |        |        |         |           |          |          |
| <b>Voltage (p-p)</b>                             | 50 mV                | 50 mV        | 55 mV      | 50 mV  | 50 mV       | 50 mV  | 55 mV  | 55 mV   | 60 mV     | 115 mV   | 190 mV   |
| <b>Output Ripple (rms)</b>                       |                      |              |            |        |             |        |        |         |           |          |          |
| <b>Voltage</b>                                   | 5 mV                 | 5 mV         | 5 mV       | 8 mV   | 8 mV        | 8 mV   | 6 mV   | 8 mV    | 13 mV     | 22 mV    | 50 mV    |
| <b>Current</b>                                   | 530 mA               | 250 mA       | 250 mA     | 300 mA | 60 mA       | 60 mA  | 15 mA  | 12 mA   | 6 mA      | 3 mA     | 1 mA     |
| <b>Drift (8 hours) <sup>4</sup></b>              |                      |              |            |        |             |        |        |         |           |          |          |
| <b>Voltage (0.05% of Vmax)</b>                   | 3 mV                 | 3.75 mV      | 6 mV       | 10 mV  | 17.5 mV     | 20 mV  | 30 mV  | 50 mV   | 75 mV     | 150 mV   | 300 mV   |
| <b>Current (0.05% of Imax)</b>                   | 200 mA               | 70 mA        | 50 mA      | 30 mA  | 17.5 mA     | 15 mA  | 10 mA  | 6 mA    | 4 mA      | 2 mA     | 1 mA     |
| <b>Temperature Coefficient <sup>5</sup></b>      |                      |              |            |        |             |        |        |         |           |          |          |
| <b>Voltage (0.02% of Vmax/°C)</b>                | 1.2 mV               | 1.5 mV       | 2.4 mV     | 4 mV   | 7 mV        | 8 mV   | 12 mV  | 20 mV   | 30 mV     | 60 mV    | 120 mV   |
| <b>Current (0.03% of Imax/°C)</b>                | 60 mA                | 42 mA        | 30 mA      | 18 mA  | 10.5 mA     | 9 mA   | 6 mA   | 3.6 mA  | 2.4 mA    | 1.2 mA   | 0.6 mA   |
| <b>Program Slew Rate <sup>6</sup></b>            |                      |              |            |        |             |        |        |         |           |          |          |
| <b>Rise Time</b>                                 | 100 ms               | 100 ms       | 100 ms     | 100 ms | 100 ms      | 100 ms | 100 ms | 170 ms  | 170 ms    | 170 ms   | 170 ms   |
| <b>Fall Time</b>                                 | 100 ms               | 100 ms       | 100 ms     | 100 ms | 100 ms      | 100 ms | 100 ms | 170 ms  | 170 ms    | 170 ms   | 170 ms   |
| <b>OVP Adjustment Range (5% to 110% of Vmax)</b> | 0.3-6.6 V            | 0.375-8.25 V | 0.6-13.2 V | 1-22 V | 1.75-38.5 V | 2-44 V | 3-66 V | 5-110 V | 7.5-165 V | 15-330 V | 30-660 V |
| <b>Efficiency:<sup>7</sup></b>                   | 75%                  | 78%          | 81%        | 81%    | 83%         | 83%    | 86%    | 84%     | 84%       | 85%      | 85%      |

- Specifications indicate typical performance at 25° C ±5°C, nominal line input of 120 VAC.
- For input voltage variation over the AC input voltage range, with constant rated load.
- For 0-100% load variation, with constant nominal line voltage.
- Maximum drift over 8 hours with constant line, load, and temperature, after 30-minute warm-up.
- Change in output per °C change in ambient temperature, with constant line and load.
- Measured with stepped 0-10 V analog programming source and a resistive load.
- Typical efficiency at 100 VAC input and rated output power.
- Derate output current on 6 V model by 1.5 A per °C for operating temperatures 30-50°C.

### General Specifications

|                                     |                                                                                                                                                                                                                            |
|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Operational AC Input Voltage</b> | 85-130 VAC or 190-264 VAC, 1 phase (17 A @ 120 VAC; 8.8 A @ 230 VAC typical), 47-63 Hz. Automatic range detect.                                                                                                            |
| <b>Switching Frequency</b>          | 6 V to 40 V models: nominal 78 kHz (156 kHz output ripple); 60 V to 600 V models: nominal 62.5 kHz (125 kHz output ripple).                                                                                                |
| <b>Remote Analog Programming</b>    | Voltage and current programming inputs (source must be isolated): 0-5 K, 0-10 k resistances; 0-5 V, 0-10 V (default) voltage sources                                                                                       |
| <b>Remote Analog Monitoring</b>     | Voltage and current monitor outputs 0-5 V, 0-10 V (default) ranges for 0-100% of output                                                                                                                                    |
| <b>Dimensions (HxWxD)</b>           | 1.7 x 19.0 x 20.0" (43.2 x 429.4 x 508.1 mm)                                                                                                                                                                               |
| <b>Weight</b>                       | Approximately 18 lb (8.2 kg)                                                                                                                                                                                               |
| <b>Warranty</b>                     | 5 years                                                                                                                                                                                                                    |
| <b>Approvals</b>                    | CE-marked units meet: EN61010-1, EN61000-6-2 and EN61000-6-4; UL Listed to UL3111-1; CSA certified to CSA C22.2 No 1010.1; Meets USA EMC standard; FCC, part 15B, class A; Meets Canadian EMC standard: ICES-001, Class A. |

Note: Specifications are subject to change without notice.

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