

Sorensen XDL Series

105–215 W

Digitally Controlled DC Linear Power Supplies

35–56 V

- Very high precision, very low noise, excellent dynamics
- Advanced user interface with direct numeric entry and incremental rotary control
- Ten store/recall setup locations
- Thirty store/recall setup locations
- Fully isolated outputs for maximum flexibility
- Constant voltage or constant current operation with automatic crossover and mode indication



0.5–5 A

~ 115 230

USB GPIB RS232

The Sorensen XDL Series represents the 'next generation' of high performance laboratory power supplies. Using linear technology and unrivalled performance in regulation, output noise and dynamic performance is achieved. High precision is also achieved by using instrumentation quality 16-bit DAC to control voltage and current enabling voltage set points at 1 millivolt resolution. As the XDL is highly accurate, it can be used as a calibration source for some handheld DMMs.

Direct Numeric Keypad Entry and Incremental Rotary Control Unlike other digitally controlled units, the XDL Series provides both numeric and rotary control while the illuminated keys and display legends provide instant confirmation of settings and status. Precise settings can be made by direct numeric entry using the 0 to 9 keypad. For gradual settings, a jog wheel is available for incremental or decremental changes in voltage steps of 0.1 volt, 1 millivolt or 10 millivolt and current steps of 0.1 amp down to 0.1 milliamp. The jog wheel can be engaged permanently or disabled.

Multiple Ranges For Greater Flexibility The XDL Series provides multiple ranges for voltage and current settings. Each model offers three output ranges per output.

For added convenience the XDL series provides storage of up to ten power supply set-ups in non-volatile memory (30 set-ups for a triple). Upon shutdown of the supply, the settings are saved and automatically restored at switch-on.

OVP and OCP Trips with Alarm Output The XDL Series provides fully adjustable over-voltage and over-current protection. The over-voltage and over-current protection feature provides a fail-safe mode of operation to prevent an accidental

or incorrect setting, as well as protect against undesired load conditions. A trip condition switches the rear panel alarm signal, which enables other equipment to be controlled. Alarms can also be activated by over-temperature and excess voltage on the sense terminals.

USB/GPIB/RS-232 Interface

The multiple interface card enables remote control and readback via either USB, GPIB or RS-232. On triple-output models, the single interface address controls all three outputs. The USB interface is for medium speed PC connectivity and enables multiple devices to be connected. A Windows® device driver is supplied, which creates a virtual COM port, enabling USB to be used in applications that do not directly support it. The GPIB interface conforms to IEEE488.2 and IEEE488.1

Remote Sense and Local Sense

The XDL series provides full remote sense capability via dedicated sense terminals to maintain regulation at the load. When remote sense is not required, internal local sensing can be selected.

Linked and Copy Mode

The XDL triple-output models have two identical independent and isolated outputs. In situations where the user wishes to set similar voltages and current on both outputs, the "linked" mode is available. When linked, all adjustments are simultaneously applied to both outputs. The "copy" function allows all the settings of one output to be duplicated on the other prior to linking. For greater flexibility and convenience, the outputs can be linked when set to different voltages or current, allowing separate settings to be recalled into the linked mode memories for simultaneous recall.

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XDL Series : Product Specifications¹

Output : Voltage and Current						
Models	35-5	35-5T	35-5P	35-5TP	56-4	56-4P
Output Range	1 0-35 V, 0-3 A	0-35 V, 0-3 A	0-35 V, 0-3 A	0-35 V, 0-3 A	0-56 V, 0-2 A	0-56 V, 0-2 A
Output Range 2	0-15 V, 0-5 A	0-15 V, 0-5 A	0-15 V, 0-5 A	0-15 V, 0-5 A	0-25 V, 0-4 A	0-25 V, 0-4 A
Output Range 3	0-35 V, 0-500.0 mA	0-35 V, 0-500.0 mA	0-35 V, 0-500.0 mA	0-35 V, 0-500.0 mA	0-56 V, 0-500.0 mA	0-56 V, 0-500.0 mA
Outputs	1	2 + 1 Aux	1	2 + 1 Aux	1	1
Output Power	105 W	215 W	105 W	215 W	112 W	112 W
Interface (GPIB/RS-232/USB)	No	No	Yes	Yes	No	Yes
Voltage Setting	By floating point numeric entry or rotary jog wheel; resolution 1mV					
Current Setting	By floating point numeric entry or rotary jog wheel; resolution 1mA or 0.1mA depending on range					
Voltage Setting	Resolution 1mV Accuracy \pm (0-03% + 5mV)					
Current Setting	Resolution 1mA; 0-1mA on 500mA range Accuracy \pm (0-2% + 5mA); \pm (0-2% + 0-5mA) on 500mA range.					
Output Mode	Operation in constant voltage or constant current modes with automatic cross-over and mode indication by LEDs.					
DC Output Switch	Illuminated when output is on. Preset voltage and current limit displayed when output is off.					
Output Terminals	4 mm terminals on 19 mm (0.75") spacing. Duplicate rear panel sense terminals on remote control models (XDL35-TP)					
Load Regulation	Voltage: $< 0.01\% + 2 \text{ mV}$ Current: $< 0.01\% + 250 \mu\text{A}$; $< 0.01\% + 50 \mu\text{A}$ on 500 mA range (measured at output terminals using remote sense)					
Line Regulation	Voltage: $< 0.01\% + 2 \text{ mV}$ for 10% line change Current: $< 0.01\% + 250 \mu\text{A}$; $< 0.01\% + 50 \mu\text{A}$ on 500 mA range					
Ripple and Noise	Typically $< 0.35\% 1\text{mVrms}$ 2 mVp-p CV mode, and $< 0.2 \text{ mArms}$, $< 20 \mu\text{Arms}$ (500 mA range) CI mode					
Transient Response	50 μs to within 15 mV of set level for a change in load current from full load to half load or vice versa					
Temperature Coefficient	$< \pm$ (50 ppm + 0.5 mV) / $^{\circ}\text{C}$, $<$ (100ppm + 1 mA) $^{\circ}\text{C}$, $<$ (100ppm + 0.1 mA) 500 mA range typical					
Remote Sense	Eliminates up to 0.5 V drop per lead. Remote sense operation selected from front panel and indicated by LED					
Sense Terminals	Recessed sprung sockets for direct insertion of wires. Duplicated on rear terminal block (P versions only)					
Auxiliary Logic Output	Voltage	2-7V or 5V, selectable by front panel switch				
	Voltage Accuracy	$\pm 5\%$				
	Current Limit	1A minimum				
	Output Protection	Output will withstand up to 16V forward voltage. Diode clamp reverse protection for currents up to 3A.				
	Ripple & Noise (20MHz Bandwidth)	Typically $< 1\text{mVrms}$				
	Load Regulation	$< 1-0\%$ for 90% load change				
	Line Regulation	$< 0-1\%$ for a 10% line voltage change				
	Status Indication	Current limit lamp.				
General Specifications						
Operational AC Input Voltage	115 V or 230 V $\pm 10\%$ (adjustable internally, option HV for factory set 230 Vac input), 50/60 Hz. Installation Category II					
Operating Temperature Range	5 to 40 $^{\circ}\text{C}$, 20% to 80% RH					
Storage Temperature Range	- 40 to 70 $^{\circ}\text{C}$					
Dimensions (H x W x D)	6.3 x 5.5 x 11.4" (160 x 140 x 290 mm) (XDL 35-5, XDL 35-5P, XDL 56-4, XDL 56-4P), 6.3 x 11.0 x 11.4" (160 x 280 x 290 mm) (XDL 35-5T, XDL 35-5TP)					
Weight	11.9 lb (5.4 kg) (XDL 35-5, XDL 56-4) 12.1 lb (5.5 kg) (XDL 35-5P, XDL 56-4P) 23.1 lb (10.5 kg) (XDL 35-5T) 23.3 lb (10.6 kg) (XDL 35-5TP)					
Benchtop Operation	Folding legs are incorporated that can be used to angle the front panel upwards when required					
Rack Mount Operation	19-inch 4U mount for up to three single output units or one triple, plus one single Blanking plates available for unused sections					
Approvals	CE-marked units meet: EN61010-1 and EN61326					

Specifications subject to change without notice.

Model Number Description



