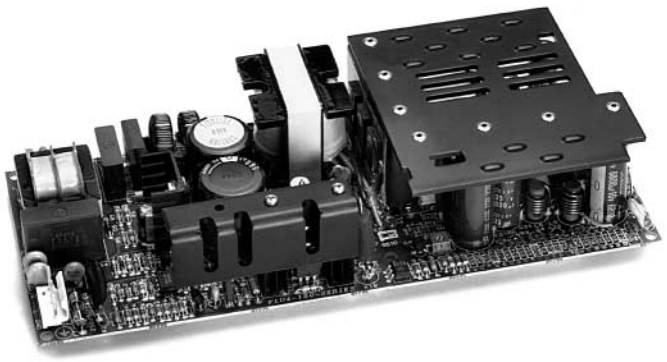
150W

Open-Frame Switching Power Supplies

- ✔ Four Isolated Outputs
- ✔ 150W Continuous Output Power—Convection Cooled
- ✔ 90-265 VAC Auto-Ranging Input
- ✔ 38-64 VDC Input Available
- ✔ *CE* Mark: UL/CSA/EN60950 Approvals
- ✔ EN55022/FCC Class B Input Line Filter
- ✔ 0% Minimum Load Requirement
- ✔ Over-Current/Short-Circuit Protection
- ✔ 2-Year Warranty
- ✔ Minimum 165,000-Hour MTBF



Characteristics

Input Voltage	FLU models, auto-ranging input, 90-265 VAC, single phase. DC-input models, 38-64 VDC (48V, nominal).
Input Line Frequency	FLU models, 47-440 Hz (50/60 Hz, nominal).
Input Line Protection	MOV transient protected (FLU models). Input line fuse on-board (Note 1).
EMI Filter	Standard. Performance surpasses conducted EMI requirements of EN55022/FCC Class B by 10 dB, typ.
Continuous Output Power	150W, maximum.
Output Voltage Adjust	Primary output adjustable ±5%. Auxiliary outputs fixed.
Efficiency	70%, typical (FLU models, 115 or 230 VAC input, DC models, 48V input, full load conditions).
Hold-Up Time	16 ms at 115 VAC input, 32 ms at 230 VAC input, minimum, full load conditions (FLU models).
Overload Protection	Power-limit circuit.
Short-Circuit Protection	Continuous.
Over-Voltage Protection	Primary output only (120% of rated output voltage, typical).
Soft Start	Standard on all models.
Design Topology	Forward converter with current-mode control.
Frequency of Operation	50 kHz (fixed).
Electrical Strength/Isolation	5300 VDC, input-to-output for one minute. (Note 2.)
Noise, Ripple and Spike	1% peak-to-peak, max. (Note 4.)
Transient Response	4 ms recovery to within 1% of the regulation band with no more than 5% deviation.
Power-Fail Warning	Optional: TTL-compatible (logic 0, 4 ms, minimum, before loss of output).
Temperature Range	-20°C to +70°C.
Output Power De-Rating	De-rate output power and current linearly 2%/°C from +50°C to +70°C.
Temperature Coefficient	±0.05%/°C over the entire operating temperature range.
Relative Humidity	0 to 95%, non-condensing.
Altitude	0 to 10,000 feet.
Cooling	Convection cooling is adequate. Moving air is recommended for operation in a confined area.
Storage Temperature	-40°C to +85°C.
Storage Humidity	0 to 95%, non-condensing.
Mean Time Between Failures	>165,000 hours (Note 5).

Model	Output Voltage Output	(V)	Output Current Min. (A)	Nom. (A)	Max. (A)	Output Voltage Tol.	Line Reg.	Load Reg.	Cross-Reg.
AC-DC Quads									85-265 VAC Input
FLU4-150-1AD	V1	5(ISO)	0.0	10.0	15.0	1.0%	0.3%	1.0%	—
	V2	12(ISO)	0.0	2.40	4.00*	5.0%	0.5%	3.0%	3.0%
	V3	12(ISO)	0.0	2.40	4.00*	5.0%	0.5%	3.0%	3.0%
	V4	5(ISO)	0.0	2.40	4.00	5.0%	0.5%	5.0%	4.0%
FLU4-150-2AD	V1	5(ISO)	0.0	10.0	15.0	1.0%	0.3%	1.0%	—
	V2	12(ISO)	0.0	2.40	4.00*	5.0%	0.5%	3.0%	3.0%
	V3	12(ISO)	0.0	2.40	4.00*	5.0%	0.5%	3.0%	3.0%
	V4	12(ISO)	0.0	3.60	6.00*	5.0%	0.5%	5.0%	4.0%
FLU4-150-3AD	V1	5(ISO)	0.0	10.0	15.0	1.0%	0.3%	1.0%	—
	V2	12(ISO)	0.0	2.40	4.00*	5.0%	0.5%	3.0%	3.0%
	V3	12(ISO)	0.0	2.40	4.00*	5.0%	0.5%	3.0%	3.0%
	V4	15(ISO)	0.0	2.40	3.00†	5.0%	0.5%	5.0%	4.0%
FLU4-150-4AD	V1	5(ISO)	0.0	10.0	15.0	1.0%	0.3%	1.0%	—
	V2	12(ISO)	0.0	2.40	4.00*	5.0%	0.5%	3.0%	3.0%
	V3	12(ISO)	0.0	2.40	4.00*	5.0%	0.5%	3.0%	3.0%
	V4	24(ISO)	0.0	1.50	3.00§	5.0%	0.5%	5.0%	4.0%
FLU4-150-5AD	V1	5(ISO)	0.0	10.0	15.0	1.0%	0.3%	1.0%	—
	V2	15(ISO)	0.0	1.80	3.00†	5.0%	0.5%	3.0%	3.0%
	V3	15(ISO)	0.0	1.80	3.00†	5.0%	0.5%	3.0%	3.0%
	V4	5(ISO)	0.0	2.40	4.00	5.0%	0.5%	5.0%	4.0%
DC-DC Quad									38-64 VDC Input
DC4-150-1AC	V1	5(ISO)	0.0	10.0	15.0	1.0%	0.3%	1.0%	—
	V2	12(ISO)	0.0	2.40	4.00*	5.0%	0.5%	3.0%	3.0%
	V3	12(ISO)	0.0	2.40	4.00*	5.0%	0.5%	3.0%	3.0%
	V4	5(ISO)	0.0	2.40	4.00	5.0%	0.5%	5.0%	4.0%

* Peak output current rating = 8.0A (<60 seconds, duty cycle <10%).
† Peak output current rating = 6.0A (<60 seconds, duty cycle <10%).
§ Peak output current rating = 4.0A (<60 seconds, duty cycle <10%).

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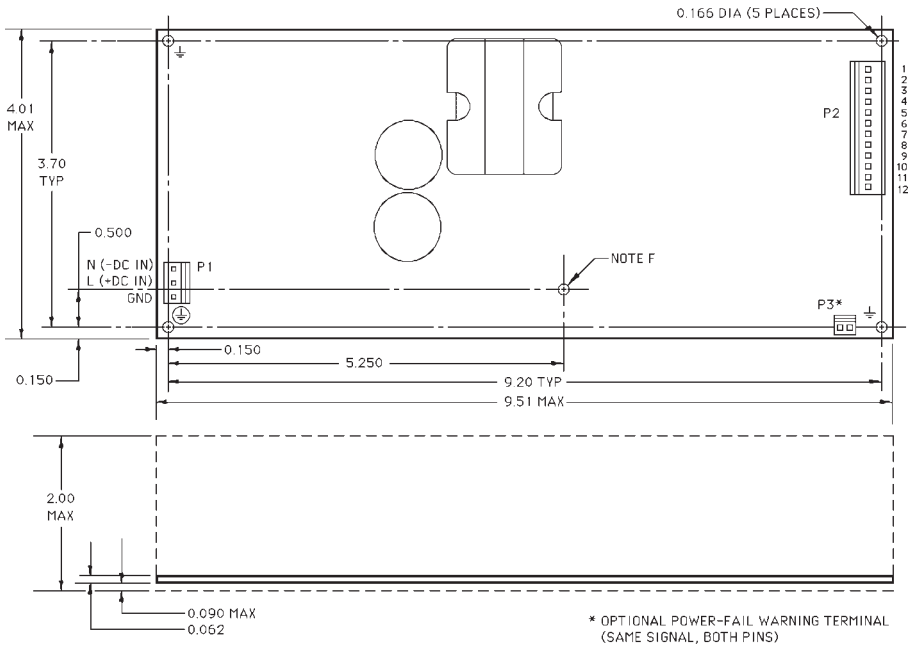


FLU4-150 / DC4-150

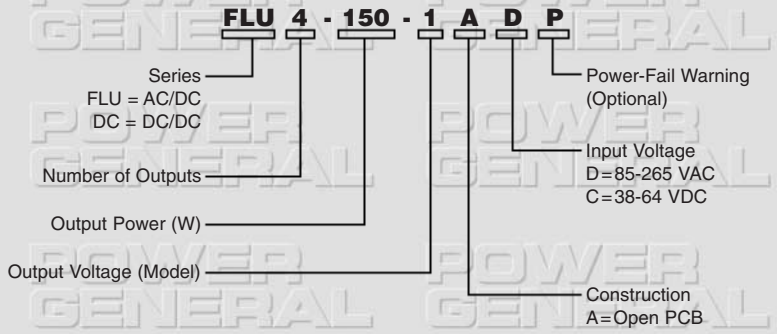
A. Dimensions shown are in inches.
B. Tolerances = 0.00 ±0.01 inch.
0.000 ±0.005 inch.
C. P1 input connectors are Molex 26-62-4051. The mating connector combines Molex housing 43061-0005 and crimp terminal 08-70-1030.
D. P2 output connectors are Molex 26-60-4120 The mating connector combines Molex housing 43061-0012 and crimp terminal 08-70-1030.
E. The optional P3 Power-Fail warning connector is Molex 22-23-2021. The mating connector combines Molex housing 22-01-2027 and crimp terminal 08-50-0114.
F. Safe use of the mid-board mounting hole on these power supplies requires non-conductive hardware.

Pin-Out

Pin	FLU4-150	DC4-150
1	+V4(ISO)	+V4(ISO)
2	- V4(ISO)	- V4(ISO)
3	+V3(ISO)	+V3(ISO)
4	- V3(ISO)	- V3(ISO)
5	- V2(ISO)	- V2(ISO)
6	+V2(ISO)	+V2(ISO)
7	- V1(ISO)¶	- V1(ISO)¶
8	- V1(ISO)¶	- V1(ISO)¶
9	- V1(ISO)¶	- V1(ISO)¶
10	+V1(ISO)	+V1(ISO)
11	+V1(ISO)	+V1(ISO)
12	+V1(ISO)	+V1(ISO)

¶ Combined -V1 and Power-Fail signal Return termination on models with power-fail warning option (-ADP part-number suffix).

Model Selection Guide



FLU4-150 models with V1 maximum current ratings of 25A are available. For more information, contact Power General applications engineering.

Notes

1. Replace the input line fuse with the same type and rating. Recommended: 3.5A/250V slow-blow fuse (ac-dc models); 7A/125V slow-blow fuse (dc-dc models).
2. Electrical strength/isolation is 2200 VDC from the input of the supply to ground for 60 seconds.
3. All measurements are made directly at the terminals of the supply.
4. Peak-to-peak and RMS metering equipment must have a 20 MHz frequency response with probes and cables that maintain a frequency response of 20 Hz to 20 MHz. Output ripple and spikes are measured directly at the output terminals of the power supply with a 0.1 µF ceramic capacitor. The probe ground band must make direct contact with the output return or the common terminal of the power supply to prevent erroneous noise measurements.
5. MTBF is calculated using the parts stress method in MIL-HDBK 217F (ground benign, T_A = +25°C).
6. Output voltage tolerance is measured under nominal load current conditions specified for the power supply.
7. Line regulation is measured under nominal load conditions as the input voltage is varied from 90 to 265 VAC (ac-input models) or from 38 to 64 VDC (dc-input models).
8. Load regulation is measured at 115 VAC or 230 VAC input (ac-input models) or at 48 VDC (dc-input models). The output under test is brought to 60% of nominal load; load current and is then varied ±40% of nominal while other outputs are held at nominal load current conditions.
9. Cross-regulation is tested by changing the load on the primary output from 8A to 12A while measuring the voltage change on the auxiliary output under test.
10. The Power General FLU4-150 and DC4-150 series are approved to UL1950 (File E140439), to CAN/CSA22.2 No. 234 (File LR52335), and to EN60950/IEC950/DIN VDE 0805 (TÜV License R9171474).

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