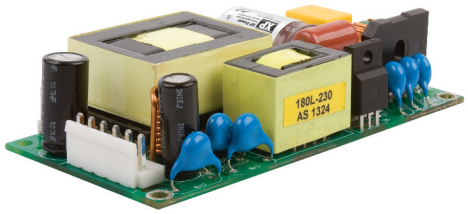
180 Watts

ECP180 Series



GREEN XP POWER

- Low 1”Profile with 2”x 4”Footprint
- 120 W Convection / 180 W Forced–cooled
- High Efficiency – up to 95%
- Medical & ITE Approvals
- Class I & Class II Applications
- <0.5 W No Load Input Power
- 3 Year Warranty

Specification

Input

Input Voltage	• 85-264 VAC, derate from 120 W at 100 VAC to 110 W at 90 VAC and 100 W at 85 VAC when convection cooled
Input Frequency	• 47-63 Hz
Input Current	• 1.8 A typical at 115 VAC, 0.9 A typical at 230 VAC
Inrush Current	• 120 A max at 230 VAC, cold start at 25 °C
Power Factor	• >0.95 at full load
Earth Leakage Current	• <230 µA at 264 VAC, 60 Hz
No Load Input Power	• <0.5 W
Input Protection	• Internal T3.15A/250VAC fitted in line and neutral

Output

Output Voltage	• See tables
Initial Set Accuracy	• 1% at 50 % load
Minimum Load	• No minimum load requirement
Start Up Delay	• 1 s max
Start Up Rise Time	• 55 ms typical
Hold Up Time	• 10 ms minimum at full load and 115 VAC 16 ms typical at 120 W
Line Regulation	• ±0.5% max
Load Regulation	• ±0.5% max
Transient Response	• 4% maximum deviation, recovering to less than 1% within 500 µs for 25% step load
Ripple & Noise	• 1% max pk-pk, 20 MHz bandwidth, (see note 2)
Overvoltage Protection	• 110% - 140% of nominal voltage on main output. Recycle mains to reset.
Overload Protection	• 110-160%
Short Circuit Protection	• Trip and restart (hiccup)
Thermal Protection	• Measured internally. Auto resetting.
Temperature Coefficient	• 0.02%/°C
Fan Supply	• 12 V at 500 mA

General

Efficiency	• See table
Isolation	• 4000 VAC Input to Output 1500 VAC Input to Ground 1500 VAC Output to Ground
Protection Level	• Primary to Secondary: 2 MOPP Primary to Earth: 1 MOPP Secondary to Earth: 1 MOPP
Power Density	• 15/22 W/in³ convection/forced-cooled
Switching Frequency	• PFC: 70-130 KHz, PWM: 50-90 KHz
MTBF	• >300 kHrs to MIL-HDBK-217F at 25 °C, GB

Environmental

Operating Temperature	• -20 °C to +70 °C derate from 100% load at 50 °C to 50% load at 70 °C
Cooling	• Convection cooled: 120 W Forced cooled: 180 W with 10 CFM
Operating Humidity	• 5% to 90% RH, non condensing
Operating Altitude	• 5000 m
Storage Temperature	• -40 °C to +85 °C
Shock	• IEC68-2-27, 30 g, 11 ms half sine, 3 times in each of 6 axes
Vibration	• IEC68-2-6, 10-500 Hz, 2 g 10 mins / sweep. 60 mins for each of 3 axes

EMC & Safety

Emissions	• EN55032/11, Level B conducted & Level A radiated
Harmonic Currents	• EN61000-3-2 Class A
Voltage Flicker	• EN61000-3-3
ESD Immunity	• EN61000-4-2, ±8 kV air, ±4 kV contact, Perf Criteria A
Radiated Immunity	• EN61000-4-3, 3 V/m, Perf Criteria A
EFT/Burst	• EN61000-4-4, level 3, Perf Criteria A
Surge	• EN61000-4-5, installation class 3, Perf Criteria A
Conducted Immunity	• EN61000-4-6, 3 V, Perf Criteria A
Dips & Interruptions	• EN55024, 100% 10 ms, 30%, 500 ms, 100%, 5000 ms Perf Criteria A, A, B for high line, A, B, B for low line at full load, EN60601-1-2, 30% 500 ms, 60% 100 ms, 100% 10 ms, 100% 5000 ms, Perf Criteria A, A, A, B for high line, A, B, A, B for low line at full load
Safety Approvals	• UL60950-1, IEC60950-1, EN60950-1, ANSI/AAMI ES 60601-1, IEC60601-1, EN60601-1

Models and Ratings

ECP180

Output Voltage	Output Current		Ripple and Noise pk-pk[2]	Fan Output[4,5]	Efficiency[3]	Model Number[4]
	Convection-cooled	Forced-cooled[1]				
12.0 V	10.00 A	15.00 A	120 mV	12 V/0.5 A	92%	ECP180PS12
15.0 V	8.00 A	12.00 A	150 mV	12 V/0.5 A	92%	ECP180PS15
24.0 V	5.00 A	7.50 A	240 mV	12 V/0.5 A	93%	ECP180PS24
28.0 V	4.30 A	6.43 A	280 mV	12 V/0.5 A	93%	ECP180PS28
36.0 V	3.33 A	5.00 A	360 mV	12 V/0.5 A	94%	ECP180PS36
48.0 V	2.50 A	3.75 A	480 mV	12 V/0.5 A	94%	ECP180PS48

Notes

1. *Requires 10 CFM.*
2. *Measured with 20 MHz bandwidth and 10 µF electrolytic capacitor in parallel with 0.1 µF ceramic capacitor*
3. *Minimum average efficiencies measured at 25%, 50%, 75% & 100% of 180 W load and 230 VAC input.*
4. *Typical voltage, actual regulated voltage will be in range of 10.5 V to 11.3V*
5. *Regulation of the fan output requires a minimum load of 10 W on the main output.*

Mechanical Details

CN1 - Input Connector	
Pin 1	Neutral
Pin 2	Not Fitted
Pin 3	Line

Mates with JST housing
VHR-3N and JST Series
SVH-21T-P1.1 crimp terminals

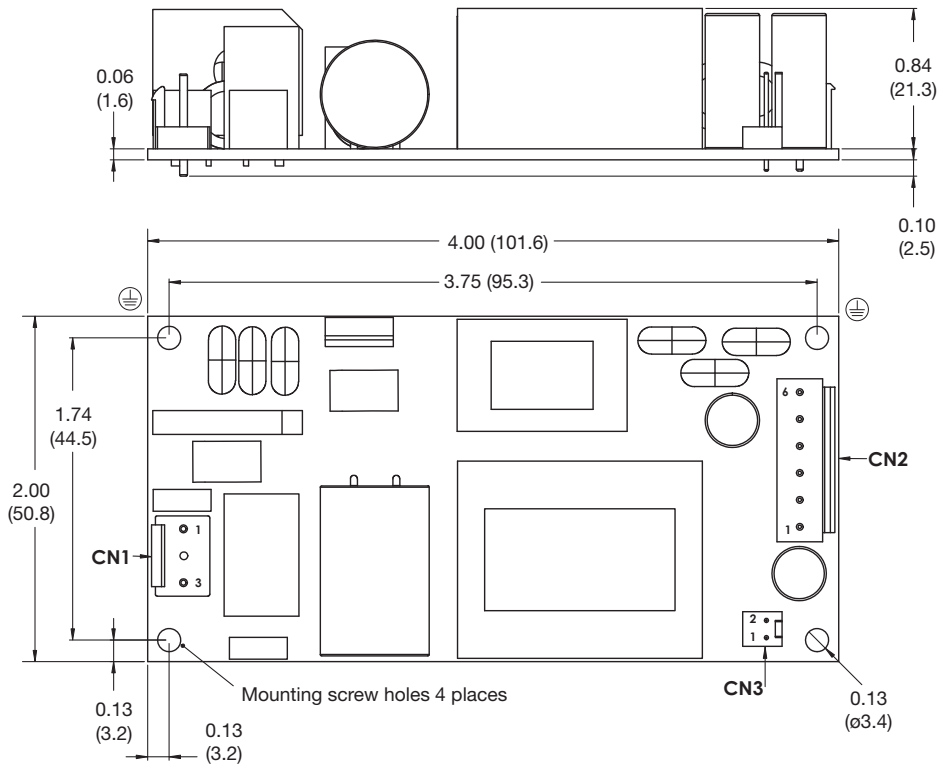
Mounting holes marked with ⏚ must be connected to safety earth

CN2 - Output Connector	
Pin 1	-Vout
Pin 2	-Vout
Pin 3	-Vout
Pin 4	+Vout
Pin 5	+Vout
Pin 6	+Vout

Mates with JST housing
VHR-6N and JST Series
SVH-21T-P1.1 crimp terminals

CN3 - Fan Connector	
Pin 1	Fan -
Pin 2	Fan +

Mates with Molex housing
22-01-1022 and 2759 crimp terminals



Mounting holes marked with ⏚ must be connected to safety earth for class I applications and connected together for class II applications for optimum EMC performance

Notes

1. All dimensions shown in inches (mm). Tolerance: ±0.02 (0.5)
2. Weight: 0.51 lbs (230 g) approx.

Derating Curve