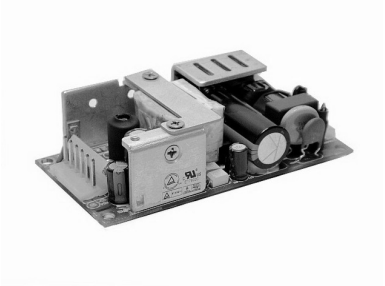
PROTEK POWER

37.5-64 WATT ITE POWER SUPPLIES

DESCRIPTION

The PU60 series of compact, open PCB constructed, AC-DC switching power supplies are capable of delivering 37.5-64 watts of continuous output power at convection cooling. They operate at 90-264 VAC input voltage without the need of voltage selection, and are suited for information technology and industrial applications.

PU60 SERIES



CE (LVD)

RoHS

FEATURES

- Compact size 2" x 4" x 1.18"
- Single, dual and triple outputs
- Wide-range input 90-264 VAC
- Level B emissions
- RoHS compliant

SAFETY STANDARD APPROVALS

UL 60950-1, CSA C22.2 No. 60950-1

TÜV EN 60950-1

INPUT SPECIFICATIONS

Input voltage:	90-264 VAC
Input frequency:	47-63 Hz
Input current:	1.3 A (rms) for 100 VAC 0.7 A (rms) for 240 VAC
Earth leakage current:	150 µA max. @ 264 VAC, 63 Hz

OUTPUT SPECIFICATIONS

Output voltage/current:	See rating chart.
Maximum output power:	See rating chart.
Ripple and noise:	100 mV peak to peak on 3.3 V & 5.0 V models, 1% peak to peak on other models
Overvoltage protection:	Provided on output #1 only; set at 112-132% of its nominal output voltage
Overcurrent protection:	All outputs protected to short circuit conditions
Temperature coefficient:	All outputs ±0.04% /℃ maximum
Transient response:	Maximum excursion of 4% or better on all models, recovering to 1% of final value within 500 µs after a 25% step load change

ENVIRONMENTAL SPECIFICATIONS

Operating temperature:	-10℃ to +70℃
Storage temperature:	-40℃ to +85℃
Relative humidity:	5% to 95% non-condensing
Derating:	Derate from 100% at +50℃ linearly to 50% at +70℃

GENERAL SPECIFICATIONS

Switching frequency:	62 K ±5 KHz
Efficiency:	80-88% typical except PU60-31-3A and PU60-31-5 A at 75% typical
Hold-up time:	12 ms minimum at 110 VAC
Line regulation:	±0.5% maximum at full load
Inrush current:	30 A @ 115 VAC, or 60 A @ 230 VAC, at 25℃ cold start
Withstand voltage:	3000 VAC from input to output, 1500 VAC from input to ground, 500 VAC from output to ground
MTBF:	400,000 hours at full load at 25℃ ambient, calculated per MIL-HDBK-217F

EMC Performance

EN55022:	Class B conducted, class B radiated
FCC:	Class B conducted, class B radiated
VCCI:	Class B conducted, class B radiated
EN61000-3-2:	Harmonic distortion, class A and D
EN61000-3-3:	Line flicker
EN61000-4-2:	ESD, ±8 KV air and ±4 KV contact
EN61000-4-3:	Radiated immunity, 3 V/m
EN61000-4-4:	Fast transient/burst, ±1 KV
EN61000-4-5:	Surge, ±1 KV diff., ±2 KV com
EN61000-4-6:	Conducted immunity, 3 Vrms
EN61000-4-8:	Magnetic field immunity, 1A/m
EN61000-4-11:	Voltage dip immunity, 30% reduction for 500 ms and >95% reduction for 10 ms

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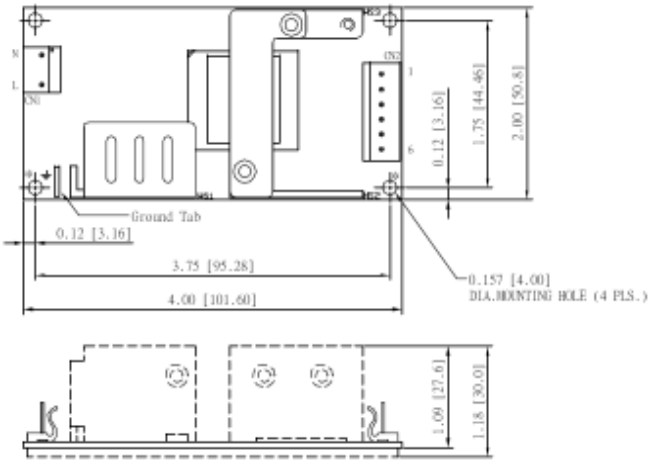
UNIVERSAL INPUT PU60 ITE SERIES

OUTPUT VOLTAGE/CURRENT RATING CHART

Model[1]	Output #1 V1	Output #1 Min. Current	Output #1 Max. Current at convection	Output #1 Max. Current at 5 CFM [2]	Output #1 Tol.	Output #2 V2	Output #2 Min. Current	Output #2 Max. Current	Output #2 Tol.	Output #3 V3	Output #3 Min. Current	Output #3 Max. Current	Output #3 Tol.	Max. Output Power[3]
PU60-10A	5 V	0 A	11.0 A	(N/A)	±2%	(N/A)				(N/A)				55 W
PU60-12A	12 V	0 A	5.0 A	(N/A)	±2%	(N/A)				(N/A)				60 W
PU60-13A	15 V	0 A	4.3 A	(N/A)	±2%	(N/A)				(N/A)				64 W
PU60-14A	24 V	0 A	2.7 A	(N/A)	±2%	(N/A)				(N/A)				64 W
PU60-18A	48 V	0 A	1.35 A	(N/A)	±2%	(N/A)				(N/A)				64 W
PU60-23A	+5 V	0.5 A	6.0 A	8 A	±3%	+12 V	0.1 A	3.0 A	±5%	(N/A)				55 W
PU60-25A	+5 V	0.5 A	6.0 A	8 A	±3%	+24 V	0.1 A	1.5 A	±5%	(N/A)				55 W
PU60-31A	+5 V	0.5 A	6.0 A	8 A	±3%	+12 V	0.1 A	3.0 A	±5%	-12 V	0 A	0.5 A	±4%	55 W
PU60-31-3A	+3.3 V	0.8 A	6.0 A	8 A	±3%	+5.2 V	0.1 A	3.0 A	±5%	+12 V	0 A	0.5 A	±4%	37.5 W
PU60-31-5A	+5 V	0.5 A	6.0 A	8 A	±3%	+3.3 V	0 A	1.5 A	±5%	+12 V	0 A	0.5 A	±4%	37.5 W/47.5 W
PU60-32A	+5 V	0.5 A	6.0 A	8 A	±3%	+15 V	0.1 A	2.4 A	±5%	-15 V	0 A	0.5 A	±4%	55 W
PU60-39A	+5 V	0.5 A	6.0 A	8 A	±3%	+24 V	0.1 A	1.5 A	±5%	-12 V	0 A	0.5 A	±4%	55 W

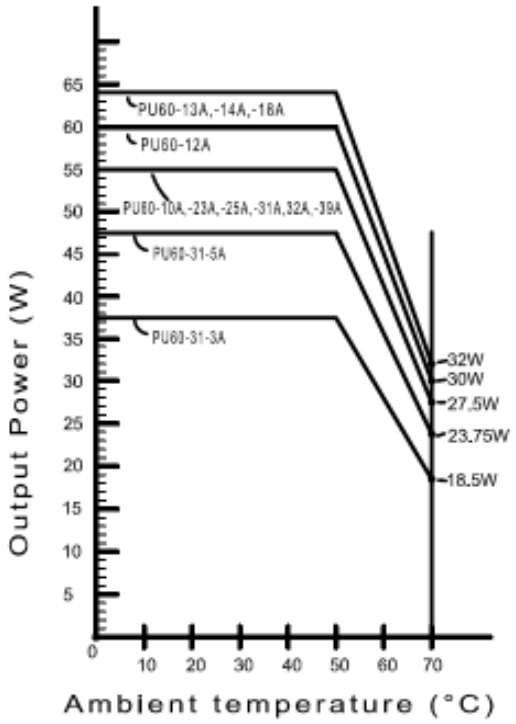
NOTES:
1. Safety approvals are for PCB form only. To order unit with cover fitted, change suffix “A” to “C”.
2. Maximum current of output #1 of multi-output models can be 8 A at 5 CFM forced air provided by user.
3. 47.5 W with 5 CFM forced air provided by user
4. The output voltages of a multiple output model may go outside of the stated tolerance when an output load current is out of stated limits. All models may be operated at no-load without damage.
5. Ripple and noise is maximum peak-to-peak voltage value measured at output within 20 MHz bandwidth, at rated line voltage and output load ranges, and with a 10 µF tantalum capacitor in parallel with a 0.1 µF ceramic capacitor across the output.

MECHANICAL SPECIFICATIONS



NOTES:
1. Dimensions shown in inches [mm]
2. Tolerance 0.02 [0.5] maximum
3. Connector CN1: Molex header 09-65-2038 or equivalent, mating with Molex housing 09-50-1031 or equivalent.
4. Connector CN2: Molex header 09-65-2068 or equivalent, mating with Molex housing 09-50-1061 or equivalent.
5. Ground tab is 0.25 [6.35] x 0.032 [0.8] fast-on connector.
6. To ensure compliance with level B emissions, connect the two “∗“ marked mounting holes with metallic standoffs to chassis.
7. Weight: 205 grams (0.45 lbs.) approx.

OUTPUT POWER DERATING CURVE



PIN CHART

MODEL		PIN	1	2	3	4	5	6
PU60-10A PU60-14A	PU60-12A PU60-18A	PU60-13A	+V1	+V1	V1 Return	V1 Return	N.C.	N.C.
PU60-23A	PU60-25A		V1	V1	Common Return		N.C.	V2
PU60-31A	PU60-32A	PU60-39A	V1	V1	Common Return		V3	V2
PU60-31-3A	PU60-31-5A		V1	V1	Common Return		V3	V2

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