PROTEK POWER

72-110 WATT SWITCHING POWER SUPPLIES

DESCRIPTION

The PU110 series of compact, open PCB constructed, AC-DC switching power supplies are capable of delivering 72 to 110 watts of continuous power at 25 CFM forced air cooling or 52 to 80 watts at convection cooling. They operate at 85 to 264VAC input voltage without the need of a selector strap. They are ideally suited for use in small to medium size digitally-based systems, such as point-of-sale equipment, microprocessor based systems, and telecom equipment. All models meet the safety requirements of UL, CSA and IEC.

FEATURES

- Recognized or certified by UL, CSA and TÜV
- Power Fail Detect (PFD)signal
- 100% burn-in
- Wide input range 85 to 264VAC
- Input surge current protection
- Overvoltage protection
- Overcurrent protection
- Compliant with RoHS requirements

INPUT SPECIFICATIONS

Input voltage :	85 to 264 VAC
Input frequency :	47 to 63Hz
Input current :	3.20A (rms) for 115 VAC 1.80A (rms) for 230 VAC
Earth leakage current : (Touch current)	0.40mA max. @ 115 VAC, 60 Hz 0.75mA max. @ 230 VAC, 50 Hz

OUTPUT SPECIFICATIONS

Output voltage/current :	See rating chart
Total output power :	110 watts maximum at 25 CFM forced air cooling or 80 watts maximum at convection cooling
Ripple and noise :	1% peak to peak maximum
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 500us after a 25% step load change
PFD signal :	TTL logic high for normal operation and TTL logic low upon loss of input power. This signal appears at least 1ms prior to +5V output dropping 5% below its nominal value. This signal also provides a minimum delay of 100ms after +5V is within regulation.

ENVIRONMENTAL SPECIFICATIONS

Operating temperature:	0□ 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□
Cooling:	110 watts continuous output power at 25 CFM forced air cooling or 80 watts at convection cooling

PU110 SERIES

CE(LVD)
RoHS

Safety Standard Approvals :

UL 60950-1
File No. E137410

CSA C22.2 No. 60950-1
File No. LR93632

TÜV EN60950-1
Certificate No. R9352008

GENERAL SPECIFICATIONS

Switching frequency:	20 KHz to 250 KHz, varies with load and line
Efficiency:	70% minimum on single output models with Vo □ 12V, 65% minimum on the others
Hold-up time:	12 msec minimum at 110 VAC
Line regulation:	±0.5% maximum at full load
Inrush current:	15 A @ 115 VAC or 30 A @ 230VAC, 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 minimum at full load at 25□ ambient, calculated per MIL-HDBK-217F

EMC Performance (EN55024)

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
EN61000-3-3:	Line flicker
EN61000-4-2:	ESD, ± 8KV air and ± 4KV contact
EN61000-4-3:	Radiated immunity, 3V/m
EN61000-4-4:	Fast transient/burst, ± 1KV
EN61000-4-5:	Surge, ± 1KV diff., ± 2KV com.
EN61000-4-6:	Conducted immunity, 3Vrms
EN61000-4-8:	Magnetic field immunity, 1A/m
EN61000-4-11:	Voltage dips, 30% reduction for 500ms and >95% reduction for 10ms

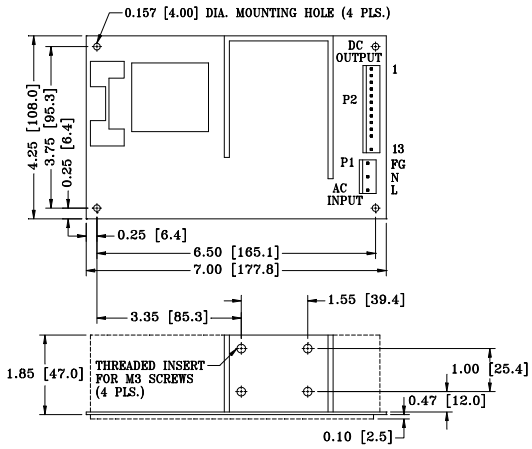
UNIVERSAL INPUT PU110 SERIES

OUTPUT VOLTAGE/CURRENT RATING CHART

(3)(4) MODEL	Output #1 Vnom.	Imin.	Imax.	Tol.	Output #2 Vnom	Imin.	Imax.	Ipeak (1)	Tol.	Output #3 Vnom.	Imin.	Imax.	Tol.	Output #4 Vnom.	Imin.	Imax.	Tol.	Maximum Output Power (2)
PU110-10-1A	3.3V	0A	22A	3%			(N/A)					(N/A)				(N/A)		72W
PU110-10A	5V	0A	22A	3%			(N/A)					(N/A)				(N/A)		110W
PU110-12A	12V	0A	9.0A	2%			(N/A)					(N/A)				(N/A)		110W
PU110-13A	15V	0A	7.5A	2%			(N/A)					(N/A)				(N/A)		110W
PU110-14A	24V	0A	4.5A	2%			(N/A)					(N/A)				(N/A)		110W
PU110-16A	30V	0A	3.6A	2%			(N/A)					(N/A)				(N/A)		110W
PU110-23A	+5V	0A	10A	3%	+12V	0A	5A	9.0A	3%			(N/A)				(N/A)		110W
PU110-31A	+5V	0A	10A	3%	+12V	0A	5A	9.0A	3%	-12V	0A	1A	4%			(N/A)		110W
PU110-32A	+5V	0A	10A	3%	+15V	0A	4A	7.5A	3%	-15V	0A	1A	4%			(N/A)		110W
PU110-40A	+5V	0A	10A	3%	+12V	0A	5A	9.0A	3%	-12V	0A	1A	4%	-5V	0A	1A	4%	110W
PU110-41A	+5V	0A	10A	3%	+15V	0A	4A	7.5A	3%	-15V	0A	1A	4%	+24V	0A	1A	4%	110W
PU110-42A	+5V	0A	10A	3%	+12V	0A	5A	9.0A	3%	-12V	0A	1A	4%	+12V	0A	1A	4%	110W
PU110-45A	+5V	0A	10A	3%	+12V	0A	5A	9.0A	3%	-12V	0A	1A	4%	+24V	0A	1A	4%	110W
PU110-45-1A	+5V	2.0A	10A	3%	+12V	0A	5A	9.0A	3%	-12V	0A	1A	4%	+24V	1.5A	3A	10 %	110W
PU110-45-2A	+5V	0A	10A	3%	+24V	0A	3A	5.0A	3%	-12V	0A	1A	4%	+12V	0A	1A	4%	110W
PU110-46A	+5V	0A	10A	3%	+15V	0A	4A	7.5A	3%	-15V	0A	1A	4%	-5V	0A	1A	4%	110W

NOTES:
1. Peak output current with 10% maximum duty cycle for less than 60 seconds. Total peak power must not exceed 130 watts.
2. 110 watts maximum at 25 CFM forced air cooling or 80 watts maximum at convection cooling, except model PU110-10-1A which is rated maximum 60W at convection cooling or 72W at 25 CFM forced air cooling.
3. Safety agency approvals are for the above listed models in PCB format. To order models with metallic L-bracket or box, change suffix “A” to “B” for L-bracket format, to “C” for enclosed format (mechanical details shown in page 71-72), e.g. PU110-31C.
4. The output #1 of model PU110-45-1A needs a minimum current of 2A to support the other outputs at their maximum rated loads.

MECHANICAL SPECIFICATIONS



NOTES:
1. Dimensions shown in inches [mm]
2. Tolerance 0.02 [0.5] maximum
3. Input connector mates with Molex housing 09-50-3051 and Molex 2878 series crimp terminal.
4. Output connector mates with Molex housing 09-50-3131 and Molex 2878 series crimp terminal
5. Weight: 640 grams (PCB format).
6. The copper pad of the mounting hole near P1 is for system grounding through a metallic stand-off to system chassis.

PIN CHART

MODEL \ PIN	1, 2, 3	4, 5	6, 7	8, 9	10	11	12	13
PU110-10-1A PU110-10A PU110-12A PU110-13A PU110-14A PU110-16A	OUTPUT #1	RETURN	RETURN	OUTPUT #1	P.F.D.	N.C.	KEY	N.C.
PU110-23A	OUTPUT #1	COMMON RETURN	COMMON RETURN	OUTPUT #2	P.F.D.	N.C.	KEY	N.C.
PU110-31A PU110-32A	OUTPUT #1	COMMON RETURN	COMMON RETURN	OUTPUT #2	P.F.D.	OUTPUT #3	KEY	N.C.
PU110-40A PU110-41A PU110-42A PU110-45A PU110-45-1A PU110-45-2A PU110-46A	OUTPUT #1	COMMON RETURN	COMMON RETURN	OUTPUT #2	P.F.D.	OUTPUT #3	KEY	OUTPUT #4

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