

# 110 WATT SWITCHING POWER SUPPLIES

## DESCRIPTION

The PU110 series of compact, open PCB constructed, AC-DC switching power supplies are capable of delivering 110 watts of continuous power at 25CFM forced air cooling or 80 watts at convection cooling. They operate at 85 to 264 VAC 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 264 VAC
- Input surge current protection
- Overvoltage protection
- Overcurrent protection

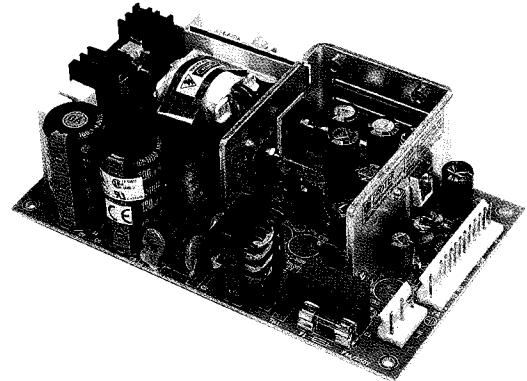
## INPUT SPECIFICATIONS

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

## 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%/ °C max.  
**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.

## PU110 SERIES



## Safety Standard Approvals:



**UL 1950**  
File No. E137410



**C22.2 NO. 950**  
File No. LR93632



**EN 60950**  
Certificate No. R9352008

## ENVIRONMENTAL SPECIFICATIONS

**Operating temperature:** 0°C to +70°C  
**Storage temperature:** -40°C to +85°C  
**Relative humidity:** 5% to 95% non-condensing  
**Derating:** Derate from 100% at +50 °C linearly to 50% at +70 °C  
**Cooling:** 110 watts continuous output power at 25 CFM forced air cooling or 80 watts at convection cooling

## GENERAL SPECIFICATIONS

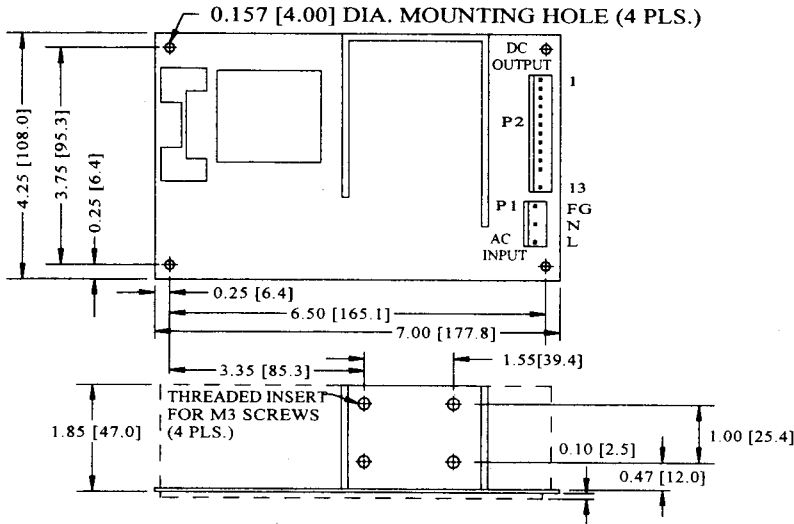
**Switching frequency:** 20KHz to 250KHz, varies with load and line  
**Efficiency:** 70% minimum on single output models with  $V_o \geq 12V$ , 65% minimum on the others  
**Hold-up time:** 12 msec minimum at 110VAC  
**Line regulation:** +/-0.5% maximum at full load  
**Inrush current:** 15amps @ 115VAC, or 30 amps @ 230VAC, at 25 °C cold start  
**Withstand voltage:** 3000VAC from input to output  
 1500VAC from input to ground  
 500VAC from output to ground  
**MTBF:** 400,000 hours minimum at full load at 25 °C ambient, calculated per MIL-HDBK-217F  
**EMI requirements:** Meets conducted limits of  
 (a) FCC Level B  
 (b) EN 55022 Class B  
**Safety requirements:** Meets or Exceeds:  
 (a) UL 1950  
 (b) CSA C22.2 No. 950  
 (c) IEC 950 (EN 60950)

## OUTPUT VOLTAGE/CURRENT RATING CHART

Model (3)	Output #1 (4)				Output #2				I <sub>peak</sub> (1)	Output #3				Output #4				Maximum Output Power(2)	
	Vnom.	Imin.	Imax.	Tol.	Vnom.	Imin.	Imax.	Tol.		Vnom.	Imin.	Imax.	Tol.	Vnom.	Imin.	Imax.	Tol.		
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	2A	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 7-2), 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:

- Dimensions shown in inch [mm]
- Tolerance 0.02 [0.5] maximum
- Input connector mates with Molex housing 09-50-3051 and Molex 2878 series crimp terminal.
- Output connector mates with Molex housing 09-50-3131 and Molex 2878 series crimp terminal.
- Weight: 640 grams (PCB format).
- 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	OUTPUT #1	RETURN	RETURN	OUTPUT #1	P.F.D.	N.C.	KEY	N.C.
PU110-12A	PU110-13A								
PU110-14A	PU110-16A								
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	OUTPUT #1	COMMON RETURN	COMMON RETURN	OUTPUT #2	P.F.D.	OUTPUT #3	KEY	OUTPUT #4
PU110-42A	PU110-45A								
PU110-45-1A	PU110-45-2A								
PU110-46A									