



110 WATT SWITCHING POWER SUPPLIES

DESCRIPTION

The PUP110 series of AC/DC switching power supplies are for 110 watts of continuous output power. They are enclosed in a 94V-1 rated polyphenylene-oxide case with an IEC 320 inlet to mate with interchangeable cord for world-wide use. An on/off switch can be added at request. All models meet CISPR 22 and FCC class B emission limits, and comply with UL, CSA, IEC and CE requirements.

PUP110 SERIES



FEATURES

- Single, dual, triple or quadruple outputs
- Optional output connectors
- Optional on/off switch
- Optional 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

Safety Standard Approvals :



UL 60950-1, CSA C22.2 NO. 60950-1
File No. E137410



TÜV EN60950-1
Certificate No. S9452794

INPUT SPECIFICATIONS

Input voltage : 85 to 264VAC
 Input frequency : 47 to 63Hz
 Input current : 3.20A (rms) for 115VAC
 1.80A (rms) for 230VAC
 Earth leakage current: 0.40mA max. @ 115VAC, 60Hz
 (Touch current) 0.80mA max. @ 230VAC, 50Hz

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

OUTPUT SPECIFICATIONS

Output voltage/current : See rating chart
 Total output power : 110 watts maximum
 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 $\pm 0.04\%$ /°C 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 (optional) : 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.

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 : $\pm 0.5\%$ maximum at full load
 Inrush current : 15 amps @ 115VAC or 30 amps @ 30VAC, at 25°C cold start
 Withstand voltage : 3000VAC from input to output
 1500VAC from input to ground
 500VAC from output to ground
 MTBF : 550,000 hours minimum at full load at 25°C ambient, calculated per MIL-HDBK-217F, excluding DC fan
 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, $\pm 8KV$ air and $\pm 4KV$ contact
 EN61000-4-3: Radiated immunity, 3V/m
 EN61000-4-4: Fast transient/burst, $\pm 1KV$
 EN61000-4-5: Surge, $\pm 1KV$ diff., $\pm 2KV$ 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

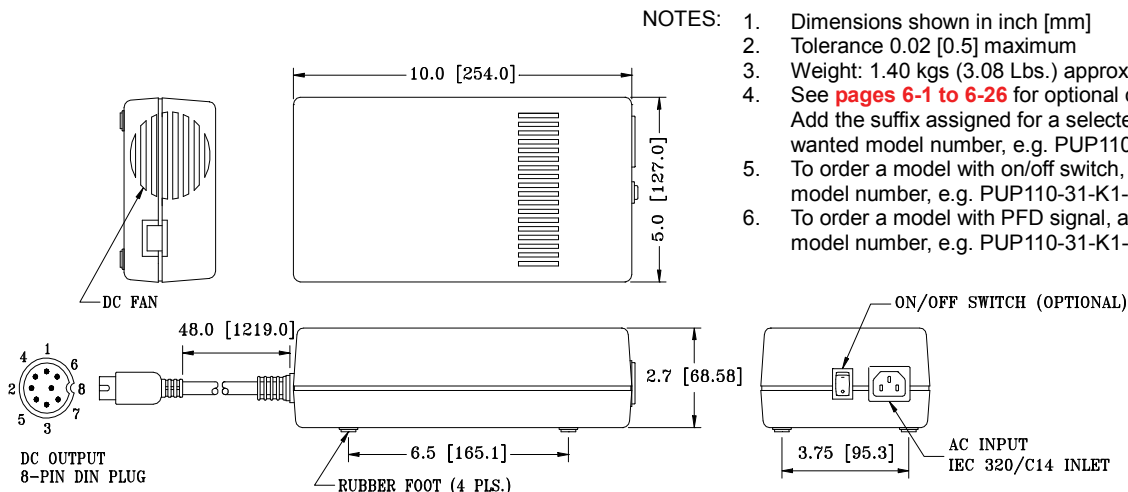
PUP110 SERIES

OUTPUT VOLTAGE/CURRENT RATING CHART

MODEL (2)	Output #1				Output #2 (1)				Output #3				Output #4				Maximum Power	
	Vnom.	Imin.	I _{max}	Tol.	Vnom.	Imin.	I _{max}	I _{peak}	Tol.	Vnom.	Imin.	I _{max}	Tol.	Vnom.	Imin.	I _{max}		Tol.
PUP110-10	5V	0A	22A	5%						(N/A)								110W
PUP110-12	12V	0A	9.0A	4%						(N/A)								110W
PUP110-13	15V	0A	7.5A	3%						(N/A)								110W
PUP110-14	24V	0A	4.5A	3%						(N/A)								110W
PUP110-16	30V	0A	3.6A	3%						(N/A)								110W
PUP110-18	48V	0A	2.3A	3%						(N/A)								110W
PUP110-23	+5V	0A	10A	5%	+12V	0A	5A	9.0A	5%	(N/A)								110W
PUP110-31	+5V	0A	10A	5%	+12V	0A	5A	9.0A	5%	-12V	0A	1A	5%			(N/A)		110W
PUP110-32	+5V	0A	10A	5%	+15V	0A	4A	7.5A	5%	-15V	0A	1A	5%			(N/A)		110W
PUP110-40	+5V	0A	10A	5%	+12V	0A	5A	9.0A	5%	-12V	0A	1A	5%	-5V	0A	1A	5%	110W
PUP110-41	+5V	0A	10A	5%	+15V	0A	4A	7.5A	5%	-15V	0A	1A	5%	+24V	0A	1A	5%	110W
PUP110-42	+5V	0A	10A	5%	+12V	0A	5A	9.0A	5%	-12V	0A	1A	5%	+12V	0A	1A	5%	110W
PUP110-45	+5V	0A	10A	5%	+12V	0A	5A	9.0A	5%	-12V	0A	1A	5%	+24V	0A	1A	5%	110W
PUP110-45-1	+5V	2A	10A	5%	+12V	0A	5A	9.0A	5%	-12V	0A	1A	5%	+24V	1.5A	3A	10%	110W
PUP110-45-2	+5V	0A	10A	5%	+24V	0A	3A	5.0A	5%	-12V	0A	1A	5%	+12V	0A	1A	5%	110W
PUP110-46	+5V	0A	10A	5%	+15V	0A	4A	7.5A	5%	-15V	0A	1A	5%	-5V	0A	1A	5%	110W

- NOTES:
1. Peak output current with 10% maximum duty cycle for less than 60 seconds. Total peak power must not exceed 130 watt
 2. The output #1 of model PUP110-45-1 needs a minimum current of 2A to support the other output at their maximum rated load

MECHANICAL SPECIFICATIONS



PIN CHART

MODEL	PIN	1	2	3	4	5	6	7	8
PUP110-10	PUP110-12	RETURN	RETURN	OUTPUT #1	RETURN	OUTPUT #1	RETURN	OUTPUT #1	N.C. or PFD
PUP110-13	PUP110-14	RETURN	RETURN	OUTPUT #1	RETURN	OUTPUT #1	RETURN	OUTPUT #1	N.C. or PFD
PUP110-16	PUP110-18	RETURN	RETURN	OUTPUT #1	RETURN	OUTPUT #1	RETURN	OUTPUT #1	N.C. or PFD
PUP110-23		COMMON RETURN	N.C.	OUTPUT #1	N.C.	OUTPUT #2	COMMON RETURN	OUTPUT #1	N.C. or PFD
PUP110-31	PUP110-32	COMMON RETURN	OUTPUT #3	OUTPUT #1	N.C.	OUTPUT #2	COMMON RETURN	OUTPUT #1	N.C. or PFD
PUP110-40	PUP110-41	COMMON RETURN	OUTPUT #3	OUTPUT #1	OUTPUT #4	OUTPUT #2	COMMON RETURN	OUTPUT #1	N.C. or PFD
PUP110-42	PUP110-45	COMMON RETURN	OUTPUT #3	OUTPUT #1	OUTPUT #4	OUTPUT #2	COMMON RETURN	OUTPUT #1	N.C. or PFD
PUP110-45-1	PUP110-45-2	COMMON RETURN	OUTPUT #3	OUTPUT #1	OUTPUT #4	OUTPUT #2	COMMON RETURN	OUTPUT #1	N.C. or PFD
PUP110-46		COMMON RETURN	OUTPUT #3	OUTPUT #1	OUTPUT #4	OUTPUT #2	COMMON RETURN	OUTPUT #1	N.C. or PFD