

**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

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

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 $\pm 0.04\%$ / $^{\circ}\text{C}$ 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.

Safety Standard Approvals :

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



TÜV EN60950-1
Certificate No. S9452794

ENVIRONMENTAL SPECIFICATIONS

Operating temperature : 0 $^{\circ}\text{C}$ to +70 $^{\circ}\text{C}$
Storage temperature : -40 $^{\circ}\text{C}$ to +85 $^{\circ}\text{C}$
Relative humidity : 5% to 95% non-condensing
Derating : Derate from 100% at +50 $^{\circ}\text{C}$ linearly to 50% at +70 $^{\circ}\text{C}$

GENERAL SPECIFICATIONS

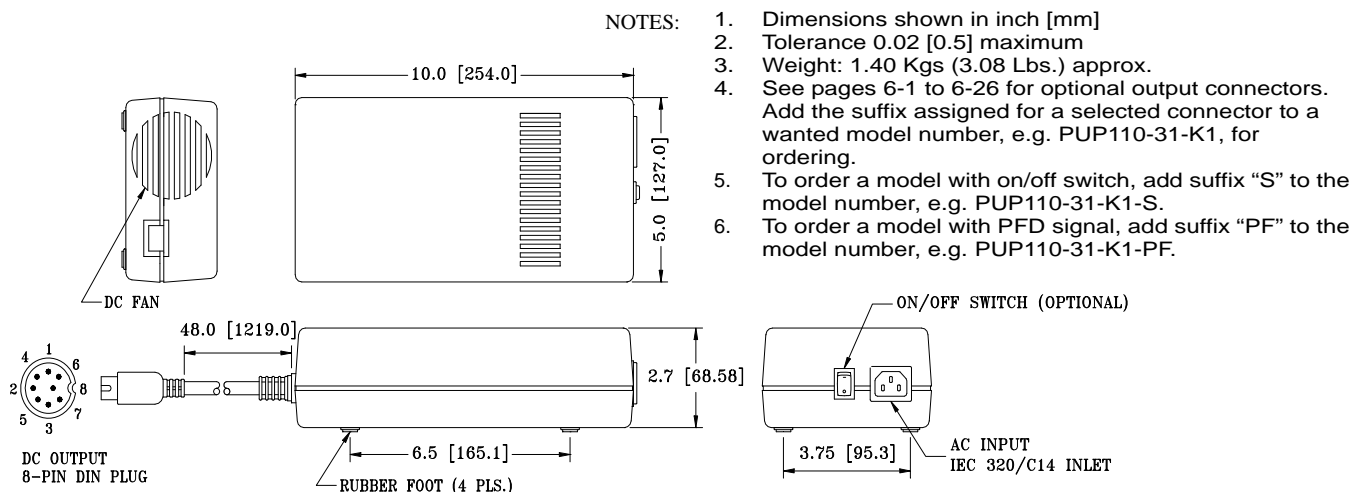
Switching frequency : 20KHz to 250KHz, varies with load and line
Efficiency : 70% minimum on single output models with $V_o \geq 12\text{V}$, 65% minimum on the others
Hold-up time : 12 msec minimum at 110VAC
Line regulation : $\pm 0.5\%$ maximum at full load
Inrush current : 15 amps @ 115VAC or 30 amps @ 30VAC, at 25 $^{\circ}\text{C}$ 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 $^{\circ}\text{C}$ 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, $\pm 8\text{KV}$ air and $\pm 4\text{KV}$ contact
EN61000-4-3: Radiated immunity, 3V/m
EN61000-4-4: Fast transient/burst, $\pm 1\text{KV}$
EN61000-4-5: Surge, $\pm 1\text{KV}$ diff., $\pm 2\text{KV}$ 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

OUTPUT VOLTAGE/CURRENT RATING CHART

Model (2)	Output #1				Output #2 (1)					Output #3				Output #4				Maximum Output Power
	Vnom.	Imin.	Imax.	Tol.	Vnom.	Imin.	Imax.	Ipeak	Tol.	Vnom.	Imin.	Imax.	Tol.	Vnom.	Imin.	Imax.	Tol.	
PUP110-10	5V	0A	22A	5%	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	110W
PUP110-12	12V	0A	9.0A	4%	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	110W
PUP110-13	15V	0A	7.5A	3%	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	110W
PUP110-14	24V	0A	4.5A	3%	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	110W
PUP110-16	30V	0A	3.6A	3%	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	110W
PUP110-18	48V	0A	2.3A	3%	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	110W
PUP110-23	+5V	0A	10A	5%	+12V	0A	5A	9.0A	5%	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	110W
PUP110-31	+5V	0A	10A	5%	+12V	0A	5A	9.0A	5%	-12V	0A	1A	5%	(N/A)	(N/A)	(N/A)	(N/A)	110W
PUP110-32	+5V	0A	10A	5%	+15V	0A	4A	7.5A	5%	-15V	0A	1A	5%	(N/A)	(N/A)	(N/A)	(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 watts.
 (2) The output #1 of model PUP110-45-1 needs a minimum current of 2A to support the other outputs at their maximum rated loads.

MECHANICAL SPECIFICATIONS



PIN CHART

PIN		1	2	3	4	5	6	7	8
MODEL									
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