

# 150 WATT SWITCHING POWER SUPPLIES

## DESCRIPTION

The PU150 series comprises single and multiple output models for 150 watts of continuous output power. Auto-ranging input allows them to operate from any line voltage throughout the world without a selector strap. All auxiliary outputs are with magnetic amplifier to keep regulation. The units are constructed on a printed circuit board with a U-bracket for mechanical support and heat sinking, in 1U height.

## FEATURES

- Auto-ranging input
- Overvoltage protection
- Short-circuit protection with auto-recovery
- Power Fail Detect ( PFD ) signal on models With 5V output
- 100 % burn-in at full rated load

## INPUT SPECIFICATIONS

<b>Input voltage :</b>	85 to 132 VAC, or 170 to 264 VAC ( auto-ranging )
<b>Input frequency :</b>	47 to 63 Hz
<b>Input current :</b>	3.4A ( rms ) for 115VAC 2.0A ( rms ) for 230VAC
<b>Leakage current :</b>	0.4mA max. @ 115VAC, 60Hz 0.8mA max. @ 230VAC, 50Hz

## OUTPUT SPECIFICATIONS

<b>Output voltage/current :</b>	See rating chart
<b>Total output power :</b>	150 watts maximum at 30 CFM forced air cooling or 110 watts maximum at convection cooling
<b>Ripple and noise :</b>	1 % peak to peak maximum
<b>Overvoltage protection :</b>	Provided on output #1 only; set at 112-136 % of its nominal output voltage
<b>Overcurrent protection :</b>	All outputs protected to short circuit conditions
<b>Temperature coefficient :</b>	All outputs $\pm 0.04$ % / °C maximum
<b>Transient response :</b>	Maximum excursion of 4 % or better on all models, recovering to 1 % of final value within 500us after a 25 % step load change

## ENVIRONMENTAL SPECIFICATIONS

<b>Operating temperature :</b>	0°C to +70°C
<b>Storage temperature :</b>	-40°C to +85°C
<b>Relative humidity :</b>	5 % to 95% non-condensing
<b>Derating :</b>	Derate from 100 % at +50°C Linearly to 50 % at +70°C

## PU150 SERIES



## Safety Standard Approvals :



**UL 60950-1**  
File No. E137410



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



**TÜV EN60950-1**  
Certificate No. R9954992

## GENERAL SPECIFICATIONS

<b>Switching frequency :</b>	120KHz $\pm 15$ %
<b>Efficiency :</b>	70 % typical on all models
<b>Hold-up time :</b>	15 msec minimum at 115VAC
<b>Line regulation :</b>	$\pm 0.5$ % maximum at full load
<b>Inrush current :</b>	20 amps @ 115VAC, or 40 amps @ 230VAC, at 25°C cold start
<b>Withstand voltage :</b>	3000VAC from input to output 1500VAC from input to ground 500VAC from output to ground
<b>MTBF :</b>	300,000 hours minimum at full load at 25°C 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, $\pm 8$ KV air and $\pm 4$ KV contact
EN61000-4-3:	Radiated immunity, 3V/m
EN61000-4-4:	Fast transient/burst, $\pm 1$ KV
EN61000-4-5:	Surge, $\pm 1$ KV diff., $\pm 2$ 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

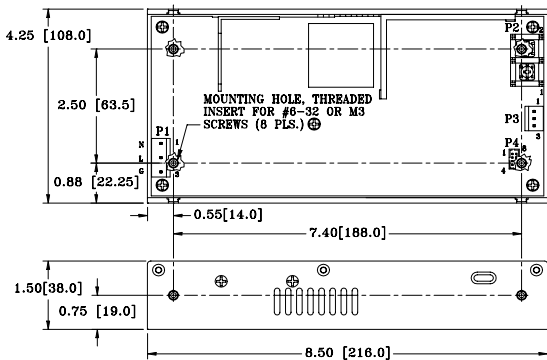
## OUTPUT VOLTAGE/CURRENT RATING CHART

(1)(2) Model	Output #1 (3)					Output #2					Output #3				Output #4					Output Power
	Vnom	Imin	Imax.	Ipeak	Tol.	Vnom	Imin.	Imax.	Ipeak	Tol.	Vnom.	Imin.	Imax.	Tol.	Vnom	Imin.	Imax.	Ipeak	Tol.	
PU150-10B	5V	0A	30A	35A	2%			(N/A)					(N/A)				(N/A)			150W
PU150-12B	12V	0A	12.5A	14.5A	2%			(N/A)					(N/A)				(N/A)			150W
PU150-13B	15V	0A	10A	11.6A	2%			(N/A)					(N/A)				(N/A)			150W
PU150-13-1B	18V	0A	8.3V	9.7A	2%			(N/A)					(N/A)				(N/A)			150W
PU150-14B	24V	0A	6.3A	7.3A	2%			(N/A)					(N/A)				(N/A)			150W
PU150-16B	30V	0A	5.0A	6.0A	2%			(N/A)					(N/A)				(N/A)			150W
PU150-17B	36V	0A	4.2A	4.8A	2%			(N/A)					(N/A)				(N/A)			150W
PU150-18B	48V	0A	3.1A	3.6A	2%			(N/A)					(N/A)				(N/A)			150W
PU150-23B	+5V	2.0A	22A	30A	2%	+12V	0A	8A	10A	3%			(N/A)				(N/A)			150W
PU150-24B	+5V	2.0A	22A	30A	2%	+15V	0A	6.4A	8A	3%			(N/A)				(N/A)			150W
PU150-25B	+5V	2.0A	22A	30A	2%	+24V	0A	4.5A	5A	3%			(N/A)				(N/A)			150W
PU150-30B	+5V	2.0A	22A	30A	2%	+12V	0A	8A	10A	3%	-5V	0A	2.5A	3%				(N/A)		150W
PU150-31B	+5V	2.0A	22A	30A	2%	+12V	0A	8A	10A	3%	-12V	0A	2.5A	3%				(N/A)		150W
PU150-32B	+5V	2.0A	22A	30A	2%	+15V	0A	6.4A	8A	3%	-15V	0A	2A	3%				(N/A)		150W
PU150-33B	+5V	2.0A	22A	30A	2%	+15V	0A	6.4A	8A	3%	-12V	0A	2.5A	3%				(N/A)		150W
PU150-40B	+5V	2.0A	22A	30A	2%	+12V	0A	8A	10A	3%	-12V	0A	2.5A	3%	5V	0A	5A	5A	3%	150W
PU150-41B	+5V	2.0A	22A	30A	2%	+15V	0A	6.4A	8A	3%	-15V	0A	2A	3%	24V	0A	4.5A	5A	3%	150W
PU150-42B	+5V	2.0A	22A	30A	2%	+12V	0A	8A	10A	3%	-12V	0A	2.5A	3%	12V	0A	4.5A	5A	3%	150W
PU150-44B	+5V	2.0A	22A	30A	2%	+12V	0A	8A	10A	3%	-15V	0A	2A	3%	15V	0A	4A	4.5A	3%	150W
PU150-45B	+5V	2.0A	22A	30A	2%	+12V	0A	8A	10A	3%	-12V	0A	2.5A	3%	24V	0A	4.5A	5A	3%	150W

- Notes: (1) Safety agency approvals are for the above listed models in U-bracket format. To order model with a metallic cover, change suffix "B" to "C" for enclosed format (mechanical details shown in page 7-3). e.g. PU150-45C
- (2) Output #1 can be built for one-wire current sharing. Add suffix "Z", e.g. PU150-45B-Z for this requirement.
- (3) The maximum current of each output shall be derated to 75% if no forced air is provided by user.
- (4) The output #1 of all multiple output models needs a minimum load of 2A to support the other outputs at their maximum rated loads.

## MECHANICAL SPECIFICATIONS

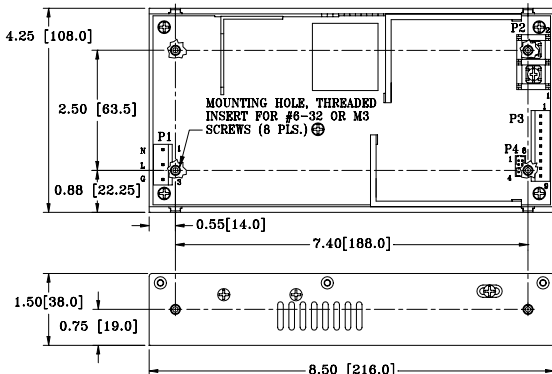
### Single Output models



### NOTES:

- Dimensions shown in inch [mm]
- Tolerance 0.02 [0.5] maximum
- Input connector P1 mates with Molex housing 09-50-3051 and Molex 2878 series crimp terminal.
- Output connector P3 mates with Molex housing 09-50-3031 and Molex 2878 series crimp terminal.
- Connector P4 mates with Molex housing 51110-0851 and pins 50394-8100.
- Weight: 0.84 kgs (1.86 Lbs.) approx.

### Multiple Output models



### NOTES:

- Dimensions shown in inch [mm]
- Tolerance 0.02 [0.5] maximum
- Input connector P1 mates with Molex housing 09-50-3051 and Molex 2878 series crimp terminal.
- Output connector P3 mates with Molex housing 09-50-3091 and Molex 2878 series crimp terminal.
- Connector P4 mates with Molex housing 51110-0851 and pins 50394-8100.
- Weight: 0.84 kgs (1.86 Lbs.) approx.

# AUTORANGING INPUT

# PU150 SERIES

## PIN CHART

### Single Output Models

CONN PIN MODEL	P1			P2		P3		
	1	2	3	1	2	1	2	3
PU150-10	AC NEUTRAL	AC LIVE	AC GROUND	COM. RET.	OUTPUT #1	PFD	N.C.	COM. RET.
PU150-12 PU150-13-1 PU150-16 PU150-18	AC NEUTRAL	AC LIVE	AC GROUND	COM. RET.	OUTPUT #1	N.C.	N.C.	N.C.

CONN PIN MODEL	P4							
	1	2	3	4	5	6	7	8
PU150-10 PU150-13 PU150-14 PU150-17	COM RET INHIBIT -Ve	INHIBIT +Ve	N.C.	N.C.	COM. RET.	-SENSE	+SENSE	CURRENT SHARE

### Multiple Output Models

CONN PIN MODEL	P1			P2		P3					
	1	2	3	1	2	1	2	3	4	5,6,7	8,9
PU150-23 PU150-25	AC NEUTRAL	AC LIVE	AC GROUND	COM. RET.	OUTPUT #1	N.C.	N.C.	PFD	N.C.	COM. RET.	OUTPUT #2
PU150-30 PU150-32	AC NEUTRAL	AC LIVE	AC GROUND	COM. RET.	OUTPUT #1	N.C.	N.C.	PFD	OUTPUT #3	COM. RET.	OUTPUT #2
PU150-40 PU150-42 PU150-45	AC NEUTRAL	AC LIVE	AC GROUND	COM. RET.	OUTPUT #1	OUTPUT #4 RETURN	OUTPUT #4	PFD	OUTPUT #3	COM. RET.	OUTPUT #2

CONN PIN MODEL	P4							
	1	2	3	4	5	6	7	8
PU150-23 PU150-31 PU150-42 PU150-45	INHIBIT -Ve	INHIBIT +Ve	+12V (FAN)	N.C.	COM RET.	-SENSE	+SENSE	CURRENT SHARE
PU150-24 PU150-33	INHIBIT -Ve	INHIBIT +Ve	+15V (FAN)	N.C.	COM. RET.	-SENSE	+SENSE	CURRENT SHARE
PU150-25	INHIBIT -Ve	INHIBIT +Ve	+24V (FAN)	N.C.	COM. RET.	-SENSE	+SENSE	CURRENT SHARE