

P R B X

POWERBOX Industrial Line 300
OBP36 Series
300W
Single and Multiple Output
AC/DC Switch Mode Power Supply



Features

EN61000-3-2 class A and D compliant
Power Factor 0.98 typical
Overvoltage protection
Short-circuit protection
Power Fail Detect (PFD) signal
100% burn-in at full rated load
Remote sense on output #1 and output #2
Remote inhibit – TTL high to disable output
Compliant with RoHS requirements

Input

Voltage range	90-264VAC.
Frequency	47-63Hz.
Current	4.7A (rms) for 115VAC. 2.3A (rms) for 230VAC.
Leakage current	300µA max @ 264VAC, 63Hz.

Output

Power	See table.
Voltage/current	See table.
Ripple and noise	1% peak to peak maximum.
Over voltage protection	Provided on output #1 only; set at 115-140% of its nominal output voltage.
Over current protection	All outputs protected to short circuit conditions.
Temperature coefficient	±0.04%/°C max.
Transient response	Max excursion of 4% or better on all models, recovering to 1% of final value within 500µs after a 25% step load change.
Fan power	12 V at 350 mA maximum for B version, 12 V at 100 mA maximum for C version.

Environmental

Operating temperature	0°C to +70°C.
Storage temperature	-40°C to +85°C.
Relative humidity	5-95% non-condensing.
Derating	Derate from 100% at +50°C linearly to 50% at +70°C.
Cooling	200 /250 /300 watts continuous output power at 35 CFM forced air cooling or 100 /125 /150 watts at convention cooling.

General

Switching frequency	70KHz typical.
Power factor	0.98 typical.
Efficiency	70% minimum on all models.
Hold-up time	12ms min at 110VAC.
Line regulation	±0.2% max at full load.
Inrush current	30A @ 115VAC, or 60A @ 230VAC, at 25°C cold start.
Withstand voltage	3,000VAC from input to output. 1,500VAC from input to ground. 500VAC from output to ground.
MTBF	300,000 hours at full load at 25°C ambient, calculated per MIL-HDBK-217F.

Interface Signals

PFD	TTL logic high for normal operation and TTL logic low upon loss of input power. This signal appears at least 1 ms prior to master output dropping 5% below its nominal value. This signal also provides a minimum delay of 100 ms after master output is within regulation.
Inhibit	Requires an external TTL high level signal to inhibit outputs for standard models.

Standards

Safety standards	UL60950-1, CSA C22.2 No 60950-1 File No E208620, TUV EN60950-1.
EMC performance	EN55022 Class B conducted, Class B radiated.
EN61000-3-2	Harmonic distortion Class A and D.
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.
EN6100-4-8	Magnetic field immunity, 1A/m.
EN61000-4-11	Voltage dips, 30% reduction for 500ms, 60% reduction for 100ms, >95% reduction for 10ms.

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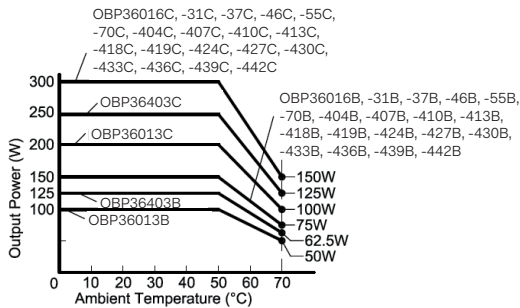
Model Number ^{1, 2, 6}	Output #1 ^{3, 5}				Output #2 ^{3, 5}				Output #3 ⁴				Output #4 ⁴				Max Output Power ⁵
	V1	Imin	Imax	Tol	V2	Imin	Imax	Tol	V3	Imin	Imax	Tol	V4	Imin	Imax	Tol	
OBP36013B	3.3 V	3.0 A	60.0 A	±3%	(N/A)	(N/A)	(N/A)		100 W / 200 W								
OBP36016B	5.1 V	3.0 A	60.0 A	±2%	(N/A)	(N/A)	(N/A)		150 W / 300 W								
OBP36031B	12 V	1.2 A	25.0 A	±2%	(N/A)	(N/A)	(N/A)		150 W / 300 W								
OBP36037B	15 V	1.0 A	20.0 A	±2%	(N/A)	(N/A)	(N/A)		150 W / 300 W								
OBP36046B	24 V	0.6 A	12.5 A	±2%	(N/A)	(N/A)	(N/A)		150 W / 300 W								
OBP36055B	30 V	0.5 A	10.0 A	±2%	(N/A)	(N/A)	(N/A)		150 W / 300 W								
OBP36070B	48 V	0.5 A	6.3 A	±2%	(N/A)	(N/A)	(N/A)		150 W / 300 W								
OBP36403B	3.3 V	3.0 A	35.0 A	±3%	5.1 V	2.0 A	22 A	±2%	12 V	0 A	4 A	±4%	12 V	0 A	4 A	±4%	125 W / 250 W
OBP36404B	5.1 V	2.0 A	35.0 A	±2%	12 V	1.0 A	10 A	±2%	12 V	0 A	4 A	±4%	5.1 V	0 A	4 A	±4%	150 W / 300 W
OBP36407B	5.1 V	2.0 A	35.0 A	±2%	15 V	0.8 A	8 A	±2%	15 V	0 A	4 A	±4%	24 V	0 A	2.5 A	±4%	150 W / 300 W
OBP36410B	5.1 V	2.0 A	35.0 A	±2%	12 V	1.0 A	10 A	±2%	12 V	0 A	4 A	±4%	12 V	0 A	4 A	±4%	150 W / 300 W
OBP36413B	5.1 V	2.0 A	35.0 A	±2%	12 V	1.0 A	10 A	±2%	12 V	0 A	4 A	±4%	24 V	0 A	2.5 A	±4%	150 W / 300 W
OBP36418B	5.1 V	2.0 A	35.0 A	±2%	12 V	1.0 A	10 A	±2%	12 V	0 A	4 A	±4%	15 V	0 A	4 A	±4%	150 W / 300 W
OBP36419B	5.1 V	2.0 A	35.0 A	±2%	24 V	0.5 A	5 A	±2%	12 V	0 A	4 A	±4%	12 V	0 A	4 A	±4%	150 W / 300 W
OBP36424B	5.1 V	2.0 A	35.0 A	±2%	24 V	0.5 A	5 A	±2%	5.1 V	0 A	4 A	±4%	15 V	0 A	4 A	±4%	150 W / 300 W
OBP36427B	5.1 V	2.0 A	35.0 A	±2%	12 V	1.0 A	10 A	±2%	5.1 V	0 A	4 A	±4%	24 V	0 A	2.5 A	±4%	150 W / 300 W
OBP36430B	24 V	0.5 A	6.3 A	±2%	12 V	1.0 A	10 A	±2%	5.1 V	0 A	4 A	±4%	12 V	0 A	4 A	±4%	150 W / 300 W
OBP36433B	24 V	0.5 A	6.3 A	±2%	12 V	1.0 A	10 A	±2%	5.1 V	0 A	4 A	±4%	24 V	0 A	2.5 A	±4%	150 W / 300 W
OBP36436B	24 V	0.5 A	6.3 A	±2%	12 V	1.0 A	10 A	±2%	12 V	0 A	4 A	±4%	12 V	0 A	4 A	±4%	150 W / 300 W
OBP36439B	24 V	0.5 A	6.3 A	±2%	24 V	0.5 A	5 A	±2%	5.1 V	0 A	4 A	±4%	15 V	0 A	4 A	±4%	150 W / 300 W
OBP36442B	24 V	0.5 A	6.3 A	±2%	24 V	0.5 A	5 A	±2%	12 V	0 A	4 A	±4%	12 V	0 A	4 A	±4%	150 W / 300 W

Notes:

- Suffix "B" in model numbers denotes U-bracket form. Change "B" to "C" for enclosed form with cover-and-fan assembly, e.g. OBP36413C.
- All outputs are floating. They can be connected externally for positive or negative output.
- Output #1 & #2 can be adjusted within ±5% of their nominal voltage.
- Output #3 & #4 can be adjusted within ±15% of their nominal voltage.
- 300 watts for "C" version with cover-and-fan assembly, 150 watts for "B" version without moving air (maximum current of output #1 & #2 derated to 50%), or 300 watts with 35 CFM forced air provided by user.

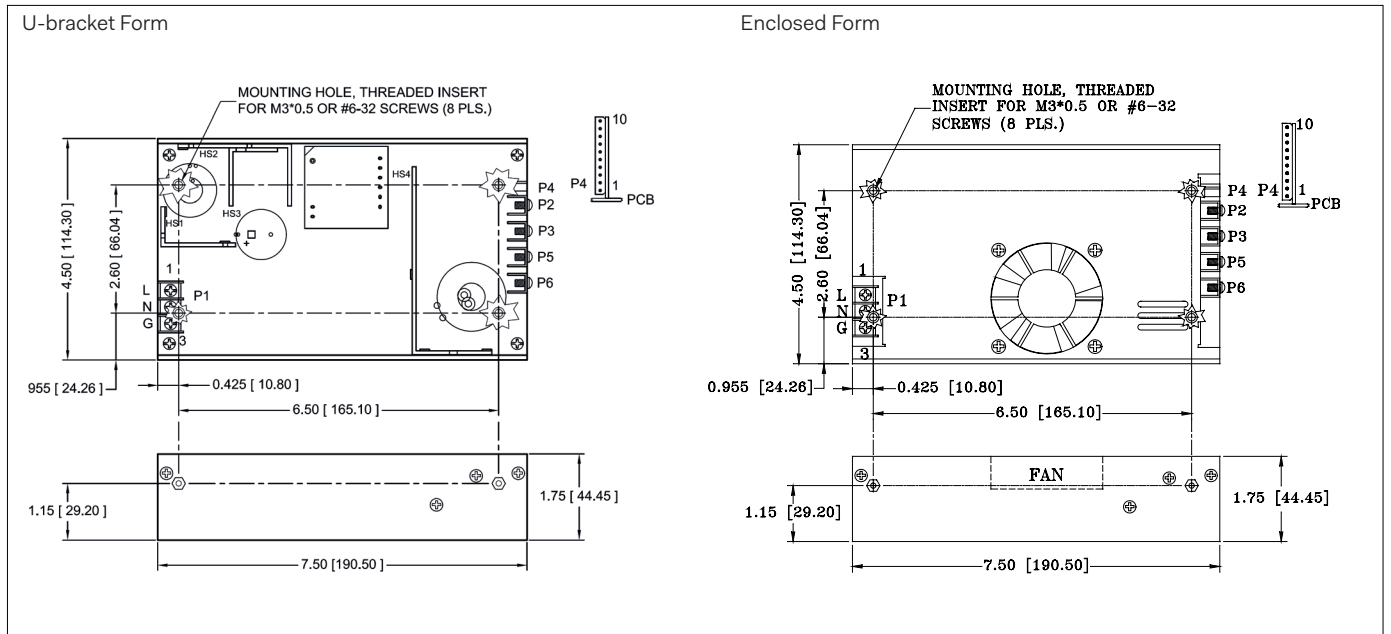
- OBP36013B is rated 200 watts with 35 CFM forced air cooling or 100 watts convection cooled. OBP36403B is rated 250 watts with 35 CFM forced air cooling (maximum current of output #1 & #2 derated to 50%) or 125 watts convection cooled.
- Single output models may be operated at no-load. At no-load, output voltage tolerance increases to ±10%.
- Ripple and noise is maximum peak-to-peak voltage value measured at output within 20 MHz bandwidth, at rated line voltage and output load ranges, and with a 10 µF tantalum capacitor in parallel with a 0.1 µF ceramic capacitor across the output.

Derating Curve

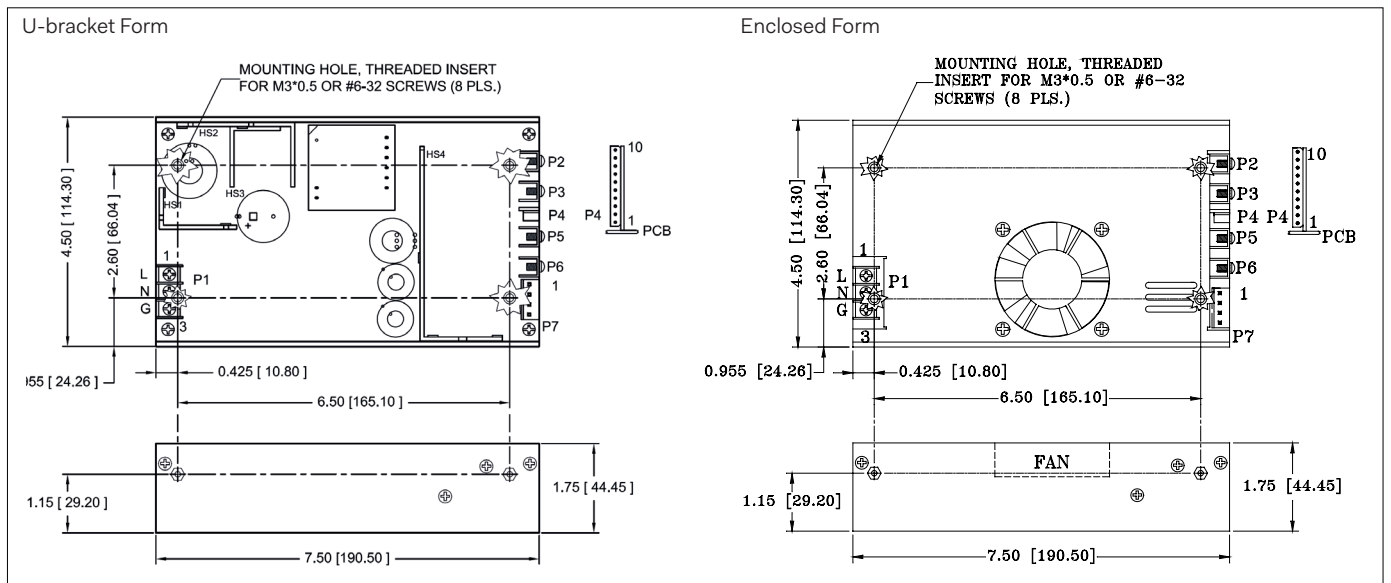


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Mechanical Single Output Models



Mechanical Multiple Output Models



Notes:

1. Dimensions shown in inches [mm]
2. Tolerance 0.02 [0.5] maximum
3. Input connector P1 is Dinkle DT-35-B01W-03 with M3, nickel-plated screws.
4. Connector P4 mates with Molex housing 50-37-5103 and pins 5263.
5. Connectors P2, P3, P5 and P6: M3*0.5 screw connections
6. Output connector P7 mates with Molex housing 09-50-3041 and Molex 2878 series crimp terminal.
7. Weight: 1.10 Kgs. (2.42 lbs.) approx. for U-bracket form, 1.24 Kgs. (2.73 lbs.) approx. for Enclosed form.
8. Maximum penetration depth of fixing screws is 4 mm from the outer surface of chassis.

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Pin Connection

Connector Model	Pin No	P1 (AC)			P2	P3	P5	P6	P7			
		1	2	3					1	2	3	4
OBP36013B	OBP36046B											
OBP36016B	OBP36055B	Live	Neutral	Ground	+V1	+V1	V1 Return	V1 Return	N.A.	N.A.	N.A.	N.A.
OBP36031B	OBP36170B											
OBP36037B												
OBP36403B	OBP36424B											
OBP36404B	OBP36427B											
OBP36407B	OBP36430B											
OBP36410B	OBP36433B	Live	Neutral	Ground	+V1	V1 Re-turn	+V2	V2 Re-turn	+V3	V3 Return	+V4	V4 Return
OBP36413B	OBP36436B											
OBP36418B	OBP36439B											
OBP36419B	OBP36442B											

Connector Model	Pin No	P4										
		1	2	3	4	5	6	7	8	9	10	
OBP36013B	OBP36046B	Signal										
OBP36016B	OBP36055B	Common	+V1 Sense	-V1 Sense	PFD	Inhibit +V	N.C.	N.C.	N.C.	Fan Return	+12V Fan	
OBP36031B	OBP36170B	Return										
OBP36037B												
OBP36403B	OBP36424B											
OBP36404B	OBP36427B											
OBP36407B	OBP36430B	Signal										
OBP36410B	OBP36433B	Common	+V1 Sense	-V1 Sense	PFD	Inhibit +V	N.C.	+V2 Sense	-V2 Sense	Fan Return	+12V Fan	
OBP36413B	OBP36436B	Return										
OBP36418B	OBP36439B											
OBP36419B	OBP36442B											