

# PR BX

POWERBOX Medline 300  
OBP02 Series  
300W  
Multiple Output  
AC/DC Medical Switch Mode Power Supply



## Features

Fulfills IEC60601-1-2:2014 (EMC 4th edition)
EN61000-3-2 class A and D compliant
Power Factor 0.98 typical
Overtoltage 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	90-264VAC.
Frequency	47-63Hz.
Input current	4.7A (rms) for 115VAC. 2.3A (rms) for 230VAC.
Leakage current	300µA max @ 264VAC, 63Hz.

## Output

Voltage/current	See table.
Max power	See table.
Ripple and noise	2% peak to peak maximum on 3.3V & 5.1V and 1% peak to peak maximum on other voltage outputs.
Overtoltage protection	Provided on output #1 only; set at 115-140% of its nominal output voltage.
Overcurrent protection	All outputs protected to short circuit conditions
Temperature coefficient	All outputs ±0.04% /°C maximum.
Transient response	Maximum excursion of 4% or better on all models, recovering to 1% of final value within 500 us after a 25% step load change.
Fan power	12V at 350mA maximum for B version, 12V at 100mA maximum for C version.

## 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 V1 output dropping 5% below its nominal value. This signal also provides a minimum delay of 100 ms after V1 output is within regulation.
Inhibit	Requires an external TTL high level signal to inhibit outputs for standard models.

## Environmental

Operating temperature	0°C to +70°C.
Storage temperature	-40°C to +85°C.
Humidity	5% to 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	70 KHz ±10 KHz.
Power factor	0.98 typical.
Efficiency	70% minimum on all models.
Hold-up time	12 ms minimum at 110 VAC.
Line regulation	±0.2% maximum at full load.
Inrush current	30 A @ 115 VAC or 60 A @ 230 VAC, at 25°C cold start.
Withstand voltage	5600 VDC from input to output (2 MOPP). 2100 VDC from input to ground (1 MOPP). 700 VDC from output to ground. (To verify AC strength, get correct test method to avoid power supply damage.)
MTBF	300,000 hours minimum at full load at 25°C ambient, calculated per MIL-HDBK-217F.

## Standards

Safety standards	UL ES 60601-1, CSA C22.2 No. 60601-1 File No. TUVEN 60601-1.
EMC performance	IEC 60601-1-2:2014 (4th ed.).
EN55011	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&D.
EN61000-3-3	Line flicker.
EN61000-4-2	ESD, ±15 KV air and ±8 KV contact.
EN61000-4-3	Radiated immunity, 10V/m. Proximity test, 9V/m and 28V/m.
EN61000-4-4	Fast transient/burst, ±2KV.
EN61000-4-5	Surge, ±1KV diff., ±2KV com.
EN61000-4-6	Conducted immunity, 10 Vrms (0.15 – 80 MHz). 10 Vrms ISM Bands + Amateurs.
EN61000-4-8	Magnetic field immunity, 30A/m.
EN61000-4-11	Voltage dips: 100% drop, 0.5 periods. 100% dip, 1 period. 30% dip, 25/30 periods. Interruptions: 100% drop, 5 seconds.

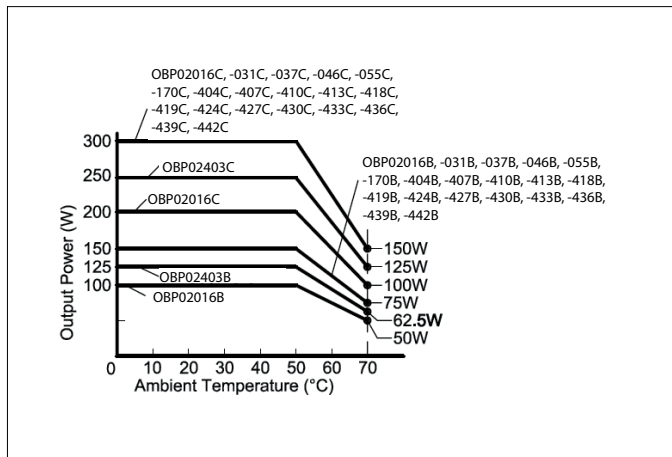
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Article <sup>1) 2) 6)</sup> Number	Output 1 <sup>3) 5)</sup>				Output 2 <sup>3) 5)</sup>				Output 3 <sup>4)</sup>				Output 4 <sup>4)</sup>				Max <sup>5)</sup> Power
	Vnom	Imin	Imax	Tol.	Vnom	Imin	Imax	Tol.	Vnom	Imin	Imax	Tol.	Vnom	Imin	Imax	Tol.	
OBP02013B	3.3 V	3.0 A	60.0 A	±3%	(N/A)				(N/A)				(N/A)				100W /200W
OBP02016B	5.1 V	3.0 A	60.0 A	±2%	(N/A)				(N/A)				(N/A)				150W /300W
OBP02031B	12 V	1.2 A	25.0 A	±2%	(N/A)				(N/A)				(N/A)				150W /300W
OBP02037B	15 V	1.0 A	20.0 A	±2%	(N/A)				(N/A)				(N/A)				150W /300W
OBP02046B	24 V	0.6 A	12.5 A	±2%	(N/A)				(N/A)				(N/A)				150W /300W
OBP02055B	30 V	0.5 A	10.0 A	±2%	(N/A)				(N/A)				(N/A)				150W /300W
OBP02170B	48 V	0.5 A	6.3 A	±2%	(N/A)				(N/A)				(N/A)				150W /300W
OBP02403B	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%	125W /250W
OBP02404B	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%	150W /300W
OBP02407B	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%	150W /300W
OBP02410B	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%	150W /300W
OBP02413B	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%	150W /300W
OBP02418B	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%	150W /300W
OBP02419B	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%	150W /300W
OBP02424B	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%	150W /300W
OBP02427B	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%	150W /300W
OBP02430B	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%	150W /300W
OBP02433B	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%	150W /300W
OBP02436B	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%	150W /300W
OBP02439B	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%	150W /300W
OBP02442B	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%	150W /300W

Notes:

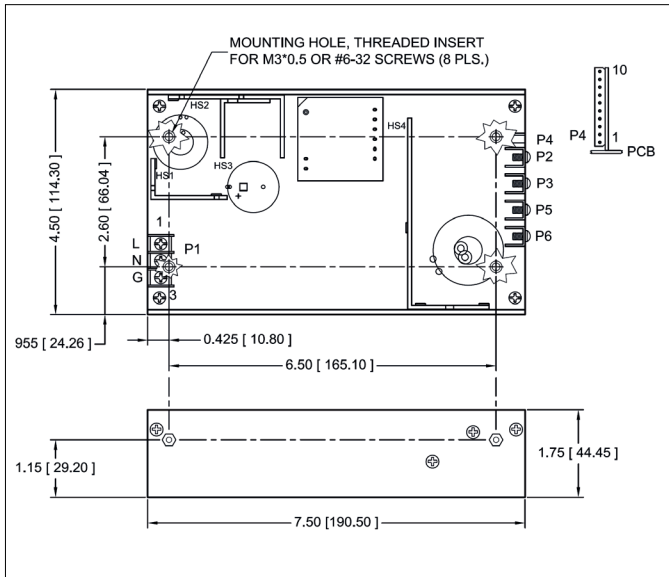
- Suffix "B" in model numbers denotes U-bracket form. Change "B" to "C" for enclosed form with cover and fan assembly, e.g. OBP02046C.
- All outputs are floating. They can be connected externally for positive or negative output.
- Output #1 & #2 can be adjusted within ±5% of their nominal voltage.
- 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.
- OBP02013B is rated 200 watts with 35 CFM forced air cooling or 100 watts convection cooled. OBP02403B 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.
- Option available for fixed installations, fuse in Neutral removed, contact Powerbox for details.

Derating Curve

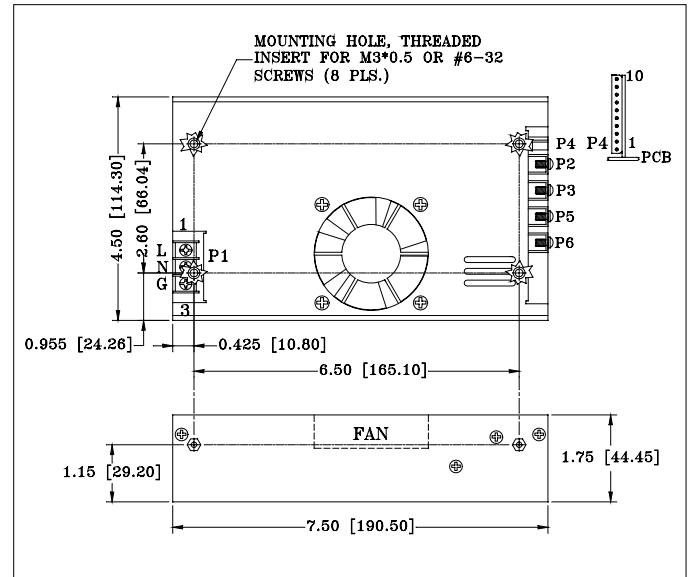


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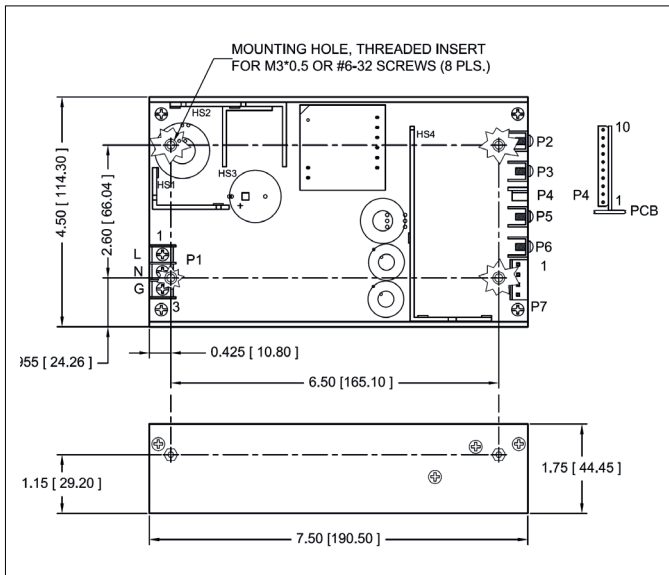
Mechanical Single Output U-Bracket



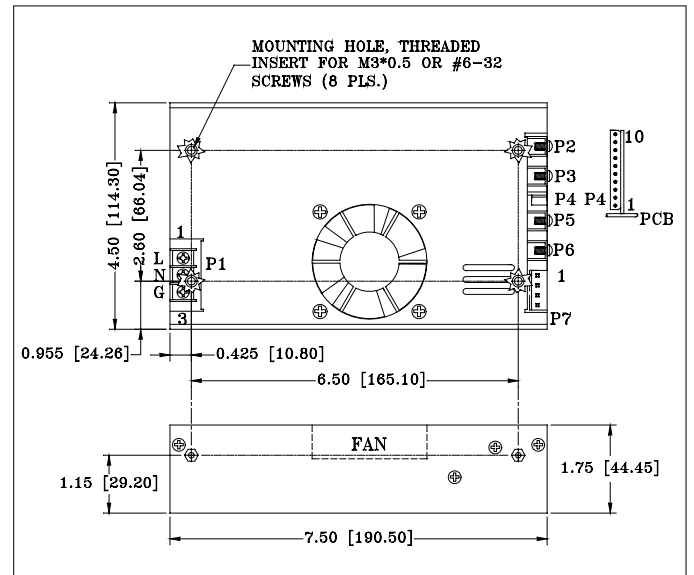
Mechanical Single Output Enclosed



Mechanical Multiple Output U-Bracket



Mechanical Multiple Output Enclosed



**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	P1 (AC)			P2	P3	P5	P6	P7	2	3	4		
	1	2	3										
OBP02013B	OBP02016B												
OBP02031B	OBP02037B		Live	Neutral	Ground	+V1	+V1	V1 Return	V1 Return	N.A.	N.A.	N.A.	
OBP02046B	OBP02055B												
OBP02170B													
OBP02403B	OBP02404B												
OBP02407B	OBP02410B												
OBP02413B	OBP02418B												
OBP02419B	OBP02424B		Live	Neutral	Ground	+V1	V1 Return	+V2	V2 Return	+V3	V3 Return	+V4	V4 Return
OBP02427B	OBP02430B												
OBP02433B	OBP02436B												
OBP02439B	OBP02442B												

Connector Model	P4	1	2	3	4	5	6	7	8	9	10	
OBP02013B	OBP02016B											
OBP02031B	OBP02037B		Signal	+V Sense	-V1 Sense	PFD	Inhibit +V	N.C.	N.C.	N.C.	Fan Return	+12V Fan
OBP02046B	OBP02055B		Common									
OBP02170B			Return									
OBP02403B	OBP02404B											
OBP02407B	OBP02410B											
OBP02413B	OBP02418B											
OBP02419B	OBP02424B		Signal	+V1 Sense	-V1 Sense	PFD	Inhibit +V	N.C.	+V2 Sense	-V2 Sense	Fan Return	+12V Fan
OBP02427B	OBP02430B		Common									
OBP02433B	OBP02436B		Return									
OBP02439B	OBP02442B											

Specifications are subject to change without notice.