

# PR BX

POWERBOX Medline 400  
OBP07 Series  
400W  
Single Output  
AC/DC Medical Switch Mode Power Supply

## Features

Fulfills IEC60601-1-2:2014 (EMC 4th edition)
Compact size 4" x 7" x 1.58"
Power Factor 0.98 typical
Less than 300 uA leakage current
300W convection rating
400W with 7 CFM(100 LFM) fan
Standby output 5 Vdc, 100 mA
Compliance to EN55011
Compliant with RoHS requirements
Inhibit-TTL low disables output
PS Off, DC OK, remote sense
Active efficiency $\geq 87\%$
Suitable to power up medical systems up to BF class

## Input

Voltage range	90-264VAC.
Frequency	47-63Hz.
Current	5.11A (rms) for 100VAC. 1.75A (rms) for 240VAC.
Leakage current	220uA max @ 264VAC, 63Hz.

## Output

Power	See table.
Voltage/current	See table.
Ripple and noise	2% peak to peak max.
Over voltage protection	Set at 115-140% of its nominal output voltage.
Over current protection	All outputs protected to short circuit condition.
Temperature coefficient	All output $\pm 0.04\%/^{\circ}\text{C}$ max.
Transient response	Max excursion of 4% or better on all models, recovering to 1% of final value within 500us after a 25% step load change.

## 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.

## General

Switching frequency	85KHz typical.
Efficiency	87% min on all models.
Hold-up time	12msec min at 110VAC.
Line regulation	$\pm 0.5\%$ max at full load.
Inrush current	20A @ 115VAC, or 40A @ 230VAC, at 25°C cold start.
Withstand voltage	4,000VAC from input to output. 1,500VAC from input to ground. 500VAC from output to ground.
MTBF	350,000 hours min at full load at 25°C ambient, calculated per MIL-HDBK-217F.



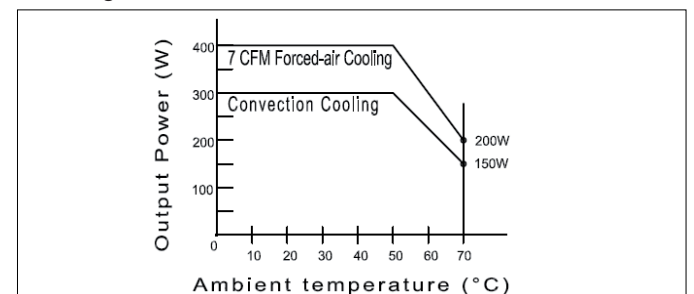
## Standards

Safety approvals	UL60601-1, CSA C22 No 606.1, TÜV EN60601-1.
EMC performance	IEC60601-1-2:2014 (EMC 4th edition).
EN55011/EN55022	Class B conducted, Class A radiated.
FCC	Class B conducted, Class A radiated.
VCCI	Class B conducted, Class A radiated.
EN61000-3-2	Harmonic distortion Class A and D
EN61000-3-3	Line flicker.
EN61000-4-2	ESD, $\pm 15$ KV air and $\pm 8$ KV contact.
EN61000-4-3	Radiated immunity, 3V/m. Proximity test, 9V/m and 28V/m.
EN61000-4-4	Fast transient/burst, $\pm 2$ KV.
EN61000-4-5	Surge, $\pm 1$ KV diff., $\pm 2$ KV com.
EN61000-4-6	Conducted immunity, 10Vrms (0.15 – 80 MHz and ISM & amateur radio bands).
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.

## Interface Signals

PFD	TTL high for normal operation, low upon loss of input power, turn-on delay time 100-500ms, turn-off delay time 5 ms minimum.
Inhibit	TTL low to turn off output.
DC OK	TTL high when output voltage $> 95\%$ .
PS OFF	TTL high to turn off output.

## Derating Curve



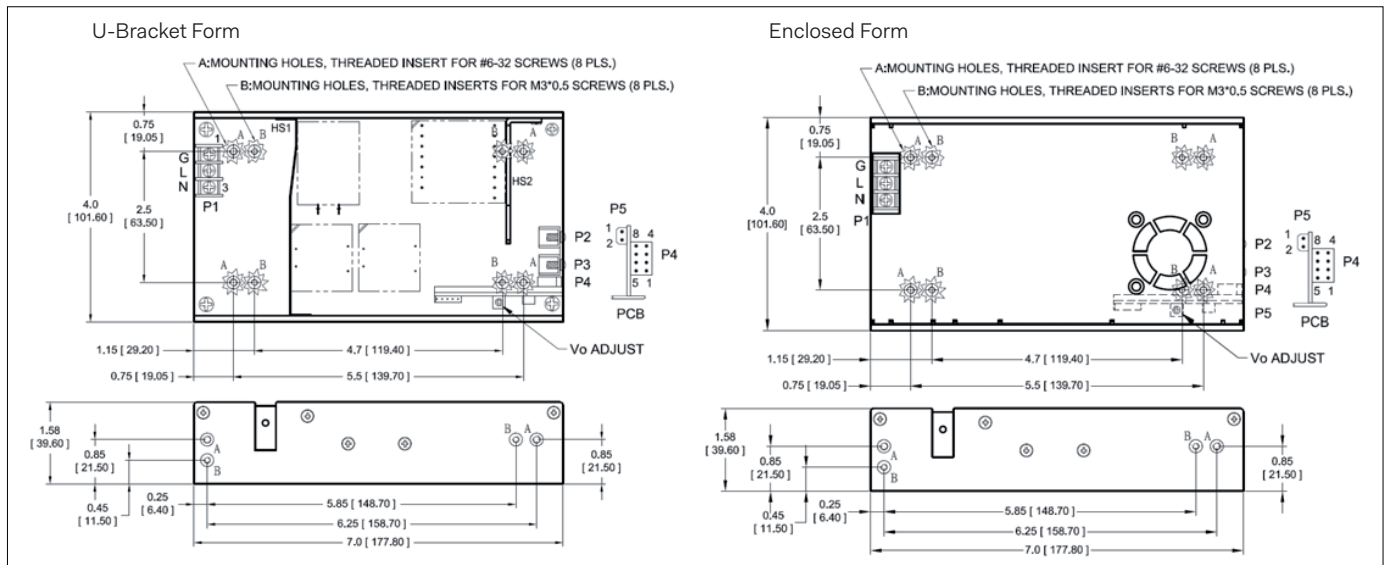
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Model Number	Output Voltage	Min Current	Max Current At Convection	Max Current at 7 CFM <sup>2</sup>	Tol.	Ripple & Noise <sup>3</sup>	Max Output Power	Eff Typ @ 300 W 115/230 VAC	Eff Typ @ 400 W 115/230 VAC
OBP07031	12 V	0 A	25.00 A	33.34 A	2%	120mV	300 W /400 W	90/92%	88/91%
OBP07037	15 V	0 A	20.00 A	26.67 A	2%	150mV	300 W /400 W	90/92%	88/91%
OBP07038	18 V	0 A	16.67 A	22.23 A	2%	180mV	300 W /400 W	90/92%	88/91%
OBP07046	24 V	0 A	12.50 A	16.67 A	2%	240mV	300 W /400 W	90/92%	89/92%
OBP07050	28 V	0 A	10.72 A	14.29 A	2%	280mV	300 W /400 W	90/92%	89/92%
OBP07057	36 V	0 A	8.34 A	11.12 A	2%	360mV	300 W /400 W	90/92%	89/92%
OBP07070	48 V	0 A	6.25 A	8.34 A	2%	480mV	300 W /400 W	90/92%	89/92%

**Notes:**

- Change suffix "B" for U-Bracket form to "C" for enclosed form with cover-and-fan assembly, e.g. OBP07046.
- 300 W without moving air or 400 W with 7 CFM forced air provided by user for "B" version, 400 W for "C" version with cover-and-fan assembly
- 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.

**Mechanical**



**Notes:**

- Dimensions shown in inches [mm]
- Tolerance 0.02 [0.5] maximum
- Input connector P1 is Dinkle terminal P/N DT-35-B01W-03, with nickel plated M3 screws.
- P2, P3: M3 x 0.5 screw connectors
- Connector P4: Molex header 87833-08 or equivalent, mating with Molex housing 51110-0850 or equivalent.
- Fan connector P5: Molex header 53048-0210 or equivalent, mating with Molex housing 51021-0200 or equivalent.
- Weight: 1.0 Kg (2.23 lbs.) approx. for U-bracket form, 1.14 Kg (2.52 lbs.) approx. for enclosed form
- Maximum penetration depth of fixing screws is 4 mm from the outer surface of chassis.

**Pin Connection**

Model	Connector P1 (AC)			P2	P3	P5	
	1	2	3			1	2
OBP07031 OBP07050							
OBP07037 OBP07057	GROUND	LIVE	NEUTRAL	+V1	COMMON	+12V	COMMON
OBP07038 OBP07070					RETURN	FAN	RETURN
OBP07046							

Model	Connector P4							
	1	2	3	4	5	6	7	8
OBP07031 OBP07050								
OBP07037 OBP07057	COMMON	+V1	-V1	PFD	INHIBIT	+5V	DC OK	PS OFF
OBP07038 OBP07070	RETURN	SENSE	SENSE			STANDBY		
OBP07046								

Specifications are subject to change without notice.