

P R B X

POWERBOX Medline 650
OBR03 Series
650-700W
Multiple Output
AC/DC Medical Switch Mode Power Supply



Features

EN61000-3-2 class A and D compliant
Power Factor 0.98 typical
Overvoltage protection
Short-circuit protection
Thermal protection
Power Fail Detect (PFD) signal
100% burn-in at full rated load
Temperature controlled fan, on/off function
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	10A (rms) for 115VAC. 5A (rms) for 230VAC
Leakage current	240µA max @ 264VAC, 63Hz 165µA max @ 264VAC, 50Hz

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
Overvoltage 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 µs after a 25% step load change
Fan power	12V at 400mA 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 100ms 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

General

Switching frequency	70 kHz ±10 kHz
Power factor	0.98 typical
Efficiency	80% minimum on all models
Hold-up time	12 ms minimum at 110 VAC
Line regulation	±0.2% maximum at full load
Inrush current	50 A @115 VAC or 100 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. E178020, TÜV EN 60601-1, UL 60950-1, CSA C22.2 No. 60950-1, TÜV EN 60950-1
EMC performance	(EN60601-1-2)
EN55011	Class B conducted, Class A radiated
EN61000-3-2	Harmonic distortion, Class A&D
EN61000-3-3	Line flicker
EN61000-4-2	ESD, ±8kV air and ±6kV contact
EN61000-4-3	Radiated immunity, 3V/m
EN61000-4-4	Fast transient/burst, ±2kV
EN61000-4-5	Surge, ±1kV diff., ±2kV common
EN61000-4-6	Conducted immunity, 3Vrms
EN61000-4-8	Magnetic field immunity, 3A/m
EN61000-4-11	Voltage dips, 30% reduction for 500ms, 60% reduction for 100ms and >95% reduction for 10ms

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Article 1) Number	Output #1 3) 5)				Output #2 5)				Output #3 4)				Max 5) Power	
	Vnom	Imin	I _{max}	Tol.	Vnom	Imin	I _{max}	Tol.	Vnom	Imin	I _{max}	Tol.		
OBR03031B	12 V	0 A	54.2 A	±2%	(N/A)					(N/A)				325 W /650 W
OBR03037B	15 V	0 A	43.4 A	±2%	(N/A)					(N/A)				325 W /650 W
OBR03046B	24 V	0 A	27.1 A	±2%	(N/A)					(N/A)				325 W /650 W
OBR03050B	27 V	0 A	24.1 A	±2%	(N/A)					(N/A)				325 W /650 W
OBR03055B	30 V	0 A	21.7 A	±2%	(N/A)					(N/A)				325 W /650 W
OBR03057B	36 V	0 A	18.1 A	±2%	(N/A)					(N/A)				325 W /650 W
OBR03070B	48 V	0 A	14.6 A	±2%	(N/A)					(N/A)				350 W /700 W
OBR032C1B	24 V	1.50 A	18.0 A	±2%	12 V	1.2 A	22 A	±5%		(N/A)				325 W /650 W
OBR032C4B	24 V	1.50 A	18.0 A	±2%	15 V	1.0 A	18 A	±5%		(N/A)				325 W /650 W
OBR032C6B	48 V	0.75 A	9.0 A	±2%	24 V	0.6 A	12 A	±5%		(N/A)				325 W /650 W
OBR032C7B	48 V	0.75 A	9.0 A	±2%	12 V	1.2 A	22 A	±5%		(N/A)				325 W /650 W
OBR032C9B	48 V	0.75 A	9.0 A	±2%	15 V	1.0 A	18 A	±5%		(N/A)				325 W /650 W
OBR03371B	24 V	1.50 A	18.0 A	±2%	12 V	1.2 A	22 A	±5%	3.3 V	0 A	10 A	±3%		325 W /650 W
OBR03374B	24 V	1.50 A	18.0 A	±2%	15 V	1.0 A	18 A	±5%	3.3 V	0 A	10 A	±3%		325 W /650 W
OBR03377B	24 V	1.50 A	18.0 A	±2%	12 V	1.2 A	22 A	±5%	5.1 V	0 A	10 A	±3%		325 W /650 W
OBR03380B	24 V	1.50 A	18.0 A	±2%	15 V	1.0 A	18 A	±5%	5.1 V	0 A	10 A	±3%		325 W /650 W
OBR03383B	48 V	0.75 A	9.0 A	±2%	12 V	1.2 A	22 A	±5%	3.3 V	0 A	10 A	±3%		325 W /650 W
OBR03386B	48 V	0.75 A	9.0 A	±2%	15 V	1.0 A	18 A	±5%	3.3 V	0 A	10 A	±3%		325 W /650 W
OBR03389B	48 V	0.75 A	9.0 A	±2%	12 V	1.2 A	22 A	±5%	5.1 V	0 A	10 A	±3%		325 W /650 W
OBR03392B	48 V	0.75 A	9.0 A	±2%	15 V	1.0 A	18 A	±5%	5.1 V	0 A	10 A	±3%		325 W /650 W

Notes:

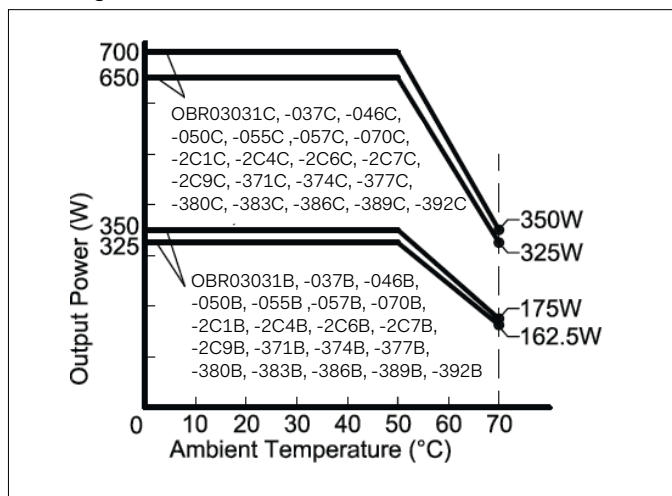
- Suffix "B" in model numbers denotes U-bracket form. Change "B" to "C" for enclosed form with cover and fan assembly, temperature controlled fan
- All outputs are floating. They can be connected externally for positive or negative output.
- Output #1 can be adjusted within +/-5% of their nominal voltage.
- Output #3 can be adjusted within +/-15% of their nominal voltage.
- 650-700 watts for "C" version with cover and fan assembly, temperature controlled fan. 325-350 watts for "B" version without moving air (maximum current of output #1 and #2 derated to 70%), or 650-700 watts with

50 CFM forced air provided by user.

6. All models may be operated at no-load. At no-load, output voltage tolerance increases to +/-10%.

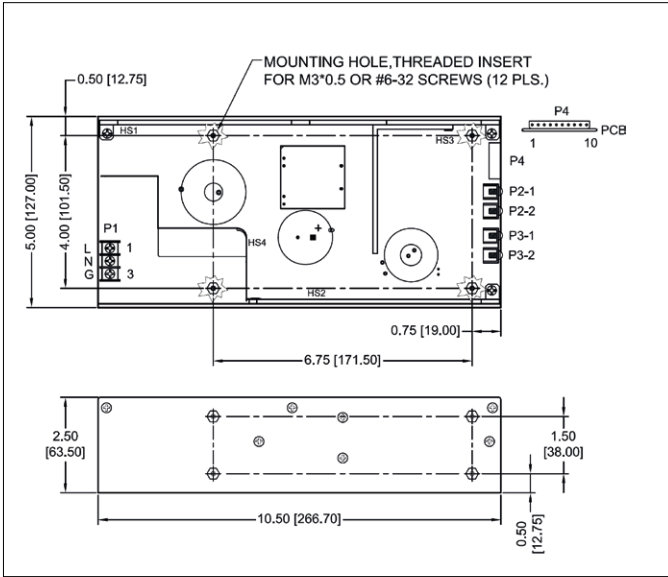
7. Ripple and noise is maximum peak to peak voltage value measured at output within 20 MHz bandwidth, at rated line voltage and output load ranges, and with a 10 µF tantalum capacitor in parallel with a 0.1 µF ceramic capacitor across the output.

Derating Curve

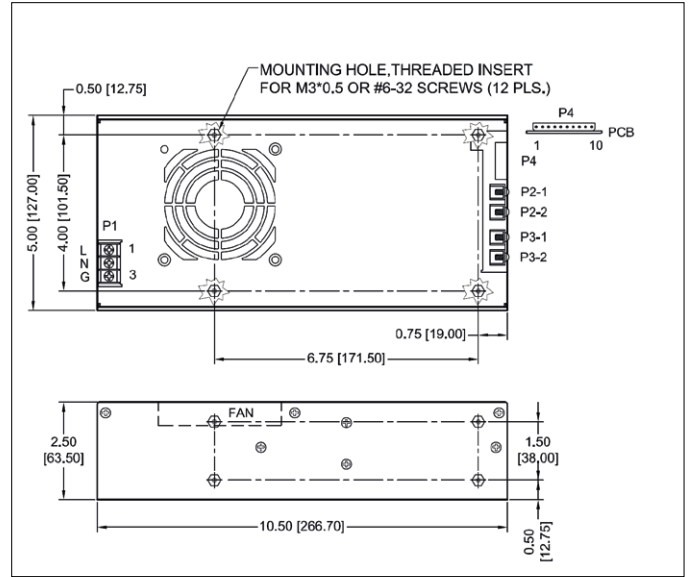


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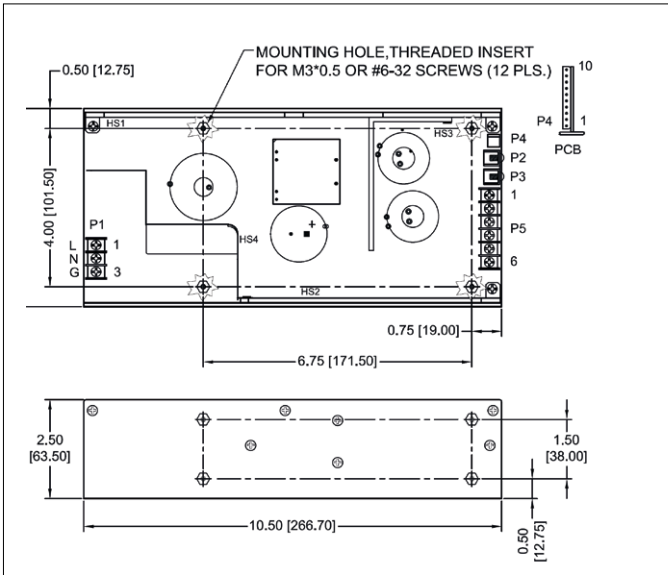
Mechanical Single Output U-Bracket



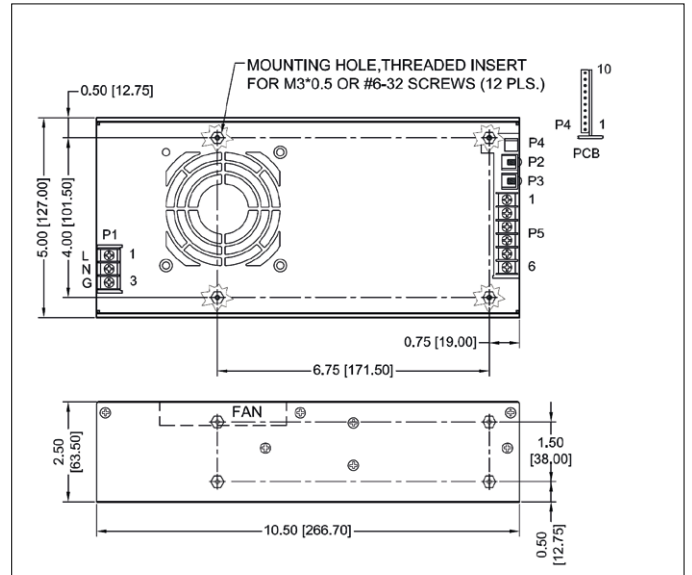
Mechanical Single Output Enclosed



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-4C-B01W-03 with M3, nickel-plated screws.
4. Connector P4 mates with Molex housing 50-37-5103 and pins 5263.
5. Connector P2-1, P2-2, P3-1 & P3-2: M3*0.5 screw connections.

6. Connectors P2, P3: M3*0.5 screw connections
7. Output connector P5 is Dinkle DT-35-B01W-06. Screws are M3, nickel plated.
8. Weight: 2.0 Kgs. (4.4 lbs.) approx. for U-bracket form, 2.2 Kgs. (4.84 lbs.) approx. for enclosed form.
9. 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					
		1	2	3			1	2	3	4	5	6
OBR03031B	OBR03037B											
OBR03046B	OBR03050B	Live	Neutral	Ground	+V1	V1 Return	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
OBR03055B	OBR03057B											
OBR03070B												
OBR032C1B	OBR032C4B											
OBR032C6B	OBR032C7B	Live	Neutral	Ground	+V1	V1 Return	+V2	+V2	V2 Return	V2 Return	N.A.	N.A.
N.A.												
OBR032C9B												
OBR03371B	OBR03374B											
OBR03377B	OBR03380B	Live	Neutral	Ground	+V1	V1 Return	+V2	+V2	V2 Return	V2 Return	+V3	V3 Return
OBR03383B	OBR03386B											
OBR03389B	OBR03392B											

Connector Model		P4									
		1	2	3	4	5	6	7	8	9	10
OBR03031B	OBR03037B										
OBR03046B	OBR03050B	PFD	+V1 Sense	-V1 Sense	PFD	Inhibit +V	Inhibit -V	N.C.	N.C.	Fan Return	+12V Fan
OBR03055B	OBR03057B	Return									
OBR03070B											
OBR032C1B	OBR032C4B										
OBR032C6B	OBR032C7B	PFD	+V1 Sense	-V1 Sense	PFD	Inhibit +V	Inhibit -V	+V2 Sense	-V2 Sense	Fan Return	+12V Fan
OBR032C9B		Return									
OBR03371B	OBR03374B										
OBR03377B	OBR03380B	PFD	+V1 Sense	-V1 Sense	PFD	Inhibit +V	Inhibit -V	+V2 Sense	-V2 Sense	Fan Return	+12V Fan
OBR03383B	OBR03386B	Return									
OBR03389B	OBR03392B										

Specifications are subject to change without notice.