

# PR BX

POWERBOX Industrial Line 650  
OBR40 Series  
650-700W  
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
Thermal 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	10A (rms) for 115VAC. 5A (rms) for 230VAC.
Leakage current	240µA 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 400 mA for B version, 12 V at 100 mA 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.

## General

Switching frequency	70KHz typical.
Power factor	0.98 typical.
Efficiency	80% minimum on all models.
Hold-up time	12ms min at 110VAC.



Line regulation	±0.2% max at full load.
Inrush current	50A @ 115VAC, or 100A @ 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, TUV EN60950-1.
EMC performance	EN55022 Class B conducted, Class A radiated.
EN61000-3-2	Harmonic distortion Class A and D.
EN61000-3-3	Line flicker.
EN55024	
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 <sup>1</sup>	Output #1 <sup>3,5</sup>				Output #2 <sup>5</sup>				Output #3 <sup>4</sup>				Max Output Power <sup>5</sup>
	V1	Imin	Imax	Tol	V2	Imin	Imax	Tol	V3	Imin	Imax	Tol	
OBR40031B	12 V	0 A	54.2 A	±2%	(N/A)	(N/A)	325 W / 650 W						
OBR40037B	15 V	0 A	43.4 A	±2%	(N/A)	(N/A)	325 W / 650 W						
OBR40046B	24 V	0 A	27.1 A	±2%	(N/A)	(N/A)	325 W / 650 W						
OBR40050B	27 V	0 A	24.1 A	±2%	(N/A)	(N/A)	325 W / 650 W						
OBR40055B	30 V	0 A	21.7 A	±2%	(N/A)	(N/A)	325 W / 650 W						
OBR40061B	36 V	0 A	18.1 A	±2%	(N/A)	(N/A)	325 W / 650 W						
OBR40070B	48 V	0 A	14.6 A	±2%	(N/A)	(N/A)	350 W / 700 W						
OBR402C1B	24 V	1.50 A	18.0 A	±2%	12 V	N/A	22 A	±5%	(N/A)	325 W / 650 W			
OBR402C4B	24 V	1.50 A	18.0 A	±2%	15 V	1.0 A	18 A	±5%	(N/A)	325 W / 650 W			
OBR402C6B	48 V	0.75 A	9.0 A	±2%	24 V	0.6 A	12 A	±5%	(N/A)	325 W / 650 W			
OBR402C7B	48 V	0.75 A	9.0 A	±2%	12 V	1.2 A	22 A	±5%	(N/A)	325 W / 650 W			
OBR402C9B	48 V	0.75 A	9.0 A	±2%	15 V	1.0 A	18 A	±5%	(N/A)	325 W / 650 W			
OBR40371B	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
OBR40374B	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
OBR40377B	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
OBR40380B	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
OBR40383B	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
OBR40386B	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
OBR40389B	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
OBR40392B	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

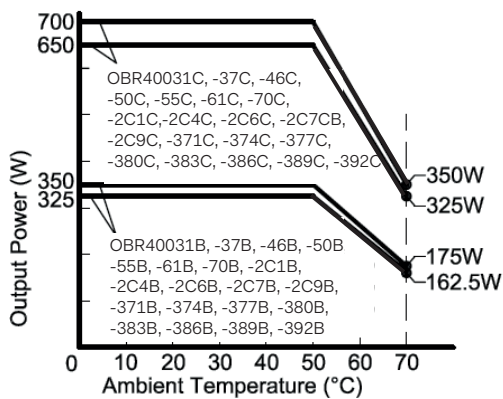
**Notes:**

- Suffix "B" in model numbers denotes U-bracket form. Change "B" to "C" for enclosed form with cover-and-fan assembly, e.g. OBR40046C.
- 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. 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.

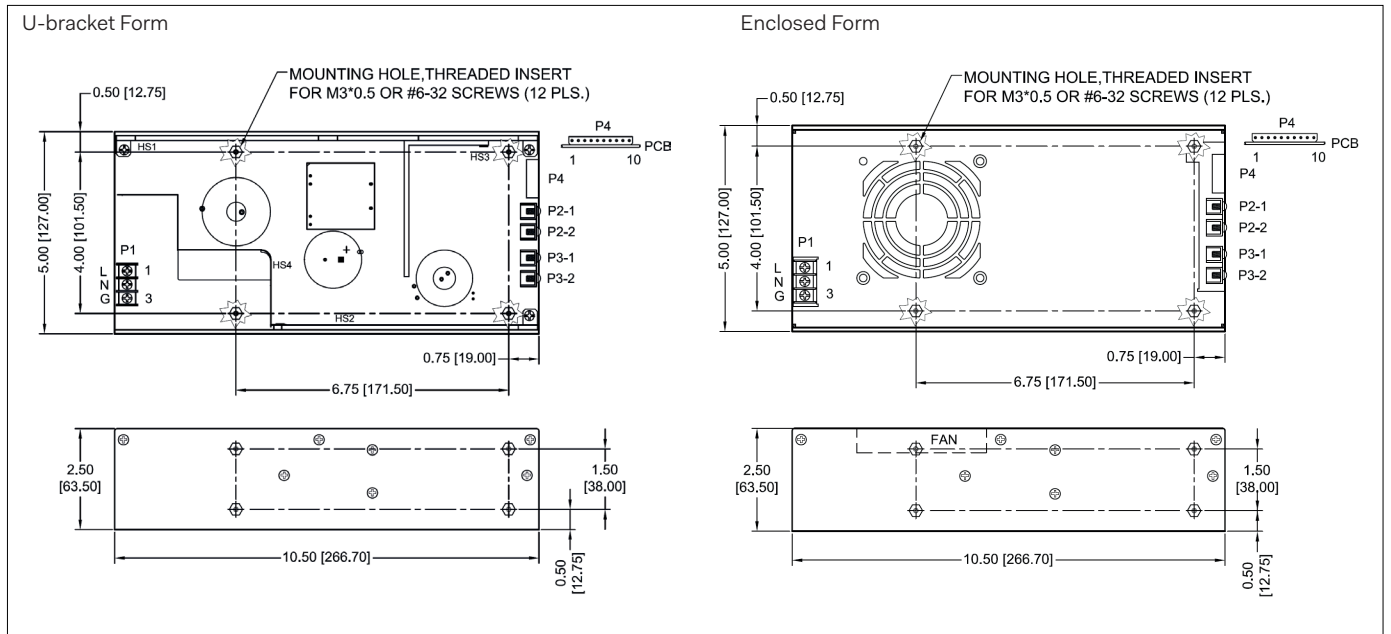
- All models may be operated at no-load. At no-load, output voltage tolerance increases to +/- 10%.
- Ripple and noise is maximum peak-to-peak voltage value measured at output within 20 MHz bandwidth, at rated line voltage and output load ranges, and with a 10 µF tantalum capacitor in parallel with a 0.1 µF ceramic capacitor across the output.

**Derating Curve**

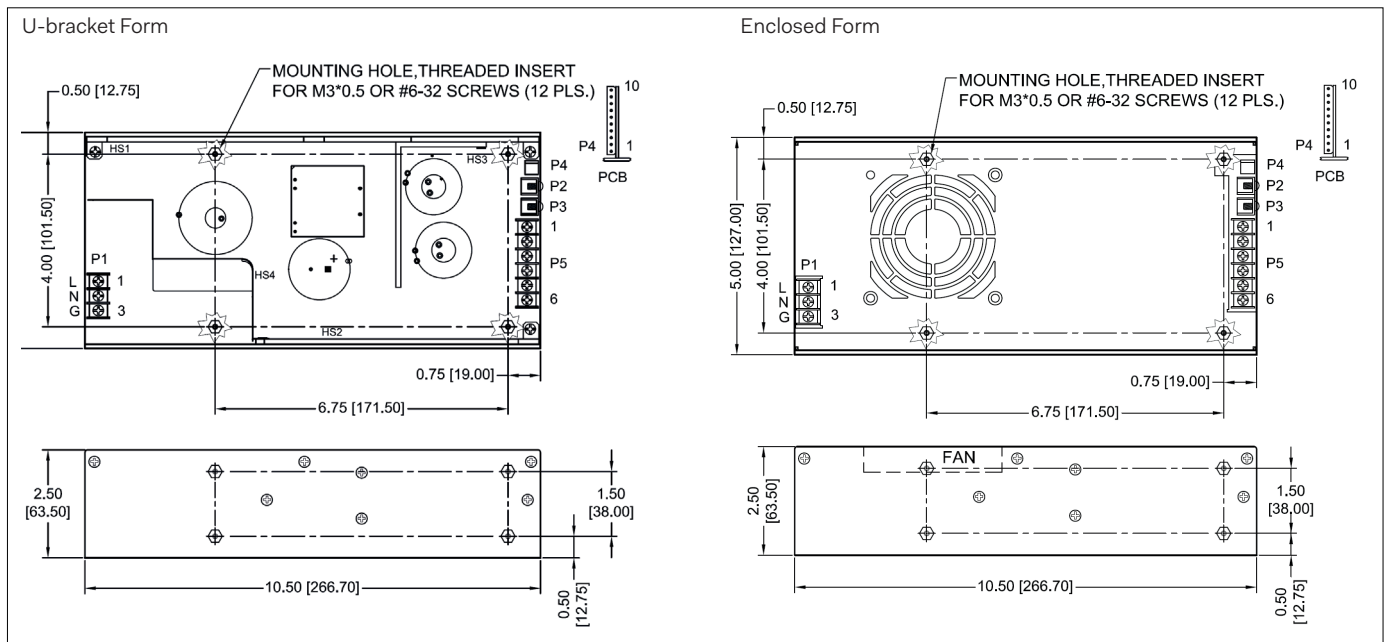


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Mechanical Single Output Models



Mechanical Multiple Output Models



Notes:

- Dimensions shown in inches [mm]
- Tolerance 0.02 [0.5] maximum
- Input connector P1 is Dinkle DT-4C-B01W-03 with M3, nickel-plated screws.
- Connector P4 mates with Molex housing 50-37-5103 and pins 5263.
- Connector P2-1, P2-2, P3-1 & P3-2: M3\*0.5 screw connections.
- Connectors P2, P3: M3\*0.5 screw connections
- Output connector P5 is Dinkle DT-35-B01W-06. Screws are M3, nickel plated.
- Weight: 2.0 Kgs. (4.4 lbs.) approx. for U-bracket form, 2.2 Kgs. (4.84 lbs.) approx. for enclosed form.
- 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					
		1	2	3			1	2	3	4	
OBR39031B	OBR39055B										
OBR39037B	OBR39063B	Live	Neutral	Ground	+V1	V1 Return	N.A.	N.A.	N.A.	N.A.	
OBR39046B	OBR39070B										
OBR39050B	OBR39078B										
OBR392C1B	OBR392C7B										
OBR392C4B	OBR392C9B	Live	Neutral	Ground	+V1	V1 Return	+V2	V2 Return	N.C.	N.C.	
OBR392C6B											
OBR39371B	OBR39383B										
OBR39371B	OBR39386B	Live	Neutral	Ground	+V1	V1 Return	+V2	V2 Return	+V3	V3 Return	
OBR39377B	OBR39389B										
OBR39380B	OBR39392B										

Connector Model	Pin No	P4										
		1	2	3	4	5	6	7	8	9	10	
OBR39031B	OBR39055B											
OBR39037B	OBR39063B	PFD Return	+V1 Sense	-V1 Sense	PFD	Inhibit +V	Inhibit -V	N.C.	N.C.	Fan Return	+12V Fan	
OBR39046B	OBR39070B											
OBR39050B	OBR39078B											
OBR392C1B	OBR392C7B											
OBR392C4B	OBR392C9B	PFD Return	+V1 Sense	-V1 Sense	PFD	Inhibit +V	Inhibit -V	+V2 Sense	-V2 Sense	Fan Return	+12V Fan	
OBR392C6B												
OBR39371B	OBR39383B											
OBR39371B	OBR39386B	PFD Return	+V1 Sense	-V1 Sense	PFD	Inhibit +V	Inhibit -V	+V2 Sense	-V2 Sense	Fan Return	+12V Fan	
OBR39377B	OBR39389B											
OBR39380B	OBR39392B											

Specifications are subject to change without notice.