

# PR BX

POWERBOX Industrial Line 450  
OBQ39 Series  
450-480W  
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	7.1A (rms) for 115VAC. 3.5A (rms) for 230VAC.
Leakage current	240µA max @ 264VAC, 63Hz.

## Output

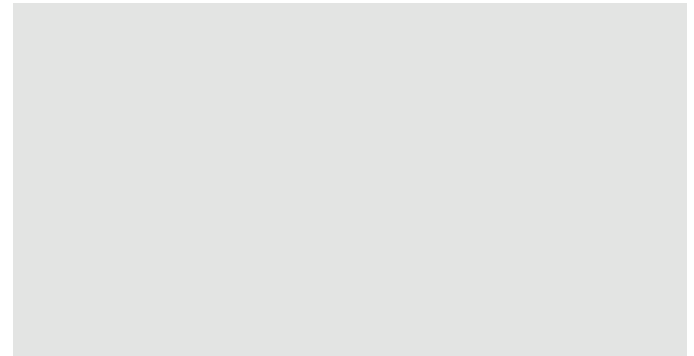
Power	See table.
Voltage/current	See table.
Ripple and noise	1% peak to peak maximum.
Over voltage protection	Provided on output #1 only; set at 115-140% of its nominal output voltage.
Over current protection	All outputs protected to short circuit conditions.
Temperature coefficient	±0.04%/°C max.
Transient 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	60KHz 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	40A @ 115VAC, or 80A @ 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.
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.
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.

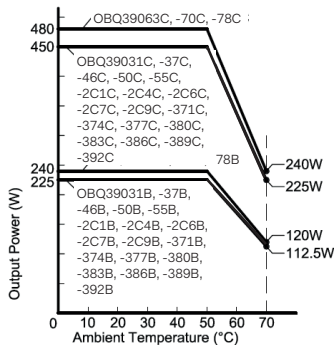
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**Single and Multiple Output**  
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Model Number <sup>1</sup>	Output #1 <sup>3,5</sup>				Output #2 <sup>5</sup>				Output #3 <sup>4</sup>				Max Output Power <sup>5</sup>
	V1	I <sub>min</sub>	I <sub>max</sub>	Tol	V2	I <sub>min</sub>	I <sub>max</sub>	Tol	V3	I <sub>min</sub>	I <sub>max</sub>	Tol	
OBQ39031B	12 V	0 A	37.5 A	±2%			(N/A)			(N/A)			225 / 450 W
OBQ39037B	15 V	0 A	30.0 A	±2%			(N/A)			(N/A)			225 / 450 W
OBQ39046B	24 V	0 A	18.75 A	±2%			(N/A)			(N/A)			225 / 450 W
OBQ39050B	27 V	0 A	16.7 A	±2%			(N/A)			(N/A)			225 / 450 W
OBQ39055B	30 V	0 A	15.0 A	±2%			(N/A)			(N/A)			225 / 450 W
OBQ39063B	40 V	0 A	12.0 A	±2%			(N/A)			(N/A)			240 / 480 W
OBQ39070B	48 V	0 A	10.0 A	±2%			(N/A)			(N/A)			240 / 480 W
OBQ39078B	55 V	0 A	8.73 A	±2%			(N/A)			(N/A)			240 / 480 W
OBQ392C1B	24 V	1.0 A	12.0 A	±2%	12 V	1.00 A	17 A	±5%		(N/A)			225 / 450 W
OBQ392C4B	24 V	1.0 A	12.0 A	±2%	15 V	0.75 A	15 A	±5%		(N/A)			225 / 450 W
OBQ392C6B	48 V	0.5 A	6.0 A	±2%	24 V	0.50 A	10 A	±5%		(N/A)			225 / 450 W
OBQ392C7B	48 V	0.5 A	6.0 A	±2%	12 V	1.00 A	17 A	±5%		(N/A)			225 / 450 W
OBQ392C9B	48 V	0.5 A	6.0 A	±2%	15 V	0.75 A	15 A	±5%		(N/A)			225 / 450 W
OBQ39371B	24 V	1.0 A	12.0 A	±2%	12 V	1.00 A	17 A	±5%	3.3 V	0 A	8 A	±3%	225 / 450 W
OBQ39374B	24 V	1.0 A	12.0 A	±2%	15 V	0.75 A	15 A	±5%	3.3 V	0 A	8 A	±3%	225 / 450 W
OBQ39377B	24 V	1.0 A	12.0 A	±2%	12 V	1.00 A	17 A	±5%	5.1 V	0 A	8 A	±3%	225 / 450 W
OBQ39380B	24 V	1.0 A	12.0 A	±2%	15 V	0.75 A	15 A	±5%	5.1 V	0 A	8 A	±3%	225 / 450 W
OBQ39383B	48 V	0.5 A	6.0 A	±2%	12 V	1.00 A	17 A	±5%	3.3 V	0 A	8 A	±3%	225 / 450 W
OBQ39386B	48 V	0.5 A	6.0 A	±2%	15 V	0.75 A	15 A	±5%	3.3 V	0 A	8 A	±3%	225 / 450 W
OBQ39389B	48 V	0.5 A	6.0 A	±2%	12 V	1.00 A	17 A	±5%	5.1 V	0 A	8 A	±3%	225 / 450 W
OBQ39392B	48 V	0.5 A	6.0 A	±2%	15 V	0.75 A	15 A	±5%	5.1 V	0 A	8 A	±3%	225 / 450 W

**Notes:**

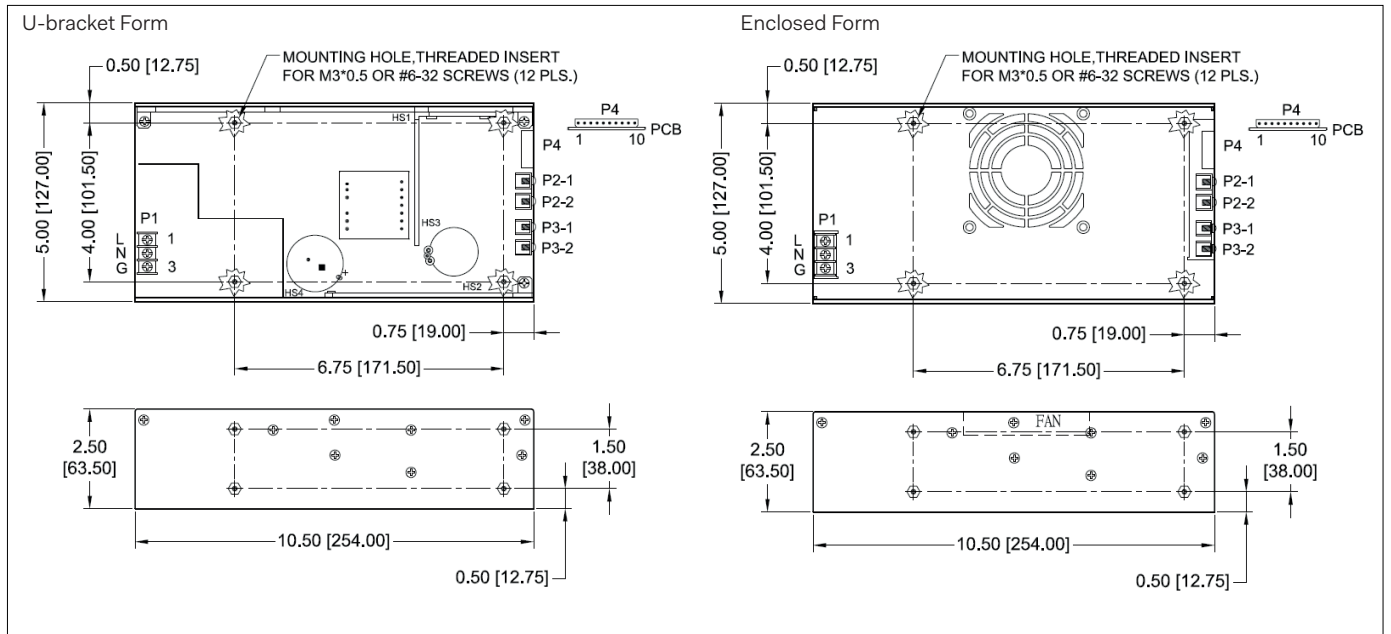
- Suffix "B" in model numbers denotes U-bracket form. Change "B" to "C" for enclosed form with cover-and-fan assembly, e.g. OBQ39046C.
- All outputs are floating. They can be connected externally for positive or negative output.
- Output #1 can be adjusted within ±5% of its nominal voltage.
- Output #3 can be adjusted within ±15% of its nominal voltage.
- 450-480 watts for "C" version with cover-and-fan assembly. 225-240 watts for "B" version without moving air (maximum current of output #1 & 2 derated to 50%), or 450 watts with 40 CFM forced air provided by user.
- All models may be operated at no-load. At no-load, output voltage tolerance increases to ±10%.

**Derating Curve**

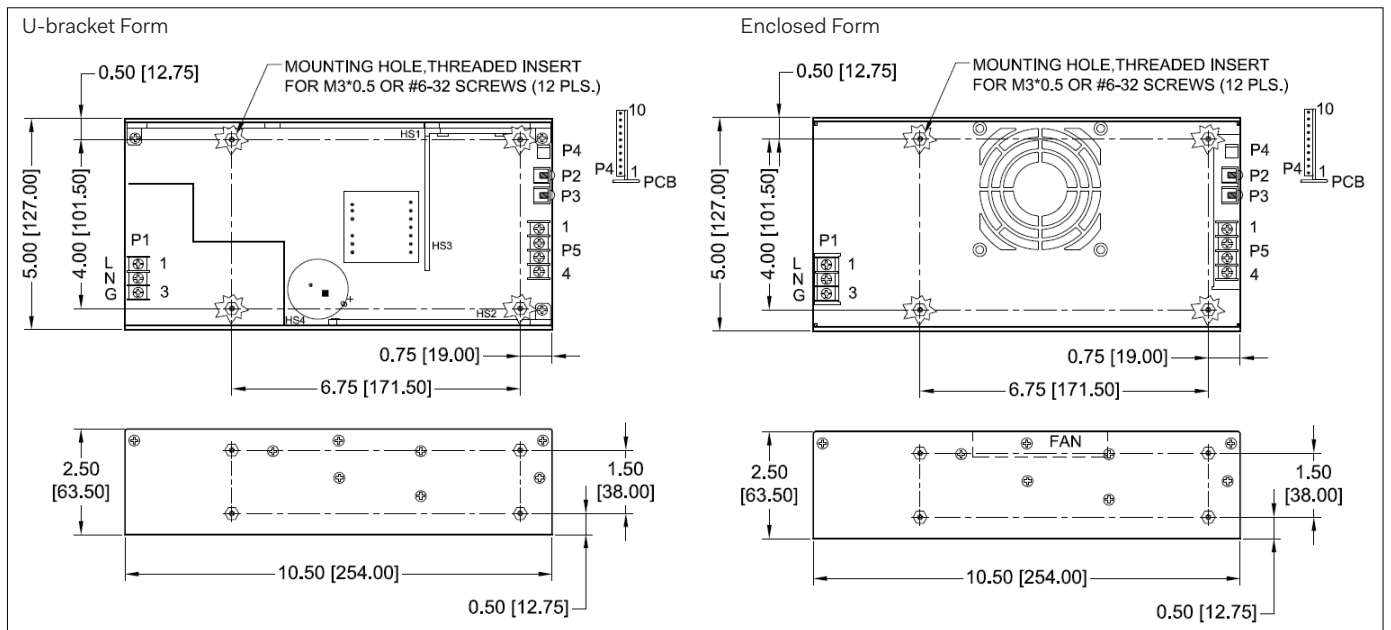


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Mechanical Single Output Models



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. P2, P2-1, P2-2, P3, P3-1 & P3-2: M3\*0.5 screw connections
6. Output connector P5 is Dinkle DT-35-B01W-04 with M3, nickel plated screws.
7. Weight: 1.8 Kgs (3.96 lbs.) approx. for U-bracket form, 2.0 Kg (4.4 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					
		1	2	3			1	2	3	4	
OBQ39031B	OBQ39055B										
OBQ39037B	OBQ39063B	Live	Neutral	Ground	+V1	V1 Return	N.A.	N.A.	N.A.	N.A.	
OBQ39046B	OBQ39070B										
OBQ39050B	OBQ39078B										

OBQ392C1B	OBQ392C7B										
OBQ392C4B	OBQ392C9B	Live	Neutral	Ground	+V1	V1 Return	+V2	V2 Return	N.C.	N.C.	
OBQ392C6B											

OBQ39371B	OBQ39383B										
OBQ39371B	OBQ39386B	Live	Neutral	Ground	+V1	V1 Return	+V2	V2 Return	+V3	V3 Return	
OBQ39377B	OBQ39389B										
OBQ39380B	OBQ39392B										

Connector Model	Pin No	P4										
		1	2	3	4	5	6	7	8	9	10	
OBQ39031B	OBQ39055B											
OBQ39037B	OBQ39063B	PFD Return	+V1 Sense	-V1 Sense	PFD	Inhibit +V	Inhibit -V	N.C.	N.C.	Fan Return	+12V Fan	
OBQ39046B	OBQ39070B											
OBQ39050B	OBQ39078B											

OBQ392C1B	OBQ392C7B										
OBQ392C4B	OBQ392C9B	PFD Return	+V1 Sense	-V1 Sense	PFD	Inhibit +V	Inhibit -V	+V2 Sense	-V2 Sense	Fan Return	+12V Fan
OBQ392C6B											

OBQ39371B	OBQ39383B										
OBQ39371B	OBQ39386B	PFD Return	+V1 Sense	-V1 Sense	PFD	Inhibit +V	Inhibit -V	+V2 Sense	-V2 Sense	Fan Return	+12V Fan
OBQ39377B	OBQ39389B										
OBQ39380B	OBQ39392B										