



BIAS Power Supply Module BPWX 4 Series Data Sheet

Single (Vo) or Dual (Vo & Vr) output

BPWX 4-08-00, -08-33, -08-50

BPWX 4-14-00, -14-33, -14-50

BPWX 4-24-00



Features:

- Extended Temperature with **NO DE-RATING!** (-40 to +85°C)
- Universal Input (90-308 VAC, 50/60Hz)
- Small Size—2.45 in³ [40.1 cm³]
- Low no-load input power <30mW
- Constant power mode (not current limit)
- 3000 VAC Isolation
- EN 55022, Class B; FCC Part 15, Class B
- Meets UL/CSA and EN Product Safety (ITE)

The BPWX Power Supply Module is the ideal low EMI solution for worldwide deployment of control applications in wireless/M2M, lighting, sensing, smart building and power distribution, especially where long range wireless operation or extended temperature is required.

A patented design incorporating a custom integrated circuit into a small package (2.45 in³ [40.1 cm³]) the BIAS Module provides an immediate “drop-in” solution, requiring no additional external components.

Operating Specifications

(@120VAC / 60 Hz / 25°C unless otherwise specified)

| Electrical | |
|------------------------------------|--|
| Input Voltage Range | 90 - 308 VAC (50/60Hz) |
| Input Surge Withstand | 345V, < 30 sec |
| Output Power (Pmax) | 4 W min. (60Hz) 3.33 W min. (50Hz) |
| Efficiency | ≥ 70% |
| Output Vo (Peak) | 8, 14 or 24 VDC nom. +/- 5% |
| Line / Load Regulation Vo (Peak) | +/- 1% Po < Pmax |
| Temperature Regulation Vo (Peak) | +/- 2% Po < Pmax |
| Ripple Vo (@120 Hz) (@ 100 kHz) | 1.75 V p:p 0.25 V p:p |
| Output Vr, 3.3 volt (+/- 5%) | For Vo = 8V, Ir out 160mA max, Io+Ir ≤ 500mA For Vo = 14V, Ir out 70mA max, Io+Ir ≤ 285mA For Vo = 24V, Vr not available |
| Output Vr, 5.0 volt (+/- 5%) | For Vo = 8V, Ir out 250mA max, Io+Ir ≤ 500mA For Vo = 14V, Ir out 83mA max, Io+Ir ≤ 285mA For Vo = 24V, Vr not available |
| No-load Consumption | 30 mW typical @ Vin=120 VAC |
| Isolation | 3000 VAC (meets UL / CSA & EN Product Safety) |
| Earth Leakage @ 120 VAC | < 10 uA |
| Short Circuit Protection | Continuous, Pin ≤ 0.7 w @ Vin = 120 VAC |
| Reliability @ 25° C, MIL HDBK-217F | > 500 Khr MTBF |
| Thermal | |
| Operating Temperature | -40 to +85° C |
| Operating Relative Humidity | 0 – 95%, non-condensing |
| Storage Temperature | -40 to +105° C |
| Mechanical | |
| Package Size (L x W x H) | 1.91 x 1.31 x 0.98 inches [48.5 x 33.3 x 24.9 mm] |
| Safety | |
| Safety Compliance | UL / EN 60950-1 2 nd Ed. (CB Report Available) |
| EMI Emissions | EN 55022, Class B, FCC Part 15, Class B |

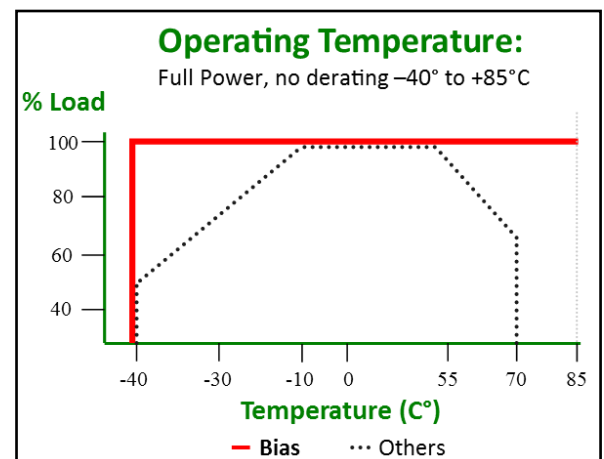
Bias Power AC/DC power supplies are available with two different types of outputs to fit your applications...

The characteristics of the main (Vo) and auxiliary (Vr) outputs are different and each has application-specific benefits which can provide high value to the system designer:

Vo is a voltage-regulated output which has a constant power mode instead of a conventional current limit. This output is best suited as a source for isolated DC utility power, which may be used directly or post-regulated with either a linear regulator or a DC/DC converter. **Vo is self protecting, cannot be overloaded and can be shorted indefinitely.** So unlike design-your-own, or partially complete modules where significant design margin is required to stay far away from current limit, **there is no need to oversize a Bias Power supply.** The graceful transition from voltage regulation to constant power along with the wide range of product ratings allows the designer to select a supply tightly matched to the design load.

Vr is also a voltage-regulated output and is thermally protected from overload. It has very low output ripple capable of driving elements which require a low-noise, tightly-regulated supply. In addition, Vr is supplied internally by Vo. This means that any capacitance added to Vo can increase the hold-up time of Vr as well.

*Note: maximum currents specified for constant voltage range only. See V-I curve on page 2 for Vo in constant power range.





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BPWX 4-24-00

Part Number Designation

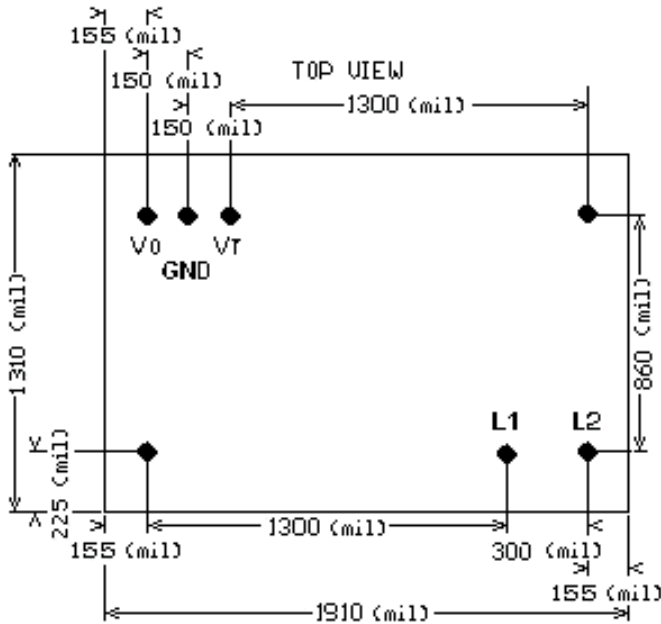
| Part Number | Output Configuration | Vo | Vr |
|--------------|----------------------|--------|---------|
| BPWX 4-08-00 | Single output | 8 VDC | N/A |
| BPWX 4-08-33 | Dual Output | 8 VDC | 3.3 VDC |
| BPWX 4-08-50 | Dual Output | 8 VDC | 5.0 VDC |
| BPWX 4-14-00 | Single output | 14 VDC | N/A |
| BPWX 4-14-33 | Dual Output | 14 VDC | 3.3 VDC |
| BPWX 4-14-50 | Dual Output | 14 VDC | 5.0 VDC |
| BPWX 4-24-00 | Single Output | 24 VDC | N/A |

| PIN | DESCRIPTION |
|-----|---------------|
| L1 | Input High |
| L2 | Input Low |
| N/C | No Connection |
| Vo | Output |
| GND | Ground |
| Vr | Vr Output |
| N/C | No Connection |

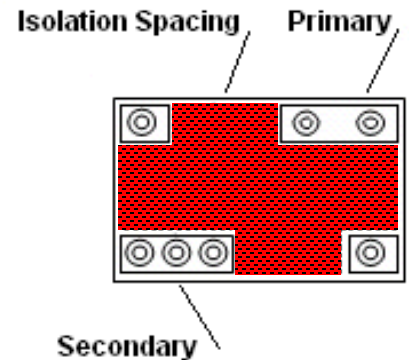
NOTES

1. Pins 0.031" [0.787 mm] round
2. Pins extend 0.125" [3.175 mm] below stand-offs

Recommended Land Pattern, top view



Recommended Isolation,



V-I Curve (For Vo in Constant Power Range)

V - I, typical

