

Features

- RoHS lead-free solder and lead-solder-exempted products are available
- Industry-standard 3" x 5" footprint
- Main output remote sense
- CE marked to Low Voltage Directive (Pending)
- Compliance to EN61000-4-2/-3/-4/-5/-6/-8

Description

The BLP40 Series' economical and compact construction provides single or three-output ac-dc power conversion to meet the requirements of networking and data communications systems, as well as commercial and industrial configurations.

The BLP40 is rated for convection, as well as forced-air cooling. Full output power is available with external forced-air cooling. Other features include main-output remote sense and an internal EMI filter.

Single Output Model Selection

| MODEL | NOMINAL OUTPUT VOLTAGE (VDC) | MIN-MAXIMUM OUTPUT CURRENT, CONVECTION | MIN-MAXIMUM OUTPUT CURRENT ¹ | PEAK OUTPUT CURRENT ² | TOTAL REGULATION % ³ | RIPPLE & NOISE %p-p ⁴ |
|-------------------|------------------------------|--|---|----------------------------------|---------------------------------|----------------------------------|
| BLP40-1005 | 5V | 0 to 5A | 0 to 8A | 9A | ±2 | 1 |
| BLP40-1012 | 12V | 0 to 2.1A | 0 to 3.3A | 3.7A | ±2 | 1 |
| BLP40-1024 | 24V | 0 to 1.1A | 0 to 1.8A | 1.9A | ±2 | 1 |

Triple Output Model Selection

| MODEL | NOMINAL OUTPUT VOLTAGE (VDC) | MIN-MAXIMUM OUTPUT CURRENT, CONVECTION | MIN-MAXIMUM OUTPUT CURRENT ¹ | PEAK OUTPUT CURRENT ² | TOTAL REGULATION % ³ | RIPPLE & NOISE %p-p ⁴ |
|--------------------|------------------------------|--|---|----------------------------------|---------------------------------|----------------------------------|
| BLP40-3000 | +5V | 0.3 to 3A | 0.3 to 4A | 5A | ±2 | 1 |
| | +12V | 0.1 to 1.5A | 0.1 to 2A | 3A | ±5 | 1 |
| | -12V | 0.0 to 0.5A | 0.0 to 0.7A | 1 | ±5 | 1 |
| BLP40-3003* | +5V | 0.3 to 3A | 0.3 to 4A | 5A | ±2 | 1 |
| | +15V | 0.1 to 1.5A | 0.1 to 2A | 2.5A | ±5 | 1 |
| | -15V | 0.0 to 0.5A | 0.0 to 0.7A | 1A | ±5 | 1 |

* Advanced Product Release

Model numbers highlighted in yellow or shaded are not recommended for new designs.

NOTES: ¹ 10 CFM or 150 LFM (average measurement of six equally-distanced points through a 3.5" x 1.6" cross-sectional area) with power supply mounted on 0.25" standoffs. Recommended airflow direction is from the AC side to the DC side.

² Peak current duration for less than 30 Sec with a maximum duty cycle of 10%.

³ At 25 °C ambient including voltage set point tolerance, line, and load regulation.

⁴ Maximum peak-to-peak noise expressed as a percentage of output voltage, 20 MHz bandwidth, and bypass capacitors of 10 µF and 0.1 µF.

Ordering Information:

| OPTIONS | SUFFIXES TO ADD TO PART NUMBER |
|-------------------------------------|---|
| RoHS lead-solder exemption | No RoHS suffix character required. |
| RoHS compliant for all 6 substances | Add "G" as the last character of the part number. |



Input Specifications

| PARAMETER | CONDITIONS/DESCRIPTION | MIN | NOM | MAX | UNITS |
|----------------------|--|-----|---------|-----|-------|
| Input Voltage - AC | Single-phase continuous input range. | 85 | 100-250 | 264 | VAC |
| Input Voltage - DC | Consult factory. | | | | |
| Input Frequency | AC input. | 47 | 50/60 | 63 | Hz |
| Input Current | At 115 VAC input. | | 0.8 | | ARMS |
| Inrush Surge Current | Internally limited. | | | 18 | APK |
| | Internally limited. | | | 36 | APK |
| Input Fuse | Internally located AC input line fuse rated at F, 250 V, 3.15 A. | | | | |
| Efficiency | At Max Power. | | 70 | | % |

Output Specifications

| PARAMETER | CONDITIONS/DESCRIPTION | MIN | NOM | MAX | UNITS |
|--------------------------|--|-----|------|-----|--------|
| Output Power | With convection cooling. | | | 25 | Watts |
| | With forced-air cooling. | | | 40 | |
| Output DC Adjustability: | Adjustability of Vo1 (Vo2/Vo3 are not adjustable). | -5% | +10% | | Of Nom |
| Overshoot | | | | 5 | % |
| Load Transient | Vo1, Vo2, or Vo3 deviation due to a 50 to 100% load change at a rate of 1A/μs. | | | ±3 | % |
| Turn-On Time from AC ON | Time required for output voltage to reach within regulation after initial application of AC input. | | | 1.5 | Sec |
| Turn-On Delay | Time required for output voltage to rise from 10% to 90%. | | | 20 | ms |
| Hold-Up Time | At 25 W, 115 VAC | | 20 | | ms |
| Remote Sense | Total compensation for cable losses on Vo1. (Remote Sense is not available for Vo2 or Vo3) | | | 500 | mV |

Interface Signals and Internal Protection

| PARAMETER | CONDITIONS/DESCRIPTION | MIN | NOM | MAX | UNITS |
|--------------------------|---|-------|------|------|-------|
| Overvoltage Protection | Main output. | 5 V: | 5.7 | 6.8 | V |
| | | 12 V: | 13.8 | 16.2 | |
| | | 24 V: | 27.6 | 32.4 | |
| Short Circuit Protection | Fully-protected against output short circuit. | | | | |

Safety, Regulatory, and EMI Specifications

| PARAMETER | CONDITIONS/DESCRIPTION | MIN | NOM | MAX | UNITS |
|------------------------------|---|-----------------|----------------------------|------|---------------------------------|
| Agency Approvals | UL60950-1/CSA 22.2 No. 60950-1-03. EN 60950-1/IEC 60950-1. CB Approval. CE Mark for LVD. | | | | BLP40-3003 Pending Approval. |
| Ground Continuity | | | | 40 | A |
| Dielectric Withstand Voltage | Input-to-Ground (Basic). | 1500 | | | VAC |
| | | 2121 | | | VDC |
| | Input-to-Output (Reinforced). The primary to secondary test is not performed on completed assemblies. | 3000 | | | VAC |
| | | 4242 | | | VDC |
| | Output-to-Ground (Functional). | 500 | | | VDC |
| Electromagnetic Interference | FCC Part 15. | Conducted: | B | | Class |
| | CISPR 22 and CISPR 11. | Conducted: | B | | |
| ESD | Per EN61000-4-2, level 3. | | | | |
| Flicker | Per EN61000-3-3. | | | | |
| Radiated Susceptibility | Per EN61000-4-3, level 3. | | 3 | | V/m |
| EFT/Burst | Per EN61000-4-4, level 3. | 1 | | | kV |
| Input Transient Protection | Per EN61000-4-5, class 3. | Line-to-Line: | 1 | | kV |
| | | Line-to-Ground: | 2 | | |
| RF Immunity | Per EN61000-4-6, level 3. | | 3 | | V/m |
| Magnetic Fields | Per EN61000-4-8. | | 1 | | A/m |
| Leakage Current | Per EN60950. | BLP40-1XXX | | 0.48 | mA |
| | | BLP40-3XXX | At 264 VAC: AT 264 VAC: | 0.72 | |

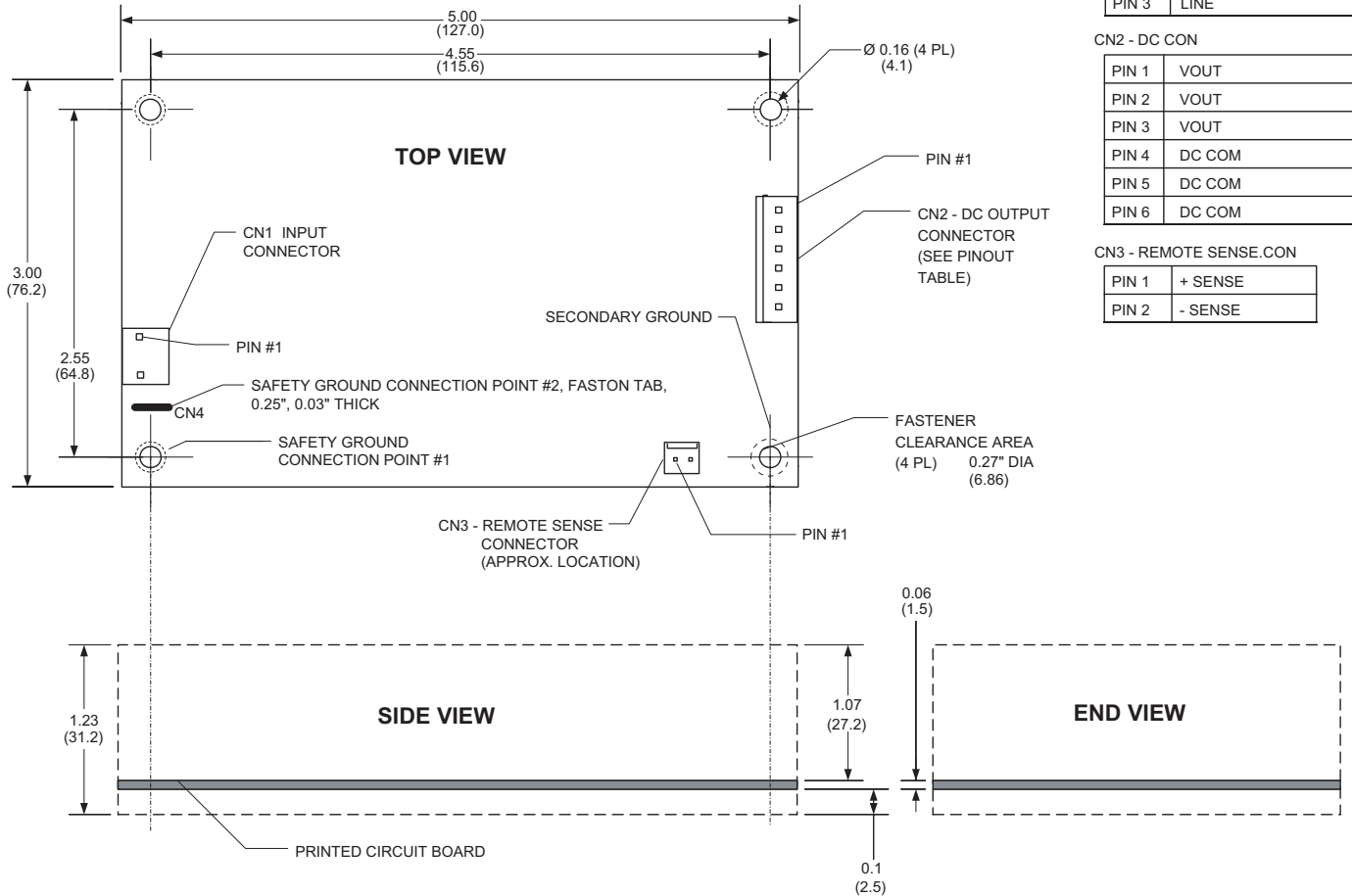
Environmental Specifications

| PARAMETER | CONDITIONS/DESCRIPTION | MIN | NOM | MAX | UNITS |
|-------------------------|--|-----|-------|-----|---------|
| Altitude | Operating. | | | 10k | ASL Ft. |
| | Non-Operating. | | | 50k | ASL Ft. |
| Operating Temperature | 0 °C to 70 °C with linear derating to 50% above 50 °C. Unit will start up at -20 °C, but will not meet all published specifications. | 0 | 25 | 70 | °C |
| Storage Temperature | | -40 | | 85 | °C |
| Forced-Air Cooling | Forced-air cooling of 150 LFM at 10 CFM is required for full output power. (NOTE 1) (See Model Selection Table). | | | | |
| Convection Cooling | When unit is mounted horizontally with free-air convection. (See Model Selection Table). | | | 25 | W |
| Temperature Coefficient | 0 °C to 70 °C (after 15-minute warm-up). | | ±0.02 | | %/°C |
| Relative Humidity | Non-Condensing @ 40 °C | 5 | | 95 | %RH |
| Shock | Operating: half-sine 11 ±3ms, 3 axis. | | | 15 | G |
| | Non-operating: half-sine 11±3ms, 3 axis. | | | 40 | |
| Vibration | Operating: Random vibration, 5-500 Hz (10 minutes each axis). | | | 2.4 | Grms |
| | Non-operating: Random vibration, 5-500 Hz (10 minutes each axis). | | | 6.0 | |

NOTES: 1) 10 CFM or 150 LFM (average measurement of six equally-distanced points through a 3.5" x 1.6" cross-sectional area) with power supply mounted on 0.25" standoffs. Recommended airflow direction is from the AC side to the DC side.

Overall Size: 3.00" x 5.00" x 1.23" (76.2mm x 127.0mm x 31.2mm) Weight: 0.51 lb (0.23 kg)

**Mechanical Drawing
(Single-Output Models)**



CN1 - AC CONN.

| | |
|-------|-------------|
| PIN 1 | NEUTRAL |
| PIN 2 | MISSING PIN |
| PIN 3 | LINE |

CN2 - DC CON

| | |
|-------|--------|
| PIN 1 | VOUT |
| PIN 2 | VOUT |
| PIN 3 | VOUT |
| PIN 4 | DC COM |
| PIN 5 | DC COM |
| PIN 6 | DC COM |

CN3 - REMOTE SENSE CON

| | |
|-------|---------|
| PIN 1 | + SENSE |
| PIN 2 | - SENSE |

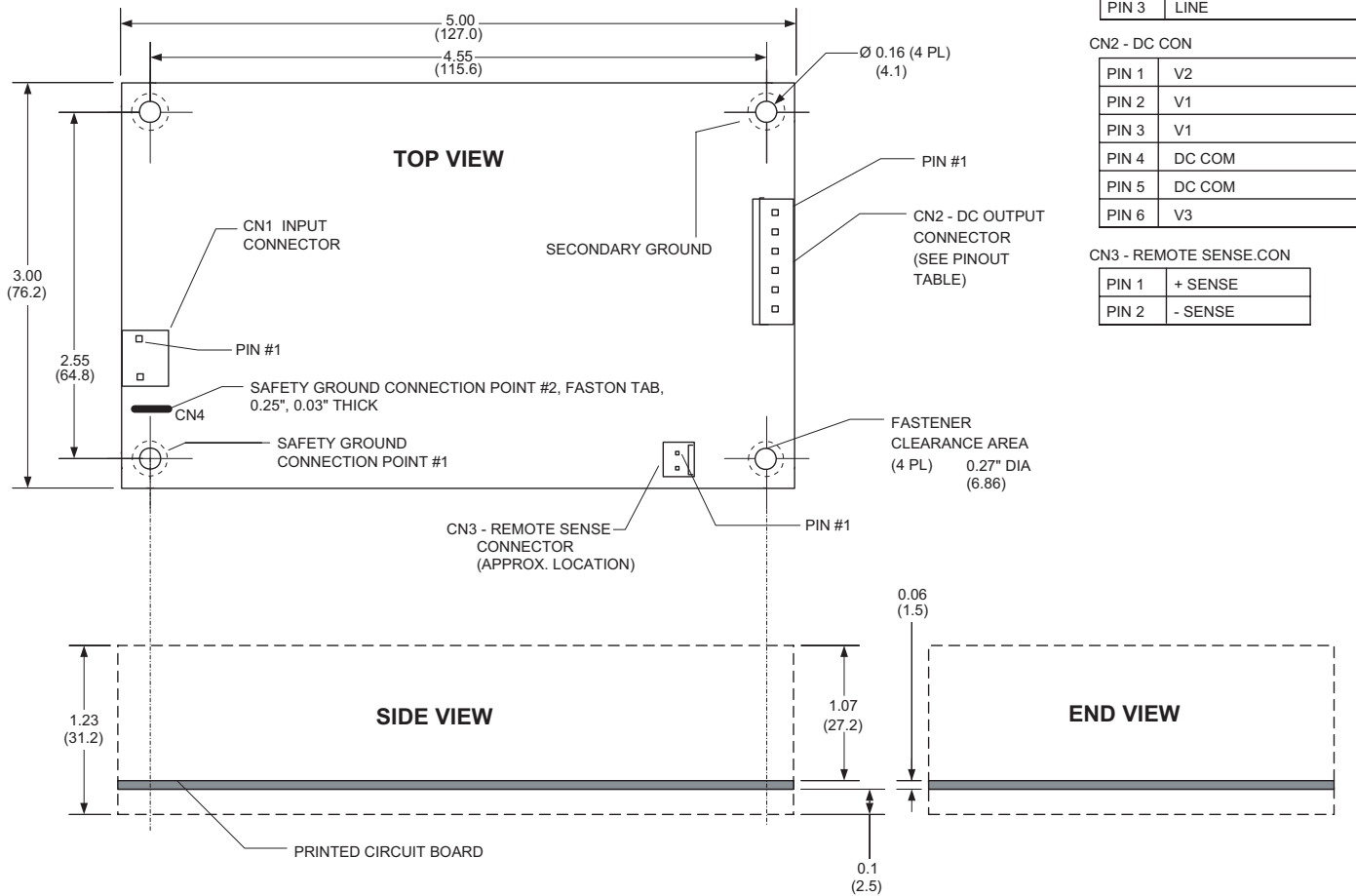
RECOMMENDED MATING CONNECTORS

| | HOUSING | PIN |
|-----|-------------------|-------------|
| CN1 | MOLEX 09-50-8031 | 08-52-0113 |
| | LEOCO 3940S030000 | 3983TCB0000 |
| CN2 | MOLEX 09-50-8061 | 08-52-0113 |
| | LEOCO 3940S060000 | 3983TCB0000 |
| CN3 | MOLEX 22-01-3027 | 08-52-0113 |
| | LEOCO 2530S020000 | 2533TPB0000 |

NOTE: This is an outline drawing only. The detailed location of components is not shown.

Overall Size: 3.00" x 5.00" x 1.23" (76.2mm x 127.0mm x 31.2mm) Weight: 0.51 lb (0.23 kg)

**Mechanical Drawing
(Triple-Output Models)**



RECOMMENDED MATING CONNECTORS

| | HOUSING | PIN |
|-----|-------------------|-------------|
| CN1 | MOLEX 09-50-8031 | 08-52-0113 |
| | LEOCO 3940S030000 | 3983TCB0000 |
| CN2 | MOLEX 09-50-8061 | 08-52-0113 |
| | LEOCO 3940S060000 | 3983TCB0000 |
| CN3 | MOLEX 22-01-3027 | 08-52-0113 |
| | LEOCO 2530S020000 | 2533TPB0000 |

NOTE: This is an outline drawing only. The detailed location of components is not shown.

NUCLEAR AND MEDICAL APPLICATIONS - Power-One products are not designed, intended for use in, or authorized for use as critical components in life support systems, equipment used in hazardous environments, or nuclear control systems without the express written consent of the respective divisional president of Power-One, Inc.

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