

EXB50 Dual Series

Dual positive output

- Two independently regulated positive outputs
- Each output offers ultra-wide output voltage trim range
- High efficiency topology, 89% typical
- Approved to IEC60950, UL/cUL1950
- Operating ambient temperature of -40 °C to +70 °C (natural convection)
- No minimum load on either output
- Complies with ETS 300 019-1-3/2-3 and ETS 300 386-1
- Available RoHS compliant



The EXB50 Dual is a 50W independently regulated dual output dc-dc converter specifically designed to meet the power needs of low voltage silicon. Housed in an open-frame package with an industry standard 1/2 brick footprint, the EXB50 Dual can deliver up to 8.5 A from either output, and up to 11 A in total, at temperatures of up to 70 °C under natural convection. With some forced air and/or reduced ambient temperatures, the EXB50 can deliver up to 8.5 A from either output, and up to 17 A in total. The converter is primarily intended for the networking, telecoms and wireless markets, where small size, lower output voltages with higher currents, low profile and high efficiency are all key demands. Product features include wide output trim and remote on/off. Overvoltage, short circuit and overtemperature protection combines to make the EXB50 Dual a very robust and flexible product.



2 YEAR WARRANTY

All specifications are typical at $V_{in} = 48\text{ V}$, $I_{o1} = 5\text{ A}$, $I_{o2} = 5\text{ A}$, $T_{amb} = 25\text{ °C}$ unless otherwise stated

SPECIFICATIONS

OUTPUT SPECIFICATIONS

| | | |
|---|--|--|
| Voltage adjustability | EXB50-48D3V3-1V8J EXB50-48D05-3V3J | 0.8-3.6 Vdc 1.5-5.25 Vdc |
| Voltage accuracy | Both outputs | ±0.5% max. |
| Line regulation | Low line to high line Low line to high line | $V_{out1} \pm 0.5\%$ $V_{out2} \pm 0.5\%$ |
| Load regulation | Full load to no load | ±0.5% |
| Minimum load | Both outputs | 0% |
| Ripple and noise 20 MHz bandwidth | Both outputs | 150 mV pk-pk max. 30 mV rms max. |
| Transient response peak dev. settling time | 3 A to 5 A (1 A/10 μ s) and back | 150 mV 400 μ s |
| Short circuit protection | EXB50-48D3V3-1V8J EXB50-48D05-3V3J | 17 A rms 15 A rms |

INPUT SPECIFICATIONS

| | | |
|--|---|--------------------------|
| Input voltage range | 48 Vin nominal | 36-75 Vdc |
| Input current | No load Remote OFF | 100 mA max. 4 mA max. |
| UVLO turn ON voltage | All inputs | 34 V typ. |
| UVLO turn OFF voltage | All inputs | 33 V typ. |
| Active high remote ON/OFF Logic compatibility ON OFF (See Note 7) | Open collector ref. to -input Open circuit voltage or >3.2 Vdc | <0.4 Vdc |
| Active low remote ON/OFF Logic compatibility ON OFF (See Note 7) | Open collector ref. to -input Open circuit voltage or >3.2 Vdc | 0.4 Vdc max. |

EMC CHARACTERISTICS

| | | |
|-------------------------------------|-----------------------------------|---------|
| ETS 300 386-1 table 5 | | |
| Conducted emissions (See Note 3) | EN55022 with external filter | Level A |
| Radiated emissions | EN55022 with external filter | Level B |
| Immunity: | EN55022 | Level A |
| ESD air | EN61000-4-2 8 kV (NP), 15 kV (RP) | |
| ESD contact | EN61000-4-2 6 kV (NP), 8 kV (RP) | |
| EFT dc power | EN61000-4-4 2 kV (NP), 4 kV (LFS) | |
| EFT signal | EN61000-4-4 1 kV (NP), 2 kV (LFS) | |
| Radiated field enclosure | EN61000-4-3 10 V/m (NP) | |
| Surges indoor signal | EN61000-4-5 500 V (RP) | |
| Conducted (dc power) | EN61000-4-6 10 V (NP) | |
| Conducted (signal) | EN61000-4-6 10 V (NP) | |
| Input transients | ETS 300 132-2, ETR 283 | |

GENERAL SPECIFICATIONS

| | | |
|--------------------------------|---------------------------------------|------------------------|
| Efficiency | | 89% typ. |
| Basic insulation | Input/output | 1500 Vdc |
| Input fuse 48 V | (See Note 2) | 4 A slow blow HRC |
| Switching frequency (fixed) | EXB50-48D3V3-1V8J EXB50-48D05-3V3J | 250 kHz 300 kHz |
| Approvals and standards | | IEC60950 UL/cUL1950 |
| Material Flammability | | UL94V-0 |
| Weight | | 42 g (1.48 oz) |
| MTBF | MIL-HDBK-217 | 177,362 hours |

ENVIRONMENTAL SPECIFICATIONS

| | | |
|--|--|---|
| Thermal performance (See Notes 4 and 5) | Operating ambient temperature Non-operating | -40 °C to +100 °C, see curves -40 °C to +120 °C |
| ETS 300 019-2-3 | | Classes T3.1 to T3.5 |
| Air temperature | Low: IEC 68-2-1 High: IEC 68-2-2 Change: IEC 68-2-14 | -40 °C +70 °C -40 °C to +70 °C |
| Relative humidity | IEC 68-2-56 IEC 68-2-30 | 10% to 100% RH condensation |

International Safety Standard Approvals



UL/cUL CAN/GSA 22.2 No. E174104
UL 60950 File No. E174104



TÜV Product Service (EN60950) Certificate No. B 01 09 38572 024
CB report and certificate to IEC60950

EXB50 Dual Series

Dual positive output

DC-DC CONVERTERS | 50 W High Efficiency DC-DC Converters

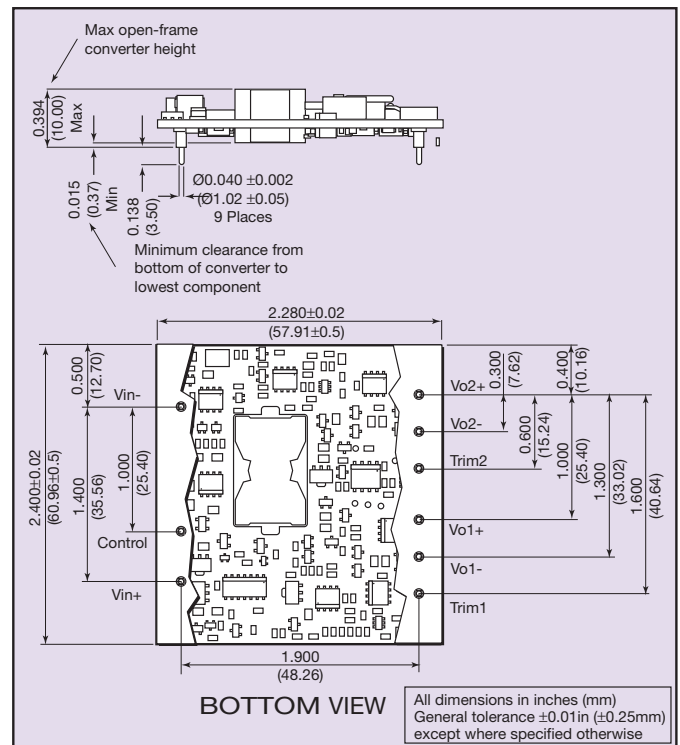
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For the most current data and application support visit www.artesyn.com/powergroup/products.htm

| INPUT VOLTAGE | OUTPUT VOLTAGE | | OUTPUT CURRENT ⁽⁸⁾ | | OVP ⁽¹⁾ | | TYPICAL EFFICIENCY | MODEL NUMBER ^(7,9,10) |
|---------------|----------------|-------|-------------------------------|-------|--------------------|--------|--------------------|----------------------------------|
| | 1 | 2 | 1 | 2 | 1 | 2 | | |
| 36-75 Vdc | 3.3 V | 1.8 V | 8.5 A | 8.5 A | 4.12 V | 2.34 V | 86.4% | EXB50-48D3V3-1V8J |
| 36-75 Vdc | 5 V | 3.3 V | 7.5 A | 7.5 A | 6.25 V | 4.12 V | 89% | EXB50-48D05-3V3J |

Notes

- Latching OVP response time is 2 ms (typ.). OVP latch is reset by toggling the control input, or by cycling the input voltage.
- User must provide recommended fuses in order to comply with safety approvals.
- Meets both level A and level B conducted emissions only with external components connected before the input pins to the converter.
- Maximum temperature on hotspots not to exceed 110 °C. See Application Note 127 on Artesyn Technologies website www.artesyn.com.
- See the longform datasheet for derating curves.
- For stable operation connect an external output capacitor of at least 100 µF to each output. Recommended capacity AVX TPS series (e.g. TPSD107*010#0100) or equivalents.
- Active low remote ON/OFF, is available. Standard product is active high. Designate with the suffix '-R' e.g. EXB50-48D05-3V3-RJ.
- Maximum total current from the module is 15 A for EXB50-48D05-3V3J and 17 A for EXB50-48D3V3-1V8J with airflow.
- The 'J' suffix indicates that these parts are Pb-free (RoHS 6/6) compliant. TSE RoHS 5/6 (non Pb-free) compliant versions may be available on special request, please contact your local sales representative for details.
- NOTICE: Some models do not support all options. Please contact your local Artesyn representative or use the on-line model number search tool at <http://www.artesyn.com/powergroup/products.htm> to find a suitable alternative.



PROTECTION

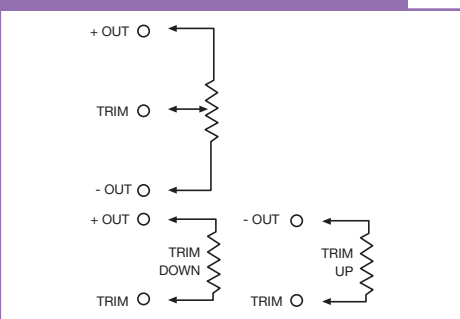
| | |
|---------------|--------------------------------|
| Short circuit | Continuous |
| Overvoltage | Latching |
| Thermal | 125 °C with automatic recovery |

TELECOM SPECIFICATION

Central office interface A ETS300-132-2 input voltage and current requirements

CAUTION: Hazardous internal voltages and high temperatures. Ensure that unit is not user accessible.

EXTERNAL OUTPUT TRIMMING



PIN CONNECTIONS

| PIN NUMBER | FUNCTION |
|------------|---------------|
| 1 | - Vin |
| 2 | No Pin |
| 3 | Remote ON/OFF |
| 4 | + Vin |
| 5 | Vo1 Trim |
| 6 | Vo1 Return |
| 7 | Vo1+ |
| 8 | Vo2 Trim |
| 9 | Vo2 Return |
| 10 | Vo2+ |

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Please consult our website for the following items: ✓ Application Note ✓ Longform Datasheet

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