

# EXB50 Dual Series

## Dual positive output

- Two independently regulated positive outputs
- Each output offers ultra-wide output voltage trim range (0.8V to 3.6V for EXB50-48D3V3-1V8, 1.5V to 5.25V for EXB50-48D05-3V3)
- 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



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 8.5A from either output, and up to 11A 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 8.5A from either output, and up to 17A 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 over-temperature protection combines to make the EXB50 Dual a very robust and flexible product.



2 YEAR WARRANTY

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

### SPECIFICATIONS

#### OUTPUT SPECIFICATIONS

|   |  |  |
|---|--|--|
| Voltage adjustability                         | EXB50-48D3V3-1V8<br>EXB50-48D05-3V3            | 0.8V to 3.6V<br>1.5V to 5.25V                |
| Voltage accuracy                              | Both outputs                                   | ±0.5% max.                                   |
| Line regulation                               | Low line to high line<br>Low line to high line | $V_{out1} \pm 0.5\%$<br>$V_{out2} \pm 0.5\%$ |
| Load regulation                               | Full load to no load                           | ±0.5%  |
| Minimum load                                  | Both outputs                                   | 0%   |
| Ripple and noise<br>20MHz bandwidth           | Both outputs                                   | 150mV pk-pk max.<br>30mV rms max.            |
| Transient response<br>peak dev. settling time | 3A to 5A (1A/10µs)<br>and back                 | 150mV<br>400µs                               |
| Short circuit protection                      | EXB50-48D3V3-1V8<br>EXB50-48D05-3V3            | 17A rms<br>15A rms                           |

#### INPUT SPECIFICATIONS

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

#### EMC CHARACTERISTICS

|                                     |                                 |         |
|-------------------------------------|---------------------------------|---------|
| ETS 300 386-1 table 5               |                                 |         |
| Conducted emissions<br>(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 8kV (NP), 15kV (RP) |         |
| ESD contact                         | EN61000-4-2 6kV (NP), 8kV (RP)  |         |
| EFT DC power                        | EN61000-4-4 2kV (NP), 4kV (LFS) |         |
| EFT signal                          | EN61000-4-4 1kV (NP), 2kV (LFS) |         |
| Radiated field enclosure            | EN61000-4-3 10V/m (NP)          |         |
| Surges indoor signal                | EN61000-4-5 500V (RP)           |         |
| Conducted (DC power)                | EN61000-4-6 10V (NP)            |         |
| Conducted (signal)                  | EN61000-4-6 10V (NP)            |         |
| Input transients                    | ETS 300 132-2, ETR 283          |         |

#### GENERAL SPECIFICATIONS

|                                |                                     |                        |
|--------------------------------|-------------------------------------|------------------------|
| Efficiency                     |                                     | 89% typ.               |
| Basic insulation               | Input/output                        | 1500VDC                |
| Input fuse 48V                 | (See Note 2)                        | 4A slow blow HRC       |
| Switching frequency<br>(fixed) | EXB50-48D3V3-1V8<br>EXB50-48D05-3V3 | 250kHz<br>300kHz       |
| Approvals and standards        |                                     | IEC60950<br>UL/cUL1950 |
| Material Flammability          |                                     | UL94V-0                |
| Weight                         |                                     | 42g (1.48oz)           |
| MTBF                           | MIL-HDBK-217                        | 177,362 hours          |

#### ENVIRONMENTAL SPECIFICATIONS

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

# EXB50 Dual Series

## Dual positive output

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

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For the most current data and application support visit [www.artesyn.com/powergroup/products.htm](http://www.artesyn.com/powergroup/products.htm)

| INPUT VOLTAGE | OUTPUT VOLTAGE |      | OUTPUT CURRENT <sup>(8)</sup> |      | OVP <sup>(1)</sup> |       | TYPICAL EFFICIENCY | MODEL NUMBER <sup>(7)</sup> |
|---------------|----------------|------|-------------------------------|------|--------------------|-------|--------------------|-----------------------------|
|               | 1              | 2    | 1                             | 2    | 1                  | 2     |                    |                             |
| 36-75VDC      | 3.3V           | 1.8V | 8.5A                          | 8.5A | 4.12V              | 2.34V | 86.4%              | EXB50-48D3V3-1V8            |
| 36-75VDC      | 5V             | 3.3V | 7.5A                          | 7.5A | 6.25V              | 4.12V | 89%                | EXB50-48D05-3V3             |

### Notes

- Latching OVP response time is 2ms (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](http://www.artesyn.com).
- See the long form data sheet for derating curves.
- For stable operation connect an external output capacitor of at least 100µF 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-R.
- Maximum total current from the module is 15A for EXB50-48D05-3V3 and 17A for EXB50-48D3V3-1V8 with airflow.

### PROTECTION

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

### TELECOM SPECIFICATION

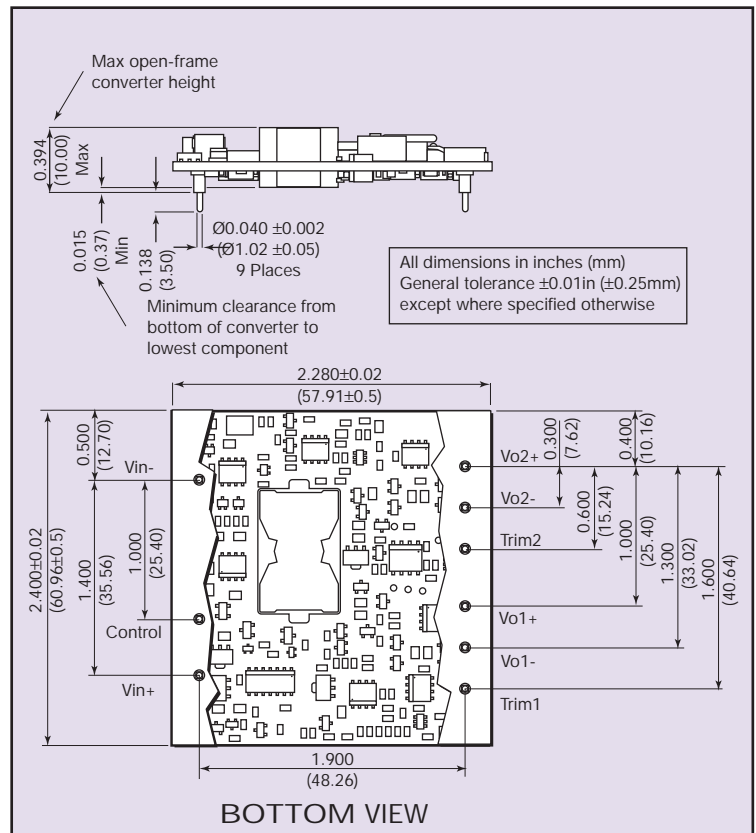
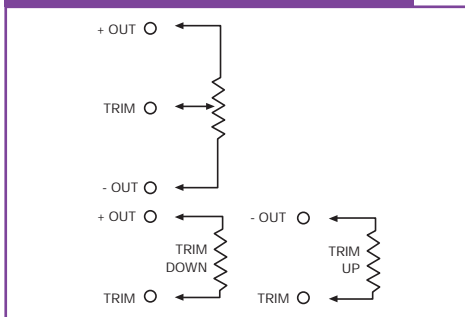
|                            |   |
|----------------------------|---|
| Central office interface A | ETS300-132-2 input voltage and current requirements |
|----------------------------|---|

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

### 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+          |

### EXTERNAL OUTPUT TRIMMING



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

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