

# 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	Vout1 ±0.5% Vout2 ±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 µs) and back	150 mV 400 µs
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

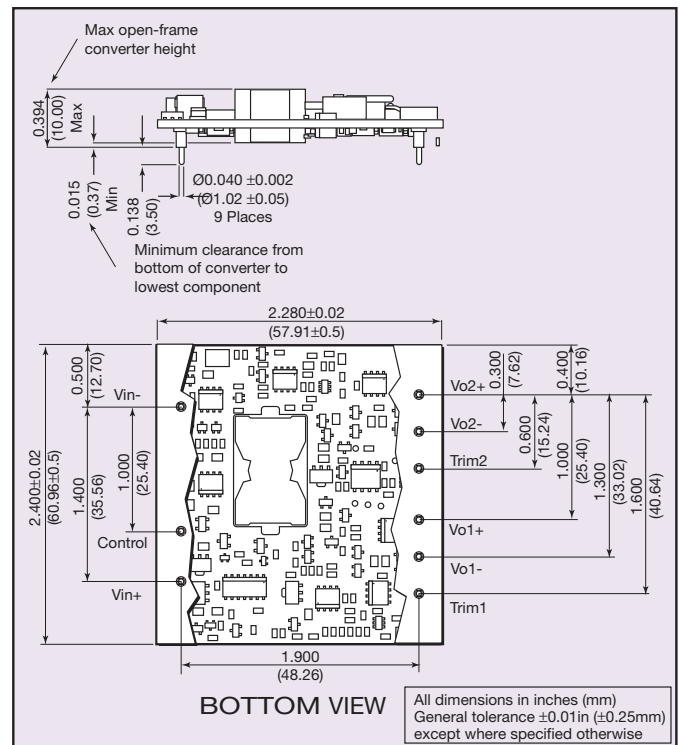
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For the most current data and application support visit [www.artesyn.com/powergroup/products.htm](http://www.artesyn.com/powergroup/products.htm)

INPUT VOLTAGE	OUTPUT VOLTAGE		OUTPUT CURRENT <sup>(8)</sup>		OVP <sup>(1)</sup>		TYPICAL EFFICIENCY	MODEL NUMBER <sup>(7,9,10)</sup>
	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](http://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

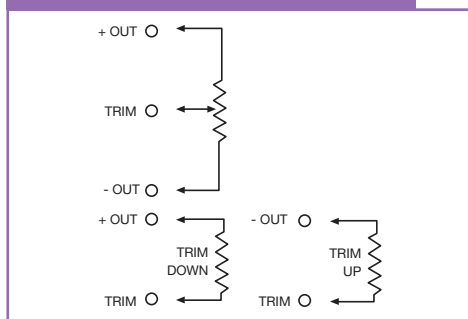
Short circuit	Continuous
Overvoltage	Latching
Thermal	125 °C with automatic recovery

## 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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