500W IP66-Rated Rugged Industrial Quality DC-DC Converters
BAP 319-D4 Series (IP66)

- Packaged in waterproof IP66 enclosure
- Internal module ruggedized and conformal coated
- Regulated output
- Full electronic protection
- Rugged field-proven design
- N+1 redundancy available

The rugged industrial quality DC-DC converters use field proven topology to generate the required output power. The units are enclosed in robust, waterproof, die cast aluminum D4 size IP66 packages. The input and output are via sealed cable glands, circular connectors or custom connections. The internal boards are ruggedized and conformal coated for immunity to high levels of shock and vibration. Cooling is by internal conduction to the walls of the IP66 enclosure and by baseplate to an external chassis or cabinet wall, with additional convection via the outside surface. If installed on a heat-sinking surface, cooling is further enhanced and the converters achieve higher output power. An optional built-in redundancy diode allows for parallel and N+1 operation. Full electronic protection, low component count, large design headroom, and the use of components with established reliability contribute to high MTBF. The unit is manufactured at our plant under strict quality control.

SPECIFICATIONS

Input Voltage
24Vdc (21-29V)
48Vdc (42-56V)
125Vd (105-145V)
(12Vdc input with reduced power)
Consult factory for other voltages

Input Protection
Inrush current limiting
Varistor
Reverse polarity protection
Internal safety fuse
Lower voltage than the specified minimum input will not damage the unit

Isolation
According to input voltage minimum of:
1000VDC input to chassis,
1500VDC input to output,
500VDC output to chassis

Standards
Designed to meet EN 62368-1 and related standards

EMI
EN 55032 Class A with margins

Switching Frequency
55kHz ±3kHz

Output Voltages
12V, 24V, 48V or 125Vdc
Total output power 500W continuous
Output is floating; either terminal can be grounded
Consult factory for other voltages

Redundancy diode
Not installed
Available as option

Line/Load Regulation
±1% combined from zero load to full load

Dynamic Response
Max 5% voltage deviation for 10% to 50% load step, with better than 1msec recovery time

Output Ripple / Noise
Better than 1% of output voltage peak to peak or 0.2% Vrms (20MHz BW)

Output Overload Protection
Rectangular current limiting with short-circuit protection
(no hiccup).
Thermal shutdown in case of insufficient cooling (self- resetting)

Output Overvoltage Protection
Double regulator loop completely stable and independent of main loop

Efficiency
Typically 80% at full load depending on input/output combination

Operating Temperature Range
-25°C to 55°C for full specification
Extended temperature ranges available on request

Temperature Drift
0.03% per °C over operating temperature range

Cooling
Conduction to customer heat-sink or chassis and by additional natural convection via the surface of the IP66 enclosure

Environmental Protection
IP66 enclosure
Internal module: ruggedized and conformal coated
Potting of the internal module is also available

Shock/Vibration
IEC 61373 Cat 1 A&B

Humidity
5 - 95% non-condensing

MTBF
150,000 hours at 45 °C
Demonstrated MTBF is significantly higher

Indicators
None

Control Input
None

Alarm Output
None
Available as option

Package/Dimensions (W x H x D)
D4: *Overall dimensions incl. mounting flanges, excluding connectors)*:
230 x 113 x 448 mm
9.1" x 4.5" x 17.6"
D4: Dimensions of enclosure body (excluding connectors):
230 x 110 x 400 mm
9.1" x 4.3" x 15.7"

Weight
8 kg; 17.6 lb

Connections
Internal barrier-type terminal block accessible via sealed cable glands. Optional connectors instead of cable glands

RoHS Compliance
Compliant

Warranty
Two years subject to application within good engineering practice

The specifications on this data sheet are generic and are subject to change. Enhancements to these specifications can be provided upon request.

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