



- Field-proven rugged design
- Electronic protection
- Fully encapsulated
- Conduction cooling

The SDE500 Series fully encapsulated single output DC/DC converter uses field-proven technology to generate 500W output power. It is conduction cooled via a base plate and is rated for full operation in the specified temperature range. The unit is entirely potted with a thermally conductive MIL-spec. silicon rubber compound for resistance against shock, vibration and humidity. The use of components with many years of established reliability and generous headroom results in a high MTBF. The unit is suitable for transportation, mining, oil rigs, military and other harsh environments. Versions to meet EN50155 railway specifications are also available. Extra options including alarms and a redundancy diode are available on custom versions. Higher power versions are available upon request. The SDE 500 series 500W rugged DC/DC converter is manufactured under strict quality control.

### SPECIFICATIONS

#### Input Voltage

24Vdc (21V – 30V)  
48Vdc (42V – 60V)  
125Vdc (90V – 145V)  
Consult factory for other voltages and ranges, including for railway

#### Input Protection

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

#### Isolation

1500Vdc input to chassis  
2250Vdc input to output,  
500VDC output to chassis  
as a minimum

#### Standards

Designed to meet EN 60950 and related standards.

#### EMI

EN 55022 Class A with wide margins

#### Switching Frequency

55KHz +/- 3KHz

#### Output Voltages

12Vdc/40A, 24Vdc/20A,  
48Vdc/10A or 110Vdc/4.5A  
Output is floating; either terminal can be grounded.  
Consult factory for other voltages

#### Redundancy Diode

Not installed.  
Available on custom versions

#### 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 0.2%Vrms or  
1%Vpp of the output voltage  
(20MHz BW)

#### Output Overload Protection

Rectangular current limiting with short circuit protection (no hiccup)  
Thermal shutdown with automatic reset in case of insufficient cooling

#### Output Overvoltage Protection

Double regulator loop

#### Efficiency

Typically 82% at full load

#### Operating Temperature Range

-40 to +60°C cold-plate  
temperature for full specification  
Extended temperature range available

#### Temperature Drift

0.03% per °C over operating temperature range

#### Cooling

Conduction cooling via base plate to customer chassis or heat-sink (cold plate)

#### Environmental Protection

Fully encapsulated with thermally conductive silicon compound

#### Shock/Vibration

Meets requirements of IEC 61373  
Cat 1 A&B and Cat 2 as a minimum.

#### Humidity

5 - 95% non-condensing

#### MTBF

140,000 hours at 45°C  
Demonstrated MTBF is significantly higher.

#### Indicators

None  
Optional "Output ON" LED available

#### Control Input

None

#### Alarm Output

None  
Available on custom versions

#### Package/Dimensions (W x H x L)

140 x 76 x 257 mm  
including terminal block and flanges  
Mounting holes are clear

#### Weight

3.5 kg

#### Connections

10-pole barrier type terminal block

#### RoHS Compliance

Fully compliant

#### Warranty

Two years subject to application within good engineering practice.