

# 120W, Corona-free, 20kV Isolation Voltage, Dual Output DC/DC Converter

## DIO 122 Series

- 20kVac isolation input/output, output/chassis
- Corona free at 12kVac
- Rugged, industrial quality
- Convection cooled - no fan
- Dual output – 60W each
- Full electronic protection



The DIO 122 series dual-output dc/dc converter was developed for very high operating isolation voltage. Typical applications are high power gate drives, medical equipment, transportation and similar areas. The unit is designed and tested for corona (partial discharge) extinction at a minimum of 12kVac and Hi-POT tested for 20kVrms isolation. The typical operating voltage potential between primary and secondary is 6.5 – 10kVac, with the same isolation provided between the two outputs. Both outputs are highly regulated and have individual current limiting and short circuit protection. Isolation design features include encapsulating the output regulators in two separate insulation chambers, and the use of transformers engineered with ABSOPULSE's field-proven proprietary technology.

### SPECIFICATIONS

#### Input Voltage

24Vdc (22 – 29V)  
48Vdc (44 – 56V)  
125Vdc (110 – 140)  
Consult factory for other inputs

#### Input Protection

Inrush current limiting  
Varistor  
Reverse polarity protection by crowbar diode  
Internal safety fuse  
Lower voltage than the specified minimum will not damage the unit

#### Isolation

1.5kVdc input to chassis,  
20kVac input to output,  
20kVac output to chassis  
20kVac output 1 to output 2  
Corona extinction 12kVac minimum for the transformer

#### Standards

Designed to meet UL508 and related standards

#### EMI

EN 55022 Class A as a minimum

#### Switching Frequency:

100kHz  $\pm$ 5kHz  
50kHz  $\pm$ 5kHz (for 24V input)

#### Output Voltages

Two independent outputs:  
Any voltage in the range of 12V to 24V and up to 3A on each output.  
Consult factory for other voltages

#### Redundancy diode

None  
Available as option

#### Line/Load Regulation

$\pm$  1% combined from zero load to full load including output separation diode

#### Dynamic Response

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

#### Output Ripple/Noise

Better than 200mV peak to peak or 40mVrms (20MHz BW)

#### Overload Protection

Rectangular current limiting with short circuit protection.  
Current Limit set to: 3.5A  $\pm$  0.4A

#### Output Over-voltage Protection

30V transorb on output

#### Efficiency

Min 80% at full load

#### Operating Temperature

0 °C to 50 °C for full specification without derating

#### Temperature Drift

0.03% per °C over operating temperature range

#### Cooling

By convection

#### Environmental Protection

Basic ruggedizing and partial encapsulation in the chambers with thermally conductive silicon potting compound with UL94V-0 flammability rating.

#### Shock/Vibration

IEC61371 Cat 1 A&B

#### Humidity

5 - 95% non-condensing

#### MTBF

150,000 hours at 45°C per internal module  
Demonstrated MTBF is significantly higher.

#### Indicators

Green "Output ON" LED in each chamber

#### Control Input

None

#### Alarm Output

None

#### Package Dimensions

Open board: 102 x 305mm (4" x 12")  
Component height: 70mm (2.75")

#### Weight

1.1kg (2.4lb)

#### Connections

Input:  
3-pole barrier-type terminal block with 3/8" spacing  
Outputs:  
2-pole barrier type terminal block inside the chamber

#### RoHS Compliance

Fully compliant

#### Warranty

Two years subject to application within good engineering practice



European Stocking Distributor  
Phone: +41 44 730 33 53

Email: sales@hvps-condatas.com / www.hvps-condatas.com  
Rietbachstrasse 7, 8952 Schlieren (ZH), Switzerland