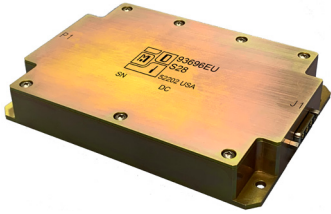


# 93696 500 Watt Proton Rad Hard 100K +<sup>®</sup> Space Power Supply

## High Power DC - DC Converter



Model Number	Nominal Vin	Vin Range	Applications
93696	100	85-160	100VDC Satellite Bus

The 93696 DC-DC converters are a family of fully isolated 500 watt rated modules that provide high reliability power for critical space environment applications needing higher power than full hybrid DC-DC converters can offer.

The circuit topology of the 93696 provides superior SEU and 100K+ TID performance.

The units include an input ripple filter and user adjustable under voltage lockout is included. Outputs include high attenuation ripple and common mode spike filtering.

The 93696 converter is constructed with an optimum combination of hermetic hybrid control circuits and high reliability passive surface mount components, offering a construction that is suitable for the most demanding space applications, while providing reliable conduction cooled thermal paths for all components.

### Specifications

#### Single Outputs:

Output Voltage V	12	15	28
Output Current A	42	33	18
Efficiency %	84%	86%	86%
Line/Load Regulation %	2%	2%	2%
Output Ripple mVpp, max	120	150	200

#### Dual Outputs:

Output Voltage V	±12	±15
Output Current A	21	16
Efficiency %	84%	86%
Line/Load Regulation %	2%	2%
Output Ripple mVpp, max	120	150

Custom input and output voltages are available.

#### Environment:

Operating Temperature Range -55°C to +85°C baseplate  
Non-operating Storage Temperature Range -65°C to +150°C ambient

Shock: 20 G's

Vibration: 12 G's

#### Notes:

Data for 25°C operating baseplate temps.

Output Voltage: Nominal shown. Factory setpoint within ±1% at nominal input and full rated load.

Output Current: Max. shown at nominal input voltage.

Efficiency: Min. shown at nominal input and full rated load.

Line/Load Regulation: Max. Combined over Input Voltage and Load ranges listed.

Output Ripple: Full load resistive, 20 MHz bandwidth.

### Features

#### Electrical Design Features:

##### Fully Isolated MDI Proton RadHard 100K+<sup>®</sup> Technology:

Proton resistant I/O Isolation: no optical couplers used.

Over 100kRad Si TID.

SEE/SEU Immune: LET>82MeV\*cm<sup>2</sup>/mg.

**Input Undervoltage Lockout:** User programmable UV lock with hysteresis to shut operation at line inputs under selected limit.

**Sync Input:** Synchronizes up to user programmed frequency.

**Inhibit Not Input:** Shut operation by grounding Inhibit Not pin.

**Remote Sense:** Auto adjusts output voltage for load lead losses.

**Output Adjust:** User programmable to increase/decrease output voltage setpoint.

**Active Share Bus:** Up to five units.

**Full Load Range Voltage Regulation:** Regulates down to zero applied load.

**Dual Mode Overcurrent/Short Circuit Protection:** Current mode control pulse by pulse and cyclic mode overcurrent protection.

**Internal Overvoltage Protection:** Overvoltage protected for internal (open control loop) fault.

**Built-In Filters:** Input filter, output filtering smooths ripple and attenuates noise spikes. External EMI filter available if needed. Also, see model 53865 with full EMI filter.

#### Mechanical Design Features:

**Conduction Cooled Design:** Efficient thermal management for vacuum environments.

**Compact size, light weight:** 6.95" x 4.95" x 1.05" LWH Inches including connecting rails and thermal interface heatsink. Less than 2.5 lbs.



**Modular Devices, Inc.**

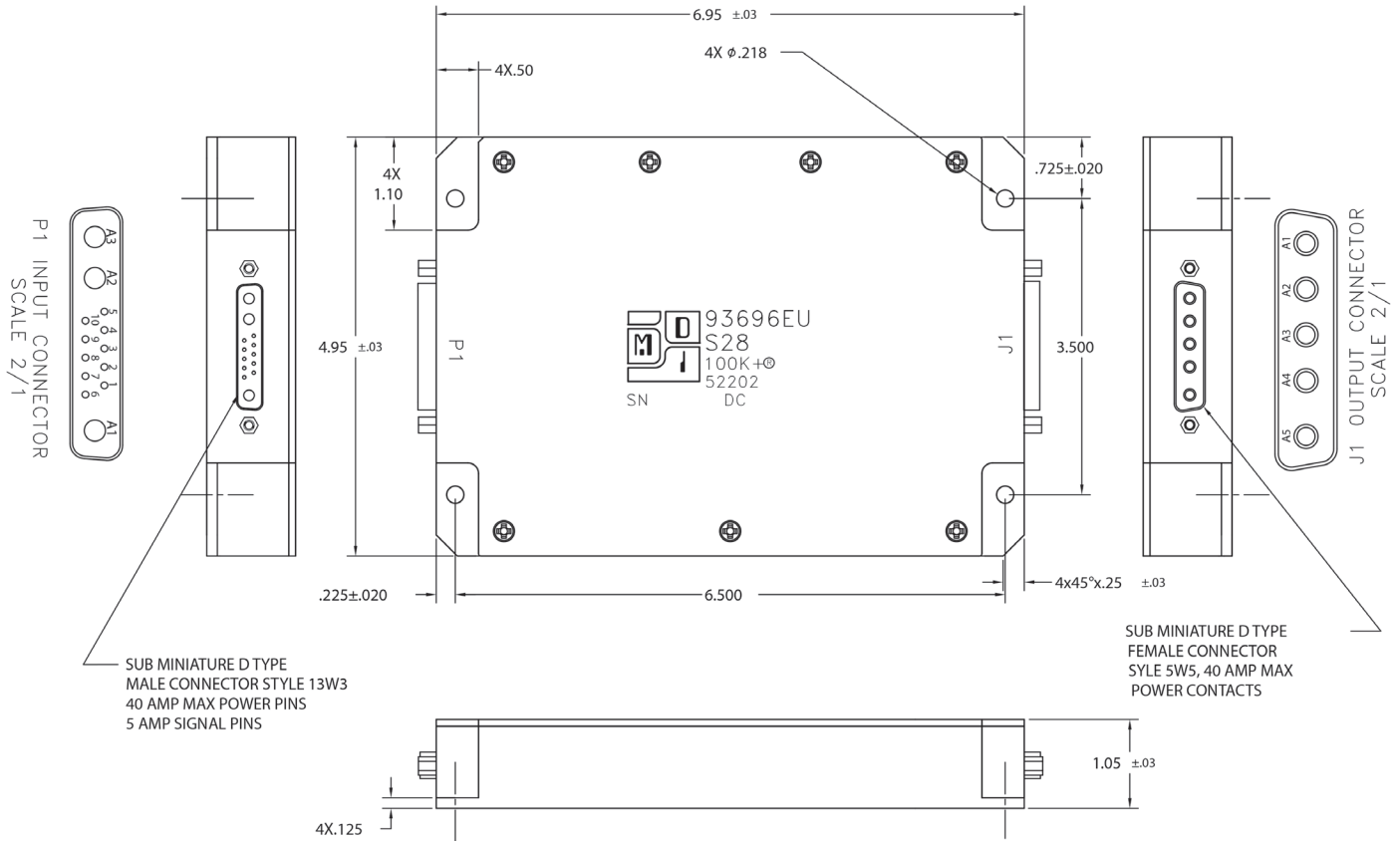
Power Conversion for Space and Military/Aerospace

Modular Devices, Inc. One Roned Road Shirley, New York 11967

Tel: 631.345.3100 Fax: 631.345.3106

E-mail: sales@mdipower.com

# 93696 500 Watt Proton Rad Hard 100K+<sup>®</sup> Space Power Supply High Power DC - DC Converter

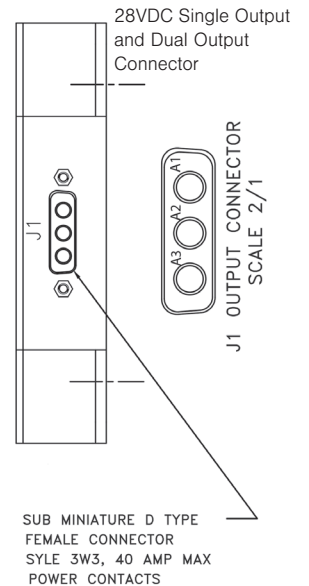


P1 CONNECTOR	
PIN	DESCRIPTION
1	Sync
2	Inhibit Not
3	UV Adjust
4	Chassis Grd
5	Chassis Grd
6	Chassis Grd
7	Share Bus
8	Adjust
9	- Remote Sense
10	+ Remote Sense
A1	Chassis Grd
A2	Input Return
A3	+20 - 40VDC Input

J1 CONNECTOR, Single Output 28VDC	
PIN	DESCRIPTION
A1	+ Output
A2	Output Return
A3	N/C

J1 CONNECTOR, Single Output 12or 15 VDC	
PIN	DESCRIPTION
A1	Pos Output
A2	Pos Output
A3	N/C
A4	Output Return
A5	Output Return

J1 CONNECTOR, Dual Output	
PIN	DESCRIPTION
A1	+ Output
A2	± Output Return
A3	- Output



GRADE LEVELS:  
Please specify grade level for your application. EU grade units will be shipped if no option is specified.



**Modular Devices, Inc.**

Power Conversion for Space and Military/Aerospace

EU Engineering Units  
LE 45K +100°C aerospace  
SE 100K+™, +100°C space