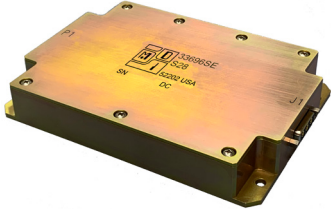


# 33696 500 Watt Proton Rad Hard 100K +<sup>®</sup> Space Power Supply

## High Power DC - DC Converter



Model	Nominal Vin	Vin Range	Applications
33696	120	86-158	ISS/Orion Space Vehicle Bus

The 33696 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 33696 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 33696 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 +100°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.

#### Mechanical Design Features:

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

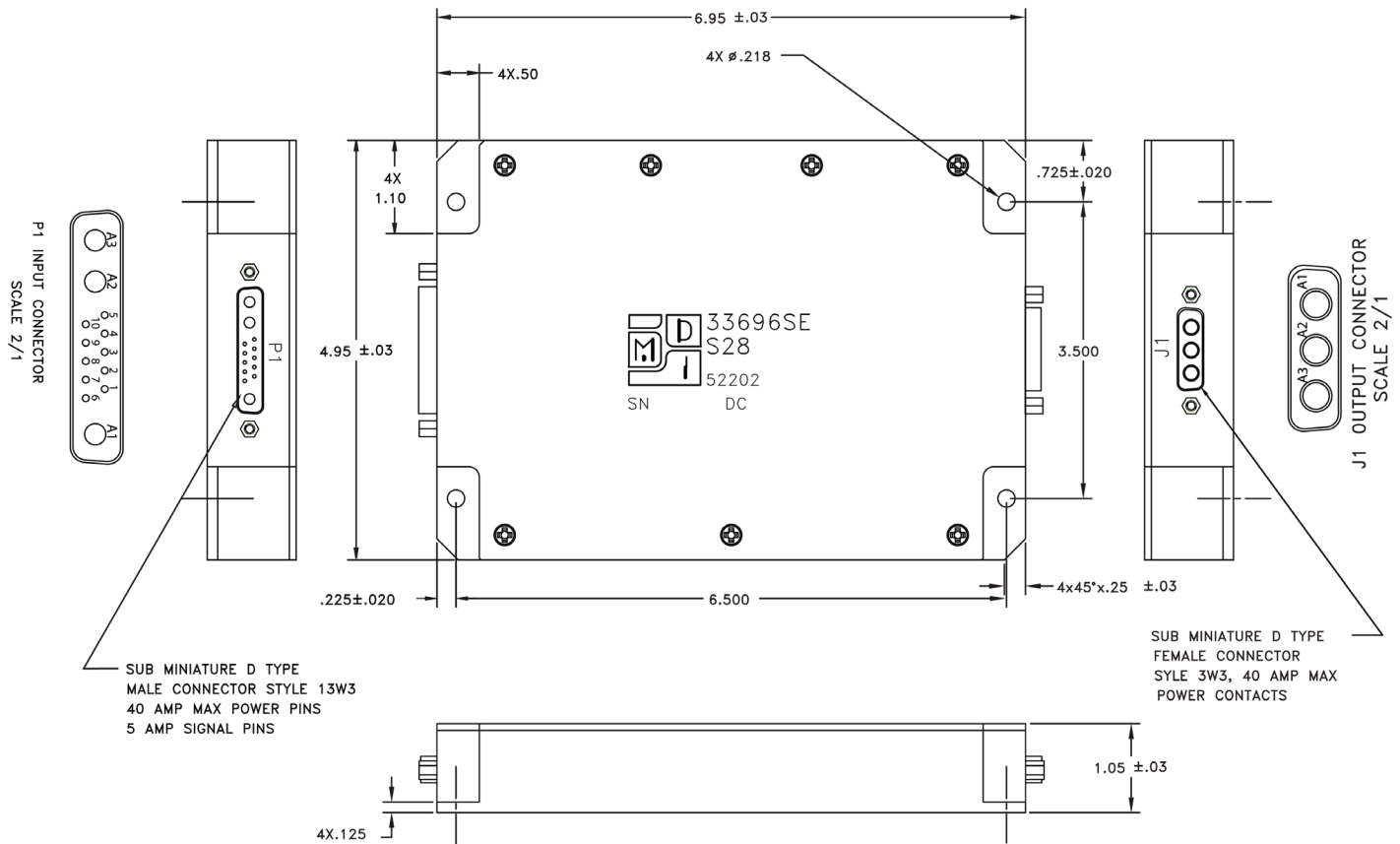
**Compact size, light weight:** 6.95" x 4.95" x 1.05" LWH Inches including connecting rails and thermal interface heatsink. Less than 2.5 lbs.



**Modular Devices, Inc.**

Power Conversion for Space and Military/Aerospace

# 33696 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	N/C
5	N/C
6	N/C
7	Share Bus
8	Adjust
9	- Remote Sense
10	+ Remote Sense
A1	Chassis Grd
A2	Input Return
A3	+85 - 120VDC Input

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

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.

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



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