

Component Power DC-DC Modules

10-100 Watts MI Series



THE XPERTS IN POWER

- 28 VDC Input per MIL STD 704D/1
- 155 VDC Input per DOD-STD-1399A
- 270 VDC Input per MIL STD 704D/1
- MIL-STD-810 Environments
- NAVMAT P-4855-1A Derating
- Power Boosters for High Power Outputs
- Low Noise FM Control

Specification

Input

- *Input Voltage Range* • See Model Numbering System
- *No Load Power Dissipation* • 2.0 W typical

Output

- *Output Voltage* • See Model Numbering System
- *Output Voltage Adjustment* • 50-110% Vnom (10, 12 & 15 V outputs 90-110%)
- *Set Point Accuracy* • 0.5% Vnom typical
- *Temperature Drift* • 0.01%/°C
- *Line & Load Regulation* • 0.05% Vnom typical low line to high line, 10-100% load
0.20% Vnom typical low line to high line, 0-10% load
- *Output Noise* • Whichever is greater, 1.0% Vnom or 100 mV pk-pk, 20 MHz bandwidth
- *Current Limit* • 105-125% Inom, auto restart
- *Short Circuit Limit* • 105-130% Inom
- *Remote Sense Compensation* • 0.5 VDC

General

- *Efficiency* • 80-90%
- *Isolation Voltage* • 3000 VAC input to output,
1500 VAC input to baseplate
500 VAC output to baseplate
- *MTBF* • >2,000,000 hours to MIL-HDBK-217F,
at 25 °C GB

Environmental

- *Operating Temperature* • -40 °C to +100 °C baseplate I Grade
-55 °C to +100 °C baseplate M Grade
- *Storage Temperature* • -55 °C to +125 °C baseplate I Grade
-65 °C to +125 °C baseplate M Grade
- *Altitude* • 70,000 ft (method 500.2)
- *Humidity* • 86%, 240 hours (method 507.2)
- *Acceleration* • 9 G (method 513.3)
- *Vibration* • 20 G (method 514.3)
- *Shock* • 40 G (method 516.3)
- *Environmental Compliance* • MIL STD 810
- *Derating* • NAVMAT P-4855-1A

EMC & Safety

- *Safety Approvals* • UL1950, CSA 22.2/234, IEC 950,
EN60950, LVD compliant

Model Numbering System

MI - □ □ □ - ○ ○

Example: MI - J21-IY is an Industrial grade Minimod converter, accepting an input of 28 V DC nominal and providing 12 V DC output at 50 Watts

J = MiniMod
2.28"L x 2.4"W x 0.5"H
2 = Standard Module
4.6"L x 2.4"W x 0.5"H
B=Booster (100W only)
4.6"L x 2.4"W x 0.5"H

Input Voltage		
Nominal	Range	Transient
2 = 28 V	18-50 V ¹	60 V
5 = 155 V	100-210 V	230 V
6 = 270 V	125-400 V ²	475 V
7 = 165 V	100-310 V	

Output Voltage	
Z = 2 VDC	1 = 12 V DC
Y = 3.3 VDC	P = 13.8 VDC
0 = 5 VDC	2 = 15 VDC
X = 5.2 VDC	N = 18.5 VDC
W = 5.5 VDC	3 = 24 VDC
V = 5.8 VDC	L = 28 VDC
T = 6.5 VDC	J = 36 VDC
R = 7.5 VDC	K = 40 VDC
M = 10 VDC	4 = 48 VDC

- 16 V operation at 75% load.
- These units rated at 75% load from 125-150 Vin.
MI-J62-xY MI-26Z-xV MI-J6Y-xY
MI-26Y-xY MI-J60-xY MI-260-xW
- For mechanical details refer to VI-J00 & VI-200 datasheets.

Product Grade	
MiniMods	Standard Modules
I = -40 °C to +100 °C	I = -40 °C to +85 °C
M = -55 °C to +100 °C	M = -55 °C to +85 °C

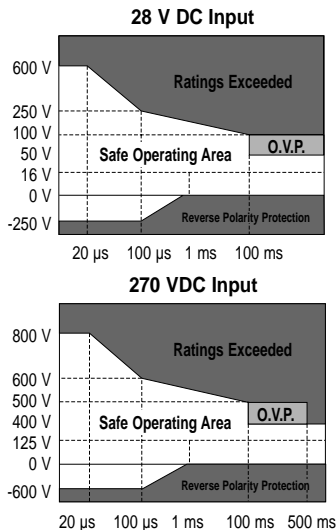
Output Power				
	Standard		MiniMods	
Vout	≥5 V	<5 V	Vout	≥5 V <5 V
Y =	50 W	10 A	A =	10 W -
X =	75 W	15 A	Z =	25 W 5 A
W =	100 W	20 A	Y =	50 W 10 A
V =	-	30 A		

Input & Output Filter Modules

MI-IAM FEATURES

- 28 & 270 VDC Inputs
- MIL-STD-461C/D: EMI/RFI
- MIL-STD-704A & MIL-STD-1275A: Transients & Spikes
- MIL-STD-810: Environments
- Expansion port for additional power

MI-IAM Specifications



MI-IAM Selection Chart

	Input Voltage	Input Range
MI-A22-MU	28 VDC	(18.8-50.0 V)
MI-A66-MU	270 VDC	(125-400 V)
MI-A22-IU	28 VDC	(18.8-50.0 V)
MI-A66-IU	270 VDC	(125-400 V)

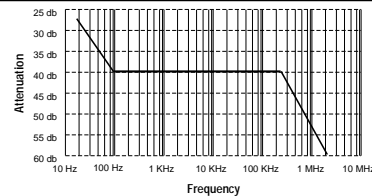
Product Grades as DC/DC converters.

MI-RAM FEATURES

- Reduces Output Ripple & Noise to <10 mVpk-pk
- Full attenuation to 20 Amps load
- 93-99% Efficiency
- Converter Sense Trim, OVP & Over Current
- Protection retained
- MIL-STD-810: Environmental

MI-RAM Specifications

Parameter	Min	Max	Notes
Output PARD		3 mV pk-pk 10 mV pk-pk	MI-200 10-100% load MI-J00 10-100% load
Input Voltage Range	5 V DC	50 V DC	
Output Voltage Accuracy	99.5%	100.5%	of MI Source Converter
Full Load Current	10 A 20 A		MI-RAM-I1 & M1-RAM-M1 MI-RAM-M2 & M2-RAM-M2
Overload Current	30 A		At max allowable baseplate temp
DC Voltage Drop	0.34 0.34	0.38 0.75	0-100% load Up to 30 A
Isolation	250 Vrms		Input/output to baseplate



MI-RAM Selection Chart

	Output Current
MI-RAM-M1	10 A
MI-RAM-M2	20 A
MI-RAM-I1	10 A
MI-RAM-I2	20 A

Product Grades as DC/DC converters.