



MI-IAMTM

Military COTS Input Attenuator Modules

Product Highlights

The MI-IAM is an accessory product to Vicor's MI-Series of DC-DC converters that provides the EMI/RFI filtering and transient protection. Designed for use with all 28 V and 270 V input MI-200 or MI-J00 converters, the MI-IAM can drive any number of modules with output loads to 200 W.

The MI-IAM meets the conducted emissions specifications of MIL-STD-461C/D/E and offers complete input transient, surge, and spike protection to the most severe levels of MIL-STD-1275A/B and 70A. Reverse polarity protection and overvoltage lockout provide additional safeguards against potentially damaging line conditions. High power arrays can be configured using the expansion port capability of the MI-IAM.

Features

- ✦ Inputs: 28 Vdc and 270 Vdc
- ✦ MIL-STD-461C/D/E EMI compliance
- ✦ MIL-STD-810 environments
- ✦ MIL-STD-704A & MIL-STD-1275A/B transients and spikes
- ✦ Reverse polarity protection
- ✦ Output power: Up to 200W from any combination of MI-200 or MI-J00 modules
- ✦ Expansion port for additional power
- ✦ Short circuit protected
- ✦ Size: 2.28" x 2.4" x 0.5" (57,9 x 61,0 x 12,7 mm)

Specifications

(At $T_{BP} = 25^{\circ}\text{C}$, nominal line and 75% load, unless otherwise specified)

PARAMETER		MIN	TYP	MAX	UNITS	NOTES
Input Characteristics						
28 Vdc modules	Steady state input	18.8	28	50	Vdc	
	Input spike limit	-600		600	Vdc	10 μs , 50 Ω per MIL-STD-704A
	Input surge limit	-250		250	Vdc	100 μs , 15mJ per MIL-STD-1275A/B
	Overvoltage shut down*	50			Vdc	60 ms, 0.5 Ω per MIL-STD-1275A/B
	Reverse polarity protection					100 ms, automatic recovery
	Recommended fuse			20	Amps	Shunt diode: input fuse required F03A type
270 Vdc modules	Steady state input	125	270	400	Vdc	
	Input spike limit	-600		800	Vdc	10 μs , 50 Ω
	Input surge limit			600	Vdc	100 μs , 15 mJ
	Overvoltage shut down*	400			Vdc	100 ms, automatic recovery
	Reverse polarity protection					100 ms, automatic recovery
	Recommended fuse			4	Amps	Shunt diode: input fuse required F03A type
All models	No load power dissipation		0.5	1.5	Watts	
	Inrush current		110	125	% I_{IN}	Steady state, I_{IN} 10ms
EMC Characteristics; MIL-STD-461C/D						
Input power leads	Conducted emissions			CE01, CE03, CE07 CE101, CE102		MIL-STD-461C MIL-STD-461D/E
	Conducted susceptibility			CS01, CS02, CS06, CS101, CS114, CS115, CS116		MIL-STD-461C MIL-STD-461D/E
Output Characteristics						
Clamp voltage	28 Vdc input			60	Vdc	
	270 Vdc input			420	Vdc	
Output power				250	Watts	
Overload protection	28 Vdc input			20	Amps	} Foldback threshold; auto recovery with latched shut down after 10 ms
	270 Vdc input			4	Amps	
Isolation Characteristics						
Input to base		1,500			V_{rms}	1 min.
Output to base		1,500			V_{rms}	1 min.
Environmental - MIL-STD-810						
Altitude - method 500.2		70,000			feet	Procedure II
Humidity - method 507.2		86/240			% / hours	Procedure 1, cycle 1
Acceleration - method 513.3		9			g's	Procedure II
Vibration - method 514.3		20			g's	Procedure 1, category 6
Shock - method 516.3		40			g's	Procedure 1
Reliability - MIL-HDBK-217F (MI-A22-MU)						
25°C Ground Benign: G.B.			4,719			1,000 hours
50°C Naval Sheltered: N.S.			849			1,000 hours
65°C Airborne Inhabited Cargo: A.I.C.			665			1,000 hours
Thermal Characteristics						
Efficiency			97		%	
Baseplate to sink			0.14		°C/Watt	
Operating temperature, baseplate				100	°C	See product grade specifications
Storage temperature				125	°C	See product grade specifications
Mechanical Specifications						
Weight				3 (85)	ounces (grams)	

*The MI-IAM disables downstream converters and clamps the converter input voltage at a safe level.

MI-IAM Model Selection Chart

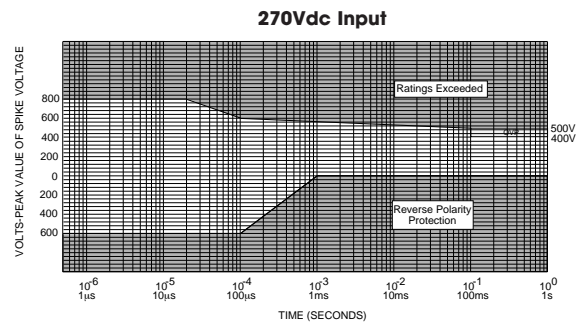
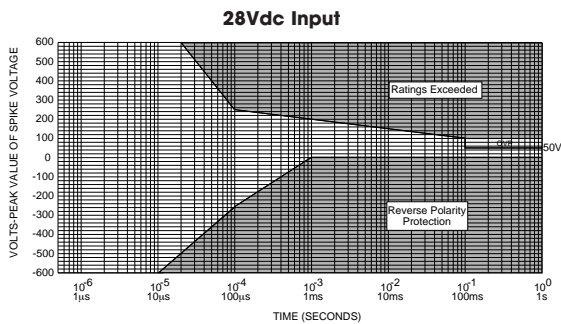
Model Number	Nominal Input Voltage	Input Range	Compatible MI-Series	Converter
MI-A22-MU	28 Vdc	18.8–50 Vdc	MI-22x and MI-J2x-Mx	M-grade
MI-A66-MU	270 Vdc	125–400 Vdc	MI-26x and MI-J6x-Mx	M-grade
MI-A22-IU	28 Vdc	18.8–50 Vdc	MI-22x and MI-J2x-lx	I-grade
MI-A66-IU	270 Vdc	125–400 Vdc	MI-26x and MI-J6x-lx	I-grade

Product Grade Specifications

PARAMETER	PRODUCT GRADE	
	I-Grade	M-Grade
Storage temperature	-55°C to +125°C	-65°C to +125°C
Operating temperature (baseplate)	-40°C to +100°C	-55°C to +100°C
Power cycling burn-in	12 hours, 25 cycles	96 hours, 200 cycles
Temperature cycled with power off	12 cycles	12 cycles
17°C per minute rate of change	-65°C to +100°C	-65°C to +100°C
Test data supplied at these temperatures*	-40°C, +80°C	-55°C, +80°C
Warranty	2 years	2 years
Environmental compliance	MIL-STD-810	MIL-STD-810
Derating	NAVMAT P-4855-1A	NAVMAT P-4855-1A

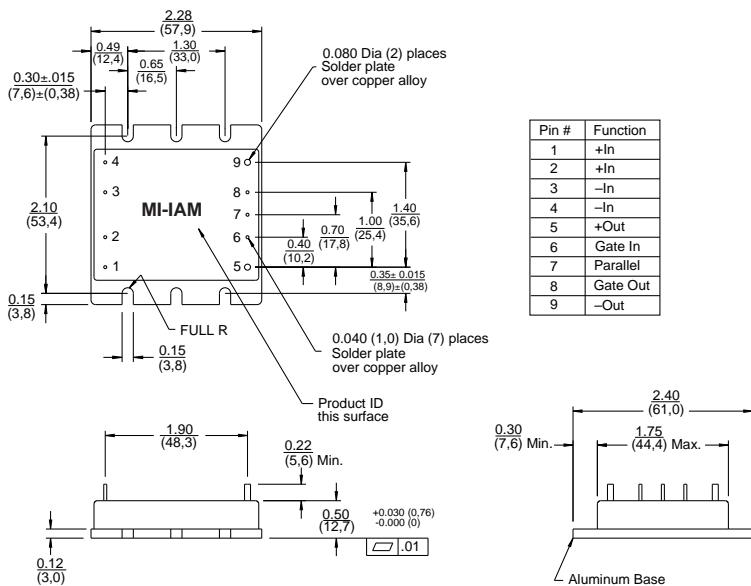
* Test data available for review or download from vicorpower.com

MI-IAM Safe Operating Area*



* Refer to input characteristics

Mechanical Drawing



Typical Connection Diagram

