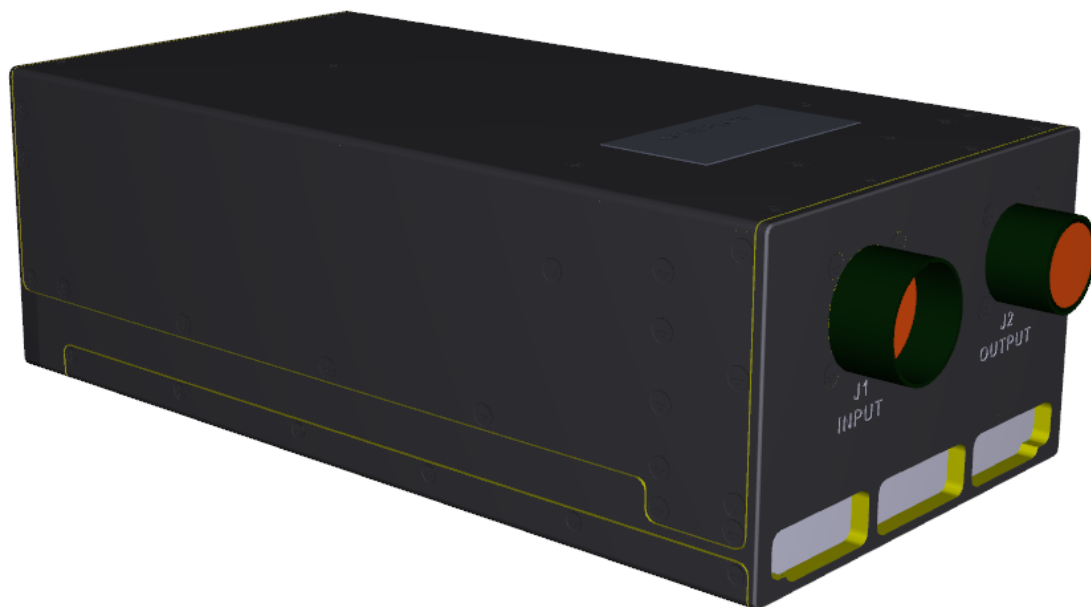


M7032101

28VDC to 115VAC/400Hz, 750W Inverter

The M7032101 is a mechanically robust, self-cooled (internal fan), low-weight, high performance DC to AC Inverter, designed for rotary-wing aircraft and high reliability airborne applications. The M7032 converts 28VDC (MIL-STD-704F) to a well-regulated and protected, low-distortion 115VAC 400Hz Sine-wave.



M7032 DC to AC Inverter

Key features:

- Self-cooled unit. Cooling air confined to a close-channel heatsink.
- Wide operating temperature range (-55°C to +71°C ambient).
- Complies with MIL-STD-704F (28VDC) and MIL-STD-461G.
- Reliably withstands Rotary-wing high-level induced vibration.
- Low weight, 7.3 pounds.
- Clean, low-distortion sine-wave output, even with non-linear load.
- High Efficiency, 88% at full load.
- Enable input, AC-Good and Over temperature output signals.
- Line-contactor's drive output.
- Overtemperature, Overload, Over/Under-voltage and Over/Under-frequency protections.
- Full galvanic isolation between Input, Chassis and Output.
- MIL-DTL-38999 Connectors.
- J-STD-001B and IPC-610A Class-3 workmanship.
- Conformal Coating per MIL-I-46058C and IPC-CC-830.

M7032 DC to AC Inverter

Specifications:

DC Input	28VDC per MIL-STD-704F Extended steady-state operating range of 19VDC to 33VDC Full performances during Normal Transient per MIL-STD-704F, Figure 13. No damage during Abnormal Over/Under voltage per MIL-STD-704F, Figure 14.		
AC Output	Voltage	115VAC \pm 1%	From No-load to Full-load, over the entire DC Input voltage range and all environmental conditions.
	Frequency	400 \pm 1 Hz	
	Rating	750W/1000VA continuous, 1KW (Overload) for 5 seconds.	
	Short Circuit Current	11.5 \pm 1 Amp RMS for 6 \pm 1 seconds	
	Peak Current Capability	15Amp (Crest Factor of 2.3 at 750VA).	
	Distortions	<0.5% with linear load. <3% with non-linear load (see Fig 1)	
	Overload Protection	When overloaded (>1KW) or shorted, will continue to operate for 6 \pm 1 seconds and then shutdown. Toggling the Enable input, or recycling the DC input will reset the output.	
	Voltage/Frequency Protections	AC Output is protected from Over-voltage, Under-voltage, Over-frequency and Under-frequency.	
	Fault Clearing	Toggling the Enable input, or recycling the DC input will reset (clear) all faults.	
	Over-temperature Protection	Automatic shutdown with auto-recovery .	
Efficiency	>85% at full load (750W) and any DC Input voltage between 19 to at 33VDC		
Isolation	AC Output is isolated (>20M Ω /500VDC) from DC Input, Chassis GND and all other signals. DC Input is isolated (>20M Ω /100VDC) from Chassis GND. The AC-Good and Overtemp Signals are Isolated (>20M Ω /100VDC) from Chassis GND and all other signals. The Enable Input and Line-contactor Drive refer to the 28V RTN Input.		
EMI MIL-STD-461G	CE102, CS101 CS114 (Curve #5, 10 kHz to 200 MHz), CS115, CS116, CS117 (All Equipment Installation, Internal), CS118, RE102, RS101 and RS103 (2MHz-18GHz, 200 V/m, 18GHz-40GHz, 60 V/m).		

M7032 DC to AC Inverter

Specifications (Cont.):

Control & Indications	Enable Input	Short ($V < 5V @ 1mA$) to the 28VDC RTN enables the AC Output. Open ($I < 0.05mA$) disables the AC Output. Internally limited to 15VDC.
	AC- Good Output	Opto-isolated (open-collector) BIT signal. Active low ($V < 0.8V @ 1mA$) indicates that the AC output voltage and frequency are within limits. Open ($I < 0.05mA @ 5V$) indicates a fault.
	Over-temp. Output	Opto-isolated (open-collector) signal. Normally Open ($I < 0.05mA @ 5V$). Active low ($V < 0.8V @ 1mA$) indicates an Over-temp condition.
	Line-contactor Drive Output	A 28VDC/0.5Amp drive for an external (optional) Line-contactor. Activated only when the AC output voltage and frequency are stable and within range. In case of an AC Overload, remains active (to allow fault clearing).
Environment	Ambient Temperature	Not Operating: -57°C to +85°C Operating (Full performances): -55°C to +71°C.
	Altitude	Not Operating: Up to 40,000 ft (transportation) Operating (Full performances): Up to 20,000 ft.
	Humidity	MIL-STD-810H, Method 507.6, Proc. II (Aggravated)
	Explosive Atmosphere	MIL-STD-810H, Method 511.7 Proc. I
	Salt Fog	MIL-STD-810H, Method 509.7
	Sand and Dust	MIL-STD-810H, Method 510.7, Proc. I (Blowing Dust)
	Mechanical Shock	MIL-STD-810H, Method 516.8, SRS per Figure 516.8, Proc I (Functional) and Proc V (Crash Hazard), Flight Equipment.
	Vibration	MIL-STD-810H, Method 514.8, Proc I, Cat 14 (Rotary wing aircraft) Sine-on-Random, General.
	Acceleration	MIL-STD-810H, Method 513.8, Proc II (Operational), 6G all directions.
	Contamination by Fluids	MIL-STD-810H, Method 504.3 (Exposure a. Occasional Contamination). 1) Lubricating oils synthetic, aircraft turbine engines, transmissions NATO O-156 2) Aircraft cleaners, Ground equipment, Aircraft interior/exterior MIL-PRF-87937 3) De-icer, Ethylene or Propylene Glycol mixtures. 4) Aviation turbine fuels, Kerosene, JP-8 (NATO 504.3).
Fungus	Does not support fungus growth, in accordance with the guidelines of MIL-STD-454, Requirement 4.	
Reliability	MTBF >20,000 at +71°C and A_{RW} Environment (MIL-HDBK-217F)	
Weight	Less than 7.5 Lbs.	

M7032 DC to AC Inverter

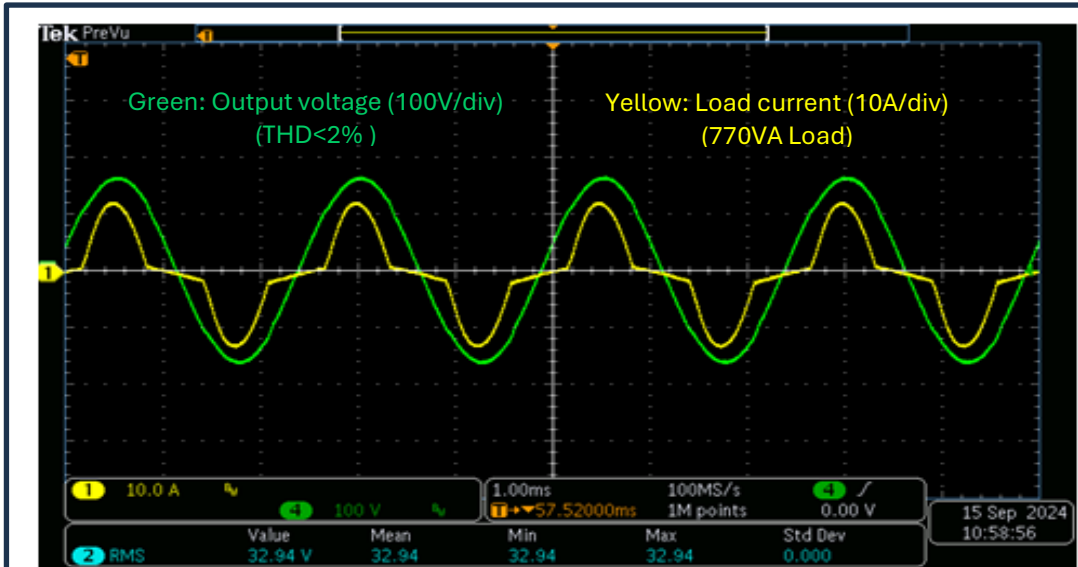


Figure 1: Output waveform with Non-Linear Load

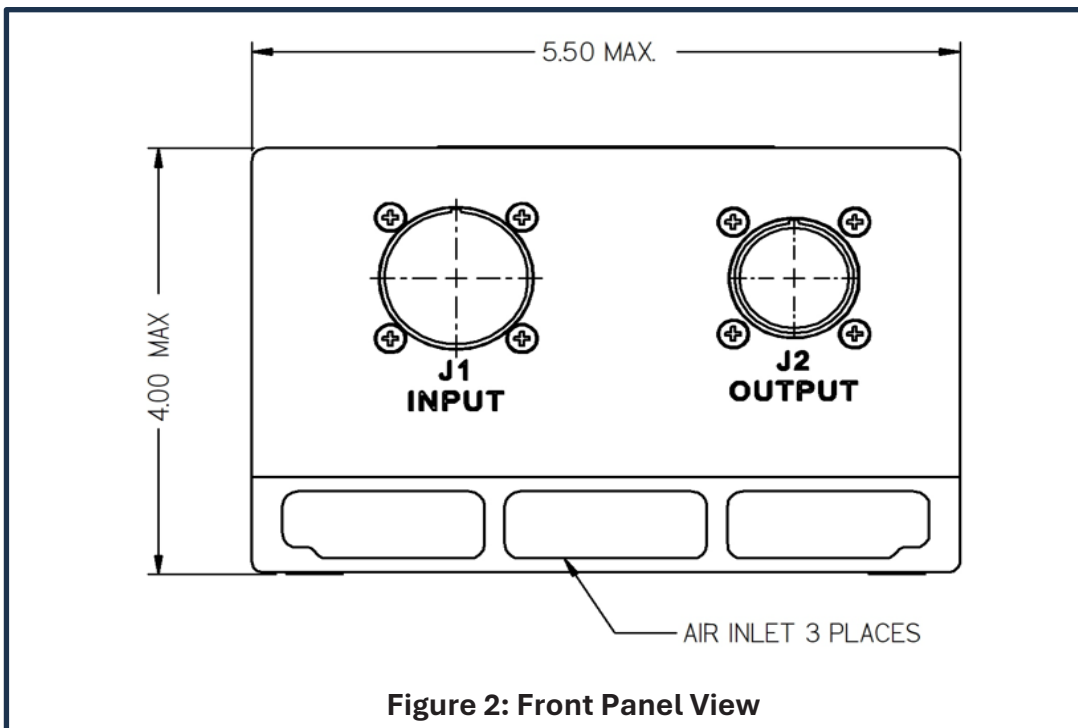
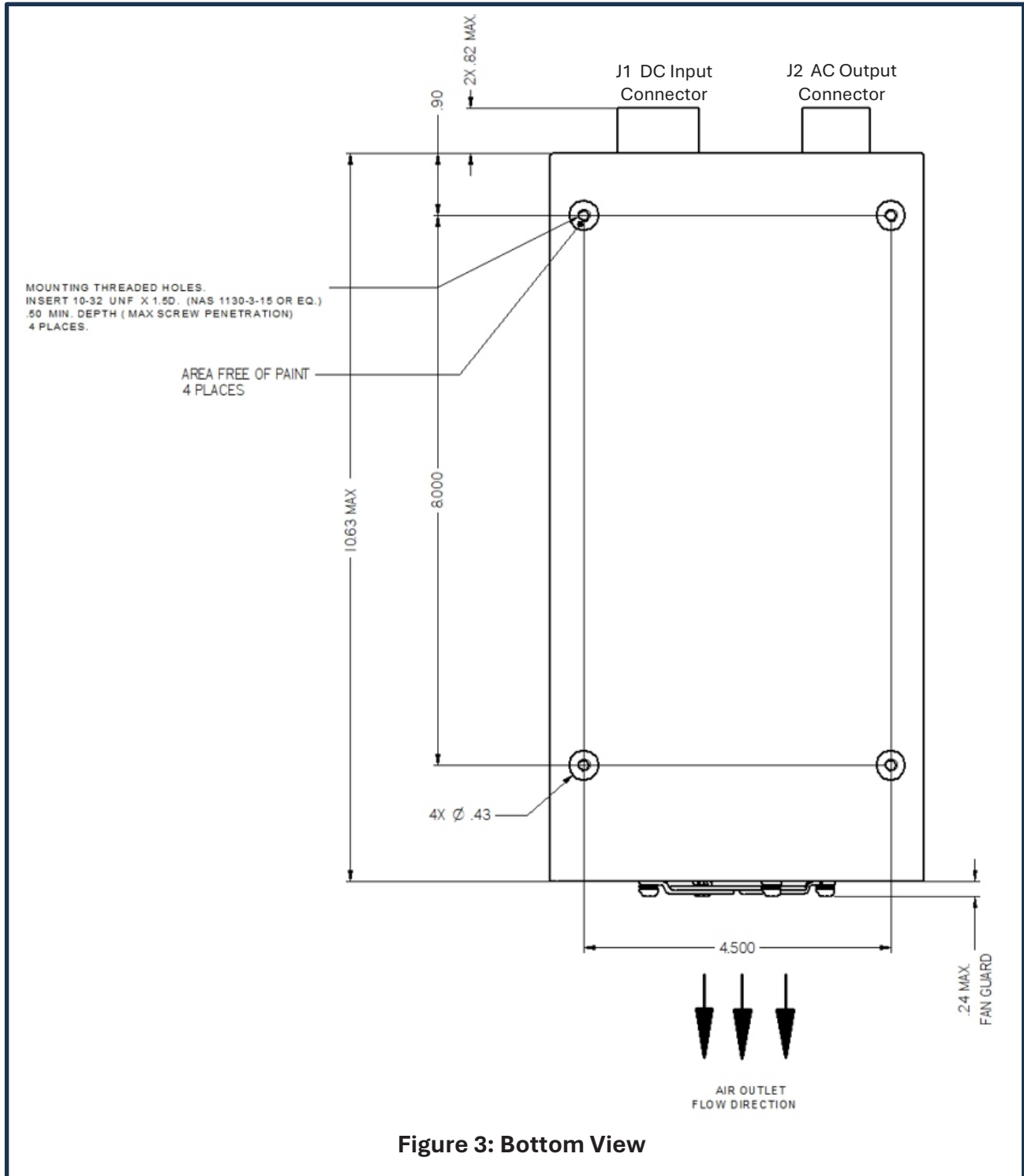


Figure 2: Front Panel View

M7032 DC to AC Inverter



M7032 DC to AC Inverter

I/O Connectors and Pin-out

J1 DC Input D38999/20WE6PN			
#	Name	I/O	AWG
A	28V RTN	I	#12
B	28V RTN	I	#12
C	N.C.	N/A	#12
D	28VDC	I	#12
E	28VDC	I	#12
F	N.C	N/A	#12

J2 AC Output D38999/20WD18SN				
#	Name	I/O	AWG	Notes
A	115VAC Phase	O	#20	
B	Reserved	N/A	#20	
C	Reserved	N/A	#20	
D	115VAC Neut	O	#20	
E	Reserved	N/A	#20	
F	Chassis GND	O/I	#20	
G	Enable RTN	I	#20	Internally connected to 28V RTN
H	Over-temp	O	#20	
J	SIG RTN	O	#20	Return signal for Over-temp and AC-Good
K	AC-Good	O	#20	
L	115VAC Phase	O	#20	
M	Line-contactor Drive	O	#20	28VDC drive to the high-side of the relay's coil. Connect the low-side to 28V RTN.
N	Reserved	N/A	#20	
P	Reserved	N/A	#20	
R	115VAC Neut	O	#20	
S	Enable	I	#20	
T	Reserved	N/A	#20	
U	Reserved	N/A	#20	