

**POWER CONVERSION PRODUCTS**

**Airborne Series**

**Part No.: VTA 05010-01**

**3 Phase, 400Hz, 809W Power Supply.**

**FEATURES**

- ❑ Up to 694 Watts VME Output Power
- ❑ Two separate Fan supplies, STIR and COOL. (115W combined)
- ❑ Maximum power output 809W.
- ❑ High Input/Output Isolation.
- ❑ Low Output Ripple.
- ❑ Short Circuit Protection.
- ❑ Thermal Protection.
- ❑ Input and Output Status Signals
- ❑ VME Bus Signals.

This Power Supply, used in VME applications, features a low profile package of 14.3” L x 8.1” W x 3.25” H or 2.15 Watt/in<sup>3</sup>. It has excellent load regulation, input filtering, and low output ripple as well as current limiting and internal thermal shutdown protection.

**Input Specifications:**

- (1) Steady State Voltage..... 108 to 118 VAC, MIL-STD-704E
- (2) Surge Voltage ..... Over voltage: MIL-STD-704A, Cat A, Fig 2 Curve 1  
Under voltage: MIL-STD-704A, Cat A, Fig 2 Curve 6
- (3) Frequency ..... 380Hz to 420Hz, MIL-STD-704A
- (4) Frequency Transients ..... ±50Hz, MIL-STD-704A, Fig. 5, Curves 2 and 3.
- (5) Isolation Resistance ..... 1 MΩ Phases or Neut to chassis @ 500 Vdc
- (6) Inrush Current..... ≤ 20A Peak, per phase
- (7) Power Factor (>50% rated load)..... 0.85

**Power Supply Control:**

Control is provided for disabling the VME outputs when an external temperature sensor contact opens above a user defined threshold. The FAN supplies (STIR +24V and COOL +24V) are ON whenever AC input is applied to the Power Supply. The outputs are enabled as follows:

- (8)
- i) TEMPSENSE\_3 Closed..... O/Ps ON: VME O/Ps, STIR +24V, COOL +24V
- ii) TEMPSENSE\_3 Open ..... O/Ps ON: STIR +24V, COOL +24V

**Output Specifications:**

(9) Nominal Voltage	Rated Current	DC Regulation	(10) Ripple & Noise	Max. Power	Current Limiting
+5 VDC	100A	±0.2 Vdc	<50mV p-p	500W	156 A max
+3.3 VDC	50.0A	±0.2 Vdc	<30mV p-p	165W	112 A max
+12 VDC	1.4A	±0.5 Vdc	<100mV p-p	16.8W	2.7 A max
-12 VDC	1.0A	±0.5 Vdc	<100mV p-p	12.0W	2.7 A max
STIR +24V	2.4A	±0.96 Vdc	<500mV p-p	57.6W	8.15A max <sup>(1)</sup>
COOL +24V	2.4A	±0.96 Vdc	<500mV p-p	57.6W	8.15A max <sup>(1)</sup>

- (11) Over-voltage Protection < 125% of Rated O/P Voltage, any VME channel.
- (12) Over-current Protection. Each O/P is current limit/ short circuit protected, Limits as above.  
VME O/Ps have UV detection to shutdown O/Ps in event of overcurrent.  
Note 1: COOL & STIR +24V combined I limit is 8.15A.
- (13) Efficiency ..... > 70% at full load.
- (14) Remote Sense ..... 5V and 3.3V O/P, 150mV on supply & return.
- (15) Load regulation..... remain in tolerance for load changes 65% to 70%  
Any other load change, return and remain in tolerance within 0.5ms
- (16) Stabilization time ..... <1s.
- (17) Hold up time ..... ≥ 50ms at rated output for VME O/Ps.
- (18) ACFAIL\* Status ..... TTL open collector Asserted at Vin ≤104Vac, unassert ≤108Vac, to ANSI VITA 1-1994
- (19) AC Present LED ..... Open collector cathode connection, active when ACFAIL\* is unasserted I limited to 20mA max
- (20) DC OK\* Status ..... TTL open collector asserted when all O/Ps are within tolerance
- (21) DC Present LED ..... Open collector cathode connection, active when DC OK\* is unasserted, I limited to 20mA max.
- (22) FAN PWR OK\* Status . TTL open collector asserted when STIR +24 or COOL+24 on.
- (23) Heater Power LED None.
- (24) VME RESET Signals.... To ANSI VITA 1-1994
  - i) ... Power down reset: Asserted 50µs prior to 5V < 4.850V ± 25mV
  - ii).. Power up reset: Asserted before 5V >2V, remain asserted for 0.2s ≤ t ≤ 0.4s after ACFAIL\* unasserted and 5V > 4.850V ±25mV
- (25) Isolation..... Input to output ≥ 500V, output to chassis ≥ 50V
- (26) Bonding ..... Connector shells to heat sink ≤ 2.5mohms.
- (27) Over temperature signal TTL open collector asserted at rising baseplate of 95°C ±5°C, with 5°C to 15°C hysteresis. (TBC)
- (28) Thermal shutdown ..... Partial or complete shutdown at base plate temperature ≥ 100°C (TBC).

**Environmental Specifications:**

- (29) Temperature      i)    Operating: -25°C to +65°C, 11.5lbs/min cooling, (equiv 150cfm at standard temperature, 25°C, and pressure sea level) at the rated load.  
                          ii)..... Storage: -40°C to +71°C
- (30) Humidity ..... Operating: up to 95% non-condensing  
  Non operating: up to 100% condensing
- (31) Altitude..... Operating: Sea level to 15000 ft, rapid decompression, 8,000 to 35,000 ft  
  Non operating: Up to over pressure of 170kPa (-15000 ft).
- (32) Fungus..... To Guideline 4 of MIL-STD-454
- (33) Shock..... Functional: 3 x 6g, 11msec terminal peak sawtooth,. 3 axes.  
  Crash: 2 x 30g, 11msec terminal peak sawtooth,. 3 axes.
- (34) Bench Handling Shock To MIL-STD-810E, Method 516.4, Procedure VI.
- (35) Vibration ..... To MIL-STD-810E, Method 514.4 Cat 4 (Propeller Aircraft and Turbine Engines) Procedure I: Figure 514.4-7: F1 = 68Hz; L1=0.3g<sup>2</sup>/Hz. Free of resonance modes in all axes at 17± 2Hz; 68 ± 8Hz and 136 ± 16Hz.
- (36) EMC..... MIL-STD-461E: Fig CE101-4 Curve #1 plus 16dB, Fig CE102-1 basic curve +6dB (115V), +12dB 10 to 50kHz, Fig CS101-1 Curve #1
- (37) Storage ..... No servicing after 24 months at 15°C ≤ t ≤ 30°C, 15% ≤ RH ≤ 50%.
- (38) Safety ..... Guideline 1 of MIL-HDBK-454 and MIL-STD-1472D, para. 5.13.
- (39) Reliability Prediction .. To MIL-HDBK-217F N2, >20,000 hrs at 30°C, Airborne Inhabited Cargo

**Physical Specifications:**

- (40) Weight..... ≤ 15 lbs or 6.82 kgs
- (41) Dimensions..... The PSU overall dimensions shall not exceed 8.8” x 14.8” x 3.25”.  
Case..... Aluminum alloys, Cover: 5052-H32, Heatsink 6063-T5.  
Finish..... Irridite, MIL-C-5541, Class 3
- (42) Mounting Position .... Any orientation
- (43) Connections ..... Input: DEMC9PJK87  
  Output: DDMC24H7SJA197, DBMC25SJA197, DCMC13H6SJA197.  
  Test: DEMC9SJA197. Refer to VOI 05010-00 for pin assignments.
- (44) Cooling..... Forced Air Cooled, Fan supplied buy customer.
- (45) Marking ..... To MIL-STD-130, Vendor Name, CAGE Code, Part No, S/N, Date Code. ESD Symbol, EIA RS-471 to MIL-STD-1686 and MIL-HDBK-263.

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