

Miniature Air Data Computer (MADC-108) For F-5 Aircraft



The MADC-108 is the latest version of Astronautics Digital Air Data Computers for modern aircraft. The MADC-108 features new concepts in Air Data Computer design and performance. The MADC-108 is fully computerized and uses only solid state devices resulting in increased computational power, high accuracy and very high MTBF (over 5000 hrs). The pressure transducers used are solid state with outstanding performance. The MADC-108 inputs are: static and total pressure from the Pitot Tube, Angle of Attack sensor readings, Altimeter Barometric setting, Outside Air Temperature and several discretes such as "Weight-on-Wheels" Aircraft configuration and BIT initiate. From these inputs the MADC-108 calculates the required outputs, using proprietary algorithms.

The interface with the avionics equipment is through MIL-STD-1553 MUX BUS as well as several analog and discrete signals, including Auto Flaps Control. An integral BIT checks continuously the MADC-108's circuitry. Any detected failure or performance degradation is reported to the aircraft systems through dedicated status words, and valid discretes. Special options providing additional inputs/outputs and/or different accuracies are available.

Astronautics MADC-108 features include:

- Calculates: True Air Speed, Mach Number, Calibrated Air Speed, Baro- Corrected Pressure Altitude, Pressure Altitude, Static Free Air Temperature, Air Density, Static Pressure Over Total Pressure, True Angle of Attack, Automatic Flaps Control
- (other outputs available on request for particular applications) Extremely High Accuracy (see specifications)
- Temperature Compensation
- Completely Solid State, incl. Pressure Transducers
- Digital and/or analog outputs
- Interfaces with MIL-STD-1553 Serial Multiplex Bus
- Built-in-Test
- Modular Design
- Easy Maintainability
- Excellent Reliability

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INPUTS	
Power	115VAC, 400Hz
Power Consumption	40W
Static Pressure	0-32 inch Hg
Total Pressure	1-90 inch Hg
OAT	-70 to +120 deg. C
AOA	-12 to +41 degrees
Pbs	28.1 to 31.0 In Hg
OUTPUTS	
Altitude	-1500 to 80,000 ft Accuracy – 20 feet or 0.2% Hp
True Air Speed	70 to 1700 Knots, Accuracy – 5 Kt or as per flight envelope
Calibrated Air Speed	50 to 1000 Knots Accuracy – 2 Kt, as per flight envelope
Mach Number	0.1 to 3M Accuracy – 0.005M or as per flight envelope
Free Air Temperature	-100 deg C to +150 deg C
Accuracy	0.05 deg C
Altitude Rate	+6000 FPM, Accuracy + 40 FPM
AOA	-10 to +40 deg, Accuracy – 0.25 deg
Other Input/Output Ranges and Accuracies	
Environment	Per MIL 5400 Class II. Operating Temp Range –54 deg C to +71 deg C
MTBF	Over 5000 hrs.
Dimensions	7.5"W x 3.9"H x 9.4"L
Weight	Under 10 lbs.

