

DESIGN SPECIFICATION
MODEL: DAC-500, P/N 500-3000
ARINC 565 TO ARINC 429 ADAPTOR

Skylight Avionics
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Palmdale, California
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i. OPERATING INSTRUCTIONS

The Model DAC-500, being a data format converter has no independent operating Instructions and is should be considered transparent to the Air Data System. Being an integral part of the system, the operating instructions for that system will need to be followed.

The design of the DAC-500, is such as to cause minimal degradation of the input signal and to convert the data in the fastest and most accurate means possible.

ii. EQUIPMENT LIMITATIONS

The DAC-500, P/N 500-3000, is limited to an adapting the ARINC-565, Synchro Altitude, Fine / Course and AC Analog TAS into an ARINC 429 output. The unit will also accept a discrete input the valid signal from the ARINC-565 source to assist is determining system status.

The DAC-500 Adapter, as an integral component of the on board Air Data System, the accuracy is directly limited to the output driving it. In effect, it is a component of that system and therefore subjected to all inherent limitations of that system.

A hardware design assurance of "Level D" per RTCA DO-254 "Design Assurance Guidance for Airborne Electronic Hardware" will be applied to design verification, documentation and manufacturing.

Failure Condition Classification "Minor"

Failure Condition Description "Failure conditions that would not significantly reduce aircraft safety, and which would involve flight crew actions that are will within their capabilities. Minor failure conditions may include: a slight reduction in safety margins or functional capabilities, a slight increase in flight crew workload, such as routine flight plan changes, or inconvenience to occupants."

Hardware Design Assurance Level Definition "D Hardware functions whose failure or anomalous behavior, as shown by the hardware safety assessment, would cause a failure of system function resulting in a minor failure condition for the aircraft"

The conditions and test required for TSO approval of this article are minimum performance standards. It is the responsibility of those desiring to install this article either on or within a specific type or class of aircraft to determine that the aircraft installation conditions are within the TSO standards. If not within the TSO standards, the article may be installed only if further evaluation by the applicant documents an acceptable installation and is approved by the administrator.

The DAC-500 is classified as "ON CONDITION" with no preventative maintenance required. No overhaul time limitations apply. No scheduled inspections to determine operational status are required. In the event of a failure the operator or cognizant maintenance facility shall remove the appliance and return it to Skylight Avionics for the repair or replacement.

iii. INSTALLATION PROCEDURES

1. INTRODUCTION

This section contains information relative to the installation of the, DAC-500 Adapter, to assure satisfactory performance of the unit. (See Sections "6" and "7" for detailed mechanical and wiring diagrams.)

2. UNPACKING AND INSPECTING EQUIPMENT

After unpacking the unit, make a visual inspection of the unit for evidence of damage incurred during shipment. If claim for damage is to be made, save the shipping container to substantiate the claim.

3. PREINSTALLATION CHECK

Perform a continuity and power check on the wiring harness before connecting equipment.

4. POWER REQUIREMENTS

The DAC-500 operates from a standard 27.5 Volt DC aircraft power source, Provide circuit protection with an in line 1 AMP breaker on the 27.5 VDC. Aircraft AC is used for reference only.

5. POST INSTALLATION CHECK

There is no in-aircraft adjustment required for the DAC-500. All alignment and adjustment procedures are accomplished during bench maintenance.

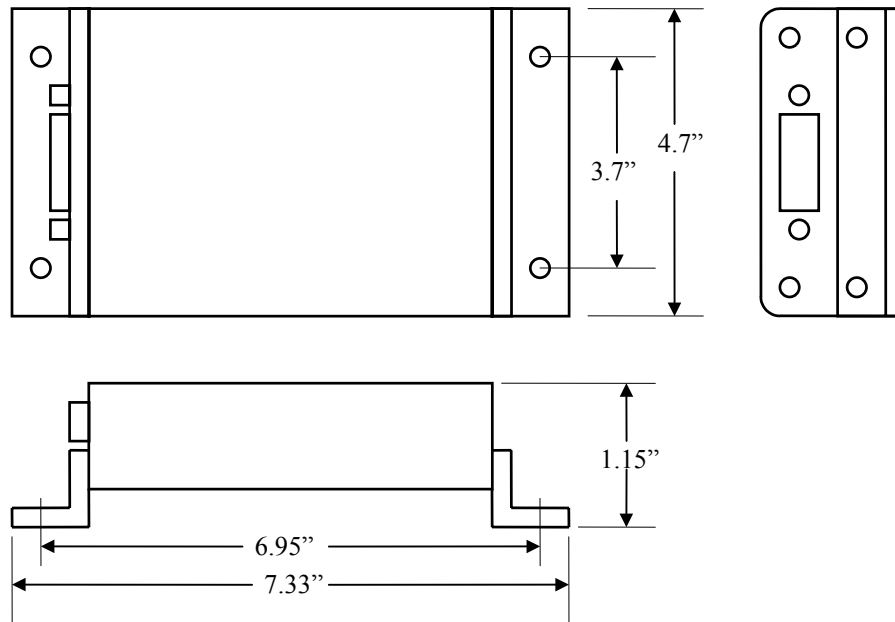
6. PREFLIGHT CHECK

Follow the manufactures check out procedures of the on board systems, to determine indications being driven by the DAC-500 are accurate.

iv. INSTALLATION MECHANICAL DIAGRAMS

The DAC-500, is designed for flat mounting anywhere on board the aircraft, pressurized or non-pressurized compartments. The unit has four (4) mounting holes for number (6) size screws. (NOTE: Screws and other miscellaneous hardware are NOT included with the DAC-500.)

MECHANICAL DRAWING

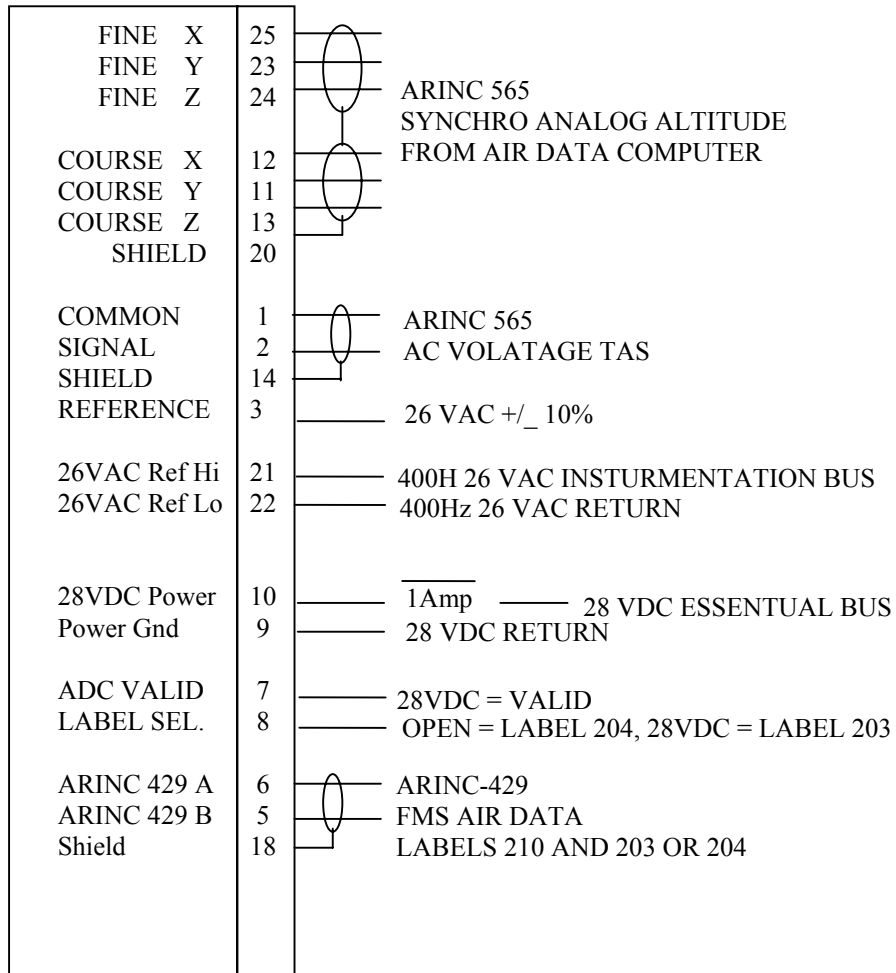


Unit Connector DB-25P, Mate - DB-25S

Mechanical Drawing of DAC-500 (Illustration vi-1)

SKYLIGHT AVIONICS
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 DOC. # 98070040, REV: 3, Date: 08/19/02

DAC - 500, P/N 500 - 3000 v. INSTALLATION ELECTRICAL



NOTE 1, The 26 VAC REF is isolated and may require inverting on some installations.

DAC-500 P/N 550-3000 Pinout (Illustration vii-1)

vi. SPECIFICATIONS

SPECIFICATION	CHARACTERISTICS
Compliance	TSO C106
RTCA/DO-160D	A1D2/B/A/B/S2BM/X/X/X/X/X/Z/A/A/A/Z/VVV/M/XXC3/X/X/A
Physical Dimensions	Height 1.150" Length 7.350" Width 4.700" Weight 1.25lb
Temperature Range	Operational -55 C to +70 C Storage -55 C to +85 C
Altitude	50,000'
Power Requirements	28 VDC @ .8 AMP Peak .3 AMP Normal 26 VAC @ .1 AMP Reference only
ARINC-565 Inputs	ALTITUDE FINE / COARSE SYNCHRO Fine = 360 DEG / 5000 Ft. +/- .1 Degree Coarse = 360 Deg * 375 Ft. +/- .1 Degree Range -1000 to 55000 Impedance > 5,000 ohms TRUE AIR SPEED (TAS) AC Linear Voltage 46.6 Knots per volt +/- 1% Range 135 to 599, Accuracy +/- 4 Knots Index Reference 100 Knots Impedance 20,000 ohms Reference Voltage 26 vac +/- 10%
Discrete Inputs	Altitude Valid 28VDC = Valid Impedance 10,000 ohms, Label Select 28VDC = Pressure Altitude output Label 203 Open = Baro-Corrected Altitude output Label 204 Impedance 10,000 ohms
Output	ARINC-429 Lo Speed @ 10,000 KHz Labels Altitude (203 or 204) -1000 to 55000, +/- 15ft. TAS (210) 135 to 599, +/- 4kts.
Limitations	Limited to the manufactures specifications of the analog inputs and to the specifications listed herein.

vii. MAJOR COMPONENT

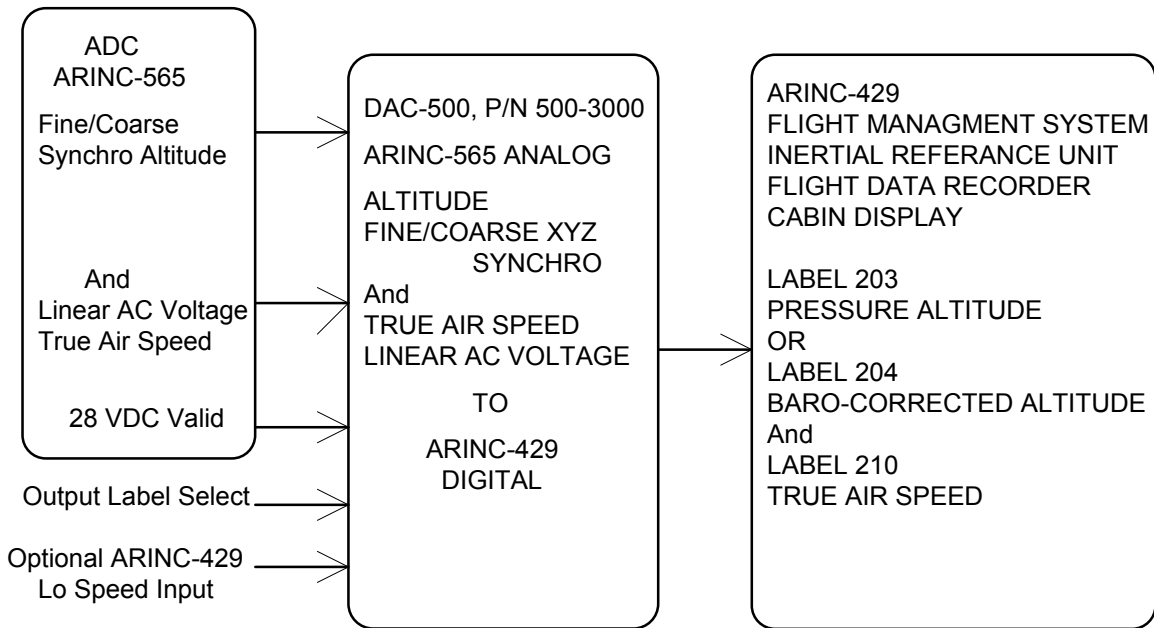
Equipment Supplied:
 1ea Model DAC-500, Part Number 500-3000

Equipment Required But Not Supplied:
 4ea. #6 Mounting Screws
 Connector: Standard DB25S, with Retention Screws.
 Wiring Harness Interconnect cable

Air Data Computers	
BENDIX	HONEYWELL
3757183-1	193925-1
3757183-2	193925-2
3757183-3	193925-3
3757183-5	HG480C1 AND HG480C2

Flight Management Systems
 CMA-900 P/N 100-601900-402

Inertial Reference Units
 Honeywell P/N HG2050AC50



(Illustration vii-1)

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viii. ENVIRONMENTAL QUALIFICATION FORM

NOMENCLATURE: ARINC 565 TO ARINC 429
 MODEL / PART NO: DAC-500, P/N 500-3000
 MANUFACTURE'S SPECIFICATION; NONE
 MANUFACTURE: SKYLIGHT AVIONICS
 ADDRESS: 38629 6th STREET EAST, PALMDALE, CA. 93550-3717

RTCA/DO-160D, Dated, July 29, 1997

DATE TESTED:

Conditions	Section	Description of Conducted Tests
Temperature and Altitude	4.0	Equipment tested to Category A1D2 Auxiliary air cooling not required.
Temperature Variation	5.0	Equipment tested to Category B
Humidity	6.0	Equipment tested to Category A
Operational Shock and Crash Safety	7.0	Equipment tested to Category B operational and crash safety
Vibration	8.0	Equipment tested Category S, Zone 2, Curves BM
Explosion	9.0	Category X no test required
Waterproofness	10.0	Category X no test required
Fluids Susceptibility	11.0	Category X no test required
Sand and Dust	12.0	Category X no test required
Fungus	13.0	Category X no test required
Salt Spray	14.0	Category X no test required
Magnetic Effect	15.0	Equipment tested to Category Z
Power Input	16.0	Equipment tested to Category A
Voltage Spike	17.0	Equipment tested to Category A
Audio Frequency Susceptibility	18.0	Equipment tested to Category A
Induced Signal Susceptibility	19.0	Equipment tested to Category Z
Radio Frequency Susceptibility	20.0	Equipment tested to Category V
Radio Frequency Emission	21.0	Equipment tested to Category M
Lighting Induced Transient Susceptibility	22.0	Equipment tested to Category XXC3 Cable Bundle Tests
Lighting Direct Effects	23.0	Category X no test required
Icing	24.0	Category X no test required
Electrostatic Discharge	25.0	Equipment tested to Category A

Remarks:

Compliance to FAR Part 25 demonstrated by component parts and material analysis.

Environmental tests were conducted at:

ENVIRONMENT ASSOCIATES, INC
 9604 VARIEL AVE.
 CHATSWORTH, CA. 91311
 (Sections 4 - 8)

NEMKO EESI
 9604 VARIEL AVE.
 CHATSWORTH, CA. 91311
 (Sections 15 - 25)