FA2200 & FA2300 MADRAS

Reliable Modular Airborne Data Recorder/Aquisition System (MADRAS) adds versatility

The Acron Aviation FA2200/FA2300 Modular Airborne Data Recorder/Acquisition System (MADRAS) offers operators a multipurpose recording and data acquisition device for cargo aircraft, business jet, military aircraft helicopters and unique mission vehicles. With proven performance and reliability, and a wide range of analog, digital and discrete inputs, the MADRAS offers operators the ability to custom tailor data acquisition and data input/output to each individual aircraft.

A single Line Replaceable Unit (LRU), both the FA2200 and FA2300 MADRAS offer high-quality recording at 256-512 words-per-second (wps) for a minimum of 25 hours. The FA2300 extends that capability by also recording four channels of high-quality audio for up to two hours.

The reliable and proven MADRAS system has an impressive mean time between failure (MTBF) record of more than 20,000 hours in the field, yielding lower operational costs and repairs. As an added benefit, optional control units, microphones, accelerometers and installation accessories are also available for aircraft requiring custom-configured recording solutions.

The MADRAS family provides operators with the ability to quickly download and analyze flight data for safety and preventative maintenance investigations. The units share the same common ground support equipment as the FA2100 Cockpit Voice Recorder (CVR) and Flight Data Recorder (FDR) using the ARINC 747 flight data output for connection to a Quick Access Recorder (QAR). This data helps accident investigators as well as provides numerous parameters of data for Flight Data Monitoring (FDM)/Flight Operations Quality Assurance (FOQA) supporting airlines Standard Operating Procedures (SOP).

Key Features

- Data acquisition and data input/output tailored to each aircraft
- Optional voice recording
- 2 hours of high-quality audio recording
- More than 25 hours of flight data recording at 256/512 wps
- MTBF > 20,000 hours
- Wide range of analog, digital and discrete inputs
- ARINC 747 flight data output for connection to a Quick Access Recorder (QAR)
- Control units, microphones, accelerometers and installation accessories are available
- Common ground support equipment as the FA2100 CVR and FDR

Specifications

FA2200/FA2300 MADRAS	
PHYSICAL	
Size	1/2 ATR short
Height	7.6 in. (19.30 cm)
Width	5.0 in. (12.70 cm)
Depth	12.5 in. (31.75 cm), 13.1 in. including hold-down hooks (33.27 cm)
Weight	15 lb. (6.8 kg) maximum; 13 lb. optional
POWER	
Requirements	28 VDC 40 Watts, max
RECORDING	
Time	25 hrs. of flight data storage (minimum) and 120 min. high-quality 4-channel recording
Channels	Audio Input (4)
CONNECTORS	
Main	ARINC 404 Quad 106-pin connector
Ground Support Equipment	26 pin D-sub
ENVIRONMENTAL	
Temperature	Operating -55 °C to +70 °C / Non-operating -55 °C to +85 °C
Altitude	Operating: -1,000 ft. to 55,000 ft
Vibration	Dependent on application
Penetration	ED-55 / ED-56A: 500 lb./10 ft./1/4-in. probe
Static Crush	ED-55 / ED-56A: 5,000 lb.
Fire Protection	ED-56A: 50,000 BTU/sq. ft./hr. for 60 min. at 1100 °C; 10 hrs. at 260 °C
Impact	ED-56A: 3,400 G, 6.5 ms, half sine shock wave
ADDITIONAL FEATURES	
Underwater Acoustic Beacon	Six-year battery and bracket supplied with unit
Data Acquisition Module Options:	
Discrete	Up to 96 shunt or series
Analog	Up to 32* single-ended or 16* differential or mix types
ARINC 429	8, high- or low-speed
Synchro	Up to 6
Frequency	Up to 6
Strain Gauge	Up to 16*
Thermocouple	2, K-type*
Resistance Temperature Detector (RTD) (1)	1*
Regulatory Specification	ARINC 404A, 747, EUROCAE MOPS ED-56A, ED-55, ED-112, RTCA/DO-160E, RTCA/DO-178B
CERTIFICATIONS	
Product	FAA TSO-C124a, C123a, C124b and C123b
Company	ISO 9001:2008 and AS9100:2009 Rev. C Certified

*These channels share configurable inputs.

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