



## Modular Airborne Data Recorder/Acquisition System

The L3 Modular Airborne Data Recorder/Acquisition System (MADRAS) is a highly reliable Line Replaceable Unit (LRU) that features diverse analog and digital data acquisition as a recording solution for helicopters, business aircraft, unique-mission and military aircraft. The FA5000 MADRAS records flight data for more than 70 hours and 4 channels of high-quality cockpit audio for more than 2.5 hours.

### KEY FEATURES OF PART No. 5311-6143-21

- Off-the-shelf, single part number for all customers
- Data acquisition is tailored to each aircraft and controlled by a configuration part number
- Single LRU provides flight data acquisition with data and voice recording
- Wide range of analog, digital and discrete inputs
  - Analog parameter inputs
  - ARINC 429 inputs (8 channels)
  - ARINC 717 input
  - ARINC 664P7 input
  - Data Link digital message inputs
  - No special GSE hardware required; the recorder's internal web page is accessed with an Ethernet cable
- Control units, microphones, accelerometers, and installation accessories are available
- Optional, snap-on RIPS module
- 90-Day Underwater Locator Beacon (ULB)
- Predicted MTBF > 25,000 hours (dependent upon operational environment)



## Modular Airborne Data Recorder/Acquisition System

### SPECIFICATIONS

#### PHYSICAL

Height	6.57 in (167 mm)
Width	5.88 in. (149 mm)
Depth	12.23 in. (310.6 mm)
Weight	8.5 lb. (3.9 kg); add 1.7 lb. (0.8 kg) with RIPS

#### DATA ACQUISITION

Analog	Up to 37* single ended or 18* differential
Discrete	Up to 37* shunt or series
Synchro	Up to 4*
Frequency	Up to 4*
ARINC 429	8 channels (high- or low-speed)
ARINC 664	1 channel (twisted pair or fiber optic)

\*Analog, Discrete, Synchro and Frequency channels share configurable inputs. Maximum of 37 pins are allocated for these inputs.

#### FUNCTIONAL

Power	28 VDC
Beacon	90-day underwater locator beacon; six-year battery life
Connectors	Three (3) MIL-DTL-38999 connectors
FDR Recording	70+ hours of flight data storage (min.); 150+ minutes of high-quality audio
CVR Channels	4 audio input, 1 data link, GMT, rotor speed

#### ENVIRONMENTAL

Temperature	Operating: -55°C to +70°C Non-Operating: -55°C to +85°C
Altitude	Operating: -1,000 to 55,000 ft.
Vibration	Standard and robust levels
Penetration	ED-112 500lb./ 10ft./¼-in probe
Static Crush	ED-112 5,000 lb.
Fire Protection	ED-112 50,000 BTU/sq. ft./hr. for 60 min. at 1100°C; 10 hrs. at 260°C
Impact Shock Wave	ED-112 3,400 G, 6.5ms, half-sine shock wave

#### CERTIFICATIONS & SPECS

Product	FAA TSO-C121b, C123b, C124b, C155a, C177
Regulatory	EUROCAE MOPS ED-112, RTCA/DO-160G, RTCA/DO-178B, DO-254
Industry	ARINC-429, 664, 717, 747, 757, 757A

#### COMPANY CERTIFICATION

L3 Aviation Recorders Quality Management System is ISO 9001:2008 and AS9100:2009 Rev. C Certified



Removable Recorder Independent Power Supply (RIPS) provides 10 minutes of CVR backup power.

#### Aviation Products

100 Cattlemen Road  
Sarasota, FL 34232  
Tel: (941) 371-0811  
Fax: (941) 377-5591  
[www.L3aviationproducts.com](http://www.L3aviationproducts.com)



**L3 Aviation Products** is a leading provider of commercial and military avionics, as well as MRO services. We manufacture a diverse line of safety- and efficiency-enhancing products that sets the standard for next-generation cockpit requirements.

This technical data and software is considered as Technology Software Publicly Available (TSPA) as defined in Export Administration Regulations (EAR) Part 734.7-11. Data contained within this document are summary in nature and subject to change any time at L3's discretion. Call for latest revision. All brand names and product names referenced are trademarks, registered trademarks, or trade names of their respective holders. MKT070 Rev. F 12/2016