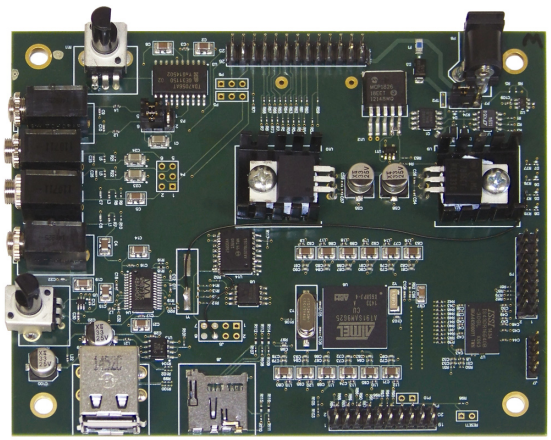
CockpitRecorder 6™ – Audio Recorder for Accident Investigations

Audio Recorder for Use in Accident Investigations. Stores 6 Minutes of "Cockpit" Audio in Non Volatile Memory Array. This Audio is Easily Retrievable at a Later Date. Creates High Quality, Continuous 6 Minute Recording Until an Event, then Saves this for Playback at a Later Time. Triggering to Save Audio is by Switch Closure or "Power Loss". Jumper Selectable Recording Loop Times of Up To 6 Minutes at 44,100 Samples per Second with 16 Bit Resolution. Mono Audio Input and 8 Ohm Speaker Output with Adjustable Level Controls. Designed for OEMs who build data systems for use aboard trains, buses, ferries, military vehicles, and other moving vehicles piloted by humans.



Features

- Audio is recorded with high quality on solid state memory
- User control interface is switch closures and power
- Stores up to 6 minutes of mono speech and/or sounds in nonvolatile memory with excellent audio quality
- Sampling rates up to 44 KHz at 16 bit resolution -- lower rates allow longer storage times or faster storage
- Mono microphone input and single 8 Ohm speaker output, both via standard 1/8 inch mono audio plugs
- Audio recording is continuous after record switch closure or power on until either a stop switch closure or power loss, audio recording then stops and audio is saved
- Audio is saved in Non-Volatile on board memory. This audio may be played back by a play switch closure or after a power loss, re-applying power and then play switch closure.
- Parallel interface is switch closure or TTL/CMOS compatible – the board has pull ups on all switch input control signals
- Audio recording commences on power application but even so, no previously saved data is lost unless another power loss or stop switch closure occurs
- Two LED control signals provide users with operational status
- Bypass mode allows microphone input volume setting and speaker output volume setting
- Hardened Enclosures for Survivability can be supplied upon request

Applications

- Operator audio logging
- Radio Communications recorder
- Military systems
- Aviation systems
- Transportation systems

Overview

The CockpitRecorder 6™ audio recorder for accident investigations is a Recorder/Player subsystem. The concept consists of an enclosure containing electronics capable of continuously recording over a period of years. When a replay button is pressed, or power is removed, the unit stops recording and retains the last six minutes of recorded sound at the highest sampling rate. The sound is stored in non-volatile memory and may be played immediately or months, even years later. Minimally the unit only requires a microphone and power to record and a speaker, power, and a switch closure to play back the recorded audio. Optionally, status LEDs, Record, Playback, Bypass, Stop, and volume controls for the microphone and speaker switches may be used.

When power is applied the unit records audio into RAM memory. Recording continues until power is removed, the stop button is pressed, or the play button is pressed. Removing power causes the last 6 minutes of recorded audio in RAM memory to be stored into non-volatile memory. Button presses are ignored while the save operation is in progress and the unit then shuts down until the power is restored. Pressing the stop button causes the last 6 minutes of recorded audio in RAM memory to be stored into non-volatile memory. Button presses are ignored while the save operation is in progress. Once the save operation is completed the stored audio can be played back through the speaker and the unit goes into an idle state.

Pressing the stop and play buttons at the same time (or record button) causes the unit to go back into record mode. Pressing the stop button is ignored while in the idle state. Pressing the play button replays the stored audio. Pressing the play button plays the last 6 minutes of recorded audio in non-volatile memory to the speaker. The unit then goes back to the idle state.

Please contact our technical support to review your electrical interface, mechanical or special requirements. Many functions have been implemented to meet our customers' special needs.

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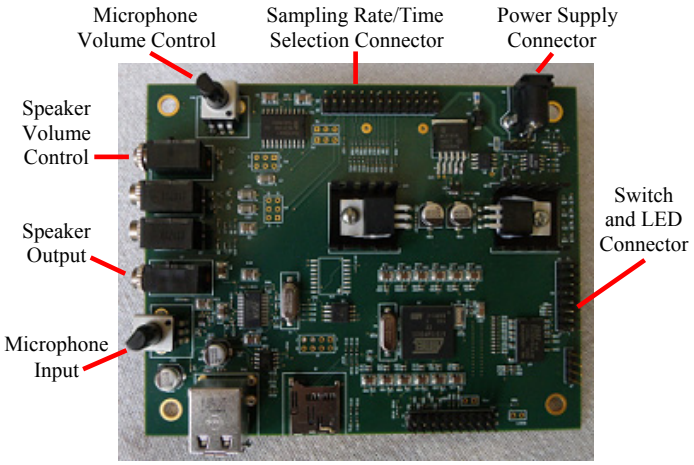
Recording/Playout Times

Record/Play Time in Minutes with 16 Bit Resolution

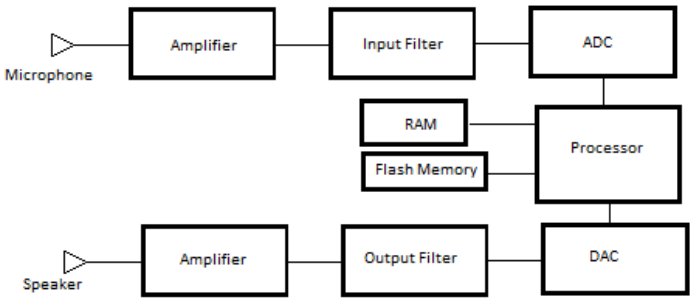
Sampling	11025	22050	44100	SPS
Record Time*	6	6	6	Minutes
Store Time	3.6	6.6	13.2	Minutes
Retrieve Time	1.7	2.5	4	Minutes
Playout Time	6	6	6	Minutes

*Default is 6 minutes record time, up to 24 minutes on request at 11.025 KSPS.

Board Controls



Block Diagram



Specifications

Audio

Sampling Rate(s):	11.025 kbps, 22.050 kbps, and 44.1 kbps
Resolution:	16 bits per sample
Bandwidth:	5 kHz-20 kHz depending on Sampling Rate
Speaker:	8 Ohm
Output Power:	One watt

General

Parallel Port Switch Number of Inputs:	8
Line In (Stereo) Connector:	Optional
Line Out (Stereo) Connector:	Optional
Serial Control (CMOS Levels):	Yes
Memory Type:	SPI FLASH (NOR)
Maximum Memory (Mbits):	1,000
DAC/ADC bits:	16
Number of DACs/ADCs	2
Sampling Rate(s):	11.025, 22.050, 44.1 KSPS
Maximum Playing Time (sec):	6 minutes default
Audio Output (Stereo/Mono):	Mono
Volume Control(s):	Manual
Status LEDs:	2
Audio Output Maximum Watts Into 8 Ohms:	1

Digital

Parallel Interface:	9 address lines to select 512 functions Also features enter and accepted pulse lines (Optional)	
Serial Interface:	All functions and parameters are printable ASCII characters. Commands include all push button functions and state machine status.	
RS-232 Serial Port Settings:	Rate:	115.2 KBaud
	Stop:	1 bit
	Data:	8 bits
	Parity:	None
	Flow Control:	None
Dual USB Micro-SD Card:	Reserved for future use	

Physical & Power

Power Requirements:	DC: 10.0V to 14.0V @ .2A
Dimensions:	4 x 5 inches (101.6 x 127 mm)
Weight:	1 oz (28.35 g)
Conformities:	RoHs

Ordering Information

CockpitRecorder 6
CockpitRecorder 6 with optional Line In/Line Out stereo connectors

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