

AUDIO EXTENSION SYSTEM

PRODUCT DOCUMENTATION



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AES Product Documentation

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VDE/200 Audio Extension System Product Handbook

9/29/97

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1.0 Audio Extension System - Introduction

The Audio Extension System (AES) for the VDE/200 allows users to send and receive analog stereo audio, MIDI, and serial lines without increasing the fiber count. Connection to the VDE/200 is made through the VDE/200 personality module point of entry and existing personality modules can be used in the Audio Extension System.

The AES delivers CD quality sound, fiber-optically, at 42,000 samples per second and 18 bit digital conversion.

2.0 System Information

2.1 Serial Ports

The AES has 3 serial ports which are configured as follows:

Designation	Protocol	Connector	Bank	Notes
1A	EIA-422	DB9 Female	1	422/423 switch above connector 1B should be in 422 position. Shares signal lines with 1B.
2A	EIA-232	DB9 Female	1 or 2	Shares signal lines with 2B.
2B	EIA-232	8 pin DIN Female	1 or 2	Shares signal lines with 2A.
3A	EIA-232	DB9 Female	1	Shares signal lines with 3B. Shares multiplexer lines with 3C.
3B	EIA-232	8 pin DIN Female	1	Shares signal lines with 3A. Shares multiplexer lines with 3C.
3C	EIA-422/423	8 pin Mini-DIN	2	Depends on switch above connector. Shares multiplexer lines with 3A/3B.
1B	EIA-422/423	8 pin Mini-DIN	2	Depends on switch above connector. Shares signal lines with 1A.

2.2 Stereo Analog Channels

The AES has 1 stereo analog audio channel for each direction (transmit to receive and receive to transmit) - SEE NOTE. The characteristics are as follows:

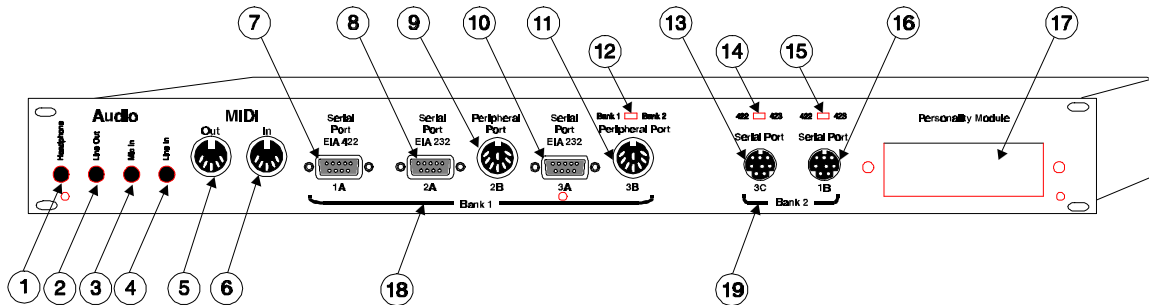
Line Inputs		Microphone Input		Line Output		Headphone Output	
Impedance	Full Scale Amplitude	Impedance	Full Scale Amplitude	Load Impedance	Full Scale Amplitude	Load Impedance	Full Scale Amplitude
5K	2Vpp	5K	200mVpp	8	2Vpp	8 >600	172mVpp 340mVpp

NOTE: The “Line In” and “Mic In” share the same audio channel. They differ only in levels as shown in the table above.

The “Line Out” and “Headphone” connectors share the same audio channel and differ only in the levels as shown above.

The “Line In”/“Mic In” connectors from one unit are transmitted to the “Line Out”/“Headphone” connectors of the opposite unit.

2.3 AES Connectors



- 1) Headphone - Headphone Output
- 2) Line Out - Line Output: connect to speakers or to input of amplifier
- 3) Mic In - Microphone Input
- 4) Line In - Line input connects from audio source.
- 5) MIDI Out - Musical Interface Digital Interface: Output; connect to MIDI In of MIDI device
- 6) MIDI In - Musical Interface Digital Interface: Input; connect to MIDI Out of MIDI device
- 7) 1A - Serial Port, EIA 422
- 8) 2A - Serial Port, EIA 232
- 9) 2B - Peripheral Port
- 10) 3A - Serial Port, EIA 232
- 11) 3B - Peripheral Port
- 12) Bank1/Bank 2 Switch - Selects Bank 1 or Bank 2
- 13) 3C - Serial Port
- 14) 422/423 Switch for 3C - Selects protocol of port 3C to IEIA 422 or EIA 423
- 15) 422/423 Switch for 1B - Selects protocol of port 1B to IEIA 422 or EIA 423
- 16) 1B - Serial Port
- 17) Personality Module - Lightwave keyboard/mouse interface module
- 18) Bank 1 - Typically used for Onyx
- 19) Bank 2 - Typically used for Indy/Indigo2

3.0 Connector Specifications

3.1 - 9 Pin (DB-9), EIA-232 Serial Port

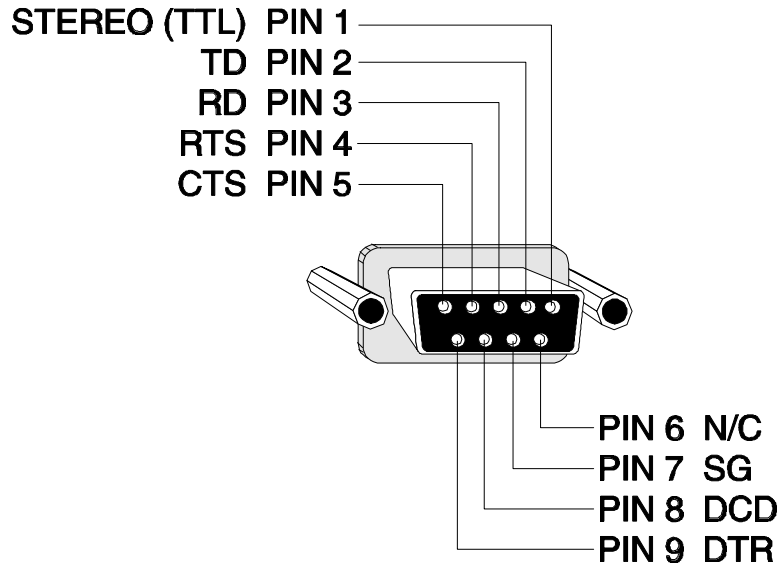


Figure 1 - DB-9, EIA-232 Serial Port Connector

Pinouts:

Pin	Signal Name	Description	AES Tx 2A, 3A	AES Rx 2A, 3A
1	STEREO	Stereo Field Sync	Input (TTL)	Output (TTL)
2	TD	Transmit Data	Input	Output
3	RD	Receive Data	Output	Input
4	RTS	Request To Send	Input	Output
5	CTS	Clear To Send	Output	Input
6	N/C	No Connection	---	---
7	SG	Signal Ground	---	---
8	DCD	Data Carrier Detect	Output	Input
9	DTR	Data Terminal Ready	Input	Output

3.2 - 9 Pin (DB-9), EIA-422 Serial Port

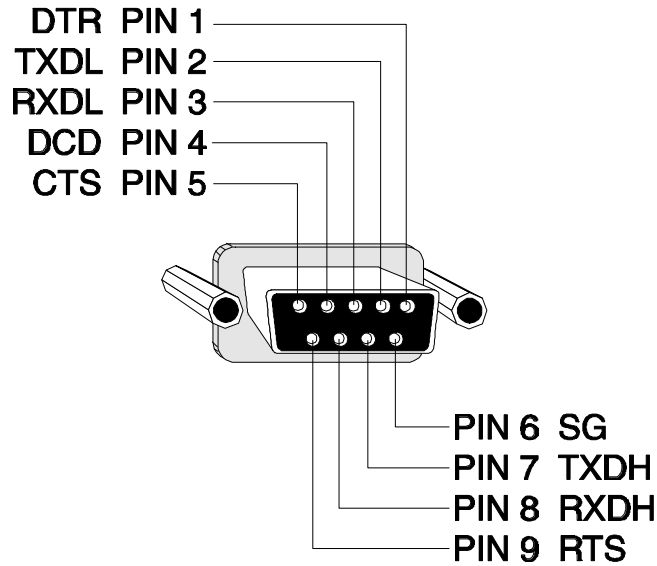


Figure 2 - DB-9, EIA-422 Serial Port Connector

Pinouts:

Pin	Signal Name	Description	AES Tx 1A	AES Rx 1A
1	DTR	Data Terminal Ready	Input	Output
2	TXDL	Transmit Data Low	Input	Output
3	RXDL	Receive Data Low	Output	Input
4	DCD	Data Carrier Detect	Output	Input
5	CTS	Clear To Send	Output	Input
6	SG	Signal Ground	---	---
7	TXDH	Transmit Data High	Input	Output
8	RXDH	Receive Data High	Output	Input
9	RTS	Request to Send	Input	Output

3.3 - 8 Pin Mini-DIN Serial Port

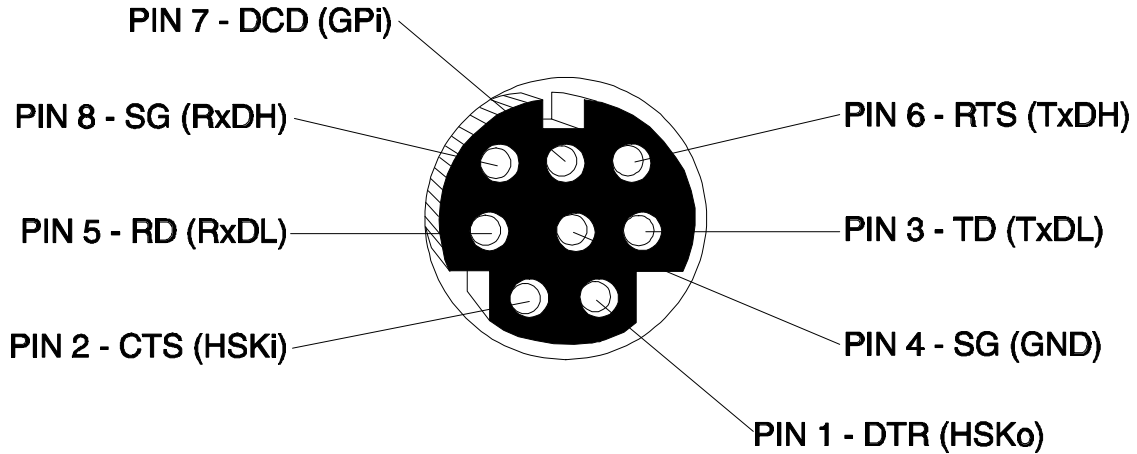


Figure 3 - 8 Pin Mini-DIN Serial Port Connector

Pinouts (EIA-423 Mode):

Pin	Signal Name	Description	AES Tx 1B, 3C	AES Rx 1B, 3C
1	DTR	Data Terminal Ready	Input	Output
2	CTS	Clear To Send	Output	Input
3	TD	Transmit Data	Input	Output
4	SG	Signal Ground	---	---
5	RD	Receive Data	Output	Input
6	RTS	Request To Send	Input	Output
7	DCD	Data Carrier Detect	Output	Input
8	SG	Signal Ground	---	---

Pinouts (EIA-422 Mode):

Pin	Signal Name	Description	AES Tx 1B, 3C	AES Rx 1B, 3C
1	HSKo	Output Handshake	Input	Output
2	HSKi	Input Handshake or External Clock	Output	Input
3	TxDL	Transmit Data Low	Input	Output
4	GND	Signal Ground	---	---
5	RxDL	Receive Data Low	Output	Input
6	TxDH	Transmit Data High	Input	Output
7	GPi	General Purpose Unit	Output	Input
8	RxDH	Receive Data High	Output	Input

3.4 - 8 Pin DIN Powered Peripheral Port

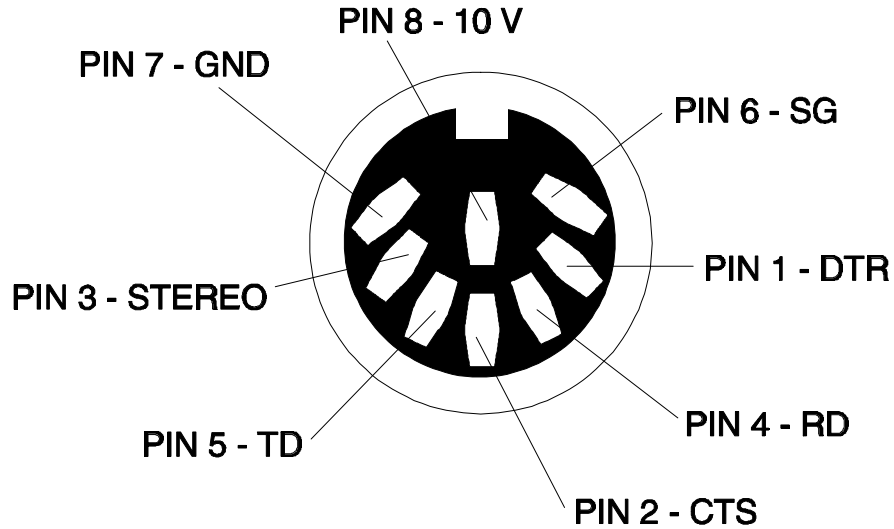


Figure 4 - 8 Pin DIN Powered Peripheral Port Connector

Pinouts:

Pin	Signal Name	Description	AES Tx 2A, 2B	AES Rx 2A, 2B
1	DTR	Data Terminal Ready	Input	Output
2	CTS	Clear To Send	Output	Input
3	STEREO	Stereo Field Sync	Input (TTL)	Output (TTL)
4	RD	Receive Data	Output	Input
5	TD	Transmit Data	Input	Output
6	SG	Signal Ground	---	---
7	GND	Ground Point	---	---
8	V10P	10 Volt Supply (max 500 mA)	NC	+10V

3.5 - MIDI Port

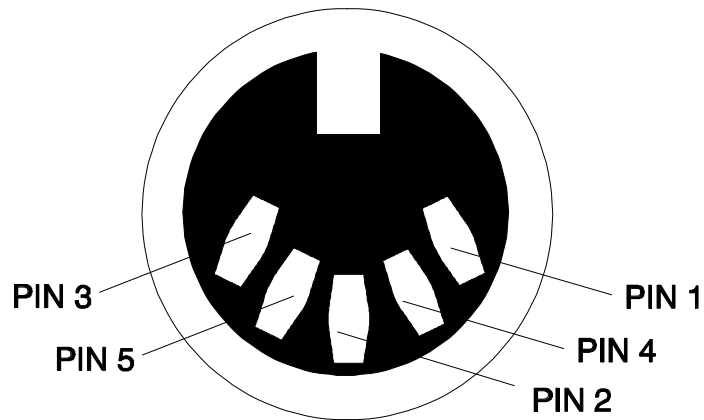


Figure 5 - Midi Port

MIDI In:

Pin	Signal Name	Description
1	NC	No Connection
2	NC	No Connection
3	NC	No Connection
4	+Sig In	Through 220 ohm resistor to positive side of optocoupler
5	-Sig In	To negative side of optocoupler

MIDI Out:

Pin	Signal Name	Description
1	NC	No Connection
2	GND	Ground
3	NC	No Connection
4	+V	+5V through 220 ohm resistor
5	-Sig Out	TTL output through 220 ohm resistor

3.6 - Stereo Audio Jack and Plug

The AES Audio jacks and plugs are 1/8" (3.5mm).

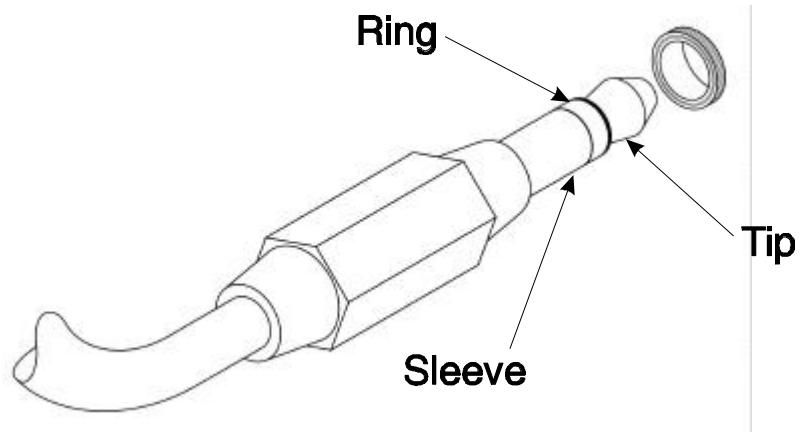


Figure 6 - AES Audio Jack & Plug