



## Smart Architecture of Espadana

Designing, Production, Customization and Consultant Service  
in Network and Fiber Optic System



### Technical Specification

# SAE-8bD8bA-TRX

8 Port BiDirectional Data (RS232/422) and 8 Port BiDirectional Audio





### Product Description

- Compatible with all data / audio standards (audio/data only product, but maintains compatibility for hybrid systems)
- Modular industrial design ensuring reliability and flexibility
- FC and SC interface as fiber optic connector for your choice
- Standalone and rack mount (2U/4U card type) for your choice
- Sampling rate up to 10MSPS and uncompressed transmission (NRZ method) for audio clarity
- Supports any kind of standard industrial audio and serial data protocols
- LED indication of working status for real-time monitoring
- Simplex fiber , single mode , 20 km distance

### Full Description

**SAE-8bD8bA-TRX** is an advanced industrial-grade fiber optic transceiver equipped with 8 bidirectional data ports (RS232/RS422) and 8 bidirectional audio channels, specially engineered for long-distance, high-fidelity transmission of audio and control/data signals. This unit utilizes state-of-the-art analog and digital technologies to deliver full-duplex audio and serial (RS232/RS422/RS485) communication over fiber links of up to 20 kilometers, depending on the selected optical module. It is fully transparent to protocols, ensuring seamless integration with a wide range of field equipment including industrial controllers, PA systems, intercoms, and broadcasting terminals.

Designed with rugged reliability in mind, the **SAE-8bD8bA-TRX** features robust EMI/RFI shielding and industrial-grade components, allowing stable operation in harsh environments ranging from -40°C to +85°C. The system requires no manual configuration or adjustment and supports plug-and-play deployment.

The transceiver comes in both standalone and rack-mountable (2U/4U) options, with FC or SC fiber interfaces depending on project requirements. LED indicators on the front panel provide immediate visual feedback on power, signal status, and link health.

This device is ideal for applications such as industrial communication systems, intelligent transportation infrastructure, military comm systems, and large-scale public audio broadcast over fiber networks.



**Application**

- Intelligent transportation systems (ITS)
- Industrial control and automation
- Military and defense communication systems
- Smart city infrastructure
- Long-distance audio transmission for public address/intercom
- Metro and railway station communication
- Campus and enterprise-wide fiber audio/data backbones
- Broadcast-grade audio-over-fiber systems

**Technical Specification**

**Environmental Aspects:**

Product	Working Temperature	Storage Temperature	Relative humidity	Input Voltage	Transfer Mode	Dimensions
RX	-40°C to +65°C	-40°C to +85°C	0~90% Non-condensing	220V AC	Single mode/ Multi mode	440×200×44mm
TX	-40°C to +65°C	-40°C to +85°C	0~90% Non-condensing	5V 1A DC	Single mode/ Multi mode	173×148×44mm

**Link Budget:**

**1-multi mode transmitters**

Fiber type	lose	Maximum Transmission Distance	Link Power	Wavelength
62.5 um	1(dB m/km)	500(meter)	-19.5~-16(dBm)	850, 1310(nm)

**2-single mode transmitters**

Fiber type	Lose	Maximum Transmission Distance	Link Power	Wavelength
9/125 um	0.5(dBm/km)	20(km)	-8~-5(dBm)	1310, 1550(nm)
9/125 um	0.5(dBm/km)	40(km)	-5~-3(dBm)	1310, 1550(nm)
9/125 um	0.25(dBm/km)	60(km)	-3~-1(dBm)	1310, 1550(nm)
9/125 um	0.25(dBm/km)	100(km)	0~+3(dBm)	1310, 1550(nm)



### Data Characteristics

Direction	Controlling Equipment	Interface supporting terminal	Type of data:
Bi-directional	PTZ decoder, Keyboard, data interface of Matrix, High speed dome camera, industrial equipment	Standard industrial connector	RS485 (2 lines), RS232, RS422 and so on

### RS485/RS422 Aspects (Optional)

Rate of RS485/RS422	Bit rate error	Max-number of nodes	Max transmission distance	Data Agreement	Direction	Type of data:
0-255 Kbps	Less than 10E-12	128	1200meter	supporting all kinds of RS485/422	Reverse	Support point to point, support point to more point

### Audio Interface (Optional)

Audio I/O Impedance	Direction	Max input/output voltage	Frequency response	SNR
600Ω or other various impedances	Bi-directional	1Vp-p	300Hz-20KHz	>75dB

### Table of PINs

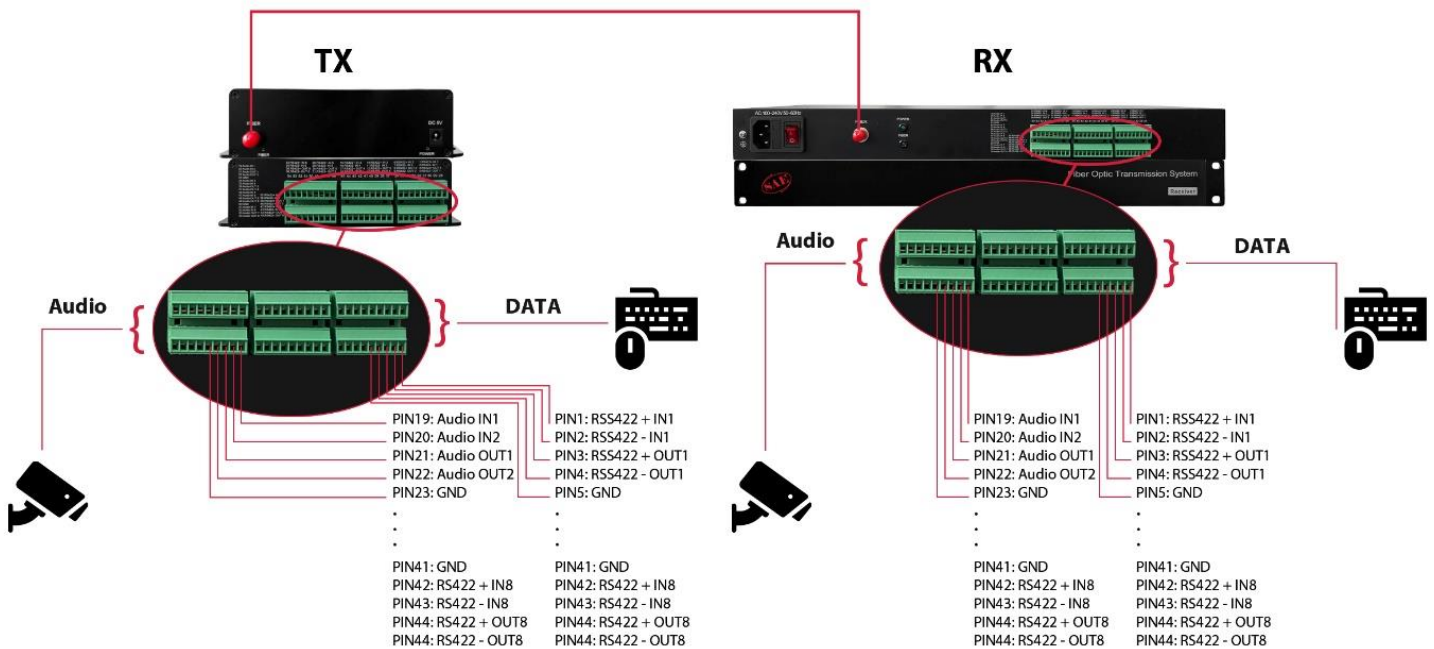
TX						RX					
PIN Number	Type	IN/OUT	PIN Number	Type	IN/OUT	PIN Number	Type	IN/OUT	PIN Number	Type	IN/OUT
1	RS422+	IN1	28	RS422+	IN5	1	RS422+	IN1	28	RS422+	IN5
2	RS422-	IN1	29	RS422-	IN5	2	RS422-	IN1	29	RS422-	IN5
3	RS422+	OUT1	30	RS422+	OUT5	3	RS422+	OUT1	30	RS422+	OUT5
4	RS422-	OUT1	31	RS422-	OUT5	4	RS422-	OUT1	31	RS422-	OUT5
5	GND	-	32	GND	-	5	GND	-	32	GND	-
6	RS422+	IN2	33	RS422+	IN6	6	RS422+	IN2	33	RS422+	IN6
7	RS422-	IN2	34	RS422-	IN6	7	RS422-	IN2	34	RS422-	IN6
8	RS422+	OUT2	35	RS422+	OUT6	8	RS422+	OUT2	35	RS422+	OUT6
9	RS422-	OUT2	36	RS422-	OUT6	9	RS422-	OUT2	36	RS422-	OUT6
10	RS422+	IN3	37	RS422+	IN7	10	RS422+	IN3	37	RS422+	IN7
11	RS422-	IN3	38	RS422-	IN7	11	RS422-	IN3	38	RS422-	IN7
12	RS422+	OUT3	39	RS422+	OUT7	12	RS422+	OUT3	39	RS422+	OUT7
13	RS422-	OUT3	40	RS422-	OUT7	13	RS422-	OUT3	40	RS422-	OUT7
14	GND	-	41	GND	-	14	GND	-	41	GND	-
15	RS422+	IN4	42	RS422+	IN8	15	RS422+	IN4	42	RS422+	IN8
16	RS422-	IN4	43	RS422-	IN8	16	RS422-	IN4	43	RS422-	IN8
17	RS422+	OUT4	44	RS422+	OUT8	17	RS422+	OUT4	44	RS422+	OUT8
18	RS422-	OUT4	45	RS422-	OUT8	18	RS422-	OUT4	45	RS422-	OUT8
19	Audio	IN1	46	Audio	IN5	19	Audio	IN1	46	Audio	IN5



20	Audio	IN2	47	Audio	IN6	20	Audio	IN2	47	Audio	IN6
21	Audio	OUT1	48	Audio	OUT5	21	Audio	OUT1	48	Audio	OUT5
22	Audio	OUT2	49	Audio	OUT6	22	Audio	OUT2	49	Audio	OUT6
23	GND	-	50	GND	-	23	GND	-	50	GND	-
24	Audio	IN3	51	Audio	IN7	24	Audio	IN3	51	Audio	IN7
25	Audio	IN4	52	Audio	IN8	25	Audio	IN4	52	Audio	IN8
26	Audio	OUT3	53	Audio	OUT7	26	Audio	OUT3	53	Audio	OUT7
27	Audio	OUT4	54	Audio	OUT8	27	Audio	OUT4	54	Audio	OUT8

**Product Application Display**

**Fiber (SX, SM)  
20KM**



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