Smart Architecture of Espadana

Designing, Production,Customization and Consultant Service

in Network and Fiber Optic System

Technical Specification

SAE-12bD1E-TRX

12 Port BiDirectional Data (RS232/422) and 1 Port Ethernet 10/100 Mbps

Product Description

- Compatible with various RS232/422 serial protocols and standard 10/100 Mbps Ethernet
- Modular industrial design ensuring reliability and flexibility
- FC and SC fiber optic connectors available upon request
- Available in both standalone and rack-mount (2U/4U card-type) formats
- Transparent data and Ethernet transmission over fiber without compression
- Support for synchronous and asynchronous data communication
- LED indication of working status for real-time operation monitoring

Full Descerіption

SAE-12bD1E-TRX is a high-performance industrial transceiver that supports 12 bidirectional data ports (RS232/422) and 1 Ethernet port (10/100 Mbps) over fiber optic communication. Engineered for long-distance, interference-free transmission, this device enables reliable and simultaneous transport of serial data and Ethernet traffic across distances up to 20 kilometers (depending on optical module). It is fully transparent to protocols, providing seamless integration with existing equipment.

Built on a rugged industrial-grade platform, **SAE-12bD1E-TRX** is designed to operate stably in harsh environmental conditions from -40°C to +85°C. It is suitable for a wide variety of industries requiring robust data and network communication — including industrial automation, intelligent traffic systems, and telecom infrastructure.

LED indicators provide real-time monitoring of system status. The unit requires no additional software or configuration for deployment, supporting plug-and-play installation. It is available as a standalone desktop device or a rack-mountable unit (2U/4U card).

With a corrosion-resistant enclosure and strong protection against EMI/RFI, this device ensures stable and long-lasting operation in demanding industrial environments.

Application

- Intelligent Transportation Systems (ITS)
- CCTV and Industrial Security Systems
- Telecommunication Infrastructure
- Factory and Process Automation
- Military Communication Systems
- Smart City Networking Projects
- Power Grid and Substation Data Links

Technical Specification

Environmental Aspects:

Working Temperature	Storage Temperature	Relative humidity	Input Voltage	Transfer Mode	Dimensions:
-40°C to 65°C	-40°C to 95°C	0～90% Non-condensing	220V AC	Single mode/ Multi mode	440×200×44mm

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)

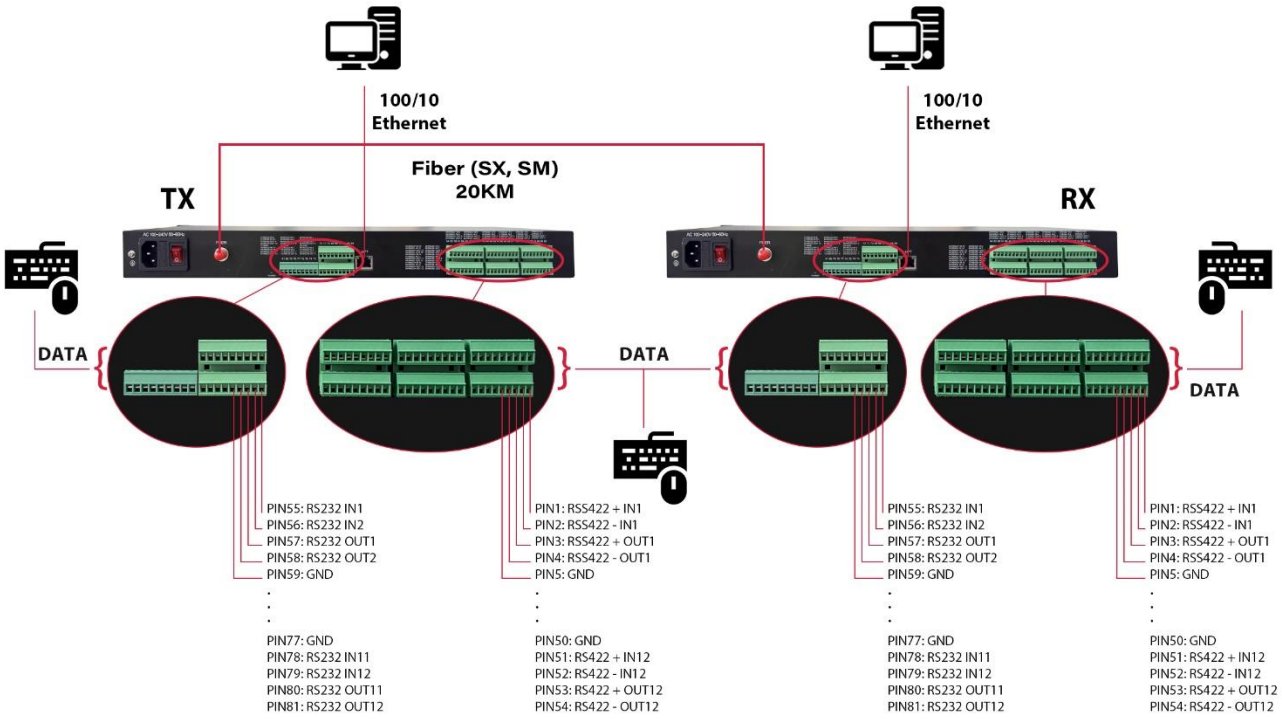
Rate of RS485/RS422	Bit rate error	Max-number of nodes	Max transmission distance	Data Agreement	Direction	Type of data:
0-255 Kbps	Less than 10E-12	128	1200meter	supporting all kinds of RS485/422	Reverse	Support point to point, support point to more point

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	46	RS422+	IN11	1	RS422+	IN1	46	RS422+	IN11
2	RS422-	IN1	47	RS422-	IN11	2	RS422-	IN1	47	RS422-	IN11
3	RS422+	OUT1	48	RS422+	OUT11	3	RS422+	OUT1	48	RS422+	OUT11
4	RS422-	OUT1	49	RS422-	OUT11	4	RS422-	OUT1	49	RS422-	OUT11
5	GND	-	50	GND	-	5	GND	-	50	GND	-
6	RS422+	IN2	51	RS422+	IN12	6	RS422+	IN2	51	RS422+	IN12
7	RS422-	IN2	52	RS422-	IN12	7	RS422-	IN2	52	RS422-	IN12
8	RS422+	OUT2	53	RS422+	OUT12	8	RS422+	OUT2	53	RS422+	OUT12
9	RS422-	OUT2	54	RS422-	OUT12	9	RS422-	OUT2	54	RS422-	OUT12
10	RS422+	IN3	55	RS232	IN1	10	RS422+	IN3	55	RS232	IN1
11	RS422-	IN3	56	RS232	IN2	11	RS422-	IN3	56	RS232	IN2
12	RS422+	OUT3	57	RS232	OUT1	12	RS422+	OUT3	57	RS232	OUT1
13	RS422-	OUT3	58	RS232	OUT2	13	RS422-	OUT3	58	RS232	OUT2
14	GND	-	59	GND	-	14	GND	-	59	GND	-
15	RS422+	IN4	60	RS232	IN3	15	RS422+	IN4	60	RS232	IN3
16	RS422-	IN4	61	RS232	IN4	16	RS422-	IN4	61	RS232	IN4
17	RS422+	OUT4	62	RS232	OUT3	17	RS422+	OUT4	62	RS232	OUT3
18	RS422-	OUT4	63	RS232	OUT4	18	RS422-	OUT4	63	RS232	OUT4
19	RS422+	IN5	64	RS232	IN5	19	RS422+	IN5	64	RS232	IN5
20	RS422-	IN5	65	RS232	IN6	20	RS422-	IN5	65	RS232	IN6
21	RS422+	OUT5	66	RS232	OUT5	21	RS422+	OUT5	66	RS232	OUT5
22	RS422-	OUT5	67	RS232	OUT6	22	RS422-	OUT5	67	RS232	OUT6
23	GND	-	68	GND	-	23	GND	-	68	GND	-
24	RS422+	IN6	69	RS232	IN7	24	RS422+	IN6	69	RS232	IN7
25	RS422-	IN6	70	RS232	IN8	25	RS422-	IN6	70	RS232	IN8
26	RS422+	OUT6	71	RS232	OUT7	26	RS422+	OUT6	71	RS232	OUT7
27	RS422-	OUT6	72	RS232	OUT8	27	RS422-	OUT6	72	RS232	OUT8
28	RS422+	IN7	73	RS232	IN9	28	RS422+	IN7	73	RS232	IN9
29	RS422-	IN7	74	RS232	IN10	29	RS422-	IN7	74	RS232	IN10

30	RS422+	OUT7	75	RS232	OUT9	30	RS422+	OUT7	75	RS232	OUT9
31	RS422-	OUT7	76	RS232	OUT10	31	RS422-	OUT7	76	RS232	OUT10
32	GND	-	77	GND	-	32	GND	-	77	GND	-
33	RS422+	IN8	78	RS232	IN11	33	RS422+	IN8	78	RS232	IN11
34	RS422-	IN8	79	RS232	IN12	34	RS422-	IN8	79	RS232	IN12
35	RS422+	OUT8	80	RS232	OUT11	35	RS422+	OUT8	80	RS232	OUT11
36	RS422-	OUT8	81	RS232	OUT12	36	RS422-	OUT8	81	RS232	OUT12
37	RS422+	IN9				37	RS422+	IN9			
38	RS422-	IN9				38	RS422-	IN9			
39	RS422+	OUT9				39	RS422+	OUT9			
40	RS422-	OUT9				40	RS422-	OUT9			
41	GND	-				41	GND	-			
42	RS422+	IN10				42	RS422+	IN10			
43	RS422-	IN10				43	RS422-	IN10			
44	RS422+	OUT10				44	RS422+	OUT10			
45	RS422-	OUT10				45	RS422-	OUT10			

Product Application Display



Technical Specification of:
SAE-12bD1E-TRX