

T.A.D

Technology
Application
Deployment

Arioonet



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E1/Ethernet protocol converter

User's Manual

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1. GENERAL INFORMATION

Model 10/100M-E1 is a single port E1 with Ethernet Bridging that provides high-speed LAN-to-WAN connectivity. Plugging directly into the 10/100Base-T port of a hub or LAN switch, the 10/100M-E1 provides E1 access at connection data rates of 2.048 Mbps. The 10/100M-E1 is an excellent choice for internet access as well as LAN-to-LAN services.

2. PRODUCT CHARACTERISTIC

- Based on self-copyright IC.
- Ethernet port 10/100M half/full duplex self adaptable, supporting VLAN.
- RJ45 interface supports AUTO-MDIX.
- Provides 2 clock types: E1 master clock, E1 line clock.
- Has the function of pseudo-random code testing, convenient for opening of the circuit, and can be used as an error code instrument.
- Have three Loop Back Modes: E1 interface Loop Back (ANA)、LAN interface Loop Back (DIG)、command the remote LAN interface Loop Back (REM) .

- 75-ohm dual coax and 120-ohm twisted-pair G.703 connections provided, and support 75ohm/120ohm adapt;
- With abundant presentation function of Ethernet data, can detect real-time data communication status.
- Can realize SNMP management in our chassis installation

3.ENVIRONMENT REQUIREMENT

The temperature requirement is not very strict, the device can be working well under terrible environment.

- working temperature: $-10^{\circ}\text{C} - 60^{\circ}\text{C}$
- relative humidity: 95%(without coagulation)
- No erosive and impregnant gas, no rising dust, no strong magnetic field disturbing

3.1 Power

Adapting module power, voltage range can be wide, with strong ant-jamming function.

With good insulation, stable working status is available

- power: -48V type, input voltage: $-36\text{V} \sim -72\text{V}$
- power: 220V type, input voltage: $175\text{V} \sim 250\text{V}$

3.2 Power consumption

Total power consumption: $\leq 5W$

3.3 E1 Interface

- Line Rate: 2.048Mbps \pm 50ppm
- Line Code: HDB3
- Interface Standard: ITU-T G.703
- E1 Impedance : 75 Ω (unbalance) and 120 Ω (balance)
- Connections : dual coax and 120-ohm twisted-pair (RJ45)
- Jitter tolerance : finer than G.742 and G.823

3.4 10/100Base-T Interface

Rate: 10/100M, full/duplex auto-negotiation

Protocol: Support IEEE 802.3, IEEE 802.1Q (VLAN)

MAC Address Entries: 4096 Entries

Total Memory Sizes: 64Mbits SDRAM

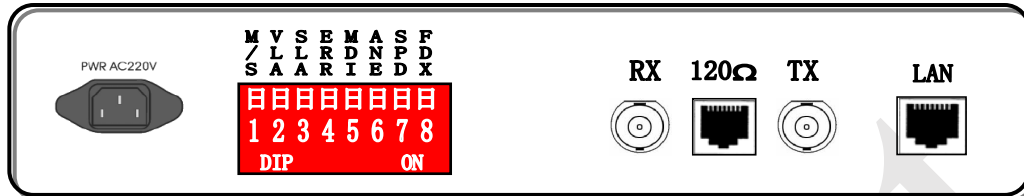
Physical interface: RJ45, support AUTO-MDIX

4. DIMENSIONS

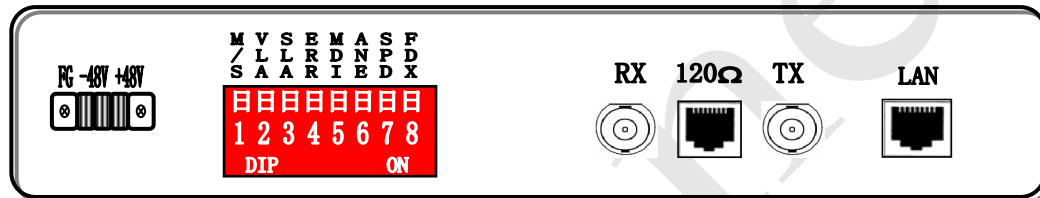
216(W) \times 140 (L) \times 31(H) mm

5. CONFIGURATION AND OPERATION

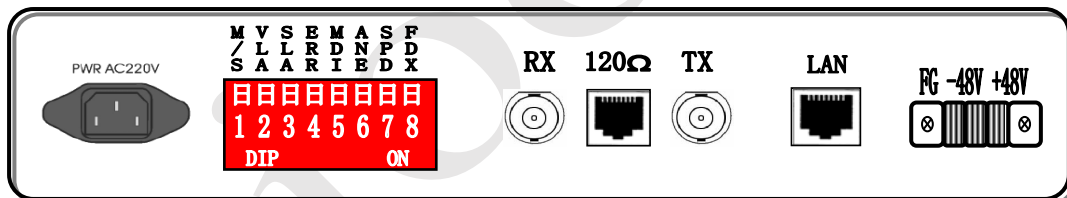
5.1 Display of the panel



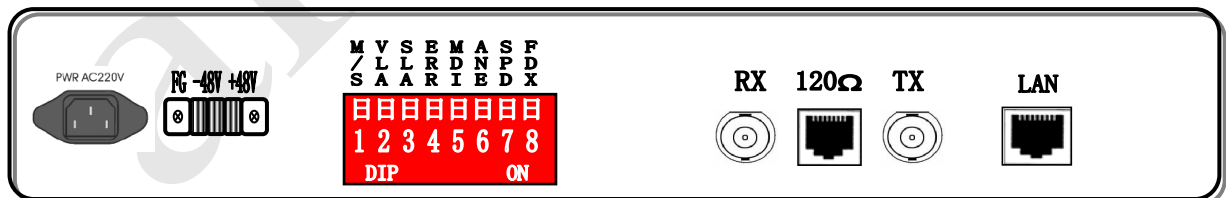
Back panel(220V)



Back panel (-48V)



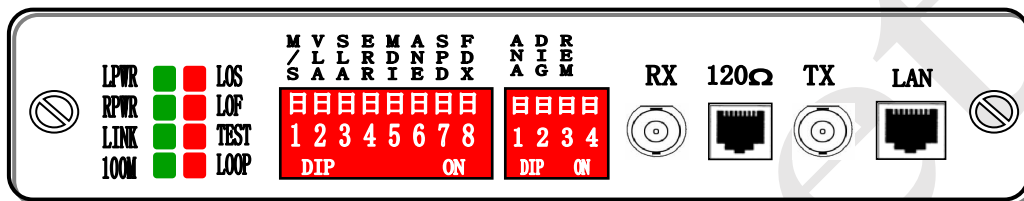
Back panel (220V+-48V)



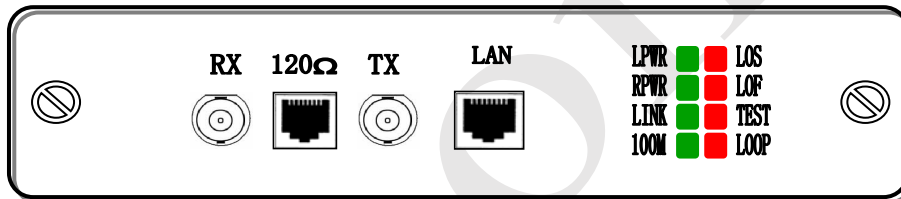
Back panel (19inch)



Front panel



4U cards panel



2U cards panel

Note:

- ✧ TX —— E1 75Ω unbalance, Transmit BNC Interface
- ✧ RX —— E1 75Ω unbalance, Receive BNC Interface
- ✧ LAN —— 10/100Base-T Interface, RJ45
- ✧ 120Ω/E1 —— E1 120Ω Balance Interface, RJ45

5.2 LED Indicator

There are 8 indicator LEDs.

- ✧ LOS —— Active Red, signifying E1 signal Lost

- ✧ **LOF**——Active Red, signifying E1 Frame lost
- ✧ **TEST**——Active Red, signifying the device is on test status
- ✧ **LOOP**——Active Red, signifying there is loop on the network.
- ✧ **LPWR**——Active Green, signifying the local device is power on.
- ✧ **RPWR**——Active Green, signifying the remote device is power on.
- ✧ **LINK**——Active Green, signifying a valid 10/100BaseT connection.
- ✧ **100M**——Active Green, signifying the rate is 100M.

Note:

- ✧ LOS on & RPWR off: the remote device is power off.
- ✧ LOS on & RPWR on: E1 line is cut off.
- ✧ LOS off & RPWR on: normal.

Caution: There may be some mistakes when all indicating lights winks,
(except for the PWR light)

- both of the device are on the status of line clock;
- both of the device are on the status of master clock while the rate setting is different;

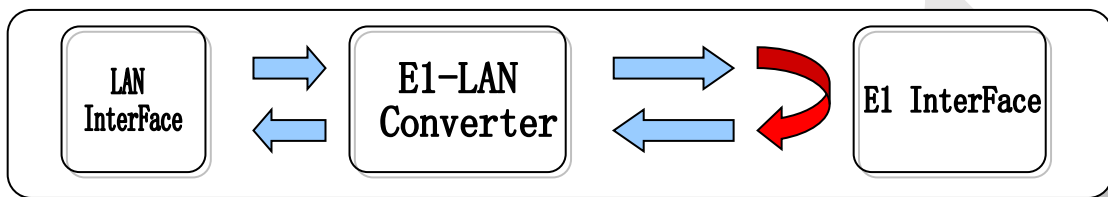
- the test key connecting are incorrect which cause into the dead cycle.

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5.3 Four-DIP switch for loop back test

There is a four-DIP switch, defined as follows.

ANA: For E1 Interface local loop to check whether local device and its connected circuit are correct or not.



DIG: For 10/100BASE-T Local loop to check the opposite device and optical circuit



REM: Invalidate for unframing.

PAT: Reserved. Under the test mode, the device will sent the testing data real time and detecting if there is any loop on the network.

Note:

- ✧ When the test LED on, the normal communication will be terminated.
- ✧ The LOOP LED will on if there is any loopback on the network:
 - ANA on: local LOOP on.
 - DIG on: remote LOOP on.

- REM on: local loop on.

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5.4 Eight-DIP Switch on the panel

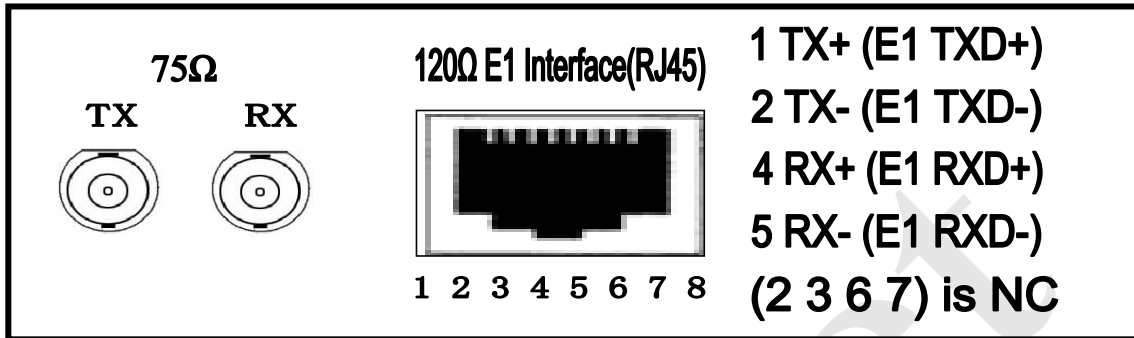
There is a 8-DIP switch to set the device.

DIP1~8	Name	Description	
1	M/S	Clock set OFF: master (internal clock), ON: slave	
2	VLA	Reserved	
3	SLA	Command remote to follow the local setting OFF: enable, ON: disable	
4	ERR	Link fault pass through to Ethernet (optional) OFF: enable, ON: disable	
5	MDX	MDIX OFF: AUTO-MDIX, ON: MDI	
6	ANE	ANE OFF: Auto-negotiation, ON: forcing mode	
7	SPD	SPD OFF: 100M, ON: 10M	
8	FDX	FDX OFF: full duplex, ON: half duplex	
ANE	SPD	FDX	Description
OFF	X	X	Auto-negotiation.
ON	OFF	OFF	100M, full duplex
ON	OFF	ON	100M, half duplex
ON	ON	OFF	10M, full duplex
ON	ON	ON	10M, half duplex

5.5 Description of E1 and LAN connector

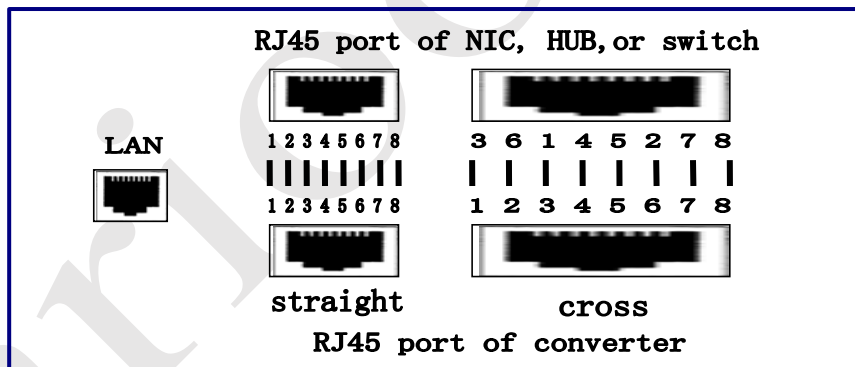
- E1 connector
 - ✧ 75Ω/RX: 75Ω unbalance receive in
 - ✧ 75Ω/TX: 75Ω unbalance transmit out

✧ 120ΩFE1: 120Ω balance receive and transmit



● LAN Interface

10/100M RJ45 on the back panel support AUTO-MDIX(cross and straight connection through auto-negotiation). The connection way for cross and straight connection are shown as below.



5.6 Power Installing

Power of AC220V/ DC-48V is suitable for the device. If the power of DC-48V is used, the positive and negative terminal can be optional because there is the self-test circuit for the polarity inside the optical modem.