

MODEL BD-E1-ETH

10/100Base T-E1 Converter

User's Reference Manual

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1 GENERAL INFORMATION

Model BD-E1-ETH 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 E1-ETH provides E1 access at connection data rates of 2.048 Mbps. The E1-ETH 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.
- Provide LAN auto reset function, run more stably.
- 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) .
- E1 connector support (BNC)75ohm/(RJ45)120ohm adapt ;
- With abundant presentation function of Ethernet data, can detect real-time data communication status.

3 ENVIRONMENT REQUIREMENT

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

- working temperature: 0 °C - 50 °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: -36V~-72V
- power: 220V type, input voltage: 90V~260V

3.2 Power consumption

Total device consumption: <5W

3.3 E1 Interface

- Line Rate: 2.048Mbps±50ppm
- Line Code : HDB3
- Interface Standard: ITU-T G.703
- E1 Impedance : 75Ω(unbalance) and 120Ω(balance)
- Connections :BNC and 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

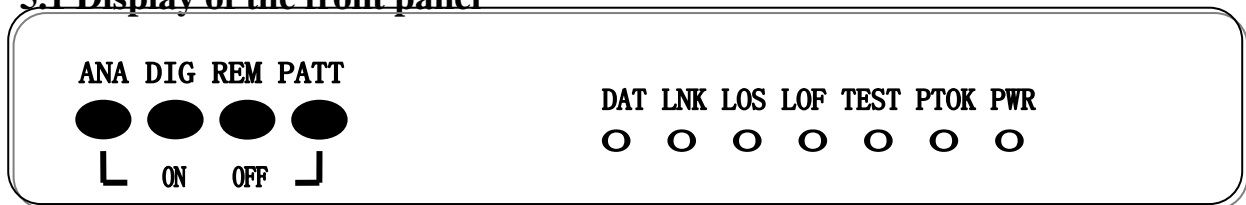
Physical interface: RJ45, support AUTO-MDIX

4. DIMENSIONS

210(W) × 140 (L) x 30(H) mm

5. CONFIGURATION AND OPERATION

5.1 Display of the front panel



5.2 LED Indicator

There are 7 indicator LED on front panel.

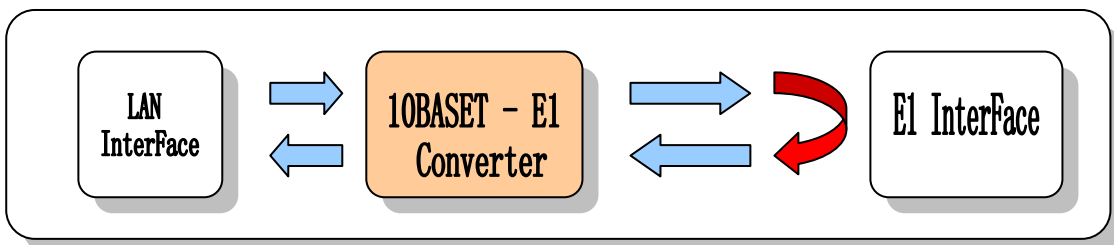
From left to right is as following:

Name	Color	Status	Description
DAT	green	flick	E1 port has data receive and transmit
		On/off	E1 port has no data receive and transmit
LNK	yellow	Flick/on	Indicates Ethernet has connected
		off	Ethernet has no connect
LOS	red	ON	E1 signal loss
		OFF	E1 signal normal
LOF			reserved
TEST	yellow	ON	Under test status(ANA, DIG, REM, PATT pressed any)
		OFF	In normal working status
PTOK	green	ON	PATT pressed, PATT test normal
		OFF	PATT pressed, PATT test not normal
		Wink	PATT pressed, PATT test has error code
PWR	green	ON	Power ON
		OFF	Power not ON

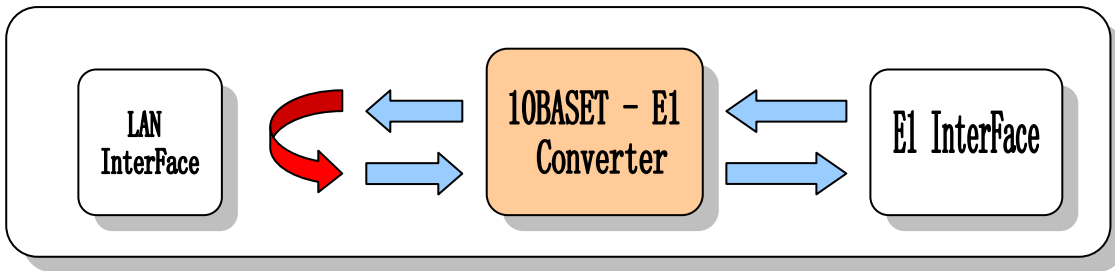
5.3 loop-back button

There are four loop-back button on the front panel, they are as following from the left to right,

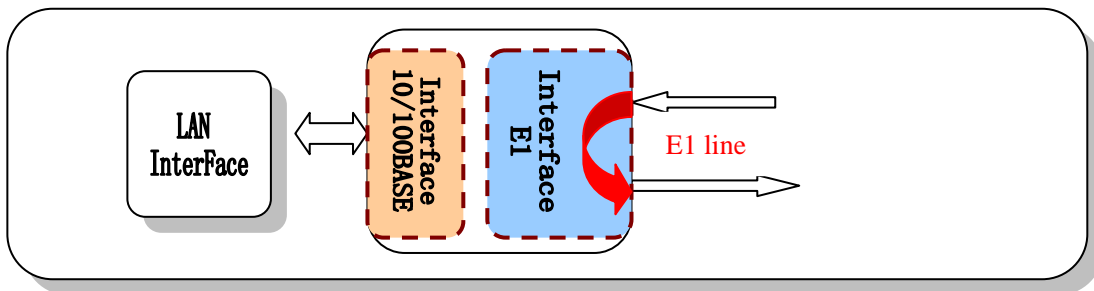
ANA: E1 Interface local-back loop, to check whether local device and its connecting circuit correct



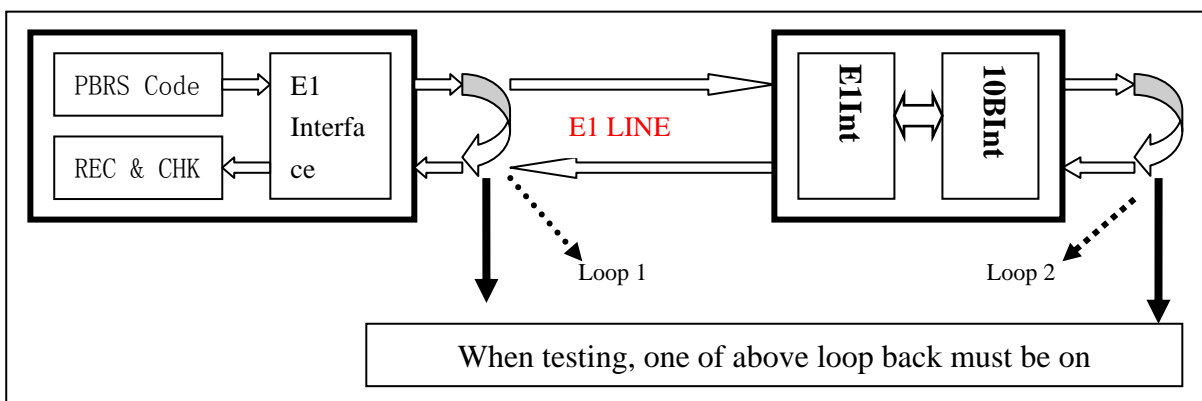
DIG: 10/100BASE-T Local loop-back, to check the opposite device and E1 circuit



REM: E1 interface loop-back outward to test E1 line



PATT: PBRS test. To produce and transmit the PBRS to the 10/100BASE input connector, and to check whether the output signal of the 10/100BASE accord with PBRS standard. If according, the PTOK light on, otherwise, off. By this way, the status of E1 Line can be tested.

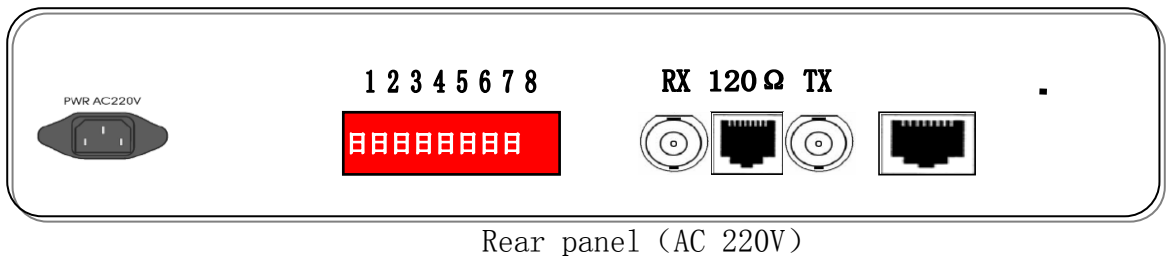


Push the PATT button, when loop circuit 1 is on, If PTOK is on , indicates device works well ; loop circuit 1 off and loop circuit 2 on, indicates that fiber transmission circuit and both side device work well

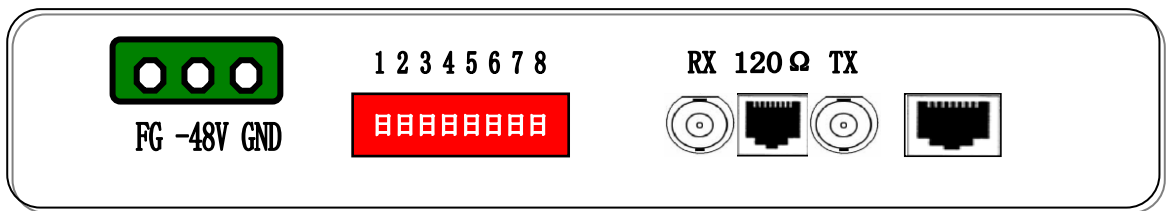
Note:

- when the test LED on, the normal communication will be terminated
- During the PATT model testing, the circuit should be cycle by itself, otherwise, the PATT code can't come back.

5.4 Display of the rear panel



Rear panel (AC 220V)



Rear panel (DC -48V)

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 device.

Note:

TX —— E1 75Ω unbalance/120 balanceΩ, Transmit BNC/RJ45 Interface

RX —— E1 75Ω unbalance/120 balanceΩ, Receive BNC/RJ45 Interface

10/100Base-T —— 10/100Base-T Interface, RJ45

5.5 Dial code in the panel

On the panel, there are 8 digital DIP switches to set E1 clk.



1 2 3 4 5 6 7 8

1 :E1 CLK SET
 2 :LAN MODE SET
 3-8:REMAIN

1 (clk1):E1 master clock and line clock set

E1 clock set	Clk1
Master (main clock)	OFF
Slave (line clock)	ON
<p>Note pls: during communicating, one master and one slave is necessary and the rate of the slave will follow the master</p>	

2 (clk2):

LAN set	Clock2
10/100M full/duplex auto-negotiation	OFF
10M full/duplex auto-negotiation	ON

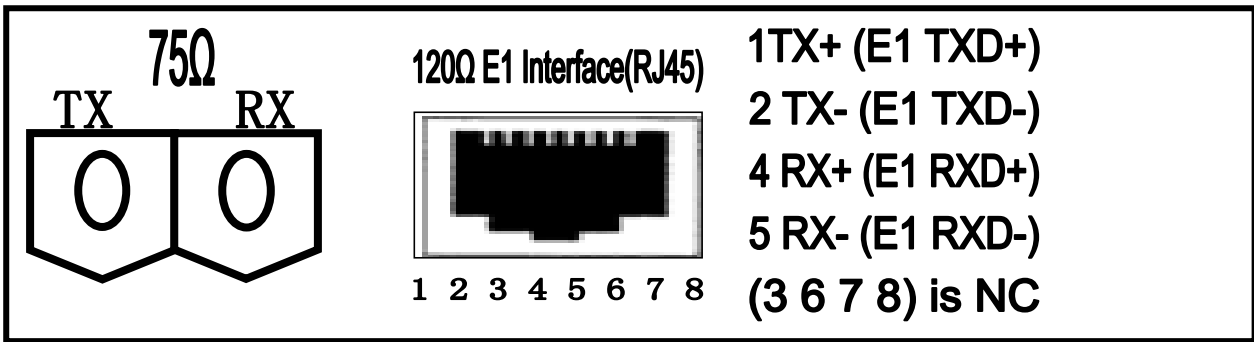
NOTE:

- If clock mode is line ,the rate of the device will follow the main

5.6 Description of E1 connector

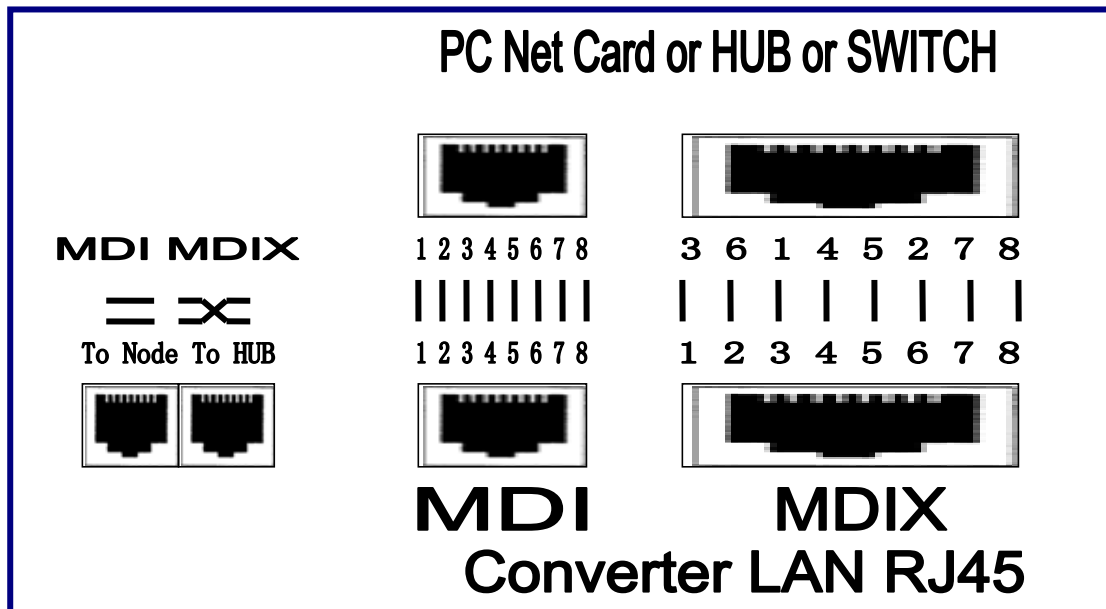
E1 Interface impedance support 75ohm/120ohm adapt.

Note: the pins of 120ohm see as following:



LAN Interface

In the back panel there are two RJ45 jack, one is for DTE mode (MDI) the other is for DCE mode (MDIX), easy for you to use it



6 PACKING

6.1 Packing pattern

The following are things listed in each package:

E1-10/100BT Converter	1
AC220V power wire	1
User's manual	1
BNC	2

6.2 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 device.

7 MALFUNCTION DIAGNOSES AND ELIMINATION

When the device works well, the light of PWR and LNK should be on and DATA should be flick.on, and others should be off

7.1. Power failure

status	solution
PWR off	Check power supply AC or DC, the detailed supply value
	Connect power
	Check power wire connection

7.2. E1 port failure

status	solution
E1 port warning	Check the BNC connector
	Make right E1 wire IN and OUT, not reverse

7.3. LAN port failure

status	solution
LNK off	Check LAN wire connection

7.4. PING problem

status	cause	solution
All LED normal, but couldn't PING	Both LAN not in one IP	Make local and remote device point to point PING by one IP
	The device is on TEST status	Loop-back button on the front panel pressed, please make it not press

	E1 line transmit has problem	Press the PATT and REM buttons, (or make the opposite device loop back the LAN data), if the PTOK light off, it means the E1 transmission channel has problem.
	E1 transmit has cycle line (like SDH E1 cycle line has no remove)	Press PATT on one device, if PTOK ON, it means has cycle line; if off, press the other device PATT and check the PTOK.

7.5.Other failure

status	cause	solution
Date could PING, but has package loss	The LAN wire wrong	Make right LAN wire: 1、 2 pin use one pair twisted line; 3、 6 pin use one pair twisted line;
	The E1 clock of local and remote both are line clock	Make both are main clock or one is the main, the other is line
	Computer virus	Kill virus by software

8. APPLICATION

