



# TDM over IP/Ethernet

User's Guide  
v1.1

XL-TDM2E1B – 2xE1 over IP/Ethernet



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# 1 General

## 1.1 Overview

Thank you for selecting the XL-TDM2E1B product designed and made by XtendLAN. The product can be used to provide E1 communication channels over Ethernet or IP networks. It is suitable for applications requiring no strict E1 channel QoS guarantees over the local Ethernet data, such as to setup E1 links using wireless LAN bridges without the need for providing Ethernet services at the same time or in places where the underlying network bandwidth is abundant.

The XL-TDM2E1B has many optional parameters, that can be modified by the user to suit different application requirements. Please read this manual carefully before installing the product. It is well known that the E1 signal comes from PCM technology which is TDM in nature. It transmits information in a constant bit rate of 2048kbit/s. TDM technology occupies fixed transmission bandwidth, with QoS features suitable for real-time applications such as voice and video. The QoS features include short and stable transmission delay, low jitter and wander, etc. On the other hand, Ethernet is based on statistical multiplexing, transmitting and exchanging information in packets. It does not take up a fixed transmission bandwidth, which is good for achieving higher bandwidth utilization. But Ethernet technology does not provide adequate QoS for real time applications. Until recently, voice and data were, and still are to a large extent, transported over two separate networks. But the requirement for both types of information to be carried over a unified network is growing rapidly. Packet over SONET/SDH techniques to integrate data into the TDM network have been around for many years. But for voice over packet based data networks, most of the efforts are spent on creating special equipment that packetizes voice or video signals, such as VoIP techniques.

However, to take advantage of the data network, it is neither cost effective, nor necessary to hastily replace all the TDM based equipment with new packet based equipment. The XL-TDM2E1B can be used to emulate transparent E1 channels over an Ethernet with adequate QoS, so that most of the existing E1 based applications can be readily setup over Ethernet LANs and WANs. One particular suited application is to build E1 links with low cost wireless LAN bridges, replacing much more costly microwave radios.

### **Features:**

- Up to 2 transparent G.703 E1's
- Low processing delay for E1 channels
- Stable E1 frequency recovery, low jitter, low wander
- Resist to packet loss, with PCM frame synchronization protection
- High bandwidth efficiency
- User definable packet size from 128 bytes up to 1408 bytes
- Local and remote E1 port LOS and AIS indication
- Packet loss indication
- Dip switch control for local and remote E1 loop-backs
- Adaptive E1 port impedance for coax and twisted pair cables

- User selectable level 2 (Ethernet) or level 3 (IP) packaging options

## 1.2 Applications

XL-TDM2E1B is used to setup 1~2 transparent E1 channels over LAN or IP networks, as depicted in Fig. 1.

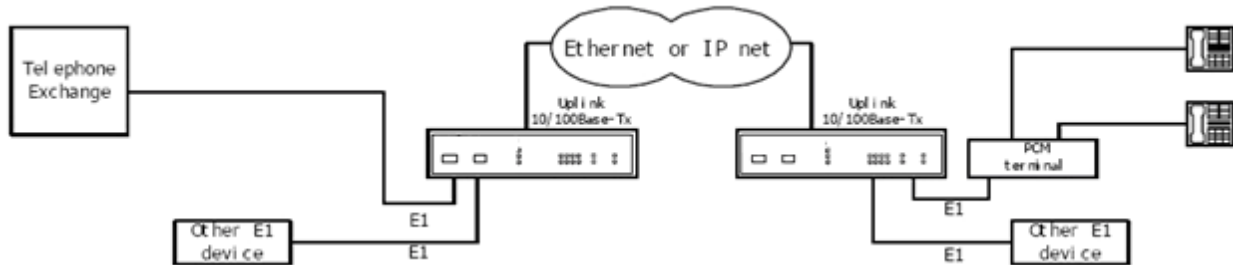


Fig. 1 XL-TDM2E1B application paradigm

In the figure, a pair of XL-TDM2E1B create 2 transparent E1 channels over the packet network, providing connections between the PBX and telephone exchange, and other terminal devices. The most widely used application of XL-TDM2E1B is to set up point to point wireless E1 links using low cost wireless LAN bridges. XL-TDM2E1B can work with most LAN bridges on the market. It may be necessary to adjust different parameters such as packet size and packet jitter absorption buffer size for best operation for different LAN bridges.

Be aware that wireless LAN bridges have a very limited bandwidth. If Ethernet data is to be transferred at the same time, XL-TDM2E1B should be used.

**WARNING: When connecting to a wireless LAN bridge, the uplink Ethernet cable often connects to the outdoor unit, posing danger to lightning strikes that can seriously damage the equipment. To protect the equipment as well as people, surge protection devices with good earth connection is strongly recommended. Poor earth connection may also hinder the operation of the Ethernet port, causing severe packet losses.**

## 1.3 Timing modes

To emulate a transparent E1 channel over a packet network, the XL-TDM2E1B not only conveys data stream content correctly from the source to the destination, but also passes timing. Packet networks do not provide such built-in timing transparency mechanism as TDM networks do. XL-TDM2E1B uses its proprietary algorithm to reconstruct the E1 clock at the destination. The recovered clock is of very high quality, with low jitter and wander. Typical frequency drift is within  $\pm 5\text{ppm}$ , and jitter is below 0.1UI. It suits most applications. This timing mode of rebuilding the E1 clock at the destination is called Through Timing.

For applications where separate clock distribution network exists, another timing mode, Loop Timing, may be used for maximum clock quality. The two timing modes of XL-TDM2E1B is depicted in Fig. 2.

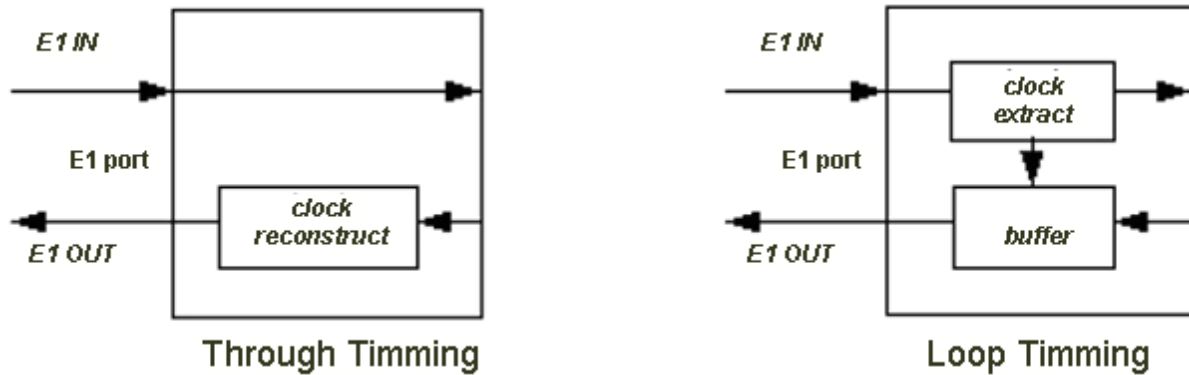


Fig. 2 E1 Timing modes

Correct timing mode setting is important for smooth operations. In most cases, setting both unit to through timing mode is sufficient. But sometimes, setting one unit to loop timing mode may work better. For example, setting the XL-TDM2E1B unit connected with the clock master (such as local exchange) to loop mode, and the other unit connected with the clock slave (such as PBX or remote module) to through mode, is probably better than setting both to through modes. One typical error in telecom applications is to connect two communication devices that are both clock slaves. Neither will XL-TDM2E1B support such operation no mater how the timing modes are set.

**Note: that the E1 channel emulation takes several minutes to stabilize. During that period, clock drift may exceed the limit, errors and slips may occur.**

Various timing schemes are enlisted in Table 1, for applications depicted in Fig.3



Fig. 3 Timing mode scheme reference diagram

Table 1 timing mode schemes

<b>Equipment A clock mode</b>	<b>Equipment B clock mode</b>	<b>A side Timing mode</b>	<b>B side Timing mode</b>	<b>Note</b>
master	master	loop	loop	
		through	through	Equipment A & B clocks synchronous
master	master	through	through	Equipment A & B clocks plesiochronous
master	slave	loop	through	
		through	through	
slave	master	through	loop	
		through	through	
slave	slave			Not allowed

Note that setting both units to through timing mode works well for all the conditions, although the other option may work better.

## 2 System architecture

### 2.1 Block diagram

The internal functional structure of XL-TDM2E1B is depicted below:

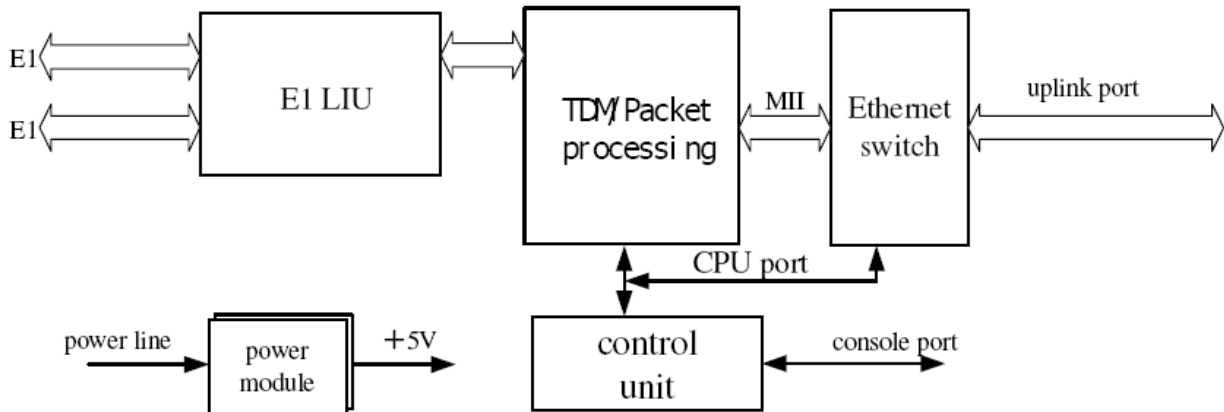


Fig. 4 Functional diagram

### 2.2 Description

The heart of XL-TDM2E1B is the TDM/ Packet processing unit. It truncates E1 data stream, putting the data into Ethernet packet with or without IP headers. The packets are passed to the Ethernet switch unit via MII interface, and are sent to Ethernet through the uplink port. In the reverse direction, packets from the uplink port are sorted at the switch unit. The packets containing E1 data are sent to the TDM/ Packet processing unit for reassembling the original data stream, and recovering the E1 clock which is the key element of the device. Very sophisticated algorithm is used to ensure that the reconstructed clock will meet the stringent requirement of TDM applications. The most important parameters are jitter, wander, and signal delay. The control unit interfaces with the user through console port so that various operational parameters can be modified.

### 2.3 Front panel

#### 2.3.1 Diagram

XL-TDM2E1B is shown in Fig. 5.



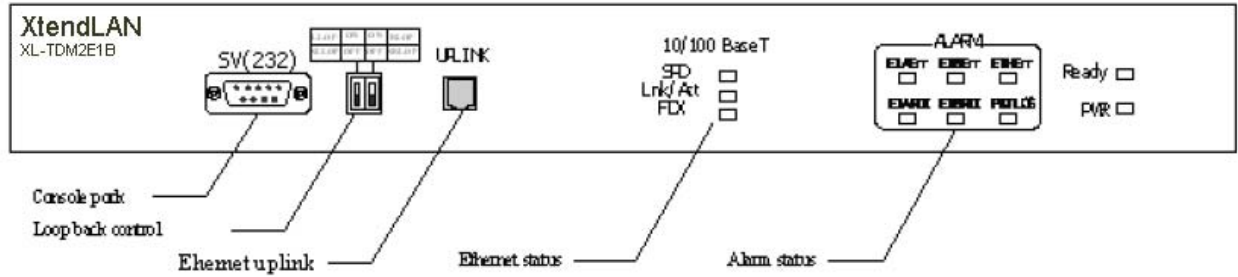


Fig. 5 Front panel of XL-TDM2E1B

### 2.3.2 Ethernet ports

There is 1 Ethernet port on the front panel, and it is for uplink Ethernet port, it is used to connect with the transmission net, for example, the Ethernet port of wireless LAN bridges. There are three indicators. They are port rate indication, wire connect normal indication, action indication and port full/half duplex indication from up to down, the following table is detail instruction:

Location	Indication	Color	Meaning
Up	SPD	Green	On: the rate of port is 100M Off: the rate of port is 10M
Middle	Link/Act	Green	On all the time: have connected with the opposite terminal net port Blink: there are data packets to sent or receive at the port Off all the time: indicate that haven't connect with the opposite terminal net port
Down	FDX	Green	Green On: the port is full duplex Off: the port is half duplex

### 2.3.3 LED's

There are 11LED's on the front panel, divided into 3 groups.

The PWR and Ready green LED's indicate the operation status of the device.

The 3 Ethernet status LED's indicate the status of the Ethernet port. These LED's are also green.

Six red LED's are provided for alarm indication, 4 for the local and remote E1 ports, and two for packet data alarms.

For detailed LED description, refer to Table 4 in 4.1.

### 2.3.4 Dip switch

There is a loop back control switch on the front panel. Two dip positions relate to local and remote loop back control of E1 ports. Refer to 0.

### 2.3.5 Console port

Console port is used to set various parameters. A simple RS232 cable connects this port to a VT100 (or emulator) terminal for console operation. The signal pins are given in the follow table.

Console port signal table

Pin	Signal	Definition
2	RxD	Data receive
3	TxD	Data transmit
5	GxD	Signal ground
Shell	CGND	Chassis ground

## 2.4 Rear panel

The XL-TDM2E1B has power supply options for 220V ac. His rear panel is depicted in Fig. 6.

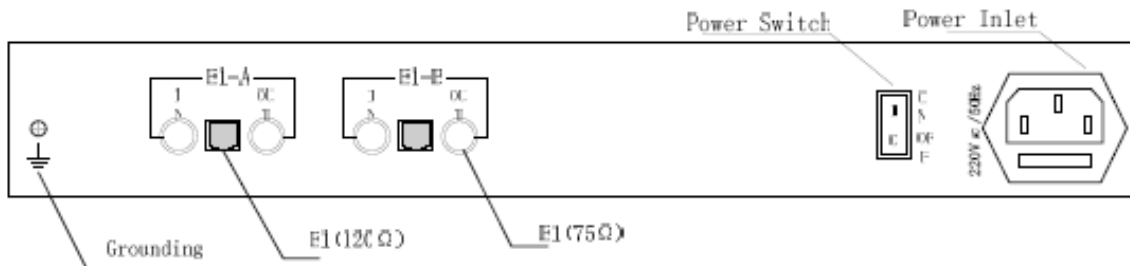


Fig. 6 Rear panel

### 2.4.1 Grounding screw

This is used to connect the chassis to the protective ground.

**Attention:** you must make the equipment connect with the protective ground via the grounding screw.

### 2.4.2 E1 Port

There are 2 sets of E1 ports on the rear panel. Each E1 port has a pair of BNC connectors and a RJ45 socket. The left port is denoted port-A, and the other, port-B. The BNC's are for connecting to 75Ω coax cables, while the RJ45 is for 120Ω twisted pair cable.

### 2.4.3 Power

It is recommended to turn off the power switch before connecting or disconnecting the power.

## 3 Installation

### 3.1 Mechanical

XL-TDM2E1B can be placed at the table top or mounted on a 19" rack. If it is to be mounted on the rack, the four (4) 10mm-high stands should be removed with a screw driver. The mechanical dimensions of XL-TDM2E1B is given in Fig. 7.

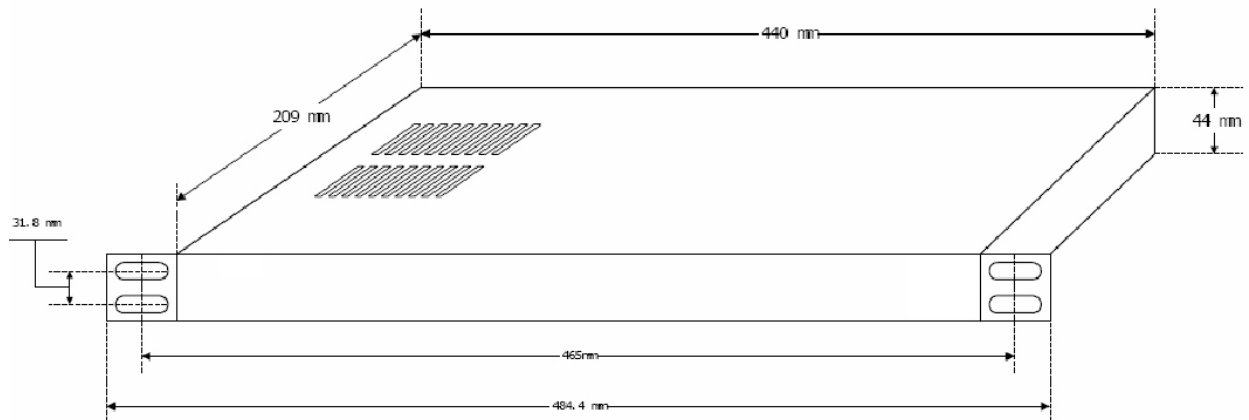


Fig. 7 Mechanical dimensions

### 3.2 Electrical

#### 3.2.1 Power connection

The XL-TDM2E1B consumes less than 10W of power. Connect the device to the ~230V outlet with standard power cord supplied with the equipment. Note that there is a 1A fuse in the ~230V socket which may be replaced when burned. It is recommended to turn off the power switch before connecting or disconnecting the power. On the left corner of rear panel, a screw is used for connecting the chassis to the protective ground. Be sure to make this connection using a thick wire.

**WARNING: The system must be securely connected to a good protective ground for safety. All interconnected equipment must be grounded for maintaining signal integrity as well. Ground potential may also damage the interface ports.**

**WARNING: To avoid electric shock, the ~230V outlet must have good ground.**

#### 3.2.2 E1 connections

The E1 ports on XL-TDM2E1B are used for connecting to E1 equipment such as the telephone exchange or PCM terminals. Both 75Ω and 120 Ω interfaces are provided. Customer may select

either according to need. The  $75\Omega$  interface uses BNC connectors, and the  $120\Omega$  interface uses RJ45 sockets.

**Note: The E1 interface impedance is adaptive, depending on the cables installed. Make sure that both types of cable are NOT connected at the same time.**

The  $120\Omega$  connection cable is made with RJ45 connectors and a length of 4-pair twisted cable. The cable is not provided with the equipment, and the user is responsible for making such cables in the field with length suitable for a particular installation. The signal definition is given in Table 2, and pin order is depicted in Fig. 8. Note that pin-1 and pin-2 should use the same twisted pair, so should pin-4 and pin-5.

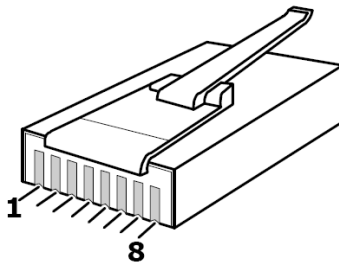


Fig. 8 RJ45 pin order

Table 2  $120\Omega$  E1 signal definition

Pin	1	2	3	4	5	6	7	8
Signal	E1-IN		GND	E1-OUT		GND	—	—

### 3.2.3 Ethernet connection

Connect the uplink Ethernet port to the Ethernet transport network, such as wireless LAN bridge. The signal definition of the uplink Ethernet port is given in Table 3.

Table 3 Ethernet signal definition

Pin	1	2	3	4	5	6	7	8
Signal	RxD+	RxD-	TxD+			TxD		

**Note: The port conforms to Auto-MDI/MDI-X spec. It will automatically adapt to parallel or crossed cables.**

**WARNING: When connecting to a wireless LAN bridge, the uplink Ethernet cable often connects to the outdoor unit, posing danger to lightning strikes that can seriously damage the equipment. To protect the equipment as well as people, surge protection devices with good earth connection is strongly recommended. Poor earth connection may also hinder the operation of the Ethernet port, causing severe packet losses.**

## 4 Operation

After successful installation, switch on power, the unit will take about 1 minute to boot up. The operation status can be monitored with LED's on the front panel.

Ideally, no LED's in red should lit up except those corresponding to unused E1 ports. Note that do not use a loop back cable to suppress unused E1 port alarms, as that will tell the system that the E1 is in operation, which will take up about 2 Mbps bandwidth. If the uplink channel does not have enough bandwidth, this will affect packets for the working E1.

Various operational parameters can be set or modified through the console port, with a computer running VT100 terminal emulator. For easy setup, a hardware mode switch on the rear panel can be used to chose a pre-defined set of parameters without using console commands.

It is often helpful to use a E1 tester to check the quality of the E1 channels, by measuring the round trip bit error rate of the channel. The loop back control switch on the front channel is useful for this purpose.

### 4.1 LED Definition

The following table is the detail definition of XL-TDM2E1B indicator.

Table 4 **LED Definition**

LED	Color	Definition	Explanation
<b>General</b>			
PWR	<b>G</b>	power indicator	On: Normal Off: Power Off / Failure
Ready	<b>G</b>	operation status	On or off: System abnormal or system initialization. Blink: Normal operation
<b>Alarms</b>			
E1AErr E1BErr	<b>R</b>	E1 alarm indicator for LOCAL E1-A and E1-B ports respectively	On: LOS Off: Normal Blink: AIS
E1ARDI E1BRDI	<b>R</b>	E1 alarm indicator for REMOTE E1-A and E1-Bports respectively	On: LOS Off: Normal Blink: AIS
ETHErr	<b>R</b>	packet communication status	On: Remote MAC unattained whileARP is activated Off: Normal Blink: Internal Buffer Overflow
PKTLOS	<b>R</b>	packet loss indicator	On: Abnormal Off: Normal Blink: Packet Loss
<b>10/100Base-Tx</b>			
SPD	<b>G</b>	speed indicator	On: 100M Off: 10M
Link/Act	<b>G</b>	link activity indicator	On: Link Blink: Data

			Off: Inactive
FDX	<b>G</b>	duplex indicator	On: Full duplex Off: Half duplex

When the equipment connects with the power, system require one minute's startup to work normally. After the startup finish, Ready indicator turn from on to link. When the startup of equipment has finished, we can judge if the port works normally by observing the indicator at the port.

## 4.2 Loop back control

A 2-dip switch is provided on the front panel to control the loop back of E1 ports. Either local (LLop) or remote (RLop) loop back can be set by this switch.

Table 5 *Loop back control switches*

Definition	LLop position	RLop position	Note
Normal	OFF	OFF	
local E1 loop back	ON	OFF	
remote E1 loop back	OFF	ON	
parameter reset	ON	ON	Persist for 20s

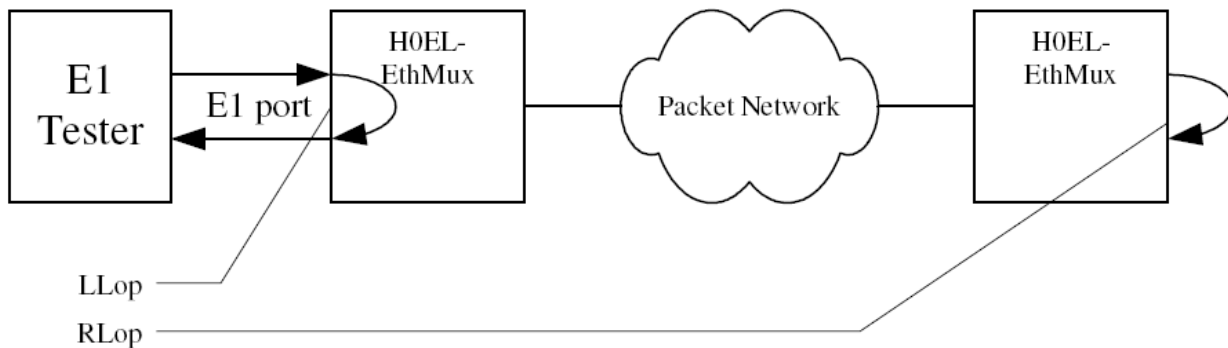


Fig. 9 Loop back definition

The meaning of LLoP and RLoP is depicted in Fig. 9. Both E1-A and E1-B will loop back when a control dip is pressed.

Command from the remote has a higher priority. So if RLoP dip is pressed down on the remote box, the local dip position of LLoP will not take effect.

One cannot let the system to perform both LLoP and RLoP at the same time. Instead, if both dips are pressed down for more than 20 seconds, the device will reset all user definable parameters to default settings, as given in Table 6. Refer to 6.1 for explanation of the parameters.

**Table 6 Default parameter values**

No	Parameter	Default value				
1.	Source MAC	Mode 0/2/4/6/8/A/C/E			Mode 1/3/5/7/9/B/D/F	
1.	Source MAC	00:02:DE:E5:B8:70			00:02:DE:E5:B8:71	
2.	Destination	MAC 00:02:DE:E5:B8:71			00:02:DE:E5:B8:70	
3.	Source IP	172.16.95.245			172.16.95.246	
4.	Destination IP	172.16.95.246			172.16.95.245	
5.	MAC frame type	0xc0c0				
6.	Subnet mask	255.255.0.0				
7.	Default gateway	IP 172.16.95.202				
8.	Use VLAN_TAG	NO				
9.	VLAN_TAG_Control Info	0x(8100)0000				
10.	Use IP header	YES				
11.	UDP port	52719				
12.	ARP protocol	Mode 0~9			Mode A~F	
13.	ARP protocol	enable			disable	
14.	Timing mode	through				
15.	E1 packet size	Mode 0/1	Mode 2/3	Mode 4/5/A/B	Mode 6/7/C/D	Mode 8/9/E/F
15.	E1 packet size	1×128Byte	3×128Byte	11×128Byte	3×128Byte	11×128Byte
16.	Jitter buffer size	4	30	30	12	12

**Note: Do not reset the parameters unless you are absolutely sure, it will overwrite all parameters you previously saved!**

## **5 Common faults**

This paragraph describes common mistakes and faults that may occur during installation and maintenance. Please seek support from AD-net for other problems.

### **5.1 E1 alarms**

When E1AErr or E1BErr LED is on, loss of E1 signal fault is detected by XL-TDM2E1B. Possible causes include:

- The downstream equipment such as telephone exchange or PCM terminal is powered off.
- The E1 cable connection looses or broken.

E1AErr or E1BErr blinks when respective input E1 signal is AIS, i.e. the content of E1 data is all 1's. Such alarm indicates fault conditions on the part of the downstream equipment. When a E1 port is performing Tx to Rx loop back, either by command, or by a physical cable, the output of E1 maybe in AIS state and will causing AIS indication.

Likewise the E1A(B)RDI LED indicates similar faults on the remote site.

### **5.2 Link/Act LED off**

Link/Act LED off means the corresponding Ethernet link is not working. Check the Ethernet cable connection, and the status of the device on the other end of the cable.

### **5.3 Ready LED does not blink**

After about 1 minute from power on, the Ready LED should start to blink. If not, check if both dips of the loop back control switch is pressed down. These switches should remain at the upper position for normal operation. If the dips are in the correct position, try switch off and on again. If this error persists, call for support.

### **5.4 Cannot set up E1 channel**

#### **5.4.1 Same LAN domain**

When two XL-TDM2E1B's are within the same Ethernet broadcast domain, try following.

1. Check if the transmission network is on.
2. If ARP is not enabled, check MAC address settings on both units, one unit's local MAC must be the other unit's remote MAC.
3. If ARP is enabled, check that the network will pass broadcast packets. For a network that suppresses broadcast packets, as some of the wireless LAN bridges do, disable ARP and manually setup local and remote MAC's.



4. Check that there is no MAC address conflict on the LAN.
5. Check that the transmission network has enough bandwidth (more than 2.5Mbps duplex).

### **5.4.2 Different LAN domain**

When two XL-TDM2E1B's are in different Ethernet broadcast domains, IP headers must be used, and packets will be routed by a gateway router, try following.

1. Make sure that the ARP is enabled.
2. Check if the default gateway IP is defined correctly.
3. Check if the local and remote IP is set correctly.
4. Check for any conflicts in IP or MAC addresses.
5. Make sure the transmission network has enough bandwidth.

### **5.5 Downstream reporting slips**

Check if the downstream equipment has correct clock mode. At least one of them must be clock master. Set the XL-TDM2E1B on master side to loop timing. If the downstream equipment on both sides are not synchronized, slips are not avoidable.

At the transition time after power on or reapplying the E1 signal, slips and errors are acceptable. Such transition may take several minutes.

## 6 Console commands

Various parameters may be set or modified through console commands. Connect the console port on XL-TDM2E1B to a PC running Hyper-terminal, with a RS232 cable.

### 6.1 Parameters

Operation behavior of XL-TDM2E1B depends on a number of parameters. They are divided into two groups, i.e. the basic parameters listed in Table 7, and the advanced parameters listed in Table 8. All these parameters can be set or modified by the user. Initially, the parameters are set to default values. See Table 6 for factory defaults.

Table 7 *Basic parameters*

Parameter	Description
<b>USE IP</b>	<b>YES:</b> use IP header for E1 data packets, able to cross different domains, bandwidth efficiency slightly lowered <b>NO:</b> do not use IP header in the packet, higher bandwidth efficiency, but limited to same domain.
<b>USE VLAN</b>	<b>YES:</b> add 4 VLAN bytes to E1 packets, with first 2 bytes set to 0x8100, and last 2 bytes as VLAN ID set by user, used in networks supporting VLAN priority for QoS guarantees of E1 packets. <b>NO:</b> do not use VLAN header when the network does not support VLAN priority, higher efficiency
<b>USE ARP</b>	<b>DISABLE:</b> destination MAC should be specifically set for pairing <b>ENABLE:</b> destination MAC is acquired through ARP protocol
<b>PACKET SIZE</b>	Number of E1 bytes to be put into each packet, valid value from 1 to 11, in 128 byte increment. The longer the packet, the higher the bandwidth efficiency, but the longer the delay
<b>TIMING</b>	<b>THROUGH:</b> E1 clock recovered from packets <b>LOOP:</b> E1 clock extracted from Rx signal of the same port
<b>JITTER BUFFER</b>	Buffer size for packet jitter absorption, valid number from 1 to 80

Table 8 *Advanced parameters*

Parameter	Description
<b>LOCAL MAC</b>	The physical Ethernet address of this unit
<b>REMOTE MAC</b>	The physical Ethernet address of the remote unit, useful only when ARP is not enabled.
<b>LOCAL IP</b>	The IP address of this unit
<b>REMOTE IP</b>	The IP address of the remote unit

<b>SUBNET MASK IP</b>	sub-network mask.
<b>GATEWAY IP</b>	IP address of the default gateway router. When local and remote IP addresses are not within the same sub-network, they must use gateway routing for communication.
<b>THE FRAME TYPE</b>	Ethernet frame type byte. When local and remote units are in the same sub-network, IP header can be omitted, and both should have the same Ethernet frame type.
<b>VLAN TAG</b>	User definable 4-byte VLAN header, to be used to control the packet's behavior in a VLAN aware network.
<b>UDP PORT</b>	UDP port number. E1 data are packed into UDP packets. Both local and remote unit must use the same UDP port number.

**Elaborations:**

1. The E1 packets for each E1 channel take about 2.3 Mbps bandwidth, depends on packet size parameter. The XL-TDM2E1B automatically adapts to the actual E1 used. If an E1 input is left open, it will not allocate uplink bandwidth for that E1, leaving more bandwidth for local data.
2. The timing mode takes effect for both E1's, they cannot be independently set.
3. Packet size parameter specifies the number of E1 data bytes in each packet. Other overhead bytes such as IP header etc., depending on other options, will be added to the data, resulting larger final packet.

## **6.2 Console setting**

The console port protocol is shown bellow. The hyper terminal should be set likewise:

Bits per second: 9600  
Data bits: 8  
Parity: None  
Stop bits: 1  
Flow control: None

Press Enter, login line will appear.

## **6.3 Command menu**

Type in correct password at the password prompt, the command menu will appear. Initially, password is set to "000000".

The command menu is organized into 3 levels. Most commands are activated by selecting the number given at the beginning of each commands, others are by direct input of the parameter value, depending on the parameter type.

Usually, current parameter value is shown at the end of each menu line, within square brackets.

After login, if no key action is detected within 90 seconds, system will log off automatically to prevent unauthorized access.

The parameters will not be changed until specifically saved with SAVE CONFIG command. Parameters are saved to one of 16 memory locations associated with the mode address switch position. Saved parameters can take effect only if the mode address is set to the right position.

### **6.3.1 Main menu**

```
CURRENT MODE SETTING 0
(0)QUIT
(1)CHANGE PASSWORD
(2)BASIC CONFIG
(3)ADVANCED CONFIG
(4)SHOW CURRENT CONFIG
(5)SAVE CONFIG
(6)CHANGE MODE
Please select [0]:
```

Note that the first line indicates the current mode address switch position as a reminder. Select one of the numbers bring out the second level command menu, '0' will log off.

### **6.3.2 Change password**

Select '1' at main menu, brings up the change password menu:

*Please input old password:*

Input old password here, if correct, system will ask for new password and retyping. If correct, the system will ask again

*Change password? (Yes or No):*

Input 'y' to conform, and next line appears:

*Your password has been changed*

Otherwise, the password is not changed.

Note: if forget your password, please seek help from your support.

### **6.3.3 Basic parameter menu**

```
(0)QUIT
(1)USE IP [YES]
(2)USE VTAG [NO]
```

- (3)USE ARP [YES]
  - (4)PACKET SIZE[1x128]
  - (5)TIMING MODE[THROUGH]
  - (6) JITTER BUFFER [4]
- Please select [0]:

### **6.3.4 Advanced parameter menu**

- (0)QUIT
  - (1) LOCAL MAC [00:02:DE:E5:B8:70]
  - (2)REMOTE MAC[00:02:DE:E5:B8:71]
  - (3)LOCAL IP [172.16.95.245]
  - (4)REMOTE IP [172.16.95.246]
  - (5)SUBNET MASK [255.255.0.0]
  - (6) GATEWAY IP [172.16.95.202]
  - (7) ETH FRAME TYPE [0xC0C0]
  - (8)VLAN TAG [0x0000]
  - (9)UDP PORT [52719]
- Please select [0]:

### **6.3.5 Show current config menu**

All the current parameter values, saved or not, are shown, such as:

LOCAL/REMOTE MAC	00:02:DE:E5:B8:71/00:02:DE:E5:B8:70
LOCAL/REMOTE IP	172.16.95.246/172.16.95.245
NETMASK/GWIP	255.255.0.0/172.16.95.202
ETYPE/VTAG/UPORT	0xC0C0/0x0000/52419
IPHEAD/ARP/VTAG	YES/YES/NO
PCKLEN/BUFFSIZE	1x128/4x128
BW/TIMING	3500 Kbps/THROUGH
PALM/DALM	0x18/0x05

### **6.3.6 Save config menu**

- (0) RETURN TO TOP MENU
  - (1) SAVE CURRENT SETTING
- Please select[0]:

When commend (1) is selected, system asks to which address the current parameters should be saved.

*Save to [0] (0~F):*

Input the intended location number to save. Current mode switch position is shown in square bracket. Press Enter without number will save to this position.

## **7 Specification**

### **7.1 Capacity**

- Two E1 ports, one 10/100Base-Tx uplink Ethernet port.

### **7.2 E1 interface**

- Comply with ITU-T G.703 recommendation
- 75Ω(BNC) / 120Ω(RJ45) auto-adapt
- End-to-end delay (minimum delay setting) ≤ 10ms
- Output frequency offset (through timing, stabilized) ≤ 10 ppm
- Output jitter (through timing) ≤ 0.1UI

### **7.3 10/100Base-Tx port**

- Comply with IEEE 802.3
- 10M/100M Adaptive
- Half/Full Duplex Adaptive
- Support 802.1Q MAC

### **7.4 Power**

- AC : 165V~265V/50Hz
- Power Consumption : ≤10W

### **7.5 Operating condition**

- Temperature: 0~50 °C
- Humidity: ≤ 90% (non-condensing)

### **7.6 Dimensions**

- Width × Height × Depth : 440 × 44 × 209 mm

### **7.7 Weight**

- 2.5 kg