

LD-NT1200 ISDN NT-1 PLUS

User's manual

1 Introduction

1.1 Overview

The LD-LINK ISDN NT-1 Plus is a NT1 Plus type of connector that has two built-in analog ports to allow direct hookup to the analog telephones from an ISDN line. Users will enjoy the benefits of high-speed ISDN services while they can still keep their existing analog telephones and fax machines.

1.2 Product features

- Conforms to ANSI and ETSI network and terminal interfaces
- Compatible with 2B1Q basic rate services and standard ISDN terminals
- Provides 2B+D ISDN basic rate service
- Provides point-to-point and point-to-multipoint connections
- 2 POTS ports connected to analog or G3 fax machine
- Supports ISDN Supplementary Services (D channel: DSS1)
- Local functions including internal POTS call, transferring POTS external call to another POTS phone Connects to one POTS or one ISDN phone at remote power condition

3. ISDN NT-1 Plus hardware installations

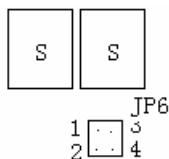
1. Insert the S/T plug of TE1(eg. ISDN phone) into S/T1 or S/T2, or insert the plug of an analog phone into TEL1 or TEL2.
2. Insert the U-plug into the U-interface embedded in the wall.
3. Switch on the power.
4. Send activation command from TE1(eg.hook off an ISDN phone) or TA(eg.hook off an analog phone) or from LE(call this ISDN number), now, the status LED flash at 8Hz.
5. After several seconds, the status LED turns ON(U- and S/T- interfaces work normally),or flashes at 1Hz(U-interface works normally, S/T-interface works abnormally),or turns OFF(U-interface works abnormally).

4、 Meanings of the LEDs

1. Local power (L-Power LED)and Remote power(R-Power LED) LED
 local power provided: Local power ON, Remote power OFF
 local power not provided: Local power OFF, Remote power ON
2. Status led
 OFF: U- and S- interfaces not activated.
 Flashes at 8Hz: Activating the U-interface or U-interface fault.
 Flashes at 1Hz: U-interface activated, S-interface being activated or S-interface fault
 ON: U- and S-interface all activated.
3. POTS LED(TEL1 LED OR TEL2 LED)
 OFF: POTS idle.
 Flashes at 8Hz: ringing.
 Flashes at 1Hz: POTS being used.
 ON: talk

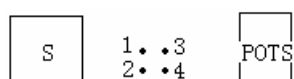
5、 Selection of the terminal resistance

If the 50Ω resistance is needed, you can find JP6 jumper while you open the NT1 plus, short the pin 1-2 and pin 3-4.



6、 Remote power feeding selection

In case of restricted power supply, you can select only one analog phone or one ISDN phone to work by set the jumper back of the device, short 3-4 pin to select one analog phone, or short 1-2 pin to select one ISDN phone.



7、 Usage

Note: if there is no <R> key, you can tap the hook or dial two '*' to substitute it.

1. Data setup

Hook off any analog phone, you will listen dial tone, then, press the <R> key, the dial tone disappears, now, dial a digit string started with '*' and ended with '#' to set data.

*90*old PIN*new PIN*new PIN#

Configure PIN, the initial PIN is '000'.

*91*PIN*MSN#

Configure MSN

*91*PIN# (initial setup)

Cancel MSN

*92*PIN*SUB#

Configure subaddress (initial setup:' 1' for POTS 1,'2' for POTS 2)

*92*PIN#

Cancel subaddress

In case of remote power, the MSN and SUB will be ignored.

*93*PIN*0#

Calling Line Identification Presentation. (initial setup)

*93*PIN*1#

Calling Line Identification Restriction.

*93*PIN*2#

Connected Line Identification Presentation. (initial setup)

*93*PIN*3#

Connected Line Identification Restriction.

*93*PIN*4#

A law. (initial setup)

*93*PIN*5#

μ law.

*93*PIN*6#

Configure point to multi-points or extended passive bus. *93*PIN*7#

Configure short passive bus. (initial setup)

*93*PIN*8#

Reject waiting incoming call while POTS all idle.

*93*PIN*9# (initial setup)

Receive waiting incoming call while POTS all idle.

When a waiting incoming call arrives, if the NT1+ is set to receive it while POTS all idle, the analog phone still ring, otherwise, the analog phone doesn't ring.

This function is provided for the ISDN card. Accessing the Web with 128kbps/s, if the card can release one B channel automatically when a new incoming call arrives and the NT1+ is set to receive it while POTS all idle, the analog phone still ring and the new incoming call can be responded while an analog phone being hooked off. If the card can't release the B channel automatically, the NT1+ must be set to reject the new incoming call, otherwise, the analog phone will listen busy tone even if it's hooked off.

*94*PIN*0# (initial setup)

Caller ID : FSK type I .

*94*PIN*1#

Caller ID : DTMF.

*94*PIN*2#

Don't add '0' in front of the number of long distance incoming call.

*94*PIN*3# (initial setup)

Add '0' in front of the number of long distance incoming call.

*94*PIN*4# (initial setup)

Don't support charger.

*94*PIN*5#

Support charger.

*95*PIN*0|12|3|4#

Adjust the receiving volume (0:max,4:min,initial setup 0).

*96*PIN*0|12|3|4#

Adjust the transmitting volume (0:max,4:min,initial setup 0).

*50*PIN*number0#

*51*PIN*number1#

...

*59*PIN*number9#

Configure outgoing restricted numbers.(number can be partial)

*50*PIN#

*51*PIN#

...

*59*PIN# (initial setup)

Cancel outgoing restricted numbers.

*40*PIN*number0#

*41*PIN*number1#

...

*49*PIN*number9#

Configure incoming restricted numbers. (number can be partial)

*40*PIN#

*41*PIN#

...

*49*PIN# (initial setup)

Cancel incoming restricted numbers.

*60*PIN*number0#

*61*PIN*number1#

...

*69*PIN*number9#

Configure outgoing emergent numbers. (number can be partial)

*60*PIN#

*61*PIN#

...

*69*PIN# (initial setup)

Cancel outgoing emergent numbers.

*00*PIN*number0#

*01*PIN*number1#

...

*09*PIN*number9#

Configure incoming important numbers. (number can be partial)

*00*PIN#

*01*PIN#

...

*09*PIN# (initial setup)

Cancel incoming important numbers.

*99*PIN*0#

*99*PIN*1#

...

*99*PIN*4#

Configure call restriction mode. (initial setup 3)

0: no restriction

1: outgoing restriction(numbers configured with 5x can't be called out)

2: incoming restriction(numbers configured with 4x can't be called in)

3: outgoing and incoming restriction(numbers configured with 5x can't be called out; numbers configured with 4x can't be called in)

4: all restriction(numbers configured with 6x and fixed emergent numbers such as

110,112,119,120,122 can be called out; numbers configured with 0x can be called in)

*99*PIN*9#

Reset data

You can listen the confirm tone if you setup the data successfully, otherwise, you will hear busy tone.

2. Intercom

You will listen dial tone while you hook off POTS A, if you press <R> key, the dial tone will stop. Now, you can dial '#' to call another POTS B, if B is idle, it will ring and you can listen echo tone, you can talk with another people while he hooks off POTS B; if B is in use, you will listen busy tone.

As the B channel is not occupied in case of intercom, it's free using intercom.

3. Call transfer internally

Suppose you(POTS A) are talking with an external user(C), if you press <R> key, you will listen dial tone and C will listen hold music; then, dial '#', if POTS B is idle, you will listen echo tone and B will ring; the people that hooks off B will talk with C. You will listen confirm tone if you haven't hooked on A while other people hooks off B.

On the course of transferring, you can press <R> key to talk with C again;

On the course of transferring, if the external user C hooks on, you will listen busy tone and B will stop ringing.

4. 3PTY(Three Party Service)

Suppose you(POTS A) are talking with an external user(B), if you press <R> key, you will listen dial tone and B will listen hold music; then, dial a number to call another external user(C), if C is idle, you will listen echo tone and C will ring. You can talk with the people hooks off C. Now, you press <R> key, listening confirm tone, in 10 seconds, you dial:

1. '0': talk with C and don't hold B
2. '1': retrieve B and don't hold C
3. '2': talk with B and C alternatively
4. '3': implement 3PTY
5. '4': only talk with C and hold B
6. '5': only talk with C and clear B
7. '6': only talk with B and hold C
8. '7': only talk with B and clear C

While calling another user, you can press <R> key to talk with B again.

5. CW(Call Waiting)

Suppose you(POTS A) are talking with an external user(B), another external user(C) calls

you, now, C will listen echo tone and you will listen waiting tone, you can:

1. Do nothing, the call will be cleared after 1 minute.
2. Press <R> key, listening confirm tone, in 10 seconds, you can dial:
 - '0': clear the new call
 - '1': talk with C and end the conversation with B
 - '2': talk with C and hold B, subsequent operation is same as 3PTY

Suppose you(POTS A) are talking with another POTS B, an external user(C) calls you, now, C will listen echo tone and you and B will all listen waiting tone, you or B can:

1. Do nothing, the call will be cleared after 1 minute.
2. Press <R> key to talk with C, the other will listen confirm tone.

8、 Specifications

U interface:

Standard:	ITU-T G.961 , ETR 080, ANSI T1.601
Line Coding:	2B1Q
Startup Link Time:	
- Cold start :	Typically 3 seconds
- Warm start:	Typically 110ms
Termination Resistance:	135 Ω
Transmission Range:	≤ 5.5 km
Connector:	RJ45

S/T interface:

Standard:	ITU-T I.430
Line Coding:	AMI code
Termination Resistance:	100 Ω or 50 Ω selectable
Bus connection:	
	Point-to-point, short passive bus, extended passive bus.
Connector:	RJ45
Power source 1:	
Output Voltage at S interface:	42V
Power Feeding to the S-bus:	
	> 4.5W in normal operation with Local Power
	> 460mW in emergency operation

POTS interface:

Power Feeding:	-42V
Local Dial Tone:	-10±2dBm0/ 400Hz sine wave
Ringing Signal :	40Vrms / 25Hz sine wave
Caller ID :	FSK Type I or DTMF selectable
Ringing Load Number:	2
Loop Current:	20mA

AC/DC adapter:

Input:	100~240VAC,50/60Hz
Output:	-42V DC, 220mA

Local tone:

Dial tone:	continuous
Busy tone:	0.35s ON, 0.35s OFF repetitive
Ring back Tone:	1s ON, 4s OFF repetitive
Confirmation Tone:	100ms ON, 50ms OFF, repetitive for 3 times
Warning Tone:	0.35s ON,0.35s OFF, repetitive for 3 times
Internal call Ringing signal:	1s ON, 2s OFF repetitive
External call Ringing signal:	1s ON, 4s OFF repetitive

Environmental and Safety:

Working temperature:	0°C~+45°C
Working Humidity:	0~95% Non-Condensing
Storage temperature:	-40°C~+75°C
EMC:	Comply with CISPR 22
Safety:	Comply with EN60950

9、FAQ**1. No dial tone**

The dial tone is generated by NT1+ itself, so, even if the U-interface not activated, you can listen dial tone while you hook off an analog phone. Additionally, the NT1+ can only support one analog phone or one ISDN phone in case of restricted power, you can check if the local power exists, if the remote power supply jump is set to support one ISDN phone or one analog phone is hooked off.

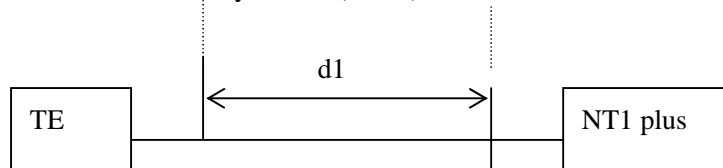
2. Able to listen dial tone, but it can't stop while a digit pressed

- If the dial mode is set to DTMF.
3. Unable to call out
 - If the U-interface is activated;
 - if the A/ μ law is coincidence;
 - if outgoing restriction is set
 4. No ring while a incoming call arrived
 - First, process an internal call to check if the phone can ring;
 - Check if the A/ μ law is coincidence;
 - Reset the MSN or SUB,the MSN must be coincidence with the PSTN;
 - Clear the MSN and SUB;
 - Check if incoming restriction is set
 5. No caller ID
 - If the phone can ring;
 - If the current mode NT1+ supporting is supported by the CID displayer;
 - If you have request the CLIP service
 6. Caller ID abnormal, the number is wrong
 - NT1+ supports SUB, it'll attach the SUB to the user number.
 7. Caller ID normal, but the date and time is wrong
 - Complete an outgoing call, the internal clock of NT1+ will be updated;
 - The LT doesn't support the transfer of date and time
 8. Unable to use ISDN phone while local power not provided
 - Refer to page 2, remote power feeding selection
 9. Unable to transfer external call, unable to establish three party conference
 - If you have requested these supplementary services;
 - These services need <R> key, if there is no <R> key or the <R> key is not standard,you can tap the hook or dial two '*' to substitute

12、 Appendix: Bus of ISDN BRI S/T-interface

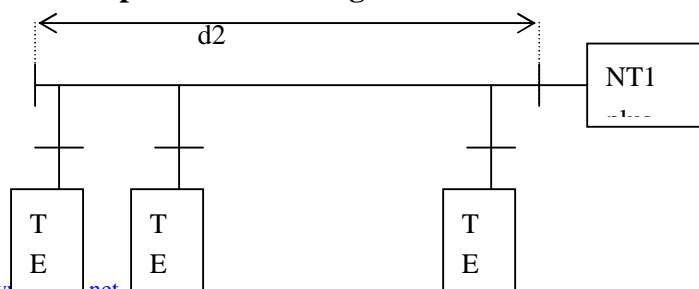
1. Point to point configuration

In this case, only one TE(or TA) can be accessed to the NT1 plus.



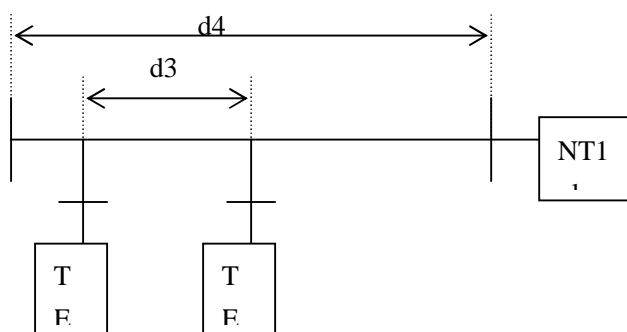
d1 can be as long as 1km(determined by the type of the wire),
 100Ω resistance must be set in the TE.

2. Short passive bus configuration



d_2 can be as long as 200m(determined by the type of the wire),TE can be accessed at any point of the wire,NT1 plus can be placed at any point of the wire.8 TEs can be accessed,the 100Ω resistance must be set in only one of them.

3. Extended passive bus configuration



d_4 is about 100~1000m(determined by the type of the wire), d_3 is the distance between two TEs, it can't be longer than 25~50m.The terminal resistance must set in only one of the TEs.

4. Length of the connected wire

In the case of point to multi-points, the length of the standard ISDN wire which connects TE to bus can't be longer than 10m.

5. Polarity

For the case of point to point configuration, the polarity of the 2 wires of the pair switching circuit(node 3,4,5,6) can be reverse.

For the case of point to multi-points configuration, the polarity of the 2 wires of the pair switching circuit(from TE to NT1 plus) must keep intact.

6. Accessible number

When the wire which connects TE to the bus is 10m long standard ISDN BRI wire, 8 TEs/TAs along the short passive bus or 4 TEs/TAs along the extended passive bus must be accessed to the bus.