

Issue 1.1

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LL304WU.doc

PRODUCT LL304  
FOUR CHANNEL TELEPHONE LINE  
EXTENDER WITH 4W & E and M.

USER MANUAL

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## USER MANUAL

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## 1. PRODUCT DESCRIPTION

### 1.1 GENERAL

The LL304 provides an optical interface between an exchange and four telephones. The units are provided as either 3U high, rack mounted cards or mounted into a metal enclosure with power supply.

### 1.2 FEATURES

#### 1.2.1 INDICATIONS

The unit has 10 leds which indicate the following:

**Power** indicates Power to the System

**LinkOK** Indicates an operational link

<u>Chan</u>		<u>Exchange side</u>		<u>Telephone side</u>
1	<b>Loop</b>	Exchange line looped	<b>Loop</b>	Phone picked up
	<b>Ring</b>	Exchange is ringing	<b>Ring</b>	Phone ringing
2	<b>Loop</b>	Exchange line looped	<b>Loop</b>	Phone picked up
	<b>Ring</b>	Exchange is ringing	<b>Ring</b>	Phone ringing
3	<b>Loop</b>	Exchange line looped	<b>Loop</b>	Phone picked up
	<b>Ring</b>	Exchange is ringing	<b>Ring</b>	Phone ringing
4	<b>Loop</b>	Exchange line looped	<b>Loop</b>	Phone picked up
	<b>Ring</b>	Exchange is ringing	<b>Ring</b>	Phone ringing
5	<b>Loop</b>	Exchange line looped	<b>Loop</b>	Phone picked up
	<b>Ring</b>	Exchange is ringing	<b>Ring</b>	Phone ringing

## 2. SYSTEM CONFIGURATION

### 2.1 FAMILY TREE and STOCK CODES.

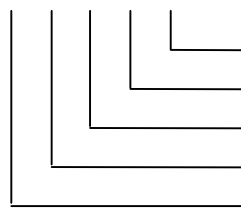
The following table indicates the make up and various options of the product.

LL304E sub units	A	B	C
POWER SUPPLY	220V AC	100V AC	48V DC
4 ch EXCHANGE CARD			

LL304T sub units	A	B	C
POWER SUPPLY	220V AC	110V AC	48V DC
4ch TELEPHONE CARD			

### 2.2 MODEL NUMBERS

LL304\_ \_ \_ \_ \_



version.  
 Power supply option  
 Optic connector option  
 Optic option  
 (E)Exchange (T)Telephone (W)4Wire E&M



### **3. PREPARATION FOR USE**

#### **3.1 UNPACKING**

Check for physical damage caused during transportation. Return any damaged equipment.

#### **3.2 INSTALLATION**

Check the voltage supply matches that of the equipment before installation commences. Connect the power cable. The DC. power connections are shown on the rear panel. The equipment has no ON/OFF switch and is therefore active as soon as power is connected.

Connect the exchange/telephone cables.

#### **3.3 COMMISSIONING**

If the link is correctly connected then telephone communications should be operational Link OK led should be lit.

### **4. OPERATORS INSTRUCTIONS**

The unit needs no operator intervention to function. If a fault arises, it is necessary to observe the led indications and to perform such procedures as first line maintenance as described in the proceeding chapter.

See maintenance instructions for any other functions.

## 5. MAINTENANCE INSTRUCTIONS

No routine maintenance is required on this equipment.

### 5.1 INSTRUMENTS AND TOOLS REQUIRED

- Multimeter

### 5.2 FIRST LINE MAINTENANCE

When arriving at a suspect link it is always necessary to ensure that the unit has been correctly coupled (refer to block diagrams Annexure 'A') and to observe correct LED operation.

First observe the power indicator. If the power indicator is off then check if the supply voltage is correct for that particular power supply. The unit has a fuse on the PSU and also one in the kettle plug connector if the 110/220V AC option is used. Replace faulty fuses with those of the correct value only.

When link is connected but no phones are in use, LED indicators should be as follows.

	<u>Exchange side</u>		<u>Telephone side</u>
<b>Power</b>	ON		ON
<b>LinkOK</b>	ON		ON
<u>Per channel</u>			
<b>Loop</b>	OFF	<b>Loop</b>	OFF
<b>Ring</b>	OFF	<b>Ring</b>	OFF

When a telephone is picked up or E and M signalling activated:

<b>Loop</b>	On	<b>Loop</b>	On
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When the exchange calls an extension:

<b>Ring</b>	flashing	<b>Ring</b>	flashing
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## 6. EXPLANATION OF TECHNICAL DIAGRAMS AND SOFTWARE

### 6.1 CONNECTING THE UNIT

Connect LL304 as shown in the block diagram Annexure 'A' Using an RJ11 plug for both the Exchange and Telephone side connections. Connect the fibres taking care to distinguish between transmit and receive directions.

### 6.2 BASIC CIRCUIT OPERATION

Refer to block diagram on Annexure 'A'.

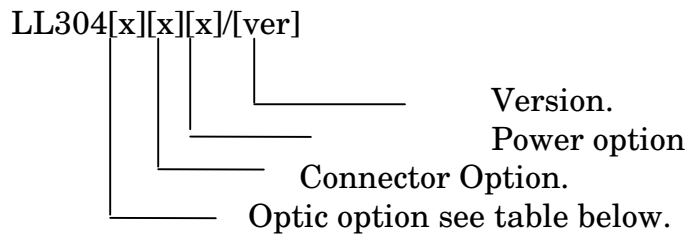
System operation per channel when the Telephone is picked up to make a call:

- |    |         |                               |
|----|---------|-------------------------------|
| 1) | Loop(T) | ON - when phone is picked up  |
| 2) | Loop(E) | ON - exchange side loops line |

System operation when exchange calls the telephone:

- |    |         |                              |
|----|---------|------------------------------|
| 1) | Ring(E) | ON - exchange ringing        |
| 2) | Ring(T) | ON - flashing                |
| 3) | Loop(T) | ON - detects phone picked up |
| 4) | Loop(E) | ON                           |
| 5) | Ring(E) | OFF                          |

### 6.3 MODEL NUMBERS



#### OPTIC OPTION

Stock Code	Optic Option	Connector Option	Wavelength	Fibre Mode	Power Budget	Budget Distance
A	850sr	ST or SMA	850nm	Multi-mode	10dB	3,5Km
B	1300mr	ST or SMA	1300nm	Multi-mode	10dB	12Km
G	1300srsm	ST	1300nm	Multi-mode Single-mode	10dB 6dB	12Km 10Km
C	1300mrs m	FC	1300nm	Multi-mode Single-mode	15dB 12dB	16Km 24Km
D	1300lr	FC	1300nm	Multi-mode Single-mode	28dB 25dB	28Km 50Km
E	1300laser	ST or FC	1300nm	Multi-mode Single-mode	36dB 35dB	36Km 70Km

## 7. PHYSICAL AND ELECTRICAL SPECIFICATION

### 7.1 ELECTRICAL:

- Power Supply (5 Watt) - 115/230 VAC 50/60Hz
- Maximum distance - 3km between units with standard optics.
- Audio levels are 0dB into 600Ω.
- Frequency Response <3dB From 300 to 3,4kHz.
- E and M signalling. 10mA sensitivity.
- Telephone line voltage 17VDC.

### 7.2 FUNCTIONS AND CHARACTERISTICS:

- \*Indicators
- Power
  - Link OK
- Exchange side
- Loop(E) exchange is looped
  - Ring(E) exchange is ringing extension
- Telephone side
- Loop(T) telephone is off hook
  - Ring(T) telephone is ringing
- \*Physical
- Enclosure unit
    - Depth: 180mm Height: 42mm
    - Width: 202mm Weight: 1.5 Kg
  - Rack unit
    - Euro card in 19" rack (LL700)
- \*Environmental conditions
- Temperature: 0 - 40 degrees Celsius
  - Humidity: 0 - 95 % non-condensing

ANNEXURE 'A' WIRING INTERFACE UNIT BLOCK DIAGRAM.

