



# Loop-IP6440 IP I-MUX

## Description



The Loop-IP6440 IP Inverse Mux provides connectivity from 10/100 BaseT LAN to E1 WAN through multiple E1, up to 4 E1 links. Loop-IP6440 also provides a bridging function from Ethernet to E1 links. This unit can provide customers from 2Mbps to 8Mbps network bandwidth.

## Features

- Support WAN link, which is virtually concatenated  $n \times E1$  ( $n$  can be 1 to 4)
- Support up to 64ms (configurable for 16, 32, and 64ms) of transmission different delay between E1s.
- GFP (Generic Frame Protocol) is used to map the Ethernet packet into the virtually-concatenated E1's.
- Support 10/ 100 BaseT Ethernet
- Support Tx (Transmit)/ Rx (Receiver) auto reverse function
- Support 10M or 100M auto detecting function
- Support timing sources selection from (1) a certain E1 from  $n \times E1$ , (2) External clock, (3) Internal
- Support Alarm Relay
- Support local control and diagnostic via DB9S console port
- Support Ethernet, SNMP, and inband management
- Support management firewall for blocking all malicious management packages.
- Support VLAN packet transparent:
  - Up to 1912 bytes for optional MAC learning is included.
- Multicolor LED indicators.

Loop-IP6440 offers automatic E1 channel failure detection and can re-assign the number of E1 channels for transport of Ethernet traffic. For example, if there are 4 E1s configured for 10/100 Ethernet traffic transport, and one E1 fails during the service, the other 3 pick up the entire load. This minimizes loss of IP packets.

Loop-IP6440 support DB9S console port, which allows users to execute in-service diagnostics and fault isolation from a local or remote terminal. Loop-IP6440 also allows remote site to telnet via Ethernet port. The IP6440 series also provides multicolor LED indicators on the front panel and ACO (Alarm Cut-Off) button.

**CERTIFIED  
ISO-9001**

## Ordering Information

To order specify:

**Note:** RoHS compliant units are identified by the letter **G** appearing immediately at the end of ordering code.

| Model<br>(non RoHS compliant)             | Model<br>(RoHS compliant)                   | Description  | Note   |
|---|---|--|--|
| <b>Main Unit</b>                          |   |  |  |
| Loop-IP6440-1UA-4E75- <b>pp1-pp2-Add</b>  | Loop-IP6440-1UA-4E75- <b>pp1-pp2-Add-G</b>  | 1U height ANSI (rear & front access) shelf w/ 4E1 channels BNC connector (75 ohm)    | · where <b>pp1</b> , <b>pp2</b> , and <b>Add</b> are defined in below tables |
| Loop-IP6440-1UA-4E120- <b>pp1-pp2-Add</b> | Loop-IP6440-1UA-4E120- <b>pp1-pp2-Add-G</b> | 1U height ANSI (rear & front access) shelf w/ 4E1 channels RJ48C connector (120 ohm) |  |
| Loop-IP6440-1UE-4E75- <b>pp1-Add</b>      | Loop-IP6440-1UE-4E75- <b>pp1-Add-G</b>      | 1U height ETSI (fully front access) shelf w/ 4E1 channels BNC connector (75 ohm)     | · where <b>pp1</b> and <b>Add</b> are defined in below tables                |
| Loop-IP6440-1UE- 4E120- <b>pp1-Add</b>    | Loop-IP6440-1UE-4E120- <b>pp1-Add-G</b>     | 1U height ETSI (fully front access) shelf w/ 4E1 channels RJ48C connector (120 ohm)  |  |
| <b>Plug-in Power Modules:</b>             |   |  |  |
| Loop-IP6440-SA                            | Loop-IP6440-SA- <b>G</b>                    | Single AC power supply (90~264 Vac)  | · For power redundancy, order extra power supply                             |
| Loop-IP6440-SD24                          | Loop-IP6440-SD24- <b>G</b>                  | Single DC power supply (24Vdc: 18-36 Vdc)  |  |
| Loop-IP6440-SD48                          | Loop-IP6440-SD48- <b>G</b>                  | Single DC power supply (48Vdc: 40-75 Vdc)  | · For AC choose an appropriate power cord                                    |

### Accessories

#### **User's Manual (All User's Manuals are RoHS compliant)**

|                |                |   |  |
|----------------|----------------|---|--|
| Loop-IP6440-UM | Loop-IP6440-UM | User's Manual (paper hard copy optional). A CD version of the manual is already included as standard equipment. |  |
|----------------|----------------|---|--|

#### **Power Cord (All power cords are RoHS compliant)**

|                 |                 |                                  |  |
|-----------------|-----------------|----------------------------------|--|
| Loop-ACC-PC-USA | Loop-ACC-PC-USA | AC power cord for Taiwan/America |  |
| Loop-ACC-PC-EU  | Loop-ACC-PC-EU  | AC power cord for Europe         |  |
| Loop-ACC-PC-UK  | Loop-ACC-PC-UK  | AC power cord for UK             |  |
| Loop-ACC-PC-AUS | Loop-ACC-PC-AUS | AC power cord for Australia      |  |
| Loop-ACC-PC-CH  | Loop-ACC-PC-CH  | AC power cord for China          |  |

■ where **pp1** are used to select power supply for main shelf:

**pp1** =

|             | non RoHS compliant | RoHS compliant | Description                                       | Note   |
|-------------|--------------------|----------------|---|--|
| <b>AC</b>   | Available          | Available      | Fixed AC power (90~264 Vac)                       | <ul style="list-style-type: none"> <li>Units delivered with the fixed AC option have a built-in power supply module. These units will not accept plug-in power supply modules.</li> <li>For AC choose an appropriate power cord</li> </ul> |
| <b>SA</b>   | Available          | Available      | Single plug-in AC power supply (90~264 Vac)       |  |
| <b>SD24</b> | Available          | Available      | Single plug-in DC power supply (24Vdc: 18-36 Vdc) |  |
| <b>SD48</b> | Available          | Available      | Single plug-in DC power supply (48Vdc: 42-72 Vdc) |  |

■ where **pp1** and **pp2** are used to select power supply for main shelf:

**pp2** =

|             | non RoHS compliant | RoHS compliant | Description                                       | Note                                      |
|-------------|--------------------|----------------|---|---|
| <b>SA</b>   | Available          | Available      | Single plug-in AC power supply (90~264 Vac)       | · For AC choose an appropriate power cord |
| <b>SD24</b> | Available          | Available      | Single plug-in DC power supply (24Vdc: 18-36 Vdc) |   |
| <b>SD48</b> | Available          | Available      | Single plug-in DC power supply (48Vdc: 42-72 Vdc) |   |

■ where **Add** is used to select other additional options (**Multiple option choices are available**) :

**Note:** LCD and all external clocks are RoHS compliant

**Add** =

|            | Description                         | Note   |
|------------|-------------------------------------|--|
| <b>EXT</b> | External Clock                      | · All external clocks are RoHS compliant.                          |
| <b>LCD</b> | LCD front panel ( <b>see Note</b> ) | · LCD is supported for ANSI shelf only<br>· LCD is RoHS compliant. |

## **Loop-IP6440 IP I-MUX Product Specification**

### Line Interface

|              |   |               |                               |
|--------------|---|---------------|-------------------------------|
| Line Rate    | 2.048 Mbps ± 50 ppm   | Connector     | BNC (75 ohm), RJ48C (120 ohm) |
| Data Rate    | n x 30 x 64Kbps (n=1 to 4) or<br>n x 29 x 64Kbps (n=1 to 4) | Output signal | ITU G.703                     |
| Line Code    | AMI/ HDB3   | Electric      | 75 ohm/ 120 ohm twisted pair  |
| Input Signal | ITU G.703   | Jitter        | ITU G.823                     |

### Clock Source

|                 |  |
|-----------------|--|
| Primary Clock   | Any one of E1 line, external(option), internal     |
| Secondary Clock | Any another of E1 line, external(option), internal |

### Diagnostics Test

|                  |                                     |
|------------------|-------------------------------------|
| Loopbacks        | Line Loopback, Payload Loopback     |
| Remote Loopbacks | Line Loopback, and Payload Loopback |

### Performance Monitor

|                     |  |
|---------------------|--|
| Performance Store   | Last 24 hours performance in 15-minute intervals and last 7 days in 24-hour summary line, user   |
| Performance Reports | Date & Time, Errored Second, Unavailable Second, Bursty Errored Second, Severe Errored Second, Controlled Slip Second, and Loss of Frame Count |
| Monitor Registers   | Line, User   |
| Alarm History       | Alarm Type (i.e. Master Clock Loss, RAI, AIS, LOS, BPV, ES, CSS)   |
| Alarm Queue         | Maximum 40 alarm records which record the latest alarm type, location, and date & time   |
| Alarm Threshold     | BPV, ES, UAS, CSS  |

### Ethernet

|           |                              |
|-----------|------------------------------|
| Connector | RJ45                         |
| Protocol  | Telnet and embedded SNMP     |
| Speed     | 10 or 100 BaseT, auto-detect |
| Standard  | <a href="#">IEEE 802.3u</a>  |

### Physical

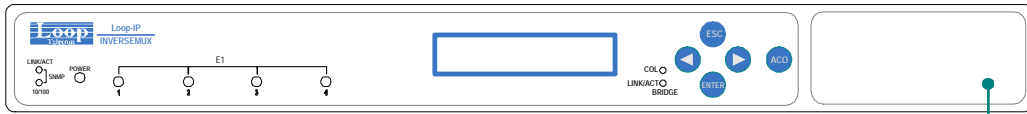
|                   |  |
|-------------------|--|
| Dimensions        | 432 x 44 x 255 mm. (WxHxD)   |
| Power Source (AC) | 100-240V, 50/60 Hz AC  |
| Power Source (DC) | 24Vdc: 18-36 Vdc, dual DC hot swappable<br>48Vdc: 42-72 Vdc, dual DC hot swappable |
| Power Consumption | < 30 watts   |
| Temperature       | 0 -50°C  |
| Humidity          | 0-95% RH (NON-CONDENSING)  |
| Mounting          | Desk-top stackable, wall mount   |

## Certification Compliance

EMI/EMC  
Safety

EN55022 Class A, EN55024, FCC Part 15 Subpart B Class A  
EN60950-1

### Front Panel

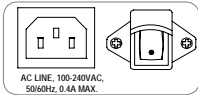


1



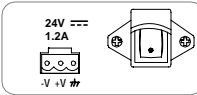
Blank Panel (when fix AC power supply is selected)

2



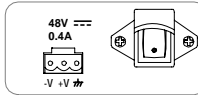
AC plug-in power supply

3



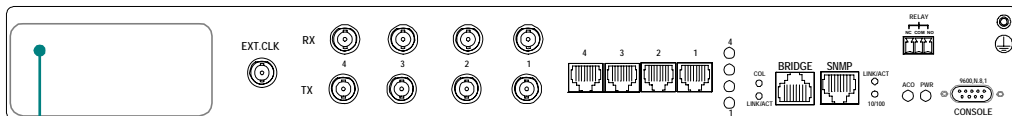
24V DC plug-in power supply

4

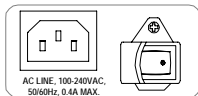


48V DC plug-in power supply

### Rear Panel

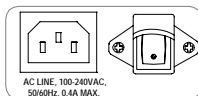


1



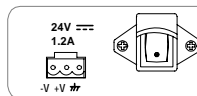
Fix AC power supply

2



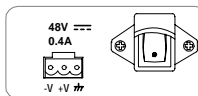
AC plug-in power supply

3



24V DC plug-in power supply

4



48V DC plug-in power supply

## Application Illustration



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**ISO 9001/ISO 14001**

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