



# E1/DS1/DTE Loop-IP6610 Router/Bridge Box

## Description

The Loop-IP6610 Router/Bridge provides connectivity from 10/100 BaseT LAN to E1/ DS1/ DTE WAN in a small metal box.



Loop-IP6610 Router/Bridge support DB9S console port, which allows users to execute in-service diagnostics and fault isolation from a local or remote terminal. Loop-IP6610 Router/Bridge also allow remote site to Telnet via Ethernet or WAN port. The IP6610 Router/Bridge series also provides multicolor LED indicators on the front panel and ACO (Alarm Cut-Off) button.

## Features

- Support 1 or 4 Ethernet LAN ports
- Support 1 WAN port for multiple interfaces: E1/ DS1/ DTE (V.35, V.36, EIA530, RS449, RS232, X.21, RS422)
- Support 10/100 BaseT speed auto-sensing and half/ full duplex auto-negotiation.
- Support Router or Bridge mode
- Multicolor LED indicators.
- Local control and diagnostic via DB9S console port.
- Local/ remote management through local console, LAN, or WAN
- Support CLI (command line interface)
- Support SNMP management

**CERTIFIED  
ISO-9001**

## Ordering Information

To specify options, choose from list below:

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

Model (non RoHS compliant)	Model (RoHS compliant)	Description
<b>For E1 WAN port :</b>		
Loop-IP6610-E75-1ETH-BR-pp	Loop-IP6610-E75-1ETH-BR-pp-G	75 ohm E1 WAN port and 1 Ethernet port w/ Bridge function only
Loop-IP6610-E75-4ETH-BR-pp	Loop-IP6610-E75-4ETH-BR-pp-G	75 ohm E1 WAN port and 4 Ethernet ports w/ Bridge function only
Loop-IP6610-E75-1ETH-RT-pp	Loop-IP6610-E75-1ETH-RT-pp-G	75 ohm E1 WAN port and 1 Ethernet port w/ Router & Bridge function
Loop-IP6610-E75-4ETH-RT-pp	Loop-IP6610-E75-4ETH-RT-pp-G	75 ohm E1 WAN port and 4 Ethernet ports w/ Router & Bridge function
Loop-IP6610-E120-1ETH-BR-pp	Loop-IP6610-E120-1ETH-BR-pp-G	120 ohm E1 WAN port and 1 Ethernet port w/ Bridge function only
Loop-IP6610-E120-4ETH-BR-pp	Loop-IP6610-E120-4ETH-BR-pp-G	120 ohm E1 WAN port and 4 Ethernet ports w/ Bridge function only
Loop-IP6610-E120-1ETH-RT-pp	Loop-IP6610-E120-1ETH-RT-pp-G	120 ohm E1 WAN port and 1 Ethernet port w/ Router & Bridge function
Loop-IP6610-E120-4ETH-RT-pp	Loop-IP6610-E120-4ETH-RT-pp-G	120 ohm E1 WAN port and 4 Ethernet ports w/ Router & Bridge function
<b>For DS1 WAN port :</b>		
Loop-IP6610-T-1ETH-BR-pp	Loop-IP6610-T-1ETH-BR-pp-G	DS1 WAN port and 1 Ethernet port w/ Bridge function only
Loop-IP6610-T-4ETH-BR-pp	Loop-IP6610-T-4ETH-BR-pp-G	DS1 WAN port and 4 Ethernet ports w/ Bridge function only
Loop-IP6610-T-1ETH-RT-pp	Loop-IP6610-T-1ETH-RT-pp-G	DS1 WAN port and 1 Ethernet port w/ Router & Bridge function
Loop-IP6610-T-4ETH-RT-pp	Loop-IP6610-T-4ETH-RT-pp-G	DS1 WAN port and 4 Ethernet ports w/ Router & Bridge function
<b>For DS1 WAN port with In-band Management :</b>		
Loop-IP6610-T-IM-1ETH-BR-pp	Loop-IP6610-T-IM-1ETH-BR-pp-G	DS1 WAN port w/ In-band management and 1 Ethernet port w/ Bridge function only
Loop-IP6610-T-IM-4ETH-BR-pp	Loop-IP6610-T-IM-4ETH-BR-pp-G	DS1 WAN port w/ In-band management and 4 Ethernet ports w/ Bridge function only
Loop-IP6610-T-IM-1ETH-RT-pp	Loop-IP6610-T-IM-1ETH-RT-pp-G	DS1 WAN port w/ In-band management and 1 Ethernet port w/ Router & Bridge function
Loop-IP6610-T-IM-4ETH-RT-pp	Loop-IP6610-T-IM-4ETH-RT-pp-G	DS1 WAN port w/ In-band management and 4 Ethernet ports w/ Router & Bridge function
<b>For DTE WAN port :</b>		
Loop-IP6610-DTE-1ETH-BR-pp	Loop-IP6610-DTE-1ETH-BR-pp-G	DTE WAN port and 1 Ethernet port w/ Bridge function only
Loop-IP6610-DTE-4ETH-BR-pp	Loop-IP6610-DTE-4ETH-BR-pp-G	DTE WAN port and 4 Ethernet ports w/ Bridge function only
Loop-IP6610-DTE-1ETH-RT-pp	Loop-IP6610-DTE-1ETH-RT-pp-G	DTE WAN port and 1 Ethernet port w/ Router & Bridge function
Loop-IP6610-DTE-4ETH-RT-pp	Loop-IP6610-DTE-4ETH-RT-pp-G	DTE WAN port and 4 Ethernet ports w/ Router & Bridge function

**Accessories**

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

Loop-IP6610-UM	Loop-IP6610-UM	User's Manual (paper hard copy-optional). A CD version of the manual is already included as standard equipment.
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**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

**Tray**

81.TRAY19.000	81.TRAY19.000-G	19" tray. one tray for two units
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**Software (All software is RoHS compliant)**

Loop-IP6610-UPGR-RT	Loop-IP6610-UPGR-RT	Activation code for upgrading Bridge function to Router function
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**NOTE:** When ordering activation code for existing units, please include the units' serial numbers on the order form.

■ where **pp** is used to select power supply:

pp =	Description	Note
<b>AC</b>	Fixed AC power supply (90~264 Vac)	• For AC choose an appropriate power cord
<b>DC</b>	Fixed DC power supply (For 24Vdc and 48Vdc: 20-60 Vdc)	
<b>DC24</b>	Fixed DC power supply (For 24Vdc: 18-36 Vdc)	
<b>DC48</b>	Fixed DC power supply (For 48Vdc: 36-72 Vdc)	

■ where **DTE** is used to select DTE WAN port:

DTE =	Description	Note
<b>22</b>	V.35 WAN port	with DB25 connector
<b>33</b>	EIA530 WAN port	with DB25 connector
<b>44</b>	X.21 WAN port	with DB15 connector
<b>55</b>	RS232 WAN port	with DB25 connector
<b>66</b>	V.36 / RS449 WAN port	via DB25P to DB37S (1-foot) conversion cable
<b>77</b>	RS422 / V.11 WAN port	with DB25 connector

## **Loop-IP6610 Router Box Product Specification**

### **E1 Line Interface**

Line Rate	2.048 Mbps $\pm$ 50 ppm
Data Rate	User configurable: n x 64Kbps (n=1 to 31) – ITU G.704 2048Kbps (clear channel) – ITU G.703
Line Code	AMI/ HDB3 (selectable)
Output signal	ITU G.703
Input signal	ITU G.703
Jitter	ITU G.823
Electrical	75 $\Omega$ coax/120 $\Omega$ twisted pair
Connector	BNC (75 ohm), RJ48C (120 ohm, twisted pair) (ordering option)
Compliance	ITU G.703, ITU G.704 (E1 unframed, E1 framed)

### **DS1 Line Interface**

Line Rate	1.544 Mbps $\pm$ 32 ppm
Data Rate	n x 64Kbps (n=1-24)
Line Code	AMI/B8ZS
Framing	D4/ESF
Output Signal	DSX-1 w/0, -7.5, -15 dB LBO
Input Signal	DSX-1 0dB to -30dB w/ALBO
Jitter	AT&T TR 62411
Connector	DA15S or RJ48C
Pulse Template	AT&T TR 62411
Surge Protection	FCC Part 68 Sub Part D

### **DTE Interface- V.35**

Connector	DB25
Data Rate	Up to 8.192 Mbps

### **DTE Interface-V.36**

Connector	DB25
Data Rate	Up to 7.143 Mbps

### **DTE Interface- EIA530**

Connector	DB25
Data Rate	Up to 8.192 Mbps

### **DTE Interface-RS232**

Connector	DB25
Data Rate	Up to 128 Kbps

### **DTE Interface- X.21**

Connector	DB15
Data Rate	Up to 8.192 Mbps

### **DTE Interface-RS449**

Conversion Cable	DB25 to DB37 conversion cable
Data Rate	Up to 8.192 Mbps

## Chapter 2 Installation

### Physical Interface

- WAN: E1/FE1, DS1/FDS1 (Integrated CSU/DSU)
  - DTE (V.35/ V.36/ X.21/ RS232/ EIA530/ RS449)
- LAN: 10/100 Base-T Ethernet port,

### WAN Interface

- Single WAN port
- E1/FE1, DS1/FDS1 (Integrated CSU/DSU), DTE (V.35/ V.36/ X.21/ RS232/ EIA530/ RS449)

### Ethernet Bridge (BR ordering option)

- Layer 2 protocol: HDLC, PPP/BCP, Frame Relay (up to 10 Frame Relay PVCs), Cisco compatible HDLC
- Remote bridge support (padding/ un-padding Ethernet CRC checksum)
- User configurable aging time
- Up to 16K MAC Table
- Cisco ISL packet transparent
- VLAN packet transparent, maximum frame size 2032 bytes
- Bridge with management IP
- 802.1w Rapid Spanning Tree Protocol
- Bridge option can be software upgraded to Router (see Layer2, Bridge mode available for transparent bridging)
- Support IEEE 802.1q VLAN
- Support IEEE 802.1ad Q-in-Q

### IP Router (RT ordering option)

- Static Route, RIP v1 & v2
- Layer 2 protocol: HDLC, PPP/IPCP, Frame Relay (up to 10 Frame Relay PVCs), Cisco compatible HDLC
- For E1 WAN, In-band management channel on dedicated TS
- NAT/NAPT
- Port Forwarding: Static/dynamic address/port forwarding table for NAT and NAPT

### LAN Interface

- One or four Ethernet ports
- Embedded Ethernet switch for four Ethernet ports
- Conforms to the relevant sections of IEEE 802.3/802.3u
- Support SNMP management
- Physical interface 10/100 Mbps, Speed auto-sensing, Half/full duplex auto-negotiation, Auto MDI-X
- RJ45 connector

### DHCP

- DHCP server support for LAN users (RFC2131, RFC2132)
- BOOTP compatible

### SNTP

- SNTP client support
- Sync with up to 4 time servers

**Access Control & Firewall (RT)**

- Packet filtering based on
  - Inbound/outbound direction
  - Source/destination IP address
  - Protocol types (ICMP, TCP, UDP)
  - Port number rang
- Up to 4 control lists

**QoS**

- QoS based on rate limit
- Classification based on
  - Outbound direction
  - Source/destination IP address
  - Protocol types
  - Port number range
  - DSCP

**Management**

- Support SNMP v1/v2
- MIB: MIBII, Transmission MIB
- Telnet
- SSH
- HTTP Web-based management
- Serial console with CLI, DB9 / RS232
- TFTP firmware download
- Configuration upload/ download
- SNMP/ Telnet via data channel/ In-band Management channel

**Administration & Diagnostics**

- Ping
- Trace route
- Loopback

**Diagnostics Test**

Loopbacks	For E1/ DS1: Line Loopback, Payload Loopback For DTE: DTE to DTE Loopback
Test Pattern	For E1: 15-bit PRBS, 3-in-24, 1-in-8, 2-in-8, 1:1 For DS1: 20-bit QRSS, 3-in-24, 1-in-8, 2-in-8, 1:1
Idle Channel	For E1: Use of idle channel to perform PRBS diagnostic test For DS1: Use of idle channel to perform QRSS diagnostic test

**Performance Monitor**

Performance Store	Last 24 hours performance in 15-minute intervals and last 7 days in 24-hour summary line, user, and remote site
Performance Reports	Date & Time, Error Second, Unavailable Second, Burst Error Second, Severe Error Second, Controlled Slip Second, and Loss of Frame Count
Alarm History	Date & Time, Alarm Type, and Location
Alarm Queue	Maximum 40 alarm records which record the latest alarm type, location, and date & time

**Electrical**

- AC: Full range support 100 – 240V
- DC: 24V or 48V support
- Power consumption: Max. 6 watt

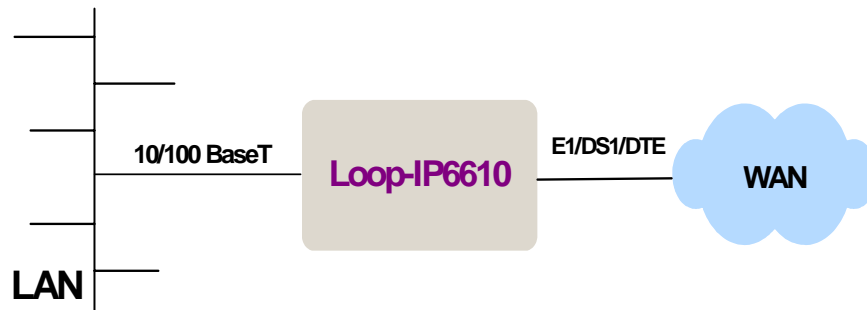
**Physical**

Dimensions 210 x 41.5 x 140 mm. (WxHxD)  
Temperature 0 -50°C  
Humidity 0-95% RH (NON-CONDENSING)  
Mounting Desk-top stackable, wall mount

**Compliance**

EMC FCC15 Class A EN300 386  
Safety UL60950 ETL/ETLC, IEC60950 CB, EN60950  
FCC FCC68

**Application Illustration**



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