MANUAL

LIB-304 & LIB-306 Installation Guide

NET2EDGE

Safety Warnings and Cautions

These products are not intended for use in life support products where failure of a product could reasonably be expected to result in death or personal injury. Anyone using this product in such an application without express written consent of an officer of Net2Edge does so at their own risk, and agrees to fully indemnify Net2Edge for any damages that may result from such use or sale.

Attention: this product, like all electronic products, uses semiconductors that can be damaged by ESD (electrostatic discharge). Always observe appropriate precautions when handling.

Warning: Potential for damage to equipment or personal injury.

Warning: Risk of Electrical Shock

Functional grounding point

Protective grounding point

Special considerations

Record of Revisions

Rev	Date	Description of Changes
A	12th Dec 14	Initial release for LIB-306 software v 2.0.x.
B	1st May 15	Updated to v 2.1.3 which adds DDMI, HQoS, JSON, LLDP-MED, MEP BFD, MPLS-TP, PFC, Traffic Test Loop, UDLD, and Y.1564 support.
C	25th Sept 16	Update the Rack Mount Installation information.
D	26th Jan 17	Re-Branded to Net2Edge
1.0	07th Nov 17	First Release to include LIB-304
1.1	10th Nov 17	Updated Table of Contents
1.2	26th Feb 18	Updated PSU operating frequency

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1. Introduction

1.1 Product Description

The LIB-304 and LIB-306 from Net2Edge provide advanced packet performance metering and service creation aimed directly at customer premises and cell sites deployments. The LIB-304 & LIB-306 are optimized for business Ethernet and mobile backhaul deployments.

The LIB-304 & LIB-306 are multi-service NID's that provide MEF CE2.0 compliant SLA assurance and advanced fault management. IEEE 802.1ag Service OAM, ITU Y.1731 Performance Monitoring and IEEE 802.3ah Link OAM are standard features.

The products support advanced features such as IPv4 and IPv6, VLANs, QoS, bandwidth allocation, ring protection, jumbo frames and numerous security features. The products can be managed and provisioned with Net2Edge Kanri™ EMS, via a Web interface, CLI or SNMP (v1, v2c & v3). The LIB-304 and LIB-306 supports SSL/ SSH, RADIUS, TACACS+, Management VLAN and ACL rules.

The products are fitted with internal AC power supplies for operation in a variety of environments. The SFP ports are triple speed and support 100Mbps, 1000Mbps or SGMII SFPs. CWDM and Bi-Di SFPs are also supported, allowing for flexible network architectures.

1.2 Models

There are two LIB-306 variants and one variant of the LIB-304. The headlines features are described in the following table:

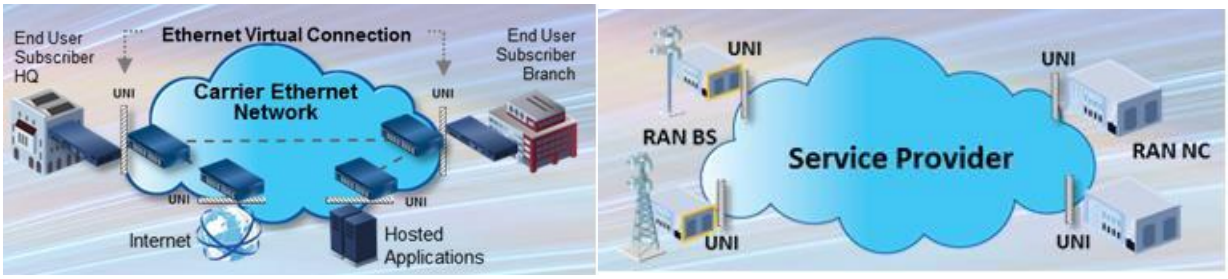
Model	Description
LIB-304	2xTP & 2xSFP NID: Two 10/100/1000Mbps RJ45 ports Two 100/1000Mbps SFP ports. Includes IEEE 1588v2 with RFC 2544 Traffic Generation.
LIB-306-24	2xTP & 4xSFP NID: Two 10/100/1000Mbps RJ45 ports Four 100/1000Mbps SFP ports. Includes IEEE 1588v2 with RFC 2544 Traffic Generation.
LIB-306-42	4xTP 2xSFP NID: Four 10/100/1000Mbps RJ45 ports Two 100/1000Mbps SFP ports. Includes IEEE 1588v2 with RFC 2544 Traffic Generation.

1.3 Applications

The LIB-304 & LIB-306 are designed to support a wide range of MEF-based Carrier Ethernet services including:

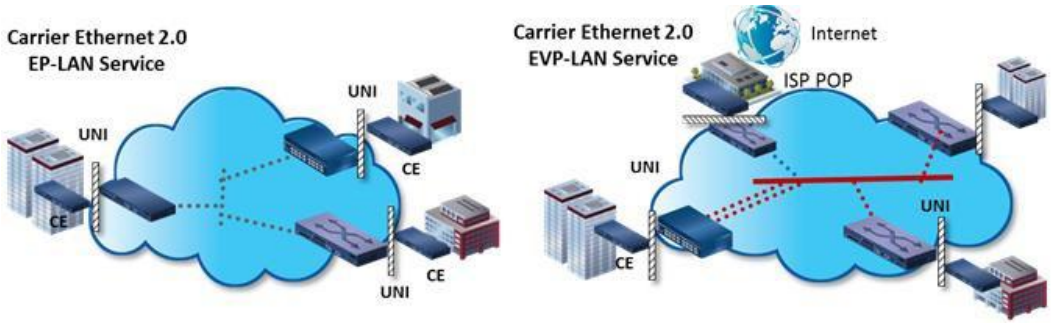
- MEF CE 2.0 Certified Services: E-LINE, E-LAN, E-ACCESS & E-TREE
- Business Ethernet
- Mobile Backhaul
- Fibre to the Premise (FTTP)
- SLA Enforcement Performance Statistics
- Migration to Packet Networks
- QoS for Differentiated Services

Several application examples are provided below.

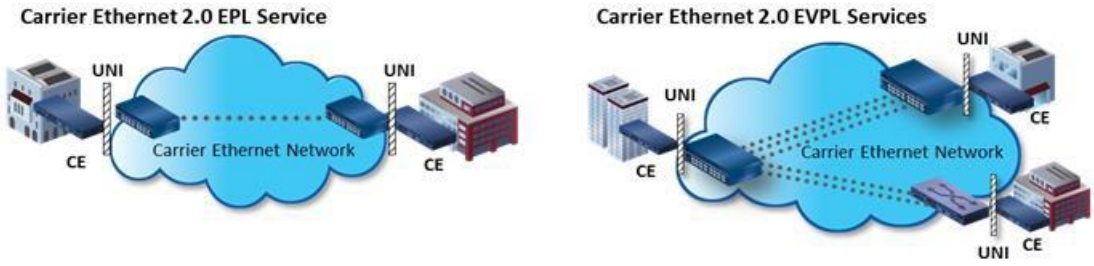


CE Services Example

Cloud Services Example



E-LAN Services Example



E-Line Services Example

1.4 Features

- Port can be configured as network (NNI) or client (UNI).
- All ports Auto-sense
- Two of the SFP ports support a proprietary 2.5Gbps mode.
- TP ports support IEEE 802.3az Energy Efficient Ethernet for power saving.
- Full bandwidth 1000Mbps switching, non-blocking.
- SNMP v1, v2c, and v3.
- IPv4 and IPv6 support.
- VLAN (802.1Q) Q-in-Q (C-Tag / S-Tag).
- RMON and Syslog.
- OAM Support: IEEE 802.3ah Link OAM, IEEE 802.1ag Service OAM, ITU-T Y.1731 Performance Monitoring, and MEF E-LMI.
- Loop Protection: ITU G.8032 and IEEE RSTP, MSTP.
- G.8031 Linear Protection switching
- IEEE 1588v2 PTP (Precision Time Protocol).
- AC power input 100V – 240VAC
- Jumbo Frame Support (10240 bytes maximum).
- Wire speed loopbacks.
- RFC 2544 Traffic Generation and Reports.
- Last Gasp/Dying Gasp notification via SNMP trap. Monitor Rx and Tx Dying Gasp for each port.
- SNMP traps configurable: System (Warm Start, Cold Start); Interface (Link Up. Link Down, LLDP); AAA (Authentication Fail); Switch (STP, RMON).
- Alarm inputs/outputs: RJ-45 connector with 2-IN and 2-OUT, 10-30VDC, 40mA maximum; optically isolated from main board. Alarm indications via Syslog and SNMP.
- E-LINE (EPL and EVPL);
- E-LAN (EP-LAN and EVP-LAN)
- E-ACCESS (ACCESS EPL and EVPL)
- E-TREE (EP-TREE and EVP-TREE).
- TOS (Type of Service) and Diffserv (Differentiated services).
- QoS (802.1p Quality of Service): 8 queues; strict priority and DWRR, shaping, policing, P-bit and DSCP.

- Management via Industry standard CLI, Web, SSH/ SSL & SNMP (v1, v2c, v3).
- Port configuration, status, statistics, and monitoring.
- RADIUS, TACACS+ and ACL.
- Remote backup / restore configuration / firmware upgrades.
- L2CP (Layer 2 Control Protocol).
- LLDP (Link Layer Discovery Protocol).
- Port Mirroring and Remote Mirroring.
- Link Aggregation Control Protocol (LACP).
- DDMI (Digital Diagnostics Monitoring Interface).
- HQoS (Hierarchical Quality of Service) with Guaranteed Bandwidth Rate.
- JSON (JavaScript Object Notation) RPC.
- LLDP-MED per TIA-1057.
- MEP BFDs (Bi-direction Forwarding Detections).
- MEP Route Trace.
- MPLS-TP (Multiprotocol Label Switching).
- PFC (802.1Qbb Priority Flow Control)
- Traffic Test Loop (Y.1564, RFC2544, and TT-Loop functions).
- UDLD (Uni Directional Link Detection) protocol support (RFC 5171).
- Y.1564 Tests and Reports.

1.5 Specifications

Standards: IEEE 802.3 for 10Base-T, IEEE 802.3u for 100Base-TX IEEE 802.3z for 1000Base-X, IEEE 802.3ab for 1000Base-T, IEEE 802.3x for Flow control, IEEE 802.3ad for LACP, (Link Aggregation Control Protocol) IEEE 802.1p for COS (Class of Service), IEEE 802.1Q for VLAN Tagging, IEEE 802.1w for RSTP (Rapid Spanning Tree Protocol), IEEE 802.1s for MSTP (Multiple Spanning Tree Protocol), IEEE 802.1x for Authentication, IEEE 802.1AB for LLDP (Link Layer Discovery Protocol), IEEE 802.3ah Link OAM, IEEE 802.1ag SOAM FM, IEEE 1588-2008 (v2) Precision Time Protocol (PTP), ITU Y.1731 PM.

Maximum MAC Addresses: 8K

Maximum VLANs: 4K VLANs

Maximum Frame Size: 1518-10240 bytes including FCS.

Memory: 8Mbit shared buffer memory

Data Rate Copper ports: (RJ-45): 10/100/1000 Mbps. SFP ports (empty): 100/1000 Mbps or SGMII.

Status LEDs: Power, Port Activity and Port Duplex

Dimensions Width: Width: 190mm, Depth: 217mm, Height: 43.5mm

Weight: (excluding packaging) 1Kg

Input Power AC: 1 x 100-240VAC; 50-60Hz Auto-sensing PSU

Power Consumption: nominal power measurements with all interfaces connected and active, using standard 1G MM SFP modules:
Maximum power consumption 10 watts

Environment:
Operating Temperature -20℃ to +50℃,
Storage Temperature -40℃ to +70℃,
Humidity 5 to 90% non-condensing

Warranty: 1 Year Hardware warranty, 90 days Software warranty.

Support: Support packages available for Technical Support, Hardware Support, Training, and Consulting. Please consult with your local partner or email info@net2edge for more information.

1.6 Related Manuals and Help

The LIB-304 & LIB-306 documentation can be downloaded from the Net2Edge website. Registration is required before access is granted. The documentation set covers:

- LIB-304 & LIB-306 Installation Guide (this manual)
- LIB-304 & LIB-306 Web User Guide
- LIB-304 & LIB 306 CLI Reference

2. Installation

2.1 Unpacking / Package Contents

Carefully unpack the contents and verify that you have received these items in the packaging. Save the packaging for future use.

- One LIB-304 or LIB-306 NID
- If ordered, one AC power cord (specific country variant chosen at time of order). In some countries the power cord cannot be supplied by Net2Edge in order to comply with local customs and importation restrictions.

2.2 Install Cautions and Warnings

	**Warning:** Risk of Electrical Shock. Disconnect power before installing the LIB-304 / LIB-306. Failure to observe this warning could result in an electrical shock.
	**CAUTION** Only qualified persons should install the LIB-304 / LIB-306. Failure to observe this caution could result in poor performance or damage to the equipment.
	**CAUTION** Install the unit in an operating environment where the temperature range is between -20℃ to +50℃, with relative humidity of 5% to 90% non-condensing. Failure to observe this caution could result in poor equipment performance.
	**CAUTION** DO NOT install the unit in areas where strong electromagnetic fields (EMF) exist. Failure to observe this caution could result in poor equipment performance and data corruption.
	**WARNING** Disconnect power before installing and wiring the unit for power. Failure to observe this warning could result in an electrical shock.
	**Attention:** this product, like all electronic products, uses semiconductors that can be damaged by ESD (electrostatic discharge). Always observe appropriate precautions when handling.

2.3 Installation Location

Deciding where to install a LIB-304 or the LIB-306 can greatly affect its performance. When selecting an installation location, consider the following:

- Install the unit in a fairly cool and dry place. See the "Specifications" section (page 7) and the cautions below for the acceptable temperature and humidity ranges.
- Install the unit where it will not be exposed to liquid.
- Install the unit in a location free from strong electromagnetic field generators (such as motors).
- Do not expose or subject the unit to excessive vibration, dust, or direct exposure to sunlight.
- Leave at least 5 cm (1.97 in) of space around the unit for ventilation purposes.

2.3.1 Rack Mount Installation

The LIB-304 or LIB-306 can be rack mounted in a 19" rack via optional rack mount kit.

2.4 Grounding and Wiring Recommendations

The LIB304/ LIB-306 can eliminate the effects of noise due to EMI via proper grounding. Always run the ground connection from the ground screw to the grounded surface before connecting power.

The following wiring considerations are recommended:

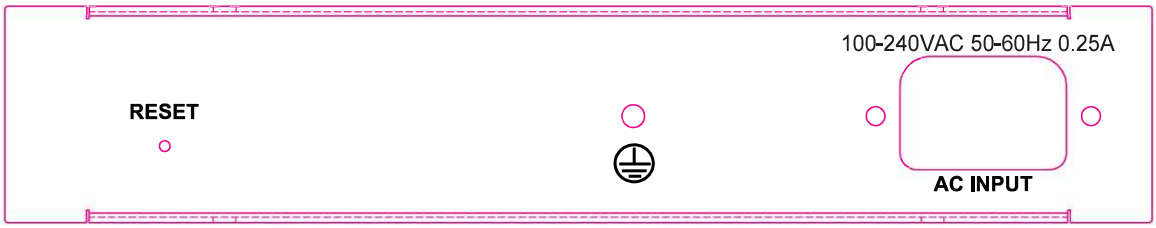
- Use separate paths to route wiring for power and device data cables. If power wiring and device data cables must cross, make sure that the wires are perpendicular at the intersection points.
- DO NOT run signal or communications wiring and power wiring in the same conduit. To avoid interference, wire with different signal characteristics should be wired separately.
- Keep input and output wires separated.

- Label the wiring to all devices in the system for clarity.

No power ON/ OFF Switch: The LIB-304 and LIB-306 do not include a power ON/ OFF switch, therefore, when power is applied to the switch, it immediately powers up.

2.5 Rear Panel

The LIB-304 / LIB-306 rear panel is shown and described below.



RESET: The RESET button functions include:

1. Press and immediately release the RESET button to:
    a. Restart the device.
2. Press and hold the RESET button for more than 5 seconds to:
    a. Load the factory default configuration,
    b. copy the running-configuration to the start-up-configuration,
    c. restart the device in factory default configuration.
    d. Note that this resets the unit IP address.

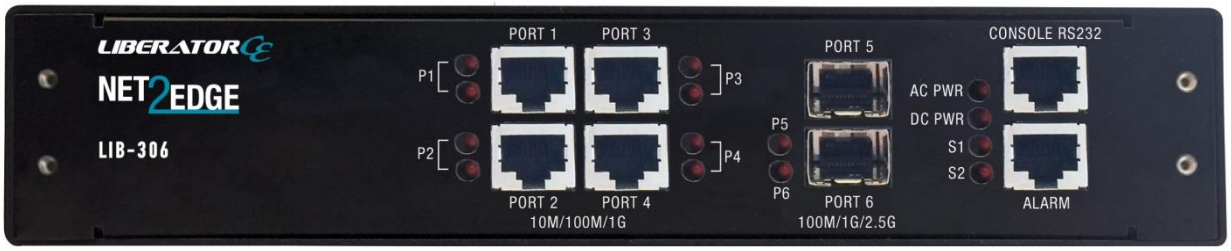
The RESET button can be disabled (ignored) via the CLI. Please refer to the CLI reference manual.

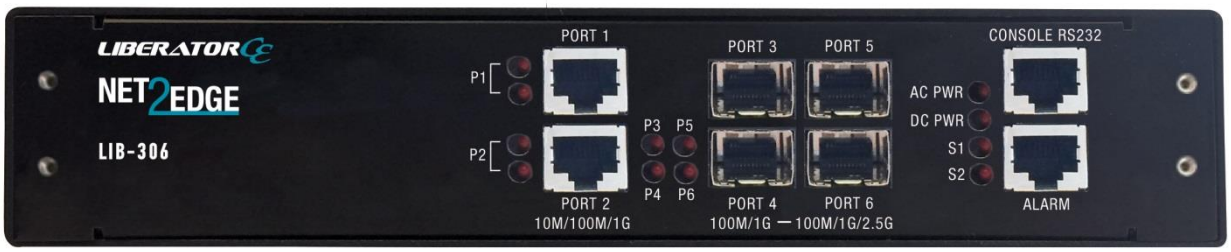
Note: Restoring factory default can also be performed by making a physical loopback between port 1 and port 2 within the first minute after a switch reboot. In the first minute after boot, 'loopback' packets will be transmitted at port 1. If a 'loopback' packet is received at port 2, then the switch will execute a ‘Restore to Default’s. Press the Enter key to display the logon sequence, and then enter your User Name and Password.

AC Input: 1 x 100-240VAC; 50-60Hz Auto-sensing PSU

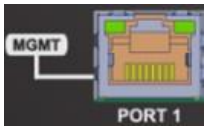
2.6 Front Panel

The LIB-306 front panels are shown and described below.





MGMT / PORT 1: Port1 (MGMT) is a normal data port, but by default it will be in a separate private VLAN (PVLAN 1) that you can remove. You can enable or disable out-of-band management on PORT 1. PORT 1 can be optionally configured to support either out-of-band management or it can be used as a normal data UNI/ NNI port.

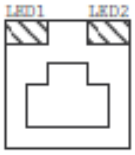


See Connecting Via the MGMT Port / Web GUI on page 15. By default, PORT 1 is enabled as a Management port with a default IP and subnet mask. See Factory Defaults on page 16. Full instructions for disabling the management function and how to use the port as a normal data port are provided in the CLI Reference and Web User Guide manuals. See also Switching MGMT / PORT 1 Modes on page 18.

Gigabit Ethernet 1/1 (Port 1) is configured by default to act as a management port. This is achieved by placing Port 1 in Private VLAN 6

which isolated traffic at layer 2 on this port from other front ports which are by default placed into Private VLAN 1.

PORT 2 - PORT 4 (or **PORT 1 & 2**): Ethernet RJ-45 (10M/100M/1 Gbps) twisted pair ports (IEEE 10/100/1000Base-T interfaces). The Port 1 and Port 2 (or PORT 1-4) LEDs are shown and described below:



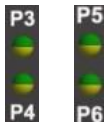
LED1: Link/Activity/Duplex: ON = Link, OFF= No link BLINK = Activity

Green = Full duplex, Yellow = Half duplex

LED2: Speed: Green = 1000Mbs, Yellow = 100Mbs, OFF = 10Mbs

PORT 5 & 6 (or **PORT 3 - PORT 6** on the LIB-306-42): Two (or four) SGMII interfaces. The Serial Gigabit Media-independent Interface (SGMII) interfaces can operate at multiple speeds of 100M/1G/2.5G bps.

P3 - P6 LED (**P5 - P6** on the LIB-306-42): fibre link status.



When lit in green, indicates a 1G fibre link / activity.
When lit in amber, indicates a 100M fibre link / activity.
When off indicates no fibre link established.

PWR LED: Green Power LED: On = power applied to the PC board. Flashes Green during LIB-306 boot up.

S1 LED: System Status LED (Bi-colour Green and Amber):

During boot up – Amber
Normal operation – Green
Firmware upgrade – Flashes Green
Fatal condition logged – Flashes Amber

S2 LED: S2 is used for alarms. You can set the alarm severity to Info, Warning, or Error.

The severity is included in the alarm message and also sets the S2 LED colour when the alarm is triggered. The S2 LED is amber for an Info alarm, red for a Warning alarm, and blinking red for an Error alarm. If not set, the default alarm severity is Info. See the back-panel ALARMS port description on page 13.

S2 LED is green when at least one alarm source is being monitored (enabled) if the severity level is Info.
S2 LED is amber when at least one event source has triggered if the severity level is Warning.
S2 LED is flashing amber when at least one event source has triggered if the severity level is Error. S2 LED is off when all event sources are disabled if the severity level is Error.

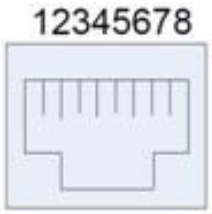
CONSOLE: RJ-45 serial port 115,200 baud CLI port. The LIB-306 RJ-45 console port allows root access to its CLI (Command Line Interface) via a computer, regardless of the state of the switch (unless the switch is broken). By connecting to the console port, out-of-band remote access to the CLI of the switch is possible. This creates a secondary path to the switch outside the bandwidth of the network, which needs to be secured without relying on the primary network.

ALARMS: Alarm inputs and outputs are RJ-45 connector with 2-IN and 2-OUT; 10-30VDC, 40mA maximum; optically isolated from main board. You can connect up to two alarm inputs from external devices in your environment (e.g. a fire alarm, a door sensor, a temperature gauge) to the alarm input port on the switch front panel. The figure below shows the location of the alarm pinouts. For each alarm input, you can configure an open or closed circuit to trigger an alarm and configure the severity of the alarm. A triggered alarm generates a system message. If you enter a descriptive name for the alarm, that name is included in the system message. A triggered alarm also turns on the LED display. The LED is normally off, meaning no alarm condition exists.

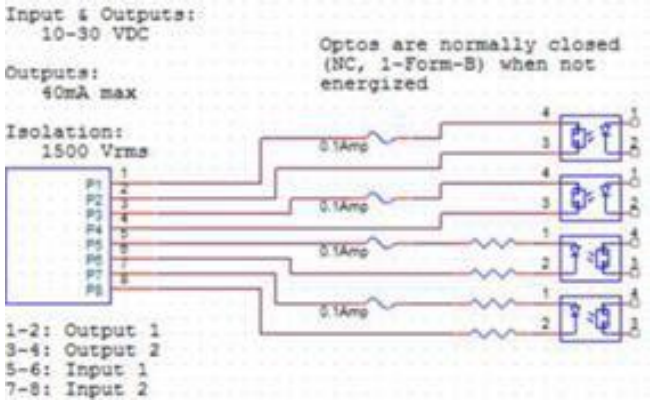
You can set the alarm severity to Info, Warning, or Error. The severity is included in the alarm message and also sets the S2 LED colour when the alarm is triggered. The S2 LED is amber for an *Info* alarm, red for a *Warning* alarm, and blinking red for an *Error* alarm. If not set, the default alarm severity is Info.

You can use the LIB-304 / LIB 306 web GUI or CLI to configure alarm contacts; see the related manual for details.

The ALARMS port pinning and basic block diagram are shown below.



1 – Alarm 1 output
2 – Alarm 1 output
3 – Alarm 2 output
4 – Alarm 2 output
5 – Alarm 1 input positive
6 – Alarm 1 input return
7 – Alarm 2 input positive
8 – Alarm 2 input return



The Alarm Input and Output truth tables are provided below.

Alarm Outputs		
Alarm State & LED behaviour	**Trigger setting**	**Alarm relay out state**
Asserted & Active	Close	relay closed
De-asserted & Not active	Close	relay open
Asserted & Active	Open	relay open
De-asserted & Not active	Open	relay closed

Alarm Inputs		
Wire state	**Trigger setting**	**Alarm state & LED behaviour**
Energized	Close	*Asserted & Active*
De-energized	Close	*De-asserted & Not active*
Energized	Open	*De-asserted & Not active*
De-energized	Open	*Asserted & Active*

2.7 Connecting Power

The LIB-304 or LIB-306 units are powered from an AC source.

Note that when power is initially applied (or when power is recycled) the front panel LEDs all light for approximately 10 seconds. Some LEDs will remain lit, depending on the operating status and port connections.

2.8 Installing SFP Modules and Fibre Cables

Warning

Visible and invisible laser radiation when open: DO NOT stare into the beam or view the beam directly with optical instruments. Failure to observe this warning could result in an eye injury or blindness.

Use of controls, adjustments or the performance of procedures other than those specified herein may result in hazardous radiation exposure.

Avoid bending fibre-optic cable beyond its minimum bend radius—any arc smaller than a few centimetres in diameter can damage the cable and cause problems that are difficult to diagnose.

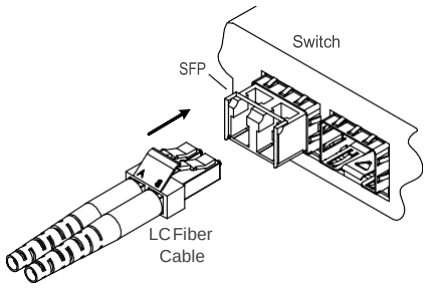
2.8.1 Installing SFPs

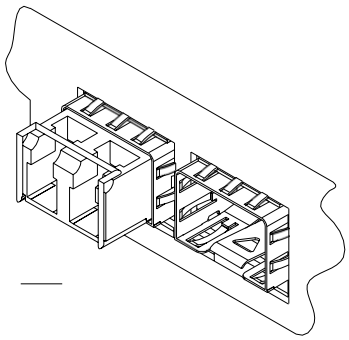
1. Attach an ESD-preventive wrist strap to your wrist and to a bare-metal grounded surface.
2. Have a replacement SFP or a transceiver-cage plug ready, as well as an antistatic mat and a rubber safety cap for the SFP.
3. Locate the appropriate fibre cable.
4. Position the cable at the SFP as shown below.

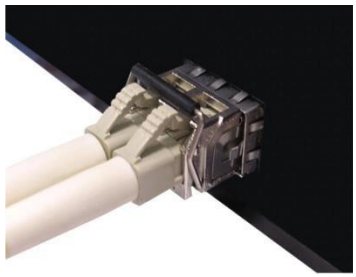
Caution: Disconnect all cables before removing or installing an SFP module to prevent damage to the fibre cable.

5. Insert the fibre cable ends completely into the SFP as shown below.
6. Insert the SFP fully into the cage as shown below.
7.

Switch







Fully Inserted SFP

Removing SFPs

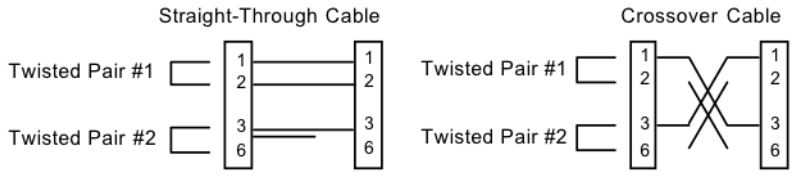
8. Attach an ESD-preventive wrist strap to your wrist and to a bare-metal grounded surface.
9. Have a replacement SFP or a transceiver-cage plug ready, as well as an antistatic mat and a rubber safety cap for the SFP.
10. Disconnect the LC cable for the SFP.
11. Pull the bale clasp handle out from the SFP to unlock the SFP.
12. Grasp the SFP bale clasp and pull the SFP approximately 0.5 inches (1.3 cm) out of the cage.
13. Using your fingers, grasp the body of the SFP and pull it completely from the cage.

14. Insert the rubber protector into the SFP module to protect it.
15. Place the SFP module in an antistatic bag or other protective environment.

2.9 Installing Copper Cables

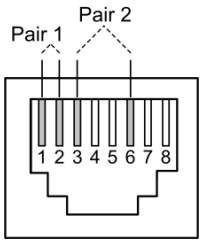
2.9.1 Copper Cable Configuration

Depending on the equipment type, data terminal equipment (DTE) or data communication equipment (DCE), use a crossover or straight-through cable. See figure below.



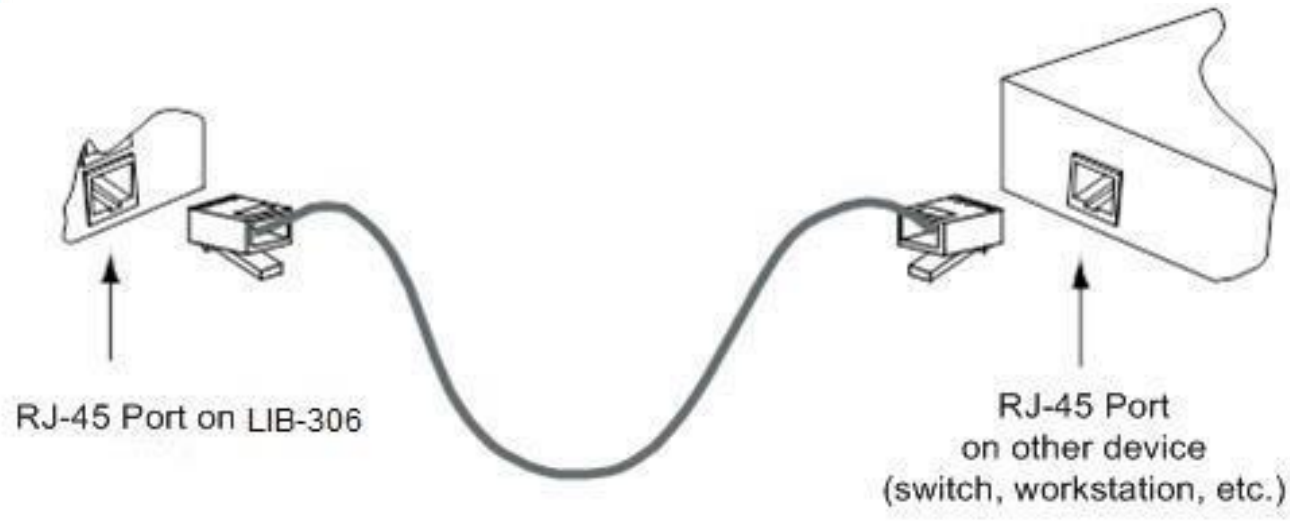
2.9.2 Connecting Ethernet Cables

1. Locate or build an IEEE 802.3 compliant cable with male RJ-45 connectors installed at both ends as shown below.



Pin	Out Jack Pin Assignments
1	Outgoing Data 1 (+)
2	Outgoing Data 2 (-)
3	Incoming Data 1 (+)
4	Not Connected
5	Not Connected
6	Incoming Data 2 (-)
7	Not Connected
8	Not Connected

2. Connect the RJ-45 connector at one end of the cable to the LIB-306 RJ-45 port.
3. Connect the RJ-45 connector at the other end of the cable to the RJ-45 Ethernet network port.



2.10 Connecting via the Serial CONSOLE / CLI

The LIB-304 / LIB306 CLI interface is an Industry standard CLI and consists of different configuration commands structure with ability to configure and view the configuration using the Serial Console, Telnet, or SSH.

2.11 Connecting via the MGMT Port / Web GUI

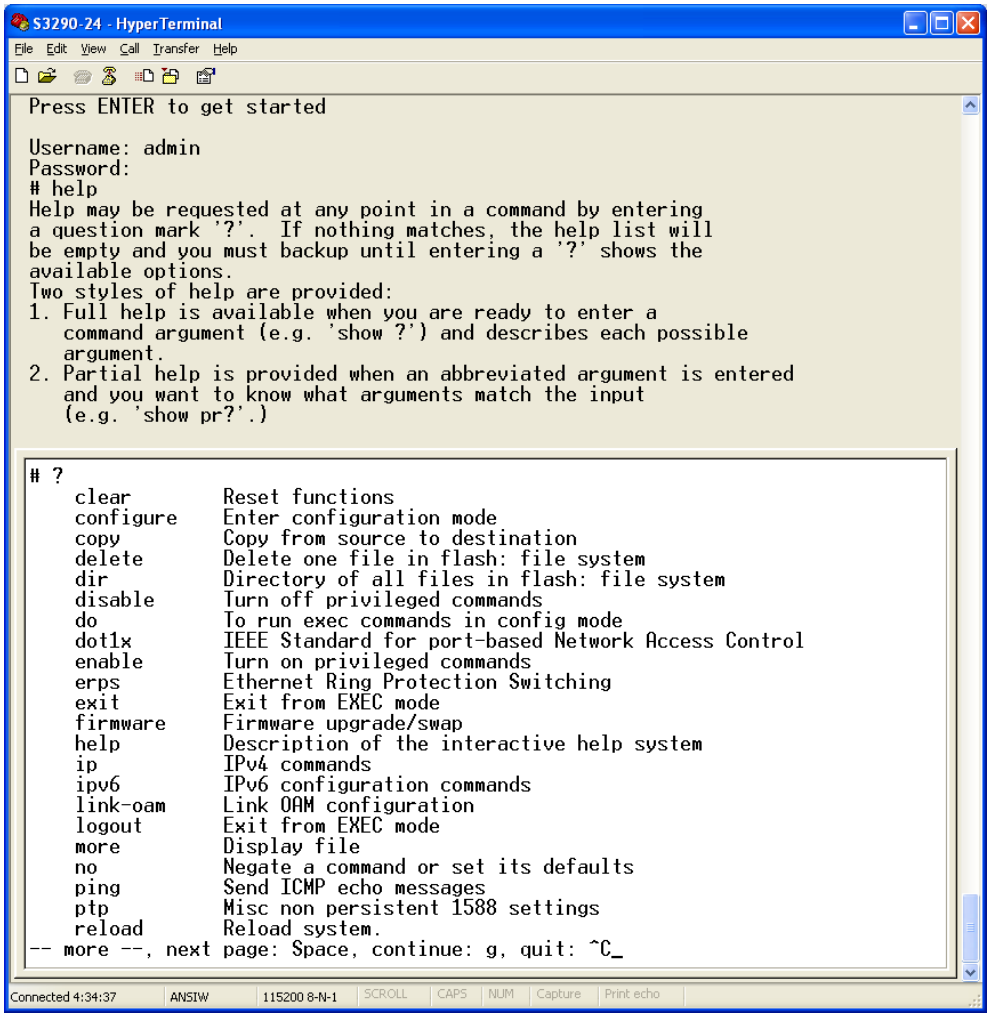
The LIB-304 & LIB-306 supports these Web browsers:

- Internet Explorer
- Firefox
- Google Chrome

See the Web User Guide or the CLI Reference manual for details on configuration and management methods.

To login using the serial interface (e.g., HyperTerminal) setup using these parameters. 115,200 bit per second, 8, none, 1, none.

Type **help, ?,** or press the Enter key to display the commands as shown below.



2.12 Factory Defaults

All LIB-304 & LIB-306 units come with the following defaults:

DHCP	Ipv4 Address	Ipv6 Address
Enabled	192.168.0.1	::192.0.2.1

Note: after power up, the unit has DHCP enabled. If a DHCP server is available, the unit will obtain an IP address from the DHCP server. If no DHCP server is available, after 70 seconds, the unit will fall back to the default IP address of 192.168.0.1/24.

Static IP configuration

You can change the defaults via the CLI. **Note:** you may want to save the existing config to startup config first by using the **copy running-config** command. See the CLI Reference manual for details. To manually configure the IP address:

1. At the command prompt type # **configure terminal** and press the Enter key to enter config mode.
2. Enter the command (config)# **interface vlan 1** and press the Enter key to enter the interface config mode.
3. Set the IP to 192.168.1.110 and subnet to 255.255.255.0 (substitute what you would like the static IP and subnet to be). You can change the current IP address using the following command:

   (config-if-vlan)# ip address 192.168.1.110 255.255.255.0

   See the LIB-306 CLI Reference manual for CLI command information for CLI details.

4. To verify the change, you can log in to the LIB-306 Web GUI using IP address 192.168.1.110. See the LIB-306 Web User Guide for more information.

2.13 Login using PuTTY Terminal Emulator Software

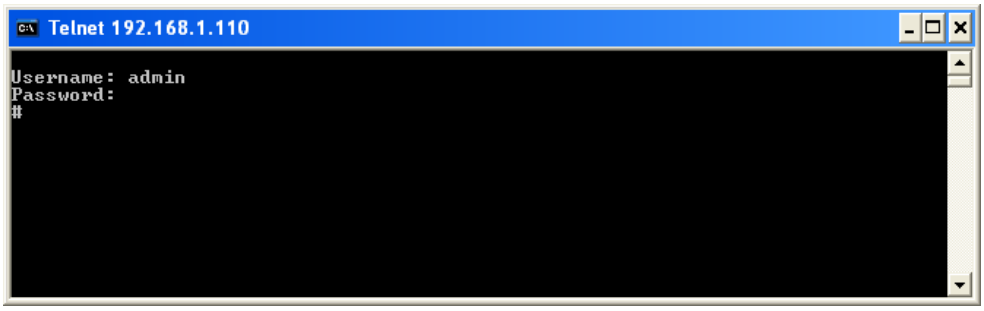
1. Start a PuTTY session. In the PuTTY dialog box in the "Host Name {or IP Address}" field, enter the IP address of the switch (e.g., 192.168.1.110). In the Port field, enter 22.
2. Name the session in the "Saved Sessions" field (e.g., as LIB-306 SW).
3. Click the **Save** button and the dialog box displays.
4. Click the **Open** button to launch the login screen.

   Note: If a Security Alert displays, click YES, if you trust the host and the key will be added to the PuTTY cache. Click NO if you do not want to register the key for this session.
5. At the login prompt, type "**admin**" (default/ lowercase).
6. Press the Enter key twice to bring up the Root (top) level commands as shown below.

Please review the CLI Reference manual for CLI command information.

2.14 Login Using Telnet

1. Use the Windows Start > Command Prompt menu path to display the command.
2. At the command prompt type **Telnet** and then 192.168.1.110 and press the Enter key
3. At the Username prompt, enter admin (lower case) and press the Enter key.
4. At the Password prompt press the Enter key to display the # prompt.
5. At the # prompt enter CLI commands as desired.



2.15 Login Using the Web Interface

1. Launch a web browser (Internet Explorer/ FireFox).
2. Enter the unit IP address (e.g., 192.168.0.1) in the browser URL field.
3. Press the Enter key to launch the login dialog box.
4. In the user name field type “admin” (lowercase) and leave the password field empty (no password).
5. Press the Enter key to launch the web GUI.
6. See the Web User Guide manual for web GUI configuration, monitoring, diagnostics, and maintenance.

2.16 Re-Access the Web GUI via CLI Commands

You can use the following CLI commands to regain web GUI access (e.g. after a Software Upload).

```
# show ip int brief
Vlan Address Method Status
---- ------------------- -------- ------
# conf term
(config)# int vlan 1
(config-if-vlan)# ip addr 192.168.1.110 255.255.255.0
(config-if-vlan)# end
# show ip int brief
Vlan Address Method Status
---- ------------------- -------- ------
1 192.168.1.110/24 Manual UP
#
```

You can then access the web GUI via the IP address and netmask entered (e.g., 192.168.1.110 and 255.255.255.0 in the example above). See the CLI Reference manual for details.

2.17 Switching MGMT / PORT 1 Modes

The LIB-304 / LIB-306 MGMT / PORT 1 is a normal data port, but by default it will placed in a separate private VLAN that you can remove. You can enable or disable out-of-band management on Port 1. Port 1 can be optionally configured to support either out-of-band management or it can be used as a normal data UNI/ NNI port.

By default, Port 1 is enabled as a management port with a default IP (192.168.0.1/24) and subnet mask. By default, all ports are VLAN unaware and members of VLAN 1 and Private VLAN 1.

To configure Port 1 as a normal front panel data port, use the settings below.

Normal front port:

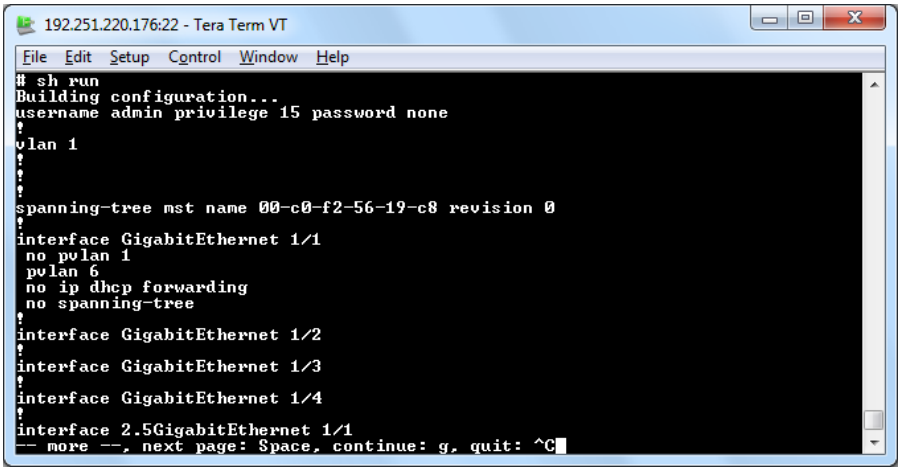
```
interface GigabitEthernet 1/1
!
```

Management Port:

```
interface GigabitEthernet 1/1
no pvlan 1
pvlan 6
no ip dhcp
forwarding no
spanning-tree
!
```

2.18 Configure the Default Management Port as a Data Port

The Gigabit Ethernet 1/1 (MGMT / PORT 1) is configured as a Management Port by default:



Alternatively, any port can be designated as a Management port. To change Gigabit Ethernet 1/1 to act as a data port:

1. Disable spanning-tree on the port designated for Management. Remove pvlan 1 from the new interface and disable dhcp

```
(config)# int Gi 1/2
(config-if)# no spanning-tree
(config-if)# no pvlan 1
(config-if)# no ip dhcp forwarding
(config-if)# pvlan 6
```

   forwarding, and add pvlan6:

2. Physically connect to the newly designated Management port.
3. Enable pvlan 1 for the new port designated as a data port.
4. If necessary enable spanning-tree on the new data port.

Additional instructions for disabling management are provided in CLI and Web manuals.

2.19 Product Registration

It is important to register the product for the following reasons:

- Software/ Firmware/ Driver updates.
- Have access to all of our training tools, videos, content and downloads.
- Technical documentation and information about support assistance.
- Receive email alerts of new products according to personal interest.

3. Troubleshooting

This section provides basic LIB-304 / LIB-306 troubleshooting procedures.

1. Verify the Product Description, Models, Applications, Features, and Specifications in the "Introduction" section starting on page 4 of this manual.
2. Verify the procedures in section 2. Installation starting on page 8 of this manual.
3. Make sure your particular model supports the function attempted.
4. Verify the Installation. Check the Operating System, Web Browser, Telnet Client, and/or Terminal Emulation package support.
5. Respond to any error messages (see the Error Messages section of the CLI Reference or the Web User Guide.
6. Run the Diagnostics tests and verification functions (e.g., Ping, VeriPHY). See the "Diagnostics" section of the LIB-306 Web User Guide manual.
7. Check the LIB-304 / LIB-306 operating parameters (e.g. Information, CPU Load, Log, Detailed Log). See the "Operation" section of the LIB-306 Web User Guide manual.
8. If you can access the unit via PuTTY or HyperTerminal but not via the web interface, in config mode, enter the default keep_ip CLI command and try accessing the unit web interface again.
9. If you have problems displaying the web interface in IE, try displaying in Compatibility View from the IE Tools > Compatibility View menu path.
10. Record the error condition. See "Recording Model and System Information" below.
11. Contact Net2Edge Tech Support. See section"4. Service, Warranty and Tech Support" on page 22.

3.1 Recording Model and System Information

After performing the troubleshooting procedures and before calling or emailing Technical Support, please record as much information as possible in order to help the Net2Edge Technical Support Specialist.

1. Select the Configuration > System > Information menu path.
From the CLI, use the show commands needed to gather the information below or as requested by the Net2Edge Support Specialist.
2. Record the unit information:

Serial #: *MAC Address:*

System Uptime: *Software Version:*

3. Record the Monitor menu information:

Monitor > System > Information:

Monitor > System > IP Status:

LED Status:

4. Provide additional Model and System information to your Technical Support Specialist. See the "Troubleshooting" section above.

Your Net2Edge service contract number:

A description of the failure:

A description of any action(s) already taken to resolve the problem (e.g., changing mode, rebooting, etc.):

The serial and revision numbers of all impacted or involved Net2Edge products in the network:

A description of your network environment (layout, cable type, etc.):

Network load and frame size at the time of trouble (if known):

The device history (i.e., have you returned the device before, is this a recurring problem, etc.):

Any previous Return Material Authorization (RMA) numbers:

4. Service, Warranty and Tech Support

4.1 Contact Us

Technical Support

+44 345 0130030 extension 6810

E-Mail

To ask a question anytime, send an e-mail to our technical support staff at support@net2edge.com

Address

Net2Edge Ltd. Kulite House, Stroudley Road, Basingstoke RG24 8UG, UK.
Tel: +44 345 0130030

4.2 Warranty

One-Year Limited Hardware Warranty

Net2Edge warrants to the original consumer or purchaser that each of its Liberator products and all components thereof, will be free from defects in material and/or workmanship for a period of one year from the original factory shipment date. Any warranty hereunder is extended to the original consumer or purchaser and is not assignable. Net2Edge makes no express or implied warranties including, but not limited to, any implied warranty of merchantability or fitness for a particular purpose, except as expressly set forth in this warranty. In no event shall Net2Edge be liable for incidental or consequential damages, costs, or expenses arising out of or in connection with the performance of the product delivered hereunder.

Net2Edge will in no case cover damages arising out of the product being used in a negligent fashion or manner.

Return Authorization

To return a defective product for warranty coverage, contact Net2Edge's technical support department for a return authorization number. Net2Edge's technical support department can be reached using support@net2edge.com

Return Instructions

Send the defective product postage and insurance prepaid to the following address:

Net2Edge Ltd.
Kulite House,
Stroudley Road,
Basingstoke,
RG24 8UG, UK.
Attn: RETURNS DEPT: RMA #

Failure to properly protect the product during shipping may void this warranty. The return authorization number must be written on the outside of the carton to ensure its acceptance. We cannot accept delivery of any equipment that is sent to us without an RMA number.

RMAs are valid for 60 days from the date of issuance. An invoice will be generated for payment on any unit(s) not returned within 60 days.

Upon completion of a demo/ evaluation test period, units must be returned or purchased within 30 days. An invoice will be generated for payment on any unit(s) not returned within 30 days after the demo/ evaluation period has expired.

The customer must pay for the non-compliant product(s) return transportation costs to Net2Edge for evaluation of said product(s) for repair or replacement. Net2Edge will pay for the shipping of the repaired or replaced in-warranty product(s) back to the customer (any and all customs charges, tariffs, or/ and taxes are the customer's responsibility).

Before making any non-warranty repair, Net2Edge requires a USD300 charge plus actual shipping costs to and from the customer. If the repair is greater than USD 300.00, an estimate is issued to the customer for authorization of repair. If no authorization is obtained, or the product is deemed non-repairable, Net2Edge will retain the USD300 service charge and return the product to the customer not repaired. Non-warranted products that are repaired by Net2Edge for a fee will carry a 180-day limited warranty. All warranty claims are subject to the restrictions and conventions set forth by this document.

Net2Edge reserves the right to charge for all testing and shipping incurred, if after testing, a return is classified as "No Problem Found."

THIS WARRANTY IS YOUR ONLY REMEDY. NO OTHER WARRANTIES, SUCH AS FITNESS FOR A PARTICULAR PURPOSE, ARE EXPRESSED OR IMPLIED. NET2EDGE IS NOT LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES OR LOSSES, INCLUDING LOSS OF DATA, ARISING FROM ANY CAUSE OR THEORY. AUTHORIZED RESELLERS ARE NOT AUTHORIZED TO EXTEND ANY DIFFERENT WARRANTY ON NET2EDGE'S BEHALF.

4.3 European Regulations

WARNING: This is a Class A product. In a domestic environment, this product could cause radio interference in which case the user may be required to take adequate measures.

Achtung ! Dieses ist ein Gerät der Funkstörgrenzwertklasse A. In Wohnbereichen können bei Betrieb dieses Gerätes Rundfunkstörungen auftreten. In diesem Fäll ist der Benutzer für Gegenmaßnahmen verantwortlich.

Attention ! Ceci est un produit de Classe A. Dans un environment domestique, ce produit risque de créer des interférences radioélectriques, il appartiendra alors à l'utilsateur de prende les measures spécifiques appropriées.

	In accordance with European Union Directive 2002/96/EC of the European Parliament and of the Council of 27 January 2003, Net2Edge will accept post usage returns of this product for proper disposal. The contact information for this activity can be found in the 'Contact Us' portion of this document.
	CAUTION: RJ connectors are NOT INTENDED FOR CONNECTION TO THE PUBLIC TELEPHONE NETWORK. Failure to observe this caution could result in damage to the public telephone network.

Der Anschluss dieses Gerätes an ein öffentlickes Telekommunikationsnetz in den EG-Mitgliedstaaten verstösst gegen die jeweligen einzelstaatlichen Gesetze zur Anwendung der Richtlinie 91/263/EWG zur Angleichung der Rechtsvorschriften der Mitgliedstaaten über Telekommunikationsendeinrichtungen einschliesslich der gegenseitigen Anerkennung ihrer Konformität.

4.4 Electrical Safety Warnings

Electrical Safety

IMPORTANT: This equipment must be installed in accordance with safety precautions.

Elektrische Sicherheit

WICHTIG: Für die Installation dieses Gerätes ist die Einhaltung von Sicherheitsvorkehrungen erforderlich.

Elektrisk sikkerhed

VIGTIGT: Dette udstyr skal 25nstallers I overensstemmelse med sikkerhedsadvarslerne.

Elektrische veiligheid

BELANGRIJK: Dit apparaat moet in overeenstemming met de veiligheidsvoorschriften worden geïnstalleerd.

Sécurité électrique

IMPORTANT : Cet équipement doit être utilisé conformément aux instructions de sécurité.

Sähköturvallisuus

TÄRKEÄÄ : Tämä laite on asennettava turvaohjeiden mukaisesti.

Sicurezza elettrica

IMPORTANTE: questa apparecchiatura deve essere installata rispettando le norme di sicurezza.

Elektrisk sikkerhet

VIKTIG: Dette utstyret skal 25nstallers I samsvar med sikkerhetsregler.

Segurança eléctrica

IMPORTANTE: Este equipamento tem que ser instalado segundo as medidas de precaução de segurança.

Seguridad eléctrica

IMPORTANTE: La instalación de este equipo deberá llevarse a cabo cumpliendo con las precauciones de seguridad.

Elsäkerhet

OBS! Alla nödvändiga försiktighetsåtgärder måste vidtas när denna utrustning används.