

Rapier 48w Switch
Installation and Safety Guide



Rapier 48w Switch Installation and Safety Guide
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Contents

Switches Covered By This Guide	4
Package Contents	4
Selecting a Site	5
Installing the Switch	6
Applying Power to the Switch	9
Connecting Data Cables to the Switch	12
Configuring the Switch	14
Checking LEDs	16
Documentation Set	18
Standards	19
Safety	20
Telecommunications Interfaces	21

Switches Covered By This Guide

This document includes information on the following switches:

- Rapier 48w

You can download updates to this document from
www.alliedtelesis.com/support/software.

Package Contents

These items are included with each Rapier 48w switch. Contact your authorised distributor or reseller if any items are damaged or missing.

- one serial cable for connecting the switch to a terminal or PC
- two 19inch rack-mount brackets, two 23inch rack-mount brackets and eight M4 flat head screws, for mounting the switch in a rack
- one grounding stud crimp terminal
- two M5 hex nuts with lock washers for connecting the switch to primary ground
- one 4-terminal DC connector plug (MSTB) with fixing screws
- two air filters
- this Installation and Safety Guide
- one CD-ROM with complete documentation and utilities
- one warranty card

Selecting a Site

Before you install the switch, review the following considerations about its location.

- For compatibility with Network Equipment Building System (NEBS), the switch must be located in a network telecommunications facility.
- The Rapier 48w switch requires an ambient temperature from 0°C to 50°C (32°F to 122°F).
- There should be adequate front-to-back airflow around the switch and its vents.
- The site should be dust-free and without moisture.
- Humidity can be from 5% to 80% non-condensing.
- You need a reliable and earthed (grounded) power supply source, preferably dedicated and filtered.
- Switch ports suitable for connection to intra-building or non-exposed cabling are required.
- Cabling must not be exposed to sources of electrical noise, such as radio transmitters, broadband amplifiers, power lines, electric motors, and fluorescent fixtures.
- Related network devices can be connected to the switch but cannot exceed maximum cable lengths specified in the Hardware Reference.
- Ensure easy access to the switch's power and cable connections.
- You may need to remove cabinet doors to accommodate cords and cables.
- When rack mounted, the switch must be located evenly to prevent uneven mechanical loading of the rack.

Installing the Switch

Ports on the switch are suitable only for connections within buildings (intra-building) and with cables unexposed to the outside.

You can install the switch on a level surface, such as a desktop or bench, in a standard 19-inch rack, or in a 23-inch rack.

Before you begin

- Read the safety information.

For your well-being and that of the equipment, read the safety information in this document. You can also download this document from www.alliedtelesis.com/support/software.

- Verify the package contents if you have not already done so.

See “[Package Contents](#)” on page 4. If any items are damaged or missing, contact your authorised distributor or reseller.

- Gather necessary tools and equipment:

- a Phillips #2 screwdriver for fitting the rack-mount brackets
- four rack-mount screws and cage nuts (if required)
- a flat screwdriver for the captive screws on the fan units and the DC power connection
- a suitable spanner for tightening the nuts on the chassis grounding stud
- an appropriate DC power source, DC supply cable, ring connectors, wire strippers, and a PANDUIT Uni-Die® dieless crimping toolset

- Prepare the cabinet in a suitable location

Follow guidelines described in “[Selecting a Site](#)” on page 5 to choose an appropriate location and modify the rack as necessary.

You can install the switch in a 19-inch rack, a 23-inch rack, or on a flat bench.

- If you have an optional Network Service Module (NSM), or Port Interface Cards (PICs), install them in the switch first.

For details, refer to the *Network Service Module Installation and Safety Guide* and the *Port Interface Card Installation and Safety Guide*. These guides are shipped with each NSM or PIC. You can also download them from www.alliedtelesis.com/support/software.

Preparation for NEBS

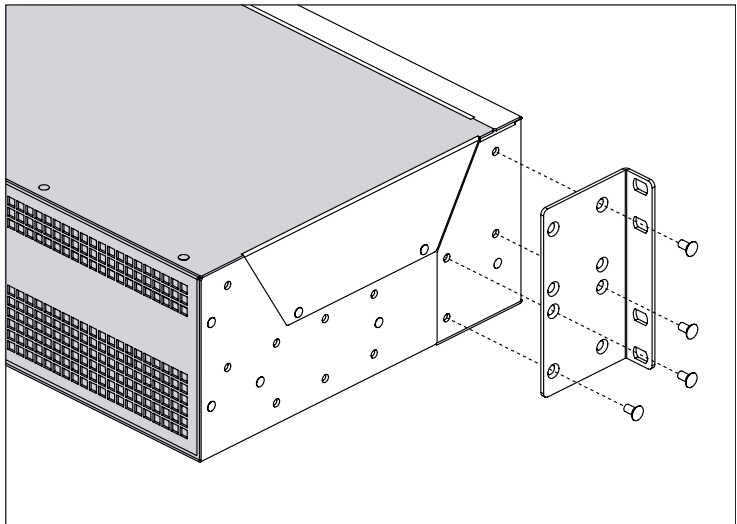
To ensure rack-mounted installations are earthed for compatibility with Network Equipment Building System (NEBS), all bare conductors must be coated with an appropriate antioxidant compound before making crimp connections.



Warning All versions of this equipment must be earthed.

Rack-mount the switch

1. Ensure the rack has sufficient space for the switch and its cables. For the switch's requirements, see [“Selecting a Site” on page 5](#).
2. Install cage nuts, if required, so they are ready for the rack-mount screws in the following steps. The Rapier 48w can be front, center, or rear mounted.
3. Unpack the switch.
4. Screw one bracket to each side of the switch using the M4 screws provided.



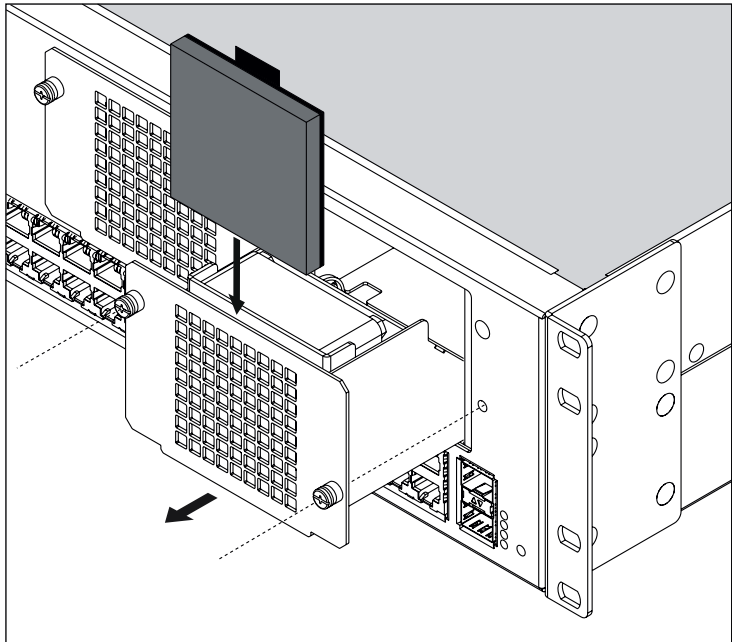
5. Mount the switch into the rack, and tighten the 4 rack-mount screws.

Install the air filters

For compatibility with Network Equipment Building System (NEBS), this switch requires a filtered air supply. The switch is shipped with air filters which must be installed in each of the fan units.

To install an air filter:

1. Using a flat screwdriver, undo the captive screws on the front of the fan unit.
2. Slide the fan unit out of its cage. The internal power connection is quite solid, so pull firmly on the captive screws.
3. Insert the air filter into the narrow slot between the front grill of the fan unit and the fan. Position the air filter with the plastic frame towards the fan and the pull tab to the top. The air filter should fit snugly.



4. Slide the fan unit back into its cage, making sure that the air filter and the pull tab are clear of any contact points.
5. Press the fan unit firmly into place and tighten the captive screws on the front of the fan unit.

Applying Power to the Switch

The specific power supply requirements for the Rapier 48w are clearly displayed on the rear of the switch. If the supply is outside the accepted range for the switch, the switch may not operate or damage to the switch may result.

Read “[Safety](#)” on [page 20](#) of this document before connecting a DC power supply.



Warning Only trained and qualified personnel should connect a DC power supply.

For centralised DC power connection, the switch should be installed in **restricted access areas only** (such as dedicated equipment rooms or equipment closets) in accordance with Articles 110-16, 110-17, and 110-18 of the National Electrical Code, ANSI/NFPA 70.

Damage to equipment may result if power is connected improperly.

Before working on equipment that is connected to power, remove jewellery including rings, necklaces, and watches. Metal objects will heat up when connected between power and ground, and can cause serious burns or weld the metal object to the terminals.

DC supply cable and power supply

Supply cable specifications:

- two-core cable is required
- minimum core size: 2.1mm^2 (14 AWG)
- minimum cable rating: 600 V, 90 degrees C

Power supply specifications:

- 48 VDC (40 to 60 VDC is acceptable)
- supports either positive grounded or negative grounded operation
- a 15Amp certified/listed circuit breaker is required for circuit protection

Connect the switch to ground

The protective earth connection should be connected before proceeding with the following power connections. The primary ground for the equipment is a two stud grounding block (bearing the grounding symbol) located on the left rear of the chassis, adjacent to the DC power connector.

To connect the switch to ground:

1. Using a 10AWG (5mm² cross sectional area) grounding cable (green with yellow stripe), connect the chassis grounding stud to the office primary ground using the two nuts with integral lock washers supplied. Tighten the nuts with an appropriate spanner.
2. Strip an 18mm (0.75 inch) length of insulation from the grounding cable and connect this to the grounding stud crimp terminal, using PANDUIT Uni-Die® dieless crimping toolset. Ensure that no stranded wires protrude from the terminal. The torque value for the chassis grounding studs is 2.57 Nm (22.8 lbf in).

Connect the DC supplies

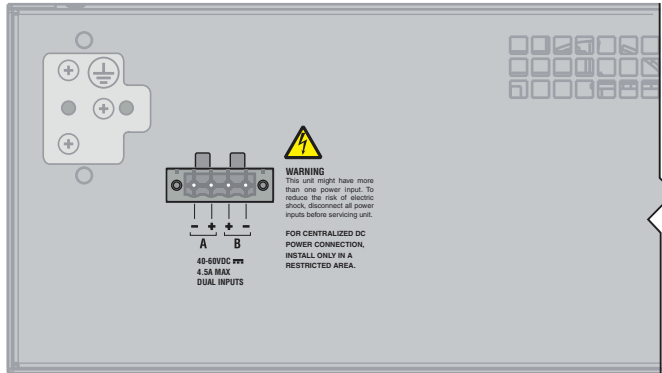
To provide power supply resiliency, the Rapier 48w switch can receive its DC power from either of two separate sources. Each power source should supply 48V DC (40 to 60VDC) to the switch. When the switch is powered by centralized DC power, use UL Listed Type TC tray cables to connect the equipment to the power sources. Each tray cable should have two conductors in the range #14 to #12 AWG (2.0 to 2.5mm² cross sectional area), such as Belden No. 3081A.

Each DC branch circuit should connect to the Rapier switch via a 15A (maximum) circuit breaker or fuse that meets the requirements for branch circuit protection. The DC supply should be fed via a circuit breaker or switch capable of disconnecting power during servicing. The tray cable should be a UL Listed Type TC tray cable with two conductors in the range #14 to #12 AWG (2.0 to 2.5mm² cross sectional area), such as Belden No. 3081A.

To connect the DC supply:

1. Ensure that the DC power source is powered off during installation.
2. Strip 12mm (0.5 inches) of jacket material off the tray cable and strip 7mm (0.27 inches) of insulation off each individual wire.

3. Connect the A feed -48V wire to the screw terminal labelled “A -” on the rear panel of the switch, and use a flat screwdriver to tighten the screw to a torque of 0.5 to 0.8Nm (4.4 to 7.1 lbf in). Ensure no wire strands protrude from the terminal.



4. Connect the A feed 48V return wire to the screw terminal labelled “A +” on the rear panel of the switch, and use a flat screwdriver to tighten the screw to a torque of 0.5 to 0.8Nm (4.4 to 7.1 lbf in). Ensure no wire strands protrude from the terminal. Note that the DC return input terminal must be connected as Isolated DC return (DC-I).
5. Use the same procedure to connect an additional power source, if required, to the terminals labelled B.
6. Secure the tray cable near the rack framework using multiple cable ties to minimize the chance of the connections being disturbed by casual contact with wiring. Use at least four cable ties separated 10cm (4inches) apart with the first one located within 15cm (6inches) of the terminal block.
7. Energise the DC power source to the switch.
The Fault LED should light for approximately 3 seconds as the switch runs internal tests. If the LED remains lit, refer to the *Rapier Switch Hardware Reference* for troubleshooting information.
8. Check that the Power LED on the front panel lights green.
If the LED fails to light, refer to the *Rapier Switch Hardware Reference* for troubleshooting information.

Connecting Data Cables to the Switch

Once initial configuration is complete, connect the switch to the network.



Warning The Ethernet, DS3 and T1 intra-building ports of the equipment are suitable for connection to intra-building or unexposed wiring or cabling only. The Ethernet, DS3 and T1 intra-building ports of the equipment **must not** be metallically connected to interfaces that connect to the OSP or its wiring. These interfaces are designed for use as intra-building interfaces only (Type 2 or Type 4 ports as described in GR-1089-CORE, Issue 4) and require isolation from the exposed OSP cabling. The addition of Primary Protectors is not sufficient protection in order to connect these interfaces metallically to OSP wiring.



Warning The management/async intra-building ports of the equipment are suitable for connection to intra-building or unexposed wiring or cabling only. The management/async intra-building ports of the equipment **must not** be metallically connected to interfaces that connect to the OSP or its wiring. These interfaces are designed for use as intra-building interfaces only (Type 2 or Type 4 ports as described in GR-1089-CORE, Issue 4) and require isolation from the exposed OSP cabling. The addition of Primary Protectors is not sufficient protection in order to connect these interfaces metallically to OSP wiring.

The management/async intra-building ports can only be directly connected to equipment within the same frame, cabinet or line-up and where the equipment is separated by a distance of 6m or less. The exception to this is when intra-building wiring (cabling) is used for maintenance purposes only and is not connected during normal operation.

Ethernet 10/100Mbps RJ-45 ports

Use either straight-through or cross-over twisted pair cables to connect network devices to the 10/100MB switch ports. The switch will autonegotiate the MDI/MDI-X polarity. Make sure that each cable connection is secure. The switch will now perform basic Layer 2 switching functions. By default, all switch ports are members of vlan 1.

Gigabit SFP ports

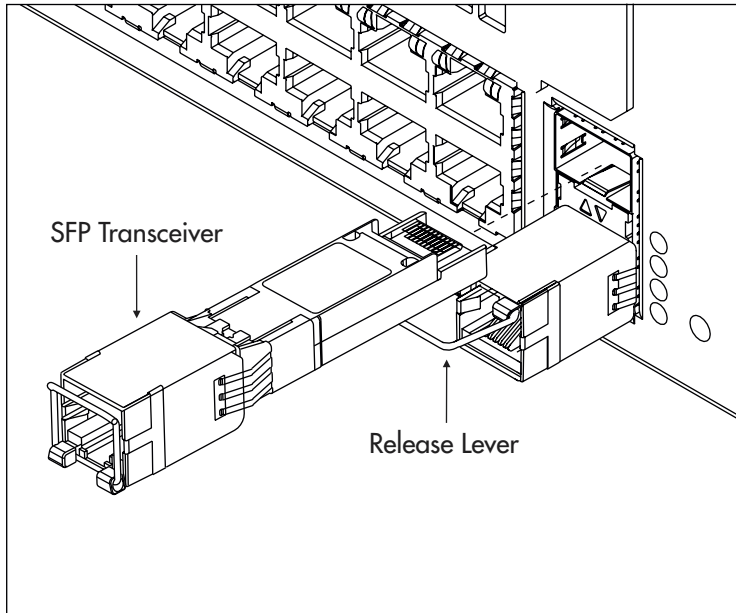
SFP ports 49 and 50 support optional gigabit copper and fibre SFP (Small Form-factor Pluggable) transceivers. For a list of supported SFPs, see the *Rapier Series Switch Hardware Reference*.



Warning Do not look into the optical ports of SFP cables or transceivers. Invisible laser radiation may be emitted from disconnected fibres or connectors.

The SFP transceiver must be inserted the right way in the slot:

- To install an SFP in port 49 (upper), the handle hinge must be at the bottom.
- To install an SFP in port 50 (lower), the handle hinge must be at the top.



To insert an SFP transceiver, slide the transceiver into the SFP socket, and firmly press it until it engages. To remove an SFP transceiver, first release it by gently pulling the release lever, then pull it out of the socket. **Never** force a transceiver into or out of a socket.

WAN ports

If you have installed an NSM, connect the NSM ports to the WAN. For more information, see the *Network Service Module Installation and Safety Guide* and the *Network Service Module Hardware Reference*.

If you have installed an AR040 4-PIC NSM with PICs, connect the PIC ports to the WAN. For more information, see the *Port Interface Card Installation and Safety Guide* and the *Port Interface Card Hardware Reference*.

Configuring the Switch

The Rapier 48w switch can be configured with the Command Line Interface (CLI). Before configuring the switch, you must make some basic connections explained in the following procedure. Before starting the procedure, ensure that the switch is installed and operating.

Using the CLI to configure the switch

1. Connect a terminal or PC to a console port.

The Rapier 48w has two identical asynchronous serial RS-232 console ports with DB9 connectors on the front panel, `asyn0` and `asyn1`. Using the supplied RS-232 straight-through cable, connect your terminal or PC to one of the console ports. For NEBS compatibility, the cable must be shielded and grounded at both ends, especially if permanently connected.

2. Set the communication parameters.

Set the communication parameters on your terminal or terminal emulation program to:

- Bit rate: 9600
- Data bits: 8
- Parity: None
- Stop bits: 1
- Flow control: Hardware

For information about terminal emulation, see *Using Windows Terminal and HyperTerminal* in the Hardware Reference.

3. Log in at the prompt.

After the switch has booted, the login prompt appears. If the login prompt does not appear, press the [Enter] key two or three times.

When the switch boots for the first time, it automatically creates an account with manager privileges. The login name for the account is *manager* and the password is *friend*.

At the login prompt, enter the login name and password as follows:

```
Login: manager
Password: friend
```

The command prompt is displayed after successful login. You can now use the CLI to configure the switch.

4. Change the password.

Change the password as soon as possible because a manager account with the default password is a serious security risk. Remember the new password because there is no way to retrieve it if you forget it.

To change the account password, use the **set password** command.

5. Configure the online help.

To use online help you must first configure the help file, by using the command:

```
set help=<filename>.hlp
```

Help files have a .hlp extension. To see a list of help files loaded on your switch, use the command:

```
show files=*.hlp
```

6. Configure the switch.

Refer to the Software Reference for more information about configuring the software. Alternatively, if you do not know the command syntax, use any of the following to help you:

- To display a list of help topics, use the **help** command.
- To display help on a specific topic, use the **help <topic>** command.
- To display a list of valid options, type a question mark or press the Tab key at the end of a partial command.
- To complete a parameter after you have typed enough letters to uniquely match the desired one, press the Tab key.

7. Save the configuration.

Save your configuration to a new file by using the command:

```
create config=<filename>.cfg
```

Then set the switch to load this file when it restarts by using the command:

```
set config=<filename>.cfg
```

Checking LEDs

The following tables describe how the switch and expansion modules report faults and operational activities. Expansion modules are optional and must be purchased separately. Contact your authorised Allied Telesis distributor or reseller, or visit www.alliedtelesis.com for more information on purchasing expansion modules.

Status LEDs

LED	State	Description
FAULT	Off	Switch operation is normal.
	Red	The switch or management software is malfunctioning.
	1 flash	A switch fan has failed.
POWER	Green	The switch is receiving power and the voltage is within the acceptable range.
	Off	The switch is not receiving power.

NSM LEDs

LED	State	Description
SWAP	Green	The NSM and its PICs are ready to be hot swapped.
	Off	The Hot Swap button must be pressed before the NSM or its PICs can be hot swapped, or the software version does not support hot swapping.
IN USE	Green	The NSM is installed, is receiving power and is operational. The NSM and its PICs are NOT ready to be hot swapped.
	Off	No NSM is installed, or the NSM is not installed correctly (the switch unit has not recognised the NSM).

RJ-45 Port LEDs (Ports 1 - 48)

LED	State	Description
L/A	Green	100 M Link established
	Flashing	100 M Link activity
	Amber	10 M Link established
	Flashing	10 M Link activity
	Off	No link
D/C	Green	Full Duplex
	Flashing	N/A
	Amber	Half Duplex
	Flashing	Collisions
	Off	No link

SFP Port LEDs (Ports 49 - 50)

LED	State	Description
L/A	Green	1000 M Link established.
	Flashing	1000 M Link activity.
	Off	No link.
SFP	Amber	SFP installed.
	Flashing	SFP installed, but indicating a transmission fault.
	Off	No link.

Documentation Set

The complete document set for Rapier Series switches includes the following:

- This Installation and Safety Guide for the Rapier 48w switch
- The *Rapier 48w Switch Removable Fan Installation Guide*, which describes how to install AT-FAN04 fan-only modules (FOMs) in the Rapier 48w switch
- The *Rapier i Series Switch Safety and Statutory Information* booklet, which contains safety information for all Rapier switches except the Rapier 48w
- The *Rapier Series Switch Quick Install Guide*, which describes how to install all Rapier switches except the Rapier 48w
- The *Rapier Series Switch Hardware Reference*, which contains detailed information on the hardware features of all Rapier Series switches
- The *Rapier Series Switch AlliedWare™ Operating System Software Reference*, which contains detailed information on configuring the switch and its software
- The *Network Service Module Installation and Safety Guide*, which describes how to install a Network Service Module
- The *Network Service Module Hardware Reference*, which contains detailed information on the hardware features of Network Service Modules
- The *Port Interface Card Installation and Safety Guide*, which describes how to install a Port Interface Card
- The *Port Interface Card Hardware Reference*, which contains detailed information on the hardware features of Port Interface Cards
- The *Uplink Module Installation and Safety Guide*, which describes how to install an uplink module
- The *Uplink Module Hardware Reference*, which contains detailed information on the hardware features of uplink modules

You can download these documents and updates from www.alliedtelesis.com/support/software.

You need Adobe® Acrobat® Reader® to view, search, or print these documents. You can download it from www.adobe.com.

The Documentation Tools CD-ROM included with each Rapier 48w switch contains these documents, plus:

- AT-TFTP Server for Windows, for transferring files to and from the switch
- Supported MIBs
- How-To Notes, Microsoft® Visio® stencils and other resources

Standards

This product meets the following standards:

Category	Approval Agency and Requirement
Electrical Safety	UL60950-1 CAN/CSA-C22.2 No. 60950-1-03 21 CFR 1040
Electromagnetic Compliance	FCC CFR47 Part 15 Class A
NEBS Level 3	GR-1089-Core Issue 4 GR-63-Core Issue 3
WEEE	Meets requirements of Directive 2002/96/EC of the European Parliament and of the council of 27 January 2003

U.S. Federal Communications Commission

RADIATED ENERGY

Note: This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with this instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Note: Modifications or changes not expressly approved by the manufacturer or the FCC can void your right to operate this equipment.

Canadian Department of Communications

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Safety



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



WARNING: Class I Laser product.



WARNING: Do not stare into the laser beam.



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



ELECTRICAL NOTICES

WARNING: ELECTRIC SHOCK HAZARD

To prevent ELECTRIC shock, do not remove the cover. No user-serviceable parts inside. This unit contains HAZARDOUS VOLTAGES and should only be opened by a trained and qualified technician.



LIGHTNING DANGER

DANGER: DO NOT WORK on equipment or CABLES during periods of LIGHTNING ACTIVITY.



CAUTION: POWER CORD IS USED AS A DISCONNECTION DEVICE. TO DE-ENERGIZE EQUIPMENT, disconnect the power cord.



CAUTION: Air vents must not be blocked and must have free access to the room ambient air for cooling.



OPERATING TEMPERATURE: This product is designed for a maximum ambient temperature of 50 degrees C.



CAUTION: MECHANICAL LOADING - Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven loading.



Lithium Battery - Should only be changed by authorised service personnel.

CAUTION: Danger of explosion if battery incorrectly replaced. Replace only with Lithium Battery, type CR2032, and dispose of in accordance with the manufacturer's recommendations and all local codes.



ALL COUNTRIES: Install product in accordance with local and National Electrical Codes.



WARNING: For centralized DC power connection, install only in a restricted access area.



WARNING: Only trained and qualified personnel are allowed to install or replace this equipment.



WARNING: As a safety precaution, a 15 Amp circuit breaker should be installed at the supply end of the cable to be used with this LAN equipment.

Always connect the wiring to the LAN equipment first before connecting the wiring to the breaker. To avoid the danger of physical injury from electrical shock, do not work with HOT feeds. Always be sure that the breaker is in the Off position before connecting the wiring to the breaker.



WARNING: Do not strip more than the recommended amount of wire. Stripping more than the recommended amount can create a safety hazard by leaving exposed wire on the terminal block after installation.



WARNING: When installing this equipment, always ensure that the frame ground connection is installed first and disconnected last.



WARNING: “Safety Hazard” - Check to see if there are any exposed copper strands coming from the installed wires. When this installation is done correctly, there should be no exposed copper wire strands extending from the terminal block. Any exposed wiring can conduct harmful levels of electricity to persons touching the wires.



DC versions of this system will work with a positive grounded or negative grounded DC system.

Telecommunications Interfaces

The following statements apply to Network Service Module (NSM) and Port Interface Card (PIC) expansion options for Wide Area Network (WAN) links.



Warning To reduce risk of fire use only No.26 awg or larger telecommunications line cord if the cord supplied is not used with the apparatus.

Important Safety Instructions

When using your telephone equipment, basic safety precautions should always be followed to reduce the risk of fire, electric shock and injury to persons, including the following:

1. Do not use this product near water; for example near a bathtub, washbowl, kitchen sink, or laundry tub in a wet basement or near a swimming pool.
2. Avoid using a telephone (other than a cordless type) during an electrical storm. There may be remote risk of electric shock from lightning.
3. Do not use the telephone to report a gas leak in the vicinity of the leak.
4. Use only the power cord and batteries indicated in this manual. Do not dispose of batteries in a fire. They may explode. Check with local codes for possible special disposal instructions.

5. Remove the telephone cord from the unit prior to making changes to the expansion port.

Save these instructions

Connection to ISDN network

Ports for the connection of other apparatus

The following interfaces normally operate at SELV (Safe Extra Low Voltage) levels:

- Asynchronous (console) ports
- Ethernet ports
- G703 ports
- Synchronous ports

Note SELV is a secondary circuit whose voltages do not exceed a safe value under normal operating conditions and under single fault conditions. Under normal operating conditions the voltages do not exceed 42.4 V peak AC or 60 V DC.

TNVI

The following interfaces are Telecommunications Network Voltage (TNVI) circuits, which operate normally within the limits of SELV:

- BRI ports for connection to ISDN Basic Rate telecommunications networks
- PRI ports for connection to ISDN Primary Rate telecommunications networks
- E1/T1 ports for connection to E1/T1 services

Note A TNVI circuit is a circuit which under normal operating conditions does not exceed the limits for SELV and on which overvoltages from telecommunication networks are possible.

US Federal Communications Commission (FCC)

This equipment complies with Part 68 of the Federal Communications Commission (FCC) rules for the United States.

A label is located on the underside of the base unit containing the FCC registration number. You must, upon request, provide the following information to your local telephone company:

For the AR021U PIC

Facility Interface Code	021S5
Service Order Code	6.0Y
	The AR021U PIC has completed the ISDN Ordering Codes Translation Review and is registered for IOC S and EZ-ISDN I.
USOC Jack Type	RJ49C

Should you experience trouble with this telephone equipment, please contact:

Allied Telesis, Inc.
 19800 North Creek Parkway, Suite 200
 Bothell WA, 98011
 Phone: 1 800 424 6596
 Fax: 1 425 481 3895

If trouble is experienced with this equipment (AR021U PIC), for repair or warranty information, please contact the above. If the equipment is causing harm to the telephone network, the telephone company may request that you disconnect the equipment until the problem is resolved.

This equipment cannot be used on public coin phone service provided by the telephone company. Connection to party line service is subject to state tariffs.

Your telephone company may discontinue your service if your equipment causes harm to the telephone network. They will notify you in advance of disconnection, if possible. During notification, you will be informed of your right to file a complaint to the FCC.

Occasionally, your telephone company may make changes in its facilities, equipment, operation, or procedures that could affect the operation of your equipment. If so, you will be given advance notice of the change to give you an opportunity to maintain uninterrupted service.

Canadian Department of Communications

The Industry Canada label identifies certified equipment. This certification means that the equipment meets telecommunications network protective, operational and safety requirements as prescribed in the appropriate Terminal Equipment Technical Requirements document(s). The Department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be coordinated by a representative designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.



Warning Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

This digital apparatus does not exceed the limits for radio noise emissions from digital apparatus as set out in the Radio Interface Regulations of the Canadian Department of Communications.

Le present appareil numerique n'emet pas de bruits radioelectriques depassant les limites applicables aux appareils numeriques prescrites dans le Reglement sur le brouillage radioelectrique edicte par le ministere des Communications du Canada.