

Installation Guide

Cajun P118SX/LX

STACKABLE ETHERNET SWITCH





Important information

SAFETY PRECAUTIONS

CAUTION – TO REDUCE THE RISK OF ELECTRIC SHOCK AND FIRE

1. All servicing should be undertaken **ONLY** by qualified personnel. The parts inside the unit **CANNOT** be serviced or repaired by the end user. Please call your service representative for assistance.
2. Do **NOT** plug in, turn on or attempt to operate a damaged unit.
3. Ensure that the chassis ventilation slots in the unit are **NOT BLOCKED**.
4. Replace a “blown” fuse only with the same type and rating as is marked on the safety label adjacent to the power inlet housing the fuse.
5. **DO NOT** operate the unit in a location where the maximum ambient temperature exceeds 50°C.
6. Be sure to unplug the power supply cord from the wall socket **BEFORE** attempting to remove and/or check the main power fuse.

PRECAUTIONS DE SECURITÉ

AVERTISSEMENT – POUR RÉDUIRE LE RISQUE DE CHOC ÉLECTRIQUE ET D’INCENDIE

1. Tout entretien doit être fait **UNIQUEMENT** par un personnel de service qualifié. Aucun élément ne peut être réparé par un particulier.
2. **NE PAS** brancher, allumer ou essayer de faire fonctionner une unité sur laquelle un doute existe quant à son bon fonctionnement.
3. S’assurer que les ouvertures d’aération du châssis dans l’appareil **NE SONT PAS OBSTRUEES..**
4. Remplacer un fusible défaillant **UNIQUEMENT** par un modèle du même type suivant les recommandations indiquées sur l’étiquette de sécurité posée dans le logement du fusible.
5. **NE PAS** faire fonctionner l’appareil dans un endroit où la température dépasse les 50°C.
6. S’assurer de débrancher l’alimentation électrique **AVANT** toute manipulation sur le fusible principal.

SICHERHEITSVORKEHRUNG

ACHTUNG – ZUR VERHINDERUNG DES RISIKOS VON ELEKTRISCHEM SCHLAG UND FEUER

1. Die Geräte enthalten keine Bauteile, die außerhalb des Madge Servicezentrums gewartet oder repariert werden können. Die Wartung darf **NUR** von qualifiziertem, technischem Personal durchgeführt werden.
2. **NIEMALS** ein beschädigtes Gerät einschalten, oder versuchen es zu bedienen.
3. Vergewissern Sie sich, dass die Chassis Ventilationsöffnungen des Gerätes **NICHT BLOCKIERT** sind.

4. Austauschen einer durchgebrannten Sicherung NUR mit der gleichen Sorte und Belastbarkeit wie sie auf der Sicherheitsaufschrift markiert ist. Die Aufschrift befindet sich neben der Stromzufuhr wo sich auch der Sicherungskasten befindet.
5. Bedienen Sie das Gerät NICHT an einer Stelle an der die Umgebungstemperatur 50°C übersteigt.
6. Ziehen Sie das Netzkabel raus, BEVOR Sie versuchen die Hauptsicherung zu kontrollieren oder auszutauschen.

Regulatory Approvals and Safety Information for the Cajun P118SX/LX Products

LASER SAFETY

The Cajun P118SX multi-mode transceiver and the Cajun P118LX single mode transceiver are a Class 1 laser product.

They comply with IEC 825-1 and Food and Drug Administration (FDA) 21 CFR 1040.10 and 1040.11.

The transceivers must be operated under recommended operating conditions.

LASER CLASSIFICATION

Class 1 lasers are inherently safe under reasonably foreseeable conditions of operation.



Caution: The use of optical instruments with this product will increase eye hazard.

USAGE RESTRICTION

The optical ports of the module must be terminated with an optical connector or a dust plug.

LASER DATA

Cajun P118SX :

Wavelength:850 nm

Output power dissipation : Max. 0.63W

Cajun P118LX :

Wavelength:1300 nm

Output power dissipation : Max. 0.68W

**CLASS 1
LASER PRODUCT**

Overview

This guide is divided into the following main sections:

- **Overview:** A general description of the features of the Cajun™ P118.
- **Installation:** Instructions for getting the Cajun P118 and Cajun P110 stack up and running.

Description

The Cajun P118SX and P118LX are part of the Cajun P110 family of switches. The Cajun P110 family is composed of high-performance stackable switches which may be used singly or stacked in any combination.

The Cajun P118 has eight Ethernet/Fast Ethernet (10/100BASE-T) ports and two Gigabit Ethernet (1000BASE-X) ports. The 10/100 Mbps ports are typically used for workgroup connectivity, while the two 1000 Mbps ports can be used as full duplex uplinks to a Cajun M400, P550, M770 Switch or another Cajun P110 switch or to any other Gigabit Ethernet switch.

The Giga Ethernet ports comply with the IEEE 802.3x Flow Control and IEEE 802.1Q for Tagging Mode standards. All 10/100 Mbps ports can run at full or half duplex Ethernet. A redundant power supply may be used for enhanced fault tolerance.

The Cajun P118 can operate standalone or as part of a stack. A stack can be made up of any combination of two, three or four Cajun P110 switches, and up 32,000 MAC addresses per stack are supported. A stack requires a Cajun P110 NMA to link the switches. The units are physically linked using the Exoplane™.



Note: You need to install a Cajun P110 NMA in the P118SX and P118LX switches in order to operate them in stand-alone mode.

The Cajun P118 can use an advanced flow control mechanism to eliminate packet loss. An automatic fairness mechanism ensures that all ports gain fair access to the Exoplane even at very high network utilization. Congestion management works both on full and half duplex ports, and ensures no packet loss should the buffers become saturated during peak load conditions.

A redundant power supply (Cajun P110 BUPS) may be used for additional fault tolerance.

The Cajun P118 switch is manageable under CajunView,™ Lucent's family of SNMP network management systems, or any other SNMP-based management system, and may be monitored using Lucent's SMONMaster™ Switch Monitoring Application.



Note: The P118SX and P118LX switches are identical except that the P118LX module has single-mode fiber ports. Therefore this Installation Guide will only refer to the Cajun P118 unless there are differences in the operation of the switches.

Fiber Optic Specifications

Two auto-negotiation 1000Base-X ports.

P118SX

1000Base-SX ports

- 220m over 62.5 μm MMF or
- 550m over 50 μm MMF.

P118LX

1000Base-LX ports

- 5 km over SMF or
- 550m over MMF with special patch cord.

Installation

Default Values



Note: The management-set default values are those defined in Cajun P110 NMA agent version 8.6. If you download or install a later version of the agent software, please refer to the Cajun P110 NMA Release Notes for any changes.

Before you install the Cajun P118, check Table 1 which shows the default values for key parameters and how you can change them.

The default values are set at the factory to enable smooth interoperability with other members of the Cajun Campus (P118, M400, M770, and P550).

Table 1 Default Values

Parameter	Default Value	Change Via...
Gigabit Ethernet ports (1,2)		
IEEE 802.1Q VLAN Tagging	Enabled	DIP switches or management*
Default VLAN	255 [§] (Global)	Management only
Auto Negotiation	Disabled	DIP switches or management
VLAN Binding**	All	Management only
IEEE 802.3x Flow Control	Symmetric Pause	Management only
10/100 Mbps ports (3-10)		
Flow Control (proprietary)	On	Management only
Speed (10/100)	100 Mbps	DIP switches or management
Auto Negotiation	Off	Management only

* Management refers to CajunView, Cajun P110 Manager or the Cajun P110 NMA configuration screens. Please refer to the appropriate documentation for details.

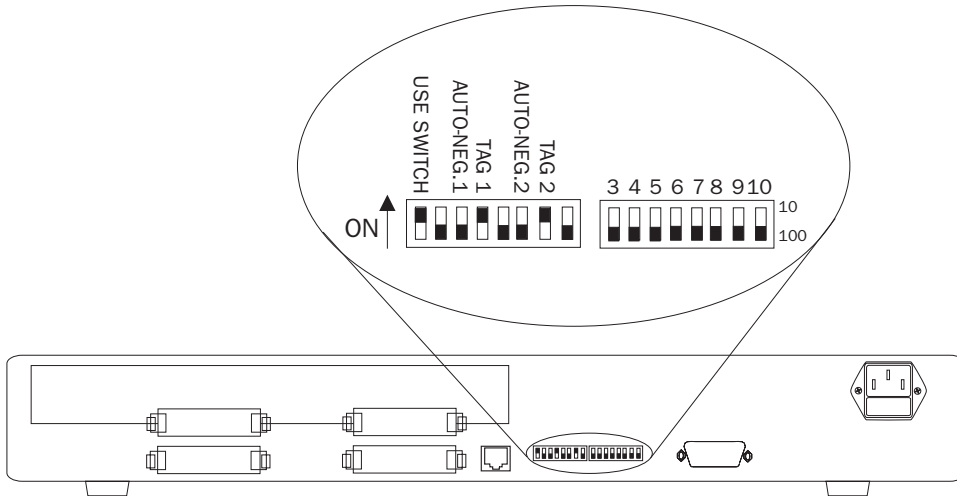
**When using the Gigabit Ethernet ports for backbone connections, set the VLAN Binding Method to ALL.
When using the Gigabit Ethernet ports for other applications set the VLAN Binding method to Static Binding.

§ Please refer to the included VLAN Application Note .

Setting the DIP switches

First, set the DIP switches. The position of the switches depends on the Cajun P110 application. The drawing below shows the default positions of the DIP switches on the rear panel of the Cajun P110 switch.

Figure 1 The Cajun P118 Rear Panel Showing the DIP Switches in Their Default Positions



Note: The DIP switches described below function only when the USE SWITCH switch is in the ON position.

- **USE SWITCH** – Selects whether the Cajun P118 switch configuration will be controlled by the DIP switches or from the management station.
 - **ON:** certain Cajun P110 switch settings are determined by the DIP switches, and can only be monitored, but not changed, by the console.
 - **OFF:** the DIP switch settings are ignored and the Cajun P110 functionality is controlled from the console via the Cajun P110 NMA.
Set to ON when you don't have SNMP management, or when you want to ensure that the settings will not be changed.
- **10/100** (eight switches) – Sets the speed for each of the Ethernet/Fast Ethernet ports.
 - When set to on, the port operates at 10 Mbps.
 - When set to off the port operates at 100 Mbps.
- **AUTO-NEG.1, AUTO-NEG-2** – Giga Ethernet Auto-negotiation (AUTO-NEG.1 is for port 1 and AUTO-NEG.2 is for port 2):
 - **ON:** Auto-negotiation is enabled.
 - **OFF:** Auto-negotiation is disabled.

- TAG 1, TAG 2 –802.1Q VLAN Tagging mode (TAG 1 is for port 1 and TAG 2 is for port 2). VLAN Tagging transfers across the backbone packets with VLAN and priority. By carrying this information across the inter-switch link, VLAN Tagging makes it possible to distribute VLANs across the organization. This tagging facility allows you to make two 802.1Q-compliant hubs act as a single logical device.
 - ON: IEEE 802.1Q VLAN Tagging is enabled.
 - OFF: IEEE 802.1Q VLAN Tagging is disabled for transmit and receive (“Legacy” VLAN per port mode).

If the settings of an existing Cajun P110 stack are changed, the stack must be reset. Press and hold both buttons on the front panel simultaneously for a second or more to reset the *entire* Cajun P110 stack. In a Reset, all LED indicators turn on. Pressing Reset does not affect configuration settings.

Once you have set the switches, you may proceed with the physical installation of the switch.



Note: Flow Control for the Giga Ethernet ports is configured from the management station..

Table 2 DIP Switches on the Cajun P118

Switch	Function	Down (OFF/100)	UP (ON/10)
USE SWITCH	Selection of operational mode	Port parameters configured via management software (switches ignored).	DIP switches used to configure port parameters
Giga Ethernet ports only (1-2)			
TAG 1 TAG 2	IEEE 802.1Q VLAN Tagging mode	Disabled (“Legacy” mode)	Enabled
AUTO-NEG.1 AUTO-NEG.2	Auto-negotiation	Disabled	Enabled
10/100BASE-T ports only (3-10)			
10/100 (3-10)	Speed of 10/100 Mbps ports	100 Mbps	10 Mbps

The default position for the DIP switches is indicated by a shaded background.

Installing the Cajun P118

The procedure for getting the Cajun P118 up and running depends on whether the switch is to operate standalone or as part of a stack.

First, attach the adhesive rubber legs to the base of the Cajun P110 switch. If the switch is to be rack mounted, do not attach the legs.

Standalone Operation - Plug 'n' Play

Getting the Cajun P110 switch working is quick and easy:

1. Connect the power cable to the switch.
2. Connect the cables to the front panel ports.



Note: If you are operating the Cajun P118 in stand-alone mode, you must insert a Cajun P110 NMA agent. Please refer to the Cajun P110 NMA Installation Guide for details..

3. The switch is now fully operational. By default, all 10/100 ports will operate in half duplex mode.

Stacking Operation

If you are using the Cajun P118 as part of a stack, you only need one Cajun P110 NMA for the entire stack.

- If there is a Cajun P110 NMA already in the stack then ensure it is in the topmost Cajun P110 switch and remove the additional NMA.
- If there is no NMA in the stack then place the Cajun P118 at the top of the stack.

To check what software version you have, see the agent configuration window in MultiMan (on UNIX) or Cajun P110 Manager (on Windows), or see the setup main menu of the Cajun P110 NMA.

1. Before adding a switch to the Cajun P110 stack, turn off the main power to the stack, by individually switching off each hub
2. Place the Cajun P110 NMA in the top switch of the stack
3. If the **Cajun P110 NMA** contains agent software version 8.6 or higher, go to step 5.
4. If the **Cajun P110 NMA** does not contain the agent software version 8.6, you should perform a software download of the latest version. The software is on the diskette that came with the Cajun P118. Download is performed via TFTP using a Terminal console or via the timed Download application from your management station— details can be found in the Cajun P110 NMA installation Guide.
5. Place the Cajun P118 switch in the stack. The Cajun P110 NMA must be in the top switch of the stack.

To ensure proper ventilation, ensure that all empty Cajun P110 NMA slots in the stack are closed.

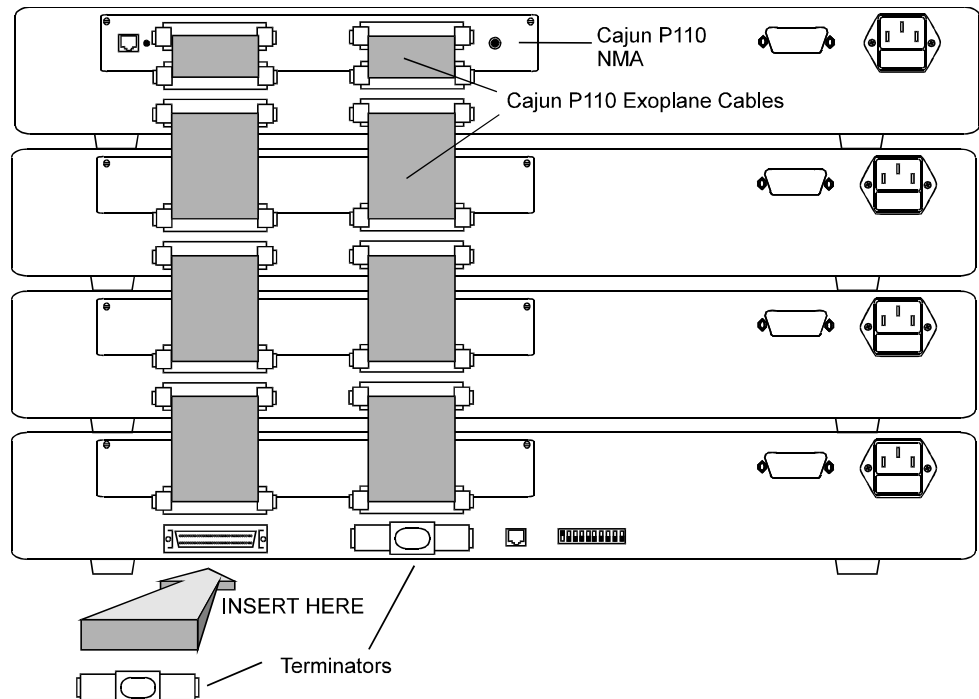
6. Connect Cajun P110 switches using the Exoplane cables, as shown in Figure 2. A switch connects to its upper neighbor through two Exoplane cables, and to its lower neighbor through another two Exoplane cables. Make sure you securely fasten the cables to the connectors.



Cabling Requirements:

- For correct operation, the Cajun P110 Exoplane must be fully connected, with all units powered up. In case units are stacked, the Cajun P110 NMA **must** be installed and connected to the Exoplane. Failure to observe this requirement will cause the Cajun P110 units to block all traffic on attached stations and segments.
- When using the Cajun P114T or Cajun P114F in the stack, make sure all switches in the stack are connected using Exoplane cables. Extra cables can be ordered from your local Lucent representative.

Figure 2 Rear view of a Cajun P110 switch stack, showing how the switches are linked via the Exoplane cables. A Cajun P110 NMA resides in the uppermost switch.



7. Two terminators are supplied with the Cajun P110 NMA. Insert the two terminators into the lowest two connectors at the bottom of the stack, as shown in Figure 2.
8. Turn on the mains power to the stack, by individually switching on each hub.
9. Connect the cables to the front panel ports.



Notes:

- If Cajun P110 NMA in the stack contains the software version 8.6 or higher (as specified in the Cajun P118 Release Notes) or higher, the stack is now fully operational
 - When a new version of agent software becomes available, you should perform software download to benefit from the extra capabilities provided. Please refer to the Cajun P110 NMA Installation Guide for details.
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Rack Mounting

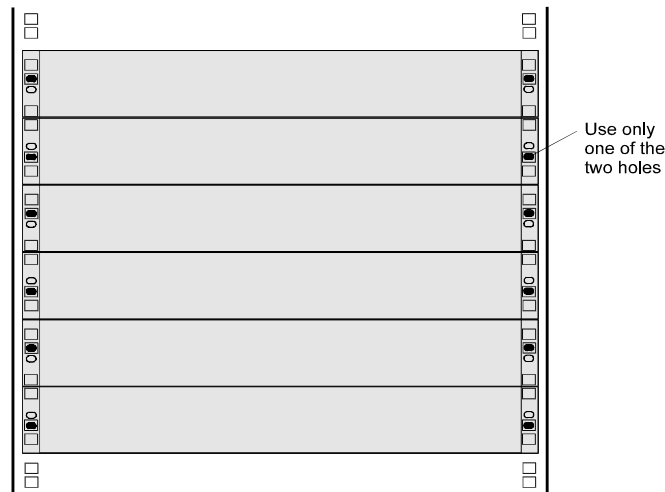
Cajun P110 switches slot into a standard 19 inch rack.

Remove the rubber legs from the base of any switch that is to be rack mounted.

Place the switches in the rack, and then connect the Exoplane, as follows:

1. Snap open the ends of the front panel to reveal the fixing holes.
2. Slot the switch into the rack. Insert the switches into the rack so that the switches in a logical stack lie directly on top of each other. Ensure that the Cajun P110 screw holes are aligned with the rack hole positions exactly as shown in figure 3. Stacking them in this way will allow the switches to be easily connected using the Exoplane cables.
3. Secure the switch in the rack using the screws. Use one screw on each side. Do not overtighten the screws to avoid damaging the plastic.
4. Connect the Exoplane cables, as described above, and as illustrated in Figure 2.
5. Snap closed the hinged ends of the front panel.

Figure 3 Cajun P110 rack mounting arrangement



Key

- Hole in rack
- Screw hole in Cajun
- Screw position

Diagnostics

Table 3 and Table 4 explain the meaning of the Cajun P118 diagnostic LED indicators.

Figure 4 The Cajun P118 Front Panel LEDs and Buttons

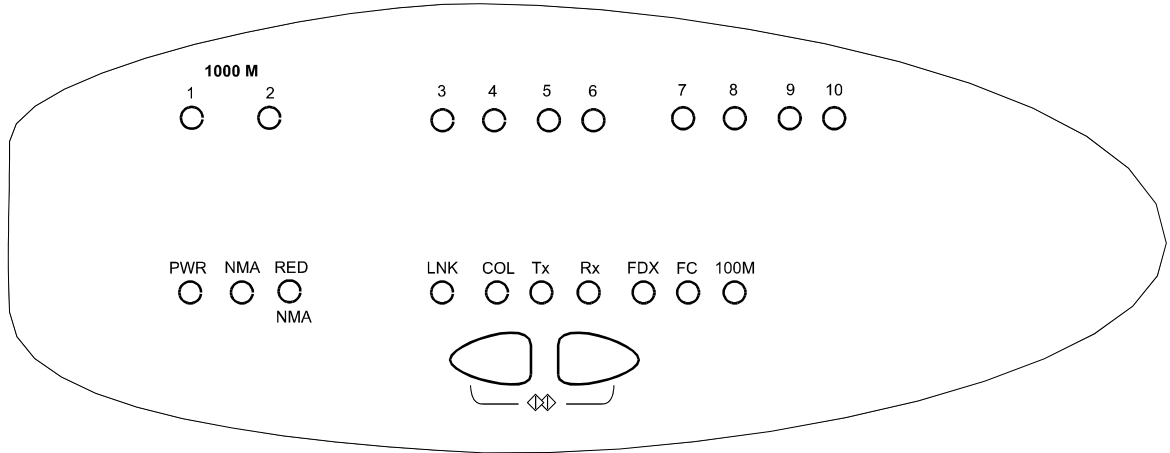


Table 3 Meaning of the Cajun P118 Front Panel Buttons

Button	Function	Meaning
	Select	<p>The buttons determine what function will be displayed by the 18 Port LEDs (the top two rows of LEDs).</p> <p>The seven Function LEDs (above the Select buttons) show which function is currently displayed by the Port LEDs. The Port LEDs can display either Link, Collision, Transmit, Receive, Full Duplex, Flow Control or ISL.</p> <p>If, for example, the Link (LNK) LED is lit, then LEDs 1 to 18 will display the Link status of every port.</p> <p>Press the left or right button to toggle the Port LED display between functions</p>
	Reset	<p>Press and hold both buttons simultaneously for a second or more to reset the <i>entire</i> Cajun P110 stack. In a Reset, all LED indicators turn on. Pressing Reset does not affect configuration settings.</p>

Table 4 Meaning of the Cajun P118 front panel LEDs

LED Indicator		Function	Status	Meaning
PWR		Power	OFF ON Blink	Mains power not connected Mains power connected Working on back-up power supply
NMA		Agent	OFF ON	No agent in switch Switch contains an active agent
RED NMA		N/A		
Function LED			Port LED	
	LNK	Link status	OFF ON Blink once Blink twice	Port Disabled Port is enabled and link is OK Link Test Fail. Partition ¹ .
	COL ²	Collision	OFF ON	No Collision Collision occurred on line
	Tx	Transmit to line	OFF ON	No activity Data transmitted
	Rx	Receive from line	OFF ON	No activity Data Received
	FDX ³	Half/Full duplex	OFF ON	Half duplex connection to port. Full duplex connection to port.
	FC	Flow Control	ON OFF	Flow Control enabled Flow Control disabled
	100M ⁴	Port speed	OFF ON	Port operating at 10 Mbps Port operating at 100 Mbps

**Notes:**

1. The LED blinks once or twice every five seconds in the event of an error.
2. The COL LED is always OFF for ports 1 and 2.
3. The FDX LED is always ON for ports 1 and 2
4. The 100M LED is always OFF for ports 1 and 2.

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