



# CAP and DMT POTS Module FRU Installation and Replacement Notes

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**Product Number for CAP POTS Module: PSC-6120-1=**

**Product Number for DMT POTS Module: PSM-4-DMT2-1=**

This document provides information about installing and replacing the carrierless amplitude and phase modulation (CAP) and discrete multi-tone (DMT) plain old telephone service (POTS) modules. The CAP and DMT POTS modules are field-replaceable units (FRUs) for the following systems:

- Cisco 6100/6130 with NI-1 system
- Cisco 6100/6130 with NI-2 system

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# CAP and DMT POTS Modules Overview

The POTS modules separate ADSL data from the POTS signals. When you are using a Cisco 6100 system, these modules provide secondary line protection.

There are two types of POTS modules available for the Cisco 6120 chassis:

- 8 kHz CAP
- 8 kHz DMT

Table 1 shows the configurations where the POTS modules can operate.

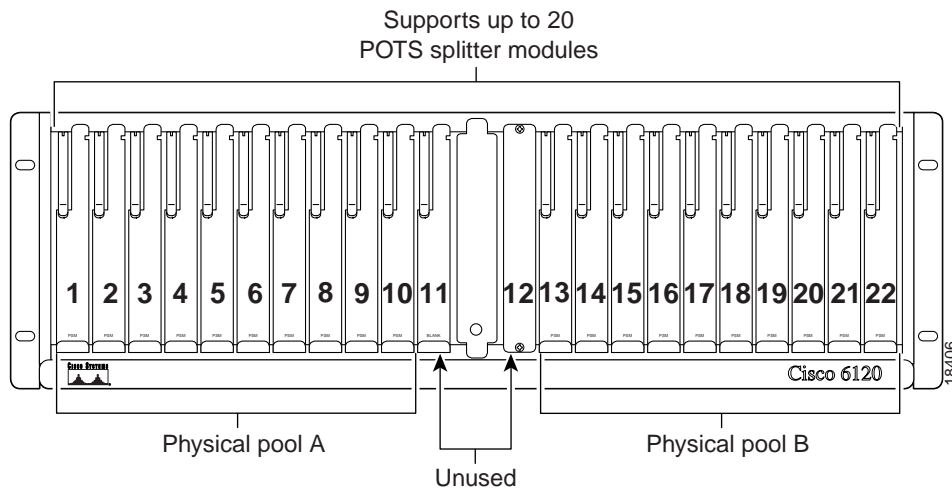
**Table 1** Cisco 6100/6130 and POTS Module Compatibility

Module	CAP ATU-C Module <sup>1</sup>	DMT-2 ATU-C Module <sup>2</sup>		Flexi ATU-C Module (CAP mode)		Flexi ATU-C Module (DMT mode)	
	Cisco 6100	Cisco 6130	Cisco 6100	Cisco 6130	Cisco 6100	Cisco 6130	Cisco 6100
Cisco CAP POTS <sup>3</sup>	Yes	No	No	No	No	No	No
Cisco DMT POTS	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Siecor DMT POTS	No	Yes	Yes	Yes	Yes	Yes	Yes

1. CAP ATU-C modules cannot be used in a Cisco 6130 chassis.
2. If you install DMT-2 ATU-C modules in the Cisco 6100/6130, you must install all DMT POTS modules in the POTS splitter chassis.
3. A DOH configuration can use only CAP POTS modules.

The Cisco 6120 chassis can include up to 20 CAP or DMT POTS splitter modules. The modules can be installed in chassis slots 1 through 10, and 13 to 22, as shown in Figure 1.

**Figure 1** CAP and DMT POTS Module Slots in the Cisco 6120

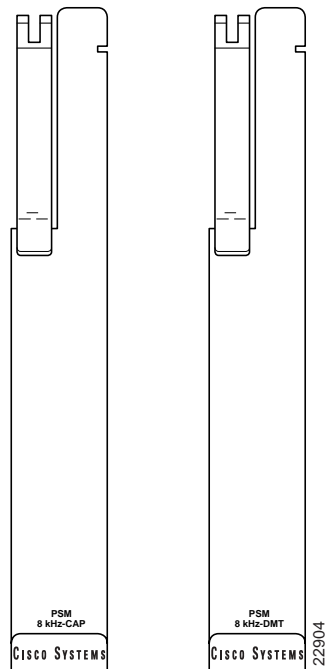


  
**Note**

The physical pool A and physical pool B callouts in Figure 1 apply only in a DOH configuration.

Figure 2 shows the POTS module faceplates.

**Figure 2** POTS Module Faceplates



## Part and Tool Requirements

To install or replace the CAP or DMT POTS module, you need the following parts and tools:

- CAP or DMT POTS module.
- Necessary equipment for ESD protection—Required whenever you handle Cisco digital subscriber line access multiplexer (DSLAM) equipment, which includes the chassis, modules, and cards.



### Note

The system has no internal user-serviceable parts. However, you can add or remove a CAP or DMT POTS module without removing power from the system (hot swapping).

# General Safety Precautions and Maintenance Guidelines

This section describes the following:

- General Safety Precautions
- Hot-Swapping Modules
- Module Installation and Replacement Suggestions

## General Safety Precautions

Before working on the equipment, be aware of standard safety practices and the hazards involved in working with electrical circuitry to prevent accidents. Adhere to the following cautions and warnings for safe and hazard-free installation.



Note

To see translations of the warnings that appear in this publication, refer to the *Regulatory Compliance and Safety Information for the Cisco 6100 Series System* document.



Tips

In the following warnings, the terms *cover panel* and *safety cover* refer to the chassis front cover.



Caution

Proper ESD protection is required whenever you handle Cisco DSLAM equipment. Installation and maintenance personnel should be properly grounded using ground straps to eliminate the risk of ESD damage to the equipment. Modules are subject to ESD damage whenever they are removed from the chassis.



Caution

Installing the modules in the chassis with the power leads reversed can damage the modules.



Caution

If the modules are installed when you apply power to the system, you could damage the modules and the chassis.



Warning

Use copper conductors only.



Warning

A readily accessible two-poled disconnect device must be incorporated in the fixed wiring.



Warning

Do not reach into a vacant slot or chassis while you install or remove a module or a fan. Exposed circuitry could constitute an energy hazard.



Warning

Blank faceplates and cover panels serve three important functions: they prevent exposure to hazardous voltages and currents inside the chassis; they contain electromagnetic interference (EMI) that might disrupt other equipment; and they direct the flow of cooling air through the chassis. Do not operate the system unless all cards, faceplates, front covers, and rear covers are in place.



Warning

Only trained and qualified personnel should be allowed to install, replace, or service this equipment.



Warning

The power supply circuitry for the Cisco DSLAM equipment can constitute an energy hazard. Before you install or replace the equipment, remove all jewelry (including rings, necklaces, and watches). Metal objects can come into contact with exposed power supply wiring or circuitry inside the DSLAM equipment. This could cause the metal objects to heat up and cause serious burns or weld the metal object to the equipment.



Warning

Secure all power cabling when installing this unit to avoid disturbing field-wiring connections.



Warning

Ultimate disposal of this product should be handled according to all national laws and regulations.



Warning

This unit is intended for installation in restricted access areas. A restricted access area is where access can only be gained by service personnel through the use of a special tool, lock and key, or other means of security, and is controlled by the authority responsible for the location.



Warning

The safety cover is an integral part of the product. Do not operate the unit without the safety cover installed. Operating the unit without the cover in place will invalidate the safety approvals and pose a risk of fire and electrical hazards.



Warning

Connect the unit only to DC power source that complies with the Safety Extra-Low Voltage (SELV) requirements in IEC 60950 based safety standards.



Warning

This product requires short-circuit (overcurrent) protection, to be provided as part of the building installation. Install only in accordance with national and local wiring regulations.



Warning

Care must be given to connecting units to the supply circuit so that wiring is not overloaded.

## Hot-Swapping Modules

The CAP or DMT POTS module supports hot swapping. Hot swapping allows you to remove, replace, and rearrange the modules without disconnecting the system power.

## Module Installation and Replacement Suggestions

The following items are examples of recommended module installation and replacement practices:

- Do not force the module into its slot. This action can damage the pins on the backplane if they are not aligned properly with the module.
- Ensure that the module is straight and not at an angle when you install the module in the slot. Installing the module at an angle can damage the module.
- Fully depress the ejector tabs to ensure that the module connector mates with the backplane correctly. Firmly seat the module in the slot.

Any module that is only partially connected to the backplane can disrupt system operation.

## Removing and Installing a CAP or DMT POTS Module

The following sections describe how to remove, install, or replace a CAP or DMT POTS module.



Caution

Proper ESD protection is required whenever you handle Cisco DSLAM equipment. Installation and maintenance personnel should be properly grounded using ground straps to eliminate the risk of ESD damage to the equipment. Modules are subject to ESD damage whenever they are removed from the chassis.

## Removing a CAP or DMT POTS Module

Complete the following steps to remove a CAP or DMT POTS module from the Cisco 6120 chassis:

**Step 1** Lift up the ejector tab. This action disconnects the module from the backplane.

**Step 2** Carefully slide the module out of the slot.

Either replace the module that you remove, or insert a blank faceplate in the empty slot. See the “Installing or Replacing a CAP or DMT POTS Module” section on page 7 for POTS module installation instructions. For blank faceplate installation instructions, refer to the appropriate hardware installation guide for your chassis.



**Note** Blank faceplates should occupy any empty slots in the chassis.

## Installing or Replacing a CAP or DMT POTS Module

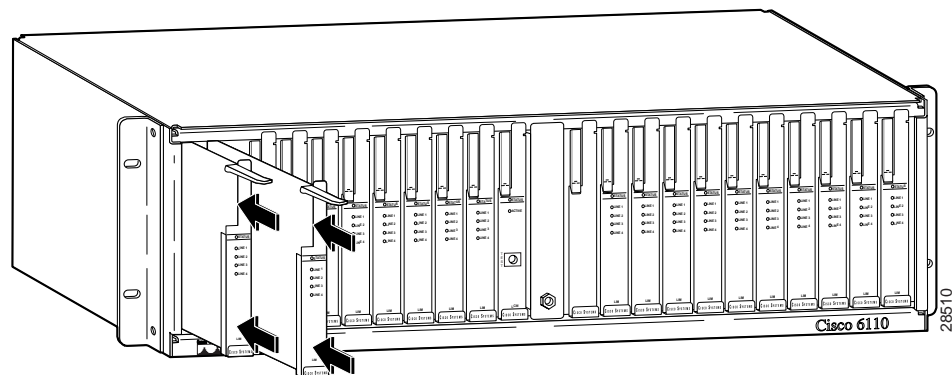
Complete the following steps to install the CAP or DMT POTS module in the Cisco 6120 chassis:



**Note** It is important that you complete each step before moving on to the next step.

- Step 1** Hold the POTS module vertically, with the module's faceplate toward you and the connectors facing the chassis slot.
- Step 2** Align the upper and lower edges of the POTS module with the upper and lower guides in the chassis slot.
- Step 3** Lift up on the ejector tab and gently apply pressure to the bottom of the faceplate while pushing the module into the slot (see Figure 3).

*Figure 3 POTS Module Installation*



- Step 4** Push on the faceplate of each module to fully seat the module.
- Step 5** Press down on the ejector tab to secure the module and connect it to the backplane.

# Standards and Certifications

Table 2 lists POTS module standards and certifications.

*Table 2 Standards and Certifications*

Category	Description
NEBS Level 3	Bellcore GR-63-CORE, GR-1089-CORE
Safety	UL 1950, 3rd Edition

## Related Documentation

The following sections list the central office (CO) and customer premises equipment (CPE) publications that relate to the Cisco DSL product family.

### CO Publications

A complete list of all released Cisco 6100 Series system with NI-1 related documentation is available on the World Wide Web at

[http://www.cisco.com/univercd/cc/td/doc/product/dsl\\_prod/c6100/index.htm](http://www.cisco.com/univercd/cc/td/doc/product/dsl_prod/c6100/index.htm).

The following ViewRunner management software is used to provision and manage the Cisco 6100 Series system with NI-1. A complete list of all released ViewRunner documentation is available on the Word Wide Web.

- ViewRunner for Windows  
[http://www.cisco.com/univercd/cc/td/doc/product/dsl\\_prod/vrmgtsw/vr4w/index.htm](http://www.cisco.com/univercd/cc/td/doc/product/dsl_prod/vrmgtsw/vr4w/index.htm)
- ViewRunner for HP OpenView  
[http://www.cisco.com/univercd/cc/td/doc/product/dsl\\_prod/vrmgtsw/vr4ov/index.htm](http://www.cisco.com/univercd/cc/td/doc/product/dsl_prod/vrmgtsw/vr4ov/index.htm)

### CPE Publications

The Cisco CPE, also known as the Cisco 600 Series, is part of the Cisco end-to-end DSL product family. CPE comprises modems and routers at the customer site primarily used by home office and corporate LAN personnel. Most CPE uses the Cisco Broadband Operating System (CBOS) as its operating system. CBOS provides a comprehensive command set and web interface that allow you to configure your Cisco CPE modem or router.

A complete list of all released Cisco 600 Series documentation is available on the World Wide Web at [http://www.cisco.com/univercd/cc/td/doc/product/dsl\\_prod/c600s/index.htm](http://www.cisco.com/univercd/cc/td/doc/product/dsl_prod/c600s/index.htm).



# Obtaining Documentation

The following sections provide sources for obtaining documentation from Cisco Systems.

## World Wide Web

You can access the most current Cisco documentation on the World Wide Web at <http://www.cisco.com>, <http://www-china.cisco.com>, or <http://www-europe.cisco.com>.

## Documentation CD-ROM

Cisco documentation and additional literature are available in a CD-ROM package, which ships with your product. The Documentation CD-ROM is updated monthly. Therefore, it is probably more current than printed documentation. The CD-ROM package is available as a single unit or as an annual subscription.

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- Telnet: [cco.cisco.com](telnet://cco.cisco.com)
- Modem using standard connection rates and the following terminal settings: VT100 emulation; 8 data bits; no parity; and 1 stop bit.
  - From North America, call 408 526-8070
  - From Europe, call 33 1 64 46 40 82

You can e-mail questions about using CCO to [cco-team@cisco.com](mailto:cco-team@cisco.com).

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