



PMC VoIP 4 FXS/FXO Expansion card

Teldat-Dm 601-I

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Chapter 1 About This Guide

This installation guide contains the step by step instructions that you need to follow in order to correctly install, un-install and replace the PMC-4FXSFXO expansion card in the ATLAS router family.

1.1 Supported Devices

The information contained in this installation guide only applies to the PMC-4FXSFXO expansion card.

1.2 Warnings and notes

Observe the warnings and instructions given in this manual to avoid and prevent injuries or damage during installation and maintenance. Please follow the security procedures and guidelines when working near electrical equipment. The warnings and notes are provided in each chapter as appropriate.

1.3 Who should read this manual?

This manual should be read by installers and network administrators who need to install, configure or maintain networks. This guide assumes that the installer is familiar with network electronics and technologies.

1.4 What is in this manual?

This installation guide contains the following information:

- Description of the general characteristics of the PMC-4FXSFXO expansion card.
- Description of the steps to carry out to install the PMC-4FXSFXO card in the ATLAS routers.
- Description of the PMC-4FXSFXO expansion card LEDs and the pinouts for their connectors.

1.5 How is the information organized?

This document aims to provide all the information necessary for installing the PMC-4FXSFXO expansion card in the ATLAS router family.

- PMC-4FXSFXO expansion card characteristics.
- PMC-4FXSFXO expansion card connectors.
- Requirements prior to installation.
- Installing the PMC-4FXSFXO expansion card.

1.6 Technical Support

Teldat SA offers a technical support service.

Contact information:

Web: <http://www.teldat.com>

Tel.: +34 918 076 565

Fax: +34 918 076 566

Email: support@teldat.com

1.7 Related documentation

Teldat-Dm605-I *PMC Expansion Cards ATLAS 60 Installation*.

Teldat-Dm748-I *Software Updating*.

Teldat-Dm770-I *VoIP Interfaces*.

ATLAS router family installation manuals.

The manufacturer reserves the right to make changes and improvements in the appropriate features in either software or hardware of this product, modifying the specifications of this manual without prior notice.

The images presented on the front and back panels of the devices are provided as information guidelines only. Some small modifications may exist in the actual device.

Chapter 2 PMC-4FXSFXO expansion card

The PMC-4FXSFXO card permits the voice exchange between the POTS (*Plain Old Telephone Service*) and an IP network.

In a VoIP interface a POTS line can be configured either in FXS (Foreign Exchange Station) or FXO (Foreign Exchange Office). For further information on VoIP interfaces, please see manual “*Teldat-Dm 770-I –VoIP Interfaces*”.

FXS mode permits direct connection to a conventional telephone, a fax or similar device. This supplies the power voltage, the rings, detects when the connected device hooks-on or off and transmits and receives the audio analog signals. In this mode, the interface behaves as if it were the telephone network.

In FXO mode, the line operates just like a conventional telephone and expects to receive power supply. This permits the line to be directly connected to the public telephone network or to a telephone switchboard (PABX).

2.1 PMC-4FXSFXO card

This card offers four POTS lines that can be configured independently in FXS mode or in FXO mode.

For further information on VoIP interfaces, please see manual “*Teldat-Dm770-I – VoIP Interfaces*”.



Fig. 1: PMC-4FXSFXO Card

2.2 PMC-4FXSFXO expansion card: Characteristics

The main characteristics of the PMC-4FXSFXO expansion card are as follows:

PMC-4FXSFXO Card: Characteristics

Ports	4 RJ11 ports
Modes	Configurable: <ul style="list-style-type: none"> • FXS • FXO
Features	<ul style="list-style-type: none"> • Echo cancellation • Silence detection • DTMF detection • Level adjustments (microphone, loudspeakers)
Codecs	G.711, G.729A and G.723.1

2.3 PMC-4FXSF XO expansion card: Connectors

Figure 2 shows the front board of the PMC-4FXSF XO card:

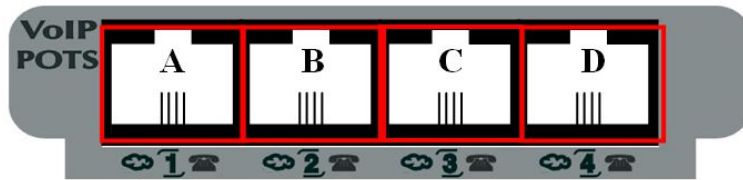


Fig. 2: Front of the PMC-4FXSF XO Card

The front board elements are as follows:

Elements Table for the Front of the PMC-4FXSF XO Card

Item	Description
A,B,C,D	1,2,3,4. RJ-11 connectors for VoIP



Warning

Do not connect a line configured as FXS to a telephone network or a terminal behaving as FXS. This could seriously damage the line and/or the board supporting this.

Chapter 3 Installing the PMC-4FXSF XO expansion card

This chapter provides information on how to install and uninstall the PMC-4FXSF XO expansion card in the ATLAS routers.

This information includes:

- Requirements prior to installation.
- Installing or replacing a PMC-4FXSF XO expansion card.

3.1 Requirements prior to installation

In order to configure the card, you must have access to the ATLAS router through a console or a Telnet connection. For further information, please see the section on “Connecting for configuration” found in the ATLAS router family installation manuals.

So that the PMC cards operate properly, you need to load the appropriate firmware file for each card in the router.

If the firmware has not been loaded in the device prior to installing the card, you can determine what firmware file you need.

3.1.1 Determining the firmware file

We have two options to determine the firmware file needed for the installed PMC card:

3.1.1.1 FTP “quote site listfirmwares” command

The FTP command “**quote site listfirmwares**” returns a list containing the names of the firmware files needed so the device operates correctly:

```
ftp> quote site listfirmwares
211 fw00000X.bfw
ftp>
```

3.1.1.2 The “system firmwares-required” Monitoring command

The “**system firmwares-required**” monitoring command displays the same information as the previous command but in the local console:

```
+system firmwares-required

List of required firmwares for detected hardware
-----
Filename                Description
-----
fw00000X.bfw    VoIP Audiocodes ACXXXX v.xxxx
+
```

Once the necessary firmware file has been detected, you need to load it in the device through a FTP connection.

For further information on how to load firmware files in the router, please see manual “*Teldat-Dm748-I Software Updating*”.

3.2 Installing or replacing the PMC-4FXSF XO expansion card

To install or replace a PMC-4FXSF XO card, please see the PMC cards installation generic manual corresponding to the ATLAS router model where the installation is being carried out.

Chapter 4 LEDs and connector Pinouts: Description

This chapter provides information on the PMC-4FXSFXO expansion card LEDs and the pinouts for its connector.

4.1 PMC-4FXSFXO expansion card: LEDs

The PMC-4FXSFXO expansion card doesn't have any LEDs of its own.

4.2 Connector Pinouts

The PMC-4FXSFXO expansion card has 4 RJ-11 connectors:

4.2.1 RJ-11 Connector

The following figure shows the RJ-11 connector pinouts. The four connectors are the same, consequently only one image is shown:

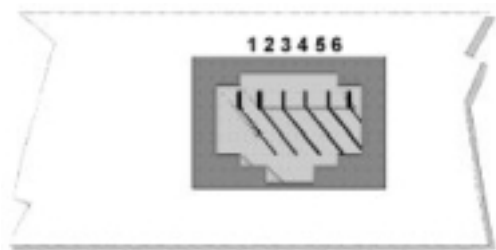


Fig. 3: RJ-11 connector Pinouts

Next table shows the information associated to each connector pinout:

RJ-11 connector Pinouts

RJ-11 pinout	Signal
1	--
2	--
3	RING
4	TIP
5	--
6	--

We recommend you at the very least use a 26 AWG cable. This may be supplied with the card itself or described in the safety instructions.



Warning

To reduce the risk of fire, only use a 26 AWG cable or a cable with a larger diameter.






Important

For Norway, Finland and Sweden if a PMC-4FXSFXO card is installed, the equipment may only be used in a Restricted Access Location with equipotential bonding. Moreover, it must be installed by authorized personnel only.

Appendix A Regulatory compliance and safety information

A.1 Translated Safety Warnings

	Do not connect a line configured as FXS to a telephone network or a terminal behaving as FXS. This could seriously damage the line and/or the board supporting this.
	Ни в коем случае не подключайте линию с конфигурацией интерфейса FXS к телефонной сети или терминалу с интерфейсом FXS. Это может серьезно повредить линию и/или поддерживающую плату.
	Ne branchez pas une ligne configurée comme FXS à un réseau téléphonique ou un terminal se comportant comme FXS. Cela pourrait sérieusement endommager la ligne et / ou la plaque électronique.
	No conecte una línea configurada como FXS a una red telefónica o a un terminal que se comporte como FXS pues puede dañar seriamente la línea y/o la placa que la soporta.
	To reduce the risk of fire, only use a 26 AWG cable or a cable with a larger diameter.
	Чтобы снизить риск возгорания, используйте только кабель 26 AWG или кабель большего диаметра.
	Pour réduire le risque d'incendie, utilisez uniquement un câble 26 AWG ou de diamètre plus grand.
	Para reducir el riesgo de incendio, utilice sólo un cable 26 AWG o de un diámetro mayor.
	For Norway, Finland and Sweden if a PMC-4FXSF XO card is installed, the equipment may only be used in a Restricted Access Location with equipotential bonding. Moreover, it must be installed by authorized personnel only.
	Примечание об использовании устройства в Норвегии, Финляндии и Швеции. Если установлена карта PMC-4FXSF XO, оборудование можно использовать только в помещении с ограниченным доступом с системой уравнивания потенциалов. Кроме того, установку должны выполнять только уполномоченные сотрудники.
	Pour la Norvège, la Finlande et la Suède : si une carte PMC-4FXSF XO est installée, l'appareil ne doit être utilisé que dans une zone à accès limité avec liaison équipotentielle. De plus, il ne doit être installé que par des collaborateurs autorisés.
	Para Noruega, Finlandia y Suecia: si se instala una tarjeta PMC-4FXSF XO, el equipo sólo deberá usarse en una ubicación de acceso restringido con conexión equipotencial. Además, la instalación deberá correr a cargo del personal de servicio autorizado.

A.2 Compliance

A.2.1 FCC Statement

A.2.1.1 Federal Communications Commission Interference

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 the 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 their own expense.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This product complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation of the device.

A.2.1.2 FCC Part 68 Notice

This equipment complies with Part 68 of the FCC rules and the requirements adopted by ACTA. On the bottom of this equipment is a label that contains, among other information, a product identifier of US:TLDAL00BPMC-4FXSF. If requested, this number must be provided to the telephone company.

If this equipment causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice isn't practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

The telephone company may make changes in its facilities, equipment, operations or procedures that could affect the operation of the equipment. If this happens the telephone company will provide advance notice in order for you to make necessary modifications to maintain uninterrupted service.

If you experience trouble with this equipment, you disconnect it from the network until the problem has been corrected or until you are sure that the equipment is not malfunctioning. Please follow instructions for repairing if any (e.g. battery replacement section); otherwise do not alternate or repair any parts of device except specified.

If the telephone company requests information on what equipment is connected to their lines, inform them of:

- (a) The telephone number that this unit is connected to,
- (b) The ringer equivalence number [00B]
- (c) The USOC jack required [RJ11C], and
- (d) The FCC Registration Number [TLD]

Items (b) and (d) are indicated on the label. The ringer equivalence number (REN) is used to determine how many devices can be connected to your telephone line. In most areas, the sum of the RENs of all devices on any one line should not exceed five (5.0). If too many devices are attached, they may not ring properly.

A.2.1.3 Service Requirements

In the event of equipment malfunction, all repairs should be performed by our Company or an authorized agent. It is the responsibility of users requiring service to report the need for service to our Company or to one of our authorized agents. The contact information can be found at:

<http://www.part68.org/tteDetails.aspx?id=95243>

A.2.2 IC Statement

A.2.2.1 CAN ICES-3 (A)/NMB-3(A)

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus as set out in the interference-causing equipment standard entitled "Digital Apparatus," ICES-003 of the Department of Communications.

Cet appareil numérique respecte les limites de bruits radioélectriques applicables aux appareils numériques de Classe A prescrites dans la norme sur le matériel brouilleur: "Appareils Numériques," NMB-003 édictée par le ministère des Communications.

A.2.2.2 IC Notice

This equipment meets the applicable Industry Canada Terminal Equipment Technical Specifications.

Le présent matériel est conforme aux spécifications techniques applicables d'Industrie Canada.

The Ringer Equivalence Number (REN) is an indication of the maximum number of devices allowed to be connected to a telephone interface. The termination of an interface may consist of any combination of devices subject only to the requirement that the sum of the RENs of all the devices not exceed five.

L'indice d'équivalence de la sonnerie (IES) sert à indiquer le nombre maximal de terminaux qui peuvent être raccordés à une interface téléphonique. La terminaison d'une interface peut consister en une combinaison quelconque de dispositifs, à la seule condition que la somme d'indices d'équivalence de la sonnerie de tous les dispositifs n'excède pas cinq.