PMC VoIP 2 E&M Expansion card

Teldat-Dm 604-I

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Table of Contents

Chapter 1 About This Guide

This installation guide contains the step by step instructions that you need to follow in order to correctly install, uninstall and replace the PMC-2EM expansion card in the ATLAS router family.

1.1 Supported Devices

The information contained in this installation guide only applies to the PMC-2EM 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-2EM expansion card.
• Description of the steps to carry out to install the PMC-2EM card in the ATLAS routers.
• Description of the PMC-2EM 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-2EM expansion card in the ATLAS router family.

• PMC-2EM expansion card characteristics.
• PMC-2EM expansion card connectors.
• Requirements prior to installation.
• Installing the PMC-2EM 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-2EM expansion card

The PMC-2EM card permits the voice exchange between an IP network and a switched telephone network using E&M signaling.

E&M types supported are I, II, III and V. Of these II and V permit unit interconnection on the signaling side.

To send audio, the 4-wire and 2-wire modes are supported. In the 4-wire mode, a pair of wires is used for each direction of transmission. In the 2-wire mode, however, a pair of wires is shared for signal transmission and reception. This last mode requires a pass-through system (such as hybrid coils) that converts from 4-wire signals to 2-wire.

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

Fig. 1: PMC-2EM Card

2.1 PMC-2EM expansion card: Characteristics

The main characteristics of the PMC-2EM expansion card are as follows:

PMC-2EM Card: Characteristics

Ports	2 E&M RJ45 ports
Modes	• 2 wires • 4 wires
Types of E&M	I, II, III, V
Features	• Echo cancellation • Silence detection • DTMF detection • Level adjustments (microphone, loudspeakers)
Impedance	Adjustable: • 600 ohm • 900 ohm
Codecs	G.711, G.729A and G.723.1

2.2 PMC-2EM expansion card: Connectors

The following figure shows the connectors on the front board of the PMC-2EM card:
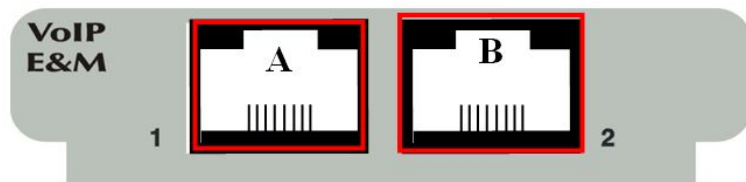
Fig. 2: Front of the PMC-2EM Card

The front board elements are as follows:

Elements Table for the Front of the PMC-2EM Card

Item	Description
A,B	1,2. RJ-45 connector

Chapter 3 Installing the PMC-2EM expansion card

This chapter provides information on how to install and uninstall the PMC-2EM expansion card in the ATLAS routers.

This information includes:

- Requirements prior to installation
- Installing or replacing a PMC-2EM 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 ACXXX 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-2EM expansion card

To install or replace a PMC-2EM 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-2EM expansion card LEDs and the pinouts for its connector.

4.1 PMC-2EM expansion card: LEDs

The PMC-2EM expansion card doesn't have any LEDs of its own.

4.2 Connector Pinouts

The PMC-2EM expansion card has two RJ-45 connectors:

4.2.1 RJ-45 connector

The following figure shows the RJ-45 connector pinouts for the PMC-2EM expansion card. The two connectors are the same, consequently only one image is shown:
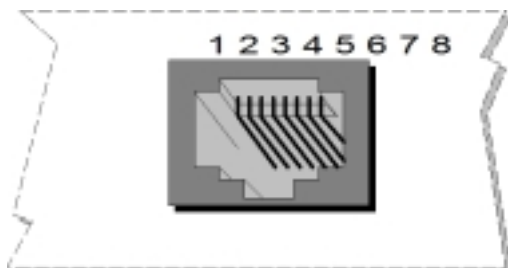

Fig. 3: RJ-45 connector Pinouts

Next table shows the information associated to each connector pinout:

RJ-45 connector Pinouts

RJ-45 pinouts	2 wire signals	4 wire signals
7	E	E
2	M	M
6	--	T
3	--	R
5	T	T1
4	R	R1

Appendix A Compliance

A.1 FCC Statement

A.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.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:TLDOTNANPMC-2EM. 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 [NAN]

(c) The USOC jack required [RJ48C], 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.1.2.1 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=95242

A.2 IC Statement

A.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 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.