ATH-4SHDSL card

Installation Manual

Legal Notice

Warranty

This publication is subject to change.

Teldat S.A. offers no warranty whatsoever for information contained in this manual.

Teldat S.A. is not liable for any direct, indirect, collateral, consequential or any other damage connected to the delivery, supply or use of this manual.

Table of Contents

Chapter 1 About This Manual

This installation guide contains step by step instructions on how to correctly install, uninstall and replace the **ATH-4SHDSL** expansion card in the Atlas 6x/i6x router family.

1.1 Supported Devices

The information provided in this installation manual only applies to the **ATH-4SHDSL** card.

1.2 Warning 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:

- A description of the general characteristics of the **ATH-4SHDSL** expansion card.
- A description of the steps to carry out to install the **ATH-4SHDSL** card in the Atlas 6x/i6x routers.
- A description of the **ATH-4SHDSL** expansion card LEDs and connector pin-outs.

1.5 How is the information organized?

This document aims to provide all the information necessary for installing the **ATH-4SHDSL** expansion card in the Atlas 6x/i6x router family.

- **ATH-4SHDSL** expansion card characteristics.
- **ATH-4SHDSL** expansion card connectors.
- Requirements prior to installation.
- Installing the **ATH-4SHDSL** expansion card.

1.6 Technical Support

Teldat S.A. offers a technical support service. Device software can be upgraded on a regular basis for maintenance purposes and for new features.

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-Dm 693-I *Atlas 6x/i6x Installation*

Teldat-Dm 742-I *SHDSL*

Teldat-Dm 748-I *Software Updating*

Note

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

The images showing the front and back panels of the device are for information purposes only. Some small modifications may exist in the actual device.

Chapter 2 ATH-4SHDSL expansion card

This manual focuses on the 8-wire **ATH-4SHDSL** expansion card.

The G.SHDSL standard (Single-Pair High-Speed Digital Subscriber Line), ITU G.991.2 recommendation describes a method for data transmission in telecommunications access networks.

This technology is characterized by:

- Digital implementation.
- TC-PAM: Trellis Coded Pulse Amplitude Modulation.
- Variable transmission rate.

For further information on SHDSL technology, please see manual Teldat- Dm 742-I *SHDSL*.

Fig. 1: **ATH-4SHDSL card**

2.1 ATH-4SHDSL expansion card: Characteristics

The main characteristics of the **ATH-4SHDSL** expansion card are as follows

ATH-4SHDSL card: Characteristics

Ports	Single RJ45 female connector
Standards	ITU-T G.991.2 • Annexes A, B, F and G • TCPAM 16 and TCPAM 32 • CPE (“*Customer Premises Equipment*”) and CO (“*Central Office*”) operation ITU-T G.994.1
Bandwidth	• Up to Nx2304 kbps, N=1,2,3,4 (Annex A & B, TCPAM 16) • Up to Nx3840 kbps, N=1,2,3,4 (Annex F & G, TCPAM 16) • Up to Nx5696 kbps, N=1,2,3,4 (Annex F & G, TCPAM 32)
Transport Modes	ATM • Up to 7 PVCs • VPI/VCI full range

	• Traffic shaping: CBR, VBR, UBR • OAM F4/F5 • AAL5 LLC/VC: IP, PPPoA, PPPoE and Ethernet Bridged • M-PAIR and IMA* bonding (*) under development PTM (EFM encapsulation) • EFM bonding • OAM IEEE 802.3 chapter 57
Additional Features	Dying Gasp
DSLAM Interoperability	ATM • Alcatel ASAM 7300 • Alcatel ISAM_7330_FTTN • ECI 480 • Huawei MA5603 • Lucent Stringer EFM • Actelis ML698 • Alcatel ISAM_7330_FTTN • Hatteras HN4000 • Huawei_5600 • Huawei_5603

2.2 ATH-4SHDSL expansion card: Connectors

Figure 2 shows the front board of the **ATH-4SHDSL** card:

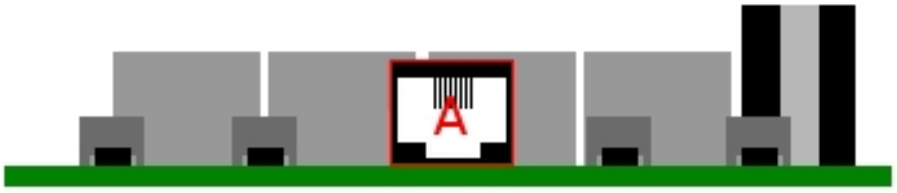

Fig. 2: **Front of the ATH-4SHDSL card**

The front board elements are as follows:
Elements table for the front of the ATH-4SHDSL card

Item	Description
A	RJ45 G.SHDSL connector, 8 wires.

Chapter 3 Installing the ATH-4SHDSL expansion card

This chapter provides information on how to install and uninstall the **ATH-4SHDSL** expansion card in the Atlas 6x/i6x routers.

This information includes:

- Requirements prior to installation.
- Installing or replacing an **ATH-4SHDSL** expansion card.

3.1 Requirements prior to installation

To be able to configure the card, you must have access to the Atlas 6x/i6x router through a console or a Telnet connection. For further information, please see the section on "Connecting for configuration" in manual Teldat-Dm693-I *Atlas 6x/i6x Installation*.

For the **ATH-4SHDSL** expansion cards to 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 before installing the card, you can still figure out what firmware file you need.

3.1.1 Determining the firmware file

There are two options to determine the firmware file needed for the installed xDSL 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 for the device to operate correctly:

```
ftp> quote site listfirmwares
211 fw000015.bfw
ftp>
```

3.1.1.2 FTP "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       Version/Subv
------------ ---------------------------- ---------------
fw000015.bfw  Lantiq Socrates 4E SHDSL     1.0
+
```

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

For further information on how to load firmware files in the router, please see manual Teldat-Dm 748-I *Software Updating*.

3.2 Installing or replacing the ATH-4SHDSL expansion card

To install or replace an **ATH-4SHDSL** card, please see the xDSL cards generic installation manual for the Atlas 6x/i6x router model where the installation is being carried out.

Chapter 4 LEDs and connector Pinouts: Description

This chapter provides information on the **ATH-4SHDSL** expansion card LEDs and connector pinouts.

4.1 ATH-4SHDSL expansion card: LEDs

The **ATH-4SHDSL** expansion card does not have any LEDs.

4.2 Connector Pinouts

The **ATH-4SHDSL** expansion card has one RJ-45 connector.

4.2.1 RJ-45 Connector

The following figure shows the RJ-45 connector pinouts.

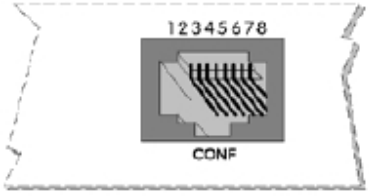

Fig. 3: **RJ-45 Connector Pinouts**

The following table displays the information associated to each connector pinout:
ATH-4SHDSL card Connector Pinouts

RJ-45 pinouts	**Signal**	**Line**
1	TIP	3
2	RING	3
3	TIP	2
4	TIP	0
5	RING	0
6	RING	2
7	TIP	1
8	RING	1

We recommend that you use a 26 AWG cable, at the very least. This may be supplied with the card itself or be 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.

Chapter 5 Compliance

5.1 Manufacturer Information

Brand	Teldat
Manufacturer	Teldat S.A.
Country	Spain
Postal Address	Isaac Newton, 10 Parque Tecnológico de Madrid, 28760 Tres Cantos, Madrid, Spain
International Phone	+34 91 807 65 65

5.2 Safety Warnings

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

5.3 WEEE Information

	The waste container symbol with the >X< indicates that the device must be disposed of separately from normal domestic waste at an appropriate waste disposal facility at the end of its useful service life. El símbolo del contenedor con la cruz, que se encuentra en el aparato, significa que cuando el equipo haya llegado al final de su vida útil, deberá ser llevado a los centros de recogida previstos, y que su tratamiento debe estar separado del de los residuos urbanos.

5.4 REACH

In compliance with the REACH Candidate List, the delivered product and product packaging do not contain chemical substances above a concentration limit of 0.1% weight by weight (w/w). This declaration will be updated whenever any changes occur or other chemical substances are added to the REACH Candidate List. Information is currently provided to consumers upon request.

5.5 EC Declaration of Conformity

English (EN)	This equipment is in compliance with the essential requirements and other relevant provisions of: Directive 1999/5/EC (R&TTE) or Directive 2014/30/EU (EMC) Directive 2014/35/EU (LVD) Directive 2011/65/EU (RoHS) of the European Parliament
Spanish (ES) Español	Este dispositivo cumple con los requisitos esenciales y con las normas correspondientes de las siguientesdirectivas: Directiva 1999/5/CE (R&TTE) o Directiva 2014/30/UE (EMC) Directiva 2014/35/UE (LVD) Directiva 2011/65/UE (RoHS) del parlamento Europeo

The EC declaration of conformity and additional product documentation can be accessed here:

http://www.teldat.com

5.6 CE Marking

This equipment is in conformity with the CE procedures and marking.

5.7 FCC Statement

5.7.1 Federal Communications Commission Interference

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interferences that the user will be required to correct at his 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.

5.7.2 FCC Part 68 Notice

This equipment complies with Part 68 of the FCC rules and the requirements adopted by the ACTA. *On the bottom* of this equipment there is a label that contains, among other information, a product identifier [US: TLDDLNANATH4SHDSL]. 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 an uninterrupted service.

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

If the telephone company requests information relative to the equipment connected to its lines, provide the following:

(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) appear 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.

5.7.2.1 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 this service to report the need for the service to our Company or to one of our authorized agents. The contact information can be found at:

http://www.part68.org/tteSearchResults2.aspx?rpc=TLD

5.8 IC Statement

5.8.1 CAN ICES-3 (B)/NMB-3(B)

This digital apparatus does not exceed the Class B 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 B prescrites dans la norme sur le matériel brouilleur: “Appareils Numériques,” NMB-003 édictée par le ministère des Communications.

5.8.2 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 does 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.