TBC1 VoIP 4 FXS/FXO Expansion card

Teldat-Dm 680-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 to correctly install, uninstall and replace the TBC1-4FXSFXO expansion card in Teldat M/iM/Atlas-i70 routers.

1.1 Supported Devices

The information contained in this installation guide only applies to the TBC1-4FXSFXO expansion card.

1.2 Warnings and notes

Observe the warnings and instructions included 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 TBC1-4FXSFXO expansion card.

• Description of the steps needed to install the TBC1-4FXSFXO card in Teldat M/iM/Atlas-i70 routers.

• Description of the TBC1-4FXSFXO expansion card LEDs and connector pinouts.

1.5 How is the information organized?

This document aims to provide all the information necessary to install the TBC1-4FXSFXO expansion card in Teldat M/iM/Atlas-i70 routers.

• TBC1-4FXSFXO expansion card characteristics.

• TBC1-4FXSFXO expansion card connectors.

• Requirements prior to installation.

• Installing the TBC1-4FXSFXO expansion card.

1.6 Technical Support

Teldat SA offers a technical support service.

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1.7 Related documentation

Teldat-Dm748-I *Software Updating* .

Teldat-Dm770-I *VoIP Interfaces.*

Teldat-Dm569-I *M1 Installation.*

Teldat-Dm649-I *iM8 Installation.*

Teldat-Dm667-I *Atlas-i70 Installation.*

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 TBC1-4FXSFXO expansion card

The TBC1-4FXSFXO card enables voice exchange between 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 allows for direct connection to a conventional telephone, a fax or a 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. As a result, the line can be directly connected to the public telephone network or to a telephone switchboard (PABX).

2.1 TBC1-4FXSFXO card

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

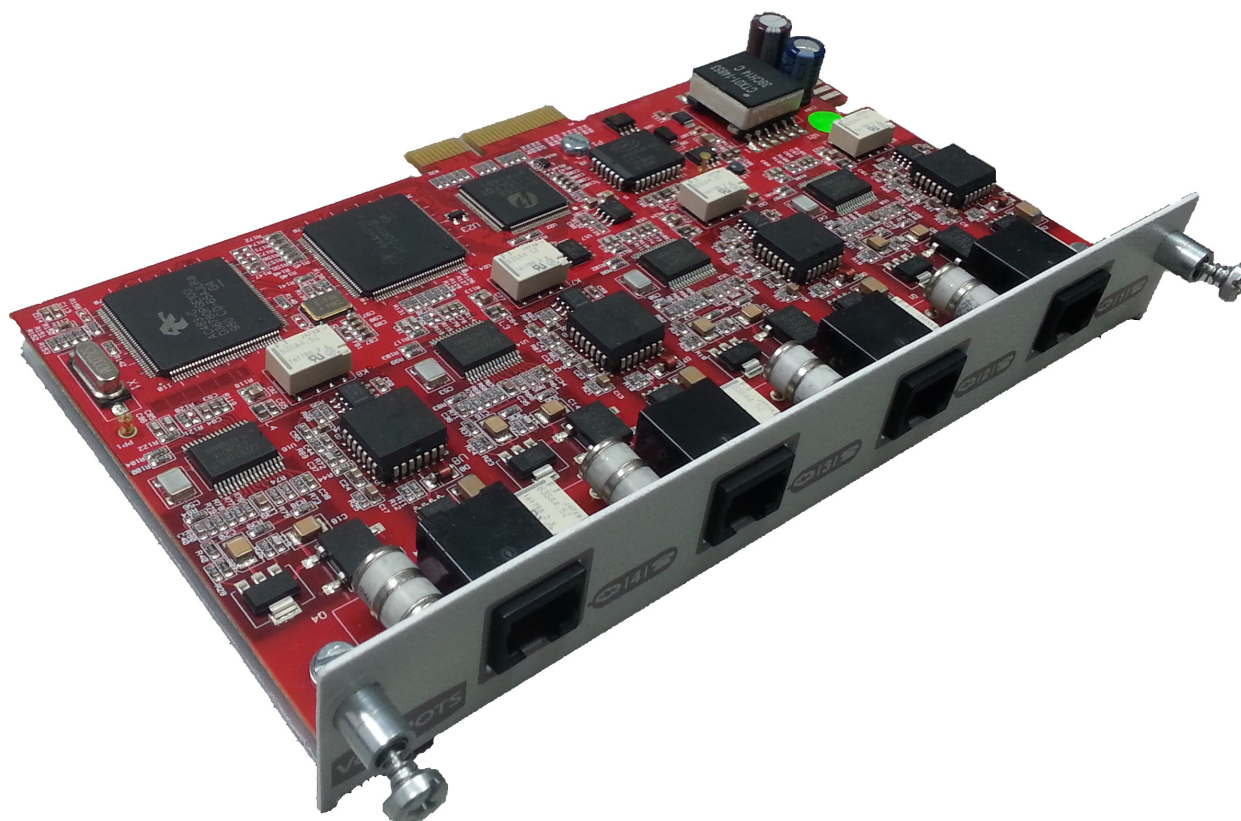For further information on VoIP interfaces, please see manual *"Teldat-Dm770-I – VoIP Interfaces".*

Fig. 1: TBC1-4FXSFXO Card

2.2 TBC1-4FXSFXO expansion card: Characteristics

The main characteristics of the TBC1-4FXSFXO expansion card are as follows:
TBC1-4FXSFXO Card: Characteristics

Ports	4 RJ11 ports
Modes	Configurable: • FXS • FXO

Features	• Echo cancellation
	• Silence detection
	• DTMF detection
	• Level adjustments (microphone, loudspeakers)
Codecs	G.711, G.729A and G.723.1

2.3 TBC1-4FXSFXO expansion card: Connectors

Figure 2 shows the front board of the TBC1-4FXSFXO card:
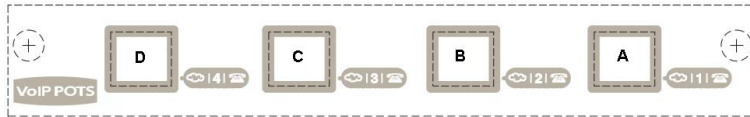

Fig. 2: Front of the TBC1-4FXSFXO Card

The front board elements are as follows:
Elements Table for the Front of the TBC1-4FXSFXO 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 TBC1-4FXSFXO expansion card

This chapter provides information on how to install and uninstall the TBC1-4FXSFXO expansion card in the Teldat M/iM/Atlas-i70 routers.

This information includes:

- Requirements prior to installation.
- Installing or replacing a TBC1-4FXSFXO expansion card.

3.1 Requirements prior to installation

In order to configure the card, you must have access to the Teldat M/iM/Atlas-i70 router through a console or a Telnet connection. For further information, please see the section on "Connecting for configuration" found in the *Teldat Dm569-I M1 Installation*, *Teldat Dm649-I iM8 Installation* or *Teldat Dm667-I Atlas-i70 Installation* manuals.

So that the TBC1 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 TBC1 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 TBC1-4FXSFXO expansion card

To install or replace a TBC1-4FXSFXO card, please see the "Expansion Slot" section found in the *Teldat Dm569-I M1 Installation*, *Teldat Dm649-I iM8 Installation* or *Teldat Dm667-I Atlas i70 Installation* manuals.

Chapter 4 LEDs and connector pinouts: Description

This chapter provides information on the TBC1-4FXSFXO expansion card LEDs and connector pinouts.

4.1 TBC1-4FXSFXO expansion card: LEDs

The TBC1-4FXSFXO expansion card doesn't have any LEDs of its own.

4.2 Connector pinouts

The TBC1-4FXSFXO expansion card has 4 RJ-11 connectors:

4.2.1 RJ-11 Connector

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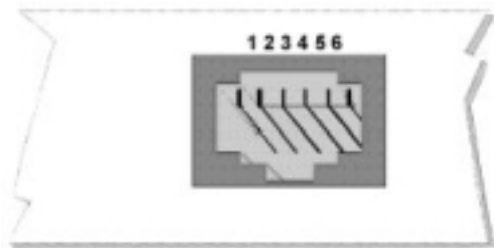

Fig. 3: RJ-11 connector pinouts

The next table shows information related to each connector pinout:

RJ-11 connector pinouts

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

We recommend you that you use a 26 AWG cable, at the very least. This may be supplied with the card itself or detailed 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**
>
> In the case of Norway, Finland and Sweden, if a TBC1-4FXSFXO 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   Safety information

A.1 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.
	Verbinden Sie keine als FXS konfigurierte Leitung mit einem Telefonnetzwerk oder einem Terminal, das sich ebenfalls als FXS verhält. Dies könnte die Leitung und/oder die unterstützende Platine ernsthaft beschädigen.
⚠	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.
	Um das Risiko eines Brands zu reduzieren, verwenden Sie nur Kabel mit einem Durchmesser von 26 AWG oder größer.
⚠	In the case of Norway, Finland and Sweden, if a TBC1-4FXSFXO 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.
	Примечание об использовании устройства в Норвегии, Финляндии и Швеции. Если установлена карта TBC1-4FXSFXO, оборудование можно использовать только в помещение 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 TBC1-4FXSFXO 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 TBC1-4FXSFXO, 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.
	Falls in Norwegen, Finnland und Schweden eine TBC1-4FXSFXO-Karte installiert ist, darf das Gerät nur an Orten mit eingeschränktem Zugang und mit Potenzialausgleich verwendet werden. Außerdem darf es nur von autorisiertem Personal installiert werden.