



Text Part Number: 78-7021-01

# DT-24+ or DE-30+ Module Installation and Configuration Note

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## Preface

The following sections describe how to use this manual.

## Purpose and Scope

This note describes how to install, configure and use the DT-24+ or DE-30+ printed circuit board module. To properly use this note, you should be familiar with electronic devices.

## Documentation Notes

Cisco documentation and additional literature are available in a CD-ROM package, which ships with your product. The Documentation CD-ROM, a member of the Cisco Connection Family, is updated monthly. Therefore, it might be more up-to-date than printed documentation. To order additional copies of the Documentation CD-ROM, contact your local sales representative or call customer service. The CD-ROM package is available as a single package or as an annual subscription. You can also access Cisco documentation on the World Wide Web at <http://www.cisco.com>, <http://www-china.cisco.com>, or <http://www-europe.cisco.com>.

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## Related Documentation

The DT-24+ or DE-30+ module is a hardware interface that is used with Cisco CallManager software. For additional information, such as the latest release or configuration notes, use the instructions in “Documentation Notes” section on page 1 to access the related documents in Cisco Connection Online. Direct access to the documentation on the World Wide Web is at <http://www.cisco.com/univercd/cc/td/doc/product/voice/index.htm> and <http://www.selsius.com/documentation/v22/index.htm>

## Document Conventions

Command descriptions use the following conventions:

<b>boldface font</b>	Commands and keywords are in <b>boldface</b> .
<i>italic font</i>	Arguments for which you supply values are in <i>italics</i> .
[ ]	Elements in square brackets are optional.
{ x   y   z }	Alternative keywords are grouped in braces and separated by vertical bars.
[ x   y   z ]	Optional alternative keywords are grouped in brackets and separated by vertical bars.
string	A nonquoted set of characters. Do not use quotation marks around the string or the string will include the quotation marks.

Screen examples use the following conventions:

screen font	Terminal sessions and information the system displays are in screen font.
<b>boldface screen font</b>	Information you must enter is in <b>boldface screen font</b> .
<i>italic screen font</i>	Arguments for which you supply values are in <i>italic screen font</i> .
→	This pointer highlights an important line of text in an example.
^	The symbol ^ represents the key labeled Control—for example, the key combination ^D in a screen display means hold down the Control key while you press the D key.
< >	Nonprinting characters, such as passwords are in angle brackets.
[ ]	Default responses to system prompts are in square brackets.
!, #	An exclamation point (!) or a pound sign (#) at the beginning of a line of code indicates a comment line.

## Commands

"key" means that keystrokes are required.

<select> indicates that a selection is required from a screen menu.

*Italics* indicate notes for further action or reference.

Courier typeface is used for program code.

**Helvetica bold** typeface is used for Function names and parameters.

Notes use the following conventions:

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**Note** Means *reader take note*. Notes contain helpful suggestions or references to material not covered in the publication.

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Cautions use the following conventions:



**Caution** Means *reader be careful*. In this situation, you might do something that could result in equipment damage or loss of data.

Warnings use the following conventions:



**Warning** This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, you must be aware of the hazards involved with electrical circuitry and familiar with standard practices for preventing accidents.

## Abbreviations and Terminology

Each abbreviation, unless widely used, is spelled out in full immediately prior to its first use.

Industry standard terms only are used throughout this manual.

## Overview

The DT-24+ or DE-30+ modules are hardware devices that are used with Cisco CallManager to interface Cisco IP phones to the Internet. The DT-24+ or DE-30+ module is installed in a Personal Computer (PC) Server.

## FCC Compliance

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 the user's expense.

## Installation

The following sections describe the installation procedures for the DT-24+ or DE-30+ module.

### Preventing Electrostatic Discharge Damage

Electrostatic discharge (ESD) damage occurs when electronic cards or components are improperly handled and can result in complete or intermittent failures. Follow these guidelines to prevent ESD damage:

- Always use an ESD-preventive wrist or ankle strap.
  - Ensure that the strap is connected to a known grounded source and that it makes good skin contact.



**Caution** Periodically check the resistance value of the antistatic strap. The measurement should be between 1 and 10 megohms (Mohms).

- Handle cards by the edges only.

Avoid contact between the modules and clothing. The wrist strap protects only the card from ESD voltages on the body; ESD voltages on clothing can still cause damage.

### Safety Information



**Warning** Only trained and qualified personnel should be allowed to install or replace this equipment.



**Warning** Before opening the chassis, disconnect the telephone-network cables to avoid contact with telephone-network voltages.



**Warning** The telecommunications lines must be disconnected 1) before unplugging the main power connector and/or 2) while the housing is open.



**Warning** Do not work on the system or connect or disconnect cables during periods of lightning activity.



**Warning** Before working on equipment that is connected to power lines, remove jewelry (including rings, necklaces, and watches). Metal objects will heat up when connected to power and ground and can cause serious burns or weld the metal object to the terminals.



**Warning** Before working on a system that has a standby or off switch, turn off the power by pressing the switch and unplug the power cord(s).



**Warning** The port labeled “Ethernet” is a safety extra-low voltage (SELV) circuit. SELV circuits should only be connected to other SELV circuits. Because the T1/E1 circuits are treated like telephone-network voltage, avoid connecting the SELV circuit to the telephone network voltage (TNV) circuits.



**Warning** During this procedure, wear grounding wrist straps to avoid ESD damage to the card. Do not directly touch the backplane with your hand or any metal tool, or you could shock yourself.



**Warning** The DE-30+ must be used with an IEC60950/EN60950 approved CSU/DSU.



**Warning** This equipment is to be installed and maintained by service personnel only as defined by AS/NZS 3260 Clause 1.2.14.3 Service Personnel.



**Warning** The E1 interface card may only be installed in an ACA-permitted customer equipment or a Data Terminal Equipment (DTE) that is exempted from ACA's permit requirements. The customer equipment must only be housed in a cabinet that has screw-down lids to stop user access to overvoltages on the customer equipment. The customer equipment has circuitry that may have telecommunications network voltages on them.



**Warning** To reduce the risk of fire, use only No. 26 AWG or larger telecommunication line cord.



**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.



**Caution** Electronic components on printed circuit boards are extremely sensitive to static electricity. Normal amounts of static electricity generated by clothing can damage electronic equipment. To reduce the risk of damage due to electrostatic discharge, it is recommended when installing electronic equipment, that anti-static grounding straps and mats are used.

## PC Server Requirements

The DT-24+ or DE-30+ module is installed in a 32-bit Personal Computer Interface (PCI) slot in a PC desktop or server chassis. The DT-24+ or DE-30+ module only requires power and reset signal from the PC chassis.

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**Note** The DT-24+ or DE-30+ modules do not require configuration of printed circuit components such as switches or jumpers.

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## Installation Instructions

Use the manufacturer's installation instructions and the following steps to install the DT-24+ or DE-30+ module in a PCI slot in a PC server chassis.

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**Note** This module is intended to be installed in UL Listed equipment in the field. It shall be installed only in the equipment manufacturer's defined operator accessible area. Check with the equipment manufacturer to verify or confirm that your equipment is suitable for user-installed application modules.

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- Step 1** End all applications running on the PC and turn the power switch off.
- Step 2** Remove the power cord from the PC. If the PC has more than one power cord, remove all of the power cords.
- Step 3** Remove the PC chassis cover.
- Step 4** Choose an available PCI slot and remove its blank rear bracket. Save the mounting screw for Step 7.
- Step 5** Locate the supplied PCI retainer and 2 screws. Secure the retainer to the edge of the DT-24+ or the DE-30+ module.
- Step 6** Insert the DT-24+ or DE-30+ module into the chosen PCI slot. Ensure that the rear bracket of the DT-24+ or DE-30+ module fits correctly into the opening in the rear panel of the PC's chassis. Check to see if the edge of the PCI retainer was inserted properly into the PCI slot.
- Step 7** Secure the rear bracket of the DT-24+ or DE-30+ module into the chassis frame with the screw that was removed in Step 4. This will also ensure chassis ground to the DT-24+ or DE-30+ module.
- Step 8** Replace and secure the PC's cover.
- Step 9** Select the appropriate network interface cable for connecting to the DT-24+ or DE-30+ module.
- For the DE-30+ module, the connector is marked T1 for a T1 cable.
  - For the DT-24+ module, the connector is marked E1 for the E1 cable.
  - Use the Ethernet connector, on either module, for the Ethernet cable.
- Step 10** Return power to the PC.
- Step 11** Restart the applications.
- Step 12** Follow the instructions in the Cisco CallManager application for any software configuration of the module.

## LEDs

There are four LEDs on the face plate and four LEDs on the component side of the printed circuit board. See Table 1 for a description of the LEDs on the face plate and Table 2 for a description of the LEDs on the printed circuit board.

**Table 1 Face Plate LED Descriptions**

LED	Color	Description
LD1	Red	Collision detected on the T1 interface
LD2	Red	T1 link detect
Part of the Ethernet RJ 45 connector	Yellow	Received packets on the Ethernet interface
Part of the Ethernet RJ 45 connector	Green	Link detected on the Ethernet interface

**Table 2 Printed Circuit Board LED Descriptions**

LED	Color	Description
LD3	Orange	Flashing light indicates normal operation. If the light is not flashing, try resetting the unit.
LD4	Red	This LED is load dependent and is used mainly for Cisco internal diagnostics.
LD5	Green	Indicates D-Channel activity: <ul style="list-style-type: none"> <li>On, with occasional blinking off, indicates D-channel is functioning properly.</li> <li>Off, with occasionally blinking on, indicates the D-channel is not functioning properly. Check PRI connections and verify that the same protocols are used from the CO/LEC/PBX to the module.</li> </ul> <b>Note</b> Blinking indicates either transmit or receive activity.
LD6	Yellow	On indicates the gateway has registered with the CallManager. Off indicates the module has not registered with the CallManager. To troubleshoot this condition: <ul style="list-style-type: none"> <li>Check CallManager Administration to be sure the information for this module is correct.</li> <li>Verify the module has a DHCP lease (Option 150 or 66 configured, or Cisco BootP utility is in use).</li> <li>Verify CallManager and TFTP are running.</li> </ul>

## DT-24+ or DE-30+ Module Specifications

Table 3 lists the safety, compliance, and telecom approvals and Table 4 describes the specifications for the DT-24+ or DE-30+ module.

**Table 3 Safety, Compliance, and Telecom Approvals**

Safety	Approvals
	UL1950, CSA 22.2, No. 950
	IEC60950
	EN60950
Regulatory Compliance	
E1 (DE-30+)	CE Marking EN55022 Class A CISPR 22 Class A and AS/NZS3548 Class A with UTP <sup>1</sup> cables CISPR 22 Class B with FTP <sup>2</sup> cables
T1 (DT-24+)	FCC Part 15 (47CFR) Class A CISPR 22 Class A with UTP cables
Telecom	
E1 (DE-30+)	Europe: CTR4 Australia: TS038, TS014

**Table 3 Safety, Compliance, and Telecom Approvals**

<b>Safety</b>	<b>Approvals</b>
T1 (DT-24+)	FCC Part 68 Registration number: 5B1USA-33654-DD-N, Connector RJ48C, Canada: CS03 Certification number: 2461 9716A
1 Unshielded Twisted Pair	
2 Foil Twisted Pair	

**Table 4 Specifications**

<b>Feature</b>	<b>Specification</b>
Voice Compression and Capacity	G.723.1 5.3/6.3 kbps - 32 channels G.729 - 32 channels G.711 PCM @ 64 kbps - 32 channels G.726/7 ADPCM - 32 channels NetCoder ® - 32 channels
Silence Suppression	G.729 Annex B G.723.1 Annex A
Echo Cancellation	G.165, 16msec Echo Cancellation
Real-Time Fax Relay	Group 3 fax relay up to 14400 bps with auto fallback, Fax/Modem bypass mode
VoIP IA Compliance	Voice Transfer: per VoIP IA 1.0 RTP and RTCP per RFC 1889/1890
Dialed Digits	Detection and Generation per TIA 464A; DTMF
PCI Interface	32-bit PCI bus @ 33 MHz, Rev. 2.1, slave
On-card TDM Interfacing	SCSA bus, 512 full-duplex channels, or MVIP bus, 256 full-duplex channels
Ethernet	10 BaseT IEEE 802.3
Control Microprocessor	Motorola MPC860 PowerQUICC
Digital Signaling Processors	Eight AC4804A-C QuadVoIP Processors
Maximum Power Consumption	1.7 W @ 5.0 V
Connectors	Ethernet - RJ-45 Shielded
Physical	Full size PCI (12.3 inch long)
Operating System	Windows NT 4.0

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You can access CCO in the following ways:

- WWW: <http://www.cisco.com>
- WWW: <http://www-europe.cisco.com>
- WWW: <http://www-china.cisco.com>
- Telnet: [cco.cisco.com](http://cco.cisco.com)
- Modem: From North America, 408 526-8070; from Europe, 33 1 64 46 40 82. Use the following terminal settings: VT100 emulation; databits: 8; parity: none; stop bits: 1; and connection rates up to 28.8 kbps.

For a copy of CCO's Frequently Asked Questions (FAQ), contact [cco-help@cisco.com](mailto:cco-help@cisco.com). For additional information, contact [cco-team@cisco.com](mailto:cco-team@cisco.com).

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**Note** If you are a network administrator and need personal technical assistance with a Cisco product that is under warranty or covered by a maintenance contract, contact Cisco's Technical Assistance Center (TAC) at 800 553-2447, 408 526-7209, or [tac@cisco.com](mailto:tac@cisco.com). To obtain general information about Cisco Systems, Cisco products, or upgrades, contact 800 553-6387, 408 526-7208, or [cs-rep@cisco.com](mailto:cs-rep@cisco.com).

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This document is to be used in conjunction with the documents listed in the "Related Documentation" section.

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