

DEC CT1controller 100

Hardware Use

Order Number: EK-CT1HX-IN.A01

This booklet describes the installation of the DEC CT1controller 100. It also contains information on dealing with problems if they arise in the use of the product.

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Preface

The DEC CT1controller 100

The DEC CT1controller 100 is a TURBOchannel option that provides a single Channelized T1 (CT1) port. This port is connected to a public telecommunications network through an appropriate Channel Service Unit (CSU).

The DEC CT1controller 100 can provide up to 24 connections of 64 Kbits/s over a single T1 line. That line has a maximum data rate of 1.536 Mbits/s.

This booklet contains information to help you install the option successfully, and to attach the necessary communications cable. It also contains information that can help diagnose problems if they occur.

Structure of this Booklet

This booklet covers the following topics:

Topic	See...
Installation	Chapter 1
Attaching and Removing Cables	Chapter 2
Problem Solving	Chapter 3
Cabling Information and Specifications	Appendix A

Other Documentation

In addition to this booklet, you need the documentation for the system that the DEC CT1controller 100 is to be added to. That documentation provides details of how to add a TURBOchannel option.

Regulatory Information

Take careful note of the following information, as applicable to your circumstances.

General

Federal Communications Commission

NOTICE—Class A Computing Device:

This equipment generates, uses, and may emit radio frequency. The equipment has been type tested and found to comply with the limits for a Class A digital device pursuant to part 15 of FCC rules while are designed to provide reasonable protection against such radio frequency interference.

Any changes or modifications made to this equipment may void the user's authority to operate this equipment.

Operation of this equipment in a residential area may cause interference, in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

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Für Bundesrepublik Deutschland und Berlin (West)

For Federal Republic of Germany and West Berlin

Pur la République fédérale d'Allemagne et Berlin Ouest

Hochfrequenzgerätezulassung und Betriebsgenehmigung.

Bescheinigung des Hersellers/Importeurs

Hiermit wird bescheinigt, daß die Einrichtung in Übereinstimmung mit den Bestimmungen der DBP-Verfügung 523/1969, Amtsblatt 113/1969, und Grenzwertklasse "A" der VDE0871, funkentstört ist.

Das Zentraleamt für Zulassungen im Fernmeldewesen der Deutschen Bundespost (DBP), hat diesm Gerät eine FTZ-Serienprüfnummer zugeteilt.

Betriebsgenehmigung

Hochfrequenzgeräte dürfen erst in Betrieb genommen werden, nachdem hierfür von dem für den vorgeshenen Aufstellungsort zuständigen Fernmeldeamt mit Funkstörungsmeßstell die Genehmigung erteilt ist.

Als Antrag auf Erteilung einer Genehmigung dient eine Anmeldepostkarte (Anhang des Handbuches) mit Angabe der FTZ-Serienprüfnummer.

Der untere Teil der Postkarte ist vom Betriber zu vervollständigen und an das örtliche Fernmeldeamt zu schicken. Der obere Tell bleibt beim Gerät.

Betreiberhinweis

Das Gerät wurde funktechnisch sorgfältig entsört und geprüft. Die Kennzeichnung mit der Zulassungsnummer bietet Ihnen die Gewähr, daß dieses Gerät keine anderen Fernmeldeanlagen einschließlich Funkanlagen stört.

Solten bei diesen Geräten ausnahmsweise trotzdem, z.B. im ungünstigsten Fall beim Zusammenschalten mit anderen EDV-Geräten, Funkstörungen auftreten kann das im Einzeinen zusätzliche Funkentstörungsmaßnahmen durch den Benutzer erfordern.

Bei Fragen hierzu wenden Sie sich bitte an die örtlich zuständige Funkstörungsmeßstelle Ihres Fernmeldeamtes.

Externe Datenkabel

Solte ein Austausch der von Digital spezifizierten Datenkabel nötig werden, muß der Betreiber für eine einwarndfreie Funkentstörung sicherstellen, daß Austausch kabel im Aufbau und Abschirmqualität dem Digital Originalkabel entsprechen.

Kennzeichnung

Die Geräte werden bereits in der Fertigung mit der Zulassungsnummer gekennzeichnet und mit einer Anmeldepostkarte versehen. Sollte Kennzeichnung und Anmeldepostkarte übergangsweise nicht mit ausgeliefert werden kontaktieren Sie bitte das nächstgelegene Digital Equipment Kundendienstbüro.

PTT Information

Federal Communications Commission

The following instructions are provided to ensure compliance with the Federal Communications Commission (FCC) Rules, Part 68.

1. **This device must only be connected to the T1 network behind an FCC Part 68 registered channel service unit. Direct connection is not allowed.** The registered CSU will provide the necessary isolation when connected between this device and the T1 network.
2. Before connecting your unit, you must inform the telephone company of the following information:

Port ID	REN/SOC	FIC
DEC CT1controller 100	6.0P	04DU9-BN, 04DU9-IKN 04DU9-DN, 04DU9-ISN

3. If the unit appears to be malfunctioning, it should be disconnected from the telephone lines until you learn if your equipment or the telephone line is the source of the trouble. If your equipment needs repair, it should not be reconnected until it is repaired
4. If the telephone company finds this equipment is exceeding tolerable parameters, the telephone company can temporarily disconnect the service, although they will attempt to give you advance notice if possible.
5. Under FCC rules, no customer is authorized to repair equipment. This restriction applies regardless of whether the equipment is in or out of warranty.
6. If the telephone company alters their equipment in a manner that will affect the use of this device, they must give you advance warning so as to give you the opportunity for uninterrupted service. You will be advised of your right to file a complaint with the FCC.

Service Requirements

In the event of equipment malfunction, all repairs should be performed by Digital Equipment Corporation or an authorized agent. It is the responsibility of users requiring service to report the need for service to Digital Equipment Corporation or to one of our authorized agents.

Canadian Department of Communications Notice

NOTICE: The Canadian Department of Communications label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational, and safety requirements. The Department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. In some cases, the company's inside wiring associated with a single line individual service may be extended by means of a certified assembly (telephone extension cord). The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

CAUTION: Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

The **Load Number** (LN) assigned to each terminal device denotes the percentage of the total load to be connected to a telephone loop which is used by the device, to prevent overloading. The termination on a loop may consist of any combination of devices subject only to the requirement that the total of the Load Numbers of all the devices does not exceed 100.

1

Installation

1.1 Overview

This chapter summarizes the installation of the DEC CT1controller 100 into a host system.

Topic	See Section...
Installing the DEC CT1controller 100	1.2
Kit Contents	1.3

Note

This booklet does not contain step-by-step instructions on how to install the DEC CT1controller 100. This is because the means of accessing the TURBOchannel slots and of adding an option are different for each host system.

Refer to the documentation for the host system for these details.

1.2 Installing the DEC CT1controller 100

The following table lists the steps in the installation of the DEC CT1controller 100. The table also shows where to find the information you need to complete each step.

Step	Action	See...
1	Check the contents of the hardware kit.	Section 1.3
2	Install the DEC CT1controller 100 in the system.	The documentation for the host system
3	Connect the DEC CT1controller 100 to the network.	Chapter 2

1.3 Kit Contents

Item	Description
1	DEC CT1controller 100
2	BC29P-07 cable
3	DW120-AA 15-way adapter
4	H4082-AB loopback connector
5	This booklet

If any item is missing or damaged, contact your local Digital office.

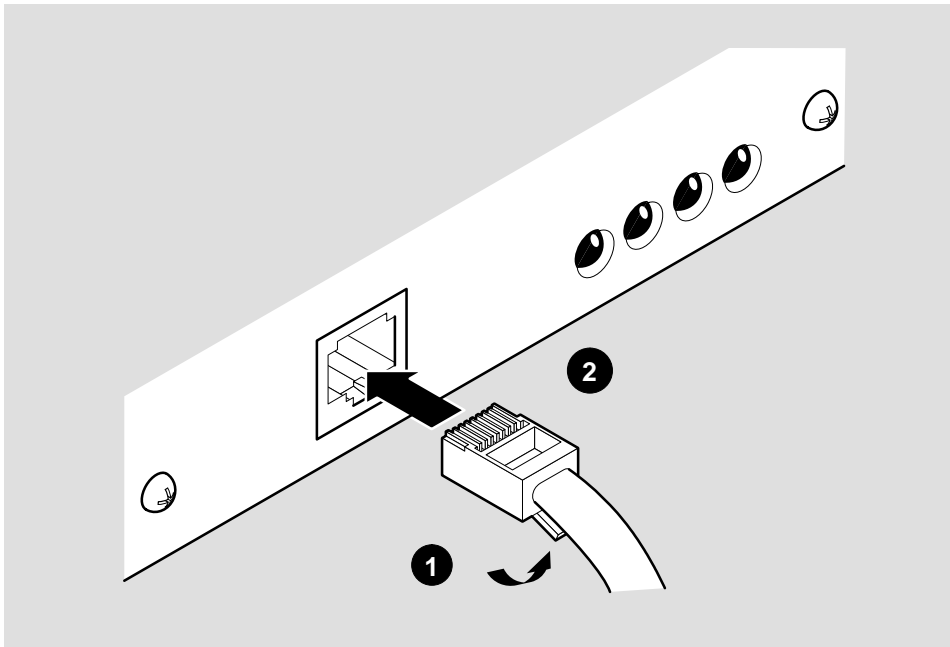
2

Attaching and Removing Cables

2.1 Overview

The front panel of the DEC CT1controller 100 has a single RJ48 socket. The following sections show how to attach the cable to, and remove the cable from, this socket.

2.1.1 Attaching a Cable

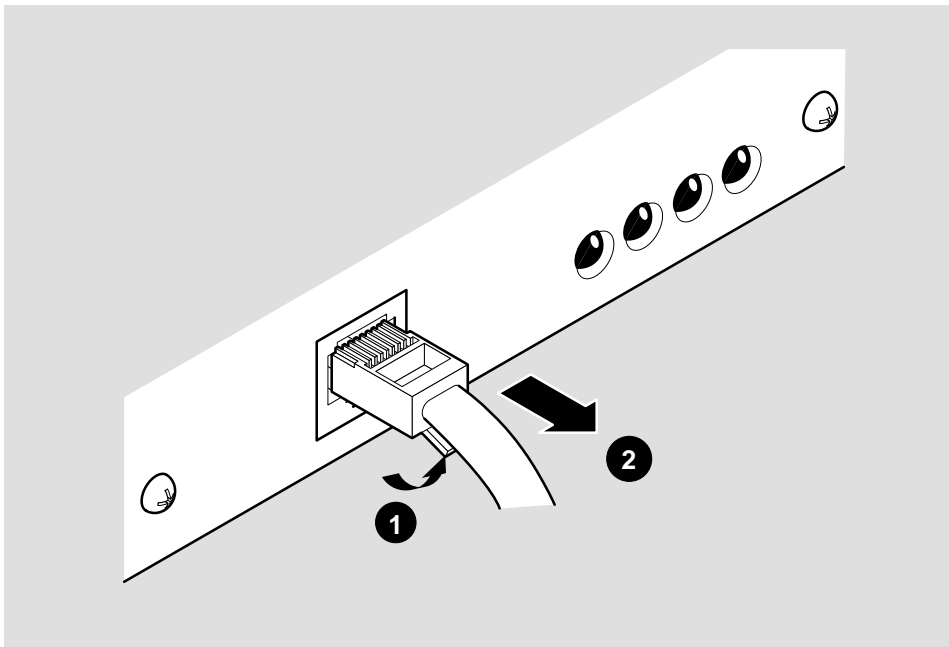


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Step	Action
------	--------

- | | |
|---|---|
| 1 | Turn the cable so that the end with the ferrite collar is nearest to the DEC CT1controller 100. |
| 2 | Press the tab towards the connector. |
| 3 | Push the connector into the socket. |
| 4 | Attach the other end of the cable to the CSU, using the DW120-AA adapter if necessary. |
-

2.1.2 Removing



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Step	Action
------	--------

- | | |
|---|---|
| 1 | Press the tab towards the connector. |
| 2 | Remove the cable from the socket. |
| 3 | Detach the other end of the cable from the CSU. |
-

3

Problem Solving

3.1 Overview

If problems arise in the use of the DEC CT1controller 100 they can occur at either of the following times:

- Power up
- During operation

This chapter shows how to diagnose each type of problem. Use this chapter in conjunction with the hardware documentation for the host system.

3.2 Power Up

3.2.1 Powerup Actions

When power is applied to the DEC CT1controller 100, it carries out a series of self-tests. The tests take approximately 1 minute to complete, and their progress is shown by the LEDs on the front panel:

LED	Use
OK (green)	Lights briefly between each test and is permanently displayed when the tests have completed successfully.
RA (red)	Lights if any test fails.
YA (yellow)	Lights while each test is in progress.
LB (green)	Not used during the powerup tests.

3.2.2 Powerup Problems

If the RA LED lights at power up, the DEC CT1controller 100 is faulty. Replace the unit, following the instructions in the documentation for the host system.

3.3 Operational Problems

The following table shows the LED displays that can occur during operation.

LED	State	Meaning	Action to Take
OK (green)	On	Normal operation	None
	Off	Software has suspended	Refer to the host software documentation
RA (red)	On	Local detection of line failure	Refer to the host software documentation
YA (yellow)	On	Remote indication of line failure	Refer to the host software documentation
LB (green)	On	Loopback tests in progress	Refer to the host software documentation

3.4 Console Messages

Some host systems have a console that logs messages from the system components. Replace the DEC CT1controller 100 if it generates any of the following messages on the system console.

Error	Text
1	Error in PID bits -mr2=XX xpctd=XX
2	9170 not in sync - mr1=XX
3	Alarm in mr0=XX
4	icr not clear - icr=XX
5	ATTN bit already set in CSR - csr=XX xpctd=0 act=1
6	ATTN bit still set in CSR - csr=XX xpctd=0 act=1
7	invalid FIFO entry - entry=XX
8	ERROR - entry=XX buff_addr=XX
9	CF/P=0 - entry=XX buff_addr=XX
10	tx buf stat: addr=XX - xpctd=0x05 act=XX
11	tx com stat addr=XX - xpctd=0x07 act=XX
12	DIR=TX: invalid command/data buffer address - addr=XX
13	rx com stat addr=XX - xpctd=0x07 act=XX
14	rx buf stat: addr=XX - xpctd=0x04 act=XX
15	DIR=RX: invalid command/data buffer address - addr=XX
16	No packets received for channel n - xpctd=XX
17	Received too many packets for channel n - xpctd=XX rcvd=XX
18	Data mismatch - addr=XX xpctd=XX act=XX
19	Unstable reg - addr=XX
20	9170 alarm - icr=XX mr0=XX
21	Stuck-at in 9170: addr=XX xpctd=XX act=XX
22	Timeout waiting for more FIFO entries
23	Timeout waiting for FIFO entry - last FIFO read = XX
24	Timeout waiting for all channels to be processed
25	Timeout waiting for ATTN to set
26	Timeout waiting for ATTN to clear
30	ITST clear in ICR - ICR=XX
31	I9170 bit clear XX
32	ITST set in ICR=XX
40	ATTN stuck-at 1 in CSR
41	I9170 stuck-at 1 in CSR

Error	Text
42	SA1 error in CSR - xpct=XX act=XX
43	SA0 error in CSR - xpct=XX act=XX
44	Stuck-at in 9170: addr=XX xpctd=XX act=XX
45	RXSIG not set in icr - icr=XX
46	I9170 bit not ser in CSR - csr=XX
50	adrs=XX, xpct=XX, act=XX
60	SRAM mismatch: addr=XX xpctd=XX act=XX
70	FULL bit already set - FIFO=XX
71	FULL bit NOT set - FIFO=XX
80	Too many entries in FIFO - xpct = 100
81	Bit n stuck at one in FIFO
82	Bit n stuck at zero in FIFO
90	EPROM Checksum failure. Actual:XX Calculated:XX

A

Cabling Information and Specifications

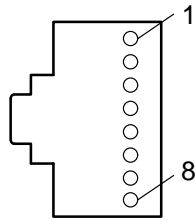
A.1 Overview

This appendix contains the following information about the DEC CT1 controller 100:

Topic	See Section...
Cabling Information	A.2
Communications Specifications	A.3
Physical Specifications	A.4
Front Panel Layout	A.5

A.2 Cabling Information

A.2.1 Pinout



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Pin	Signal Name	Pin	Signal Name
1	Receive ring	5	Transmit tip
2	Receive tip	6	not connected
3	not connected	7	not connected
4	Transmit ring	8	not connected

A.2.2 Communications Cable

Use only the BC29P-07 cable with the DEC CT1controller 100. When connecting the cable, make sure that the end with the ferrite collar is nearest to the front panel of the DEC CT1controller 100.

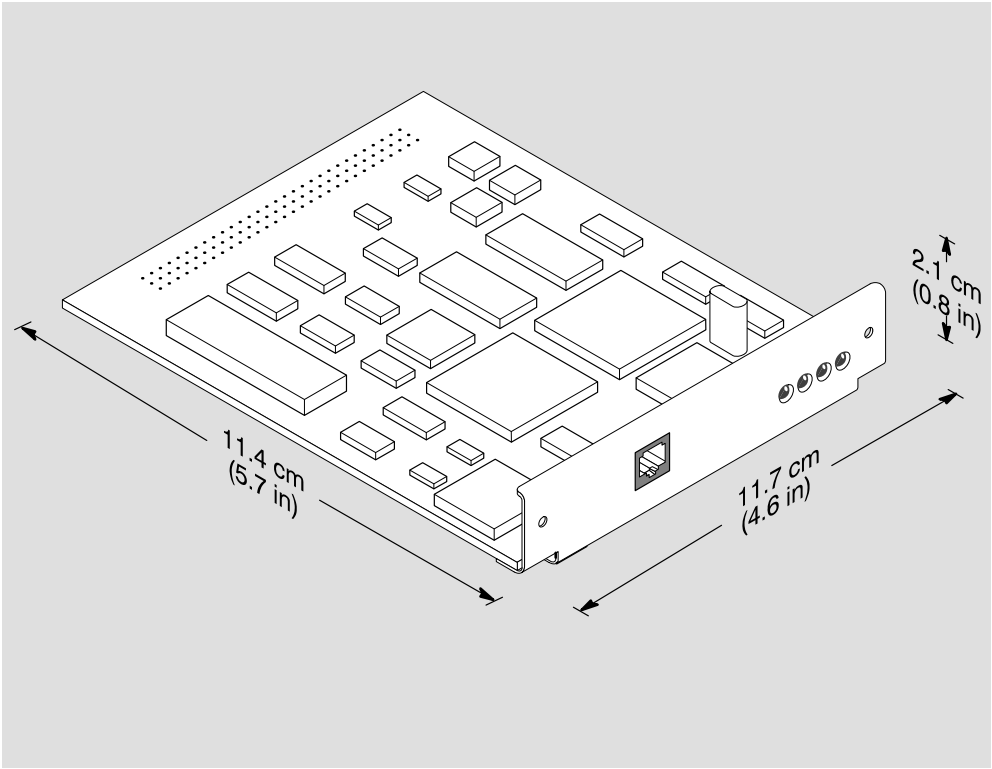
A.2.3 Loopback Connector

The loopback connector for this product is the H4082-AB.

A.3 Communications Specifications

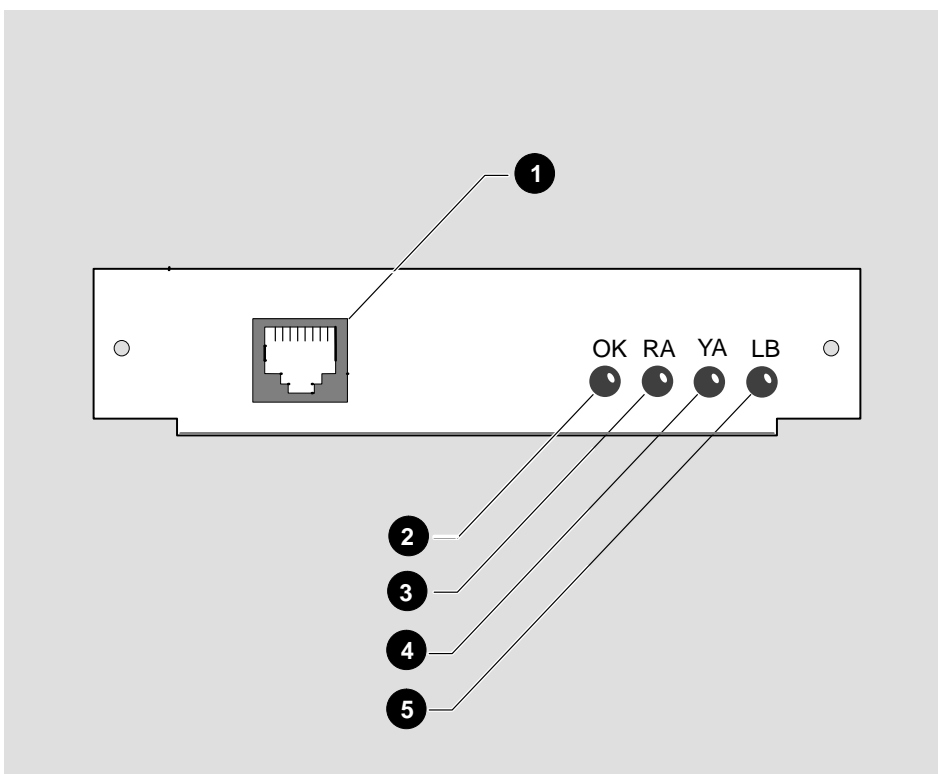
Specification	Value
Line speed	1.536 Mbits/s (maximum)
Number of channels	24 (maximum)
Channel speed	64 Kbits/s
Line interface	DSX-1

A.4 Physical Specifications



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A.5 Front Panel Layout



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Item	Description
1	RJ48 socket.
2	OK LED (green). When lit, indicates that the DEC CT1 controller 100 is operating correctly.
3	RA LED (red). When lit, indicates a fault with the DEC CT1 controller 100 or with the communications link.
4	YA LED (yellow). When lit, indicates a remote line failure.
5	LB LED (green). When lit, indicates that loopback testing is in progress.