Doc. No. 78-0770-02

Installing the CSC-R16M Token Ring Interface Card

Product Number: CSC-R16M=

Description of the CSC-R16M Token Ring Interface Card

The Cisco Systems CSC-R16M Token Ring interface card provides interconnection of Cisco routers and terminal servers to IEEE-802.5 and IBM Token Ring media from either a 16-megabits per second (Mbps) or a 4-Mbps Token Ring LAN. A single jumper setting permits the user to configure the card with the choice of either speed (4 or 16 Mbps). The CSC-R16M supports a single Token Ring interface. Figure 1 shows the CSC-R16M Token Ring interface card viewed from the component side with its jumpers configured according to the factory settings.

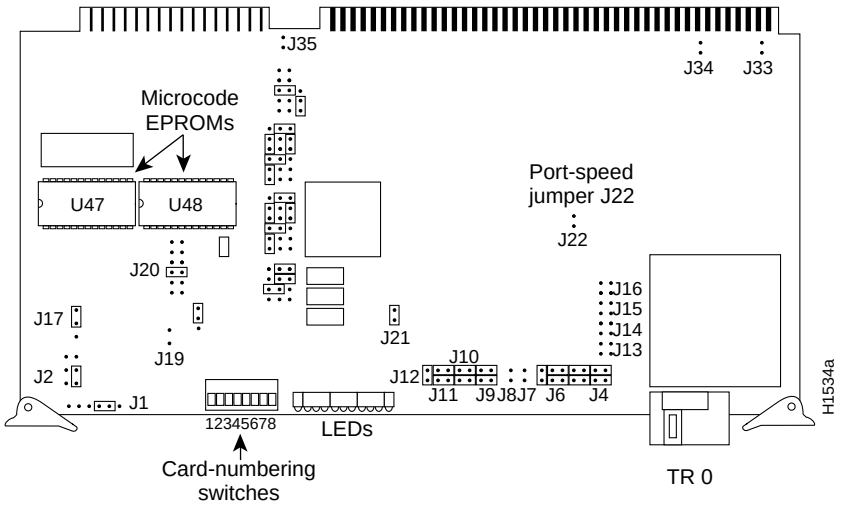

Figure 1 CSC-R16M Token Ring Interface Card

Note The CSC-R16M cannot be used in the C chassis routers.

Configuring the CSC-R16M Token Ring Card

The following sections discuss the configuration requirements of the CSC-R16M card.

Card Numbering

The card number of the CSC-R16M is selected through the use of software-readable dual in-line package (DIP) switches on the front edge of the card. Only switches 1 through 3 are used; all others are set to down (or off). Figure 2 shows these switches on the card front edge as viewed from left to right. The card number of each card within a certain type (Token Ring and so forth) must be unique to allow the system to distinguish between multiple cards of one type. For example, if two CSC-R16M cards are installed, they should be numbered *Card 0* and *Card 1*. If one CSC-R16M card and one CSC-1R card are installed, they also should be *Card 0* and *Card 1*. Table 1 lists the card-numbering scheme for the CSC-R16M.

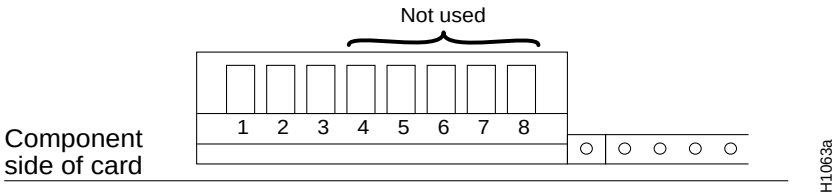

Figure 2 CSC-R16M Card-Numbering Switches—Partial Front-Edge View

Table 1 CSC-R16M Card-Numbering Switch Settings

Card No.	Switch 1[1]	Switch 2	Switch 3
0	Down[2]	Down	Down
1	Up	Down	Down
2	Down	Up	Down
3	Up	Up	Down
4	Down	Down	Up
5	Up	Down	Up
6	Down	Up	Up

1. Switches 4 through 8 have no function.
2. Down = Switch is off.

Selecting Token Ring Port Speed

The port speed of the CSC-R16M card is jumper configurable. Jumper area J22 configures the CSC-R16M for either 4-megabits per second (Mbps) or 16-Mbps operation. (See Figure 3.) No jumper at jumper area J22 (the factory default setting) selects 16-Mbps operation, while installing a jumper at location J22 selects 4-Mbps operation. The spare jumper to use at J22 is placed on the posts at jumper area J21. CSC-R16M cards are shipped configured to run at 16 Mbps (J22 has no jumper). To install the J22 jumper, remove the jumper from J21.

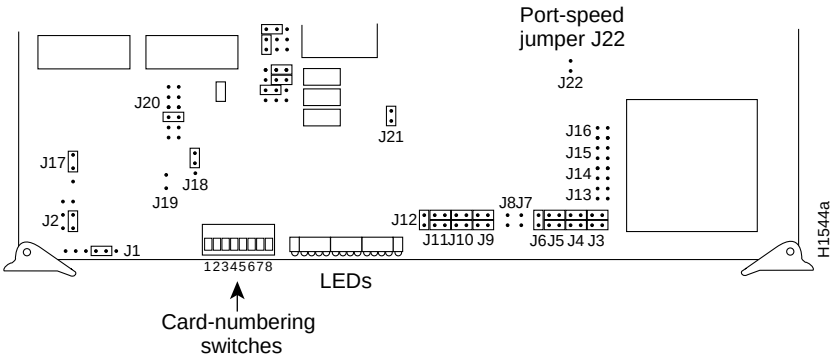

Figure 3 CSC-R16M Jumper and Switch Positions

Caution The Token Ring port speed you set on the CSC-R16M card *must* match the speed of the ring to which the card is attached. Failure to match these speeds can bring down the ring, but will cause no damage to the CSC-R16M card.

Reading LED Indicators

The CSC-R16M Token Ring card has 14 LED indicators located on the front edge of the card. (See Figure 4.) During normal operation, after the card has initialized and the port is connected to the ring, LEDs F through M will strobe back and forth to indicate proper operation. The descriptions of the CSC-R16M LED functions are listed in Table 2.

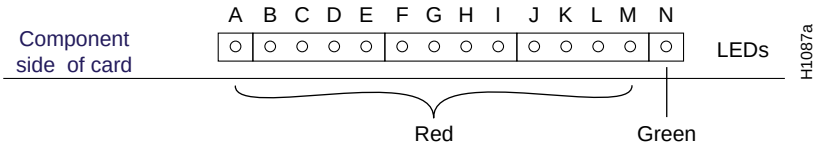

Figure 4 CSC-R16M LED Indicators—Partial Front-Edge View

Table 2 CSC-R16M LED Indicators

LED	Function
A	Processor halted (normally off)
B	–12V fused
C	+12V fused
D	+5V fused
E	+5V (power)
F–M	Activity lights[1]
N	Run light (green)

1. LEDs F through M will strobe back and forth to indicate proper operation.

Limitations

The CSC-R16M interoperates with the 4-Mbps CSC-R , CSC-1R, and CSC-2R Token Ring interface cards, with any of the MCI family of cards, and with any cards in the ciscoBus complex.

The CSC-R16M interface card will also work with the CSC-16 card for use with a Token Ring communication server. The CSC-R16M Token Ring interface card will operate from any slot in the server chassis.

The CSC-R16M will *not* interoperate with the older Type 1 and Type 2 Ethernet cards, nor with the CSC-S and CSC-T cards.

Table 3 lsist the card and port limits for the CSC-R16M card by chassis type.

Table 3 Card and Port Limits

No. of Cards	Chassis Type
6 (7)[1]	AGS+
3	MGS[2]

1. All numbers in parentheses refer to the maximum numbers of cards and interfaces allowed when no ciscoBus card is needed.
2. Token Ring interfaces cannot be supported in the CPT chassis. Only the CSC-2R Token Ring interface card can be used in the CGS chassis.

Preventing Electrostatic Discharge Damage

Electrostatic discharge (ESD) is a discharge of stored static electricity that can damage equipment and impair electrical circuitry. It occurs when electronic components are improperly handled and can result in complete or intermittent failures.

Following are guidelines for preventing ESD damage:

- Before you open a chassis, ensure that power to the unit is turned off, but that the power cord is connected to the wall receptacle. Having the power cord connected will ensure a ground path for any ESD voltages.
- Always use an ESD wrist strap or ankle strap and ensure that it makes good skin contact.
- Connect the equipment end of the strap to an unpainted surface of the chassis frame or another proper grounding point or surface. We recommend that you attach it to the inside bottom of the chassis, or to the rear panel (inside or outside), without making contact with any connectors or appliques.
- Avoid contact between equipment and clothing. The wrist strap only protects the equipment from ESD voltages on the body; ESD voltages on clothing can still cause damage.
- Handle printed circuit cards and appliques by the edges only; avoid touching the components, traces, or any connector pins.
- Place a removed card component-side-up on an antistatic surface or in a static shielding bag. If the component will be returned to the factory, immediately place it in a static shielding bag.
- Do not remove the wrist strap until the installation is complete.

Caution For safety, periodically check the resistance value of the antistatic strap. The measurement should be within the range of 1 and 10 Mohms.

Chassis Access Procedure

Choose the following procedure that describes your chassis type.

A-Type Chassis

Following is the procedure for accessing the A-type chassis interior. You will need a medium-sized flat-blade screwdriver.

Warning Before accessing the chassis interior, turn OFF power to the chassis and unplug the power cord because hazardous voltages may exist in or near the power supply. Use extreme caution when working near the power supply.

Step 1 Turn OFF power to the chassis and unplug it from AC power.

Step 2 If the chassis is rack mounted, disconnect all external cables from the chassis rear panel. Note where these cables were connected, for reinstallation.

Step 3 Remove the chassis from the rack and transfer it to a desktop or work table.

Step 4 If you will need to handle any electronic components (cards, and so forth), attach appropriate ESD protection and attach the AC power cord, but to prevent a shock hazard, make certain the chassis power is OFF.

Step 5 To access cards in the card cage, loosen the two thumbscrews and remove the front panel from the chassis. (See Figure 5.) If you wish to access cards in the card cage only, skip the next step.

Step 6 To access other system components, locate and remove the seven No. 1 Phillips screws securing the top cover. (See Figure 5.) Set the top cover and screws aside.

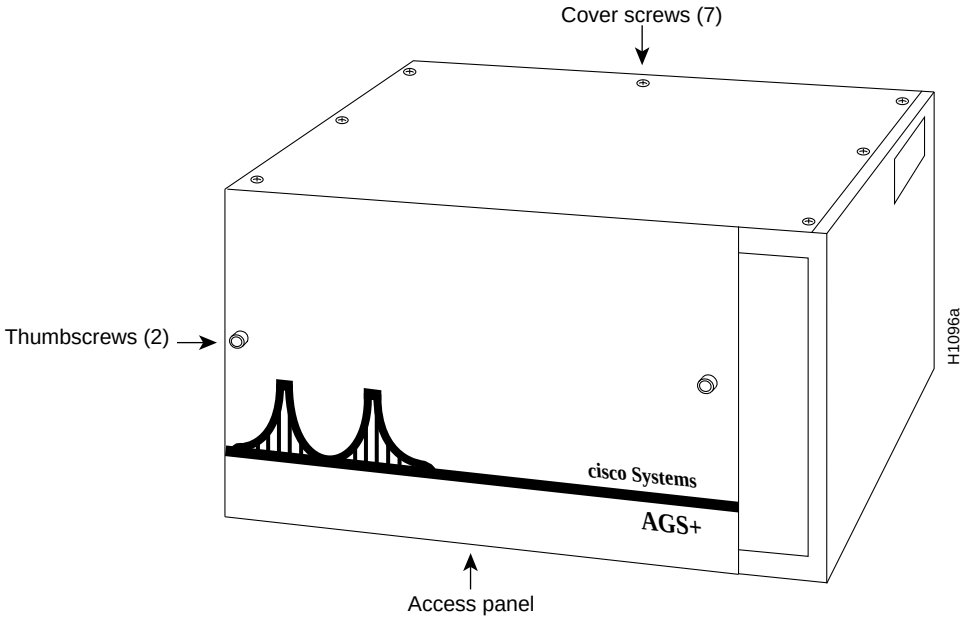

Figure 5 Chassis Front and Top Panels

To reassemble the chassis, reverse all steps.

MGS Chassis

Following is the procedure for accessing the MGS chassis interior. You will need a medium-sized flat-blade screwdriver and No. 1 and No. 2 Phillips screwdrivers.

Warning Before accessing the chassis interior, turn off power to the chassis and unplug the power cord because hazardous voltages may exist in or near the power supply. Use extreme caution when working near the power supply.

Step 1 Turn OFF power to the chassis and unplug it from AC power.

Step 2 If the chassis is rack mounted, disconnect all external cables from the chassis rear panel. Note where these cables were connected, for reinstallation.

Step 3 Remove the chassis from the rack and transfer it to a desktop or work table.

Step 4 If you need to handle any electronic components (cards, and so forth) attach appropriate ESD protection and attach the AC power cord, but to prevent a shock hazard, make certain the chassis power is OFF.

Step 5 To access the cards in the card cage, locate the three flat-blade screws that secure the card cage access panel. (See Figure 6.) These screws are located on the top of the MGS chassis access panel.

Step 6 Using the flat-blade screwdriver, turn each of these screws 1/4 to 1/2 turn counterclockwise until the screw pops up.

Step 7 Using the No. 2 Phillips screwdriver, loosen the three screws at the bottom edge of the card cage cover. (Do not remove these screws completely.) Carefully remove the card cage cover and set it aside.

Step 8 To access the other chassis components, use the No. 1 Phillips screwdriver to remove the 14 screws that secure the top cover of the MGS chassis. (See Figure 6.) Set the top cover aside.

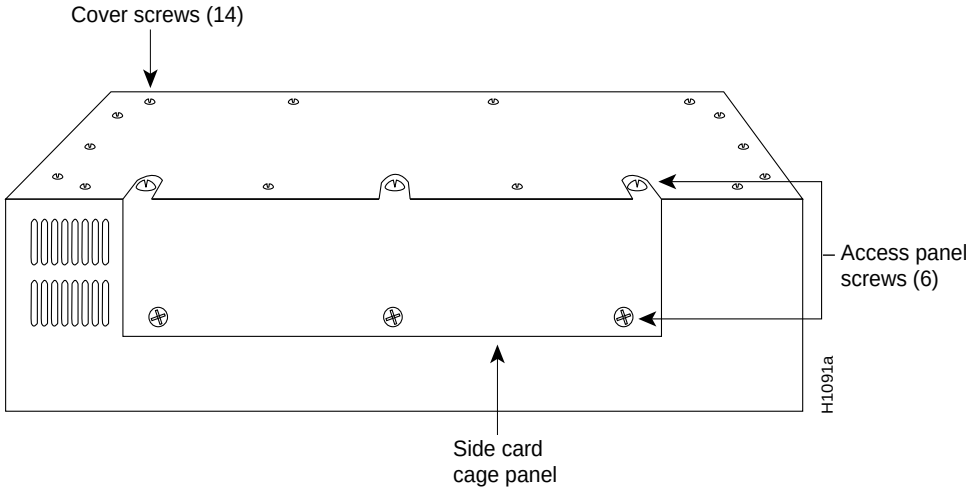

Figure 6 Screw Locations on the MGS Chassis Exterior—Side View

To reassemble the chassis, reverse all steps.

Installing the CSC-R16M Card

Following is the procedure for installing the CSC-R16M:

Step 1 Turn OFF power to the system, but to channel ESD voltages to ground, do not unplug the AC cable.

Step 2 Remove the access panel using the procedures in the section "Chassis Access Procedure," according to your chassis type.

Step 3 Select jumper settings using the procedures in the section "Configuring the CSC-R16M Token Ring Card" on page 2. Verify settings for Token Ring speed and the correct card number.

Step 4 If replacing an existing CSC-R16M, remove that card.

Step 5 Insert the v new CSC-R16M interface card into the appropriate card cage slot.

Step 6 Attach the internal cable. The CSC-R16M interface card offers a 10-pin dual inline package (DIP) header cable attachment and a keyed connector.

Note The arrows on the connectors indicate the correct position of the cable.

Step 7 Externally, connect a Token Ring lobe cable to the DB-9, 9-pin Token Ring connector.

Step 8 Turn ON power to the system for an installation check.

Step 9 Verfiy the Token Ring card is installed and configured correctly using the **show interface** *type unit* command (where *type* is token, and *unit* is the unit address of the interface).

Following is a partial sample display:

```
router# show interface token 0

TokenRing 0 is up, line protocol is up
Hardware is 16/4 Token Ring, address is 0000.3080.cb34 (bia 0000.3080.cb34
```

Step 10 When the installation is successful, replace the card access panel.

This completes the CSC-R16M interface card installation procedure.

Note For technical assistance, contact a service representative or the Cisco Technical Assistance Center (TAC) at 800 553-2447, 415 903-7209, or `tac@cisco.com`. For upgrade or product information, contact the Customer Response Center at 800 553-6387, 415 903-7208, or `cs-rep@cisco.com`.

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This document can be used in conjunction with the *AGS+ Hardware Installation and Maintenance, ASM-CS Hardware Installation and Maintenance,* and *M and C Chassis Hardware Installation and Maintenance* publications.