MDM9000 Modem

For MC9000 Mobile Computers
Quick Reference Guide
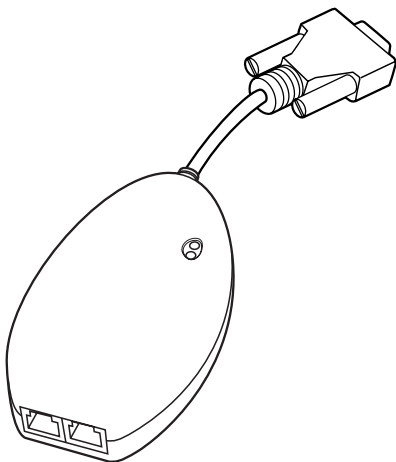
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Warranty

For the complete Motorola hardware product warranty statement, go to:
http://www.symbol.com/warranty.

Patents

This product is covered by one or more patents. For patent information go to:
http://www.symbol.com/patents.

Introduction

The MDM9000 Modem Module enables data communication between the MC9000 mobile computer and a host computer, remotely through the phone lines, and synchronizes information between the MC9000 and a host computer.

About This Guide

This Quick Reference Guide includes the following information:

- *Parts*
- *Requirements on page 4*
- *Connecting the MDM9000 Modem on page 4*
- *Configuring the MC9000 for the Modem on page 6*
- *Modem LED Indicators on page 7*
- *Troubleshooting on page 7*
- *Technical Specifications on page 9*.

For detailed information on the MC9000 series mobile computer, see the *Quick Reference Guide* or *Product Reference Guide* for the mobile computer.

Parts

Line In Port

Phone Port

LEDs

Serial Port
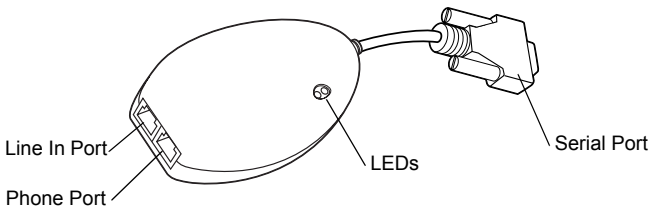
Requirements

- for modem connection:
  - telephone number, IP address and DNS/WINS address information from the dial-in server administrator
  - a dial-in account on the host system, including a user ID and password
  - an RJ11 modem cable
  - a functioning telephone jack that supports plug-in modems connected to the local telephone system
  - setup of Country Codes to use the modem with the appropriate country's telephone network (refer to the mobile computer's *Product Reference Guide*).
- for communication:
  - an MC9000 Series mobile computer
  - Cable Adapter Module (CAM), Symbol p/n ADP9000-100R
  - Serial Adapter Cable (for communication via cradle), Symbol p/n 25-63856-01R
  - Microsoft ActiveSync
  - setup of host computer and mobile computer (refer to the mobile computer's *Product Reference Guide* for detailed instructions).

Connecting the MDM9000 Modem

Connecting to the MC9000

To use the modem to provide data communication between the MC9000 and a host computer remotely through a phone line:
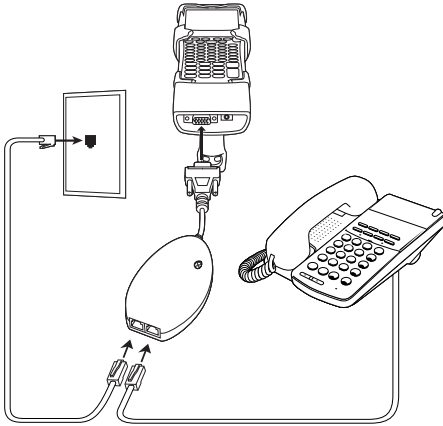
1. Insert the CAM onto the MC9000.
2. Connect the male 15-pin connector on the modem cable to the female 15-pin port on the CAM.

    ⚠️ *CAUTION* Do not connect the modem's 15-pin connector into a VGA port of a host computer.

3. Connect one end of the phone cord to the Line In port on modem, and the other end to a wall phone jack.

4. If using a phone, connect the cord from the phone to the Phone port on the modem.

Using the Correct Telephone Line Type

Use a standard analog phone line, as in most households. In an office, use a line connected to a fax machine or modem. In a hotel, request a room with a standard phone line or data port. If necessary, check with the local phone company or administrator to make sure you are using the right type of line before sending data.
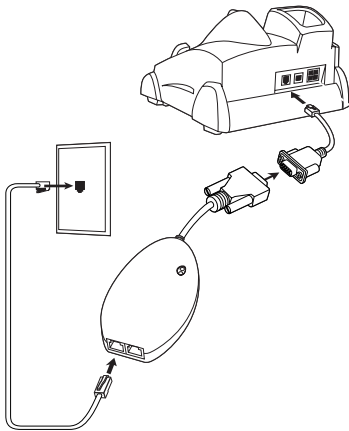
Connecting to the Single-Slot Serial Cradle

To connect the modem to the MC9000 Single-Slot Serial Cradle:

1. Connect the adapter cable to the serial port on the cradle.

2. Connect the male 15-pin connector on the modem cable to the female 15-pin port on the adapter cable.

> ⚠ *CAUTION* Do not connect the modem's 15-pin connector into a VGA port of a host computer.

3. Connect one end of the phone cord to the Line In port on modem, and the other end to a wall phone jack.

4. If using a phone, connect the cord from the phone to the Phone port on the modem.

TNV Access

Before opening the unit for servicing, disconnect the Telecommunications Network Voltage (TNV).

Configuring the MC9000 for the Modem

See the mobile computer's *Product Reference Guide* for information on modem configuration.

Modem LED Indicators

LED	Indication
Off	Modem is not properly connected to the mobile computer; modem is not receiving power.
Green	Modem is connected to the mobile computer and is receiving power.
Solid Amber	Mobile computer is communicating with the host computer.

Troubleshooting

Symptom	Possible Cause	Action
Mobile computer is not communicating through the modem.	The modem cable is not fully connected.	Connect the modem cable securely to both the modem and the telephone jack.
	Modem is not securely connected to the mobile computer.	Reconnect the modem firmly to the mobile computer.
	Communication software is not installed or configured properly.	Set up the communication software as described in the mobile computer's *Product Reference Guide.*
	Problem in the telephone lines.	Connect a conventional telephone and dial the remote modem to verify the telephone lines are functioning. If the remote modem does not answer the call and emit answering tones, contact the remote System Administrator.
	Mobile computer's battery is low or discharged, which shuts off power to the modem.	Install a charged battery in the MC9000, or use an external DC power adapter to recharge the battery.

Symptom	Possible Cause	Action
ActiveSync fails.	A partnership was not established with the host computer.	Establish a partnership with the host computer as described in the mobile computer's *Product Reference Guide*.
	Host computer is not selected in the *ActiveSync* window on the mobile computer.	Select a host computer in the *ActiveSync* window, and perform setup as described in the *Product Reference Guide*.
	Modem RAS connection not allowed by host computer.	Select RAS connection in the host computer *(File - Connection Settings)* window. Refer to the ReadMe files located in the Microsoft ActiveSync folder on the host computer.
	Mobile computer or modem was disconnected from the telephone line while ActiveSync was in progress.	Disconnect the modem cable for 30 seconds to hang up the local telephone connection. Close any open windows on the mobile computer and any modem connections.
	Synchronization occurred, but the session is configured to close immediately after synchronization is complete.	Verify the setting of the *When manually synchronizing disconnect when complete* checkbox by tapping *Start - ActiveSync - Tools - Options - Schedule* tab.
Dial-out fails	Location setting is incorrect.	Verify Dialing Locations. Verify Dialing Patterns are correct for the current location. For example, enter 'G' in the *For local calls, dial:* field to dial directly, or '9,G' if the telephone system requires dialing '9' first to access an outside line.
	Incorrect server phone number.	Verify the connection phone number in the *Connecting* window.
	Pulse dialing not supported for country.	Use a connection within a tone-dialing system.

Symptom	Possible Cause	Action
Dial-out fails *continued...*	Dialtone detection not supported.	The service you subscribe to (e.g., a remote answering service) may use a different type of dialtone. Disable dialtone detection on the modem by entering the initialization string "ATXO" in the *Extra dial-string modem commands:* text box of the *Modem Settings* window.
	The following error message appears: Trouble Connecting: There is no answer at the number dialed. Verify the phone...'	The modem may be required to be powered before opening the port for dial-out. Tap *Start - Settings - System - Symbol Settings - Settings - External5VoltPower* and select *ActiveOn*.
	The Connection Manager routes are incorrect.	Warm boot the mobile computer and confirm the connection settings. Perform setup as described in the *Product Reference Guide*.

Technical Specifications

Item	Description
Asynchronous character format	Up to 10 bits, including data, start, stop, and parity bits
Asynchronous data rates	Transmission rate fallback through 300 bps
Chipset	Conexant SCM
Compatible public switched network jacks	RJ11
Dialing capability	Tone and rotary pulse
Line requirements	Public switched telephone network (PSTN) including international connections
Operating environment	Altitude: up to 20,000 ft. Humidity: 10% to 90% non-condensing

Item	Description
Operating temperature	Operating: 32° to 122°F / 0° to 50°C Storage: -40° to 158°F / -40° to 70°C
Operating modes	Asynchronous, full duplex, automatic and manual call originate
Performance	Line speed up to 33,600 bps HHC to modem speed (DTE speed) up to 57,600 bps V.42bis data compression V.42 LAPM error correction
Current consumption	100 mA active <10 mA sleep
Pulse dialing rate (except where prohibited under TBR-21 rules)	10 pulses per second Pulse dialing duty cycle: 39/61% (US) make-to-break ratio
Ringer equivalence	0.2
Standards & protocols	Bell 103, Bell 212A, Hayes AT command set, and ITU Vs. 17, 21, 22 A & B, 22bis, 23, 25bis, 27 ter, 29, 32, 32bis, 42bis
Tone detected	Dial, busy, ring back, modem answer tones. Blind dialing based on time-out periods available for incompatible tones.

Regulatory Information

This device is approved under the Symbol Technologies brand; Symbol Technologies, Inc., is the Enterprise Mobility business of Motorola, Inc. ("Motorola").

All Symbol devices are designed to be compliant with rules and regulations in locations they are sold and will be labeled as required.

Any changes or modifications to Symbol equipment, not expressly approved by Symbol, could void the user's authority to operate the equipment.

Radio Frequency Interference Requirements-FCC

Note: 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 instructions, may cause harmful interference to radio communications. However there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help.

Radio Frequency Interference Requirements - Canada

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

Telecom Approval Warnings and Notices

Connecting to the telephone network

A compliant telephone lead is required with RJ11 plug (line is on middle pair) for connection to modem, terminated with an appropriate and correctly wired local telecom connector compatible with the telephone network. Such a cable may be sourced from your local supplier. Alternatively compliant RJ11 plug to RJ11 plug cables may be used with a range of adapters for places such as Europe.

CAUTION To reduce risk of fire, use only No. 26 AWG or larger UL listed or CSA certified telecommunication line cord.

User and Service Access - No user service is intended and no part of the modem, other than the line connection plug, is accessible to users.

United States

Where this device contains a Symbol Technologies, Inc. internal modem, this equipment complies with Part 68 of the FCC rules and the requirements adopted by the ACTA. A Supplier's Declaration of Conformity for the modem type may be obtained from http://www2.symbol.com/doc/ On the exterior of this equipment is a label that contains, among other information, a product identifier in the format US:AAAEQ##TXXXX. If requested, this number must be provided to the telephone company. The digits represented by ## are the REN without a decimal point (e.g., 03 is a REN of 0.3).

The REN is used to determine the number of devices that may be connected to a telephone line. Excessive RENs on a telephone line may result in the devices not ringing in response to an incoming call. In most but not all areas, the sum of RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to a line, as determined by the total RENs, contact the local telephone company.

This equipment must be connected to the telephone network or premises wiring using a compatible modular jack (RJ11C) compliant with the applicable FCC Part 68 rules and requirements adopted by ACTA. A compliant telephone cord and modular plug must be used.

This equipment must not be used on party lines.

If your premises has specially wired alarm equipment connected to the telephone line, ensure the installation of this modem does not disable your alarm equipment. If you have questions about what will disable alarm equipment, consult your telephone company or a qualified installer.

Should you experience trouble with this equipment, please contact your facility's Technical or Systems Support first who will contact your nearest Symbol Customer Service Centre. If necessary, the Symbol Support Centre may be contacted at: 1-800-653-5350 If the equipment is causing harm to the telephone network, the telephone company may request that you disconnect the equipment until the problem is resolved.

If the modem 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 modem. If this happens the

telephone company will provide advance notice so you may make any necessary modifications to maintain uninterrupted service.

Fax

The Telephone Consumer Protection Act of 1991 makes it unlawful for any person to use a computer or other electronic device, including fax machines, to send any message unless it clearly contains a margin at the top or bottom of each transmitted page or on the first page of the transmission, the date and time it is sent and an identification of the business or other entity, or other individual sending the message and the telephone number of the sending machine or such business, other entity, or individual. (The telephone number provided may not be a 900 number or any other number for which charges exceed local or long-distance transmission charges.) In order to program this information into your fax/ modem, you should consult documentation supplied with the necessary fax driver application software being used with the host terminal.

Canada

This equipment meets the applicable Industry Canada Terminal Equipment Technical Specifications. This is confirmed by the registration number. The abbreviation "IC:" before the registration number signifies that registration was performed based on a Declaration of Conformity indicating that Industry Canada technical specifications were met. It does not imply that Industry Canada approved the equipment.

The Ringer Equivalence Number (REN) for this terminal equipment is 0.2. The REN assigned to each terminal equipment provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the Ringer Equivalence Numbers of all the devices does not exceed five.

ϵ Marking and European Economic Area (EEA)

Statement of Compliance

Symbol Technologies, Inc., hereby, declares that this device is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC. A Declaration of Conformity may be obtained from http://www2.symbol.com/doc/.

The modem is designed to interwork with the Public Switched Telephone Networks within the EEA as listed on the Declaration of Conformity.

⌦ **Waste Electrical and Electronic Equipment (WEEE)**

English: For EU Customers: All products at the end of their life must be returned to Motorola for recycling. For information on how to return product, please go to: http://www.symbol.com/environmental_compliance.

Bulgarish: За клиенти от ЕС: След края на полезния им живот всички продукти трябва да се връщат на Motorola за рециклиране. За информация относно връщането на продукти, моля отидете на адрес: http://www.symbol.com/weeelink.

Čeština: Pro zákazníky z EU: Všechny produkty je nutné po skončení jejich životnosti vrátit společnosti Motorola k recyklaci. Informace o způsobu vrácení produktu najdete na webové stránce: http://www.symbol.com/environmental_compliance.

Dansk: Til kunder i EU: Alle produkter skal returneres til Motorola til recirkulering, når de er udtjent. Læs oplysningerne om returnering af produkter på: http://www.symbol.com/environmental_compliance.

Deutsch: Für Kunden innerhalb der EU: Alle Produkte müssen am Ende ihrer Lebensdauer zum Recycling an Motorola zurückgesandt werden. Informationen zur Rücksendung von Produkten finden Sie unter http://www.symbol.com/environmental_compliance.

Eesti: EL klientidele: kõik tooted tuleb nende eluea lõppedes tagastada taaskasutamise eesmärgil Motorola'ile. Lisainformatsiooni saamiseks toote tagastamise kohta külastage palun aadressi: http://www.symbol.com/environmental_compliance.

Español: Para clientes en la Unión Europea: todos los productos deberán entregarse a Motorola al final de su ciclo de vida para que sean reciclados. Si desea más información sobre cómo devolver un producto, visite: http://www.symbol.com/environmental_compliance.

Ελληνικά: Για πελάτες στην Ε.Ε.: Όλα τα προϊόντα, στο τέλος της διάρκειας ζωής τους, πρέπει να επιστρέφονται στην Motorola για ανακύκλωση. Για περισσότερες πληροφορίες σχετικά με την επιστροφή ενός προϊόντος, επισκεφθείτε τη διεύθυνση http://www.symbol.com/environmental_compliance στο Διαδίκτυο.

Français : Clients de l'Union Européenne : Tous les produits en fin de cycle de vie doivent être retournés à Motorola pour recyclage. Pour de plus amples informations sur le retour de produits, consultez : http://www.symbol.com/environmental_compliance.

Italiano: per i clienti dell'UE: tutti i prodotti che sono giunti al termine del rispettivo ciclo di vita devono essere restituiti a Motorola al fine di consentirne il riciclaggio. Per informazioni sulle modalità di restituzione, visitare il seguente sito Web: http://www.symbol.com/environmental_compliance.

Latviešu: ES klientiem: visi produkti pēc to kalpošanas mūža beigām ir jānogādā atpakaļ Symbol otrreizējai pārstrādei. Lai iegūtu informāciju par produktu nogādāšanu Motorola, lūdzu, skatiet: http://www.symbol.com/environmental_compliance.

Lietuvių: ES vartotojams: visi gaminiai, pasibaigus jų eksploatacijos laikui, turi būti grąžinti utilizuoti į kompaniją „Motorola". Daugiau informacijos, kaip grąžinti gaminį, rasite: http://www.symbol.com/environmental_compliance.

Magyar: Az EU-ban vásárlóknak: Minden tönkrement terméket a Motorola vállalathoz kell eljuttatni újrahasznosítás céljából. A termék visszajuttatásának módjával kapcsolatos tudnivalókért látogasson el a http://www.symbol.com/environmental_compliance weboldalra.

Malti: Għal klijenti fl-UE: il-prodotti kollha li jkunu waslu fl-aħħar tal-ħajja ta' l-użu tagħhom, iridu jiġu rritornati għand Motorola għar-riċiklaġġ. Għal aktar tagħrif dwar kif għandek tirritorna l-prodott, jekk jogħġbok żur: http://www.symbol.com/environmental_compliance.

Nederlands: Voor klanten in de EU: alle producten dienen aan het einde van hun levensduur naar Motorola te worden teruggezonden voor recycling. Raadpleeg http://www.symbol.com/environmental_compliance voor meer informatie over het terugzenden van producten.

Polski: Klienci z obszaru Unii Europejskiej: Produkty wycofane z eksploatacji należy zwrócić do firmy Motorola w celu ich utylizacji. Informacje na temat zwrotu produktów znajdują się na stronie internetowej http://www.symbol.com/environmental_compliance.

Português: Para clientes da UE: todos os produtos no fim de vida devem ser devolvidos à Motorola para reciclagem. Para obter informações sobre como devolver o produto, visite: http://www.symbol.com/environmental_compliance.

Românesc: Pentru clienții din UE: Toate produsele, la sfârșitul duratei lor de funcționare, trebuie returnate la Motorola pentru reciclare. Pentru informații despre returnarea produsului, accesați: http://www.symbol.com/weeelink.

Slovenski: Za kupce v EU: vsi izdelki se morajo po poteku življenjske dobe vrniti podjetju Motorola za reciklažo. Za informacije o vračilu izdelka obiščite: http://www.symbol.com/environmental_compliance.

Slovenčina: Pre zákazníkov z krajín EU: Všetky výrobky musia byť po uplynutí doby ich životnosti vrátené spoločnosti Motorola na recykláciu. Bližšie informácie o vrátení výrobkov nájdete na: http://www.symbol.com/environmental_compliance.

Suomi: Asiakkaat Euroopan unionin alueella: Kaikki tuotteet on palautettava kierrätettäväksi Motorola-yhtiöön, kun tuotetta ei enää käytetä. Lisätietoja tuotteen palauttamisesta on osoitteessa http://www.symbol.com/environmental_compliance.

Svenska: För kunder inom EU: Alla produkter som uppnått sin livslängd måste returneras till Motorola för återvinning. Information om hur du returnerar produkten finns på http://www.symbol.com/environmental_compliance.

Service Information

If you have a problem using the equipment, contact your facility's Technical or Systems Support. If there is a problem with the equipment, they will contact the Motorola Enterprise Mobility Support at: http://www.symbol.com/contactsupport.

For the latest version of this guide go to: http://www.symbol.com/manuals.

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