MDM 8000
Modem Module

symbol
Quick Reference

Introduction
This guide describes how to use an MDM 8000 Modem Module with Symbol PDT 8000 Series terminals. The modem module:
• provides power for operating the terminal
• provides for data communication between the terminal and a host computer, remotely through the phone lines
• synchronizes information between the terminal and a host computer (with customized or third party software, it can also be used to synchronize your terminal with corporate databases)
• re-charges the terminal’s battery.
The modem module snaps onto the bottom of the terminal and can be removed easily when not in use.

About This Guide
This guide provides basic information on the following topics:
• Requirements on page 2
• Attaching and Removing the MDM 8000 on page 3
• Phone Line Connection on page 3
• Terminal Battery Charging on page 4
• Terminal Charge LED Indicator on page 5
• Modem Country Setup on page 5
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For detailed information on any PDT 8000 Series terminal, refer to the PDT 8000 Series Quick Reference Guide, p/n 72-58168-xx, PDT80XX WAN Quick Reference Guide, p/n 72-61492-xx or PDT

Requirements

- for power connection
  - For U.S Customers CBL-8000-200U
  - For International Customers Power Supply, p/n 50-14001-012
  - DC Cable, p/n 50-16002-028
  - AC Cord, appropriate for your country

- for modem connection
  - telephone number, IP address and DNS/WINS address information from your dial-in server administrator
  - a dial-in account on the host system, including a user ID and password
  - an RJ11 or RJ12 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 (see Modem Country Setup).

- for communication
  - a PDT 8000 Series terminal
  - Microsoft ActiveSync
  - setup of host computer and terminal (refer to the PDT 8000 Series Product Reference Guide for detailed instructions).
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Attaching and Removing the MDM 8000
To attach the modem module to your terminal, place it at the bottom of the terminal as shown, and press the terminal into place.

To remove, pull the terminal from the modem module.
While the modem module is attached, you cannot:

- use a cradle for battery charging or communication
- use the RS-232 serial port on the bottom of the terminal.

Phone Line Connection
To use the modem module to provide data communication between a terminal and a host computer, remotely through a phone line, connect one end of the phone cord into the Line In port on modern module, and the other end into a wall phone jack.
Terminal Battery Charging

To charge the terminal’s battery with the modem module attached:

The terminal’s charging LED blinks amber to indicate that the battery is charging and turns solid amber when battery is completely charged. See Terminal Charge LED Indicator for other indications.

When charging, the modem module allows power to pass through directly to the terminal. The terminal then regulates this power and provides regulated 5 VDC to the modem module.
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Terminal Charge LED Indicator

<table>
<thead>
<tr>
<th>LED</th>
<th>Indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Off</td>
<td>Terminal not inserted correctly into modem module; modem module not receiving power.</td>
</tr>
<tr>
<td>Fast Blinking Amber</td>
<td>Error in charging; check placement of terminal.</td>
</tr>
<tr>
<td>Slow Blinking Amber</td>
<td>Terminal is charging.</td>
</tr>
<tr>
<td>Solid Amber</td>
<td>Charging complete.</td>
</tr>
</tbody>
</table>

Modem Country Setup

The modem defaults to operation with US telephone networks (country code: B5). To operate the modem with other country telephone networks, you must set the appropriate country code by entering the Country of Installation command. The modem will adjust it’s operating parameters to comply with the telephone network in the country specified.

Syntax

```
+GCI=<country_code>
```

This command must be entered in your terminal, while setting up for communication through a modem connection. For detailed instructions, refer to the *PDT 8000 Series Product Reference Guide*.

Supported Countries

<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>FD or 0A</td>
<td>Greece</td>
<td>46</td>
<td>Norway</td>
<td>FD or 82</td>
</tr>
<tr>
<td>Belgium</td>
<td>FD or 0F</td>
<td>Iceland</td>
<td>FD</td>
<td>Portugal</td>
<td>8B</td>
</tr>
<tr>
<td>Brazil</td>
<td>16</td>
<td>Ireland</td>
<td>FD or 57</td>
<td>Spain</td>
<td>FD or A0</td>
</tr>
<tr>
<td>Canada</td>
<td>20</td>
<td>Italy</td>
<td>FD or 59</td>
<td>Sweden</td>
<td>FD or A5</td>
</tr>
</tbody>
</table>
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Troubleshooting

Denmark FD or 31 Liechtenstein FD Switzerland FD or A6
Finland FD or 3C Luxembourg FD TBR-21 (Europe) FD
France FD or 3D Mexico 73 United Kingdom FD or B4
Germany FD or 42 Netherlands FD or 7B United States B5 (Default)

Note: It is highly recommended that you use FD where possible. If you have trouble connecting, use the alternate code where provided.

<table>
<thead>
<tr>
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<th></th>
</tr>
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<tbody>
<tr>
<td>Denmark</td>
<td>FD or 31</td>
<td>Liechtenstein</td>
<td>FD</td>
<td>Switzerland</td>
<td>FD or A6</td>
</tr>
<tr>
<td>Finland</td>
<td>FD or 3C</td>
<td>Luxembourg</td>
<td>FD</td>
<td>TBR-21</td>
<td>(Europe)</td>
</tr>
<tr>
<td>France</td>
<td>FD or 3D</td>
<td>Mexico</td>
<td>73</td>
<td>United Kingdom</td>
<td>FD or B4</td>
</tr>
<tr>
<td>Germany</td>
<td>FD or 42</td>
<td>Netherlands</td>
<td>FD or 7B</td>
<td>United States</td>
<td>B5</td>
</tr>
</tbody>
</table>

Symptom Possible Cause Action

- **Terminal battery is not charging through the Power Connector.**
  - The power cable is not attached securely.
  - Ensure the power cable is connected securely to both the modem module and to the AC power.
- **Terminal and modem module were unplugged from AC power too soon.**
  - Plug the terminal and modem module back into the AC power source. If a terminal battery pack is fully depleted, it can take up to three hours to fully charge.
- **Battery is faulty.**
  - Replace the battery.
- **Modern module is not securely attached to the bottom of the terminal.**
  - Remove and re-attach the modem module ensuring the terminal is seated firmly in the modem module.
## Quick Reference

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Possible Cause</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terminal not communicating through the modem module.</td>
<td>The modem cable is not fully connected.</td>
<td>Ensure the modem cable is connected securely to both the modem module and to the telephone jack.</td>
</tr>
<tr>
<td></td>
<td>Modem module is not securely attached to the bottom of the terminal.</td>
<td>Remove and re-attach the modem module, ensure it is firmly attached on the bottom of the terminal.</td>
</tr>
<tr>
<td></td>
<td>Communications software is not installed or configured properly.</td>
<td>Perform setup as described in the PDT 8000 Series Product Reference Guide.</td>
</tr>
<tr>
<td></td>
<td>Problems in the telephone lines that prevent communication.</td>
<td>Connect a conventional telephone and dial the remote modem to verify the telephone lines are functioning properly. You should hear the remote modem answer the call and emit answering tones. If not, contact the remote System Administrator.</td>
</tr>
<tr>
<td></td>
<td>Terminal’s battery is low or discharged. Power to the modem is shut off if the battery is low.</td>
<td>Ensure you have a charged battery. Use an external DC power adaptor to recharge the battery.</td>
</tr>
<tr>
<td></td>
<td>Terminal has successfully connected through modem, but no data is being transmitted over the connection.</td>
<td>Temporarily disable the radio link to force data transmission to use modem connection. Tap the wireless LAN icon from the systray on the Today screen. Tap the Mode/General tab. Enter an invalid value in the ESSID: text box. Power cycle the terminal. Verify that your radio link has been disabled (the wireless LAN icon has a red box with a ! on it). Once you have completed your data transmission, re-enable your radio link.</td>
</tr>
<tr>
<td>Symptom</td>
<td>Possible Cause</td>
<td>Action</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------</td>
</tr>
<tr>
<td>ActiveSync fails.</td>
<td>A partnership was not established with the host computer.</td>
<td>Establish a partnership with the host computer. Perform setup as described in the PDT 8000 Series Product Reference Guide.</td>
</tr>
<tr>
<td>Host computer is not selected in the ActiveSync screen on the terminal.</td>
<td>Select host computer in the ActiveSync screen. Perform setup as described in the PDT 8000 Series Product Reference Guide.</td>
<td></td>
</tr>
<tr>
<td>Modem RAS connection not allowed by host computer.</td>
<td>Select RAS connection in the host computer (File - Connection Settings dialog box). Refer to the ReadMe files located in the Microsoft ActiveSync folder on your host computer.</td>
<td></td>
</tr>
<tr>
<td>Terminal or modem was disconnected from the telephone line while ActiveSync was in progress.</td>
<td>Disconnect the modem cable for 30 seconds to hang up the local telephone connection. Close any open windows on the terminal and any modem connections.</td>
<td></td>
</tr>
<tr>
<td>Synchronization did occur, however the session is configured to close immediately after synchronization is complete.</td>
<td>Verify the setting of the When manually synchronizing disconnect when complete checkbox by tapping Start - ActiveSync - Tools - Options - Schedule tab.</td>
<td></td>
</tr>
<tr>
<td>Dial-out fails</td>
<td>Location setting is incorrect.</td>
<td>Verify Dialing Locations. Verify Dialing Patterns are correct for your current location. For example, enter ‘G’ in the ‘For local calls, dial:’ field to dial directly, or ‘9,G’ if your telephone system requires ‘9’ to be dialed first to access an outside line.</td>
</tr>
<tr>
<td>Incorrect server phone number.</td>
<td>Verify the phone number you are connecting to in the Connecting dialog boxes.</td>
<td>Use a connection within a tone-dialing system.</td>
</tr>
</tbody>
</table>
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<thead>
<tr>
<th>Symptom</th>
<th>Possible Cause</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dial-out fails continued...</td>
<td>Dialtone detection not supported.</td>
<td>You may be receiving a different type of dialtone as a result of a service to which you subscribe, such as a remote answering service. Disable dialtone detection on your modem by entering the initialization string &quot;ATX&quot; in the Extra dial-string modem commands: text box of the Modem Settings screen.</td>
</tr>
<tr>
<td>Trouble Connecting:</td>
<td></td>
<td>Modem may be required to be powered prior to opening port for dial-out. Tap Start - Settings - System - Symbol Settings - Settings - External5VoltPower and select ActiveOn.</td>
</tr>
<tr>
<td>There is no answer at the</td>
<td></td>
<td>Warm reset your terminal and confirm the connection settings. Perform setup as described in the PDT 8000 Series Product Reference Guide.</td>
</tr>
<tr>
<td>number dialed. Verify the</td>
<td></td>
<td>eConnect is not configured. Ensure installation instructions included with eConnect have been performed. Verify eConnect files are present on terminal. Verify connection name is 'SnapOnModem'.</td>
</tr>
<tr>
<td>phone... error message</td>
<td></td>
<td></td>
</tr>
<tr>
<td>appears.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Regulatory Information

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 Technologies equipment, not expressly approved by Symbol Technologies, could void the user’s authority to operate the equipment.

Power Supply

Note: Use only a Symbol-approved power supply (50-1401-012) output rated 9Vdc and minimum 2A. The power supply is certified to EN60950 with SELV outputs.

Radio Frequency Interference Requirements

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

This product contains Symbol Modem Type MCDB

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 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.
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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 0.1. 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.

Brazil

The following signifies approval in Brazil.

The European Economic Area (EEA)

Statement of Compliance for Modems

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 following Public Switched Telephone Networks: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Liechtenstein, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom.
Warranty

(A) Warranty Symbol Technologies (hereafter “Seller”) hardware products are warranted against defects in workmanship and materials for a period of three (3) months from the date of shipment, unless otherwise provided by Seller in writing, provided the product remains unmodified and is operated under normal and proper conditions. Warranty provisions and durations on software, integrated installed systems, Product modified or designed to meet specific customer specifications (“Custom Products”), remanufactured products, and reconditioned or upgraded products, shall be as provided in the applicable Product specification in effect at the time of purchase or in the accompanying software license.

(B) Spare Parts (Spare parts, i.e. parts, components, or subassemblies sold by Seller for use in the service and maintenance of Products) are warranted against defects in workmanship and materials for a period of thirty (30) days from the date of shipment. Spare parts may be new or originate from returned units under the conditions set forth in subsection D below.

(C) Repair of Symbol-branded hardware

For repairs on Symbol-branded hardware Products under this Agreement, including repairs covered by warranty, the repair services provided are warranted against defects in workmanship and materials on the repaired component of the Product for a period of thirty (30) days from the shipment date of the repaired Product, or until the end of the original warranty period, whichever is longer.

(D) Product Service

Products may be serviced or manufactured with parts, components, or subassemblies that originate from returned products and that have been tested as meeting applicable specifications for equivalent new material and Products. The sole obligation of Seller for defective hardware Products is limited to repair or replacement (at Seller’s option) on a “return to service depot” basis with prior Seller authorization. Customer is responsible for shipment to the Seller and assumes all costs and risks associated with this transportation; return shipment to the Customer will be at Seller’s expense. Customer shall be responsible for return shipment charges for product returned where Seller determines there is no defect (“No Defect Found”), or for product returned that Seller determines is not eligible for warranty repair. No charge will be made to Buyer for replacement parts for warranty repairs. Seller is not responsible for any damage to or loss of any software programs, data or removable data storage media, or the restoration or reinstallation of any software programs or data other than the software, if any, installed by Seller during manufacture of the Product.

(E) Original Warranty Period

Except for the warranty applying solely to the repaired component arising from a repair service as provided in Section C above, the aforementioned provisions do not extend the original warranty period of any Product that had either been repaired or replaced by Seller.

(F) Warranty Provisions

The above warranty provisions shall not apply to any Product (i) which has been repaired, tampered with, altered or modified, except by Seller’s authorized service personnel; (ii) in which the defects or damage to the Product result from normal wear and tear, misuse, negligence, improper storage, water or other liquids, battery leakage, use of parts or accessories not approved or supplied by Symbol, or failure to perform operator handling and scheduled maintenance instructions supplied by Seller; (iii) which has been subjected to unusual physical or electrical stress, abuse, or accident, or forces or exposure beyond normal use within the specified operational and environmental parameters set forth in the applicable Product specification; nor shall the above warranty provisions apply to any expendable or consumable items, such as batteries, supplied with the Product.

EXCEPT FOR THE WARRANTY OF TITLE AND THE EXPRESS WARRANTIES STATED ABOVE, SELLER DISCLAIMS ALL WARRANTIES ON PRODUCTS FURNISHED HEREUNDER INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR USE. ANY IMPLIED WARRANTIES THAT MAY BE IMPOSED BY LAW ARE LIMITED IN DURATION TO THE LIMITED WARRANTY PERIOD. SOME STATES OR COUNTRIES DO NOT ALLOW A LIMITATION ON HOW LONG AN IMPLIED WARRANTY LASTS OR THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES FOR CONSUMER PRODUCTS. IN SUCH STATES OR COUNTRIES, FOR SUCH PRODUCTS, SOME EXCLUSIONS OR LIMITATIONS OF THIS LIMITED WARRANTY MAY NOT APPLY.

The stated express warranties are in lieu of all obligations or liabilities on the part of Seller for damages, including but not limited to, special, indirect or consequential damages arising out of or in connection with the use or performance of the Product or service. Seller’s liability for damages to Buyer or others resulting from the use of any Product or service furnished hereunder shall in no way exceed the purchase price of said Product or the fair market value of said service, except in instances of injury to persons or property.
Service Information

Before you use the unit, it must be configured to operate in your facility’s network and run your applications.

If you have a problem running your unit or using your equipment, contact your facility’s Technical or Systems Support. If there is a problem with the equipment, they will contact the Symbol Support Center:

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