

Welcome to the User Guide

To view the appropriate user guide, click on the product image that best represents your modem.





Sierra Wireless AirCard USB Modem

User Guide



SIERRA
WIRELESS

2131232
Rev. 7

Important Notice

Due to the nature of wireless communications, transmission and reception of data can never be guaranteed. Data may be delayed, corrupted (i.e., have errors) or be totally lost. Although significant delays or losses of data are rare when wireless devices such as the Sierra Wireless modem are used in a normal manner with a well-constructed network, the Sierra Wireless modem should not be used in situations where failure to transmit or receive data could result in damage of any kind to the user or any other party, including but not limited to personal injury, death, or loss of property. Sierra Wireless accepts no responsibility for damages of any kind resulting from delays or errors in data transmitted or received using the Sierra Wireless modem, or for failure of the Sierra Wireless modem to transmit or receive such data.

Safety and Hazards

Do not operate the Sierra Wireless modem in areas where blasting is in progress, where explosive atmospheres may be present, near medical equipment, near life support equipment, or any equipment that may be susceptible to any form of radio interference. In such areas, the Sierra Wireless modem **MUST BE POWERED OFF**. The Sierra Wireless modem can transmit signals that could interfere with this equipment.

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Note: Some airlines may permit the use of cellular phones while the aircraft is on the ground and the door is open. Sierra Wireless modems may be used at this time.

The driver or operator of any vehicle should not operate the Sierra Wireless modem while in control of a vehicle. Doing so will detract from the driver or operator's control and operation of that vehicle. In some states and provinces, operating such communications devices while in control of a vehicle is an offence.

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Consult our web site for up-to-date product descriptions, documentation, application notes, firmware upgrades, troubleshooting tips, and press releases:

www.sierrawireless.com

Revision History

Revision number	Release date	Changes
1.0	November 2009	New document
2.0	April 2010	Applied new template
3	July 2010	Updated Mac OS X information
4	September 2010	Updated Patents section, added AirCard 312U

Revision number	Release date	Changes
5	October 2010	Added AirCard 312U to Regulatory information for EU countries
6	December 2010	Added AirCard 318U and AirCard 319U information.
7	December 2010	Added environmental specs for AirCard 326U.

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Sierra Wireless AirCard USB Modem User Guide

About the AirCard USB Modem

The Sierra Wireless AirCard® USB Modem enables you to connect to the Internet, send and receive email, connect to a corporate network or virtual private network (VPN), or view streaming video without the need for a network cable.

The AirCard USB Modem connects to a Type A USB port on your computer.

If the AirCard USB Modem is TRU-Install enabled, all the required software is available on the modem. When you set up your AirCard USB Modem, the software is installed on your computer. You do not need an installation CD. (Depending on your service provider, your modem may include an installation CD.)

The AirCard USB Modem has a built-in antenna and may have a slot that accommodates a microSD™ external memory card. Depending on your service provider, a microSD card may be included in your package, or you may need to purchase it separately.

Your account and coverage area

Note: If you purchased the modem from a GSM service provider, you may already have an account and a SIM card.

Otherwise, your retailer should be able to give you the names of companies that provide these items.

You must have an account with a GSM service provider to use the AirCard USB Modem. To use the AirCard USB Modem's 3G capability, your account must be with a service provider that offers 3G service. (The AirCard USB Modem is backwards compatible with 2G service.)

When you obtain your account, you are given a Subscriber Identity Module (SIM) card containing account information. You must insert the SIM card into the AirCard USB Modem before you use it. (Depending on your service provider, the SIM card may already be inserted.)

When establishing a connection, your AirCard USB Modem uses the fastest available service. Your ability to obtain service depends on these factors:

- **Network coverage**—You must be within the network coverage area.
- **Service provider**—If you are within the coverage area of a network that is not operated by your own service provider, you can obtain service only if there is a roaming agreement between your service provider and the network operator.

Note: The fee for service is usually higher when you are roaming (connected to a network other than the one belonging to your service provider).

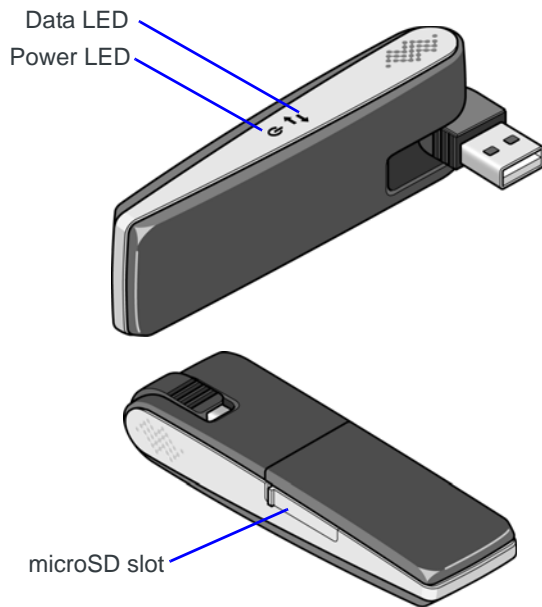
- **Account provisions**—Your account may restrict your usage to certain networks or limit the amount of time you can use the network.
- **Frequency band**—You cannot connect to networks operating in bands not supported by your modem, regardless of roaming agreements or account provisions.

Most service providers have coverage maps on their web sites.

AirCard USB Modem features

The AirCard USB Modem has a USB connector, slots for a SIM card, and (on some models) a microSD external storage card. LEDs on the front or side of the AirCard USB Modem provide status information.

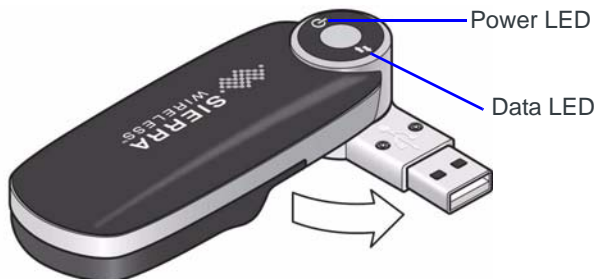
The placement of card slots, connectors, and LEDs varies depending on your modem model.



SIM card slot is under the back cover. See [page 17](#) for details.



microSD card and SIM card slots are under the back cover. See [page 16](#) for details.




microSD and SIM card slots are under the back cover. See [page 17](#) for details.



LED operation


The AirCard USB Modem has two LEDs that show the current status of the modem.

LED	State	Indicates
Power 	Off	Indicates one of the following states: <ul style="list-style-type: none"> The AirCard USB Modem is not inserted in the computer. The computer is off or in "suspend and resume" mode. The AirCard USB Modem radio has been turned off using Watcher or other connection management software.
	Solid Blue	The power is on, the AirCard USB Modem is working normally.
	Blinking Blue	The firmware is being updated. Do not remove the AirCard USB Modem from the computer.
	Blinking Amber	The AirCard USB Modem is searching for service (initializing).
	Solid Amber	Error—either the AirCard USB Modem is having a problem initializing (searching for service) or is offline because of a failure. Contact your service provider.

LED	State	Indicates
Data ↕	Off	The AirCard USB Modem is unable to detect 2G or 3G service.
	Blinking Amber	The AirCard USB Modem has detected a 2G network (EDGE, GPRS, GSM) and is ready to connect.
	Solid Amber	The AirCard USB Modem is connected to a 2G network and is able to send and receive data.
	Blinking Blue	The AirCard USB Modem has detected a 3G network (UMTS, HSPA, HSPA+, DC-HSPA+) and is ready to connect.
	Solid Blue	The AirCard USB Modem is connected to a 3G network and can send and receive data.

Connection management software

Your AirCard USB Modem comes with Sierra Wireless AirCard Watcher[®] for Windows[®] and Mac[®], or other connection management software, depending on your service provider. Use this software to manage the modem and monitor your connections.

For information on Watcher features and using Watcher, refer to the online Help. From the main Watcher window, select **Help > Help Topics** or click the  button (Windows) or **Help > Sierra Wireless Watcher Help** (Mac).

Note: Watcher is compatible with earlier Sierra Wireless modems.

Watcher enables you to:

- Initiate data connections
- Determine signal strength, roaming status, GPRS, EDGE, UMTS, or HSDPA/HSUPA availability, and other network connection parameters
- Monitor the status of the AirCard USB Modem and GSM service
- Send and receive SMS messages
- Enable or disable SIM security that prevents others from using your SIM card if it is lost or stolen
- Configure startup and exit actions for Watcher and the AirCard USB Modem
- Create or modify a connection profile

For more information about using Watcher, view the Online Help that comes with Watcher.

You do not need to run Watcher when you use the AirCard USB Modem, but Watcher does provide useful status information.

Launching Watcher (Windows)

Unless this feature has been disabled, Watcher launches automatically when you insert the AirCard USB Modem. You can also launch Watcher by:

- Double-clicking the desktop shortcut, or

-
- Selecting **Start > Programs > Sierra Wireless > AirCard Watcher**.

Depending on how your profile is configured, your browser, VPN, or other program may launch automatically anytime you launch Watcher.

Launching Watcher (Mac)

Watcher starts automatically at login. To disable this feature, go to **Watcher > Preferences**.

You can also start Watcher by navigating to the **Applications > Sierra Wireless** folder and double-clicking **AirCard Watcher**.

Tips

To keep the Watcher icon in the dock:

1. Launch Watcher.
2. Click and hold the Watcher icon in the dock.
3. From the pop-up menu, select **Keep in Dock**.

Reinstalling the software

Windows

If you need to reinstall or repair the Watcher software:

1. Go to **Start > Control Panel > Add or Remove Programs**.
2. Uninstall Watcher.
3. Insert the modem into your computer.
4. Follow the on-screen instructions.

Or, in Watcher:

1. Select **Tools > Software Installation Mode**.
2. Follow the on-screen instructions.

Note: Do not remove the AirCard USB Modem until the software installation process is complete.

Mac

To uninstall Watcher:

1. Select **AirCard Watcher > Uninstall AirCard Watcher**.
2. Follow the on-screen instructions.

Connecting to the network

To use your account (and connect to your service provider’s network), you need to have at least one profile set up on your AirCard USB Modem. Depending on how your AirCard USB Modem is configured, the profile may already be set up or you may need to create one.


Note: If you have a pre-paid wireless account, you’ll need to have credit in your account before you can connect.

Windows

Once the software is successfully installed and the profile is set up, the AirCard USB Modem is ready to use.

The first time you insert the AirCard USB Modem in the computer, it takes a few seconds for it to locate the network. While the AirCard USB Modem is scanning for a network, the Connect button is unavailable.

When you use the AirCard USB Modem with the same computer, TRU-Install verifies that the correct software is already installed. This process may take a few seconds.

Scenario	Required action
Watcher automatically detects or creates a default profile.	Click Connect .
Watcher prompts you to create a data profile.	1. Click Yes , then....
<ul style="list-style-type: none"> If Watcher opens the Options window Profile pane and pre-selects an appropriate profile (normally the name of your service provider) from the drop-down list... 	<ul style="list-style-type: none"> a. Click OK to accept that profile (or choose another from the drop-down list). b. Click Connect.
<ul style="list-style-type: none"> If Watcher opens the Options window Profile pane, the Profile name field is blank, and your service provider is not included in the drop-down list... 	You need to create a profile manually. Refer to the Watcher online help for details. Click Help > Help topics or click the  button.

If you need to re-install the software, see [page 11](#).

Mac

The first time you run Watcher:

1. When your computer detects the modem, the message "New network interfaces have been detected" appears.
2. Click the **Network Preferences...** button.
3. In the Network window, click **Apply**. Your modem connects to the network.
 - a. If there is no profile defined, a message opens asking if you want to create a new profile.
 - b. Click **Create a new profile**.
 - c. In the **Profiles** window, click **+** to create a profile.

To end a high-speed connection, click **Disconnect**.

Using the microSD card

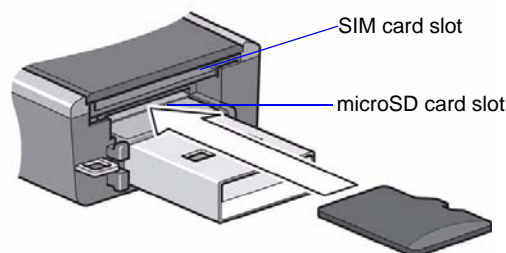
Some AirCard USB Modem models can accommodate a microSD external storage card.

The microSD card appears as a USB memory drive when the AirCard USB Modem is inserted in your computer. You can copy, paste, and drag files to and from it the same way as you can with any other external drive.

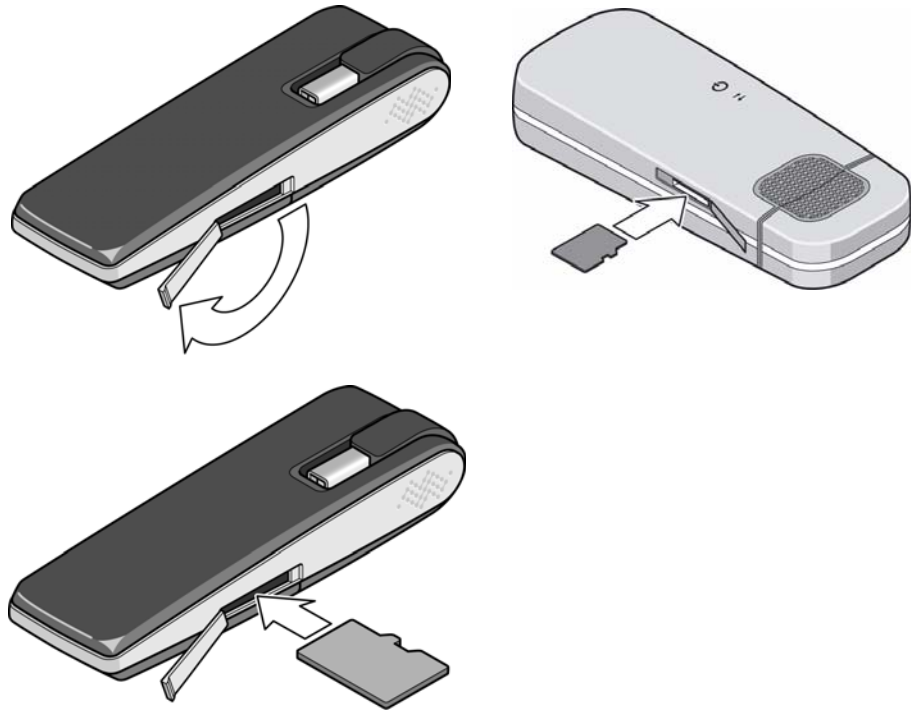
End- and side-loading models

To insert and use a microSD card:

1. If there is a non-functional microSD card installed:
 - a. Press it in and then release it.
 - b. Gently remove the non-functional microSD card.
2. If the microSD slot is on the end of the AirCard USB, insert the microSD card into the lower slot, as shown in the illustration. Be careful not to insert the microSD card in the SIM card slot.



If the microSD card slot is on the side of the AirCard USB Modem, insert the microSD card as shown in the illustration:

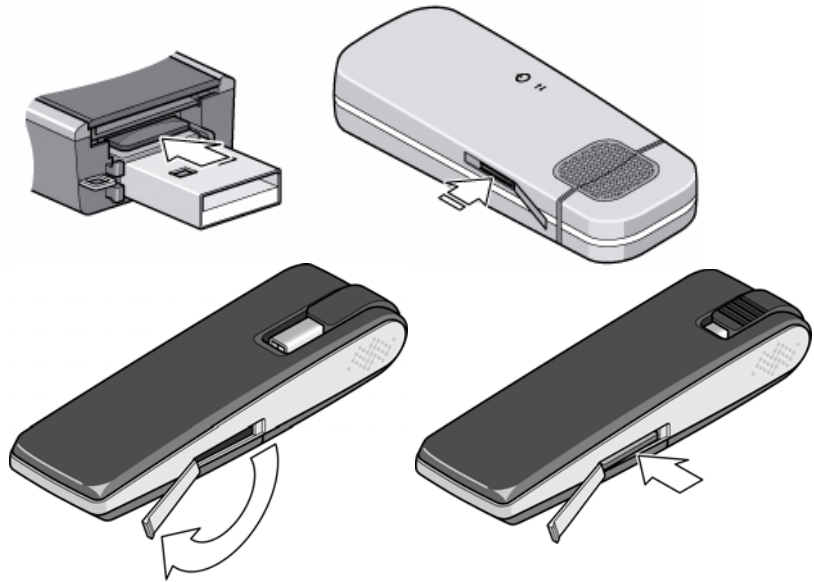


- 3.** Insert the AirCard USB Modem into the computer.
If the computer does not have Watcher installed, you may be given the option to install it. If you do not want to install Watcher, cancel the installation. You can use the microSD card without having Watcher installed.

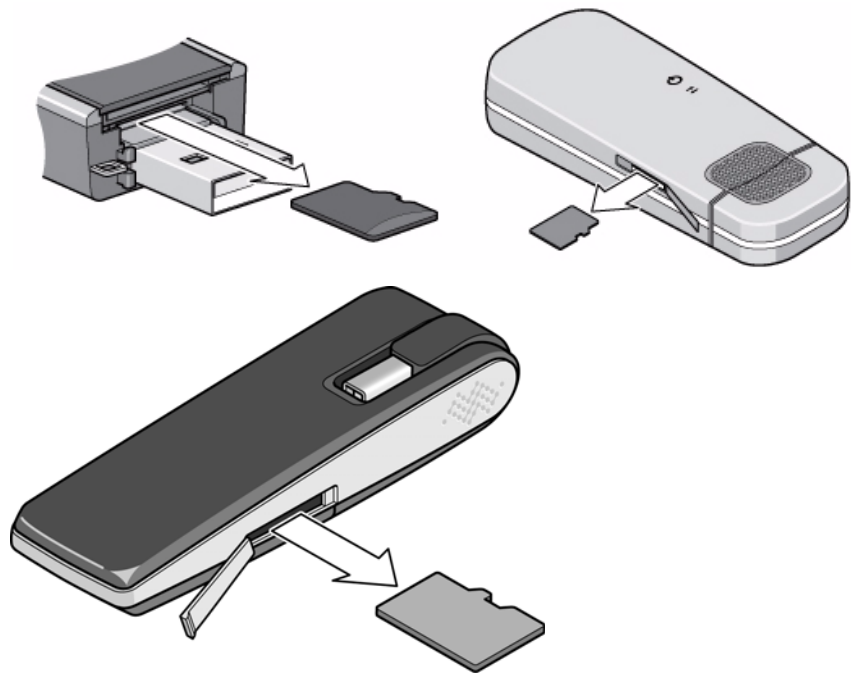
To remove the microSD card:

- 1.** Remove the cap.
-or-
If the microSD card slot is on the side of the AirCard USB Modem, open the flap.

2. Push the microSD card in and then release it.



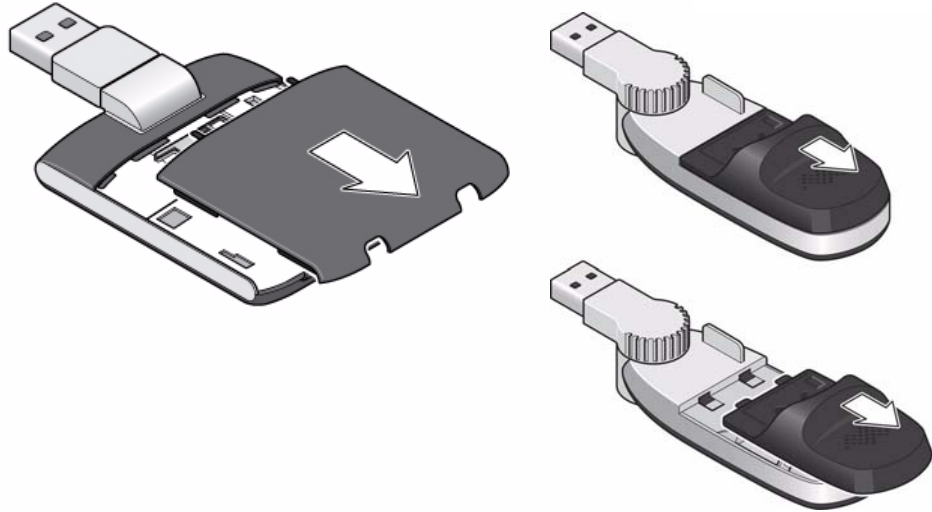
3. Gently pull the microSD card out.



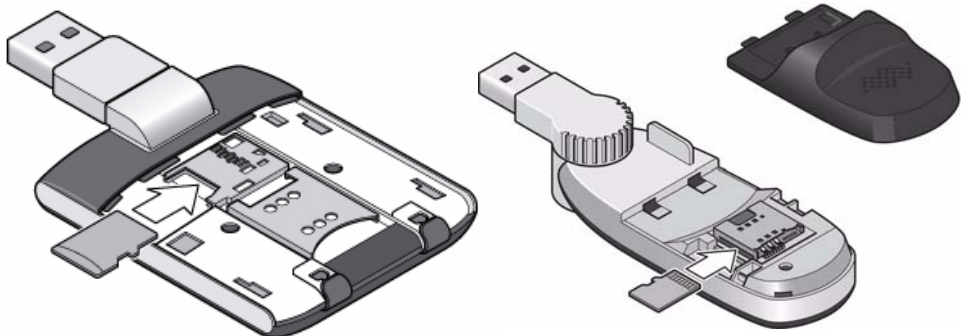
Back-loading models

To insert and use a microSD card:

1. Remove the back cover from the modem.



2. Insert the microSD card in the slot as shown in the illustration.

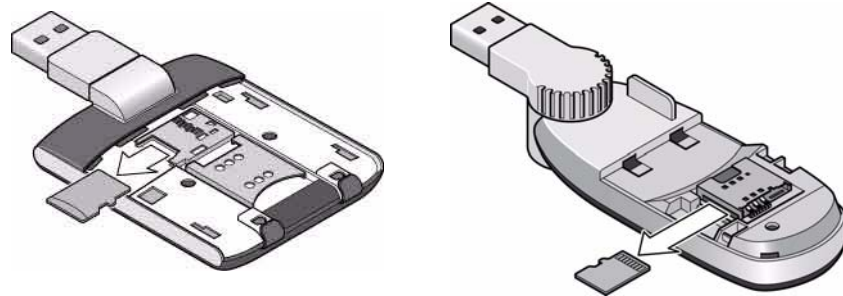


3. Replace the back cover and insert the AirCard USB Modem into the computer.

If the computer does not have Watcher installed, you may be given the option to install it. If you do not want to install Watcher, cancel the installation. You can use the microSD card without having Watcher installed.

To remove the microSD card:

1. Remove the back cover from the modem.
2. Gently pull the microSD card out.

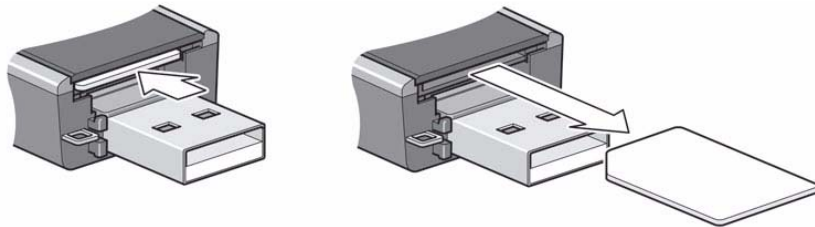


Removing the SIM card

For instructions on inserting the SIM card, see the printed guide that came with your product.

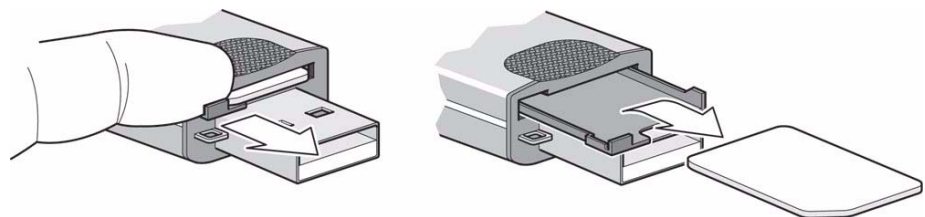
Some AirCard USB Modems have a SIM card slot with a “push to insert/push to release” design. To remove the SIM card from the modem:

1. Push the SIM card in to release it.
2. Pull the SIM card out of the slot as shown in the illustration.

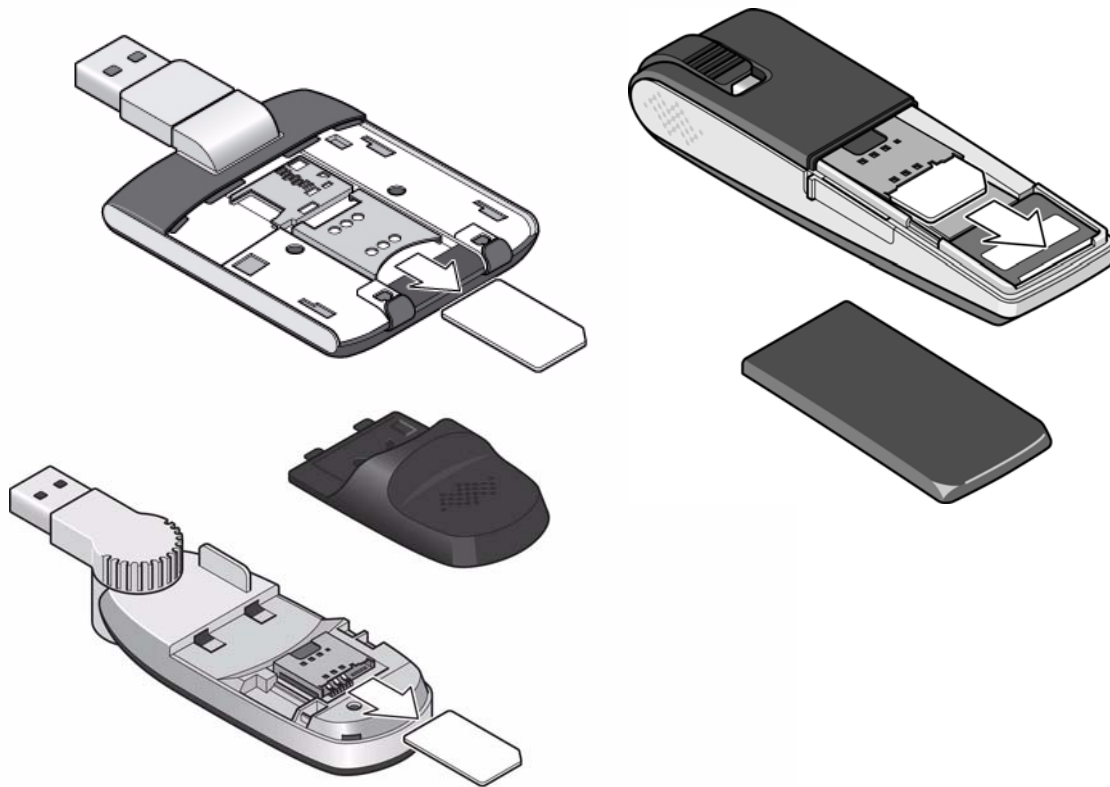


Some AirCard USB Modems have an internal tray for inserting and removing the SIM card. To remove the SIM card from the AirCard USB Modem, slide out the SIM card tray and lift out the SIM card as shown in the illustration.

If you slide the tray completely out of the AirCard USB Modem, carefully reinsert it. Do not dispose of the tray.



To remove the SIM card on AirCard USB Modems that have the SIM slot behind the back panel, remove the back panel and slide the SIM card out of the slot.



Using AirCard USB Modem accessories

Depending on your carrier and your modem model, your AirCard USB Modem may come with a:

- USB extension cable and clip
- Lanyard

Using the extension cable and clip

The extension cable and clip should be used if you have difficulty inserting the AirCard USB Modem because of the orientation of your computer's USB slot or the thickness of your computer.

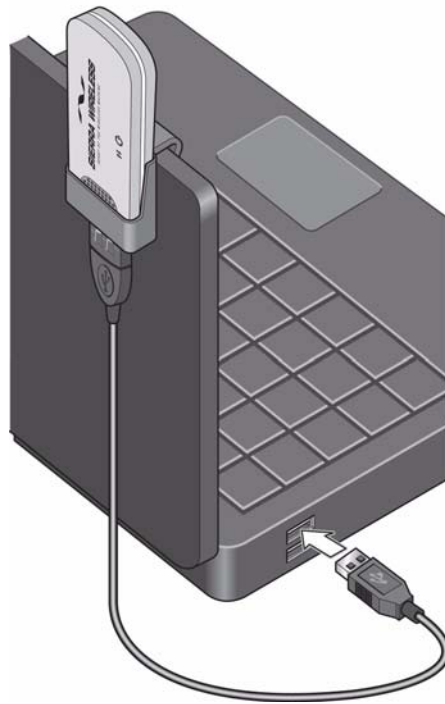
The clip fits on the top of your notebook computer and holds your AirCard USB Modem.

Note: To meet FCC (regulatory) requirements, use only the supplied extension cable and notebook computer clip; other cables and notebook computer clips should not be used.

Note: Do not insert the AirCard USB Modem or the USB extension cable into a USB hub or, if your keyboard is separate from your notebook computer, a USB slot on your keyboard.

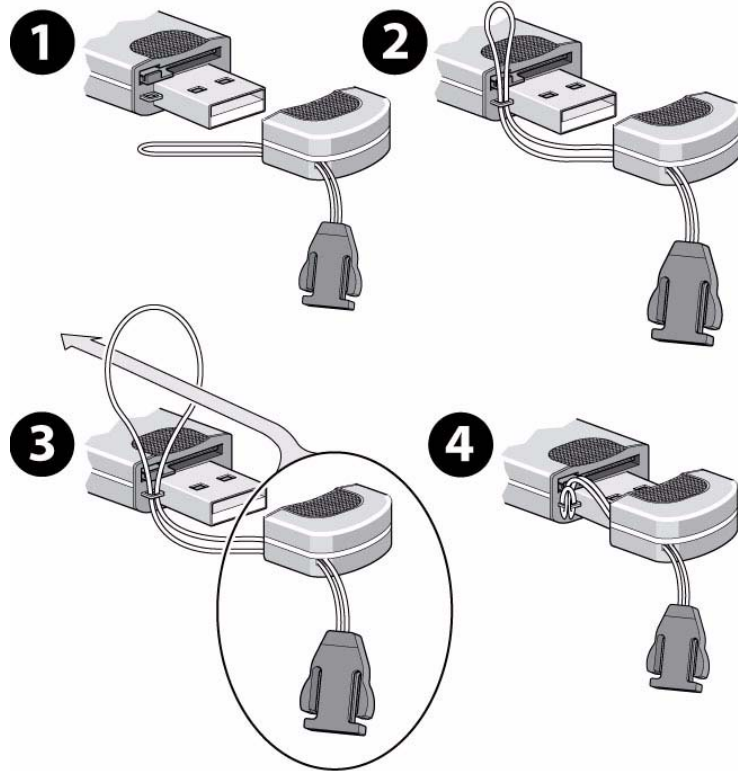
To use the extension cable and clip:

1. Place the clip on top of the notebook computer.
2. Connect the extension cable to the AirCard USB Modem.
3. Place the modem in the clip holder.
4. Connect the other end of the extension cable to the USB slot on your computer.

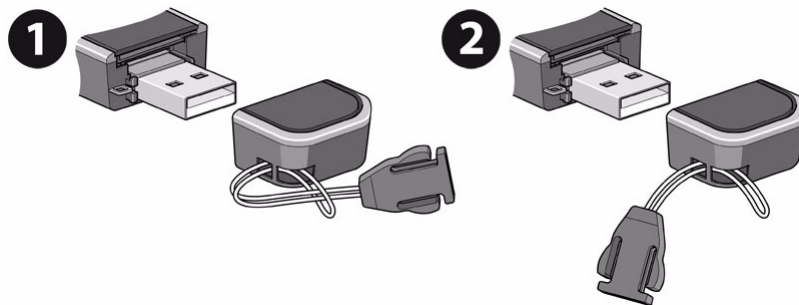


Attaching the lanyard

To keep everything together, thread the lanyard through the cap and the AirCard USB Modem, as shown in the illustrations.



Depending on the cap design, you can also attach the lanyard to the cap.



Care and maintenance

As with any electronic device, the AirCard USB Modem must be handled with care to ensure reliable operation. Follow these guidelines when you use and store your AirCard USB Modem:

- Do not apply adhesive labels to the SIM card. This may cause it to jam inside the slot, or prevent it from being inserted properly.
- When not installed in your computer, store the AirCard USB Modem and SIM card in a safe place.
- The modem should fit easily into your computer's USB port. Forcing the AirCard USB Modem into the port may damage the connector pins.
- Protect the AirCard USB Modem from liquids, dust, and excessive heat. (See the [Environmental specifications](#) for maximum tolerances.)

Troubleshooting

This section describes possible problems and solutions for Windows users. If you have a problem that is not described in this section, visit the Sierra Wireless support page at www.sierrawireless.com/support.

Software installation does not start automatically (Windows) or you do not see the installer package (Mac)

Windows

If Watcher installation does not start after you insert the AirCard USB Modem:

1. Double-click **My Computer** (Windows XP) or **Computer** (Windows Vista, Windows 7) on your desktop.
2. Click the **TRU-Install** drive.
3. Under the **TRU-Install** drive, open the **Win** folder and double-click **Setup.exe**. Follow the on-screen prompts to install the software.

Mac OS X

If you do not see the installer package:

1. Open Finder.
2. Under **Devices**, click **AirCard xxx** (where xxx is the model name).
3. Double-click the installer package.

Modem is not detected after AirCard Watcher installation completes (Windows)

You successfully complete the automatic installation process, but Watcher does not detect the AirCard USB Modem:

1. Click **Start**, and then click **Control Panel**.
2. Double-click **TRU-Install**.
3. When you are prompted to switch to modem mode, click **OK**.
4. Wait for Watcher to detect the AirCard USB Modem.
5. If the AirCard USB Modem still is not detected, connect to the Internet using another method and go to www.sierrawireless.com/support for assistance.

Windows installer fails

When you try to install or uninstall Watcher, the message **Windows Installer is not accessible** (for example, Error code: 1601) appears.

To fix Error 1601, first see if another installation process is running.

1. Press **Ctrl + Alt + Del** and select Task Manager.
2. Go to the **Processes** tab.
3. Check the running processes for any of these names:
 - setup.exe
 - isetup.exe
 - ikernel.exe
 - msiexec.exe
 - idriver.exe
 - lsUninst.exe
 - lsUninst.exe
 - Uninst.exe

If any of these processes are running on the system:

1. Select each process.
2. Click **End Process**.
3. Try to run the Watcher installation again.

If the installation is not successful, connect to the Internet using another method and check Sierra Wireless Knowledge Base articles at sierrawireless.com.

Technical specifications

Radio frequency and electrical specifications

The radio frequency bands that your AirCard USB Modem supports will vary depending on your region and your model.

Transmit	GSM 1900 (PCS): 1850 – 1910 MHz GSM 1800 (DCS): 1710 – 1785 MHz EGSM 900: 880 – 915 MHz GSM 850: 824 – 849 MHz WCDMA 2100 (Band 1): 1920 – 1980 MHz WCDMA 1900 (Band 2): 1850 – 1910 MHz WCDMA 850 (Band 5): 824 – 849 MHz WCDMA 800 (Band 6): 830 – 840 MHz WCDMA 900 (Band 8) 880 – 915 MHz
Receive	GSM 1900 (PCS): 1930 – 1990 MHz GSM 1800 (DCS): 1805 – 1880 MHz EGSM 900: 925 – 960 MHz GSM 850: 869 – 894 MHz WCDMA 2100 (Band 1): 2110 – 2170 MHz WCDMA 1900 (Band 2): 1930 – 1990 MHz WCDMA 850 (Band 5): 869 – 894 MHz WCDMA 800 (Band 6): 875 – 885 MHz WCDMA 900 (Band 8) 925 – 960 MHz

Frequency band support

Technology	Bands	Location
2G	850 MHz (cellular band)	North America
	900 MHz (EGSM band)	Europe
	1800 MHz (DCS band)	Europe and Asia
	1900 MHz (PCS band)	North America
3G	WCDMA 850 (Band 5)	North America, Australia, and New Zealand
	WCDMA 800 (Band 6)	Japan
	WCDMA 900 (Band 8)	Europe, Asia, and Australia
	WCDMA 1900 (Band 2)	North America
	WCDMA 2100 (Band 1)	Europe, Asia, and Australia

Environmental specifications

Operating temperature (ambient)	0°C to 35°C (32°F to 95°F), 0°C to 45°C (32°F to 113°F) for AirCard 318U and AirCard 326U
Storage temperature	-40°C to +85°C, 96 hours (-40°F to +185°F)
Humidity	85%, non-condensing
Vibration	Random vibration, 10 to 1000 Hz, nominal 6 G RMS in each of 3 mutually perpendicular axes. Test duration of 60 minutes for each axis, for a total test time of 3 hours (non-operating).
Drop	1 m on concrete on each of 6 faces, 2 times

Regulatory and safety information

Notice

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Safety and hazards

The modem **MUST BE POWERED OFF** in all areas that may be susceptible to radio interference, in particular:

- Prohibited areas
Obey all signs and notices and follow all rules and regulations. Power off the modem when instructed to do so or when you suspect that it may cause interference or danger.
- In areas where blasting is in progress
- Where explosive atmospheres may be present
Areas with a potentially explosive atmosphere are not always clearly marked. Such areas include gas stations, fuel depots, chemical transfer or storage facilities, areas where blasting is in progress, areas where the air contains chemicals or particles such as grain, dust, or metal powders, and any other area where you would normally be advised to turn off your cellular phone or vehicle engine.
- Near medical or life-support equipment
Medical equipment may be susceptible to any form of radio interference. In such areas the modem can transmit signals that could interfere with this equipment.
- On board aircraft
In addition to Federal Aviation Authority (FAA) requirements, many airline regulations state that you must suspend wireless operations before boarding an aircraft. The modem is capable of transmitting signals that could interfere with various onboard systems and controls.
Failure to observe this instruction may lead to suspension or denial of cellular telephone services to the offender, legal action, or both.
Some airlines may permit the use of cellular phones while the aircraft is on the ground and the door is open. The modem may be used normally at this time.
- While operating a vehicle

The driver or operator of any vehicle should not use a wireless data device while in control of a vehicle. Doing so detracts from the driver or operator's ability to control and operate the vehicle. In some countries, using such communications devices while in control of a vehicle is an offence.

Regulatory information for North America

Note: Regulatory information in this section applies to these models:

Compass 888
USB 306
USB 308
AirCard 319U

CAUTION: Unauthorized modifications or changes not expressly approved by Sierra Wireless, Inc. could void compliance with regulatory rules, and thereby your authority to use this equipment.

The design of the Sierra Wireless modems complies with U.S. Federal Communications Commission (FCC) and Industry Canada (IC) guidelines respecting safety levels of radio frequency (RF) exposure for portable devices, which in turn are consistent with the following safety standards previously set by Canadian, U.S. and international standards bodies:

- ANSI/IEEE C95.1-2005, *IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz*
- National Council on Radiation Protection and Measurements (NCRP) Report 86, -1986, *Biological Effects and Exposure Criteria for Radio Frequency Electromagnetic Fields*
- Health Canada, Safety Code 6, 1999, *Limits of Human Exposure to Radio frequency Electromagnetic Fields in the Frequency Range from 3 kHz to 300 GHz*
- International Commission on Non-Ionising Radiation Protection (ICNIRP) 1998, *Guidelines for limiting exposure to time-varying electric, magnetic, and electromagnetic fields (up to 300 GHz)*

Caution: *The Sierra Wireless USB modem must be 1 cm or more from users during operation, to satisfy FCC / IC RF exposure requirements. The Sierra Wireless USB modem has been tested for compliance with FCC / IC RF exposure limits in the notebook computer(s) configurations with horizontal and vertical USB slots and can be used in notebook computers with substantially similar physical dimensions, construction, and electrical and RF characteristics. This USB modem must not be used with any other antenna or transmitter that has not been approved to operate in conjunction with this modem. Note: This USB modem must not be used in any unapproved configurations. For details, contact Sierra Wireless.*

Note: The Sierra Wireless USB modem is approved for normal-size notebook computers only (typically with 12 inches or larger display screens). For notebook computers with a display screen smaller than 12 inches or if the orientation of the USB slot does not allow for at least 1 cm between the modem and the user or bystanders, use the provided extension cable and clip to ensure a safe distance between the modem antenna and users or bystanders.

To meet FCC requirements, use only the supplied USB extension cable and laptop clip; other cables and laptop clips should not be used.

These devices comply with Part 15 of the FCC Rules. Operation is subject to the condition that these devices do not cause harmful interference.

Where appropriate, the use of the equipment is subject to the following conditions:

Warning: (EMI) – *United States FCC Information – This equipment has been tested and found to comply with the limits pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in an appropriate 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 communication. 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:

- 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

If you have purchased this product under a United States Government contract, it shall be subject to restrictions as set forth in subparagraph (c)(1)(ii) of Defense Federal Acquisitions Regulations (DFARS) Section 252.227-7013 for Department of Defense contracts, and as set forth in Federal Acquisitions Regulations (FARs) Section 52.227-19 for civilian agency contracts or any successor regulations. If further government regulations apply, it is your responsibility to ensure compliance with such regulations.

Regulatory information for EU countries

Note: Regulatory information in this section applies to these models:

Compass 888*
Compass 889*
USB 306*
USB 307*
USB 309*
AirCard 310U*
AirCard 312U**
AirCard 318U**
AirCard 319U**

Sierra Wireless hereby declares that the Sierra Wireless USB wireless modem conforms to all the essential requirements of Directive 1999/5/EC:

CE 0682* CE**

The Declaration of Conformity made under Directive 1999/5/EC is available for viewing at the following location in the EU community:

Sierra Wireless UK
Suite 6, The Hub,
Fowler Avenue
Farnborough Business Park
Farnborough
GU14 7JP
United Kingdom

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SIERRA
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Sierra Wireless AirCard Data Card

User Guide



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WIRELESS

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Rev 6

Important Notice

Due to the nature of wireless communications, transmission and reception of data can never be guaranteed. Data may be delayed, corrupted (i.e., have errors) or be totally lost. Although significant delays or losses of data are rare when wireless devices such as the Sierra Wireless modem are used in a normal manner with a well-constructed network, the Sierra Wireless modem should not be used in situations where failure to transmit or receive data could result in damage of any kind to the user or any other party, including but not limited to personal injury, death, or loss of property. Sierra Wireless accepts no responsibility for damages of any kind resulting from delays or errors in data transmitted or received using the Sierra Wireless modem, or for failure of the Sierra Wireless modem to transmit or receive such data.

Safety and Hazards

Do not operate the Sierra Wireless modem in areas where blasting is in progress, where explosive atmospheres may be present, near medical equipment, near life support equipment, or any equipment that may be susceptible to any form of radio interference. In such areas, the Sierra Wireless modem **MUST BE POWERED OFF**. The Sierra Wireless modem can transmit signals that could interfere with this equipment.

Do not operate the Sierra Wireless modem in any aircraft, whether the aircraft is on the ground or in flight. In aircraft, the Sierra Wireless modem **MUST BE POWERED OFF**. When operating, the Sierra Wireless modem can transmit signals that could interfere with various onboard systems.

Note: Some airlines may permit the use of cellular phones while the aircraft is on the ground and the door is open. Sierra Wireless modems may be used at this time.

The driver or operator of any vehicle should not operate the Sierra Wireless modem while in control of a vehicle. Doing so will detract from the driver or operator's control and operation of that vehicle. In some states and provinces, operating such communications devices while in control of a vehicle is an offence.

Limitation of Liability

The information in this manual is subject to change without notice and does not represent a commitment on the part of Sierra Wireless. SIERRA WIRELESS AND ITS AFFILIATES SPECIFICALLY DISCLAIM LIABILITY FOR ANY AND ALL DIRECT, INDIRECT, SPECIAL, GENERAL, INCIDENTAL, CONSEQUENTIAL, PUNITIVE OR EXEMPLARY DAMAGES INCLUDING, BUT NOT LIMITED TO, LOSS OF PROFITS OR REVENUE OR ANTICIPATED PROFITS OR REVENUE ARISING OUT OF THE USE OR INABILITY TO USE ANY SIERRA WIRELESS PRODUCT, EVEN IF SIERRA WIRELESS AND/OR ITS AFFILIATES HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES OR THEY ARE FORESEEABLE OR FOR CLAIMS BY ANY THIRD PARTY.

Notwithstanding the foregoing, in no event shall Sierra Wireless and/or its affiliates aggregate liability arising under or in connection with the Sierra Wireless product, regardless of the number of events, occurrences, or claims giving rise to liability, be in excess of the price paid by the purchaser for the Sierra Wireless product.

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Consult our web site for up-to-date product descriptions, documentation, application notes, firmware upgrades, troubleshooting tips, and press releases:

www.sierrawireless.com

Revision History

Revision number	Release date	Changes
1.0	November 2009	New document
2.0	April 2010	Applied new template
3	July 2010	Updated the Mac OS X information
4	September 2010	Updated Patents section

Revision number	Release date	Changes
5	October 2010	Updated Trademarks section
6	December 2010	Updated Preface.



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Sierra Wireless AirCard Data Card User Guide

About the Sierra Wireless AirCard Data Card

The AirCard® Data Card third generation (3G) wireless modem enables you to connect to the Internet, send and receive email, connect to a corporate network or virtual private network (VPN), or view streaming video, without the need for a network cable.

The AirCard Data Card can be inserted into an ExpressCard® slot or a PCMCIA (PC Card™) slot on your computer. Using the AirCard Data Card in a PC Card slot requires an ExpressCard-to-PC Card adapter, included with your modem.

Note: When using the AirCard Data Card with an ExpressCard-to-PC Card adapter, use only the adapter that came with your modem. Your AirCard Data Card may not work properly with adapters that are not specifically designed for your product.

Depending on your computer, the ExpressCard slot is either 34 mm or 54 mm wide. The Sierra Wireless AirCard Data Card will fit in either size slot without needing the ExpressCard-to-PC Card adapter.

If the AirCard Data Card is TRU-Install enabled, it already comes with all the required software. When you set up your AirCard Data Card, the software is installed on your computer.

Depending on your service provider, your AirCard Data Card may not be TRU-Install enabled. Instead, your package may include an installation CD, or you may be instructed to download software for your modem. See your Quick Start Guide for details.

Your account and coverage area

If you purchased the AirCard Data Card from a GSM service provider, you may already have an account and a SIM card. Otherwise, your retailer should be able to give you the names of companies that provide these items.

You must have an account with a GSM service provider to use the AirCard Data Card. To use the AirCard Data Card's 3G capability, your account must be with a service provider that offers HSDPA/HSUPA or UMTS service. (The AirCard Data Card is backwards compatible with 2G service.)

When you obtain your account, you are given a Subscriber Identity Module (SIM) card containing account information. You must insert the SIM card into the AirCard Data Card before you use it. (Depending on your service provider, the SIM card may already be inserted.)

When establishing a connection, your AirCard Data Card uses the fastest available service. Your ability to obtain service depends on these factors:

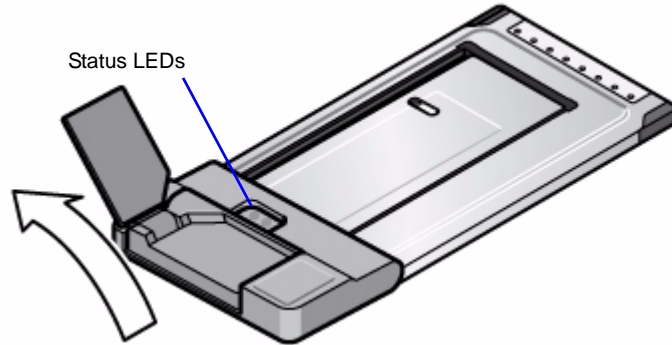
Note: The fee for service is usually higher when you are roaming (connected to a network other than the one belonging to your service provider).

- **Network coverage** — You must be within the network coverage area.
- **Service provider** — If you are within the coverage area of a network that is not operated by your own service provider, you can obtain service only if there is a roaming agreement between your service provider and the network operator.
- **Account provisions** — Your account may restrict your usage to certain networks or limit the amount of time you can use the network.
- **Frequency band** — You cannot connect to networks operating in bands not supported by your AirCard Data Card, regardless of roaming agreements or account provisions.

Most service providers have coverage maps on their web sites.



AirCard Data Card features

LED operation



The antenna can be flipped up to improve reception.


Modem shown inserted in an ExpressCard-to-PC Card adapter.

LED	State	Indicates
Power 	Off	Indicates one of the following states: <ul style="list-style-type: none"> • The AirCard Data Card is not inserted in the computer. • The computer is off or in “suspend and resume” mode. • The AirCard Data Card radio has been turned off using Watcher or other connection manager software.
	Solid Blue	The power is on, the AirCard Data Card is working normally.
	Blinking Blue	The firmware is being updated. Do not remove the AirCard Data Card from the computer.
	Blinking Amber	The AirCard Data Card is searching for service (initializing).
	Solid Amber	Error—either the AirCard Data Card is having a problem initializing (searching for service) or is offline because of a failure. Contact your service provider.
Data 	Off	The AirCard Data Card is unable to detect 2G or 3G service.
	Blinking Amber	The AirCard Data Card has detected a 2G network (EDGE, GPRS, GSM) and is ready to connect.
	Solid Amber	The AirCard Data Card is connected to a 2G network and is able to send and receive data.
	Blinking Blue	The AirCard Data Card has detected a 3G network (UMTS, HSPA, HSPA+) and is ready to connect.
	Solid Blue	The AirCard Data Card is connected to a 3G network and can send and receive data.

Connection management software

Your AirCard Data Card may include Sierra Wireless AirCard Watcher® for Windows® and Mac®, or other connection management software, depending on your service provider. If Watcher is not included, your quick start guide may direct you to where you can download it.

Use Watcher to manage the AirCard Data Card and monitor your connections.

For information on Watcher features and using Watcher, refer to the online Help. From the main Watcher window, select **Help > Help Topics** or click the  button (Windows) or **Help > AirCard Watcher Help** (Mac).

Note: Watcher is compatible with earlier Sierra Wireless modems.

Watcher enables you to:

- Initiate data connections
- Determine signal strength, roaming status, GPRS, EDGE, UMTS, or HSDPA/HSUPA availability, and other network connection parameters
- Monitor the status of the AirCard Data Card and GSM service
- Send and receive SMS messages
- Enable or disable SIM security that prevents others from using your SIM card if it is lost or stolen
- Configure startup and exit actions for Watcher and the AirCard Data Card
- Create or modify a connection profile

You do not need to run Watcher when you use the AirCard Data Card, but Watcher does provide useful status information.

Launching Watcher (Windows)

Unless this feature has been disabled, Watcher launches automatically when you insert the AirCard Data Card. You can also launch Watcher by:

- Double-clicking the desktop shortcut, or
- Selecting **Start > Programs > Sierra Wireless > AirCard Watcher**.

Depending on how your profile is configured, your browser, VPN, or other program may launch automatically anytime you launch Watcher.

Launching Watcher (Mac)

Watcher starts automatically at login. To disable this feature, go to **AirCard Watcher > Preferences**.

You can also start Watcher by navigating to the **Applications > Sierra Wireless** folder and double-clicking **AirCard Watcher**.

Tip

To keep the AirCard Watcher icon in the dock:

1. Launch AirCard Watcher.
2. Click and hold the AirCard Watcher icon in the dock.
3. From the pop-up menu, select **Keep in Dock**.

Reinstalling the software

Windows

If you need to reinstall or repair the Watcher software:

1. Go to **Start > Control Panel > Add or Remove Programs**.
2. Uninstall Watcher.
3. Insert the modem into your computer.
4. Follow the on-screen instructions.

Or, in Watcher:

1. Select **Tools > Software Installation Mode**.
2. Follow the on-screen instructions.

Note: Do not remove the AirCard Data Card until the software installation process is complete.

Mac

To uninstall Watcher:

1. Select **AirCard Watcher > Uninstall AirCard Watcher...**
2. Follow the on-screen instructions.

Connecting to the network

To use your account (and connect to your service provider's network), you need to have at least one profile set up on your AirCard Data Card. Depending on how your AirCard Data Card is configured, the profile may already be set up or you may need to create one.


Note: If you have a pre-paid wireless account, you'll need to have credit in your account before you can connect.

Windows

Once the software is successfully installed and the profile is set up, the AirCard Data Card is ready to use.

The first time you insert the AirCard Data Card in the computer, it takes a few seconds for it to locate the network. While the AirCard Data Card is scanning for a network, the Connect button is unavailable.

When you use the AirCard Data Card with the same computer, TRU-Install verifies that the correct software is already installed. This process may take a few seconds.

Scenario	Required action
Watcher automatically detects or creates a default profile.	Click Connect .
Watcher prompts you to create a data profile.	1. Click Yes , then...
<ul style="list-style-type: none"> If Watcher opens the Options window Profile pane and pre-selects an appropriate profile (normally the name of your service provider) from the drop-down list... 	<ul style="list-style-type: none"> a. Click OK to accept that profile (or choose another from the drop-down list). b. Click Connect^a.
<ul style="list-style-type: none"> If Watcher opens the Options window Profile pane, the Profile name field is blank, and your service provider is not included in the drop-down list... 	You need to create a profile manually. Refer to the Watcher online help for details. Click Help > Help topics or click the  button.

If you need to re-install the software, see [page 11](#).

Mac

The first time you run Watcher:

- When your computer detects the modem, the message "New network interfaces have been detected" appears.
- Click the **Network Preferences...** button.
- In the Network window, click **Apply**. Your modem connects to the network.
 - If there is no profile defined, a message opens asking if you want to create a new profile.
 - Click **Create a new profile**.

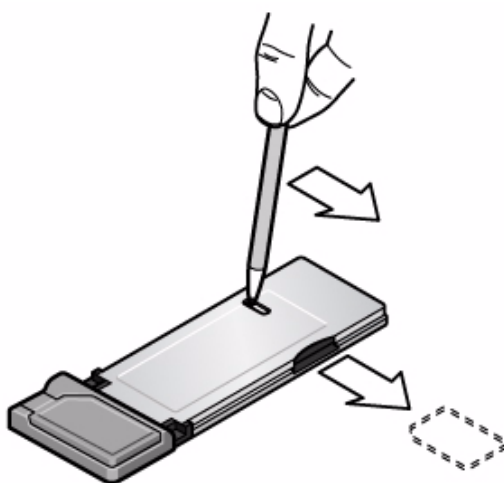
-
- c. In the **Profiles** window, click **+** to create a profile.

To end a high-speed connection, click **Disconnect**.

Removing the SIM card

To remove the SIM card, you need a pen.

1. If necessary, remove the AirCard Data Card from the PC Card adapter.
2. Place the AirCard Data Card on a smooth, hard surface.
3. Gently insert the pen into the end of the eject slot farthest from the SIM slot. Slide the pen towards the SIM slot as shown in the illustration. The SIM card pops out of its slot.



4. Gently pull the SIM card from the slot until it slides free.

Care and maintenance

As with any electronic device, the AirCard Data Card must be handled with care to ensure reliable operation. Follow these guidelines when you use and store your AirCard Data Card:

- Do not apply adhesive labels to the SIM card. This may cause it to jam inside the slot, or prevent it from being inserted properly.
- When not installed in your computer, store the AirCard Data Card and SIM card in a safe place.
- Protect the AirCard Data Card from liquids, dust, and excessive heat. (See the [Environmental specifications](#) on page 17 for maximum tolerances.)

Troubleshooting

This section describes possible problems and solutions for Windows users. If you have a problem that is not described in this section, visit the Sierra Wireless support page at www.sierrawireless.com/support.

Software installation does not start automatically

Windows

If Watcher installation does not start after you insert the AirCard Data Card:

1. Double-click **My Computer** (Windows XP) or **Computer** (Windows Vista, Windows 7) on your desktop.
2. Click the **TRU-Install** drive.
3. Under the **TRU-Install** drive, open the **Win** folder and double-click **Setup.exe**. Follow the on-screen prompts to install the software.

Mac OS X

If you do not see the AirCard Watcher window:

1. Open Finder.
2. Under **Devices**, click **AirCard Watcher**.
3. Double-click the installer package.

PC Card slot no longer works after you remove the AirCard Data Card (with PC Card adapter) from the laptop

If your laptop does not recognize that you have removed the AirCard Data Card with PC Card adapter, you may have to restart your laptop to restore PC Card slot operation.

In the future, before you remove the AirCard Data Card with PC Card adapter, click the **Safely Remove Hardware** icon in the Windows system tray, then select the AirCard Data Card.

Note: The PC Card is controlled by the BIOS of the laptop. If problems with the PC Card slot persist, consult your computer manufacturer. A BIOS update may be available.

AirCard Data Card is not detected after AirCard Watcher installation completes

You successfully complete the automatic installation process, but Watcher does not detect the AirCard Data Card:

1. Click **Start**, and then click **Control Panel**.
2. Double-click **TRU-Install**.
3. When you are prompted to switch to modem mode, click **OK**.
4. Wait for Watcher to detect the AirCard Data Card.
5. If the AirCard Data Card still is not detected, connect to the Internet using another method and go to www.sierrawireless.com/support for assistance.

The Windows Installer fails

When you try to install or uninstall Watcher, the message **Windows Installer is not accessible** (for example, Error code: 1601) appears.

To fix Error 1601, first see if another installation process is running.

1. Press **Ctrl + Alt + Del** and select Task Manager.
2. Go to the **Processes** tab.
3. Check the running processes for any of these names:
 - setup.exe
 - isetup.exe
 - ikernel.exe
 - msiexec.exe
 - idriver.exe
 - IsUninst.exe
 - IsUninst.exe
 - Uninst.exe

If any of these processes are running on the system:

1. Select each process.
2. Click **End Process**.
3. Try to run the Watcher installation again.

If the installation is not successful, connect to the Internet using another method and check Sierra Wireless Knowledge Base articles at sierrawireless.com.

Technical specifications

Radio frequency and electrical specifications

The radio frequency bands that your AirCard Data Card supports will vary depending on your region and your model.

Transmit	GSM 1900 (PCS): 1850 – 1910 MHz GSM 1800 (DCS): 1710 – 1785 MHz EGSM 900: 880 – 915 MHz GSM 850: 824 – 849 MHz WCDMA 2100 (Band 1): 1920 – 1980 MHz WCDMA 1900 (Band 2): 1850 – 1910 MHz WCDMA 850 (Band 5): 824 – 849 MHz WCDMA 800 (Band 6): 830 – 840 MHz WCDMA 900 (Band 8) 880 – 915 MHz
Receive	GSM 1900 (PCS): 1930 – 1990 MHz GSM 1800 (DCS): 1805 – 1880 MHz EGSM 900: 925 – 960 MHz GSM 850: 869 – 894 MHz WCDMA 2100 (Band 1): 2110 – 2170 MHz WCDMA 1900 (Band 2): 1930 – 1990 MHz WCDMA 850 (Band 5): 869 – 894 MHz WCDMA 800 (Band 6): 875 – 885 MHz WCDMA 900 (Band 8) 925 – 960 MHz

Frequency band support

Technology	Bands	Location
2G	850 MHz (cellular band)	North America
	900 MHz (EGSM band)	Europe
	1800 MHz (DCS band)	Europe and Asia
	1900 MHz (PCS band)	North America
3G	WCDMA 850 (Band 5)	North America, Australia, and New Zealand
	WCDMA 800 (Band 6)	Japan
	WCDMA 900 (Band 8)	Europe, Asia, and Australia
	WCDMA 1900 (Band 2)	North America
	WCDMA 2100 (Band 1)	Europe, Asia, and Australia

Environmental specifications

Operating temperature	0°C to 45°C (32°F to 113°F)
Storage temperature	-20°C to 85°C (-4°F to 185°F)
Humidity	95%, non-condensing
Vibration	15 g peak 10 to 2000 Hz (non-operating)

Regulatory and safety information

Notice

Because of the nature of wireless communications, transmission and reception of data can never be guaranteed. Data may be delayed, corrupted (that is, have errors), or be totally lost. Although significant delays or losses of data are rare when wireless devices such as the Sierra Wireless modem are used in a normal manner with a well-constructed network, the Sierra Wireless modem should not be used in situations where failure to transmit or receive data could result in damage of any kind to the user or any other party, including but not limited to personal injury, death, or loss of property. Sierra Wireless and its affiliates accept no responsibility for damages of any kind resulting from delays or errors in data transmitted or received using the Sierra Wireless modem, or for failure of the Sierra Wireless modem to transmit or receive such data.

Safety and hazards

The modem **MUST BE POWERED OFF** in all areas that may be susceptible to radio interference, in particular:

- Prohibited areas
Obey all signs and notices and follow all rules and regulations. Power off the modem when instructed to do so or when you suspect that it may cause interference or danger.
- In areas where blasting is in progress
- Where explosive atmospheres may be present
Areas with a potentially explosive atmosphere are not always clearly marked. Such areas include gas stations, fuel depots, chemical transfer or storage facilities, areas where blasting is in progress, areas where the air contains chemicals or particles such as grain, dust, or metal powders, and any other area where you would normally be advised to turn off your cellular phone or vehicle engine.
- Near medical or life-support equipment
Medical equipment may be susceptible to any form of radio interference. In such areas the modem can transmit signals that could interfere with this equipment.
- On board aircraft
In addition to Federal Aviation Authority (FAA) requirements, many airline regulations state that you must suspend wireless operations before boarding an aircraft. The modem is capable of transmitting signals that could interfere with various onboard systems and controls.
Failure to observe this instruction may lead to suspension or denial of cellular telephone services to the offender, legal action, or both.
Some airlines may permit the use of cellular phones while the aircraft is on the ground and the door is open. The modem may be used normally at this time.
- While operating a vehicle

The driver or operator of any vehicle should not use a wireless data device while in control of a vehicle. Doing so detracts from the driver or operator's ability to control and operate the vehicle. In some countries, using such communications devices while in control of a vehicle is an offence.

Regulatory information for North America

Note: Regulatory information in this section applies to these models:

AirCard 503
AirCard 890

CAUTION: Unauthorized modifications or changes not expressly approved by Sierra Wireless, Inc. could void compliance with regulatory rules, and thereby your authority to use this equipment.

The design of the modem complies with U.S. Federal Communications Commission (FCC) and Industry Canada (IC) guidelines respecting safety levels of radio frequency (RF) exposure for portable devices, which in turn are consistent with the following safety standards previously set by Canadian, U.S. and international standards bodies:

- ANSI/IEEE C95.1-2005, *IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz*
- National Council on Radiation Protection and Measurements (NCRP) Report 86, -1986, *Biological Effects and Exposure Criteria for Radio Frequency Electromagnetic Fields*
- Health Canada, Safety Code 6, 1999, *Limits of Human Exposure to Radio frequency Electromagnetic Fields in the Frequency Range from 3 kHz to 300 GHz*
- International Commission on Non-Ionising Radiation Protection (ICNIRP) 1998, *Guidelines for limiting exposure to time-varying electric, magnetic, and electromagnetic fields (up to 300 GHz)*

Caution: *The modem must be 1.0 cm or more from users during operation, to satisfy FCC / IC RF exposure requirements. This modem must not be used with any other antenna or transmitter that has not been approved to operate in conjunction with this modem. Note: This modem must not be used in any unapproved configurations. For details, contact Sierra Wireless.*

Note: The modem is approved for normal-size notebook computers only (typically with 12 inches or larger display screens). For notebook computers with a display screen smaller than 12 inches, ensure a safe distance between the modem antenna and users or bystanders.

These devices comply with Part 15 of the FCC Rules. Operation is subject to the condition that these devices do not cause harmful interference.

Where appropriate, the use of the equipment is subject to the following conditions:

Warning: (EMI) – *United States FCC Information* – This equipment has been tested and found to comply with the limits pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in an appropriate 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 communication. 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:

- 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

If you have purchased this product under a United States Government contract, it shall be subject to restrictions as set forth in subparagraph (c)(1)(ii) of Defense Federal Acquisitions Regulations (DFARs) Section 252.227-7013 for Department of Defense contracts, and as set forth in Federal Acquisitions Regulations (FARs) Section 52.227-19 for civilian agency contracts or any successor regulations. If further government regulations apply, it is your responsibility to ensure compliance with such regulations.

Regulatory information for EU countries

*Note: Regulatory information in this section applies to:
AirCard 503*

Sierra Wireless hereby declares that the modem conforms to all the essential requirements of Directive 1999/5/EC:

CE 0682

The Declaration of Conformity made under Directive 1999/5/EC is available for viewing at the following location in the EU community:

Sierra Wireless
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