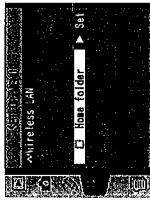
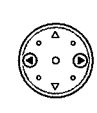




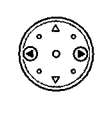
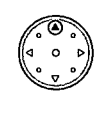





**Use home folder:** Highlight this option and press the multi selector right to toggle it on (✓) or off. Turn this option on to upload files to the server's default "home" folder, off to specify a directory as described below.



<p><b>1</b></p>  <p>Highlight <b>Folder</b>.</p>	<p><b>2</b></p>  <p>Display text entry dialog (26).</p>
<p><b>3</b></p>  <p>After entering name of destination folder on ftp server, press <b>ENTER</b> button to return to ftp menu (3/4).</p>	

**Use proxy server:** Highlight this option and press the multi selector right to toggle it on (✓) or off. If a proxy server is required for ftp, turn this option on and enter an address and port number as described below.



<p><b>1</b></p>  <p>Highlight <b>Address</b>.</p>	<p><b>2</b></p>  <p>Display text entry dialog (26).</p>
<p><b>3</b></p>  <p>Enter proxy server address and press <b>ENTER</b> button to return to ftp menu (4/4).</p>	<p><b>4</b></p>  <p>Highlight <b>Port</b>.</p>
<p><b>5</b></p>  <p>Enter edit mode.</p>	<p><b>6</b></p>  <p>Press multi selector left or right to select, up or down to change.</p>
<p><b>7</b></p>  <p>Return to ftp menu (4/4).</p>	

**Home Folder**

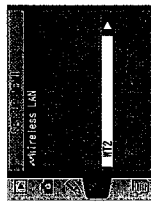
On a Windows ftp server, the home folder is the same as the home directory (45).  
 On a Macintosh, the home folder is the root directory of the user folder for the current account.

### Pairing Options (PTP/IP Mode Only)

This menu offers the following pairing options (for more information on pairing, see page 17):

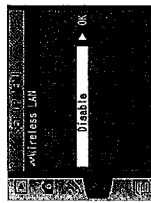
#### Camera

The name under which the camera is registered when paired with a computer. The default name is "WT2\_" followed by the MAC address of the WT-2. To use a different name, highlight the current name in the pairing options menu, press the multi selector to the right, and edit the name as described on page 26. The maximum length is thirty-nine characters.



#### Edit Connection List

Selecting this option displays the computers with which the camera is paired. To enable or disable a pairing with a selected computer or delete computers from the list, highlight the computer name and press the multi selector to the right. The menu shown at right will be displayed.

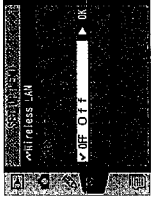


Option	Description
<b>Enable</b>	Enable pairing with selected computer.
<b>Disable</b>	Disable pairing with selected computer.
<b>Delete</b>	Select <b>Yes</b> to delete selected computer from connection list. Camera can not be used with computer in PTP/IP mode until pairing is performed again.

### Auto Send (FTP Mode Only)

Choose whether to upload photographs to the server as they are taken.

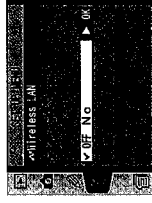
Option	Description
<b>Off</b> (default)	Photos are not automatically uploaded to server as they are taken. Photos can be selected for transmission when camera is in playback mode.
<b>On</b>	Photos are uploaded immediately after being recorded to camera memory card. Be sure memory card is inserted in camera before shooting.



\* Pictures will not be uploaded to the server if **Off** is selected in the **Wireless LAN** > **Transceiver** menu. Pictures will instead be marked with a "send" indicator as they are recorded to the memory card.

### Delete After Send (FTP Mode Only)

Select **On** to delete photographs from the camera memory card automatically after they have been successfully uploaded to the server (the default option is **Off**). Files that were uploaded before this option was selected are not affected. Photographs will not be deleted while displayed in slide shows or in the delete, print set, and preset white balance menus. Sequential file numbering is used while this option is in effect, regardless of the option selected for the **File No. Seq.** Custom Setting.



### Send File As (FTP Mode Only)

When uploading NEF+JPEG images to an ftp server, choose whether to send both NEF (RAW) and JPEG files or only the JPEG files.

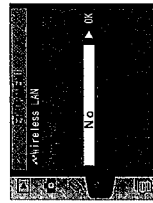
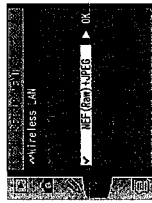
Option	Description
NEF (Raw) + JPEG (default)	Upload both NEF (RAW) and JPEG files. JPEG files are sent first.
JPEG only	Upload JPEG files only.

### Send Folder (FTP Mode Only)

All files in the selected folder (including those already marked as "sent") will be uploaded in ascending order by file number, beginning when the folder is selected. The folder itself will not be uploaded. This option is not available when the memory card contains no folders.

### Deselect All (FTP Mode Only)

Select **Yes** to remove "send," "sending," and "sent" marking from all images on the memory card. Upload of any images marked with a "sending" icon will immediately be terminated.



## Appendices

### Installing Pairing Software:

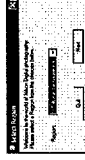
This section describes how to install the pairing software supplied with the WF-2 (14). This software is required when using the WF-2 in PTP/IP mode (14).

#### Supported Operating Systems

This software requires Mac OS X version 10.3 or later or preinstalled versions of Windows XP Professional or Windows XP Home Edition.

### Installation (Windows XP)

- 1 Start the computer and log in to an account with administrator privileges.
- 2 Insert the supplied installer CD in a CD-ROM drive. The "Select Region" dialog will be displayed; select a region and click **Next**.



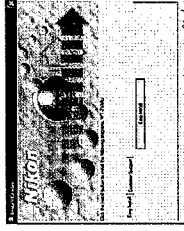
#### If the "Select Region" Dialog Is Not Displayed

If the "Select Region" dialog is not displayed, select **My Computer** from the **Start** menu and double-click the icon for the CD-ROM drive containing the installer CD.

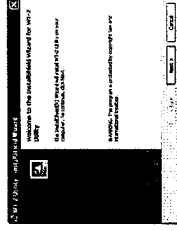
- 3 Select a language and click **Next**.



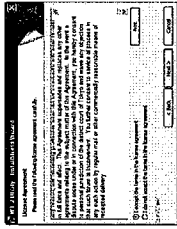
- 4 Click **Easy Install**.



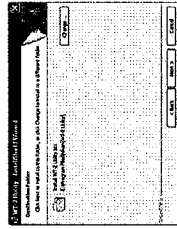
- 5 Click **Next**.



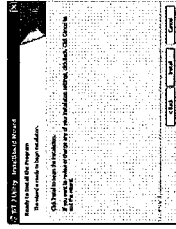
6 A license agreement will be displayed. After reading the agreement, select **I accept the terms in the license agreement** and click **Next** to accept and proceed with installation.



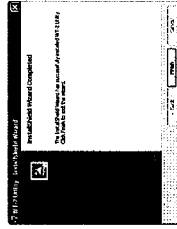
7 The default install location is displayed. Click **Next** to install the software to this folder. To choose another folder, click **Change...** and navigate to the desired location.



8 Clicking **Next** in Step 5 displays the dialog shown at right. Click **Install**.



9 Click **Finish**.



10 Click **Yes** to restart the computer.

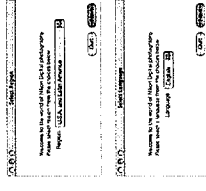


## Installation (Mac OS X)

1 Start the computer and log in to an account with administrator privileges.

2 Insert the supplied installer CD in a CD-ROM drive. Double-click the installer CD icon on the desktop, and then double-click the **Welcome** icon.

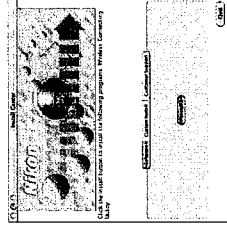
3 The "Select Region" dialog will be displayed. Select a region and click **Next**.



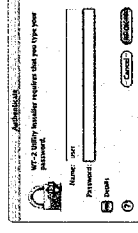
4 Select a language and click **Next**.



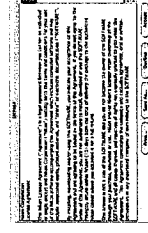
5 Click **Install**.



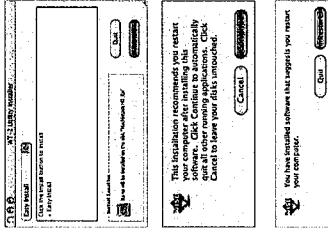
6 Enter the administrator name and password and click **OK**.



7 A license agreement will be displayed. After reading the agreement, click **Accept** to accept its terms and proceed with installation.



## 8 Click Install.



## 9 The dialog shown at right will be displayed. Click Continue.

## 10 Click Restart to restart the computer.

### Sample ftp Settings

The following pages describe how to set up a simple infrastructure network using the WT-2 and a Windows XP Professional ftp server. Encryption and network security are not discussed.

- 1—Preparation..... 42
- 2—Building a Network..... 43
- 3—Configuring the Server ..... 43-45
- 4—Configuring the Wireless LAN Adapter..... 45
- 5—Configuring the WT-2..... 46-47
- 6—Uploading Pictures..... 48-49

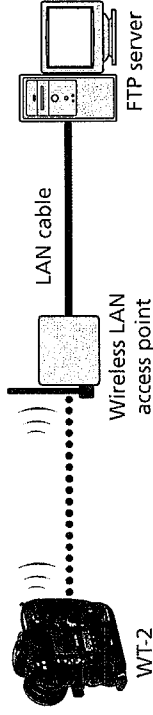
### Preparation

Ready the following items:

- D2X digital camera
  - ftp server<sup>1</sup>
  - WT-2 wireless transmitter
  - wireless LAN adapter<sup>2</sup>
- <sup>1</sup> Windows XP Professional computer with Internet Information Services (IIS) installed.
- <sup>2</sup> Bridge type. Additional settings may be required when using wireless router. See documentation provided by manufacturer for details.

### Building a Network

Configure the network as shown below. In this example, the wireless LAN access point is connected by a cable to the server, and the server is not connected to any other network devices.

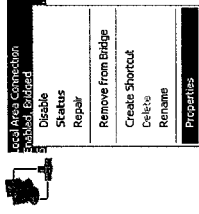


### Configuring the Server

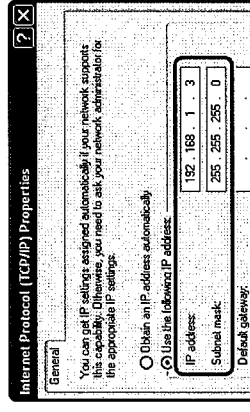
The following example assumes that Windows XP Professional and Internet Information Services (IIS) are already installed (IIS is included in the standard installation of Windows XP Professional; for more information, contact Microsoft). Be sure to use characters supported by the WT-2 (26) when specifying such settings as user ID, password, and folder names.

### Entering an IP Address

Open the **Network and Internet Settings > Network Connections** control panel. Right-click the **Local Area Connection** icon and select **Properties** from the menu that appears.



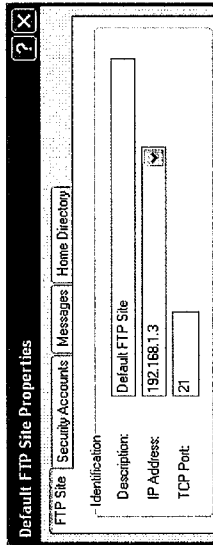
Select **Internet Protocol (TCP/IP)** and click **Properties** to display the "Internet Protocol (TCP/IP)" dialog. Enter an IP address and subnet mask for the ftp server.



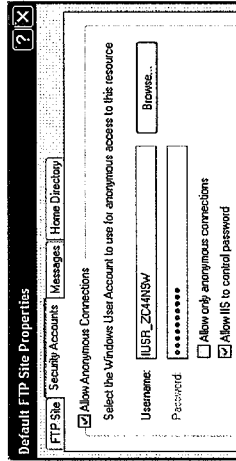
In this example, it is assumed that network uses class C private IP addresses and subnet masks. Be sure IP address differs from addresses assigned to wireless LAN adapter and WT-2. For example, if ftp server is assigned 192.168.1.3, 192.168.1.1 can be assigned to adapter and 192.168.1.2 to WT-2. All addresses must be in same class.

### Creating an FTP Site

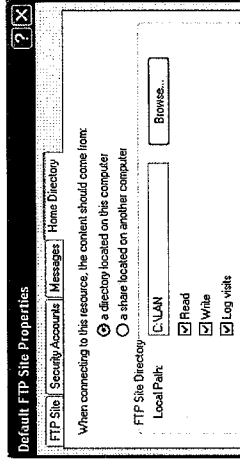
Go to the **Performance and Maintenance** > **Administrative Tools** control panel and open the **Internet Information Services** console. Right-click the **Default FTP site** folder and choose **Properties** from the menu that appears. In the "Default FTP Site Properties" dialog, open "FTP Site" and enter a **TCP Port** number. The port number is normally 21.



Open "Security Accounts" and select **Allow Anonymous Connections** and **Allow IIS to control password**. Make sure the default user ID (composed of "IUSR" plus the computer name) is unchanged and leave the password field blank.



Next, open "Home Directory" and select **A directory located on this computer**. The root directory for images uploaded to the ftp server is listed in the **Local Path** text box; choose a folder and check **Read**, **Write**, and **Log visits**.



Before proceeding to the next step, click **OK** to close the properties dialog.

### Configuring the Wireless LAN Adapter

The minimum information needed to configure a wireless LAN adapter is listed below. Contact the manufacturer for details.

Wireless mode	802.11b or 802.11g
SS-ID <sup>1</sup>	DZX
Encryption (WEP)	Off
"Any" connection <sup>2</sup>	Disabled
Channel	Any
IP address	Obtain IP address automatically: Off IP address: 192.168.1.1 Subnet mask: 255.255.255.000
Default gateway	000.000.000.000
DNS	000.000.000.000
MAC address <sup>4</sup>	Unspecified

<sup>1</sup> Same SS-ID must be assigned to WT-2.

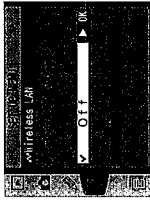
<sup>2</sup> Not required if adapter does not support "any" connection.

<sup>3</sup> In this example, it is assumed that network uses class C private IP addresses and subnet masks. Address assigned to adapter must differ from addresses of server and WT-2. For example, if ftp server is 192.168.1.3, 192.168.1.1 can be assigned to adapter and 192.168.1.2 to WT-2. All addresses must be in same class.

<sup>4</sup> If MAC address is required, enter MAC address for WT-2 (33 31).

### Configuring the WT-2

Before adjusting network settings as shown below, select **Off** in the **Wireless LAN > Transceiver** menu.



### Wireless

SSID <sup>1</sup>	D2X
Communication mode	Infrastructure
Channel	
Encryption	None

<sup>1</sup> Same SS-ID must be assigned to wireless LAN adapter.

### TCP/IP

IP address <sup>1</sup>	Obtain automatically: Off Address: 192.168.1.2 Mask: 255.255.255.000
Gateway	Use gateway: Off
DNS	Enable DNS: Off

<sup>1</sup> In this example, it is assumed that network uses class C private IP addresses and subnet masks. Address assigned to WT-2 must differ from addresses of server and wireless LAN adapter. For example, if ftp server is 192.168.1.3, 192.168.1.1 can be assigned to adapter and 192.168.1.2 to WT-2. All addresses must be in same class.

### FTP

Server	Address: 192.168.1.3 <sup>1</sup> Port: 21
PASV mode	Off
Anonymous login	On
User ID	
Password	
Home folder <sup>2</sup>	On
Folder	
Use proxy server	Off

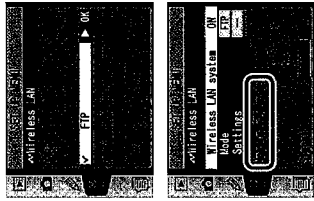
<sup>1</sup> Enter address assigned ftp server (44).

<sup>2</sup> Photographs are uploaded to folder selected in "Home Directory" tab of "Default FTP Site Properties" dialog (45).

## Uploading Pictures

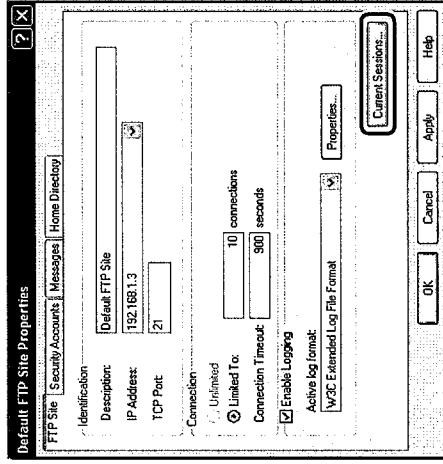
This section describes how to upload pictures as they are taken. For best results, the WT-2 and wireless LAN adapter should be within a few meters with no obstacles between them.

- 1 Set the **Wireless LAN > Mode** option in the camera setup menu to **FTP** and select **On** for **Wireless LAN > Transceiver**.

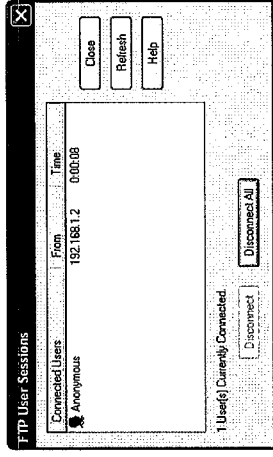


- 2 Confirm that a connection has been established. To check the connection from the camera, confirm that "Now in FTP mode" is displayed in the top level of the wireless LAN menu. For information on what to do if the camera shows "WIRELESS ERROR," "TCP/IP ERROR," " " or "FTP ERROR," see "Troubleshooting" ( 50).

To check the status of the connection from the computer, right-click the **Default FTP site** folder and select **Properties** from the menu that appears. Open "FTP Site" and click **Current Sessions....**



Confirm that "Anonymous" is listed under "Connected Users." For information on what to do if no connection is listed, see "Troubleshooting" ( 50).



- 3 Select **On** for **Wireless LAN > Auto send**. Take a picture and confirm that the image has been uploaded to the specified folder on the ftp server.





## Troubleshooting

Problem	Solution	50
"POWER" LED does not light.	<ul style="list-style-type: none"> <li>Turn camera on.</li> <li>Press shutter-release button halfway to activate exposure meters.</li> <li>Select <b>On</b> for <b>Wireless LAN</b> &gt; <b>Transceiver</b> option in camera setup menu.</li> <li>Reattach WT-2.</li> </ul>	24
All LEDs blink at once.	WT-2 hardware error. Contact a Nikon-authorized service representative.	4
<b>Wireless LAN</b> option not available in camera setup menu.	Select <b>PTP</b> for <b>USB</b> option in camera setup menu.	5
Excessive radio interference.	Change orientation of camera or antenna.	—
Camera displays wireless, TCP/IP, or FTP error.	Check settings for host and/or wireless LAN adapter and adjust camera settings appropriately.	26 28 32
Can not connect to ftp server.	Check settings for server and/or wireless LAN adapter and adjust camera settings as described in "Sample ftp Settings."	42
Transfer interrupted before all photographs are sent.	Transfer will resume if camera is turned off and then on again; exposure meters are reactivated; or <b>On</b> for <b>Wireless LAN</b> > <b>Transceiver</b> option in camera setup menu.	11

## Glossary

### Ad-hoc

Devices in an ad-hoc wireless network communicate directly ("peer to peer"), without a wireless access point. The WT-2 supports an ad-hoc mode for direct wireless connection to a computer or ftp server.

### "Any" connection

Allows devices to connect to wireless network without an SS-ID. Can be used for wireless "hot spots" but is not as secure as connections that require an SS-ID.

### Auto IP (APIPA)—Automatic Private IP Addressing

Allows devices in a network to automatically assign themselves unique IP addresses if no DHCP server is found on the network. Auto IP uses addresses from 169.254.1.0 to 169.254.254.255 and a subnet mask of 255.255.0.0. These addresses are neither global nor private but are reserved for Auto IP.

### BSS-ID (Basic Service Set ID)

All wireless devices on an ad-hoc wireless network share the same BSS-ID. The BSS-ID may be up to thirty-two characters long and is case sensitive. See also Ad-hoc.

### Channel

When multiple wireless LANs with different ESS-IDs are operating on a single frequency within a given area, transmission speeds will drop. Specifying a separate channel (frequency) for each network can prevent interference and increase transmission speeds (note that all devices in the same network must be set to the same channel). In the IEEE 802.11b/g standard, the 2.4 GHz band is divided into 14 channels, each separated by 4 MHz.

### DHCP (Dynamic Host Configuration Protocol) Server

Each device in a TCP/IP network requires an IP address. If a DHCP server is present on the network, IP addresses will be assigned automatically. A DHCP server will not be present on networks that consist solely of Windows Me, Windows 98, or Windows 95 computers. DHCP may be enabled on other networks; consult the network administrator or see the manual provided with the router or operating system.

### DNS (Domain Name Server)

A server that contains a database of IP addresses and host names for the machines it administers and that converts host names to IP addresses in response to queries from clients. Each DNS can also query other Domain Name Servers for addresses not listed in its database.

### ESS-ID (Extended Service Set ID)

Multiple BSSs can be configured to form an ESS, allowing users to roam between wireless access points. Only devices with the same ESS-ID as a given access point can communicate with that access point. The ESS-ID may be up to thirty-two characters long and is case sensitive.

### Gateway

A network node that acts as an entrance to another network, for example between a company network and the Internet.

### IIS (Internet Information Services)

Microsoft's name for its Web server software. Notable for its close connection to Windows-based systems through Active Server Pages (ASPs). When installed as part of the operating system, IIS makes it relatively easy to build web a server.

### Infrastructure

Devices in an infrastructure network communicate via one or more wireless access points. The Wi-Fi supports an infrastructure mode for connection to a wireless network via an access point.

### IP address

Address given to each node in a TCP/IP network. All nodes in a TCP/IP network must have a unique IP address. Private IP addresses are recommended for nodes that are part of a local network.

### LAN (Local Area Network)

A network of computers located in relatively close proximity to one another. LANs generally support data transfer speeds of 10–100Mbps.

### MAC (Media Access Control) Address

A unique hardware address for each device on a network, required when sending and receiving packets.

### PASV mode

PASV mode is used by clients behind firewalls, when it allows the ftp server to supply the port number.

### Private IP address

An IP address that is only visible within a local network. Because packets using a private IP address can not be transmitted to another network, they are usually sent between networks via a proxy server or NAT. Private IP addresses in the range 10.0.0.0–10.255.255.255 are termed "class A." Class B addresses are in the range 172.16.0.0–172.31.255.255, class C addresses in the range 192.168.0.0–192.168.255.255. The class of address used depends on the size of the network. Class C addresses are often used for small networks.

### Protocol

A set of rules for passing information back and forth between devices in a network. By defining such elements of communication as how links are established, how receipt of a signal is acknowledged, how data are encoded, and how to handle errors, a protocol ensures that data are transmitted without loss of information.

### Proxy

A server that stands between large networks and local networks or computers, typically to ensure security. One element of a firewall.

### PTP/IP (Picture Transfer Protocol over Internet Protocol)

An image transfer for transmitting images over wireless LANs. It represents an extension to the Picture Transfer Protocol (PTP) used to transfer images between cameras and computers connected via USB cable.

### SS-ID (Service Set ID)

An SS-ID prevents interference between devices in different networks. See BSS-ID, ESS-ID.

### Subnet mask

A mask that divides a network into subnets.

### TCP/IP (Transmission Control Protocol/Internet Protocol)

A dual protocol consisting of a transport-layer protocol (TCP) that divides data into packets which it later reassembles, and a network protocol (IP) that handles transmission of the packets between points in the network. It can be implemented on different platforms, allowing data to be transmitted between machines with different operating systems.

### TKIP (Temporal Key Integrity Protocol)

An encryption method which uses dynamic keys that change periodically or after a specified amount of data have been transmitted, making it more secure than WEP, which uses fixed keys.

### USB (Universal Serial Bus)

A standard for connecting peripheral devices. USB supports data transfer rates of up to 480Mbps (USB 2.0). Devices connected via USB can be connected and disconnected with the power on ("hot plug") and do not require separate IRQ (interrupt request) numbers, preventing conflicts with other devices.

### WEP (Wired Equivalent Privacy)

A privacy protocol intended to provided users of wireless networks with the same level of privacy as a wired network. When using WEP, enter the encryption key provided by the network administrator.

### Wireless LAN access point


A wireless transceiver that acts as the connection between wireless devices and a wireless network.

## Specifications

<b>Standards</b>	IEEE 802.11b/g (standard wireless LAN protocol), ARIB STD-T66 (standard for low power data communications systems)
<b>Communication protocols</b>	IEEE 802.11g: OFDM IEEE 802.11b: DBPSK, QPSK, CCK
<b>Range (line of sight)</b>	Approximately 30 m (98') with WA-S1 standard antenna Approximately 150 m (492') with WA-E1 extended range antenna and large antenna at wireless LAN access point
<b>Operating frequency</b>	WT-2: 2412–2472 MHz (13 channels) WT-2A: 2412–2462 MHz (11 channels)
<b>Data rates*</b>	IEEE 802.11g: 6, 9, 12, 18, 24, 36, 48, and 54 Mbps IEEE 802.11b: 1, 2, 5, and 11 Mbps
<b>Security</b>	TKIP, 128/64-bit (104/40-bit) WEP
<b>Access protocols</b>	Infrastructure/ad-hoc
<b>Current consumption</b>	Sleep: 200 mA maximum (at input voltage of 13.5 V) Send: 250 mA maximum (at input voltage of 13.5 V)
<b>Power consumption</b>	3.4 W maximum
<b>Operating environment</b>	Temperature: 0–40 °C (32–131 °F) Humidity: less than 85% (no condensation)
<b>Weight</b>	2.10 g/7.4 oz (excluding antenna)
<b>Dimensions (W×H×D)</b>	146.5 mm × 34.5 mm × 65.5 mm (5.8" × 1.4" × 2.6")

\* Maximum logical data rates according to IEEE standard. Actual rates may differ.

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