802.11abg
Wireless SDIO Module

User Manual

Federal Communication Commission Interference Statement

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 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.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This device is intended only for OEM integrators under the following conditions:
1) The antenna must be installed such that 20 cm is maintained between the antenna and users. For laptop installations, the antenna must be installed to ensure that the proper spacing is maintained in the event the users places the device in their lap during use (i.e. positioning of antennas must be placed in the upper portion of the LCD panel only to ensure 20 cm will be maintained if the user places the device in their lap for use) and 2) The transmitter module may not be co-located with any other transmitter or antenna. As long as the 2 conditions above are met, further transmitter testing will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed (for example, digital device emissions, PC peripheral requirements, etc.).

This device which use the 5.15 to 5.25 GHz band are for indoor use only, and that outdoor use will void the users authority to operate this product.

This transmitter module is authorized only for use in devices where the antenna may be installed such that 20 cm may be maintained between the antenna and users (for example access points, routers, wireless ASDL modems, certain laptop configurations, and similar equipment).   The final end product must be labeled in a visible area with the following: "Contains TX FCC ID: MQ4SDW310C.

IMPORTANT NOTE:
FCC Radiation Exposure Statement:
This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
IEEE 802.11a or 802.11b/g operation of this product in the U.S.A. is firmware -limited to channels 1 through 11.

This device is intended only for OEM integrators under the following conditions:
The antenna must be installed such that 20 cm is maintained between the antenna and users, and
The transmitter module may not be co-located with any other transmitter or antenna.
As long as 2 conditions above are met, further transmitter test will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed (for example, digital device emissions, PC peripheral requirements, etc.).

Table of Contents

PACKAGE CONTENTS & SYSTEM REQUIREMENTS

1. Manual (In CD-ROM)

2. Drivers and configuration utilities on CD-ROM

3. Quick Install Guide

4. Product Device

If you miss any of these items please contact your agent.

FEATURES

The 802.11abg Wireless SDIO Module is a wireless network Module that complies with the IEEE 802.11abg standard on wireless LANs (Revision B).

➢ SDIO Module size as 40 (L) x 24 (W) x 2.1 (H) mm.

➢ SDIO Interface

➢ Supports the IEEE802.11 a/b/g wireless.

➢ High radio performance.

➢ Low power consumption.

➢ Data rates of 6-54Mbps for 802.11a and 1-54Mbps for 802.11g.

➢ Embedded 40MHz reference clock supported.

➢ Sleep clock using 32 KHz clock.

➢ Ready OS support as WinCE 5.0 and 6.0, Linux 2.6.9.

➢ 2 type external cable antenna to enhance extra performance

SD WLAN MODULE WIRELESS NETWORKS

SD WLAN Module Network Scenarios

The 802.11abg Wireless SDIO Module enables you to:
- Connect your computer to a Peer-to-Peer workgroup of wireless computing devices
- Connect your computer to a Small Office/Home Office (SOHO) network that includes Wi-Fi access points
- Connect your computer to a Local Area Network (LAN) Infrastructure that includes the 802.11abg Wireless SDIO Module, or other IEEE 802.11b compliant LAN systems

Wireless stations can be equipped with the 802.11abg Wireless SDIO Module, but also with other WLAN PC Modules. Both of them share the same wireless functionality.

Home Networking

With 802.11abg Wireless SDIO Module, wireless access to the Internet or other devices is at your fingertips. All you need to do is connect the 802.11abg Wireless SDIO Module to an existing access point that may be connected to the external Cable or xDSL modems and you are ready to:

- Share files and printers, and
- Access the Internet

Enterprise Networking

With the Wi-Fi certified access point in the corporate network system, you can connect to a corporate Local Area Network (LAN) infrastructure to access all network facilities in wireless. LAN Infrastructures may either be:

- Stand-alone wireless LANs
- Wireless network infrastructures connected to an existing Ethernet network
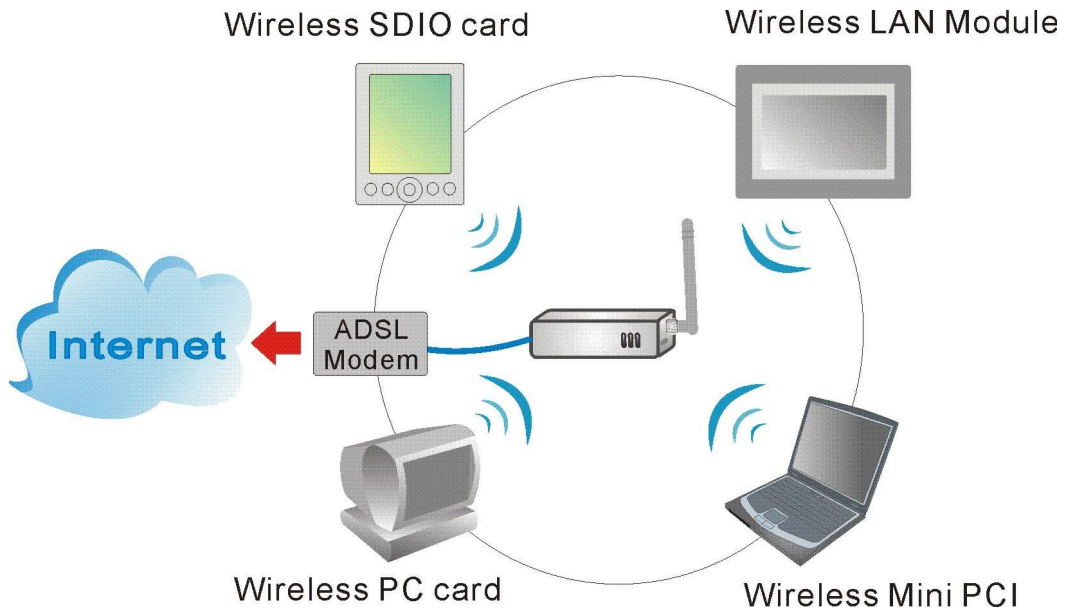
INSTALLING THE DRIVER

Installation of the 802.11abg wireless SDIO Module driver to the PDA via using Microsoft ActiveSync®

1. Connect your PDA to your computer and make sure Microsoft ActiveSync® has established a connection between the two devices.

Note: Do not insert the 802.11abg Wireless SDIO Module into the Module slot of your PDA until the Driver installation has been performed.

Important Notice:

The SDIO drivers are based on following CPU type:

- Intel PXA270 for Windows Mobile® 5.0
- Marvell PXA310 for Windows Mobile® 6.0

Please go to **Start > Settings > System** tab **>** select **About** [About] icon **> Version** tab to check the PDA CPU type.
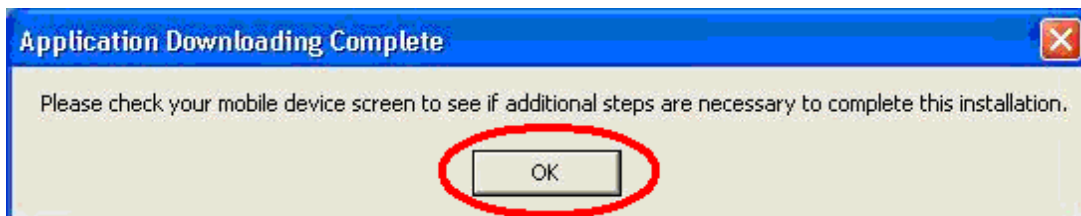
If your PDA CPU is other type, please check with the agent of SDIO Module. Due to different PDA CPU type might cause incompatible between the driver and SDIO Module.

2. Insert the included CD-ROM to your PC. The Wireless LAN Utility screen will appear, select the Install Driver (WM 5.0 or 6.0) to start driver installation.

3. Click **"OK"** to complete the driver installation.

4. After finished driver installing, the installed successfully message will show on the PDA screen.

Note: Do not insert the 802.11abg wireless SDIO Module into the Module slot of your PDA until the driver installation has been performed.

ACCESSING WLAN UTILITY

Go to **Start > Settings > Connections** tab **>** select the **Wi-Fi** [Wi-Fi] icon to access the Windows CE built-in WLAN utility.
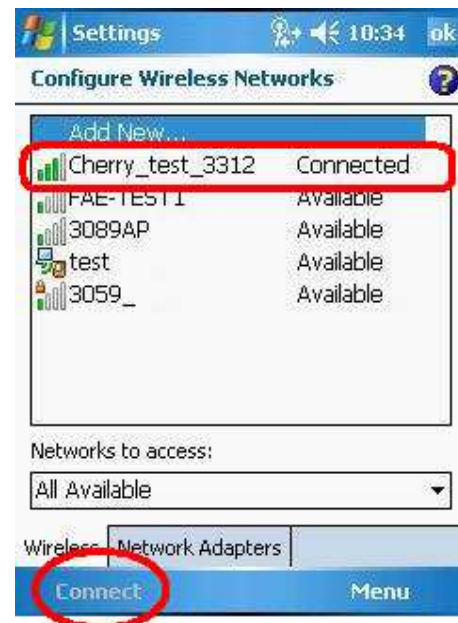

CONFIGURING WLAN UTILITY

Select an available AP or router from the list and tap **Connect** to make a connection.

Wireless tab

➢ **Configure Wireless Networks** Select an available network device from the list and tap **Connect**.

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Network Adapters tab

Configure Network Adapters

➢ **My network Module connects to:**
Tap **Work** or **The Internet** from the pull-down menu.
- **Work**: Connects to the network in your office.
- **The Internet**: Connects to your ISP at home.

➢ **Tap an adapter to modify settings:**
Tap an adapter from the list to enter its configuration screen.
Or select an adapter then tap **Edit** at the left-down corner of the screen to enter its configuration settings page.
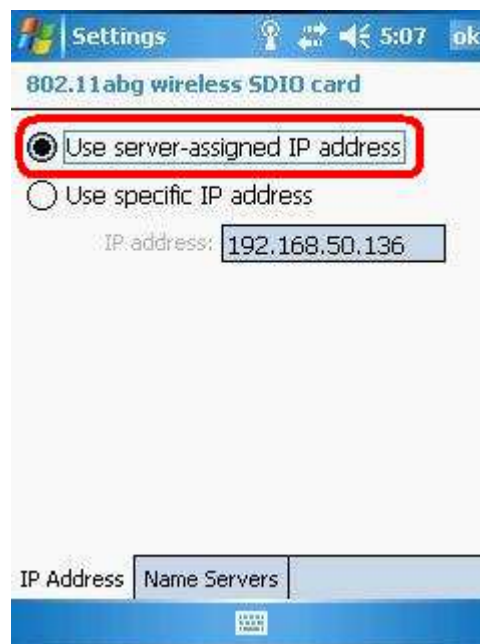
If **802.11abg wireless SDIO Module** is tapped, the following screen will appear for you to configure:

IP Address tab

⊙ **Use server-assigned IP address**
Tap **Use server-assigned IP address** to obtain an IP address automatically. The wireless router will act as a DHCP server. An IP address will be assigned from the wireless router.

⊙ **Use specific IP address**

- ● **IP address**: Enter the IP address (within the range of the wireless router's IP address, for instance, if the IP address of the router which you would like to connect is 192.168.1.254, you may enter the IP address   from 192.168.1.1 to 192.168.1.253, such as 192.168.1.123)
- ● **Subnet mask**: The subnet mask, for example, 255.255.255.0, must be the same as that set on your Ethernet network.
- ● **Default gateway**: Enter the IP address of your network's gateway, such as 192.168.1.254. The gateway is the device that enables communication between your computers and the Internet. In most cases, your router acts as your gateway.
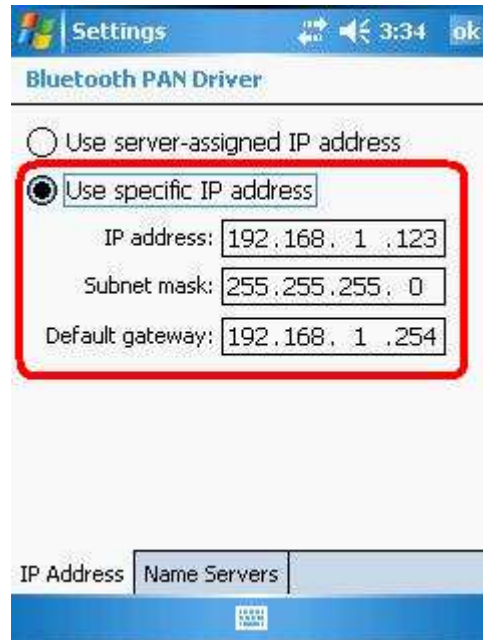
REMOVING THE DRIVER

If you would like to remove the driver from your PDA, please make a connection between the PDA and your computer via Microsoft ActiveSync® and then insert the CD-ROM into your PC.

1. Select the **Install Driver (WM 5.0 or 6.0)** to start to REMOVE the driver.
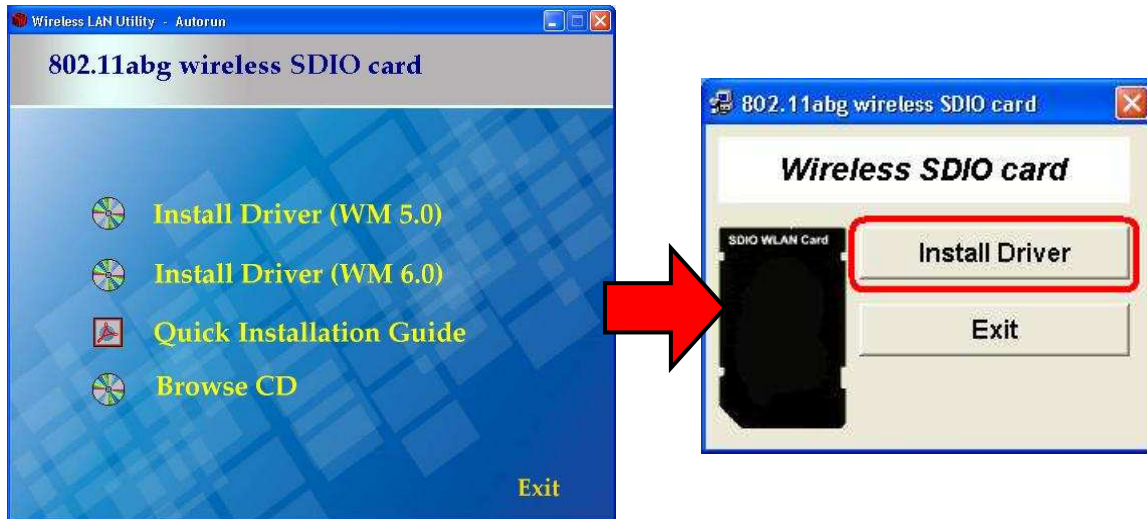
2. If you would like to re-install or upgrade the driver, please click **"Yes"**; if not, please click **"No"** to process removal.
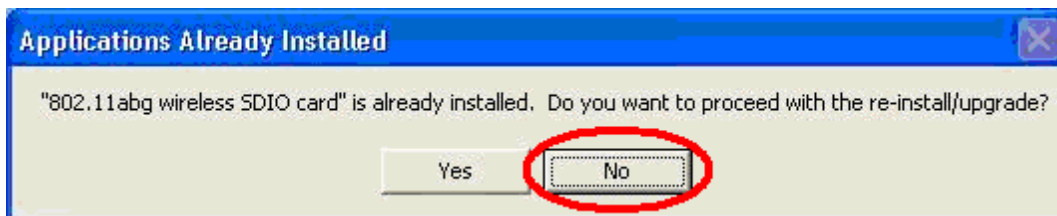
3. Select the **802.11abg wireless SDIO Module** item, and then click **"Remove"** button to uninstall the program.

4. Click **"OK"** to confirm removing the application.

5. Click **"OK"** to complete the uninstallation.

SPECIFICATIONS

Standard	IEEE 802.11a/b/g standards
Chipset	Atheros AR6001XL MAC /Base band /Radio chip
PA Chip	FM7705
Host Interface	*SDIO 1.1*
Operating Voltage	3.3V +/-5%
Power Requirement	Power consumption at 11a/g 　　TX: 360 mA, RX: 185 mA Power consumption at 11b 　　TX: 360 mA, RX: 185 mA Sleep mode: 995uA
Antenna Type	TWO HRS U.FL compatible connector on board
Frequency Range	11b/g:2.412GHz-2.4835GHz 11a:4.9GHz-5.85GHz
Modulation	11a/g:Orthogonal Frequency Division Multiplexing (OFDM) 　　54Mbps/48Mbps:64QAM 　　36Mbps/24Mbps:16QAM 　　18Mbps/12Mbps:QPSK 　　9Mbps/6Mbps:BPSK 11b:Direct Sequence Spread Spectrum (DSSS) 　　11Mbps/5.5Mbps:CCk 　　2Mbps:DQPSK 　　1Mbps:DBPSK
Number of Selectable Channels	11b/g: USA, Canada (FCC): 11 channels (2.412GHz~2.462GHz) Europe (CE)　　　: 13 channels (2.412GHz~2.472GHz) Japan (TELEC)　　: 14 channels (2.412GHz~2.4835GHz) 11a: USA, Canada (FCC): 23channels (5.15GHz~5.25GHz,,5.25GHz~5.35GHz,5.725GHz~5.825GHz) Europe (CE): 32 channels (5.15GHz~5.25GHz,5.25GHz~5.35GHz, 5.47~5.724GHz)
Modulation Technique	802.11b: Direct Sequence Spread Spectrum System
	802.11a/g: Orthogonal Frequency Division Multiplexing System
Data Rate	802.11b(11 Mbps, 5.5 Mbps, 2 Mbps, 1 Mbps)
	802.11a/g(54 Mbps, 48 Mbps, 36 Mbps, 24 Mbps, 18 Mbps, 12 Mbps, 9 Mbps, 6 Mbps)
Security	Hardware-Based Encryption/Decryption Using 64, and 128-Bit Wired-Equivalent Privacy (WEP) Keys
RF Output Power	11a 54Mbps OFDM: 9 dBm +1/-1.5dBm 11g 54Mbps OFDM: 11 dBm +1/-1.5dBm 11b 11Mbps CCK: 15dBm +1/-1.5dBm

Supported OS	Microsoft Windows CE/Linux
Receiver Sensitivity	-72 dBm at 54Mpbs/11a, 10% PER -72 dBm at 54Mpbs/11g, 10% PER -84 dBm at 11Mpbs/11b, 8% PER
Media Access Protocol	CSMA/CA (Collision Avoidance) with ACK
Physical Specifications	Dimension: 40 (L) x 24 (W) x 2.1 (H) mm
Environment Specifications	Operating Temperature: -20~85℃ ambient temperature Storage Temperature: -40~85℃ ambient temperature Operating humidity: 90% maximum (non-condensing) Storage humidity: 90% maximum (non-condensing)
EMC Certification	FCC in US CE in Europe TELEC/JATE in Japan IC in Canada