

XN-623 User manual



FCC Statement

Warning: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user authority to operate the equipment.

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.

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.

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.

IEEE 802.11b or 802.11g operation of this product in the U.S.A. is firmware-limited to channels 1 through 11.



CAUTION:

To comply with FCC RF exposure compliance requirements, a separation distance of at least 20 cm must be maintained between the antenna of this device and all persons.

This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter

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. 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 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.).



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IMPORTANT NOTE: In the event that these conditions can not be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID can not be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

End Product Labeling

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:M4Y-XN623V01**".

RF Exposure Manual Information That Must be Included

The users manual for end users must include the following information in a prominent location "IMPORTANT NOTE: To comply with FCC RF exposure compliance requirements, the antenna used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter."

Additional Information That Must be Provided to OEM Integrators

The end user should NOT be provided any instructions on how to remove or install the device.

Service Center in U.S.A

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依據 低功率電波輻射性電機管理辦法

第十二條 經型式認證合格之低功率射頻電機，非經許可，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。

第十四條 低功率射頻電機之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。前項合法通信，指依電信規定作業之無線電信。低功率射頻電機須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。



1. Introduction

IEEE 802.11b/g/n WIRELESS miniPCI CARD is the perfect solution for your wireless network applications based on the IEEE 802.11g standard offering a data rate of 54Mbps in a wireless LAN environment. **XN-623** is designed for Access Point, Router, ATUR, Printer Server series, IP Camera series and Internet Video Server gives you wireless access the web and network resource without the wire. **XN-623** provides high-speed access to network resources and has built-in 40/64-bit, and 128 bit of WEP (Wired Equivalent Privacy) data encryption. With Direct Spread Spectrum Signaling (DSSS) and Orthogonal Frequency Division Multiplexing (OFDM), domain access control, WEP encryption and group security, the modules will safeguard all your wireless data transmissions from your nosy neighbors.

XN-623 allows you to take full advantage of your devices mobility with access to real-time information and online services anytime and anywhere.

2. Feature

- . Complies with IEEE 802.11b/g Standard for 2.4GHz Wireless LAN.
- . Works with All Existing Network Infrastructures.
- . Compatible with Wi-Fi Wireless Products and Services
- . Capable of up to 128-Bit WEP Encryption.
- . Freedom to Roam While staying Connected
- . 54 Mbps High-Speed Transfer Rate
- . Two UF-L Connectors for External Antenna
- . Support Antenna diversity for Better Sensitivity
- . Lower Power Consumption.

3. SPECIFICATION

Hardware specification

The Hardware specifications of the product are as below:

Table2.1 Hardware specification

Items	Description		
Standard	IEEE 802.11b IEEE 802.11g IEEE 802.11n Draft 2.0		
Chipset	MAC/BBP AR9223		
Antenna	2 U.FL-R-SMT compliant connectors		
Antenna Configuration	2T2R		
Host Interface	32-bit miniPCI, Type III A		
Operating Voltage	DC 3.3V ± 5%		
Power Consumption Normal Mode ¹	IEEE 802.11b TX: ≤ 550mA RX: ≤ 350mA	IEEE 802.11g TX: ≤ 550mA RX: ≤ 350mA	IEEE 802.11n TX: ≤ 550mA RX: ≤ 350mA
Output Power ² @ 25°C	IEEE 802.11b	26.63 dBm (2TX)	
	IEEE 802.11g	21.51 dBm (2TX)	
	IEEE 802.11gn	HT20	19.72dBm (2TX)
		HT40	19.19dBm (2TX)
Sensitivity	IEEE 802.11b 11Mbps: ≤ -83dBm	IEEE 802.11g 54Mbps: ≤ -70dBm	IEEE 802.11n 2.4GHz HT20 ≤ -64dBm HT40 ≤ -61dBm
Modulation	IEEE 802.11b (DSSS) ♦ 5.5/11 Mbps (CCK) ♦ 2 Mbps (DQPSK) ♦ 1 Mbps (DBPSK)		
	IEEE 802.11g (OFDM/DSSS) ♦ 48/54 Mbps (QAM-64) ♦ 24/36 Mbps (QAM-16) ♦ 12/18 Mbps (QPSK) ♦ 6/9 Mbps (BPSK)		

¹ When the device is initialized, linked and pinging AP, it is defined as operating in Normal mode

² Measured with power meter (CW sensor) under 25°C room temperature

	IEEE 802.11n (OFDM/DSSS) <ul style="list-style-type: none"> ◆ QAM-64 ◆ QAM-16 ◆ QPSK ◆ BPSK
Operating Frequency	IEEE 802.11b/g ISM Band <ul style="list-style-type: none"> ◆ USA(FCC) : 2.412GHz ~ 2.462 GHz (CH1 ~ CH11) ◆ Europe(ETSI) : 2.412 GHz ~ 2.472 GHz (CH1 ~ CH13) ◆ Japan(TELEC) : 2.412 GHz ~ 2.472 GHz (CH1 ~ CH13)
	IEEE 802.11gn 20MHz Band <ul style="list-style-type: none"> ◆ USA(FCC): 2.412GHz ~ 2.462 GHz ◆ Europe(ETSI): 2.412 GHz ~ 2.472 GHz ◆ Japan(TELEC) : 2.412 GHz ~ 2.472 GHz
	IEEE 802.11gn 40MHz Band <ul style="list-style-type: none"> ◆ USA(FCC): 2.422GHz ~ 2.452 GHz(CH3 ~ CH9) ◆ Europe(ETSI) : 2.422 GHz ~ 2.462 GHz(CH3 ~ CH11) ◆ Japan(TELEC) : 2.422 GHz ~ 2.462 GHz(CH3 ~ CH11)

Software specification

The Software specifications of the product are as below:

Software specification

Items	Description	
Standard	IEEE 802.11i security standard IEEE 802.1x security standard	
Operating Mode	Infrastructure mode	
Power Management	Power save mode	
Security	WPA/WPA2/WPA-PSK/WPA2-PSK 64-bit, 128-bit, WEP TKIP AES EAP-TLS/EAP-TTLS/EAP-PEAP	
Supported OS	Linux 2.6	
PID/VID	SUBSYS_2093168C	

Physical specification

The Physical specifications of the product are as below:

Physical specification

Items	Description	
Housing Dimension	59.6mm(L) * 50.9mm(W) * 3.55mm(H)	
Weight	≤ 50g	

Environment specification

The Environment specifications of the product are as below:

Environment I specification

Items	Description	
Operating Temperature	0~+55°C	
Operating Humidity (non-condensing)	<90 [%RH]	
Storage Temperature	-20 ~ +80°C	
Storage Humidity (non-condensing)	5~90 [%RH]	
Warranty	12 Months	
Green	RoHs Compliant	

Safety/Country Approval

The Country Approvals of the product are as below: TBD

Packaging Specification

The following items will be required for the bulk packaging:

Item	Comments
FCC label	• TBD
ESD bag	• Suitable size and material to protect product
Inner box	• Suitable size and material to protect product
Carton	• Suitable size and material to protect product

4. Hardware Installation

The following sections in this chapter describe how to install XN-623 Module

4.1. Installation Overview

XN-623 wireless module is design for Access Point, Router, ATU-R, Printer Server series, IP Camera series and Internet Video Server only.

4.2. Safety Recommendations

The safety guidelines are as follows:

- λ Keep the board area clear and dust-free before, during, and after installation.
- λ Keep tools away from walk areas where you and others could fall over them.
- λ Do not wear loose clothing or jewelry, such as earrings, bracelets, or chains, that could get caught in the board.
- λ Wear safety glasses if you are working under any conditions that might be hazardous to your eyes.
- λ Do not perform any action that creates a potential hazard to people or makes the equipment unsafe.
- λ Never attempt to lift an object that is too heavy for one person to handle.

4.3. Maintaining Safety with Electricity

Warning: Before working on a board or working near power supplies, unplug the power cord on AC units; on DC units, disconnect the power at the circuit breaker.

Follow these guidelines when working on equipment powered by electricity:

- λ Do not work alone if potentially hazardous conditions exist anywhere in your work space.
 - λ Never assume that power is disconnected from a circuit; always check the circuit.
- extension cables, frayed power cords, and missing safety grounds.
- λ If an electrical accident occurs, proceed as follows:
 - Use caution; do not become a victim yourself.
 - Disconnect power from the system.
 - If possible, send another person to get medical aid. Otherwise, assess the condition of the victim and then call for help.
 - Determine if the person needs rescue breathing or external cardiac compressions; then take appropriate action.

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4.4. Installing a XN-623

- λ Remove the XN-623 module from its protective packaging.
 - λ Avoiding Electrostatic Discharge
- Before you install the XN-623 module, ground yourself by touching a piece of metal to avoid electrostatic discharge (ESD). You should also take the following precautions to prevent damage to the XN-623 module:
- λ Keep the XN-623 module in its antistatic-shielded bag until you are ready to install it.
 - λ Handle the XN-623 module by its edges.
 - λ Ensure the connector is connected to above Model's board tightly.