



User Guide

AX300 Nano Wireless USB Adapter

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<http://www.mercusys.com>

CE Mark Warning



This is a class B product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

OPERATING FREQUENCY (the maximum transmitted power)

2400MHz-2483.5MHz: 20dBm

EU declaration of conformity

MERCUSYS hereby declares that the device is in compliance with the essential requirements and other relevant provisions of directives 2014/53/EU, 2011/65/EU and (EU)2015/863. The original EU declaration of conformity may be found at <https://www.mercusys.com/support/ce>.



MERCUSYS hereby declares that the device is in compliance with the essential requirements and other relevant provisions of the Radio Equipment Regulations 2017.

The original UK declaration of conformity may be found at <https://www.mercusys.com/support/ukca/>

RF Exposure Information

This device has been tested and meets the ICNIRP exposure guidelines and the European Standard EN 62209-2. SAR is measured with this device at a separation of 0.5 cm to the body, while transmitting at the highest certified output power level in all frequency bands of this device. Carry this device at least 0.5 cm away from your body to ensure exposure levels remain at or below the as-tested levels.

Korea Warning Statements

당해 무선설비는 운용중 전파혼신 가능성이 있음 .

NCC Notice

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前述合法通信，指依電信管理法規定作業之無線電通信。

低功率射頻器材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。

BSMI Notice

安全諮詢及注意事項

- 請使用原裝電源供應器或只能按照本產品注明的電源類型使用本產品。
- 清潔本產品之前請先拔掉電源線。請勿使用液體、噴霧清潔劑或濕布進行清潔。
- 注意防潮，請勿將水或其他液體潑灑到本產品上。
- 插槽與開口供通風使用，以確保本產品的操作可靠並防止過熱，請勿堵塞或覆蓋開口。
- 請勿將本產品置放於靠近熱源的地方。除非有正常的通風，否則不可放在密閉位置中。
- 不要私自拆開機殼或自行維修，如產品有故障請與原廠或代理商聯繫。

限用物質含有情況標示聲明書

設備名稱：AX300 Nano Wireless USB Adapter			型號（型式）：MA14N			
Equipment name			Type designation (Type)			
產品元件 名稱	限用物質及其化學符號					
	鉛 Pb	鎘 Cd	汞 Hg	六價鉻 CrVI	多溴聯苯 PBB	多溴二苯醚 PBDE
PCB	○	○	○	○	○	○
外殼	○	○	○	○	○	○
天線	○	○	○	○	○	○
其他及其 配件	—	○	○	○	○	○
備考1. “超出0.1wt%”及“超出0.01wt%”系指限用物質之百分比含量超出百分比含量基準值。						
備考2. “○”系指該項限用物質之百分比含量未超出百分比含量基準值。						



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Safety Information

- Keep the device away from water, fire, humidity or hot environments.
- Do not attempt to disassemble, repair, or modify the device. If you need service, please contact us.
- Do not use the device where wireless devices are not allowed.
- This equipment can be powered only by equipments that comply with Power Source Class 2 (PS2) or Limited Power Source (LPS) defined in the standard of IEC 62368-1.

Please read and follow the above safety information when operating the device. We cannot guarantee that no accidents or damage will occur due to improper use of the device. Please use this product with care and operate at your own risk.

This product uses radios and other components that emit electromagnetic fields. Electromagnetic fields and magnets may interfere with pacemakers and other implanted medical devices. Always keep the product and its power adapter more than 15 cm (6 inches) away from any pacemakers or other implanted medical devices. If you suspect your product is interfering with your pacemaker or any other implanted medical device, turn off your product and consult your physician for information specific to your medical device.

Environment

Operating Temperature: 0°C ~40°C (32 °F ~104 °F)

Explanation of the symbols on the product label

Symbols may vary from products.

Symbol	Explanation
	Class II equipment
	Class II equipment with functional earthing
	Alternating current
	Direct current
	Polarity of d.c. power connector
	Indoor use only

	Dangerous voltage
	Caution, risk of electric shock
	Energy efficiency Marking
	Protective earth
	Earth
	Frame or chassis
	Functional earthing
	Caution, hot surface
	Caution
	Operator's manual
	Stand-by
	"ON"/"OFF" (push-push)
	Fuse
	Fuse is used in neutral N
	RECYCLING This product bears the selective sorting symbol for Waste electrical and electronic equipment (WEEE). This means that this product must be handled pursuant to European directive 2012/19/EU in order to be recycled or dismantled to minimize its impact on the environment. User has the choice to give his product to a competent recycling organization or to the retailer when he buys a new electrical or electronic equipment.

	Caution, avoid listening at high volume levels for long periods
	Disconnection, all power plugs
m	Switch of mini-gap construction
μ	Switch of micro-gap construction (for US version) Switch of micro-gap / micro-disconnection construction (for other versions except US)
ε	Switch without contact gap (Semiconductor switching device)

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Conventions

This guide provides a brief introduction to the AX300 Nano Wireless USB Adapter and regulatory information.

Note: Features of the adapter may vary by model and driver version. All images, steps, and descriptions in this guide are only examples and may not reflect your actual adapter experience.

More Info

Specifications and the latest software can be found at the product page at the official website <http://www.mercusys.com>.

The Quick Installation Guide can be found where you find this guide or inside the package of the adapter.

Speed/Coverage Disclaimer

[†]Maximum wireless signal rates are the physical rates derived from IEEE Standard 802.11 specifications. Actual wireless data throughput and wireless coverage, and quantity of connected devices are not guaranteed and will vary as a result of network conditions, AP limitations, and environmental factors, including building materials, obstacles, volume and density of traffic, and AP location.

[§]Functionality may be restricted on some operating systems and platforms. To ensure compatibility, you may need to update the adapter's drivers after an OS update. You can find our latest drivers in the download center at <http://www.mercusys.com>

Chapter 1 Introduction

1.1 Product Overview

Much smaller than a regular USB flash driver, this adapter allows you to more easily carry and use to turn on your wireless network anytime and anywhere.

With the built-in inbox driver by Windows operation systems, you just need to plug the adapter into the computer and then enjoy the fast wireless network in seconds.

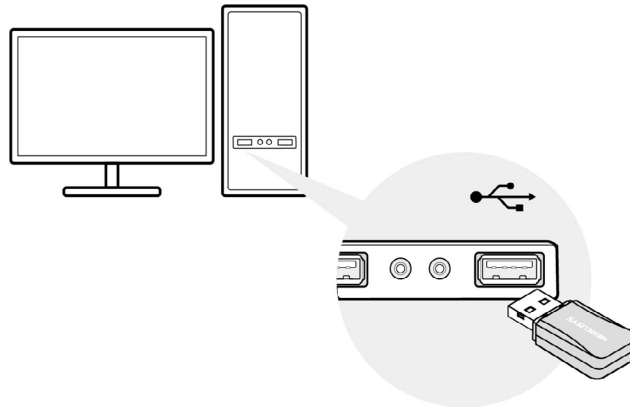


1.2 Features

- Wi-Fi speed up to 287Mbps[†]
- Compact, convenient solution to make your device wireless
- Provides USB 2.0 Interface
- Minimum size and maximum performance
- Easy Installation without CD
- Supports Windows 11/10/7 and Linux (Kernel 3.10 and later)

Chapter 2 Connect to a Computer

Before you start using your adapter, insert the adapter into a USB port on your computer directly.



Once you have connected the adapter to your computer, install the driver according to your operating system:

For Windows users, please refer to [Chapter 3](#).

For Linux users, please refer to [Chapter 4](#).

Chapter 3 Driver Installation for Windows Users

3.1 Install Driver

1. Go to **My Computer** or **This PC**.

2. Find out MERCUSYS disk then run the **SetupInstall.exe** to install driver.

Note: If you cannot find the MERCUSYS disk, download the driver at www.mercusys.com/support.

3. Follow the instructions to complete the installation and restart your computer.

Notes:

- If you can't install the driver successfully, disable the antivirus software and firewall, then try again.
- If an unknown publisher message pops up, select Yes to continue.
- If Windows User Account Control requires admin credentials, type user name and password of your Windows administrator account.

3.2 Join a Wireless Network

Follow the steps below to join a wireless network via Windows built-in wireless utilit:

1. Click the network icon on the taskbar (the icon might look like  ,  ,  , or ).
2. Select your Wi-Fi network, click **Connect** and enter the password when prompted.

3.3 Uninstall Driver

The uninstallation steps may vary by systems. Uninstall the software according to your Windows operating system version:

- Windows 11/10

Go to Start menu to find the **Mercusys MA14N Driver** application. Click **Uninstall**, then follow the on-screen instructions to complete the uninstallation.

- Windows 7

Go to **Start > All Programs > Mercusys MA14N Driver > Uninstall**. Follow the on-screen instructions to complete the uninstallation.

Chapter 4 Driver Installation for Linux Users

1. Before you start

Change to the driver directory and run `install_setup.sh`:

```
sudo ./install_setup.sh
```

```
aic@aic-ThinkPad-T470:~/workspace/aic8800_linux_driver$
aic@aic-ThinkPad-T470:~/workspace/aic8800_linux_driver$ sudo ./install_setup.sh
#####
AIC Wi-Fi driver Setup Files script
2023.03.09 v1.1.0
#####
Authentication requested [root] for setup:
#####
The Setup Script is completed !
#####
aic@aic-ThinkPad-T470:~/workspace/aic8800_linux_driver$ s
```

Note: You can always download the driver or check the new release at <https://www.mercusys.com/download/ma14n/>. Then find the compatible version of driver on the support page.

2. Compile the Driver

Change to `aic8800_linux_driver/driver/aic8800`, modify the Makefile and add parameters to specify the cross-compilation environment:

```
make
```

```
aic@aic:~/workspace/aic8800_linux_driver/drivers/aic8800$
aic@aic:~/workspace/aic8800_linux_driver/drivers/aic8800$ make
make -C /lib/modules/5.15.0-67-generic/build M=/home/aic/workspace/aic8800_linux_driver/drivers/aic8800 ARCH=x86_64 CROSS_COMPILE= modules
make[1]: 进入目录 "/usr/src/linux-headers-5.15.0-67-generic"
CC [M] /home/aic/workspace/aic8800_linux_driver/drivers/aic8800/aic_load_fw/aic_load_fw.o
CC [M] /home/aic/workspace/aic8800_linux_driver/drivers/aic8800/aic_load_fw/aicload_fw.o
CC [M] /home/aic/workspace/aic8800_linux_driver/drivers/aic8800/aic_load_fw/aicload_fw.o
CC [M] /home/aic/workspace/aic8800_linux_driver/drivers/aic8800/aic_load_fw/aicload_fw.o
CC [M] /home/aic/workspace/aic8800_linux_driver/drivers/aic8800/aic_load_fw/aicload_fw.o
```

After compiling, check if the two modules are already available: `aic_load_fw.ko` and `aic8800_fdrv.ko`.

```
aic@aic:~/workspace/aic8800_linux_driver/drivers/aic8800$ ls aic_load_fw/aic_load_fw.ko
aic_load_fw/aic_load_fw.ko
aic@aic:~/workspace/aic8800_linux_driver/drivers/aic8800$ ls aic8800_fdrv/aic8800_fdrv.ko
aic8800_fdrv/aic8800_fdrv.ko
```

3. Load the Driver

Change to `aic8800_linux_driver/driver/aic8800` and run the following commands:

For virtual machine users, before loading the driver please run `sudo modprobe cfg80211`

```
sudo insmod aic_load_fw/aic_load_fw.ko
```

```
sudo insmod aic8800_fdrv/aic8800_fdrv.ko
```

```
aic@aic:~/workspace/aic8800_linux_driver/drivers/aic8800$ sudo insmod aic_load_fw/aic_load_fw.ko
aic@aic:~/workspace/aic8800_linux_driver/drivers/aic8800$ sudo insmod aic8800_fdrv/aic8800_fdrv.ko
aic@aic:~/workspace/aic8800_linux_driver/drivers/aic8800$
```

Or

```
sudo make install
```

```
aic@aic-ThinkPad-T470:~/workspace/aic8800_linux_driver/drivers/aic8800$ sudo make install
mkdir -p /lib/modules/5.15.0-60-generic/kernel/drivers/net/wireless/aic8800
install -p -m 644 aic_load_fw/aic_load_fw.ko /lib/modules/5.15.0-60-generic/kernel/drivers/net/wireless/aic8800/
install -p -m 644 aic8800_fdrv/aic8800_fdrv.ko /lib/modules/5.15.0-60-generic/kernel/drivers/net/wireless/aic8800/
/sbin/depmod -a 5.15.0-60-generic
```

4. Install the Driver

Please install the driver first and then connect the adapter to your PC.

Check if the driver is loading successfully:

```
ifconfig
```

If the output of “ifconfig” shows the expected network interface, the driver should have loaded successfully and you can join the Wi-Fi of your router.

```
aic@aic:~/workspace/aic8800_linux_driver/drivers/aic8800$ ifconfig
eth0: flags=4099<UP,BROADCAST,MULTICAST> mtu 1500
    ether 48:9e:bd:4d:93:e7 txqueuelen 1000
    RX packets 0 bytes 0 (0.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 0 bytes 0 (0.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    inet6 ::1 prefixlen 128 scopeid 0x10<host>
    loop txqueuelen 1000
    RX packets 302 bytes 24545 (24.5 KB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 302 bytes 24545 (24.5 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

wlan0: flags=4099<UP,BROADCAST,MULTICAST> mtu 1500
    ether 10:3d:1c:60:57:b1 txqueuelen 1000
    RX packets 1389 bytes 1030103 (1.0 MB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 731 bytes 122208 (122.2 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

wlan1: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet6 fe80::29f5:ea22:3a74:76c2 prefixlen 64 scopeid 0x20<link>
    ether a6:9c:88:00:7a:00 txqueuelen 1000
    RX packets 0 bytes 0 (0.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 7 bytes 895 (895.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

5. Uninstall the driver

Run the following commands:

```
sudo rmmod aic8800_fdrv
```

```
sudo rmmod aic_load_fw
```

Or change to `aic8800_linux_driver/driver/aic8800` and run:

```
sudo make uninstall
```

Appendix: Specifications

Normal	
Interface	USB 2.0
Standards	IEEE 802.11ax/b/g/n 2.4 GHz
Antenna	1 Internal Antenna
Security	WPA-PSK/WPA2-PSK, WPA/WPA2
Dimensions	19.15 × 14.94 × 7.19 mm (0.75 × 0.59 × 0.28 in.)
Operating System	Windows 11/10/7 and Linux (Kernel 3.10 and later)
Signal Rate	Up to 287 Mbps on 2.4 GHz
Safety & Emissions	CE, ROHS

Environmental and Physical	
Operating Temperature	0°C~40°C (32°F~104°F)
Storage Temperature	-40°C~70°C (-40°F~158°F)
Working Humidity	10% - 90% RH, Non-condensing
Storage Humidity	5% - 90% RH, Non-condensing