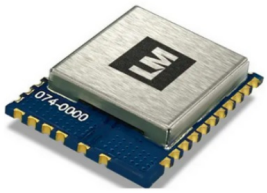


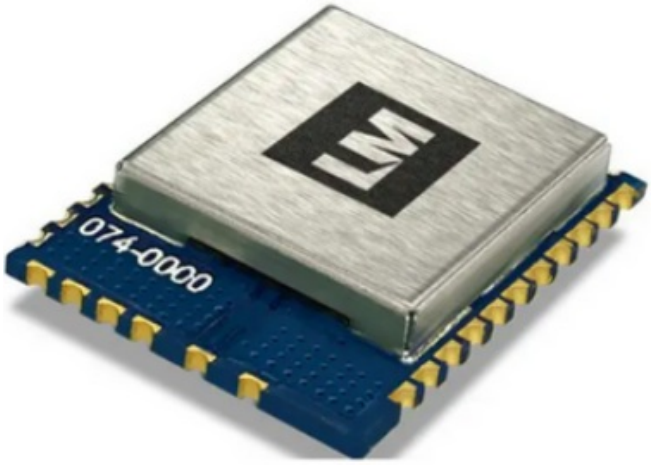

# GSD WXT2AM2101 WIFI+BT Module IEEE User Manual



Contents



## GSD WXT2AM2101 WIFI+BT Module IEEE



## Product Description

The WXT2AM2101 is a complete 2.4GHz/5GHz/6GHz WIFI 2×2 MIMO module. This module provides a high level of integration with a dual-stream IEEE 802.11ax MAC/ base band /radio and Bluetooth 5.2.The WLAN operation supports 20MHz,40MHz and 80MHz channels for data rates up to 1201Mbps. It fully complies with IEEE 802.11 a/b/g/n/ac/ax feature rich wireless connectivity at high standards,delivers reliable, cost-effective, throughput from an extended distance.

## Product Features

- Complies with IEEE 802.11b/g/n/ax for 2.4GHz IEEE 802.11a/n/ac/ax for 5GHz IEEE 802.11ax for 6GHz Wireless LAN.
- Bluetooth v5.2
- Two transmit and Two receive path(2T2R)
- Works with all existing network nfrastructure.
- Capable of up to 128-Bit WEP Encryption.
- Freedom to roam while staying connected.
- UP to 1201 Mbps High-Speed Transfer Rate in 802.11ax mode of operation.
- Operating Systems Linux, Win10, Win11.
- Low power consumption.
- Easy to install and configure.

## Product Specification

| | |
|---|---|
| Model | WXT2AM2101 |
| Product Name | WIF+BT Module |
| Standard | 802.11 a/b/g/n/ac/ax |
| Interface | USB |
| Data  Transfer Rate | 1,2,5.5,6,11,12,18,22,24,30,36,48,54,60,90,120 and maximum of 1201Mbps |
| Modulation Method | GFSK,π/4-DQPSK,8DPSK(bluetooth) DQPSK,DBPSK,CCK(802.11b) QPSK,BPSK,16QAM,64QAM with OFDM (802.11g) QPSK,BPSK,16QAM,64QAM with OFDM (802.11n) QPSK,BPSK,16QAM,64QAM with OFDM (802.11a)<br>QPSK,BPSK,16QAM,64QAM,256QAM with OFDM (802.11ac) QPSK,BPSK,16QAM,64QAM,256QAM,1024QAM with OFDM (802.11ax) |
| Frequency Band | BLUETOOTH 2402~2480 MHz<br>WIFI<br>2.4G: 2412~2462 MHz<br>5G: 5150~5350MHz, 5470~5725MHz 5725~5850MHz<br>6G: 5925~7125MHz |
| Operation Mode | Infrastructure |
| Security | WEP, TKIP, AES, WPA, WPA2 |
| Operating Voltage | 3.3V±10% |
| Current Consumption | 1000mA |
| Antenna Type | PIFA |
| Operating Temperature | 0 ~ 70°C ambient temperature |
| Storage Temperature | -40 ~ 80°C ambient temperature |
| Humidity | 5 to 95 % maximum (non-condensing) |

**NOTICE:**

- please keep this product and accessories attached to the places which children can’t touch;
- do not splash water or other liquid onto this product, otherwise it may cause damage;
- do not put this product near the heat source or direct sunlight, otherwise it may cause deformation or malfunction;
- please keep this product away from flammable or naked flame;
- please do not repair this product by yourself. Only qualified personnel can be repaired.

## FCC 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 or more 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 equipment 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.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. Please notice that if the FCC identification number is not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module. This exterior label can use wording such as the following: "Contains FCC ID:2AC23-WXT2A" any similar wording that expresses the same meaning may be used. This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator & your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. The module is limited to OEM installation ONLY. The OEM integrator is responsible for ensuring that the end-user has no manual instruction to remove or install the module. The module is limited to installation in mobile applications. Separate approval is required for all other operating configurations, including portable configurations with respect to Part 2.1093 and different antenna configurations. There is a requirement that the grantee provides guidance to the host manufacturer for compliance with Part 15B requirements. The module complies with FCC Part 15.247 / Part 15.407 and applies for Single module approval. Trace antenna designs: Not applicable.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator & your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. The device must be professionally installed The intended use is generally not for the general public.It is generally for industry/commercial use.The connector is within the transmitter enclosure and can only be accessed by disassembly of the transmitter that is not normally required. the user has no access to the connector. Installation must be controlled. Installation requires special training This module has been assessed against the following FCC rule parts: CFR 47 FCC Part 15 C (15.247, DTS and DSS) and CFR 47 FCC Part 15 E (NII). It is applicable to the modular transmitter  This radio transmitter 12290A-WXT2A has been approved by Innovation, Science and Economic Development Canada to operate with the antenna types listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.

The concrete contents to check are the following three points.

1. Must use the following antenna.
2. Should be installed so that the end user cannot modify the antenna;
3. The feed line should be designed in 50ohm

Fine-tuning of return loss etc. can be performed using a matching network.

For devices with detachable antenna(s), the maximum antenna gain permitted for devices in the band 5725-5850 MHz shall be such that the equipment still complies with the e.i.r.p. limits as appropriate; If the module intended to be installed to a portable device, a permissive change may need before used.

**BLE:**

| Antenna | Frequency (MHz) | Antenna Type | MAX Antenna Gain (dBi) |
|---|---|---|---|
| 1 | 2402-2480 | PIFA | 2 |

**BT:**

| Antenna | Frequency (MHz) | Antenna Type | MAX Antenna Gain (dBi) |
|---|---|---|---|
| 1 | 2402-2480 | PIFA | 2 |

**2.4G wifi**

| Antenna | Frequency (MHz) | Antenna Type | MAX Antenna Gain (dBi) |
|---|---|---|---|
| 1 | 2412-2462 | PIFA | 2 |
| 2 | 2412-2462 | PIFA | 2 |

**5G:**

| Antenna No. | Frequency Band | Antenna Type | Max Antenna Gain (dBi) |
|---|---|---|---|
| 1 | 5180 ~ 5825 | PIFA | 3 |
| 2 | 5180 ~ 5825 | PIFA | 3 |

**Wifi 6E:**

| Antenna No. | Frequency Band | Antenna Type | Max Antenna Gain (dBi) |
|---|---|---|---|
| 1 | 5925 ~ 7125 | PIFA | 4 |
| 2 | 5925 ~ 7125 | PIFA | 4 |

The antenna is permanently attached, can’t be replaced.

**Canada Statement**
This device contains license-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada’s license-exempt RSS(s). Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

Please notice that if the ISED certification number is not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module. This exterior label can use wording such as the following: “Contains IC:12290A-WXT2A” any similar wording that expresses the same meaning may be used. The device for operation in the band 5150-5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems For devices with detachable antenna(s), the maximum antenna gain permitted for devices in the bands 5250-5350 MHz and 5470-5725 MHz shall be such that the equipment still complies with the e.i.r.p. limit; For devices with detachable antenna(s), the maximum antenna gain permitted for devices in the band 5725-5850 MHz shall be such that the equipment still complies with the e.i.r.p. limits as appropriate; The device meets the exemption from the routine evaluation limits in section 2.5 of RSS 102 and compliance with RSS-102 RF exposure, users can obtain Canadian information on RF exposure and compliance. This radio transmitter [IC : 12290A- WXT2A] has been approved by Innovation, Science and Economic Development Canada to operate with the antenna types listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.

The concrete contents to check are the following three points.

1. Doit utiliser une antenne PIFA avec un gain ne dépassant pas 2 dBi pour 2,4G et ne dépassant pas 3 dBi pour 5G, ne dépassant pas 4 dBi pour 6G.
2. Should be installed so that the end user cannot modify the antenna
3. Feed line should be designed in 50ohm

Fine tuning of return loss etc. can be performed using a matching network.

Antennas:
**BLE:**

| Antenna | Frequency (MHz) | Antenna Type | MAX Antenna Gain (dBi) |
|---|---|---|---|
| 1 | 2402-2480 | PIFA | 2 |

**BT:**

| Antenna | Frequency (MHz) | Antenna Type | MAX Antenna Gain (dBi) |
|---|---|---|---|
| 1 | 2402-2480 | PIFA | 2 |

**2.4G wifi**

| Antenna | Frequency (MHz) | Antenna Type | MAX Antenna Gain (dBi) |
|---|---|---|---|
| 1 | 2412-2462 | PIFA | 2 |
| 2 | 2412-2462 | PIFA | 2 |

**5G:**

| Antenna No. | Frequency Band | Antenna Type | Max Antenna Gain (dBi) |
|---|---|---|---|
| 1 | 5180 ~ 5825 | PIFA | 3 |
| 2 | 5180 ~ 5825 | PIFA | 3 |

**Wifi 6E:**

| Antenna No. | Frequency Band | Antenna Type | Max Antenna Gain (dBi) |
|---|---|---|---|
| 1 | 5925 ~ 7125 | PIFA | 4 |
| 2 | 5925 ~ 7125 | PIFA | 4 |

The antenna is permanently attached, can’t be replaced.

**Notice to OEM integrator**

Must use the device only in host devices that meet the FCC/ISED RF exposure category of mobile, which means the device is installed and used at distances of at least 20cm from persons. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. The end user manual shall include FCC Part 15 /ISED RSS GEN compliance statements related to the transmitter as shown in this manual(FCC/Canada statement). According to FCC Part 15 Subpart C Section 15.212, the radio elements of the modular transmitter must have the radio frequency circuitry shielded. However, due to there is no shield for this Module, this module is granted as Limited Modular Approval. When this Module is installed into the end product, a Class II Permissive Change or a New FCC ID submission is required to ensure full compliance of FCC-relevant requirements. The host manufacturer is strongly recommended to confirm compliance with FCC/ISED requirements for the transmitter when the module is installed in the host The use condition limitations extend to professional users, then instructions must state that this information also extends to the host manufacturer’s instruction manual. This module is stand-alone modular. If the end product will involve Multiple simultaneous transmitting conditions or different operational conditions for a stand-alone modular transmitter in a host, the host manufacturer has to consult with the module manufacturer for the installation method in end system. Any company of the host device which install this modular should perform the test of radiated & conducted emission and spurious emission etc. according to FCC Part 15C: 15.247 and 15.209 & 15.207, 15B class B requirement, only if the test result complies with FCC part 15C: 15.247 and 15.209 & 15.207, 15B class B requirement. Then the host can be sold legally. This modular transmitter is only FCC authorized for the specific rule parts ( 47CFR Part 15.247 and 15.407) listed on the grant, and the host product manufacturer is responsible for compliance to any other FCC rules that apply to the host not covered by the modular transmitter grant of certification. The host manufacturer is strongly recommended to confirm compliance with FCC/ISED requirements for the transmitter when the module is installed in the host. Must have on the host device a label showing Contains FCC ID:2AC23-WXT2A and IC:12290A- WXT2A.

**The installer should put it in the manual**

The device for operation in the band 5150–5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems

## Documents / Resources

| | |
|---|---|
|  | GSD WXT2AM2101 WIFI+BT Module IEEE [pdf] User Manual<br>WXT2A, 2AC23-WXT2A, 2AC23WXT2A, WXT2AM2101 WIFI BT Module IEEE, WXT2AM2101 WIFI BT, Module IEEE, WXT2AM2101 IEEE |