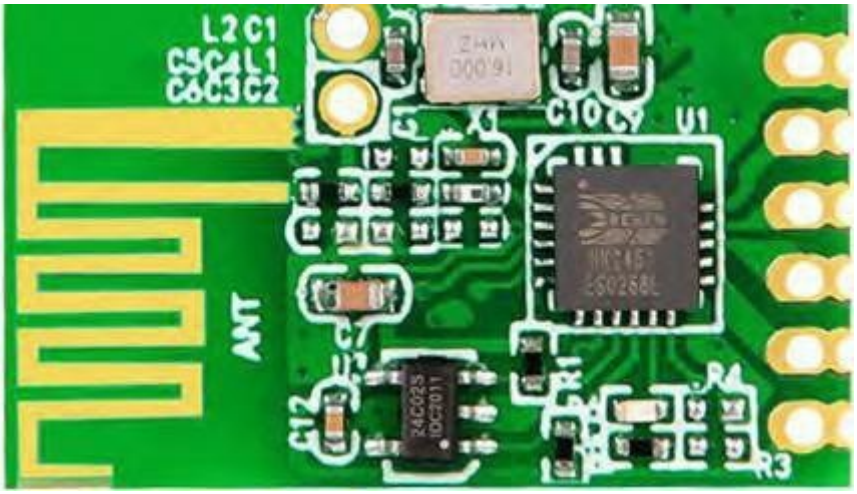
GL24S 2.4G Serial Port Wireless Transparent Transmission Module



Product Description:

GL24S adopts the latest 2.4G SOC technology, featuring no development required, a visual range of over 200 meters, and an integrated transceiver without the need for switching. It provides transparent serial port transmission and communication protocols, allowing for quick and successful debugging. Users only need to understand serial communication, without the need for complex wireless communication knowledge, to complete the development of wireless communication products. There is no data packet size limit, and the micro-latency is low.

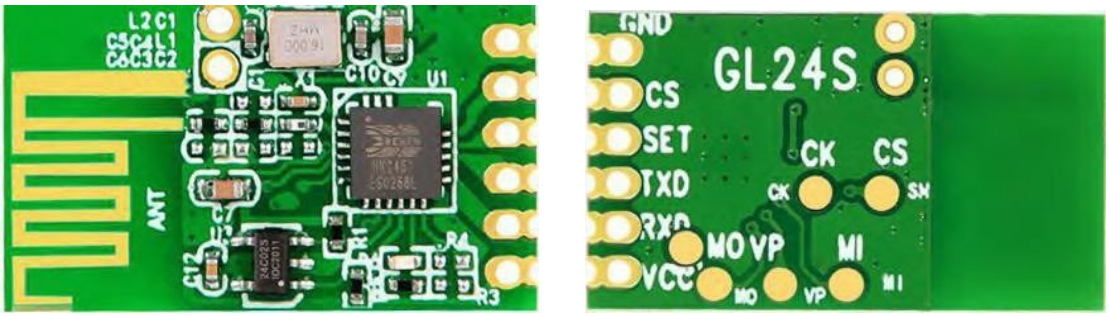
Main features:

- Half-duplex communication, strong anti-interference ability.
- 2.4GHz ISM frequency band, no application required.
- Adjustable baud rates: 2Mbps, 1Mbps, 250Kbps.
- Output power: ≤0dBm.
- Receiver sensitivity: -95dBm.
- Transmitting operating current: 40mA@0dBm.
- Receiving operating current: 24mA.
- Sleep current: 3.5uA.
- Standard TTL level UART serial port.
- Configurable working frequency, multiple modules with frequency division multiplexing, no mutual interference.

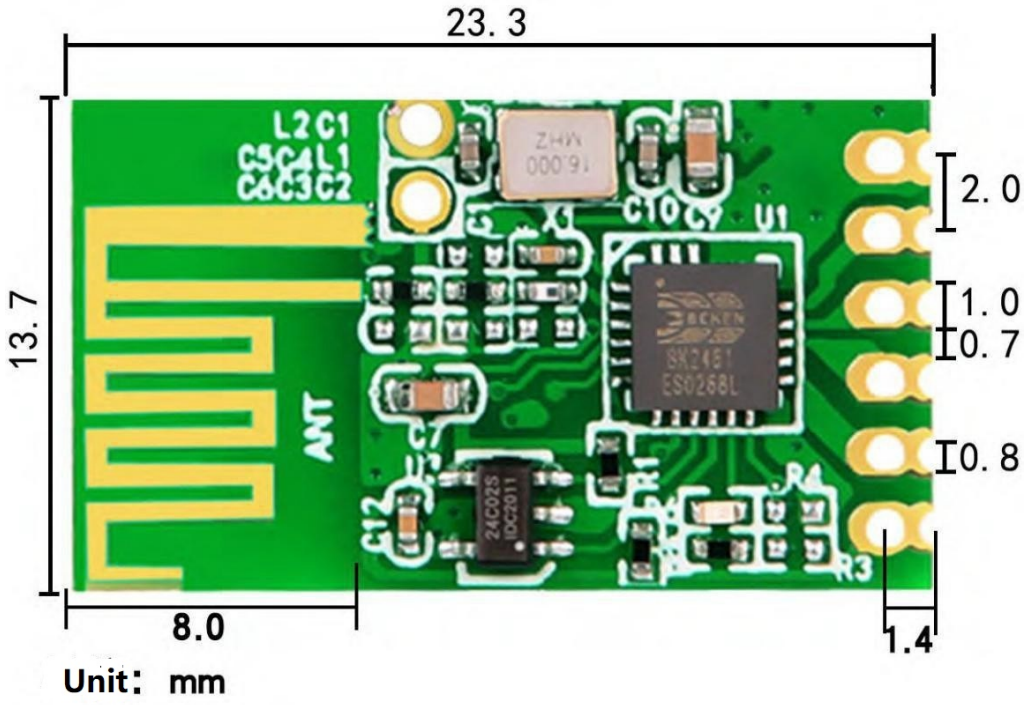
- Automatic completion of communication protocol conversion and RF transceiver switching, no user intervention required, simple and easy to use.
- Serial baud rate: 0.6kbps-38.4kbps, configurable by AT commands or host computer.
- Long transmission distance, up to 200 meters or more in open areas without interference.
- Small size SMD package, easy to install.
- Automatic 2.4G frequency hopping, multiple pairs can be used simultaneously without mutual interference, replacing 315/433MHz solutions.
- High-performance baseband processing chip and MCU, fast transmission speed, and high security level.

Performance indicators:

- Operating frequency: 2.4Ghz
- Operating voltage: 2.3V-3.6V, typical 3.3V
- Transmitting current: maximum 75mA
- Receiving current: 24mA
- Sleep current: 3.5uA
- Modulation method: GFSK
- Transmission power: ≤0dBm
- Receiver sensitivity: -95dBm
- Transmission rate: maximum 2Mbps
- Interface: UART
- Antenna: onboard antenna (customizable IPEX interface external antenna)
- Antenna impedance: 50Ω
- Communication distance: line of sight 200M
- Dimensions: 23.3 * 13.7 * 2.2mm [width × length × thickness]
- Operating temperature: -40 to +85° C



Pin Definition	
VCC	Power Supply: +2.3V - +3.6V, Typical 3.3V
RX	Module Data Input (TTL level): Serial communication data reception - RX
TX	Module Data Output (TTL level): Serial communication data transmission - TX
SET	Setup Bit: Parameter configuration enable (Low level enables parameter configuration, do not leave floating) - SET=0
	Default Baud Rate: 9600
CS	Sleep: Pin is active when connected to a low level, high level for sleep (do not leave floating)
GND	Power Ground



Integration instructions for host product manufacturers according to KDB 996369 D03OEM Manual v01

2.2 List of applicable FCC rules
FCC Part 15 Subpart C 15.249 &15.207 &15.209.

2.3 Specific operational use conditions
The module can be used for mobile applications with a maximum 0dBi antenna. The host manufacturer installing this module into their product must ensure that the final composite product complies with the FCC requirements by a technical assessment or evaluation to the FCC rules, including the transmitter operation. The host manufacturer has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user's manual of the end product which integrates this module. The end user manual shall include all required regulatory information/warning as show in this manual.

2.4 Limited module procedures
The device is a limited module approval.

2.5 Trace antenna designs
Not applicable, The module has its own antenna, and doesn't need a host sprinted board micro strip trace antenna etc

2.6 RF exposure considerations
The device has been evaluated to meet general RF exposure requirement. The device can be used in portable exposure condition without restriction; and if RF exposure statement or module layout is changed, then the host product manufacturer required to take responsibility of the module through a change in FCC ID or new application The FCC ID of the module cannot be used on the final product In these circumstances, the host manufacturer will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization
Portable host information:
Product Name:2.4G MIDI IN/OUT Wireless Virtual Cable
Model Name: MIDI MATE, MIDI MATE OUT, MIDI MATE IN, MIDI CAPTAIN

2.7 Antennas

Antenna Specification are as follows:
Type of antenna: PCB Antenna
Gain of antenna: 0dBi Max.
This device is intended only for host manufacturers under the following conditions: The transmitter module may not be co-located with any other transmitter or antenna;
The module shall be only used with the internal antenna(s) that has been originally tested and certified with this module. The antenna must be either permanently attached or employ a “unique" antenna coupler
As long as the conditions above are met, further transmitter test will not be required
However, the host manufacturer 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)

2.8 Label and compliance information

Host product manufacturers need to provide a physical or e-label stating " Contains FCC ID: 2BFBY-MIDIMATE"with their finished product

2.9 Information on test modes and additional testing requirements

Host manufacturer must perform test of radiated & conducted emission and spurious emission, e.t.c according to the actual test modes for a stand-alone modular transmitter in a host, as well as for multiple simultaneously transmitting modules or other transmitters in a host product.
Only when all the test results of test modes comply with FCC requirements, then the end product can be sold legally.

2.10 Additional testing, Part 15 Subpart B disclaimer

The modular transmitter is only FCC authorized for FCC Part 15 Subpart C 15.249 &15.207 &15.209 and that 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. If the grantee markets their product as being Part 15 Subpart B compliant (when it also contains unintentional-radiator digital circuit), then the grantee shall provide a notice stating that the final host product still requires Part 15 Subpart B compliance testing with the modular transmitter installed

Module installation:

The wireless module is installed in the host product by the factory operator during the production process.

After assembly, the wireless module is built-in by welding in the host product, which is not removable and will not be used alone, and does not require additional operation by users and other personnel.

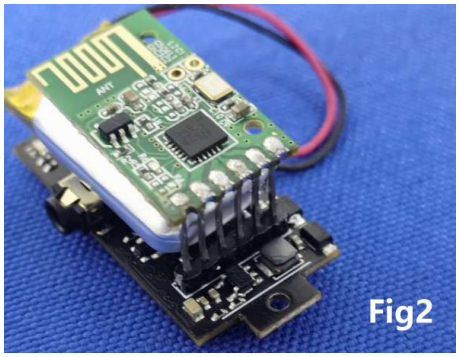
The procedure and installation position of wireless module production and assembly are shown as below:

Wireless module:

Please see the Fig 1

Host Product:

Assembly the wireless module to board of the host product through terminals, as Fig 2



Federal Communication Commission Statement (FCC,U S)

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

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

IMPORTANT NOTES

Co-location warning:

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

OEM integration instructions:

This device is intended only for OEM integrators under the following conditions:
The transmitter module may not be co-located with any other transmitter or antenna The module shall be only used with the external antenna(s)that has been originally tested and certified with this module
As long as the 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.).

Validity of using the module certification:

In the event that these conditions cannot be met (for example certain laptop configurations or co-location with another transmitter),then the FCC authorization for this module in combination with the host equipment is no longer considered valid and the FCC ID of the module cannot 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:
The final end product must be labeled in a visible area with the following: "Contains Transmitter Module **FCC ID: 2BFBY-MIDIMATE**"

Information that must be placed in the end user manual:
The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user's manual of the end product which integrates this module The end user manual shall include all required regulatory information/warning as show in this manual