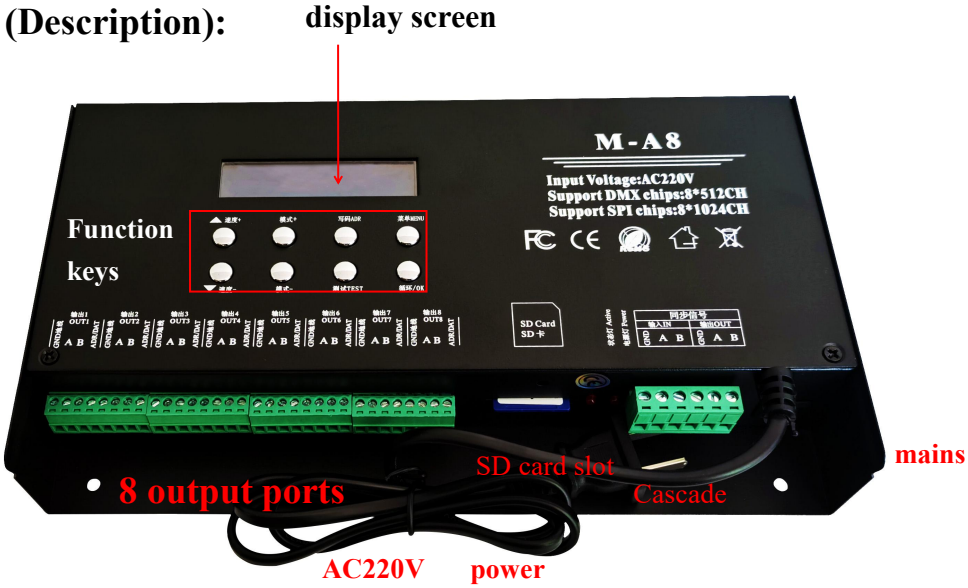
M-A8 Manual

Image (Description):



1. Detailed parameters:

1. Power supply voltage: AC (alternating current) 220V

2. Load capacity: DMX 8*512; TTL 8*1024 channels

Note: Format the SD card before using it.

3. Synchronization method: Cascaded synchronization / GPS synchronization

4. Installation method: outdoor rainproof

5. Dimensions: 250×155×43 mm

6. Weight: 1.35kg

7. Load mode: SD card program

8. SD card format: FAT32

9. SD card capacity: 8G

II. Features of the M-A8 System

1. Grayscale control from level 32 to 65536 with software Gamma correction.

2. Supports various point, line, and surface light sources, with support for both regular and irregular shapes.

3. The controller port supports DMX 8×512pixels and TTL 8×1024 pixels.

4. Utilize AC220V alternating current with multi-unit cascaded synchronization. During operation, only the primary controller is activated while subsequent units function as secondary controllers. The Simple LED program software exports multiple configuration files during synchronized operation, with the sequence number appended to each file name. Controllers identify the corresponding program content through their unique ID numbers.

5、 The controller output port provides three protections to ensure that the controller output port is not burned out in the case of short circuit or reverse connection of the controlled lamp.

6、 The controller has built-in effects to test load-bearing fixtures (RGB/RGBW fixtures are supported).

7、 The controller supports DMX512 address writing and testing, enabling DMX512 IC address writing for single or all ports while performing address tests on luminaires. It features an LCD display showing controlled models, IDs, and operational status.

8、 For both standalone and multi-unit synchronized operation, the controller must be equipped with an SD card. The program must be copied to the SD card, and the controller's corresponding ID number must be set. The controller will automatically read the program content from the specified section.

9、 The controller communicates with each other using the international standard 485 protocol.

10、 The controller now features a one-touch reset function. To activate it, press and hold both the cycle” (OK)” button and the “speed+ “select button on the main interface.

2、Digital display and button meaning:

Menu Display	Digital display	liquid-crystal display	Chinese translation
①	1-c P	Set Chip x x x x	Set chip
②	2-b r、g-22	Set Bright 100%	Set brightness and gamma values
③	3-r F	Set RF Mode	Set RF band
④	4-r g b	Set RGB Mode	Set up light channel
⑤	5-R T C	RTC :1970-00-00	Timer
⑥	6:d-0 1	ID :01	Set ID number
⑦	7：c 150	AC Delay：150MS	a-c cycle
⑧	8:50 HZ	WorkMode:50HZ	service frequency

Menu Display	Digital display	liquid-crystal display	Chinese translation
⑨	9：Led：1024	Led：1024	Load Limit Settings
⑩	10：ch：RGB	Built-in effect insert_W	Insert W channel
⑪	11：VER	VER 6.85	Version sequence

Key name	meaning
velocity +/-	Switch speed directly on the main interface, and use up/down buttons in other states.
pattern +/-	Switch directly between controller built-in programs and SD card programs on the main interface.
coding (ADR)	Light fixture address to make the light fixture sequence normal.
test (Test)	There are five test effects in total, which detect whether the signal is smooth, whether the power supply is sufficient, and whether the code is correct.
recurrence (OK)	After completing the above items, press OK to confirm, save, return, or exit.
Menu (MENU)	Settings: Chip, brightness, RF band, channel, time, ID number, sync frequency, operating frequency, number of load points, insert_W (built-in effect), version number

3. Main interface display instructions:

Card Reader Mode

Built-in mode

① ID: 01 indicates that the current controller's number is 01, meaning it is the first controller,

with a maximum of 255.

② BRI: 99% BRI stands for Brightness Index, indicating the current brightness control at 99% of the maximum 100%.

③ F1:05 F1 stands for the first two letters of 'file', indicating built-in mode. This is the fifth built-in mode currently active.

SD:05 SD stands for SD card, indicating the SD card file mode, which means playing the fifth file on the SD card.

④ Speed:03 is the speed setting, indicating the current speed is at level 3. Press the up/down buttons to switch directly, with higher numbers representing faster speeds.

⑤ F: denotes a single built-in mode run; E: indicates all built-in programs in loop.

D: represents running a single SD file; A: represents all SD card programs in loop.

4. Operation Steps

1. Chip Configuration (CHIP): The chip designates the lamp model. Common chip models available on the market include:

The following models are supported: UCS1903, UCS1904, UCS2909, UCS2903, UCS1912, TM1803, TM1804, TM1809, TM1914 (with breakpoint resumption), WS2811, WS2812, WS2818 (with breakpoint resumption), SM16703, SK6812, SK6814, GS8206 (with breakpoint resumption), GS8205 (with breakpoint resumption), UCS5603 (with breakpoint resumption), and P9883 (with breakpoint resumption). Each controller requires a specific chip model: UCS512C series, B series, D series; SM16512, and TM512AC.

The steps to select the chip are as follows:

Step 1: Press the **MENU**button once to set the chip interface

Step 2: Press the **Cycle/OK** button to enter the chip selection interface

Step 3: Press the "**Speed +/-**"button to switch the chip number and select the corresponding model of the lamp.

Chip selection correspondence table			
01：DMX512 750K	02：DMX512 500K	03：DMX 250K	04：UCS1903
05：UCS2904	06：UCS5603	07：TM1804	08：TM1914
09：GS8206	10：P9883	11：SM16703	12：SK6812RGBW
13：SK6812	14：WS2811	15：WS2812B	16：TM1923
17：TM1814	18:UCS8603	19:UCS2603	20:SM16813PH

Step 4: Press the "**Cycle/OK**" button to save to the controller, and the lamp will start to work.

1.2. Switch Mode (MODE):

The system offers two modes: SD card program mode and built-in effect mode, with seamless switching between them. For users who prefer custom programming over the controller's preset effects, developers can create and save programs to the SD card. For basic outline effects requiring minimal customization, the built-in effects library of 86 options provides sufficient flexibility.

SD card program mode: it is designed by program software, according to customer requirements, or designed by the designer.

Press and hold the **Cycle/OK** button on the home screen for 3 seconds to switch between the two modes.

Steps to operate in SD card mode:

Step 1: Press the **Cycle/OK** button for 3 seconds. The interface will display the following to enter SD card mode.

D represents a single program loop on

Step 2: Press the **Cycle/OK**button to toggle between single-file loop and full-file loop in the SD card program.

A represents the loop of all programs on the SD card

Step 3: Press the Mode +/- button to switch between modes. (Switching is only available in single mode.) (TheMode +/- button is disabled in loop mode, so you must switch to single play mode.)

Built-in effect mode:

Both with and without the controller card, the built-in effects can be activated. Simply put, it has nothing to do with the SD card.

The controller comes with built-in effect programs, which are relatively basic and mainly used to test whether the lamp is working properly and whether the controller is working normally. If you want more gorgeous effects, you need to write a program file and place it on the SD card. Some simple contours can be used with the built-in effects.

The specific operation steps are as follows:

Step 1: Press and hold the **Cycle /OK** button for 3 seconds until the interface appears

F represents a single built-in loop

Step 2: Press the**Speed +/-**-button on the mode (MODE) panel to switch between built-in programs. There are 86 modes in total, but switching is only possible in single mode.

Step 3: Press the **Speed +/-**button to switch the program speed from 1 to 5. The higher the number, the faster the speed.

Step 4: Press the **Cycle /OK** button to toggle between single-file loop and full-file loop in the

built-in program.

E represents all built-in program loops

2. Brightness adjustment (Bright): Adjust the overall brightness from 5% to 100%. Higher percentages mean brighter.

The brightness adjustment steps are as follows:

Step 1: Press the **MENU** button twice to display the interface

Step 2: Press the**Cycle /OK** button to enter the brightness adjustment interface

Step 3: Press the **Speed +/-**key (1-digit) to switch the number level.

Press the **MODE +/-**keys (10-digit) to switch the digital level. Higher values increase brightness by 5% to 100%.

Step 4: Press**Cycle /OK** to save the setting to the controller, and the light will adjust to the selected brightness.

2.1. Set gamma value:

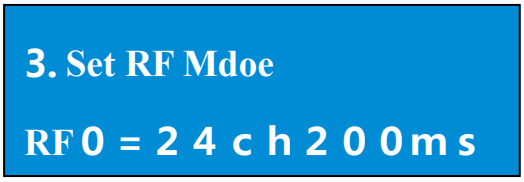
Step 1: Press the **MENU** button twice. The interface will display

Step 2: Press the **Cycle /OK** button twice to enter the gamma value adjustment interface

Step 3: Press the **Speed +/-**key (1-digit) to switch gamma values (1.0-5.0). Press the **Mode +/-**key (10-digit) to adjust the corresponding value. Press **Cycle/OK** to save and return to the main interface.

2、SET RF MODE Set RF mode: SET RF MODE Set RF mode:

Step 1: Press the **MENU** button three times to access the settings interface, as shown in the figure below.



Step 2: Press "Loop/ o k " to enter the settings interface

Switch between two modes

4. Setting the channel (channel refers to the R, G, B sequence of the light, with a total of 7 possible sequences)

Step 1: Press the **MENU** button 4 times. The interface displays

Step 2: Press the **Cycle/OK** button to enter the channel adjustment interface

Step 3: Press the **Speed+/-**key to switch channels (RGB, RGB, GBR, GRB, BGR, BRG, RGBW)

Step 4: Press **Cycle/OK** to save and return to the main interface

5. Set time: (add battery to start the timer function)

Step 1: Press the **MENU** button 5 times. The interface will display

Step 2: Press the OK button to enter the time setting interface

Step 3: Press the **Speed +/-**and **Cycle /OK** keys to set the date and time (x year x month x day x hour x minute x second), then press cycle (OK) to save and return to the main interface.

6. ID Configuration: When using multiple controllers simultaneously, users may either assign unique IDs to each controller or develop separate programs for each unit. If ID assignment is required, configure them in sequence. The default ID for a single controller is 1, as the program automatically assigns port numbers to the drawing interface. For example, ports numbered 1-8 are reserved for the first controller.

Set the ID operation steps as follows:

Step 1: Press the **MENU** button 6 times. The interface will display

Step 2: Press the **Cycle /OK** button to enter the ID setup interface

Step 3: Press the **Speed +/-**key (1-digit) or **Mode +/-**key (10-digit) to switch the number (1-99)

and select the corresponding controller number.

Step 4: Press the **Cycle /OK** button to save and return to the main interface.

7. Set AC frequency:

Step 1: Press the **MENU** button 7 times. The interface will display

Step 2: Press the **Cycle /OK** button to enter the AC frequency setting interface

Step 3: Press the **Speed +/-**key (1-digit) or **Mode +/-**key (10-digit) to switch the number (0-999) and select the corresponding controller number.

Step 4: Press the **Cycle /OK** button to save and return to the main interface.

8. Work Mode: Normal (Refresh Rate)

9. L e d : 1024 (load quantity setting)

Step 1: Press the **MENU** key 9 times. The interface will display

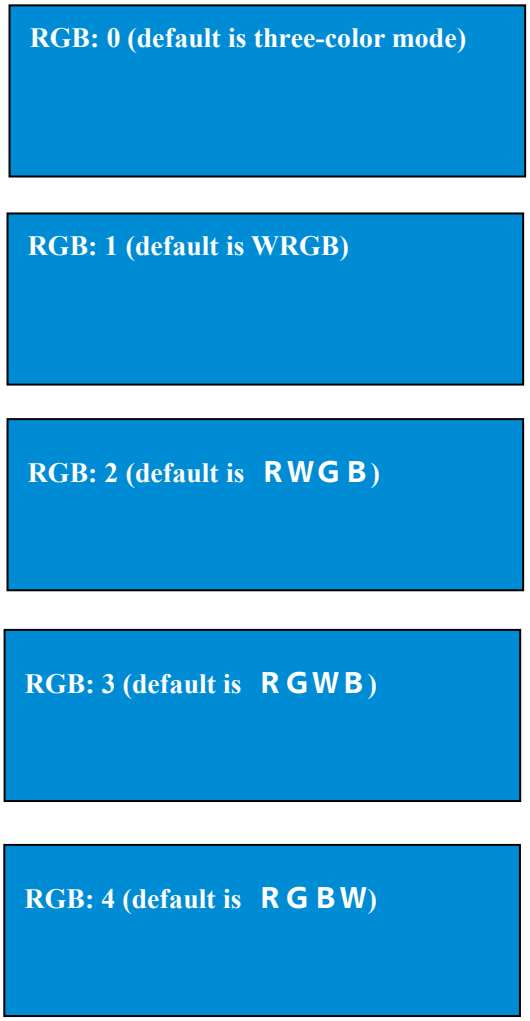
Step 2: Press the **Cycle /OK** to enter the point setting interface, as shown in the figure below.

Step 3: Press the **Cycle /OK** button to save and return to the main interface.

10. Insert _W effect (internal), supports RGBW lighting display:

Step 1: Press the **MENU** button 10 times. The interface displays

Step 2: Press the **Cycle /OK** button to access the W-position setting interface, as shown in the figure below.



Step 3: Press the **Speed** +/-key (1-digit) or **Mode** +/-key (10-digit) to switch the number (1-99) and select the corresponding controller number.

Step 4: Press the **Cycle /OK** button to save and return to the main interface.

11、 VER: 6.85 Controller version sequence, upgrade as required by the manufacturer

12. DMX512 address coding function

For DMX512 lighting fixtures, manufacturers may assign individual addresses during production testing. However, on-site installation with varying methods and sequences may cause address code duplication or offset. Therefore, a controller is required to standardize the encoding process for all installed fixtures.

Before the operation, it is necessary to determine the chip model of the lamp, the chip writing channel, and check whether the wiring of the controller is correct and whether the direction of the lamp is correct. After determining these, the operation of writing code can be started.

The specific coding steps are as follows:

Step 1: Press the **ADR** key to enter the chip selection mode

Step 2: Press the **Speed +/-**button to switch the chip

Write code chip selection table		
01：UCS512B3	07：Hi512A4	13：SM16512P
02：UCS512C*	08：Hi512D	14：SM17500
03：UCS512D	09：TM512AC	15：SM17512
04：UCS512E	10：TM512AD	16：SM17522
05：UCS512F	11：TM512AL	17：GS8512
06：Hi512A0	12：SM16512	18:GS8512--
19:UCS512KH	20:UCS512KL	21:UCS512K--
22:UCS512K0	23:UCS512KF	24:GS852*
25:GS852*--	26:LX512	

Step 3: Press the **Cycle /OK** button to select channels. The interface TD=3 indicates 3 channels.

Press the **Speed +/-**keys to switch channels. Press the **ADR** key to return to the previous layer.

Step 4: After confirming, press the **Cycle /OK** button to select ports. CH=1-8 represents all ports.

Step 5: Press the **Speed +/-**keys to select the port for address code writing. CH=1: First port, CH=2: Second port

In this manner, a total of 8 ports are created. All controllers following the cascaded synchronization follow the selection of the first controller.

Step 6: After confirming, press the OK button to enter the initial channel selection interface

Start channel: 1. Note that channels are counted from 1. RGB has 3 channels, RGBW has 4 channels.

For example, for a point light source like an RGB light, how many channels should you select when starting to code from the sixth point?

The sixth point Stch-start channel=3 channels×(6-1)+1=16. To skip the preceding (6-1)=5 points, select 16 as the starting point.

Summary formula: Stch=3×(N-1)+1 RGB; Stch=4×(N-1)+1 RGBW

Stch denotes the initial channel, while N indicates the number of lamps initiating code writing.

Press the **ADR** key to return to the previous operation.

Step 7: After the channel, port, and starting channel are confirmed:

Press the **Cycle /OK** key to start writing code

The system is writing code to ports 1-8. The chip used is UCS512B3, with TD representing the 3-channel configuration.

During the coding process, check if the lamp's status changes. After coding, it automatically switches back to the test interface.

Step 8: After completing the above code writing operation, if there is no need to reset the chip channel after lamp replacement or repair, the controller will add a one-click code writing function. The specific operation is as follows:

Press and hold the Write Code **(ADR)** button. The controller interface will automatically display all content from the last write operation, initiate automatic code writing, and switch to the measurement point interface. This interface is identical to the subsequent test operations.

Note: Check if the lighting fixtures are programmed to operate sequentially or manually switched on point by point. A normal sequence indicates success; an abnormal sequence requires further coding or troubleshooting to identify the cause of failure.

Step 9: Press the **Cycle /OK** button to return to the main interface.

Common reasons for unsuccessful coding:

①、The lamp's signal direction is incorrect. Although DMX512 uses parallel bidirectional signal transmission, the code writing direction is unidirectional.

②、The wiring problem of the lamp is not correct. Check the controller port and the wiring sequence of the lamp.

③、The power supply of the lamp is insufficient, so the chip cannot be driven to write code.

④. The signal line of the lamp is too long to exceed the effective distance range of the chip.

13. Test Settings:

The following scenarios require the test function: ① Unclear number of lights ② Unknown channel sequence of lights (RGB, RGB, GBR, GRB, BGR, BRG, RGBW) ③ Check for faulty pixels in lights ④ Verify adequate power supply to lights ⑤ Test if DMX512 light codes are written correctly or contain garbled data. All these issues can be detected through the test function.

3-channel: a light source combining red (R), green (G), and blue (B) colors; 4-channel: a light source combining red (R), green (G), blue (B), and white (W) colors.

The specific steps to test the function:

①. Point-by-point testing

Step 1: Press the **Test** button to access the lamp channel test interface.

Indicates a three-channel lamp test.

Step 2: Press the **Speed +/-**button to switch the test mode of the 3/4 channel (using 3-channel test as an example).

Step 3: Press the **Cycle /OK** button to enter the interface

ALL indicates testing all ports.

Step 4: Press the **Speed +/-**key to switch between individual ports.

Step 5: Press the **Cycle /OK** button to enter the test interface

Step 6: Press the **Speed +/-**button for manual single-point testing, and press the **MENU** button for automatic point measurement.

When in auto run mode, pressing any **MENU** key will pause the counting numbers at 1.

Then press the **Speed +/-**keys to manually adjust the number (manual mode).

②. Test RGB channels

Step 7: Press the **Test** button, and the interface displays

RED

Press the **Test** key to display the interface

Green

Press the **Test** key to display the interface

Blue

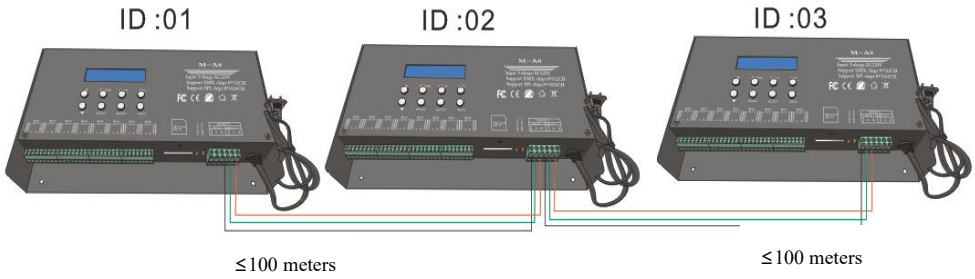
Press the **Test** key to display the interface

Press the Test key to display the interface

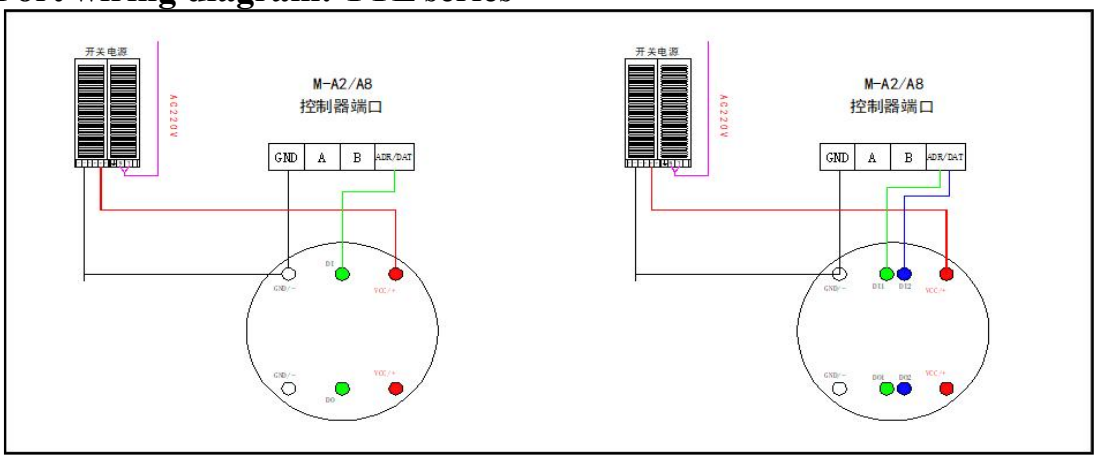
white

Step 8: After completing theTest, press the **Cycle /OK** button to return to the main interface. (Note: Modes 2, 3, 4, and 5 can test the lamp's channel sequence.)

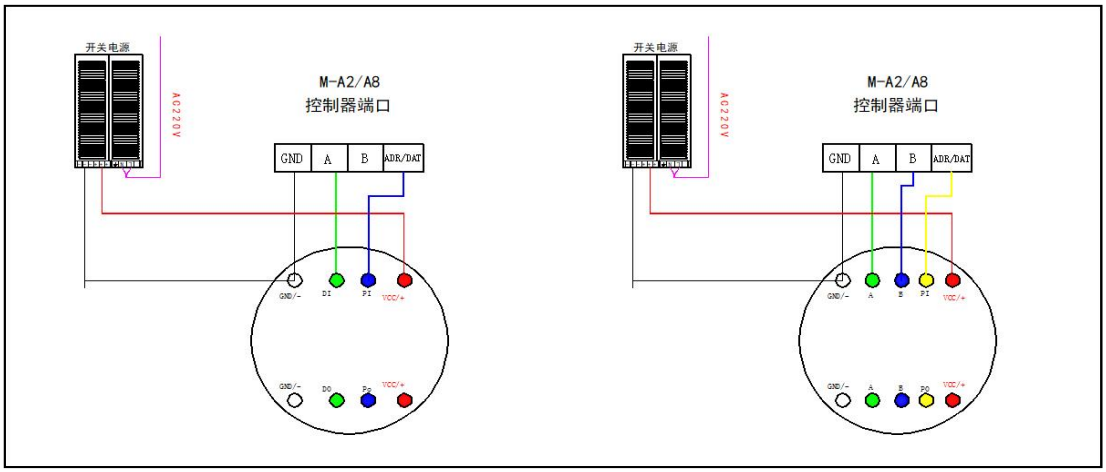
5、Cascade Diagram



Port wiring diagram: TTL series



Port wiring diagram: DMX512 series



7. GPS wiring diagram:

VIII. Common Precautions

1. Each controller acts as the primary unit with card-based control. After cascading, only the first controller needs to be operated, while the subsequent controllers' buttons remain inactive. However, before cascading, the ID numbers of each controller must be properly configured.

2. The controller's programming method is identical to the master-slave control configuration, but it cannot be used in conjunction with M-C8 and D8 simultaneously.

3. The controller's GPS synchronization currently only supports Beidou satellite positioning signals. To ensure stable GPS reception, the module's antenna should be placed outdoors in an open area without obstructions.