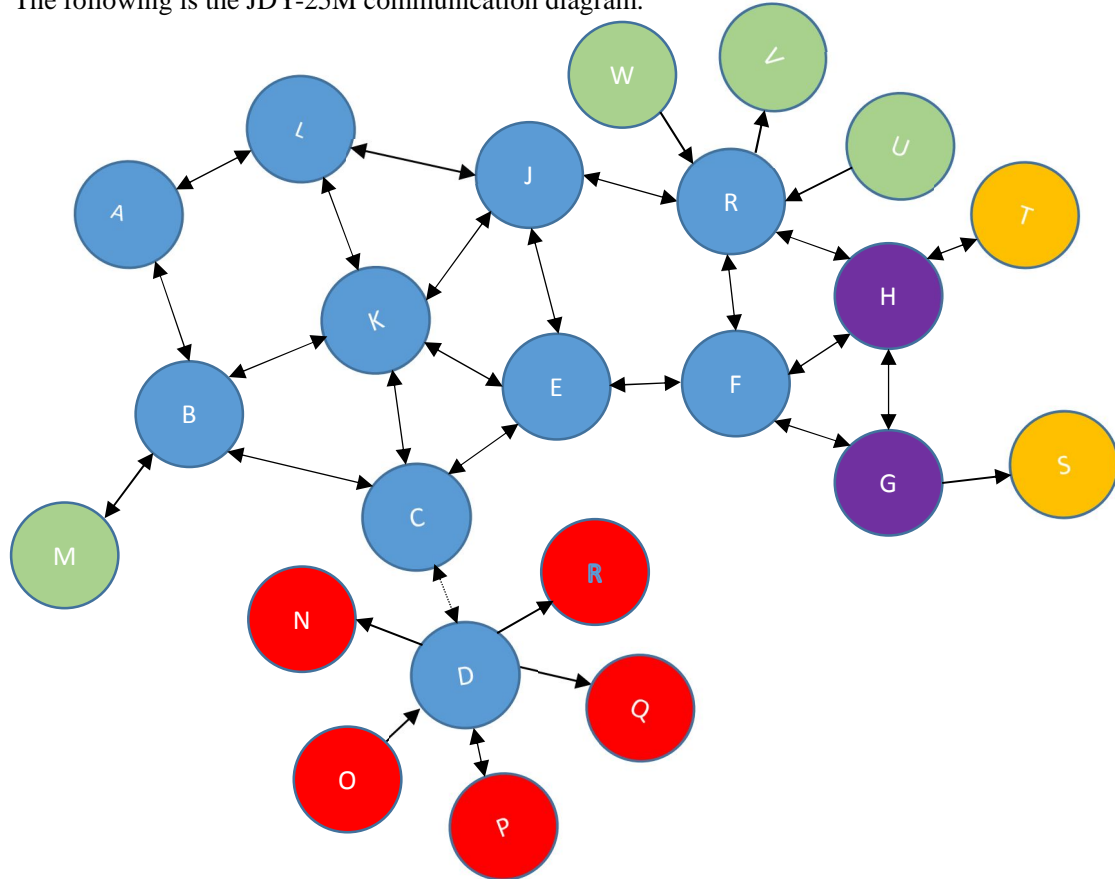







The JDY-25M network can be configured as routing and end-user roles. In addition to relay, the routing role supports functions such as agent and friend node. The terminal role has no relay function, which is mainly applied to low-power consumption equipment. Any node in the network can communicate with all nodes in the network (except terminal sleep node).

The following is the JDY-25M communication diagram.



-  Means the JDY-25M routing and proxy nodes
-  Means JDY-25M supports friend node function
-  Means JDY-25M terminal node (low power consumption application or remote control, etc.)
-  Means BLE low power consumption GATT device
-  Means JDY-SR-XXX series ultra-low cost modules, multiple JDY-SR-XXX can be arranged around a router

Note: Double arrow means two-way communication, one-way arrow means one-way communication.

MESH short address table (MADDR)

Address	Function	Instruction
0xFFFF	Broadcast address	Device short address cannot be configured as 0xFFFF
0X0002 to 0XFF00	Unicast address	Device address (user set short address can be in this range)
0X0001	Central machine address	Central machine
0xFF01 to 0xFFFFE	System address	Generally not recommended

Instruction: The short address in the network is equivalent to the device ID number.

Broadcast to send data, which can be received by all devices in the network.

Unicast to send data, only the device with specified address can receive the data.

Generally, it is not recommended to turn on the central machine.

CMD command table

Command name	Address	Instruction
DATA_NO_ACK	0x00	Send data to target device with no response
DATA_ACK	0x01	Send data to the target device with response
IO_NO_ACK	0x10	Control target device IO with no response
IO_ACK	0x11	Control target device IO with response
PWM_NO_ACK		No function
PWM_ACK		No function
READ_ACK	0x31	Read target device parameters
CONFIG_NO_ACK	0x40	No function
CONFIG_ACK	0x41	Send configuration parameters (NETID, MADDR, PIN, KEY, TYEP) to the target device
FRIEND1_DATA_ACK	0xA1	Send one-to-one data to all friends
FRIEND2_DATA_ACK	0xA2	Send one-to-one data only to private friends

Instruction: MESH communication data includes header + CMD +MADDR +DATA. This table is a CMD instruction table. When it is necessary to send serial port communication with return data, the instruction address is 0x01. When it is necessary to send IO with return control instruction, the instruction address is 0x11.

IO action instruction table

IO instruction	Function description
AAB1E7	Indicates single channel IO setting, IO action and serial port does not output
AAB2E7	Indicates single channel IO setting, IO action and serial port output
ABB1E7	Indicates whole channel IO setting, IO action and serial port does not output
ABB2E7	Indicates whole channel IO setting, IO action and serial port output
A1B1E7	Indicates single channel IO level flip setting, IO action and serial port does not

	output
A1B2E7	Indicates single channel IO level flip setting, IO action and serial port output
A2B1E7	Indicates whole channel IO level flip setting, IO action and serial port does not output
A2B3E7	Indicates whole channel IO level flip setting, IO action and serial port output

Instruction: When MESH controls the IO level of the target device, it needs to refer to the IO action instruction table. The function is divided into the action mode of receiving the instruction (IO action serial port does not output, IO action serial port outputs simultaneously, IO high and low level single channel setting, IO level whole channel setting, IO level single channel flip, IO level whole channel flip).

Data communication format from serial port to MESH

HEAD 7byte	CMD 1byte	Target MADDR 2byte	Data (1-16)byte	End mark 2byte
41 54 2b 4d 45 53 48	Refer to CMD instruction table	Refer to short address table	1 to 16 data content	0D 0A

Note: As long as you send data to MESH, you need to follow this data format, otherwise it will not be recognized.

Serial port MESH communication data format

1、Serial port sends MESH serial port data to the target device

Example	HEAD 7byte	CMD 1byte	Target MADDR 2byte	Data (1-17)byte	End mark 1byte
1	41 54 2b 4d 45 53 48	00	FFFF	112233445566	0D0A
2			0005	1122	
3			0008	88990055	

Example 1: Indicates to send broadcast serial port data to all devices in the network, and serial port of all devices in the network output 112233445566

Complete instruction: 41 54 2b 4d 45 53 48 00 FF FF 11 22 33 44 55 66 0D0A

Example 2: Send serial port data to 0005 device in the network, and the data content is 1122

Example 3: Send serial port data to 0008 equipment in the network with response, and the data content is 88990055. When the CMD is 01, it means there is response communication, and the transmitter can know whether the data is received by the receiver.

Instruction: The 1 to 3 examples have shown that in network, serial port communication data is sent between devices. **Note that the data is in hexadecimal format.**

2、Serial port sends MESH IO control instruction to target device

Ex am ple	HEAD 7byte	CMD 1byte	Target MADDR 2byte	Data(1-16)byte			End mark 2byte
				IO instructio n 3byte	IO-NUMB 1byte	IO-LEVE 1byte	
1	41 54 2b 4d 45 53 48	10	0005	AAB1E7	01	01	0D0A
2		11	0008	AAB1E7	01	00	
3		10	FFFF	AAB1E7	01	01	
4		10	FFFF	AAB2E7	05	00	
5		11	0009	AAB2E7	03	01	
6		10	0005	ABB1E7	FF	03	
7		11	0005	ABB2E7	FF	10	
8		10	1008	A1B1E7	01	xx	
9		11	1009	A1B2E7	05	xx	
10		10	5000	A2B1E7	FF	xx	
11		11	5000	A2B2E7	FF	xx	

Instruction: Examples 1 to 5 are single channel IO level high and low level settings

Example 1: Indicates that sending IO no response instruction CMD=01 to 0005 device, no serial port output, IO1 is high level.

Example 2: Indicates that sending instruction with response (CMD=11) to 0008 device, no serial port output, and setting IO1 to low level.

Example 3: Indicates that the broadcast sends instructions to set IO1 of all devices in the network to high level.

Example 4: Indicates that the broadcast sends instructions to set IO5 of all devices in the network to low level.

Example 5: Indicates that sending IO instruction with response (CMD = 11) to 0009 device, with serial port output, and setting IO3 to high level.

Instruction: Example 6 and 7 can set all IO levels at one time.

Example 6: Indicates that sending IO no response instruction to 0005 device, no serial port output, setting IO1 and IO2 to high level, and setting IO3, IO4 and IO5 to low level.

Example 7: Indicates that sending IO instruction with response to 0005 device, with serial port output, setting IO5 to high level, and the rest are set to low level.

Instruction: Example 8 and Example 9 are single channel IO level flip functions.

Example 8: Indicates that sending IO level flip no response instruction to 1008 device, no serial port output, flip IO1 level.

Example 9: Indicates that sending IO level flip instruction with response to 1009 device, with serial port output, flip IO5 level.

Instruction: Example 10 and example 11 are whole channel IO level flip functions.

Example 10: Indicates that sending whole IO level flip no response instruction to 5000 address device, no serial port output, flip all IO levels from IO1 to IO5.

Example 11: Indicates that sending whole IO level flip instruction with response to 5000 address device, with serial port output, and flip all IO pin levels from IO1 to io5.

3、Serial port **reads** instruction table from device in MESH network

Ex am ple	HEAD 7byte	CMD 1byte	Target MADD R 2Byte	Data Read instruc tion 3byte	End mark 2byte	Instruction introduction (Not instructions, just introduction)
1	41 54 2b 4d 45 53 48	31	1090	F0B10 0	0D0A	Read the 5-channel IO output level of the target 1090 device
2		31	0005	F1B10 1		Read the 5-channel input level of target 0005 device
3		31	0008	F2B10 2		Read target 0008 device short address
4		31	0008	F3B10 3		Read target 0008 device network ID number
5		31	0008	F4B10 4		Read target 0008 device pin
6		31	0008	F5B10 5		Read target 0008 device pin type
7		31	0008	F6B10 5		Read target 0008 device key 5 parameters
8		31	0008	F7B10 7		Read target 0008 device MCLSS type
9		31	0008	F8B10 8		Read target 0008 device friend address
10		31	0008	F9B10 9		Read target 0008 device friend type

Example 1: Indicates that reading 5-channel output IO level from 1090 target device

Example 2: Indicates that reading 5-channel input IO levels of the target 0005 device

Example 3: Indicates that reading target 0008 device short address

Example 4: Indicates that reading target 0008 device network ID number

Example 5: Indicates that reading target 0008 device connection password

Example 6: Indicates that reading target 0008 device password type

Example 7: Indicates that reading target 0008 device key 5 parameters

Example 8: Indicates that reading target 0008 device MCLSS type

Example 9: Indicates that reading target 0008 device friend MAC address

Example 10: Indicates that reading target 0008 device friend type

4、Instruction table of **configuring parameters** of devices in MESH network through serial port

Example	HEAD 7byte	CMD 1byte	Target MADDR	Instruction 3byte	End mark 2byte	Instruction introduction
1	41 54 2b 4d 45 53 48	41	0008	E2F10 2	0D0A	Configure 0008 device NETID to 1122
2		41	0008	E3F10 3		Configure 0008 device MADDR to 0102
3		41	0008	E4F10 4		Configure 0008 device password to 1122
4		41	0008	E5F10 5		Configure 0008 device password type to 1
5		41	0008	E6F10 6		Configure the target address of 0008 device key 1 as 2255, output pin communication to target 2, and 00 receive data without serial port output
6		41	0008	E7F10 7		00 means configured as a router 01 means configured as a low-power consumption remote control
7		41	0008	E8F10 8		Add the GATT device with address 112233445566 as a friend
8		41	0008	E9F10 9		Means setting a friend as a private friend

Example 1: The complete serial port instruction is 41542b4d455348410008E2F10211220D0A, the function is to configure the network ID number to the 0008 target device, and the new network ID number is 1122

Example 2: The complete serial port instruction is 41542b4d455348410008E3F10301020D0A, the function is to configure the network short address to the 0008 target device, and the new MADDR network address is 0102

Example 3: The complete serial port instruction is 4 542b4d455348410008E4F104010102020D0A, the function means to configure the connection password to the 0008 target device as 1122

Example 4: The complete serial port instruction is 41542b4d45 53 48410008E5F105010D0A, the function means to configure the connection password type to the 0008 target device as 1, with password connection

Example 5: The complete serial port instruction is 41542b4d455348410008E6F10601225502000D0A, the function means to configure key 1 address

to 0008 target device, the key 1 target address is 2255, and communicate to target OU2 pin

Example 6: The complete serial port instruction is 41542b4d4553 48410008E7F107000D0A, the function means to configure MLCSS network type as router to 0008 target device

Example 7: The complete serial port instruction

is 41542b4d455348410008E8F1081122334455660D0A, the function means to add a friend to the 0008 target device, and the MAC address of the added friend is 112233445566

Example 8: The complete serial port instruction is 41542b4d455348410008E9F109000D0A, the function means to configure the friend type of 0008 target device as private friend

5、Instruction table of MESH returning data to serial port

E x a m p l e	HEA D 2byte	Len 1byte	MADD R 2byte	Data	Data introduction
1	F000	07	0021	0100010001	Means the level of 5 output serial ports
2	F001	07	0021	0100010001	Means the level of 5 input serial ports
3	F002	04	0021	0023	0023 means the short address of the target device
4	F003	04	0021	1189	1189 means the network ID number of the target device
5	F004	06	0021	01020304	Means the connection password is 1234
6	F005	07	0021	00	00 means no password for the connection, 01 means a password is required for each connection, 02 means that you only need to enter the password once to connect, but not required later 03 means APP connection password
7	F006	07	0021	01AACC0100	01 means key number (1-5) AACC the short address of the target device 01 means the ID number (1-5) of the target output IO to be controlled by the key 00 means whether without serial port print output
8	F007	03	0021	00	00 means 0021 device is a router
9	F008	8	0021	112233445566	Means that the current address of 0021 equipment friend is 112233445566 If the returned addresses are all 0, it means that there is no friend function

Example 1: It means receiving the data sent from 0021, the data length is 7 bytes, 2 bytes of address bits are subtracted, the remaining 5 bytes are the output IO level status, 00 is low level, 01 is high level

Example 2: It means receiving the data sent from 0021, the data length is 7 bytes, 2 bytes of address bits are subtracted, the remaining 5 bytes are input IO level status, 00 is low level, 01 is high level

Example 3: It means receiving the data sent from 0021, the data length is 4 bytes, and 2 bytes of address bits are subtracted, the remaining 2 bytes are the short address of the device

Example 4: It means receiving the data sent from 0021, the data length is 4 bytes, 2 bytes of address bits are subtracted, and the remaining 2 bytes are the device network ID number

Example 5: It means receiving the data sent from 0021, the data length is 6 bytes, 2 bytes of address bits are subtracted, and the remaining 4 bytes are the device connection password

Example 6: It means receiving the data sent from 0021, the data length is 3 bytes, 2 bytes are subtracted, and the remaining 1 byte is the device password connection type

Example 7: It means receiving the data sent from 0021, the data length is 7 bytes, 2 bytes are subtracted, and the remaining 5 bytes are the key parameter values of the device

Example 8: It means receiving the data sent from 0021, the data length is 3 bytes, 2 bytes are subtracted, the remaining 1 byte is of MCLSS type, 00 means setting as router

Example 9: It means receiving the data sent by 0021, the data length is 8 bytes, 2 bytes are subtracted, and the remaining 6 bytes are the friend address