
JBE-2593 Jade Bird Europe Modbus_RTU Protocol Description and Manual

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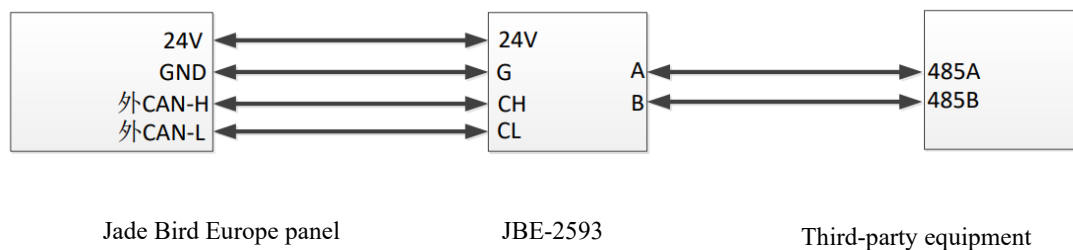
I. Connection mode of Modbus_RTU system with JBE-P2L1.

The CAN0 interface of JBE-2593 interface card relates to the external CAN interface of Jade Bird Europe fire alarm control panel.

The RS485 interface of JBE-2593 interface card relates to the third-party device.

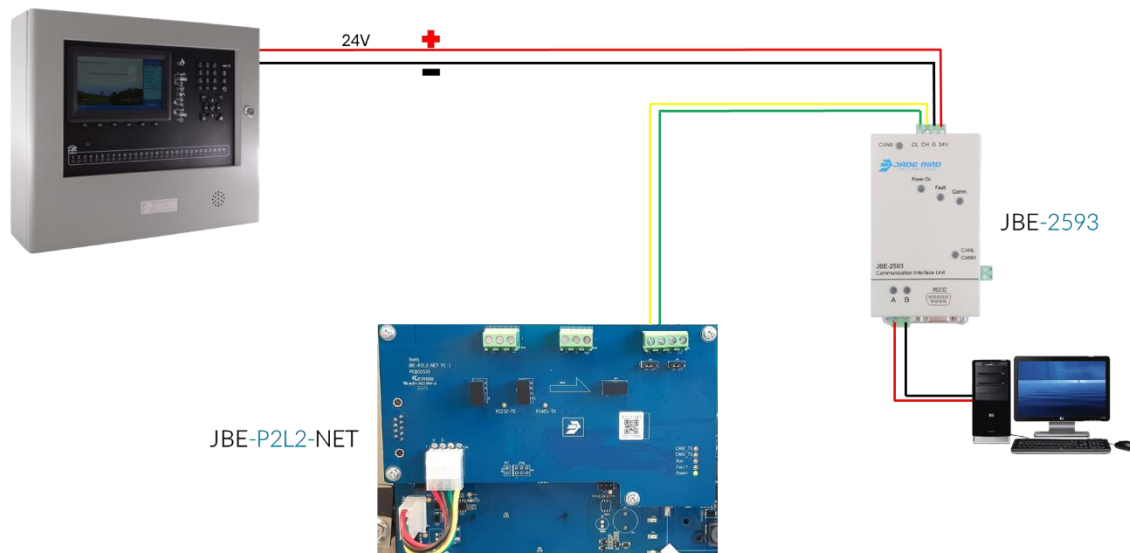
JBE-2593 interface card is powered by DC24V.

JBE-2593 interface card receives the alarm, fault and other information of Jade Bird Europe fire alarm control panel, and outputs the information to the third-party device through standard Modbus-RTU protocol.



Wiring diagram with JBE-P2L1

The wiring connection can be seen in the following diagram, needing a JBE-P2L1 control panel, a JBE-P2L2-Net network card and the JBE-2593 adapter.



II. Modbus_RTU protocol description

JBE-2593 interface card is a slave, and the third-party device is a master. In communication, the master is for inquiry and the slave is for response. The inquiry interval is 1 s.

When JBE-2593 interface card corresponds to 1 panel: dip switch 1-7 sets the machine number (range 1 -99; Namely Modbus_RTU communication slave address), which needs to be the same as the machine number of the Jade Bird Europe panel connected:

	DIP1	DIP2	DIP3	DIP4	DIP5	DIP6	DIP7	DIP8
Decimal system	1	2	4	8	16	32	64	RTU/TCP protocol selection
	Effective value when dialing to ON							OFF: RTU protocol ON: TCP protocol

When JBE-2593 interface card corresponds to multiple panels: dip switch 1~7 setting card No. (range 100~110; namely slave address of Modbus communication):

	DIP1	DIP2	DIP3	DIP4	DIP5	DIP6	DIP7	DIP8
Decimal system	1	2	4	8	16	32	64	RTU/TCP protocol selection
	Effective value when dialing to ON							OFF: RTU protocol ON: TCP protocol

Constraints of 1 card corresponding to 1 panel:

1. The loop range of the fire power supply monitoring panel needs to be 1~14, otherwise JBE-2593 will not receive information; The maximum channel number is 2 channels.

Constraints of one card corresponding to multiple panels:

1. The panel number of the alarm host must be in the range of 1~64, and only supporting the alarm loop information, otherwise the JBE-2593 will not receive the panel information.
2. The electric fire panel numbers shall be 1~64, otherwise JBE-2593 will not receive panel information.
3. The fire door panel numbers shall be 1~64, otherwise JBE-2593 will not receive the panel information.
4. The monitoring panel number of fire power supply shall be 1~28, otherwise JBE-2593 will not receive the panel information.
5. The above models cannot be mixed for networking, but only the same model, and each machine has only one loop with a total of 200 points.
6. The query instruction when one card corresponds to one panel is still used, which used to represent querying the Nth loop of a panel. When 1 card corresponds to multiple panels, it represents querying the single loop point information of the Nth panel.

The communication baud rate of RS485 interface is 9600, with 1 start bit, 8 data bits and 1 stop bit, without check.

1. A third-party device initiates an inquiry instruction.

Byte1	Slave address	Decided by JBE-2593 dip switch.
Byte2	Function code	0x03
Byte3	Start address of query register - high byte	Corresponding to the loop number of field devices of Jade Bird Europe panel, it is -1 in the actual query
Byte4	Start address of query register - low byte	The address number corresponding to the field devices of Jade Bird Europe panel can only be 0x01 or 0x65.
Byte5	Number of query registers-high bytes	Query 100 registers at a time
Byte6	Number of query registers-low bytes	
Byte7	CRC16 check	
Byte8	CRC16 check	

Byte3 Inquiry Register Start Address-High Byte: (the real loop number of the panel minus 1)

Fill 0~63 in the byte to query the 1~64 alarm loops of Jade Bird Europe panel correspondingly.

Fill 65 in the byte to query the multi-line device of Jade Bird Europe panel correspondingly.

Fill 67 in this byte to query the gas fire-extinguishing area and related gas extinguishing equipment of Jade Bird Europe panel correspondingly.

Fill 68 in this byte to query the main and standby power failure, manual and automatic status of the panel correspondingly.

Byte4 Query Register Start Address-Low Byte:

Each loop has 200 field devices (register addresses). It is required to query 100 field devices (register addresses) at a time, and all field devices (registers) of the loop can be queried after two inquiries.

Inquiry can be performed in the same loop at a time, but not in different loops. Therefore, “Byte4 inquiry register initial address-low byte” can only be 0x01 or 0x65.

Combined with “Byte5~Byte6 query register number (fixed at 100)”, that is, the first time is to query the 1~100 address state of the loop, and the second time is to query the 101~200 address state of the loop.

Initial address of register		Meaning
High byte of initial address of register (Byte3)	Low byte of initial address of register (Byte4)	
0x00	0x01	Query from the address 1 of loop 1

0x00	0x65	Query from the address 101 of loop 1
0x01	0x01	Query from the address 1 of loop 2
0x01	0x65	Query from the address 101 of loop 2
0x02	0x01	Query from the address 1 of loop 3
0x02	0x65	Query from the address 101 of loop 3
.	.	.
0x3F	0x01	Query from the address 1 of loop 64
0x3F	0x65	Query from the address 101 of loop 64
0x41	0x01	Query multi-line equipment of Jade Bird Europe panel
0x41	0x65	
0x43	0x01	Query the gas fire-extinguishing area and related gas extinguishing equipment of Jade Bird Europe panel
0x43	0x65	
0x44	0x01	Query the main and standby power status, manual and automatic status of Jade Bird Europe panel

To sum up, the monitoring center queries 100 address states at a time. The low byte of the initial address of the query can only be 0x01 or 0x65. The high byte of the initial address is consistent with the above table. Cross-loop query is not allowed, and the query quantity cannot be changed.

2. Query the inquiry instruction initiated by the third-party equipment of the power monitoring system.

Byte1	Slave address	Decided by JBE-2593 dip switch
Byte2	Function code	0x03
Byte3	Start address of query register -high byte	Corresponding to the loop number of field devices of Jade Bird Europe panel, the four high digits are the loop number, and the four low digits are the loop number. Both loop number and channel number are -1 in actual query.
Byte4	Start address of query register -low byte	The address number corresponding to the field devices of Jade Bird Europe panel can only be 0x01 or 0x65.
Byte5	Number of query registers-high bytes	Query 100 registers at a time
Byte6	Number of query registers-low bytes	
Byte7	CRC16 check	
Byte8	CRC16 check	

3. JBE-2593 interface card feedback data

Byte1	Slave address	Decided by JBE-2593 dip switch
Byte2	Function code	0x03
Byte3	Number of registers (total number of feedback bytes)	0xC8 (feedback of 200 data bytes because the third party regularly queries 100 addresses)
Byte4~Byte203	Register value	Every two bytes represent the state of 1 field component
Byte204	CRC16 check-low byte	
Byte205	CRC16 check-high byte	

The states of field devices in the alarm loops 1~64 have the following meanings:

For fire alarm, fault, active, feedback and supervision information, after receiving the panel reset, JBE-2593 will reset the previously recorded state.

In bypass state, after receiving the panel reset, JBE-2593 will keep the previously recorded state, reset it until there is Un-bypass information.

Alarm host: feedback state of field devices at each address (meaning of low bytes is shown in the following table, and high bytes are 0):

bit0	Bit1	Bit2	Bit3	Bit4	Bit5
1: Fire alarm	1: Fault	1: Start	1: Feedback	1: Bypass	1: Supervision alarm
0: No fire alarm	0: Fault cancellation	0: Not started or stopped	0: No feedback or feedback cancellation	0: Un-bypass	0: Supervision cancellation

Electrical fire host: feedback state of field devices at each address (meaning of low bytes is shown in the following table, and all high bytes are 0):

bit0	Bit1	Bit2	Bit3	Bit4
1: Fire alarm	1: Fault	1: Start		1: Bypass
0: No fire alarm	0: Fault cancellation	0: Not started or stopped		0: Un-bypass

Fire door host: feedback state of field devices at each address (meaning of low bytes is shown in the following table, and all high bytes are 0):

Except for Bit2-Bit4, all others are fault information.

bit0	Bit1	Bit2	Bit3	Bit4	Bit5	Bit6	Bit7
1: Interface not registered or interface fault	1: Configuration error	1: Start	1: Feedback	1: Bypass	1: Shutdown failed	1: Abnormal shutdown	1: Abnormal turnon
0: Normal	0: Normal	0: Normal	0: Normal	0: Normal	0: Normal	0: Normal	0: Normal

Fire power monitoring host: the feedback state of field devices at each address

(accounting for two bytes) means:

Low byte:

bit0	Bit1	Bit2	Bit3	Bit4	Bit5	Bit6	Bit7
1: Fault	1: Undervoltage	1: Overvoltage	1: Lack of phase	1: Overload	1: Wrong phase	1: Channel power interruption	1: Power interruption
0: Normal	0: Normal	0: Normal	0: Normal	0: Normal	0: Normal	0: Normal	0: Normal

High byte:

bit0	Bit1	Bit2	Bit3	Bit4	Bit5	Bit6	Bit7
1: Input action	1: Output action	1: Bypass					
0: Normal	0: Normal	0: Normal					

Loop 66 is a multi-line device (this information is not supported when one card is used for multiple panels), and the feedback meaning is as follows:

The feedback states of addresses 1~160 in loop 66 respectively correspond to the states of 1~8 multi-line of No.1 multi-line panel, 1~8 multi-line of No.2 multi-line panel ... 1~8 multi-line of No.20 multi-line panel.

For fault, startup and feedback information, after receiving the panel reset, JBE-2593 will reset the previously recorded state.

The state of each multi-line (accounting for two bytes) has the following meanings:

The meaning of the low byte is as follows, and all high bytes are 0.

bit0	Bit1	Bit2	Bit3
	1: Fault	1: Start	1: Feedback
	0: Fault cancellation	0: Not started or stopped	0: No feedback or feedback cancellation

Loop 68 is a gas fire-extinguishing area and its equipment (this information is not supported when one card is used for multiple panels), and the meaning is as follows:

The feedback states of addresses 1~16 in loop 68 respectively correspond to No.1 ~ 4 gas fire-extinguishing zones of No.1 gas fire-extinguishing panel, No.1 ~ 4 gas fire-extinguishing zones of No.2 gas fire-extinguishing panel ... No.1 ~ 4 gas fire-extinguishing zones of No.4 gas fire-extinguishing panel.

For information about active of gas fire-extinguishing zone, spray response, spray active, horn strobe active and auxiliary equipment active, after receiving the reset of the panel, JBE-2593 will reset the previously recorded state.

The related state (accounting for two bytes) of each gas fire-extinguishing zone has the following meanings:

The meaning of the low byte is as follows, and all high bytes are 0.

bit0	Bit1	Bit2	Bit3	Bit4	Bit5	Bit6
	1: Fault of gas fire-extinguishing zone	1: Start of gas fire-extinguishing zone	1: Spray feedback	1: Spray start	1: horn strobe active	1: Auxiliary equipment startup
	0: Normal gas fire-extinguishing zone	0: Initiation cancellation	0: Feedback cancellation	0: No startup.	0: horn strobe stop	0: Auxiliary equipment stop

Loop 69 is the machine information such as main/standby power state and manual/automatic state of Jade Bird Europe panel, with the following meanings:

Loop 69 displays the information of main and standby power fault, manual/automatic state and board fault, and the corresponding address corresponds to the corresponding panel in feedback. That is, the 1 address state indicates the No.1 panel information and the 10 address state indicates the No.10 panel information.

When 1 card corresponds to multiple hosts, it only receives the related states of machine numbers 1~64.

The meaning of the low byte is as follows, and the high bytes are all 0.

bit0	Bit1	Bit2	Bit3	Bit4	Bit5	Bit6
1: CAN communication fault	1: Main power fault	1: Standby power fault	1: Manual prohibited	1: Automatic prohibited	1: Board fault	
0: CAN communication normal	0: Main power normal	0: Standby power normal	0: Manual allowed	0: Automatic allowed	0: Board normal	

00 00

7-169 to 7-181 are all normal

00 00

7-182 to 7-194 are all normal

00 00 00 00 00 00 00 00 00 00 00 00 00 00 **FF 06**

7-195 to 7-200 are all normal **CRC check**