






**Base  
User manual  
IM23H20-E**














Notices
<ul style="list-style-type: none"> <li>● The reproduction, transmission or use of this document or its contents is not permitted without express written authority.</li> <li>● Information and specifications in this document are subject to change without notice.</li> <li>● While information in this document is well edited and checked, mistake or omission may exist. Please don't hesitate to contact SUPCON if you have any question about this document.</li> <li>● Please contact SUPCON via email "<a href="mailto:SMS@supcon.com">SMS@supcon.com</a>" if you have any question.</li> </ul>

Trademarks
<p>Trademarks or marks SUPCON, SPlant, Webfield, ESP-iSYS, MultiF, InScan, SupField are all registered, registering or using by Zhejiang SUPCON Technology Co., Ltd., which owns the properties of all trademarks or marks above. Without the written authority from Zhejiang SUPCON Technology Co., Ltd, no individual or company shall use any trademarks or marks above. We reserve the right to take legal action for any individual or company using trademarks or marks above illegally.</p>

Symbol Definition	
	<b>WARNING:</b> Indicates information that a potentially hazardous situation which, if not avoided, could result in serious injury or death.
	<b>RISK OF ELECTRICAL SHOCK:</b> Indicates information that Potential shock hazard where HAZARDOUS LIVE voltages greater than 30V RMS, 42.4V peak, or 60V DC may be accessible.
	<b>ESD HAZARD:</b> Indicates information that Danger of an electro-static discharge to which equipment may be sensitive. Observe precautions for handling electrostatic sensitive devices
	<b>ATTENTION:</b> Identifies information that requires special consideration.
	<b>TIP:</b> Identifies advice or hints for the user.

## Safety & Caution Symbols

The following table lists Safety & Caution symbols used on equipment.

No.	Symbol	Description
1		Direct current (DC)
2		Alternating current (AC)
3		Ground (Earth) terminal
4		Protective earth (ground) terminal
5		Reference ground (Earth) terminal
6		Frame or chassis
7		Equipotentiality
8		On (power)
9		Off (power)
10		Caution, risk of electric shock
11		Caution, hot surface
12		Caution, risk of danger
13		Electrostatic sensitive devices (ESD)

# Table of Contents

<b>Base .....</b>	<b>1</b>
<b>Section 1 Description .....</b>	<b>1</b>
<b>Section 2 Environment Requirements .....</b>	<b>2</b>
<b>Section 3 Base Models .....</b>	<b>3</b>
<b>Section 4 Controller Base .....</b>	<b>5</b>
4.1 Appearance Structure .....	5
4.2 Address DIP Switch .....	6
4.3 Clock Synchronization and Power Terminal .....	7
4.4 Extended I/O Bus Interface and SCnet Interface and the Light Indicators.....	8
4.5 Local BUS Interface.....	9
<b>Section 5 I/O Module Base.....</b>	<b>10</b>
5.1 I/O Module Base (With Auxiliary Power Terminal) .....	10
5.1.1 Appearance Structure.....	10
5.1.2 Wiring .....	11
5.2 I/O Module Base (System Centralized Power) .....	12
5.2.1 Appearance Structure.....	12
5.2.2 Wiring .....	13
5.3 I/O Module Transfer Base (With Auxiliary Power Terminal).....	13
5.3.1 Appearance Structure.....	13
5.3.2 Wiring .....	14
5.4 I/O Module Transfer Base (Without Auxiliary Power Terminal).....	14
5.4.1 Appearance Structure.....	14
5.4.2 Wiring .....	15
5.5 I/O Module Transfer Base (System Centralized Power) .....	15
5.5.1 Appearance Structure.....	15
5.5.2 Wiring .....	16
5.6 Redundant Servo Module Base.....	16
5.6.1 Appearance Structure.....	16
5.6.2 Wiring .....	17
<b>Section 6 Communication Module Base.....</b>	<b>18</b>

6.1 I/O Link Module Base (MB722-S01&MB722-S11)	18
6.1.1 Appearance Structure	18
6.1.2 Power Supply's Wiring Terminal	19
6.1.3 Address Code Jumper	20
6.1.4 Extended I/O Bus Interface and Light Indicators	20
6.1.5 Local I/O Bus (L-Bus) Interface	21
6.2 PROFIBUS Communication Module Base (MB723-S01)	21
6.2.1 Appearance Structure	21
6.2.2 Address Code Jumper	22
6.2.3 PROFIBUS-DP Port	23
6.2.4 E-Bus Interface and Communication Indicators	23
6.3 PROFIBUS Communication Module Base (MB724-S01&MB724-S11)	23
6.3.1 Appearance Structure	23
6.3.2 Power Supply's Wiring Terminals	24
6.3.3 Address Code Jumper	25
6.3.4 PROFIBUS-DP Interface	25
6.3.5 E-Bus Interface and Communication Indicators	25
6.4 Serial Communication Module Base (MB725-S01&MB726-S01)	26
6.4.1 Appearance Structure	26
6.4.2 Address Code Jumper	28
6.4.3 Extended I/O Bus Interface and Light Indicators	29
6.4.4 Serial Interface Wiring Terminals	29
6.4.5 Jumpers of Communication Mode and Indicators	31
6.5 Serial Communication Module Base (MB727-S01& MB727-S11)	31
6.5.1 Appearance Structure	32
6.5.2 Power Supply's Wiring Terminal	32
6.5.3 Address Code Jumper	33
6.5.4 Redundant/Non-redundant Jumper Settings	34
6.5.5 E-BUS Interfaces and Communication Indicators	34
6.5.6 Serial Interface Wiring Terminals	34
6.5.7 Communication Indicators	36
6.6 System Interconnection Module Base (MB702-S01)	37
6.6.1 Appearance Structure	37
6.6.2 Address Code Jumper	38
6.6.3 SBUS Interface	38
6.6.4 E-BUS Interface and Indicator	39
6.6.5 Power Supply's Wiring Terminals	39

6.7 System Interconnection Module Base (MB704-S) .....	39
6.7.1 Appearance Structure .....	40
6.7.2 Address Code Jumper .....	40
6.7.3 NET Interface and Light Indicators .....	40
6.7.4 E-BUS Interface and Indicators .....	41
6.7.5 Power Supply's Wiring Terminals .....	41
<b>Section 7 Base Dimension and Uninstallation .....</b>	<b>42</b>
7.1 Controller Unit Dimension .....	42
7.2 Other Base Dimension .....	42
7.3 Install Controller Base .....	43
7.3.1 To Install a Base on Flat Plates .....	44
7.3.2 To Install a Base on Rack Rails .....	44
7.4 Uninstall a Controller Base .....	45
7.4.1 Uninstall a Base from Flat Plates .....	45
7.4.2 Uninstall a Base from Rack Rails .....	45
7.5 Install Other Bases .....	46
7.6 Uninstall Other Bases .....	46
7.7 Install Base Covers .....	47
7.8 Uninstall Base Cover .....	47
<b>Section 8 Matching Information .....</b>	<b>49</b>
<b>Section 9 Revision .....</b>	<b>52</b>

# Base

## Section 1 Description

---

System module base includes a controller base, an I/O module base and a communication module base, etc.

- The controller base is for controller modules' location and connection, achieving the electrical connection of controller, and it provides communication port for the communication of controller and other components.
- The I/O module base is for I/O modules' location and connection, achieving the electrical connection of I/O modules. I/O module bases can be divided into two types: a direct connection and a terminal transfer connection. The direct connection type base directly connects to external cables, and the terminal transfer type base connects to the external cables through a transferring terminal. One side of the transferring terminal is a transfer cable and the other is an external cable.
- Communication module base includes I/O link module base, PROFIBUS communication module base, serial communication module base and system interconnection module base, which are used to install the I/O link module, PROFIBUS communication module, serial communication module and system inter-connection module individually. The communication module base provides the address code jumper and communication port. User can set the E-Bus network module of module via the address code jumper, and connect other network components via the communication port.

This manual mainly describes the appearance structure, size and installation. For detailed wiring instruction, refer to user manuals of various modules.

## Section 2 Environment Requirements

---

The working and storage environment should satisfy the requirements shown in Table 2-1.

**Table 2-1 Requirements of environment**

Parameter	Description	
Temperature	Working Temperature	-20℃~70℃
	Storage Temperature	-40℃~85℃
Humidity	Working Humidity	10%RH~90%RH, no condensation
	Storage Humidity	5%RH~95%RH, no condensation



## Section 3 Base Models

General base models are shown in Table 3-1. For the matching situation between bases and modules, refer to Section 8 Matching Information.

**Table 3-1 List of base model**

Base Name	Model	Description(Single Base)
Controller Base	MB712-S01/S21	For 2 redundant controllers
I/O Module Base	MB731-S01	For 2 non-redundant I/O modules; with auxiliary power terminal
I/O Module Base (Redundant)	MB732-S01	For 2 redundant I/O modules; with auxiliary power terminal
I/O Module Base	MB735-S11	For 2 non-redundant I/O modules; without auxiliary power terminal; support the centralized power of system
I/O Module Base (Redundant)	MB736-S11	For 2 redundant I/O modules or a non-redundant I/O module; without auxiliary power terminal; support the centralized power of system
I/O Module Terminal Transfer Base	MB741-S01	For 2 non-redundant I/O modules, connect the field signal by terminal board; with auxiliary power terminal
I/O Module Terminal Transfer Base (Redundant)	MB742-S01	For 2 redundant I/O modules or a non-redundant I/O module, connect the field signal by terminal board; with auxiliary power terminal
I/O Module Terminal Transfer Base	MB743-S01	For 2 non-redundant I/O modules, connect the field signal by terminal board; without auxiliary power terminal, input auxiliary power by terminal board
I/O Module Terminal Transfer Base (Redundant)	MB744-S01	For 2 redundant I/O modules or a non-redundant I/O module, connect the field signal by terminal board; without auxiliary power terminal, input auxiliary power by terminal board
I/O Module Terminal Transfer Base	MB745-S11	For 2 non-redundant I/O modules; without auxiliary power terminal; support the centralized power of system
I/O Module Terminal Transfer Base (Redundant)	MB746-S11	For 2 redundant I/O modules or a non-redundant I/O module; without auxiliary power terminal; support the centralized power of system
Redundant servo module base	MB747-S11	A dedicated base for redundant servo module can be installed with two redundant servo modules or one non-redundant servo module and must connect field signals through terminal boards; There is no auxiliary power wiring terminals and it is input by terminal boards.
I/O Link Module Base	MB722-S01	For 2 redundant I/O link modules or a non-redundant I/O module; without auxiliary power terminal; should be powered by rack
I/O Link Module Base	MB722-S11	For 2 redundant I/O link modules or a non-redundant I/O module; with auxiliary power terminal
PROFIBUS Communication Module Base	MB723-S01	For 1 non-redundant COM721-S
PROFIBUS Communication Module Base (Redundant)	MB724-S01	For 2 redundant COM722-S or 1 non-redundant COM722-S, without wiring terminals for assistant power supplier, therefore obtaining power through racks.
PROFIBUS Communication Module Base (Redundant)	MB724-S11	For 2 redundant COM722-S or 1 non-redundant COM722-S, with assistant power supplier wiring terminals.

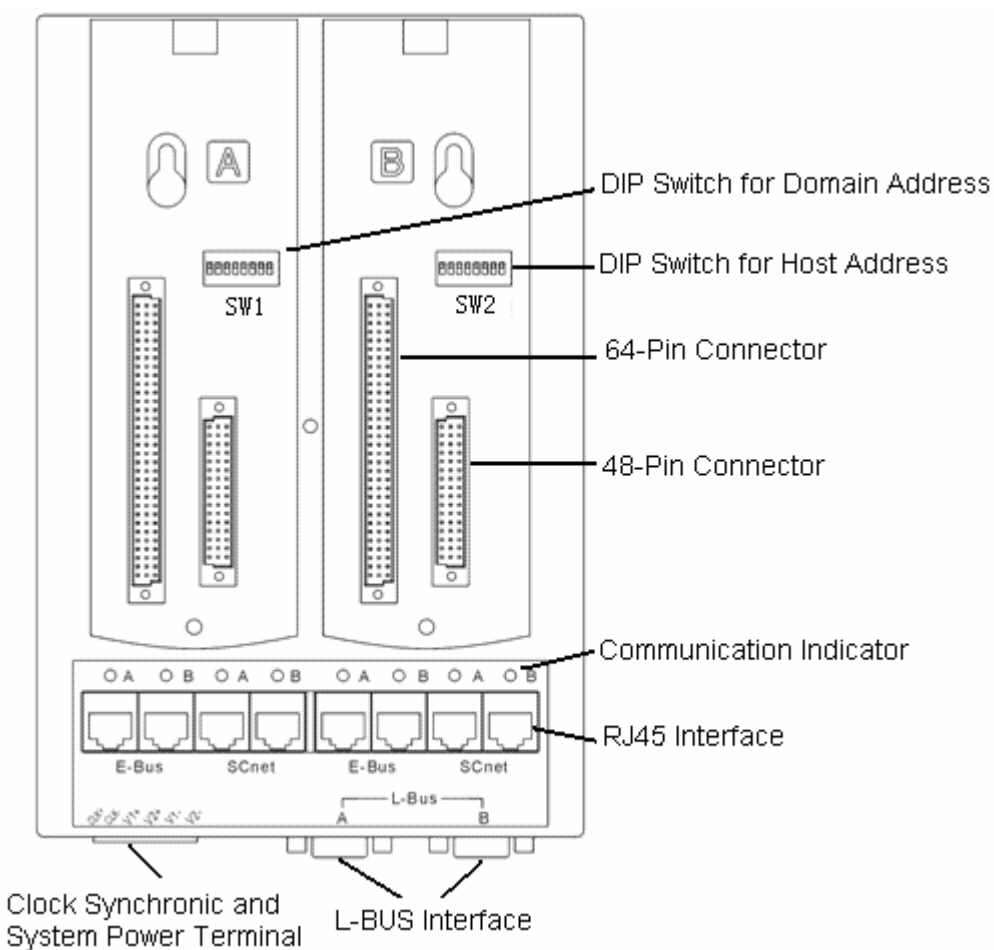
Base Name	Model	Description(Single Base)
Serial Communication Module Base	MB725-S01	For 2 non-redundant serial communication modules
Serial Communication Module Base (Redundant)	MB726-S01	For 2 redundant serial communication modules or a non-redundant serial communication module
Serial Communication Module Base	MB727-S01	For 2 redundant serial communication modules or 2 non-redundant serial communication modules, without wiring terminals for assistant power supplier, therefore obtaining power through racks.
Serial Communication Module Base	MB727-S11	For 2 redundant serial communication modules or 2 non-redundant serial communication modules, with assistant power supplier wiring terminals.
System Interconnection Module Base (Redundant)	MB702-S01	For 2 redundant system interconnection modules (DB9)
System Interconnection Module Base (Redundant)	MB704-S01	For 2 redundant system interconnection modules, or 2 redundant Ethernet communication module (Ethernet), or 2 redundant PROFINET communication module, or 2 heterogeneous communication access module, or 1 EtherNet/IP communication module

## Section 4 Controller Base

Every controller base can locate up to two redundant controller modules. In non-redundant mode, the controller module can locate in any slot of the base.

### 4.1 Appearance Structure

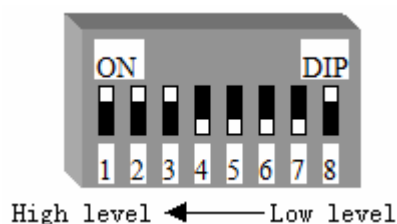
Controller base's appearance is shown in Figure 4-1, and users can install 2 redundant controllers in the right and left slots of the base, and also can install 1 non-redundant controller in the right or left slots. The configuration of base MB712 contains the DIP switch for domain address, DIP switch for host address, 64-pin connector, 48-pin connector, communication indicator, RJ45 interface, L-BUS interface, clock synchronic and system power terminal, etc. As shown in Figure 4-1.



**Figure 4-1 Controller base MB712**

## 4.2 Address DIP Switch

Users can set host addresses and domain addresses by the DIP switch SW1 and SW2 on the controller base, the structure of DIP switch is shown in Figure 4-2.



**Figure 4-2 Structure of DIP switch**

The IP address format is “**172. Subnet address. Domain address. Intra-domain host address**”:

- **Subnet address:** 20 or 21, wherein 20# subnet is for connection of A# process control network, and 21# subnet is for connection of B# control network. A and B subnets are redundant and work simultaneously.
- **Domain address:** 0~59. Domain address can be set by domain address dial switch SW1, as shown in Table 4-1.
- **Intra-domain host address:** 2~127. Intra-domain host address can be set by intra-domain address dial switch SW2, as shown in Table 4-2.

**Table 4-1 Domain address dial setting**

Domain address	DIP Switch (High Level-Low Level) SW1							
	SW1-1	SW1-2	SW1-3	SW1-4	SW1-5	SW1-6	SW1-7	SW1-8
0	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
1	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON
...	...	...	...	...	...	...	...	...
58	OFF	OFF	ON	ON	ON	OFF	ON	OFF
59	OFF	OFF	ON	ON	ON	OFF	ON	ON

**Table 4-2 Intra-domain host address setting**

Node Address	DIP Switch (High Level-Low Level) SW2							
	SW2-1	SW2-2	SW2-3	SW2-4	SW2-5	SW2-6	SW2-7	SW2-8
2	OFF	OFF	OFF	OFF	OFF	OFF	ON	OFF
4	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF
6	OFF	OFF	OFF	OFF	OFF	ON	ON	OFF

DIP Switch (High Level-Low Level) SW2								
...	...	...	...	...	...	...	...	...
124	OFF	ON	ON	ON	ON	ON	OFF	OFF
126	OFF	ON	ON	ON	ON	ON	ON	OFF

**Attentions:**

- The intra-domain node address of controller can not be 0# and 1#.
- The highest (SW-1) and lowest (SW2-8) dials for intra-domain node address of controller are invalid.
- Intra-domain node address ADD must be even, and its redundant node address ADD+1 controller will be added automatically.

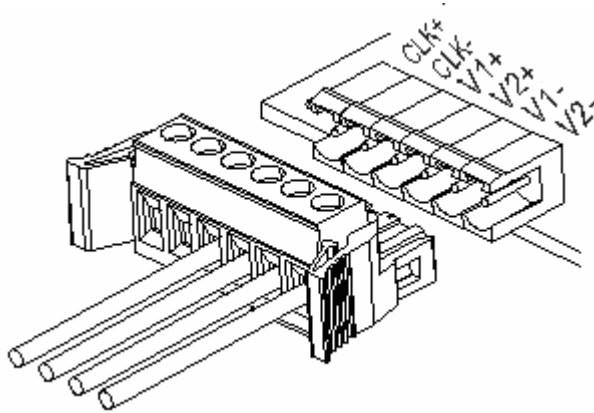
## 4.3 Clock Synchronization and Power Terminal

The controller base adopts two redundant 24V DC powers. The corresponding relations of system power and terminals are shown in Table 4-3.

**Table 4-3 The corresponding relations of system power and terminals**

System Power Supply	System Power Supply Terminal	
The first loop	+	V1+
	-	V1-
The second loop	+	V2+
	-	V2-

The clock synchronic terminal CLK+ and CLK- are used to introduce external clock synchronic signal. The structures of clock synchronization and power terminal are shown in Figure 4-3.



**Figure 4-3 Clock synchronization and power terminal**

In applications needing SOE, a time server must be adopted. The second pulse signal from time server shall be converted into differential signal and then transferred into controller, so as to realize clock synchronization and ensure accuracy of SOE time.

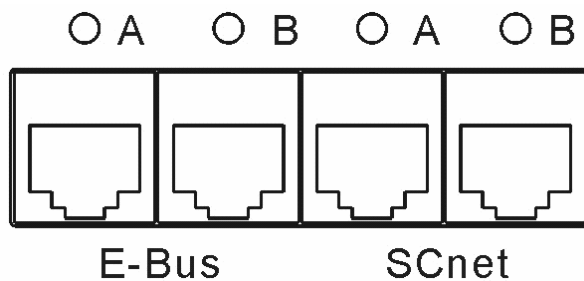
- **CLK+:** high level of second pulse differential signal
- **CLK-:** low level of second pulse differential signal

In applications with low requirement for controller clock accuracy, the second pulse synchronic line may not be connected. It is only necessary to adopt SNTP server synchronic control station clock.

## 4.4 Extended I/O Bus Interface and SCnet Interface and the Light

### Indicators

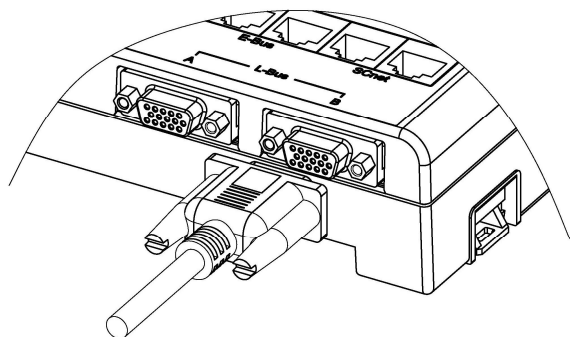
Indicators on the controller base indicate the communicating status of E-Bus and SCnet network respectively. It includes the indicator A for net A and the indicator B for net B. There are two pairs RJ45 interfaces, one pair connects E-Bus, and the other one connects SCnet. The interface under the indicator A is used for connecting net A, and the interface under the indicator B is used for connecting net B, which is shown in Figure 4-4.



**Figure 4-4 Indicators and RJ45 interface**

## 4.5 Local BUS Interface

A pair of redundant local I/O bus terminals (L-Bus) are configured on base MB712. Connected to the racks in the system cabinet via DB15, it realizes the direct communication between the controller and I/O modules in cabinet



**Figure 4-5 Terminal of L-Bus**

## Section 5 I/O Module Base

I/O base can be installed with modules including analog signal input module, thermocouple input module, RTD input module, analog signal output module, digital signal input module, digital signal output module and pulse input module etc.




---

**Attention:**

**The redundant servo module base MB747-S11 is a dedicated base for the redundant servo module AM723-S11, please do not mix it.**

---

The I/O module base has three types: auxiliary power terminals, non-auxiliary power terminals and system unified power distribution.

- Auxiliary power terminals: the auxiliary power is from a base. Therefore the base locates power supply's wiring terminals.
- Non-auxiliary power terminal: the auxiliary power is from a terminal block. Therefore the base doesn't locate any power supply's wiring terminal.
- System centralized power supply: the auxiliary power is from the bottom of the rack. Therefore the base doesn't locate any power supply's wiring terminal.




---

**Attention:**

**The auxiliary power supply is the power supply for the field signal loop.**

---

The base is divided into redundant and non-redundant bases according to the redundant working attributes of the module. The non-redundant base adopts a symmetrical structure with two sets of wiring terminals on the left and right sides, which can respectively serve the I/O modules on the same side. The redundant base has only one set of wiring terminals, serving a pair of redundant I/O modules.

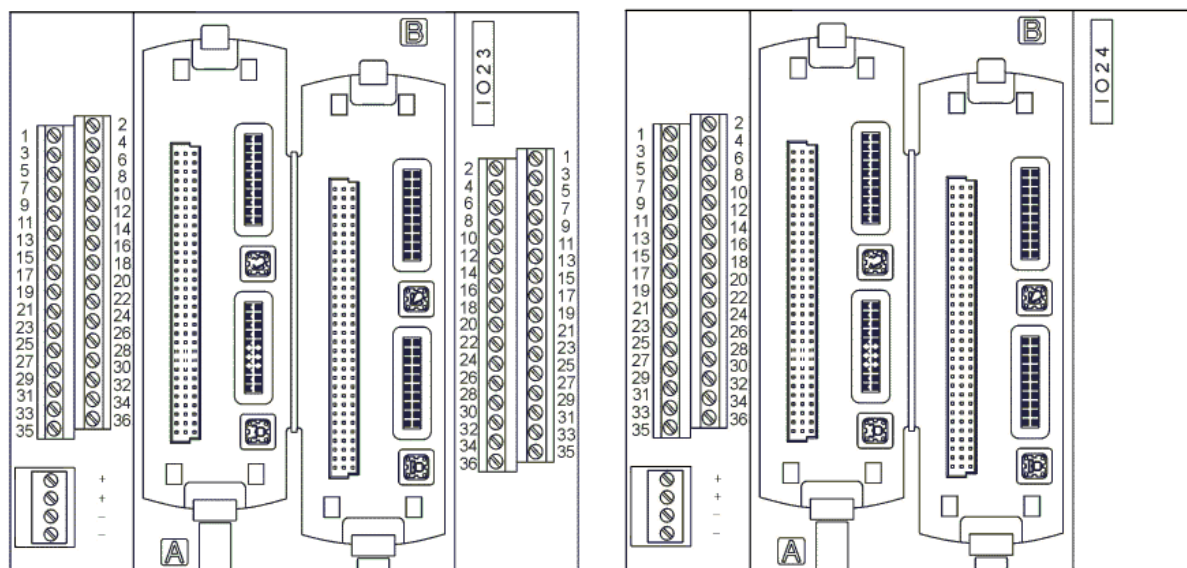
### 5.1 I/O Module Base (With Auxiliary Power Terminal)

#### 5.1.1 Appearance Structure

The I/O module base MB731-S01 can install any 2 I/O modules. The 2 module slots are marked as A (left) and B (right). Both sides of the base MB731-S01 have a double-layer connection terminal row; each has 36 terminals in total, as shown in the left diagram of Figure 5-1.

The redundant I/O module base MB732-S01 can install 2 redundant I/O modules in the same type. The terminal is fixed at the left of base. As shown in the right diagram of Figure 5-1.





**Figure 5-1 I/O module base (Left: MB731-S01, Right: MB732-S01)**

## 5.1.2 Wiring

### Field signal wiring

The connection mode of the field signal cable is closely related to the type of I/O module installed on the base. For details, refer to the wiring instruction in manuals of each I/O module.

The maximum cross section of wire allowed to connect the terminal is  $2.5\text{mm}^2$ . It is recommended to use wires with cross section of  $1\text{mm}^2$  or  $1.5\text{mm}^2$ , with stripping length of 8mm, and the tightening torque of (0.5~0.6)Nm is recommended.

### Auxiliary power supply wiring

The auxiliary power terminal is used to connect the external auxiliary power. The auxiliary power can be 24V DC or 48V DC, which is determined by the requirements of I/O module for auxiliary power. The general auxiliary power is 24V DC. The corresponding relations of auxiliary power supply and its terminals are shown in Table 5-1.

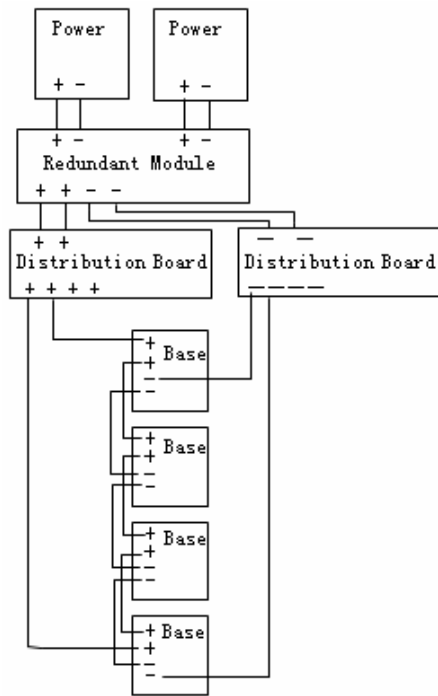
In terms of auxiliary power wires, it is recommended to use wires with cross-section of  $0.75\text{mm}^2$  or  $1\text{mm}^2$ , with stripping length  $7\text{mm}^2$ , and the tightening torque of (0.5~0.6) Nm. This requirement also applies to the other two I/O bases such as MB741-S01 and MB742-S01.

**Table 5-1 Corresponding relations of auxiliary power supply and its terminals**

External Auxiliary Power		Auxiliary Power Terminal
Auxiliary Power Supply	+	+
	-	-

The auxiliary power provides 2 terminals of “+” and 2 terminals of “-”. They are used for the ring

type power supply between 4 bases. The auxiliary power connect one pair of terminals of first base, the other pair connect one pair of terminals of next base, and one pair of terminals of the forth base connect the auxiliary power. It's a ring type. The wiring is shown in Figure 5-2.



**Figure 5-2** Ring type power supply

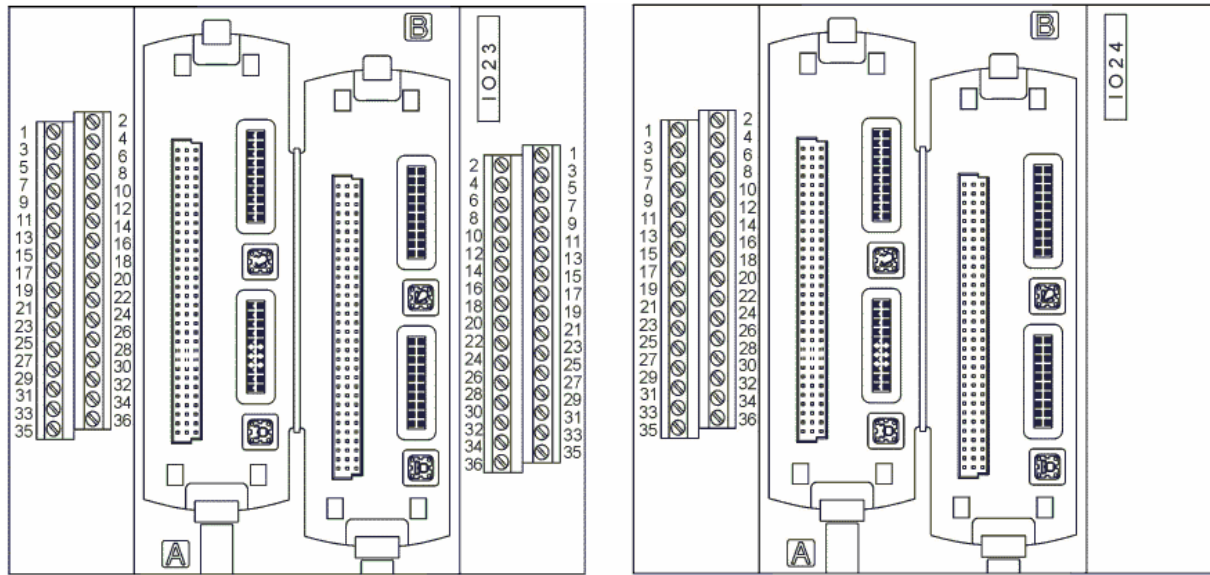
## 5.2 I/O Module Base (System Centralized Power)

### 5.2.1 Appearance Structure

The I/O module base MB735-S11 can install any 2 I/O modules. The 2 module slots are marked as A (left) and B (right). Both sides of the base MB735-S11 have a double-layer connection terminal row; each has 36 terminals in total, as shown in the left diagram of Figure 5-3.

The redundant I/O module base MB736-S11 can install 2 redundant I/O modules in the same type. The terminal is fixed at the left of base. As shown in the right diagram of Figure 5-3.

The base has no auxiliary power terminal, and divides the centralized power into system power and field power via adding the diode to realize the system centralized power.



**Figure 5-3 MB735-S11 (left) and MB736-S11 (right)**

## 5.2.2 Wiring

The connection mode of the field signal cable is closely related to the type of I/O module installed on the base. For details, refer to the wiring instruction in manuals of each I/O module.

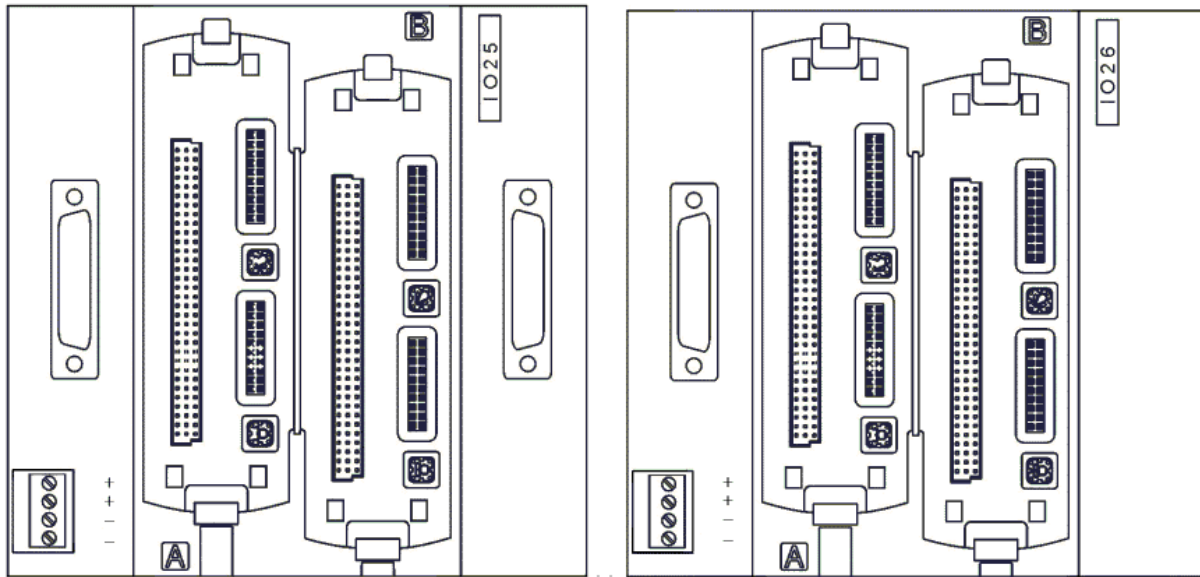
The maximum cross section of wire allowed to connect the terminal is  $2.5\text{mm}^2$ . It is recommended to use wires with cross section of  $1\text{mm}^2$  or  $1.5\text{mm}^2$ , with stripping length of 8mm, and the tightening torque of (0.5~0.6)Nm is recommended.

## 5.3 I/O Module Transfer Base (With Auxiliary Power Terminal)

### 5.3.1 Appearance Structure

The I/O module base MB741-S01 can install any 2 I/O modules. The 2 module slots are marked as A (left) and B (right). Both sides of the base has a 37-pin terminal transfer socket, which connect the special terminal unit via the wire DB37, as shown in the left diagram of Figure 5-4.

The redundant I/O module base MB742-S01 can install 2 redundant I/O modules in the same type. The terminal is fixed at the left of base. As shown in the right diagram of Figure 5-4.



**Figure 5-4 I/O module terminal transfer base (Left: MB741-S01, Right: MB742-S01)**

### 5.3.2 Wiring

For information about DB37 cables fit with the transfer interfaces on the base, refer to *Cable User Manual*.

Please refer to 5.1 for details of auxiliary power terminal at the left corner of base.

## 5.4 I/O Module Transfer Base (Without Auxiliary Power Terminal)

### 5.4.1 Appearance Structure

The I/O module base MB743-S01 can install any 2 I/O modules. The 2 module slots are marked as A (left) and B (right). Both sides of the base has a 37-pin terminal transfer socket, which connect the special terminal unit via the wire DB37, as shown in the left diagram of Figure 5-5.

The redundant I/O module base MB744-S01 can install 2 redundant I/O modules in the same type. The terminal is fixed at the left of base. As shown in the right diagram of Figure 5-5.

The base has no auxiliary power terminal. The auxiliary power's connection is through the transfer terminal.

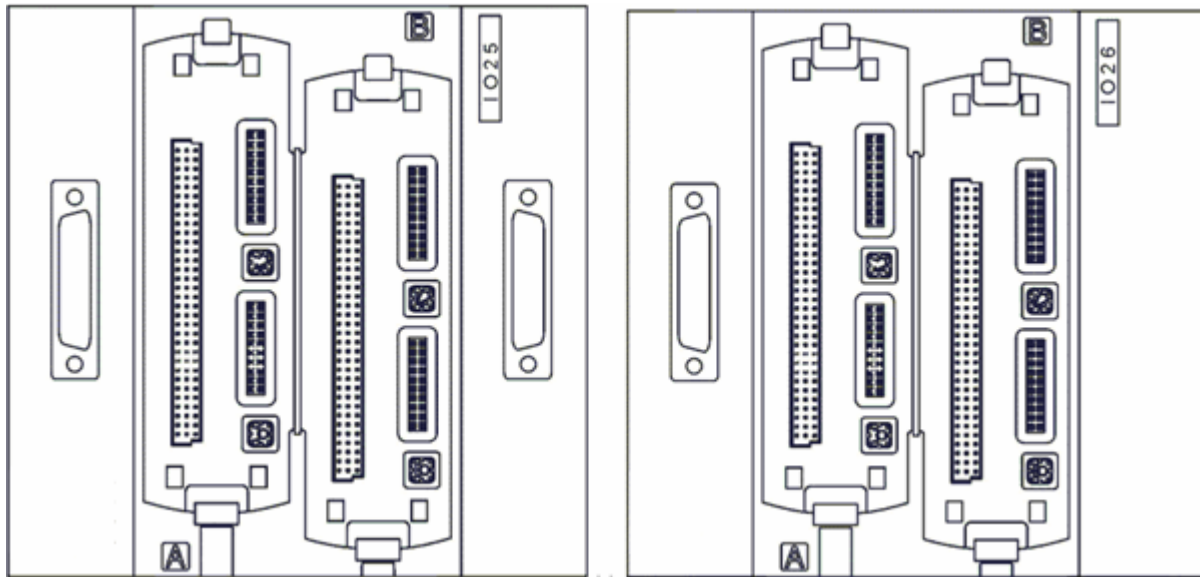


Figure 5-5 I/O module terminal transfer base (Left: MB743-S01, Right: MB744-S01)

### 5.4.2 Wiring

For information about DB37 cables fit with the transfer interfaces on the base, refer to *Cable User Manual*.

## 5.5 I/O Module Transfer Base (System Centralized Power)

### 5.5.1 Appearance Structure

The I/O module base MB745-S11 can install any 2 I/O modules. The 2 module slots are marked as A (left) and B (right). Both sides of the base has a 37-pin terminal transfer socket, which connect the special terminal unit via the wire DB37, as shown in the left diagram of Figure 5-6.

The redundant I/O module base MB746-S11 can install 2 redundant I/O modules in the same type. The terminal is fixed at the left of base. As shown in the right diagram of Figure 5-6.

The base has no auxiliary power terminal, and divides the centralized power into system power and field power via adding the diode to realize the system centralized power.

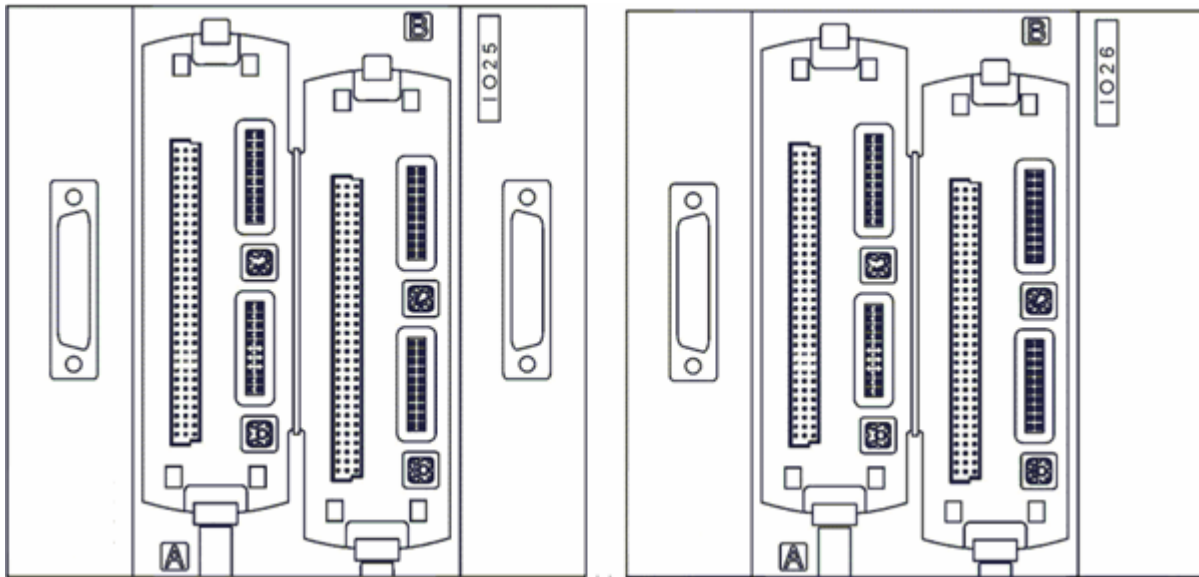


Figure 5-6 MB745-S11 (left) and MB746-S11 (right)

### 5.5.2 Wiring

For information about DB37 cables fit with the transfer interfaces on the base, refer to *Cable User Manual*.

## 5.6 Redundant Servo Module Base

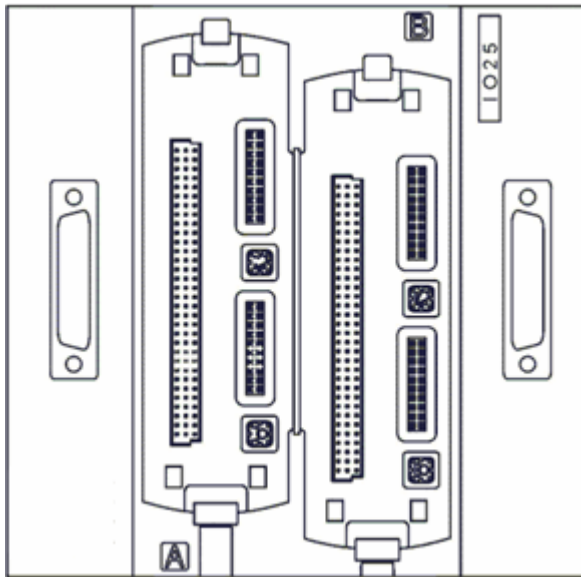
The redundant servo module base MB747-S11 is a dedicated base for the redundant servo module AM723-S11. A pair of redundant servo modules AM723-S11 should be installed on a base, and two terminal boards should be respectively connected through DB37 interface.

### 5.6.1 Appearance Structure

The structure of MB747-S11 is shown in Figure 5-7. The base includes A (left), B (right) two slots and two DB37 cable interfaces. Connectors in slots are used to link with connectors on the back of AM723-S11. DB37 interface is exclusively for terminal TU705-R1100 connecting with AM723-S11 and DB37 cables are necessary.

Base can be installed with a pair of redundant servo module AM723-S11 and connect with two terminal boards through DB37.

Base has no auxiliary power wiring terminals. You can distribute the unified power supply to the system side and field side by adding diodes, realizing system power supply distribution.



**Figure 5-7**Redundant servo module base MB747-S11

### 5.6.2 Wiring

For information about DB37 cables fit with the transfer interfaces on the base, refer to *Cable User Manual*.

## Section 6 Communication Module Base

---

Communication module base describes the usage instruction of I/O link module base, PROFIBUS communication module base, serial communication module base, system interconnect module base, etc.

### 6.1 I/O Link Module Base (MB722-S01&MB722-S11)

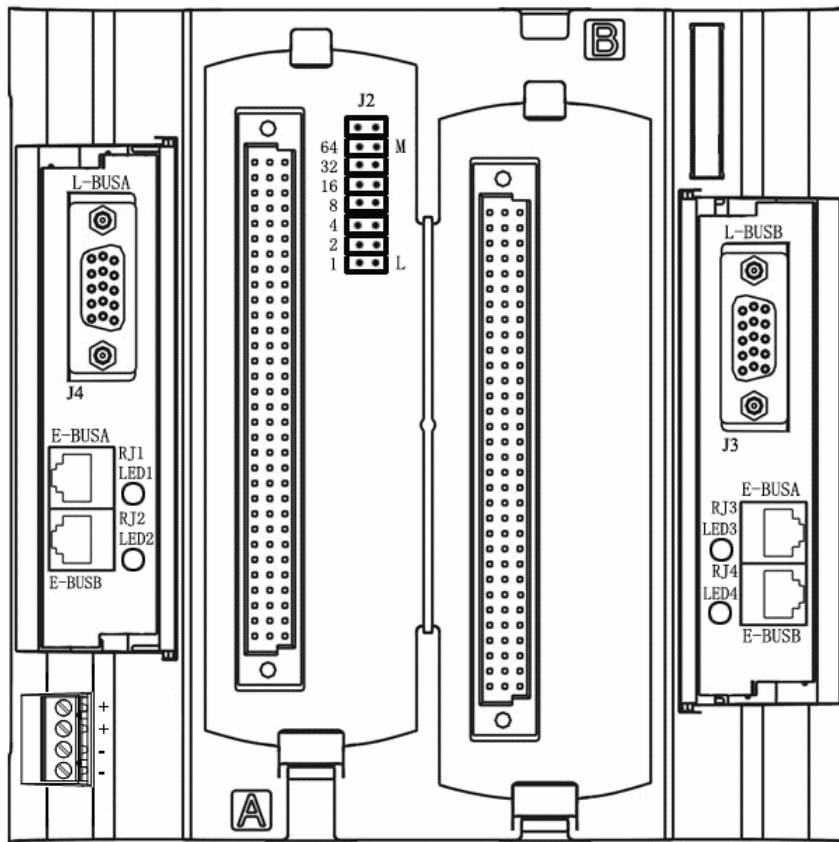
The I/O link module bases MB722-S01 and MB722-S11 should match the I/O link module COM711-S. One base can locate two redundant modules, or a non-redundant module, and the non-redundant module can locate in any slot.

Both the I/O link module bases MB722-S01 and MB722-S11 can be installed on the rails of the I/O rack, and the module and the base can be powered through the rack bottom plate; the base MB722-S11 can also be installed on the rails which are not of racks. In this case, the power supply is connected to the system through the power terminal in the lower left corner.

#### 6.1.1 Appearance Structure

MB722-S11's structure is shown in Figure 6-1. The base has two slots. A is on the left side and B is on the right side. There is one address code jumper J2, extended I/O bus interfaces (E-BUS), local I/O bus communication light indicators (LED) on the bus. MB722-S01 has no power terminals while others are the same as those shown in the figure below.





**Figure 6-1 I/O link module base MB722-S11**

### 6.1.2 Power Supply's Wiring Terminal

When MB722-S11 is not installed on system I/O racks, that is, non-rack-power-supply mode is adopted. In this case, it is necessary for power terminals to connect to a 24V DC power supply. Terminal definitions are shown in Table 6-1.

When the MB722-S11 is installed on the system I/O rack, that is, the rack-power-supply mode is adopted, and the power terminal cannot be connected to the power supply.

**Table 6-1 Definition of power supply's wiring terminal**

Power supply's wiring terminal	Definition
+	24V+
-	24V-

The wires with sections of 0.75mm<sup>2</sup> or 1mm<sup>2</sup>, the wire stripping length of 7mm and the tightening torque of (0.5~0.6)Nm are recommended for the auxiliary power.

### 6.1.3 Address Code Jumper

There is a group of address code jumper on the MB722-S base, which is marked as 1, 2, 4, 8, 16, 32 and 64 from low to high, which are used to set addresses of two I/O link modules on the extended I/O bus. The address range is limited by the node number limit the controller module supports and the maximum range available currently is from 1 to 31 as shown in Table 6-2.

When using the jumper, it is ON when plugging in short circuit block, and is OFF when not plugging.

**Table 6-2 COM711-S node address code setup method**

16	8	4	2	1	Node Address Code
OFF	OFF	OFF	OFF	ON	1
OFF	OFF	OFF	ON	OFF	2
OFF	OFF	OFF	ON	ON	3
OFF	OFF	ON	OFF	OFF	4
OFF	OFF	ON	OFF	ON	5
OFF	OFF	ON	ON	OFF	6
OFF	OFF	ON	ON	ON	7
...	...	...	...	...	...
ON	ON	ON	ON	ON	31

### 6.1.4 Extended I/O Bus Interface and Light Indicators

As the E-Bus is the redundant Ethernet, MB722-S has a RJ45 interface for each I/O link module, as shown in Figure 6-1. The RJ45 interface marked as E-Bus A connects the A-net of bus, and the RJ45 interface marked as E-Bus B connects the B-net of bus. Each RJ45 interface has a communication indicator to indicate the communication status of network.

**Table 6-3 List of MB722-S base indicator instruction**

Name	Status	Instruction
LED1	ON	The connection of network wire of A# network of module expansion I/O bus at A side is normal
	OFF	The connection of network wire of A# network of module expansion I/O bus at A side is abnormal.
LED2	ON	The connection of network wire of B# network of module expansion I/O bus at A side is normal.

Name	Status	Instruction
	OFF	The connection of network wire of B# network of module expansion I/O bus at A side is abnormal.
LED3	ON	The connection of network wire of A# network of module expansion I/O bus at B side is normal.
	OFF	The connection of network wire of A# network of module expansion I/O bus at B side is abnormal.
LED4	ON	The connection of network wire of B# network of module expansion I/O bus at B side is normal.
	OFF	The connection of network wire of B# network of module expansion I/O bus at B side is abnormal.

### 6.1.5 Local I/O Bus (L-Bus) Interface

As shown in Figure 6-1, the socket DB15 marked as L-Bus A is the net A interface of L-Bus and socket DB15 marked as L-Bus B is the net B interface of L-Bus, which can connect the socket DB15 in the cabinet via the wire DB15.

## 6.2 PROFIBUS Communication Module Base (MB723-S01)

The PROFIBUS communication module base MB723-S01 should match the PROFIBUS communication module COM721-S. A base has only one slot, and one communication module can be installed.

The I/O connection module base MB723-S01 should be installed on the rail of the I/O rack, and power supply for the module and the base through the rack bottom plate.

### 6.2.1 Appearance Structure

The appearance structure of MB723-S01 is shown in Figure 6-2. There is a slot, address code jumper, extended I/O bus, PROFIBUS-DP bus terminal interface and RS-232 interface for developers debugging interfaces.

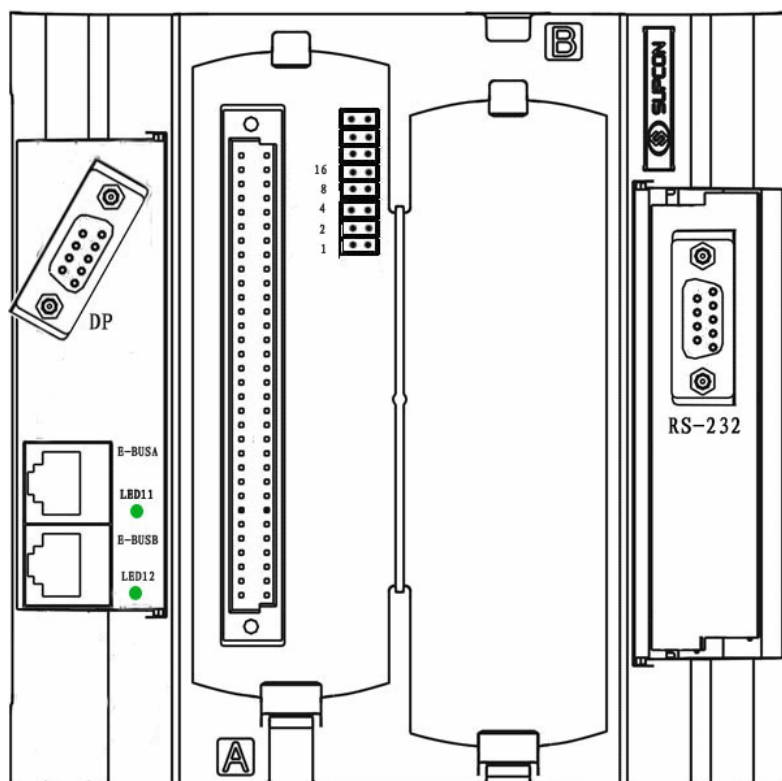


Figure 6-2 PROFIBUS communication module base MB723-S01

### 6.2.2 Address Code Jumper

There is a group of address code jumper on the MB723-S01 base, which is marked as 1, 2, 4, 8, 16, 32 and 64 from low to high. The low 3 bits can set the address of COM721-S of base in E-BUS. The range of address code is 1~7. As shown in Table 6-4.

When using the jumper, it is ON when plugging in short circuit block, and is OFF when not plugging.

Table 6-4 COM721-S address code setting method

4	2	1	Node Address Code
OFF	OFF	ON	1
OFF	ON	OFF	2
OFF	ON	ON	3
ON	OFF	OFF	4
ON	OFF	ON	5
ON	ON	OFF	6
ON	ON	ON	7



**Tip:**

The address code of COM721-S module can not be 0. COM721-S module address code can

---

neither be repeated, nor be the same as the node address code of other device in E-Bus.

---

### 6.2.3 PROFIBUS-DP Port

The port marked as DP in MB723-S01 can connect the PROFIBUS-DP. It applies the wire DB9 as the communication cable and supports the MPI communication.

### 6.2.4 E-Bus Interface and Communication Indicators

As the E-Bus is the redundant Ethernet, MB723-S01 has a RJ45 interface for each I/O link module, as shown in Figure 6-2. The RJ45 interface marked as E-Bus A connects the A-net of bus, and the RJ45 interface marked as E-Bus B connects the B-net of bus. Each RJ45 interface has a communication indicator to indicate the communication status of network.

**Table 6-5 List of base LED indicators instruction of COM721-S**

Name	Status	Instruction	Treatment
LED11	On	A side network connection of the module I/O expansion bus is normal	-
	Off	A side network connection of the module I/O expansion bus is abnormal	Check if the touch between the network wire and port is good, or if the network is normal.
LED12	On	B side network connection of the module I/O expansion bus is normal	-
	Off	B side network connection of the module I/O expansion bus is abnormal	Check if the touch between the network wire and port is good, or if the network is normal.

## 6.3 PROFIBUS Communication Module Base (MB724-S01&MB724-S11)

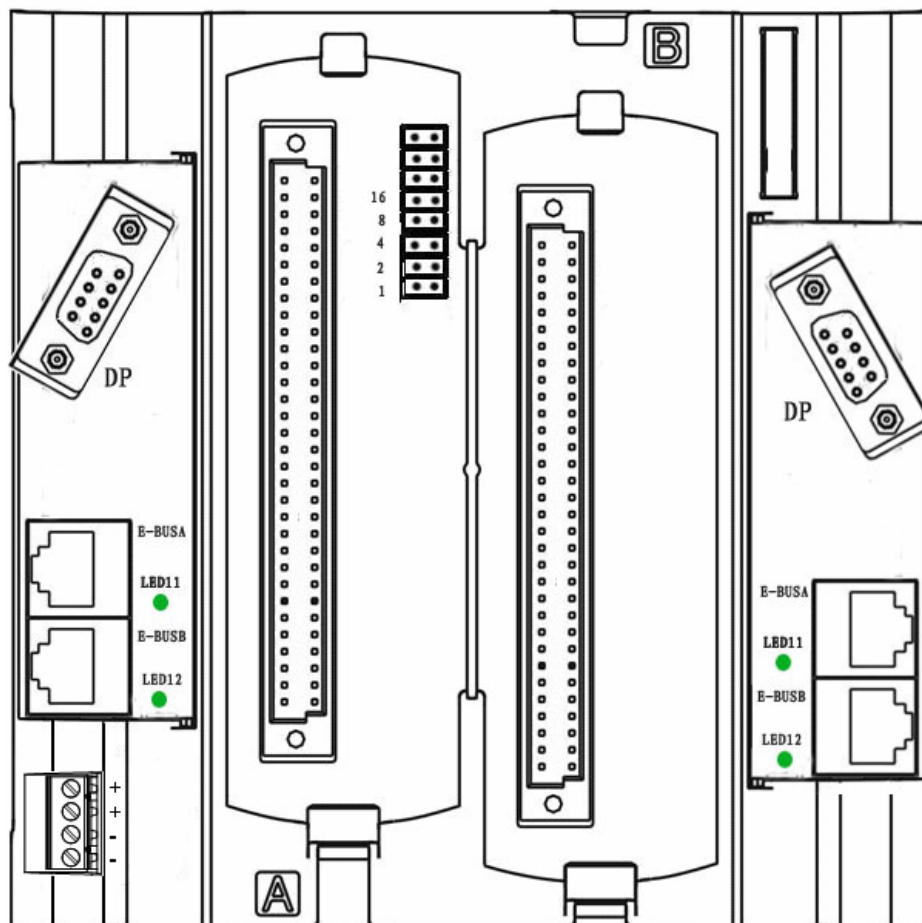
PROFIBUS communication module base MB724-S01 and MB724-S11 should be used with PROFIBUS communication module COM722-S. One base can install two redundant modules, or install a non-redundant module, and the non-redundant module can be installed in any slot.

Both the base MB724-S01 and MB724-S11 can be installed on the rails of the system I/O rack, and power is supplied to the module and the base through the rack bottom plate; the base MB724-S11 can also be installed on non-rack rails, At this time, the working power supply should be connected to the power supply terminal in the lower left corner.

### 6.3.1 Appearance Structure

MB724-S11's structure is shown in Figure 6-3. The base has two slots. A is on the left side and B is on the right side. There is one address code jumper, extended I/O bus interfaces (E-BUS), PROFIBUS-DP bus interface and Ethernet communication light indicators on the bus. MB724-S01

has no power terminals while others are the same as those shown in the figure below.



**Figure 6-3 PROFIBUS communication module base MB724-S11**

### 6.3.2 Power Supply's Wiring Terminals

When the MB724-S11 is not installed on the system I/O rack, the non-rack-power-supply mode is adopted, and the power terminal must be connected to a 24V DC power supply for the module to work. The definition of power wiring terminals is shown in Table 6-6.

When MB724-S11 is installed on the system I/O rack, the rack-power-supply mode is adopted, and the power terminal cannot be connected to the power supply.

**Table 6-6 Definition of power supply's wiring terminal**

Power supply's wiring terminal	Definition
+	24V+
-	24V-

It is recommended for you to use cross section area of  $0.75\text{mm}^2$  or  $1\text{mm}^2$  cables with stripping length 7mm and tightening torque of 0.5 to 0.6 Nm.

### 6.3.3 Address Code Jumper

There is a row of jumper between 2 slots, which is marked as 1, 2, 4 and 8 from low to high. 1, 2 and 4 are node address jumper to set the address of the PROFIBUS communication module COM722-S of base in E-Bus. The address range is limited by the number of nodes supported by the controller module. The current address range that can be set is up to 1~31 as shown in Table 6-7.

When using the jumper, it is ON when plugging in short circuit block, and is OFF when not plugging.

**Table 6-7 COM722-S Address Code Setting Method**

16	8	4	2	1	Node Address Code
OFF	OFF	OFF	OFF	ON	1
OFF	OFF	OFF	ON	OFF	2
OFF	OFF	OFF	ON	ON	3
OFF	OFF	ON	OFF	OFF	4
OFF	OFF	ON	OFF	ON	5
OFF	OFF	ON	ON	OFF	6
OFF	OFF	ON	ON	ON	7
...	...	...	...	...	...
ON	ON	ON	ON	ON	31



**Tip:**

The address code of COM722-S module can not be 0. COM722-S module address code can neither be repeated, nor be the same as the node address code of other devices in E-Bus.

### 6.3.4 PROFIBUS-DP Interface

The port marked as DP in MB724-S01 can connect the PROFIBUS-DP.

### 6.3.5 E-Bus Interface and Communication Indicators

There are 2 RJ45 as E-Bus interfaces in both sides of the base, the A-net interface and B-net interface from top to down. Each port has a green indicator light to indicate the network wire connection.

Status of indicator lights in both sides of the base is shown in Table 6-8.

**Table 6-8 LED Indicators Instruction of COM722-S Base**

Name	Status	Instruction	Treatment
------	--------	-------------	-----------

Name	Status	Instruction	Treatment
E-Bus A	ON	A side network connection of the module E-Bus is normal	-
	OFF	A side network connection of the module E-Bus is abnormal	Check if the connection between network wire and port is good, or if the network wire is normal.
E-Bus B	ON	B side network connection of the module E-Bus is normal	-
	OFF	B side network connection of the module E-Bus is abnormal	Check if the connection between network wire and port is good, or if the network wire is normal.

## 6.4 Serial Communication Module Base (MB725-S01&MB726-S01)

Serial communication module bases such as MB725-S01 and MB726-S01 match with serial communication module COM741-S.

- MB725-S01: non-redundant base, one base can locate two non-redundant communication modules.
- MB726-S01: redundant base, one base can locate two redundant communication modules.

The bases MB725-S01 and MB726-S01 should be installed on the rails of the I/O rack, and power supply for the modules and bases are provided through the rack bottom plate.

### 6.4.1 Appearance Structure

MB725-S01 and MB726-S01's appearance structures are shown in Figure 6-4 and Figure 6-5. Communication interfaces on two sides are distributed symmetrically.



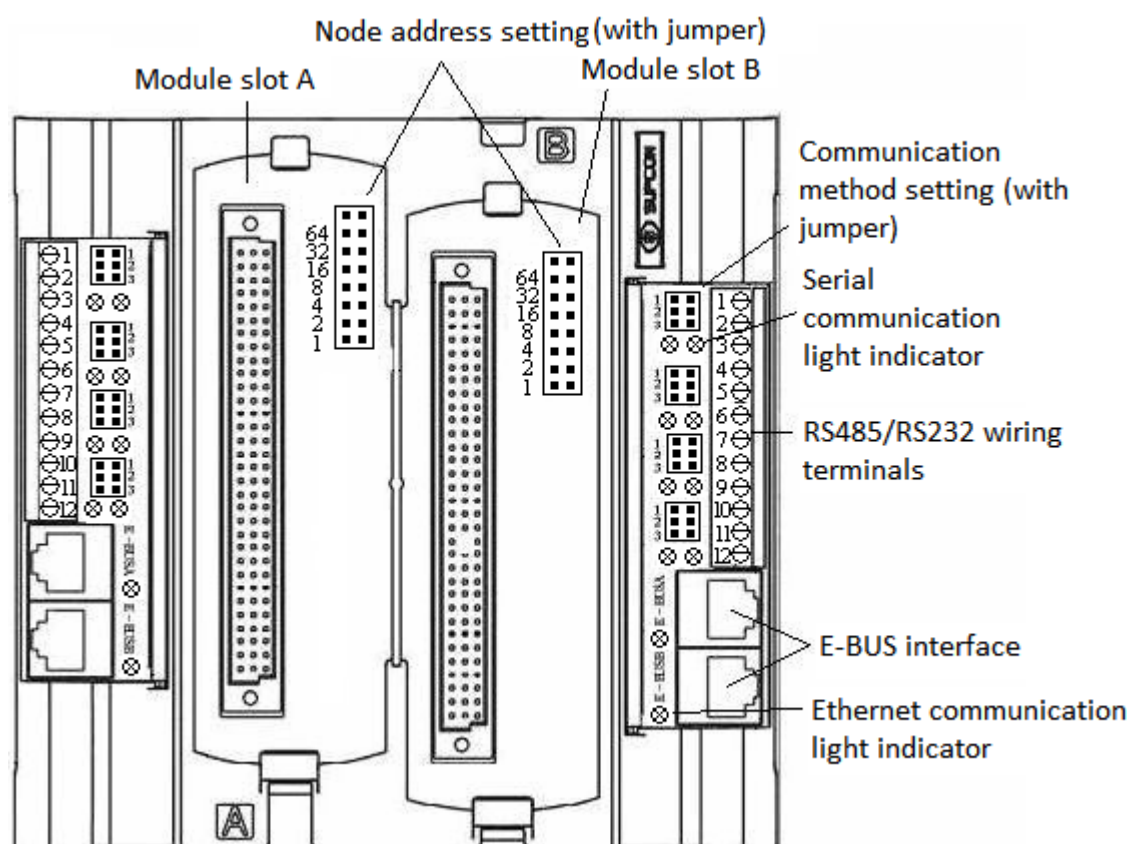


Figure 6-4 Serial communication module base MB725-S01 (Non-redundant)

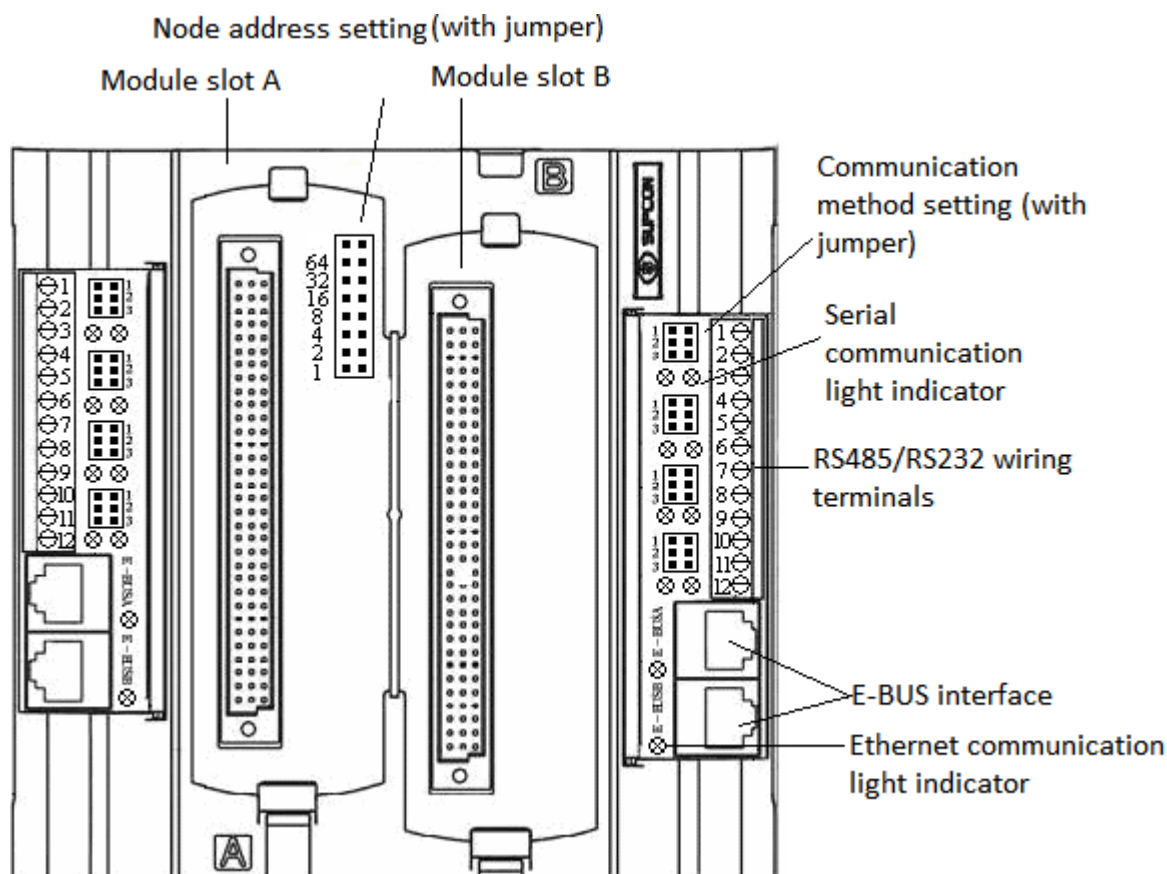


Figure 6-5 Serial communication module base MB726-S01 (Redundant)

#### 6.4.2 Address Code Jumper

There is a row of jumper between 2 slots, which is marked as 1, 2, 4, 8, 16, 32 and 64 from low to high, which are used to set address code of two redundant COM741-S on the extended I/O bus. The address range is limited by the number of nodes supported by the controller module. The maximum address range can be set is from 1 to 31 as shown in Figure 6-9.

There are 2 groups of address code jumper on the MB725-S01 base, which is marked as 1, 2, 4, 8, 16, 32 and 64 from low to high, which are used to set address code of communication modules of this slot on the extended I/O bus. The address range is limited by the number of nodes supported by the controller module. The maximum address range can be set is from 1 to 31 as shown in Figure 6-9.

When using the jumper, it is ON when plugging in short circuit block, and is OFF when not plugging.

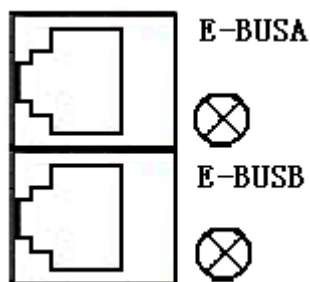
Table 6-9 Node address code settings of COM741-S

16	8	4	2	1	Node Address Code
OFF	OFF	OFF	OFF	ON	1
OFF	OFF	OFF	ON	OFF	2
OFF	OFF	OFF	ON	ON	3

16	8	4	2	1	Node Address Code
OFF	OFF	ON	OFF	OFF	4
OFF	OFF	ON	OFF	ON	5
OFF	OFF	ON	ON	OFF	6
OFF	OFF	ON	ON	ON	7
...	...	...	...	...	...
ON	ON	ON	ON	ON	31

### 6.4.3 Extended I/O Bus Interface and Light Indicators

As the E-Bus is the redundant Ethernet, the base has a pair of RJ45 interfaces for each serial communication module, as shown in Figure 6-4 and Figure 6-5. The RJ45 interface marked as E-Bus A connects the A-net of bus, and the RJ45 interface marked as E-Bus B connects the B-net of bus. Each RJ45 interface has a communication indicator to indicate the communication status of network. Figure 6-6 takes the left interface as an example.



**Figure 6-6 Two E-BUS network ports**

Ethernet communication indicator shows the working status of Ethernet physical layer, as shown in Table 6-10.

**Table 6-10 Ethernet communication indicators**


Indicator Status	Instruction
Flash	Normal
Off	Network interface fault

### 6.4.4 Serial Interface Wiring Terminals

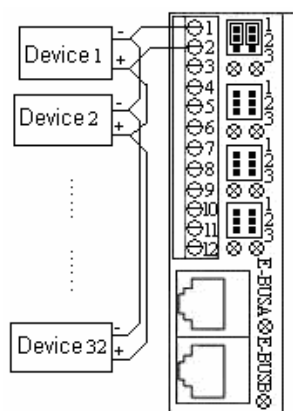
The base has a group of terminal row at both sides, each has 12 terminals and can be divided into 4 channels (3 terminals for each channel). Every channel can realize RS232 and RS485 mode communication. The terminal settings are shown in Table 6-11.

**Table 6-11 Wiring terminal settings**

Figure	Channel	Sign	Instruction
--------	---------	------	-------------

Figure	Channel	Sign	Instruction
	Channel 0	1	RX/485-
		2	TX/485+
		3	GND
	Channel 1	4	RX/485-
		5	TX/485+
		6	GND
	Channel 2	7	RX/485-
		8	TX/485+
		9	GND
	Channel 3	10	RX/485-
		11	TX/485+
		12	GND

The terminal connection mode of RS485 is shown in Figure 6-7.



**Figure 6-7** The connection mode of RS485 (take the first serial interface as an example)

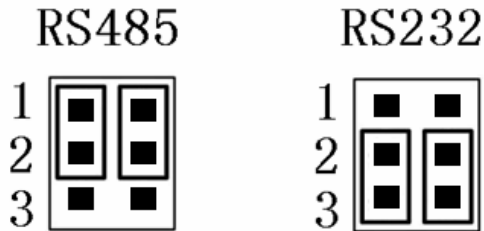
**Attention:**



When a certain communication mode is selected, the connection in communication configuration, communication mode jumper on base and wiring setting of serial interface terminal must be set consistently; otherwise the communication can not be fulfilled. In redundant configuration of modules, the communication mode setting and connection mode on both sides shall be same.

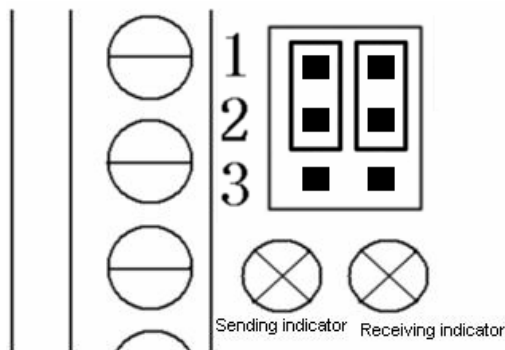
### 6.4.5 Jumpers of Communication Mode and Indicators

Module channels are equipped with jumper to select communication mode. The jumper settings under different communication modes of module are shown in following figure.



**Figure 6-8 Jumpers for communication mode**

Each communication mode setting jumper is provided with 2 indicators to display the communication status of this interface. Flash means communicating. The indicator near interface terminal is sending indicator, and the other one is receiving indicator. As shown in Figure 6-9.



**Figure 6-9 Communication indicators**

If this interface is sending data, the sending indicator will flash. When this interface is receiving data, the receiving indicator will flash. The higher the flash frequency is, the bigger the bus data flow will be.

## 6.5 Serial Communication Module Base (MB727-S01& MB727-S11)

The serial communication module base MB727-S01 and MB727-S11 should be used with the serial communication module COM741-S.

Both the base MB727-S01 and MB727-S11 can be installed on the rails of the I/O rack, and power is supplied to the module and the base through the rack bottom plate; the base MB727-S11 can also be installed on non-rack rails, At this time, the working power supply should be connected through the power terminal in the lower left corner.

Both base MB727-S01 and MB727-S11 can be set to redundant or non-redundant type through redundant jumpers. The non-redundant base can be plugged into two non-redundant

communication modules, and the redundant base can be plugged into two mutually redundant communication modules.

### 6.5.1 Appearance Structure

MB727-S11's appearance structures is shown in Figure 6-10. Communication interfaces on two sides are distributed symmetrically. MB727-S01 has no power terminals while others are the same as those in the figure below.

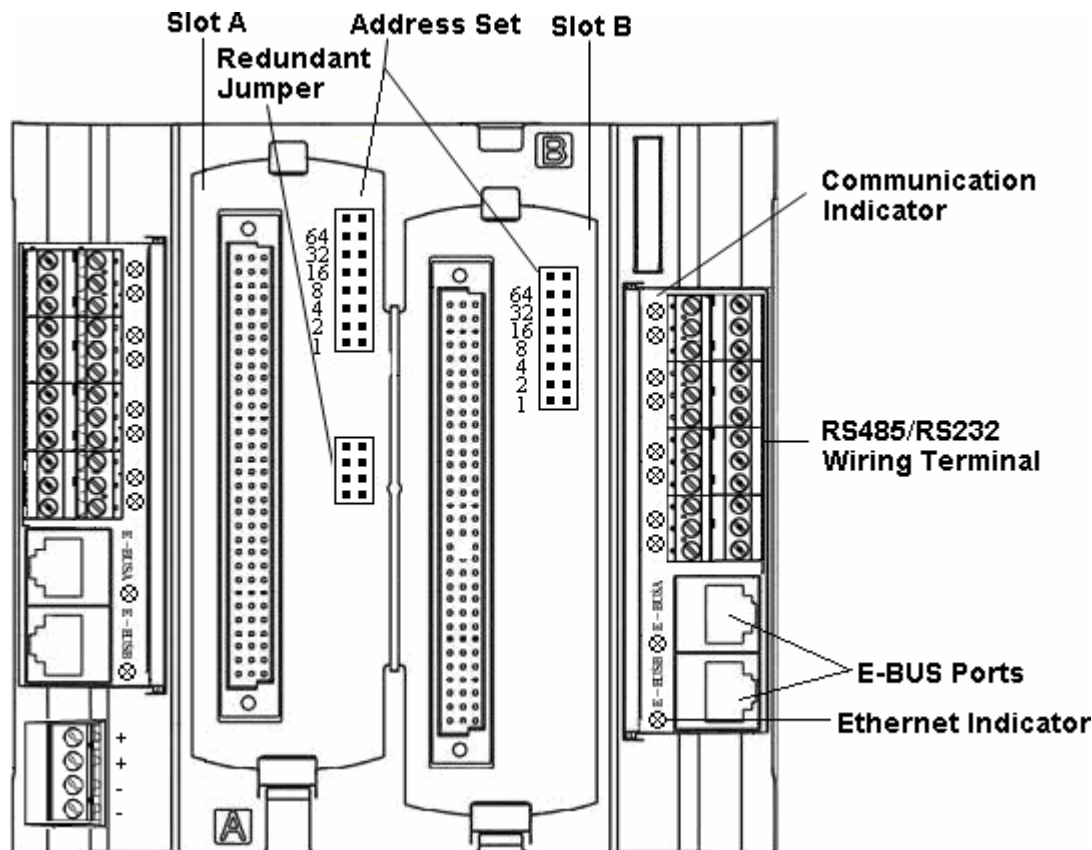


Figure 6-10 Serial communication module base MB727-S11

### 6.5.2 Power Supply's Wiring Terminal

MB727-S01 does not have terminals for power supplier, so it has to be mounted on the standard rack and powered on through racks.

MB727-S11 has terminals for power supplier therefore the external 24V DC power supplier can be accessed. When MB727-S11 adopts non-rack power, the external power supplier has to be accessed through terminals; when it adopts rack to obtaining power, the external power supplier cannot be connected.

Power terminals' definition is shown in Table 6-12.

**Table 6-12 Definition of power supply's wiring terminal**

Power supply's wiring terminal	Definition
+	24V+
-	24V-

It is recommended for you to use cross section area of 0.75mm<sup>2</sup> or 1mm<sup>2</sup> cables with stripping length 7mm and tightening torque of 0.5 to 0.6 Nm.

### 6.5.3 Address Code Jumper

There is a group of address code jumper on the MB727-S01 base, which is marked as 1, 2, 4, 8, 16, 32 and 64 from low to high, which are used to set address code of two redundant COM741-S on the extended I/O bus. The address range is limited by the number of nodes supported by the controller module. The maximum address range can be set is from 1 to 31 as shown in. Table 6-13.

When used as a redundant base, the jumpers of the A\B slots must be the same; when used as a non-redundant base, the two sets of jumpers must be different.

When using the jumper, it is ON when plugging in short circuit block, and is OFF when not plugging.

**Table 6-13 Node address code settings of COM741-S**

16	8	4	2	1	Node Address Code
OFF	OFF	OFF	OFF	ON	1
OFF	OFF	OFF	ON	OFF	2
OFF	OFF	OFF	ON	ON	3
OFF	OFF	ON	OFF	OFF	4
OFF	OFF	ON	OFF	ON	5
OFF	OFF	ON	ON	OFF	6
OFF	OFF	ON	ON	ON	7
...	...	...	...	...	...
ON	ON	ON	ON	ON	31



#### Attention:

Redundant, the address jumpers of two slots must be consistent to ensure that the two redundant modules for the same node.

### 6.5.4 Redundant/Non-redundant Jumper Settings

Redundant jumper is used to set the redundant or non-redundant of MB727-S01. It is 8-pin jumper in slot A. Jumper method of redundant is shown in left side of Figure 6-11 . jumper method of non-redundant is shown in right side of Figure 6-11 . Non-redundant will be set default.

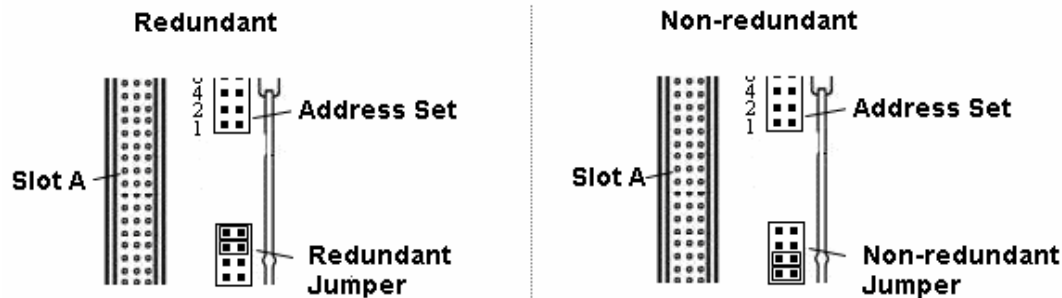


Figure 6-11 setting redundant or non-redundant for base

### 6.5.5 E-BUS Interfaces and Communication Indicators

As the E-Bus is the redundant Ethernet, the base has a pair of RJ45 interfaces for each serial communication module, as shown in Figure 6-10. The RJ45 interface marked as E-Bus A connects the A-net of bus, and the RJ45 interface marked as E-Bus B connects the B-net of bus. Each RJ45 interface has a communication indicator to indicate the communication status of network. Figure 6-12 takes the left interface as an example.

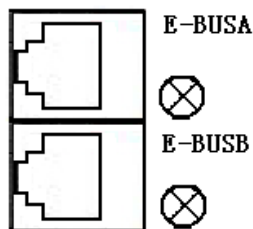


Figure 6-12 Two E-BUS network ports

Ethernet communication indicator shows the working status of Ethernet physical layer, as shown in Table 6-14.

Table 6-14 Ethernet communication indicators

Indicator Status	Instruction
Flash	Normal
Off	Network interface fault

### 6.5.6 Serial Interface Wiring Terminals

Each COM741-S has four channels. It means each module has four serial interfaces. Every channel can realize RS-232 or RS-485 mode communication. One channel can supports one



mode at the same time. The terminal settings are shown in Table 6-15.

**Table 6-15 Wiring terminal settings**

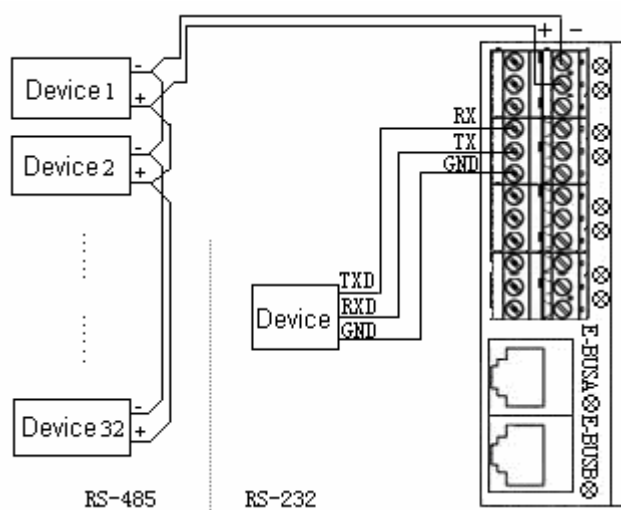
Figure	Channel	RS-232		RS-485	
		Sign	Instruction	Sign	Instruction
<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <b>Left Side</b>  </div> <div style="text-align: center;"> <b>Right Side</b>  </div> </div>	Channel 0	1	RX1	2	485-1-
		3	TX1	4	485-1+
		5	GND1	6	GND1
	Channel 1	7	RX2	8	485-2-
		9	TX2	10	485-2+
		11	GND2	12	GND2
	Channel 2	13	RX3	14	485-3-
		15	TX3	16	485-3+
		17	GND3	18	GND3
	Channel 3	19	RX4	20	485-4-
		21	TX4	22	485-4+
		23	GND4	24	GND4



**Attention:**

RS-485 and RS-232 can not be entered in one channel at the same time, otherwise the communication would be wrong.

The terminal connection mode is shown in Figure 6-13, take the first and second serial interfaces as an example, RS-485 signal is entered in channel 0, and RS-232 signal is entered in channel 1.



**Figure 6-13 The connection mode of RS485**

**Attention:**



When a certain communication mode is selected, the connection in communication configuration, communication mode jumper on base and wiring setting of serial interface terminal must be set consistently; otherwise the communication can not be fulfilled.

In redundant configuration of modules, the communication mode setting and connection mode on both sides shall be same.

### 6.5.7 Communication Indicators

There are 8 indicators on each side of base to respectively display the communication status for the module of corresponding side. There are 2 indicators to display the communication status for one channel. The up indicator is sending indicator, and the other one is receiving indicator. As shown in Figure 6-14.

#### Left Side



#### Right Side



**Figure 6-14 Communication indicators**

If this interface is sending data, the sending indicator will flash. When this interface is receiving data, the receiving indicator will flash. The higher the flash frequency is, the bigger the bus data

flow will be.

## 6.6 System Interconnection Module Base (MB702-S01)

System interconnection module base MB702-S01 should be used with system interconnection module COM712-S. One base can install two redundant communication modules.

The base can be installed on the rail of the I/O rack, and the module and the base can be powered through the rack bottom plate; it can also be installed on the rail of a non-rack. At this time, the working power should be connected to the power terminal in the lower left corner.

### 6.6.1 Appearance Structure

MB702-S01's appearance structure is shown in Figure 6-15. The base has two slots. Slot A is on the left side and Slot B is on the right side. There are two RJ-45 interfaces on each side. These two interfaces respectively connect to E-BUS A network and E-BUS B network. There are two serial interfaces on each side, respectively connecting to SBUS A network and SBUS B network.

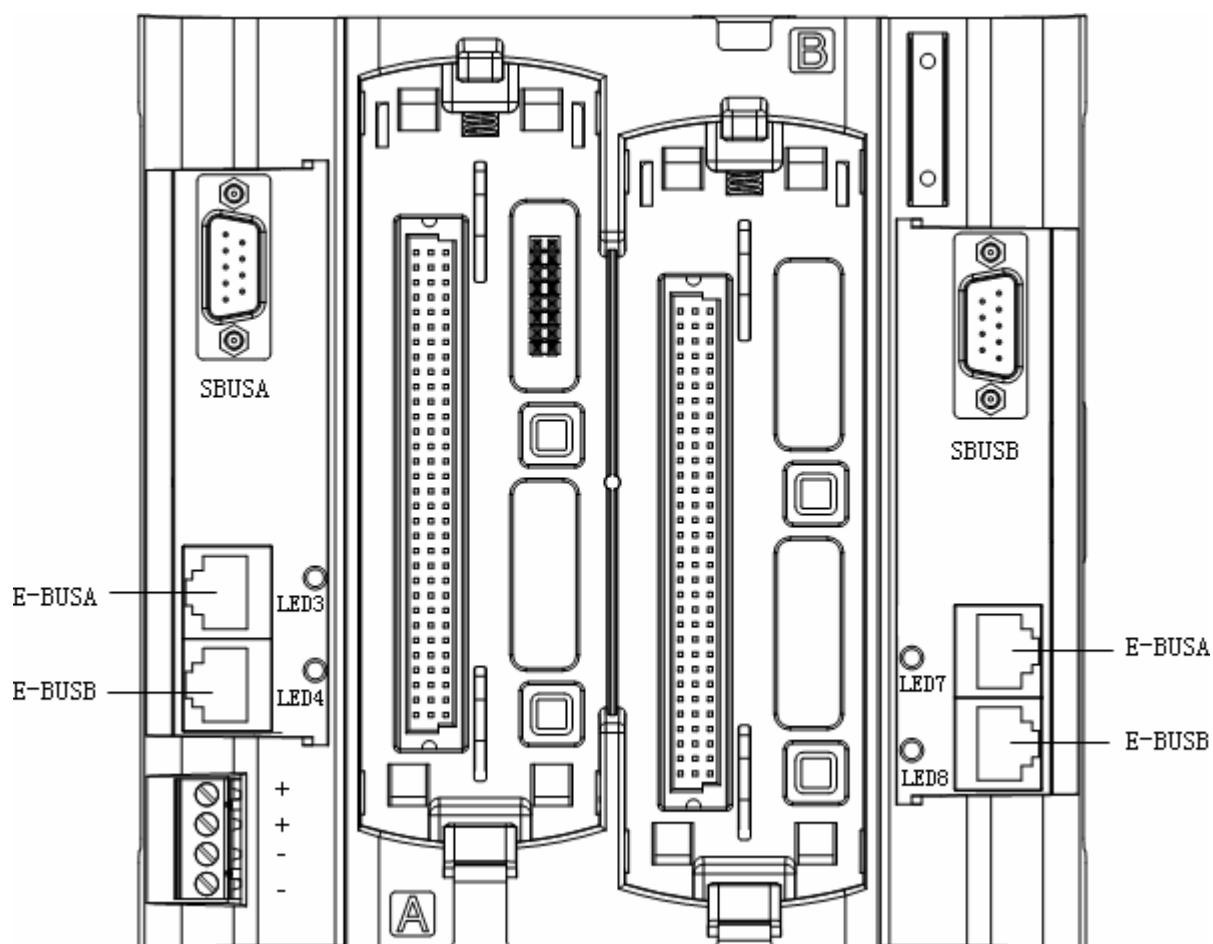


Figure 6-15 Structural Diagram of Base MB702-S01

### 6.6.2 Address Code Jumper

There is a group of address code jumper on the MB702-S01 base, which is marked as 64, 32, 16, 8, 4, 2, 1 from high to low. The low 3 bits can set the address code of 2 redundant COM721-S of base in E-BUS. The range of address code is 1~7. As shown in Table 6-16.

It is ON when plugging in short circuit block, and is OFF when not plugging.

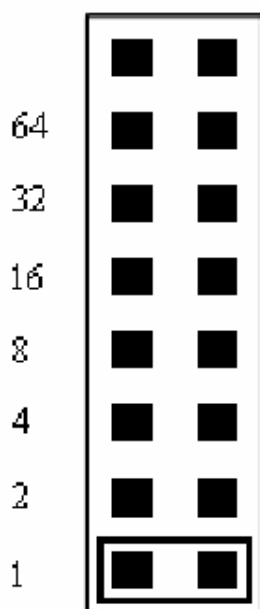


Figure 6-16 Address Jumper of COM712-S

Table 6-16 Node Address Code Settings of COM712-S

16	8	4	2	1	Node Address Code
OFF	OFF	OFF	OFF	ON	1
OFF	OFF	OFF	ON	OFF	2
OFF	OFF	OFF	ON	ON	3
OFF	OFF	ON	OFF	OFF	4
OFF	OFF	ON	OFF	ON	5
OFF	OFF	ON	ON	OFF	6
OFF	OFF	ON	ON	ON	7
...	...	...	...	...	...
ON	ON	ON	ON	ON	31

### 6.6.3 SBUS Interface

MB702-S01 has two SBUS network interfaces for the redundant SBUS A and SBUS B.

### 6.6.4 E-BUS Interface and Indicator

As the E-Bus is the redundant Ethernet, the base has a pair of RJ45 interfaces for MB702-S01, as shown in Figure 6-15. The RJ45 interface marked as E-BUSA connects the A-net of bus, and the RJ45 interface marked as E-BUSB connects the B-net of bus. Each RJ45 interface has a communication indicator to indicate the communication status of network.

Table 6-17 shows the status of base indicator lights.

**Table 6-17 Indicator Instruction for MB702-S01**

Name	Status	Instruction
LED3	ON	Module A Connection with A# E-Bus is Normal
	OFF	Module A Connection with A# E-Bus is Abnormal
LED4	ON	Module A Connection with B# E-Bus is Normal
	OFF	Module A Connection with B# E-Bus is Abnormal
LED7	ON	Module B Connection with A# E-Bus is Normal
	OFF	Module B Connection with A# E-Bus is Abnormal
LED8	ON	Module B Connection with B# E-Bus is Normal
	OFF	Module B Connection with B# E-Bus is Abnormal

### 6.6.5 Power Supply's Wiring Terminals

MB702-S01 has power terminal and connects the external 24V DC power. When MB702-S01 applies the power not from rack, the power terminal should connect the power. When it applies the rack power, the power terminal should not connect the power.

The general auxiliary power is 24V DC. The relation between external auxiliary power and the auxiliary power terminal is shown in Table 6-18.

**Table 6-18 Definition of power supply's wiring terminal**

Power supply's wiring terminal	Definition
+	24V+
-	24V-

The wires with sections of  $0.75\text{mm}^2$  or  $1\text{mm}^2$ , the wire stripping length of 7mm and the tightening torque of  $(0.5\sim0.6)\text{Nm}$  are recommended for the auxiliary power.

## 6.7 System Interconnection Module Base (MB704-S)

System interconnection module base MB704-S01 can be used with system interconnection module COM712-S, Ethernet communication module COM742-S, heterogeneous communication access module COM715-S, PROFINET communication module COM723-S or EtherNet/IP communication module COM725-S. One base can install two redundant communication modules or one non-redundant communication modules.

The base can be installed on the rail of the I/O rack, and the module and the base can be powered through the rack bottom plate; it can also be installed on the rail of a non-rack. At this time, the working power should be connected to the power terminal in the lower left corner.

### 6.7.1 Appearance Structure

MB704-S01's appearance structure is shown in Figure 6-17. The base has two slots. Slot A is on the left side and Slot B is on the right side. There are four RJ-45 interfaces and light indicators on each side. These interfaces are used to connect two modules to the external network. For network wiring, refer to each communication module user manual.

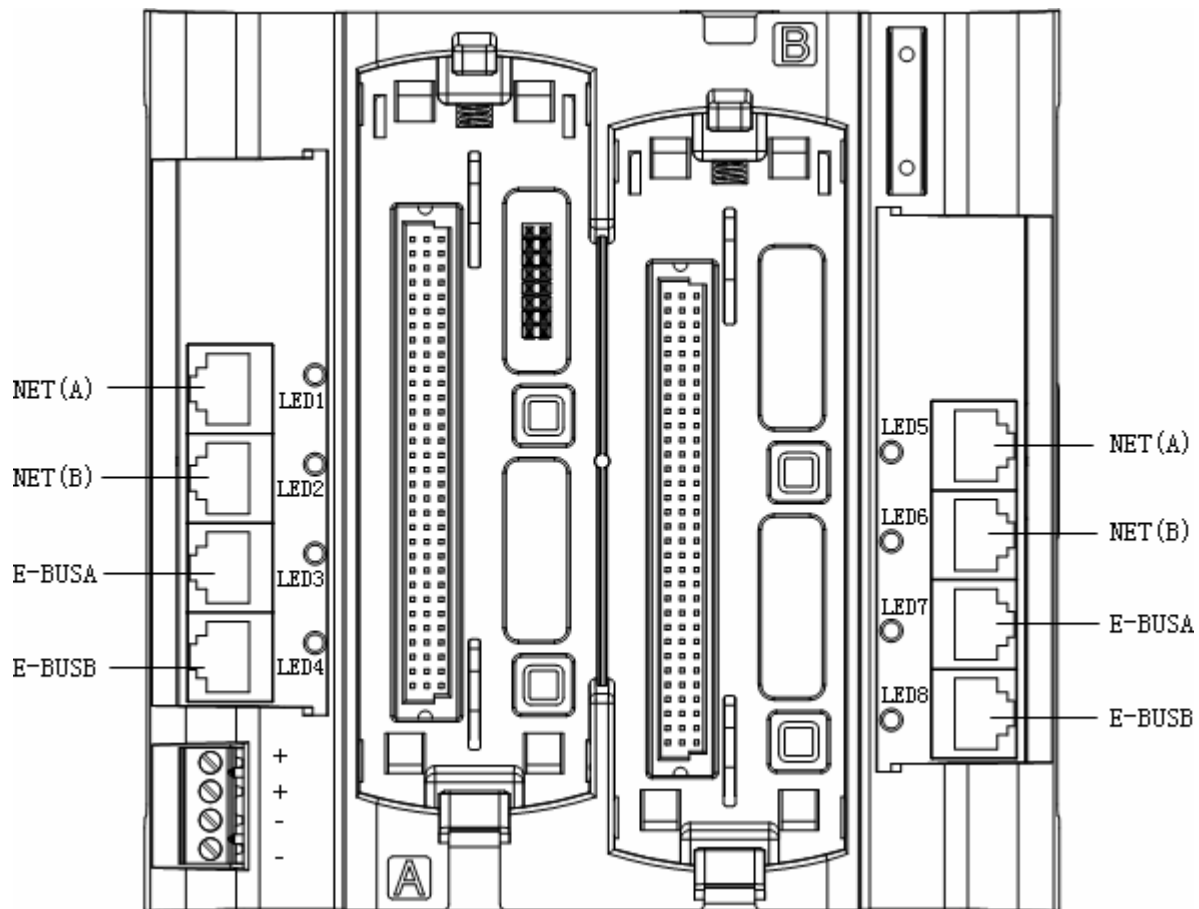


Figure 6-17 Structural Diagram of Base MB704-S01

### 6.7.2 Address Code Jumper

MB704-S01 has the same Address Code Jumper as MB702-S01.

### 6.7.3 NET Interface and Light Indicators

Different communication modules connect to the NET network interface of different networks. For details, please refer to the manual of each communication module is shown in Table 6-19.

**Table 6-19 Instruction of MB704-S01 SBUS network communication indicator light**

Name	Status	Instruction
LED1	ON	Module A Connection with A#SBUS-S2 Network is Normal
	OFF	Module A Connection with A#SBUS-S2 Network is Abnormal
LED2	ON	Module A Connection with B#SBUS-S2 Network is Normal
	OFF	Module A Connection with B#SBUS-S2 Network is Abnormal
LED5	ON	Module B Connection with A#SBUS-S2 Network is Normal
	OFF	Module B Connection with A#SBUS-S2 Network is Abnormal
LED6	ON	Module B Connection with B#SBUS-S2 Network is Normal
	OFF	Module B Connection with B#SBUS-S2 Network is Abnormal

### 6.7.4 E-BUS Interface and Indicators

As the E-Bus is the redundant Ethernet, MB704-S01 has a pair of RJ45 interfaces, as shown in Figure 6-17. The RJ45 interface marked as E-BUSA connects the A-net of bus, and the RJ45 interface marked as E-BUSB connects the B-net of bus. Each RJ45 interface has a communication indicator to indicate the communication status of network.

Table 6-20 shows the status of base indicator lights.

**Table 6-20 Indicator instruction for MB704-S01**

Name	Status	Instruction
LED3	ON	Module A Connection with A# E-Bus is Normal
	OFF	Module A Connection with A# E-Bus is Abnormal
LED4	ON	Module A Connection with B# E-Bus is Normal
	OFF	Module A Connection with B# E-Bus is Abnormal
LED7	ON	Module B Connection with A# E-Bus is Normal
	OFF	Module B Connection with A# E-Bus is Abnormal
LED8	ON	Module B Connection with B# E-Bus is Normal
	OFF	Module B Connection with B# E-Bus is Abnormal

### 6.7.5 Power Supply's Wiring Terminals

The description of power connection is same with MB702-S01.

## Section 7 Base Dimension and Uninstallation

### 7.1 Controller Unit Dimension

The controller unit includes a controller base and a controller module. Its dimensions are shown in Figure 7-1.

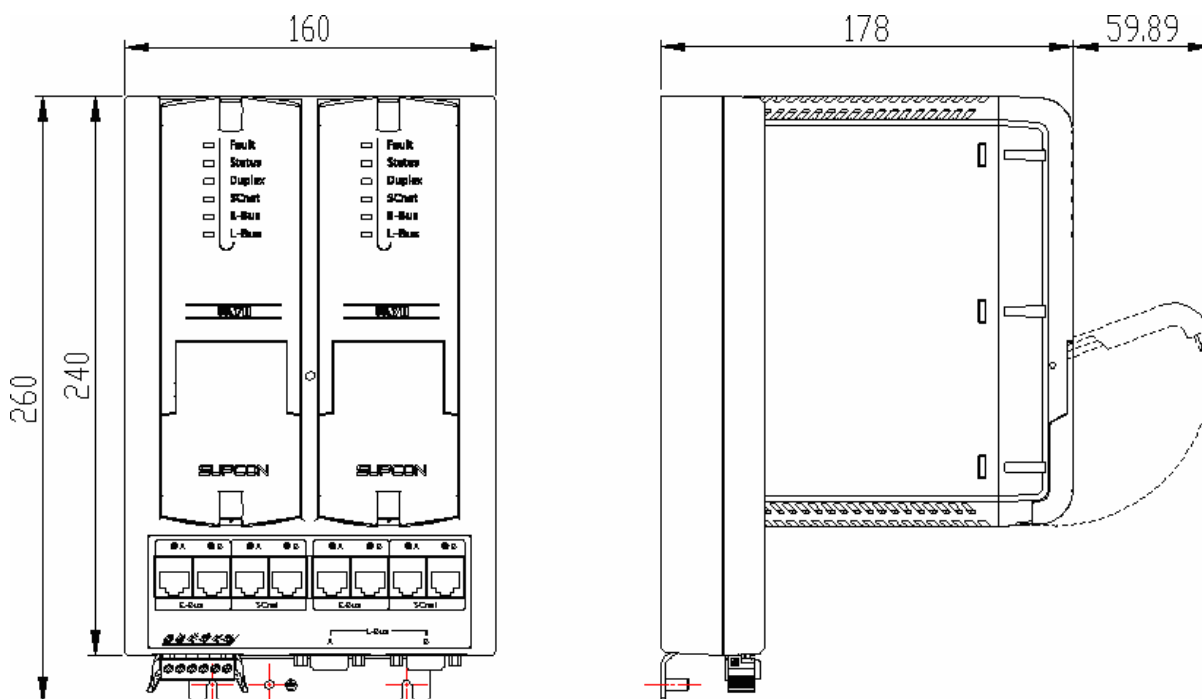


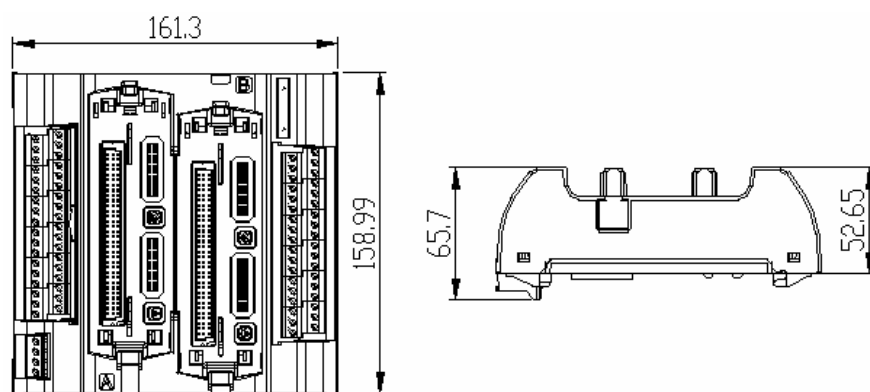
Figure 7-1 Controller unit dimension

### 7.2 Other Base Dimension

The dimensions of the I/O module base, FF module base, system interconnect module base, and communication module base are all the same, as shown in Figure 42.

Module size (length×width×height): 161.3mm×159mm×65.7mm.

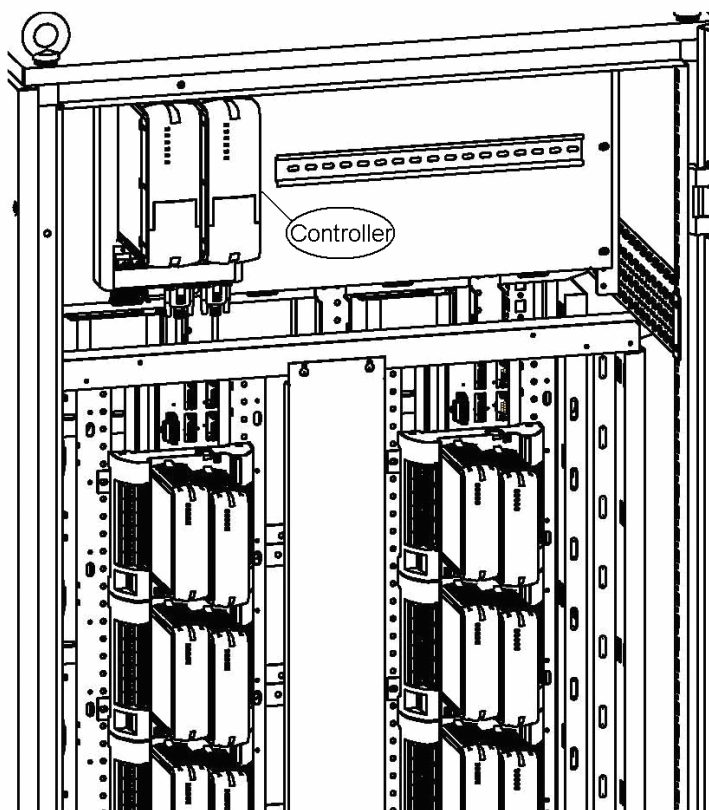




**Figure 7-2** Base appearance dimension

### 7.3 Install Controller Base

The controller is often installed at the upper left corner of cabinet, as shown in Figure 7-3.



**Figure 7-3** The position of controller in cabinet

There are two ways for the installation of controller base, on flat plate and on rack rail, as described in the following text.

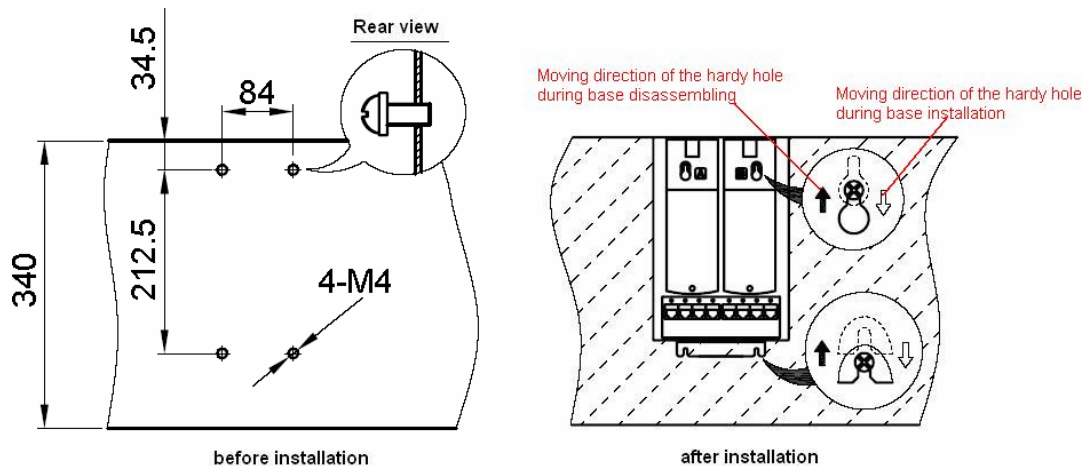
### 7.3.1 To Install a Base on Flat Plates



**Tip:**

In flat plate installation, a metal mounting plate will be provided on the bottom of base, and there is no metal Latch on the back.

- Put screws in four designed holes of flat plate but do not tighten them. It is suggested screws be tighten in clockwise direction firstly and then loosen in anticlockwise direction by 3~5 turns.
- Check base. There shall be metal mounting plate on the bottom of base and no metal Latch on the back. If not, correct it immediately.
- Install base. Align hardy hole on the bottom of base and half hole in metal mounting plate with screws on flat plate, adjust base carefully and fasten it.



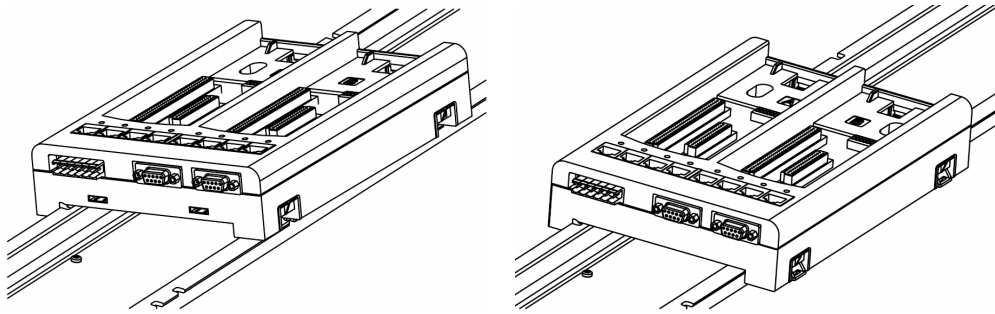
**Figure 7-4 Installation of base on flat plate**

### 7.3.2 To Install a Base on Rack Rails



**Tip:**

In guide rail installation, a metal Latch will be provided on the back, and there isn't metal mounting plate on the bottom of base.



**Figure 7-5 Installation of base on rail**

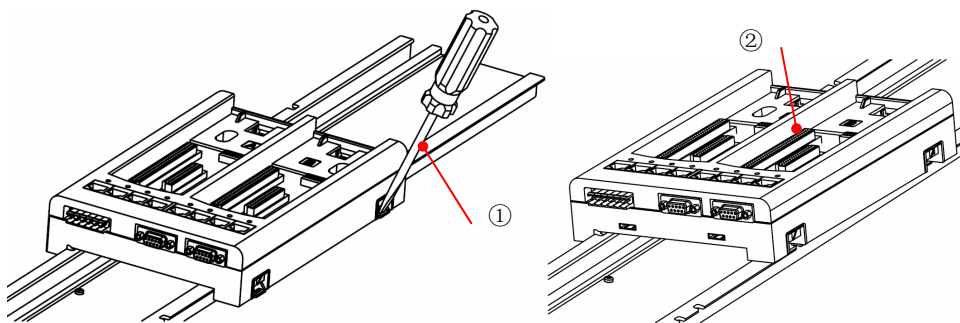
- Align the locating block on the bottom of base with corresponding locating slot on rack guide rail.
- Push this locating block with a small inclination into locating slot on rack guide rail.
- Rotate base until parallel to guide rail. When “click” sound is heard, the base has been installed correctly with interaction of locating slot on guide rail and base Latch.

## 7.4 Uninstall a Controller Base

### 7.4.1 Uninstall a Base from Flat Plates

- Loose mounting screws in anticlockwise direction by 3~5 turns.
- Move base up until big hardy hole is aligned with screws and half hole on metal mounting plate is detached from screw. Keep front side of base parallel to flat plate, and move base along screw axial direction until it is completely detached from screw.
- Remove base.

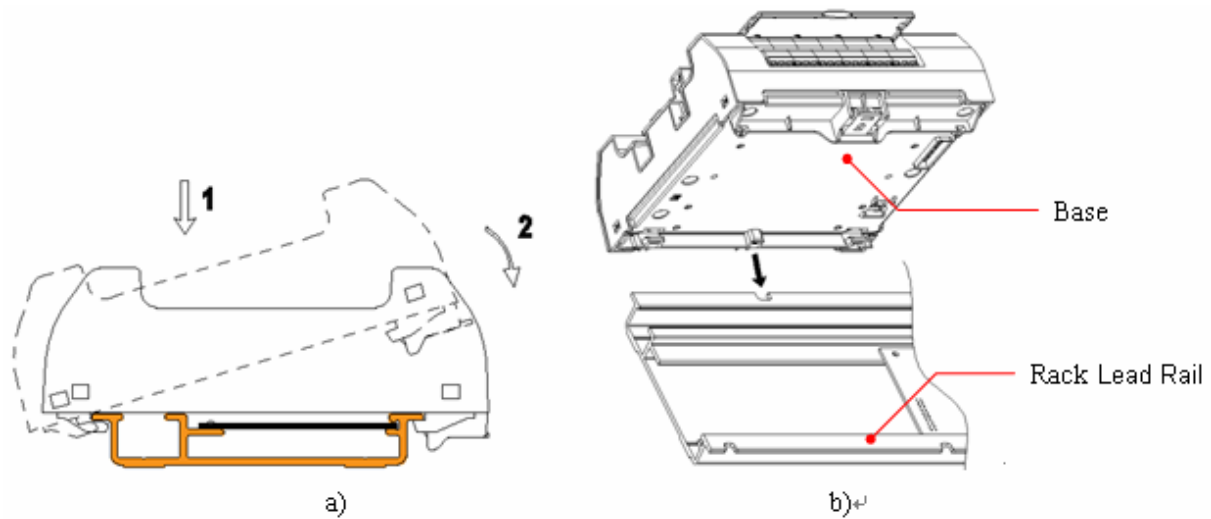
### 7.4.2 Uninstall a Base from Rack Rails



**Figure 7-6 Uninstall base**

- Loose base Latch with line-shaped screwdriver and rotate base with locating block on the bottom of base as a reference point.
- Hold base by hand. After 20PIN terminal on the bottom of base is detached from rack mother board, remove base.

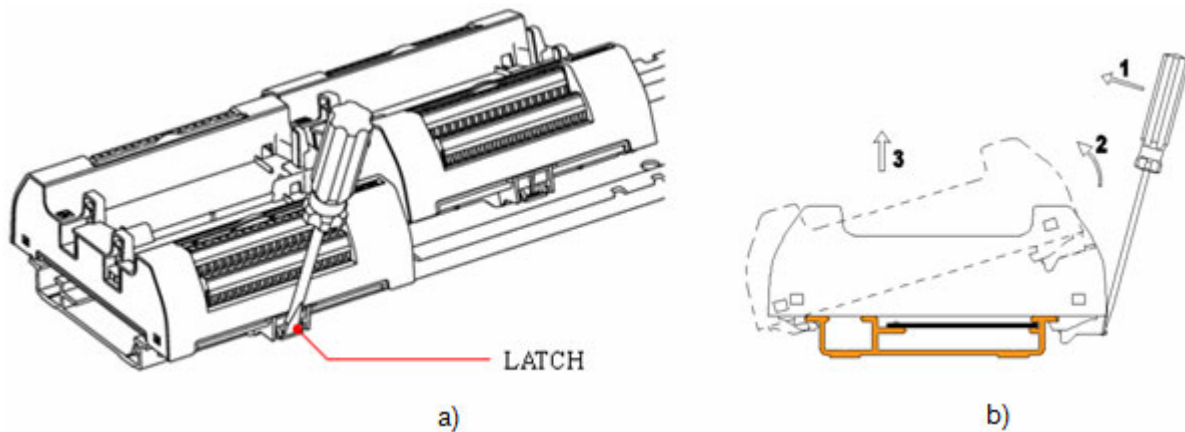
## 7.5 Install Other Bases



**Figure 7-7 Install the I/O base**

1. Incline the base to the left side of the track (as pointed by arrow 1 on Figure 7-7 a) and make sure the protruding area at the bottom of the base is fit into the slot on the track (as shown in Figure 7-7 b)
2. Turn the base and make sure the LATCH is fit into the right side of the track (as pointed by arrow 2 on Figure 7-7 a)

## 7.6 Uninstall Other Bases

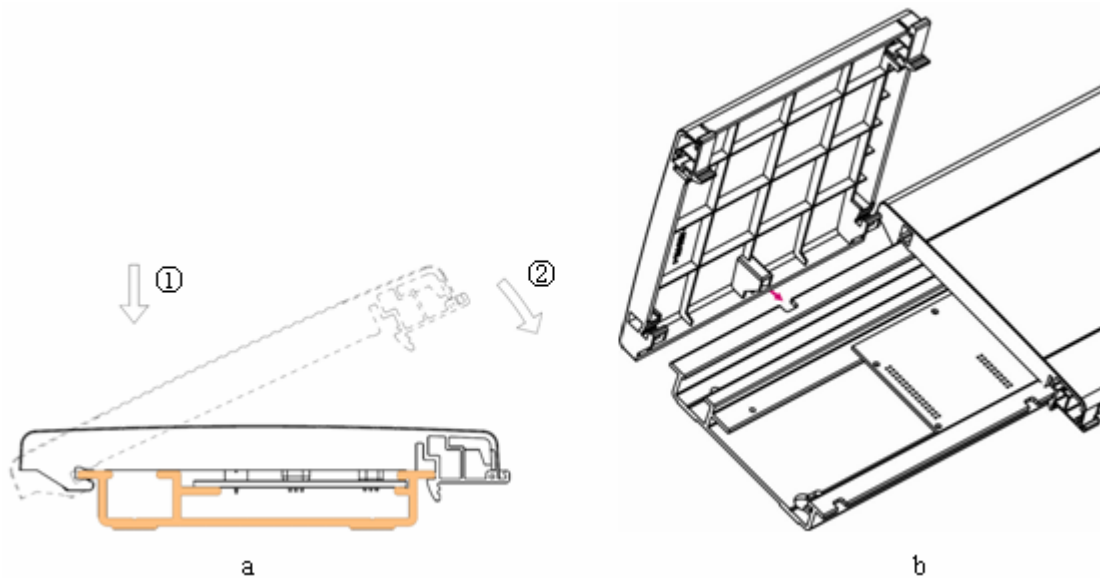


**Figure 7-8 Uninstall the base**

1. Loose the LATCH on the base with a slotted-head screwdriver (pointed by arrow 1 as shown on Figure 7-8 b)
2. Turn the base clockwise (pointed by arrow 2 on Figure 7-8 b)
3. Remove the base (pointed by arrow 3 on Figure 7-8 b)

## 7.7 Install Base Covers

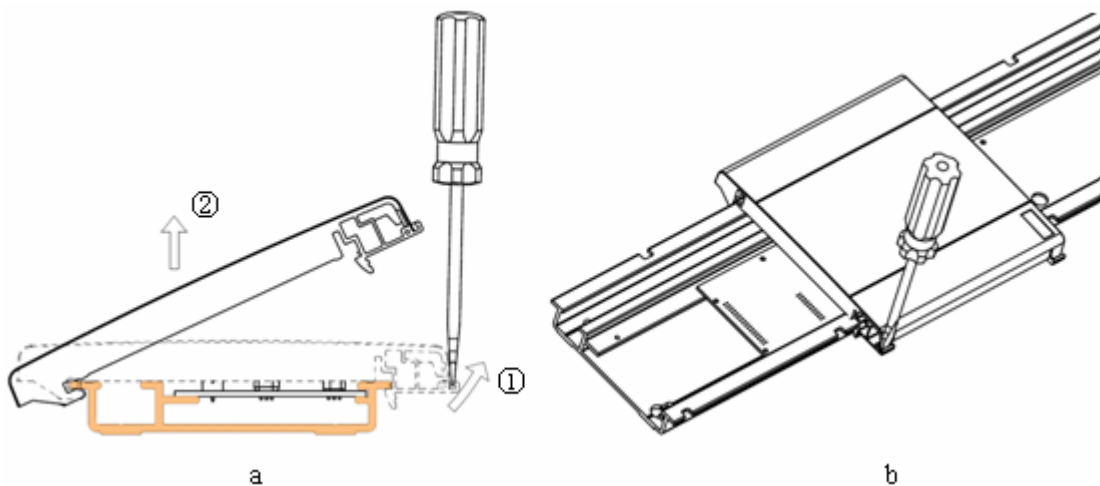
Install base cover in the rack where base not installed for dust-proof and tidiness.



**Figure 7-9 Install cover installation**

- Install the cover firstly to the left side of the lead rail (as the arrow 1 shows in figure a in Figure 7-9). Make sure that the bottom of cover has been fixed in the slot of lead rail (figure b in Figure 7-9).
- Rotate the cover (as the arrow 2 shows in figure a in Figure 7-9). Make sure the plastic hook in the right side of cover is fixed in the lead rail.

## 7.8 Uninstall Base Cover



**Figure 7-10 Uninstall base cover**

- Lever the plastic hook (figure a in Figure 7-10) in the right side of cover with a

screwdriver (medium size is recommended) and rotate the cover.

- Remove the base cover.

## Section 8 Matching Information

This chapter introduces the matching information of module, base and terminal unit. User can also learn the matching information from the specific module user manual. As shown in Table 8-1.

Select the corresponding transfer terminal unit by the I/O module information and connect it via the wire DB37.

**Table 8-1 Matching information of module/ base/ terminal unit**

Base Model	Transfer Terminal Board Model	Matching I/O Module	Remark
MB731-S01	-	All I/O Modules, except 32-channel DI/DO module	With Auxiliary Power Terminal
MB732-S01	-	Redundant I/O Modules, except 32-channel DI/DO module	With Auxiliary Power Terminal
MB735-S11	-	AI711-S11, AI711-H11, AI713-S11, AI713-H11, AI722-S11, AI731-S11, AO711-S11, AO711-H11, AO713-S11, AO713-H11, DI711-S11, DI713-S11, DI716-S11, DI718-S11, DO711-S11, DO712-S11, PI711-S11	Without Auxiliary Power Terminal
MB736-S11	-	AI711-S11, AI711-H11, AI713-S11, AI713-H11, AI722-S11, AI731-S11, AO711-S11, AO711-H11, AO713-S11, AO713-H11, DI711-S11, DI716-S11, DO711-S11, DO712-S11	Without Auxiliary Power Terminal
MB741-S01	TU711-S	All I/O Modules, except 32-channel DI/DO module	With Auxiliary Power Terminal
	TU713-R	DI711-S, DI713-S	
	TU721-R	DO711-S	
	TU731-I0000	AI711-S, AI711-H	
	TU735-I0000	AO711-S, AO711-H	
	TU741-I0000	DI711-S, DI713-S	
MB742-S01	TU711-S	Redundant I/O Modules, except 32-channel DI/DO module	With Auxiliary Power Terminal
	TU713-R	DI711-S	
	TU721-R	DO711-S	
	TU731-I0000	AI711-S, AI711-H	
	TU735-I0000	AO711-S, AO711-H	
	TU741-I0000	DI711-S, DI713-S	
MB743-S01	TU751-S0000	AI711-S, AI711-H, AI712-S, AI722-S, AI731-S, AO711-S, AO711-H, AM711-S, DI711-S, DI713-S, DO711-S	Without Auxiliary Power Terminal
	TU752-S0000	AI713-S, AI713-H, AO713-S, AO713-H	

Base Model	Transfer Terminal Board Model	Matching I/O Module	Remark
	TU753-S0000	DI715-S	
	TU714-R1200	DI715-S, DI711-S, DI713-S	
	TU722-R0200	DO715-S, DO711-S	
	TU724-R0200	DO711-S	
MB744-S01	TU751-S0000	AI711-S, AI711-H, AI712-S, AI722-S, AI731-S, AO711-S, AO711-H, DI711-S, DO711-S	Without Auxiliary Power Terminal
	TU752-S0000	AI713-S, AI713-H, AO713-S, AO713-H	
	TU753-S0000	DI715-S	
	TU714-R1200	DI715-S, DI711-S	
	TU722-R0200	DO715-S, DO711-S	
	TU724-R0200	DO711-S	
MB745-S11	TUA711-GS00	The same as MB735-S11	Without Auxiliary Power Terminal
	TUA711-AIO16	AI713-S11, AI713-H11, AO713-S11, AO713-H11	
	TUA711-DIO32	DI715-S11, DO716-S11	
	TUA711-DIR16	DI711-S11, DI713-S11	
	TUA711-DOR16	DO712-S11	
	TUA711-DIR32	DI715-S11	
	TUA711-DOR32	DO716-S11	
	TUA712-DOR16	DO712-S11	
	TUA713-DOR16	DO712-S11	
	TU713-R	DI711-S11, DI713-S11	
	TU721-R	DO711-S11	
	TU731-I0000	AI711-S11, AI711-H11	
	TU735-I0000	AO711-S11, AO711-H11	
	TU741-I0000	DI711-S11, DI713-S11	
	TU704-R1100	AM722-S11	
	TU711-R1100	AM721-S11	
MB746-S11	TUA711-GS00	The same as MB735-S11	Without Auxiliary Power Terminal
	TUA711-AIO16	AI713-S11, AI713-H11, AO713-S11, AO713-H11	
	TUA711-DIO32	DI715-S11, DO716-S11	
	TUA711-DIR16	DI711-S11	
	TUA711-DOR16	DO712-S11	
	TUA711-DIR32	DI715-S11	
	TUA711-DOR32	DO716-S11	
	TUA712-DOR16	DO712-S11	
	TUA713-DOR16	DO712-S11	
	TU713-R	DI711-S11	
	TU721-R	DO711-S11	
	TU731-I0000	AI711-S11, AI711-H11	
	TU735-I0000	AO711-S11, AO711-H11	
	TU741-I0000	DI711-S11	
MB747-S11	TU705-R1100	AM723-S11	Base has no auxiliary power supply wiring terminals.



Base Model	Transfer Terminal Board Model	Matching I/O Module	Remark
MB722-S	-	COM711-S	I/O Link Module Unit
MB723-S01	-	COM721-S	PROFIBUS Communication Module Unit
MB724-S	-	COM722-S	PROFIBUS Communication Module Unit
MB725-S01	-	COM741-S	Serial Communication Module Unit
MB726-S01	-	COM741-S	Serial Communication Module Unit
MB727-S	-	COM741-S	Serial Communication Module Unit
MB702-S01	-	COM712-S	System Interconnect Module Unit
MB704-S01	-	COM712-S	System Interconnect Module Unit
		COM715-S	Heterogeneous Communication Access Module Unit
		COM742-S	Ethernet Communication Module Unit
		COM723-S	PROFINET Communication Module Unit
		COM725-S	EtherNet/IP Communication Module Unit

## Section 9 Revision

**Table 9-1 Retrofit list of the version**

Document Version	Applicable Product Version	Remarks
V1.0(20120626)	Module: MB743-S-10.00.00, MB744-S-10.00.00, MB731-S, MB732-S, MB741-S, MB742-S, MB722-S, MB723-S, MB724-S, MB725-S, MB726-S, MB702-S, MB704-S	
V1.1(20130929)	Module: MB743-S-10.00.00, MB744-S-10.00.00, MB731-S, MB732-S, MB741-S, MB742-S, MB722-S, MB723-S, MB724-S, MB725-S, MB726-S, MB702-S, MB704-S	Delete Atmospheric pressure
V2.0(20131223)	Module: MB743-S01, MB744-S01, MB745-S11, MB746-S11, MB731-S01, MB732-S01, MB735-S11, MB736-S11, MB741-S01, MB742-S01, MB722-S01, MB722-S11, MB723-S01, MB724-S01, MB725-S01, MB726-S01, MB702-S01, MB704-S01 Software: VisualFieldV3.1+SP03 and later versions	Add MB735-S11, MB736-S11, MB745-S11, MB746-S11, MB722-S11
V2.1(20140411)	Module: MB743-S01, MB744-S01, MB745-S11, MB746-S11, MB731-S01, MB732-S01, MB735-S11, MB736-S11, MB741-S01, MB742-S01, MB722-S01, MB722-S11, MB723-S01, MB724-S01, MB725-S01, MB726-S01, MB702-S01, MB704-S01 Software: VisualFieldV3.1+SP03 and later versions	Modify Wiring of Auxiliary Power Terminal and Matching Information
V2.2(20141218)	Module: MB743-S01, MB744-S01, MB745-S11, MB746-S11, MB731-S01, MB732-S01, MB735-S11, MB736-S11, MB741-S01, MB742-S01, MB722-S01, MB722-S11, MB723-S01, MB724-S01, MB725-S01, MB726-S01, MB702-S01, MB704-S01, MB727-S01 Software: VisualFieldV3.1+SP03 and later versions	Add MB727-S01 and correction Modify the description of power connection of MB702-S01 and MB704-S01 Add DEH module
V2.3(20150618)		Modify 4.4.3 FCU711-S is modified as controller
V2.4(20160503)		Modify the matching information
V2.5(20161116)		Add wire specifications in 4.3.2, 4.4.1, and 4.4.5 Add code
V2.6(20190318)		Modify the figure " Installation of base on flat plate "
V2.7(20191015)	Module: MB743-S01, MB744-S01, MB745-S11, MB746-S11, MB731-S01, MB732-S01, MB735-S11, MB736-S11, MB741-S01, MB742-S01, MB722-S01, MB722-S11, MB723-S01, MB724-S01, MB724-S11, MB725-S01, MB726-S01, MB702-S01, MB704-S01, MB727-S01, MB727-S11 Software: VisualFieldV3.1+SP03 and later versions	Add descriptions of MB724-S11 and MB727-S11. Modify the structural diagram of base MB702-S01 and MB704-S01

Document Version	Applicable Product Version	Remarks
V2.8(20201215)	MB743-S01, MB744-S01, MB745-S11, MB746-S11, MB731-S01, MB732-S01, MB735-S11, MB736-S11, MB741-S01, MB742-S01, MB722-S01, MB722-S11, MB723-S01, MB724-S01, MB724-S11, MB725-S01, MB726-S01, MB702-S01, MB704-S01, MB727-S01, MB727-S11, MB704-S01 Software: VisualFieldV3.1+SP03 and above	Add MB747-S11
V2.9(20210112)	Module: MB746-S11, MB731-S01, MB732-S01, MB735-S11, MB736-S11, MB741-S01, MB742-S01, MB722-S01, MB722-S11, MB723-S01, MB724-S01, MB724-S11, MB725-S01, MB726-S01, MB702-S01, MB704-S01, MB727-S01, MB727-S11, MB747-S11 Software: VisualFieldV3.1+SP03 and above	Modify node address range of communication modules
V3.0(20210609)		Modify the module information applicable to the base MB704-S