QUICK START GUIDE

Elevator Control Panel & Elevator Floor Expansion Board

Applicable Model: EC16 & DEX16

Version: 1.2
Date: June 2025

Cautions

Please note the following cautions. Mis-operation may lead to personal injury or equipment failure:

1) Do not operate with electricity. Do not energize until installation is complete. Make sure the wiring is correct before energizing.
2) All peripheral devices must be grounded.
3) It is recommended that all wiring be sleeved, either with PVC pipe or galvanized pipe.
4) The exposed part of the wiring terminal should not exceed **0.16 inches (4mm)** to prevent accidental contact caused by long bare wires, which may lead to short circuit and other faults.
5) The main controller and expansion board of the elevator are installed on the top of the elevator car.
6) It is preferable to install readers and buttons at the height of **55 inches to 59 inches (1.4m to 1.5m)** above the ground or subject to customers' usual practice for proper adjustment.
7) Please use the matching power supply accessories provided by the equipment manufacturer to supply power to the elevator controller, or use the power supply consistent with the equipment power supply information.

Other Notes:

1) **RESET button:** Long press **1 to 5** seconds for U disk upgrade; **5 to 10** seconds to restart the controller; **10** seconds or more to restore the factory settings. When restoring the factory settings, only the network configuration of the device is restored, other data is not restored.
2) **Dual Ethernet interfaces:** The default IP address **192.168.1.201** for the primary NIC and **192.168.2.202** for the expansion NIC.

LED Indicators

After connecting the main controller correctly, turn on the system power, the LED indicators in normal condition is described as follows.

1. **LED indicators on the Enclosure**

   PWR indicator (red):

   Solid Red LED indicates normal energization.

   COMM indicator (yellow):

   Slowly flashing Yellow LED indicates data communication is in progress.

   RUN indicator (green):

   Slowly flashing Green LED indicates normal working status of the system.

2. **LED indicators on the Elevator master controller panel**

   POWER indicator (red):

   Solid Red LED indicates normal energization.

   RUN indicator (green):

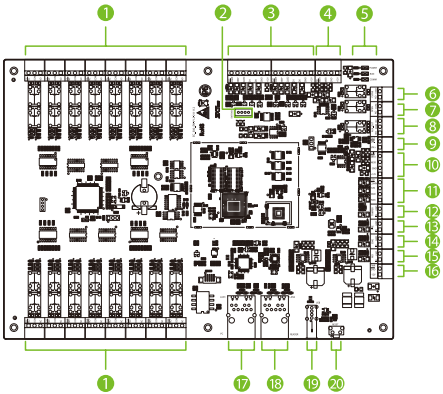
   Slowly flashing Green LED indicates normal working status of the system.

   COMM indicator (yellow):

   Slowly flashing Yellow LED indicates data communication is in progress.

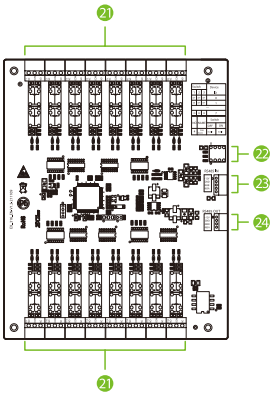
System Equipment Composition

The elevator controller system is composed of the following equipments.



EC16 Master Control Panel

9.1*6.5inch (230*165mm)



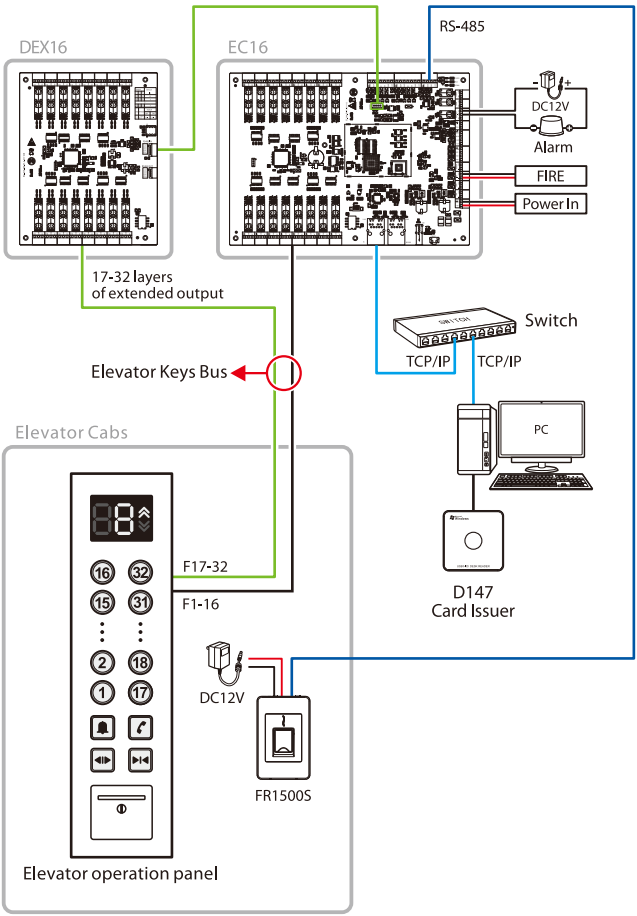
DEX16 Expansion Board

5.2*6.5inch (132*165mm)

No.	Description	No.	Description
❶	Floor Button Control Port	⓭	FIRE
❷	Extend Port	⓮	Emergency Button
❸	Wiegand	⓯	Manual Button
❹	RS-485	⓰	Power Input
❺	LED Indicator	⓱	Ethernet Interface (LAN1)
❻	Elevator Door Closing Button*	⓲	TCP/IP Reader Interface (LAN2)*
❼	Elevator Door Opening Button*	⓳	U Disk Interface
❽	Alarm Output	⓴	Reset Button
❾	Speaker*	㉑	Floor Button Control Port
❿	Voice*	㉒	DIP Switch
⓫	LED Indicator Port	㉓	RS-485 Input
⓬	Tamper Switch Port	㉔	RS-485 Output

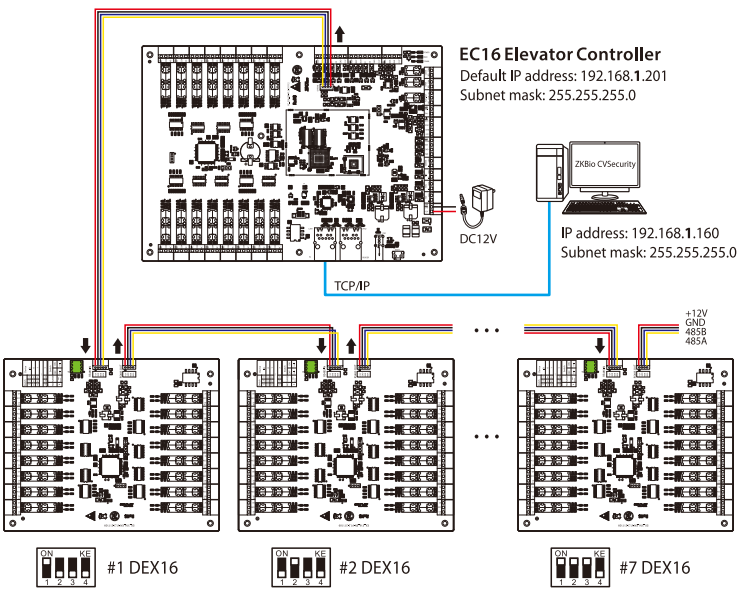
* Hardware reservation function is currently not supported.

System Installation Diagram



DEX16 Expansion Board Connection

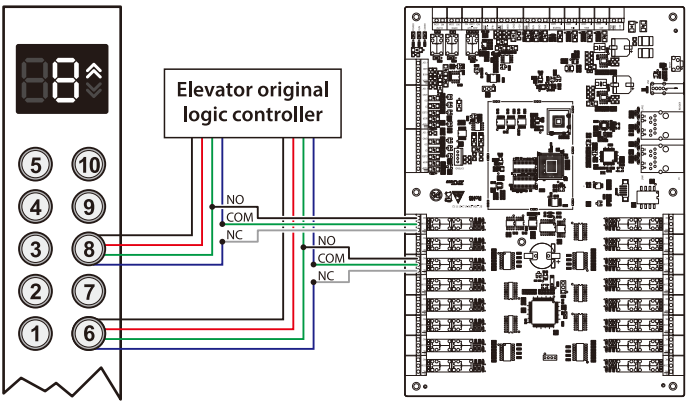
Use the software setup after connecting the DEX16 module to the EC16 master controller.



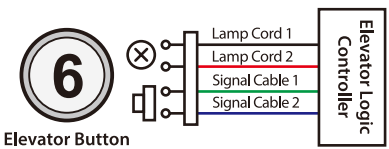
Notes:

1. A maximum of seven DEX16 expansion boards can be connected to one EC16 controller.
2. The total can be expanded to 128 layers at most.
3. Before power is supplied, use the DIP switch to set the RS-485 addresses of the DEX16s, following the order in which each DEX16 is connected.
4. The DIP switch needs to be set with the control board powered off and takes effect after restart. After setting, the DIP switch does not need to be set back to its original position.

Elevator Button Connection

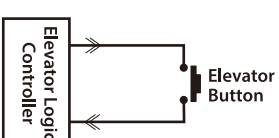


❖ Elevator button wiring

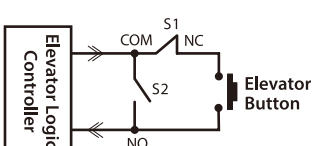


Instruction:
Connect **Signal Cable 1** to the **NO** terminal of the corresponding floor. After Signal Cable 2 is disconnected, **COM** and **NC** terminals are connected to the **COM** and **NC** terminals of the corresponding floor respectively.

❖ Wiring for swipe to select floor and direct floor selection



Original Elevator Button Connection

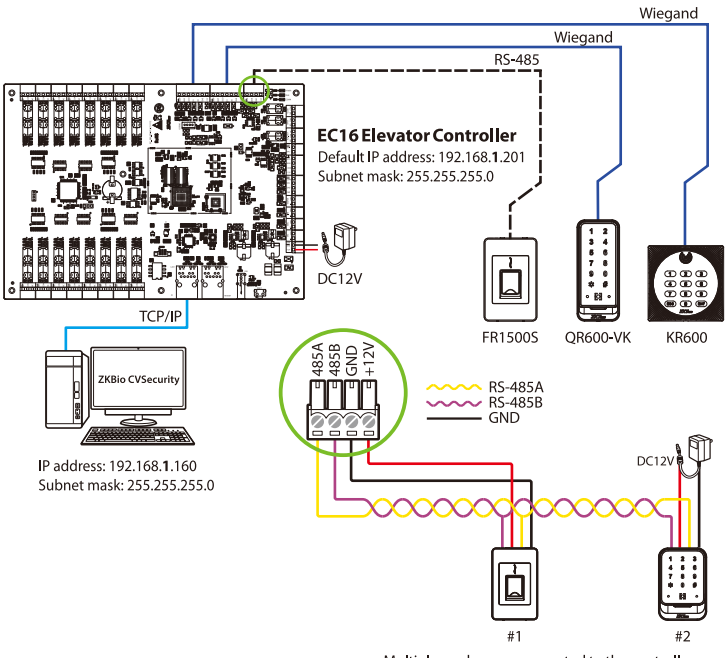


Elevator Button Connection for Elevator Control

Instruction: S1/S2 switches are two relays (S1 relay is normally closed and S2 relay is normally open) of the elevator control board respectively. S1 is disconnected after power on, and S1 is closed after swiping the layer selection card, then the elevator button can be lit by pressing; S2 is closed after swiping the direct access card, then the elevator button will be lit automatically.

Reader Connection

RS-485 readers and Wiegand readers need to be connected with the master elevator controller in order to make relevant settings through the ZKBio CVSecurity Software. The system sends the personnel information to the master controller through the software, and reader then uploads the data to the master controller for comparison and verification after collection. The following is the wiring diagram of various readers and elevator controller.



Note:

1. The readers can be connected to the elevator controller via Wiegand and RS-485.
2. Open DEMO, select the serial port number, the default baud rate is 115200, click "**Connect**" and "**Scan Address**" and then put the card or QR code (paper, electronic , mobile phone) into the recognition range of the card reader, and read the card. The device automatically obtains and transmits the information carried by the card or QR code to the controller.
3. Each EC16 can connect a maximum of two RS-485 readers or two Wiegand readers.

Supported Reader Models

Controller Supported Wiegand reader Models:

Reader Model	Wiegand26/34	Wiegand66
KR900 Series	✓	✓
KR500E/501M/502E/M/503E	✓	✗
KR600/601/602E/M	✓	✗
KR610/611/612E	✓	✗
KR610/611/612D	✓	✓
KR610/611/612DL	✓	✓
ProID10/20/30/40 E/M	✓	✗
ProID10/20/30/40 D	✓	✓
ProID20/30BEMD-RS	✓	✓

Controller Supported RS485 Reader Models:

Reader Model	485 Unencrypted	485 Encryption	OSDP Unencrypted	OSDP Encryption
KR900 Series	✓	✓	✓	✓
FR1200/FR1500S	✓	✓	✗	✗
ProID101/102/103/104	✓	✗	✓	✗
ProID20/30BEMD-RS	✓	✗	✓	✗
QR50/QR500/QR600	✓	✓	✗	✗

Remarks:

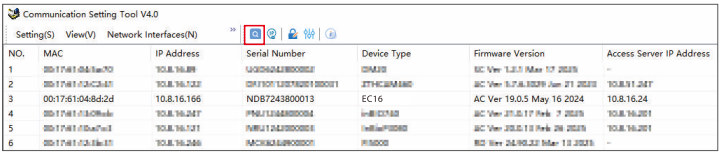
1. ✓ means connectable, ✗ means not connectable.
2. In 485 communication encryption mode, the ProID100/KR900 reader supports tamper alarm function. When the reader is illegal tampering, it will send a tamper signal to the controller via 485, and the controller will report to the software to form a tamper alarm event. Users can configure the alarm linkage on the software side and connect the alarm to the auxiliary output.
3. On the software side, click **Access > Access Device > Reader**, select the reader and check **Encrypt** in the pop-up editing window to enable the encryption function.

Connect to ZKBio CVSecurity

Login to the software and add the device by searching. The process is as follows:

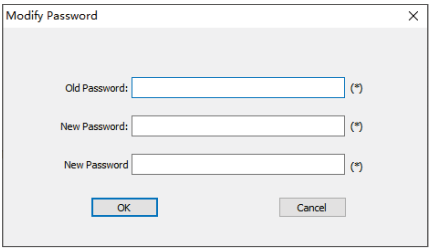
1. Search for Devices

Search for devices using the **DeviceSettingTool_V4.0** search tool. Click the icon to search for devices.



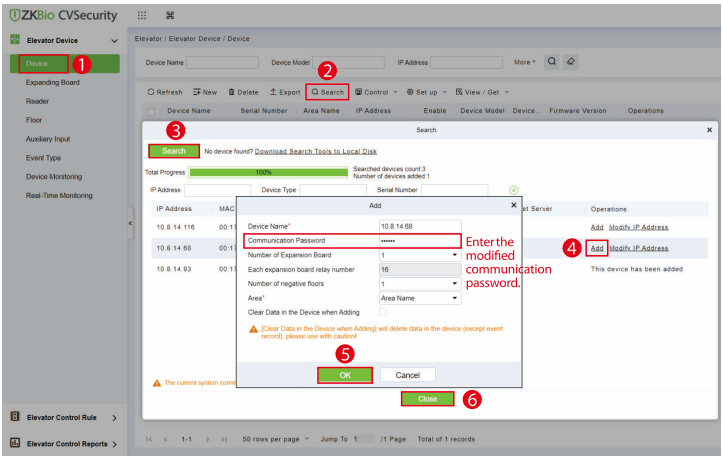
2. Change Communication Password

Select the searched device and click the icon to change the communication password. For the first time to change the password, the default communication password is **Zk@123**, and the new password is a combination of 2~6 digit alphabetic characters. **Note:** If the communication password is forgotten, the device can be reset to its factory settings, and the password will automatically revert to the default value.



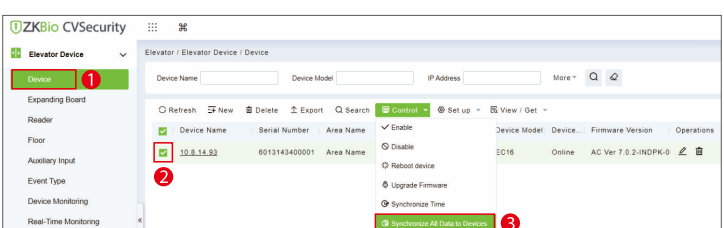
3. Add the elevator control device on the software

1) Click **Elevator** > **Elevator Device** > **Device** to enter the device setting interface.
2) Click **Search** to open the Search interface in the software.
3) Click **Search** to search the elevator controller. After searching, a list of controllers will be displayed.
4) Click **Add** after the controller in the operation bar to add the device.
5) After setting the relevant parameters, click **OK** to finish adding the elevator controller.
6) Click **Close** to close the Device Search Add interface.



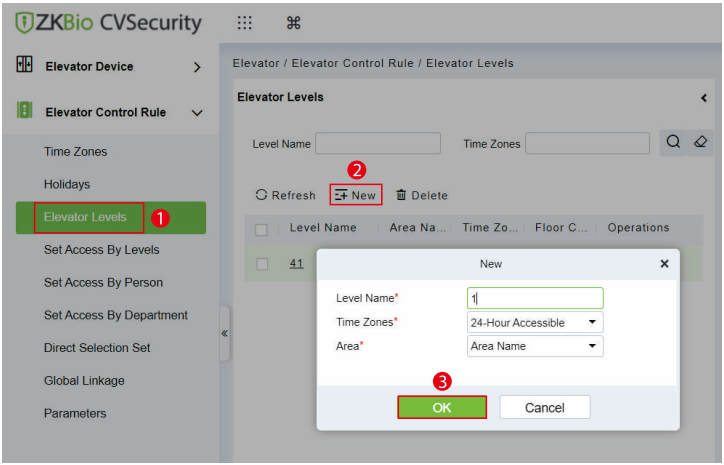
4. Register users and send to the elevator control device

1) Click **Personnel** > **Personnel** > **Person** > **New** to register users in the software.
2) Add users to elevator control level.
3) Click **Elevator** > **Device** > **Control** > **Synchronize All Data to Devices** to synchronize all data to the controller, including new users. As shown in the figure below.

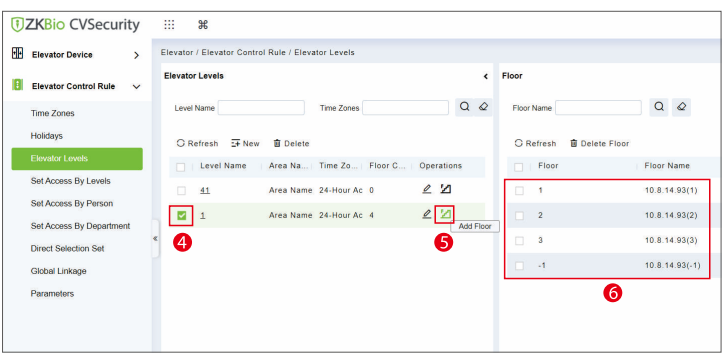


5. Assign elevator control levels group

1) Click **Elevator** > **Elevator Control Rule** > **Elevator Levels** to enter the setting interface.
2) Click **New** to add a new elevator control level group.
3) Enter the level name, time zones and setting area, then click **OK** to confirm and exit.



4) After adding successfully, check the levels group.
5) Click **Add Floor** icon to add the selected floor to the levels group.
6) The added floors will be displayed in the **Floor** list on the right.

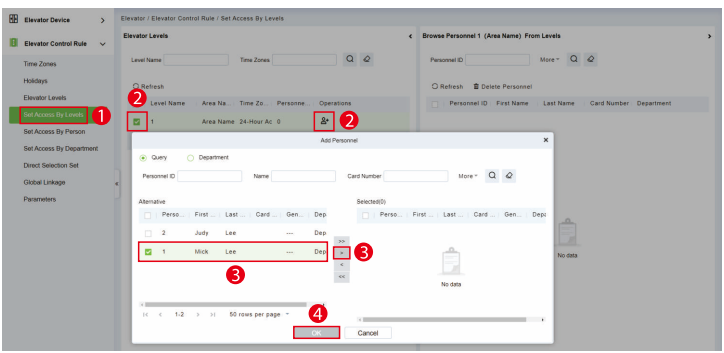


6. Setting of Elevator Control Authority Allocation

Authority allocation is used to manage the elevator control authority of personnel. Only after the authority allocation can personnel normally verify the operation of entering and leaving the elevator. Permission assignment supports three methods: **setting access by levels, setting access by person,** and **setting access by department.**

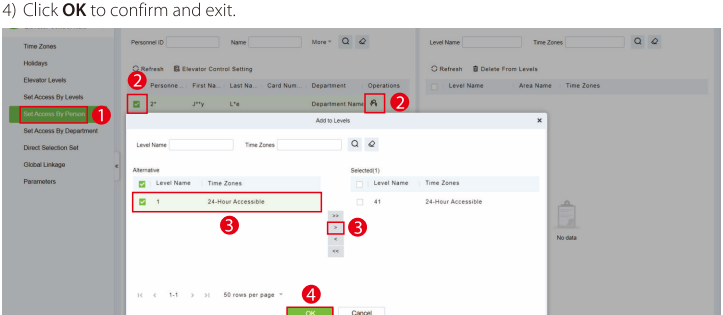
a. Set Access By Levels

1) Click **Elevator** > **Elevator Control Rule** > **Set Access By Levels** to enter the setting interface.
2) Check the levels group and click the **Add Personnel** icon in its bar to open the settings window.
3) Select the person and then click > to move it to the selected column on the right.
4) Click **OK** to confirm and exit.



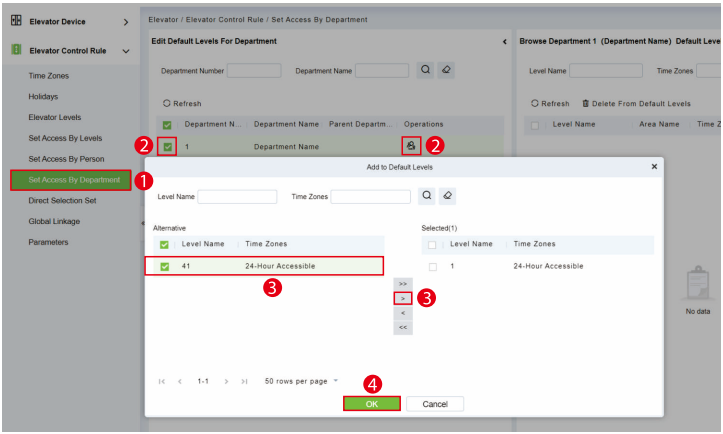
b. Set Access By Person

1) Click **Elevator** > **Elevator Control Rule** > **Set Access By Person** to enter the setting interface.
2) Check the levels group and click the **Add to Levels** icon in its bar to open the settings window.
3) Select the levels group and then click > to move it to the selected column on the right.
4) Click **OK** to confirm and exit.



c. Set Access By Department

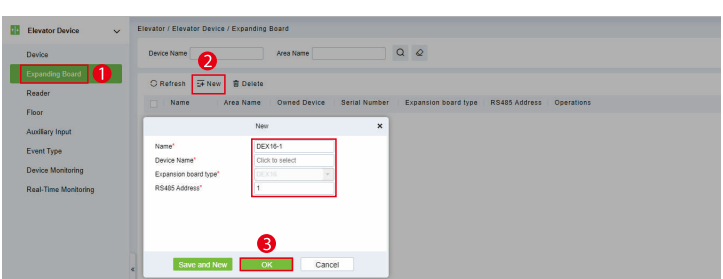
1) Click **Elevator** > **Elevator Control Rule** > **Set Access By Department** to enter the setting interface.
2) Check the department and click the **Add to Default Levels** icon in its bar to open the settings window.
3) Select the levels group and then click > to move it to the selected column on the right.
4) Click **OK** to confirm and exit.



7. Add Expanding Board

Make sure to power off the device and connect the expansion board correctly, then set the RS485 address of the expansion board with the DIP switch and restart the device.

1) Click **Elevator** > **Elevator Device** > **Expanding Board** to enter the setting interface.
2) Click **New** to add a expanding board.
3) Set the relevant parameters and then click **OK** to confirm and exit.



Electrical Specifications

EC16 Master Control Panel

Power	
Main Power Supply	12VDC ± 20%, maximum current 600mA (without reader and expansion board)
Wiegand Reader	12VDC ± 20%, maximum output current 350mA
RS-485 Reader	12VDC ± 20%, maximum output current 750mA
Output	
Auxiliary Relay Output	Contact load: 1A / 24VDC Note: When connecting to the elevator button, the maximum allowable voltage is 24V.
Input	
FIRE	Maximum allowable input voltage 15V
Emergency	
Manual	
TAMPER	
Wiegand Reader TAMPER	

DEX16 Expansion Board

Power	
Main Power Supply	12VDC ± 20%, maximum current 350mA
Output	
Auxiliary Relay Output	Contact load: 1A / 24VDC Note: When connecting to the elevator button, the maximum allowable voltage is 24V.

Green Label

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