

Multi-Function Card

Quick Start Guide

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Preface

Applicable Models

This manual is applicable to the DS-D43AM3 multi-function card.

Symbol Conventions

The symbols that may be found in this document are defined as follows.

Symbol	Description
Note	Provides additional information to emphasize or supplement important points of the main text.
Caution	Indicates a potentially hazardous situation, which if not avoided, could result in equipment damage, data loss, performance degradation, or unexpected results.
Danger	Indicates a hazard with a high level of risk, which if not avoided, will result in death or serious injury.

Safety Instructions

Caution

- In the use of the product, you must be in strict compliance with the electrical safety regulations of the nation and region.
- Do not touch the bare components (such as the metal contacts of the grounding terminals) and wait for at least 5 minutes, since electricity may still exist after the device is powered off.
- This device is not suitable for use in locations where children are likely to be present.
- CAUTION: Risk of explosion if the battery is replaced by an incorrect type.
- Improper replacement of the battery with an incorrect type may defeat a safeguard (for example, in the case of some lithium battery types).
- Do not dispose of the battery into fire or a hot oven, or mechanically crush or cut the battery, which may result in an explosion.
- Do not leave the battery in an extremely high temperature surrounding environment, which may result in an explosion or the leakage of flammable liquid or gas.

- Do not subject the battery to extremely low air pressure, which may result in an explosion or the leakage of flammable liquid or gas.
- Dispose of used batteries according to the instructions.

Note

- Provide a surge suppressor at the inlet opening of the device under special conditions such as the mountain top, iron tower, and forest.
- If the device needs to be wired by yourself, select the corresponding wire to supply power according to the electric parameters labeled on the device. Strip off wire with a standard wire stripper at corresponding position. To avoid serious consequences, the length of stripped wire shall be appropriate, and conductors shall not be exposed.
- The interface varies with the models. Please refer to the product datasheet for details.
- Make sure that the power has been disconnected before you wire, install, or disassemble the device.
- The device shall not be exposed to water dripping or splashing, and no objects filled with liquids, such as vases, shall be placed on the device.
- No naked flame sources, such as lighted candles, should be placed on the device.
- If smoke, odor, or noise arises from the device, immediately turn off the power, unplug the power cable, and contact the service center.
- Install the device according to the instructions in Quick Start Guide.
- To prevent injury, this device must be securely attached to the installation surface in accordance with the installation instructions.
- As an embedded device, the fireproof protective enclosure is provided by the end product. The ventilation should not be impeded by covering the ventilation openings with items, such as newspapers, table-cloths, curtains. The openings shall never be blocked by placing the device on a bed, sofa, rug, or other similar surface.

TABLE OF CONTENTS

Chapter 1 Introduction 1
1.1 Overview 1
1.2 Appearance 2
Chapter 2 Usage 4
2.1 Open Package and Check Items 4
2.2 Connect to Other Devices 4
2.3 Control Connected Devices 9

Chapter 1 Introduction

1.1 Overview

The multi-function card offers a variety of auxiliary functions. When paired with core equipment such as LED controllers, receiving cards, and power distribution cabinets, it can provide signal processing, power management, and data transmission services. The multi-function card is suitable for various scenarios, including professional audiovisual systems, communication networks, and industrial automation, particularly excelling in environments requiring high-speed data processing and stability.

The multi-function card has the following features:

- Supports communication with LED controllers, receiving cards, or other multi-function cards via Gigabit Ethernet ports.
- Supports connection to temperature and humidity sensors for monitoring the conditions of LED displays or power distribution cabinets. You can adjust relevant parameters via the client to control the status of the LED displays or power distribution cabinets.
- Supports connection to brightness sensors to intelligently adjust the LED display brightness based on ambient light conditions.
- Supports connection to motion sensors, enabling smart brightness control of LED displays in combination with client settings.
- Supports connection to power distribution cabinets, allowing remote scheduling of power on/off via client.
- Supports RS-232 serial communication with central control devices.
- Supports connection to a 3D sync signal transmitter, enabling active 3D visual effects when paired with 3D glasses.
- Supports the use of a 3.5mm infrared emitter plug, allowing remote control of the multifunction card via an infrared remote.

1.2 Appearance

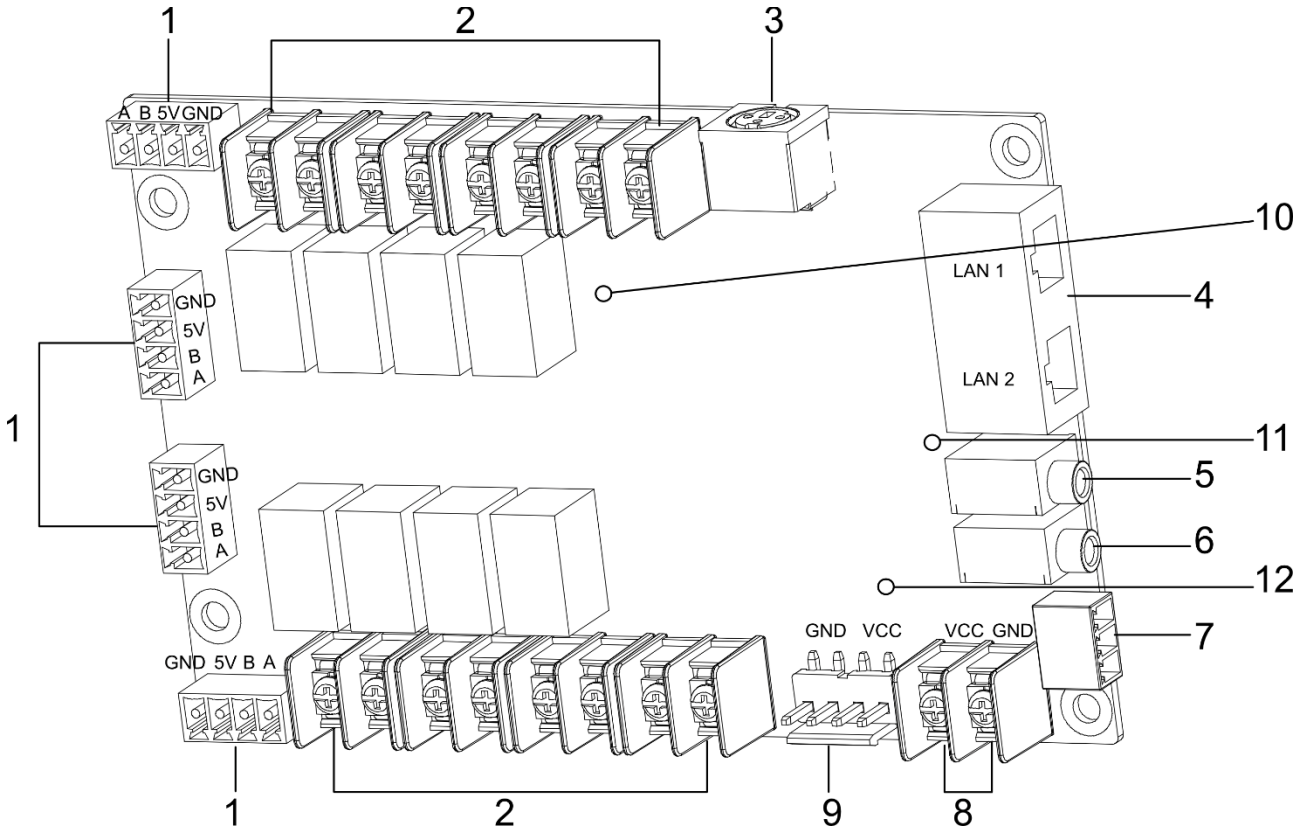


Figure 1-1 Multi-Function Card Appearance

No.	Name	Description
1	Sensor interface	Install the 4-position terminal block, and then use a 4-conductor cable to connect the terminal block to the sensor as follows: ● GND: Connects to the sensor's ground terminal using the ground conductor. ● 5V: Connects to the sensor's power input (5 VDC) using the power conductor. ● B: Connects to the sensor's Signal B terminal using the signal conductor. ● A: Connects to the sensor's Signal A terminal using the signal conductor.
2	Relay switching terminal	Use two conductors to connect to the timer module in the power distribution cabinet, enabling the relay to control the power ON/OFF operation of the timer module. The rated voltage of the relay is 250 V AC or 30 V DC, and the rated current is 5 A.

No.	Name	Description
3	3D sync interface	Connects to the 3D sync signal transmitter.
4	Gigabit Ethernet port	Use an Ethernet cable to connect to an LED controller, receiving card, or another multi-function card.
5	Audio output port	Reserved for connecting an audio cable.
6	IR remote interface	Connects to the 3.5 mm plug of the infrared transmitter cable for IR remote control.
7	RS-232 interface	Install the 3-position terminal block, and then connect to the RS-232 interface of a central control device.
8	DC power interface	Use two conductors to power the multi-function card: ● GND: Ground terminal, connect to the system ground (ensure reliable grounding). ● VCC: Positive power supply, connect to a DC power source (rated voltage range: 3.8 V to 5 V).
9	DC power interface	Use two or four conductors to power the multi-function card: ● GND: Ground terminal, connect to the system ground (ensure reliable grounding). ● VCC: Positive power supply, connect to a DC power source (rated voltage range: 3.8 V to 5 V).
10	FPGA loading indicator	● Solid red: FPGA program is running. ● Off: FPGA program is inactive or malfunctioning.
11	Ethernet port status indicator	● Green blinking: Only port 2 is connected to the network. ● Green 2x-speed blink: Only port 1 is connected. ● Green 4x-speed blink: No network connection. ● Solid green: Both port 1 and port 2 are connected to the network.
12	DC power indicator	● Solid red: Power input is normal. ● Off: No power input or abnormal power input.

Chapter 2 Usage

2.1 Open Package and Check Items

Open the device package to verify that all items in the package are intact according to the packing list.

Table 2-1 Packing List

Item	Quantity
Device	1
Infrared remote control	1
4-position terminal block	4
3-position terminal block	1
USB-to-4 Pin Cable	1
Regulatory compliance and safety information manual	1

2.2 Connect to Other Devices

Install and Connect to Power Distribution Cabinet

Before You Start

The multi-function card must be installed and maintained by professionals. When installing the card into the power distribution cabinet, strictly follow the safety protocols specified in the cabinet's manual and verify power isolation before installation.

Steps

Step 1 Install a multi-function card into the power distribution cabinet.

- If the power distribution cabinet does not have a plastic bracket, align the installation holes of the multi-function card with those of the power distribution cabinet, and use 4 screws provided with the cabinet to secure the card to the cabinet.
- If the power distribution cabinet has a plastic bracket, align the installation holes of the multi-function card (2) with those of the plastic bracket (3), and use 4 self-tapping screws (1) provided with the cabinet to secure the multi-function card to the cabinet.

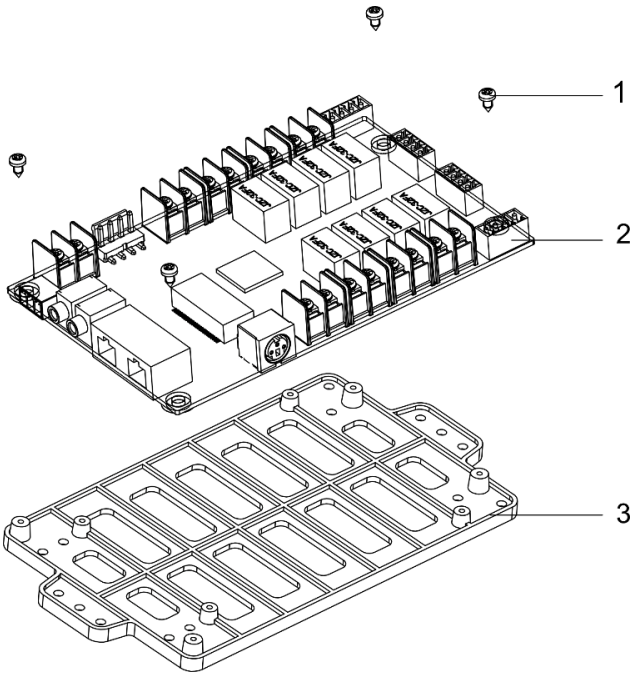


Figure 2-1 Secure Multi-Function Card to Power Distribution Cabinet

Step 2 Connect the multi-function card to the related devices.

1) Connect the multi-functional card (3) to the timer module (6) of the power distribution cabinet (5) via cables.
2) Connect the multi-function card (3) to the LED controller (2) via Ethernet cable.
3) Connect the LED controller (2) and the receiving card (4) via Ethernet cable.
4) Connect the LED controller (2) to a computer (1) via Ethernet cable.

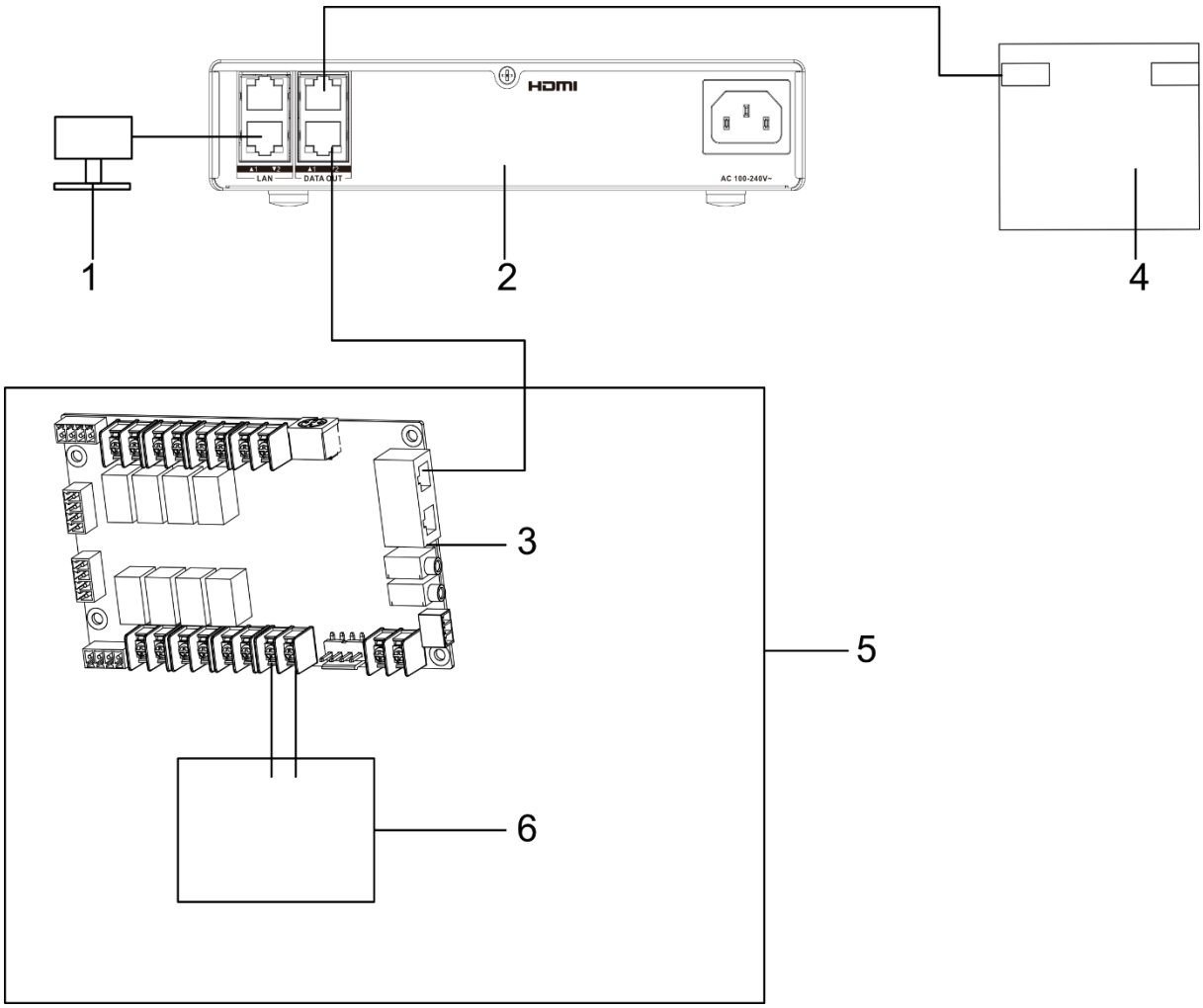


Figure 2-2 Connect Power Distribution Cabinet and LED Controller

Connect LED Controller or Receiving Card

You can use different methods to connect a multi-function card to an LED controller or multiple receiving cards. The multi-function card can be placed between the LED controller and receiving card, between multiple receiving cards, or after the receiving card, as shown in the figure below.

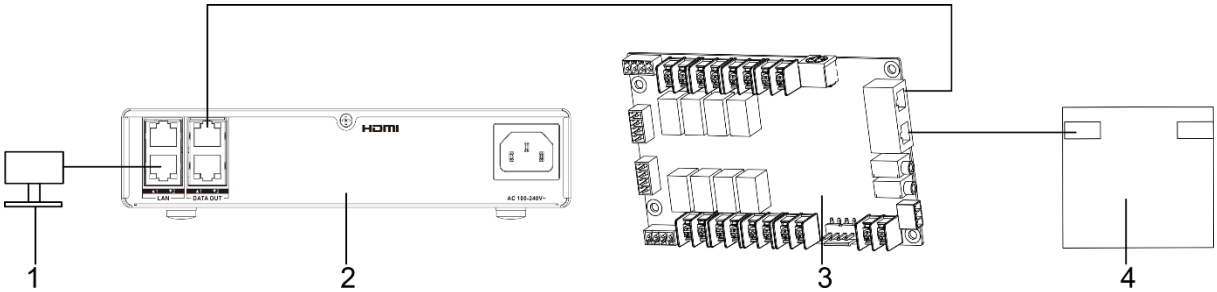


Figure 2-3 Connect to LED Controller and Receiving Card

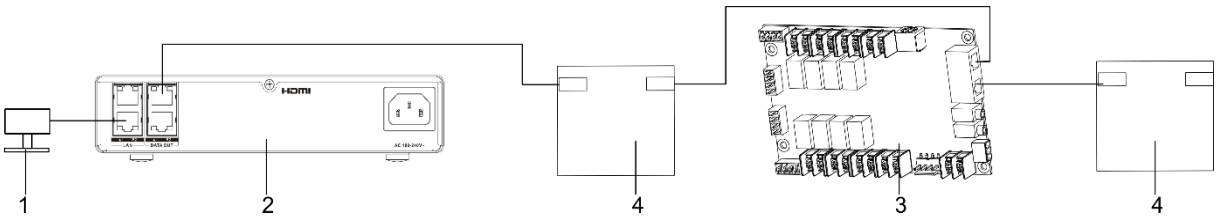


Figure 2-4 Connect to Two Receiving Cards

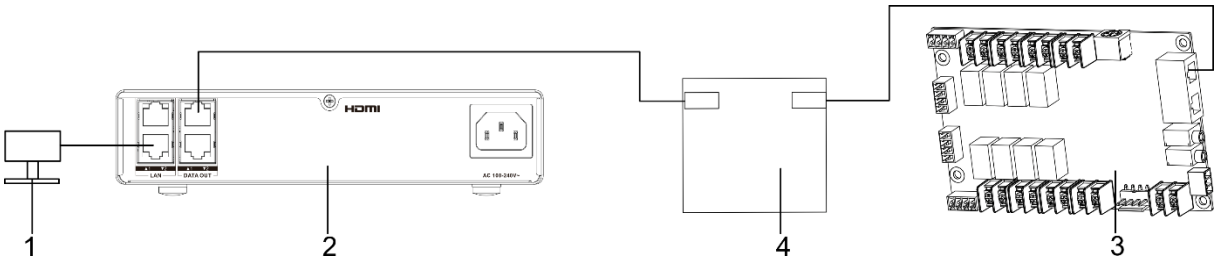


Figure 2-5 Connect to a Single Receiving Card

1. Computer	2. LED Controller	3. Multi-Function Card	4. Receiving Card

Connect Sensor

The multi-function card supports connection to various sensors, including temperature/humidity sensors, motion sensors, and light sensors. The following connects a sensor to the multi-function card as an example.

Step 1 (Optional) If the sensor cable lacks a pre-attached terminal block, follow the following steps to connect a terminal block to the sensor cable:

1) Use the wire strippers to strip 5 mm of insulation.
2) Loosen the terminal block screws with a screwdriver.
3) Verify the wire definitions in the sensor manual.
4) Insert wires into the terminal block according to their definitions.
5) Tighten the terminal screws with a screwdriver.

Step 2 Align the sensor cable's terminal block (3) with the multi-function card's sensor interface (2) and insert:

- Connect the card’s GND terminal to sensor cable’s GND terminal.
- Connect the card’s 5V terminal to sensor cable’s 5V terminal.
- Connect the card’s B terminal to sensor cable’s B terminal.
- Connect the card’s A terminal to sensor cable’s A terminal.

Note

- Wire colors and sequences may vary by manufacturer. Always consult the specific sensor's manual before operation.
- Use a multimeter to test continuity after connections.

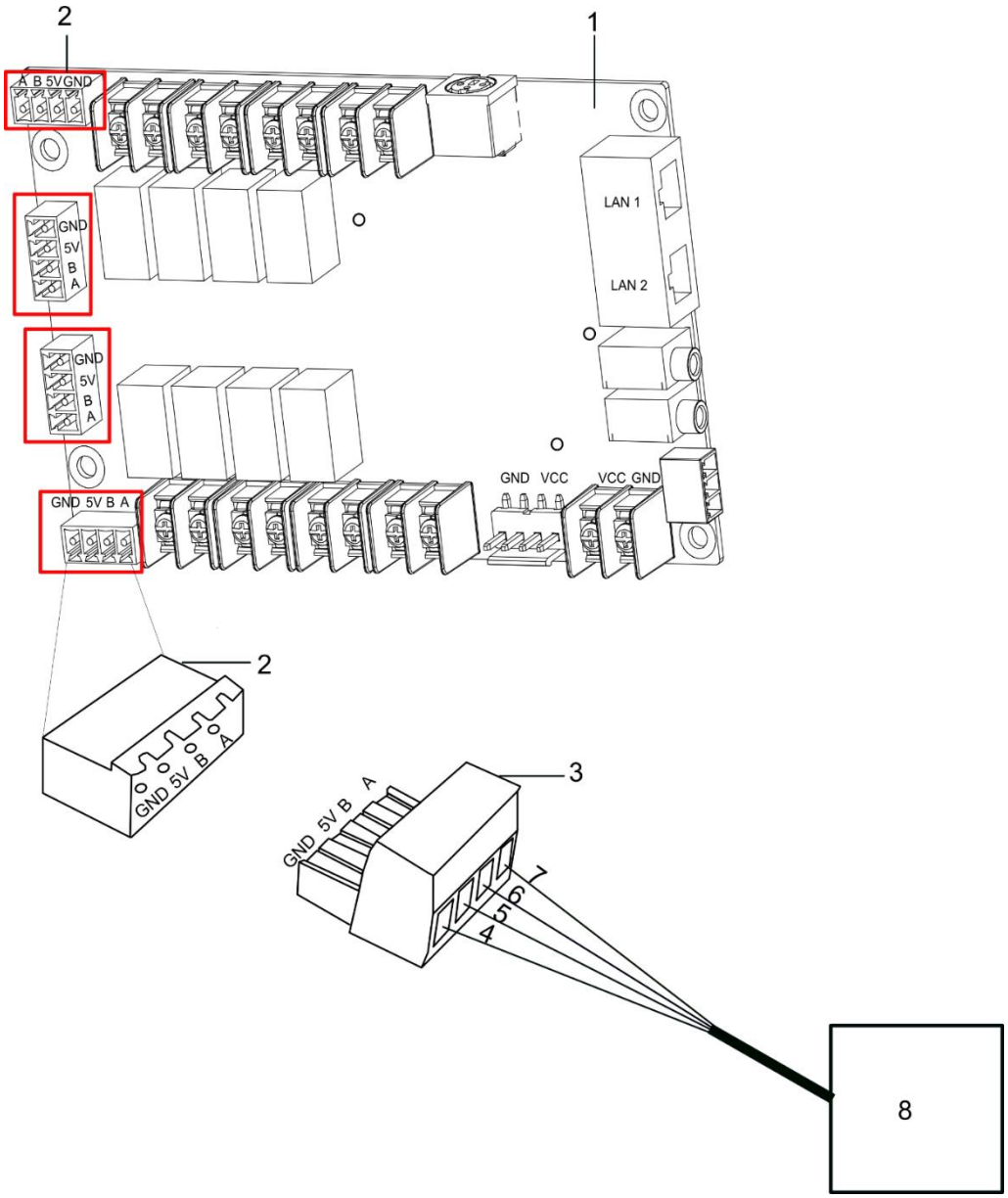


Figure 2-6 Connect Sensor

1. Multi-function card	2. Sensor Interface (male conector)	3. Sensor cable's termnial block (female connector)
4. Grounding conductor	5. Power conductor	6. Signal B conductor
7. Signal A conductor	8. Sensor	

2.3 Control Connected Devices

Before You Start

Make sure that the multi-function card is connected to other devices and all devices are powered on. If you need to use the multi-function card to control the power distribution cabinet, make sure that the time/manual/card knob of the cabinet is in the card position.

Steps

Step 1 Install the LED batch controller client on the computer.

Step 2 Obtain the LED batch controller client user manual to configure the LED controller, receiving card, or power distribution cabinet.

You can also scan the QR code below to download the user manual. Obtaining the manual requires network data traffic. It is recommended to be performed in a Wi-Fi environment.

Figure 2-7 LED Batch Controller Client User Manual



UD42478B-B