PRODUCT MANUAL

DI Conversion Module

V1.0

Table of Contents

1 Product Overview

1.1 Application Scenarios

The DI Conversion Module is specifically designed for European power grid management, where ripple control technology is adopted to achieve precise control. It efficiently interacts with Ripple Control Receivers through dry contact connections and then utilizes the RS485 interface to send load reduction signals to EV Charger. This allows for rapid response to power grid dispatch demands, ensuring stable operation of the power grid.

1.2 Product Introduction

The DI Conversion Module, equipped with a 12VDC adapter, offers robust 4-channel DI signal detection functionality. It integrates dual parallel RS485 interfaces, enabling EV Charger to connect to both the DI Conversion Module and electricity meters simultaneously for smooth communication between multiple devices.In terms of installation, the DI Conversion Module supports both 35mm standard rail mounting and wall-mounted installation, providing flexibility to adapt to different installation environments and delivering a convenient deployment experience for users.

1.3 Functional Features

- 12VDC Adapter Power Supply

The DI Conversion Module is equipped with a 12VDC adapter, ensuring its stable and efficient operation to meet the requirements of long-term, high-load work.

- Four-Channel DI Signal Detection

The product supports four-channel DI (Digital Input) signal detection, enabling real-time monitoring and processing of digital signals from different sources. This improves the intelligence level of the EV Charger, ensuring the accuracy and safety of the charging process.

- Dual Parallel RS485 Interfaces

The DI Conversion Module integrates dual parallel RS485 interfaces, allowing the EV Charger to connect to both the DI Conversion Module and the electricity meter simultaneously for smooth communication between multiple devices. This efficient communication mechanism helps enhance the efficiency and stability of the entire charging system.

- Standard Rail and Wall-Mounted Installation

The DI Conversion Module supports 35mm standard rail installation and wall-mounted installation, flexibly adapting to different installation needs in both industrial and commercial environments. This versatile installation method provides users with a convenient deployment experience, reducing installation difficulty and cost.

- Strong Adaptability

The design of the DI Conversion Module fully considers the needs of different installation environments, whether it's space limitations or installation convenience. This makes the DI Conversion Module an ideal choice for EV Charger systems, providing users with an efficient and convenient charging management solution.

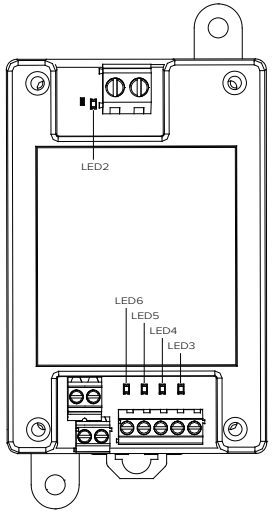
2 Technical Specifications

2.1 Basic Parameters

DI Conversion Module SPEC	
Power Supply	DC 12V Adapter
Static Power Consumption	＜1W@DC12V
Use Cases	Ripple Control Receiver Signal Conversion
Installation Method	35mm Standard Rail Mounting / Wall Mounting
Signal Input	Dry Contact Input

2.2 Description of LED Indicators

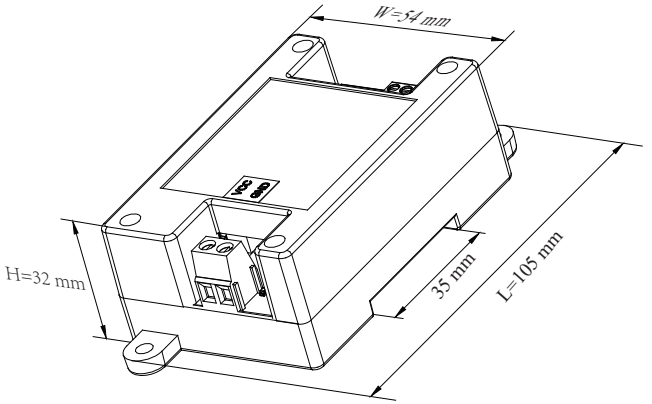
Port	Status	Status Description
LED2	Red light On	Power supply is normal
	Red light Off	No power supply
LED3	Red light On	DI0 Signal Input
	Red light Off	DI0 No Signal Input
LED4	Red light On	DI1 Signal Input
	Red light Off	DI1 No Signal Input
LED5	Red light On	DI2 Signal Input
	Red light Off	DI2 No Signal Input
LED6	Red light On	DI3 Signal Input
	Red light Off	DI3 No Signal Input

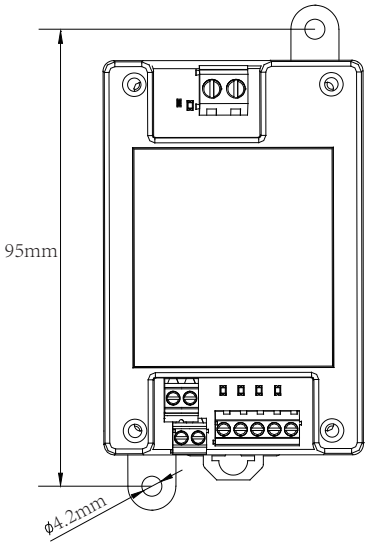


3 Installation Instructions

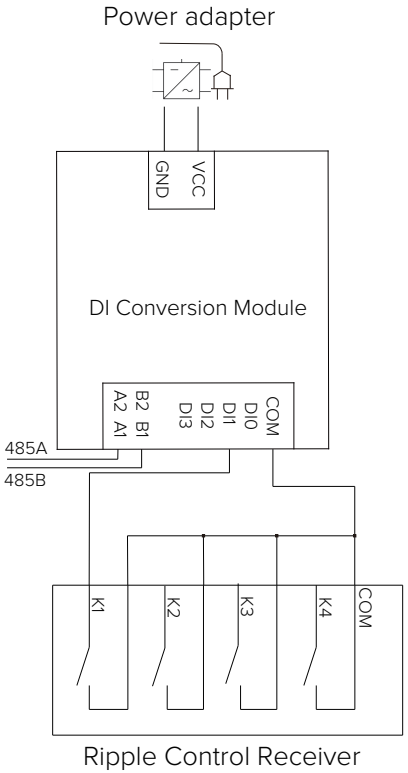
3.1 Equipment Inspection Before Installation

- Equipment List:
  - 1 DI Conversion Module
  - 1 Power Adapter
- Installation Hole Dimensions:
  - Hole diameter: 4.2mm
  - Distance between upper and lower holes: 95mm
  - For 35mm rail mounting





3.2 Wiring Instructions



Step 1:
Before removing the power adapter, please ensure safety during operation to avoid electric shock. Connect the positive (+) and negative (-) terminals of the adapter to the VCC and GND ports of the DI Conversion Module accurately, ensuring the correct polarity to prevent short circuits or equipment damage.

Step 2:
Prepare the cables (22AWG cables are recommended). Trim the cable sheath to approximately 15mm in length for the next step. Use a wire stripper to carefully and accurately strip the insulation jackets from the ends of all wires, exposing the bare wires for connection.

Step 3:
Connect the Channel 1 and COM terminals of the Ripple Control Receiver to the corresponding DI1 and COM ports of the DI conversion module. Ensure that each connection is secure and reliable to avoid signal transmission problems due to poor contact.

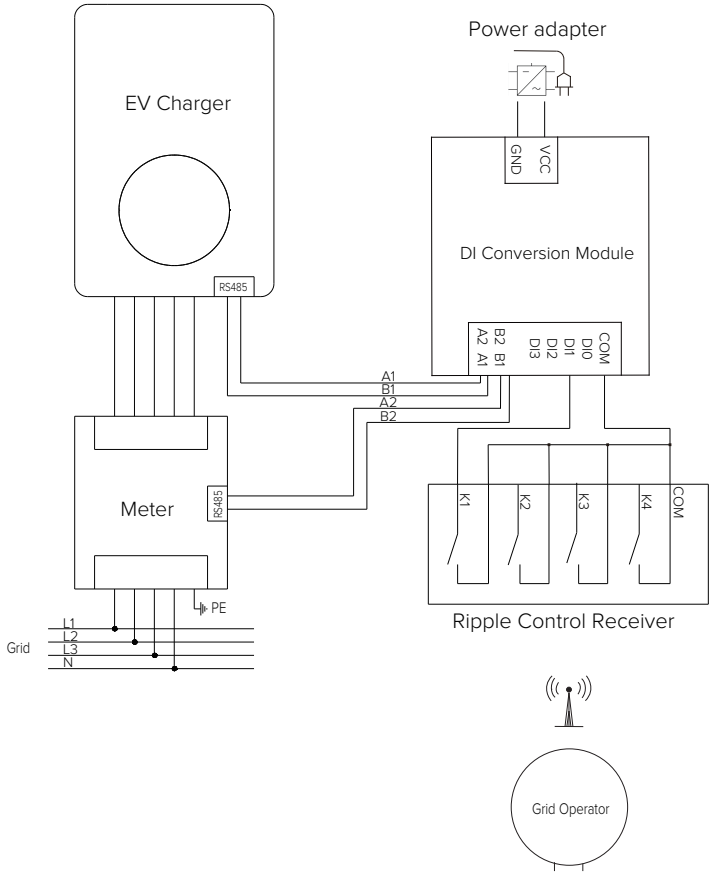
Step 4:
Use an appropriate RS485 cable to connect the A1 and B1 of the RS485 port of the DI conversion module to the RS485 port of the EV charger. If you also need to connect a meter, connect the RS485 port of the meter to A2 and B2 of the DI conversion module. Ensure that the cable connections are correct and follow the relevant regulations of the RS485 communication protocol.

Step 5:
After all cables are connected, plug in the power adapter. The power indicator light of the DI Conversion Module should light up, indicating that the device has been successfully powered on and is in working condition. Please check if all connection points are secure to ensure stable operation of the device.

Note:

Please note that during wiring operations, it is essential to follow relevant safety regulations to ensure a safe and clean operating environment. Read and understand the wiring diagrams and related instructions in the product manual carefully to ensure accurate wiring. If you have any questions or uncertainties, please consult professionals or the manufacturer's technical support.

4 Working Principle Diagram



Once the DI conversion module is connected according to the wiring instructions, when the power grid requires power dispatching, the ripple control receiver will immediately output a dry contact signal. The DI1 port of the DI conversion module can quickly detect the change of this signal and immediately send a load reduction command to the EV charger through its integrated RS485 interface. Upon receiving the command, the EV charger will respond immediately and reduce the charging power to 4.2 kW, thus timely responding to the power dispatching needs of the power grid and ensuring the stable operation and management of the power grid.

5 Use Environment

- To ensure the normal operation of the equipment, the surrounding environment should avoid strong vibrations and impacts, and should be kept away from sources of electromagnetic interference such as high currents and sparks. Additionally, the air should not contain any corrosive media that can damage chromium, nickel, or silver coatings, as well as flammable and explosive hazardous materials.

- The continuous operating temperature range of this equipment is from -20°C to +50°C, ensuring stable operation under various temperature conditions.

- The applicable relative humidity range for the equipment is 10% to 90% RH, but it should be noted that it should be used under non-condensing conditions to ensure the normal operation and extend the service life of the equipment.