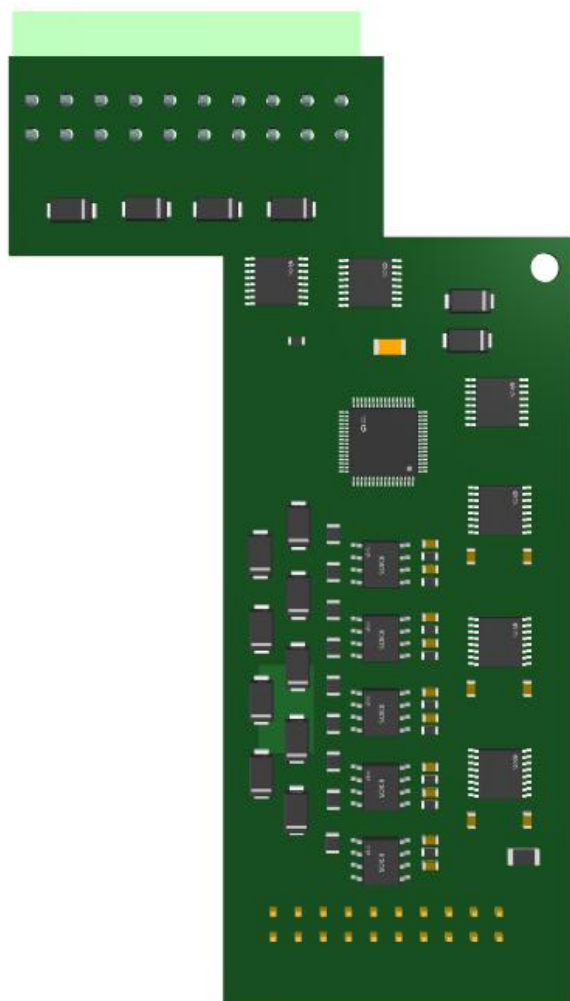


X Series I/O Modules

4CH RS485/RS232+4DI+4DO Module X23



X23

User Manual

Version: V1.0

Date: 2025-4-9

Shenzhen Beilai Technology Co.,Ltd

Website: <https://www.bliiot.com>

Preface

Thanks for choosing BLIIOT X series I/O modules. These operating instructions contain all the information you need for operation of X series I/O modules.

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Disclaimer

This document is designed for assisting user to better understand the device. As the described device is under continuous improvement, this manual may be updated or revised from time to time without prior notice. Please follow the instructions in the manual. Any damages caused by wrong operation will be beyond warranty.

Revision History

Revision Date	Version	Description	Owner
2025/4/9	V1.0	Initial Release	PH

Table of Contents

1 Introduction	4
1.1 Overview	4
1.2 Technical Specifications	4
1.3 Model Selection	5
2 Wiring	6
2.1 Terminal Definitions	6
2.2 Connection Example	7
2.2.1 RS485 Connection	7
2.2.2 RS232 Connection	8
2.2.3 DI Dry Contact Connection	9
2.2.4 DI Wet Contact Positive Power Connection	10
2.2.5 DI Wet Contact Negative Power Connection	10
2.2.6 DO Connection	11
3 Warranty Terms	12
4 Technical Support	12

1 Introduction

1.1 Overview

X23 is an industrial-grade expansion module specifically designed for the ARMxy series of ARM embedded computers. This module features electrical isolation, overvoltage protection, ESD protection, fault protection, and overcurrent protection circuitry to ensure stability and reliability in complex industrial environments.

1.2 Technical Specifications

Name	Parameter	Description
Power Supply	Operating Power	Internal Voltage
	Operating Voltage	12V-24V
	Power Consumption	0.256W
RS485/RS232	Channel	4 Channels
	Transmission Mode	Optional: 4×RS232 or 4×RS485
	Maximum Baud Rate	RS232: 115kbps RS485: 10Mbps
	Data Bits	RS232: 5-bit, 6-bit, 7-bit, 8-bit (configurable) RS485: 5-bit, 6-bit, 7-bit, 8-bit (configurable)
	Stop Bits	RS232: 1-bit, 2-bit (configurable) RS485: 1-bit, 2-bit (configurable)
	Parity	RS232: Odd parity, Even parity, No parity (configurable) RS485: Odd parity, Even parity, No parity (configurable)
	Flow Control	RS232: Not supported RS485: Not supported
	Impedance	RS232: Input impedance 300 Ω, Output impedance 3 kΩ RS485: 120 Ω
	Measured Distance and Operating Baud Rate	RS232: 15 meters (baud rate ≤ 1200 bps) RS485: 200 meters (baud rate ≤ 115200 bps)
	Supports Multi-Drop Communication	RS232: Not supported RS485: Requires custom development

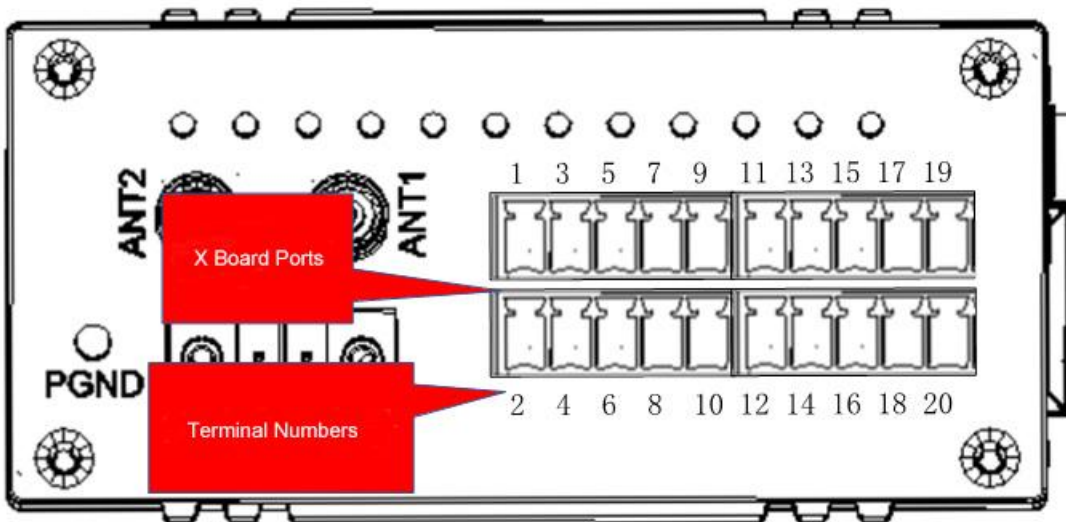
	Communication Mode	RS232: Full-duplex / Half-duplex / Simplex RS485: Unidirectional Half-duplex / Simplex	
	Data Transmission Mode	RS232: Transmit and receive mode, Receive-only mode, Transmit-only mode RS485: Transmit and receive mode, Receive-only mode, Transmit-only mode	
	Logic Level	RS232	Logic "1": 1.5V Logic "0": 2.4V
		RS485	Logic "1": -3V Logic "0": +3V
	Maximum Output Current per Channel	250mA (at 26°C)	
	Isolation Protection	2KVrms (built-in)	
	Communication Cable Requirements	Shielded twisted pair cable	
Digital Output	Channel	4 channels	
	Output Mode	Single-ended output	
	Output Type	Active low output, output 0VDC	
	Maximum Output Current per Channel	100mA	
	Isolation Protection	2KVrms	
Digital Input	Channel	4 Channels	
	Trigger Mode	Low-level trigger or high-level trigger (optional)	
	Dry/Wet Contact	Optional	
	Logic Level	Logic "1": +9 to +12VDC Logic "0": -3 to +5VDC	
	Isolation Protection	2 KVrms	
Certifications	EMC	IEC 61000-4-2 (ESD) Level 3	
		IEC 61000-4-4 (EFT) Level 3	
		IEC 61000-4-5 (Surge) Level 3	

1.3 Model Selection

No.	Name	Model	Signal Type
1	4CH RS485/RS232 Module+4DI+4DO	X23	DI: High-Level Trigger / Low-Level Trigger DO: NPN (Active Low Output) RS485: Differential signal RS232: Digital signal

2 Wiring

2.1 Terminal Definitions

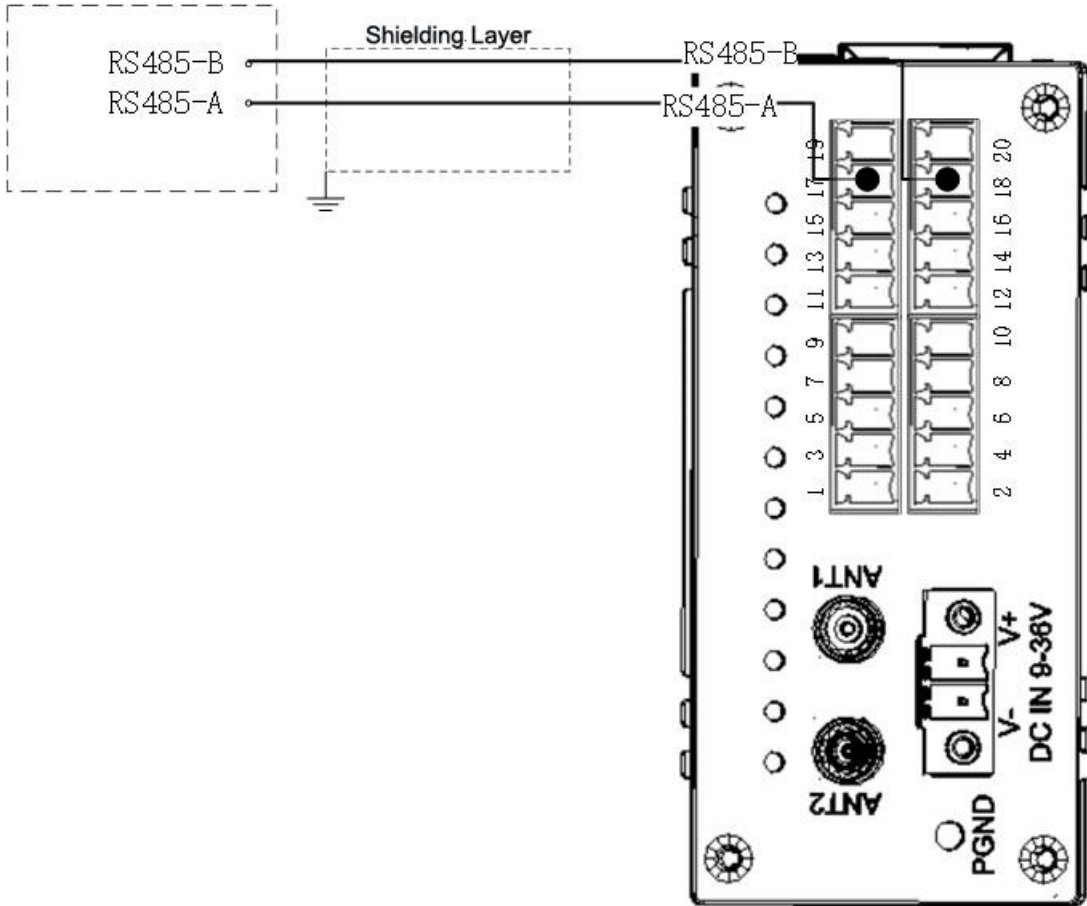


Notice: Please refer to the product's label for the specific terminal numbering sequence.

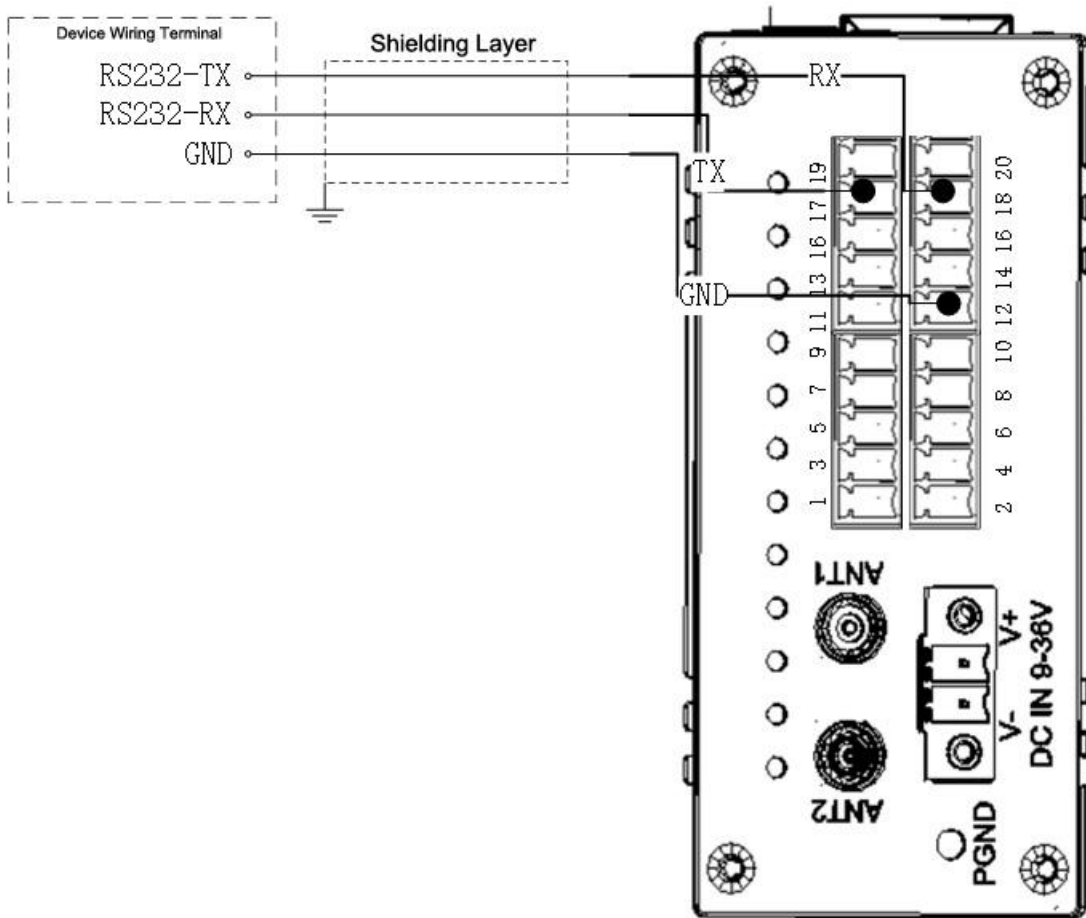
Terminal NO.	Definition	Description	Terminal NO.	Definition	Description
1	DI4	Digital Input 4	2	DO4	Digital Output 4
3	DI3	Digital Input 3	4	DO3	Digital Output 3
5	DI2	Digital Input 2	6	DO2	Digital Output 2
7	DI1	Digital Input 1	8	DO1	Digital Output 1
9	COM	Wet Contact Input Terminal	10	POWER	Output Protection Terminal
11	GND	Ground Terminal	12	GND	Ground Terminal
13	Channel 1-A	RS485-A RS232-TX	14	Channel 1-B	RS485-B RS232-RX
15	Channel 2-A	RS485-A RS232-TX	16	Channel 2-B	RS485-B RS232-RX
17	Channel 3-A	RS485-A RS232-TX	18	Channel 3-B	RS485-B RS232-RX
19	Channel 4-A	RS485-A RS232-TX	20	Channel 4-B	RS485-B RS232-RX

2.2 Connection Example

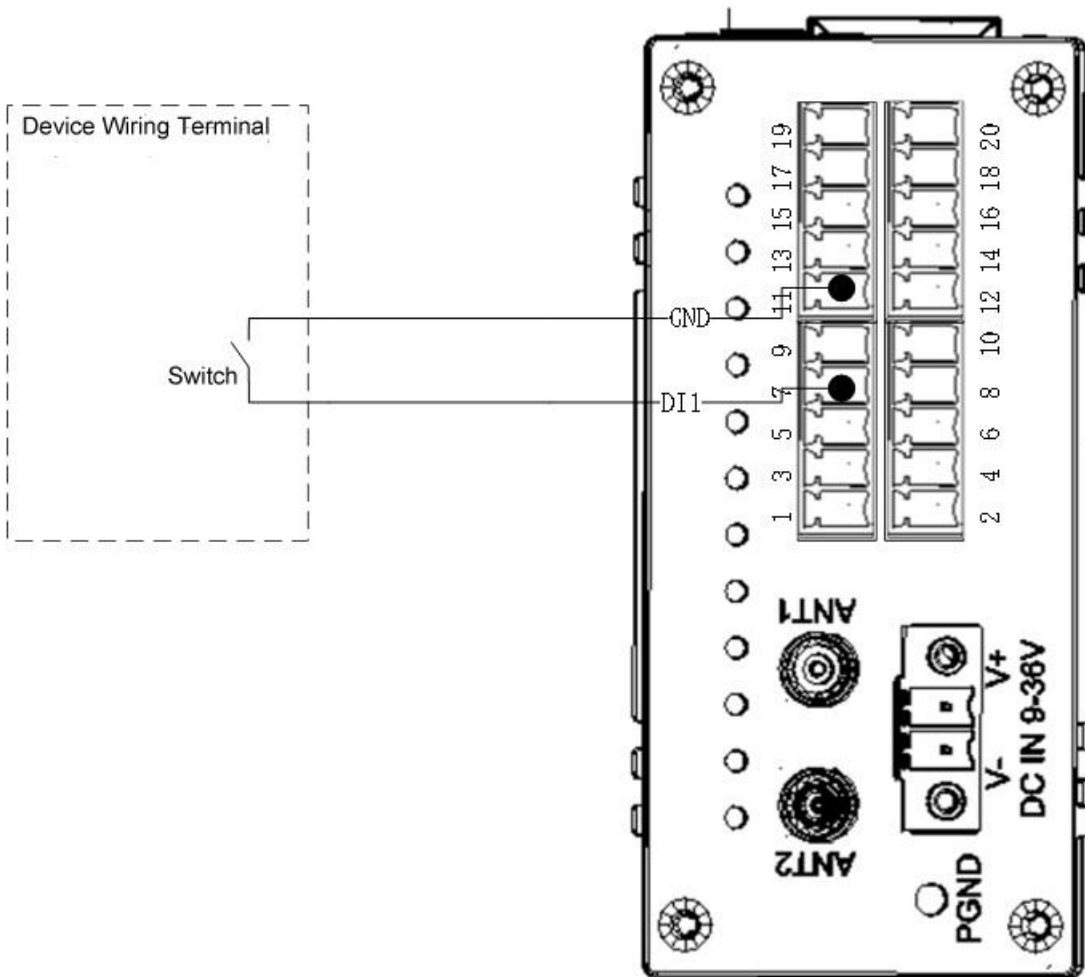
2.2.1 RS485 Connection



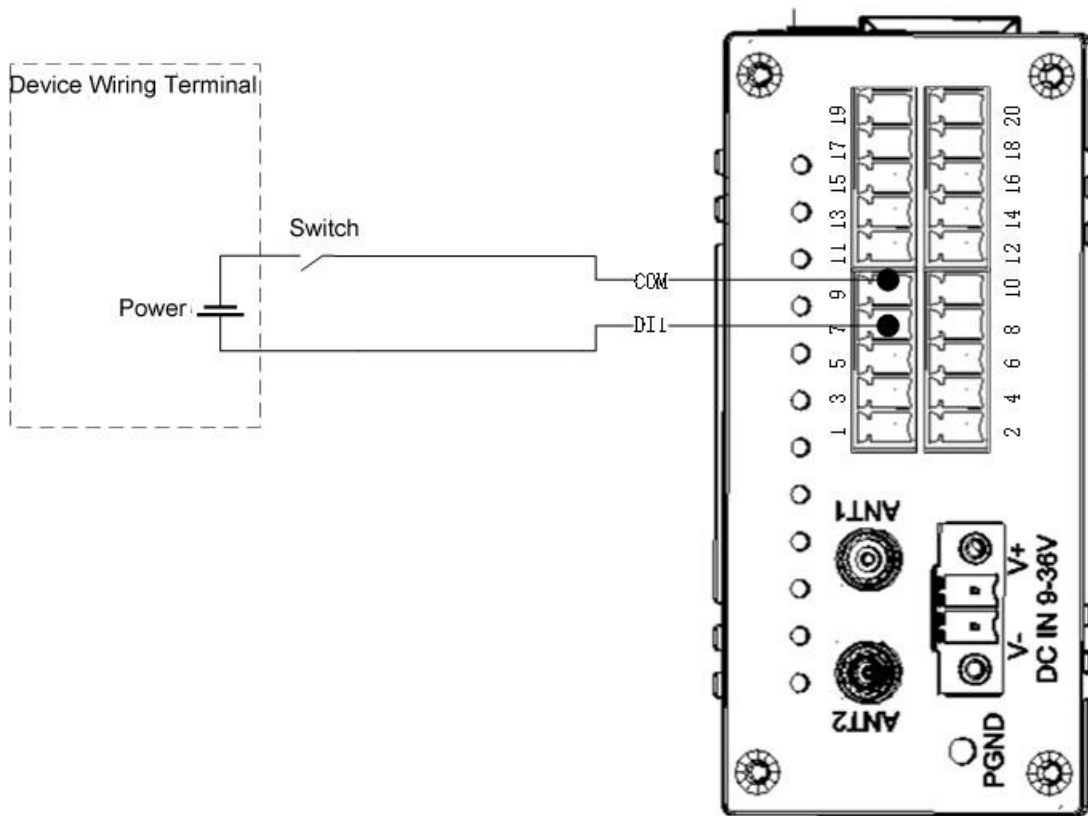
2.2.2 RS232 Connection



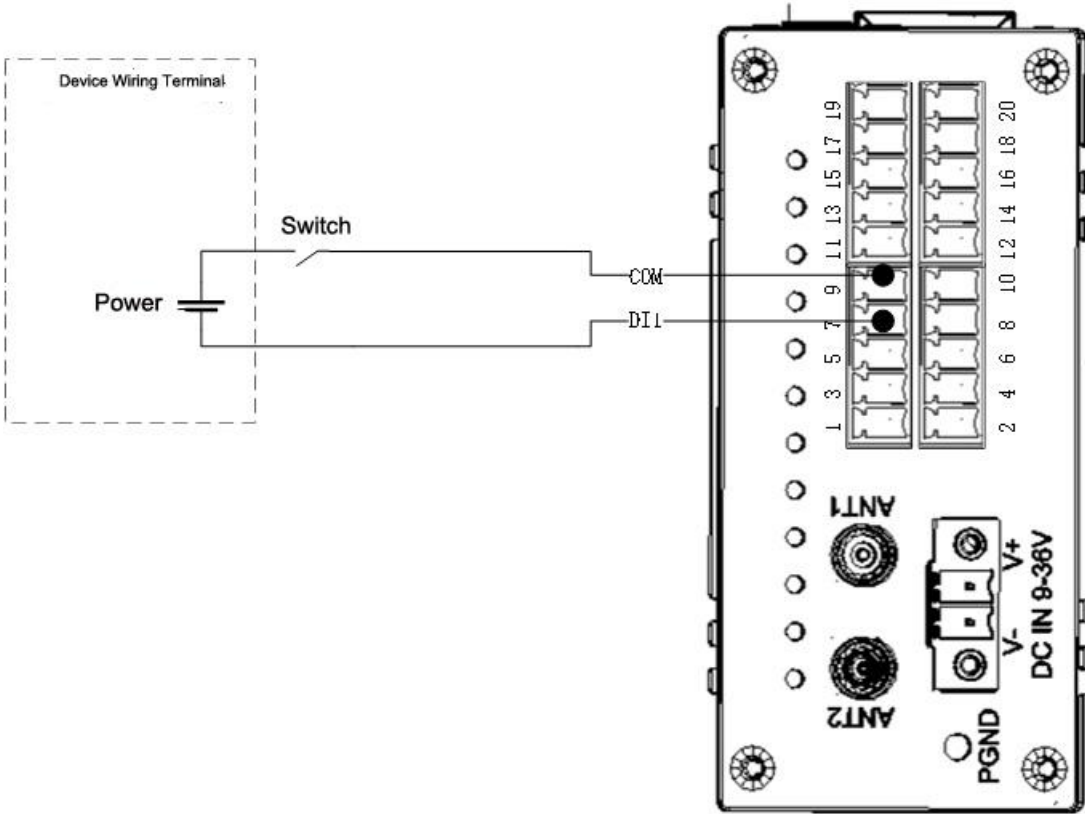
2.2.3 DI Dry Contact Connection



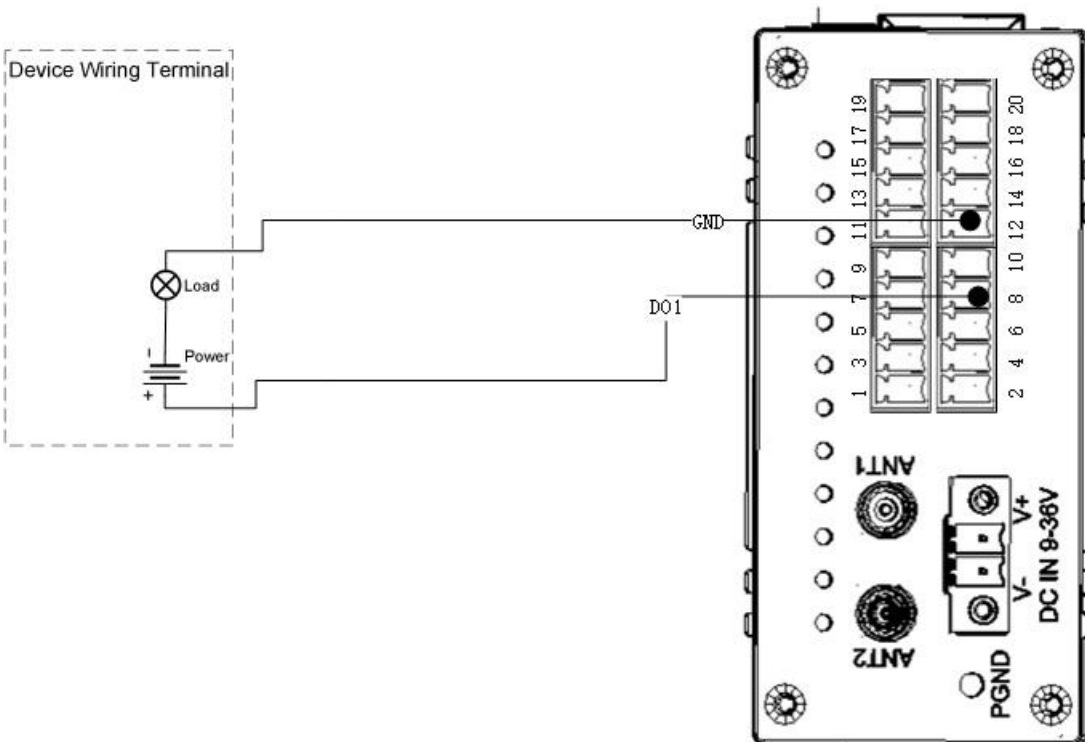
2.2.4 DI Wet Contact Positive Power Connection



2.2.5 DI Wet Contact Negative Power Connection



2.2.6 DO Connection



3 Warranty Terms

- 1) This equipment will be repaired free of charge for any material or quality problems within one year from the date of purchase.
- 2) This one-year warranty does not cover any product failure caused by man-made damage, improper operation, etc

4 Technical Support

Shenzhen Beilai Technology Co., Ltd

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