

X Series I/O Modules

2CH RS485+2CH RS232 Module X3



X3

User Manual

Version: V1.0

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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 |
|---------------|---------|-----------------|-------|
| 2025/7/4 | V1.0 | Initial Release | PH |
| | | | |

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1 Introduction

1.1 Overview

X3 is an industrial-grade serial communication expansion module specifically designed for the ARMxy series ARM embedded computers. The module features electrical isolation, overvoltage protection, ESD protection, fault protection, and overcurrent protection circuit designs, ensuring stability and reliability in complex industrial environments.

1.2 Technical Specifications

| Name | Parameter | Description |
|--------------|---|--|
| Power Supply | Operating Power | Internal Voltage |
| | Working Voltage | 12V-24V |
| | Power Consumption | 2W |
| RS485/RS232 | Channel | 2×RS232 + 2×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 | RS232: Transmit and receive mode, Receive-only |

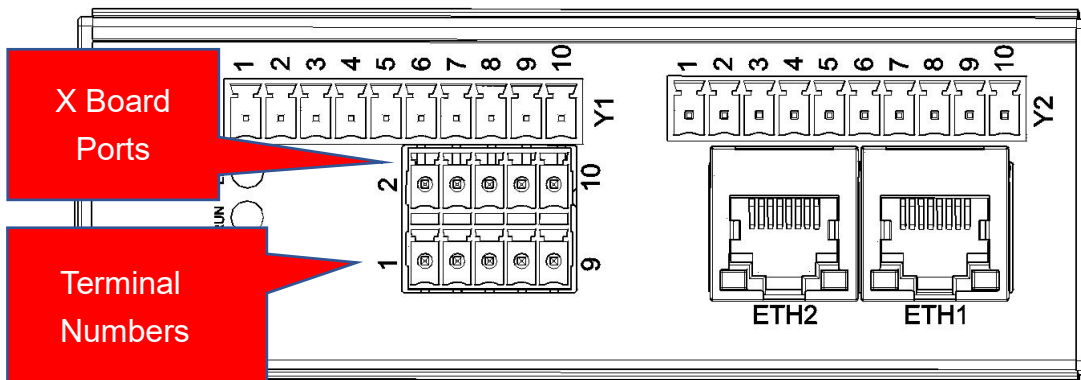
| | | | |
|----------------|------------------------------------|---|--------------------------------------|
| | Mode | mode, Transmit-only mode RS485: Transmit and receive mode, Receive-only mode, Transmit-only mode | |
| | Logic Level | RS232 | Logic "1": 1.5 V Logic "0": 2.4 V |
| | | RS485 | Logic "1": -3 V Logic "0": +3 V |
| | Maximum Output Current per Channel | 100mA (at 26°C) | |
| | Isolation Protection | 2KVrms (built-in) | |
| | Communication Cable Requirements | Shielded twisted pair cable | |
| 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 | 2CH RS485+2CH RS232 module | X3 | RS485: Differential signal RS232: Digital signal |

2 Wiring

2.1 Terminal Definitions

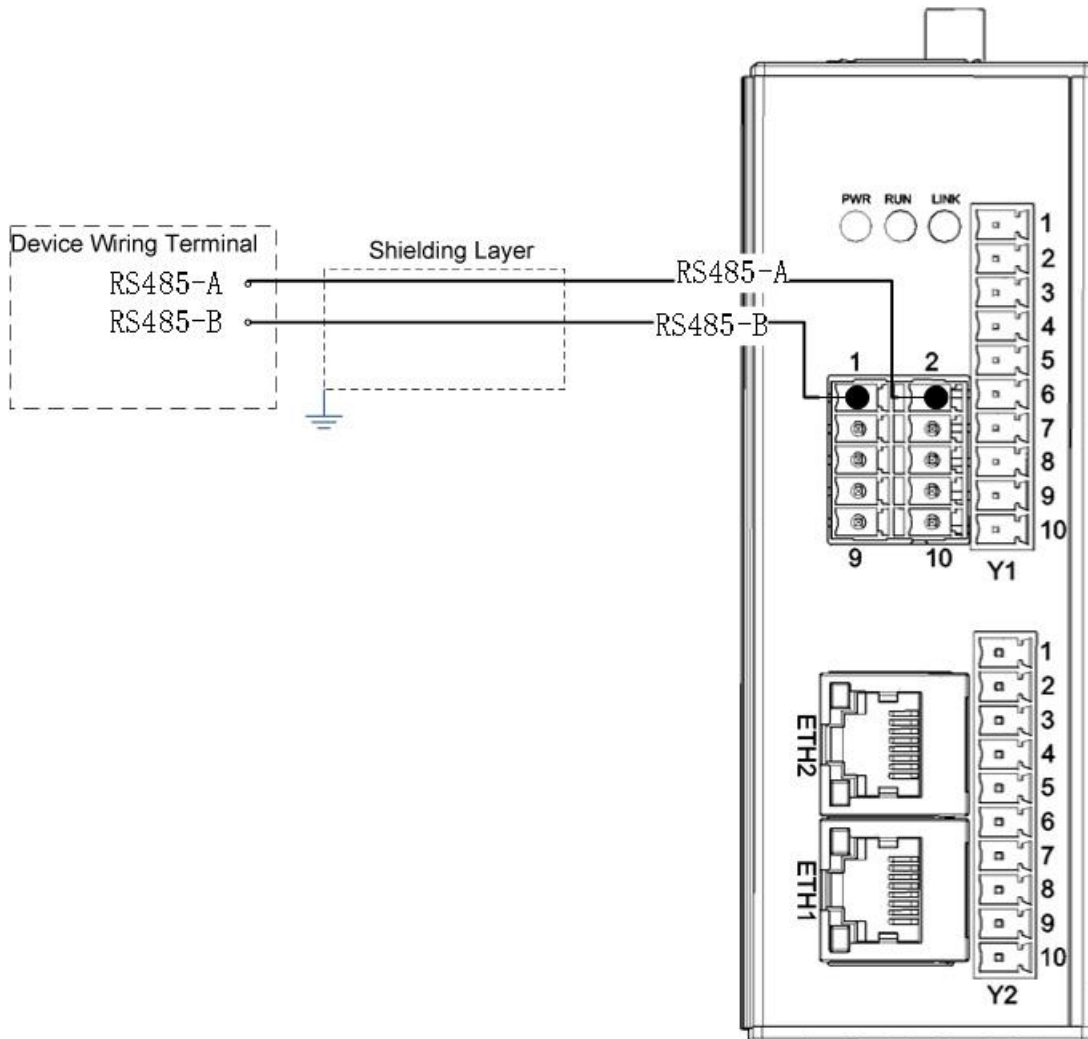


Notice: Please refer to the product's label for the specific terminal numbering sequence.

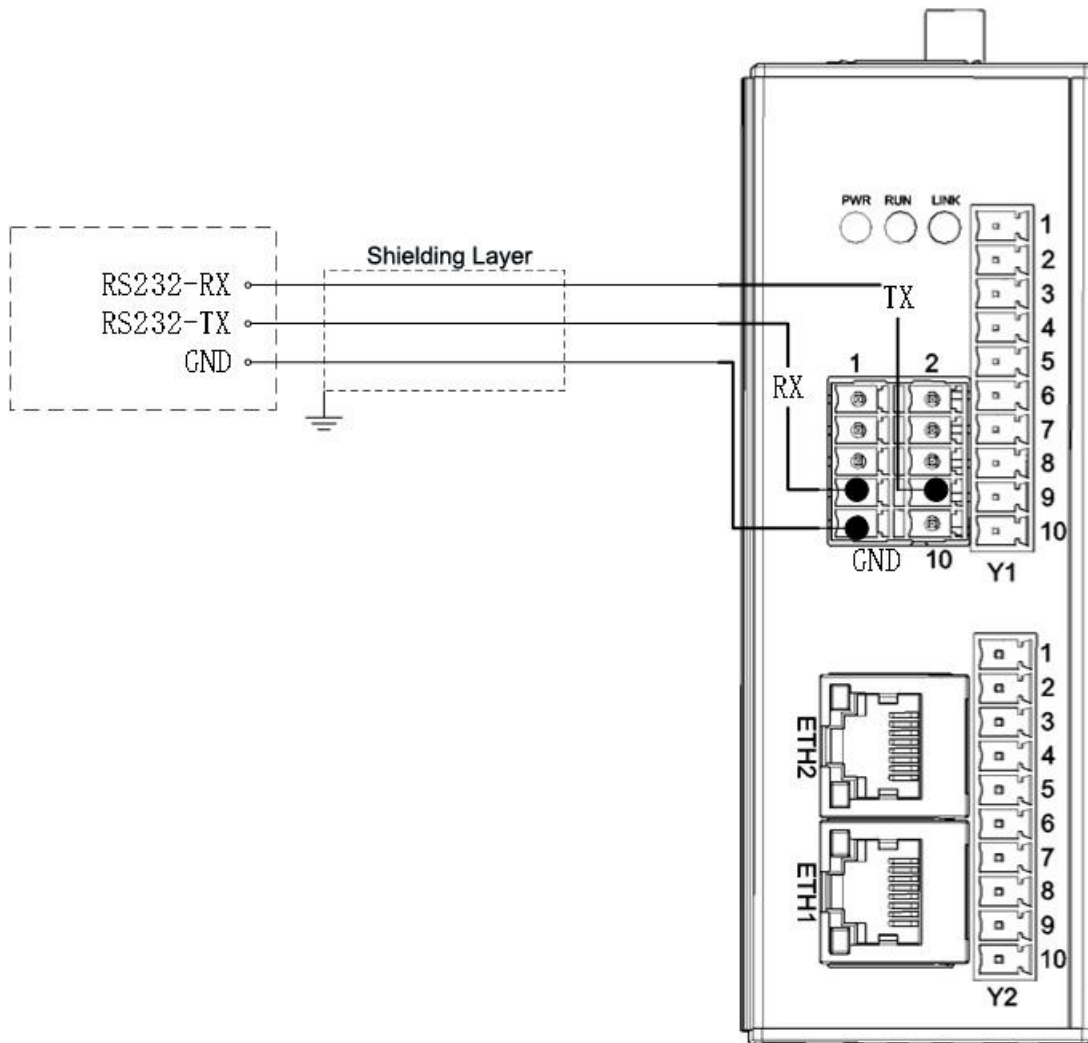
| Terminal NO. | Definition | Description | Terminal NO. | Definition | Description |
|--------------|-----------------|-----------------|--------------|-----------------|-----------------|
| 1 | RS485 Channel 1 | RS485-B | 2 | RS485 Channel 1 | RS485-A |
| 3 | RS485 Channel 2 | RS485-B | 4 | RS485 Channel 2 | RS485-A |
| 5 | RS232 Channel 1 | RS232-RX | 6 | RS232 Channel 1 | RS232-TX |
| 7 | RS232 Channel 2 | RS232-RX | 8 | RS232 Channel 2 | RS232-TX |
| 9 | GND | Ground Terminal | 10 | PGND | Ground Terminal |

2.2 Connection Example

2.2.1 RS485 Connection



2.2.2 RS232 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

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