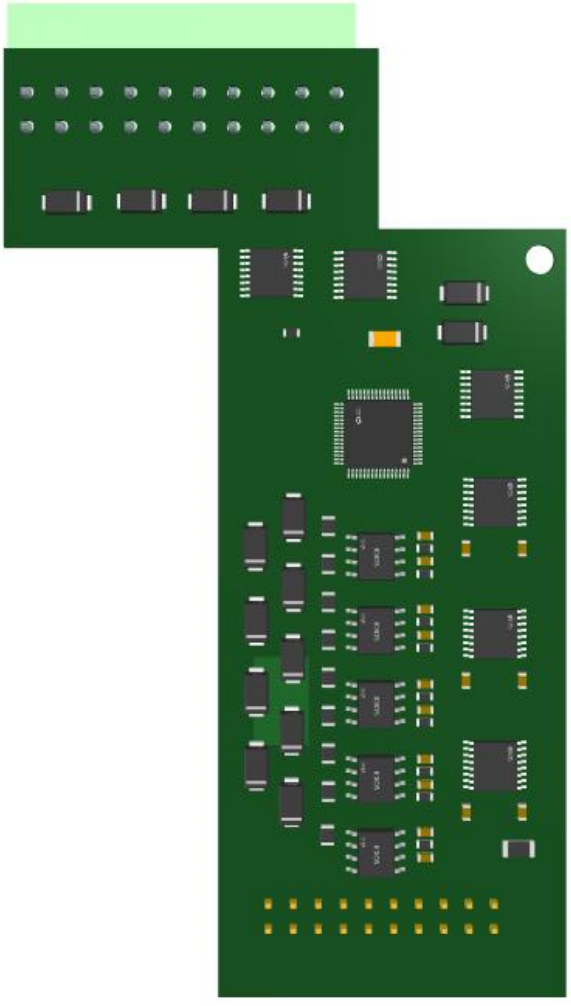
X Series I/O Modules

1CH RS485+1CH CAN BUS Module X12



BLIIOT®

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X12

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

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1 Introduction

1.1 Overview

X12 is an industrial-grade 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.

X12 provides 1 optional RS485 or RS232, along with 1 CAN bus, greatly expanding the I/O capabilities of the ARMxy series ARM embedded computers.

X12 support baud rates up to 10 Mbps and support full-duplex / half-duplex communication modes.

1.2 Technical Specifications

Name	Parameter	Description
Power Supply	Operating Power	Internal Voltage
	Working Voltage	12V-24V
	Power Consumption	0.5W
RS485/RS232	Channel	1 Channel
	Transmission Mode	Optional: 1×RS232 or 1×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	RS232: Not supported

	Communication	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”: 1.5 V
			Logic “0”: 2.4 V
		RS485	Logic “1”: -3 V
			Logic “0”: +3 V
	Maximum Output Current per Channel	250mA (at 26℃)	
	Isolation Protection	2KVrms (built-in)	
	Communication Cable Requirements	Shielded twisted pair cable	
CAN	Channel	1 Channel	
	Transmission Mode	CAN BUS	
	Maximum Baud Rate	Nominal Bit Rate: 1000Kbps Data Bit Rate: 5000Kbps	
	Flow Control	Not supported	
	Impedance	45KΩ	
	Measured Distance and Operating Baud Rate	200 meters (baud rate = 500 Kbps)	
	Multi-Node Communication	Support	
	Logic Level	Logic “1”: 3.5V Logic “0”: 1.2V	
	Maximum Output Current per Channel	100mA (26℃)	
	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	

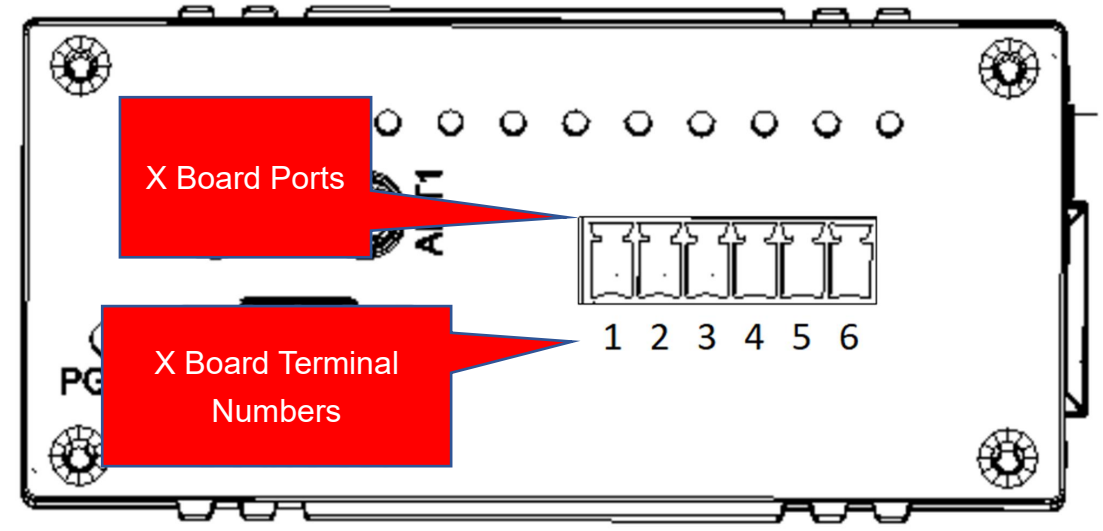
1.3 Model Selection

No.	Name	Model	Signal Type
1	1 channel RS485+1CH CAN BUS	X12	RS485: Differential signal RS232: Digital signal CAN: Differential signal

2 Wiring

2.1 Terminal Definitions

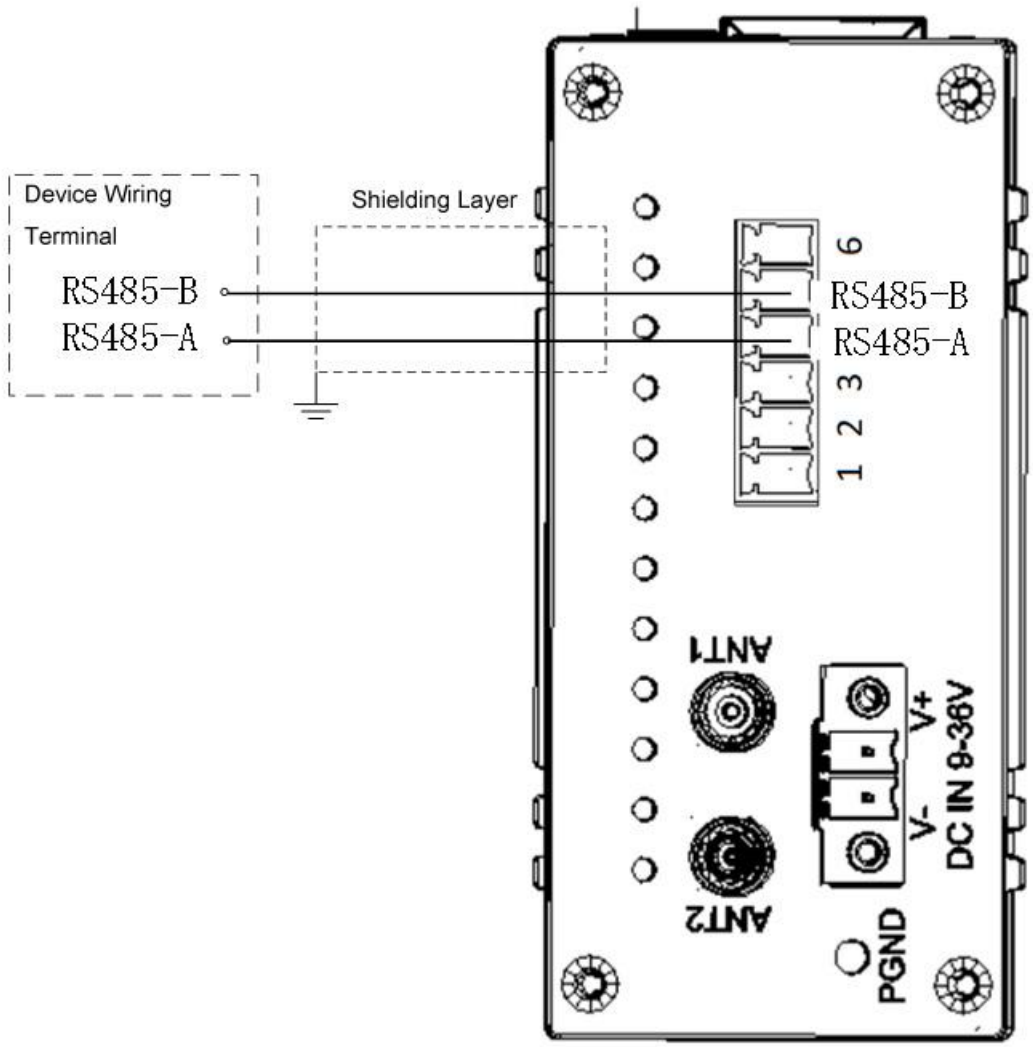
Notice: Please refer to the product's label for the specific terminal numbering sequence.



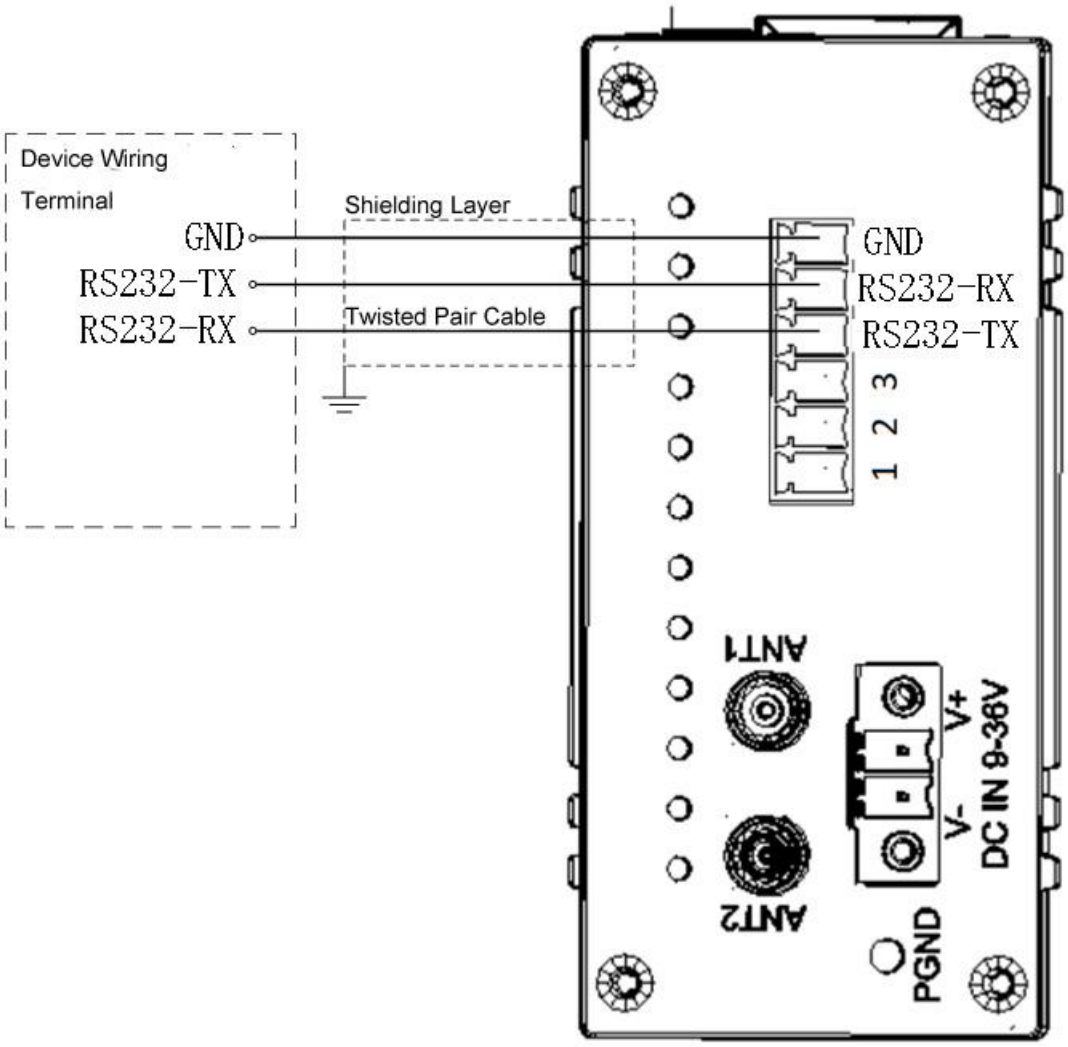
Terminal NO.	Definition	Description	Terminal NO.	Definition	Description
1	Channel 0 - H	CAN0-H	4	Channel 1 - A	RS485-A RS232-TX
2	Channel 0 - L	CAN0-L	5	Channel 1 - B	RS485-B RS232-RX
3	GND	Ground Terminal	6	GND	Ground Terminal

2.2 Connection Example

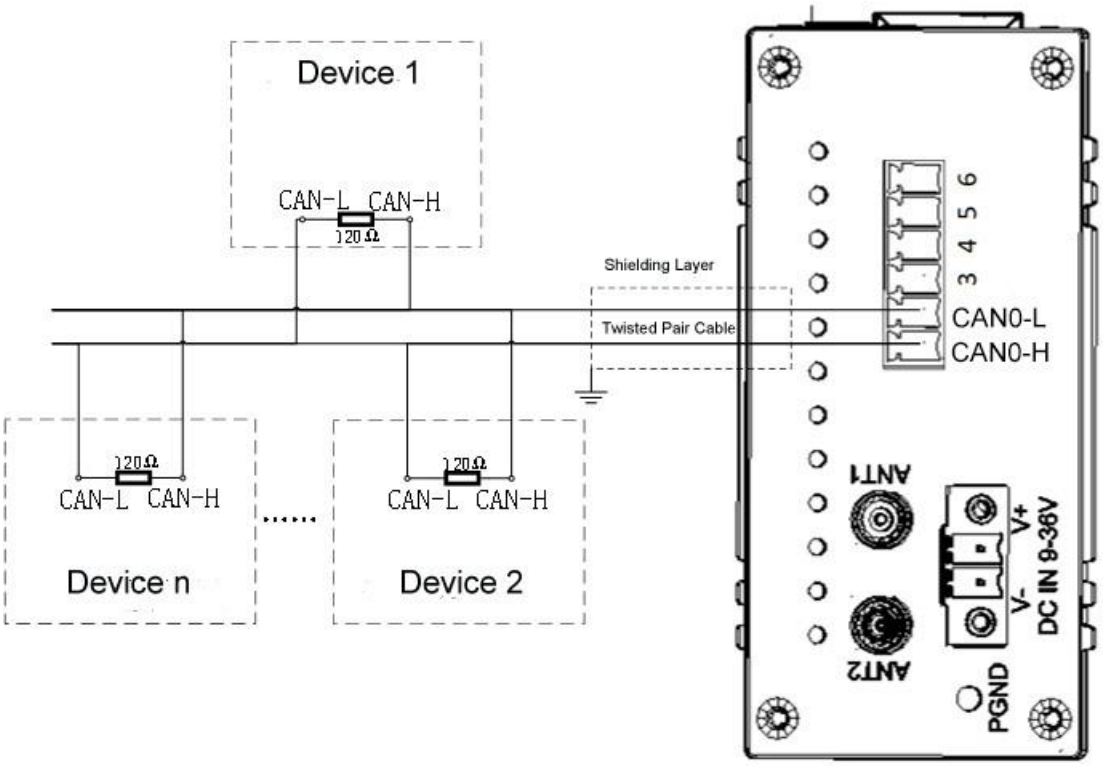
2.2.1 RS485 Connection



2.2.2 RS232 Connection



2.2.3 CAN BUS 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
Website: https://www.bliiot.com