



BL3 Series Smart Micro Circuit Breaker

Installation and User Manual

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Chapter 1 Product Overview

1.1 Product Introduction

The BL3 Series Smart Micro Circuit Breaker integrates advanced power, AI, sensor, microelectronics, and data transmission technologies. It monitors user-side electrical data including voltage, current, leakage current, and temperature, and combines energy monitoring, remote control, load identification, fault diagnosis, and circuit protection. It enables intelligent, safe electricity management for communities, schools, industrial parks, factories, street-front shops, municipal projects, and other applications.



Chapter 2 Ports and Operation

2.1 RS485 Communication Port Pin Definitions

The BL3 Series Smart Micro Circuit Breaker is equipped with an RS485 communication interface as standard. Pin definitions are identical for all pole configurations, as follows:

Pin	Name	Description
A	RS485+	RS485 positive signal
B	RS485-	RS485 negative signal
G	RS485 Isolated Ground	Isolated ground for RS485 communication
N	Neutral	Distribution-system neutral connection (connect neutral here for 1P/3P models)

RS485 port layouts for each pole configuration are shown below:

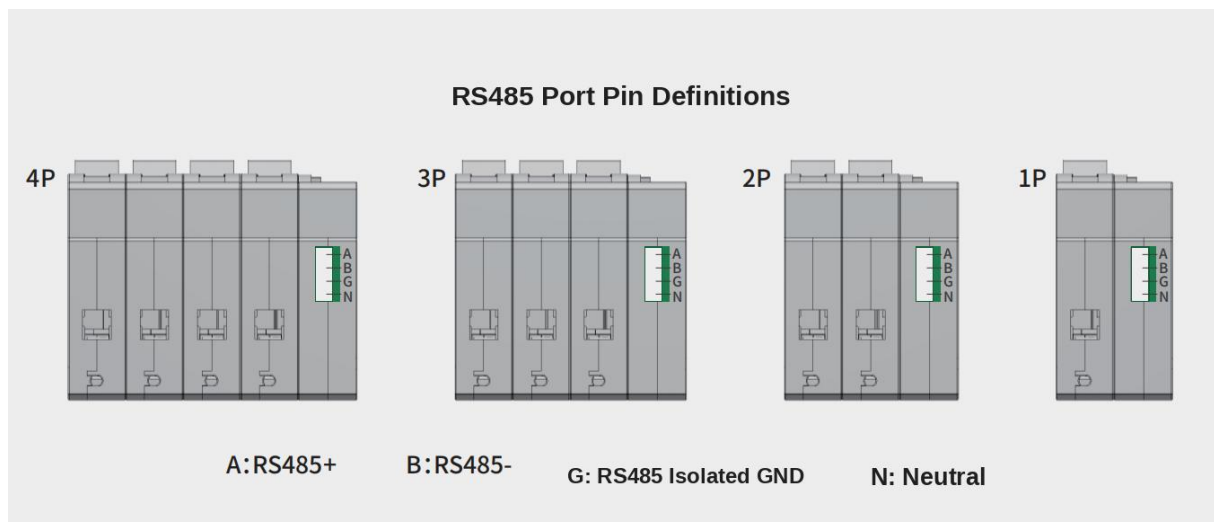


Figure 2-1 RS485 Port Pin Layouts for BL3A Series

Note: Screw torque: 1.96 N·m

2.2 Main Circuit Terminals

The breaker main circuit uses top-in/bottom-out wiring. Each input terminal corresponds to its output terminal.

- (1) 1P: one set of phase terminals;
- (2) 2P: one phase terminal set and one neutral terminal set;
- (3) 3P: A, B, and C three-phase terminals;

- (4) 4P: A, B, and C three-phase terminals plus a neutral terminal. Wire strictly according to the diagrams. Do not operate with incorrect or missing phases.

2.3 Button, LED Status and Safety Lock

Item	Description
Set Button - Short Press	Opens or closes the breaker according to its current state: short-press to open when closed; short-press to close when open.
Set Button - Long Press	Press and hold for at least 10 s to restore default Modbus settings: address ID = 1, baud rate = 9600 bps.
LED Status	Green: open; red: closed; flashing yellow: Level 1 protection; flashing red with trip: Level 2 protection.
Safety Lock	Pull out and lock the safety lock to prevent the breaker from closing, locally or remotely. With the lock engaged, wiring can be performed at the lower terminals to prevent accidental closing.

Chapter 3 Installation and Wiring

3.1 Installation

BL3 Series Smart Micro Circuit Breaker mount on a standard 35 mm DIN rail. Installation steps:

- (1) Disconnect the upstream power supply and verify the installation area is de-energized;
- (2) Align the upper latch with the top of the standard 35 mm DIN rail;
- (3) Press the breaker downward until the lower latch fully engages the rail;
- (4) Gently pull the breaker to confirm it is securely mounted and does not move;
- (5) Complete main-circuit and communication wiring according to the wiring diagrams;
- (6) After confirming all wiring is correct, switch on the upstream power supply and perform a power-on test.

3.2 Wiring Diagrams

3.2.1 BL3A 1P Wiring Diagram

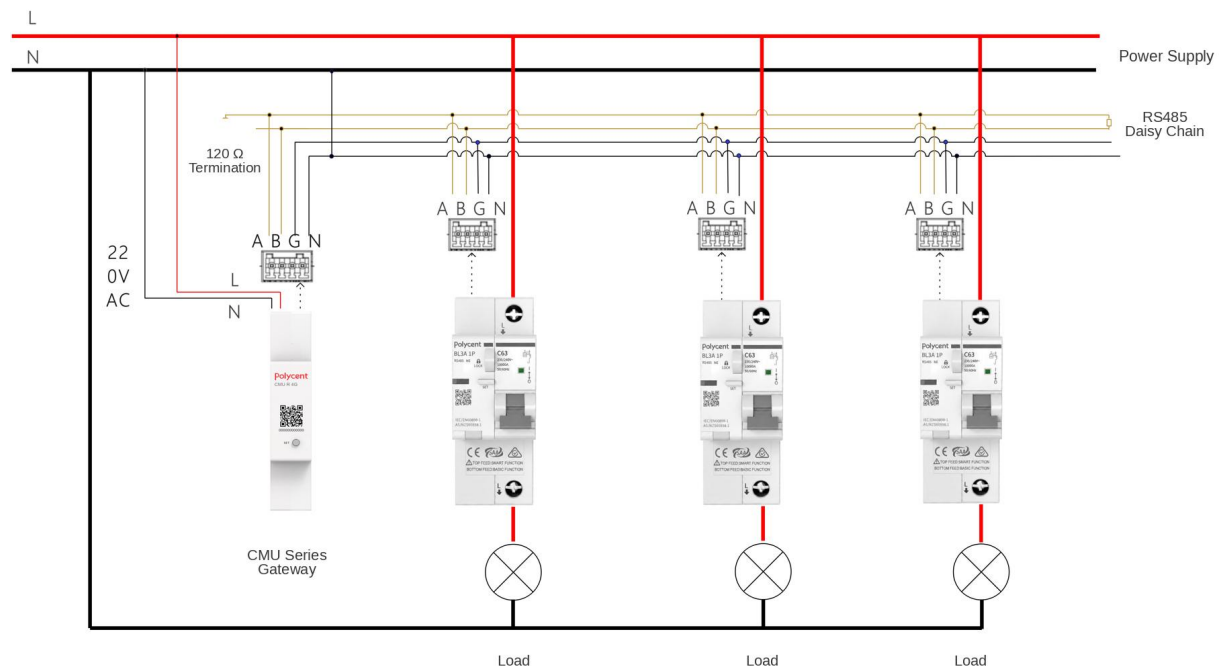


Figure 3-1 BL3A 1P Wiring Diagram

3.2.2 BL3A 2P / 1P+N and BL3L 2P / 1P+N Wiring Diagram

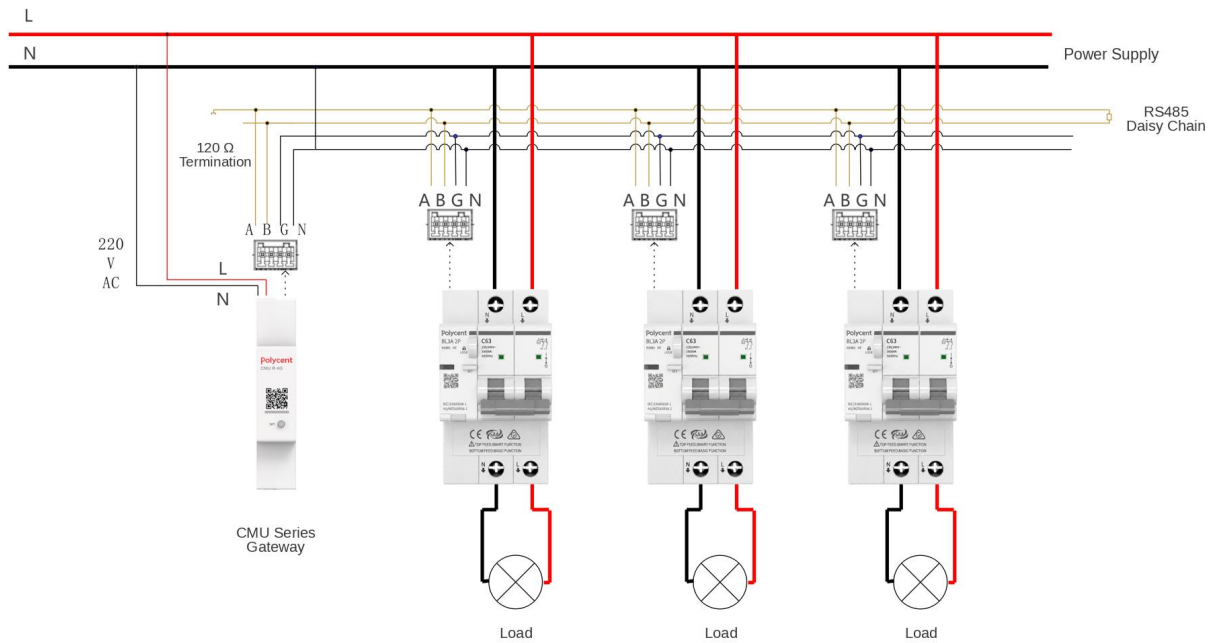


Figure 3-2 BL3A 2P / 1P+N and BL3L 2P / 1P+N Wiring Diagram

3.2.3 BL3A 3P Wiring Diagram

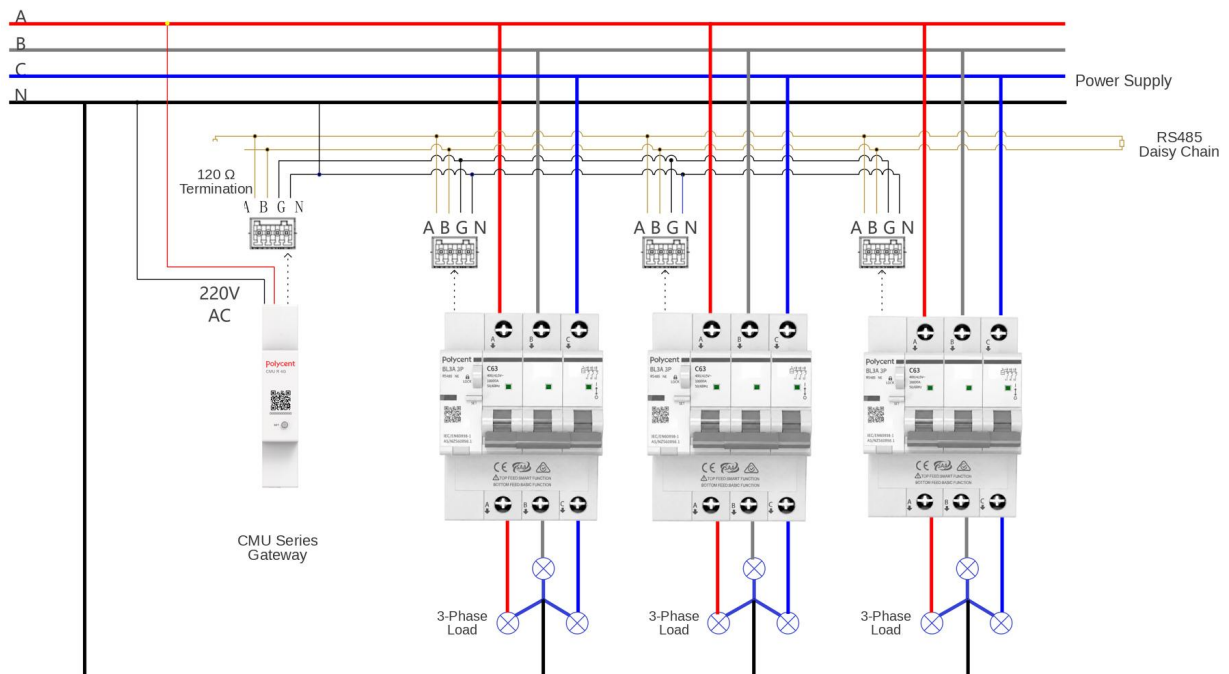


Figure 3-3 BL3A 3P Wiring Diagram

3.2.4 BL3A 4P/3P+N and BL3L 4P/3P+N Wiring Diagram

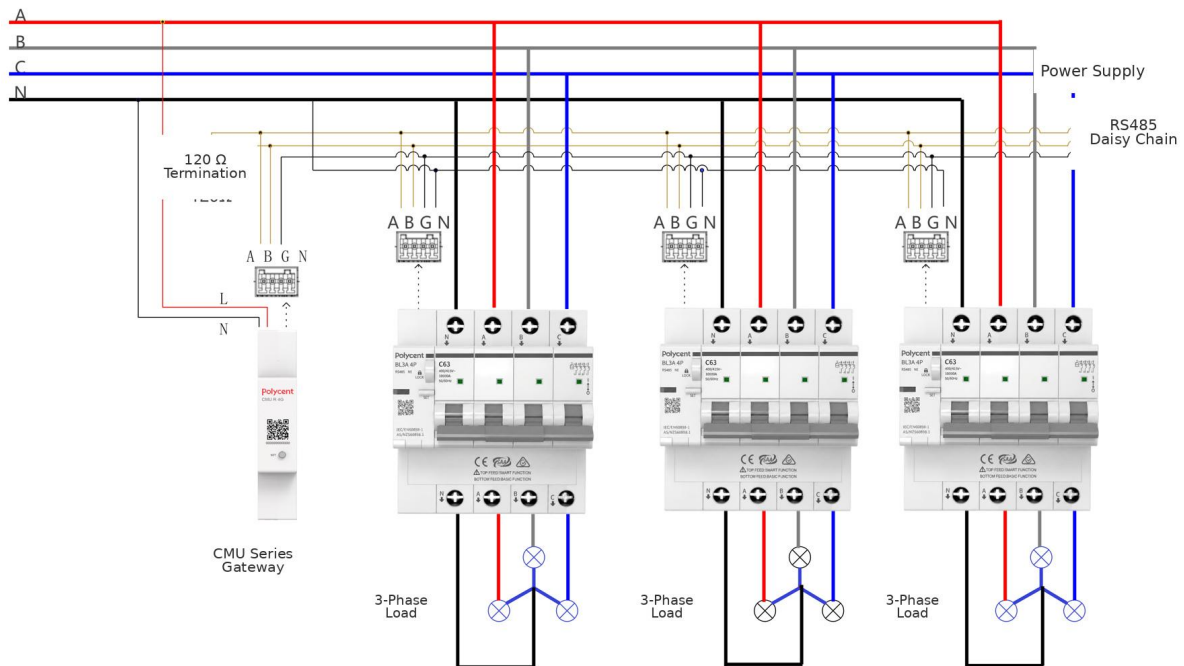


Figure 3-4 BL3A 4P/3P+N and BL3L 4P/3P+N Wiring Diagram

Wiring Notes

1. 120 Ω termination resistor: Connect at the end of the RS485 bus.

Optional for short-distance, low-speed communication.

2. N terminal must be connected.

MCU power: L + N.

3. G (isolated communication ground):

Optional when common-mode interference is low.

3.3 Wiring Precautions

- (1) Ensure power is disconnected before wiring. Never wire while energized;
- (2) Ensure line and load directions match the product markings;
- (3) Tighten all terminals to ensure reliable contact and prevent overheating caused by poor connections;
- (4) Residual-current protection models (BL3L) must be connected to neutral correctly; otherwise, residual-current protection will not function properly;

(5) After installation, perform a power-on test and open/close operation test. Ensure the safety lock is released before testing. See Section 2.3 for Set button, LED status, and safety lock instructions to confirm normal operation.

Chapter 4 Packing List

The package contains the following items. Check each item after opening:

No.	Item	Qty.	Remarks
1	BL3 Series Smart Micro Circuit Breaker	1 unit	As ordered
2	Certificate of Conformity	1 copy	Includes factory inspection information
3	Installation Manual	1 copy	Quick manual
4	Warranty Card	1 copy	See warranty terms
5	RS485 Communication Daisy-Chain Cable	1 set	Supplied with product

If any item is missing or damaged, retain the packaging and contact us promptly.

Chapter 5 Safety Precautions

5.1 Installation Safety

- Installation, commissioning, and maintenance must be performed by qualified electrical personnel;
- Disconnect the upstream power supply before installation and verify absence of voltage with a voltage tester;
- Install the product in a dry, ventilated environment free of corrosive gases and direct sunlight;
- Leave sufficient space for heat dissipation, with at least 10 mm clearance above and below;
- Do not install or use in damp, waterlogged, flammable, or explosive environments.

5.2 Operational Safety

- Before operation, confirm that rated current, trip characteristics, and other parameters match the load;
- Do not operate under overload. Prolonged overload may shorten service life or damage the product;
- After the breaker trips, identify and eliminate the fault before reclosing;
- For residual-current protection models, periodically (recommended monthly) press the test button to check protection;
- If abnormal heating, noise, or odor occurs during operation, disconnect power immediately and inspect;
- Do not disassemble or modify the product. Doing so will void the warranty and may cause safety hazards.

5.3 Maintenance

- Periodically check terminals for looseness and retighten if necessary;
- Periodically remove dust from the product surface to maintain good heat dissipation;
- For long-term storage, keep in a dry, ventilated place and energize once every six months;
- Replace the product when its mechanical or electrical service life is reached.

Appendix Contact Information

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