

IRCB501 Series



19012409A00

PROFINET Expansion Card User Guide

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Preface

Thank you for purchasing the Inovance IRCB501 series expansion card.

The IRCB501 series expansion cards are developed specifically to expand resources for robot control systems. This series includes PROFINET expansion cards, encoder expansion cards, and I/O expansion cards.

This guide describes how to correctly use your card. Before use (installation, wiring, operation, maintenance, and inspection), please read this guide carefully and make sure to understand the safety precautions. If you are an equipment manufacturer, make sure to send this guide along with your equipment to end users for future reference.

During the use of this product, you may need to consult the following guides:

Doc Name	Data Code
IRCB501 Series Robot Control Cabinet User Guide	PS00010914
IRTP80 Series Teach Pendant User Guide	19012261

User guides may be updated without prior notice. You may download the latest version at www.inovance.com.

1. Product Information

Expansion Card

Name	Model	Function
PROFINET expansion card	IRCB501-2PN-BD	PROFINET slave expansion

Installation Dimensions

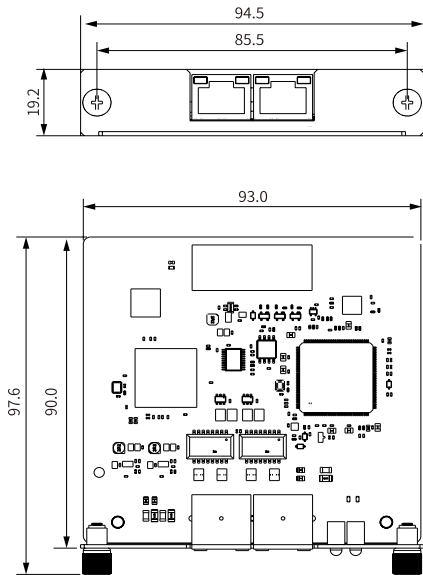
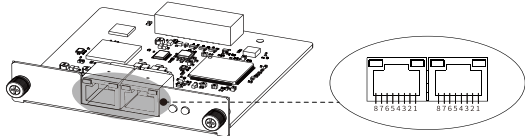


Figure 1 Dimensions of the PROFINET expansion card (unit: mm)

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Terminal Assignment



Terminal	Terminal Name	Function Description
1	TX+	Data transmit positive terminal
2	TX-	Data transmit negative terminal
3	RX+	Data receive positive terminal
4	-	Reserved
5	-	Reserved
6	RX-	Data receive negative terminal
7	-	Reserved
8	-	Reserved



The terminal assignment of port PROFINET1 is the same as that of port PROFINET2.

Indicators

Indicator Status		Device Status	Action
NS LED (Green)	MS LED (Red/Green)		
Blinking slow	Green light steady ON	Communication normal	None
NS LED and green MS LED blinking alternately		PROFINET card in BOOT state	Program an app on the PROFINET card.
NS LED and red MS LED both steady on		Power-on self-testing	Wait for self-test completion (typically around 4 seconds).
Steady OFF	Red light blinking	Power-on self-test failure	1. Check whether an app is programmed on 200P. 2. Check whether the program on 200P is running.
Steady OFF	Steady OFF	PROFINET card and control cabinet communication timeout	1. Re-plug the PROFINET card. 2. Eliminate on-site interference.
Irregular blinking	Irregular blinking	PROFINET card and control cabinet communication error	1. Re-plug the PROFINET card. 2. Eliminate on-site interference.
Blinking slow	Steady OFF	PROFINET card not activated	Activate the card through the robot background.
Blinking slow	Red light blinking	PROFINET card operation error	Check fault information through the robot background or PROFINET master background and rectify the fault.
NS LED and green MS LED blinking synchronously		DCP-CALL (device search)	Stop the LED blinking through the PROFINET master background.

Product Specifications

PROFINET Data	
Item	Specifications
PROFINET port	Number of ports: 2 Switch feature: Supported
Function	PROFINET IO device; media redundancy supported
Transmission media	Shielded Cat5e or better cable
Transmission distance	Less than 100 m between two nodes (with proper environment and cables)
Topology	Ring, linear, star, and tree
Communication protocol	PROFINET protocol
Process data	RT
Bus cycle	RT mode: Minimum 2 ms
Physical layer	100Base-TX
Baud rate	100 Mbps (100Base-TX)
Duplex mode	Full duplex
I&M data	I&M0 to I&M5

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PROFINET Data

Item	Specifications
Alarm/Diagnosis information	Supported
DCP CALL (device search)	Supported
MRP (ring network)	Supported
MRPD (rapid ring network rebuilding)	Supported
PROFINET system redundancy	Not supported
Boot priority	Supported
Port disabling	Supported
Configuration-free upon device change	Supported
Ambient temperature and humidity	Temperature: 0° C to 45° C; humidity: 20% to 95% RH (30° C), non-condensing
Storage temperature and humidity	Temperature: -10° C to +60° C; humidity: < 95% RH (30° C), non-condensing

Note: The ambient temperature and humidity range of the expansion card matches all robot control cabinets.

2. External Wiring

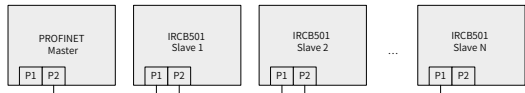
Network Cable Connection



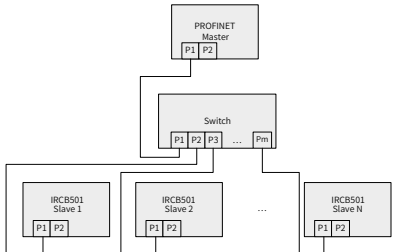
It is recommended to use a shielded Cat5e or better cable.

Network Topology

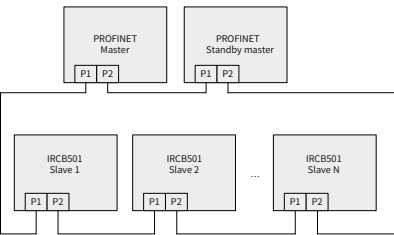
Linear



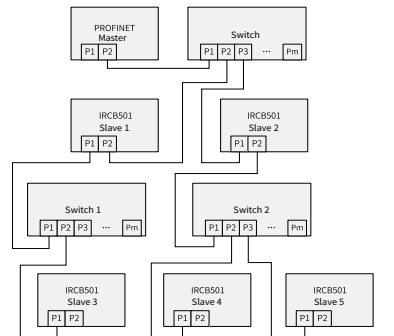
Star



Ring



Tree



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INOVANCE Warranty Agreement

- Inovance provides a 12-month free warranty service to the product from the date of factory shipment. The free warranty service covers free repairs and replacements in the case of product failure or damage caused by defects of the product under normal use conditions.
- Paid warranty service will be provided in the following scenarios:
 - a) The warranty period for the product on site has expired.
 - b) Damage is caused by improper operations violating the user guide of the product.
 - c) Damage is caused by inadequate protection measures in harsh environments, such as severe dust, humidity, and high temperatures.
 - d) Damage is caused by natural disasters, such as lightning, fire, floods, and earthquakes.
 - e) Damage is caused by peripheral equipment faults, such as poor wiring, water ingress, and abnormal voltages.
 - f) Additional support is required for equipment commissioning and installation.
 - g) New features, modifications, program changes, application issues, and selection errors.
- If the equipment is faulty or damaged, fill in the Warranty Card correctly and in detail.
- The maintenance fee will be charged according to the latest Maintenance Price List of Inovance.
- The Warranty Card is not re-issuable. Keep the card well and present it to the maintenance personnel during maintenance.
- If there is any problem during the service, contact Inovance's agent or Inovance directly.
- Inovance reserves the rights for explanation of this agreement.

INOVANCE Robot Warranty Card

Customer info.	Company add.:	
	Company name:	Contact:
	Post code:	Tel.:
Product info.	Product model:	
	Barcode (paste the barcode here):	
	Agent:	
Fault	Fault description:	
Recorded by:		

Suzhou Inovance Technology Co., Ltd.
Technical Service Center

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