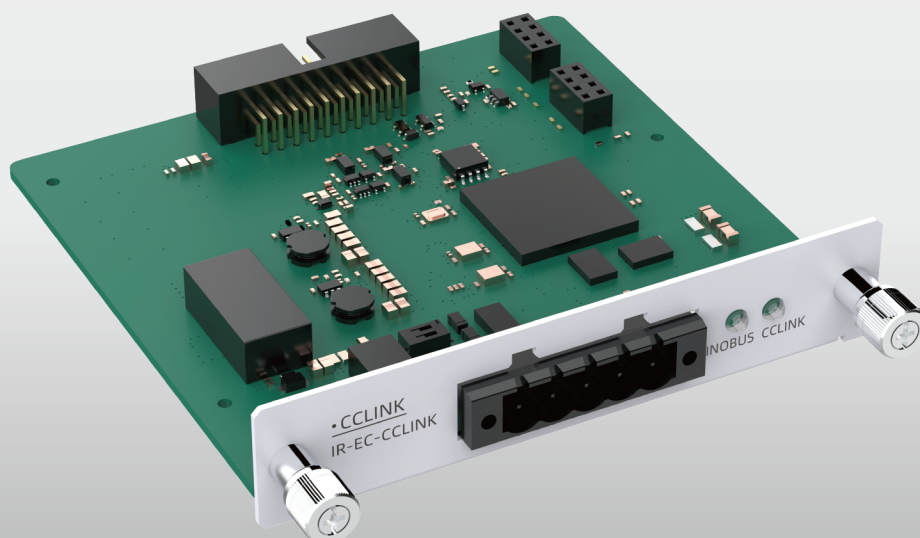




IR-EC-CCLINK Expansion Card User Guide



Industrial
Automation



New Energy
Vehicle



Intelligent
Elevator



Intelligent
Robot



Digital
Energy



Rail
Transit



Data code 19012955A01

Legal and Disclaimer

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Disclaimer of Liability

Due to continuous updates and improvements of products and technologies, the content of this documentation may not fully match the actual products. In the event of any discrepancies, the actual products shall prevail.

The contents are subject to change without notice due to product upgrade.

Waste Disposal

The storage, use, and disposal of this product (including optional accessories) must comply with local laws and regulations.

Qualified Personnel

The product/system described in this documentation may be operated only by personnel qualified for the specific task in accordance with the relevant documentation, in particular its warning notices and safety instructions. Qualified personnel can identify the risks of the product/system and prevent possible dangers.

Proper Use of the Product

Proper transportation, storage, assembly, installation, commissioning, operation, and maintenance are required to ensure the safe operation of the product without any problems. The required ambient conditions must be met. All operations must follow the guidelines provided in this documentation.

Preface

Introduction

The IR-EC-CCLINK expansion card, as an optional accessory for CC-Link bus expansion, communicates with the CC-Link master via a dedicated interface, enabling data exchange between the CC-Link master and slave.

This guide introduces how to use this product correctly. Before the use (installation, wiring, running, maintenance, and check), be sure to read this guide thoroughly. Use the product after you fully understand the safety instructions. The equipment integrators shall forward this guide to end users for reference. The related guides are listed as follows:

More Data

Data Name	Data Code	Description
IRCB501-INT Series Robot Controller User Guide	19013032	Describes the general specifications, installation and wiring, common fault diagnosis and solutions, and maintenance of the product.
IRCB501-INT High-Protection Series Robot Controller User Guide	19013033	Describes the general specifications, installation and wiring, common fault diagnosis and solutions, and maintenance of the product.
IRCB501-EM Series Robot Controller User Guide	19012996	Describes the general specifications, installation and wiring, common fault diagnosis and solutions, and maintenance of the product.
IRCB501-EM High-Protection Series Robot Controller User Guide	19012997	Describes the general specifications, installation and wiring, common fault diagnosis and solutions, and maintenance of the product.
IR-CB502P-INT Series Robot Controller User Guide	19012957	Describes the general specifications, installation and wiring, common fault diagnosis and solutions, and maintenance of the product.
IR-TP200 Series Industrial Robot Teach Pendant User Guide	19012798	Describes the software-related operations of the IR-TP200 series teach pendant.
IR-EC-CCLINK Expansion Card User Guide (this guide)	19012955	Describes the basic information, technical specifications, and network topology of the product.

Revision History

Revision Date	Document version	Description
2026-04	A01	Update the network topology.
2026-04	A00	Initial release.

Access to the Guide

This guide is not delivered with the product. You can obtain the PDF version in the following ways:

- Visit <https://www.inovance.com/global>, and choose Service&Support > Support > Documentation Download.
- Scan the QR code on the product with your smart phone.
- Scan the QR code below to install My Inovance app, where you can search for and download user guides.



Warranty Disclaimer

Inovance provides warranty service within the warranty period (as specified in your order) for any fault or damage that is caused by proper operation of the user. Maintenance will be charged after the warranty period expires.

Within the warranty period, maintenance fee will be charged for the following damage:

- Damage caused by operations not following the instructions in the user guide
- Damage caused by fire, flood, or unusual voltage
- Damage caused by unintended use of the product
- Damage caused by use beyond the specified scope of application of the product
- Damage or secondary damage caused by force majeure (such as natural disaster, earthquake, and lightning strike)

The maintenance is charged according to the latest Price List of Inovance. If otherwise agreed upon, the terms and conditions in the agreement shall prevail.

For details, see Product Warranty Card.

Basic Safety Instructions

Safety Precautions

Safety Disclaimer

- This chapter presents essential safety instructions for a proper use of the equipment. Before operating the equipment, read through the guide and comprehend all the safety instructions. Failure to observe the safety instructions may result in death, severe personal injuries, or equipment damage.
- "DANGER", "WARNING", and "CAUTION" items in this guide do not indicate all safety precautions that need to be followed; instead, they just supplement the safety precautions.
- Use this product according to designated environment requirements. Damage caused by improper use is not covered by warranty.
- Inovance shall take no responsibility for any personal injuries or property damage caused by improper usage.

Safety Levels and Definitions



Indicates that failure to comply with the notice will result in severe personal injuries or even death.



Indicates that failure to comply with the notice may result in severe personal injuries or even death.



Indicates that failure to comply with the notice may result in minor or moderate personal injuries or equipment damage.

Safety Precautions

- Drawings in the guide are sometimes shown without covers or protective guards. Remember to install the covers or protective guards as specified first, and then perform operations in accordance with the instructions.
- Operators must take mechanical precautions to protect personal safety and wear protective equipment, such as safety shoes, safety clothing, safety glasses, protective gloves, and protective sleeves.

Unpacking



- Do not install the equipment if you find damage, rust, or signs of use on the equipment or accessories upon unpacking.
- Do not install the equipment if you find water seepage or missing or damaged components upon unpacking.
- Do not install the equipment if you find the packing list does not conform to the equipment you received.



- Before unpacking, check whether the outer package is intact, damaged, wet, damped, or deformed.
- Unpack the package in sequence. Do not hit the package violently.
- Check whether there is damage, rust, or injuries on the surface of the equipment and equipment accessories before unpacking.
- Check whether the package contents are consistent with the packing list before unpacking.

Storage and Transportation



- Large-scale or heavy equipment must be handled by qualified professionals using specialized hoisting equipment. Failure to comply may result in personal injuries or equipment damage.
- Before hoisting the equipment, ensure that components such as the front cover and terminal blocks are secured firmly with screws. Loosely-connected components may fall off and result in personal injuries or equipment damage.
- Never stand or stay below the equipment when the equipment is being hoisted by the hoisting equipment.
- When hoisting the equipment with a steel rope, ensure the equipment is hoisted at a constant speed without suffering from vibration or shock. Do not turn the equipment over or let the equipment stay hanging in the air. Failure to comply may result in personal injuries or equipment damage.



- Handle the product with care and mind your steps to prevent personal injuries or product damage.
- When carrying the equipment with bare hands, hold the equipment casing firmly with care to prevent the equipment from falling and impact damage. Failure to comply may result in personal injuries.
- Store and transport the equipment based on the storage and transportation requirements. Failure to comply will result in equipment damage.
- Avoid storing or transporting the equipment in environments with water splash, rain, direct sunlight, strong electric field, strong magnetic field, and strong vibration.
- Avoid storing the product for more than 3 months. When the product needs to be stored for an extended period, take more strict protection and necessary inspection.
- Pack the equipment strictly before transportation. Use a sealed box for long-distance transportation.
- Never transport the equipment with other equipment or materials that may harm or have negative impacts on this equipment.

Installation



- The equipment can only be operated by professionals with electrical knowledge. Non-professionals are not allowed to operate on the equipment.



- Read through the guide and safety precautions before installation.
- Do not install the equipment in places with strong electric or magnetic fields.
- Before installation, check that the mechanical strength of the installation site can bear the weight of the equipment. Failure to comply will result in mechanical hazards.
- Do not wear loose clothes or accessories during installation. Failure to comply may result in an electric shock.
- When installing the equipment (such as controller) in a closed environment (such as a cabinet or casing), use a cooling device (such as a fan or air conditioner) to cool the environment down to the required temperature. Failure to comply may result in equipment over-temperature or a fire.
- Do not retrofit the equipment.
- Do not loosen the fixing bolts of the product parts and components.
- When the equipment (such as controller) is installed in a cabinet or final assembly, a fireproof enclosure providing both electrical and mechanical protections must be provided. The IP rating must meet IEC standards and local laws and regulations.
- Before installing devices with strong electromagnetic interference, such as a transformer, install a shielding device for the equipment to prevent malfunction.
- Install the product on an incombustible object such as metal and do not touch or attach the product to combustibles. Failure to comply can result in fire accident.



- Cover the top of the equipment (such as controller) with a piece of cloth or paper during installation. This is to prevent unwanted objects such as metal shavings, oil, and water from falling into the equipment and causing faults. After installation, remove the cloth or paper on top of the equipment to prevent over-temperature caused by poor ventilation due to blocked ventilation holes.

Wiring



- Equipment installation, wiring, maintenance, inspection, or component replacement must be performed only by professionals.
- Before wiring, disconnect all the power supplies of the equipment. Wait for at least the time designated on the equipment warning label before further operations because residual voltage still exists after power-off. Measure the direct voltage of the main circuit and ensure that the voltage is within the safety range. Failure to comply can result in an electric shock.
- Do not perform wiring, remove the equipment cover, or touch the circuit board with power ON. Failure to comply can result in an electric shock.
- Check that the equipment is grounded properly. Failure to comply can result in an electric shock.



WARNING

- Do not connect the input power supply to the output side of the equipment. Failure to comply can result in equipment damage or even a fire.
- When connecting a drive to the motor, check that the phase sequences of the drive and motor terminals are consistent to prevent reverse motor rotation.
- Cables used for wiring must meet cross sectional area and shielding requirements. The shield of the cable must be reliably grounded at one end.
- Tighten the terminal screws with the tightening torque specified in the user guide. Improper tightening torque may result in overheating, damage to the connecting parts, or a fire.
- After wiring is done, check that all cables are connected properly and no screws, washers or exposed cables are left inside the equipment. Failure to comply may result in electric shock or equipment damage.



CAUTION

- Follow the electrostatic discharge (ESD) procedure and wear an anti-static wrist strap to perform wiring. Failure to comply may result in damage to the equipment or to the internal circuit.
- Use shielded twisted pairs for the control circuit. Connect the shield to the grounding terminal of the equipment for grounding purpose. Failure to comply can result in equipment malfunction.

Power-On



DANGER

- Before power-on, check that the equipment is installed properly with reliable wiring and the motor can be restarted.
- Check that the power supply meets equipment requirements before power-on to prevent equipment damage or a fire.
- Do not open the cabinet door or protective cover of the product, touch any wiring terminal of the product, or remove any part of the product with power on. Failure to comply can result in an electric shock.



WARNING

- After the completion of wiring and parameter setting, perform a robot test run to confirm that the robot can operate safely. Failure to comply may result in personal injuries or equipment damage.
- Before power-on, check that the rated voltage of the equipment is consistent with that of the power supply. Failure to comply may result in fire accident.
- Before power-on, check that no one is near the equipment, motor, or machine. Failure to comply may result in death or personal injuries.

Operation



DANGER

- The equipment must be operated only by professionals. Failure to comply can result in death or personal injuries.
- Do not touch any connecting terminals or disassemble any unit or component of the equipment during operation. Failure to comply can result in an electric shock.



WARNING

- Do not touch the equipment enclosure, fan, or resistor with bare hands. Failure to comply may result in burns.
- Prevent metal or other objects from falling into the equipment during operation. Failure to comply may result in a fire or equipment damage.

Maintenance



DANGER

- Equipment installation, wiring, maintenance, inspection, or component replacement must be performed only by professionals.
- Do not maintain the equipment with power ON. Failure to comply can result in an electric shock.
- Before maintenance, cut off all the power supplies of the equipment and wait for at least the time designated on the equipment warning label.
- When a permanent magnet motor is used, do not touch the motor terminals immediately after power-off because the motor terminals can generate induced voltage during rotation even after the equipment is powered off. Failure to comply can result in an electric shock.



WARNING

- Perform routine and regular inspection and maintenance on the equipment in accordance with maintenance requirements and keep a record.

Repair



DANGER

- Equipment installation, wiring, maintenance, inspection, or component replacement must be performed only by professionals.
- Do not maintain the equipment with power ON. Failure to comply can result in an electric shock.
- Before inspection and repair, cut off all the power supplies of the equipment and wait for at least the time designated on the equipment warning label.



- Submit a request for repair services in accordance with the product warranty agreement.
- When the fuse is blown or the circuit breaker or earth leakage circuit breaker (ELCB) trips, wait for at least the time designated on the equipment warning label before power-on or further operations. Failure to comply may result in death, personal injuries or equipment damage.
- Troubleshooting and repair must be performed by professionals in accordance with the repair instructions, with repair records kept properly.
- Replace quick-wear parts of the equipment in accordance with the replacement instructions.
- Do not operate on damaged equipment. Failure to comply may result in death, personal injuries, or severe equipment damage.
- After the equipment is replaced, check the wiring and set parameters again.

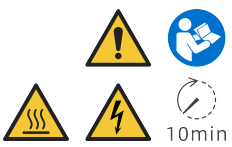
Disposal



- Dispose of retired equipment in accordance with local regulations and standards. Failure to comply may result in death, personal injuries, or property damage.
- Recycle retired equipment in accordance with industry waste disposal standards to avoid environmental pollution.

Safety Label

For safe operation and maintenance, comply with the safety labels on the equipment. Do not damage or remove the safety labels. See the following table for descriptions of the safety labels.

Safety labels	Description
	• Read through the safety instructions before operating the equipment. Failure to comply may result in death, personal injuries, or equipment damage. • Do not touch the terminals or remove the cover with power ON or within 10 min after power-off. Failure to comply can result in an electric shock.

Industrial Information Security

The product provides an interface to connect to the network and transmits data through the network interface. To protect factories, systems, machines, and networks from cyber attacks and ensure safe operation, a proper industrial information security protection mechanism must be implemented.

The customer is responsible for providing and continuously ensuring a secure connection between the product and the customer network or any other network to prevent unauthorized access to its factories, systems, machines, and networks. The system or machine can be connected to the corporate network or the Internet only when secure connections are ensured and appropriate security measures are taken (for example, anti-virus software or firewall installed).

Inovance continuously develops and improves products and solutions to improve safety. It is strongly recommended that you update the product promptly and always use the latest version.



Malware (such as viruses, Trojans, and worms) can put the product in an unsafe running state, which may result in death, serious injuries, and property damage. Observe the following precautions:

- Always use the latest software version. If the product version is no longer supported or the latest version is not used, customers will be exposed to increased risk of cyber attacks.
- Take appropriate protection measures (including but not limited to installing anti-virus software, firewall, WAF, IPS/IDS, and situation awareness system, and applying authentication, data encryption) to prevent files in mobile storage devices from being damaged by malware, and to prevent products, networks, systems, and interfaces from unauthorized access, interference, intrusion, data leakage, or information breach.
- Check all safety-related interfaces and settings after commissioning.

Contents

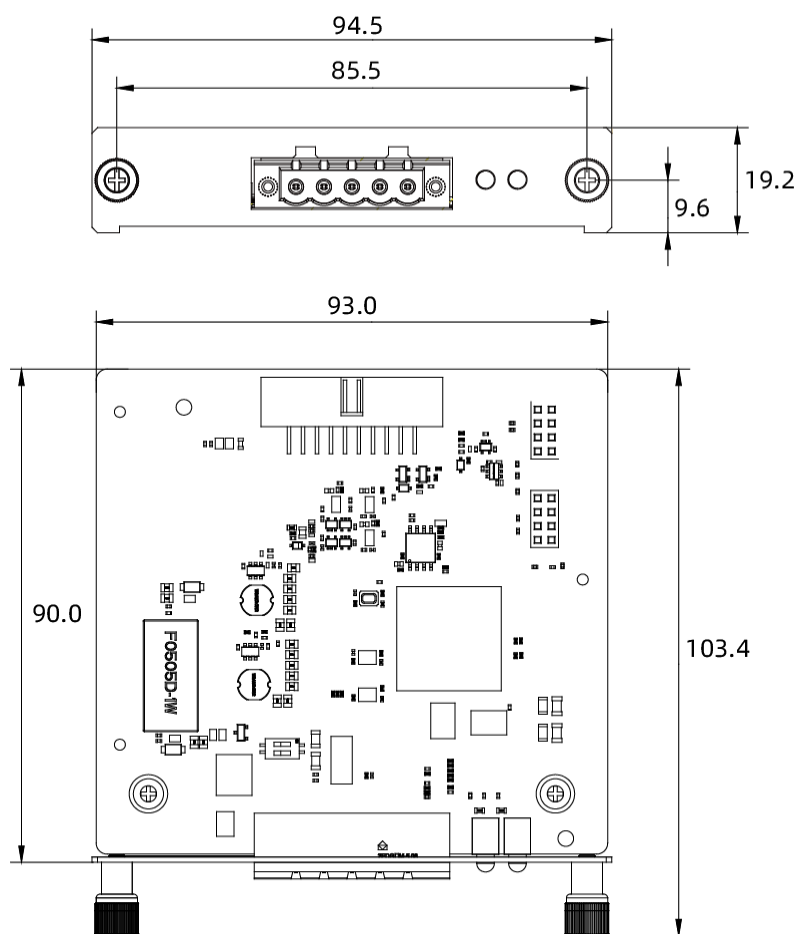
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1 Product Information

Code

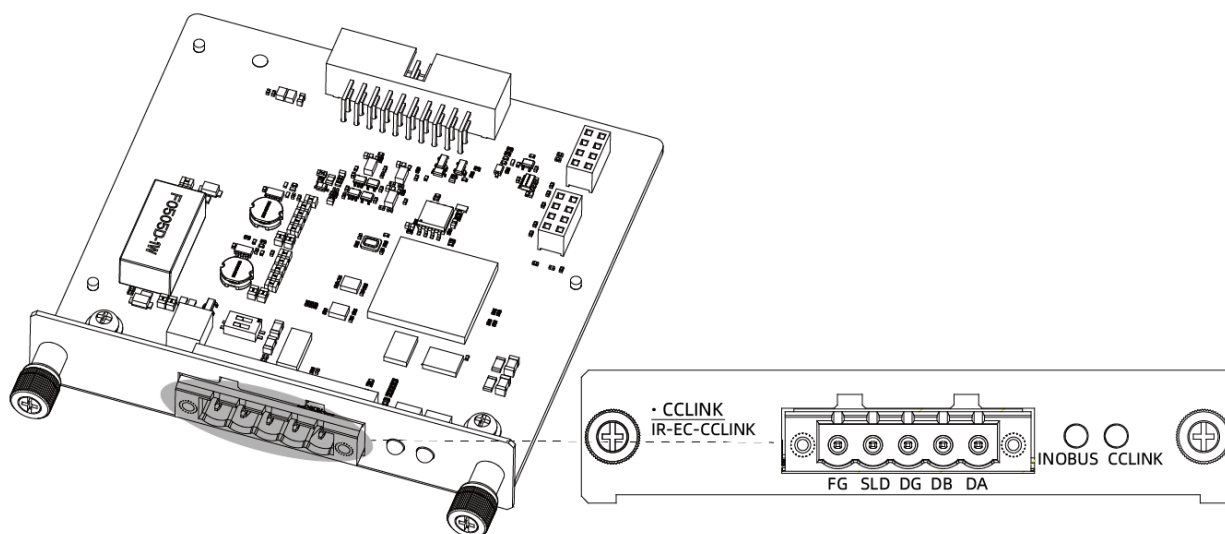
Code	Name	Description
01650040	IR-EC-CCLINK expansion card	CC-Link slave expansion function, applicable to IRCB501 (high protection) series, IRCB501-EM (high protection) series, and IR-CB502P series robot controllers

Product dimensions



Product dimensions (Unit: mm)

2 Terminal Assignment

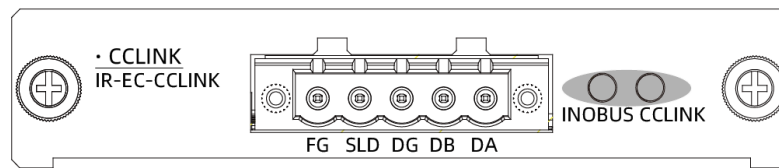


Pin	Name	Description
1	FG	To enclosure GND
2	SLD	To enclosure GND
3	DG	To one end of common mode choke. Connect the other end of the common mode choke to the power supply GND.
4	DB	CC-Link communication 485 differential -
5	DA	CC-Link communication 485 differential +

3 Technical Specifications

Item	Description
CC-Link interface	Number of ports: 1 Slave function: supported
Transmission distance	Less than 100 m between two nodes (with proper environment and cables)
Communication protocol	CC-Link protocol
Duplex mode	Half-duplex
Baud rate	Supports 156 kbps/625 kbps/2.5 Mbps/5 Mbps/10 Mbps
Alarm/Diagnosis information	Supported
Network Topology	Supports bus-type network connection
Operating temperature/humidity	Temperature: 0°C to 45°C Humidity: 20%RH to 95%RH (30°C), without condensation
Storage temperature/humidity	Temperature: -10°C to +60°C Humidity: < 95% RH (30°C), without condensation

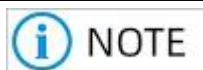
4 Indicator Status Description



Indicator	Status	Status description	Solution
INOBUS	Green	Communication between the controller and the IR-EC-CCLINK expansion card is normal.	-
INOBUS	OFF	Communication between the controller and the IR-EC-CCLINK expansion card is abnormal.	Check whether the connector connected to the expansion interface board on the controller side is connected securely.
CCLINK	Green	Communication between the CC-Link slave and the master is normal.	-
CCLINK	OFF	Communication between the CC-Link slave and the master is abnormal. WDT error occurred (H/W error, power supply disconnected, power supply fault)	Check whether the power supply is connected properly.
CCLINK	Blinking	Communication between the CC-Link slave and the master is abnormal.	Check whether the communication parameter settings and the slave wiring are correct.

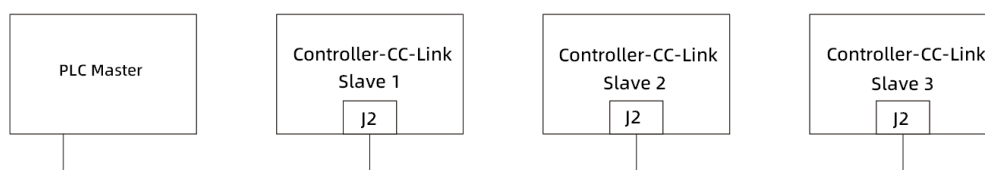
5 Network Topology

The IR-EC-CCLINK expansion card supports bus-type network connection.



It is recommended to use the following communication cable and connector:

- Cable model: FANC-110SBH; Specification: CC-Link-20AWGx3C
- Connector model: MPN00129877-QJZL; Specification: DEGSON-2EDGKAM-5.08-05P-13-6001Z (H)



Picture5-1 Bus-type connection topology of IR-EC-CCLINK expansion card

Connect a 110 Ω termination resistor to the start and end of the CCLink bus respectively. Set the DIP switch as indicated by the expansion card. If any required termination resistor is not connected, the communication quality will be affected.

- DIP switch ON: Terminal resistor connected
- DIP switch OFF: Termination resistor not connected

Service and Support

Should you encounter a safety accident during the use or operation of the product, or face challenges in operating and maintaining the equipment, which remain unresolved after the relevant documentation is consulted, we provide multiple channels to ensure prompt resolution:

- Channel #1: Contact service@inovance.com.
- Channel #2: Visit <https://www.inovance.com/global> to access document downloads, after-sales support, spare parts ordering, repair applications, and authenticity verification services.
- Channel #3: Download My Inovance app (<https://zshc-eu.inovance.com/download-pc/>) where you can access products info and documentation, and query product parameters.

We are committed to providing you with quick and professional technical support, and we look forward to your satisfaction and trust.



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Shenzhen Inovance Technology Co., Ltd.

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www.inovance.com

Add.: Inovance Headquarters Tower, High-tech Industrial Park,
Guanlan Street, Longhua New District,
Shenzhen 518000, P.R. China

Tel: (0755) 2979 9595

Fax: (0755) 2961 9897

Add.: No. 52, Tian E Dang Road, Wuzhong District, 215104,
Suzhou City, Jiangsu Province, P.R. China

Tel: (0512) 6637 6666

Fax: (0512) 6285 6720