

NovaPass™ User Manual

Outdoor Card Reader

Version 0.5, October 2024



NOTE

Rugged card reader designed to withstand the elements

About This Manual

NovaPass is a RF card reader that provides high performance in an embedded system. This manual contains the descriptions and operational instructions for NovaPass device. It is intended and written for system administrators who are in charge of overall operation including installation and management. We recommend you familiarize yourself with this manual in order to make use of the product correctly and effectively.



- The figures and screenshots in this guide are given for illustration purposes only and may differ from the actual product.
- Due to continuous technological improvements, the guide may not contain the most updated information. For further information not covered in this guide, please contact us at service@cmi-tech.com.






Revision History

Version	Date	Description	Note
0.1	2021-11-19	First draft	
0.5	2024-10-20	Update product spec	

PRELIMINARY
FOR REGULATORY COMPLIANCE ONLY

Conventions in This Manual

The following symbols are used throughout this manual. Make sure that you fully understand the meaning of each symbol and follow the instructions accompanied.

Symbol	Name	Description
	WARNING	Indicates information that should be followed with the utmost care. Failure to comply with a warning could cause severe damage to the equipment or injury to personnel.
	CAUTION	Indicates a potentially hazardous situation which, if not avoided, could result in equipment damage, data loss, performance degradation, or unexpected results.
	IMPORTANT	Emphasizes essential information required for user success.
	NOTE	Provides important supplemental information that might enhance users' understanding or alternative steps to accomplish their goals.
	TIP	Provides optional information to help users be more successful in their tasks.

Safety Instructions

Follow the safety instructions to use the product safely and prevent any risk of personal injury or damage to the product.



WARNING

Environment

- DO NOT install the product near heaters, air conditioners, electrical fans, refrigerators, or water. Doing so may create the risk of a short circuit or fire caused by water or condensation that may come into contact with the product.
- DO NOT install the product in an environment that is susceptible to explosion.

Operation

- If smoke, odors or noise rise from the device, stop using the device immediately, disconnect the power cable, and contact our customer support.

Maintenance

- DO NOT attempt to disassemble, repair, or modify the device yourself. Opening or removing covers may expose you to electrical shock or other risks and may void your warranty. If the product does not work correctly, contact your dealer or our customer support.



CAUTION

Environment

- DO NOT expose the product to high electro-magnetic radiation. Device failure or performance degradation may occur caused by electro-magnetic interference.
- DO NOT install the product next to devices that contain magnets or generate magnetic fields such as speakers. Device malfunction or performance degradation may occur caused by magnetic interference.

Installation

- DO NOT install the product on a surface subject to vibration or physical shock. Doing so can cause damage to the product.
- When you install the product on a wall, make sure that you secure the product with the provided fasteners. Dropping from the wall may cause damage to device casing, internal parts, or both.
- DO NOT install the power supply cable in a high-traffic area where people pass by. Doing so may create a trip hazard and cause the cable to become worn or frayed.
- Use only a power cord set complying with the national regulation of the countries

intended for sale.

- DO NOT connect multiple devices to one power adapter. Overload on power adapter may cause over-heat or fire hazard.

Operation

- DO NOT use any sharp tools when pressing the buttons to prevent damage to the touch screen from scratches or cuts.

Maintenance

- When cleaning the product, wipe the product with a soft and dry cloth. Do not apply water, benzene, alcohol, or spray cleaner. These may cause product failure or fire.

PRELIMINARY
FOR REGULATORY COMPLIANCE ONLY

Contents

About This Manual	ii
Revision History	ii
Conventions in This Manual	iii
Safety Instructions	iv
1. Introduction to NovaPass	1
1.1. Features	1
1.2. Components	1
1.3. Parts and Controls	2
1.3.1. Front View	2
1.3.2. Rear View	3
2. Installing NovaPass	4
2.1. Installation Requirements	4
2.1.1. Environmental Requirements	4
2.1.2. Electrical Requirements	5
2.1.3. Tool Requirements	6
2.2. Installation Procedure	7
2.2.1. Mounting Device (Wall Mount)	7
2.2.2. Mounting Device (Gang Box Mount)	9
2.2.3. Connecting Cables	10
3. Using NovaPass	17
3.1. Enrollment	17
3.2. Authentication	17
4. Product Specifications	18
4.1. Mechanical Specifications	18
4.1.1. Dimensions (unit: mm)	18
4.2. Technical Specifications	19
4.2.1. Cables and Connectors	20
4.3. Environmental Specifications	21
Appendix A: LED Indication	22
Appendix B: Legal Information	23
B.1. Disclaimer	23
B.2. Copyright Notice	24
Appendix C: Regulatory Information	25
C.1. FCC compliance statement	25
C.2. EU Declaration of Conformity (CE)	26
Appendix D: Contact Information	27

1. Introduction to NovaPass

NovaPass is a RF card reader that provides a card recognition in an embedded system with real-time subject finding and local authentication for high throughput access control and time & attendance applications.

1.1. Features

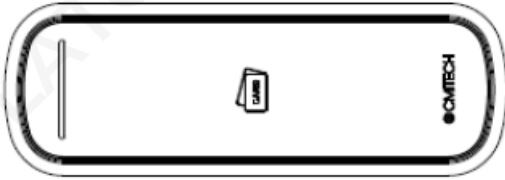
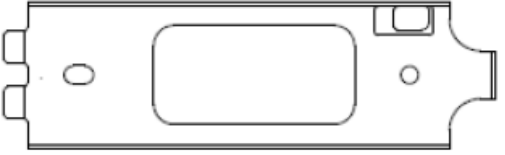
The key features of NovaPass are shown in the following table:

Feature	Description
Multi-band Standard RFID Reader	13.56MHz ISO/IEC 14443 Standard, MiFare, DesFire, FeliCa support
Various External In/Output Support	Ethernet, Wiegand OUT, GPI, RS 485, and Relay interface support
Compatibility with CMID Manager V2	Full support for CMID Manager V2, a CMITECH AC/TA solution

1.2. Components

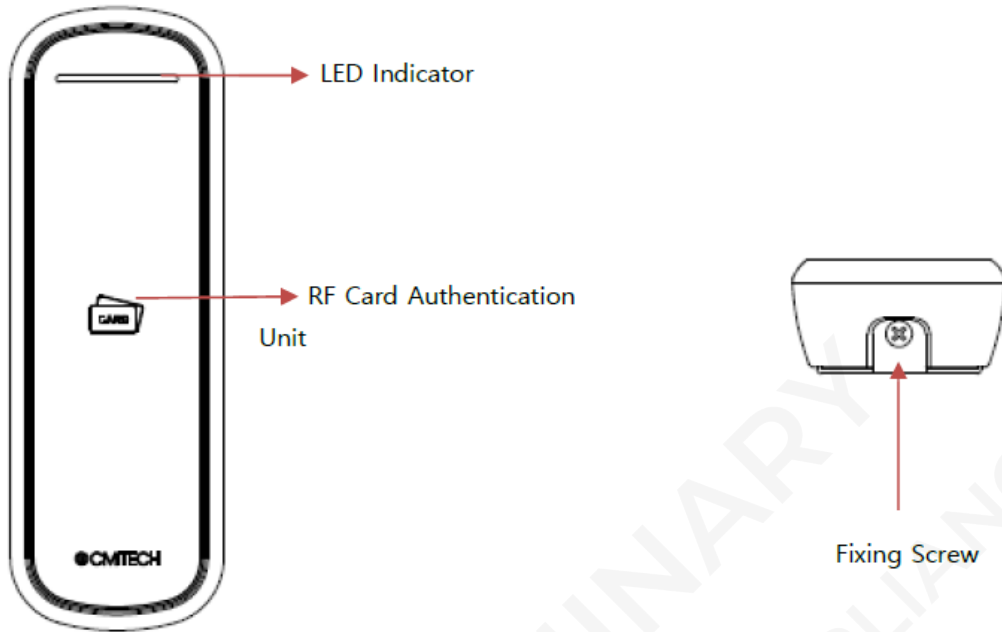
Before you begin, make sure that all the following items are included with your device. If you find anything is missing, contact your dealer.

NovaPass component table

Name	Q'ty	Image	Note
NovaPass	1		R/F Card Reader
Mounting Plate	1		For wall or gang box mounting

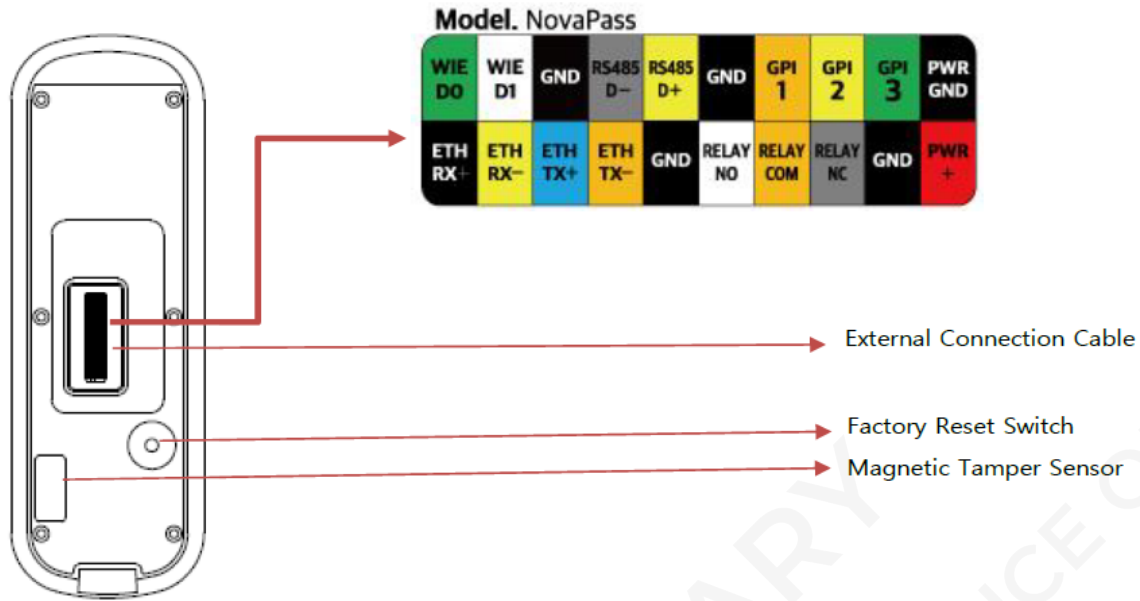
1.3. Parts and Controls

1.3.1. Front View



Name	Description	Note
LED Indicator	Indicates the operational status of the device with the color of the LED	
R/F Card Authentication Unit	Read R/F cards for entering and exiting	
Fixing Screw	A screw for fixing the terminal	

1.3.2. Rear View



Name	Description	Note
External Connection Cable	Power and in/output connection cable	
Factory Reset Switch	Initializes all settings and user information (Press)	
Magnetic Tamper Sensor	When the terminal detaches from the mounting plate, it sounds an alarm	

2. Installing NovaPass

This chapter gives the information about the requirements and the prerequisites for installing NovaPass and the installation procedures.

2.1. Installation Requirements

Before installation, make sure that the following requirements are met.

2.1.1. Environmental Requirements



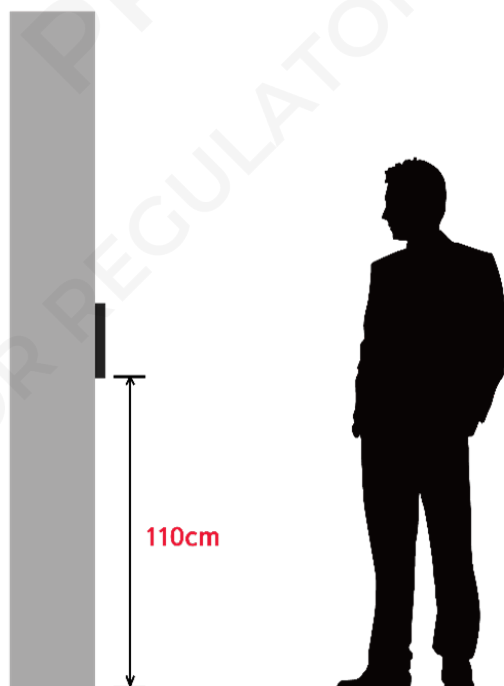
The NovaPass is designed and intended for both indoor and outdoor use. But, if it is required to use the device in extreme environments, contact local sales or service@cmi-tech.com for more information.

- Avoid the location that may be underwater.
- Choose the location with moderate ambient light.
- Determine the height at which you install the device.



The recommended mounting height is 110 cm from the floor.

Recommended mounting height



2.1.2. Electrical Requirements

- Use a power adapter with a minimum rating of 0.3A and a stable power supply of DC 12 V to DC 24 V ($\pm 5\%$).
- Keep the power cable as short as possible and use a wire gauge of 24 AWG or smaller.
- Use CAT5 or higher for Ethernet cables.

Power requirements depending on cable length and wire gauge


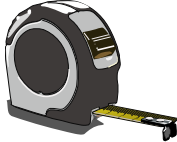
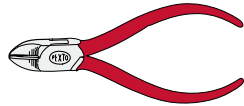



Cable Spec			Extension distance by Adaptor (m) (Current Consumption 3W, Min Voltage 9V)			Note
AWG	Allowable Current (A)	Resistance (Ω/m)	12V, 3W	15V, 3W	24V, 3W	
26	0.378	0.134	45m	112m	448m	Not recommended
25	0.477	0.106	57m	142m	566m	
24	0.588	0.0842	71m	178m	713m	Recommended
23	2.2	0.0668	90m	225m	898m	
22	3.0	0.053	113m	283m	1,132m	
21	3.8	0.042	143m	357m	1,429m	
20	4.5	0.0333	180m	450m	1,802m	

PRELIMINARY
FOR REGULATORY COMPLIANCE ONLY

2.1.3. Tool Requirements

The following tools can be necessary for installation and are not supplied by default.

Required tools

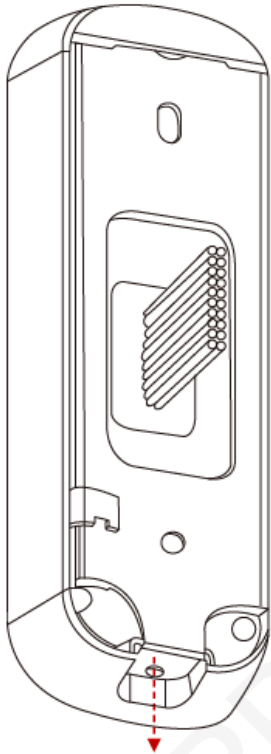
Purpose	Name	Figure	Note
General	Screw driver		Cross head
	Tape ruler		For measuring the installation height
	Cutting plier		
Concrete wall mount	Electric drill		With a drill bit and anchor bolts
	Marker		
	Hammer		

2.2. Installation Procedure

2.2.1. Mounting Device (Wall Mount)

You can install the device onto a wall directly by using the mounting plate.

1. Remove the screw that attaches NovaPass to the mounting plate and disassemble the plate.



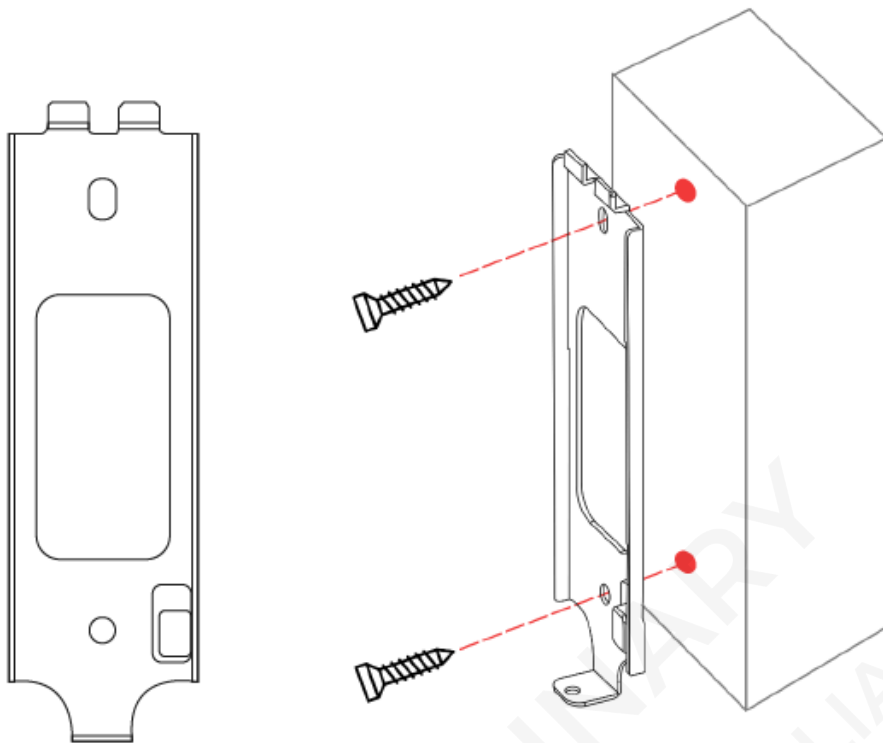
A screw to fix mounting plate



Keep the screw because it will be used to attach them again.

2. Put the mounting plate at the predetermined position and attach the plate onto the wall with the screws (M4 x 8).

Wall mounting points



For concrete wall mount, do the steps that follow:



1. Put marks on the wall through the holes of plate by using a marker.
2. Drill the marked points by using an electric drill.
3. Attach the anchor bolts to the holes by using a hammer.
4. Attach the plate to the wall with the screws.

3. Connect the power cable and peripherals cables, if necessary, to the connectors in the rear panel. (See [Connecting Cables](#) for more information.)
4. Put the device onto the installed plate, slide it downward, and attach them with the screw (M3 x 6)

2.2.2. Mounting Device (Gang Box Mount)

You can also install the device on a gang box (outlet box) by using the mounting plate.

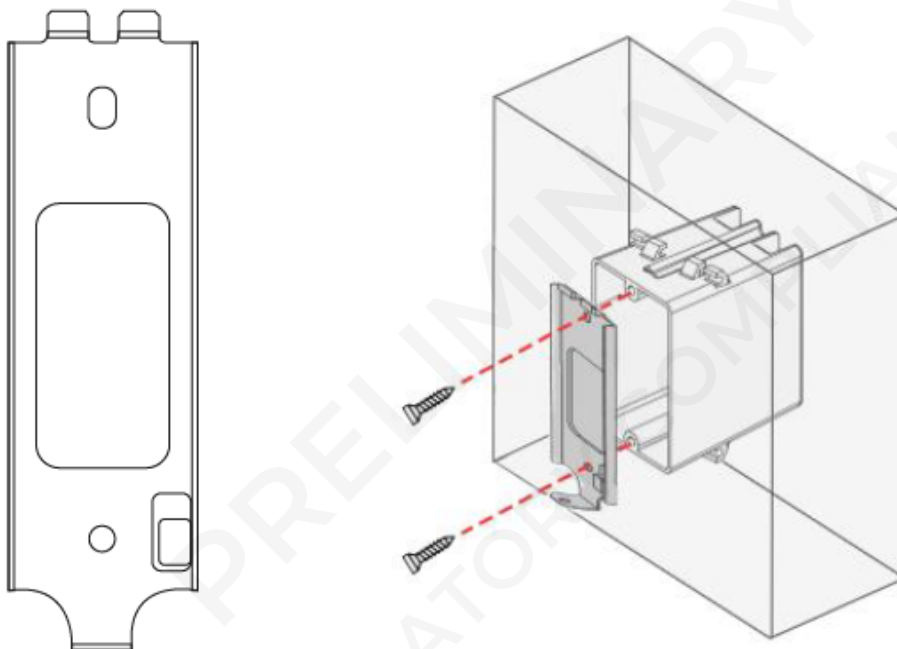
1. Remove the screw that attaches NovaPass to the mounting plate and disassemble them.



Keep the screw because it will be used to attach them again.

2. Put the mounting plate onto the gang box and attach it to the box with the screws (M4 x 8).

Gang box mounting points

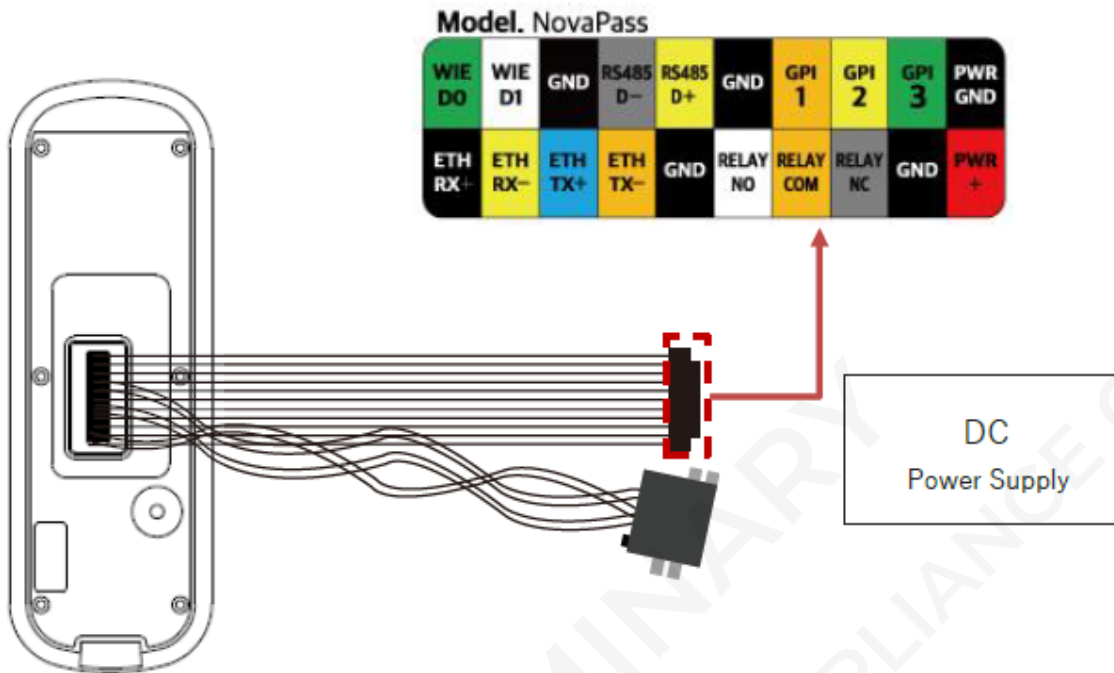


Make sure that the outgoing cables from the gang box go through the rectangular opening in the plate.

3. Connect the power cable and peripherals cables, if necessary, to the connectors in the rear panel. (See [Connecting Cables](#) for more information)
4. Put the device onto the installed plate, slide it downward, and assemble them with the screw (M3 x 6)

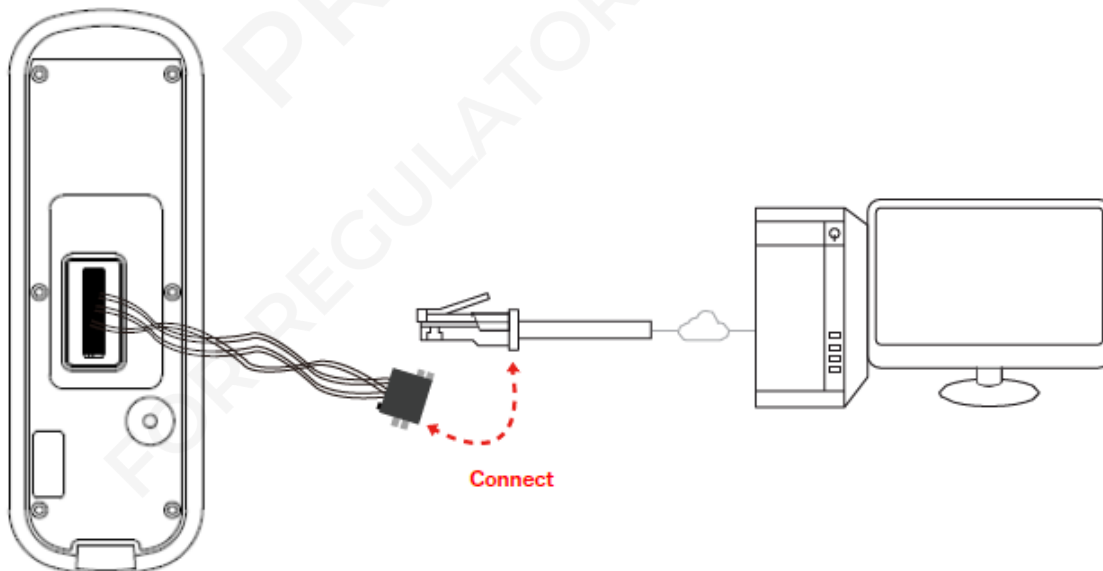
2.2.3. Connecting Cables

Power Connection



Network Connection

RJ-45 connector for 10/100Base-T Ethernet communication, minimum CAT5 cable.



Relay Connection – Dead-Bolt Type Door Lock

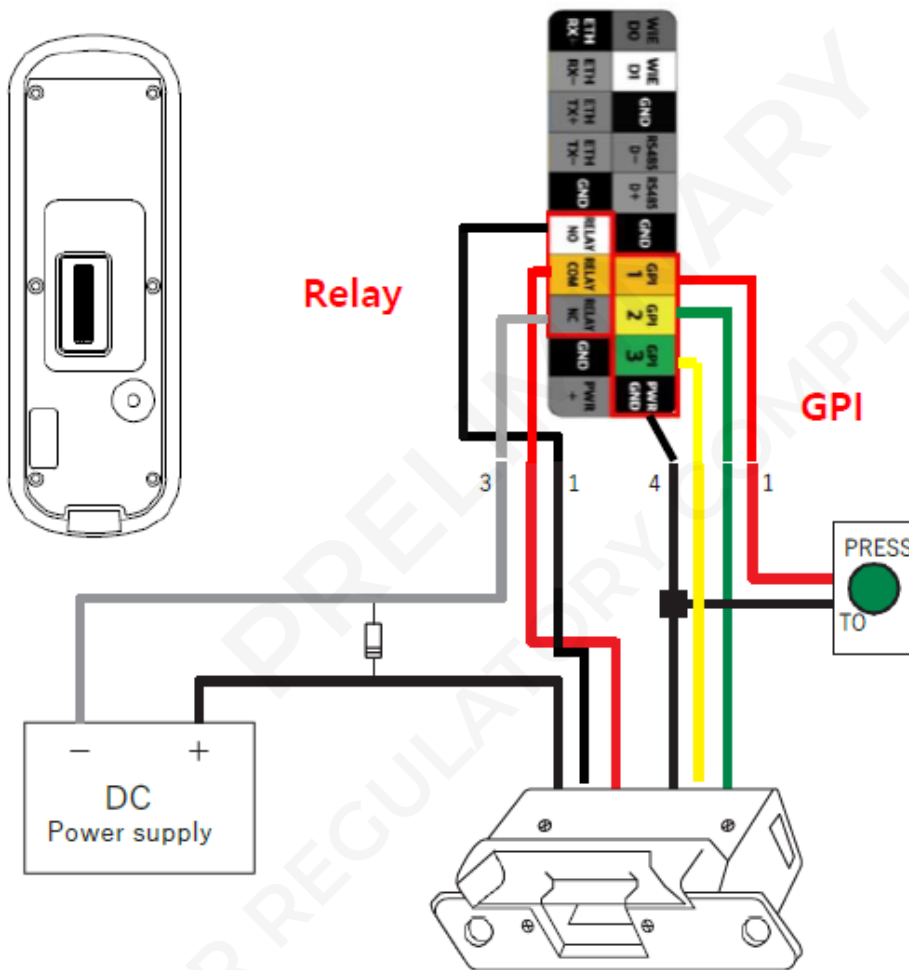
There are two types of dead-bolt door lock connections and configuration supported – fail-safe

and fail-secure.



- Use different power supplies for the NovaPass and the door lock.
- Install the diode at both ends of the circuit as shown in the figure below close to the door lock to protect the relay contact from the reverse current that occurs when the door lock works.
- Make sure that the diode direction is correct.

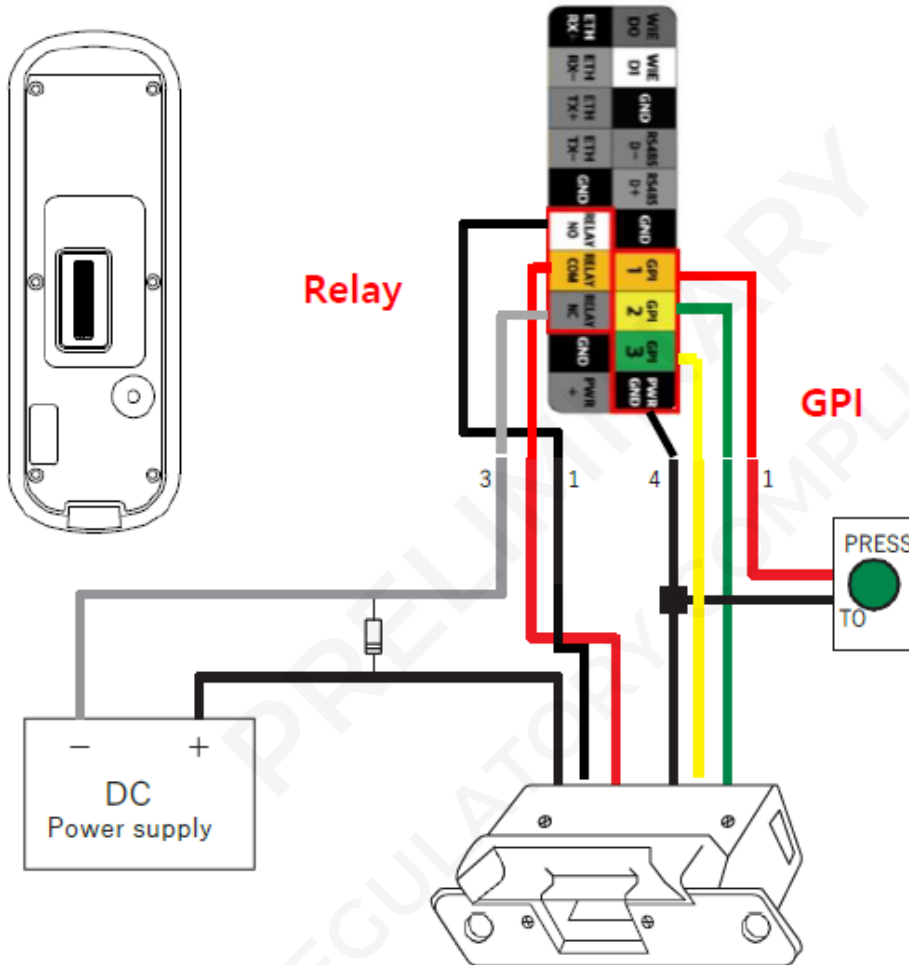
Fail-Safe Configuration



Connector	Pin No.	Name
RELAY	1	Normal Open (NO)
	2	Common (COM)
	3	Normal Close (NC)

Connector	Pin No.	Name
GPI	1	GPI 0
	2	GPI 1
	3	GPI 2
	4	Ground (GND)

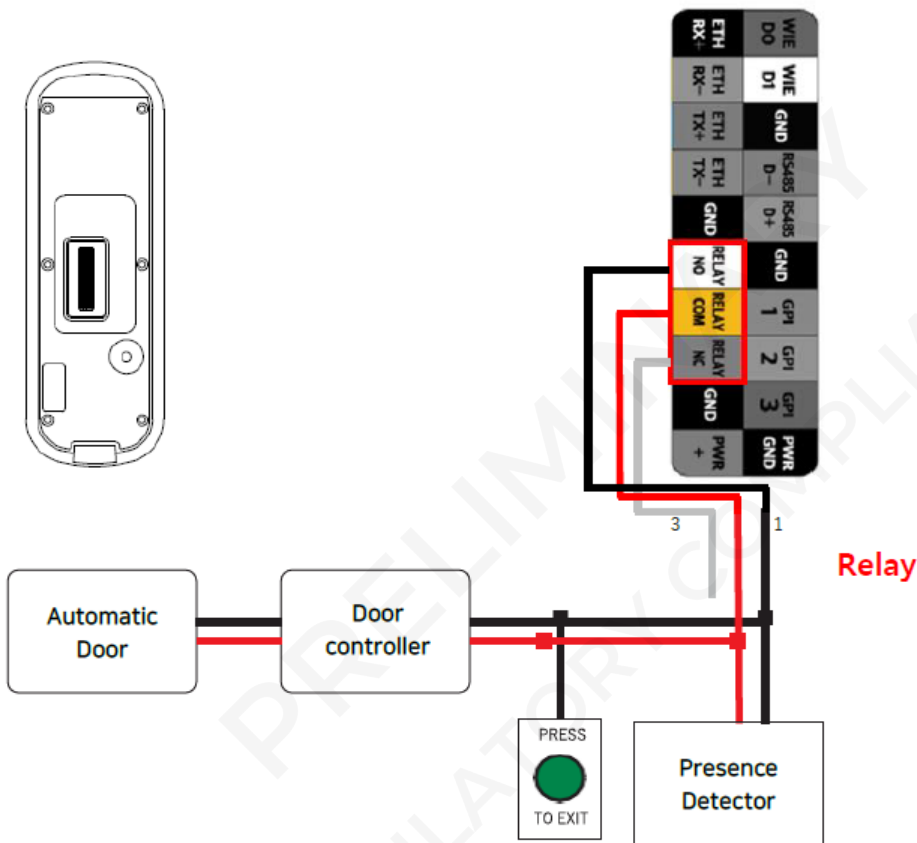
Fail-Secure Configuration



Connector	Pin No.	Name
RELAY	1	Normal Open (NO)
	2	Common (COM)
	3	Normal Close (NC)

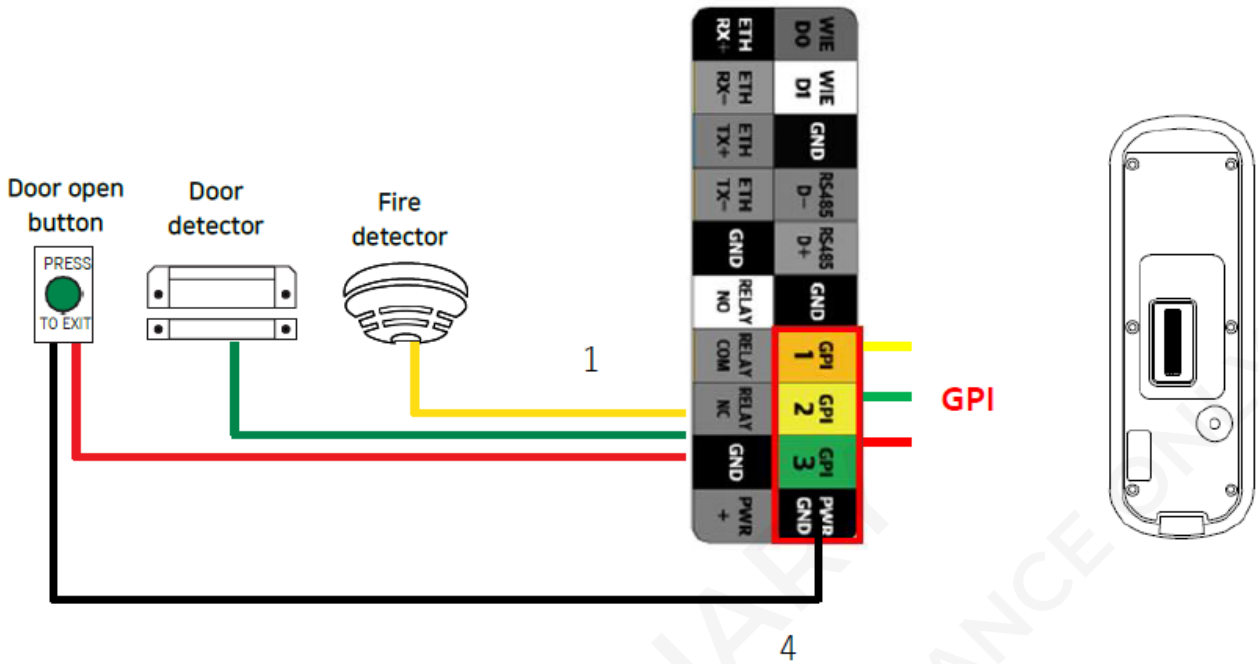
Connector	Pin No.	Name
GPI	1	GPI 0
	2	GPI 1
	3	GPI 2
	4	Ground (GND)

Relay Connection – Automatic Door



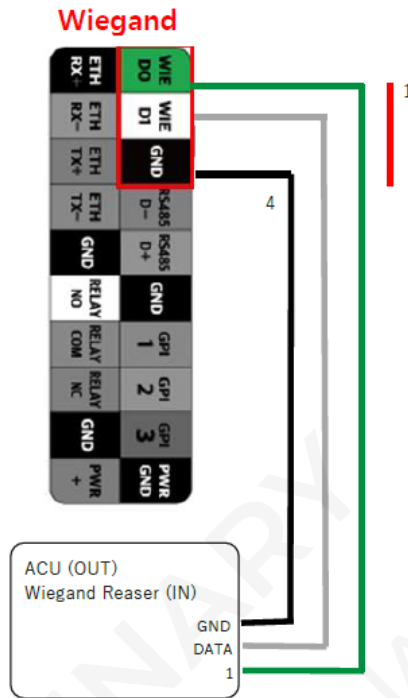
Connector	Pin No.	Name
RELAY	1	Normal Open (NO)
	2	Common (COM)
	3	Normal Close (NC)

GPI Connection



Connector	Pin No.	Name
GPI	1	GPI 0
	2	GPI 1
	3	GPI 2
	4	Ground (GND)

Wiegand Connection



Connector	Pin No.	Name
Wiegand	1	No connection
	2	DATA 0
	3	DATA 1
	4	Ground (GND)

3. Using NovaPass

3.1. Enrollment

This section gives the procedural information to enroll users to the device.

1. Install CMID Manager V2, provided separately.
2. Connect the product's LAN to the PC through the router.
3. Log in to CMID Manager V2.
4. Select **Card** in **Enroll** and enter the card number.
5. Select **Save** to complete enrollment.

3.2. Authentication

NovaPass recognizes by holding a R/F card close to 3cm away and distinguishes by displaying the result through the front LED and notification sound according to the authentication result.

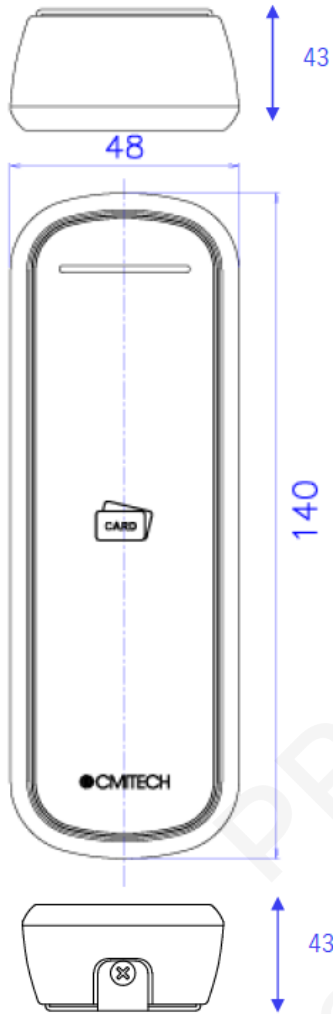
1. When CMID Manger V2 is installed and connected via LAN, the authentication information is displayed on the dashboard.

PRELIMINARY
FOR REGULATORY COMPLIANCE ONLY

4. Product Specifications

4.1. Mechanical Specifications

4.1.1. Dimensions (unit: mm)



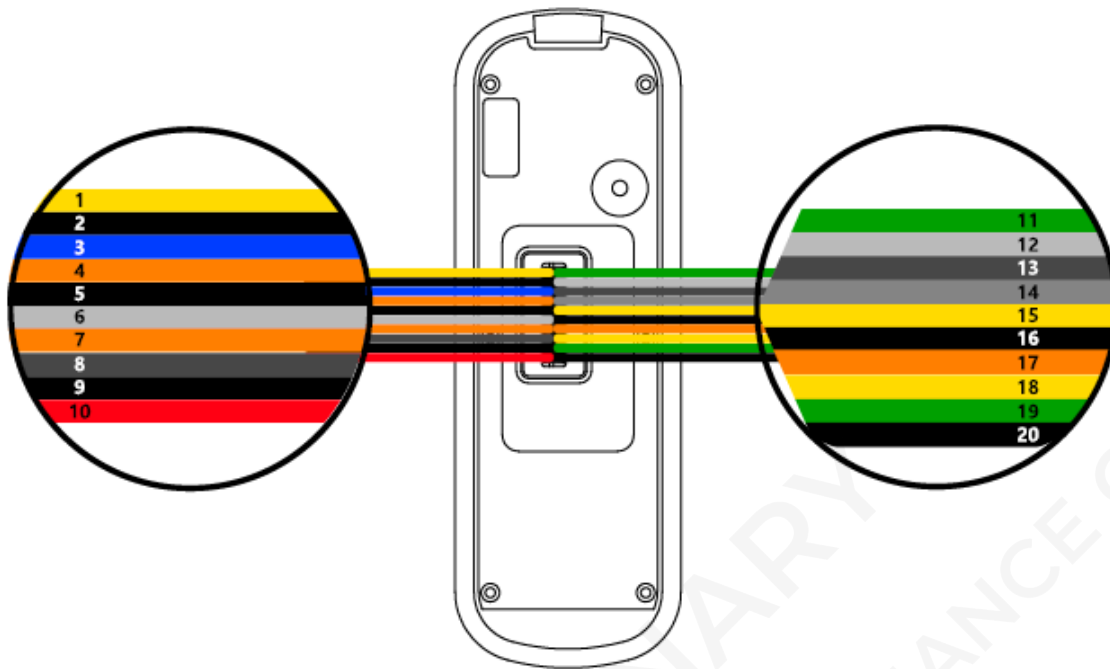
FOR REGULATORY COMPLIANCE ONLY

4.2. Technical Specifications

Item	Description
CPU	ARM Cortex-A7 1.2GHz
Memory	64 RAM, 8GB Flash
Color LED	LED Indicator
Ethernet	Standard 10/100 BaseT
Dimensions	48mm(W) x 140mm(H) x 25.5mm(D)
Weight	151g
RF Read Range	3 cm (ISO14443A CSN read)
Enrollment Speed	Within 1 second
Authentication Speed	Within 1 second
Temperature Range	0°C ~ 50°C
Notification Sound	Supported
Rating	Input power: DC 15V, Current Consumption: 3W
RF Card Reader	13.56MHz ISO/IEC 14443 Standard, MiFare, DesFire and FeliCa
IP	IP65
External Connection	RJ45 (LAN Connection), Wiegand IN, GPIO x 3, RS485, Dry Contact Relay

PRELIMINARY
FOR REGULATORY COMPLIANCE ONLY

4.2.1. Cables and Connectors



Pin	Name	Color
1	ETH RX+	Black
2	ETH RX-	Yellow
3	ETH TX+	Blue
4	ETH TX-	Orange
5	GND	Black
6	RELAY NO	White
7	RELAY COM	Orange
8	RELAY NC	Gray
9	GND	Black
10	PWR+	Red
11	WIE D0	Green
12	WIE D1	White
13	GND	Black
14	RS485 D-	Gray
15	RS485 D+	Yellow
16	GND	Black
17	GPI 1	Orange

Pin	Name	Color
18	GPI 2	Yellow
19	GPI 3	Green
20	PWR GND	Black

4.3. Environmental Specifications

Item		Description	Note
Temperature	Operating	0 to 50°C	
	Non-operating	-2 to 70°C	
Liquid ingress protection	Operating	IP65 acquisition expected	
	Non-operating	IP65 acquisition expected	

PRELIMINARY
FOR REGULATORY COMPLIANCE ONLY

Appendix A: LED Indication

This is a description of the display color for each situation of LED indicator on the top of the product.

Status	Description
Flashing green color	Authentication Success
Flashing red color	Authentication Fail
Flashing purple color	Network Disconnection
Flashing yellow color	CMID Manager Connection Fail
Cross flashing red & blue color	Tamper Switch On
White color	Enrollment Mode On
Blue color	Normal Operation

PRELIMINARY
FOR REGULATORY COMPLIANCE ONLY

Appendix B: Legal Information

B.1. Disclaimer

The words of which the initial letter is capitalized have meanings defined under the following conditions. The following definitions shall have the same meaning regardless of whether they appear in singular or in plural.

For the purposes of this Disclaimer:

- **Company** (referred to as either "the Company", "We", "Us" or "Our" in this Disclaimer) refers to CMITech Co. Ltd.
- **You** means the individual accessing the Product, or the company, or other legal entity on behalf of which such individual is accessing or using the Product, as applicable.
- **Product** means the electronic device provided by the Company named NovaPass and its manual.

The information contained on the Product is for general information purposes only. The Company assumes no responsibility for errors or omissions in the contents of the Product. In no event shall the Company be liable for any special, direct, indirect, consequential, or incidental damages or any damages whatsoever, whether in an action of contract, negligence or other tort, arising out of or in connection with the use of the Product or the contents of the Product. The Company reserves the right to make additions, deletions, or modifications to the contents on the Product at any time without prior notice.

The Product may contain links to external websites that are not provided or maintained by or in any way affiliated with the Company. Please note that the Company does not guarantee the accuracy, relevance, timeliness, or completeness of any information on these external websites.

The information given by the Product is for general guidance on matters of interest only. Even if the Company takes every precaution to insure that the content of the Product is both current and accurate, errors can occur. Plus, given the changing nature of laws, rules and regulations, there may be delays, omissions or inaccuracies in the information contained on the Product. The Company is not responsible for any errors or omissions, or for the results obtained from the use of this information.

All information in the Product is provided "as is", with no guarantee of completeness, accuracy, timeliness or of the results obtained from the use of this information, and without warranty of any kind, express or implied, including, but not limited to warranties of performance, merchantability and fitness for a particular purpose. The Company will not be liable to You or anyone else for any decision made or action taken in reliance on the information given by the Product or for any consequential, special or similar damages, even if advised of the possibility of such damages.

B.2. Copyright Notice

All rights reserved. This documentation is copyrighted by CMITech Co., Ltd. No part of this guide may be reproduced, transmitted, or transcribed without the expressed written permission from CMITech Co., Ltd. All other product names, trademarks, or registered trademarks are property of their respective owners.

We reserve the right to make any alterations which may be required due to technical improvement. For the most current information, contact your CMITech representative.

PRELIMINARY
FOR REGULATORY COMPLIANCE ONLY

Appendix C: Regulatory Information

C.1. FCC compliance statement

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications to this product not authorized by CMITech could void the electromagnetic compatibility (EMC) and wireless compliance and negate your authority to operate the product.

This product has demonstrated EMC compliance under conditions that included the use of compliant peripheral devices and shielded cables between system components. It is important that you use compliant peripheral devices and shielded cables between system components to reduce the possibility of causing interference to radios, television sets, and other electronic devices.

The antenna(s) used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter, except in accordance with FCC multi-transmitter product procedures.

A minimum separation distance of 20cm must be maintained between the antenna and the person for this appliance to satisfy the RF exposure requirements.

C.2. EU Declaration of Conformity (CE)

This product is CE marked according to the provisions of the RED (Radio Equipment Directive) Directive (2014/53/EU). CMITech Co., Ltd. hereby declares that this product is in compliance with the essential requirements and other relevant provisions of Directive 2014/53/EU. This device is a class 1 radio device according to the directive. For more information, contact us using the following contact information.

CMITech Company, Ltd.

- Website: <https://www.cmi-tech.com/>
- Address: 4th Floor, #417 - 419, 136, LS-ro, Dongan-gu, Anyang-si, Gyeonggi-do, 14118, Republic of Korea
- Tel: +82-70-8633-8278 / Fax: +82-31-624-4490

PRELIMINARY
FOR REGULATORY COMPLIANCE ONLY

Appendix D: Contact Information

CMITech Company, Ltd.

4th Floor, #417 - 419, 136, LS-ro, Dongan-gu, Anyang-si, Gyeonggi-do, 14118, Republic of Korea

Tel: +82-70-8633-8277

Email: sales@cmi-tech.com or service@cmi-tech.com

PRELIMINARY
FOR REGULATORY COMPLIANCE ONLY