Global Biometrics Leading Company

CMITECH
IMAGING EXPERTS

NOVAPASS
USER GUIDE

CARD

CMITECH

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. It is intended and written for system administrators who are in charge of overall operation. We recommend you to 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	Nov-19-2021	Initial release	

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
⚠	WARINING	Indicates information that should be followed with the most care. Failure to comply with a warning could cause server 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

Please follow safety guidelines to avoid personal injury or damage to the product and to use the product safely

⚠ Warning

Environment

· Do not expose the product to direct sunlight, excessive heat sources, open flames, or corrosive gases.

There is a risk of electric shock, short circuit, or fire.

· Do not install the product in an explosive environment.

Operation

· If the product occurs smoke, odor, or noise, stop using it immediately and disconnect the power cable. Then, please contact customer service.

Maintenance

· Do not attempt to disassemble, repair or modify the product arbitrarily. Removing the cover may expose you to electric shock or other hazards, which may void the warranty if the product is damaged. If the product does not work properly, contact your dealer or customer service.

⚠ Caution

Environment

- Do not expose the product to strong electromagnetic waves.
  Electromagnetic waves may cause product failure or lower performance.

- Do not install the product near devices that contain magnets or generate magnetic fields such as speakers.

Installation

- Do not install the product on a fragile surface to shock or vibration.
  The product may be damaged.

- When installing on a wall, secure the product with the provided fasteners.
  If the product falls, the product case or internal parts may be damaged.

- Do not install the power supply cable in a high-traffic.
  There is a risk that the cable might be broken down.

- Use a power cord complying with the relevant national regulations.

- Do not connect multiple devices to one power adapter.
  There is a risk of overheating or fire due to overloading the power adapter.

Maintenance

- When cleaning the product, wipe with a soft and dry towel. Do not use water, benzene, alcohol, or aerosol cleaners at this time. It may cause product failure or fire.

Table of Contents

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   Mounting Plate
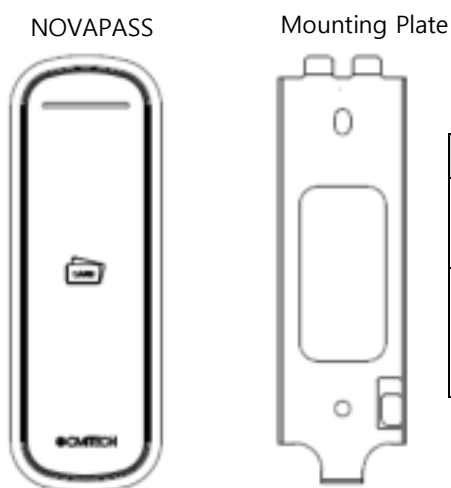
Component	Qty	Description	Note
NOVAPASS	1	R/F Card Reader	
Mounting Plate	1	For wall or gang box mounting	

1-3. Parts and Controls

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LED Indicator

RF Card Authentication Unit
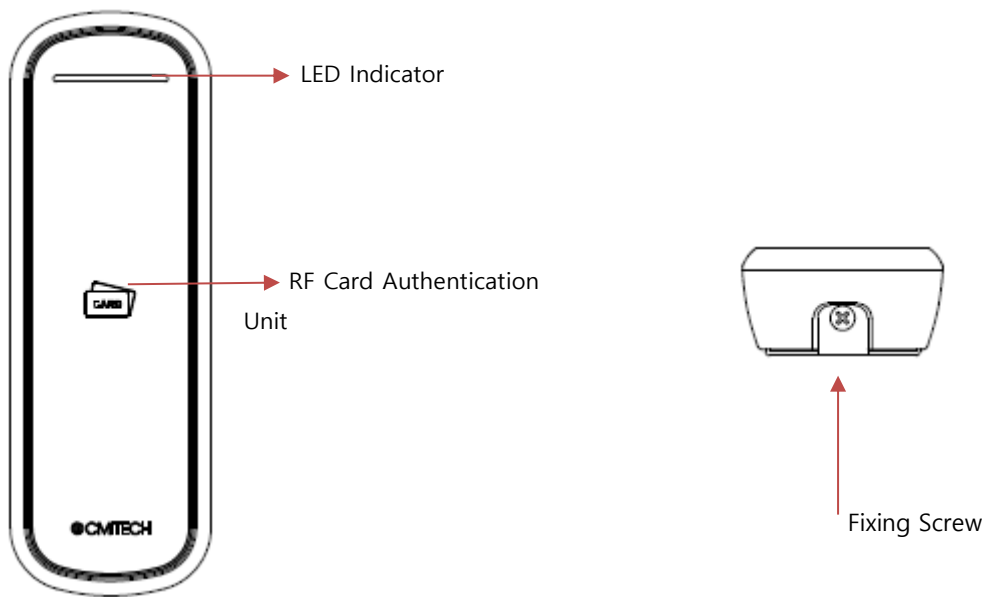
Fixing Screw

Name	Description
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.

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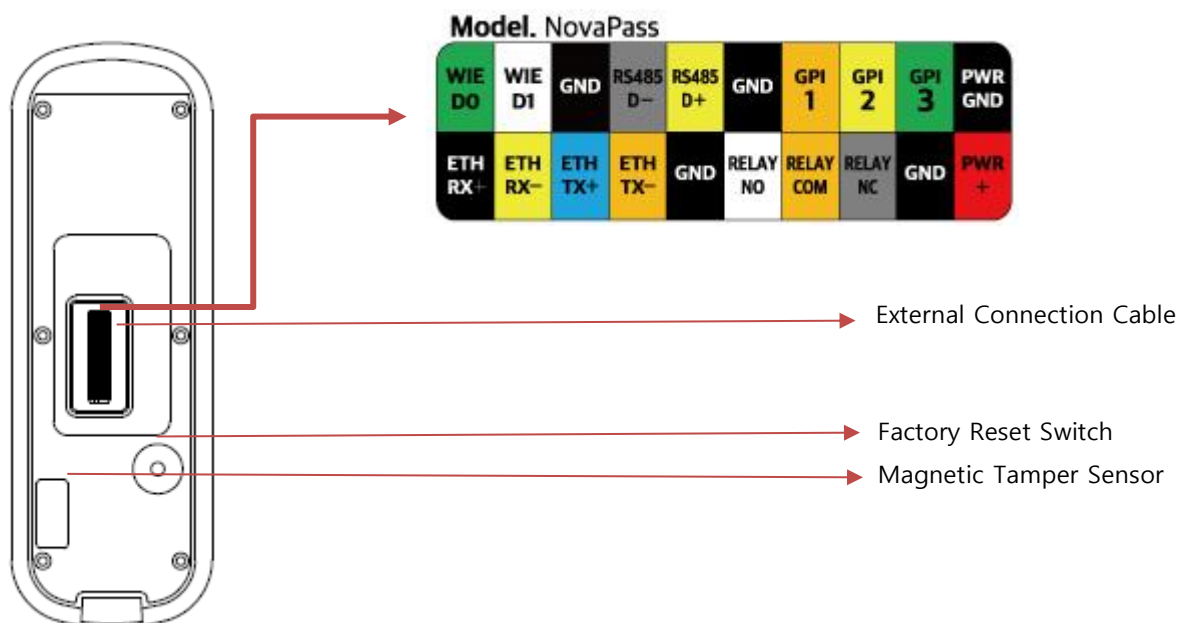
Name	Description	Note
External Connection Cable	Power and in/output connection cable	
Factory Reset Switch	Initializes all settings and user information (Press)	
Magnetic Tamper Sensor	When the terminal detaches from the mounting plate, it sounds an alarm	

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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

> ! NOVAPASS is designed and intended for both in/outdoor use. If it is required to use the device in extreme environments, contact local sales or service@cmi-tech.com.

- Do not install where it will be exposed to water.
- 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

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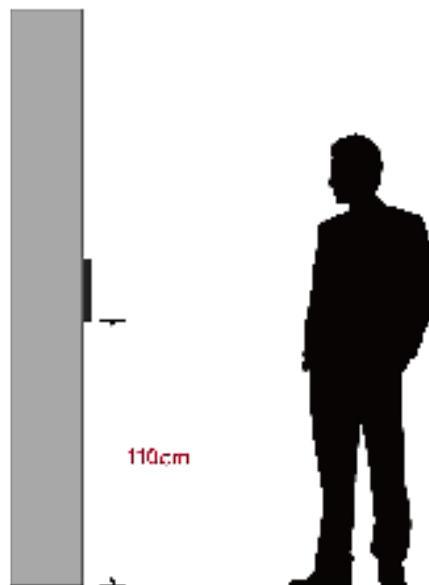
2.1.2. Electrical Requirements

• Use CAT5 or better ethernet cable.

Power requirements depending on cable length and wire gauge

Cable Spec			Extension distance by Adaptor (m) (※ Current Consumption 3W, Min Voltage 9V)		
AWG	Allowable Current (A)	Resistance Ω/m	12V 3W	15V 3W	24V 3W
26	0.378	0.134	45m	112m	448m
25	0.477	0.106	57m	142m	566m
24	0.588	0.0842	71m	178m	713m
23	2.2	0.0668	90m	225m	898m
22	3	0.053	113m	283m	1,132m
21	3.8	0.042	143m	357m	1,429m
20	4.5	0.0333	180m	450m	1,802m

- Green area means within the range of recommended requirements.

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		

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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.
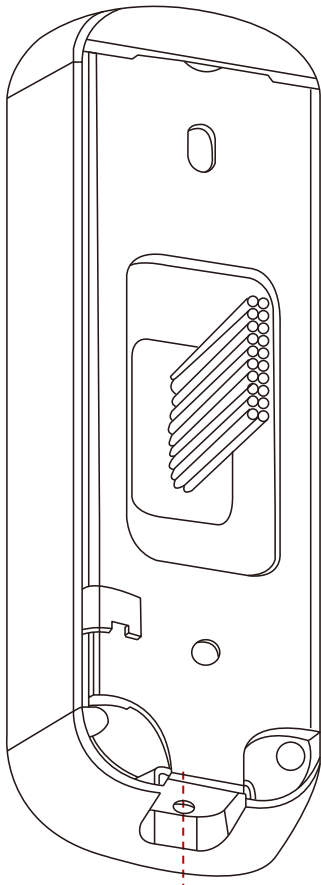
A screw to fix mounting plate

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

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

Wall mounting points
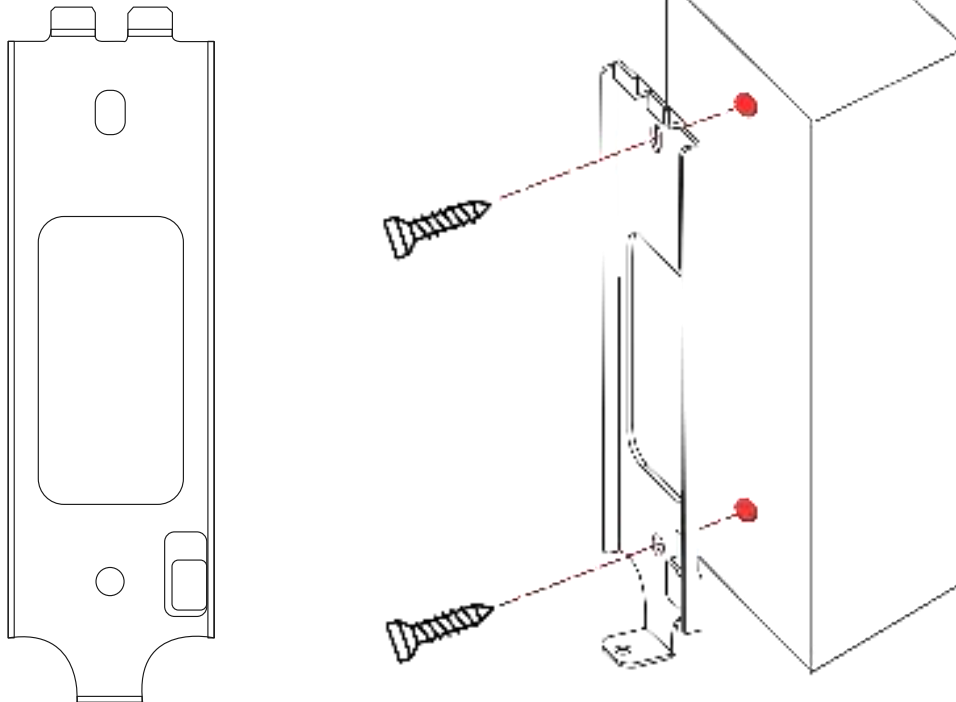
※ **For concrete wall mount, do the following steps.**

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)

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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 attache 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
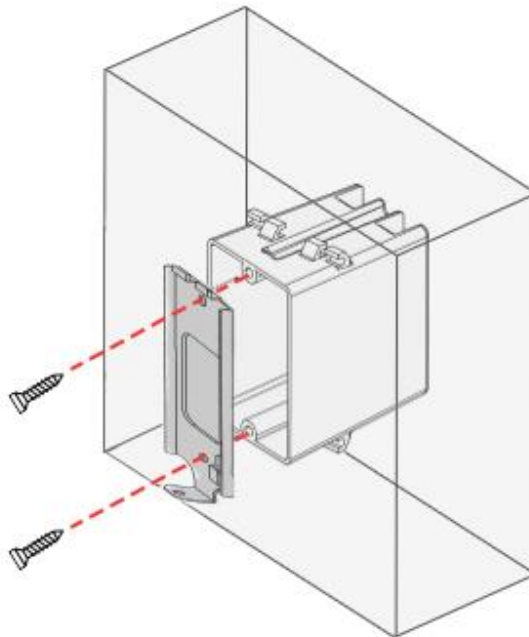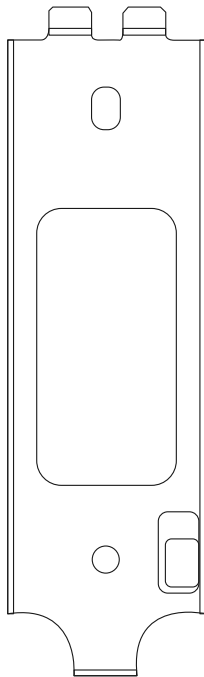
> ❗ ※ **Make sure that the outgoing cables from the gang box go through the rectangular opening in the plate.**

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)

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2.2.3. Connecting Cables

Power Connection

Model. NovaPass

WIE DO	WIE D1	GND	RS485 D−	RS485 D+	GND	GPI 1	GPI 2	GPI 3	PWR GND
ETH RX+	ETH RX−	ETH TX+	ETH TX−	GND	RELAY NO	RELAY COM	RELAY NC	GND	PWR +

DC
Power Supply
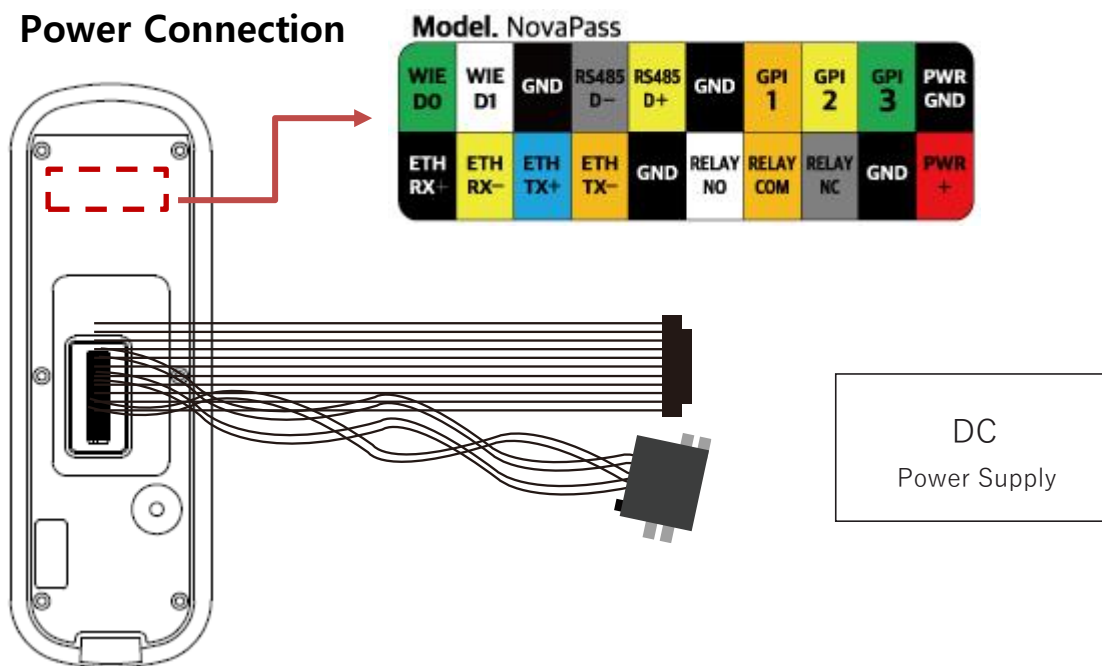
Network Connection

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 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

	Pin No	Name
RELAY	1	Normal Open (NO)
	2	Common (COM)
	3	Normal Close (NC)
GPI	1	GPI 0
	2	GPI 1
	3	GPI 2
	4	Ground (GND)

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Fail-Secure Configuration

GPI

							GPI 1	GPI 2	GPI 3	PWR GND
WIE DO	WIE D1	GND	RS485 D−	RS485 D+	GND					
ETH RX+	ETH RX−	ETH TX+	ETH TX−	GND	RELAY NO	RELAY COM	RELAY NC	GND	PWR +	

RELAY

	Pin No	Name
RELAY	1	Normal Open (NO)
	2	Common (COM)
	3	Normal Close (NC)
GPI	1	GPI 0
	2	GPI 1
	3	GPI 2
	4	Ground (GND)
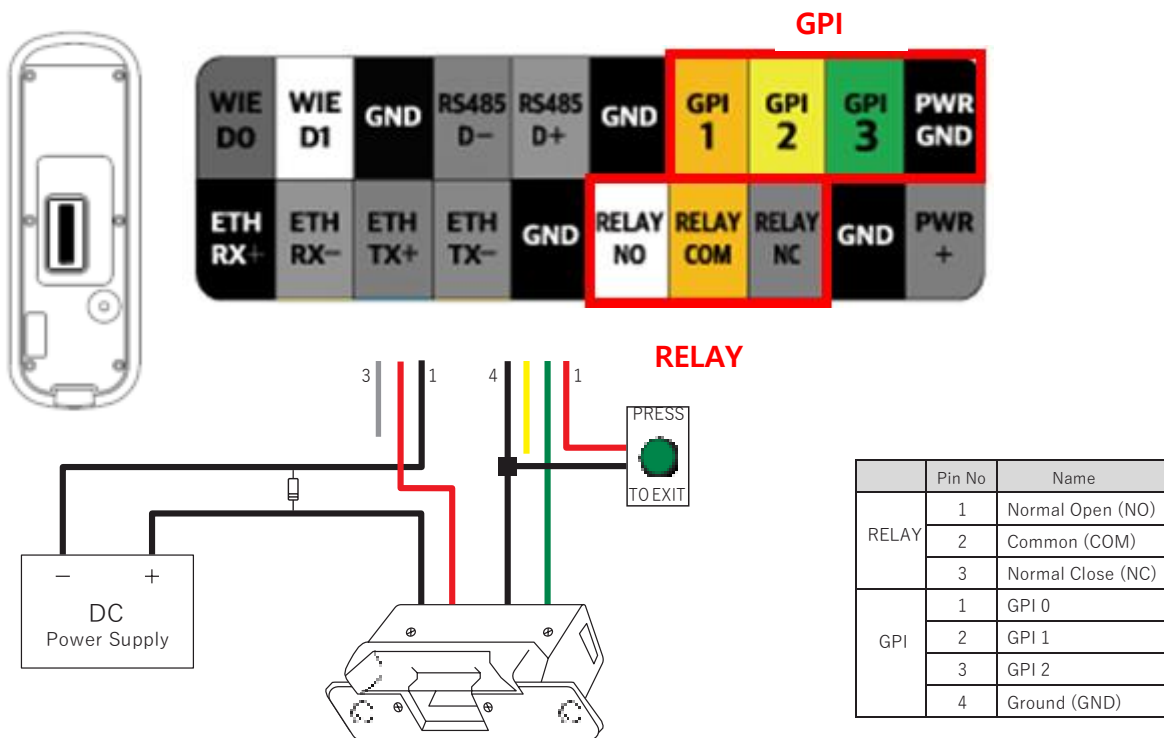
Relay Connection – Automatic Door

| WIE DO | WIE D1 | GND | RS485 D− | RS485 D+ | GND | GPI 1 | GPI 2 | GPI 3 | PWR GND |
| ETH RX+ | ETH RX− | ETH TX+ | ETH TX− | GND | RELAY NO | RELAY COM | RELAY NC | GND | PWR + |

RELAY

	Pin No	Name
RELAY	1	Normal Open (NO)
	2	Common (COM)
	3	Normal Close (NC)
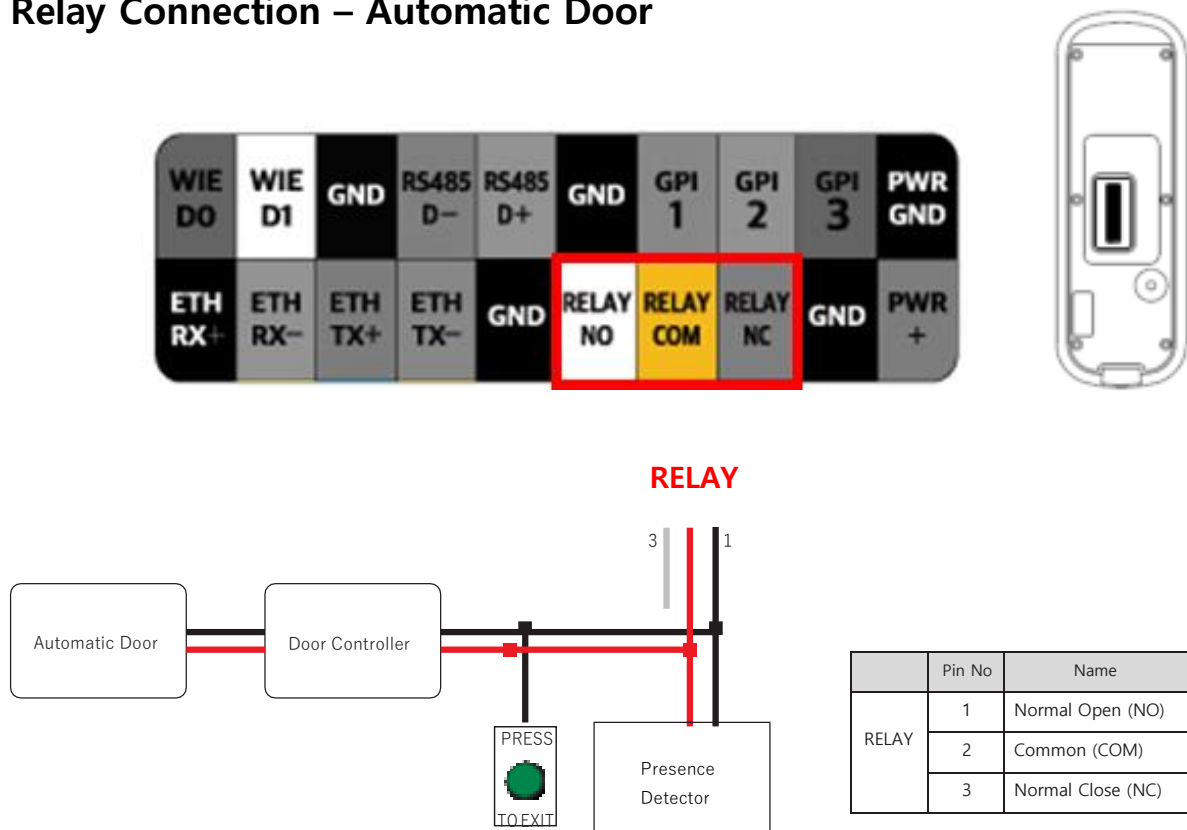
Relay Connection – Alarm Light

RELAY

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

GPI Connection

GPI

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

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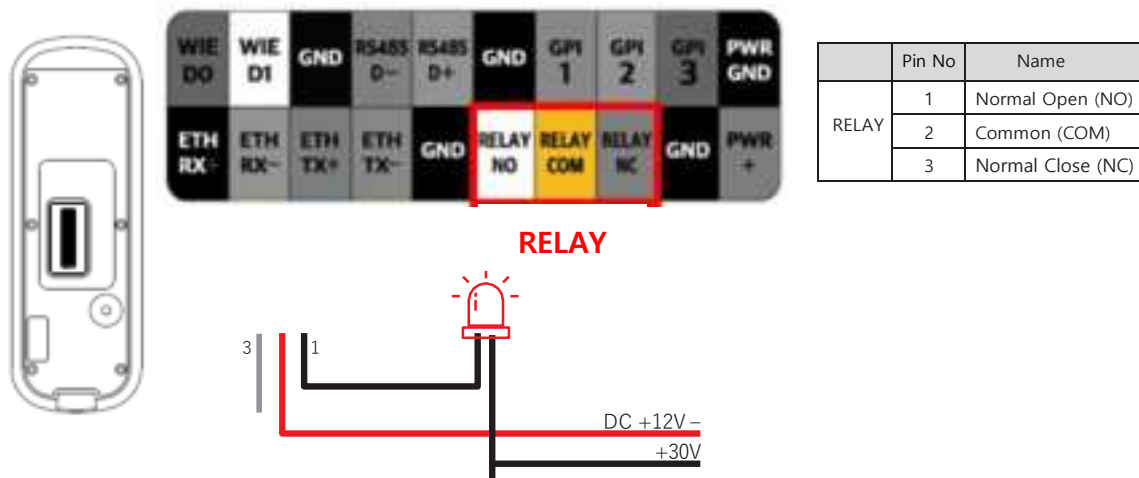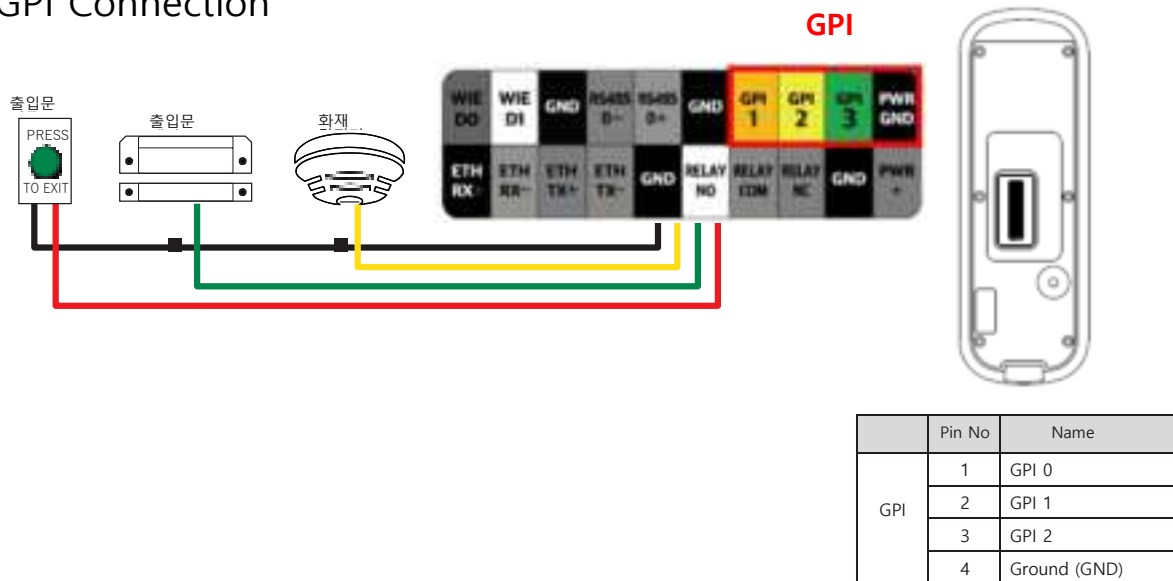
Wiegand Connection

	Pin No	Name
Wiegand	1	-
	2	DATA 0
	3	DATA 1
	4	Ground (GND)

Wiegand

ACU (OUT)
Wiegand Reader (IN)

GND
DATA
1
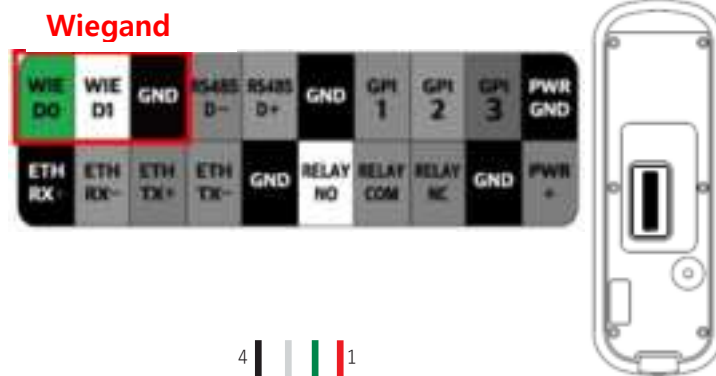
3. Using NOVAPASS

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.

4. Product Specifications

4.1. Mechanical Specifications

4.1.1. Dimensions (unit: mm)

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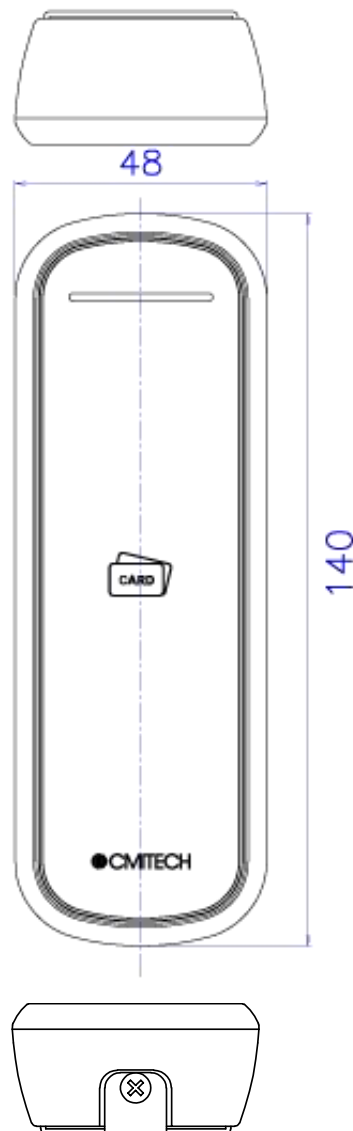
4.2. Key Technical Specifications

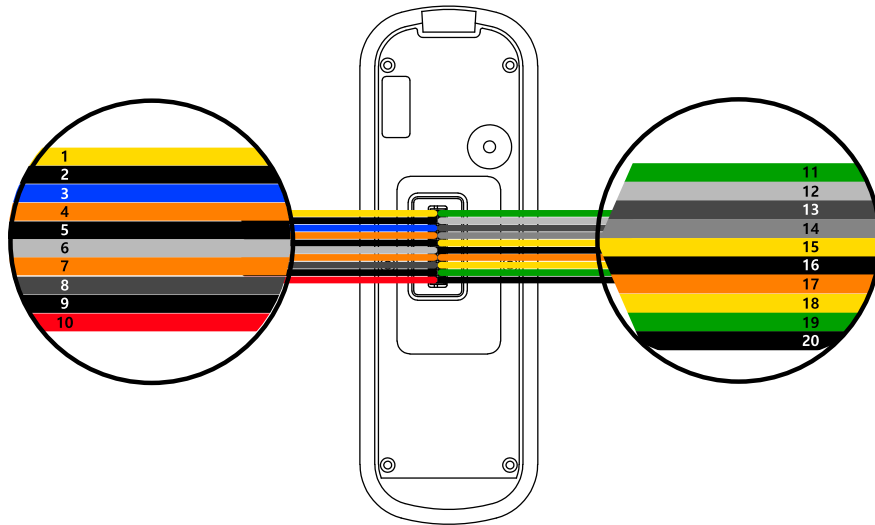| Item	Description	
CPU	ARM Cortex A35, 1GHz	
Memory	64 RAM, 8GB Flash	
Color LED	LED Indicator	
Ethernet	Standard 10/100 BaseT	
Dimensions	48mm(W) x 140mm(H) x 25.5mm(D)	
Weight	151g	
RF Read Range	3 cm (ISO14443A CSN read)	

Item	Description	
Enrollment Speed	Within 1 second	
Authentication Speed	Within 1 second	
Temperature Range	0°C ~ 50°C	
Notification Sound	Supported	
Rating	Input power	DC15V
	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	

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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
18	GPI 2	Yellow
19	GPI 3	Green
20	PWR GND	Black

4-3. Environmental Specifications

Item		Description	Note
Temperature	Operating	0℃ ~ 50℃	
	Non-Operating	-2℃ ~ 60℃	

Item		Description	Note
Humidity	Operating	IP45 acquisition expected	
	Non-Operating	IP45 acquisition expected	

Appendix A: LED Indicator List

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

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

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Appendix B: Regulation

B.1. FCC Conformance Specification

This device complies with Part 15 of the FCC. Operation of the machine is subject to the following two conditions.

(1) The device may not cause harmful interference.
(2) The device accepts any interference received, including interference that may cause undesired operation.

The device has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC.

These limits are designed to provide reasonable protection against harmful interference that may occur in a residential installation.

The device can generate, use, and 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 the device causes harmful interference to radio or television reception, which can be determined by turning the device off and on, the user may try to correct the interference by one or more of the following methods.

· Reorient or relocate the receiving antenna.

· Keep a distance between the device and the receiver.

· Connect the device into an outlet on an electrical circuit different from that to which the receiver is connected.

· Ask assistance from a dealer or a radio/TV technician.

Any changes or modifications to this device, not approved by CMITECH, could void the electromagnetic compatibility (EMC) and radio compliance, in addition, it voids the user's authority to operate the device.

EMC compliance has been verified for this device, provided that shielded cables are used between components and peripheral devices that comply with the compliance requirements. It is important to use shielded cables between radios, television sets, and other electronic products and compliant peripherals and system components reduce possible interference.

Appendix C: Contact

CMITECH COMPANY, LTD.

5F, 38, Burim-ro 170beon-gil, Dongan-gu, Anyang-si, Gyeonggi-do, 14055, Republic of Korea

Tel: +82-70-8633-8278

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