

# ATS Controller VITAC 200

Manual





ATS Controller

# VITAC 200

## Manual



## Thank you for purchasing VITAC 200

- ▶ Please make sure to read all safety precautions thoroughly before using this product for proper use of the product.
- ▶ Please provide this user manual to end users and maintenance manager.
- ▶ Please keep this manual in a place where users can easily refer to at any time, after reading this manual.

### Safety Precautions

- ▶ Please follow safety precautions to prevent any accidents or risks by using the product safely and properly.
- ▶ Precautions are grouped into two types - "Warning" and "Caution"



#### Warning

- ▶ In case severe injuries or death takes place when violating the instructions.



#### Caution

- ▶ In case minor injuries or product damage takes place when violating the instructions.

※ Please read this manual carefully before using the product to ensure that the functionality of this product is used fully and safely.



#### Warning

1. Do not perform wiring work when power is supplied or the product is in operation.
2. There is always a dangerous level of voltage in the terminal that connects digital input, power, and external I/O circuit power when operating normally.
3. Be sure to follow standard safety precautions while installing or maintaining the product.
4. General users should not access the terminal after product installation.



#### Caution

1. The product may be seriously damaged if the voltage/current that deviates from the power supply input rating is applied.
2. Do not allow screws, metal objects, water, or oil to get inside the product.
3. Observe the rated load specifications of the input and output contacts.
4. Do not wire the cable at your own discretion.
5. Only qualified electricians are allowed to perform wiring, trial operation, and maintenance.
6. Do not run a withstand voltage test because all external terminals including the product power plug are equipped with a withstand voltage protection device.

## Warranty Information

The following is the warranty for the original Vitzro product purchaser.

► **Warranty conditions**

The warranty of the Vitzro product lasts 2 years and you can get support for the product itself within that period.

► **VITZRO shall not be liable for any warranty of the product damages caused by the followings.**

- If the product has been used without considering the installation information (rated power, CT, DI, DO, communication), power supply, PT/CT, and digital I/O rating that are specified in the product user guide.
- If the product is damaged due to external artificial factors or product installation environment.
- If the sealing sticker is not attached to the product or the product has been opened.

## Revision History

Version 1.0	2018. 03. 16	First Edition
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# 1. Overview

VITAC 200 is an electronic controller that controls the Automatic Transfer Switch (hereafter "ATS"), and has the following characteristics.

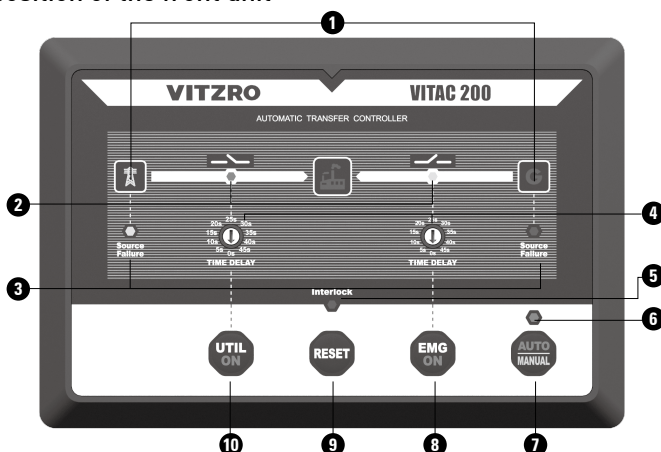
- Resumes power supply to load by controlling the ATS when power fails, by always monitoring the commercial and emergency power.
- Reflects the power characteristics of the product installation site by setting the level of commercial and emergency power monitoring.
- Supports automatic switchover to the commercial power when the commercial power returns to normal level during emergency power operation.
- Controls the ATS of other companies as the output time of the ATS control signal can be set, and the closing/trip coil damage of the ATS can be prevented.
- Guarantees product reliability using EMC test items and self-diagnosis function.
- Checks the state of the product and modifies major setting values using the VITZRO's VICOM Manager program (Modbus-RTU, RS-232)
- Installing on panels with various thickness by applying the screw fastening method.

# 2. Rating










Item		Specification
Control power		Voltage : AC 220 [V] (Input range : AC 130 [V] ~ 270 [V]) Type : Self-power using the power transformer
Power consumption		Constant switchover : Under 4W [5W]
Frequency		60 / 50 [Hz]
Voltage	Rating	AC 220 [V]
	Number of channels (2ea)	A-phase voltage of the commercial power A-phase voltage of the emergency power
	Measurement scope	130 [V] ~ 270 [V] (measurement error: ±3 %)
Input contact	Type	Dry Contact
	Number of channels (3ea)	Switch on state of the commercial power side
		Switch on state of the emergency power side
		Switchover interlock input state
Output contact	Type	For control : Wet contact (AC 220 [V]), NO (Normal Open)
		For alarms : Dry contact, NO (Normal Open)
	Contact point capacity	For control : AC 250V, 16A
		For alarms : AC 250V, 5A
	Number of channels (3ea)	For control : Switch on of the commercial power side, switch on of the emergency power side
For alarms : Fault alarm		
Communication		RS 232 serial communication (Modbus-RTU)

## 3. Product composition

### 3. 1 Composition of the front unit



[Detailed description of the front unit]

No.	Item	Detailed description
①	 Status, emergency power status display LED	<ul style="list-style-type: none"> <li>☞ Green lamp on : Power on (normal power supply)</li> <li>☞ Green lamp blinking : Abnormal power (OVR, UVR, OFR, UFR)</li> <li>☞ Lamp off : Power off, LED damage, product damage</li> </ul>
②	 Commercial, emergency switch status display LED	<ul style="list-style-type: none"> <li>☞ Green lamp on : Open</li> <li>☞ Red lamp on : On</li> <li>☞ Green lamp blinking : In switching over (LED of the switched side blinks)</li> <li>☞ Lamp off : Power off, LED damage, product damage</li> </ul>
③	 Commercial, emergency switchover failure display LED	<ul style="list-style-type: none"> <li>☞ Red lamp on : Switchover failure <sup>1)</sup></li> <li>☞ Lamp off : Normal</li> </ul>
④	 Rotary switch to set the commercial and emergency switchover delay	<ul style="list-style-type: none"> <li>☞ Rotary switch to set the commercial and emergency switchover delay</li> <li>Setting range : 0 ~ 45 seconds (setting in 5 seconds)</li> </ul>
⑤	 Switchover interlock <sup>2)</sup> input status LED	<ul style="list-style-type: none"> <li>☞ Red lamp on : Input on</li> <li>☞ Lamp off : Input off</li> </ul>
⑥	 Auto/Manual status displayed LED	<ul style="list-style-type: none"> <li>☞ Red lamp on : Auto</li> <li>☞ Green lamp on : Manual</li> <li>☞ Lamp off : Power off, LED damage, product damage</li> </ul>
⑦		<ul style="list-style-type: none"> <li>☞ Operation in an Auto state : Changes to Manual</li> <li>☞ Operation in a Manual state : Changes to Auto</li> </ul>
⑧	 Button to turn on the commercial power side switch	<ul style="list-style-type: none"> <li>☞ Turns on the commercial power side switch</li> </ul>
⑨	 Reset button	<ul style="list-style-type: none"> <li>☞ S/W Reset</li> </ul>
⑩	 Button to turn on the emergency power side switch	<ul style="list-style-type: none"> <li>☞ Turns on the emergency power side switch</li> </ul>

1) Determined to be switchover failure only when switchover fails after making an attempt three times.

2) Switchover operation will not be performed even though the automatic switchover situation occurs, when inputting the switchover interlock.

\* Precautions when manipulating buttons: Buttons will be activated only when pressed and held more than 1.5 seconds.

3. 2 Composition of the rear unit



[Detailed description of the rear unit]

No.	Terminal name	Name	Description
①	a1	Alarm Output	Fault alarm contact output terminal (Outputs when switchover fails or the controller is abnormal.)
	a2		
②	UP	Utility Voltage	Commercial power input terminal
	UN		
③	A1	Operating Signal	Switch on contact output terminal at the use power side
	A2		
④	UTIL ON	Status Signal	Switch status input terminal at the commercial power side
	EMG ON		Status input terminal at the emergency power side
	Inter-Lock		Interlock status input terminal
	COM		Input common terminal
⑤	B1	Operating Signal	Switch on contact output terminal at the emergency power side
	B2		
⑥	EP	Emergency Voltage	Emergency power input terminal
	EN		

## 4. Major functions

VITAC 200 provides measurement and ATS control functions, and major parameters related to ATS control can be modified using engineering software.

### 4. 1 Measurement functions

The single-phase voltage and frequency of the commercial and emergency power can be measured. The following table shows the measurement range and precision.

Type	Display Range	Precision
Commercial power voltage	130 ~ 270 V	± 3 %
Emergency power voltage	130 ~ 270 V	± 3 %
Commercial power frequency	40 ~ 70 Hz	± 0.2 Hz
Emergency power frequency	40 ~ 70 Hz	± 0.2 Hz

### 4. 2 ATS control functions

VITAC 200 supports the W-Type and WN-Type ATS of VITZRO and various ATS of other suppliers. If VITAC 200 is used with the 3Position ATS (as the WN-Type ATS of VITZRO), use the same wiring method with the WN-Type of VITZRO.

#### 4. 2. 1. Manual switchover function

Switchover is performed manually using buttons located in the front. Please take the following steps to perform switchover.

##### Step 1. Set manual mode

Check the "Auto/Manual status display LED". If the mode is Auto (red lamp on), press and hold the "Auto/Manual selection" button until the mode is changed to Manual (green lamp on).

##### Step 2. Perform manual switchover

##### ① Manual switchover from the emergency power to the commercial power

Press and hold the "Emergency power side switch on" button more than 1.5 seconds to change over to the emergency power side.

However, switchover operation will be performed only when the emergency power is normal (green lamp on the emergency power status display LED) and the LED status will be changed as follows.

- Switch status LED at the commercial power side: Changes from green to red.
- Switch status LED at the emergency power side: Changes from red to green.

##### ② Manual switchover from the commercial power to the emergency power

Press and hold the "Commercial power side switch on" button more than 1.5 seconds to change over to the commercial power side.

However, switchover operation will be performed only when the commercial power is normal (green lamp on the commercial power status display LED) and the LED status will be changed as follows.

- Switch status LED at the commercial power side: Changes from red to green.
- Switch status LED at the emergency power side: Changes from green to red.

## 4. 2. 2. Automatic switchover function

If a power error is detected while monitoring the state of the commercial power and emergency power, the power is automatically changed over, in order to resume power supply to load. If the controller is in Auto mode ("Auto/Manual status display LED" red is on), the following switchover operation will be performed.

If switchover is not performed normally, switchover will be attempted again three times. If switchover still fails, it will be recognized as an ATS problem and the switchover failure LED will turn on.

### Automatic switchover from the commercial power to the emergency power

If the emergency power is normal <sup>3)</sup> when a problem occurs at the commercial power (abnormal power <sup>4)</sup> or non-supply <sup>5)</sup> while running with the commercial power, automatic switchover to the emergency power side will be performed after the time specified in the "emergency switchover delay time setting".

Performing automatic switchover can be checked using the "switch status display LED at the emergency power side", and LED changes as follows, depending on the switchover progress.

- **Switchover in progress** : The "switch status display LED at the emergency power side" blinks in green.

#### - Successful switchover

- \* Switch status LED at the commercial power side : Changes from red to green.
- \* Switch status LED at the emergency power side : Changes from green to red.

#### - Switchover failure

- \* Switch status LED at the commercial power side : Keeps the red lamp on.
- \* Switch status LED at the emergency power side : Keeps the green lamp on.
- \* Switchover failure LED at the commercial power side : Turns the red lamp on.

### Automatic switchover from the emergency power to the commercial power

If the commercial power is normal when a problem occurs at the emergency power (abnormal power or non-supply) while running with the emergency power, automatic switchover to the commercial power side will be performed after the time specified in the "commercial switchover delay time setting".

Performing automatic switchover can be checked using the "switch status display LED at the commercial power side", and LED changes as follows, depending on the switchover progress.

- **Switchover in progress**: The "switch status display LED at the commercial power side" blinks in green.

#### - Successful switchover

- \* Switch status LED at the commercial power side : Changes from green to red.
- \* Switch status LED at the emergency power side : Changes from red to green.

#### - Switchover failure

- \* Switch status LED at the commercial power side : Keeps the green lamp on.
- \* Switch status LED at the emergency power side : Keeps the red lamp on.
- \* Switchover failure LED at the emergency power side : Turns the red lamp on.

3) Normal power: When no overvoltage, low voltage, over-frequency, or low-frequency problem occurred.

4) Abnormal power: When the overvoltage, low voltage, over-frequency, or low-frequency problem occurred.

5) No power supply: When 0 [V] voltage is measured because no power is supplied.

### 4. 2. 3 Automatic recovery function

The function of changing over to the high priority power automatically even though the currently supplied power is normal, if the power with higher priority becomes normal.

This function will be enabled only when the "automatic recovery function" is activated.

Please refer to Chapter 5 "Major parameters" regarding "automatic recovery function setting" and "power priority setting".

#### **If the commercial power has higher priority than the emergency power.**

Automatically changes over to the commercial power side after the time set in "commercial switchover delay time setting" according to power supply priority, when the commercial power becomes normal while running with the emergency power.

Performing automatic switchover can be checked using the "switch status display LED at the commercial power side", and LED changes as follows, depending on the switchover progress.

- **Switchover in progress** : The "switch status display LED at the commercial power side" blinks in green.
- **Successful switchover**
  - \* Switch status LED at the commercial power side : Changes from green to red.
  - \* Switch status LED at the emergency power side : Changes from red to green.
- **Switchover failure**
  - \* Switch status LED at the commercial power side : Keeps the green lamp on.
  - \* Switch status LED at the emergency power side : Keeps the red lamp on.
  - \* Switchover failure LED at the commercial power side : Turns the red lamp on.

#### **If the emergency power has higher priority than the commercial power.**

Automatically changes over to the emergency power side after the time set in "emergency switchover delay time setting" according to power supply priority, when the emergency power becomes normal while running with the commercial power.

Performing automatic switchover can be checked using the "switch status display LED at the emergency power side", and LED changes as follows, depending on the switchover progress.

- **Switchover in progress** : The "switch status display LED at the emergency power side" blinks in green.
- **Successful switchover**
  - \* Switch status LED at the commercial power side : Changes from red to green.
  - \* Switch status LED at the emergency power side : Changes from green to red.
- **Switchover failure**
  - \* Switch status LED at the commercial power side : Keeps the red lamp on.
  - \* Switch status LED at the emergency power side : Keeps the green lamp on.
  - \* Switchover failure LED at the commercial power side : Turns the red lamp on.

## 5. Major parameters

VITAC 200 provides the following parameters to reflect the power characteristics of the product installation site and control the ATS smoothly.

### 5. 1 Parameters related to switchover function setting

Item		Setting range	Description	Default value
Compression voltage setting [low voltage]	Operation setting	Enable / Disable	Sets automatic switchover when the low voltage occurs. [Enable : Switchover, Disable : No switchover]	Enable
	Pick Up	150.0 ~ 210.0 [V]	Low voltage setting	176 [V]
	Time Delay	0.0 ~ 99.9 [S]	Sets the time of keeping the low voltage. (Performing switchover if the low voltage is kept for the specified period of time.)	1 [S]
Compression voltage setting [Over voltage]	Operation setting	Enable / Disable	Sets automatic switchover when the overvoltage occurs. [Enable : Switchover, Disable : No switchover]	Enable
	Pick Up	230.0 ~ 245.0 [V]	Overvoltage setting	242 [V]
	Time Delay	0.0 ~ 99.9 [S]	Sets the time of keeping the overvoltage. (Performing switchover if the low voltage is kept for the specified period of time.)	1 [S]
Switching frequency setting [the low frequency]	Operation setting	Enable / Disable	Sets automatic switchover when the low frequency occurs. [Enable : Switchover, Disable : No switchover]	Enable
	Pick Up	58.0 ~ 60.0 [Hz]	Low frequency setting	59 [Hz]
	Time Delay	0.0 ~ 99.9 [S]	Sets the time of keeping the low frequency. (Performing switchover if the low voltage is kept for the specified period of time.)	1 [S]
Switching frequency setting [the over frequency]	Operation setting	Enable / Disable	Sets automatic switchover when the over-frequency occurs. [Enable : Switchover, Disable : No switchover]	Enable
	Pick Up	60.0 ~ 62.0 [Hz]	Over-frequency setting	61 [Hz]
	Time Delay	0.0 ~ 99.9 [S]	Sets the time of keeping the over-frequency. (Performing switchover if the low voltage is kept for the specified period of time.)	1 [S]
Normal voltage range setting	Maximum voltage	231.0 ~ 240.0 [V]	Sets the maximum normal voltage value.	235 [V]
	Minimum voltage	150.0 ~ 215.0 [V]	Sets the minimum normal voltage value.	181 [V]
Normal frequency range setting	Maximum frequency	60.0 ~ 62.0 [Hz]	Sets the maximum normal frequency value.	60.5 [Hz]
	Minimum frequency	58.0 ~ 60.0 [Hz]	Sets the minimum normal frequency value.	59.5 [Hz]

## 5. 2 Parameters related to system setting

Item	Setting range	Description	Default value
<b>Rated frequency</b>	50 / 60 [Hz]	Sets the rated frequency	60 [Hz]
<b>Automatic recovery</b>	Enable / Disable	Sets automatic recovery activation according to power priority	Enable
<b>Switchover interlock</b>	Enable / Disable	Sets the activation of the switchover interlock function	Enable
<b>Power priority</b>	A Side / B Side	Sets power priority	A Side
<b>Input/Open signal output time</b>	50 ~ 5000 [ms]	Input/Open signal output time	500 [ms]
<b>Number of retry times</b>	0 ~ 10 [times]	Number of retry times	3 [times]
<b>Retry times</b>	1 ~ 99 [S]	Sets the waiting time to try switchover again	3 [S]

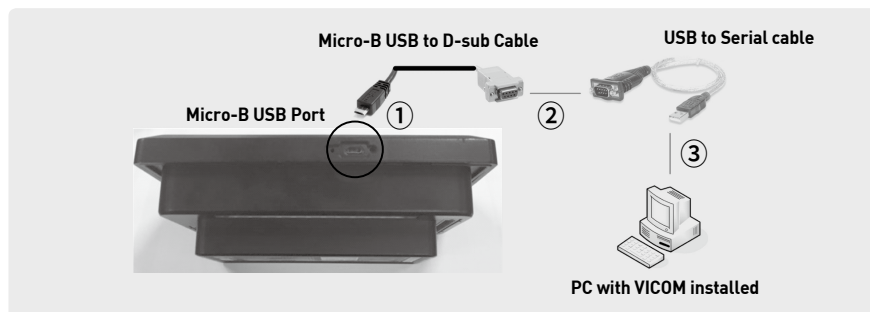
## 5. 3 How to set major parameters



VITAC 200 may malfunction if you change major parameters at your own discretion.

### 1) Communication environment configuration

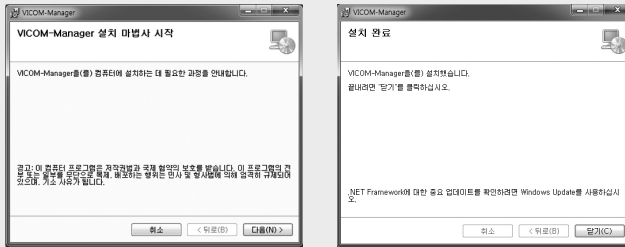
- ① Connect the "Micro-B USB to D-sub" cable to the "Micro-B USB" port of VITAC 200.
- ② Connect the "Micro-B USB to D-sub" cable and "USB to Serial" cable.
- ③ Connect the USB terminal of the "USB to Serial" cable to the PC in which VICOM-Manager is installed.



※ The "USB to Serial" cable and "USB to Serial" cable for communication are not provided. Therefore, you need to purchase separately.

## 2) Installing VICOM-Manager

Run the VICOM-Manager installation file to install software at the desired folder.



※ For more information on installation, please refer to the VICOM-Manager user manual.

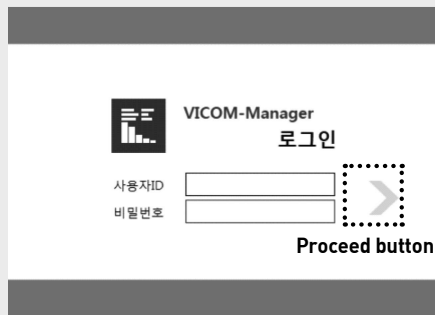
## 3) Running VICOM-Manager

Run the VICOM-Manager icon on the desktop or in the software installation folder.

Uninstall VICOM-Manager	2017-03-23 오전 ...	바로 가기
VHMI 2012 for VIPAM3500C	2016-07-13 오후 ...	바로 가기
VICOM Fault Wave Viewer	2016-05-11 오전 ...	바로 가기
VICOM-Fault Wave Viewer	2017-03-23 오전 ...	바로 가기
<b>VICOM-Manager</b>	2017-03-23 오전 ...	바로 가기
VICOM-SCT	2017-03-23 오전 ...	바로 가기

### ① Logging into VICOM Manager

Input the user ID and password and then, press the Proceed button.



※ The user ID and password are provided to the engineer only. For more information, please contact the manufacturer.

## ② Selecting a VITAC 200 project

Select "VITAC\_Series" from the recent project. If you cannot find "VITAC\_Series" in the recent project, click "Create a new project".

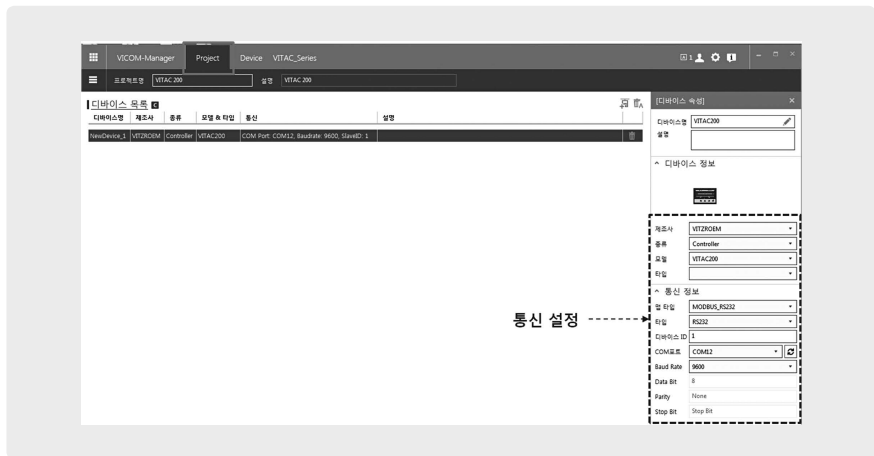


※ For more information on new project creation, please refer to the VICOM-Manager user manual.

## ③ Setting communication

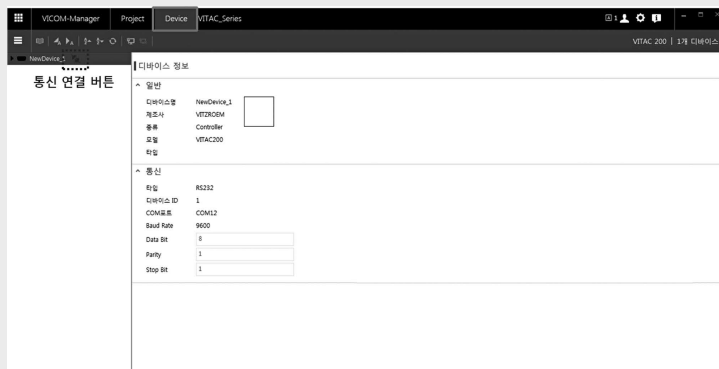
Select the "Project" tab for communication setting. Set the "communication information" on the right side of the screen as follows.

- Map type : MODBUS\_RS232
- Type : RS232
- Device ID : 1
- COM port : Apply the Com port value set in the PC. [Check in Device Manager of the PC]
- Baud rate : 9600

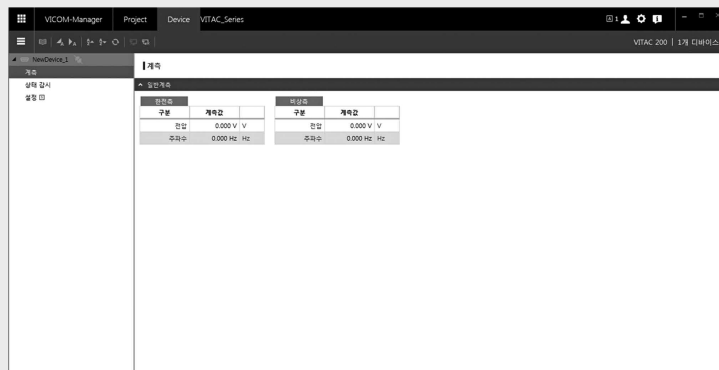


#### ④ Establishing communication

Select the "Device" tab to establish communication. Click "Establish communication" on the left side of the device screen to start communication with VITAC 200.



<Before establishing communication>



<After establishing communication>

### ⑤ Checking and modifying major parameters

You can check the information or modify the setting value by selecting a menu item located at the left side of VICOM-Manager.

- **Measurement** : You can check the voltage and frequency of the commercial and emergency power.
- **Status monitoring tab** : You can check the status of the commercial and emergency power, and switch on/open status.
- **Settings tab** : You can check the current value of major parameters. To change the setting value, input the value to change and click the "Apply to IED" button.

The screenshot displays the VICOM-Manager interface. On the left, a sidebar menu for 'NewDevice\_1' includes options like '개측' (Measurement), '상태 감시' (Status Monitoring), and '설정' (Settings). The main window is divided into several panels:

- 개측 (Measurement):** Displays real-time voltage and frequency for commercial and emergency power.
 

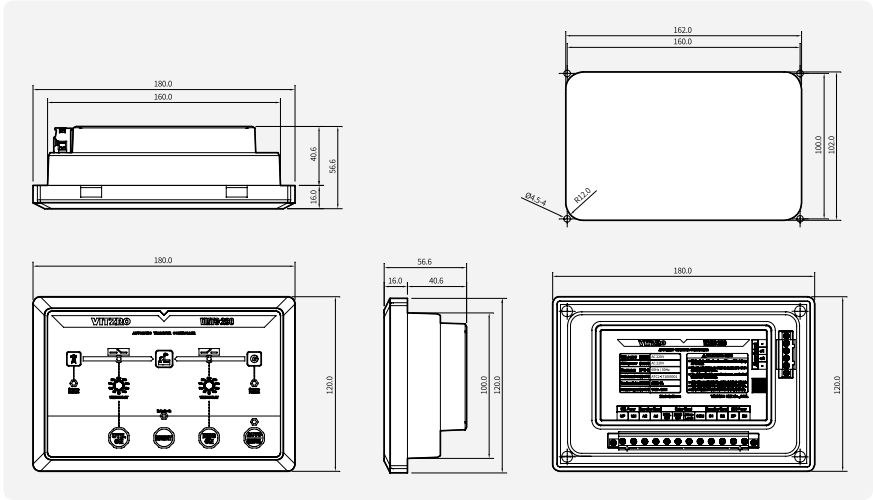
구분	계측값	구분	계측값
전압	0.000 V	전압	0.000 V
주파수	0.000 Hz	주파수	0.000 Hz
- 상태 감시 (Status Monitoring):** Shows the status of various components.
 

전원 상태	부하 상태	주입/개방 상태
완전측	비상측	완전측 스위치
OFF	OFF	비상측 스위치
- 설정 (Settings):** Allows modification of parameters. It includes sections for '기본 설정' (Basic Settings), '상대 설정' (Relative Settings), and '전압/주파수 설정' (Voltage/Frequency Settings). Each section contains a table of parameters with '현재 값' (Current Value) and '설정 값' (Setting Value) columns.
 

구분	현재 값	설정 값
상대/비상측	Enable	Enable
PickUp	176	176.0 V
TimeDelay	1	1.0 ms

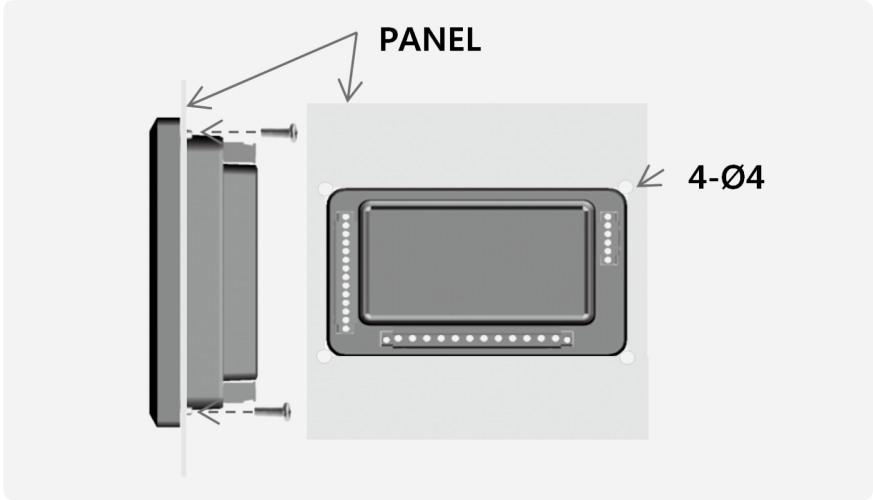
# 6. Dimension

Appearance and dimension : 180(W) x 120(H) x 56.6(D) (mm)



# 7. Installation

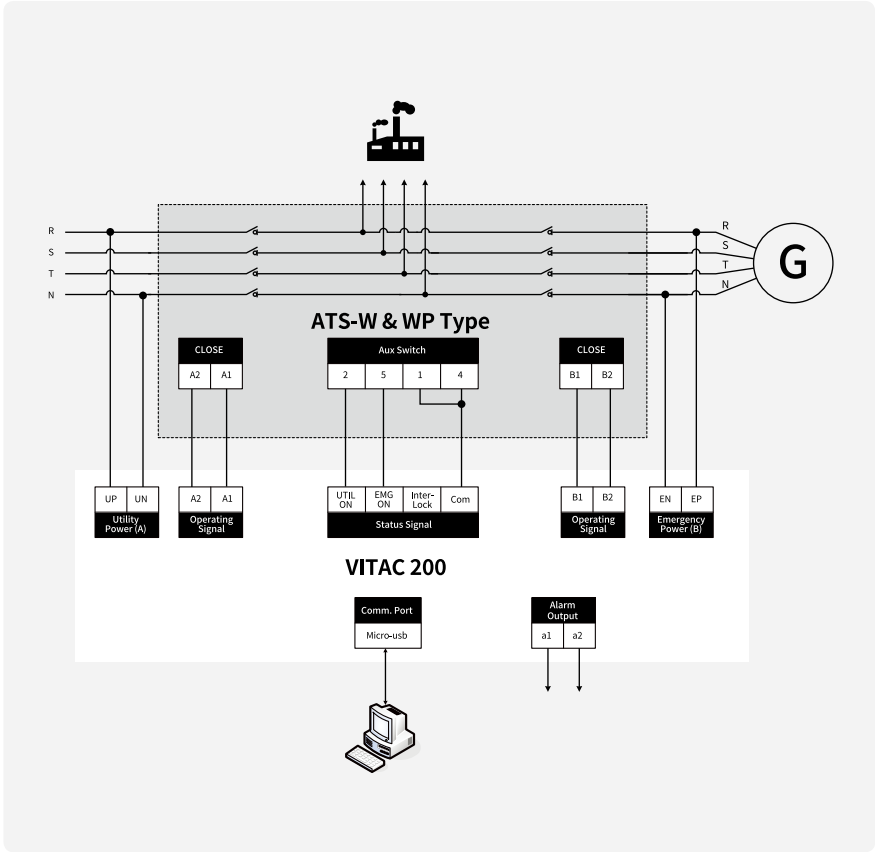
The following figure shows how to install the VITAC 200 and the installation conditions.



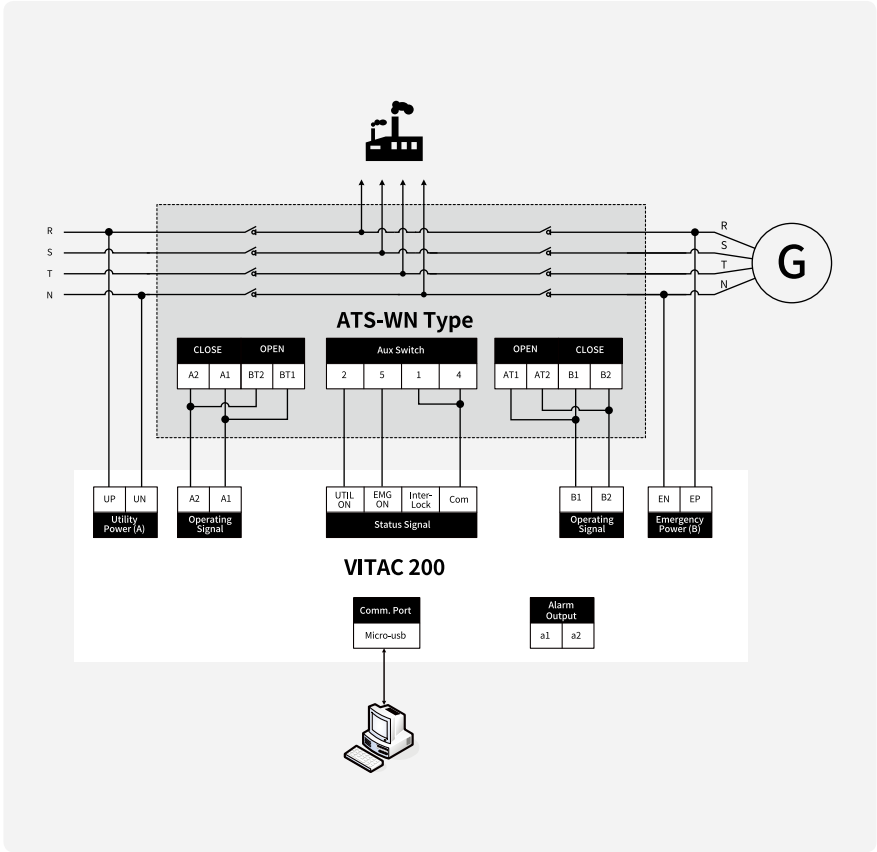
※ VITAC 200 penetrates into the panel when installed. M4×L12 bolts are used (based on 3t panel thickness).

# 8. External connection wiring diagram

## 8. 1 ATS-W&WP Type connection wiring diagram



8. 2 ATS-WN Type connection wiring diagram



## 9. Test results

### 2. 제조자 정보

- 회사명 : 비츠로이얼
- 주 소 : 경기도 안산시 단원구 별망로 327

### 3. 시험 요약

#### 3.1 적용 기준

- KS C IEC 60947-1: 2014

#### 3.2 시험항목 및 결과

시험 항목	기본 규격	시험 결과
경전기 방전 내성시험	IEC 61000-4-2:2010	■ 적합 □ 부적합
전기자기 방사 내성시험	IEC 61000-4-3:2013	■ 적합 □ 부적합
전기적 빠른 과도현상 내성시험	IEC 61000-4-4:2013	■ 적합 □ 부적합
서지 내성시험	IEC 61000-4-5:2008	■ 적합 □ 부적합
전자기장 전도 내성시험	IEC 61000-4-6:2010	■ 적합 □ 부적합
전원 주파수 자계 내성 시험	IEC 61000-4-8:2010	■ 적합 □ 부적합
전압강하 및 순간정전 내성시험	IEC 61000-4-11: 2008	■ 적합 □ 부적합

- 상기 시험 항목은 산업현장의 요청에 따른 시험 항목임.

#### 3.3 수검기기의 보완내용

\* 해당없음.



# WARRANTY



**Model**

**Manufacturing No.**

Warranty Period		Year	
Date Purchased		Year	Month      Date
Customer	Company	Tel.	
	Address		
Store	Name		
	Store Name		
	Address	Tel.	

- This product has been manufactured through strict quality control and testing.
- If the product is defective due to any manufacturing defect, we will repair it at no cost within the warranty period.
- After the expiration of the warranty period, we will repair the product at actual cost.
- Please produce this warranty when requesting repair service

## ☀ Service Details

- Free Service**
  - 2 years from date of purchase
  - (2.5 years from date of manufacture if purchase date can not be confirmed)
- Paid Service**
  - You must pay a certain amount of fee after the warranty period and in the following cases.
  - When the product is defective due to user negligence.
  - When the product has been repaired or remodeled by a person other than authorized service personnel.
  - When the product is defective or damaged due to natural disasters such as fire and flood.
  - When the user is not able to produce this warranty.

## VITZRO EM

**MEMO**

# MEMO

# MEMO

# VITZRO EM

INSTRUCTION MANUAL

## VITAC 200

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### **Service Center**

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- This user manual is downloadable in the internet.
- This user manual may be revised without any prior notice for the performance improvement.
- Please contact VITZROEM for any product abnormalities and inconveniences.

**[www.vitzroem.com](http://www.vitzroem.com)**

**Head office & factory**

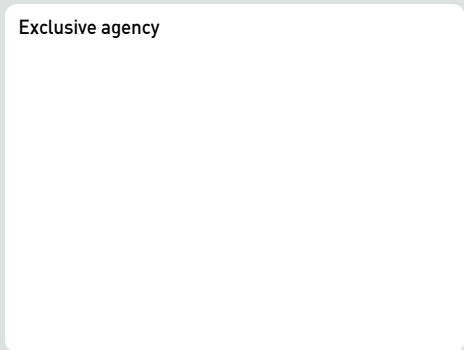
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Specifications in this Manual are subject to change without notice  
due to continuous product development and improvement.

2018.03(E-01)