

GP-4G01 Installation Guide

Please read the "Warning/Caution Information" on the attached sheet before using the product.

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Important Information

Notice

Read these instructions carefully, and look at the equipment to become familiar with the device before trying to install, operate, or maintain it. The following special messages may appear throughout this documentation or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.



The addition of this symbol to a "Danger" or "Warning" safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

A DANGER

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

▲ WARNING

WARNING indicates a hazardous situation which, if not avoided, **could result in** death or serious injury.

A CAUTION

CAUTION indicates a hazardous situation which, if not avoided, **could result** in minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to physical injury.

PLEASE NOTE

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric or any of its affiliates or subsidiaries (hereinafter, referred to as Schneider Electric) for any consequences arising out of the use of this material. A qualified person is one who has skills and knowledge related to the construction and operation of electrical equipment and its installation, and has received safety training to recognize and avoid the hazards involved. If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

Overview

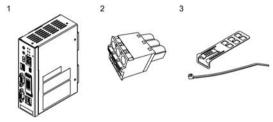
You can connect this product to a serially connected system with display units and external devices (such as PLCs), and get data from the external devices without changing the existing program. This data can then be collected and displayed on a PC.

NOTE:

- Even if this product is turned off, communication on the existing system between external devices and display units will continue.
- Before integrating this product into any system, transfer project data to the product using screen editing software, and define the product's IP address and other Ethernet settings using a Web browser. This product's IP address is 192.168.1.100 at time of purchase.
 For configuration settings, refer to the GP-4G01 Hardware Manual.

Package Contents

The following items are included in the package. Before using this product, please confirm that all items listed here are present.



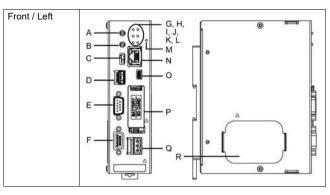
- 1 GP-4G01 (model number: PFXGP4G01D): 1
- 2 DC Power Supply Connector: 1
- 3 USB Clamp Type A (1 port): 1 set (1 clip and 1 tie)
- 4 GP-4G01 Installation Guide (this guide): 1
- 5 Warning/Caution Information: 1
- 6 License Agreement: 1

This product has been carefully packed, with special attention to quality. However, should you find anything damaged or missing, please contact customer support immediately.

About the Manual

This manual describes wiring and installation procedures. For more detailed information, refer to the GP-4G01 Hardware Manual You can download the manual from our website at http://www.pro-face.com/trans/en/manual/1001.html.

Part Identification and Functions



- A: USB storage eject switch
- B: SD card eject switch
- C: RS-232C/RS-422 change switch
- D: USB (Type A) interface
- E: Serial interface (PLC/COM1) (see page 13)
- F: Serial interface (HMI) (see page 14)
- G: USB1 storage access LED (USB1)
- H: Status LED (STA)
- I: PLC access LED (PLC)
- J: Error LED (ERR)
- K: HMI access LED (HMI)
- L: SD card access LED (SD)
- M: Power LED (PWR)
- N: Ethernet interface
- O: USB (mini-B) interface
- P: SD card interface cover / Battery interface cover
- Q: Power connector
- R: Termination resistance cover

NOTE: To remove the SD card or the USB storage from this product, use eject switch. Refer to the GP-4G01 Hardware Manual on how to remove the SD card/USB storage.

LED Indications

Power LED (PWR)

Color	Indicator	HMI operation	Logic program operation*1
Green	ON	Offline	-
		In operation	RUN
	Flashing	Waiting to receive initialize Ethernet settings*2 or process Memory Loader*1.	STOP
Orange	Flashing	Software starting up.	
	Flashing (Fast)	Starting up / Processing Memory Loader*1.	
Red	ON	Power is turned ON.	
	Flashing	In operation	Major error
-	OFF	Power is turned OFF.	

^{*1} For information on features supported by the screen editing software and their operation, refer to your screen editing software manual.

Status LED (STA)

Color	Indicator	Description
Green	ON	In operation (This product can get data from external devices)
-	OFF	Any status except "In operation". (When this product is offline, only the existing communication between external devices and display units is available.)

Error LED (ERR)

Color	Indicator	Description
Red	ON	Major error
	Flashing	Minor error
-	OFF	In operation

NOTE: If the error LED is on or flashing, start a web browser from a computer connected to this product via the network, and type this unit's IP address to check the error information.

^{*2} For details, refer to GP-4G01 Hardware Manual.

PLC access LED (PLC)

Color	Indicator	Description	
Green	Flashing	In communication with connected device	
-	OFF	In idle state or not communicating	

HMI access LED (HMI)

Color	Indicator	Description
Green	Flashing	In communication with display unit
-	OFF	In idle state or not communicating

USB1 storage access LED (USB1)

Color	Indicator	Description
Green	ON	USB storage is attached.
-	OFF	USB storage is not attached or is not detected.

SD card access LED (SD)

Color	Indicator	Description	
Green	ON	SD card is inserted.	
-	OFF	SD card is not inserted or is not detected.	

Ethernet LED

	Color	Indicator	Description
2.000x47546	Green	Flashing	Data transmission is occurring.
Active Link	(Active)	OFF	No data transmission
	Green	ON	Data transmission is available
	(Link)		in 10 BASE-T/100 BASE-TX.
		OFF	No connection or error

Electrical Specifications

	Rat	ed input voltage	24 Vdc
	Input voltage limits		19.228.8 Vdc
	Volt	age drop	5 ms or less
hddn	ption	Maximum power consumption	11 W or less
Power supply	Power consumption	When power is not supplied to external devices	7 W or less
	In-r	ush current	30 A or less
Vol	Voltage endurance		1,000 Vac, 20 mA for 1 minute (between charging and FG terminals)
Insulation resistance		n resistance	500 Vdc, 10 MΩ or more (between charging and FG terminals)

Environmental Specifications

	Ambient air temperature	060 °C (32140 °F)
art	Storage temperature	-2060 °C (-4140 °F)
environment	Ambient air and storage humidity	1090% RH (non-condensing, wet bulb temperature 39 °C [102.2 °F] or less)
cal env	Dust	0.1 mg/m ³ (10 ⁻⁷ oz/ft ³) or less (non-conductive levels)
Physical	Pollution degree	For use in Pollution Degree 2 environment
à	Atmospheric pressure (operating altitude)	8001,114 hPa (2,000 m [6,561 ft] or lower)

Interface Caution

Use only the SELV (Safety Extra-Low Voltage) circuit to connect the serial, USB, and ethernet interfaces.

A A DANGER

ELECTRIC SHOCK AND FIRE

When using the SG terminal to connect an external device to this product:

- · Verify that a ground loop is not created when you set up the system.
- Connect the SG terminal to remote equipment when the external device is not isolated.
- Connect the SG terminal to a known reliable ground connection to reduce the risk of damaging the circuit.

Failure to follow these instructions will result in death or serious injury.

Serial Interface

Use the RS-232C/RS-422 change switch to toggle between RS-232C and RS-422/RS-485 communication.

For information on how to connect controllers and other types of equipment, refer to the corresponding device driver manual of your screen editing software.

The serial interface is not isolated. The SG (signal ground) and the FG (functional ground) terminals are connected inside this product.

A WARNING

UNINTENDED EQUIPMENT OPERATION

Turn off the power supply before changing the communication method.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

A CAUTION

LOSS OF COMMUNICATION

- All connections to the communication ports must not put excessive stress on the ports.
- · Securely attach communication cables to the panel wall or cabinet.
- Use the D-Sub 9 pin connector with rock function.
- · Set the retry settings of the serial communication.

Failure to follow these instructions can result in injury or equipment damage.

NOTE: Use within the rated current.

Serial interface (PLC/COM1)

D-Sub 9 pin plug connector. Interfit bracket is #4-40 (UNC).

Pin	RS-232C			
number	Signal name	Direction	Meaning	
1	CD	Input	Carrier detect	
2	RD(RXD)	Input	Receive data	
3	SD(TXD)	Output	Send data	
4	ER(DTR)	Output	Data terminal ready	
5	SG	_	Signal ground	
6	DR(DSR)	Input	Data set ready	
7	RS(RTS)	Output	Request to send	
8	CS(CTS)	Input	Send possible	
9	CI(RI)/VCC	Input/–	Called status display +5 V ±5% output 0.25 A*1	
Shell	FG	_	Frame ground (common with SG)	

^{*1} You can switch pin #9 between RI and VCC via software. To prevent damage or a unit malfunction, use only the rated current.

Pin	RS-422/RS-485		
number	Signal name	Direction	Meaning
1	RDA	Input	Receive data A (+)
2	RDB	Input	Receive data B (–)
3	SDA	Output	Send data A (+)
4	ERA	Output	Data terminal ready A (+)
5	SG	-	Signal ground
6	CSB	Input	Send possible B (-)
7	SDB	Output	Send data B (–)
8	CSA	Input	Send possible A (+)
9	ERB	Output	Data terminal ready B (–)
Shell	FG	_	Frame ground (common with SG)

Serial interface (HMI)

D-Sub 9 pin socket connector. Interfit bracket is #4-40 (UNC).

Pin	RS-232C		
number	Signal name	Direction	Meaning
1	RS(RTS)	Output	Request to send
2	SD(TXD)	Output	Send data
3	RD(RXD)	Input	Receive data
4	CS(CTS)	Input	Send possible
5	SG	-	Signal ground
6	NC	_	-
7	NC	_	-
8	ER(DTR)	Output	Send data
9	NC	_	_
Shell	FG	_	Frame ground (common with SG)

Pin	RS-422/RS-485		
number	Signal name	Direction	Meaning
1	SDA	Output	Send data A (+)
2	SDB	Output	Send data B (–)
3	RDA	Input	Receive data A (+)
4	CSA	Input	Send possible A (+)
5	SG	-	Signal ground
6	ERB	Output	Data terminal ready B (–)
7	RDB	Input	Receive data B (–)
8	ERA	Output	Data terminal ready A (+)
9	CSB	Input	Send possible B (-)
Shell	FG	-	Frame ground (common with SG)

Termination resistance

Attach a resistance with the same resistance as the current system's termination resistance to both this product's HMI and PLC/COM1 terminals.

NOTE: Do not add a resistance if the current system does not use termination resistance.

	Serial interface	Direction
SD A-B	НМІ	between SDA to SDB
RD A-B	НМІ	between RDA to RDB
CS A-B	НМІ	between CSA to CSB
ER A-B	НМІ	between ERA to ERB
SD A-B	PLC/COM1	between SDA to SDB
RD A-B	PLC/COM1	between RDA to RDB
CS A-B	PLC/COM1	between CSA to CSB
ER A-B	PLC/COM1	between ERA to ERB

Recommended resistor

Lead wire type	L D
Length (L)	less than 9 mm (0.35 in)
Diameter (D)	less than 3.5 mm (0.14 in)

A CAUTION

EQUIPMENT DAMAGE

Use resistor rated for 75 °C (167 °F) or higher.

Failure to follow these instructions can result in injury or equipment damage.

Installing the resistor

	Step	Action
ſ	1	Confirm the power cord is not connected to the power supply.

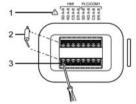
Open the termination resistance cover.



3 Set up the resistor's lead wires as shown in the image below.



- 4 Push the Opening button with a small and flat screwdriver*1 to open the desired hole.
- Insert lead wire of resistor into its corresponding holder. Release the Opening button to clamp the lead wire in place.



- 1 Safety alert symbol (See the safety messages on page 15.)
- 2 Resistor
- 3 Opening button

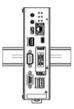
NOTE:

- Attach resistors so they do not come into contact with each other.
- Confirm both ends of the lead wires are inserted in the appropriate holes and all resisters are affixed securely to the terminal.
- 6 Close the termination resistance cover.
- 7 Confirm the RS-232C/RS-422 change switch is set to RS-422 before powering this product.

^{*1} Recommended driver: SZS 0.4x2.5 VDE (1205037) made by Phoenix Contact.

Installation Requirements

You can install this product directly to the DIN rail. Attach this product vertically as shown in the following illustration.



Be aware of the following when building this product into an end-use product:

- · Install this product in an enclosure with mechanical rigidity.
- · This product must be used indoors only.

Check that the installation wall or cabinet surface is flat, in good condition and has no jagged edges. Metal reinforcing strips may be attached to the inside of the wall, near the installation location, to increase its rigidity.

Depending on the panel's material and design, the panel's installation surface may need to be strengthened. If high levels of vibration are expected and the installation surface of this product (such as operation panel door) can move (open or close), due consideration should be given to the weight of this product.

Check that the ambient air temperature and ambient humidity are within their designated ranges (see page 11). When installing this product in a cabinet or enclosure, consider the surrounding air temperature for both the internal temperature and external temperature.



- 1 Internal temperature
- 2 External temperature

Be sure that heat from surrounding equipment does not cause this product to exceed its standard operating temperature.

Check the vertical direction of this product. Attach this product to the vertical plane.

For easier maintenance, operation, and improved ventilation, install this product at least 100 mm (3.94 in) away from adjacent structures and other equipment as shown in the following diagram.





The SG and the FG terminals are connected inside this product. In a system where the distance between external devices and the display unit is significant, install this product closer to the display unit, grounded at one point. If this product is installed away from the display unit, depending on the installation environment this product may be strongly affected by noise.



Installation Procedure

A A DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

- Remove all power from the device before removing any covers or elements of the system, and prior to installing or removing any accessories, hardware. or cables.
- Unplug the power cable from both this product and the power supply.
- Always use a properly rated voltage sensing device to confirm power is off.
- Replace and secure all covers or elements of the system before applying power to this product.

Failure to follow these instructions will result in death or serious injury.

A CAUTION

RISK OF INJURY

Do not drop this product when installing or removing it from the DIN rail.

- · Hold this product when installing or removing it from the DIN rail.
- Use both hands.

Failure to follow these instructions can result in injury or equipment damage.

Installing to DIN Rail

NOTE:

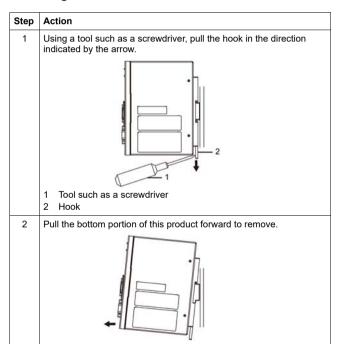
- Use the rail compatible with IEC 60715 TH35-7.5 for this product.
- In environments where this product will experience extreme vibration and shock, affix this product to the DIN rail with compatible fasteners, as required.

Step	Action
1	Confirm the bottom hook on the back of this product is raised then hook the upper groove onto the DIN rail.
	3
	1 Panel 2 DIN rail
	3 Hook

2 Push the bottom part onto the rail until you hear a click.



Removing from DIN Rail



Wiring

A A DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

- Remove all power from the device before removing any covers or elements
 of the system, and prior to installing or removing any accessories,
 hardware, or cables.
- · Remove power before wiring this product's power terminals.
- Always use a properly rated voltage sensing device to confirm power is off.
- Replace and secure all covers or elements of the system before applying power to this product.
- Use only the specified voltage when operating this product. This product is designed to use 24 Vdc. Always check whether your device is DC powered before applying power.
- Since this product is not equipped with a power switch, be sure to connect a power switch to the power supply.
- · Be sure to ground this product's FG terminal.

Failure to follow these instructions will result in death or serious injury.

A CAUTION

EQUIPMENT DAMAGE

For power cord, use copper wire rated for 75 °C (167 °F) or higher.

Failure to follow these instructions can result in injury or equipment damage.

Power Connector



1 Safety alert symbol (See the safety messages above.)

NOTE:

- The SG (signal ground) and FG (functional ground) terminals are connected internally in this product.
- When the FG terminal is connected, be sure the wire is grounded. Not grounding this
 product can result in excessive electromagnetic interference (EMI).

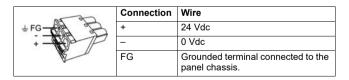
DC Power Cord Preparation

- Make sure the ground wire is either the same or heavier gauge than the power wires.
- Do not use aluminum wires in the power supply's power cord.
- To prevent the possibility of a terminal short, use a pin terminal that has an insulating sleeve.
- If the ends of the individual wires are not twisted correctly, the wires may create a short circuit.
- · The conductor type is solid or stranded wire.

Power cord diameter*1	0.752.5 mm ² (AWG 1813)
Conductor type	Solid or stranded wire
Conductor length	mm in 10 0.39
Recommended driver*2	SZS 0.6x3.5 (1205053)
Recommended pin terminals*2	3201288 AI 0,75-10 GY 3200182 AI 1 -10 RD 3200195 AI 1,5 -10 BK 3202533 AI 2,5 -10 BU
Recommended pin terminal crimp tool*2	CRIMPFOX 6

^{*1} For UL compatibility, use AWG 14 or AWG 13.

DC Power Supply Connector Specifications



^{*2} Items are made by Phoenix Contact.

How to connect the DC Power Cord

Step	Action		
1	Confirm the power cord is not connected to the power supply.		
2	Check the rated voltage, and remove the "DC24V" sticker on the DC power supply connector.		
3	Remove 10 mm (0.39 in) of the vinyl membrane off the ends of the power cord wires.		
4	Push the Opening button with a small and flat screwdriver to open the desired pin hole.		
5	Insert each pin terminal into its corresponding holder. Release the Opening button to clamp the pin in place. 24 Vdc 1 Power cable 2 Opening button When using stranded wire, do not short with neighboring wires.		
6	After inserting all three pins, insert the DC power supply connector into the power connector on this product.		

NOTE: Do not solder the wire directly to the power receptacle pin.

Wiring Precautions

A A DANGER

SHORT CIRCUIT, FIRE, OR UNINTENDED EQUIPMENT OPERATION

Avoid excessive force on the power cable to prevent accidental disconnection

- · Securely attach power cables to an installation panel or cabinet.
- Install this product on DIN rail prior to connecting power supply and communication lines.

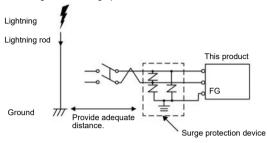
Failure to follow these instructions will result in death or serious injury.

Improving Noise/Surge Resistance

- This product's power supply cord should not be bundled with or kept close to main circuit lines (high voltage, high current), power lines, or input/output lines, and their various systems should be kept separate. When power lines cannot be wired via a separate system, use shielded cables for input/output lines.
- Make the power cord as short as possible, and be sure to twist the ends of the wires together (i.e. twisted pair cabling) from close to the power supply unit.
- If there is an excess amount of noise on the power supply line, reduce the noise with a noise filter before turning on the power.
- · Connect a surge protection device to handle power surges.
- To increase noise resistance, attach a ferrite core to the power cable.

Power Supply Connections

- Use SELV (Safety Extra-Low Voltage) circuit and LIM (Limited Energy) circuit for DC input.
- The following shows a surge protection device connection.

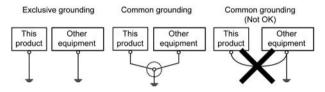


Attach a surge protection device to prevent damage to this product as a result of a lightning-induced power surge from a large electromagnetic field generated from a direct lightning strike. We also strongly recommend to connect the crossover grounding wire of this product to a position close to the ground terminal of the surge protection device.

It is expected that there will be an effect on this product due to fluctuations in grounding potential when there is a large surge flow of electrical energy to the lightning rod ground at the time of a lightning strike. Provide adequate distance between the lightning rod grounding point and the surge protection device grounding point.

Grounding

- Check that the grounding resistance is 100 Ω or less.*1
- The FG wire should have a cross sectional area greater than 2 mm² (AWG 14)*1. Create the connection point as close to this product as possible, and make the wire as short as possible. When using a long grounding wire, replace the thin wire with a thicker wire, and place it in a duct.
- *1 Observe local codes and standards.



Short Circuit Prevention

 The SG (signal ground) and FG (functional ground) terminals are connected internally in this product. When connecting the SG line to another device, be sure that no ground loop is formed.

Connection to the USB interface

When using a USB device, attach a USB clamp to the USB interface to prevent the USB cable from being disconnected.

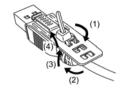
USB Clamp

Attaching the USB Clamp Type A

NOTE: Watch your fingers. The edge of the clip is sharp.

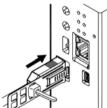
Step	Action
1	On the side without the USB mark, , mount the USB cable connector shell to the clip so they overlap. The clip matches the 27 to 43.5 mm (1.06 to 1.71 in) length of the USB connector.
	2743.5 mm (1.061.71 in)
2	Align the clip and the USB cable connector shell. Adjust the position of the holes where the clip is attached. To ensure stability, select the clip-hole position that is closest to the base of the connector shell.

As shown, pass the tie through the clip hole. Next, turn the tie and pass it through the head so that the USB cable can pass through the center of the tie loop. The clip is now attached to the USB cable.



NOTE:

- Check the direction of the head beforehand. Make sure the USB cable is through the center of the tie loop and that the tie can pass through the head.
- You can substitute the tie provided with PFXZCBCLUSA1 (by Pro-face) or other commercially available ties with a width of 4.8 mm (0.19 in) and thickness of 1.3 mm (0.05 in).
- While pressing the grip on the clip, insert the cable from step 3 all the way into the USB (Type A) interface. Make sure that the clip tab is secured to the USB cable attached to this product.



Removing the USB Clamp Type A

Step	Action
1	Remove the USB cable while pushing the grip section of the clip.
	BBC

Replacing the Battery

This product is equipped with a replaceable battery (non-rechargeable). The battery is required to enable backing up of internal clock data and data obtained from external devices. If the voltage from this battery falls, the backup data will be lost.

A A DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

- Remove all power from the device before removing any covers or elements of the system, and prior to installing or removing any accessories, hardware, or cables.
- · Unplug the power cable from both this product and the power supply.
- Always use a properly rated voltage sensing device to confirm power is off.
- Replace and secure all covers or elements of the system before applying power to this product

Failure to follow these instructions will result in death or serious injury.

NOTICE

LOSS OF DATA

- Replace the battery regularly every five years after you purchase this product.
- · Allow only qualified personnel to change the battery.
- Before replacing the battery, turn on this product for at least 5 minutes.
 Additionally, replace the battery within 5 minutes of turning off the power to this product.

Failure to follow these instructions can result in equipment damage.

A DANGER

EXPLOSION, FIRE, OR CHEMICAL HAZARD

Follow these instructions for the lithium batteries:

- Use this product's replacement battery only.
- Protect battery from any potential short circuit.
- · Recycle or properly dispose of used batteries.
- Do not recharge, disassemble or heat above 80 °C (176 °F).
- Use your hands or insulated tools to remove or replace the battery.

Failure to follow these instructions will result in death or serious injury.

Use only the replacement battery (model number: PFXZCBBT1).

Step	Action
1	Disconnect the power supply from this product and detach cables from this product's serial interface.
2	Touch the housing or ground connection (not the power supply) to discharge any electrostatic charge from your body.
3	Open the SD card interface cover by pressing its tab. Next, open the battery interface cover by pressing its tab. 1 SD card interface cover 2 Battery interface cover 3 Safety alert symbol (See the safety messages above.)

1 Connector
2 Primary battery
Insert the replacement battery and connector all the way. Either side of the battery can face top or bottom.

6 First close the replacement battery cover, then close the SD card interface cover.

NOTE: Insert the battery connector cables completely inside the enclosure.

Cleaning this product

NOTICE

EQUIPMENT DAMAGE

- · Power off this product before cleaning it.
- Do not use paint thinner, organic solvents, or a strong acid compound to clean the unit.

Failure to follow these instructions can result in equipment damage.

When this product gets dirty, soak a soft cloth in water with a neutral detergent, wring the cloth tightly and wipe this product.

Standards

For information on certifications and standards, such as certified models and certificates, see the product markings or the following URL: http://www.pro-face.com/trans/en/manual/1002.html

Inquiry

Do you have any questions about difficulties with your unit? Please access our site any time that you need help with a solution.

http://www.pro-face.com/trans/en/manual/1001.html

- Note

Please be aware that Schneider Electric shall not be held liable by the user for any damages, losses, or third party claims arising from the uses of this product.