

Neopanel™2

Model QJ-1301

■ Overview

This product (model QJ-1301) is a user interface device for remote units such as VAV Controllers (model WJ-1201C5), FCU Controllers (model WJ-1202), and General Controllers (model WJ-1111). It provides a means of turning air conditioning ON/OFF, changing temperature or fan speed settings, etc. Also, it can display outdoor temperature or weather information.

This product has a built-in temperature sensor so that the measured temperature can be displayed and used for temperature control without installation of a separate temperature sensor.*

* The temperature measured by the sensor built into this product may be affected by the wall temperature depending on the conditions where it is installed. The effect on the measured temperature can be reduced by using the auxiliary thermoplate.



Model QJ-1301S0

Model QJ-1301S1

■ Features

- Operation
The product has a flat design using capacitive touch buttons instead of push buttons for operations like turning the air conditioning ON/OFF and changing the temperature or air flow settings. Batch settings for groups of remote units can also be done.
- Display
Large characters and simple icons allow intuitive operation. Users can check outdoor temperature and rainfall information on the display.
- Colors
White or black can be selected according to the room

Safety Precautions

Please read the instructions carefully and use the product as specified in this manual.
Be sure to keep this manual nearby for quick reference.

Restrictions on Use

This product was developed, designed, and manufactured for general air conditioning use.

Do not use the product in a situation where human life may be at risk or for nuclear applications in radiation-controlled areas. If you wish to use the product in a radiation-controlled area, please contact Azbil Corporation.

Particularly when the product is used in applications like the following where safety is especially required, implementation of fail-safe design, redundant design, regular maintenance, etc., should receive appropriate consideration so that the product can be used safely and reliably.

- Safety devices for protecting the human body
- Start/stop control devices for transportation machines
- Aeronautical/aerospace machines

For system design, application design, instructions for use, or product applications, please contact Azbil Corporation. Azbil Corporation bears no responsibility for any result, or lack of result, deriving from the customer's use of the product.

Caution for Instrumentation Design

- Taking into consideration unexpected failures or contingencies, be sure to design and check the safety of the system and equipment.

Recommended Design Life (Recommended Period of Use)



It is recommended that this product be used within its design life. The design life is the period during which you can use the product safely and reliably based on the design specifications. If the product is used beyond this period, its failure ratio may increase due to time-related deterioration of parts, etc. The design life during which the product can operate reliably with the lowest failure ratio and least deterioration over time is estimated scientifically based on acceleration tests, endurance tests, etc., taking into consideration the operating environment, conditions, and frequency of use as basic parameters.

The design life of this product is 10 years.





The design life specified for this product assumes that maintenance, such as replacement of the limited life parts, is carried out properly.









Refer to the section on maintenance in this manual.

Warnings and Cautions

	WARNING	Alerts users that improper handling may cause death or serious injury.
	CAUTION	Alerts users that improper handling may cause minor injury or material loss.

Symbols

	Notifies users that specific actions are prohibited to prevent possible danger. The symbol inside  graphically indicates the prohibited action. (For example, the sign on the left means that disassembly is prohibited.)
	Instructs users to carry out a specific obligatory action to prevent possible danger. The symbol inside  graphically indicates the actual action to be carried out. (For example, the sign on the left indicates general instructions.)

 CAUTION	
	Do not use the product where it is exposed to direct sunlight. Doing so may cause the internal temperature to rise, resulting in an accident or device failure.
	Install, wire, and use this product under the conditions specified by this manual. Failure to do so may cause fire or device failure.
	Installation and wiring must be performed by personnel qualified to do instrumentation and electrical work. Mistakes in installation or wiring may cause fire or electric shock.
	After installing this product, check that it is steady and does not move. Otherwise it may fall or fail.
	Before wiring or maintenance, turn off the power to this product. Failure to do so may result in electric shock or device failure.
	All wiring must comply with applicable codes and ordinances. Otherwise there is a danger of fire.
	Keep this product in its package for storage. Failure to do so may result in the product being damaged or stained.

IMPORTANT • Do not allow chemicals (e.g., solvents, oil, or cleaning agents) to contact this product. They may damage the case.

System Configuration

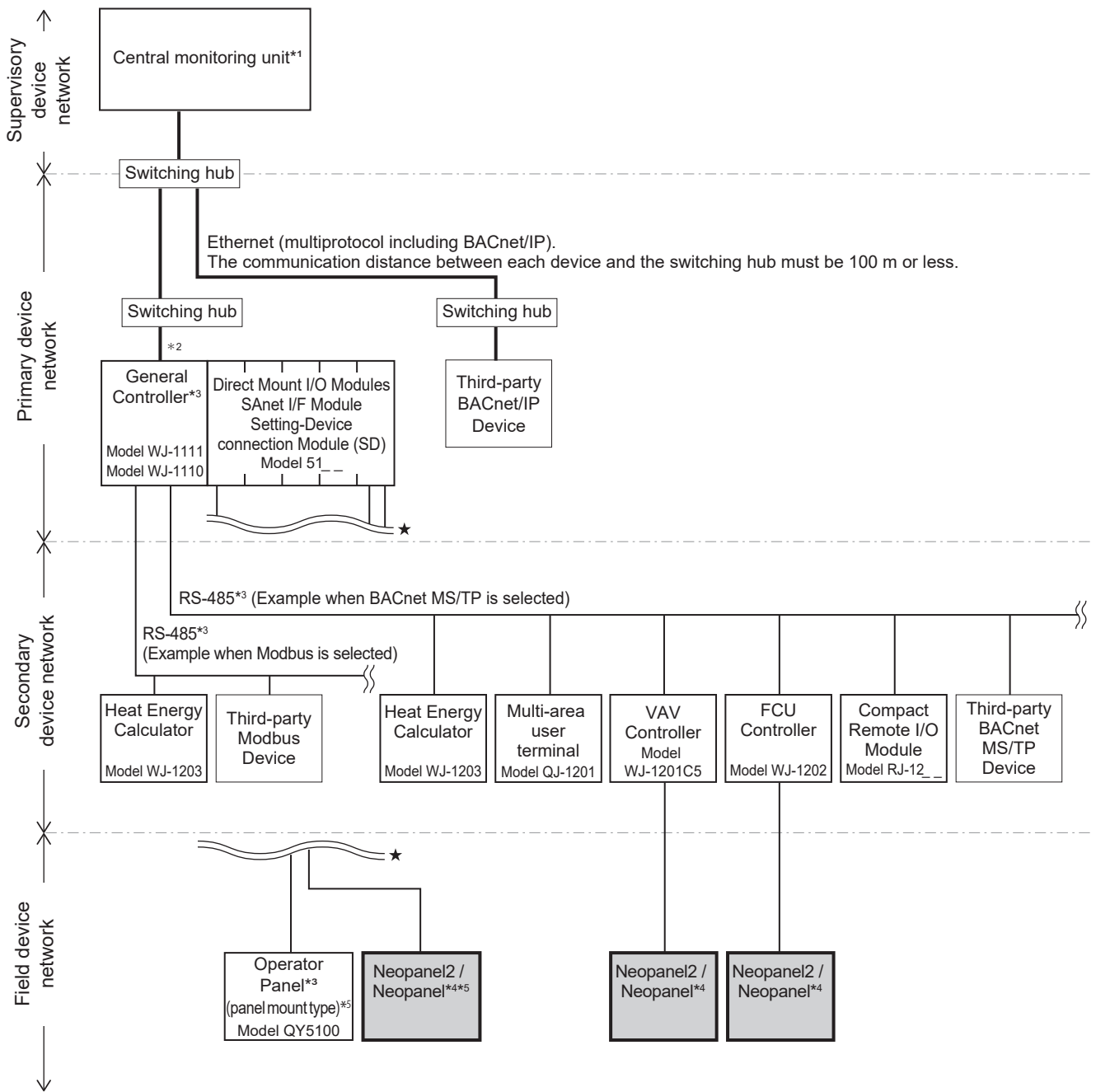


Figure 1 System configuration example

- *1 Azbil's Supervisory Controller (model BH-101G0W0000) or a third-party central monitoring unit using BACnet/IP communications can be used for central monitoring.
- *2 The General Controller supports BACnet/IPv4 or BACnet/IPv6. The IPv6 specification is based on BACnet-2012 (the IEL-EJ-G-0006:2017 standard by the Institute of Electrical Installation Engineers of Japan) with ANNEX U of BACnet-2016.
- *3 The General Controller has two RS-485 communication channels.
 For each channel, a communication protocol can be selected from among BACnet MS/TP, Modbus™ RTU, and Modbus ASCII.
 - Number of devices that can be connected for BACnet MS/TP
 - If only Azbil devices are connected:**
 50 devices/channel (VAV/FCU Controllers, Compact Remote I/O Modules, Heat Energy Calculator, etc.)
 For the General Controller, there are restrictions: 70 secondary devices or 50 of Azbil's VAV and FCU controllers in total.
 - If only third-party devices are connected:**
 31 devices/channel (when transmission speed is 76.8 kbps, 30 objects/device)
 - Number of devices that can be connected when Modbus is used
 - 31 devices/channel (when transmission speed is 76.8 kbps, 30 objects/device)

If the transmission speed and the number of objects for the third-party's devices are different, or if both Azbil devices and third-party devices are on the same channel, the number of devices that can be connected will vary. For details, please contact Azbil Corporation.
- *4 Neopanel2 (model QJ-1301) or Neopanel (model QY7205) can be connected.
- *5 By connecting the Setting-Device connection module (SD), the Operator Panel (Panel Mount Type), Neopanel2, Neopanel, or Neoplate can be connected. By connecting the Operator Panel (Integral Type), Neopanel2, Neopanel, or Neoplate can be connected.
 Ref.: AB-7530, Operator Panel (Panel Mount Type), Operator Panel (Integral Type) Specifications/Instructions

■ Model Number

Model number				Description
QJ-1301S				Neopanel2
	0			Color: white
	1			Color: black
		1		Address 1
		2		Address 2
			0	With Azbil logo
			1	Without Azbil logo
			0	No selection

● Options

Model number	Description
DY7203A0000	Modular branch unit
84519514-001	Thermoplate (white)
84519514-002	Thermoplate (black)

■ Specifications

Item		Specification	
Power	Voltage	7.2–14.0 V DC (supplied from the host controller)	
	Power consumption	0.4 W	
Central processing unit		32-bit	
Display		LCD (reflective twisted nematic liquid crystal at ¼ duty)	
Operation		Capacitive touch button	
Temperature measurement	Sensing element	Temperature sensor IC	
	Sensing range	0–40 °C	
	Sensing accuracy	±1.0 °C*1 (zero adjustment can be done using the controller)	
	Guaranteed range	5–40 °C	
Communication	Transmission type	For receiving: start-stop synchronization For sending: clock synchronization	
	Transmission rate	100 bps	
	Transmission distance	50 m max.	
	Number of connectable units	2	
Materials	Case and base	PC resin (flammability: UL 94 V-0)	
Mass		Approx. 90 g	
Environment	Operating conditions	Ambient temperature	0–40 °C
		Ambient humidity	10–75 % RH (without condensation)
		Vibration	3.2 m/s ² max., 10–150 Hz
	Transportation/ storage conditions	Ambient temperature	–20 to +60 °C
		Ambient humidity	5–90 % RH (without condensation)
		Vibration (storage)	3.2 m/s ² max., 10–150 Hz
		Vibration (transport)	9.8 m/s ² max., 10–150 Hz
	Other		<ul style="list-style-type: none"> • No exposure to direct sunlight. • Do not let the product get wet. No condensation allowed. • No corrosive gas should be detected.
	Installation location		Room wall surface
	Installation method		Base: mounting screw Product + base: snap-fit

*1 Sensing accuracy is the accuracy of Neopanel itself, without consideration of the ambient conditions.

■ Specifications for Wiring

Item	Recommended wire	Specification	Max. length	Connection type	Remarks
For power and remote controller bus	—	EIA/TIA-568 category 5e or higher LAN cable* φ 0.5 × 4P	50 m	Modular connector	—

* The use of an existing category 3 or 5 cable compliant with EIA/TIA-568 is acceptable.

■ Dimensions

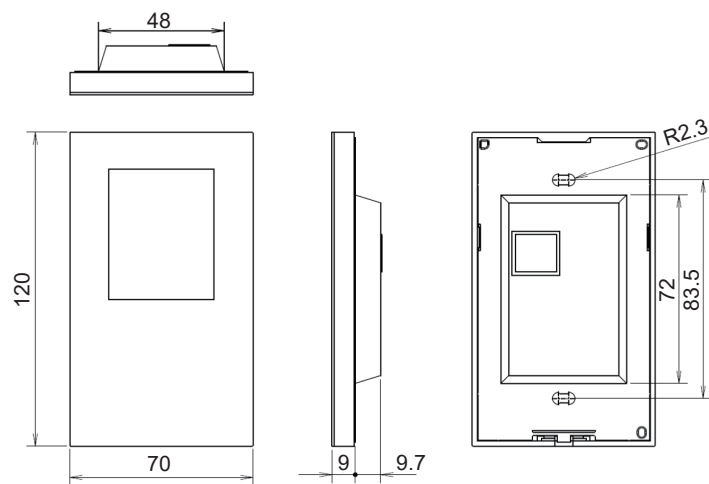


Figure 2 Dimensions (unit: mm)

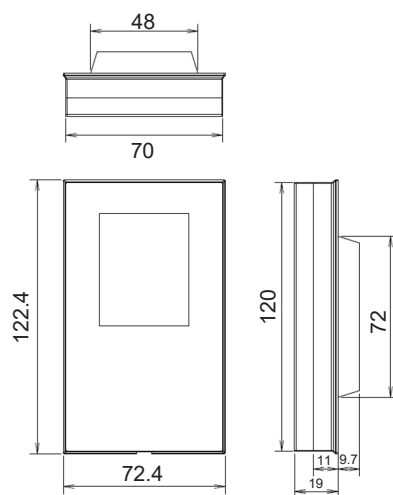


Figure 3 Dimensions (unit: mm) of this product and optional thermoplate

■ Name of Parts

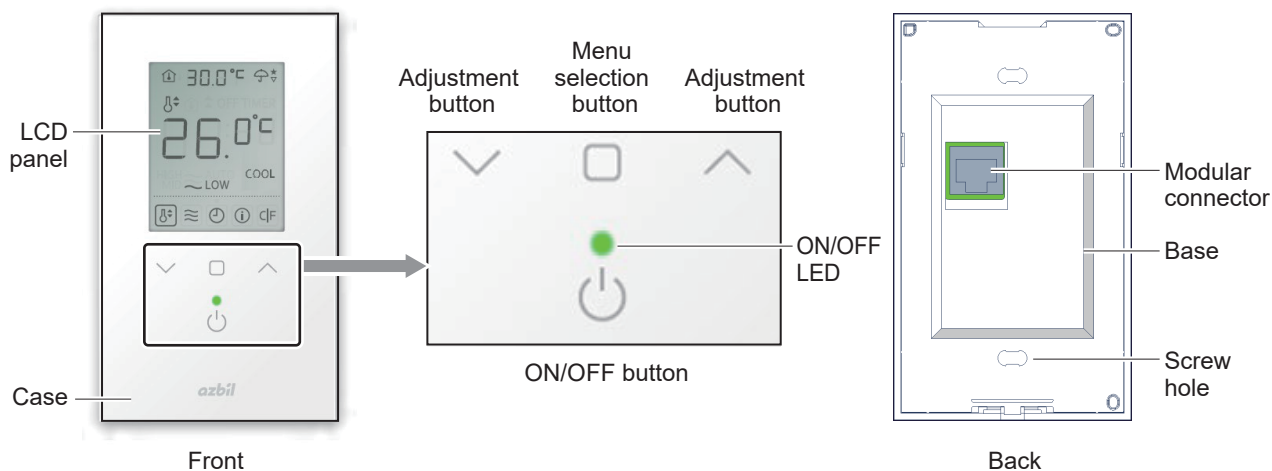








Figure 4 Name of parts

■ Functions

Function	Description
ON/OFF	Air conditioning can be turned ON/OFF by the ON/OFF button. When the AC is ON, the LED is green. When the AC is OFF, the LED is off.
Menu switching	Menus can be switched by the menu selection button. There is a frame around the icon of the selected menu. The available menus are temperature settings, fan speed settings, timer settings, display contents, and temperature unit.
Temperature settings	The adjustment buttons can be used to change the temperature settings.
Fan speed settings	The adjustment buttons can be used to change the fan speed settings. Options are low, medium, high, and automatic. Which options are available depends on the host controller's key type settings.
Timer settings	The adjustment buttons can be used to change the timer settings.
Changing the display contents	The adjustment buttons can be used to switch between the large and small displays. How the display is switched depends on the host controller's key type settings.
Changing the temperature unit	The adjustment buttons can be used to switch the unit of temperature. (Celsius: °C, Fahrenheit: °F)

■ Installation and Wiring

⚠ CAUTION	
	Do not use the product where it is exposed to direct sunlight. Doing so may cause the internal temperature to rise, resulting in an accident or device failure.
	Install, wire, and use this product under the conditions specified by this manual. Failure to do so may cause fire or device failure.
	Installation and wiring must be performed by personnel qualified to do instrumentation and electrical work. Mistakes in installation or wiring may cause fire or electric shock.
	After installing this product, check that it is steady and does not move. Otherwise it may fall or fail.
	Before wiring or maintenance, turn off the power to this product. Failure to do so may result in electric shock or device failure.
	All wiring must comply with applicable codes and ordinances. Otherwise there is a danger of fire.

● Installation Location

IMPORTANT	<ul style="list-style-type: none"> The sensor installation location is one of the important factors in control. Careful consideration should be given to choosing the location. For applications like those below, where special control accuracy is required, do not use the built-in sensor. Install a separate temperature sensor and connect its output to the controller. <ul style="list-style-type: none"> Factory, operating room, clean room, animal holding facility, etc. Where fast response to rapid changes in indoor temperature is required In a chemical atmosphere (with organic solvents, etc.), the output value may be shifted. Corrosive gas, organic solvents, and other chemicals in the atmosphere can cause measurement error of the sensor, shorten its service life, or damage it. If the sensor is to be used in special environments such as the above, please contact Azbil Corporation.
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Install this product on a wall where the conditions below are met.

- Representative temperature and humidity in the room/zone can be measured (approx. 1.5 m above the floor).
- Ambient air velocity is about 0.1–0.15 m/s.
- There is enough maintenance space left in front of the sensor.

Leave maintenance space around the product as indicated below.

- Vertical direction
 - Leave a space of at least 10 mm above the product because the product is slid down when it is mounted. Leave a space of at least 200 mm below the product since a screwdriver must be inserted into the hole at the bottom of the product when it is removed.
- Horizontal direction
 - If any other (protruding) objects are to be mounted near this product, make sure they will not interfere with each other.

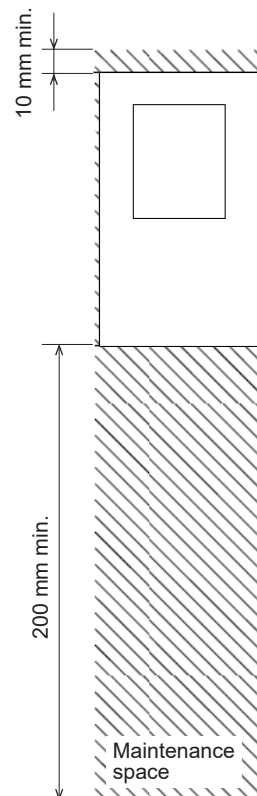


Figure 5 Maintenance space

Effects of temperature on the wall surface

With an emphasis on design, this product was given a slim profile. Therefore, there is little distance between the built-in sensor and the wall. If the temperature of the wall differs greatly from the room temperature, measurement may be affected. By installing the optional thermoplate (model 84519514-001 or 84519514-002), the distance between the wall and the built-in sensor can be increased so that the measured temperature is closer to the room temperature. If the product is installed in an environment like those below, using an additional external sensor is recommended.

- Where airflow may not reach the wall due to poor room airflow distribution
- If the wall has a large heat capacity
The wall is thick (50 mm or more), if the material is concrete, drywall (plasterboard, gypsum board), etc.
- If the room temperature differs greatly from the temperature behind the wall where the product is installed. For example, there may be an elevator shaft, corridor, etc., behind the wall where the air temperature is close to the temperature outdoors.
- If the back of the wall where the product is installed is in contact with outdoor air
- If the cooling and heating system does not run 24 hours a day and the temperature changes rapidly. (For example, the room temperature may drop greatly after the heating system is turned off in winter and rise sharply when the system is turned on. In summer, on the contrary, the room temperature may rise greatly and then drop sharply when the air conditioning system is turned on.)

● Prohibited wall installation locations

Do not install this product on a wall in the following conditions.

- Where heat accumulates (because of office devices or equipment, for example).
- Where air circulation is blocked (by furniture or a door, for example).
- Where temperature and/or humidity sensing is affected by draft, downdraft, or hot/cold air from water pipes/ducts.
- Where sensing is affected by weather conditions (including sunlight and outdoor air).

- Where there is vibration.
- Where condensation inside this product can occur.
- Where water drips on this product.
- In atmospheres with corrosive gas, organic solvent, or other chemicals.
- Outdoors or in a duct.

● Notes on Installation

- Do not allow any refuse such as wire scraps to get inside the product.
- Do not allow a wire to be caught between the product and the surface it is mounted on.
- Carefully handle the product when removing it.
- If air can penetrate to the rear of the sensor through the switch box (etc.) in the wall, shut off the air by sealing the switch box.
- Install the product vertically (not in the horizontal direction).
- Make sure that the box cover does not protrude beyond the surface of the wall.
- Make sure that the wiring conduit, bolts, etc., connected to the switch box will not interfere with this product inside the box. Also, do not apply stress to the wiring-related parts in the box.
- If the hole in the wall (board) is too large it may not be possible to mount the product, or the hole may not be hidden by the product. Make sure that the dimensions of the hole are greater than the dimensions of the protruding part of the box cover (approx. 56 × 92.5 mm) but no larger than 60 × 100 mm.
- Do not turn the mounting screws with too much force. If you do so, the product may be deformed.
- Do not touch the buttons on the product when turning the power on (for example, when you are connecting the modular cable or when turning on the power of the connected controller).
If you touched the buttons and they do not work, wait about 10 seconds and try again.

● Installation method

Parts assembly

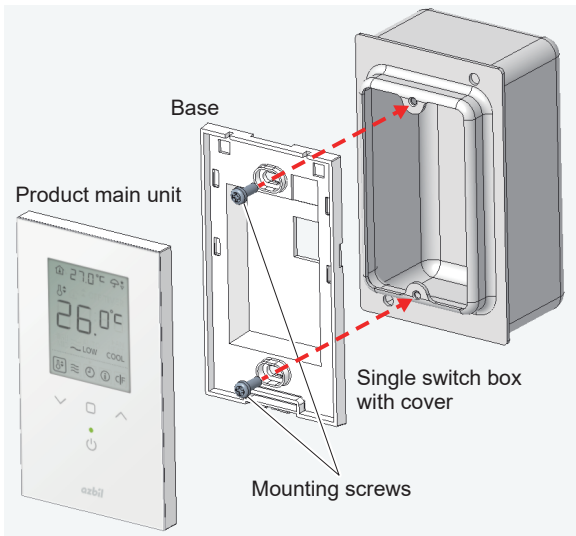


Figure 6 Parts assembly

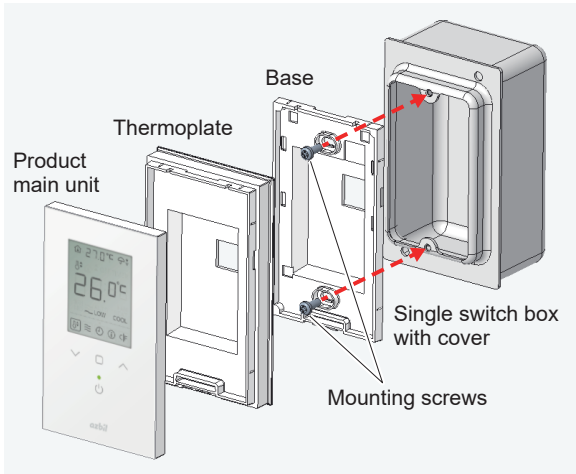
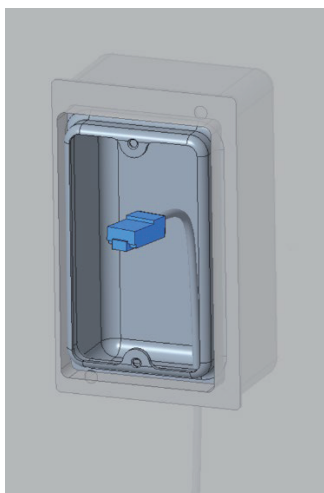


Figure 7 Parts assembly (this product + thermoplate)

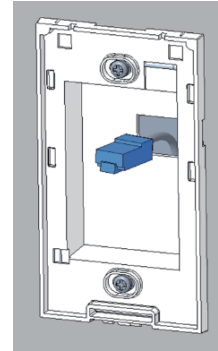
Installation method

- (1) Pull the modular cable out from the switch box.



- (2) Remove the base from the product main unit. Pass the modular cable through the hole in the base and attach the base to the switch box with the two M4 pan-head mounting screws (pitch = 83.5 mm).

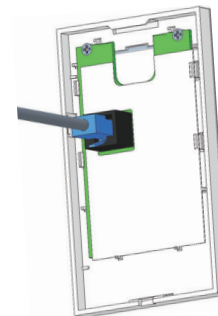
Note: If the thermoplate is used, after step (2) pass the modular cable also through the opening in the thermoplate. Then refer to step (4) and install the thermoplate on the base.



- (3) Insert the modular plug (male) into the modular connector (female) on the back of the product.

Note:

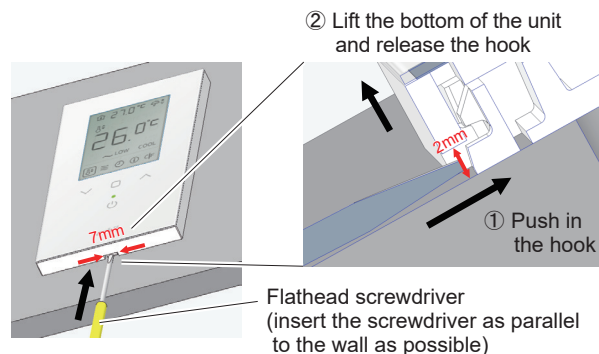
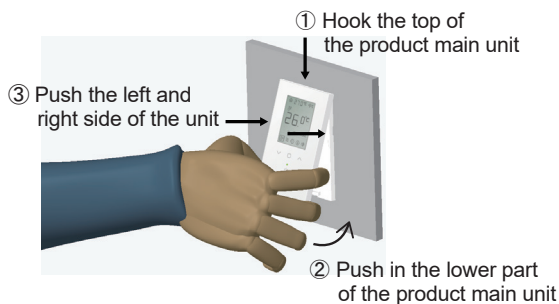
1. Do not touch the buttons on the product when the modular cable is connected. If you touched the buttons and they do not work, wait about 10 seconds and try again.
2. Do not touch the electrode of the female modular connector when connecting the modular cable.



- (4) Install the main unit of the product.
- ① With the cable connected to the product main unit, hook the protruding parts on the top of the main unit into the recesses on the base.
 - ② Push the bottom of the product in toward the wall until it clicks.
 - ③ Also, push the left and right sides of the middle of the product.

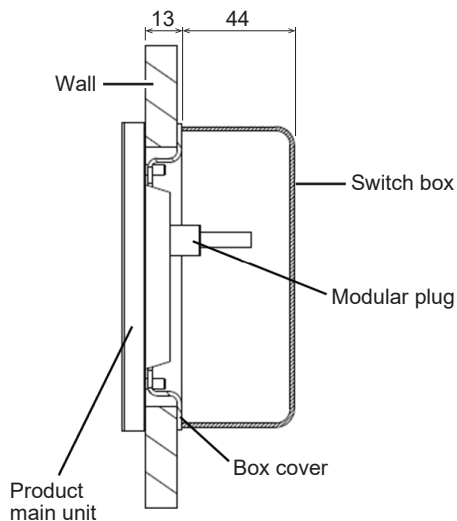
Note:

1. Be careful not to damage the wall.
2. Make sure that the tab of the modular plug does not interfere with the product base when pushing the bottom of the product.



For both new and replacement installations

Due to the orientation of the modular cable as indicated in the figure below, a shallow switch box cannot be used. Use a switch box that is at least 44 mm deep with a cover that is at least 13 mm thick. These dimensions are based on JIS C 8340 (1999). The above dimensions do not apply if the switch box is installed behind the wall (and if it can be attached by the mounting screws) to secure the needed depth.



(Unit: mm)

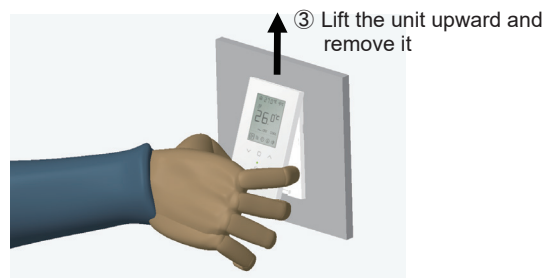
Figure 8 Dimensions of the switch box behind the product (for ref.)

● Removal method

- (1) ① Insert a flathead screwdriver into the hole on the bottom of the product as parallel to the wall as possible to push up the internal hook.
- ② Lift the bottom of the unit and release the hook.
- ③ Lift up the product to remove it from the wall.

Note:

1. Use a flathead screwdriver whose tip is 6 mm wide at most.
2. Do not push the screwdriver too hard to avoid damaging the product.
3. Be careful not to damage the wall with the screwdriver.
4. After releasing the hook, do not lift the bottom of the unit too much in direction ② in the figure. If you do, the upper corner of the unit may damage the wall.



- (2) Remove the modular plug from the modular connector.

Note: Do not touch the electrode of the female modular connector when removing the modular cable.

● Wiring

Use a straight modular cable (with straight-through pinout). The pinout of the modular connectors is shown below.

Table1 Modular connector pinout

Pin No.	Description
CN1-1	Power + 7.2–14 V DC (product specification)
CN1-2	Power (-), GND
CN1-3	Tx (Comm.: Neopanel2 → host controller)
CN1-4	NC
CN1-5	Rx (Comm.: Neopanel2 ← host controller)
CN1-6	(For the host controller to detect Neopanel2 connection)
CN1-7	(For the host controller to detect Neopanel2 connection)
CN1-8	NC

■ Operations

Available operations depend on the connected system configuration.

Table2 Operations

(1/2)

Function	Description	Operation/display	Remarks
ON/OFF	Starts or stops the VAV or fan coil unit.	Touch the ON/OFF button. During operation, the green air conditioning LED lights up.	<ul style="list-style-type: none"> When there are ON/OFF operations from UI devices and the central monitoring unit, the latest command has priority. ON/OFF operation by a UI device can be prohibited from the central monitoring unit. Cannot be used with setback operation.
Temperature settings	The setting determines the temperature setpoint.	Switch to the temperature settings menu using the menu selection button and then use the adjustment buttons. The temperature setpoint on the LCD changes as you adjust.	<ul style="list-style-type: none"> When there are temperature setpoint changes from the UI device and the central monitoring unit, the latest command has priority. The high and low limits for the temperature setpoint can be specified from the central monitoring unit. Dual settings*1 are supported (when an FCU Controller, VAV Controller, Inflex FC, or Inflex VC is connected)
Setback	Switches to setback operation*2.	Touch the ON/OFF button. During setback operation, the AC LED is off.	<ul style="list-style-type: none"> For setback operation commands from the UI device and the central monitoring unit, the latest command has priority. Setback operation by the UI device can be prohibited from the central monitoring unit. Cannot be used with ON/OFF operation.
Fan speed control	Changes the airflow (AUTO/L/M/H/) from the fan coil unit (FCU).	Switch to the fan speed settings menu using the menu selection button and then use the adjustment buttons.*3 The fan speed changes on the LCD as you adjust.	<ul style="list-style-type: none"> When the fan speed setting is changed from the UI device and from the central monitoring unit, the last one has priority.
Extended operation (off timer)	Extends the VAV or FCU operation hours by changing the scheduled OFF time.	Switch to the timer menu using the menu selection button and use the adjustment buttons to change the OFF time displayed on the LCD. The time interval for changing the OFF timer time depends on the host controller's parameters for the time setting step.	<ul style="list-style-type: none"> The original schedule is set from the central monitoring unit.

Function	Description	Operation/display	Remarks
Changing the display contents	Changes the contents displayed on the LCD.	Switch to the display contents menu using the menu selection button and then use the adjustment buttons. The display changes as follows* ³ <ul style="list-style-type: none"> • Large display (room temperature setting, room temperature, time, or blank) • Small display (outdoor temperature, room temperature, or blank) 	
Fahrenheit/Celsius changeover	Changes the unit of temperature on the LCD.	Switch to the temperature unit menu using the menu selection button and then use the adjustment buttons. The unit of temperature changes to °C or °F.	
Group management	Turns multiple VAV or fan coil units ON/OFF or changes temperature setpoint for them.		<ul style="list-style-type: none"> • The groups operated by this product must be consistent with the groups operated by the central monitoring unit.

Note: If the buttons stop working, wait about 10 seconds and try again.

*1. There are separate setpoints for cooling and heating.

*2. A function that saves energy by changing the temperature setpoint.

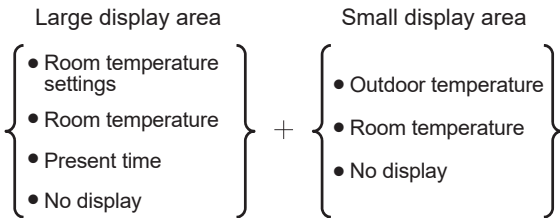
*3. How the display changes depends on the host controller's key type settings.

■ Engineering

Of the functions of this product, the items below can be changed by host controller parameters. For details, refer to the engineering manuals for the controllers.

(1) Constantly displayed contents

The constantly displayed contents can be selected from the following combinations.



(2) Cooling/heating/fan display

Whether or not to display the cooling/heating/fan status can be specified.

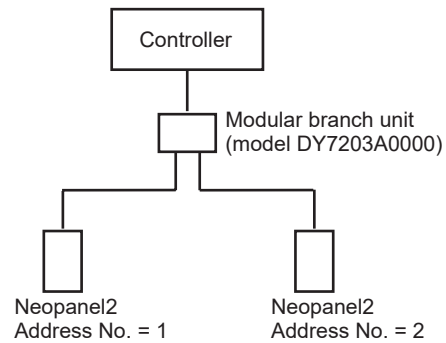
■ Notes on Handling

When the product is shipped, its surface is covered by a protective film. Remove the protective film before using the product.

● If Two Units of the Product Are Connected

A maximum of two units of this product can be connected to a controller. Neopanel (model QY7205) can be mixed. In this case, note the following points.

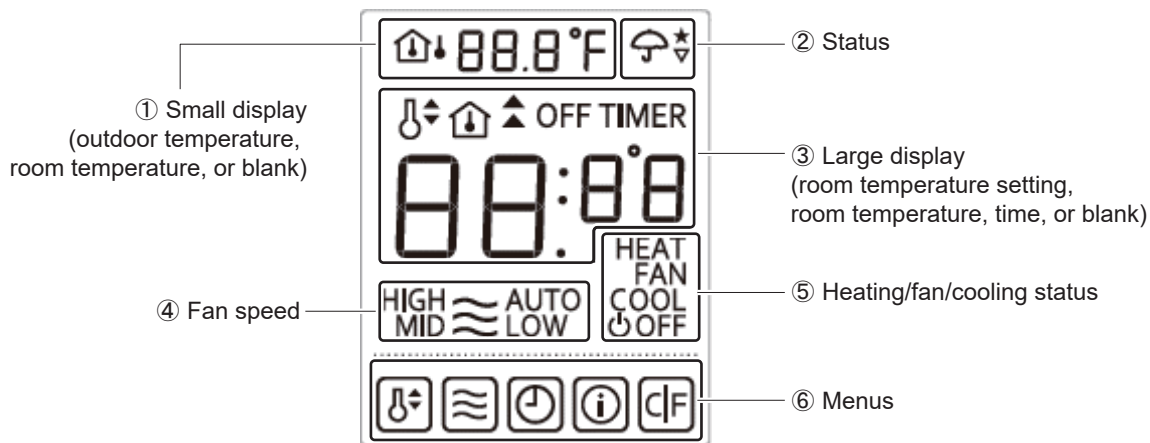
- A modular branch unit (model DY7203A0000) is required.
- For the second Neopanel2, use a model with address No. 2 (model QJ-1301S_2_ _). Two Neopanel2 units both with the same address No. will not work correctly. Check the address No. before using a pair of Neopanel2 units. The address number is printed on the shipping carton and on the nameplate on the back of Neopanel2.



Notes:

1. When two Neopanel2 units are used for turning the AC ON/OFF or changing the temperature or fan speed settings, the latest operation has priority.
2. Neopanel models with address No. 2 do not have a temperature-measuring function.

■ Display



Area	Displayed item	Description
① Small display		Room temperature
		Outdoor temperature
	88.8	Outdoor or room temperature
	°C°F	Unit
② Status		Raining
	*	Initializing
	▽	Communication stopped
③ Large display		Temperature setting
		Room temperature
		Transmitting data
	OFF TIMER	Indicates that the timer is set or the OFF time is being set
	88.8	Room temperature setpoint or room temperature
	88:8	Present time or OFF timer time
	°C°F	Unit
④ Fan speed	AUTO	Fan speed setting: automatic
	LOW	Fan speed setting: low
	MID	Fan speed setting: medium
	HIGH	Fan speed setting: high
	~	Fan speed: low
	≈	Fan speed: medium
	≡	Fan speed: high
⑤ Cooling/heating/ fan status	HEAT	Heating
	FAN	Fan
	COOL	Cooling
	⏻OFF	Cooling/heating/fan stopped
⑥ Menus		Temperature setting
	≈	Fan speed setting
		Timer setting
		Display content switching (large and small displays)
	c F	Temperature unit switching (Celsius or Fahrenheit)

■ Maintenance

⚠ CAUTION



Before maintenance, turn off the power to this product.
Failure to do so may result in electric shock or device failure.

IMPORTANT • Do not disassemble this product.
Doing so may cause device failure.

● Maintenance

- Special maintenance is not required.
- If the product is installed in an animal breeding facility or an operating room, when the room is fumigated, attach the safekeeping cover (sold separately) to cover the product.
- When the product is replaced, the whole product must be replaced.

● Cleaning

If the display or operation panel is dirty, wipe gently with a soft dry cloth. Do not use detergent, organic solvent, etc. Using such substances may cause damage, discoloration, or deformation.

■ Disposal

When this product is no longer needed, dispose of it as industrial waste in accordance with local regulations. Do not reuse all or part of this product.

CE This product complies with the following Electromagnetic Compatibility Directive (EMCD).
EMCD: EN 61326-1 Class A, Table 2 (for use in an industrial electromagnetic environment)

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