JNC technology
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JNC

Indoor Air Quality Monitor

IAQS



For firmware v2.10a or later

V1.07

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Symbols Used in This Manual

What you see	Meaning
WARNING (gray box)	Failure to comply may result in personal injury or equipment damage
CAUTION (gray box)	Failure to comply will result in recoverable problems such as incorrect settings or data loss
Power off first	Turn off the power switch of this unit and unplug the power cord; confirm that the power indicator light is off before proceeding (see 1-4 Pre-Operation Labels (p. 11))
Factory setting – do not change	Set up by JNC at the factory; changing it may cause loss of connection
No label	You can complete the task yourself by following the steps in this manual
Red text	Key point
1 2	Corresponds to the same number in the screenshot above
A gray line “Path: A → B → C”	Where to click to open this screen
Blue underlined text (p. N)	Another section of this manual. Click it in the electronic file; in the printed manual, turn to that page

Product Overview and Features

The product name is Indoor Air Quality Monitor (IAQS).

This product is an ideal tool for fixed-point monitoring or patrol inspection of residential or public indoor environments. It has a dual-purpose design for wall mounting and portable use, and provides sensitive, accurate detection and intelligent data management, so that you can keep track of the air quality of your indoor environment in real time. It has a web interface for real-time remote viewing, and allows historical data and alarm records on the USB flash drive to be downloaded remotely. Channel name, unit, gain, offset, and over high (HIHI), high (HI), low (LO), and over low (LOLO) alarm points can be set by the user. It has automatic temperature compensation and a five-point calibration function for more accurate temperature readings. It has a built-in lithium battery, so it can be moved to inspect different sites, and it can record location names in Chinese. This product is well suited to sites that require environmental monitoring, such as IAQ public displays, offices, stations, airports, museums and art galleries, hospitals, residences, and rapid environmental screening.

Product Features:

- **Simultaneously displays the real-time/average values of the target gases, temperature/humidity values, AQI indicator, date, and time.**
- **Automatic temperature compensation and five-point calibration function.**
- **Self-test function, abnormality indication, and audible alarm.**
- **Relay control function using a photocoupler relay (not a conventional relay).**
- **USB logging, Ethernet communication, and Wi-Fi communication (optional).**
- **Trend charts can be downloaded and shared from the web page in 60 seconds, and log data downloaded in 30 seconds.**
- **Dual power supply, for use as a wall-mounted or portable unit.**
- **Suction sampling.**
- **7-in-1 sensor (Temp/RH/CO2/PM2.5/HCHO/CO/TVOC).**
- **9-in-1 sensor (Temp/RH/CO2/PM2.5/HCHO/CO/TVOC/O3/PM10).**
- **Fast global upgrade function.**
- **Universal tripod mounting hole.**
- **Built-in lithium battery for mobile patrol inspection, with location names recorded in Chinese.**
- **Ethernet and Wi-Fi can be used at the same time; an Ethernet cable can be connected directly on the side.**

PART 1.SAFETY INFORMATION

Questions Answered in This Chapter

- **Which terms should I understand before use?**
- **How many levels of warning boxes does this manual use?**
- **Which operations require powering off first, and which settings must not be changed?**

Not Covered in This Chapter

- **Installation location restrictions → 4-1 Installation Requirements (p. 21)**

1-1 Before You Read: Terms

Term	Meaning	On-site example
Measured parameter	An item measured by this unit. The measured parameters of each unit depend on the options selected when ordering (see 2-3 Checking Which Measured Parameters Your Unit Has (p. 14))	Temperature, humidity, CO2, PM2.5
Channel	A data slot on the web page. Each measured parameter occupies one AI channel, and the built-in control output occupies one DO channel	AI-1: Temperature
AI (analog input)	A channel for measured values, i.e., each measured parameter	Temperature and CO2 values
DO (digital output)	An output with only two states: on and off. This unit has 1 control output point (photocoupler relay), which can switch external equipment on and off according to alarms	This unit's DO
AQI	The air quality index calculated by this unit from the values of the measured parameters, divided into six levels and shown on the screen as dots (see APPENDIX B AQI Air Quality Index (p. 62))	The fewer the dots, the better the air quality
T90	Specification field: the time required, after the measurement environment changes, for the reading to reach 90 % of its final change	CO2 < 120 s
Environmental equilibrium time	The time required for readings to stabilize after power-on, or after moving to a new measurement environment	Temperature 10 min
Four alarm levels	HIHI (over high), HI (high), LO (low), and LOLO (over low) on the screen	High alarm 100

Term	Meaning	On-site example
Firmware	The program in this unit. The version number is shown in the upper-left corner of the web home page, or on the screen while both device buttons are held down	v2.10a 261109

1-2 Safety Message Levels

This manual uses two types of boxes to indicate risk. The level is identified by "WARNING/CAUTION" on the first line of the box:

WARNING

Failure to comply may result in personal injury or equipment damage.

CAUTION

Failure to comply will result in recoverable problems such as incorrect settings or data loss.

1-3 Safety Precautions

1. Do not use the product in locations with strong vibration or strong electromagnetic interference, to avoid product damage, ERROR displays, or measurement errors.
2. Power off first (turn off the power switch and unplug the power cord) before any repair or maintenance, to avoid personal injury or product damage from accidental contact with the power source.
3. When installing in an environment contaminated with conductive contaminants (metal dust, moisture, etc.), provide appropriate sealing, ventilation, or filtering.
4. If any component or module of the product has been removed or disassembled, do not operate it, and contact JNC as soon as possible.
5. JNC is not liable for any effects or damage resulting from use not in accordance with this manual, or from applications and environmental conditions beyond those stated in the specifications.

For installation location restrictions (heat sources, areas of human activity), see 4-1 Installation Requirements (p. 21).

1-4 Pre-Operation Labels

Operations without a label can be completed by following the steps in this manual. Operations requiring attention are marked with one of the following labels:

Label	Meaning	Example
Power off first	Turn off the power switch (see 3-1 Device Parts (p. 18) 10) and unplug the power cord; confirm that the power indicator light (11) is off before proceeding	Wiring, connecting power
Factory setting – do not change	Set up by JNC at the factory; changing it may cause loss of connection	IP, Mask, Gateway, MAC, communication settings (slave ID, baud rate)

PART 2.PRODUCT INTRODUCTION

Questions Answered in This Chapter

- What problem does this product solve? What can it do?
- How do I check which measured parameters my unit has?
- What do the specification values mean?

Not Covered in This Chapter

- Names of this unit's parts → PART 3 Part Names (p. 18)

2-1 What This Product Solves

This unit is an indoor air quality monitor that can be wall-mounted or carried by hand for patrol inspection: it simultaneously measures temperature and humidity, several gases, and particulate matter, displays the values and the AQI indicator on this unit's screen and the web page, issues an alarm when a value exceeds the setpoint, and can control 1 output point.

- View on site: This unit's screen shows the value of each measured parameter, temperature and humidity, and the AQI indicator; the measured parameters cycle automatically and can also be switched with the buttons.
- View remotely: Connect to the device web page from a mobile phone or computer to view real-time values and trend charts, and download historical data and alarm records.
- Patrol inspection: With the built-in lithium battery, the unit can be carried to different sites for measurement, and location names can be recorded in Chinese.

Application areas: IAQ public displays, offices, stations, airports, museums and art galleries, hospitals, residences, patrol inspection, rapid environmental screening.

2-2 What It Can Do

Function	Description	Details
Real-time display	This unit's screen and the device web home page show the real-time value of each measured parameter and the AQI	5-3 Home Page Overview (p. 26)
Logging and download	Hourly data, per-minute data, and alarm events are logged on the USB flash drive inside the housing; without one, they are written to the internal memory	6-7 Download (p. 48)
Trend chart	Reads the logs on the USB flash drive and plots them as a trend chart, which can be downloaded	5-5 Trend Chart (p. 29)
Alarms	Each measured parameter can be set with four alarm levels: over high, high, low, and over low; the buzzer sounds on over high and over low alarms	6-2 AI Settings (p. 34)
DO control	1 output point that can switch external equipment on and off according to alarms or cycles. On/off only; to connect a high load, add an intermediate relay	6-3 DO Settings (p. 36)
G6 fresh air control	Used with the JNC G6S fresh air unit to switch it on and off or adjust its opening according to measured values	7-3 G6 Fresh Air Settings (p. 52)
Upload	Http upload to a specified address and port	6-4-7 Upload Settings (p. 43)
Reading by other systems	Modbus RTU (RS-485), Modbus TCP	APPENDIX A Modbus Register Table (p. 59)
Large-screen display	The Show page can be displayed directly on a network-enabled LCD monitor	5-6 Show Page (p. 32)

2-3 Checking Which Measured Parameters Your Unit Has

The measured parameters of this unit depend on the options selected when ordering (7-in-1, 9-in-1, or individual parameters). This manual describes the standard configuration; for options, contact your sales representative or refer to the product catalog on the official website. To check which measured parameters your unit has:

1. Check this unit's screen: Display mode cycles through the measured parameters automatically; they can also be switched with ▼ and ↲ (see 3-2 Device Buttons and Setup Menu (p. 19)).
2. Check the device web page: Log in → settings button → Channel setting, and check the icon of each channel (see 6-1 Channel Settings Overview (p. 33)):

Icon	Name	What it means	Action required
Green check mark	Enabled	This unit has this measured parameter, and it is being measured	Normal
Gray check mark	Not enabled	This unit has this measured parameter, and you can enable it	When you need this measured parameter, check the enable box in that channel
No icon	Not ordered	This unit does not have this measured parameter, and it cannot be enabled	No action required

A measured parameter that was not ordered has no icon in the channel settings and cannot be enabled. This is not a malfunction.

2-4 Specifications

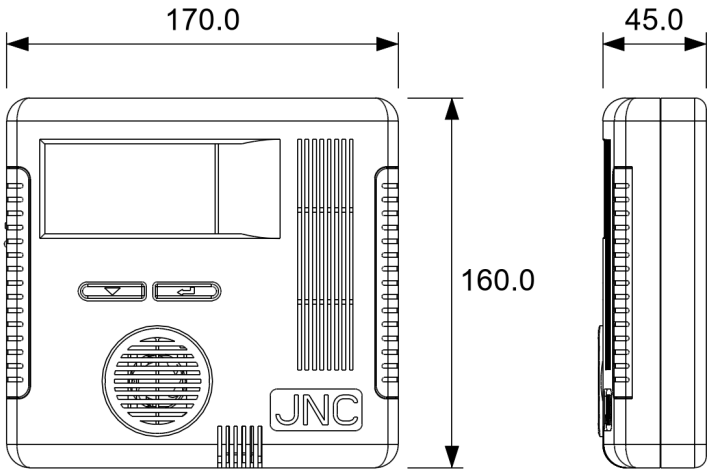
Description:

Item	Specification	Description
Power (adapter)	Input 100–240 V AC (50/60 Hz); output 24 V DC, max. 1 A	Specifications of the power adapter
Power (device)	Input 24 V DC, or 5 V	5 V is supplied through the Micro USB connector (see 4-3 Connecting Power (p. 22))

Item	Specification	Description
Power consumption	5.2 W	
Environment	0 to 50 °C, 0–95 % (non-condensing)	Operating environment of the main unit; for the operating temperature of individual measured parameters, see the measurement specifications below
Alarm control output	1 point; contact current rating 1 A, contact voltage rating 24 V DC	To connect a high load, add an intermediate relay
Ethernet interface	RJ-45 Ethernet (standard); Wi-Fi (optional)	
Communication interface	RS-485	
Communication protocol	Modbus RTU, Modbus TCP, Web Service, and Modbus Inverse	
Default IP	192.168.0.140	Ethernet uses a fixed IP
Display	Backlit LCD, 73 mm×44 mm, three-color display; six-level AQI indicator; displays name, value, and unit; can display real-time or average values; display range 0–9999 (auto-ranging decimal point)	
Product dimensions	170×160×45 mm	W×H×D
Product weight	≤ 1 kg	
Mounting	Wall-mounted/portable	
Housing material	ABS	
Logging	USB logging, up to 64 GB supported	
Safety certification	FCC PART 15 B AND CISPR 22 Class B, EN55022:2010 Class B, EN61326-1:2006, IEC61000-4-2:2008, IEC61000-4-3:2006+A1:2007+A2:2010	

Item	Specification	Description
Patents	Taiwan (R.O.C.) Patent Certificate Nos. M490090/M474956/M455143; China Patent Certificate Nos. 3110165/2514208/3968253	

Product Dimensions (mm):



Sensor Measurement Specifications:

Parameter (principle)	Range	T90	Operating temp.	Resolution	Accuracy	Equilibrium time
Temperature Temp (resistive)	−40 to 125 °C	< 60 s	−20 to 60 °C	0.1 °C	±0.4 °C	10 min
Humidity RH (capacitive)	0–100 %	< 60 s	−20 to 60 °C	0.1 %	±3 %	10 min
CO2 (infrared)	0–10,000 ppm	< 120 s	0 to 50 °C	1 ppm	±30 ppm ±3 % of reading	10 s
PM2.5 (laser)	0–1000 µg/m³	< 90 s	−10 to 65 °C	0.1 µg/m³	±10 µg/m³ ±5 % of reading	5 min
HCHO (electrochemical)	0.01–2.00 ppm	< 120 s	−10 to 50 °C	0.01 ppm	≤ ±0.02 ppm ±2 % of reading	10 min
CO (electrochemical)	0–100 ppm	< 180 s	0 to 50 °C	0.1 ppm	±5 ppm	10 min
TVOC (semiconductor)	0–300 ppm	< 90 s	0 to 40 °C	0.01 ppm	±10 %	10 min
O3 (semiconductor)	0.01–2.00 ppm	< 120 s	0 to 40 °C	0.01 ppm	±10 %	10 min
PM10 (algorithm)	0–1200 µg/m³	< 90 s	−10 to 65 °C	0.1 µg/m³	±10 µg/m³ ±5 % of reading	5 min
PID100 (photoionization)	0–100 ppm	≤ 5 s	−10 to 60 °C	25 ppb	±2 % (repeatability)	≤ 60 s

CAUTION: The operating temperature of TVOC and O3 is narrower than that of the main unit

The operating environment of the main unit is 0 to 50 °C, but the operating temperature of the TVOC and O3 measured parameters is 0 to 40 °C.

Specifications are based on the official website catalog v1.14.1.

PART 3.PART NAMES

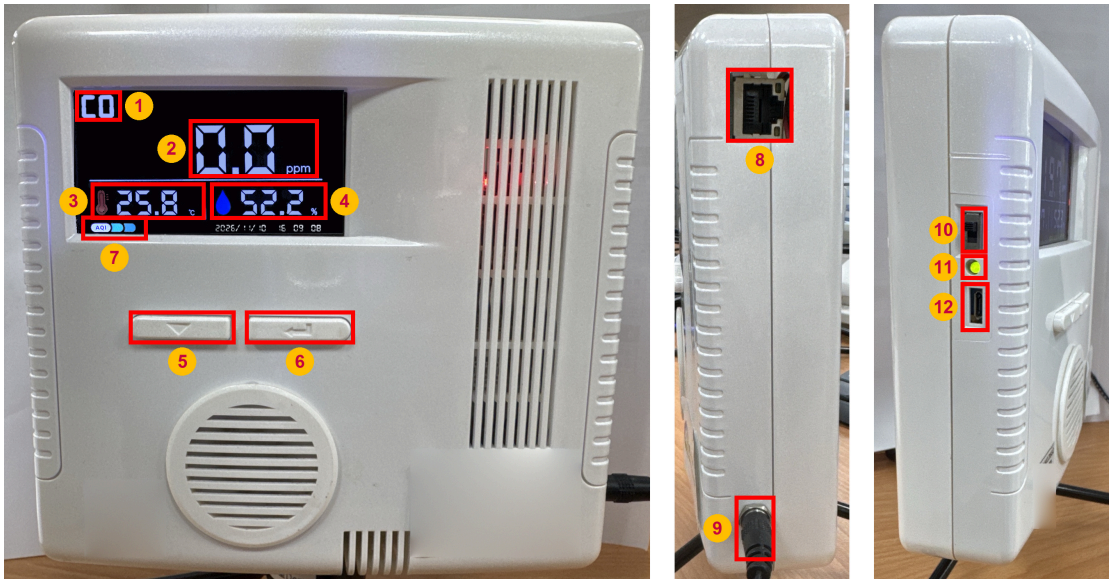
Questions Answered in This Chapter

- What are the screen, buttons, and ports on this unit?
- How are this unit's buttons operated? What items are in the setup menu?
- What does each terminal on the rear connect to?

Not Covered in This Chapter

- How to connect power → 4-3 Connecting Power (p. 22)

3-1 Device Parts



Description:

Code	Name	Function
1	Channel name	Shows the channel name of the current value
2	Channel value	Shows the current value and unit of the channel
3	Temperature	Currently measured temperature value
4	Humidity	Currently measured humidity value
5	▼ button	Display mode: previous measured parameter. Setup menu: switch item
6	↲ button	Display mode: next measured parameter. Setup menu: execute the current item

Code	Name	Function
7	AQI	Whether the current air quality is good; the fewer the dots, the better the air quality (see APPENDIX B AQI Air Quality Index (p. 62))
8	Ethernet port	For an Ethernet cable
9	Quick-connect power jack	For quick connection and removal of the power connector
10	Power switch	Turns the power on and off
11	Power indicator light	On: power on. Off: power off
12	USB power connector	Connects power with a Micro USB plug (5 V)

3-2 Device Buttons and Setup Menu

This unit has two buttons: ▼ and ↲ (3-1 Device Parts (p. 18) 5, 6).

Display mode (normal screen): the lower part of the screen always shows temperature and humidity; the large-digit area above automatically cycles through the other measured parameters. The time each parameter stays on the screen is set in 6-4-6 Display Setting (p. 43).

Operation	Result
Press ▼	Switches to the previous measured parameter
Press ↲	Switches to the next measured parameter
Press either button while the screen is asleep	Wakes the screen and switches the measured parameter
Press either button while the buzzer sounds	Silences the buzzer
Press and hold both buttons	The screen shows the IP, firmware version, and date; the bar below grows step by step. Normally it is the Ethernet IP (starting with E). When the Ethernet cable is not connected and WiFi Mode is set to Client, the Wi-Fi IP (starting with W) is shown instead
Press and hold both buttons for about 7 seconds	Enters the setup menu; releasing before 7 seconds returns to display mode

Setup menu:

Menu item	Content
- EXIT -	Exit the menu; selected when the menu opens
1. Reset	Factory reset

- ▼: switch between the two items. ↲: execute the current item.
- The menu returns to display mode automatically after about 16 seconds without operation.

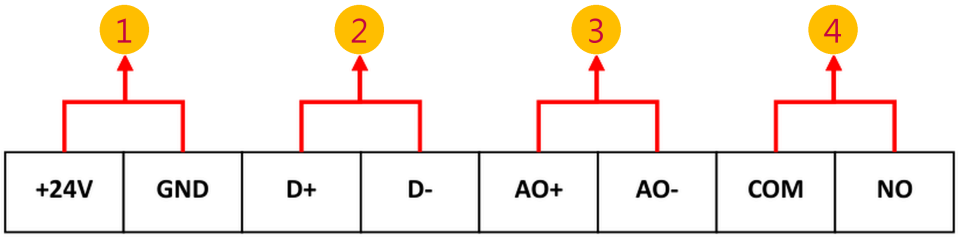
Factory reset procedure:

1. Press and hold both buttons: the screen first shows the IP screen with a growing bar; keep holding for about 7 seconds and release when - EXIT - appears.
2. Press ▼ to select 1. Reset, then press ↲. The screen shows Reset and no. To cancel, press ↲ while no is shown; the screen returns to display mode.
3. Press ▼ to select YES, then press ↲. This unit restores the factory settings and restarts.

WARNING: Reset restores the factory settings

Settings such as IP, Wi-Fi, and device name return to factory values, and the logs in the internal memory are cleared; the logs on the USB flash drive are kept. Download any logs you need to keep first (see 6-7 Download (p. 48)). After the reset, reconnect using the factory defaults (see 8-3 Factory Defaults and Factory Reset (p. 57)).

3-3 Terminals



Power off first

Code	Terminal	Description
1	+24V/GND	Power input; for specifications, see 2-4 Specifications (p. 14)
2	D+/D-	RS-485 D+ and D-
3	AO+/AO-	For future expansion; no wiring required on this unit
4	COM/NO	Relay

PART 4.INSTALLATION

Questions Answered in This Chapter

- Where should it be installed, and what should be avoided?
- How do I connect power?
- After the first power-up, how long before readings are accurate?

Not Covered in This Chapter

- Terminal names → 3-3 Terminals (p. 20)
- Web page operation after power-on → PART 5 Basic Operation (p. 24)

4-1 Installation Requirements

Condition	Requirement	Consequence of violation
Keep away from heat-generating appliances	No heat-generating electrical appliances within 1 meter below this unit	Affects the accuracy of temperature and humidity
Keep away from areas of human activity	Distance between this unit and areas of human activity greater than 1 meter	Affects humidity
Keep away from strong vibration and strong electromagnetic interference	Do not install in locations with strong vibration or strong electromagnetic interference	Product damage, ERROR display, or measurement errors
Environments contaminated with conductive contaminants	Where metal dust, moisture, etc. are present, provide appropriate sealing, ventilation, or filtering	Short circuits or corrosion causing device failure
Operating environment temperature and humidity	Main unit 0 to 50 °C, 0–95 % (non-condensing); operating temperature of the TVOC and O3 measured parameters 0 to 40 °C (see 2-4 Specifications (p. 14))	Reading deviation or device failure

4-2 Mounting

This unit can be wall-mounted, or mounted on a tripod for portable use.

Wall mounting:

1. Drive a screw into the wall, leaving the screw head out of the wall.
2. Fit the hanging hole on the back of the unit over the screw head, and slide the unit down to hang it.

Tripod:

1. Align the tripod hole on the bottom of the unit with the tripod screw.
2. Turn the unit to tighten it onto the tripod.

4-3 Connecting Power

Power off first

Depending on how the unit is used, supply power in one of the following ways (for port locations, see 3-1 Device Parts (p. 18)):

Method	Connection	Specification
Power adapter	Connect the power adapter to the quick-connect power jack (3-1 Device Parts (p. 18) 9)	Power adapter: input 100–240 V AC, output 24 V DC (max. 1 A)
Micro USB	Connect a Micro USB cable to the USB power connector (3-1 Device Parts (p. 18) 12)	5 V DC
Terminals	Connect the power wires to terminals +24V and GND (see 3-3 Terminals (p. 20))	24 V DC

4-4 First Power-Up

1. Connect power according to 4-3 Connecting Power (p. 22).
2. Turn the power switch (3-1 Device Parts (p. 18) 10) on, and confirm that the power indicator light (11) lights up.
3. The screen shows the value of each measured parameter in turn, so you can check this unit's measured parameters (see 2-3 Checking Which Measured Parameters Your Unit Has (p. 14)).

4. **Wait for the environmental equilibrium time: after power-on, and each time the unit is moved to a new measurement environment, readings become stable only after the environmental equilibrium time has passed (for the time of each measured parameter, see the table below).**
5. **Connect to the device web page; see 5-1 Connecting to the Device Web Page (p. 24).**

Environmental equilibrium time of each measured parameter:

Measured parameter	Environmental equilibrium time
Temperature, humidity, HCHO, CO, TVOC, O3	10 minutes
PM2.5, PM10	5 minutes
CO2	10 seconds
PID100	Within 60 seconds

PART 5.BASIC OPERATION

Questions Answered in This Chapter

- How do I connect to the device web page from a phone (Wi-Fi)?
- What is the login password?
- How do I read the home page, the settings menu, the trend chart, and the Show page?

Not Covered in This Chapter

- Channel, system, and calibration settings → PART 6 Settings (p. 33)
- Schedule control, cycle control, and G6 fresh air → PART 7 Advanced Control (p. 50)

5-1 Connecting to the Device Web Page

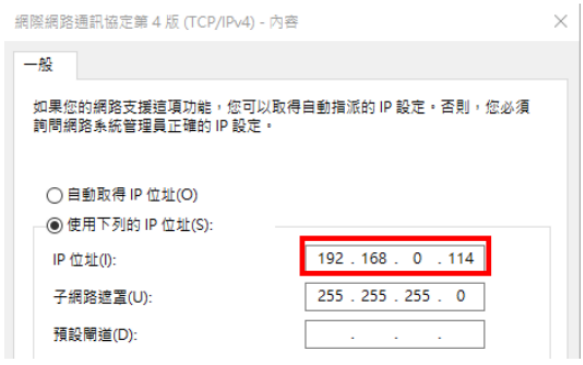
The factory default IP of this unit is 192.168.0.140. Connect in one of the following ways, depending on your network setup:

Connect by Wi-Fi (models with the Wi-Fi option):

1. Turn on Wi-Fi on your mobile device, find the network named IAQSv2_ followed by 4 characters, and connect. The network is not encrypted at the factory, so no Wi-Fi password is needed.
2. After connecting, open a browser and enter 192.168.0.140 in the address bar. The home page of the device web page opens.

Connect by Ethernet cable (computer connected directly to this unit):

1. Connect the computer to the Ethernet port on the side of this unit with an Ethernet cable.
2. Set the computer IP to 192.168.0.x (x is any number other than 140, e.g. 192.168.0.114) and the subnet mask to 255.255.255.0.

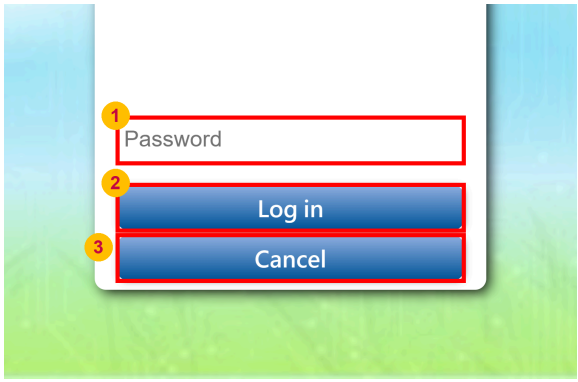


3. Open a browser and enter 192.168.0.140 in the address bar. The home page of the device web page opens.

- If the IP has been changed or you forgot it: connect the Ethernet cable first, then press and hold both device buttons at the same time. The screen shows the Ethernet IP starting with E (see 3-2 Device Buttons and Setup Menu (p. 19)). Use the displayed IP instead of 192.168.0.140 in the steps above; the first three parts of the computer IP must match it.

5-2 Login and Password Change

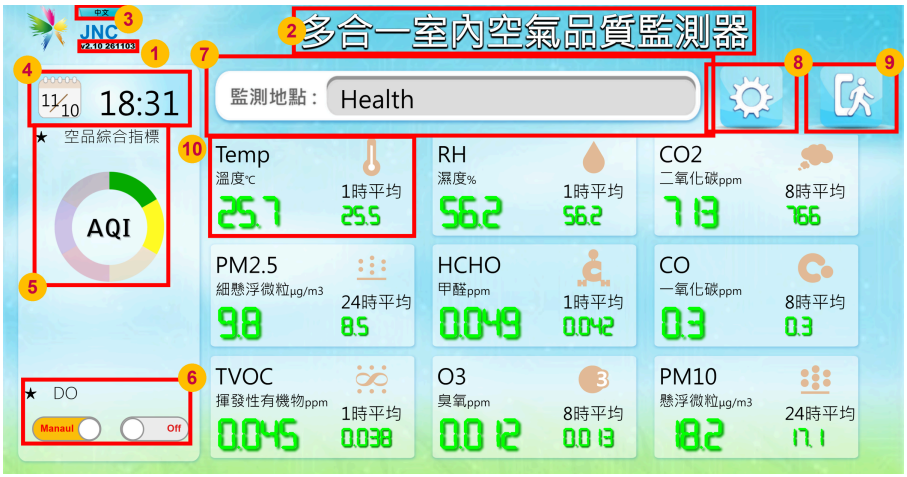
On the home page, click the login button (code 9 in 5-3 Home Page Overview (p. 26)) to open the login page.



Code	Name	Function
1	Password field	Enter the login password (factory default 1234). Real-time values can be viewed without logging in; settings require login
2	Log in	Log in. After a successful login, the home page opens and the settings button appears
3	Cancel	Return to the home page without logging in

- Up to 5 users can be logged in at the same time. Users are logged out automatically after 5 minutes of inactivity.
- After several wrong passwords in a row, login is locked for a while and the remaining seconds are shown. Enter the password again when the time is up.
- After login, the login button on the home page becomes a logout button. Click it again to log out.
- To change the password: settings button → System setting → Password setting (see 6-4-3 Password Setting (p. 40)).

5-3 Home Page Overview



- **The figure shows the page after login. Before login, code 8 is not shown and code 9 is the login icon.**
- **The labels on the home page stay in Chinese after switching the language.**

Description:

Code	Name	Function
1	Version	Firmware version and firmware date
2	Device name	Set this unit's name in the system settings (see 6-4-5 Basic Setting (p. 42))
3	Language switch	Switch between Traditional Chinese and English. This only changes the display on this computer; the page returns to Chinese when reopened
4	Date and time	Current date and time of this unit
5	Air quality index	Air quality index (AQI) calculated from the measured values; see Appendix B
6	DO	Switches of the built-in DO: the left switch selects the control mode (Manual or Auto); the right switch turns the output On / Off in manual mode. The load operates immediately after switching
7	Monitoring location	Shows the monitoring location, which is also recorded on the USB flash drive. To change it, see Place in 6-4-5 Basic Setting (p. 42)
8	Settings button	Shown only after login. Click to open the settings menu (see 5-4 Settings Menu (p. 28))

Code	Name	Function
9	Login button	Log in to the system (see 5-2 Login and Password Change (p. 25)); becomes the logout button after login
10	Real-time value	Name, unit, and real-time value of a measured parameter, with the average on the right. The averaging time is 1, 8, or 24 hours depending on the parameter

5-4 Settings Menu

Path: Login → settings button.

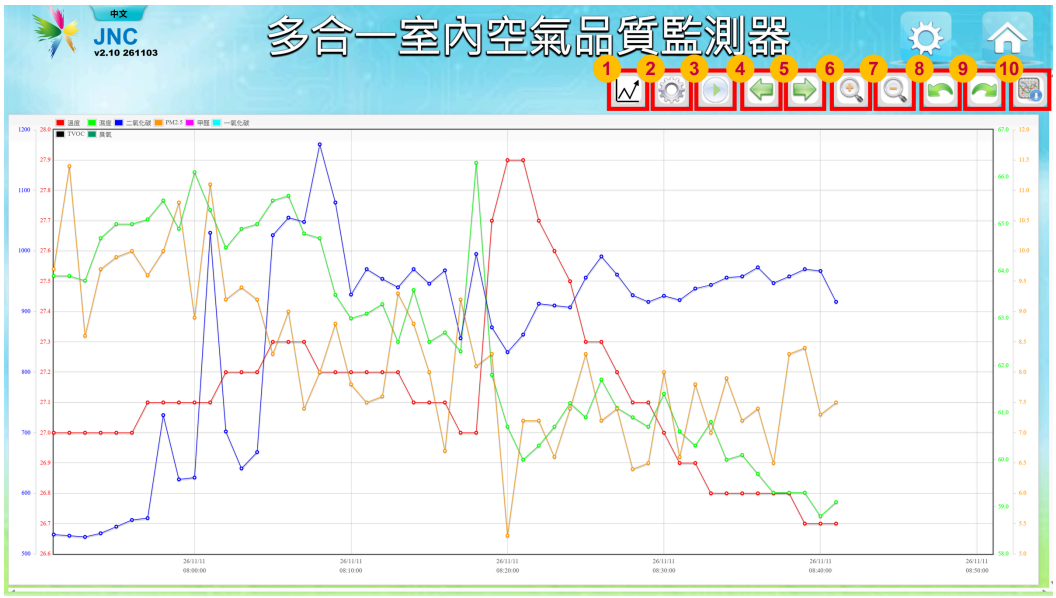


Code	Name	Function
1	Homepage	Return to the home page to view the real-time values
2	Alarm record	View the latest 100 alarm records; see 6-6 Event Log (p. 47)
3	Record download	Download log files from the USB flash drive or this unit; see 6-7 Download (p. 48)
4	Trend	Read the logs and draw a trend chart; see 5-5 Trend Chart (p. 29)
5	Channel setting	Set the measured parameters and DO; see 6-1 Channel Settings Overview (p. 33)
6	G6 setting	Control the G6 fresh air units; see 7-3 G6 Fresh Air Settings (p. 52)
7	System setting	Set IP, time, communication, password, basic, display, transmission, and Wi-Fi settings; see 6-4 System Settings (p. 38)
8	Calibration	Calibrate sensor values; see 6-5 Calibration (p. 45)

- Each settings page has two buttons at the top right: the gear button returns to this settings menu, and the house button returns to the home page.

5-5 Trend Chart

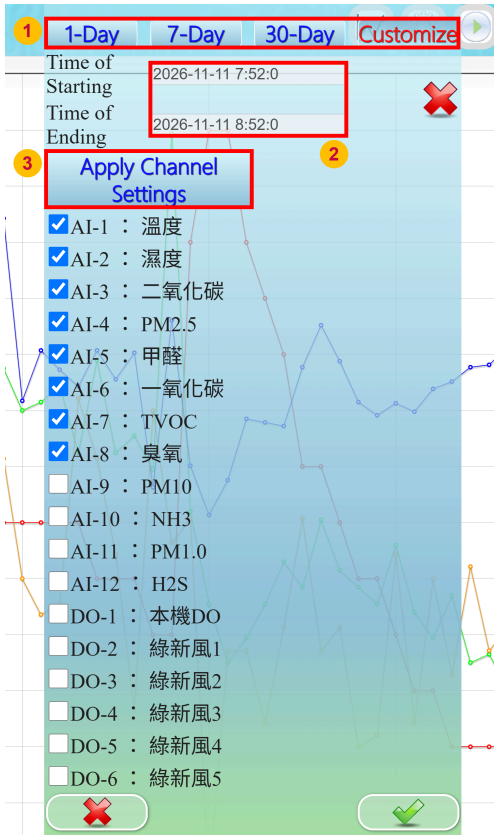
Path: Login → settings button → Trend.



Code	Name	Function
1	Time range	Open the time range panel (see below) to select the period and channels to draw
2	Line settings	The gear button above the chart area; opens the line settings of each channel (see below)
3	Play / Stop	While playing, the latest values are added about every 10 seconds; click again to stop updating
4	Back	Move the time axis to earlier times
5	Forward	Move the time axis to later times
6	Zoom in	Shorten the time axis range to see details
7	Zoom out	Lengthen the time axis range
8	Undo	Return to the previous display range
9	Redo	Return to the display range before Undo was clicked
10	Download	Save the current trend chart as a file

- **The upper left of the chart area lists the channel names and line colors. The trend lines are below, and the Y-axis scales are on both sides.**

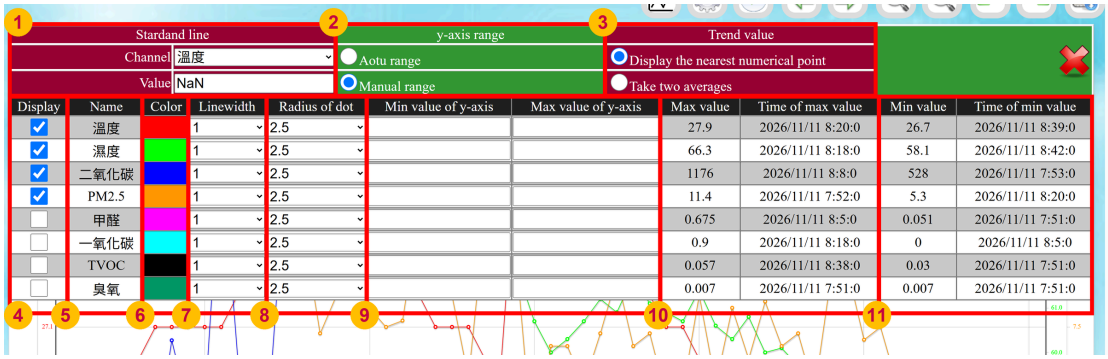
Time range (click code 1):



Code	Name	Function
1	Period	1-Day, 7-Day, 30-Day: the start and end times are filled in automatically. Customize: enter them yourself
2	Time of Starting / Time of Ending	Start and end times of a custom period
3	Apply Channel Settings	Reset the channel selection below to the enabled AI channels

- After selecting the period and channels, click the check button at the bottom right of the panel to redraw the trend chart. Up to 8 channels can be selected. Click the red cross at the top right to close the panel.

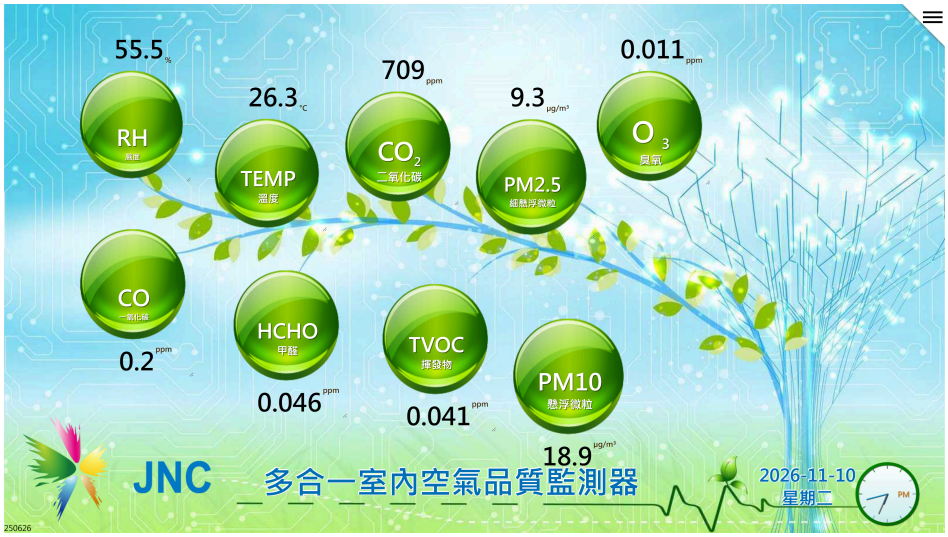
Line settings (click code 2):



Code	Name	Function
1	Standard line	Channel: select a channel, or none for no line. Value: height of the reference line, in the unit of that channel (e.g. CO2 1000 ppm). A horizontal reference line (warning line) in the same color is drawn on the trend chart, using that channel's Y-axis scale
2	y-axis range	Auto range, or Manual range for the Y-axis of each channel
3	Trend value	Value shown when you click the curve: Display the nearest numerical point: the data point nearest to the clicked position. Take two averages: the value on the line between the data points on the left and right, at the clicked position; at the midpoint it is the average of the two points
4	Display	Select the channel lines shown on the trend chart
5	Name	Channel name
6	Color	Line color of the channel
7	Linewidth	Line width
8	Radius of dot	Size of the data point dots
9	Min value of y-axis / Max value of y-axis	Minimum and maximum of each channel's Y-axis
10	Max value / Time of max value	Maximum of each channel in the trend chart and when it occurred
11	Min value / Time of min value	Minimum of each channel in the trend chart and when it occurred

5-6 Show Page

Open a browser and enter “device IP/show.html” in the address bar (factory default 192.168.0.140/show.html). The Show page opens (figure below). It shows the real-time value of each parameter as icons and is suitable for display on a large screen.



- The Show screen is available in Chinese only.
- The menu button at the top right requires the login password.

PART 6.SETTINGS

Questions Answered in This Chapter

- How do I enable a channel? How do I know which parameters this unit measures?
- How do I set the calibration values and alarms of an AI channel? How do I set the DO output?
- Where are the system settings and calibration settings?
- How do I read the alarm records? How do I download the log files?

Not Covered in This Chapter

- Schedule control, cycle control, and G6 fresh air → PART 7 Advanced Control (p. 50)

CAUTION: All settings in this chapter are examples.

Actual thresholds and parameters must be set by the user organization based on site conditions, applicable regulations, and professional judgment.

6-1 Channel Settings Overview

Path: Login → settings button → Channel setting.

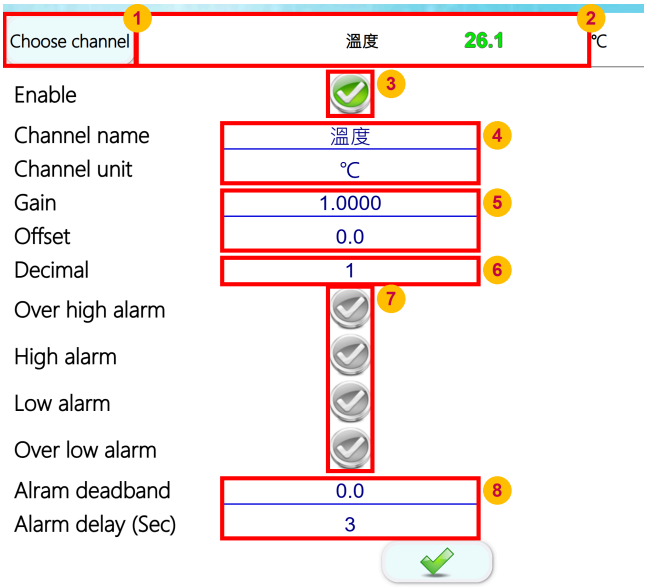


Code	Name	Function
1	Type selection	Select the channel type: Analog input (AI, measured parameters) or Digital output (DO, control outputs)
2	Channel (with icon)	Green check icon: the channel is enabled. Gray check icon: the channel is disabled and can be enabled and set
3	Channel (no icon)	No icon: this unit does not have this measured parameter; it cannot be enabled or set

- The channel list has 12 AI channels. Measured parameters not ordered for this unit have no icon and are not shown on the home page.

- **Click an AI channel to open 6-2 AI Settings (p. 34); click a DO channel to open 6-3 DO Settings (p. 36).**
- **On the DO tab, 本機DO is this unit's control output; for 綠新風1–5, see 7-3 G6 Fresh Air Settings (p. 52).**

6-2 AI Settings



Code	Name	Function
1	Choose channel	Return to the channel list (see 6-1 Channel Settings Overview (p. 33))
2	Real-time value	Name, value, and unit of the current channel
3	Enable	Click to toggle: green check = channel enabled, gray check = channel disabled
4	Channel name / Channel unit	Set the channel name and unit, up to 10 characters each
5	Gain / Offset	Correct the real-time value with two parameters: V = vX + Y (V: corrected value, v: value before correction, X: gain, Y: offset)
6	Decimal	Number of decimal places shown for the real-time value

Code	Name	Function
7	Alarm parameters	Over high alarm: triggers a second-stage alarm when the real-time value is above the set value. High alarm: triggers a first-stage alarm when the real-time value is above the set value. Low alarm: triggers a first-stage alarm when the real-time value is below the set value. Over low alarm: triggers a second-stage alarm when the real-time value is below the set value. When checked, two fields appear: the alarm value and a linked DO drop-down list (none = not linked; when a DO channel is selected, that DO turns on when the alarm occurs, provided the DO is enabled, set to automatic, and independent control is unchecked)
8	Alarm deadband / Alarm delay (Sec)	Alarm deadband: after an alarm, the value must return a set margin into the normal range before the alarm clears. Example: high alarm 100, deadband 2 → the value must drop to 100 – 2 = 98 to clear the alarm. Alarm delay: the real-time value must stay abnormal for this many seconds before an alarm occurs

- After editing, click the check button at the bottom of the page to save.

When an alarm occurs:

- It is written to the alarm record (see 6-6 Event Log (p. 47)).
- For over high and over low alarms, the buzzer sounds. Press any device button to mute it (to turn the buzzer on or off, see 6-4-5 Basic Setting (p. 42)).
- If a linked DO is selected for that alarm level (code 7 in this table) and that DO is enabled, set to automatic, with independent control unchecked, the DO turns on according to the alarm; for the DO automatic mode, see 6-3 DO Settings (p. 36). At the factory, no alarm level is linked to a DO, and alarms are disabled.

6-3 DO Settings



Code	Name	Function
1	Choose channel	Return to the channel list (see 6-1 Channel Settings Overview (p. 33))
2	Real-time value	Name and output state of the current channel
3	Enable	Click to toggle: green check = channel enabled, gray check = channel disabled
4	Channel name	Set the channel name, up to 10 characters
5	Inverted output	When checked, the output is inverted: off when it should be on, and on when it should be off
6	Manual / Automatic	Automatic: output follows the logic. Manual: switch it yourself in the DO area of the home page
7	Action record	When checked, one entry is added to the Alarm record page each time this DO is switched on manually from the home page: channel name, ON, Manual, and the on and off times. Switch-ons in automatic mode are not recorded
8	Logical judgement	Decision order in automatic mode; see the description below
9	Independent control	When checked, the DO stays on in automatic mode without checking AI alarms; when cycle control is also enabled, it cycles by the on and off seconds
10	Periodic control	Schedule control. Shows whether it is enabled (Active or Deactivated). Click to open the setting panel; see 7-1 Schedule Control (p. 50)
11	Cycle control	Shows whether it is enabled; Close means disabled. Click to open the setting panel. When enabled, AI alarms and independent control switch on and off alternately by the set times; see 7-2 Cycle Control (p. 51)

- After editing, click the check button at the bottom of the page to save.

How the DO decides on or off in automatic mode:

Logical judgement on the page lists the decision order: Manual / Automatic > Control mode (independent control) > Periodic control > Cycle control. Start from row 1 and go down; the first row that matches decides the DO action, and the rows after it are not checked:

Order	Condition	DO action
1	Manual	Follows the manual switch in the DO area of the home page
2	Automatic, independent control checked	Stays on without checking alarms
3	Automatic, the current time is within a schedule control period	Stays on
4	Automatic, none of the above	Alarm-linked control: when an alarm level of an AI channel is linked to this DO, the DO turns on after the alarm occurs and the alarm delay passes, and turns off when the alarm clears. For the same parameter, the priority is over high > high > over low > low; if the over high alarm is not linked, the high alarm setting is used

- When cycle control is enabled: while rows 2–4 decide that the DO is on, it switches on and off alternately by the on and off seconds.

6-4 System Settings

Path: Login → settings button → System setting → select the item to set.



Code	Name	Function
1	IP setting Factory setting – do not change	IP, Mask, Gateway, Mac, and iframe embedding prevention; see 6-4-1 IP Setting (p. 39)
2	Time adjustment	Update or change this unit's time; see 6-4-2 Time Adjustment (p. 40)
3	Communication setting Factory setting – do not change	Modbus RTU / TCP settings; see 6-4-4 Communication Settings (p. 41)
4	Password setting	Change the login password; see 6-4-3 Password Setting (p. 40)
5	Basic setting	Buzzer, device name, and place; see 6-4-5 Basic Setting (p. 42)
6	Display setting	LCD sleep and the display time of each parameter; see 6-4-6 Display Setting (p. 43)
7	Transmission setting	How data is uploaded to a platform; see 6-4-7 Upload Settings (p. 43)
8	Wifi setting	Select AP mode or Client mode; see 6-4-8 Wifi Setting (p. 44)

- Each setting subpage has a back button on the left (code 1 on each subpage). Click it to return to the System setting main page.
- After editing, click the check button below the fields to save.

6-4-1 IP Setting

Factory setting – do not change



Code	Name	Function
1	Back	Return to the System setting main page
2	IP parameters	IP, Mask (subnet mask), Gateway (default gateway), and Mac. After changing the IP and saving, reconnect the browser with the new IP
3	Prevent iframe embedding	When checked, other web pages cannot embed the device web page in an inline frame (iframe)

6-4-2 Time Adjustment



Code	Name	Function
1	Back	Return to the System setting main page
2	Renewal time	Checked: the fields are filled with the current time of the computer or phone, which becomes this unit's time when saved. Unchecked: enter the time manually
3	Date and time	Year / month / day and hour / minute / second; the day of the week is shown automatically

6-4-3 Password Setting



Code	Name	Function
1	Back	Return to the System setting main page
2	Password fields	Enter the Old password and New password, then enter the new password again in Confirm password (factory default 1234, up to 8 characters)

6-4-4 Communication Settings (Rs485 Setting)

Factory setting – do not change



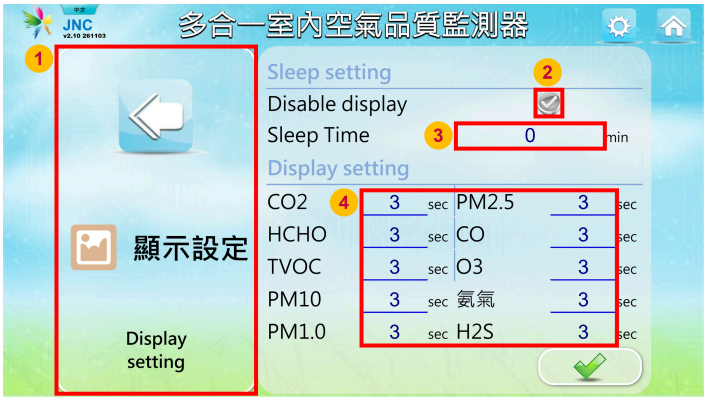
Code	Name	Function
1	Back	Return to the System setting main page
2	Modbus TCP	Set the Modbus TCP Port (factory default 502)
3	Modbus RTU	Set the Modbus RTU parameters: Baudrate, Parity, Data bits, Stop bits, and the connection type, shown as 連線種類. When the connection type is Slave, enter the ID (slave ID, up to 255); when it is Master, this field becomes the communication interval (ms)

6-4-5 Basic Setting



Code	Name	Function
1	Back	Return to the System setting main page
2	Buzzer, shown as 蜂鳴器聲響	When checked, the buzzer sounds for over high and over low alarms; press any device button to mute it. When unchecked, it does not sound
3	Name of Device	Set this unit's name, shown in the home page title
4	Place	Set the monitoring location, shown on the home page

6-4-6 Display Setting



Code	Name	Function
1	Back	Return to the System setting main page
2	Disable display	When checked, this unit's screen shows nothing
3	Sleep Time	After the sleep time (min) passes, the screen turns off; 0 = no sleep. While the screen is asleep, press any device button to wake it
4	Display setting	When the screen shows the parameters in turn, the seconds each parameter stays on screen; parameters set to 0 are not shown

6-4-7 Upload Settings



Code	Name	Function
1	Back	Return to the System setting main page
2	Start Http to upload	When checked, this unit uploads the real-time values at a fixed interval to the set Address, Port, and Upload page
3	Start Supervise System	When checked, this unit connects to the central integration system at the set Address and Modbus Port

6-4-8 Wifi Setting



Code	Name	Function
1	Back	Return to the System setting main page
2	SSID	Wi-Fi network name
3	Encryption mode	In AP mode, only none, WEP64 (5-character password), or WEP128 (13-character password) can be selected; WAP2 (WPA2) is available only in Client mode. A password field appears for any option other than none
4	WiFi Mode	AP: this unit broadcasts its own Wi-Fi network and phones connect to it directly. Client: this unit connects to the on-site wireless router; a WifiDhcp checkbox appears, and when checked the router assigns the IP automatically

- After switching to Client and saving, a phone connected to this unit's Wi-Fi loses the connection. Look up the Wi-Fi IP in the router client list, or connect with an Ethernet cable using the Ethernet IP.

6-5 Calibration

Path: Login → settings button → Calibration.



Code	Name	Function
1	Zero calibration	Enter a value under Enter value: Zero Air, then click Zero; the real-time value is corrected to the entered value by addition or subtraction
2	Span calibration	Enter a value under Enter value: Span, then click Span; the real-time value is corrected to the entered value by multiplication or division
3	Calibration record	Click Record to show the gain (Gain) and offset (Offset) of earlier calibrations of the parameter

Before calibration:

Each parameter needs a zero-point environment and a span environment, with a reference value from a calibrated reference instrument or a gas of known concentration.

Parameter	Zero-point environment	Span environment
Temperature, humidity	Next to a reference thermo-hygrometer, at the lower point	Next to a reference thermo-hygrometer, at a clearly higher temperature and humidity
CO2	Fresh outdoor air, about 400 ppm	Standard gas of known concentration
PM2.5, PM10	Filtered clean air, about 0 µg/m³	Next to a reference instrument for comparison
HCHO, CO, TVOC, O3	Zero air (clean air without the gas)	Standard gas of known concentration

- **If no span environment is available, perform only the zero calibration.**

- **Calibration every 12 months is recommended.**

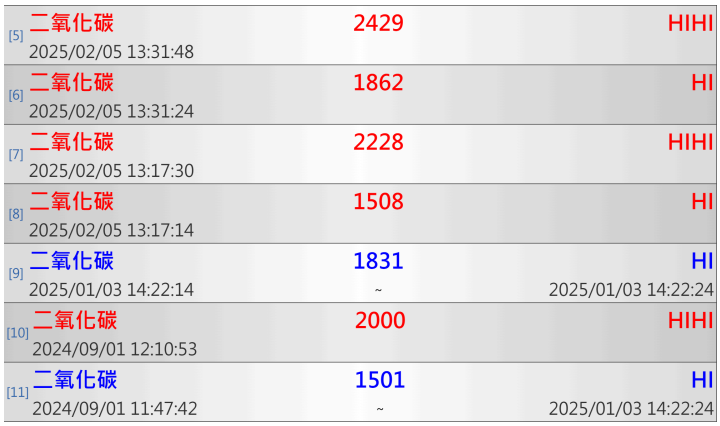
Calibration steps (for each parameter separately):

1. **Place this unit in the zero-point environment and wait until the reading is stable, at least the environmental equilibrium time of the parameter (see 4-4 First Power-Up (p. 22)).**
2. **Enter the reference value in the zero field of the parameter, then click Zero.**
3. **Two confirmation boxes appear in turn: click OK in the first one; the second one says "Click"Cancel" start calibration", and you must click Cancel to run the calibration.**
4. **Place this unit in the span environment. When the reading is stable, enter the reference value in the span field, click Span, and confirm as in step 3.**
5. **Click Record. Calibration is complete when the gain (Gain) and offset (Offset) of this calibration appear and the real-time value on the home page equals the entered reference value.**

- **Do the zero calibration first, then the span calibration: zero changes only the offset, and span changes only the gain. If you do span first and then zero, the span calibration is lost.**
- **The "five-point calibration" in the product features is set at the factory and is not available to users.**

6-6 Event Log

Path: Login → settings button → Alarm record.



Each alarm entry shows:

- **First line: channel name, alarm value, and alarm status.**
- **Second line: occurrence time on the left and end time on the right; there is no end time while the alarm is still active.**
- **Color: Red = alarm is active; Blue = alarm has cleared.**

There are 4 alarm statuses:

Status	Meaning
HIHI	Over high alarm: the real-time value is above the set value; second-stage alarm
HI	High alarm: the real-time value is above the set value; first-stage alarm
LO	Low alarm: the real-time value is below the set value; first-stage alarm
LOLO	Over low alarm: the real-time value is below the set value; second-stage alarm

6-7 Download

Path: Login → settings button → Record download.



Code	Name	Function
1	History record of USB	Download the log files on the USB flash drive; you can select the start and end times
2	Event record of USB	Download the alarm log file on the USB flash drive
3	History record of System	Download the built-in log file of the system
4	Event record of System	Download the built-in alarm log file of the system

Log files (on the USB flash drive):

No.	File name	Content
1	YYYYMMDD.csv (named by date)	Hourly log of each day
2	data.csv	Per-minute log
3	event.csv	Alarm event log

Notes:

1. **The USB flash drive is installed inside the housing. Without a USB flash drive, logs are written to the internal memory.**
2. **When the internal memory is full, the oldest record is removed before a new one is written, so the latest data is kept.**
3. **Internal memory capacity:**
   - **Hourly log: 32-record buffer, up to 32 hours.**
   - **Per-minute log: 1000-record buffer, up to about 16 hours.**
   - **Alarm log: 100-record buffer. Each alarm takes one record; the clearing time is written to the same record.**
4. **Each log record on the USB flash drive is about 36 bytes. The hourly and per-minute log files of one day total about 41.35 KB, about 15 MB per year (365 days); a 4 GB USB flash drive can store about 273 years.**

PART 7.ADVANCED CONTROL

Questions Answered in This Chapter

- How do I set schedule control and cycle control for the DO output?
- How do I set up G6 fresh air?

Not Covered in This Chapter

- Other DO settings → PART 6 Settings (p. 33)

7-1 Schedule Control

Path: Login → settings button → Channel setting → Digital output → 本機DO → Periodic control.

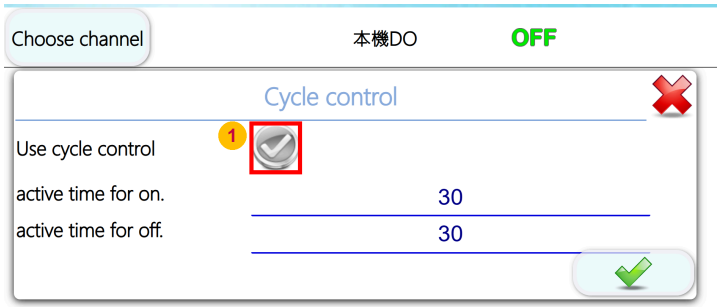


Code	Name	Function
1	Use Periodic control	When checked, the schedule conditions below are evaluated and schedule control starts

- There are five schedules below. For each one, check the box on the left, then set Time of Starting, Time of Ending, and the days under Choose any day you want.
- When finished, click the check button at the bottom right of the panel to save; click the cross at the top right to close the panel.

7-2 Cycle Control

Path: Login → settings button → Channel setting → Digital output → 本機DO → Cycle control.



Code	Name	Function
1	Use cycle control	When enabled and the channel is activated, the output turns on for the time set in active time for on., then off for the time set in active time for off., and repeats

7-3 G6 Fresh Air Settings

CAUTION: This section requires the JNC G6S fresh air unit (G6 fresh air); skip it if you do not have one

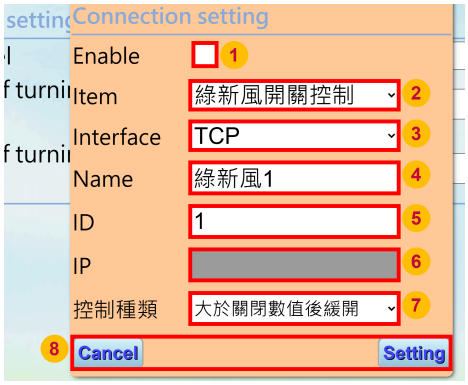
Path: Login → settings button → G6 setting.



Code	Name	Function
1	Channel	Select the parameter that controls the G6 fresh air units
2	Value of turning on device / Value of turning off device	When the G6 fresh air unit starts depends on the control type in the connection settings (see code 7 under “G6 fresh air connection setting” below); it stops only when the value is below the turn-off value
3	Enable	Check the G6 fresh air units to be controlled (up to 5)
4	Source	Set the connection parameters of that unit; see “G6 fresh air connection setting” below
5	Setting	Save the channel, values, and enable selections on this page

- After the stop condition is met, the G6 fresh air unit turns off after a 300-second delay (factory default).

G6 fresh air connection setting (click code 4):



Code	Name	Function
1	Enable	Checked = enabled
2	Item	5 types: On/off control, shown as 綠新風開關控制: turns the G6 fresh air unit on or off when the value reaches the set value. Opening control, shown as 綠新風開度控制: adjusts the opening of the G6 fresh air unit when the value reaches the set value. G6 Bt: turns the G6 fresh air unit on or off through G6 BT. Other on/off and other opening, shown as 其他開關 and 其他開度: control other equipment; Loc must be entered
3	Interface	RTU: connect over RS-485. TCP: connect over the network; enter the IP
4	Name	Custom name of the G6 fresh air unit
5	ID	Slave ID of the G6 fresh air unit
6	IP	IP of the G6 fresh air unit; enter it when Interface is TCP
7	Control type, shown as 控制種類	Full open above the full-open value, shown as 大於全開數值後全開: when not running, the unit starts only when the value reaches the turn-on value, then opens fully (100%); while running, the opening drops in steps to 25% as the value falls, and the unit stops below the turn-off value. Gradual opening above the turn-off value, shown as 大於關閉數值後緩開: the unit starts at 25% opening once the value exceeds the turn-off value; the range from the turn-off value to the turn-on value is divided into three equal parts, raising the opening to 50% and 75%, and to 100% at the turn-on value

Code	Name	Function
8	Setting / Cancel	Setting: save the connection setting of this unit. Cancel: close the panel without saving

- When Item is 其他開關 or 其他開度, a Loc field appears; the system engineer fills it in with the Modbus address of the controlled equipment in PLC format (0xxxxx = coil, 4xxxxx = holding register). When the type is 綠新風開關控制, 000001 is filled in automatically; when it is 綠新風開度控制, 400004 is filled in, and the field is not shown.

PART 8.MAINTENANCE AND TROUBLESHOOTING

Questions Answered in This Chapter

- What should I check first when I see an abnormal condition?
- Which conditions are not malfunctions?
- What are the factory defaults of this unit? How do I restore them?
- Where is calibration performed?

Not Covered in This Chapter

- Disassembly and repair → Contact JNC

8-1 Symptoms and Checks

First, check according to the table below. If the problem persists after following the table, contact JNC (see "About us" on the last page of this manual).

#	Symptom	Check
1	Cannot connect to the network	● Are the lights of the Ethernet port (RJ-45) on and flashing? ● Is the Ethernet cable working properly?
2	Cannot open the device web page from a computer connected by Ethernet cable	● Is the computer IP in the same subnet as this unit? The factory IP is 192.168.0.140; set the computer IP to 192.168.0.x (x must not be 140); see 5-1 Connecting to the Device Web Page (p. 24)
3	Forgot this unit's IP	● Connect the Ethernet cable first, then press and hold both device buttons; the screen shows the Ethernet IP starting with E (see 3-2 Device Buttons and Setup Menu (p. 19))
4	The web page cannot be loaded	● Clear the browser cookies
5	The web page shows garbled characters	● Set the browser encoding to Unicode (UTF-8)
6	Time or date is incorrect	● Set the time and date again on the device web page (see 6-4-2 Time Adjustment (p. 40)) ● Time and date still incorrect after power is restored following a period without power → contact JNC
7	Sensor values are abnormal	● After power-on, or after moving to a new environment, has the environmental equilibrium time passed (see 4-4 First Power-Up (p. 22))? ● Values still abnormal after the environmental equilibrium time → contact JNC
8	A measured parameter cannot be enabled on the web page	● Was this measured parameter ordered for this unit? A measured parameter with no icon in the channel settings was not ordered (see 2-3 Checking Which Measured Parameters Your Unit Has (p. 14))

8-2 Not a Malfunction

Symptom	Cause
The screen is completely dark, but the power indicator light is on	The screen is in sleep; press either button to wake it. Or the display has been disabled. The sleep time and display disabling are set in 6-4-6 Display Setting (p. 43)
The buzzer sounds	A measured parameter has an over high or over low alarm. Press either device button to silence it; for the alarm details, see 6-6 Event Log (p. 47)
Some channels have no icon in the channel settings	The measured parameter was not ordered (see 2-3 Checking Which Measured Parameters Your Unit Has (p. 14))
Readings are unstable right after power-on	The environmental equilibrium time has not yet passed (see 4-4 First Power-Up (p. 22))

8-3 Factory Defaults and Factory Reset

Item	Factory default
IP / Mask / Gateway	192.168.0.140 / 255.255.255.0 / 192.168.0.1 (Ethernet uses a fixed IP)
Wi-Fi (optional)	Hotspot mode; name (SSID) is IAQSv2_ followed by 4 characters; no encryption, no password
Web page login password	1234
Alarm levels	Not enabled; not linked to DO
G6 fresh air stop delay	300 seconds

What you want to do	Action
Check the IP and firmware version	Press and hold both device buttons (see 3-2 Device Buttons and Setup Menu (p. 19))
Factory reset	1. Reset in this unit's setup menu: settings such as IP, Wi-Fi, and device name return to factory values, and the logs in the internal memory are cleared; see 3-2 Device Buttons and Setup Menu (p. 19)

8-4 Calibration

- **Zero calibration, span calibration, and calibration records: Calibration in the settings menu; see 6-5 Calibration (p. 45).**
- **To calibrate the real-time value of each measured parameter with gain and offset: see 6-2 AI Settings (p. 34).**
- **The “five-point calibration” in the product features is set by JNC and is not available for user operation.**

APPENDIX A.MODBUS REGISTER TABLE

Who Should Read This Appendix

System engineers: when the customer's central control system (PLC, central control computer, etc.) needs to read the real-time values of this unit. General users do not need to read this appendix.

A-1 Direction of Communication

Situation	Role of this unit	Whose table to use
Another system reads the real-time values of this unit	Slave	This unit's table, i.e., this appendix
This unit controls the G6 fresh air unit	Master	The G6 fresh air unit addresses; see 7-3 G6 Fresh Air Settings (p. 52)

A-2 Default Communication Settings

Item	Value
Interface	RS-485 (Modbus RTU; for terminals, see 3-3 Terminals (p. 20)), Ethernet (Modbus TCP)
Modbus TCP port	502 (factory default)
Actual values	Slave ID, baud rate, and TCP port as set on the web page under System setting → Communication setting (see 6-4-4 Communication Settings (p. 41))

A-3 Register Table

This appendix lists the real-time values, all read with Function 04 and read-only (R). Register No. = 300001 + address.

Before using the table, note the following two conventions:

- **FLOAT occupies 2 addresses: the first address holds the low word and the next address holds the high word; to assemble the value, place the high word first and then convert (see the read/write examples at the end of this section).**

- **INT16 and FLOAT conversion: convert INT16 readings using the scaling in the Remarks column (e.g., Value/10); FLOAT readings are already actual values, so round them to the decimal places in the Remarks column.**

Real-Time Values (Function 04 read)

Address	Register No.	Item	Type	R/W	Remarks
0x0000	300001	TEMP real-time value	INT16	R	Value/10 Unit: °C
0x0001	300002	RH real-time value	INT16	R	Value/10 Unit: %
0x0002	300003	CO2 real-time value	INT16	R	Value/1 Unit: ppm
0x0003	300004	PM2.5 real-time value	INT16	R	Value/10 Unit: μg/m³
0x0004	300005	HCHO real-time value	INT16	R	Value/1000 Unit: ppm
0x0005	300006	CO real-time value	INT16	R	Value/10 Unit: ppm
0x0006	300007	TVOC real-time value	INT16	R	Value/1000 Unit: ppm PID100 reading when PID100 is installed Above 32.767 ppm, read 0x008C instead
0x0007	300008	O3 real-time value	INT16	R	Value/1000 Unit: ppm
0x0008	300009	PM10 real-time value	INT16	R	Value/10 Unit: μg/m³
0x0080–0x0081	300129–300130	TEMP real-time value	FLOAT	R	Decimal places: 1 Unit: °C
0x0082–0x0083	300131–300132	RH real-time value	FLOAT	R	Decimal places: 1 Unit: %
0x0084–0x0085	300133–300134	CO2 real-time value	FLOAT	R	Decimal places: 0 Unit: ppm
0x0086–0x0087	300135–300136	PM2.5 real-time value	FLOAT	R	Decimal places: 1 Unit: μg/m³
0x0088–0x0089	300137–300138	HCHO real-time value	FLOAT	R	Decimal places: 3 Unit: ppm
0x008A–0x008B	300139–300140	CO real-time value	FLOAT	R	Decimal places: 1 Unit: ppm
0x008C–0x008D	300141–300142	TVOC real-time value	FLOAT	R	Decimal places: 3 Unit: ppm PID100 reading when PID100 is installed
0x008E–0x008F	300143–300144	O3 real-time value	FLOAT	R	Decimal places: 3 Unit: ppm
0x0090–0x0091	300145–300146	PM10 real-time value	FLOAT	R	Decimal places: 1 Unit: μg/m³

Read/Write Examples

In the following examples, the slave ID is always 01, and the CRC is the Modbus RTU 16-bit check code (low byte first).

Example 1: Read the RH real-time value (Function 04, INT16)

Master request:

Slave ID	Function code	Start address	Quantity (words)	CRC
01	04	00 01	00 01	60 0A

Slave response:

Slave ID	Function code	Byte count	Data	CRC
01	04	02	02 8F	F9 F4

Data 0x028F = 655. The INT16 real-time value of RH is Value/10; that is, the real-time value of humidity (RH) is 655/10 = 65.5 %.

Example 2: Read the RH real-time value (Function 04, FLOAT)

Master request:

Slave ID	Function code	Start address	Quantity (words)	CRC
01	04	00 82	00 02	D1 E3

Slave response:

Slave ID	Function code	Byte count	Data	CRC
01	04	04	28 F6 42 83	63 17

The first 2 bytes of the data, 28 F6, are the low word (address 0x0082), and the last 2 bytes, 42 83, are the high word (address 0x0083). Placing the high word first gives 42 83 28 F6, which converts to 65.58 as a FLOAT; rounded to 1 decimal place as noted, the real-time value of humidity (RH) is 65.6 %.

An online conversion tool is available: https://gregstoll.com/~gregstoll/floattohex/

APPENDIX B.AQI AIR QUALITY INDEX

Who Should Read This Appendix

Anyone who wants to know how the AQI levels on the screen and the web page are calculated. Not needed for general operation.

This unit calculates the AQI from the values of the listed measured parameters using the following formula:

S = (P1 − P0) ÷ (Q1 − Q0) × (C − Q0) + P0 (S: AQI value)

Symbol	Meaning
C	Measured concentration of the pollutant
Q1	Among the concentration breakpoints greater than or equal to C, the upper value closest to C
Q0	Among the concentration breakpoints less than or equal to C, the lower value closest to C
P1	AQI breakpoint score corresponding to Q1
P0	AQI breakpoint score corresponding to Q0

The calculated AQI is divided into 6 levels and shown on this unit's screen as the number of dots after the AQI label (see 3-1 Device Parts (p. 18) 7): 1 dot is level 1, and 6 dots are level 6.

Screen dots	1 dot	2 dots	3 dots	4 dots	5 dots	6 dots
Air Quality Index (AQI)	0–50	51–100	101–150	151–200	201–300	301–500
Health impact	Good	Moderate	Unhealthy for sensitive groups	Unhealthy	Very unhealthy	Hazardous
CO2 concentration	350–600	1,100	3,500	5,000	10,000	Above 10,000
PM2.5	0–15	16–40	41–65	66–100	101–250	251–500
HCHO	0.00–0.01	0.011–0.02	0.021–0.06	0.061–0.10	0.10–1.00	1.01–5.00
CO	0.00–2.0	2.1–5.5	5.6–9.3	9.4–23.1	23.2–50	51–90

Revision History

Version	Revision date	Revision description	Maintenance personnel
V1.05	2023/08/17	Update new format	Siao jǐng jhou
V1.06	2024/01/15	Updated cover and Modbus Table	Siao jǐng jhou
V1.07	2026/11/13	Fully rewritten for firmware v2.10a; errors corrected	Ran

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