# San Ace Controller

## ■ Features

### Preventive maintenance of equipment (IoT functionality)

- Easy to connect to user's terminal devices. (Wireless LAN / wired LAN)
- Enables users to monitor the status of fans and sensors from remote terminal devices.
- Enables users to control the fan speed remotely via terminal devices.
- Detects outlier sensor measurements and sends alerts.
- Saves the fan's cumulative operating time and other fan measurement data to the cloud for later use.
- Prevents heat problems with user equipment, contributing to reducing maintenance time and costs.

### Low noise and high energy efficiency (Automatic control)

- Stores temperature, humidity, and air pressure measurements for automatic fan speed control based on the setting conditions.
- Makes fan cooling and ventilation more efficient, reducing noise and improving efficiency.

### Optimized fan settings (Manual control)

- Can connect and control a maximum of four fans, enabling different speed settings for individual fans.
- Optimizes the airflow and static pressure of individual fans in multi-fan systems.

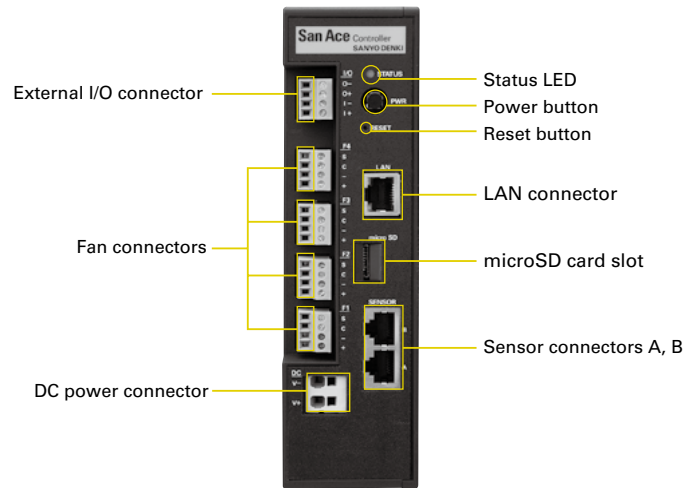Only the 9CT1-U001 model is cUL-certified.

## ■ Specifications

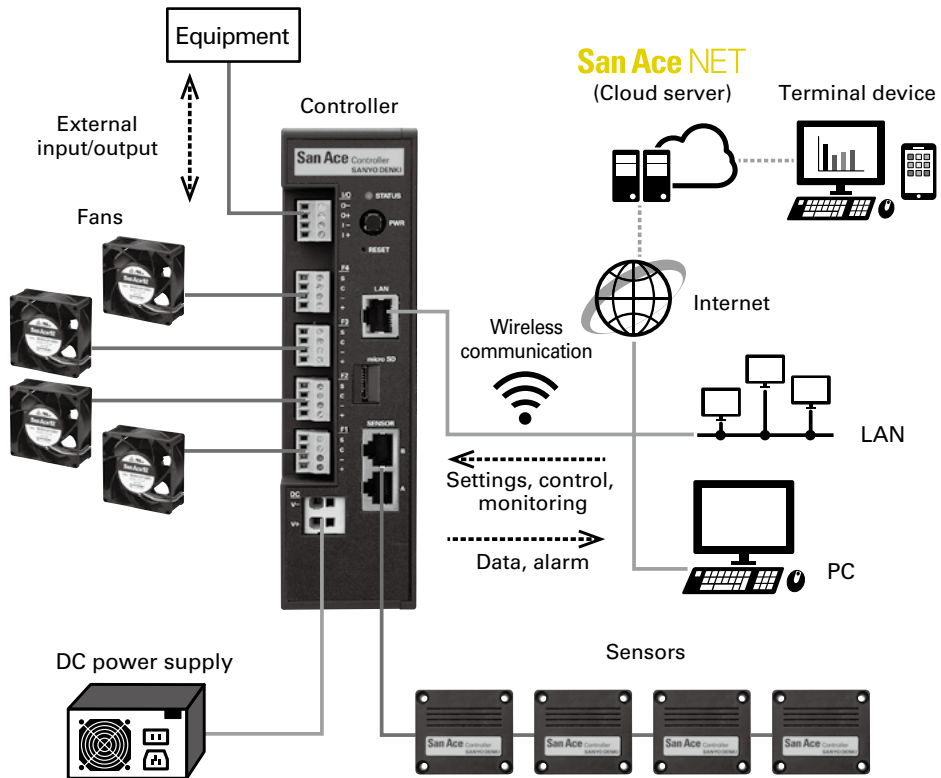| | | With wireless LAN | Without wireless LAN | With wireless LAN, cUL certified |
|---|---|---|---|---|
| Model no. | | **9CT1-001** | **9CT1-002** | **9CT1-U001**[1] |
| Rated voltage [VDC] | | 12/24/48 | | 12/24 |
| Power consumption [W] | | 3.1[2] | | |
| Max. input power | | 970 W or less | | 64 W or less (At 12 VDC) 100 W or less (At 24 VDC) |
| Operating voltage range [VDC] | | 7 to 60 | | 7 to 27.6 |
| Operating temperature range [°C] | | -20 to +70 | | |
| Control functions | | Manual / automatic | | |
| Control signal | | PWM signal High-level voltage ($V_{OH}$): 3.3/5 V Frequency: 25 kHz | | |
| Monitoring criteria | | Fan speed, fan current, fan operation hours, sensor detection value, external input | | |
| No. of connectable fans | | Max. 4 | | |
| Max. fan connection terminal current (per terminal) | | 5 A | | 5 A (At 12 VDC) 4 A (At 24 VDC) |
| Max. output current (Total) | | 20 A | | 5 A (At 12 VDC) 4 A (At 24 VDC) |
| No. of connectable sensors | | Max. 4 | | |
| Compatible sensors[3] | | Temperature / humidity, air pressure, acceleration | | |
| External I/O functions | Input | Photocoupler-isolated input, ON: 15 to 28.8 VDC, OFF: 0 to 5 VDC | | |
| | Output | Photocoupler-isolated open-collector output, load voltage: 28.8 VDC or less, output current: 0.1 A or less | | |
| Communication | Wireless | IEEE 802.11b/g/n, frequency: 2.4 GHz[4] | — | IEEE 802.11b/g/n, frequency: 2.4 GHz[4] |
| | Wired | Ethernet 10BASE-T，100BASE-TX | | |
| Size [mm] | | 50 (W) × 135 (D) × 180 (H) | | |
| Mass [g] | | 450 | | |
| Material | | Casing: Plastic | | |

(1) Use a UL Class 2 power supply.  (2) For use of this product alone, at 20°C ambient temperature
(3) Use our dedicated sensors (options).  (4) Available channels: Ch. 1 to 11
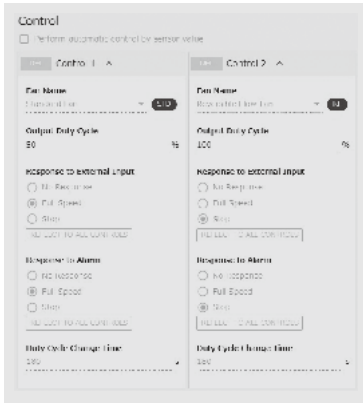
## ■ Front View



- External I/O connector
- Fan connectors
- DC power connector
- Status LED
- Power button
- Reset button
- LAN connector
- microSD card slot
- Sensor connectors A, B

## ■ System Configuration



- Equipment
- External input/output
- Controller
- Fans
- DC power supply
- San Ace NET (Cloud server)
- Terminal device
- Internet
- Wireless communication
- LAN
- Settings, control, monitoring
- Data, alarm
- PC
- Sensors

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## ■ Graphical User Interface (GUI) Screens

Settings, control, monitoring, and data download can be done through web browsers.
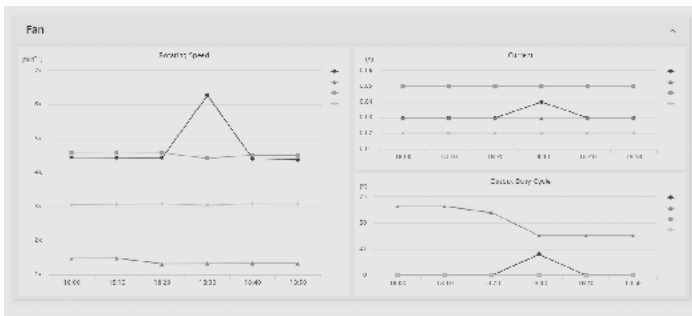
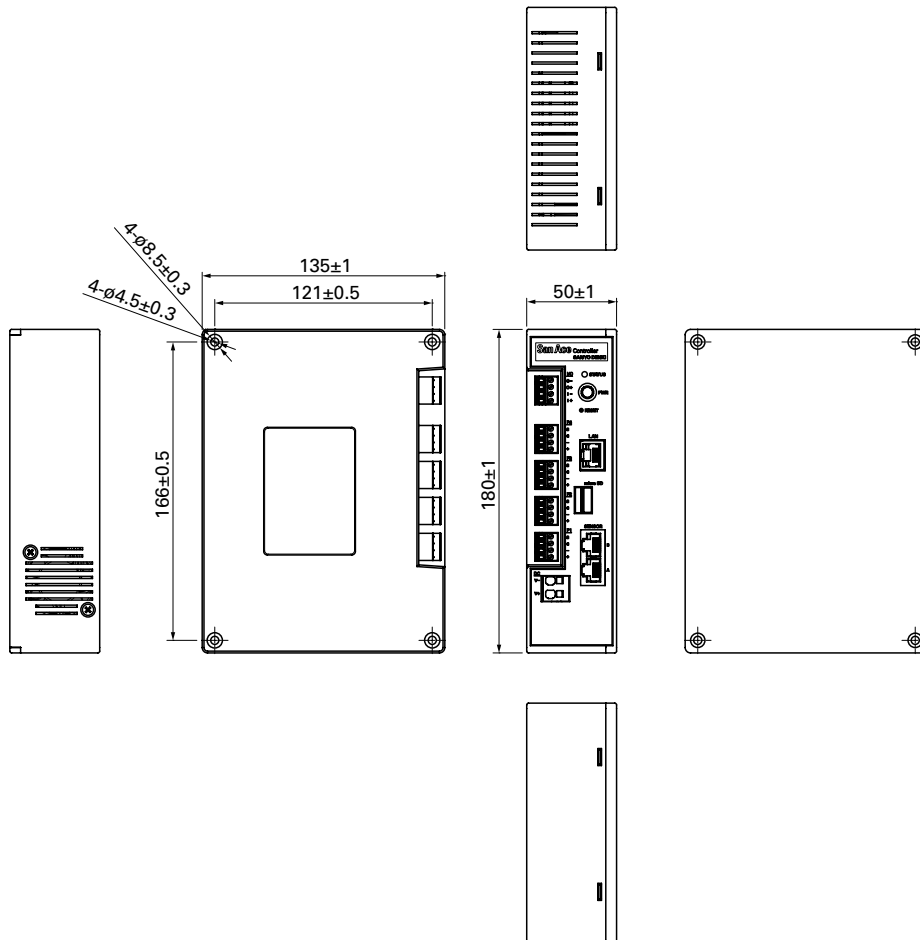### Sample screens

Control settings



Measurement data



Graphs



Alarms



## ■ Dimensions (unit: mm)

● Sensors

| Sensor type | Temperature / Humidity sensor | Air pressure sensor | Accelerometer |
|---|---|---|---|
| Model no. | **9CT1-T** | **9CT1-P** | **9CT1-A** |
| Measurement range | Temperature: -20 to +70°C Humidity: 20 to 85% RH* | Air pressure: 800 to 1100 hPa | Acceleration: 0 to 60 m/s$^2$ ** |
| Operating temperature range [°C] | -20 to +70 | | |
| Operating humidity range [% RH] | 20 to 85* | | |
| Size [mm] | 53 (W)×46 (D)×22 (H) | | |
| Mass [g] | 35 | | |
| Material | Casing: Plastic | | |

* Non-condensing    ** Total acceleration from three axes

● Dimensions (unit: mm)



4-3.5±0.3
4-7.2±0.3
53±0.5
44±0.5
46±0.5
37±0.5
22±0.5

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SANYO DENKI

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