

SANMOTION



San Ace

PRODUCT INFORMATION

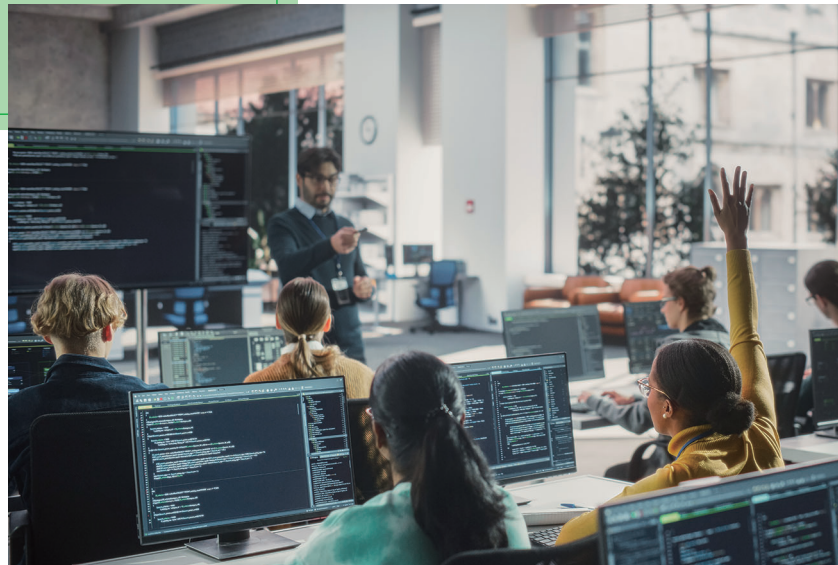
Ver. 6

SANUPS



SANYO DENKI

SANYO DENKI
Develops Products
That Contribute to
the Happiness of All People.



Contents

Product Overview	p. 3
Features	
San Ace	p. 6
SANUPS	p. 14
SANMOTION	p. 22
Product Lineup	
San Ace	p. 30
SANUPS	p. 36
SANMOTION	p. 44

San Ace



Fans and Related Products

Many of the devices essential for modern society—such as IT infrastructure like servers and communication equipment, medical inspection equipment, and control devices used in factories—require heat control solutions. Our San Ace products are used to cool these devices to ensure their stable operation. SANYO DENKI's cooling fans are characterized by best-in-class performance, quality, and reliability, contributing to improved performance and reliability of our customers' equipment.



SANUPS

UPSs, Renewable Energy Inverters, and Power Supply Products

The electronic devices and communication networks indispensable for our daily lives depend on a stable power supply. Our SANUPS products, including uninterruptible power supplies (UPS) and renewable energy inverters, deliver high-quality, stable power to customers' equipment during both unexpected power outages and normal conditions. These products are also suitable for disaster management and business continuity planning.



SANMOTION

Servo Systems, Stepping Systems, and Related Products

Motors and the amplifiers that drive them are essential for machines that "move"—especially those the ones that require precise positioning and complex motion control, such as machine tools and industrial robots in factories and medical equipment. Our SANMOTION servo products improve the productivity of customers' equipment with high-precision, high-speed operation and flexible customization.

SANYO DENKI Products

Making Contributions

in a Wide Range of Industries

Our products are the unsung heroes of society that work behind the scenes to support our lives. They are used all over the world, from convenience stores to factories, and contribute to people.



In hospitals

Our products are found in a variety of equipment including medical inspection and analysis equipment.

Dental X-rays

San Ace Fans
Cooling control boards
SANUPS UPS
Power backup in case of power outages
SANMOTION Servo Systems
Driving equipment while controlling speed and direction

Blood analyzers

San Ace Fans
Cooling control boards
SANUPS UPS
Power backup of inspection equipment
SANMOTION Servo Systems
Rotating axis of specimen holders



In food factories

In food and semiconductor manufacturing factories, SANYO DENKI products are used to supply stable power to various units on automated production lines and the entire factory.

Air showers

San Ace Fans
Blowing clean air through filters

Automatic labelers

SANUPS UPS
Power backup of the labeler and data PC in case of power outages
SANMOTION Servo Systems
Driving label tape rolls and conveyor belts



In convenience stores

Our products are found in store fixtures for heating and cooling goods and equipment for providing convenient services.

ATM

San Ace Fans
Cooling the housing and paper currency detector
SANUPS UPS
Power backup during power outages
SANMOTION Stepping Systems
Dispensing paper currency,
conveying receipts and cards

POS registers

San Ace Fans
Cooling the CPU and power supply
SANUPS UPS
Power backup of registers and data
PCs



In IT systems

Our products ensure that servers, base stations, and other critical IT systems operate safely through cooling and power backup.

Servers

San Ace Fans
Cooling the housing and individual units
SANUPS UPS
Long-term power backup of data centers

5G base stations

San Ace Fans
Cooling the housing and individual units
SANUPS UPS
Power backup during power outages



In automated factories

Our products are used in robots, machine tools, and control devices, achieving factory automation (FA).

Palletizing robots

San Ace Fans
Cooling control boards
SANUPS UPS
Power backup of palletizing robots during outages
SANMOTION Servo Systems
Driving robots while controlling
speed and trajectory

Machine tools

San Ace Fans
Cooling control boards and power supplies
SANUPS Voltage Dip Compensator
For protection from momentary voltage dips
SANMOTION Servo Systems
Workpiece feeding and shaft driving

Fans That Protect Society with Cooling

As IT equipment and industrial machinery in recent years are generating more heat from their components and becoming more compact in size, heat solutions have become more important than ever before. This is where San Ace products, fans in particular, come into play. Our high-performance fans contribute to the stability of public infrastructure by powerfully cooling equipment even in limited installation space, protecting it from heat.

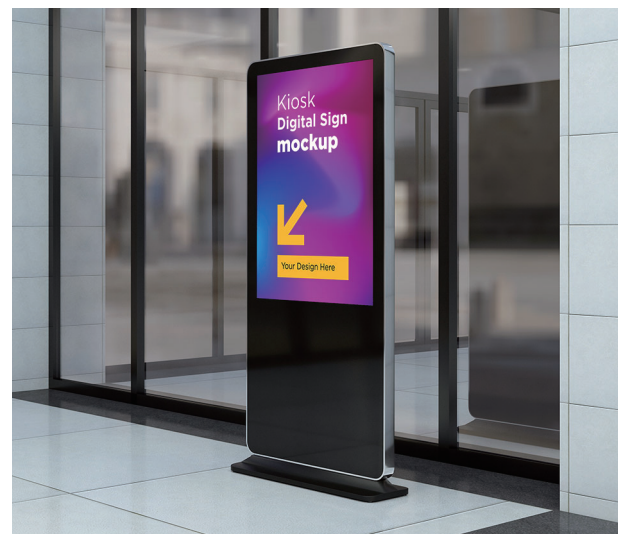


In telecom and TV fields



Wireless relay stations located on the rooftops of buildings transmit radio waves for mobile phones and TV broadcasts. For outdoor use, San Ace fans which feature high water resistance and long service lives are used.

In IT and advertising fields



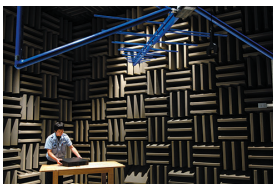
In recent years, digital signage has become widely installed in restaurants and public facilities. Energy-saving and low-noise fans are used.

Why they choose San Ace?

Point

1

High-reliability & high-performance design



San Ace was introduced in 1965 as the first fan produced domestically in Japan, and has continued to be developed while maintaining high reliability. We design and develop highly reliable and high-performance fans at our three Technology Centers in Ueda, Japan, in the Subic Bay Freeport Zone, Philippines, and in Taipei, Taiwan.

All of our DC fans are equipped with ball bearings to stabilize the load during rotation and rotor covers to fix the magnets and impellers for high reliability and long life.

Point

2

High-quality production and manufacturing



In terms of production technology, we are also constantly developing technologies to provide high-quality products. For example, we manufacture our own original precision molds to achieve high-quality manufacturing in a short period of time. In addition, we use precise technology in our production procedures to correct balance and inspect all fans, which greatly affects their service life and reliability.

Point

3

Various proposals to satisfy customers' needs



We have a lineup of many unique products to solve our customers' problems, including fans with excellent environmental resistance such as Long Life Fans and Splash Proof Fans, and ACDC Fans that are driven by DC power with an AC input.

We also specialize in customizing existing fans with connectors and tubing to improve their durability for the environments in which they will be used. We have a variety of controllers to control fan speed and use them under optimal operating conditions, as well as measuring instruments to select the best fan for the equipment.

Point

4

Short Lead Time Service



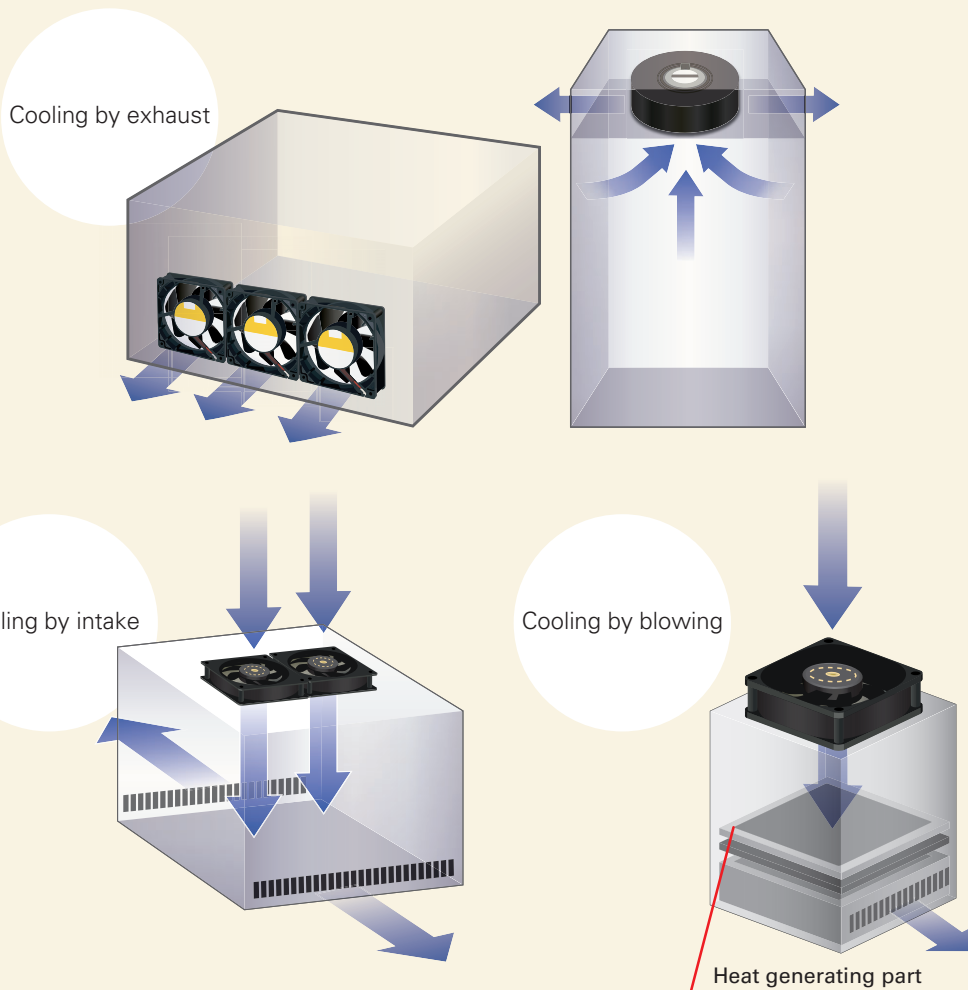
A Short Lead Time Service is available for the prompt delivery of our products. Please contact your point of sale for details.

Fan Configuration Options

Cooling

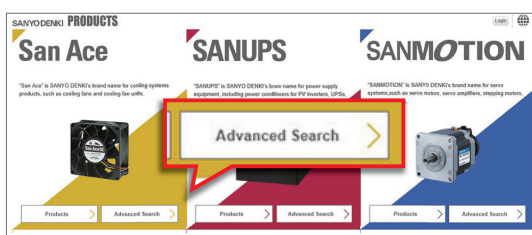
There are many ways to provide cooling.

San Ace offers a rich lineup available, so you can find a model that fits your equipment.



**Make
selection
easy**

You can narrow down fans by size and airflow with the **Advanced Search** on our Product Site.



<https://products.sanyodenki.com/en/sanace/search/>



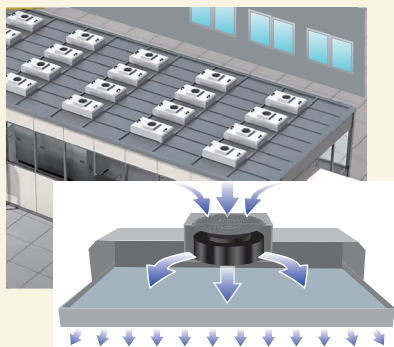
Not just cooling

Air supply and circulation

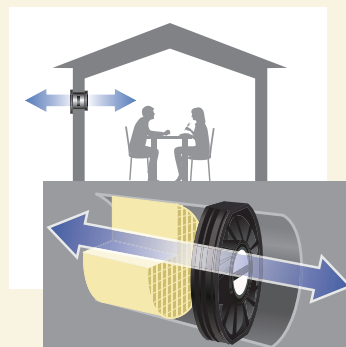
They can be used for a variety of applications that require wind.



Air circulation
(Inside showcases, in plant factories, etc.)



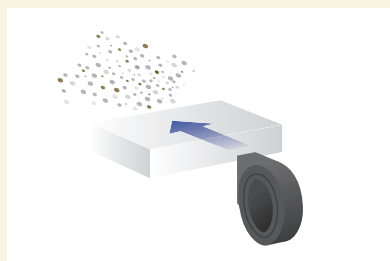
Sending air through filters
(In the ceilings of factories)



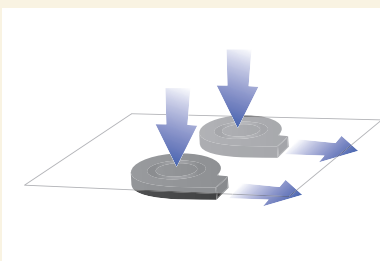
Indoor ventilation

Spraying and suction

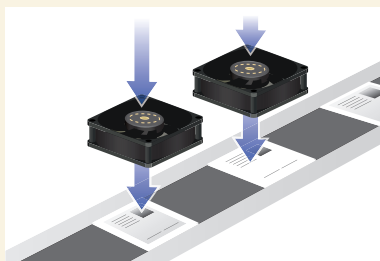
Suitable fans can be selected to meet the required specifications.



Contaminant removal
(Production line finishing and forming processes)



Holding paper by air suction
(Printers, copiers, etc.)

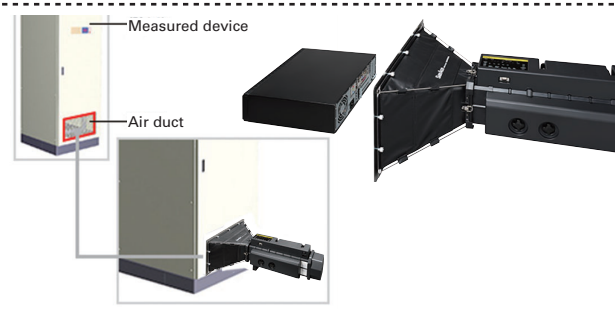


Using blasts of air for drying
(Food processing machines, production lines, etc.)

The Airflow Tester portable measurement device makes selection easy

Efficient cooling with reduced fan power consumption and noise requires measuring system impedance and operating airflow to select the optimal fan.

The Airflow Tester is a portable double-chamber measurement device weighing only about 6 kg, enabling easy and accurate fan selection.



Problem

How to choose between axial fans, blowers, centrifugal fans, or other types of fans?

Solved!

Choose from a wide range of products to meet different needs

Axial Fan

Our rich lineup includes products with features such as high airflow and low noise. They are suitable for a variety of applications such as air blowing, ventilation, and local cooling.



Varied lineup

DC Fan



Oil Proof Fan



ACDC Fan



Wide Temperature Range Fan



AC Fan



Splash Proof Fan

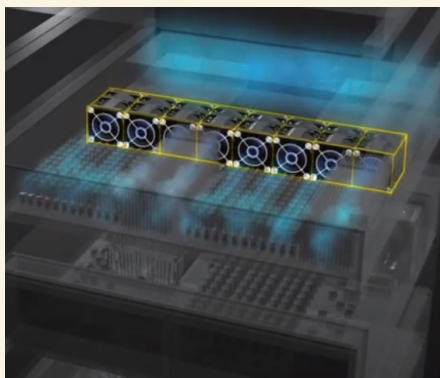


G Proof Fan



Counter Rotating Fan

Featuring a dual-impeller design that directs airflow into a straight direction, this fan is ideal for high-density equipment that requires high static pressure.

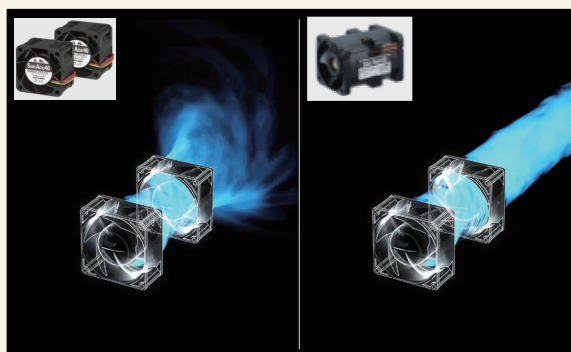


Example of use inside a server

Devices such as 1U servers have a very dense interior. This often requires multiple fans, but power consumption becomes a problem. Counter Rotating Fans provide efficient cooling and reduce power consumption.

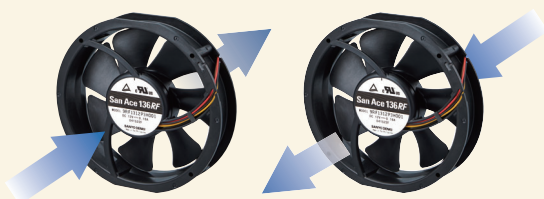
Counter Rotating Fan mechanism

When two fans are used in series, the air will spread out like the wind from a household fan. A Counter Rotating Fan has two impellers that rotate in opposite directions to improve the flow of air and deliver wind in a straight direction.



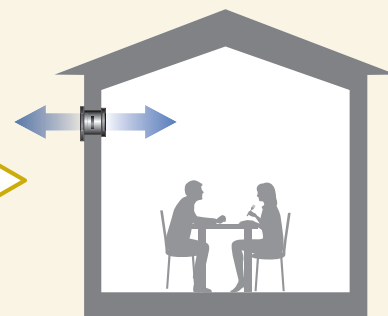
Reversible Flow Fan

A fan that can switch the airflow direction. With switchable airflow directions, this fan can reduce the number of required fans, saving cost and space.



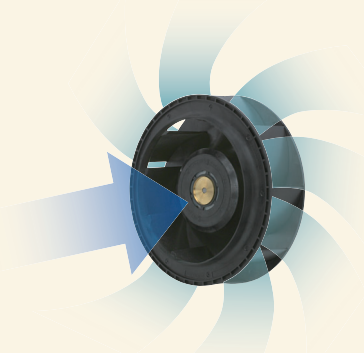
In systems such as house ventilation, multiple fans are often used to blow air in both directions. Reversible Flow Fans simplify this by switching airflow directions via a PWM signal.

They are simple to control, and airflow and static pressure are almost the same in either direction.



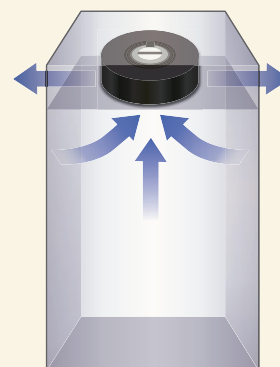
Centrifugal Fan

Since air is expelled in a 360° direction, exhaust vents can be designed freely. It is ideal for applications with large spaces and multiple heating elements.



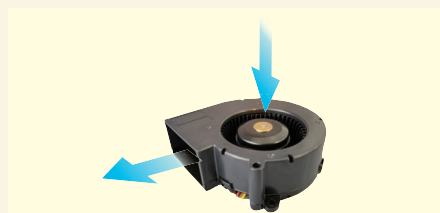
Centrifugal fans can redirect airflow by 90° and are well suited for applications where the exhaust vent is installed on the side of the equipment.

Applications:
ICT equipment, servers, storage, heat exchangers, air purifier systems



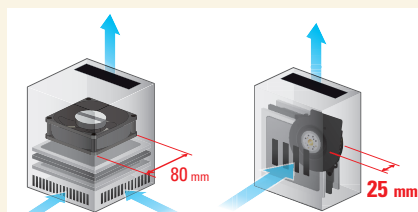
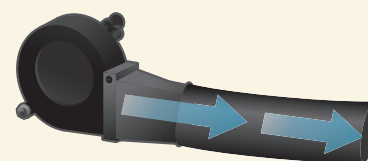
Blower

This fan draws in air axially and discharges it almost vertically. Its high static pressure makes it suitable for use with limited installation spaces.



It is suitable for spot cooling and applications where air flows poorly because it can discharge air in a straight direction with high static pressure.

In applications like supplying air in ducts where high static pressure is required.



Systems can be designed thinner while providing the same cooling performance.

Applications:
Servers, storage, mobile communications base stations, applications where air must be blown into a narrow space

Problem

Maintenance can be challenging for rain-exposed outdoor equipment

Solved!

Splash Proof Fans provide high resistance to dust and water

Equipment installed outdoors such as communications base stations and EV chargers must be water-resistant to withstand rain and humidity. Resistance to dust is also important in food factories and other environments where powder is scattered. Splash Proof Fans with up to IP68 water and dust resistance provide peace of mind.

- In addition, Splash Proof Long Life Fans have a 180,000 hour expected life.

Needs to be replaced three times Compared to Splash Proof Fan of equivalent size, maintenance labor time and cost can be reduced.				
Splash Proof Fan 9WP0612H401	Expected life: 45,000 hours	Replacement	Expected life: 45,000 hours	Replacement
			Expected life: 45,000 hours	Replacement
				Expected life: 45,000 hours
Splash Proof Long Life Fan 9WL0612P4H001	Expected life: 180,000 hours			



The protection ratings of our Splash Proof Fans, as per IEC 60529, only apply to electrical components (motor coils and electronic components) and do not cover mechanical components (blades, frames, and bearings).

Dust or moisture may affect fan operation depending on the environment, such as those continually exposed to dust or water.

Prior to purchase, please read the Safety Precautions section in the San Ace general catalog or the Product Specification, and take necessary measures and make appropriate evaluations for your operating environment.

Problem

Is there a fan that can be used safely in environments with high or low temperatures?

Solved!

Wide Temperature Range Fans can be used in a wide temperature range of -40°C to +85°C

Wide Temperature Range Fans are suitable for many applications, from low-temperature refrigerators and freezers to high-temperature lighting equipment.

The fan's expected life is 40,000 hours at an ambient temperature of 85°C. It can contribute to extending the service life of devices.



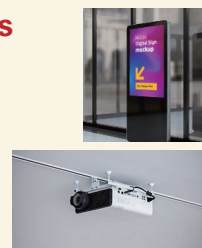
Low-temperature Applications

- Freezers
- Wind power generators and EV quick chargers installed outdoors in cold regions



High-temperature Applications

- Projectors
- LED lighting
- Inverters
- LCD monitors



In addition to the fans introduced on this page, you can also choose from our lineup of fans with excellent durability, including Oil Proof Fans, Long Life Fans, and G Proof Fans. Please refer to the product lineup page of this brochure or the San Ace general catalog.

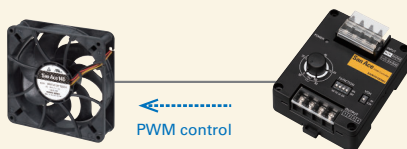
Problem

Want efficient fan speed control based on ambient temperature?

Solved!

Controller for easy control of fan speed

The San Ace series offers two types of controller to control the speed of PWM fans. A single controller can control the speed of up to four fans.



PWM Controller

Fans can be controlled to save energy and achieve low noise without needing to design additional circuit to control the fan speed.



San Ace Controller

Monitoring and automatic/manual control of fans and sensors can be performed remotely via wireless or wired LAN. The IoT function allows for efficient fan use.

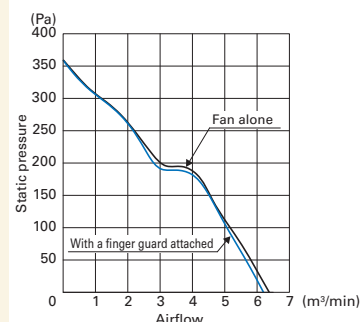
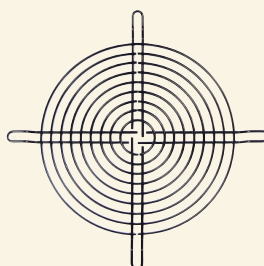
Problem

Finger guards might reduce airflow?

Solved! Our dedicated finger guards do not sacrifice the performance of fans

Depending on the fan's mounting position, finger guards may be required. We offer metal finger guards and resin finger guards made in our own factories with high quality control.

They can be used with confidence, as there is almost no difference in fan performance when installed.



Problem

Want to keep the air in a large room clean

Solved! San Ace Clean Air can clean a large space of up to 127 m² in about 30 minutes

This air purifier has a high airflow of 16.5 m³/min and can cover a room of 127 m², which is suitable for large rooms such as offices and conference rooms. Smaller rooms can be cleaned more quickly, with 13.2 m² cleaned in less than 4 minutes.

Note: This product is designed for use in Japan only.

Average time required*

Airflow 16.5 m ³ /min	127 m ² in about 30 minutes
	13.2 m ² in about 4 minutes

* When operating in operation mode 3 [High].
Calculated by the test method based on the JEMA's JEM 1467 standard (Ceiling height: 2.4 m).



UPS That Protects Equipment and Society from Power Outages

As digitization and networking have become essential in every part of society, UPSs (uninterruptible power supply) are playing an important role in protecting people's lives by preventing critical data from being lost in power outages. Since our company developed our first UPS in 1961, we have developed and launched a number of highly reliable products. In addition to UPSs, our lineup has energy inverters for photovoltaic generation systems (PV inverters) and a grid management system that enables microgrids, contributing to society through the stable supply of power.



In data centers



In data centers, UPSs are widely used to protect critical data from power outages. We have a rich lineup of easy-to-use UPSs, such as ones with a highly reliable topology and ones suitable for mounting in server racks.

In medical clinics



Outage protection is vital for temperature control of specimen and chemical storage equipment. Our extensive UPS lineup includes long-term backup models and compact, lightweight models available for safe use in hospitals.

Why they choose SANUPS?

Point

1

High reliability



All of our products have their origins in 1927, when we developed a radio power generator. Since then, we have been constantly developing highly reliable products that ensure a stable power supply. Our rich lineup offers UPSs that feature various topologies. We also have a number of UPSs available that provide a fail-safe through a redundant configuration where even if one unit fails unexpectedly, the remaining ones can continue to supply power.

Point

2

Easy battery replacement



The batteries of our small-capacity UPSs are user-replaceable, reducing maintenance time and costs.

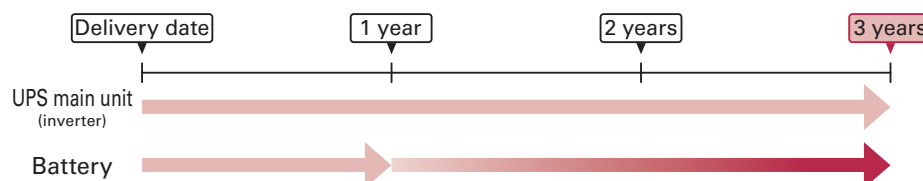
Point

3

Warranty for peace of mind



UPS batteries are warrantied for one year. Moreover, for some products, the warranty period can be extended to three years by registering the UPS. Within the period, customers can enjoy such benefits as free replacement batteries and battery replacement reminders. Note: This benefit is limited to users in Japan.

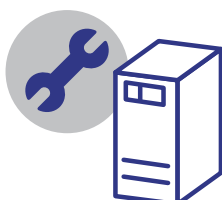


Visit our website for details on applicable models and conditions.
Find the information page by searching for 'SANYO DENKI UPS registration.'

Point

4

Maintenance services



To keep SANUPS products functioning at their best, we offer a variety of maintenance services such as repairs and periodic inspections where we provide replacement and repair parts.

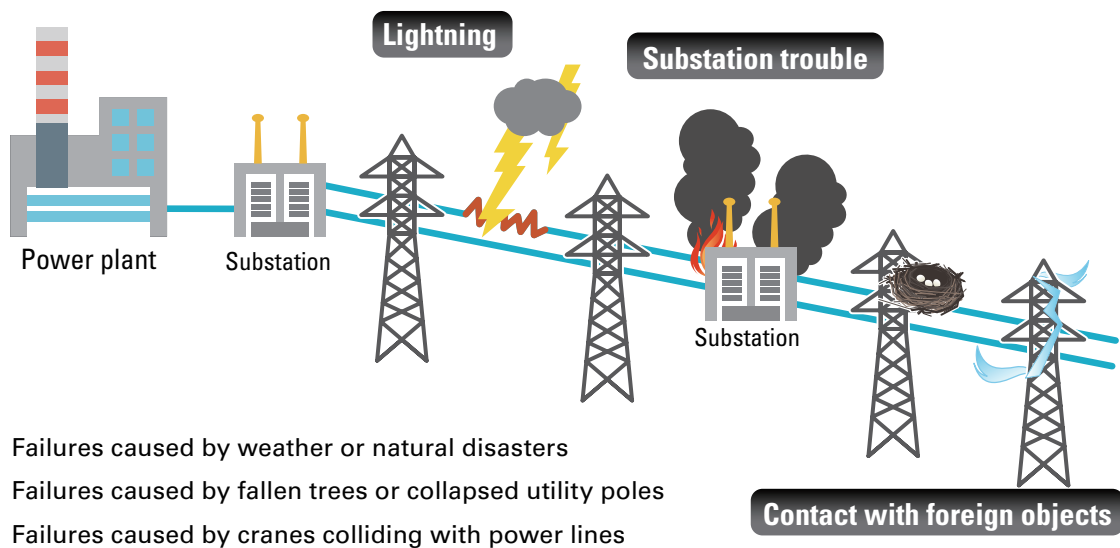
SANUPS Products Provide Safe Power in These Applications

Protection from momentary outages/dips

UPS

Voltage Dip Compensator

Power failures occur unexpectedly



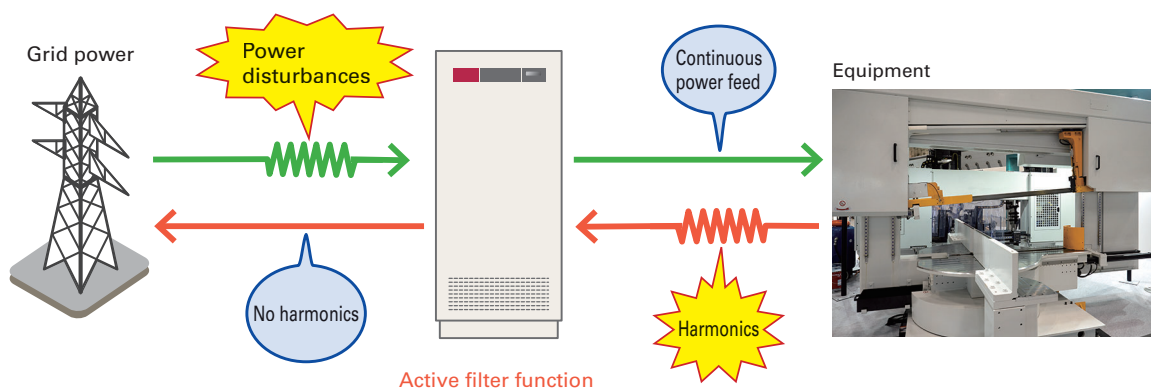
Protection from harmonics

UPS

Voltage Dip Compensator

Our UPSs and voltage dip compensators provide not only protection from power outages and dips, but also protection from harmonics generated by equipment such as plating machines and machine tools. (Excluding standby UPSs)

Also, there is no need to purchase an active filter separately, contributing to cost reduction.



For BCP purposes

UPS

DEG+UPS

Long-term backup UPSs can be used not only to protect data loss from momentary power failures, but also for BCP (business continuity planning) purposes.

For example, using a model with a 400-minute backup time...

30 min*

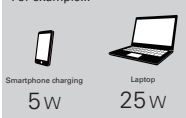


Model no.: S-A111KL152A0400TSN00

Using a 1.5 kVA, 400-minute backup model...

1.2 kW **370 min****
120 W **48 hours**
84 W **72 hours**

For example...



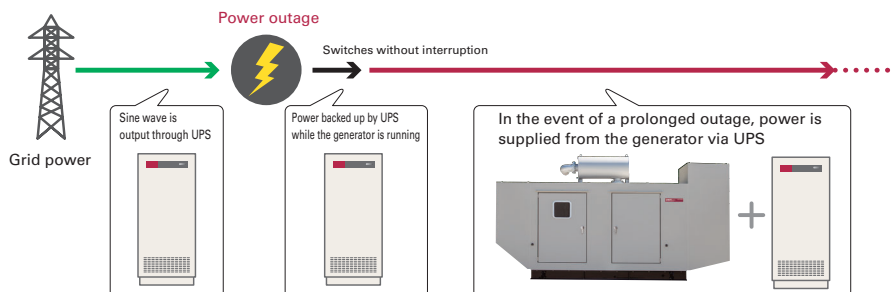
* An optional LAN Interface Card is required to set the battery backup time.

** Backup times are calculated with conditions of a 25°C ambient temperature, using new, fully charged batteries.

Also, when an emergency diesel engine generator (DEG) is combined with a UPS...

At normal times high-quality power is supplied from the UPS, and in the event of a momentary voltage dip or outage, power is supplied from the battery. In the event of a prolonged power outage, the UPS switches to the generator without interruption, maintaining a stable power supply.

Illustrated sequence



We also offer mobile power generation vehicles that can provide power whenever and wherever necessary. It may be difficult to install generators in multiple locations due to cost, space, and maintenance problems. A mobile power generation vehicle, however, can move to where it is needed.



What is a UPS?

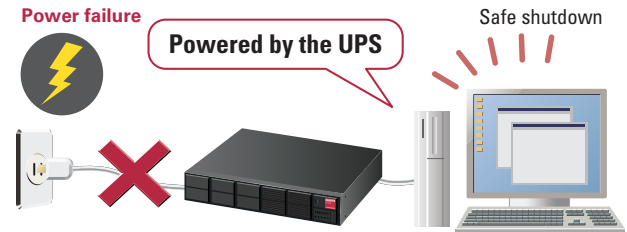
A UPS (uninterruptible power supply) ensures that continuous power is supplied to a load even in the event of a power grid failure. Typically, a UPS consists of a rectifier that converts AC to DC power, an inverter that converts DC to AC power, and storage batteries. During a power failure, the inverter converts the DC power stored in the battery into AC power to power the load.

Without a UPS...



- Electrical equipment stops abnormally
- Requires a long amount of time to restart electrical equipment and systems

With a UPS...

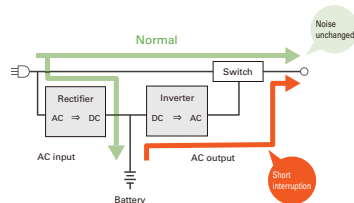


Our lineup has UPSs with the following topologies available to allow you to select the best UPS for your application.

■ Topology

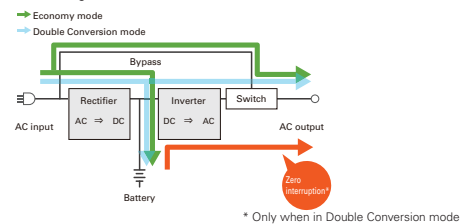
Passive Standby

This topology offers the lowest power conversion loss. Since there will be a momentary interruption, this UPS is suitable for applications such as surveillance cameras where a momentary interruption is not a problem.



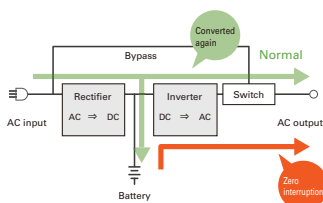
Hybrid

UPSs featuring this topology automatically select the optimal mode of operation for any given input power conditions. They provide high-quality power with low power losses, making them suitable for freight elevators and the control units of machine tools.



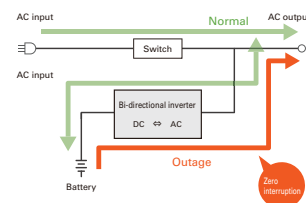
Double Conversion Online

This topology continuously provides the best-quality power through the inverter. It also offers zero transfer time during outages. These UPSs are ideal for critical applications such as base stations and communication servers.



Parallel Processing

This topology ensures that a bi-directional inverter corrects the power factor and absorbs noise, improving the quality of input power. It also offers zero transfer time during outages. These UPSs feature a high efficiency, and are suitable for industrial production equipment.



■ Installation method

Free-standing

Installation on the floor



Rack-mount

Suitable for 19-inch rack servers



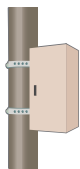
Wall-mounted

Its slim, wall-mountable design allows for easy integration into equipment.



Outdoors

For outdoor installation, UPSs with IP65-rated water and dust protection are also available.



■ Input voltage

In addition to 100 V and 200 V class models, we also have 400 V class models available in the lineup for use in factories and outside Japan. UPSs with a wide input range are also available.

You can narrow down UPSs with the **Advanced Search** on our Product Site.

<https://products.sanyodenki.com/en/sanups/search/ups/>



Always Use Clean Power

— Situations where power products are useful —

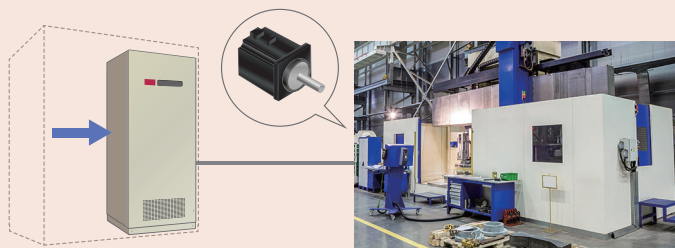
Problem

A UPS that can withstand the large startup current of FA equipment?

Solved!

Parallel processing UPSs are best suited to production equipment!

Equipment with motors generates large inrush currents at startup. Our parallel processing UPSs offer up to 800% overload capacity, allowing selection based on rated capacity without concern for startup currents. This eliminates the need for oversized UPSs, enabling space savings.



Problem

Need a power backup with the highest reliability for a critical system?

Solved!

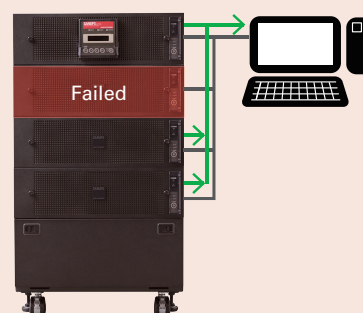
Increased reliability with parallel redundant operation

By configuring power redundancy, highly reliable double conversion online UPSs can be made even more prepared for power problems.

- With extra capacity, a parallel redundant configuration is possible.
- Provides multiple layers of power protection for critical equipment.

Parallel redundant operation illustrated with A11N (figure on the right)

In an N+1 configuration, the UPS provides a fail-safe protection; in the event that one UPS unit fails, the remaining units can continue to provide power.



Problem

Need long-term backup power for emergencies but no space for a generator?

Solved!

UPS with lithium-ion batteries can provide a long-term backup, suitable for BCP purposes

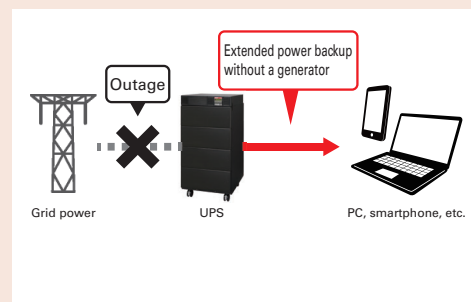
UPSs with lithium-ion batteries can be used for protection from momentary dips at normal times, and also as emergency power in the event of a prolonged power outage. Unlike generators, there is no exhaust gas emission. Also, they operate quietly.

Lithium-ion battery...

Provides a longer backup time than lead-acid batteries, and does not require replacement for 10 years.

Lead-acid battery...

Is a standard storage battery that is used in many of our UPSs, and has a life expectancy of 5 years. (Depends on the product)



Problem

Need to manage multiple UPS systems efficiently?

Solved!

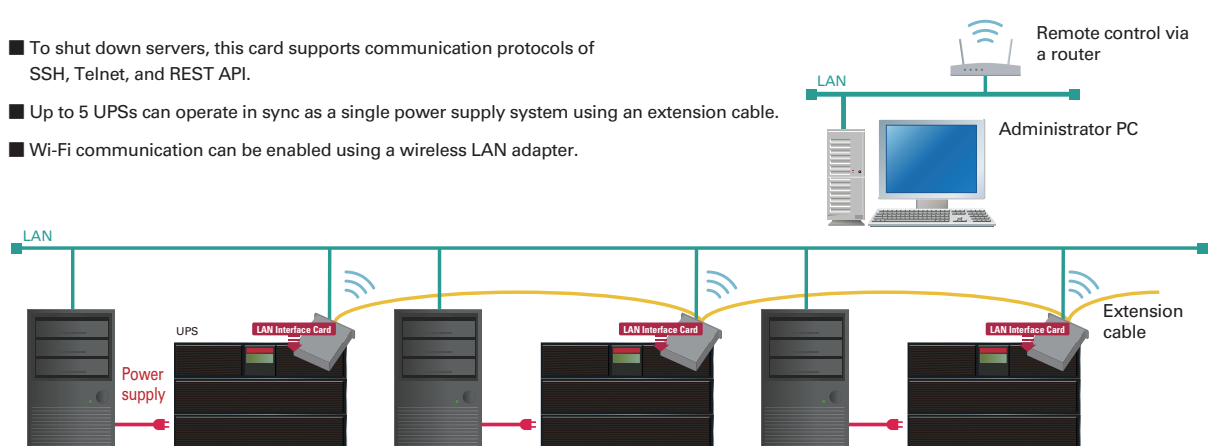
Centralized management via a network

Use of a LAN interface card enables multiple UPSs to be managed centrally and efficiently.

■ To shut down servers, this card supports communication protocols of SSH, Telnet, and REST API.

■ Up to 5 UPSs can operate in sync as a single power supply system using an extension cable.

■ Wi-Fi communication can be enabled using a wireless LAN adapter.



Problem

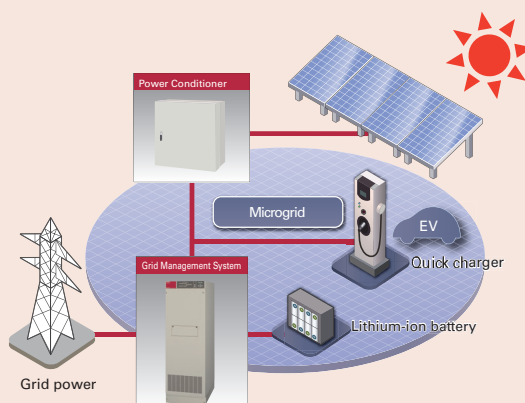
Looking to maximize renewable energy use?

Solved!

A renewable energy inverter and grid management system provide a stable power supply from renewable energy

Power conditioners (renewable energy inverters) convert power from sources such as photovoltaic, wind, and hydropower into usable electricity. With islanding capability, they continue supplying power during emergencies.

Grid management systems control power flow in systems with distributed energy resources, storage, and hybrid inverters. They optimize the use of renewable and stored energy, supporting business continuity.



Problem

Need a solution for momentary power outages, but have a limited installation space?

SANUPS C23A

Solved!

A voltage dip compensator with a built-in EDLC (electric double layer capacitor) provides protection

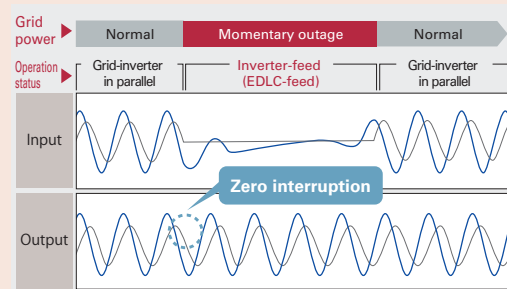


Our voltage dip compensator with a built-in EDLC requires less space than a UPS with lead-acid batteries. In the event of a voltage dip or momentary outage of less than 1 second, the dip compensator ensures that loads will be powered with a pure sine wave without interruption. With a long-life EDLC, maintenance-free operation can also be expected.

Dip compensation time

1s

During a momentary outage



Motion, smoother and more precise

For FA equipment and industrial machinery that require high precision and accurate positioning. To ensure the stability of manufacturing and social infrastructure, it is vital for equipment to move precisely as instructed. SANMOTION has a rich lineup of motors with smooth driving and products that control them with high precision. The value of equipment is enhanced through sure motion and stopping.



In automated factories



In an articulated robot on a production line, the precise, smooth robot arm motion is achieved by driving multiple SANMOTION products in sync.

In medical clinics



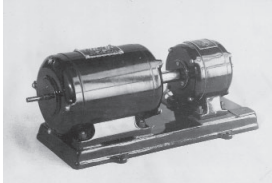
SANMOTION products are used in a wide variety of equipment such as diagnostic, testing, and analysis devices, as well as electric beds used in hospitals.

Why they choose SANMOTION?

Point

1

Highly reliable design, flexible customization



1952 Servo Motor Prototype

Since we developed the first domestic servo motors in 1952, we have been making high-quality servo systems and stepping systems. They are equipped with the high performance that we have cultivated along with our technical history. We also offer flexible customization to best suit the customer's equipment.

Point

2

Rich lineup

We offer a wide lineup that includes motors with precise positioning, and amplifiers, drivers, and controllers for controlling them.



Stepping Systems

SANMOTION F2 (2-Phase)
SANMOTION F3 (3-Phase)
SANMOTION F5 (5-Phase)



Closed Loop Stepping Systems

SANMOTION Model No.PB



AC Servo Systems

SANMOTION G
SANMOTION R



DC Servo Systems

SANMOTION K



SANMOTION

Linear Servo Systems



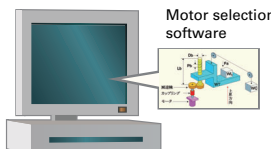
Motion Controllers

SANMOTION C

Point

3

Meticulous pre-sales service



Motor selection software

We offer software to assist you in selecting the best motor for your equipment. Also, our dedicated setup software makes it easy to set up systems. In addition, our technical assistance service can help improve the precision of your equipment.



Analyzer



Camera swinging



Machining center

Automatically,
Quickly,
Precisely, and
Repeatedly



Electric bed

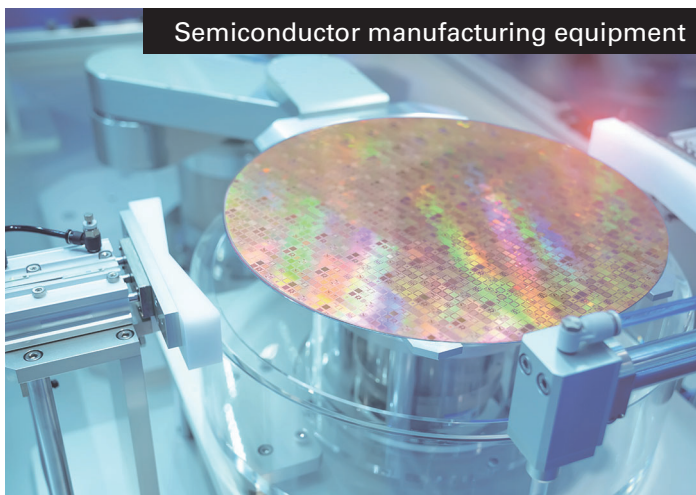


Collaborative robot

SANMOTION motors are the best choice because they can

- move a set distance,
- at a set speed,
- within a set time frame.

Semiconductor manufacturing equipment



Accurate Stopping and Smooth Motion

- Pressing
- Pulling
- Injecting
- Inserting
- Processing
- Moving
- Lifting
- Rotating
- Affixing labels
- Gripping

Press machine



Machining



Labeling machine



Belt conveyor, filling machine



You can narrow down motors and amplifiers with the **Advanced Search** on our Product Site.

https://products.sanyodenki.com/en/sanmotion/search/ac_servo/



Problem

Want to easily perform positioning control?

Solved!

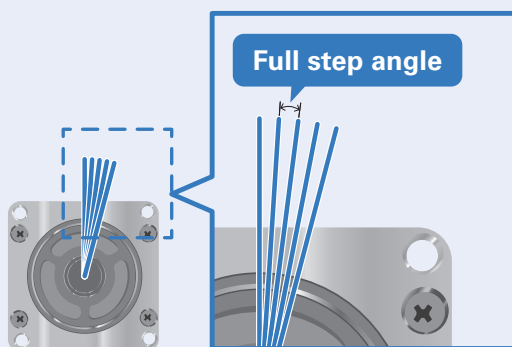
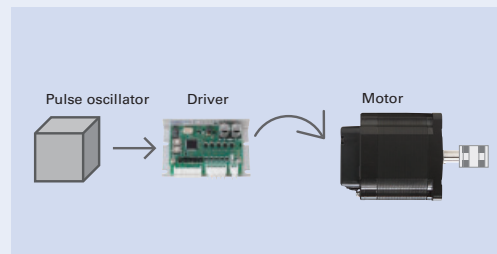
Simple stepping systems without encoders

Stepping Systems

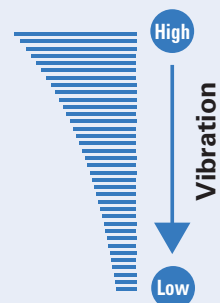
SANMOTION F2 (2-Phase) SANMOTION F3 (3-Phase) SANMOTION F5 (5-Phase)



Stepping motors are driven precisely at a set angle (Full step angle) according to the number of pulses input to the driver from a pulse oscillator. These use open-loop control without an encoder (position detection sensor), helping build simple and low-cost systems. Ease of use is a key point. In addition, they use holding force when stopped, and feature stable stopping without micro vibrations.



2-phase	Full step angle 1.8°	200 steps
3-phase	Full step angle 1.2°	300 steps
5-phase	Full step angle 0.72°	500 steps

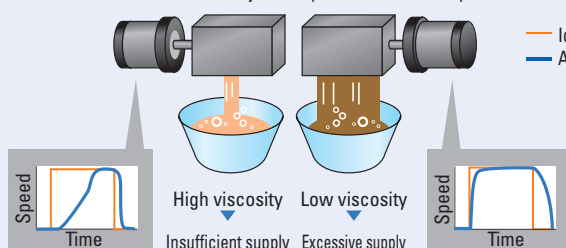


The more subdivisions, the smaller the vibration, and the more precise and smooth motion can be achieved.

Application example: Food manufacturing equipment

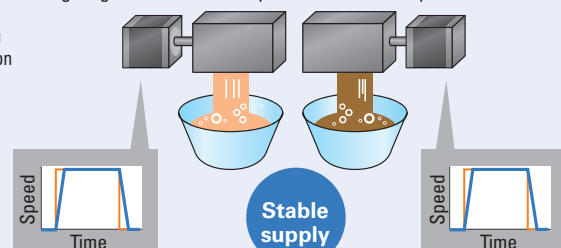
With an induction motor

As the motor speed is affected by the viscosity of the filling material, the number of rotations must be adjusted by an inverter. Startup time is also slow.



With a stepping motor

Stepping motors can stably dispense a constant amount because they simply rotate at a fixed angle regardless of the viscosity of the material. Startup time is also short.



Problem

The step-out and heat generation of stepping systems is a concern. And servo systems seem too complex...

Solved!

Closed-loop control
using encoder-equipped stepping motors

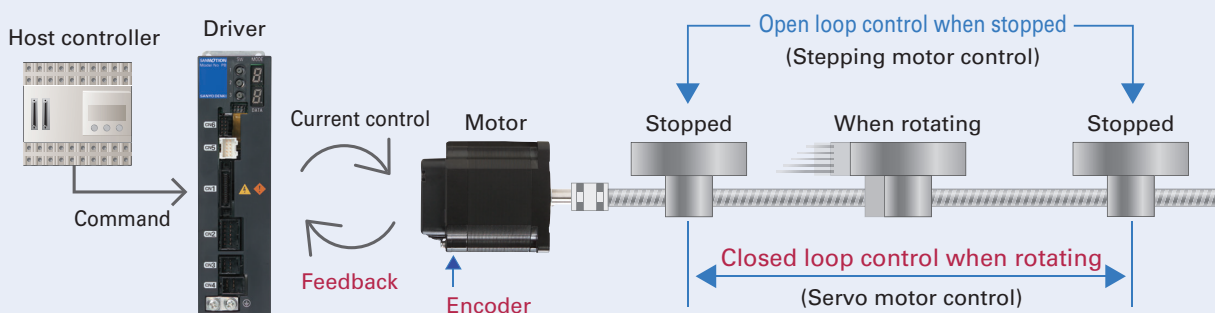
Closed Loop Stepping Systems

SANMOTION Model No.PB



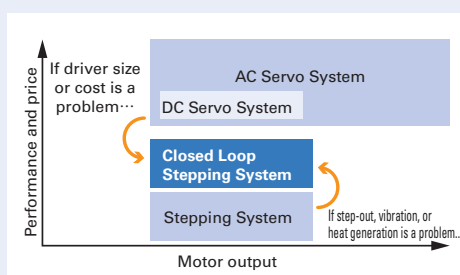
Closed loop stepping systems provide the ease of use of stepping systems and the reliability of servo systems. The stepping motor in these systems has an encoder that provides feedback to the driver to prevent step-out (misalignment), which is a weak point of stepping motors.

In addition, since the current flowing through the motor is controlled to match the device, these systems generate less vibration and heat compared to open loop stepping motors, and can be operated with higher efficiency.



Compared to servo systems

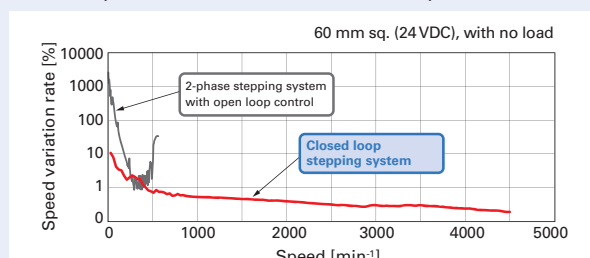
Lower cost
Simpler systems
Stable stopping (without hunting)



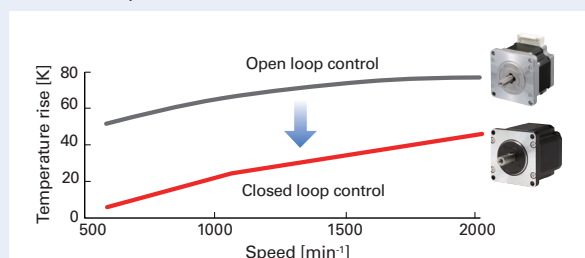
Compared to stepping systems

No step-out
Less vibration
Less heat

Motor speed fluctuation characteristics comparison



Motor temperature rise

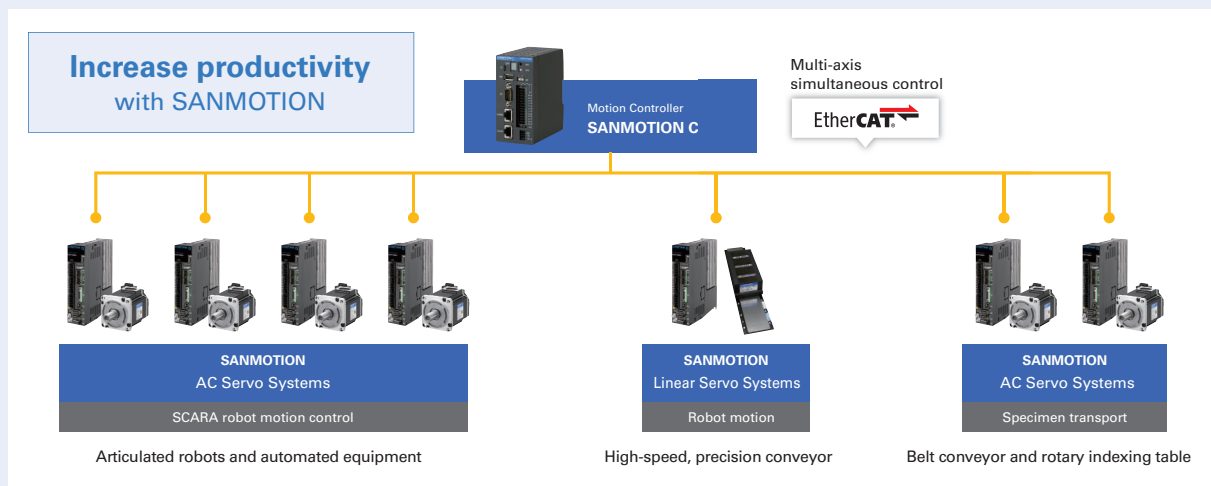


Problem

Want to make your factory automated and IoT-ready?

Solved!

SANMOTION provides comprehensive motion control solutions with servo motors, servo amplifiers, and motion controllers



AC Servo Systems

SANMOTION G

This is a brand new compact, lightweight, and energy-efficient AC servo system with evolved servo performance. This servo system provides high-speed and high-precision control of equipment, greatly improving the productivity and processing quality. It has various safety functions to ensure the safety of operators, such as monitoring of power supply status and communication quality, estimation of the remaining life of the holding brake, and prevention of electronic component failures. In addition to standard rotary motors, compact, high-thrust linear servo motors are also available.

SANMOTION R

We offer a wide range of servo motors with variations in capacity and feature. Servo amplifiers are available in analog/pulse, EtherCAT, built-in positioning, and functional safety types (with functional safety modules) that can be used with peace of mind for devices and robots that operate near people.



Motion Controllers

SANMOTION C S100 / S200 / S300 / S500

The new SANMOTION C S300 can control up to 32 axes with a 1 ms cycle. It is an ideal solution for production lines that require high-precision control of many axes.

SANMOTION C S100

Synchronous control of up to 8 axes

SANMOTION C S200

Remote monitoring and maintenance

SANMOTION C S300

Control of up to 32 axes with a 1 ms cycle

SANMOTION C S500

Control of 7-axis articulated robots and multiple robots

Problem

Want to improve the precision of devices with low-speed driving?

Solved!

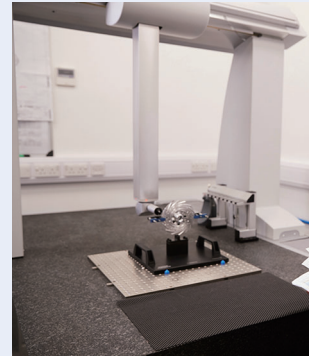
DC servo systems that excel in low-speed operation

DC Servo Systems

SANMOTION K



DC servo motors are less susceptible to interference and have less speed fluctuation, so they can provide stable driving even at low speeds. The lineup has low-voltage models (24 VDC) available which are safe for use in medical equipment and other applications close to people.



Application example:
Coordinate measuring machine

Problem

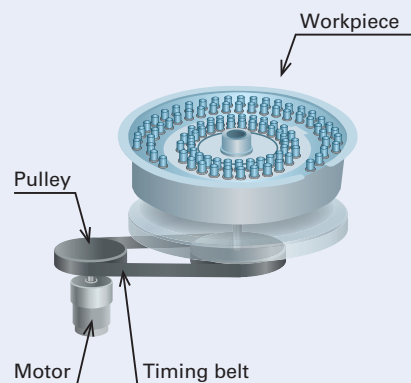
Want to make a small and simple table mechanism?

Solved!

A custom motor with high thrust load capacity enables direct drive of index tables

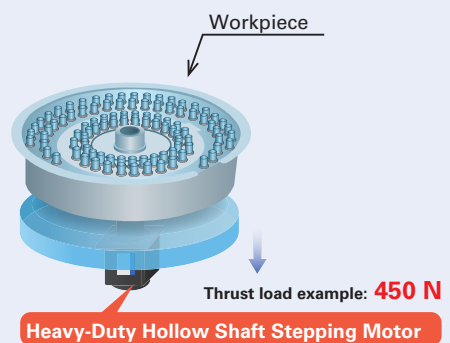
Conventionally

Because a standard motor is unable to support the workpiece load directly, the table is indirectly driven using a pulley and timing belt.



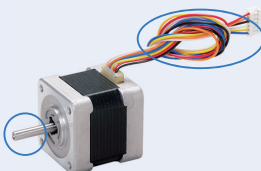
Solution

A customized heavy-duty hollow shaft stepping motor directly takes the load of the workpiece and simplifies the mechanism.

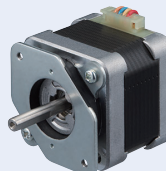


Besides this example, various customizations can be made to best suit your equipment.

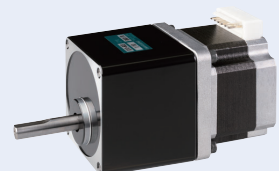
■ Custom harness/shaft



■ Mounting surface damper

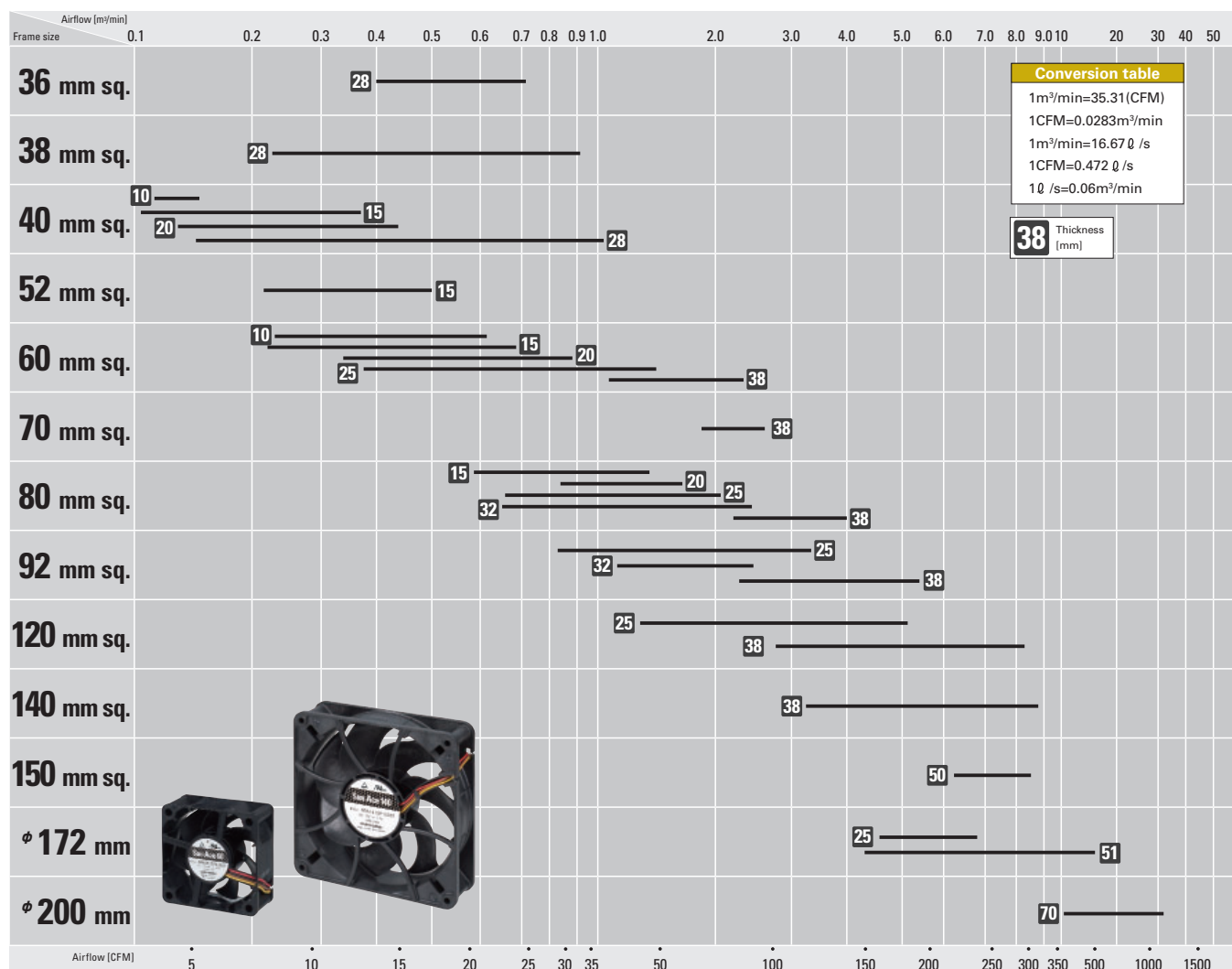


■ Gears, encoders, and brake



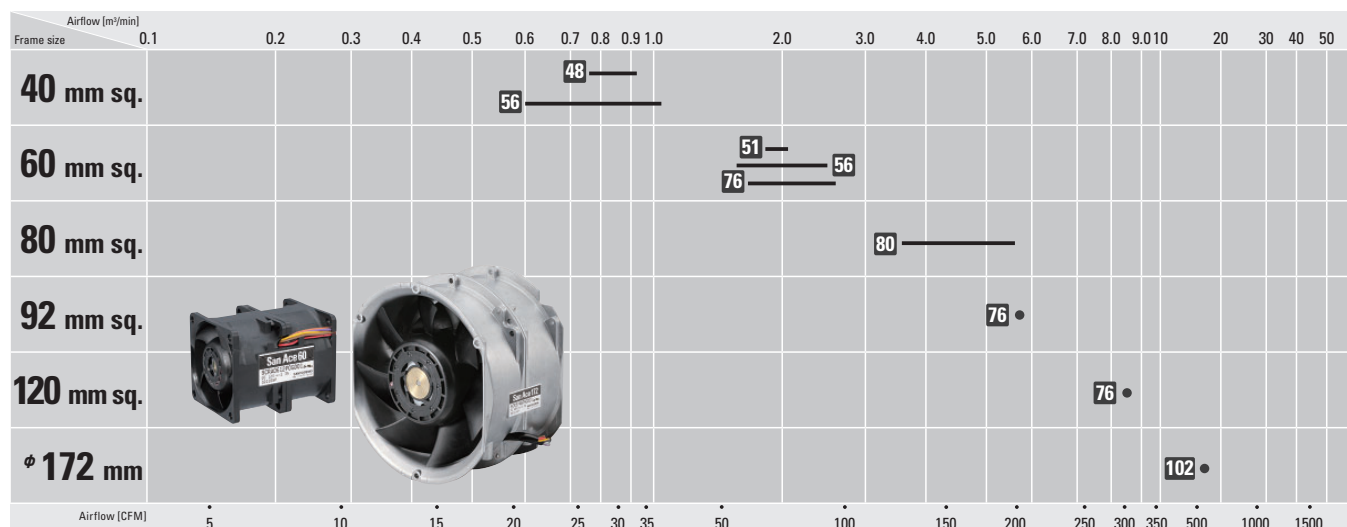
DC Fan

The DC Fan lineup has a wide variety of models that feature high airflow and high static pressure



Counter Rotating Fan

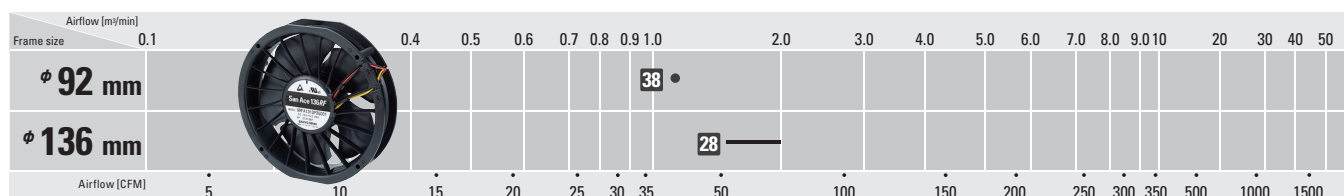
Fans that have higher airflow and static pressure than two equally sized DC fans operated in series



Depending on the model, these sensor options are available. ⇒ **Without sensor** **Pulse sensor** **PWM control** Please contact your point of sale regarding ⇒ **Lock sensor** **Low-speed sensor**

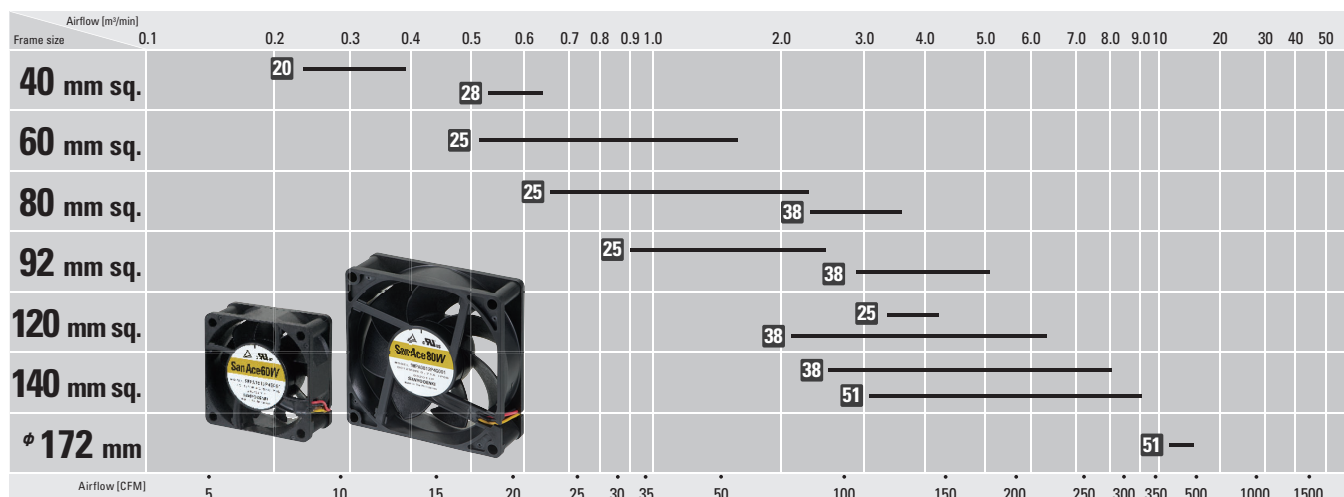
Reversible Flow Fan

Fans that can blow air in both directions, which can be switched



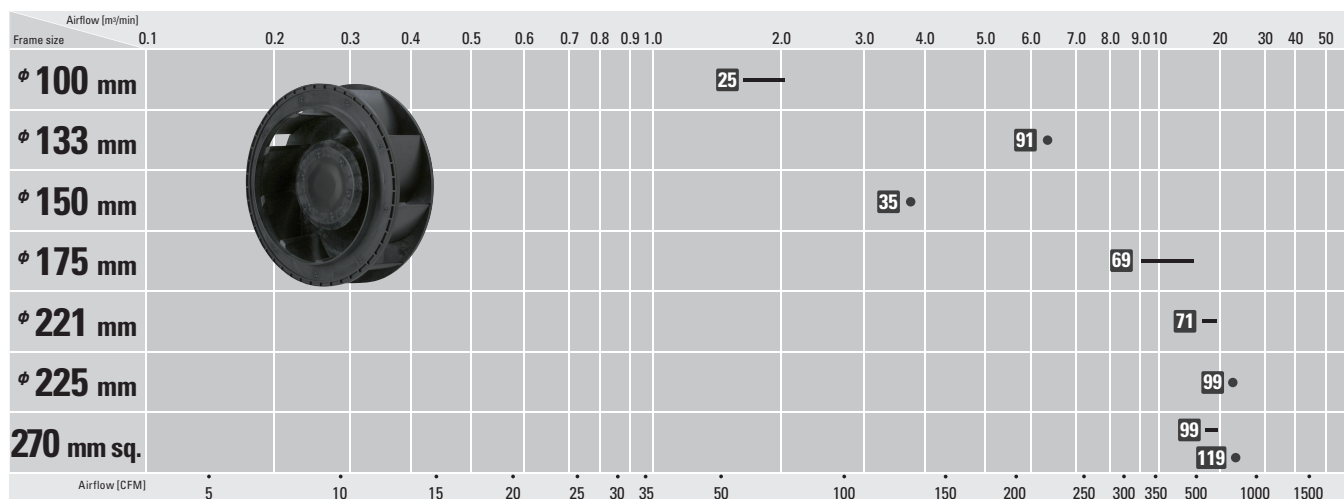
Splash Proof Fan

Fans that feature water and dust protection of up to IP68



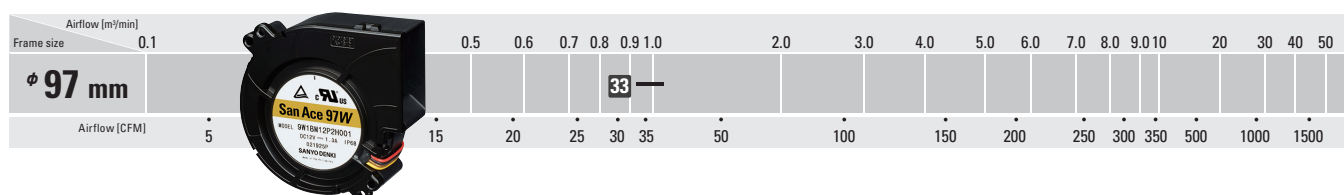
Splash Proof Centrifugal Fan

High static pressure fans with centrifugal airflow and up to IP68 protection against water and dust



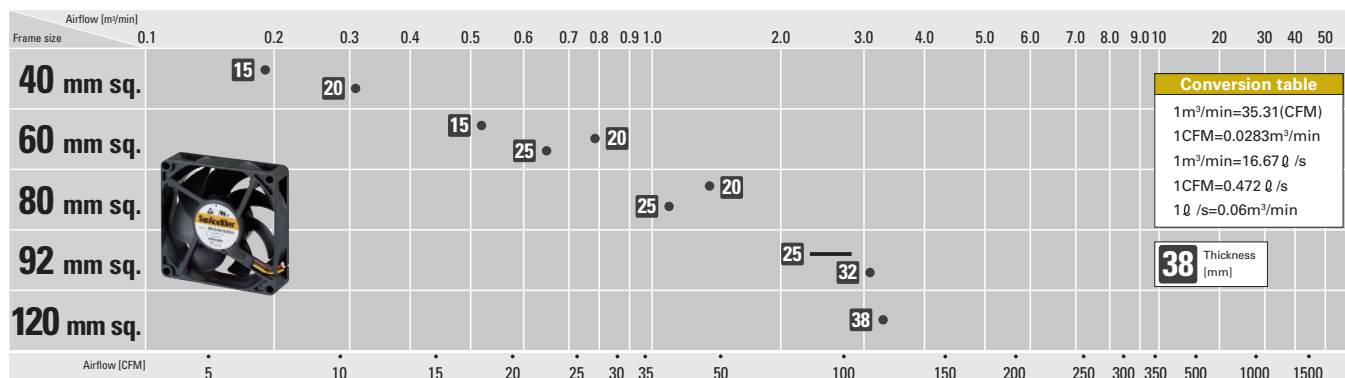
Splash Proof Blower

High static pressure blower fans with IP68-rated water and dust protection



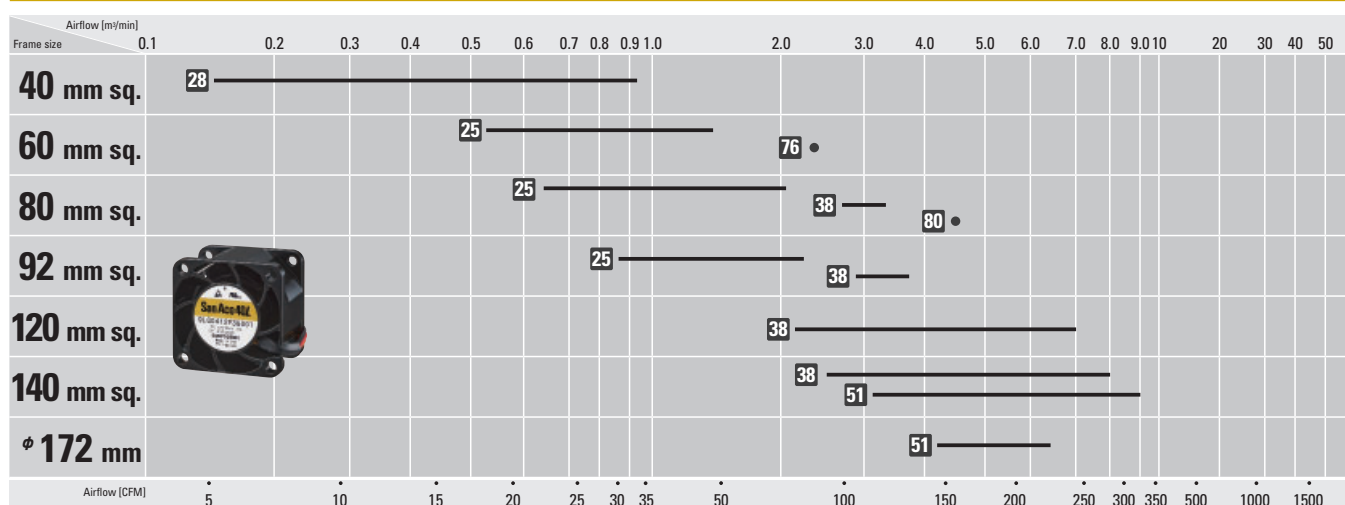
Oil Proof Fan

Fans that can be used in oil mist environments



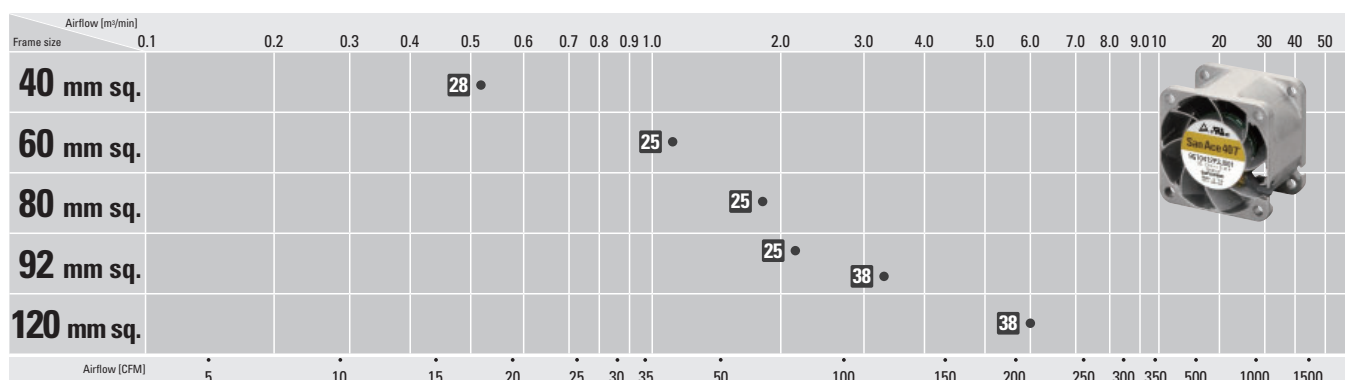
Long Life Fan

Fans with an extended service life of up to 180,000 hours (approx. 20 years)



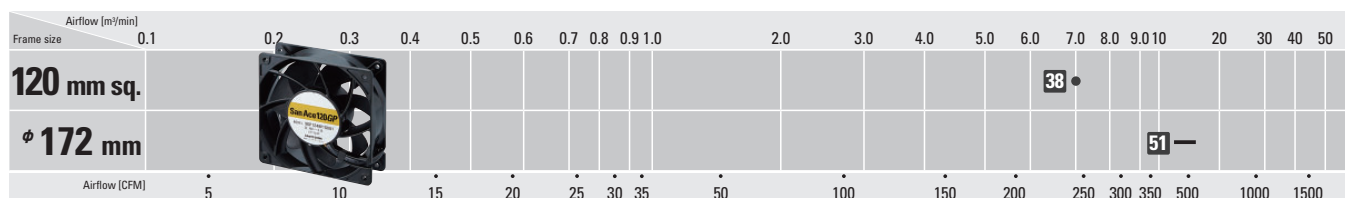
Wide Temperature Range Fan

Fans with a wide operating temperature range of -40 to +85°C



G Proof Fan

Fans that can withstand high levels of G-force



Depending on the model, these sensor options are available. ⇒

Without sensor

Pulse sensor

PWM control

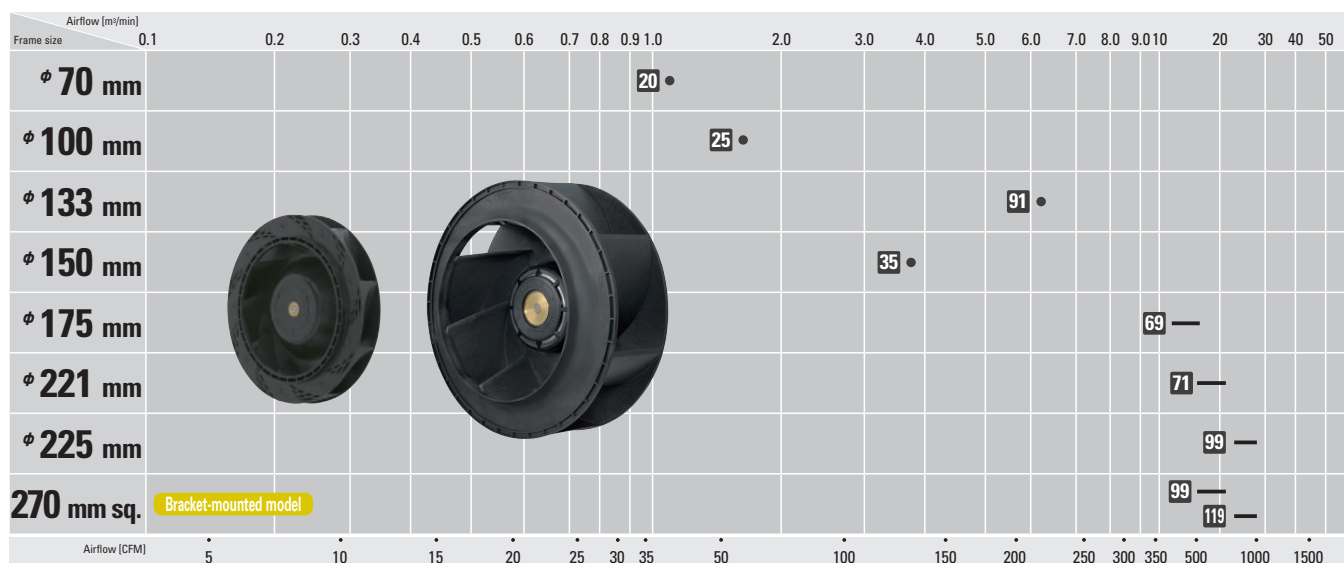
Please contact your point of sale regarding ⇒

Lock sensor

Low-speed sensor

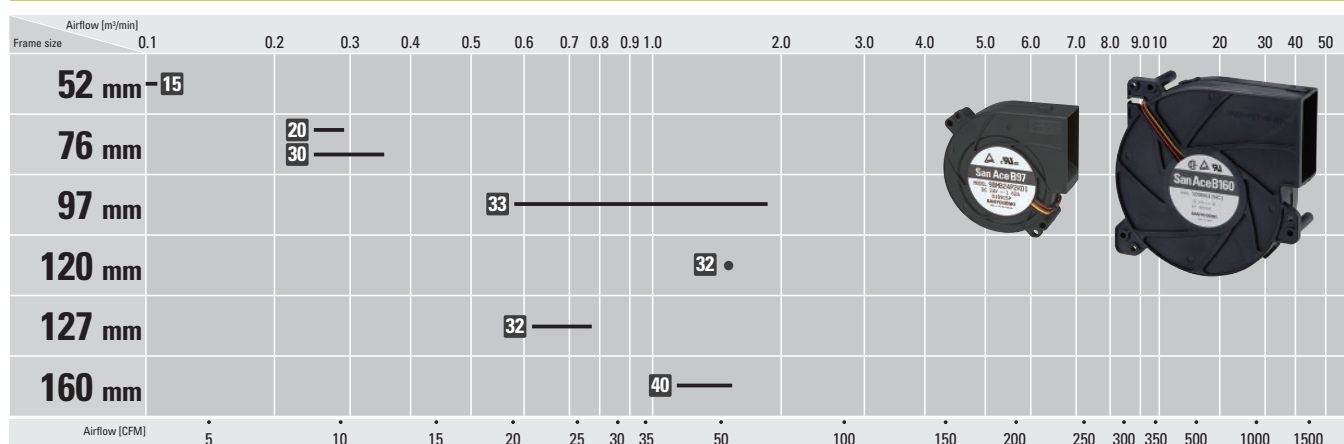
Centrifugal Fan

High static pressure, high airflow fans with centrifugal airflow



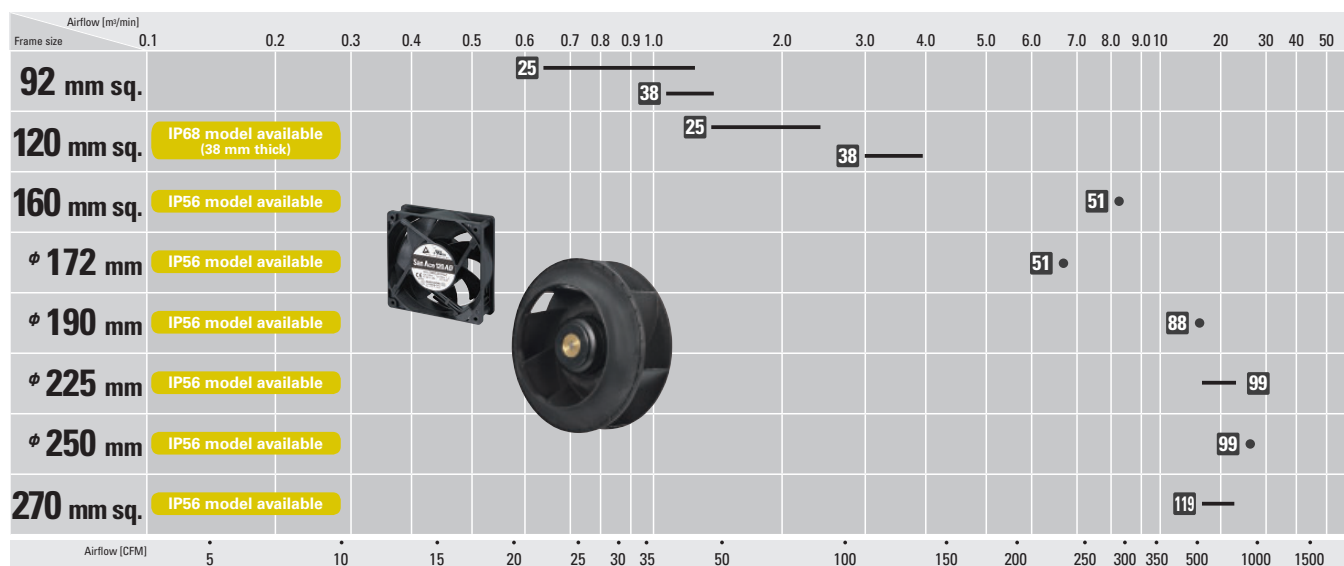
Blower

Fans that are specialized in high static pressure



ACDC Fan

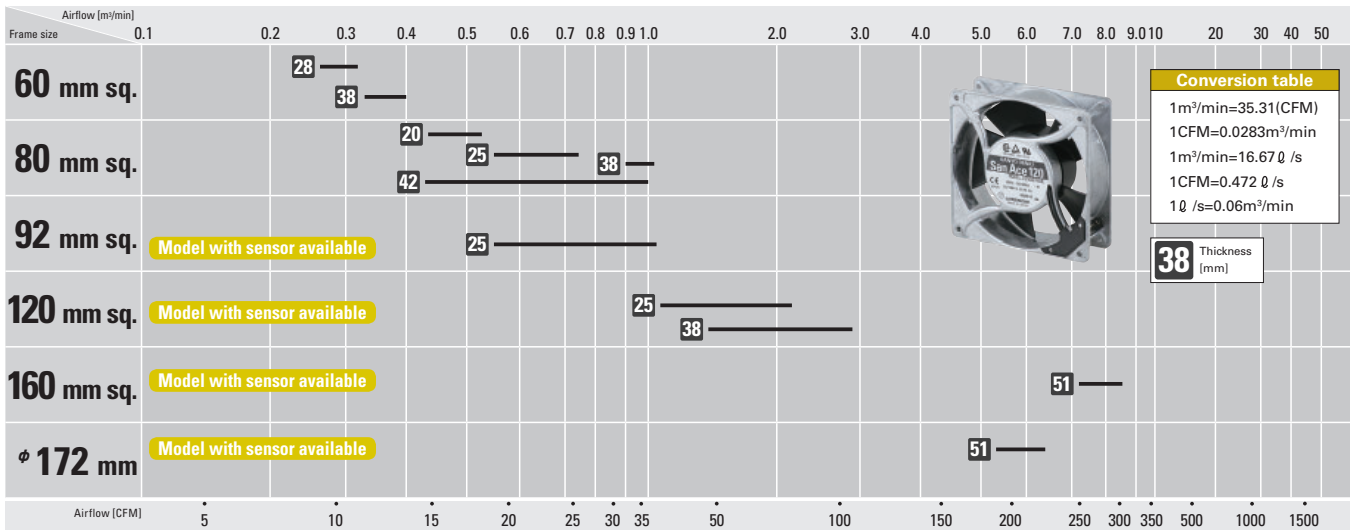
AC-powered fans with low power consumption and long service life



Without sensor Low-speed sensor

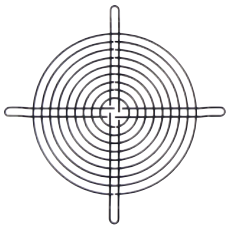
AC Fan

AC-powered cooling fans



Options

Finger guards



High-quality finger guards prevent foreign objects from entering the fan, enhancing safety. They do not significantly affect the fan's airflow and static pressure performance and provide stable fan operation.

For 36 to 270 mm sq. fans and ø92 to ø250 mm fans

EMC guards

A piece of metal for protecting fans from electromagnetic noise.

For 80 to 120 mm sq. and ø172 mm DC Fans

Resin finger guards

For 60 to 120 mm sq. fans

Resin filter kits

Filters the dust in the suctioned air.

For 60 to 120 mm sq. fans

Inlet nozzle for Centrifugal Fans and Splash Proof Centrifugal Fans

Equipment to be mounted to the inlet side of fans for adjusting incoming flow of air.

For ø70 to ø250 mm fans

○ Filter kits, screen kits

For 120 × 120 × 38 mm AC Fans

○ Plug cords

For 80 to 160 mm sq. and ø172 mm AC Fans

For 92 × 92 × 38 mm and 120 × 120 × 38 mm ACDC Fans

San Ace Controller



Sensor

It can optimize airflow and static pressure of fans by controlling individual fan speeds.

In addition, since the sensor's measurement value can be used for automatic control, it contributes to low noise and energy savings in devices.

In addition to connection via the customer's terminal through wireless or wired LAN, remote monitoring and control can be done via a cloud server.

	With wireless LAN	Without wireless LAN	With wireless LAN, cUL certified
Model no.	9CT1-001	9CT1-002	9CT1-U001 (Use a UL Class 2 power supply.)
Rated voltage	12/24/48 VDC		12/24 VDC
Operating voltage range	7 to 60 VDC		7 to 27.6 VDC
Operating temperature range	-20 to +70°C		
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		
Allowable fan connection terminal current	5 A (per terminal)		5 A (12 VDC), 4 A (24 VDC)
Dimensions (W × H × D)	50 × 180 × 135 mm		
Mounting method	Screw mounting (M4 screws, recommended tightening torque 0.78 N·m max.)		
Mass	450 g		
Sensor type	Temperature/humidity sensor	Barometer	Accelerometer
Model no.	9CT1-T	9CT1-P	9CT1-A
Measurement range	Temperature: -20 to +70°C Humidity: 20 to 85% RH ⁽¹⁾	Barometric pressure: 800 to 1100 hPa	Acceleration: 0 to 60 m/s ² ⁽²⁾
Operating temperature range	-20 to +70°C		
Operating humidity range	20 to 85% RH ⁽¹⁾		
Dimensions (W × H × D)	53 × 22 × 46 mm		
Mounting method	Screw mounting (M3 screws, recommended tightening torque 0.44 N·m max.)		
Mass	35 g		

(1) Non-condensing (2) Total acceleration from 3-axes

PWM Controller



Box Type



PCB Type

You can control the fan speed with the PWM control. Contributes to reduced system power consumption and noise.

Type	Box Type	PCB Type
Rated voltage	12/24/48 VDC	
Power consumption	0.2 W*	
Operating temperature range	-20 to +70°C	
Input terminal	Input voltage range	7 to 60 V
Output terminal	PWM signal output	High-level voltage (V _{OH}): 3.3 or 5 V selectable
	No. of connectable fans	Max. 4
Mounting method		DIN rail mounting or screw mounting (M3 screws, recommended tightening torque 0.5 N·m max.)
Dimensions (W × H × D)		66 × 86 × 38 mm
Mass		110 g
Material		Case: Plastic
		PCB: FR-4

* When output terminals are turned on.

Be noted that if applied input voltage or frequency is out of range of the connected fan, how the fan speed responds to the PWM duty cycle may be altered.

Airflow Tester



With connection duct mounted

This compact, portable, and easy-to-operate measuring instrument can measure the system impedance and airflow in devices.

Model no.		9AT2560S-000□*	9AT2560A-000□*	9AT2560C-000□*
Measurement range	Airflow	0.20 to 8.00 m ³ /min (Resolution: 0.01 m ³ /min)	7 to 282 CFM (Resolution: 1 CFM)	7 to 282 CFM (Resolution: 1 CFM)
	Static pressure	0 to 999 Pa (Resolution: 1 Pa)	0 to 4.01 inchH ₂ O (Resolution: 0.01 inchH ₂ O)	0 to 999 Pa (Resolution: 1 Pa)
Measurement accuracy	Airflow	Within ±7% of maximum airflow measured with each nozzle		
	Static pressure	Within ±10 Pa (0.04 inchH ₂ O) of measurements < 200 Pa, Within ±50 Pa (0.20 inchH ₂ O) of measurements ≥ 200 Pa		
Operating/storage environment	Ambient temperature	0 to +40°C		
	Humidity	20 to 85% RH (non-condensing)		
Display function		Data no., measurement values (airflow, static pressure**), measurement status, nozzle selection, measurement mode		
Communication protocol		Digital output: Use a dedicated USB cable		
Input power		Input voltage 100 to 240 VAC, 50/60 Hz		
Dimensions (W × H × D)		600 × 250 × 250 mm		
Mass		Main unit: Approx. 6 kg Connection duct (including board holder): Approx. 1.5 kg		

* The AC power plug shape differs with the number in □ of model numbers.

AC power plug included in models with 1 in □ is for Japan and North America regions (2 parallel flat pins + a round grounding pin), Input voltage: 100/120 VAC, 50/60 Hz

AC power plug included in models with 2 in □ is for Europe region (2 round pins + a female grounding contact), Input voltage: 220 VAC, 50 Hz

AC power plug included in models with 3 in □ is for China region (2 angled flat pins + a flat grounding pin), Input voltage: 220 VAC, 50 Hz

Product also available without an AC power cable. Model no. 9AT2560S-0000, 9AT2560A-0000, 9AT2560C-0000

** Static pressure in Pa, where standard atmosphere is 1013 hPa at 20°C.

Cooling Fan Units

Examples



- With a variety of fans from our lineup, the optimal cooling fan unit specifically tailored to your needs can be built.
- The pictures above are only a few examples. We are willing to design and develop a custom cooling fan unit optimized for your requests. Contact us for details.

Air Purifier San Ace Clean Air



This air purifier has a high airflow of 16.5 m³/min and can cover a room of 127 m², which is suitable for large rooms such as offices and conference rooms. Smaller rooms can be cleaned more quickly, with 13.2 m² cleaned in less than 4 minutes.

Model no.	9AP1600-1			
Dimensions (W × H × D)	500 × 1600 × 400 mm			
Mass	40 kg			
Input power	Single-phase 100 V (50/60 Hz common)			
Power cord length	2.6 m			
Room coverage	127 m ² or less*			

* Calculated by the test method based on the JEMA's JEM 1467 standard.

Operation mode	1 [Low]	2 [Medium]	3 [High]	Automatic
Airflow	3.2 m ³ /min	10.5 m ³ /min	16.5 m ³ /min	Built-in sensors detect dust and odors to automatically select the optimal operation mode.
Operating power consumption*	18 W	28 W	90 W	
Noise level	30 dB(A)	45 dB(A)	54 dB(A)	

* Standby power consumption is 3 W

Uninterruptible Power Supply (UPS) with Lithium-Ion Batteries

Hybrid UPS

SANUPS E11B-Li



UPS unit
3-year warranty



Input/Output	Output capacity			Battery backup time
100/110/115/120 VAC Single-phase 2-wire	1 kVA (0.8 kW)	1.5 kVA (1.2 kW)	2 kVA (1.6 kW)	4 min
200/208/220/230/240 VAC Single-phase 2-wire	1 kVA (0.8 kW)		2 kVA (1.6 kW)	

Models certified under Thailand Industrial Standards (TIS) are also available. Contact us for more information.

Hybrid UPS

SANUPS E11A-Li



UPS unit
3-year warranty



Input/Output	Output capacity	Battery backup time
100/110/115/120 VAC Single-phase 2-wire	350 VA (245 W)	8 min

Online UPS

SANUPS A11N-Li



UPS unit
3-year warranty



Input	Output	Output capacity			
100 VAC or 200 VAC single-phase 2-wire	100 VAC single-phase 2-wire or 100/200 VAC single-phase 3-wire	5 kVA (4.5 kW)	10 kVA (9 kW)		
200 VAC single-phase 2-wire	200 VAC single-phase 2-wire	5 kVA (4.5 kW)	10 kVA (9 kW)	15 kVA (13.5 kW)	20 kVA (18 kW)
	100 VAC single-phase 2-wire or 100/200 VAC single-phase 3-wire				

Parallel Redundant Configurations

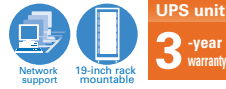
N configuration	5 kVA (4.5 kW)	10 kVA (9 kW)	15 kVA (13.5 kW)	20 kVA (18 kW)
N+1 configuration	—	5 kVA (4.5 kW)	10 kVA (9 kW)	15 kVA (13.5 kW)

Battery backup time	
Standard backup time [min]	10

Uninterruptible Power Supply (UPS) with Lithium-Ion Batteries

Online UPS

SANUPS A11K-Li



Battery backup time: 8 to 19 min

Input/Output	Output capacity				
100/110/120 VAC Single-phase 2-wire	1 kVA (0.8 kW)	1.5 kVA (1.2 kW)	2 kVA (1.6 kW)	3 kVA (2.4 kW)	5 kVA (4 kW)

Battery backup time					
Output capacity [kVA]	1	1.5	2	3	5
Backup time [min]	13	8, 19	15	9, 19	11

●UL certified models

Battery backup time		
Output capacity [kVA]	1	1.5
Backup time [min]	13	8



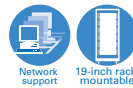
Battery backup time: 30 to 600 min

Input/Output	Output capacity		
100/110/120 VAC Single-phase 2-wire	1.5 kVA (1.2 kW)	3 kVA (2.4 kW)	5 kVA (4 kW)

Battery backup time			
Output capacity [kVA]	1.5	3	5
Backup time [min]	100 to 600	50 to 300	30 to 180

Standby UPS

SANUPS N11C-Li



Input/Output	Output capacity		
100/110/120 VAC Single-phase 2-wire	1.5 kVA (1.2 kW)	3 kVA (2.4 kW)	5 kVA (4 kW)

Battery backup time			
Output capacity [kVA]	1.5	3	5
Backup time [min]	100 to 400	50 to 200	30 to 90

Standby UPS

SANUPS N11B-Li



(For outdoor use)



Input/Output	Output capacity		
100/110/120 VAC Single-phase 2-wire	1 kVA (0.8 kW)	1.5 kVA (1.2 kW)	3 kVA (2.4 kW)

Battery backup time			
Output capacity [kVA]	1	1.5	3
Backup time [min]	150	150	30

IP65

Uninterruptible Power Supply (UPS)

Hybrid UPS

SANUPS E11B



UPS unit
3-year warranty



Input/Output	Output capacity				Battery backup time
100/110/115/120 VAC Single-phase 2-wire	1 kVA (0.8 kW)	1.5 kVA (1.2 kW)	2 kVA (1.6 kW)	3 kVA (2.4 kW)	3 min (5 min)*
200/208/220/230/240 VAC Single-phase 2-wire	1 kVA (0.8 kW)	2 kVA (1.6 kW)	3 kVA (2.4 kW)		

* In parentheses are the values at a load power factor of 0.7.

Models certified under Thailand Industrial Standards (TIS) and Bureau of Indian Standards (BIS) are also available. Contact us for more information.

Hybrid UPS

SANUPS E11A



Input/Output	Output capacity				Battery backup time
100/110/115/120 VAC Single-phase 2-wire	0.35 kVA (0.245 kW)	0.75 kVA (0.525 kW)	1 kVA (0.7 kW)	1.5 kVA (1.05 kW)	
Battery backup time					
Output capacity [kVA]	0.35	0.75	1	1.5	
Standard backup time [min]	6		5		

Online UPS

SANUPS A11K



Input/Output	Output capacity					Battery backup time
100/110/120 VAC Single-phase 2-wire	1 kVA (0.8 kW)	1.5 kVA (1.2 kW)	2 kVA (1.6 kW)	3 kVA (2.4 kW)	5 kVA (4 kW)	
Battery backup time						
Output capacity [kVA]	1	1.5	2	3	5	
Backup time [min]	10 to 180					10 to 120

Online UPS

SANUPS A11M



UPS unit
3-year warranty



Input/Output	Output capacity	Battery backup time
100/110/115/120 VAC Single-phase 2-wire	1 to 8 kVA (0.8 to 6.4 kW)	3 min (5 min)*
200/208/220/230/240 VAC Single-phase 2-wire		

* In parentheses are the values at a load power factor of 0.7.

Parallel Redundant Configurations

N configuration	2 kVA (1.6 kW)	3 kVA (2.4 kW)	4 kVA (3.2 kW)	5 kVA (4.0 kW)	6 kVA (4.8 kW)	7 kVA (5.6 kW)	8 kVA (6.4 kW)
N+1 configuration	1 kVA (0.8 kW)	2 kVA (1.6 kW)	3 kVA (2.4 kW)	4 kVA (3.2 kW)	5 kVA (4.0 kW)	6 kVA (4.8 kW)	7 kVA (5.6 kW)

Uninterruptible Power Supply (UPS)

Online UPS

SANUPS A11N



Input	Output	Output capacity			
100 VAC or 200 VAC single-phase 2-wire	100 VAC single-phase 2-wire or 100/200 VAC single-phase 3-wire	5 kVA (4.5 kW)		10 kVA (9 kW)	
200 VAC single-phase 2-wire	200 VAC single-phase 2-wire	5 kVA (4.5 kW)	10 kVA (9 kW)	15 kVA (13.5 kW)	20 kVA (18 kW)
	100 VAC single-phase 2-wire or 100/200 VAC single-phase 3-wire				

Parallel Redundant Configurations

N configuration	5 kVA (4.5 kW)	10 kVA (9 kW)	15 kVA (13.5 kW)	20 kVA (18 kW)
N+1 configuration	—	5 kVA (4.5 kW)	10 kVA (9 kW)	15 kVA (13.5 kW)

Battery backup time		
Standard backup time [min]	5	10
	3U models	4U models
Available options [min]	15 to 180 *	

* That not all possible combinations of the installation type and output capacity are available.

UL/CE certified models

Input	Output	Output capacity	
200 VAC single-phase 2-wire	200 VAC single-phase 2-wire	5 kVA (4.5 kW)	10 kVA (9 kW)

Battery backup time	
Standard backup time [min]	5

SANUPS - Product Lineup

Standby UPS with 200% Overload Capability

SANUPS N11D



Wall-mounted



Lead-acid battery

Input/Output		
200, 208, 220, 230 VAC Single-phase, 2-wire		
Output capacity		
2 kVA (1.6 kW)	3 kVA (2.4 kW)	
Battery backup time		
Capacity [kVA]	2	3
Backup time [min]	5, 9	5

SANUPS N11D-Li



Floor-standing



Lithium-ion battery

Input/Output		
200, 208, 220, 230 VAC Single-phase, 2-wire		
Output capacity		
2 kVA (1.6 kW)	3 kVA (2.4 kW)	
Battery backup time		
Capacity [kVA]	2	3
Backup time [min]	9	8

SANUPS N11D-C



Rack mount



EDLC

Input/Output		
200, 208, 220, 230 VAC Single-phase, 2-wire		
Output capacity		
2 kVA (1.6 kW)	3 kVA (2.4 kW)	
Dip compensation time		
Capacity [kVA]	2	3
Dip compensation time [s]	2.8	1.5

Uninterruptible Power Supply (UPS)

Online UPS

SANUPS A13A



Network support



ECO PRODUCTS

Input/Output	
200, 210, 220 VAC 3-phase 3-wire	
Output capacity	
6.25 kVA (5 kW)	12.5 kVA (10 kW)
18.75 kVA (15 kW)	25 kVA (20 kW)
Battery backup time	
Standard backup time [min]	8
Available options [min]	30, 60

Parallel Redundant Configurations

N configuration	6.25 kVA (5 kW)	12.5 kVA (10 kW)	18.75 kVA (15 kW)	25 kVA (20 kW)
N+1 configuration	—	6.25 kVA (5 kW)	12.5 kVA (10 kW)	18.75 kVA (15 kW)

Online UPS

SANUPS A22A



Network support



ECO PRODUCTS

400 VAC model	
Input	Output
380/400/415 VAC 3-phase 4-wire	380/400/415 VAC 3-phase 4-wire
Output capacity	
5 to 105 kVA	
200 VAC model	
Input	Output
380/400/415 VAC 3-phase 4-wire	220/230/240 VAC Single-phase 2-wire
Output capacity	
5 to 55 kVA	
Battery backup time	
Standard backup time [min]	10

Online UPS

SANUPS A23D



Network support



ECO PRODUCTS

Input/Output	
200, 210 VAC 3-phase 3-wire	
Output capacity	
30 kVA (27 kW)	50 kVA (45 kW)
75 kVA (67.5 kW)	100 kVA (90 kW)
Battery backup time	
Standard backup time [min]	10
Available options [min]	5 to 180

Online UPS

SANUPS A23C



Network support



ECO PRODUCTS

Input/Output	
200, 210 VAC 3-phase 3-wire	
Output capacity	
150 kVA (135 kW)	200 kVA (180 kW)
300 kVA (270 kW)	
Battery backup time	
Standard backup time [min]	10
Available options [min]	5 to 180

Online UPS

SANUPS RMA



Network support



ECO PRODUCTS

Input/Output	
200 VAC 3-phase 3-wire	
Output capacity	
50 kVA (45 kW)	100 kVA (90 kW)
Battery backup time	
Standard backup time [min]	10
Available options [min]	5 to 180

Parallel Processing UPS

SANUPS E23A



Network support



ECO PRODUCTS

Input/Output	
200/205/210 VAC 3-phase 3-wire	
Output capacity	
20 kVA (16 kW)	50 kVA (40 kW)
100 kVA (80 kW)	200 kVA (160 kW)
Battery backup time	
Output capacity [kVA]	20
Standard backup time [min]	8
Available options [min]	30 to 180

Parallel Processing UPS

SANUPS E33A



Network support



ECO PRODUCTS

Input/Output	
380/400/415/420 VAC 3-phase 3-/4-wire	
Output capacity	
100 kVA (90 kW)	200 kVA (180 kW)
300 kVA (270 kW)	400 kVA (360 kW)
500 kVA (450 kW)	600 kVA (540 kW)
Battery backup time	
Standard backup time [min]	5
Available options [min]	30 to 180

Networking Products

Power Management Product

SANUPS LAN Interface Card



Installed in a UPS, this product enables users to take necessary measures swiftly via a network. UPS status management can be done remotely from computers. Optional temperature and humidity sensors can be used to monitor the temperature and humidity.

Network Power Manager

SANUPS T



Remotely manage and control the power of network equipment.

Input/Output	Rated current
100 VAC	15 A
200 to 240 VAC	10 A
200 to 240 VAC	20 A (10 A × 2 systems)

SANUPS - Product Lineup

Voltage Dip Compensator

High-efficiency voltage dip compensator/interruption

SANUPS C23A



Input/Output		
210 VAC 3-phase 3-wire		
Output capacity		
10 kVA (8 kW)	20 kVA (16 kW)	30 kVA (24 kW)
50 kVA (40 kW)	100 kVA (80 kW)	200 kVA (160 kW)
Dip compensation time		
1 s		

* 50 to 200 kVA only

Grid Management System

Realizes microgrids

SANUPS K23A M type



Input/Output		
200 VAC 3-phase 3-wire		
Output capacity		
20 kW	50 kW	100 kW

Peak Cut Device

Peak shaving system for reducing energy costs in factories

SANUPS K33A



Input		Output	Max. output capacity
Rated voltage	Rated frequency		
380/400/415/420/440 VAC 3-phase 3-wire	50/60 Hz	Direct current	1800 kW

Inverter

Scalable inverter with parallel redundancy

SANUPS D11A



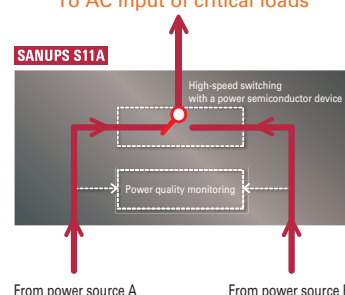
Input	Output
48 VDC	100/120 VAC
Output capacity	
Single-unit operation 1 kVA (1 kW)	
Parallel operation 2 to 6 kVA (2 to 6 kW)	
Parallel redundant operation 1 to 5 kVA (1 to 5 kW)	

Static Transfer Switch

Remotely manage and control the power of network equipment.

SANUPS S11A

To AC input of critical loads



Input/Output		Rated current
100 VAC	Single-phase 2-wire	30 A

PV Inverter

Grid-connected type

SANUPS P73J



Input operating voltage range	Rated output voltage	Rated output capacity
150 to 570 VDC	202 VAC 3-phase 3-wire	9.9/10 kW

FRT

IP65

Output Control

Frequency feedback method with step injection of reactive power (Step 3.2)

Grid frequency tolerance

Grid-connected isolated charging type/Grid-connected isolated type

SANUPS P73L



Input operating voltage range	Rated output voltage	Rated output capacity
150 to 570 VDC	202 VAC 3-phase 3-wire	10 to 60 kW

FRT

Output Control

Frequency feedback method with step injection of reactive power (Step 3.2)

Grid frequency tolerance

Grid-connected type/Grid-connected isolated type

SANUPS P83E



Input operating voltage range	Rated output voltage	Rated output capacity
240 to 600 VDC	202 VAC 3-phase 3-wire	100 kW

FRT

Output Control

Grid frequency tolerance

Renewable Energy Inverter

Grid-connected type

SANUPS W83A



Input operating voltage range	Rated output voltage	Rated output capacity
200 to 600 VDC	202 VAC 3-phase 3-wire	49.9 kW

FRT

Output Control

Frequency feedback method with step injection of reactive power (Step 3.2)

Grid frequency tolerance

Renewable Energy Inverter for Wind and Hydro Power Generation Systems

Grid-connected type/Grid-connected isolated type

SANUPS W73A



Input operating voltage range	Rated output voltage	Rated output capacity
150 to 570 VDC	202 VAC 3-phase 3-wire	9.9 kW

FRT

IP65

Output Control

Frequency feedback method with step injection of reactive power (Step 3.2)

Grid frequency tolerance



SANUPS - Product Lineup

Remote Monitoring of Renewable Energy Generation Systems

SANUPS PV Monitor



Status Monitoring Service for Renewable Energy Generation Systems

SANUPS™ NET



This service enables you to remotely monitor the status of photovoltaic power systems via the internet. It makes maintenance easier, providing long-lasting peace of mind.

Emergency Diesel Generator

SANUPS G53A



Rated output capacity	Rated frequency	AC output	Continuous operation time
200 / 230 kVA	50 / 60 Hz	200 / 220 V 3-phase 3-wire	2 hours or more
250 / 290 kVA			
290 / 320 kVA			

Power Generation Vehicle

SANUPS M53A



Vehicle model	Output circuit	Output capacity				[No. of phases/wires] Output voltage	
		At 3-phase		At single-phase		50 Hz	60 Hz
		50 Hz	60 Hz	50 Hz	60 Hz		
Van type	3-/single-phase switchable	20 kVA	25 kVA	11.5 kVA	14.4 kVA	200 V 3-phase 3-wire or 100/200 V single-phase 3-wire	220 V 3-phase 3-wire or 110/220 V single-phase 3-wire
		37 kVA	45 kVA	21.4 kVA	26 kVA		

SANMOTION G



Servo amplifiers



Single-axis

Analog/Pulse

EtherCAT®

100 VAC : 10 A, 20 A, 30 A

200 VAC : 10 A, 20 A, 30 A, 50 A, 75 A, 100 A, 150 A

2-axis integrated

EtherCAT®

100/200 VAC : 20A × 2axes , 30 A × 2axes

Servo motors



Flange size	Rated output
40 mm	30 W, 50 W, 100 W, 150 W
60 mm	100 W, 200 W, 400 W, 600 W
80 mm	200 W, 400 W, 750 W, 1 kW
86 mm	750 W, 1 kW
100 mm	750 W, 1 kW, 1.5 kW, 2 kW, 2.5 kW
130 mm	550 W, 1.2 kW, 1.8 kW, 2 kW, 3 kW, 4 kW, 5 kW

Encoder: Battery-less absolute encoder and single-turn absolute encoder

SANMOTION R *3E Model*



Servo amplifiers



Functional safety

Analog/Pulse

EtherCAT®

Built-in positioning function

100 VAC : 10 A, 20 A, 30 A

200 VAC : 10 A, 20 A, 30 A, 50 A, 75 A, 100 A, 150 A, 300 A, 600 A

Servo motors



Flange size	Rated output
40 mm	30 W, 50 W, 80 W, 90 W, 100 W
60 mm	100 W, 200 W, 360 W, 400 W
80 mm	200 W, 400 W, 750 W
86 mm	750 W, 1 kW
100 mm	750 W, 1 kW, 1.5 kW, 2 kW, 2.5 kW
130 mm	550 W, 1.2 kW, 1.8 kW, 2 kW, 3 kW, 4 kW, 5 kW
180 mm	3.5 kW, 4.5 kW, 5.5 kW, 7.5 kW, 11 kW, 15 kW
220 mm	5 kW, 7 kW, 11 kW, 15 kW, 20 kW, 21 kW
275 mm	30 kW

Encoder: Battery-less absolute encoder and single-turn absolute encoder



Servo amplifiers



Functional safety

Analog/Pulse

EtherCAT®

Built-in positioning function

400 VAC : 25 A, 50 A, 100 A, 150 A, 300 A, 800 A

Servo motors



Flange size	Rated output
100 mm	750 W, 1 kW, 1.5 kW, 2 kW
130 mm	550 W, 1.2 kW, 1.8 kW, 2 kW, 3 kW
180 mm	3.5 kW, 4.5 kW, 5.5 kW, 7.5 kW, 11 kW, 15 kW
220 mm	11 kW, 15 kW, 20 kW, 21 kW
275 mm	30 kW
320 mm	55 kW

Encoder: Battery-less absolute encoder and single-turn absolute encoder

SANMOTION G



Servo amplifiers



48 VDC : 40 A, 80 A

Analog/Pulse

EtherCAT®

Servo motors



Flange size	Rated output
40 mm	30 W, 50 W, 100 W
60 mm	100 W, 200 W, 400 W

Encoder: Battery-less absolute encoder and single-turn absolute encoder

SANMOTION R *ADVANCED MODEL*



Servo amplifiers



48 VDC : 25 A, 40 A

Single-axis: Pulse input

EtherCAT®

Multi-axis: EtherCAT®

Servo motors



Flange size	Rated output
14 mm	2.4 W
20 mm	20 W, 30 W
40 mm	30 W, 50 W, 80 W, 100 W
60 mm	100 W, 200 W

Encoder: Battery-less absolute encoder and single-turn absolute encoder

Linear Servo Systems



Linear servo motors

Type	Magnet rail width	Rated thrust	Max. thrust
Dual magnet type with core	35 to 45 mm	610 to 800 N	1400 to 2200 N
Flat type with core	45 to 85 mm	140 to 340 N	270 to 700 N
Center magnet type with core	30 mm	350 N	650 N

Compatible servo amplifiers:
SANMOTION G / R 3E Model, 200 VAC



Compact cylinder linear servo motors

Motor width	Stroke length	Rated thrust	Max. thrust
12 mm	30 mm	5.1 N	16.5 N
20 mm	50 mm	15 N	50 N

Compatible servo amplifiers:
SANMOTION R ADVANCED MODEL, 48 VDC
SANMOTION G 48 VDC servo system

SANMOTION multi-axis integrated linear servo motor unit that integrates multiple cylinder linear servo motors into a single unit is also available.

AC Spindle Motors and AC Servo Amplifiers

SANMOTION S



Servo amplifiers



Analog/Pulse

EtherCAT®

200 VAC : 150 A



Spindle motors



Flange size	Rated output
160 mm	3.2 kW, 4.5 kW

SANMOTION K



Servo motors



Flange size	Rated output
42 mm	23 W, 40 W, 60 W
54 mm	60 W, 80 W, 110 W
76 mm	200 W, 300 W
88 mm	400 W, 500 W

Closed Loop Stepping Systems

SANMOTION Model No.PB



Drivers



RS-485 + Parallel I/O

EtherCAT®

Pulse input

Type	Power supply	Input type
Type R	Single-phase 100 to 115 VAC	RS-485 + Parallel I/O
Type P	Single-/3-phase 200 to 230 VAC	Pulse input
Type M	24 V / 48 VDC	RS-485 + Parallel I/O
Type P (Multi-axis)	24 V / 48 VDC	Pulse input
Type E (Multi-axis)	24 V / 48 VDC	EtherCAT



Motors



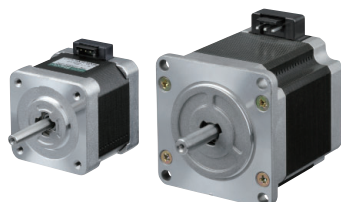
Compatible driver	Model	Motor size	Gear ratio
Type R Type P	Standard motor	42 mm, 60 mm, 86 mm	—
	Low backlash gear motor	42 mm, 60 mm	1:3.6, 1:7.2, 1:10, 1:20, 1:30
	Harmonic gear motor	42 mm, 60 mm	1:30, 1:50, 1:100
	Electromagnetic brake motor	42 mm, 60 mm	—
Type M Type P (Multi-axis) Type E (Multi-axis)	Standard motor	28 mm, 42 mm, 60 mm	—
	Low backlash gear motor	42 mm, 60 mm	1:3.6, 1:7.2, 1:10, 1:20, 1:30
	Harmonic gear motor	28 mm, 42 mm, 60 mm	1:30, 1:50, 1:100
	Electromagnetic brake motor	28 mm, 42 mm, 60 mm	—

Encoder:

Battery-less absolute encoder (for 42 mm and 60 mm motors with a Type E driver only) and incremental encoder

3-Phase Stepping Systems

SANMOTION F3



Stepping motors

Motor size	Full step angle
42 mm	1.2°
50 mm	1.2°
56 mm	1.2°
60 mm	1.2°

2-Phase Stepping Systems

SANMOTION F2



Drivers

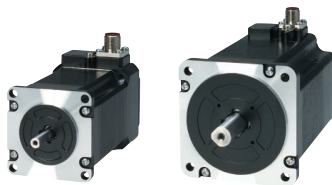


Pulse input 24 VDC Bipol

Stepping motors



Motor size	Full step angle	Remarks
14 mm	1.8°	Only bipolar available
28 mm	1.8°	
35 mm	1.8°	Only unipolar available
42 mm	1.8°, 0.9°	
50 mm	1.8°	
56 mm	1.8°	
60 mm	1.8°, 0.9°	
86 mm	1.8°	
∅ 106 mm	1.8°	



IP65-rated stepping motors

Water/Dust protection



Motor size	Full step angle	Remarks
56 mm	1.8°	Only bipolar available
86 mm	1.8°	

5-Phase Stepping Systems

SANMOTION F5



Drivers



Pulse input

Driver	Power supply	Remarks
AC input driver	100 to 120 VAC, 200 to 240 VAC	Microstep
DC input driver	24 VDC	Microstep

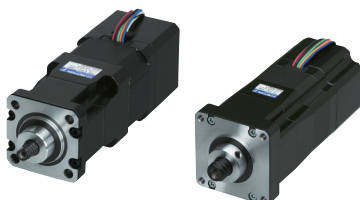
Stepping motors



Motor size	Full step angle
28 mm	0.72°
42 mm	
60 mm	
86 mm	

AC Input Drivers/Motors

Compatible driver	Model	Motor size	Gear ratio
AC input driver	Standard motor	42 mm, 60 mm, 86 mm	—
	CE/UL-certified motor	42 mm, 60 mm, 86 mm	—
	Low backlash gear motor	42 mm, 60 mm, 86 mm	1:3.6, 1:7.2, 1:10, 1:20, 1:30, 1:36
	Harmonic gear motor	42 mm, 60 mm, 86 mm	1:30, 1:50, 1:100
	Electromagnetic brake motor	42 mm, 60 mm, 86 mm	—



Linear actuator stepping motors

A stepping motor and ball screw are integrated into one compact unit.



Motor size	Rated current	Stroke length	Thrust
42 mm	0.75 A/Phase	50 mm	370 N
60 mm	1.4 A/Phase	80 mm	450 N

Available with or without brake

SANMOTION C S100



Model no.	SMC100-A	SMC100-B
Interface	EtherCAT® (100 Mbps) master function, FoE-compatible	
	Ethernet (10/100/1000 Mbps) protocols (Modbus TCP, OPC-UA)	
	RS-485 (9600 to 115200 bps)	
	USB 2.0 Type-A (for memory storage, wireless adapter (Model No.: SMC-USBW-01))	
Digital I/O	Digital input: 16 points; rated input voltage: 24 VDC; positive/negative common input Digital output: 8 points; load voltage range: 19.2 to 30 VDC; maximum load current: 0.5 A/point; sink output	
Input power supply	Rated voltage: 24 VDC (main power supply, I/O power supply)	
Max. no. of controllable axes	8	
Control functions	Sequence control Motion control Robot control	Sequence control Motion control (PTP control)
Control language	Programming languages as per IEC 61131-3 G-code (SMC100-A only)	
Dimensions (W × H × D)	55 × 120 × 110 mm	

SANMOTION C S200



Model no.	SMC200-A	SMC200-B
Interface	EtherCAT® (100 Mbps) master function, FoE-compatible	
	Ethernet (10/100/1000 Mbps) protocols (Modbus TCP, OPC-UA, EtherNet/IP™)	
	RS-485 (9600 to 115200 bps)	
	1-Wire® (15400 bps, half-duplex bidirectional communication)	
	USB 2.0 Type-A (for memory storage, wireless adapter (Model No.: SMC-USBW-01), web camera)	
	MicroSD card slot (up to 32 GB)	
Digital I/O	Digital input: 16 points; rated input voltage: 24 VDC; positive/negative common input Digital output: 8 points; load voltage range: 19.2 to 30 VDC; maximum load current: 0.5 A/point; sink output	
Input power supply	Rated voltage: 24 VDC (main power supply, I/O power supply)	
Max. no. of controllable axes	8	
Control functions	Sequence control Motion control (Electronic cam, electronic gear, linear interpolation, circular interpolation) Robot control: Using CNC function (Cartesian coordinate, SCARA, parallel link)	Sequence control Motion control (PTP control)
Control language	Programming languages as per IEC 61131-3 G-code (SMC200-A only)	
Dimensions (W × H × D)	55 × 120 × 110 mm	

SANMOTION C S300



Model no.	SMC300-A	SMC300-B
Interface	EtherCAT® (100 Mbps) master function, FoE-compatible	
	Ethernet (10/100/1000 Mbps) protocols (Modbus TCP, OPC UA, EtherNet/IP™, MQTT, SMTP)	
	RS-485 (9600 bps to 115200 bps)	
	USB 3.0 Type-A (memory storage, wireless adapter (Model no.: SMC-USBW-01), webcam)	
	USB 2.0 Type-C (connection with the PC)	
	MicroSD card slot (up to 32 GB)	
Digital I/O	Digital input: 16 points; rated input voltage: 24 VDC; positive/negative common input Digital output: 16 points; load voltage range: 24 VDC; maximum load current: 0.5 A/point; sink output	
Input power supply	Rated voltage: 24 VDC (main power supply, I/O power supply)	
Max. no. of controllable axes	32	
Control language	Sequence control Motion control (electronic cam, electronic gear, linear interpolation, circular interpolation) Robot control (cartesian coordinate robot, SCARA robot, and parallel link robot)	Sequence control Motion control (PTP control)
Control language	IEC 61131-3 standard programming languages Ladder Diagram (LD), Structured Text (ST), Instruction List (IL), Function Block Diagram (FBD), Sequential Function Chart (SFC), Continuous Function Chart (CFC) G-code (DIN 66025) supported in CNC mode (SMC300-A only)	
Dimensions (W × H × D)	50 × 120 × 110 mm	

Motion Controller

SANMOTION C S500



Model no.	SMC520	SMC507	SMC505
Interface	EtherCAT® (100 Mbps) master function		
	Ethernet (10/100/1000 Mbps) protocols (Modbus TCP, OPC-UA)		
	-	RS-232/RS-422/RS-485 (9600 to 115200 bps)	
	USB 3.0 /2.0	USB 2.0	
Input power supply	24 VDC (19.2 to 33 VDC)		
Max. no. of controllable axes	64		
Robot communication cycle	1 ms or more	2 ms or more	4 ms or more
Max. controllable robot	4	2	1
Control functions	Sequence control Motion control Robot control (can calculate kinematics such as cartesian, delta, SCARA, palletizing, and 6-/7-axis articulated robots)		
Control language	Sequence/motion control: Programming languages as per IEC 61131-3 Robot control: Original language		
Dimensions (W × H × D)	124.2 × 161.2 × 94 mm	126.5 × 83.6 × 94.9 mm	

Motion Controller Peripherals



Wireless Adapter 3A



Model no.	SMC-USBW-01
Basic specifications	Dimensions (W × H × D)
	21.8 × 11.5 × 56.5 mm
	Interface
Functions	Use with
	SANMOTION C S100, S200, S300 motion controllers only
	Wireless standard
	Compliant with IEEE802.11b/IEEE802.11g/IEEE802.11n
	Operating frequency band
	2.4 GHz band
	Channels
	1 to 13 ch
Wireless LAN mode	Maximum communication speed
	72.2 Mbps
	Access point mode (Acting as a master network station)
	Station mode (Acting as a slave network station)
Maximum number of connectable units	3 (in access point mode)
Security	WPA2-PSK (AES)

MEMO



■ ECO PRODUCTS

Eco Products are eco-friendly products designed to reduce the environmental impact of the product and its packaging materials compared to conventional products on the market. Our products are assessed over the product's life cycle against our own eco-design requirements including product size, weight, power consumption, and CO₂ emissions, and those meeting our standards and higher standards qualify as Eco Products and Eco Products Plus, respectively.

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