

SANUPS E33A

Online UPS

Ver. 2
English



SANUPS E33A

Highly reliable and efficient parallel processing UPS



Parallel processing topology

While the most common UPS topology is double conversion online, this UPS has the parallel processing topology. At normal times, this UPS not only powers the load using the grid power, but also corrects the voltage and absorbs noise with its bi-directional inverter connected in parallel. It provides high-quality power to ICT devices. This topology achieves both high efficiency and high-quality power.

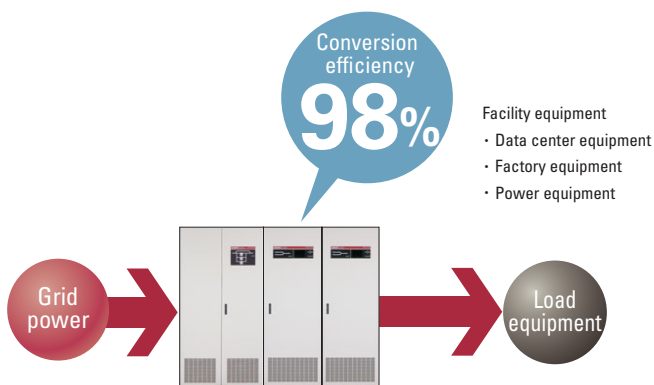
Lineup

[No. of phases/wires] Input/Output voltage	Output capacity		Battery backup time*		Model	
	[kVA]	[kW]	Standard	Available options	Parallel operation	Parallel redundant operation
[3-phase 3-/4-wire] 400 V models 380/400/415/420 V	100	90	5/10 min	30/60/120/180 min	E33A104	E33AR104
	200	180			E33A204	E33AR204
	300	270			E33A304	E33AR304
	400	360			E33A404	E33AR404
	500	450			E33A504	E33AR504
	600	540			E33A604	—

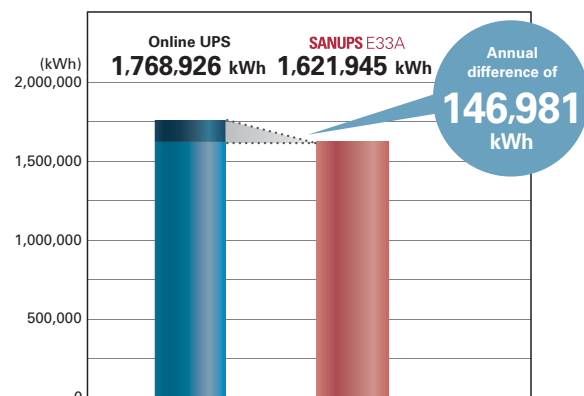
* At a 25°C ambient temperature and load power factor of 0.8, using new, fully charged batteries.

High Efficiency

- Achieves a conversion efficiency of 98%.
- Contributes to environmental conservation.



Comparison of annual power consumption (For 200 kVA model)



Note: Including the power consumption of the powered load equipment and UPS cooling devices.

High Quality

Zero interruption

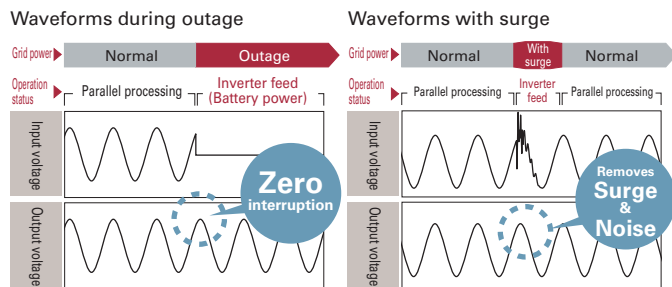
Many computers and communications equipment installed in production facilities are designed assuming a power supply without interruptions.

- In the event of an outage or voltage dip, this UPS provides uninterrupted sine wave power, eliminating the risk of equipment malfunction.
- Even if the grid power contains a surge or noise, the UPS will output a clean sinusoidal wave, allowing the load devices to be used with confidence.*

* In the event of a voltage dip or momentary outage, power will be supplied from capacitors, preventing unnecessary battery discharge.

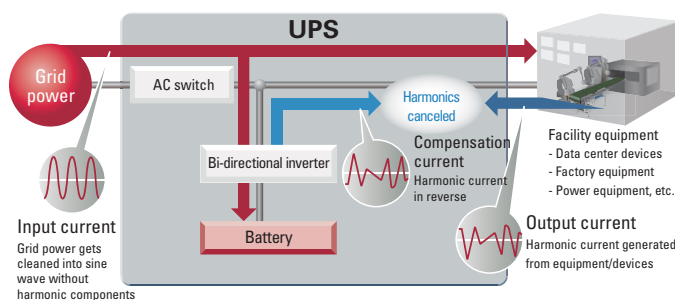
Active filter

- The active filter includes a bi-directional inverter that cancels the harmonics generated by equipment, making the source current of the UPS sinusoidal.
- The corrected current waveform is harmless to the power grid and other equipment. Furthermore, the power factor can be corrected to nearly 1.0.



Potential consequences of grid failure:

- Reset or stop of computers
- Communication failure of network equipment
- Stop or failure of production line equipment
- Defect quality in semiconductor manufacturing equipment

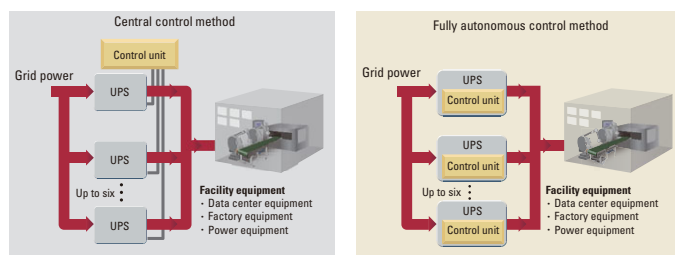


High Reliability

Parallel redundant operation

- It uses the fully autonomous control method where each UPS unit has its own control unit for parallel operation, whereas most UPSs has a common control unit shared by UPS units. This independent control unit for each UPS unit, in addition to redundant operation, provides even higher reliability.

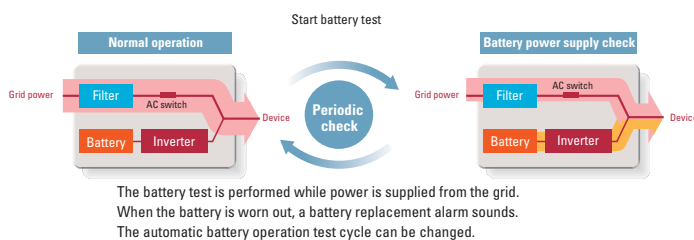
In parallel redundant operation



Automatic battery self-test

- Battery self-tests can be performed automatically at regular intervals, ensuring reliable operation in the event of a power failure.
- These battery self-tests are done while power is supplied from the grid, so there is no effect on the UPS even if the battery has degraded.

Note: Battery test interval can be set by the user.



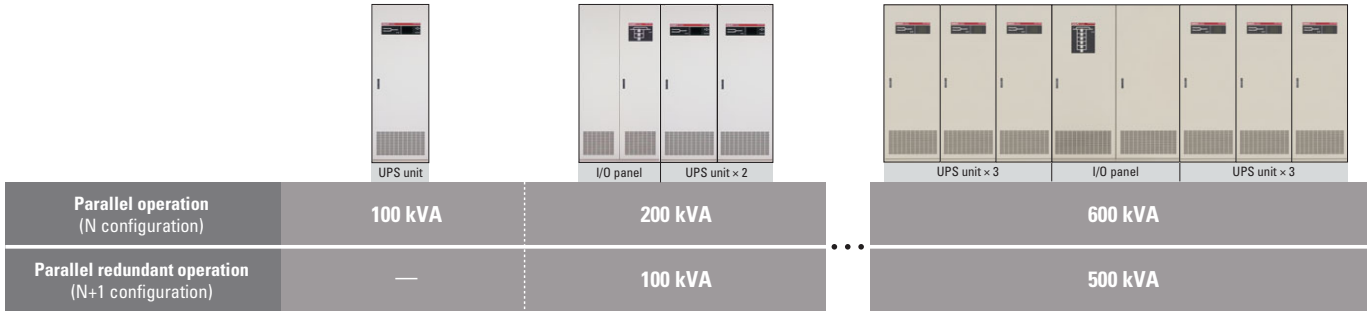
Designed for Use with Factory Equipment

- This UPS provides a high 800% (for 0.5 s) overload capability and therefore can withstand high inrush currents of inductive loads.
- The rated capacity can be selected without worrying about the inrush current.

Capacity Scalable with Added Units

- To meet growing power demands, the capacity can be expanded as required by adding 100 kVA units to a maximum of 600 kVA.

It is advised that you initially choose an I/O panel with enough capacity to handle the maximum expected capacity of the UPS taking future expansion into account.

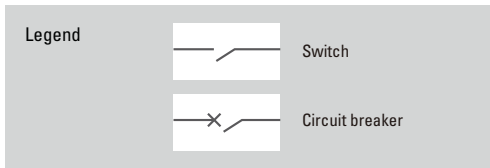
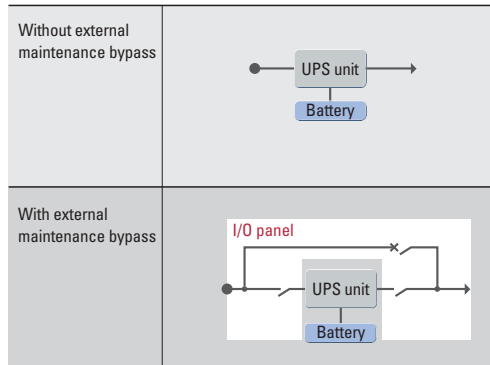


Network Options

Items	Model no.	Remarks
LAN interface card	PRLANIF031	This card enables 24/7 monitoring of UPS operations and status and sends email notifications to system administrators for quick actions via network in the event of a power failure. The LAN interface card will be shipped installed in the UPS. Combined with a temperature and humidity sensor (Model no.: 9CT1-T, extension cable: CARD-CBL007), this card can also monitor the ambient temperature and humidity. Multiple servers (up to 50) can be shut down through communication protocols such as SSH, Telnet, and REST API.

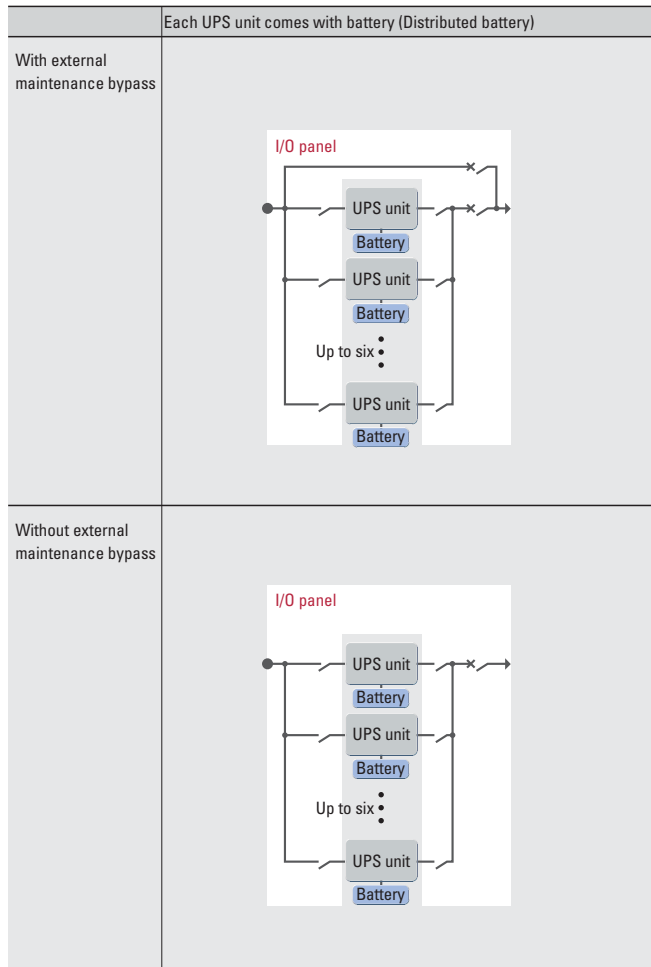
System Configuration Diagram

■ Single-unit operation



■ Parallel operation (max. 600 kVA) /

Parallel redundant operation (max. 500 kVA)



Note: For other system configurations such as 2-system input and output branching, please contact us.

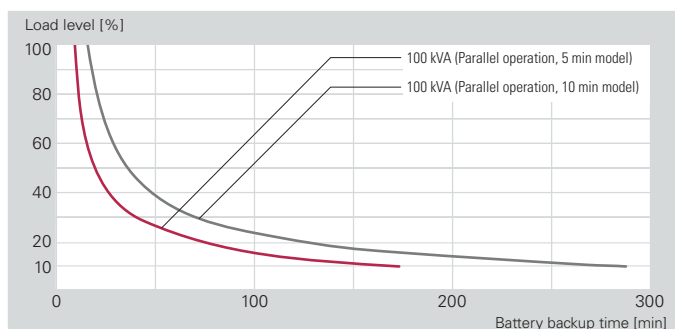
Specifications

Model	E33A104	E33A204	E33A304	E33A404	E33A504	E33A604	Remarks		
Technology	Parallel operation								
Model	E33AR104	E33AR204	E33AR304	E33AR404	E33AR504				
Technology	Parallel redundant operation								
Rated output capacity (apparent power / active power)	100 kVA / 90 kW	200 kVA / 180 kW	300 kVA / 270 kW	400 kVA / 360 kW	500 kVA / 450 kW	600 kVA / 540 kW			
Topology	Parallel processing								
Cooling system	Forced air cooling								
AC input	No. of phases/wires	3-phase 3-/4-wire							
	Rated voltage	380/400/415/420 V						Same as output voltage	
	Rated frequency	50/60 Hz						To be selected at the time of order	
	Required capacity	120 kVA	240 kVA	360 kVA	480 kVA	600 kVA	720 kVA		
	Input power factor	0.97 or greater						At rated output	
	Current harmonic distortion compensation	Compensation capacity	Within rated capacity						
Compensation order		2nd to 20th harmonics							
Compensation rate		75% or greater						At 100% rectifier load	
AC output	No. of phases/wires	3-phase 3-/4-wire						Same as AC input	
	Rated voltage	380/400/415/420 V						To be selected at the time of order	
	Voltage regulation ⁽¹⁾	In parallel processing mode	Within -8% to +10% of rated voltage (Factory setting)						
		In battery operation	Within ±3% of rated voltage						
	Rated frequency	50/60 Hz						Same as input frequency	
	Frequency regulation ⁽¹⁾	In parallel processing mode	Within ±5% of rated frequency						
		In battery operation	Within ±0.5% of rated frequency						
	Load power factor	Rated	0.9 (lagging)						
		Variation range	0.7 to 1.0 (lagging)						
	Voltage harmonic distortion	At linear load	Within 2%						In battery operation
		At rectifier load	Within 5%						
	Instantaneous voltage fluctuation	Within ±5% of rated voltage						In battery operation	
Overload capability	In parallel processing mode	200% (for 30 s), 800% (for 0.5 s)							
	In battery operation	125% (for 10 min), 150% (for 1 min)							
Transfer time to battery operation	No interruption								
Battery type	Small-sized valve-regulated lead-acid (VRLA) battery								
Acoustic noise	Parallel operation	70 dB or less	73 dB or less	76 dB or less	76 dB or less	76 dB or less	76 dB or less	At 1 m height, 1 m from the front of the unit	
	Parallel redundant operation	73 dB or less	76 dB or less	76 dB or less	76 dB or less	76 dB or less	–		
Heat dissipation	Parallel operation	2.8 kW or less	5.6 kW or less	8.4 kW or less	11.2 kW or less	14.0 kW or less	16.9 kW or less	At rated output, after battery charging completed ⁽²⁾ (rated backup time)	
	Parallel redundant operation	4.8 kW or less	7.6 kW or less	9.8 kW or less	11.2 kW or less	14.0 kW or less	–		
Cooling airflow	Parallel operation	14.4 m³/min	28.8 m³/min	43.2 m³/min	57.6 m³/min	72.0 m³/min	86.4 m³/min	At rated output, after battery charging completed ⁽²⁾ (rated backup time)	
	Parallel redundant operation	24.5 m³/min	38.8 m³/min	50.6 m³/min	57.6 m³/min	72.0 m³/min	–		
Ventilation airflow	Parallel operation	3.6 m³/min	3.6 m³/min × 2	3.6 m³/min × 3	3.6 m³/min × 4	3.6 m³/min × 5	3.6 m³/min × 6	5-minute backup	
	Parallel redundant operation	3.6 m³/min × 2	3.6 m³/min × 3	3.6 m³/min × 4	3.6 m³/min × 5	3.6 m³/min × 6	–		
	Parallel operation	5.4 m³/min	5.4 m³/min × 2	5.4 m³/min × 3	5.4 m³/min × 4	5.4 m³/min × 5	5.4 m³/min × 6	10-minute backup	
	Parallel redundant operation	5.4 m³/min × 2	5.4 m³/min × 3	5.4 m³/min × 4	5.4 m³/min × 5	5.4 m³/min × 6	–		
Operating environment	Temperature: 0 to 40°C, humidity: 20 to 90% RH (non-condensing), installation location: indoors, altitude: 1000 m or lower								
Expected service life (of the UPS unit excluding battery)	15 years (At a 25°C average ambient temperature. For reference purposes only.)								

(1) If you need to change the voltage or frequency regulation, please contact us.

(2) At a load power factor of 0.9, 40°C room temperature, and 30°C outside temperature.

Load Level vs Backup Time



Note: At 25°C ambient temperature and load power factor of 0.8, using new, fully charged batteries.

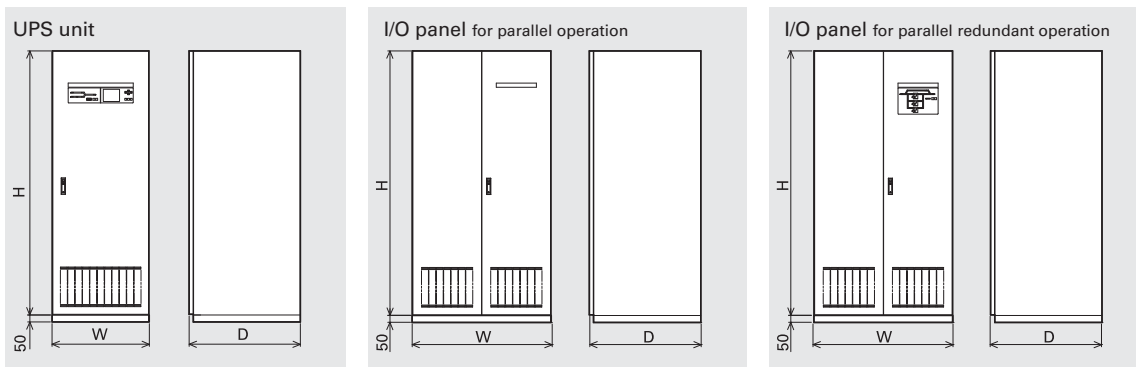
Dimensions (Unit: mm)

UPS unit and I/O panel

Technology	Model	UPS unit dimensions			I/O panel dimensions		
		W	D	H	W	D	H
Parallel operation	E33A104	700	800	1900	500	800	1900
	E33A204	700 × 2			800		
	E33A304	700 × 3			1000		
	E33A404	700 × 4			1200		
	E33A504	700 × 5			1600		
	E33A604	700 × 6			1600		
Parallel redundant operation	E33AR104	700 × 2	800	1900	800	800	1900
	E33AR204	700 × 3			1000		
	E33AR304	700 × 4			1000		
	E33AR404	700 × 5			1600		
	E33AR504	700 × 6			1600		

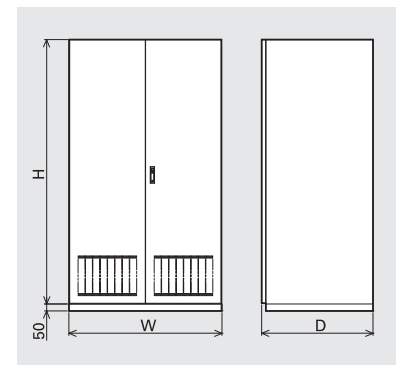
Note 1: An I/O panel is used to obtain single-phase output power or to make a UPS completely de-energized while maintaining power supply to load equipment.

Note 2: The I/O panel dimensions above are for models with an external maintenance bypass. For information on models with no bypass, contact us.



Battery panel (Distributed batteries)

Technology	Combination UPS unit model	Backup time*	Battery			Battery panel dimensions			
			Number of cells	Capacity	Total capacity	W	D	H	Number of faces
Parallel operation	E33A104	5 min	204	44 Ah × 2	35904 Wh	850	800	1900	1
		10 min		44 Ah × 3	53856 Wh	1350			2
	E33A204	5 min		(44 Ah × 2) × 2	71808 Wh	850 × 2 units			2
		10 min		(44 Ah × 3) × 2	107712 Wh	1350 × 2 units			4
	E33A304	5 min		(44 Ah × 2) × 3	107712 Wh	850 × 3 units			3
		10 min		(44 Ah × 3) × 3	161568 Wh	1350 × 3 units			6
	E33A404	5 min		(44 Ah × 2) × 4	143616 Wh	850 × 4 units			4
		10 min		(44 Ah × 3) × 4	215424 Wh	1350 × 4 units			8
	E33A504	5 min		(44 Ah × 2) × 5	179520 Wh	850 × 5 units			5
		10 min		(44 Ah × 3) × 5	269280 Wh	1350 × 5 units			10
	E33A604	5 min		(44 Ah × 2) × 6	215424 Wh	850 × 6 units			6
		10 min		(44 Ah × 3) × 6	323136 Wh	1350 × 6 units			12
Parallel redundant operation	E33AR104	5 min	204	(44 Ah × 2) × 2	71808 Wh	850 × 2 units	800	1900	2
		10 min		(44 Ah × 3) × 2	107712 Wh	1350 × 2 units			4
	E33AR204	5 min		(44 Ah × 2) × 3	107712 Wh	850 × 3 units			3
		10 min		(44 Ah × 3) × 3	161568 Wh	1350 × 3 units			6
	E33AR304	5 min		(44 Ah × 2) × 4	143616 Wh	850 × 4 units			4
		10 min		(44 Ah × 3) × 4	215424 Wh	1350 × 4 units			8
	E33AR404	5 min		(44 Ah × 2) × 5	179520 Wh	850 × 5 units			5
		10 min		(44 Ah × 3) × 5	269280 Wh	1350 × 5 units			10
	E33AR504	5 min		(44 Ah × 2) × 6	215424 Wh	850 × 6 units			6
		10 min		(44 Ah × 3) × 6	323136 Wh	1350 × 6 units			12



Paint color: Ivory (Munsell 6.6Y 8.3/0.8)

* At a 25°C ambient temperature, load power factor of 0.8, using new, fully charged batteries.

Contact us for 30, 60, 120, and 180-minute backup time options, backup time ratings for a load power factor of 0.9, and information on a shared battery configuration.

MEMO



■ Eco Products

ECO PRODUCTS are designed to reduce the environmental impacts throughout the product's life cycle. Ranging from design to manufacturing stages, the environmental impact of a product and its packaging materials is assessed against the eco-design requirements. Those products that satisfy the requirements are accredited as ECO PRODUCTS.

● Fire Service Law and Fire Prevention Ordinance in Japan

The Fire Prevention Ordinance regulates the total battery capacity of storage batteries, including lithium-ion batteries, that can be installed indoors. When installing UPSs indoors, check that the total battery capacity of a given location does not exceed 20 kWh. If exceeded, consult with your local fire department. Note that the UPSs cannot be used as an emergency power supply for firefighting equipment.

● Building Standard Law in Japan

The UPSs cannot be used as backup power for building facilities conforming to the disaster management requirements defined in the Building Standard Law.

Notes before Purchase

- Before installing, assembling, and using the products, please read Instruction Manual carefully and use them properly.
- When using the products in the following applications, consult with us in advance because special considerations are required for operation, maintenance, and management.
 - (a) Medical equipment that may have direct effects on human life or human body.
 - (b) Trains, elevators, and other machinery that can cause injury.
 - (c) Socially and publicly important computer systems.
 - (d) Other equipment that is related to safety of human life and that can have major impact on maintenance of public functions.
- For use in an environment where vibration is present, such as in a car or a ship, please consult with us in advance.
- Never attempt to disassemble or alter the products in any way.
- For installation and maintenance work of the products, please consult with us or properly licensed personnel.
- Please contact us concerning the disposal of used storage batteries supplied by SANYO DENKI.

● The products listed in this catalog fall into the category 16 of Appended Table 1 of the Export Trade Control Order. To export the products as an individual part or to export a device into which the products are assembled, the "Inform Requirements" and "Objective Requirements" that the Ministry of Economy, Trade and Industry of Japan established based on the "Catch-all Controls" must be studied for applicability. Accordingly, appropriate export formalities must be performed.

● SANYO DENKI will not be liable for any direct or indirect damages or loss, including but not limited to equipment downtime, missed power sales revenue, business interruptions, increased power purchases, resulting from the use of or inability to use our products or services.

● The products listed in this catalog are equipped with lithium-ion batteries. When transporting the products, do not transport by air. When transporting by sea, transport must be carried out according to the International Maritime Dangerous Goods (IMDG) Code. Also, depending on the country and region, there are cases where regulations are established independently, so please consult with the shipping company in advance.

For any inquiry or consultation, please contact a SANYO DENKI sales representative.

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