Hybrid UPS

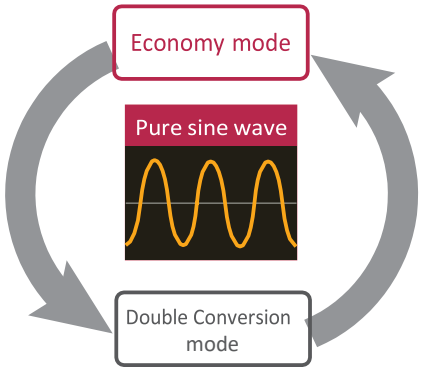
SANUPS E11B

UPS Achieving Power Quality and Efficiency For Use Around the Globe

Achieves Both High-Quality Power Supply and Energy Saving

- This UPS provides high-quality, reliable power to loads while achieving energy saving.
  Thanks to the hybrid topology,(1) the UPS automatically selects the optimal mode of operation for any given input power conditions.

When power conditions are stable



When power conditions are faulty

(1) A UPS design that automatically switches the double conversion and standby topologies according to the input power conditions.

Reduces Battery Drain and Degradation

- With its wide input voltage range,(2) this UPS reduces the number of unnecessary transfers to battery power when power conditions are poor, reducing battery drain and deterioration.
- This extends battery backup time for critical loads while reducing running costs including battery replacement.

(2) The 100 V and 200 V models have input voltage ranges of 55 to 150 V and 110 to 300 V, respectively. The input frequency range is 40 to 120 Hz for both models.

Wide Operating Temperature Range

- The operating temperature range is -10 to +40°C.
  This provides the product with a higher degree of freedom of installation, allowing it to be installed in locations with large temperature differences.

Variety of Input and Output Options Available

- We have a variety of input plug and output outlet options available for selection, allowing the E11B to be used in various countries.

Lineup:

100V Model

Output Capacity		Input plug	Output Plug	Part Number
kVA	kW			
1	0.8	NEMA 5-15P	NEMA 5-15R x6	E11B102A001AMUJ
1.5	1.2	NEMA 5-20P	NEMA 5-20R x7	E11B152A001AMUJ
2	1.6	NEMA L5-30P	NEMA L5-30R x2	E11B202A001AMUJ
3	2.4	NEMA L5-30P	NEMA L5-30R x2	E11B302A001AMUJ

Selectable 100/ 110/ 115/ 120V

200V Model

Output Capacity		Input plug	Output Plug	Part Number
kVA	kW			
1	0.8	IEC60320-C14	IEC60320-C13 x6	E11B102A002AMUJ
		NEMA L6-20P	IEC60320-C13 x6	E11B102A012AMUJ
2	1.6	IEC60320-C20	IEC60320-C13 x6 IEC60320-C19 X1	E11B202A002AMUJ
		NEMA L6-20P	IEC60320-C13 x6 IEC60320-C19 X1	E11B202A012AMUJ
3	2.4	IEC60320-C20	IEC60320-C13 x6 IEC60320-C19 X1	E11B302A002AMUJ
		NEMA L6-20P	IEC60320-C13 x6 IEC60320-C19 X1	E11B302A012AMUJ

Selectable 200/ 208/ 220/ 230/ 240V

Installation examples

Mountable in an EIA standard 19-inch rack

Rack-mounting brackets are included as standard. Rack support rails are optional.

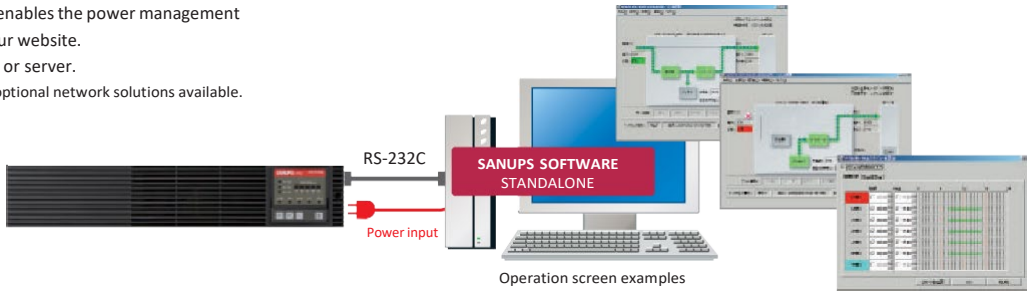
Vertical installation

Vertical stands are optional.

SANUPS SOFTWARE STANDALONE

A free software program (Windows version) that enables the power management from computers is available for download from our website.
UPS status can be checked at a glance from a PC or server.
Note: For power management via a network, we have optional network solutions available.

Main functions
- Automatic start-up/shutdown of computers
- Scheduled operation
- UPS status display
- Message display
- UPS event log



Operation screen examples

Battery Cold Start Function

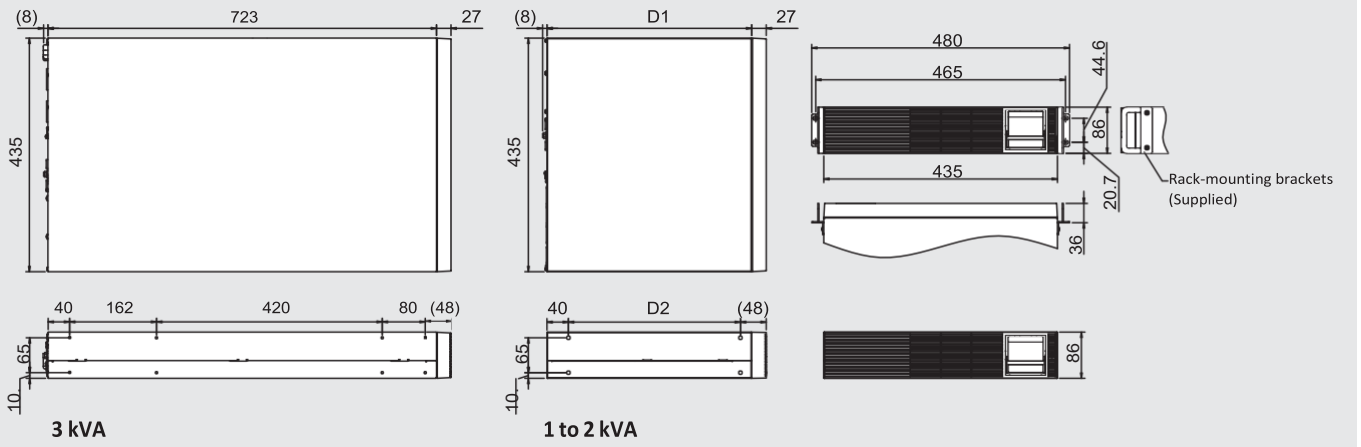
Batteries can start up the UPS even when grid AC power is not available, enabling inverter operation. The default setting is "Disabled."

Operating Panel

LED Panel

- Warning LED
- Buzzer Stop Button
- Battery Test Button
- Shift Button
- Inverter ON/OFF Button
- Sliding Button Cover (slides up/down)

Dimensions (Unit: mm)



Output capacity	D1	D2	Mass
1 kVA	381	320	15 kg
1.5 kVA	473	412	20 kg
2 kVA	538	477	25 kg
3 kVA	723	—	39 kg

Specifications

cUL/CE certified models

100 V model

Model no.				E11B102A001AMUJ	E11B152A001AMUJ	E11B202A001AMUJ	E11B302A001AMUJ
Model no. (Double Conversion mode fixed)				E11B102U001J	E11B152U001J	E11B202U001J	E11B302U001J
Rated output capacity (apparent power / active power)				1.0 kVA / 0.8 kW	1.5 kVA / 1.2 kW	2.0 kVA / 1.6 kW	3.0 kVA / 2.4 kW
Technology	Topology			Hybrid(1)			
	Cooling method			Forced air cooling			
AC input	No. of phases/wires			Single-phase 2-wire(2)			
	Rated voltage (Same as output)			100/110/115/120 V			
	Voltage range	In Double Conversion mode		At load level < 40%: 55 to 150 V At load level < 70%: 68 to 144 V At load level ≥ 70%: 80 to 144 V		At load level < 40%: 55 to 150 V At load level < 70%: 68 to 140 V At load level ≥ 70%: 80 to 140 V	
		In Economy mode		Within ±8% of rated voltage			
	Rated frequency			50/60 Hz (auto-sensing(3))			
	Frequency range	In Double Conversion mode fixed setting		Within ±1% of rated frequency (Synchronization range)			
				40 to 120 Hz (Asynchronous operation range)			
		In automatic transfer setting		Within ±1, 3, or 5% of rated frequency (Factory setting is ±3%; synchronization range)			
				40 to 120 Hz (Asynchronous operation range)			
	Required capacity(4)			1.1 kVA or less	1.5 kVA or less	2.2 kVA or less	3.0 kVA or less
	Input power factor			0.95 or greater			
AC output	No. of phases/wires			Single-phase 2-wire			
	Rated voltage (Changeable with settings)			100/110/115/120 V (Factory setting: 100 V)			
	Voltage regulation	In Double Conversion mode		Within ±2% of rated voltage			
		In Economy mode		Within -10 to +8% of rated voltage			
	Rated frequency (same as input)			50/60 Hz			
	Frequency regulation	In grid operation	In Double Conversion mode fixed setting	Within ±1% of rated frequency			
			In automatic transfer setting	Within ±1, 3, or 5% of rated frequency (Factory setting: ±3%)			
		In battery operation		Within ±0.5% of rated frequency (This applies in asynchronous operation too)			
	Voltage harmonic distortion (At rated output)		At linear load	3% or less			
			At rectifier load	8% or less			
	Load power factor	Rated		0.8 lagging (Variation range: 0.7 lagging to 1.0)			
	Transient voltage fluctuation	For abrupt load change		Within ±5% of rated voltage (For 0⇔100% load step changes at rated input)			
		For loss or return of input power		Within ±5% of rated voltage (At rated output)			
		For abrupt input voltage change		Within ±5% of rated voltage (For ±10% abrupt change)			
	Overcurrent protection			Automatic transfer to bypass (With automatic retransfer function)			
	Overload capability	Inverter	In Double Conversion mode	105% (for 200 ms)			
		Bypass		200% (for 30 s), 800% (for 2 cycles)			
Battery	Type			Small-sized valve-regulated lead-acid (VRLA) battery			
	Battery backup time(5)			3 min (5 min)			
	Expected life (6)			Approx. 5 years			
	Battery capacity (At 15-minute rate)			34 W (2 series)	34 W (3 series)	34 W (4 series)	34 W (6 series)
	Battery self-test			Automatic			
Interface	PC port			RS-232C, USB Type B(7) (Cannot be used at the same time)			
	Remote port			Remote ON/OFF			
	Dry contact			Optional dry contact interface card is required			
	Network support			Optional LAN interface card is required			
Acoustic noise (In Double Conversion mode)				45 dB	51 dB	55 dB	
Heat dissipation (In Double Conversion mode at rated output, after battery charging completed)				130 W	195 W	260 W	390 W
Input leakage current (This applies in asynchronous operation too)				3 mA or less			3.5 mA or less
Operating environment				Ambient temperature: -10 to +40˚C;(8) relative humidity: 20 to 90% (non-condensing)			
Storage environment(9)				Ambient temperature: -15 to +60˚C; relative humidity: 20 to 90% (non-condensing)			
Safety standard				UL 1778 5th edition (E226092), CSA C22.2 No. 107.3-14 (3rd edition), CE marking (EN 62040-1:2008/A1:2013)			
EMC standard				VCCI Class A, FCC Part 15 Subpart B Class A, EN 62040-2 C2:2010, EN 55022:2010 Class A, EN 62040-2:2006, EN 55024:2010			
Separate options							
Vertical stands				STAND2UA00			
Rack support rails(10)				RM030			
Replacement battery pack model no.				BPE11B102A00	BPE11B152A00	BPE11B202A00	BPE11B302A00

(1) When the UPS transfers from Economy mode to battery operation, there will be an interruption less than 8 ms. Fix the operation mode to Double Conversion mode for applications that require uninterrupted transfer.
(2) If single-wire grounding the AC input and output, set the input/output ground phase according to the UPS specification. The W (N) terminal of AC input (S phase) and the W (N) terminal of AC output (V phase) are to be grounded.
(3) The inverter synchronizes with AC input and allows an uninterrupted transfer to bypass provided that the AC input frequency is within a range of the rated frequency ±3% (1, 3, or 5% selectable).
(4) Max. capacity during battery recovery charging
(5) At 25°C ambient temperature and load power factor of 0.8, using new, fully charged batteries. In parentheses are Values at 0.7 load power factor.
(6) At an operating temperature of 25°C.
(7) Use of USB interface requires driver installation.
(8) Battery charging will stop when battery temperature exceeds 55˚C.
(9) To extend battery life, avoid use or storage for extended periods of time in environments exceeding +30˚C. When a UPS is stored without being operated for a long period, recharge the batteries once a year.
(10) Used for mounting the UPS on a standard 19-inch rack.

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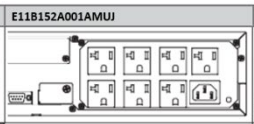
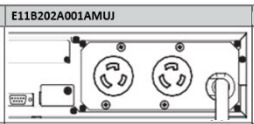
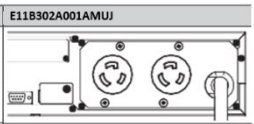
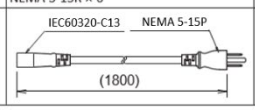
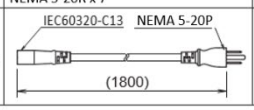
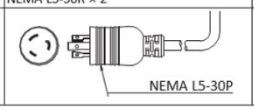
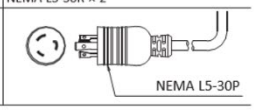
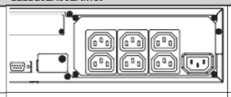
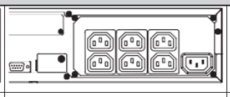
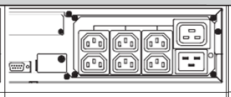
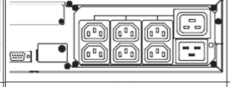
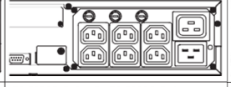
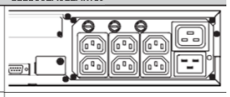
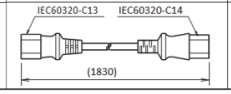
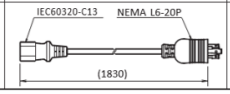
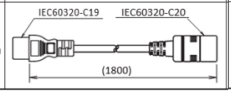
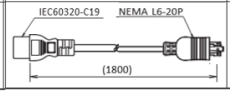
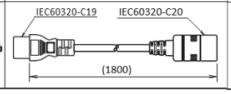
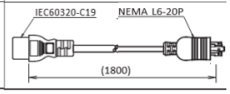
Rear view				
Output outlet shape	NEMA 5-15R × 6	NEMA 5-20R x 7	NEMA L5-30R × 2	NEMA L5-30R × 2
Power input cable				

cUL/CE certified models

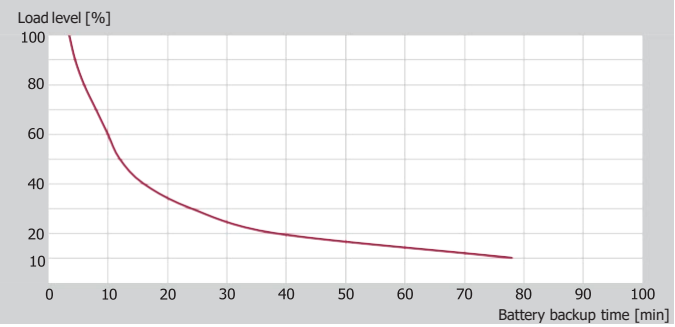
200 V model

Model no.				E11B102A002AMUJ E11B102A012AMUJ	E11B202A002AMUJ E11B202A012AMUJ	E11B302A002AMUJ E11B302A012AMUJ
Model no. (Double Conversion mode fixed)				E11B102U002J	E11B202U002J	E11B302U002J
Rated output capacity (apparent power / active power)				1.0 kVA / 0.8 kW	2.0 kVA / 1.6 kW	3.0 kVA / 2.4 kW
Technology	Topology			Hybrid(1)		
	Cooling method			Forced air cooling		
AC input	No. of phases/wires			Single-phase 2-wire(2)		
	Rated voltage (Same as output)			200/208/220/230/240 V		
	Voltage range	In Double Conversion mode		At load level < 40%: 110 to 300 V At load level < 70%: 136 to 288V At load level ≥ 70%: 160 to 288V	At load level < 40%: 110 to 300 V At load level < 70%: 136 to 280V At load level ≥ 70%: 160 to 280V	
		In Economy mode		Within ±8% of rated voltage		
	Rated frequency			50/60 Hz (auto-sensing(3))		
	Frequency range	In Double Conversion mode fixed setting		Within ±1% of rated frequency (Synchronization range)		
				40 to 120 Hz (Asynchronous operation range)		
		In automatic transfer setting		Within ±1, 3, or 5% of rated frequency (Factory setting is ±3%; synchronization range)		
				40 to 120 Hz (Asynchronous operation range)		
	Required capacity(4)			1.1 kVA or less	2.2 kVA or less	3.0 kVA or less
	Input power factor			0.95 or greater		
AC output	No. of phases/wires			Single-phase 2-wire		
	Rated voltage (Changeable with settings)			200/208/220/230/240 V (Factory setting: 200 V)		
	Voltage regulation	In Double Conversion mode		Within ±2% of rated voltage		
		In Economy mode		Within -10 to +8% of rated voltage		
	Rated frequency (same as input)			50/60 Hz		
	Frequency regulation	In grid operation	In Double Conversion mode fixed setting	Within ±1% of rated frequency		
			In automatic transfer setting	Within ±1, 3, or 5% of rated frequency (Factory setting: ±3%)		
		In battery operation		Within ±0.5% of rated frequency (This applies in asynchronous operation too)		
	Voltage harmonic distortion (At rated output)		At linear load	3% or less		
			At rectifier load	8% or less		
	Load power factor	Rated		0.8 lagging (Variation range: 0.7 lagging to 1.0)		
	Transient voltage fluctuation	For abrupt load change		Within ±5% of rated voltage (For 0⇔100% load step changes at rated input)		
		For loss or return of input power		Within ±5% of rated voltage (At rated output)		
		For abrupt input voltage change		Within ±5% of rated voltage (For ±10% abrupt change)		
	Overcurrent protection			Automatic transfer to bypass (With automatic retransfer function)		
	Overload capability	Inverter	In Double Conversion mode	105% (for 200 ms)		
		Bypass		200% (for 30 s), 800% (for 2 cycles)		
Battery	Type			Small-sized valve-regulated lead-acid (VRLA) battery		
	Battery backup time(5)			3 min (5 min)		
	Expected life (6)			Approx. 5 years		
	Battery capacity (At 15-minute rate)			34 W (2 series)	34 W (4 series)	34 W (6 series)
	Battery self-test			Automatic		
Interface	PC port			RS-232C, USB Type B(7) (Cannot be used at the same time)		
	Remote port			Remote ON/OFF		
	Dry contact			Optional dry contact interface card is required		
	Network support			Optional LAN interface card is required		
Acoustic noise (In Double Conversion mode)				48 dB	55 dB	
Heat dissipation (In Double Conversion mode at rated output, after battery charging completed)				130 W	260 W	390 W
Input leakage current (This applies in asynchronous operation too)				3 mA or less	3.5 mA or less	
Operating environment				Ambient temperature: -10 to +40˚C;(8) relative humidity: 20 to 90% (non-condensing)		
Storage environment(9)				Ambient temperature: -15 to +60˚C; relative humidity: 20 to 90% (non-condensing)		
Safety standard				UL 1778 5th edition (E226092), CSA C22.2 No. 107.3-14 (3rd edition), CE marking (EN 62040-1:2008/A1:2013)		
EMC standard				VCCI Class A, FCC Part 15 Subpart B Class A, EN 62040-2 C2:2010, EN 55022:2010 Class A, EN 62040-2:2006, EN 55024:2010		
Separate options						
Vertical stands				STAND2UA00 (3kVA uses a fall prevention metal fitting (FM2UA01).		
Rack support rails(10)				RM030		
Replacement battery pack model no.				BPE11B102A00	BPE11B202A00	BPE11B302A00

(1) When the UPS transfers from Economy mode to battery operation, there will be an interruption less than 8 ms. Fix the operation mode to Double Conversion mode for applications that require uninterrupted transfer.
(2) If single-wire grounding the AC input and output, set the input/output ground phase according to the UPS specification. The W (N) terminal of AC input (S phase) and the W (N) terminal of AC output (V phase) are to be grounded.
(3) The inverter synchronizes with AC input and allows an uninterrupted transfer to bypass provided that the AC input frequency is within a range of the rated frequency ±3% (1, 3, or 5% selectable).
(4) Max. capacity during battery recovery charging
(5) At 25°C ambient temperature and load power factor of 0.8, using new, fully charged batteries. In parentheses are Values at 0.7 load power factor.
(6) At an operating temperature of 25°C.
(7) Use of USB interface requires driver installation.
(8) Battery charging will stop when battery temperature exceeds 55˚C.
(9) To extend battery life, avoid use or storage for extended periods of time in environments exceeding +30˚C. When a UPS is stored without being operated for a long period, recharge the batteries once a year.
(10) Used for mounting the UPS on a standard 19-inch rack.

	E11B102A002AMUJ	E11B102A012AMUJ	E11B202A002AMUJ	E11B202A012AMUJ	E11B302A002AMUJ	E11B302A012AMUJ
Rear view						
Output outlet shape	IEC 60320-C13 × 6	IEC 60320-C13 × 6	IEC 60320-C13 × 6, IEC 60320-C19 × 1	IEC 60320-C13 × 6, IEC 60320-C19 × 1	IEC 60320-C13 × 6, IEC 60320-C19 × 1	IEC 60320-C13 × 6, IEC 60320-C19 × 1
Power input cable	IEC60320-C13 IEC60320-C14  (1830)	IEC60320-C13 NEMA L6-20P  (1830)	IEC60320-C19 IEC60320-C20  (1800)	IEC60320-C19 NEMA L6-20P  (1800)	IEC60320-C19 IEC60320-C20  (1800)	IEC60320-C19 NEMA L6-20P  (1800)

Load Level vs Backup Time



Note: Reference value at 25˚C ambient temperature and load power factor of 0.8, using new, fully charged batteries.

Network Options

Item	Model no.		Remarks
LAN Interface Card	IPv6, Modbus TCP model	PRLANIF022A	When installed in the optional card slot, 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. Also, the UPS can be monitored using SNMP and Modbus. Both new IPv6 and widely used IPv4 protocols are supported.
	IPv6, Modbus TCP/RTU model	PRLANIF024A	
Dry Contact Interface Card	Terminal block output	PRCONIF007	This card outputs no-voltage contact signals to notify UPS status. A and B contacts can be selected for each signal.
	D-sub output connector	PRCONIF008	
SANUPS SOFTWARE Download version	Windows version, IPv6 model	PMS52□00DL(2)	This is an installation-based UPS management software. For the latest OS support information, refer to our website.
	Multi-OS version,(1) IPv6 model	PMS53□00DL(2)	For bulk purchase of software licenses, append an appropriate-suffix to the model number as on the right.

-10	(10 licenses)
-50	(50 licenses)
-100	(100 licenses)

(1) Supports Windows, Unix, and Linux.

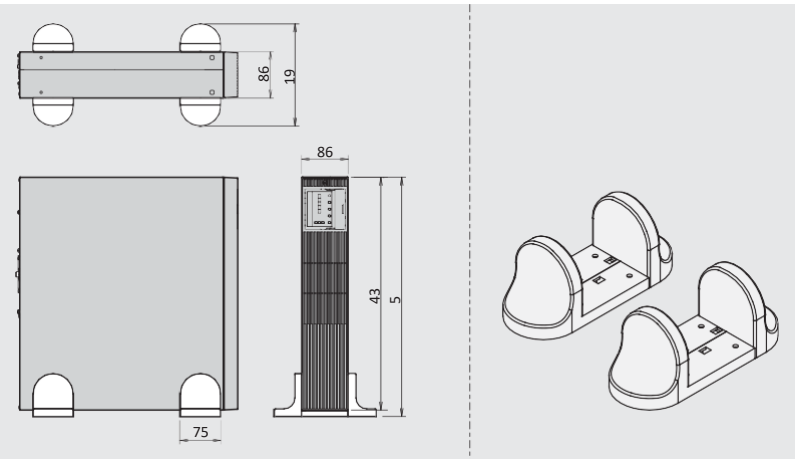
(2) The □ 's denote revision characters.

Note: Optional products have different operating temperature ranges from the UPS.

Dimensions of Options (Unit: mm)

Vertical Stands

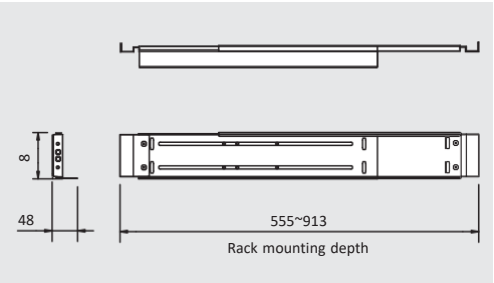
STAND2UA00



A set of 2 pieces

Rack Support Rails Used for mounting the UPS on a standard 19-inch rack. (A pair of left and right rails. Shown below is the left rail.)

RM030



Rack mounting brackets are included with the UPS.

ECO PRODUCTS

■ ECO PRODUCTS

SANYO DENKI's ECO PRODUCTS are designed with the concept of lessening impact on the environment in the process from product development to waste. The product units and packaging materials are designed for reduced environmental impact. We have established our own assessment criteria on the environmental impacts applicable to all processes, ranging from design to manufacture. Those products that satisfy the criteria are accredited as ECO PRODUCTS.

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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