

SANUPS

HYBRID UPS

E11A



SANYO DENKI

Hybrid UPS Saves Energy and Achieves High Reliability

SANUPS E11A

HYBRID UPS



UL1778 (E226092), CE

100V model

Input	Output	Capacity					
AC100, 110, 115, 120 V Single-phase	AC100, 110, 115, 120 V Single-phase	0.35kVA (0.245kW)	0.75kVA (0.525kW)	1 kVA (0.7kW)	1.5kVA (1.05kW)	2 kVA (1.4kW)	3 kVA (2.1kW)

200V model

Input	Output	Capacity		
AC200, 208, 220, 230, 240 V Single-phase	AC200, 208, 220, 230, 240 V Single-phase	1 kVA (0.7 kW)	2 kVA (1.4kW)	3 kVA (2.1kW)

If commercial power were completely reliable, there would be no need for backup power. However, since occasional power interruptions and transients are inevitable, a UPS is essential to avoid device problems. While the UPS must not waste power as long as commercial power is stable, it must be constantly available to provide power instantaneously in the event of a power interruption or transient. The SANUPS E11A is a UPS device that provides unprecedented power savings and high reliability.

Standard type



0.35kVA 100V



0.75kVA 100V



1kVA 100V 200V



1.5kVA 100V



2kVA 100V 200V



3kVA 100V 200V

Tower type



0.75kVA 100V



1kVA 100V



1.5kVA 100V

7 Energy conservation

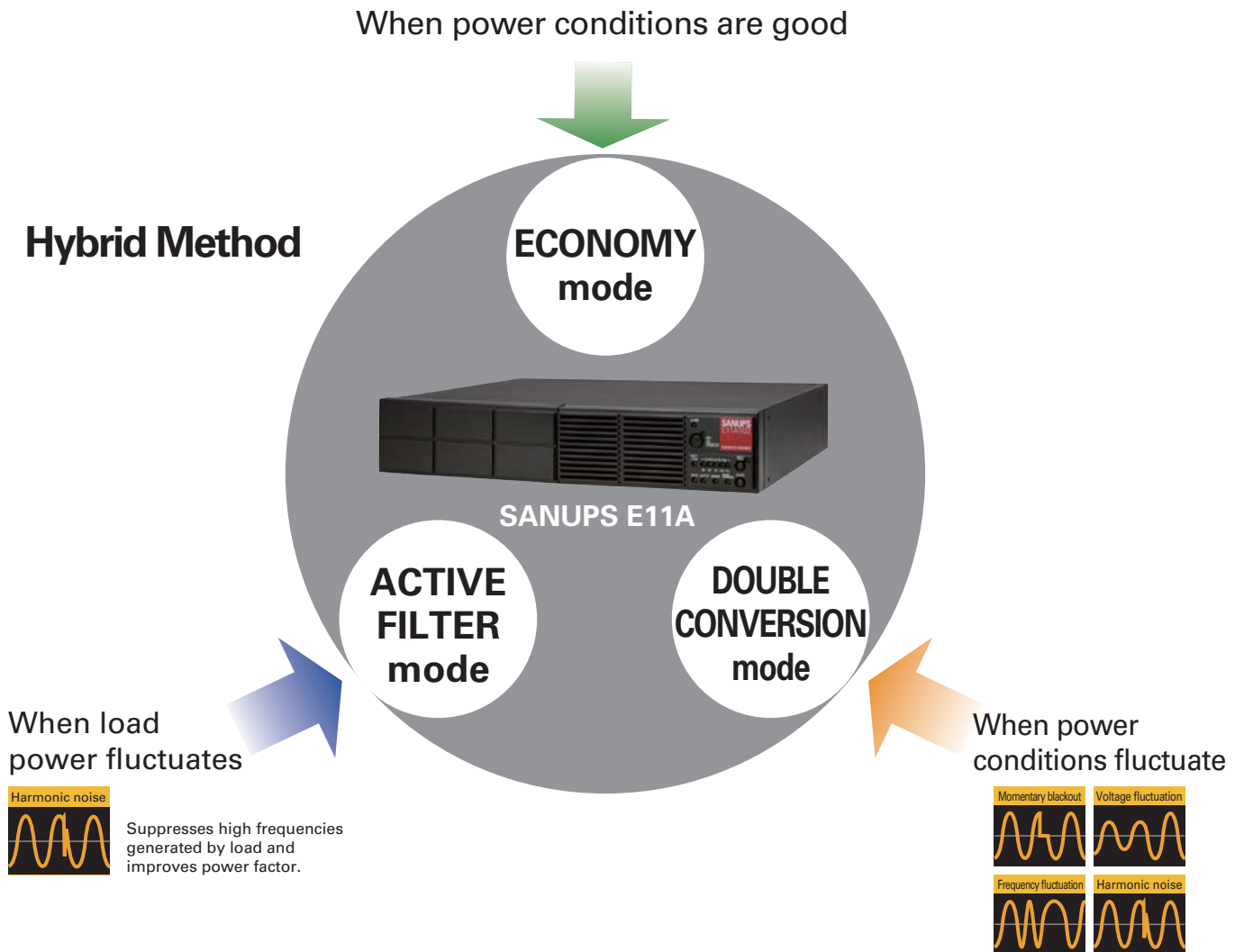
- Conversion efficiency has reached 95%.

This represents a 4% improvement over previous products (comparison performed at 1kVA).



- The Hybrid type SANUPS E11A automatically selects the most efficient mode of operation for any given power condition.

* The mode can be fixed manually. However, the ACTIVE FILTER mode cannot be fixed.



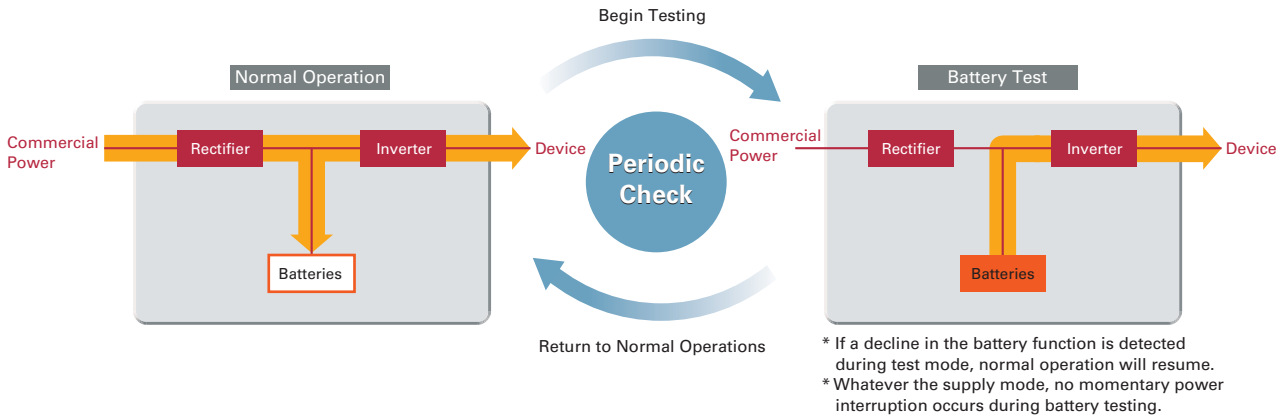
2 High quality

- Provides full sine wave output.
- Output voltage accuracy is within $\pm 2\%$ (DOUBLE CONVERSION mode).

3 Self battery check feature

The SANUPS E11A automatically performs regular battery tests, and maintains the battery in peak condition for reliable operation during an actual power outage.

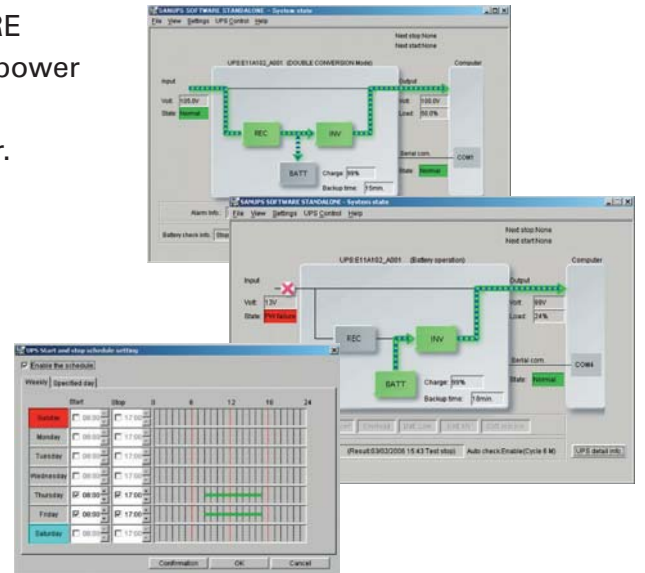
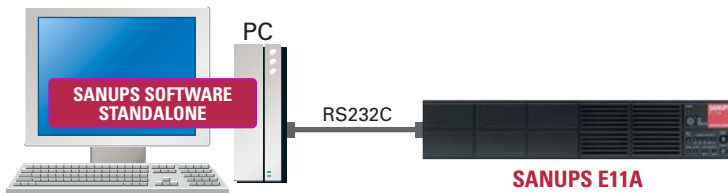
- *The frequency of the battery test is open to configuration. (Test frequency choices are 1, 3 and 6 months; the factory setting is 6 months.)
- *You can check the result on a PC where the supplied SANUPS SOFTWARE STANDALONE is installed. A LAN interface card (optional) is necessary to transmit the battery test results to the user's PC. However, a LAN interface card cannot be installed in the 0.35kVA model.



4 Easy power supply management

The UPS Management Software "SANUPS SOFTWARE STANDALONE" is included to enable you to manage power supply from a PC.

You can easily see the UPS status from a PC or server.



- OS**
- Windows NT4.0
 - Windows 2000
 - Windows XP
 - Windows Server 2003
 - Windows Server 2008
 - Windows Vista
 - Windows 7

Network support options

LAN interface card
Installing a LAN interface card in the option card slot at the back of the unit allows for continuous monitoring and reporting of power conditions, and quick response during power failures. Power problems can also be reported to the System Manager via e-mail.



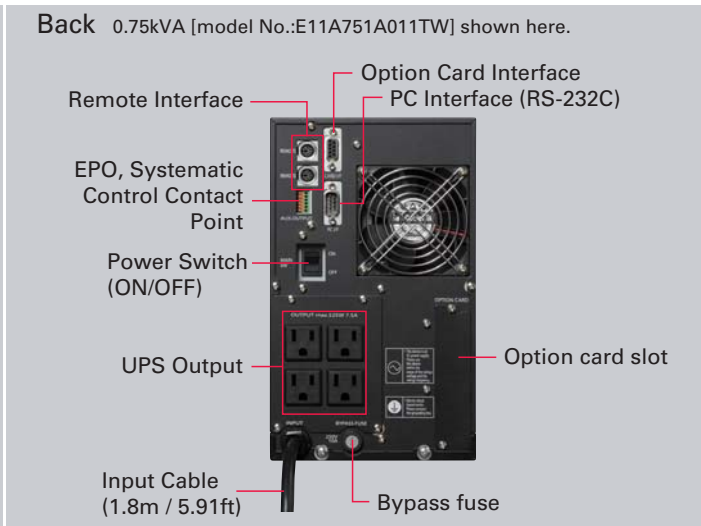
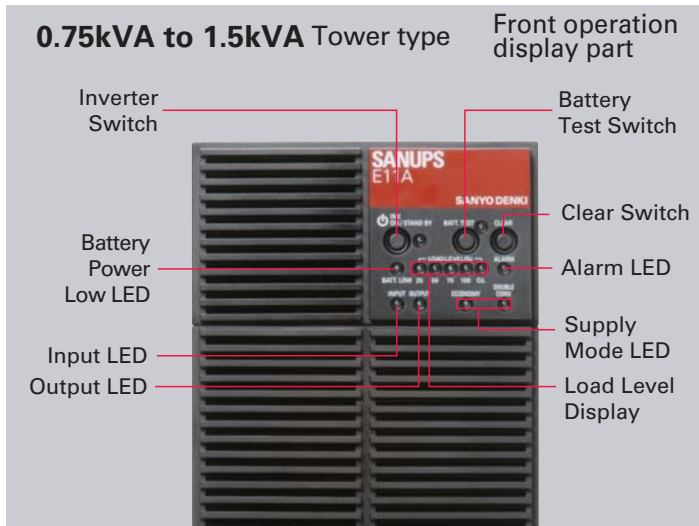
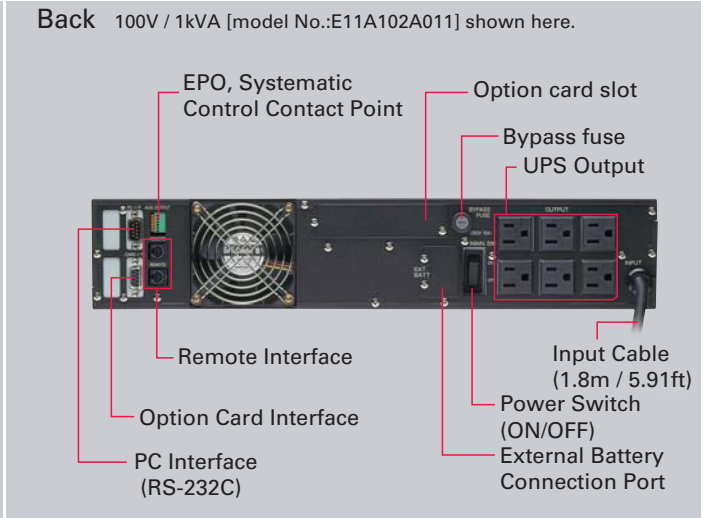
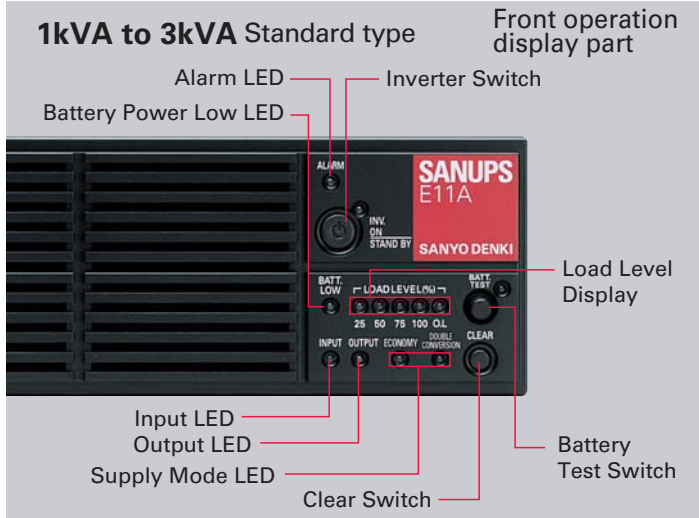
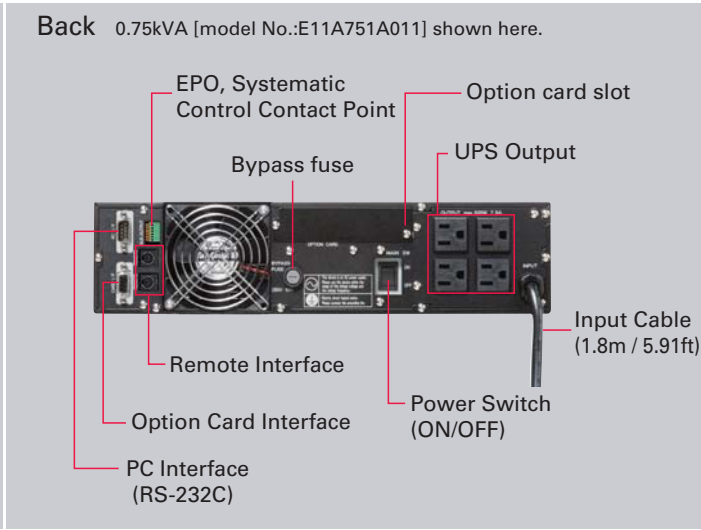
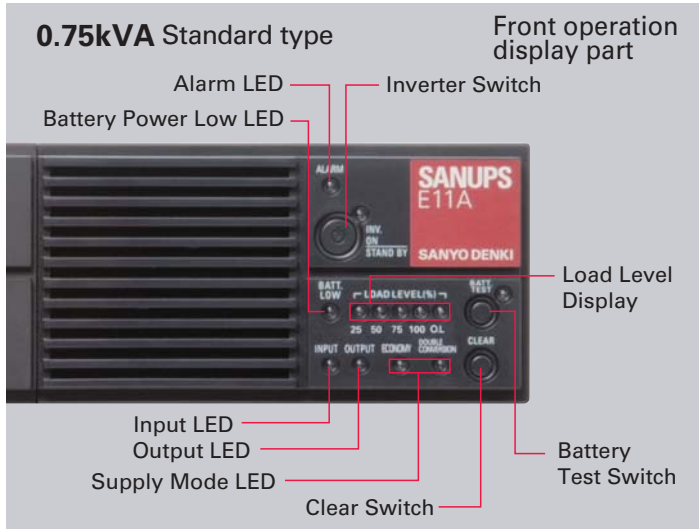
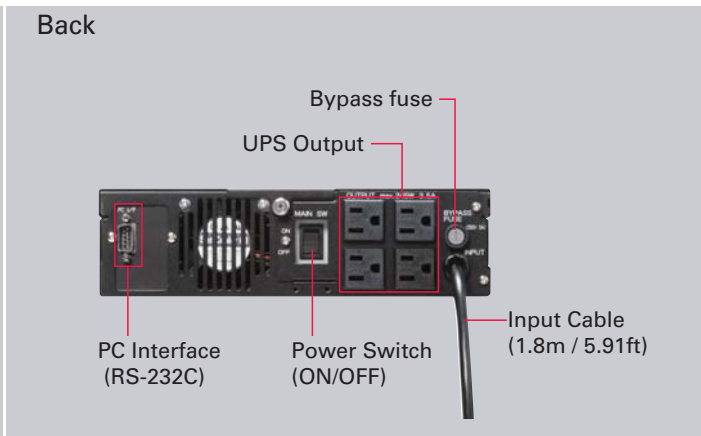
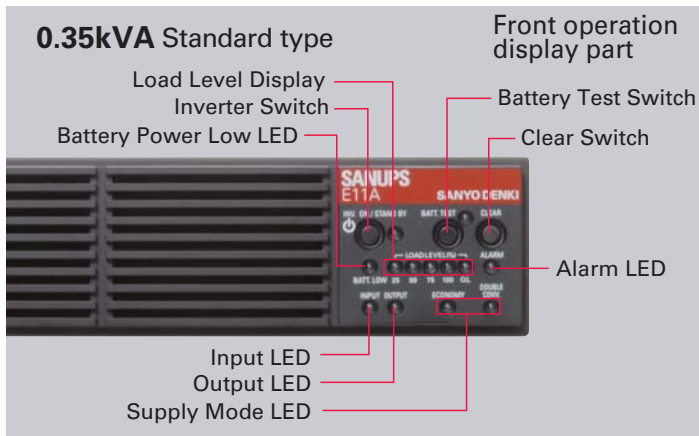
Dry contact signal interface card
When a LAN interface card is installed in the option card slot at the back of the unit, the external transmission signal can be output as a no-voltage contact signal to indicate the status of the UPS.
→ For a list of supported models, see "Interface & INPUT/OUTPUT Connection Chart" on page 6.




























SANUPS SOFTWARE
The SANUPS SOFTWARE UPS Power Management Software increases the reliability and manageability of the entire system, including the network and the server. It provides UPS information to the system manager, and a variety of settings for handling power-related problems.



- Supported operating systems**
- Windows (Japanese / English)
 - Linux (Japanese / English)
 - Unix (Japanese / English)









Standard type

	Output (kVA)	UL/CE	Model No.	PC	Remote	EPO	System Control Contact	LAN interface card (Option)	Dry contact signal interface card (Option)	INPUT Plug / Receptacle	OUTPUT Receptacle		
100V Model (100V to 120V)	0.35	—	E11A351A001	○	—	—	—	—	—	NEMA 5-15P 	NEMA 5-15R × 4 		
		○	E11A351A001USJ	○	—	—	—	—	—				
	0.75	—	E11A751A001	○	—	—	—	○	—			NEMA 5-15P 	NEMA 5-15R × 6 
		—	E11A751A011	○	○	○	○	○	○				
		○	E11A751A001USJ	○	—	—	—	○	—				
		○	E11A751A011USJ	○	○	○	○	○	○				
	1	—	E11A102A001	○	—	—	—	○	—	NEMA 5-15P 	NEMA 5-15R × 6 		
		○	E11A102A011	○	○	○	○	○	○				
	1.5	—	E11A152A001	○	—	—	—	○	—	NEMA 5-20P 	NEMA 5-20R × 4 		
		—	E11A152A011	○	○	○	○	○	○				
		○	E11A152A001USJ	○	—	—	—	○	—				
	2	—	E11A202A001	○	—	—	—	○	—	NEMA L5-30P 	NEMA L5-20R × 1  NEMA 5-15R × 3  NEMA L5-30R × 1 		
		—	E11A202A011	○	○	○	○	○	○				
		○	E11A202A001USJ	○	—	—	—	○	—				
		○	E11A202A011USJ	○	○	○	○	○	○				
	3	—	E11A302A001	○	—	—	—	○	—	NEMA L5-30P 	NEMA L5-20R × 1  NEMA 5-15R × 3  NEMA L5-30R × 1 		
—		E11A302A011	○	○	○	○	○	○					
○		E11A302A001USJ	○	—	—	—	○	—					
○		E11A302A011USJ	○	○	○	○	○	○					
200V Model (200V to 240V)	1	○	E11A102A002USJ	○	—	—	—	○	—	IEC60320-C14  (line cord option included.: NEMA L6-20P) 	IEC60320-C13 × 4 		
		○	E11A102A012USJ	○	○	○	○	○	○				
	2	○	E11A202A002USJ	○	—	—	—	○	—	IEC60320-C20  (line cord option included.: NEMA L6-20P) 	IEC60320-C19 × 3 		
		○	E11A202A012USJ	○	○	○	○	○	○				
	3	○	E11A302A002USJ	○	—	—	—	○	—	IEC60320-C20  (line cord option included.: NEMA L6-20P) 	IEC60320-C19 × 3 		
		○	E11A302A012USJ	○	○	○	○	○	○				

Separate terminal blocks are available for input/output.

Tower type

	Output (kVA)	UL/CE	Model No.	PC	Remote	EPO	System Control Contact	LAN interface card (Option)	Dry contact signal interface card (Option)	INPUT Plug / Receptacle	OUTPUT Receptacle		
100V Model (100V to 120V)	0.75	—	E11A751A001TW	○	—	—	—	○	—	NEMA 5-15P 	NEMA 5-15R × 4 		
		—	E11A751A011TW	○	○	○	○	○	○				
		○	E11A751A001TWUSJ	○	—	—	—	○	—				
		○	E11A751A011TWUSJ	○	○	○	○	○	○				
	1	—	E11A102A001TW	○	—	—	—	○	—			NEMA 5-15P 	NEMA 5-15R × 4 
		—	E11A102A011TW	○	○	○	○	○	○				
		○	E11A102A001TWUSJ	○	—	—	—	○	—				
		○	E11A102A011TWUSJ	○	○	○	○	○	○				
	1.5	—	E11A152A001TW	○	—	—	—	○	—	NEMA 5-20P 	NEMA 5-20R × 4 		
		—	E11A152A011TW	○	○	○	○	○	○				
○		E11A152A001TWUSJ	○	—	—	—	○	—					
○		E11A152A011TWUSJ	○	○	○	○	○	○					

Specifications

Item		E11A			Remarks	
		Economy mode *1	Active filter mode *1	Double conversion mode		
Output power		0.35kVA(0.245kW)/0.75kVA(0.525kW)/1kVA(0.7kW)/1.5kVA(1.05kW)/2kVA(1.4kW)/3kVA(2.1kW)			Power factor = 0.7(lag)	
System	Topology	Hybrid				
	Cooling	Forced Air				
AC Input	Number of phase / wire		Single-phase / 2 wire			
	Nominal voltage	100V Model (0.35kVA/0.75kVA/1kVA/1.5kVA/2kVA/3kVA)	100V, 110V, 115V, 120V		Setting can be changed.	
		200V Model(1kVA/2kVA/3kVA)	200V, 208V, 220V, 230V, 240V			
	Voltage range		± 8% (Auto selected mode ± 5%)	± 5%	- 20%, + 15%	
	Frequency		50Hz or 60Hz			50/60Hz Auto-sensing
	Frequency range		± 1%, 3%, 5%		± 8%	
	Power factor		0.7	0.85 Min.	0.95 Min.	<1% Input voltage distortion
AC Output	Number of phase / wire		Single-phase / 2 wire			
	Power factor		0.7 (lag)		0.7 (lag)- 1.0	
	Nominal voltage	100V Model (0.35kVA/0.75kVA/1kVA/1.5kVA/2kVA/3kVA)	100V, 110V, 115V, 120V		Setting can be changed.	
		200V Model(1kVA/2kVA/3kVA)	200V, 208V, 220V, 230V, 240V			
	Voltage regulation		- 10%, + 8% Max. (Auto selected mode - 7%, + 5%)	- 7%, + 5% Max.	± 2% Max.	In terms of domain of load and input
	Frequency		50Hz or 60Hz			Same as input frequency
	Frequency range	On Normal Operation	± 1, 3, 5% Max.		± 1% Max.	Setting can be changed.
		On Battery Operation	-		± 0.5% Max.	
	Voltage distortion	Linear load	-		3% Max.	During rated operations
		Non-linear load	-		8% (0.35kVA, 0.75kVA) 7% (1kVA to 3kVA)	During rated operations / 100% rectifier load
	Transient voltage regulation	Input Voltage step	± 5% Max.			Power failure: feedback or supply fluctuation
100% step load		-	-	± 5% Max.	0%: at the time of 100% sudden fluctuation	
Overcurrent capacity		Greater than 200% (30 second interval) *2		105% (200ms)	Rated load power factor / at rated input	
		Greater than 800% (2 cycle) *2		-		
Overcurrent protection		Fuse Protection (0.35kVA, 0.75kVA, 1kVA), Breaker Protection (1.5, 2, 3kVA)		Bypass Non-Hit Change (Auto Return)	Auto return mode can be disabled.	
Battery	Type	Maintenance Free Sealed Lead-Acid Battery (small)				
	Backup time	6minutes (0.35kVA, 0.75kVA) 5minutes (1kVA to 2kVA, 3kVA 200Vmodel) 3.5minutes (3kVA 100Vmodel)			Ambient Temp. of 25°C , under rated load	
Acoustic noise		100V model/ 0.35kVA/0.75kVA/1kVA/1.5kVA:40dB Max. 2kVA/3kVA: 45dB Max. 200V model/ 45dB Max.			At 1m (40in) from the front of unit	
Nominal heat dissipation		Double conversion mode 100V model 0.35kVA : 59W, 0.75kVA : 111W, 1kVA : 125W, 1.5kVA : 200W, 2kVA : 250W, 3kVA : 460W 200V model 1kVA : 125W, 2kVA : 270W, 3kVA : 460W				
Environment	Operating temperature	0°C to 40°C				
	Relative humidity	20% to 90%			Non-condensing	
Standard of safety		UL1778-Fourth Edition (file #E226092). CE				
Emission Standard (Noise Standard)		FCC Part15 Subpart B Class A, CISPR 22 Class A, VCCI Class A				

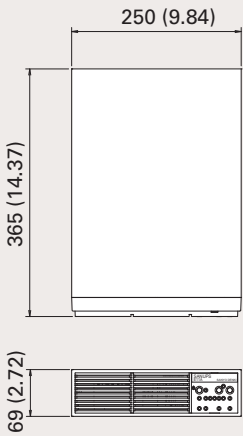
*1 A momentary power interruption lasting less than 5 ms occurs when switching from Economy Mode or Active Filter Mode to battery power.

*2 Reference values

0.35kVA Standard type

Dimensions: mm (inch)

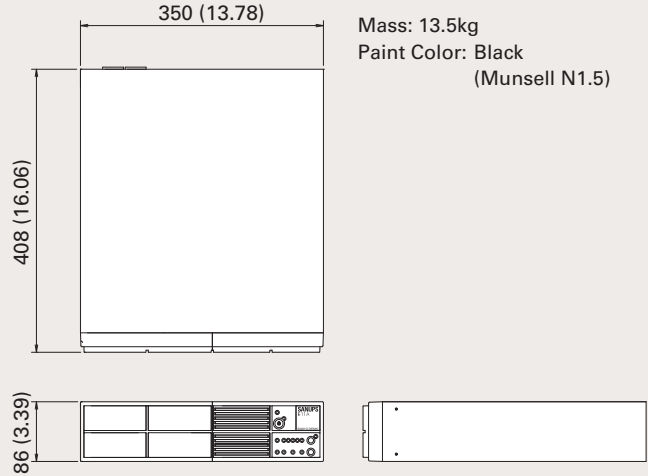
Mass: 8kg
Paint Color: Black
(Munsell N1.5)



0.75kVA Standard type

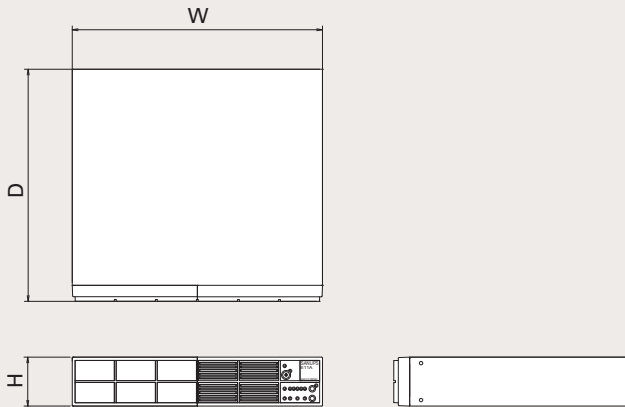
Dimensions: mm (inch)

Mass: 13.5kg
Paint Color: Black
(Munsell N1.5)



1kVA to 3kVA Standard type

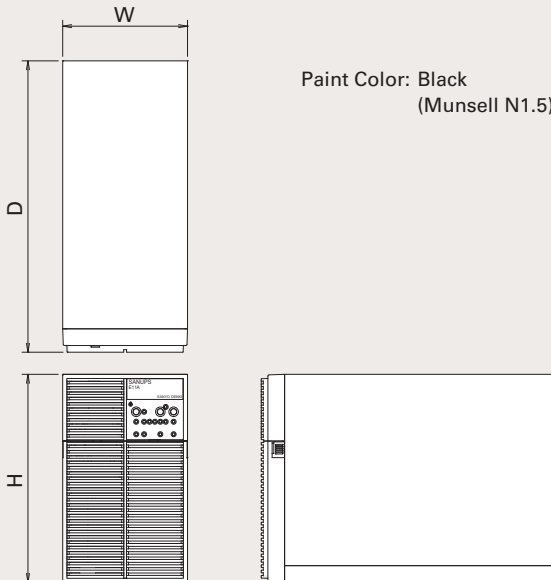
Paint Color: Black
(Munsell N1.5)



	Dimensions: mm (inch)			Mass (kg)	Remarks
	W	D	H		
1kVA	440 (17.32)	408 (16.06)	86 (3.39)	17	Common to 100V/200V
1.5kVA		500 (19.69)		22	100V Model
2kVA		565 (22.24)		29	Common to 100V/200V
3kVA (100V)		660 (25.98)		37	100V Model
3kVA (200V)		750 (29.53)		39	200V Model

0.75kVA to 1.5kVA Tower type

Paint Color: Black
(Munsell N1.5)



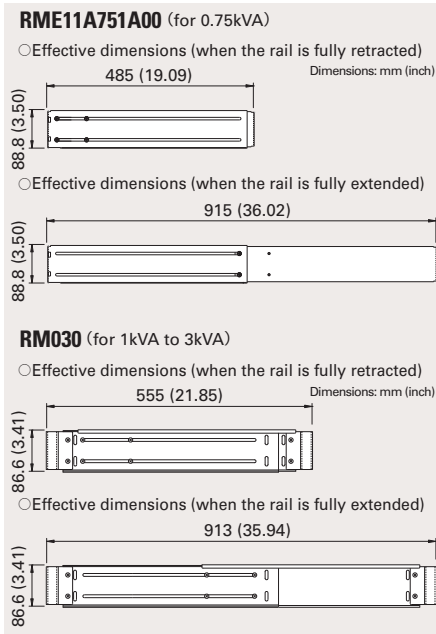
	Dimensions: mm (inch)			Mass (kg)	Remarks
	W	D	H		
0.75kVA	150 (5.91)	350 (13.78)	250 (9.84)	14	
1kVA		395 (15.55)		17	
1.5kVA		450 (17.72)		22	

Option

Item	Model	
Rack support rail	RME11A751A00 (for 0.75kVA) RM030 (for 1kVA to 3kVA)	Used for mounting the UPS onto a 19 inch rack. Supports depth of 485mm-915mm:RME11A751A00. Supports depth of 555mm-913mm:RM030.
Remote switch	RSW006	Used for remotely turning on or off outlets of the UPS.
LAN interface card	PRLANIF001-US	Provides continuous monitoring and reporting of power conditions. Power problems can also be reported to the system manager via e-mail.
Dry contact signal interface card	PRCONIF001 (Terminal block output) PRCONIF003 (D-Sub connector output)	Transmits contact signals containing information on the operation status of the UPS.
Linked operation cable	P10197 (1m), P10198 (3m)	This signal cable connects multiple UPS units for ON/OFF control.
Receptacle box	P10037 (for 100V 1kVA, 1.5kVA) P10040 (for 100V 2kVA) P10030 (for 100V 3kVA)	This device uses system control contact point signal of the UPS to divide UPS output into three systems for ON/OFF control.
Standard type floor bracket	FMA11F00	This bracket secures a standard type UPS (from 0.75kVA to 2kVA) to the floor. * Standard accessory with 3kVA type
Tower type floor bracket	FME11AA03 (for 0.75kVA) FME11AA04 (for 1kVA) FME11AA05 (for 1.5kVA)	This bracket secures a tower type UPS to the floor.

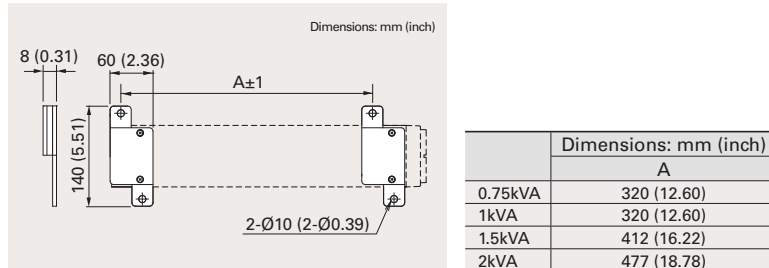
Rack support rail

Dimensions



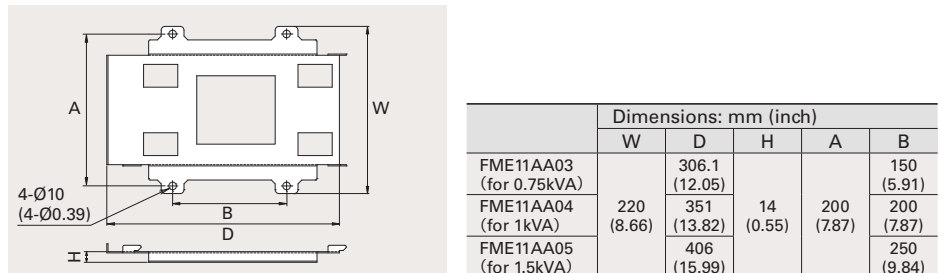
Standard type floor bracket

Dimensions



Tower type floor bracket

Dimensions



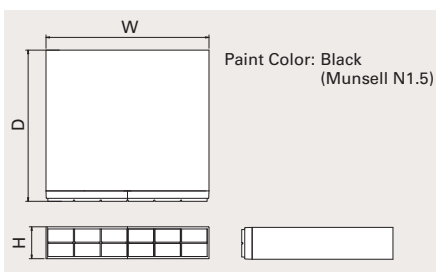
External battery

Specifications

Model No*		Dimensions: mm (inch)			Mass (kg)	Run-time chart (minute)					
		W	D	H		15	20	30	40	45	60
BCE11A102A01	For 1kVA 100V or 200V model	440 (17.32)	408 (16.06)	86 (3.39)	20	—	1 unit	—	2 unit	—	3 unit
BCE11A102A01US					29	—	1 unit	—	—	2 unit	
BCE11A102A02					26	—	1 unit	—	—	3 unit	
BCE11A102A02US					38	—	1 unit	—	—	2 unit	
BCE11A152A01	For 1.5kVA 100V or 200V model	440 (17.32)	500 (19.69)	86 (3.39)	34	—	1 unit	—	2 unit	—	3 unit
BCE11A152A01US					47	—	1 unit	—	—	2 unit	
BCE11A152A02					50	—	1 unit	—	—	3 unit	
BCE11A152A02US					52	—	1 unit	—	—	3 unit	
BCE11A202A01	For 2kVA 100V or 200V model	440 (17.32)	565 (22.24)	86 (3.39)	50	1 unit	—	2 unit	—	—	—
BCE11A202A01US					630 (24.80)	—	—	—	—	—	
BCE11A202A02					660 (25.98)	—	—	—	—	—	
BCE11A202A02US					750 (29.53)	—	—	—	—	—	
BCE11A302A03	For 3kVA 100V model	440 (17.32)	660 (25.98)	86 (3.39)	50	1 unit	—	2 unit	—	3 unit	—
BCE11A302A03US					52	—	1 unit	—	2 unit	—	3 unit
BCE11A302A01	For 3kVA 200V model	440 (17.32)	750 (29.53)	86 (3.39)	50	—	1 unit	—	2 unit	—	—
BCE11A302A01US					52	—	1 unit	—	2 unit	—	3 unit

* Suffix of model number indicates compliance with US:UL Standard. * Tower type does not allow additional battery installation.

Dimensions



* Battery replacement

- If the model number of a battery has a suffix of 01 or 03, it can be replaced while the power is turned on. Just remove the front cover and then replace the battery.
- If the model number of a battery has a suffix of 02, the whole battery module must be replaced.
- If the suffix is US module, because of restriction imposed by UL Standard and CE Marking, in principle it must be replaced by a service technician.

Step 1 Decide the target devices for backup.

- First, determine which devices (server and network devices) are most severely impacted by a power failure.

Step 2 Check the VA and W power consumption values of the target devices for backup.

- Check power consumption of the target devices for backup by referring to their specifications or catalogs.

- If VA and/or W values are not indicated, use the following calculation method.

(1) If only the W value is indicated for power consumption: $VA = W \div \text{Power Factor}$

The power factor is different depending on the device.

If power consumption information such as power factor is not available, check with the maker directly.

If it is unknown, calculate the capacity using $W=VA$.

(2) If only the VA value is indicated for power consumption: $W=VA \times \text{Power Factor}$

(3) If there is no power consumption indication and only A is known for the input current indication: $W = VA = A \times \text{Device Voltage (V)}$

Step 3 Determine output capacity of UPS

- Always select the UPS with output capacity (VA/W) larger than the "Total VA" and "Total W" values respectively.

Step 4 Check the required backup time.

- Use the backup time table listed on the next page to do the calculation.

: For the 1kVA model, backup time is 5 minutes for 1000VA/700W, and 15 minutes for 500VA/350W.

* Do not connect to devices that ordinarily draw large current, such as laser printers, plain paper faxes, copiers, and OHP. Overcurrent may prevent the UPS from functioning normally.

* When an inductive device such as motor or coil is used, always check its operation in advance. Inrush current may prevent the UPS from functioning normally.

Selection example

Check the VA and W values of power consumption of the device to back up.

	Power consumption		Power factor
	VA	W	
Server made by company A	450	441	0.98
PC made by company B	170	166	0.98
Display	63	59	0.94
HUB	20	18	0.90
Total	703	684	—

In this calculation example, the UPS output capacity must be above 703VA/684W.

Because 1kVA model's output capacity is 1000VA/700W. $1000VA > 703VA$ (70%) and $700W > 684W$. As both VA and W values of power consumption are less than the UPS output capacity, it can be used.

In this case, if the display is excluded, $625W \div 700W = 89\%$ and there is a surplus of 11%.

Check the required backup time.

In this backup time calculation example (684W), as the backup time table indicates "6 minutes at 630W" and "5 minutes at 700W", the backup time will take from 5 to 6 minutes.

Run-time chart

0.35kVA, 0.75kVA

Model No.		E11A351A □□□	E11A751A □□□
Maximum Output (VA)		350	750
Maximum Output (W)		245	525
Power consumption of target device for backup	VA	W	Run-time chart (minute)
	100	70	41
	200	140	14
	300	210	8
	350	245	6
	400	280	—
	500	350	—
	600	420	—
	700	490	—
750	525	—	

1kVA to 3kVA

Model No.		E11A102A □□□	E11A152A □□□	E11A202A □□□	E11A302A □□1	E11A302A □□2	
Maximum Output (VA)		1000	1500	2000	3000	3000	
Maximum Output (W)		700	1050	1400	2100	2100	
Power consumption of target device for backup	VA	W	Run-time chart (minute)				
	100	70	87	134	150	230	240
	200	140	48	71	87	120	150
	300	210	30	48	61	75	87
	400	280	20	34	48	55	71
	500	350	15	24	37	49	54
	600	420	12	20	30	39	48
	700	490	9	17	25	32	40
	800	560	7	14	20	26	34
	900	630	6	12	18	23	31
	1000	700	5	10	15	20	28
	1200	840	—	7	12	16	20
	1400	980	—	6	9	13	17
	1500	1050	—	5	8	11	16
	1600	1120	—	—	7	10	14
	1800	1260	—	—	6	9	12
	2000	1400	—	—	5	8	10
	2200	1540	—	—	—	7	9
	2400	1680	—	—	—	6	8
2600	1820	—	—	—	5	7	
2800	1960	—	—	—	4	6	
3000	2100	—	—	—	3.5	5	

*The above run-time value assumes a load power factor = 0.7 (lag)

*Figures should be used for reference only. Actual backup times depend on charging conditions, ambient temperature, years in use, etc.



■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 when investigating use of this product in your applications

- Before starting installation, assembling and use, read the "Operation Manual" carefully and use the product correctly in your applications.
 - When you are going to use this product in the following application, the special considerations are required for operation, running, maintenance and control. Be sure to consult with our company as a part of your investigations.
 - (a) Medical equipment and other equipment that are related directly to human life.
 - (b) Train or elevator that can give injury to human body.
 - (c) Socially and publicly important computer systems.
 - (d) And other equipment that are related to safety of human life and that can affect severe effects on maintenance of public functions.
 - For the applications that undergo vibration such as vehicles, ships and transportation facilities, please consult with our company.
 - Never modify this product or give additional processing to this product.
 - For the installation and maintenance work, please consult with our company or with specialized company.
- ※ For any inquiry or consultation, please contact our sales representative.

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