

Hybrid UPS

SANUPS E11B



UPS Achieving Power Quality and Efficiency For Use Around the Globe

Lineup

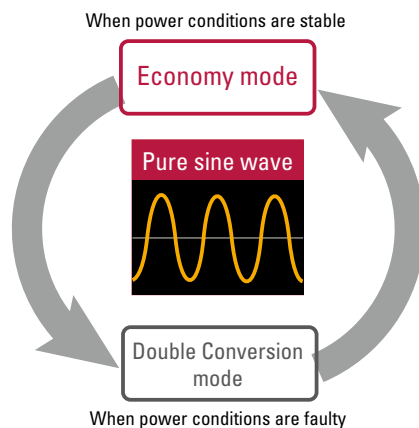
[No. of phases/wires] Input/Output voltage	Output capacity		Battery backup time*
	[kVA]	[kW]	
[Single-phase 2-wire] 100 V model 100/110/115/120 V	1	0.8	3 min (5 min)
	1.5	1.2	
	2	1.6	
[Single-phase 2-wire] 200 V model 200/208/220/230/240 V	1	0.8	3 min (5 min)
	2	1.6	
	2	1.6	

* At 25°C ambient temperature and load power factor of 0.8, using new, fully charged batteries. In parentheses are the values at a load power factor of 0.7.



Power Quality Mode and Energy-Saving Mode

- The E11B employs a hybrid UPS topology.* The UPS automatically selects the optimal mode of operation for any given input power conditions. It achieves energy savings while providing high-quality power to loads when needed.



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

Wide Input Voltage Range

- The 100 V and 200 V models have wide input voltage ranges of 55 to 150 V and 110 to 300 V,** respectively. Both models have a wide input frequency range of 40 to 120 Hz.
- Even with poor power conditions, these wide ranges reduce the number of unnecessary transfers to battery power, minimizing battery drain.

** At a load level less than 40%.

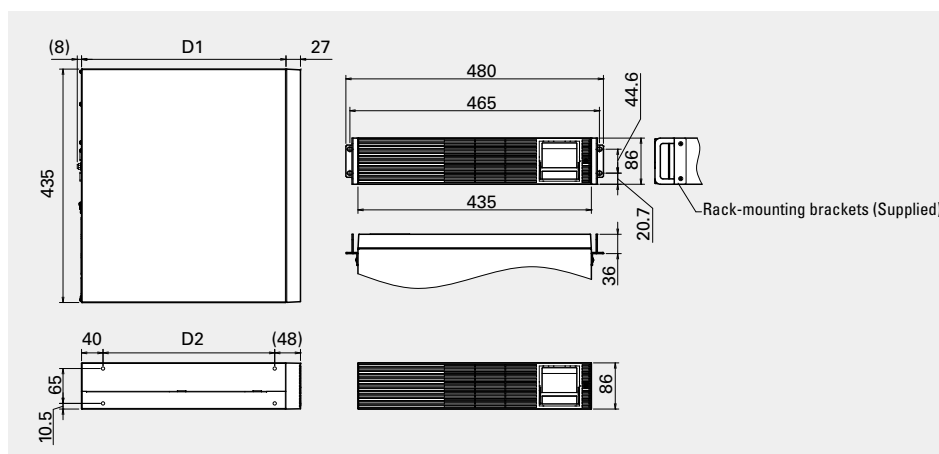
Wide Operating Temperature Range

- The E11B has a wide operating temperature range of -10 to +55°C. (-10 to +40°C for UL/CE certified models)

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.

Dimensions (Unit: mm)



Output capacity	W	H	D1	D2	Mass
1 kVA	480	86	408	320	15 kg
1.5 kVA			473	412	20 kg
2 kVA			565	477	25 kg

Specifications

100 v Model

Model no.	E11B102A001AM		E11B152A001AM	E11B202A001AM	
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	
Technology	Topology		Hybrid ⁽¹⁾		
	Cooling method		Forced air cooling		
AC input	No. of phases/wires		Single-phase 2-wire ⁽²⁾		
	Rated voltage (Same as AC output)		100/110/115/120 V		
	Voltage range	During 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		
		During 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 the 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
	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		During Double Conversion mode	Within ±2% of rated voltage		
		During Economy mode	Within -10 to +8% of rated voltage		
Rated frequency (Same as the input rated frequency)		50/60 Hz			
Frequency regulation		During grid operation	In Double Conversion mode fixed setting	Within ±1% of rated frequency	
			In automatic transfer setting	Within ±1, 3, or 5% of the rated frequency (Factory setting: ±3%)	
		During battery operation	Within ±0.5% of rated frequency (This applies during 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	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 in series)	34 W (3 in series)	34 W (4 in 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 (during Economy mode)		40 dB	45 dB	55 dB	
Heat dissipation (during Double Conversion mode, at rated operation, after battery charging completed)		130 W	195 W	260 W	
Input leakage current		3 mA or less			
Operating environment		Ambient temperature: -10 to +55°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)			
EMC standard		VCCI ClassA			
Separate options					
Vertical stands		STAND2UA00			
Rack support rail ⁽¹⁰⁾		RM030 (2U)			

(1) When the UPS transfers from Economy mode to battery operation, interruption of less than 8 ms will occur. Please fix the operation mode to Double Conversion mode for applications that require uninterrupted transfers.

(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 the values at a load power factor of 0.7.

(6) When used at 25°C ambient temperature.

(7) Use of USB interface requires driver installation.

(8) Battery charging will stop when battery temperature exceeds 40°C.

(9) To extend battery life, avoid use or storage for extended periods of time in environments exceeding +30°C. If a UPS is stored without being operated for a long period, the batteries require recharging once every six months.

(10) Used for mounting a UPS unit or battery module on a standard 19-inch rack.

200 v Model

E11B102A002AM	E11B202A002AM	Model no.		
1.0 kVA / 0.8 kW	2.0 kVA / 1.6 kW	Rated output capacity (apparent power / active power)		
Hybrid ⁽¹⁾		Topology	Technology	
Forced air cooling		Cooling method		
Single-phase 2-wire ⁽²⁾		No. of phases/wires	AC input	
200/208/220/230/240 V		Rated voltage (Same as AC output)		
At load level < 40%: 110 to 300 V		During Double Conversion mode		Voltage range
At load level < 70%: 136 to 288 V		During Economy mode		
At load level ≥ 70%: 160 to 288 V		Rated frequency		Frequency range
Within ±8% of rated voltage		In Double Conversion mode fixed setting		
50/60 Hz (auto-sensing ⁽³⁾)		In automatic transfer setting		
Within ±1% of rated frequency (Synchronization range)				
40 to 120 Hz (Asynchronous operation range)		Required capacity ⁽⁴⁾		AC output
Within ±1, 3, or 5% of the rated frequency (Factory setting is ±3%; synchronization range)		Input power factor		
40 to 120 Hz (Asynchronous operation range)		No. of phases/wires		
1.1 kVA or less	2.2 kVA or less	Rated voltage (Changeable with settings)		
0.95 or greater		During Double Conversion mode	Voltage regulation	
Single-phase 2-wire		During Economy mode		
200/208/220/230/240 V (Factory setting: 200 V)		Rated frequency (Same as the input rated frequency)	Frequency regulation	
Within ±2% of rated voltage		In Double Conversion mode fixed setting		
Within -10 to +8% of rated voltage		In automatic transfer setting		
50/60 Hz		During battery operation		
Within ±1% of rated frequency		At linear load	Voltage harmonic distortion	
Within ±1, 3, or 5% of the rated frequency (Factory setting: ±3%)		At rectifier load		
Within ±0.5% of rated frequency (This applies during asynchronous operation too)		Rated	Load power factor	
3% or less		For abrupt load change		
8% or less		For loss or return of input power	Transient voltage fluctuation	
0.8 lagging (Variation range: 0.7 lagging to 1.0)		For abrupt input voltage change		
Within ±5% of rated voltage (For 0⇔100% load step changes at rated input)		Overcurrent protection	Overload capability	
Within ±5% of rated voltage (At rated output)		Inverter		
Within ±5% of rated voltage (For ±10% abrupt change)		Bypass		
Automatic transfer to bypass (With automatic retransfer function)		Type		
105% (for 200 ms)		Battery backup time ⁽⁵⁾	Battery	
200% (for 30 s), 800% (for 2 cycles)		Expected life ⁽⁶⁾		
Small-sized valve-regulated lead-acid (VRLA) battery		Battery capacity (At 15-minute rate)		
3 min (5 min)		Battery self-test	Interface	
Approx. 5 years		PC port		
34 W (2 in series)	34 W (4 in series)	Remote port		
Automatic		Dry contact		
RS-232C, USB Type B ⁽⁷⁾ (Cannot be used at the same time)		Network support	Acoustic noise (during Economy mode)	
Remote ON/OFF		Acoustic noise (during Economy mode)		
Optional dry contact interface card is required		Heat dissipation (during Double Conversion mode, at rated operation, after battery charging completed)	Input leakage current	
Optional LAN interface card is required		3 mW		
40 dB	55 dB	Operating environment	Storage environment ⁽⁸⁾	
130 W	260 W	Ambient temperature: -10 to +55°C; ⁽⁸⁾ relative humidity: 20 to 90% (non-condensing)		
3 mA or less		Ambient temperature: -15 to +60°C; relative humidity: 20 to 90% (non-condensing)	EMC standard	
		VCCI ClassA		
		Separate options	Vertical stands	
STAND2UA00		Rack support rail ⁽¹⁰⁾		
RM030 (2U)				

Specifications

UL/CE certified model

Model no.	E11B102A001AMUJ		E11B102A002AMUJ	
Rated output capacity (apparent power / active power)	1.0 kVA / 0.8 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 AC output)	100/110/115/120 V	200/208/220/230/240 V	
	Voltage range	During Double Conversion mode	At load level < 40%: 55 to 150 V	At load level < 40%: 110 to 300 V
			At load level < 70%: 68 to 144 V	At load level < 70%: 136 to 288 V
			At load level ≥ 70%: 80 to 144 V	At load level ≥ 70%: 160 to 288 V
		During 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)	
In automatic transfer setting		40 to 120 Hz (Asynchronous operation range)		
Required capacity ⁽⁴⁾	1.1 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)	200/208/220/230/240 V (Factory setting: 200 V)	
	Voltage regulation	During Double Conversion mode	Within ±2% of rated voltage	
		During Economy mode	Within -10 to +8% of rated voltage	
	Rated frequency (Same as the input rated frequency)	50/60 Hz		
	Frequency regulation	During grid operation	In Double Conversion mode fixed setting	Within ±1% of rated frequency
			In automatic transfer setting	Within ±1, 3, or 5% of the rated frequency (Factory setting: ±3%)
		During battery operation	Within ±0.5% of rated frequency (This applies during asynchronous operation too)	
	Voltage harmonic distortion (At rated output)	At linear load	3% or less	
		At rectifier load	8% or less	
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	Expected life ⁽⁶⁾	Approx. 5 years		
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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 (during Economy mode)	40 dB			
Heat dissipation (during Double Conversion mode, at rated operation, after battery charging completed)	130 W			
Input leakage current	3 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)			
EMC standard	VCCI ClassA			
Separate options				
Vertical stands	STAND2UA00			
Rack support rail ⁽¹⁰⁾	RM030 (2U)			

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