

S4K2U-C and S4K2U-5C Industrial On-Line UPS

The SolaHD S4KC Series is a single phase, on-line (doubleconversion) UPS system available in 700-3000 VA, 120 V and 230 V. On-Line design means zero transfer time from external to internal power. When utility power fails, your critical load remains supported by a seamless flow of power. Rack or tower configurable, the S4KC Series UPS offers customers a higher power factor, longer battery life, higher reliability and reduced cost of ownership. Housed in a slim 2U package, the SolaHD S4KC protects equipment from virtually all power disturbances due to blackouts, brownouts, sags, surges or noise interference. The UPS includes internal batteries. Optional, matching external battery cabinets, also in a slim 2U (3.5") size, offer extended battery runtime.

The LED display indicates battery capacity, percentage of UPS load, battery operation, bypass operation and UPS fault condition.

The rack-tower models are also supplied with securing flanges and rack slide mounting hardware is available separately, if required. Units can be easily hardwired by removing the attached line cord and receptacle plate. All units include a conduit knockout cover in the box.

Applications

- Industrial Automation Systems
- Critical Microprocessors and PC Based Systems
- Robotics and Process Control
- Programmable Logic Controllers (PLC)
- Mission Critical and High Speed Networks
- Enterprise Telecommunication Systems
- Pharmaceutical and Medical Diagnosis Equipment
- Printing and Publishing Machinery

Features

- Hardwire capability for permanent installation
- Small 2U height maximizes available space
- Input and output noise suppression
- Higher output power factor of 0.90
- PWM (pulse-width modulation) inverter reduces output voltage distortion
- Add on batteries for extended back-ups
- Integral sealed non-spillable batteries
- Hot swappable user replaceable battery
- Automatic restart

Note: The securing flanges do not support the weight of the UPS. Rack slides or shelves are required (sold separately). EAC applies only to certain CE models.



- Automatic and manual battery test
- Rack-mount or stand-alone tower mounting
- Units are field configurable with a PC as a frequency converter (bypass will be disabled)
- Select S4KC models use an average of 35% less energy than their standard counterparts
- Select S4KC models provide continuous uptime for the connected equipment, with capacity and battery back-up delivered in cabinets that use 2U of rack space
- Integral dynamic bypass reduces shutdowns
- Compatible with most standby generators
- Two year limited warranty

Certifications and Compliances

All Models

- ABS Type Approved
- RoHS Compliant
- ISTA Procedure 1A

S4K2U-C, S4K2U3000-5C:

- cUL US Listed, UPS Equipment
 - UL 1778
 - CSA C22.2 No. 107.3

S4K2U-C:

- ENERGY STAR certified:
 - 700, 1000, 1500, 2000, 3000 VA 120 V input

S4K2U-5C:

- CE : EC/EN/AS 62040-1-1:2008
- EAC: TR CU 004/2011 - Technical Regulation of Custom Union "On the safety of low-voltage equipment"

Selection Table - S4K2U-C & S4K2U-5C Tower/Rack-Mount Models

Capacity (VA/W)	Catalog Number	Typical Back-up Times * (minutes)	Input Plug/Output Receptacle	Approx. Ship Weight – lbs (kg)
120 Vac, 50/60 Hz Models				
700/630	S4K2U700C	11/27	5-15P / (6) 5-15R	52.9 (24.00)
1000/900	S4K2U1000C	7/17	5-15P / (6) 5-15R	
1500/1350	S4K2U1500C	4/11	5-15P / (6) 5-15R	57.3 (26.00)
2000/1800	S4K2U2000C	3/11	5-20P / (6)5-20R (15/20 amp type)	61.7 (28.00)
3000/2700	S4K2U3000C	3/11	L5-30P / (5)5-20R (15/20 amp type): (1) L5-30R	70.5 (32.00)
230 Vac, 50/60 Hz International Models				
1000/900	S4K2U10005C	6/17	IEC 320-C14 / (6) IEC 320/C13	44.0 (20.00)
2000/1800	S4K2U20005C	3/11	IEC 320-C20 / (6) IEC 320-C13	61.7 (28.00)
3000/2700	S4K2U30005C	3/11	IEC 320-C20 / (6) IEC 320-C13 (1) IEC 320-C19	70.5 (32.00)

* Full/Half Load (in minutes) at rated wattage.

S4K2U-C, 120 Vac, 50/60 Hz Tower/Rack-Mount Models Specifications

Catalog Number	S4K2U700C	S4K2U1000C	S4K2U1500C	S4K2U2000C	S4K2U3000C
Dimensions – D x W x H, in. (mm)					
Unit	19.70 x 16.90 x 3.40 (500.4 x 430.0 x 86.4)				23.70 x 16.90 x 3.40 (602.0 x 430.0 x 86.4)
Shipping	25.50 x 23.90 x 10.60 (648.0 x 607.1 x 270.0)				29.40 x 23.40 x 10.60 (747.0 x 594.4 x 270.0)
Weight – lbs. (kg)					
Unit	37.0 (16.80)		51.1 (23.20)	51.1 (23.20)	71.4 (32.40)
Shipping	44.1 (20.00)		57.3 (26.00)	57.3 (26.00)	79.4 (36.00)
Input AC Parameters					
Voltage Range (typical)	120 Vac nominal; variable based on output load				
90% to 100% Loading	90 Vac/140 Vac		102 Vac/140 Vac		
70% to 90% Loading	86 Vac/140 Vac		96 Vac/140 Vac		
30% to 70% Loading	77 Vac/140 Vac		84 Vac/140 Vac		
0% to 30% Loading	60 Vac/140 Vac		60 Vac/140 Vac		
Power Factor	0.99				
Frequency	40 Hz to 70 Hz; auto sensing				
Input Power Cord *	10 ft. attached with NEMA 5-15P plug			10 ft. attached with NEMA 5-20P plug	10 ft. attached with NEMA L5-30P plug
Output AC Parameters					
Output Receptacles *	5-15R x 6			5-20R x 6	L5-30R x 1 + 5-20R x 6
Voltage	110/115/120/127 Vac (user-configurable) ±3%				
Waveform	Sine wave				
Utility (Vac) Mode Overload	200% for 2 seconds; 150% for 50 seconds with transfer to bypass				
Power Factor	0.90				
Battery					
Type	Valve-regulated, non-spillable, lead acid				
Qty x V x Rating	4 x 12 V x 5.0 Ah		4 x 12 V x 7.2 Ah	4 x 12 V x 9.0 Ah	6 x 12 V x 9.0 Ah
Battery Mfr./Part Number	YUASA/NPH5-12; CSB/HR 1221W		Panasonic/UP- RW1245; CSB/UPS12460F2	Panasonic/UP-RW1245; CSB/UPS12460F2	
Recharge Time	3 hours to 90% capacity after full discharge with 100% load until UPS auto shutdown (internal batteries only)				
Environmental Requirements					
Operating Temperature	0°C to +40°C; See Operating Temperature Parameters				
Storage Temperature	-15°C to +50°C				
Relative Humidity	0% to 95%, non-condensing				
Operating Elevation	Up to 10,000 ft. (3,000 m)				
Storage Elevation	50,000 ft. (15,000 m) max.				

Notes:

* Input power cord and output receptacles can be removed for hardwired applications.

S4K2U-C, 120 Vac, 50/60 Hz Tower/Rack-Mount Models Specifications - continued

Catalog Number	S4K2U700C	S4K2U1000C	S4K2U1500C	S4K2U2000C	S4K2U3000C
Audible Noise	<43 dBA max. @ 3 ft. (1 m) front & sides; <46 dBA max. @ 3 ft. (1 m) rear	<45 dBA max. @ 3 ft. (1 m) front & sides; <50 dBA max. @ 3 ft. (1 m) rear	<46 dBA max. @ 3 ft. (1 m) front & sides; <45 dBA max. @ 3 ft. (1 m) rear	<48 dBA max. @ 3 ft. (1 m) front & sides; <48 dBA max. @ 3 ft. (1 m) rear	
Standards					
EMC	FCC Part 15, Class A				

Operating Temperature Parameters			
Ambient Temperature	+25°C to +30°C	+30°C to +35°C	+35°C to +40°C
Maximum output power factor derating at maximum load	100% to 93%	93% to 86%	86% to 79%

S4K2U-5C, 230 Vac, 50/60 Hz Tower/Rack-Mount Models Specifications

Catalog Number	S4K2U1000–5C	S4K2U2000–5C	S4K2U3000–5C
Dimensions – D x W x H, in. (mm)			
Unit	19.60 x 16.90 x 3.30 (497.0 x 430.0 x 85.0)		23.70 x 16.90 x 3.30 (602.0 x 430.0 x 85.0)
Shipping	28.20 x 22.40 x 10.30 (717.0 x 570.0 x 262.0)		28.20 x 22.40 x 10.30 (717.0 x 570.0 x 262.0)
Weight – lbs. (kg)			
Unit	37.0 (16.80)	51.1 (23.20)	71.4 (32.40)
Shipping	44.1 (20.00)	57.3 (26.00)	79.4 (36.00)
Input AC Parameters			
Voltage Range (typical)	230 Vac nominal; variable based on output load		
90% to 100% Loading	177 Vac/280 Vac		196 Vac/280 Vac
70% to 90% Loading	168 Vac/280 Vac		184 Vac/280 Vac
30% to 70% Loading	150 Vac/280 Vac		161 Vac/280 Vac
0% to 30% Loading	115 Vac/280 Vac		115 Vac/280 Vac
Power Factor	0.99		
Frequency	40 Hz to 70 Hz; auto sensing		
Input Power Receptacle *	IEC 320 C14	IEC 320 C20	
Output AC Parameters			
Output Receptacles *	IEC 320 C13 x 6		IEC 320 C13 x 6; IEC 320 C19 x 1
Voltage	208/220/230/240 Vac (user-configurable**) ±3%		
Frequency	50 Hz or 60 Hz		
Waveform	Sine wave		
Overload	200% for 2 seconds; 150% for 1 minute with transfer to bypass	200% for 2 seconds; 150% for 50 seconds with transfer to bypass	200% for 2 seconds; 150% for 55 seconds with transfer to bypass
Power Factor	0.90		
Battery			
Type	Valve-regulated, non-spillable, lead acid		
Qty x V x Rating	4 x 12 V x 5.0 Ah	4 x 12 V x 9.0 Ah	6 x 12 V x 9.0 Ah
Battery Mfr./Part Number	YUASA/NPH5-12; CSB/HR 1221W	Panasonic/UP-RW1245; CSB/UPS12460F2	
Recharge Time	3 hours to 90% capacity after full discharge with 100% load until UPS auto shutdown (internal batteries only)		
Environmental Requirements			
Operating Temperature	0°C to +40°C; See Operating Temperature Parameters		
Storage Temperatures	-15°C to +50°C		
Relative Humidity	0% to 95%, non-condensing		
Operating Elevation	Up to 3,000 m (10,000 ft.)		
Storage Elevation	15,000 m (50,000 ft.) max.		

Notes:

* Input power cord and output receptacles can be removed for hardwired applications.

**Contact Technical Support on any derating.

S4K2U-5C, 230 Vac, 50/60 Hz Tower/Rack-Mount Models Specifications

Catalog Number	S4K2U1000–5C	S4K2U2000–5C	S4K2U3000–5C
Audible Noise	<43 dBA max. @ 1 m (3 ft.) front & sides; <46 dBA max. @ 1 m (3 ft.) rear	<48 dBA max. @ 1 m (3 ft.) front & sides; <48 dBA max. @ 1 m (3 ft.) rear	
Standards			
EMC	IEC/EN/AS 62040-2 2 nd Edition = CISPR22 Class A; IEC62040-2 2 nd Edition		

Operating Temperature Parameters			
Ambient temperature	+25°C to +30°C	+30°C to +35°C	+35°C to +40°C
Maximum output power factor derating at maximum load	100% to 93%	93% to 86%	86% to 79%

External Battery Cabinets Specifications

Catalog Numbers	S4K2U48BATC	S4K2U96BATC
Used with UPS models	S4K2U700C, S4K2U1000C (-5), S4K2U1500C, S4K2U2000C (-5)	S4K2U3000C (-5)
Dimensions – D x W x H, in. (mm)		
Unit	19.70 x 16.90 x 3.40 (500.4 x 430.0 x 86.4)	23.70 x 16.90 x 3.40 (602.0 x 430.0 x 86.4)
Shipping	24.30 x 22.40 x 10.30 (617.2 x 570.0 x 262.0)	28.20 x 22.40 x 10.30 (717.0 x 570.0 x 262.0)
Weight – lbs. (kg)		
Unit	70.5 (32.00)	93.5 (42.40)
Shipping	77.2 (35.00)	101.4 (46.00)
Battery		
Type	Valve-regulated, non-spillable, lead acid	
Qty x V x Rating	2 x 4 x 12 V x 9.0 Ah	2 x 6 x 12 V x 9.0 Ah
Battery Mfr./Part Number	Panasonic/UP-RW1245; CSB/UPS12460F2	
Back-up Time	Battery Back-up Times Chart	
Environmental Requirements		
Operating Temperature	0°C to +40°C	
Storage Temperatures	-15°C to +50°C; High ambient temperatures will reduce battery life	
Relative Humidity	0% to 95%, non-condensing	
Operating Elevation	Up to 10,000 ft. (3,000 m)	
Storage Elevation	50,000 ft. (15,000 m) max.	

S4K2U-C Battery Back-up Times

Number of Batteries/Cabinets	Load % of Capacity	Model Rating				
		700 VA	1000 VA	1500 VA	2000 VA	3000 VA
		Back-up Time in Minutes				
Internal battery	10%	105	90	123	92	82
	20%	61	37	52	38	38
	30%	37	30	34	23	23
	40%	32	23	23	16	16
	50%	27	17	18	12	12
	60%	22	14	14	9	9
	70%	18	11	11	7	7
	80%	15	9	9	5	5
	90%	13	8	7	4	4
	100%	11	7	6	3	3
Internal battery + 1 external battery cabinet	10%	426	332	335	303	224
	20%	302	165	162	140	137
	30%	163	137	129	96	95
	40%	144	108	96	66	66
	50%	125	92	72	49	49
	60%	106	74	54	38	41
	70%	94	61	46	33	34
	80%	78	49	38	28	27
	90%	69	40	34	23	23
	100%	60	38	31	20	21
Internal battery + 2 external battery cabinets	10%	480	456	451	431	427
	20%	433	331	318	207	202
	30%	327	222	187	150	149
	40%	265	166	151	124	124
	50%	201	152	131	97	98
	60%	164	137	107	75	76
	70%	153	122	91	61	62
	80%	142	105	74	50	50
	90%	131	95	64	41	45
	100%	120	79	53	38	41
Internal battery + 3 external battery cabinets	10%	480	480	480	455	452
	20%	461	441	426	326	323
	30%	438	336	312	197	196
	40%	344	305	198	155	155
	50%	322	209	160	136	136
	60%	300	167	145	111	112
	70%	213	157	130	96	98
	80%	189	146	111	78	79
	90%	163	135	99	68	70
	100%	155	124	83	56	60

Note: Run times in this table are approximate. They are based upon new, fully charged standard battery modules at a temperature of 25°C (77°F) with 100% resistive UPS loading. Run times listed above can vary by +/-5% due to manufacturing variances of the individual batteries

S4K2U-C Battery Back-up Times - continued

Number of Batteries/Cabinets	Load % of Capacity	Model Rating				
		700 VA	1000 VA	1500 VA	2000 VA	3000 VA
		Back-up Time in Minutes				
Internal battery + 4 external battery cabinets	10%	480	480	480	480	466
	20%	480	459	446	424	421
	30%	457	435	341	308	307
	40%	441	339	309	192	192
	50%	424	316	204	157	158
	60%	336	221	164	142	143
	70%	318	199	153	126	128
	80%	301	166	141	107	109
	90%	213	158	130	95	97
Internal battery + 5 external battery cabinets	100%	197	149	112	79	81
	10%	480	480	480	480	480
	20%	480	466	458	441	439
	30%	464	446	432	333	332
	40%	451	427	333	225	225
	50%	438	341	306	188	190
	60%	424	322	207	158	159
	70%	343	303	167	145	147
	80%	329	212	158	133	135
Internal battery + 6 external battery cabinets	90%	315	193	148	120	122
	100%	300	166	139	104	107
	10%	480	480	480	480	480
	20%	480	480	467	452	450
	30%	480	458	445	422	421
	40%	462	442	422	319	319
	50%	451	426	327	216	218
	60%	440	342	304	185	188
	70%	428	326	208	159	160
	80%	370	309	184	148	149
	90%	336	221	161	137	139
	100%	324	204	153	126	129

Note: Run times in this table are approximate. They are based upon new, fully charged standard battery modules at a temperature of 25°C (77°F) with 100% resistive UPS loading. Run times listed above can vary by +/-5% due to manufacturing variances of the individual batteries

S4K2U-5C Battery Back-up Times

Number of Batteries/Cabinets	Load % of Capacity	Model Rating		
		1000 VA	2000 VA	3000 VA
		Back-up Time in Minutes		
Internal battery	10%	91	81	91
	20%	38	37	39
	30%	31	23	23
	40%	23	16	16
	50%	17	12	12
	60%	14	9	9
	70%	11	7	7
	80%	9	5	5
	90%	8	4	4
	100%	6	3	3
Internal battery + 1 external battery cabinet	10%	334	222	302
	20%	166	137	139
	30%	138	94	95
	40%	108	66	66
	50%	92	49	48
	60%	72	39	41
	70%	56	34	34
	80%	48	28	27
	90%	40	23	23
	100%	37	20	21
Internal battery + 2 external battery cabinets	10%	457	426	431
	20%	333	201	205
	30%	224	149	150
	40%	166	124	124
	50%	151	97	97
	60%	135	75	76
	70%	113	61	63
	80%	103	50	50
	90%	92	41	45
	100%	78	38	41
Internal battery + 3 external battery cabinets	10%	480	451	455
	20%	442	322	325
	30%	337	195	196
	40%	305	154	155
	50%	208	136	136
	60%	166	111	112
	70%	155	96	98
	80%	144	78	79
	90%	132	68	70
	100%	122	56	60

Note: S4K2U-5C models are not available in 700 VA or 1500 VA.

Run times in this table are approximate. They are based upon new, fully charged standard battery modules at a temperature of 25°C (77°F) with 100% resistive UPS loading. Run times listed above can vary by +/-5% due to manufacturing variances of the individual batteries

S4K2U-5C Battery Back-up Times - continued

Number of Batteries/Cabinets	Load % of Capacity	Model Rating		
		1000 VA	2000 VA	3000 VA
		Back-up Time in Minutes		
Internal battery + 4 external battery cabinets	10%	480	466	480
	20%	460	421	423
	30%	436	306	307
	40%	340	192	192
	50%	315	157	157
	60%	218	142	143
	70%	195	127	128
	80%	165	107	109
	90%	156	95	97
Internal battery + 5 external battery cabinets	100%	147	80	81
	10%	480	480	480
	20%	467	438	440
	30%	447	331	332
	40%	428	224	225
	50%	341	189	189
	60%	320	158	159
	70%	227	146	147
	80%	208	133	135
Internal battery + 6 external battery cabinets	90%	189	120	122
	100%	164	104	106
	10%	480	480	480
	20%	480	450	452
	30%	458	420	421
	40%	442	319	319
	50%	426	217	217
	60%	341	186	187
	70%	323	159	160
	80%	306	148	150
	90%	217	137	139
	100%	201	126	128

Note: S4K2U-5C models are not available in 700 VA or 1500 VA.

Run times in this table are approximate. They are based upon new, fully charged standard battery modules at a temperature of 25°C (77°F) with 100% resistive UPS loading. Run times listed above can vary by +/-5% due to manufacturing variances of the individual batteries