On-battery runtimes with different load ratings

Internal batteries

Both 5 and 10 years battery

Internal battery back-up table for UPS ratings 20-40 kVA, p.f. 0.7 (typical IT server/computer load):

		. 0., 00		11 011 (1)						
kVA	40 kVA	35 kVA	30 kVA	25 kVA	20 kVA	15 kVA	10 kVA	5 kVA	Qty	Battery
min	-	-	-	-	-	5	8	24	1x36	7 Ah 12 V
min	-	-	-	-	5	7	12	30	1x36	9 Ah 12 V
min	1	-	-	6	10	14	24	60	2x36	7 Ah 12 V
min	-	5	7	10	13	18	28	70	2x36	9 Ah 12 V
min	5	7	10	12	17	26	41	103	3x36	7 Ah 12 V
min	8	10	13	16	22	31	46	115	3x36	9 Ah 12 V
min	9	11	15	18	26	40	55	152	4x36	7 Ah 12 V
min	12	15	20	23	31	42	63	158	4x36	9 Ah 12 V

Table 1. The battery backup table is given with end voltage 1.70 VPC and temperature +25°C. The batteries are fully charged and measured after min. (5) full discharge cycles.

Both 5 and 10 years battery

Internal battery back-up table for UPS ratings 20-40 kVA, p.f. 0.8 (typical IT server/computer load):

Battery	Qty	5 kVA	10 kVA	15 kVA	20 kVA	25 kVA	30 kVA	35 kVA	40 kVA	kVA
7 Ah 12 V	1x36	20	6	-	-	-	-	-	-	min
9 Ah 12 V	1x36	25	10	6	-	-	-	-	-	min
7 Ah 12 V	2x36	54	20	11	6	-	-	1	-	min
9 Ah 12 V	2x36	60	25	15	10	7	6	1	-	min
7 Ah 12 V	3x36	87	37	20	13	9	7	5	-	min
9 Ah 12 V	3x36	100	40	26	18	13	10	8	6	min
7 Ah 12 V	4x36	136	53	30	21	14	11	9	7	min
9 Ah 12 V	4x36	140	60	36	26	20	15	12	10	min

Table 2. The battery backup table is given with end voltage 1.70 VPC and temperature +25°C. The batteries are fully charged and measured after min. (5) full discharge cycles.

Both 5 and 10 years battery

Internal battery back-up table for UPS ratings 20-40 kVA, p.f. 0.9 (modern IT server/computer load):

Battery	Qty	5 kVA	10 kVA	15 kVA	20 kVA	25 kVA	30 kVA	35 kVA	40 kVA	kVA
7 Ah 12 V	1x36	15	5	-	-	-	-	-	-	min
9 Ah 12 V	1x36	20	8	5	-	-	-	-	-	min
7 Ah 12 V	2x36	46	15	10	5	-	-	-	-	min
9 Ah 12 V	2x36	45	21	13	8	6	5	-	-	min
7 Ah 12 V	3x36	80	30	17	11	7	6	-	-	min
9 Ah 12 V	3x36	85	33	22	15	11	8	6	5	min
7 Ah 12 V	4x36	122	46	27	17	12	10	7	6	min
9 Ah 12 V	4x36	125	47	30	21	16	13	10	8	min

Table 3. The battery backup table is given with end voltage 1.70 VPC and temperature +25°C. The batteries are fully charged and measured after min. (5) full discharge cycles.

Note!

The specifications are subject to change without a notice.

Author: Teppo Henttonen Save date: 9.08.2006

File name: Runtime_Matrix_9355_20 - 40kVA_RevC4

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External batteries without internal batteries

10 years battery (Panasonic LC-X1224AP)

External battery (w/o internal) back-up table for UPS ratings 20-40 kVA, p.f. 0.7 (typical IT server/computer load):

Battery	Qty	5 kVA	10 kVA	15 kVA	20 kVA	25 kVA	30 kVA	35 kVA	40 kVA	kVA
24 Ah 12 V	1x36	110	50	32	21	15	11	8	6	min
24 Ah 12 V	2x36	244	112	73	50	41	33	27	22	min
24 Ah 12 V	3x36	397	180	112	87	62	51	43	38	min
24 Ah 12 V	4x36	532	255	155	113	95	76	57	50	min
24 Ah 12 V	5x36	>10 h	310	202	145	114	99	83	68	min
24 Ah 12 V	6x36	> 10 h	410	253	180	140	114	101	90	min
24 Ah 12 V	7x36	> 10 h	487	289	220	167	134	114	103	min
24 Ah 12 V	8x36	> 10 h	542	350	256	197	159	130	114	min

Table 4. The battery backup table is given with end voltage 1.70 VPC and temperature +25°C. The batteries are fully charged and measured after min. (5) full discharge cycles.

10 years battery (Panasonic LC-X1224AP)

External battery (w/o internal) back-up table for UPS ratings 20-40 kVA, p.f. 0.8 (typical IT server/computer load):

Battery	Qty	5 kVA	10 kVA	15 kVA	20 kVA	25 kVA	30 kVA	35 kVA	40 kVA	kVA
24 Ah 12 V	1x36	101	43	27	17	12	8	6	5	min
24 Ah 12 V	2x36	217	101	57	43	35	28	22	17	min
24 Ah 12 V	3x36	341	152	101	72	54	44	38	32	min
24 Ah 12 V	4x36	489	217	130	102	81	60	51	44	min
24 Ah 12 V	5x36	579	274	170	120	103	86	68	56	min
24 Ah 12 V	6x36	>10 h	341	217	154	117	103	88	74	min
24 Ah 12 V	7x36	>10 h	426	258	180	144	115	103	91	min
24 Ah 12 V	8x36	>10 h	489	289	220	167	134	114	103	min

Table 5. The battery backup table is given with end voltage 1.70 VPC and temperature +25°C. The batteries are fully charged and measured after min. (5) full discharge cycles.

10 years battery (Panasonic LC-X1224AP)

External battery (w/o internal) back-up table for UPS ratings 20-40 kVA, p.f. 0.9 (modern IT server/computer load):

Battery	Qty	5 kVA	10 kVA	15 kVA	20 kVA	25 kVA	30 kVA	35 kVA	40 kVA	kVA
24 Ah 12 V	1x36	77	37	22	14	10	7	5	-	min
24 Ah 12 V	2x36	175	90	51	38	30	22	17	15	min
24 Ah 12 V	3x36	280	127	90	58	46	40	33	28	min
24 Ah 12 V	4x36	415	180	115	88	67	52	44	40	min
24 Ah 12 V	5x36	520	243	150	111	92	72	57	50	min
24 Ah 12 V	6x36	585	287	181	132	107	91	75	60	min
24 Ah 12 V	7x36	> 10 h	360	227	162	121	106	92	78	min
24 Ah 12 V	8x36	> 10 h	432	262	182	147	116	104	92	min

Table 6. The battery backup table is given with end voltage 1.70 VPC and temperature +25°C. The batteries are fully charged and measured after min. (5) full discharge cycles.

Note!

The specifications are subject to change without a notice.

Author: Teppo Henttonen

Save date: 9.08.2006

File name: Runtime_Matrix_9355_20 - 40kVA_RevC4



Powerware

10 years battery (CSB HRL 12110W)

External battery (w/o internal) back-up table for UPS ratings 20-40 kVA, p.f. 0.7 (typical IT server/computer load):

Battery	Qty	5 kVA	10 kVA	15 kVA	20 kVA	25 kVA	30 kVA	35 kVA	40 kVA	kVA
110 WPC 12 V	1x36	160	69	40	26	20	16	13	10	min
110 WPC 12 V	2x36	360	162	96	70	53	42	30	26	min
110 WPC 12 V	3x36	540	255	162	113	86	71	57	50	min
110 WPC 12 V	4x36	> 10 h	367	224	164	125	100	83	71	min
110 WPC 12 V	5x36	> 10 h	457	287	211	165	133	108	90	min
110 WPC 12 V	6x36	> 10 h	551	367	259	204	165	138	115	min
110 WPC 12 V	7x36	> 10 h	> 10 h	432	308	240	196	165	142	min
110 WPC 12 V	8x36	> 10 h	> 10 h	480	372	282	229	191	165	min

Table 7. The battery backup table is given with end voltage 1.70 VPC and temperature +25°C. The batteries are fully charged and measured after min. (5) full discharge cycles.

10 years battery (CSB HRL 12110W)

External battery (w/o internal) back-up table for UPS ratings 20-40 kVA, p.f. 0.8 (typical IT server/computer load):

Battery	Qty	5 kVA	10 kVA	15 kVA	20 kVA	25 kVA	30 kVA	35 kVA	40 kVA	kVA
110 WPC 12 V	1x36	138	57	30	22	17	13	10	8	min
110 WPC 12 V	2x36	303	138	82	60	45	32	26	22	min
110 WPC 12 V	3x36	474	220	138	95	75	60	49	41	min
110 WPC 12 V	4x36	> 10 h	303	190	140	103	84	71	60	min
110 WPC 12 V	5x36	> 10 h	406	246	180	142	111	90	79	min
110 WPC 12 V	6x36	> 10 h	474	303	223	173	142	115	97	min
110 WPC 12 V	7x36	> 10 h	563	376	265	209	169	142	120	min
110 WPC 12 V	8x36	> 10 h	> 10 h	432	308	240	196	165	142	min

Table 8. The battery backup table is given with end voltage 1.70 VPC and temperature +25°C. The batteries are fully charged and measured after min. (5) full discharge cycles.

10 years battery (CSB HRL 12110W)

External battery (w/o internal) back-up table for UPS ratings 20-40 kVA, p.f. 0.9 (modern IT server/computer load):

Battery	Qty	5 kVA	10 kVA	15 kVA	20 kVA	25 kVA	30 kVA	35 kVA	40 kVA	kVA
110 WPC 12 V	1x36	114	50	27	20	15	10	8	6	min
110 WPC 12 V	2x36	260	117	72	51	37	27	23	20	min
110 WPC 12 V	3x36	425	190	117	83	64	52	42	32	min
110 WPC 12 V	4x36	559	265	168	120	90	74	60	52	min
110 WPC 12 V	5x36	> 10 h	354	217	159	120	95	80	68	min
110 WPC 12 V	6x36	> 10 h	430	266	193	154	120	100	84	min
110 WPC 12 V	7x36	> 10 h	490	320	231	180	149	120	102	min
110 WPC 12 V	8x36	> 10 h	570	380	270	213	170	145	120	min

Table 9. The battery backup table is given with end voltage 1.70 VPC and temperature +25°C. The batteries are fully charged and measured after min. (5) full discharge cycles.

Note!

The specifications are subject to change without a notice.

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File name: Runtime_Matrix_9355_20 - 40kVA_RevC4

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External batteries (Panasonic LC-X1224AP) with internal batteries (9Ah 5 years)

External battery (**Panasonic LC-X1224AP**) with four internal strings back-up table for UPS ratings 20-40 kVA, **p.f. 0.7** (typical IT server/computer load):

Internal Ba	ttery	External Ba	attery									
Battery	Qty	Battery	Qty	5 kVA	10 kVA	15 kVA	20 kVA	25 kVA	30 kVA	35 kVA	40 kVA	kVA
9 Ah 12 V	4x36	24 Ah 12 V	1x36	268	113	77	56	43	34	25	20	min
9 Ah 12 V	4x36	24 Ah 12 V	2x36	402	175	115	84	69	57	47	38	min
9 Ah 12 V	4x36	24 Ah 12 V	3x36	555	243	154	121	90	75	63	54	min
9 Ah 12 V	4x36	24 Ah 12 V	4x36	> 10 h	318	197	147	123	100	77	66	min
9 Ah 12 V	4x36	24 Ah 12 V	5x36	> 10 h	373	244	179	142	123	103	84	min
9 Ah 12 V	4x36	24 Ah 12 V	6x36	> 10 h	473	295	214	168	138	121	106	min
9 Ah 12 V	4x36	24 Ah 12 V	7x36	> 10 h	550	331	254	195	158	134	119	min
9 Ah 12 V	4x36	24 Ah 12 V	8x36	> 10 h	> 10 h	392	290	225	183	150	130	min

Table 10. The battery backup table is given with end voltage 1.70 VPC and temperature +25°C. The batteries are fully charged and measured after min. (5) full discharge cycles.

External battery (Panasonic LC-X1224AP) with four internal strings back-up table for UPS ratings 20-40 kVA, p.f. 0.8 (typical IT server/computer load):

Internal Ba	ttery	External Ba	attery									
Battery	Qty	Battery	Qty	5 kVA	10 kVA	15 kVA	20 kVA	25 kVA	30 kVA	35 kVA	40 kVA	kVA
9 Ah 12 V	4x36	24 Ah 12 V	1x36	241	103	66	46	36	25	20	17	min
9 Ah 12 V	4x36	24 Ah 12 V	2x36	357	161	93	72	59	46	38	30	min
9 Ah 12 V	4x36	24 Ah 12 V	3x36	481	212	137	101	78	62	54	45	min
9 Ah 12 V	4x36	24 Ah 12 V	4x36	> 10 h	277	166	131	105	78	67	57	min
9 Ah 12 V	4x36	24 Ah 12 V	5x36	> 10 h	334	206	149	127	104	84	69	min
9 Ah 12 V	4x36	24 Ah 12 V	6x36	> 10 h	401	253	183	141	121	104	87	min
9 Ah 12 V	4x36	24 Ah 12 V	7x36	> 10 h	486	294	209	168	133	119	104	min
9 Ah 12 V	4x36	24 Ah 12 V	8x36	> 10 h	549	325	249	191	152	130	116	min

Table 11. The battery backup table is given with end voltage 1.70 VPC and temperature +25°C. The batteries are fully charged and measured after min. (5) full discharge cycles.

External battery (Panasonic LC-X1224AP) with four internal strings back-up table for UPS ratings 20-40 kVA, p.f. 0.9 (modern IT server/computer load):

Internal Ba	ttery	External Ba	attery									
Battery	Qty	Battery	Qty	5 kVA	10 kVA	15 kVA	20 kVA	25 kVA	30 kVA	35 kVA	40 kVA	kVA
9 Ah 12 V	4x36	24 Ah 12 V	1x36	202	88	56	39	29	22	17	12	min
9 Ah 12 V	4x36	24 Ah 12 V	2x36	300	137	81	61	49	38	30	25	min
9 Ah 12 V	4x36	24 Ah 12 V	3x36	405	174	120	81	65	56	46	38	min
9 Ah 12 V	4x36	24 Ah 12 V	4x36	540	227	145	111	86	68	57	50	min
9 Ah 12 V	4x36	24 Ah 12 V	5x36	> 10 h	290	180	134	111	88	70	60	min
9 Ah 12 V	4x36	24 Ah 12 V	6x36	> 10 h	334	211	155	126	107	88	70	min
9 Ah 12 V	4x36	24 Ah 12 V	7x36	> 10 h	407	257	185	140	122	105	88	min
9 Ah 12 V	4x36	24 Ah 12 V	8x36	> 10 h	479	292	205	166	132	117	102	min

Table 12. The battery backup table is given with end voltage 1.70 VPC and temperature +25°C. The batteries are fully charged and measured after min. (5) full discharge cycles.

Note!

The specifications are subject to change without a notice.

Author: Teppo Henttonen

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File name: Runtime_Matrix_9355_20 - 40kVA_RevC4



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External batteries (Panasonic LC-X1224AP) with internal batteries (7Ah 10 years)

External battery (Panasonic LC-X1224AP) with four internal strings back-up table for UPS ratings 20-40 kVA, p.f. 0.7 (typical IT server/computer load):

Internal Ba	ttery	External Ba	attery									
Battery	Qty	Battery	Qty	5 kVA	10 kVA	15 kVA	20 kVA	25 kVA	30 kVA	35 kVA	40 kVA	kVA
7 Ah 12 V	4x36	24 Ah 12 V	1x36	262	105	75	51	38	29	21	17	min
7 Ah 12 V	4x36	24 Ah 12 V	2x36	396	167	115	79	63	51	41	34	min
7 Ah 12 V	4x36	24 Ah 12 V	3x36	549	235	154	116	84	69	57	50	min
7 Ah 12 V	4x36	24 Ah 12 V	4x36	> 10 h	310	197	142	117	94	71	62	min
7 Ah 12 V	4x36	24 Ah 12 V	5x36	> 10 h	365	244	174	136	117	97	80	min
7 Ah 12 V	4x36	24 Ah 12 V	6x36	> 10 h	465	295	209	162	132	115	102	min
7 Ah 12 V	4x36	24 Ah 12 V	7x36	> 10 h	542	331	249	189	152	128	115	min
7 Ah 12 V	4x36	24 Ah 12 V	8x36	> 10 h	597	392	285	219	177	144	126	min

Table 13. The battery backup table is given with end voltage 1.70 VPC and temperature +25°C. The batteries are fully charged and measured after min. (5) full discharge cycles.

External battery (**Panasonic LC-X1224AP**) with four internal strings back-up table for UPS ratings 20-40 kVA, **p.f. 0.8** (typical IT server/computer load):

Internal Ba	ttery	External Ba	attery									
Battery	Qty	Battery	Qty	5 kVA	10 kVA	15 kVA	20 kVA	25 kVA	30 kVA	35 kVA	40 kVA	kVA
7 Ah 12 V	4x36	24 Ah 12 V	1x36	237	96	60	41	30	21	17	14	min
7 Ah 12 V	4x36	24 Ah 12 V	2x36	353	154	99	66	52	41	34	26	min
7 Ah 12 V	4x36	24 Ah 12 V	3x36	477	205	143	95	71	57	50	41	min
7 Ah 12 V	4x36	24 Ah 12 V	4x36	> 10 h	270	172	125	98	73	63	53	min
7 Ah 12 V	4x36	24 Ah 12 V	5x36	> 10 h	327	212	143	120	99	80	65	min
7 Ah 12 V	4x36	24 Ah 12 V	6x36	> 10 h	394	259	177	134	116	100	83	min
7 Ah 12 V	4x36	24 Ah 12 V	7x36	> 10 h	479	300	203	161	128	115	100	min
7 Ah 12 V	4x36	24 Ah 12 V	8x36	> 10 h	542	331	243	184	147	126	112	min

Table 14. The battery backup table is given with end voltage 1.70 VPC and temperature +25°C. The batteries are fully charged and measured after min. (5) full discharge cycles.

External battery (Panasonic LC-X1224AP) with four internal strings back-up table for UPS ratings 20-40 kVA, p.f. 0.9 (modern IT server/computer load):

Internal Ba	ittery	External Ba	attery									
Battery	Qty	Battery	Qty	5 kVA	10 kVA	15 kVA	20 kVA	25 kVA	30 kVA	35 kVA	40 kVA	kVA
7 Ah 12 V	4x36	24 Ah 12 V	1x36	199	87	53	35	25	19	14	10	min
7 Ah 12 V	4x36	24 Ah 12 V	2x36	297	136	78	57	44	34	26	23	min
7 Ah 12 V	4x36	24 Ah 12 V	3x36	402	173	117	77	60	52	42	36	min
7 Ah 12 V	4x36	24 Ah 12 V	4x36	537	226	142	107	81	64	53	48	min
7 Ah 12 V	4x36	24 Ah 12 V	5x36	> 10 h	289	177	130	106	84	66	58	min
7 Ah 12 V	4x36	24 Ah 12 V	6x36	> 10 h	333	208	151	121	103	84	68	min
7 Ah 12 V	4x36	24 Ah 12 V	7x36	> 10 h	406	254	181	135	118	101	86	min
7 Ah 12 V	4x36	24 Ah 12 V	8x36	> 10 h	478	289	201	161	128	113	100	min

Table 15. The battery backup table is given with end voltage 1.70 VPC and temperature +25°C. The batteries are fully charged and measured after min. (5) full discharge cycles.

Note!

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File name: Runtime_Matrix_9355_20 - 40kVA_RevC4

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External batteries (CSB HRL 12110W) with internal batteries (9Ah 5 years)

External battery (CSB HRL 12110W) with four internal strings back-up table for UPS ratings 20-40 kVA, p.f. 0.7 (typical IT server/computer load):

Internal Ba	ttery	External Ba	attery									
Battery	Qty	Battery	Qty	5 kVA	10 kVA	15 kVA	20 kVA	25 kVA	30 kVA	35 kVA	40 kVA	kVA
9 Ah 12 V	4x36	110 WPC12 V	1x36	318	132	82	62	47	41	32	25	min
9 Ah 12 V	4x36	110 WPC12 V	2x36	518	225	138	104	81	66	50	42	min
9 Ah 12 V	4x36	110 WPC12 V	3x36	> 10 h	318	204	147	114	95	77	66	min
9 Ah 12 V	4x36	110 WPC12 V	4x36	> 10 h	430	266	198	153	124	103	87	min
9 Ah 12 V	4x36	110 WPC12 V	5x36	> 10 h	520	329	245	193	157	128	106	min
9 Ah 12 V	4x36	110 WPC12 V	6x36	> 10 h	> 10 h	409	293	232	189	158	131	min
9 Ah 12 V	4x36	110 WPC12 V	7x36	> 10 h	> 10 h	474	342	268	220	185	158	min
9 Ah 12 V	4x36	110 WPC12 V	8x36	> 10 h	> 10 h	522	406	310	253	211	181	min

Table 16. The battery backup table is given with end voltage 1.70 VPC and temperature +25°C. The batteries are fully charged and measured after min. (5) full discharge cycles.

External battery (CSB HRL 12110W) with four internal strings back-up table for UPS ratings 20-40 kVA, p.f. 0.8 (typical IT server/computer load):

Internal Ba	ttery	External Ba	attery									
Battery	Qty	Battery	Qty	5 kVA	10 kVA	15 kVA	20 kVA	25 kVA	30 kVA	35 kVA	40 kVA	kVA
9 Ah 12 V	4x36	110 WPC12 V	1x36	278	117	69	52	40	32	25	20	min
9 Ah 12 V	4x36	110 WPC12 V	2x36	443	198	118	89	69	50	42	35	min
9 Ah 12 V	4x36	110 WPC12 V	3x36	> 10 h	280	174	124	99	78	65	54	min
9 Ah 12 V	4x36	110 WPC12 V	4x36	> 10 h	363	226	169	127	102	87	73	min
9 Ah 12 V	4x36	110 WPC12 V	5x36	> 10 h	466	282	209	166	129	106	92	min
9 Ah 12 V	4x36	110 WPC12 V	6x36	> 10 h	534	339	252	197	160	131	110	min
9 Ah 12 V	4x36	110 WPC12 V	7x36	> 10 h	> 10 h	412	294	233	187	158	133	min
9 Ah 12 V	4x36	110 WPC12 V	8x36	> 10 h	> 10 h	468	337	264	214	181	155	min

Table 17. The battery backup table is given with end voltage 1.70 VPC and temperature +25°C. The batteries are fully charged and measured after min. (5) full discharge cycles.

External battery **(CSB HRL 12110W)** with four internal strings back-up table for UPS ratings 20-40 kVA, **p.f. 0.9** (modern IT server/computer load):

Internal Ba	ttery	External Ba	attery									
Battery	Qty	Battery	Qty	5 kVA	10 kVA	15 kVA	20 kVA	25 kVA	30 kVA	35 kVA	40 kVA	kVA
9 Ah 12 V	4x36	110 WPC12 V	1x36	239	97	62	45	36	26	20	16	min
9 Ah 12 V	4x36	110 WPC12 V	2x36	385	164	102	76	58	44	36	30	min
9 Ah 12 V	4x36	110 WPC12 V	3x36	550	237	147	108	85	69	55	42	min
9 Ah 12 V	4x36	110 WPC12 V	4x36	> 10 h	312	198	145	111	91	73	62	min
9 Ah 12 V	4x36	110 WPC12 V	5x36	> 10 h	401	247	184	141	112	93	78	min
9 Ah 12 V	4x36	110 WPC12 V	6x36	> 10 h	477	296	218	175	137	113	94	min
9 Ah 12 V	4x36	110 WPC12 V	7x36	> 10 h	537	350	256	201	166	133	112	min
9 Ah 12 V		110 WPC12 V		_	> 10 h	410	295	234	187	158	130	min

Table 18. The battery backup table is given with end voltage 1.70 VPC and temperature +25°C.
The batteries are fully charged and measured after min. (5) full discharge cycles.

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External batteries (CSB HRL 12110W) with internal batteries (7Ah 10 years)

External battery (CSB HRL 12110W) with four internal strings back-up table for UPS ratings 20-40 kVA, p.f. 0.7 (typical IT server/computer load):

Internal Ba	ttery	External Ba	attery									
Battery	Qty	Battery	Qty	5 kVA	10 kVA	15 kVA	20 kVA	25 kVA	30 kVA	35 kVA	40 kVA	kVA
7 Ah 12 V	4x36	110 WPC12 V	1x36	312	124	80	57	44	36	28	22	min
7 Ah 12 V	4x36	110 WPC12 V	2x36	512	217	138	101	75	62	44	38	min
7 Ah 12 V	4x36	110 WPC12 V	3x36	> 10 h	310	204	144	108	91	71	62	min
7 Ah 12 V	4x36	110 WPC12 V	4x36	> 10 h	422	266	195	147	120	97	83	min
7 Ah 12 V	4x36	110 WPC12 V	5x36	> 10 h	512	329	242	187	153	122	102	min
7 Ah 12 V	4x36	110 WPC12 V	6x36	> 10 h	> 10 h	409	290	226	185	152	127	min
7 Ah 12 V	4x36	110 WPC12 V	7x36	> 10 h	> 10 h	474	339	262	216	179	154	min
7 Ah 12 V	4x36	110 WPC12 V	8x36	> 10 h	> 10 h	522	403	304	249	205	177	min

Table 19. The battery backup table is given with end voltage 1.70 VPC and temperature +25°C. The batteries are fully charged and measured after min. (5) full discharge cycles.

External battery (CSB HRL 12110W) with four internal strings back-up table for UPS ratings 20-40 kVA, p.f. 0.8 (typical IT server/computer load):

Internal Ba	Internal Battery External Batter											
Battery	Qty	Battery	Qty	5 kVA	10 kVA	15 kVA	20 kVA	25 kVA	30 kVA	35 kVA	40 kVA	kVA
7 Ah 12 V	4x36	110 WPC12 V	1x36	274	110	63	47	36	28	22	16	min
7 Ah 12 V	4x36	110 WPC12 V	2x36	439	191	124	85	62	46	38	30	min
7 Ah 12 V	4x36	110 WPC12 V	3x36	> 10 h	273	180	120	92	74	61	49	min
7 Ah 12 V	4x36	110 WPC12 V	4x36	> 10 h	356	232	165	120	98	83	68	min
7 Ah 12 V	4x36	110 WPC12 V	5x36	> 10 h	459	288	205	159	125	102	87	min
7 Ah 12 V	4x36	110 WPC12 V	6x36	> 10 h	527	345	248	190	156	127	105	min
7 Ah 12 V	4x36	110 WPC12 V	7x36	> 10 h	> 10 h	418	290	226	183	154	128	min
7 Ah 12 V	4x36	110 WPC12 V	8x36	> 10 h	> 10 h	474	333	257	210	177	150	min

Table 20. The battery backup table is given with end voltage 1.70 VPC and temperature +25°C. The batteries are fully charged and measured after min. (5) full discharge cycles.

External battery (CSB HRL 12110W) with four internal strings back-up table for UPS ratings 20-40 kVA, p.f. 0.9 (modern IT server/computer load):

Internal Ba	ttery	External Ba	attery									
Battery	Qty	Battery	Qty	5 kVA	10 kVA	15 kVA	20 kVA	25 kVA	30 kVA	35 kVA	40 kVA	kVA
7 Ah 12 V	4x36	110 WPC12 V	1x36	236	96	59	43	32	23	17	14	min
7 Ah 12 V	4x36	110 WPC12 V	2x36	382	163	99	73	53	40	32	28	min
7 Ah 12 V	4x36	110 WPC12 V	3x36	547	236	144	105	80	65	51	40	min
7 Ah 12 V	4x36	110 WPC12 V	4x36	> 10 h	311	195	142	106	87	69	60	min
7 Ah 12 V	4x36	110 WPC12 V	5x36	> 10 h	400	244	181	136	108	89	76	min
7 Ah 12 V	4x36	110 WPC12 V	6x36	> 10 h	476	293	215	170	133	109	92	min
7 Ah 12 V	4x36	110 WPC12 V	7x36	> 10 h	536	347	253	196	162	129	110	min
7 Ah 12 V	4x36	110 WPC12 V	8x36	> 10 h	> 10 h	407	292	229	183	154	128	min

Table 21. The battery backup table is given with end voltage 1.70 VPC and temperature +25°C. The batteries are fully charged and measured after min. (5) full discharge cycles.

The specifications are subject to change without a notice.

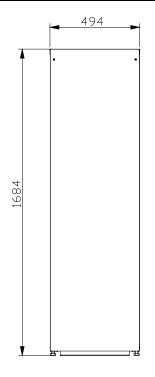
Author: Teppo Henttonen Save date: 9.08.2006

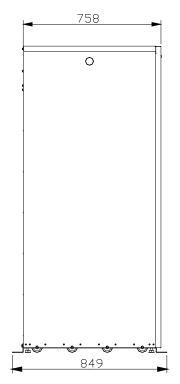
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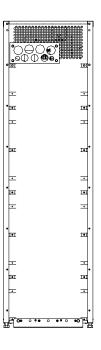


Figure 1 Dimensions of external battery cabinet

External Battery Cabinet Specification

Cabinet (p/n)	Battery Size	Pcs	Dimensions	Weight
1025169	24 Ah 12 V	1 x 36	H1684xW494xD758	510 kg
1025170	24 Ah 12 V	2 x 36	H1684xW494xD758	870 kg
1026072	110 WPC 12 V	1 x 36	H1684xW494xD758	520 kg
1026073	110 WPC 12 V	2 x 36	H1684xW494xD758	890 kg

Table 22. Powerware 9355 20-40 kVA External Battery Cabinet specifications with 10 years batteries. MAX 72 batteries in a single external cabinet.

Author: Teppo Henttonen Save date: 9.08.2006

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