

# Power

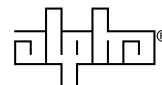
## AlphaCell™ SMU-HR

High Rate Discharge VRLA Battery



- Power range available in 12 volts from 9 – 150Ah
- Optimized grid for high power density
- Upright, side or end mounting
- Thermally welded case to cover bond eliminates leakage
- Optional retardant ABS casing to UL94-VO
- 10 year design life
- 2 year - 100% full warranty

The AlphaCell SMU-HR, with Absorbed Glass Mat (AGM) technology, is a high discharge rate VRLA battery specifically designed for UPS, power generation, and switchgear applications. The SMU-HR's computer designed grid with lead and low calcium allows minimal gassing and ease of recycling. This long life and high rate discharge cycle battery is available in 12 volts ranging from 9 to 150 ampere-hours.



## AlphaCell SMU-HR Feature Summary

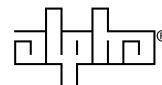
	AlphaCell SM-HR
Standard Warranty:	2 yr full plus 8 yr prorated
Battery Type:	Valve Regulated Lead Acid
Range of Capacity:	9 – 150Ah
Recommended Float Voltage:	13.5VPC @ 20°C (68°F)
Operating Temperature:	25°C (77°F)
Terminal Type:	Threaded Copper Insert
Optional:	UL 94 VO Flame Retardent Casing

## Mechanical Specifications

Type	Length (in/mm)	Width (in/mm)	Height (in/mm)	Weight (lb/kg)	Stud hole size
SMU-HR 12-9	5.9/151	2.6/65	3.75/95	5.9/2.7	snap on
SMU-HR 12-18	7.1/181	3.0/77	6.6/167	13.2/6.0	5.5mm
SMU-HR 12-26	6.9/166	6.5/166	4.9/125	19.6/8.9	5.5mm
SMU-HR 12-33	7.8/197	5.2/132	6.8/172	27.5/12.5	9.8mm
SMU-HR 12-40	7.8/197	6.5/165	6.7/170	30.8/14	5.5mm
SMU-HR 12-55	9.0/228	5.5/139	7.9/201	38.5/17.5	5.5mm
SMU-HR 12-75	10.3/261	6.8/173	7.9/201	57.2/26	5.5mm
SMU-HR 12-90	12.0/305	6.6/168	8.2/208	63.6/28.9	5.5mm
SMU-HR 12-100	13.4/341	6.8/173	8.4/213	74.8/34	5.5mm
SMU-HR 12-134	13.4/341	6.8/172	11.1/282	92.4/42	5.5mm
SMU-HR 12-150	13.4/341	6.8/172	11.1/282	99/45	5.5mm

## Amperes to 1.60 Final Volts Per Cell at 25°C (77°F)

Type	Minutes				Hours					
	5	10	15	30	1	3	5	8	10	20
SMU-HR 12-9	41.40	25.70	19.40	11.80	5.69	2.50	1.53	1.00	0.83	0.45
SMU-HR 12-18	88.60	55.10	41.60	25.40	14.20	6.24	3.81	2.49	2.08	1.12
SMU-HR 12-22	94.50	58.80	44.40	27.10	15.60	6.86	4.19	2.73	2.28	1.23
SMU-HR 12-26	118.00	73.50	55.50	33.80	19.20	8.42	5.15	3.36	2.80	1.52
SMU-HR 12-33	106.00	73.20	58.00	37.50	23.30	9.30	6.00	4.00	3.40	1.78
SMU-HR 12-35	165.00	103.00	77.60	47.40	23.50	10.30	6.29	4.11	3.43	1.85
SMU-HR 12-40	189.00	118.00	88.70	54.10	28.40	12.50	7.63	4.98	4.15	2.24
SMU-HR 12-55	177.00	122.00	96.70	62.50	38.80	15.50	10.00	6.53	5.44	2.85
SMU-HR 12-75	196.00	136.00	105.00	77.00	49.50	23.30	14.80	9.31	7.50	3.93
SMU-HR 12-90	366.0	228.0	172.0	105.0	64.0	28.1	17.2	11.2	9.4	5.1
SMU-HR 12-100	320.00	218.00	180.00	114.00	75.00	30.00	19.10	12.20	10.00	5.24
SMU-HR 12-134	419.9	277.8	234.9	145.6	79.1	33.5	22.8	15.6	12.7	-
SMU-HR 12-150	470.0	311.0	263.0	163.0	88.5	37.5	25.5	16.5	13.4	-

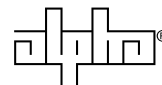


### Amperes to 1.67 Final Volts Per Cell at 25°C (77°F)

Type	Minutes				Hours					
	5	10	15	30	1	3	5	8	10	20
SMU-HR 12-9	38.80	24.40	18.70	11.30	5.61	2.40	1.49	0.98	0.82	0.43
SMU-HR 12-18	83.20	52.30	40.00	24.30	14.00	6.00	3.73	2.45	2.06	1.08
SMU-HR 12-22	88.70	55.80	42.70	25.90	15.40	6.60	4.11	2.70	2.26	1.19
SMU-HR 12-26	111.00	69.70	53.40	32.40	18.90	8.10	5.04	3.31	2.78	1.46
SMU-HR 12-33	104.00	72.80	55.00	36.00	23.10	9.26	5.90	3.84	3.20	1.68
SMU-HR 12-35	155.00	97.60	74.70	45.30	23.10	9.90	6.16	4.04	3.39	1.79
SMU-HR 12-40	177.00	112.00	85.40	51.80	28.10	12.00	7.47	4.90	4.11	2.17
SMU-HR 12-55	173.00	121.00	91.70	60.00	38.50	15.40	9.80	6.26	5.12	2.68
SMU-HR 12-75	192.00	135.00	103.00	76.00	49.20	23.10	14.70	9.22	7.40	3.88
SMU-HR 12-90	344.0	216.0	165.0	100.0	63.1	27.0	16.8	11.0	9.3	4.9
SMU-HR 12-100	290.00	215.00	173.00	113.00	74.00	29.70	18.90	12.10	9.90	5.19
SMU-HR 12-134	350.2	265.3	230.5	145.6	79.1	33.5	22.8	15.5	12.6	-
SMU-HR 12-150	392.0	297.0	258.0	163.0	88.5	37.5	25.5	16.5	13.4	-

### Amperes to 1.70 Final Volts Per Cell at 25°C (77°F)

Type	Minutes				Hours					
	5	10	15	30	1	3	5	8	10	20
SMU-HR 12-9	35.60	23.50	18.20	10.30	5.44	2.24	1.46	0.97	0.82	0.43
SMU-HR 12-18	76.20	50.40	39.10	22.10	13.60	5.60	3.65	2.42	2.05	1.07
SMU-HR 12-22	81.30	53.80	41.70	23.50	15.00	6.16	4.02	2.66	2.25	1.17
SMU-HR 12-26	102.00	67.20	52.10	29.40	18.40	7.56	4.93	3.27	2.77	1.44
SMU-HR 12-33	104.00	72.80	54.00	36.00	23.10	9.24	5.80	3.81	3.20	1.68
SMU-HR 12-35	142.00	94.10	72.90	41.20	22.40	9.24	6.03	4.00	3.38	1.76
SMU-HR 12-40	163.00	108.00	83.40	47.10	27.20	11.20	7.31	4.85	4.10	2.13
SMU-HR 12-55	173.00	121.00	90.00	60.00	38.50	15.40	9.70	6.23	5.12	2.68
SMU-HR 12-75	192.00	135.00	103.00	76.00	49.20	23.00	14.60	9.19	7.40	3.88
SMU-HR 12-90	315.0	208.0	162.0	91.2	61.2	25.2	16.4	10.9	9.2	4.8
SMU-HR 12-100	280.00	213.00	172.00	113.00	73.00	29.50	18.70	12.00	9.80	5.14
SMU-HR 12-134	335.0	260.9	223.3	145.6	79.1	33.5	22.8	15.4	12.6	-
SMU-HR 12-150	375.0	292.0	250.0	163.0	88.5	37.5	25.5	16.5	13.4	-

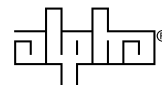


### Amperes to 1.75 Final Volts Per Cell at 25°C (77°F)

Type	Minutes				Hours					
	5	10	15	30	1	3	5	8	10	20
SMU-HR 12-9	34.90	22.80	17.60	9.78	5.18	2.17	1.43	0.95	0.81	0.42
SMU-HR 12-18	74.70	48.80	37.80	21.00	13.00	5.41	3.57	2.39	2.04	1.04
SMU-HR 12-22	79.70	52.10	40.30	22.40	14.30	5.95	3.93	2.63	2.25	1.14
SMU-HR 12-26	99.60	65.10	50.40	27.90	17.50	7.31	4.82	3.23	2.76	1.40
SMU-HR 12-33	103.00	72.60	53.30	36.00	23.10	9.20	5.80	3.81	3.20	1.68
SMU-HR 12-35	139.00	91.20	70.60	39.10	21.40	8.93	5.90	3.95	3.37	1.71
SMU-HR 12-40	159.00	104.00	80.70	44.70	25.90	10.80	7.15	4.78	4.08	2.08
SMU-HR 12-55	172.00	121.00	88.80	60.00	38.50	15.30	9.70	6.23	5.12	2.68
SMU-HR 12-75	190.00	135.00	103.00	76.00	49.00	23.00	14.40	9.06	7.30	3.83
SMU-HR 12-90	309.0	202.0	156.0	86.6	58.3	24.4	16.1	10.8	9.2	4.7
SMU-HR 12-100	275.00	212.00	170.00	112.00	72.00	29.00	18.50	11.90	9.80	5.14
SMU-HR 12-134	321.6	242.1	216.2	142.9	78.9	32.4	20.9	15.4	12.5	-
SMU-HR 12-150	360.0	271.0	242.0	160.0	88.3	36.3	23.4	16.5	13.4	-

### Amperes to 1.80 Final Volts Per Cell at 25°C (77°F)

Type	Minutes				Hours					
	5	10	15	30	1	3	5	8	10	20
SMU-HR 12-9	31.20	21.80	16.00	9.06	4.85	2.08	1.34	0.92	0.80	0.40
SMU-HR 12-18	66.90	46.60	34.30	19.40	12.10	5.20	3.36	2.30	2.00	1.01
SMU-HR 12-22	71.30	49.70	36.60	20.70	13.30	5.72	3.70	2.53	2.20	1.11
SMU-HR 12-26	89.10	62.20	45.80	25.90	16.40	7.02	4.54	3.11	2.70	1.36
SMU-HR 12-33	98.00	70.00	52.80	35.20	22.50	9.20	5.80	3.75	3.10	1.63
SMU-HR 12-35	125.00	87.10	64.10	36.20	20.00	8.58	5.54	3.79	3.30	1.67
SMU-HR 12-40	143.00	99.50	73.30	41.40	24.30	10.40	6.72	4.60	4.00	2.02
SMU-HR 12-55	163.00	117.00	88.00	58.70	37.50	15.30	9.70	6.13	4.96	2.60
SMU-HR 12-75	188.00	135.00	103.00	75.00	47.00	22.50	14.00	8.88	7.20	3.78
SMU-HR 12-90	276.0	193.0	142.0	80.2	54.6	23.4	15.1	10.3	9.0	4.6
SMU-HR 12-100	250.00	208.00	168.00	110.00	70.00	28.50	18.30	11.80	9.70	5.09
SMU-HR 12-120	397.00	277.00	204.00	115.00	82.50	35.40	22.80	15.63	13.60	6.87
SMU-HR 12-134	289.4	227.8	209.0	138.5	75.9	31.5	20.5	15.4	12.5	-
SMU-HR 12-150	324.0	255.0	234.0	155.0	85.0	35.3	23.0	16.5	13.4	-

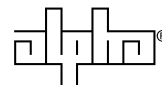


### Amperes to 1.85 Final Volts Per Cell at 25°C (77°F)

Type	Minutes				Hours					
	5	10	15	30	1	3	5	8	10	20
SMU-HR 12-9	27.50	20.70	14.40	8.34	4.52	2.01	1.26	0.88	0.78	0.39
SMU-HR 12-18	59.00	44.40	30.90	17.90	11.30	5.01	3.15	2.22	1.97	0.99
SMU-HR 12-22	62.90	47.40	32.90	19.10	12.40	5.51	3.46	2.44	2.17	1.08
SMU-HR 12-26	78.70	59.20	41.20	23.80	15.30	6.77	4.25	2.99	2.66	1.33
SMU-HR 12-33	92.00	66.00	51.00	34.00	21.50	8.80	5.70	3.72	3.10	1.63
SMU-HR 12-35	110.00	82.90	57.60	33.40	18.70	8.27	5.19	3.66	3.26	1.64
SMU-HR 12-40	126.00	94.80	65.90	38.10	22.60	10.00	6.29	4.43	3.95	1.96
SMU-HR 12-55	153.00	110.00	85.00	56.70	35.80	14.70	9.50	5.94	4.75	2.49
SMU-HR 12-75	175.00	123.00	99.00	67.50	45.80	20.70	14.00	8.81	7.10	3.72
SMU-HR 12-90	244.0	184.0	128.0	73.9	50.9	22.6	14.2	10.0	8.9	4.5
SMU-HR 12-100	228.00	200.00	164.00	103.00	68.00	27.90	18.00	11.70	9.70	5.09
SMU-HR 12-134	272.5	217.1	201.9	123.3	71.5	30.3	19.7	14.7	12.0	-
SMU-HR 12-150	305.0	243.0	226.0	138.0	80.0	33.9	22.1	15.5	12.6	-

### Watts to 1.60 Final Volts Per Cell at 25°C (77°F)

Type	Minutes				Hours					
	5	10	15	30	1	3	5	8	10	20
SMU-HR 12-9	72.60	46.50	35.40	21.30	10.30	4.43	2.58	1.88	1.71	0.90
SMU-HR 12-18	155.50	99.60	75.90	45.70	25.70	11.10	6.44	4.68	4.27	2.24
SMU-HR 12-22	166.00	106.00	81.00	48.70	28.20	12.20	7.09	5.15	4.69	2.46
SMU-HR 12-26	207.00	133.00	101.00	60.90	34.60	14.90	8.70	6.32	5.76	3.02
SMU-HR 12-33	289.00	186.00	143.00	75.80	45.80	19.80	12.90	8.47	7.10	3.72
SMU-HR 12-35	290.00	186.00	142.00	85.30	42.30	18.30	10.60	7.71	7.04	3.70
SMU-HR 12-40	332.00	212.00	162.00	97.50	51.30	22.10	12.90	9.36	8.53	4.48
SMU-HR 12-50	298.00	215.00	175.00	108.00	67.40	28.50	18.50	12.20	10.20	5.35
SMU-HR 12-55	385.00	257.00	203.00	125.00	74.10	31.40	20.30	13.30	11.20	5.87
SMU-HR 12-75	537.00	368.00	284.00	181.00	108.00	49.70	33.30	20.50	16.20	8.49
SMU-HR 12-90	643.0	412.0	314.0	189.0	115.0	49.8	29.0	21.1	19.2	10.1
SMU-HR 12-100	740.00	518.00	405.00	254.00	154.00	58.00	43.30	28.30	23.70	12.40
SMU-HR 12-120	923.00	591.00	451.00	271.00	174.00	75.30	43.80	31.81	29.00	15.20
SMU-HR 12-134	746.0	544.2	484.2	299.8	179.9	67.8	43.8	28.8	24.0	-
SMU-HR 12-150	780.0	590.0	525.0	325.0	195.0	73.5	47.5	31.2	26.0	-

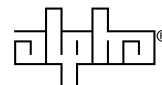


### Watts to 1.67 Final Volts Per Cell at 25°C (77°F)

Type	Minutes				Hours					
	5	10	15	30	1	3	5	8	10	20
SMU-HR 12-9	70.00	45.30	35.00	20.90	10.20	4.29	2.57	1.87	1.70	0.86
SMU-HR 12-18	150.10	97.10	75.00	44.70	25.50	10.70	6.42	4.66	4.24	2.16
SMU-HR 12-22	160.00	104.00	80.00	47.70	28.00	11.80	7.06	5.12	4.66	2.38
SMU-HR 12-26	200.00	129.00	100.00	59.70	34.40	14.50	8.66	6.28	5.72	2.92
SMU-HR 12-33	280.00	183.00	140.00	75.00	45.60	19.80	12.73	8.35	7.00	3.67
SMU-HR 12-35	280.00	181.00	140.00	83.50	42.10	17.70	10.60	7.69	7.00	3.56
SMU-HR 12-40	320.00	207.00	160.00	95.50	51.00	21.40	12.80	9.30	8.48	4.32
SMU-HR 12-55	373.00	253.00	198.00	124.00	73.70	31.30	20.20	13.30	11.10	5.82
SMU-HR 12-75	512.00	359.00	270.00	178.00	106.00	46.30	32.00	20.00	16.00	8.39
SMU-HR 12-90	620.0	401.0	310.0	185.0	115.0	48.2	28.9	21.0	19.1	9.7
SMU-HR 12-100	714.00	505.00	397.00	253.00	153.00	57.70	43.20	28.10	23.30	12.20
SMU-HR 12-134	719.0	521.1	475.0	299.8	179.9	67.8	43.8	28.8	24.0	-
SMU-HR 12-150	745.0	565.0	515.0	325.0	195.0	73.5	47.5	31.2	26.0	-

### Watts to 1.70 Final Volts Per Cell at 25°C (77°F)

Type	Minutes				Hours					
	5	10	15	30	1	3	5	8	10	20
SMU-HR 12-9	65.90	44.90	34.70	19.60	10.00	4.10	2.53	1.85	1.69	0.85
SMU-HR 12-18	141.30	96.10	74.40	41.90	25.00	10.20	6.33	4.61	4.21	2.13
SMU-HR 12-22	151.00	103.00	79.30	44.70	27.50	11.30	6.97	5.07	4.63	2.35
SMU-HR 12-26	188.00	128.00	99.20	55.90	33.80	13.80	8.55	6.23	5.69	2.88
SMU-HR 12-33	270.00	182.00	139.00	75.00	45.50	19.70	12.70	8.29	6.92	3.63
SMU-HR 12-35	264.00	179.00	139.00	78.20	41.30	16.90	10.50	7.63	6.95	3.52
SMU-HR 12-40	301.00	205.00	159.00	89.40	50.00	20.50	12.70	9.24	8.43	4.27
SMU-HR 12-55	360.00	252.00	197.00	124.00	73.60	31.20	20.10	13.20	11.00	5.77
SMU-HR 12-75	500.00	350.00	268.00	177.00	105.00	45.70	31.30	19.70	15.80	8.28
SMU-HR 12-90	584.0	397.0	307.0	173.0	113.0	46.1	28.5	20.8	19.0	9.6
SMU-HR 12-100	700.00	496.00	390.00	253.00	152.00	57.70	43.20	28.00	23.20	12.20
SMU-HR 12-134	705.0	511.9	438.1	299.8	179.9	67.8	43.8	28.8	24.0	-
SMU-HR 12-150	725.0	555.0	475.0	325.0	195.0	73.5	47.5	31.2	26.0	-

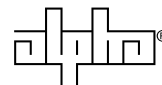


### Watts to 1.75 Final Volts Per Cell at 25°C (77°F)

Type	Minutes				Hours					
	5	10	15	30	1	3	5	8	10	20
SMU-HR 12-9	66.40	44.70	34.40	19.00	9.83	4.00	2.51	1.82	1.65	0.83
SMU-HR 12-18	142.20	95.80	73.70	40.70	24.60	10.00	6.28	4.56	4.16	2.08
SMU-HR 12-22	152.00	102.00	78.70	43.40	27.00	11.00	6.91	5.02	4.58	2.29
SMU-HR 12-26	190.00	128.00	98.30	54.20	33.20	13.50	8.48	6.16	5.62	2.84
SMU-HR 12-33	265.00	177.00	137.00	74.70	45.30	19.70	12.50	8.20	6.87	3.60
SMU-HR 12-35	265.00	179.00	138.00	75.90	40.60	16.50	10.40	7.54	6.86	3.43
SMU-HR 12-40	303.00	204.00	157.00	86.70	49.20	20.00	12.60	9.14	8.32	4.16
SMU-HR 12-55	353.00	245.00	194.00	123.00	73.30	31.10	19.80	13.00	10.90	5.71
SMU-HR 12-75	484.00	342.00	265.00	172.00	103.00	45.00	30.80	19.50	15.80	8.28
SMU-HR 12-90	588.0	396.0	305.0	168.0	110.0	45.0	28.3	20.5	18.7	9.4
SMU-HR 12-100	662.00	475.00	378.00	245.00	152.00	57.50	43.00	27.90	23.20	12.20
SMU-HR 12-134	666.0	479.0	424.3	295.1	175.2	67.3	43.3	28.8	24.0	-
SMU-HR 12-150	685.0	515.0	460.0	320.0	190.0	73.0	47.0	31.2	26.0	-

### Watts to 1.80 Final Volts Per Cell at 25°C (77°F)

Type	Minutes				Hours					
	5	10	15	30	1	3	5	8	10	20
SMU-HR 12-9	60.70	44.00	31.90	18.10	9.27	3.88	2.43	1.76	1.60	0.81
SMU-HR 12-12	95.40	69.20	50.10	28.40	15.30	6.41	4.02	2.95	2.71	1.34
SMU-HR 12-18	130.10	94.40	68.40	38.80	23.20	9.71	6.08	4.47	4.11	2.06
SMU-HR 12-22	139.00	101.00	72.90	41.30	25.50	10.70	6.69	4.92	4.52	2.23
SMU-HR 12-26	173.00	126.00	91.20	51.70	31.30	13.10	8.21	6.03	5.54	2.80
SMU-HR 12-33	259.00	173.00	135.00	73.70	44.90	19.50	12.30	8.11	6.83	3.58
SMU-HR 12-35	243.00	176.00	128.00	72.40	38.20	16.00	10.00	7.31	6.70	3.36
SMU-HR 12-40	278.00	201.00	146.00	82.70	46.30	19.40	12.20	8.94	8.21	4.05
SMU-HR 12-55	345.00	239.00	191.00	122.00	72.60	30.90	19.50	12.80	10.80	5.66
SMU-HR 12-75	470.00	330.00	263.00	162.00	103.00	43.30	30.00	19.20	15.70	8.23
SMU-HR 12-90	538.0	390.0	383.0	160.0	104.0	43.7	27.4	20.0	18.8	9.2
SMU-HR 12-100	594.00	462.00	369.00	240.00	150.00	57.20	42.70	27.70	23.00	12.10
SMU-HR 12-134	600.0	466.0	410.4	285.9	172.5	66.4	42.9	27.7	23.1	-
SMU-HR 12-150	615.0	485.0	445.0	310.0	187.0	72.0	46.5	30.0	25.0	-



## Watts to 1.85 Final Volts Per Cell at 25°C (77°F)

Type	Minutes				Hours					
	5	10	15	30	1	3	5	8	10	20
SMU-HR 12-9	55.10	41.80	28.90	16.90	8.71	3.77	2.36	1.71	1.56	0.78
SMU-HR 12-18	118.00	89.50	62.00	36.30	21.80	9.41	5.89	4.37	4.05	2.03
SMU-HR 12-22	126.00	95.50	66.20	38.70	24.00	10.40	6.48	4.81	4.46	2.14
SMU-HR 12-26	157.00	119.00	82.70	48.40	29.40	12.70	7.95	5.90	5.47	2.76
SMU-HR 12-33	252.00	168.00	120.00	72.50	44.30	19.20	12.00	7.92	6.67	3.50
SMU-HR 12-35	220.00	167.00	116.00	67.80	35.90	15.50	9.72	7.14	6.56	3.30
SMU-HR 12-40	252.00	191.00	132.00	77.40	43.60	18.80	11.80	8.76	8.11	3.89
SMU-HR 12-55	327.00	224.00	152.00	114.00	68.20	28.50	17.70	12.00	10.40	5.45
SMU-HR 12-75	420.00	300.00	258.00	158.00	102.00	42.50	28.70	18.30	15.00	7.86
SMU-HR 12-90	488.0	370.0	256.0	150.0	98.0	42.4	26.5	19.5	17.9	9.0
SMU-HR 12-100	560.00	441.00	358.00	230.00	146.00	56.30	41.50	27.20	22.70	11.90
SMU-HR 12-134	565.0	446.0	396.6	276.7	167.9	64.6	41.5	26.6	22.1	-
SMU-HR 12-150	580.0	462.0	430.0	300.0	182.0	70.0	45.0	28.8	24.0	-

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