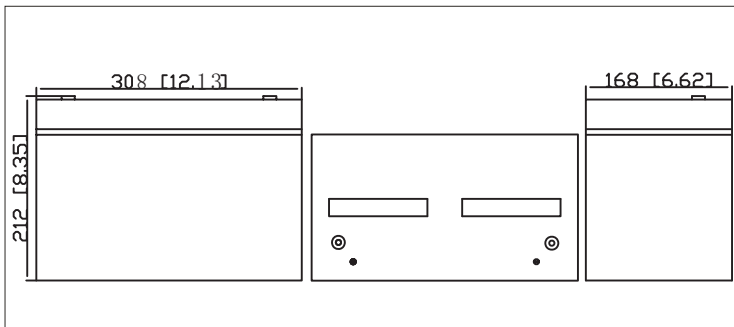


Model: **HR12V310**

HR Series

The HR range of VRLA batteries is perfectly suited to any application which requires a high rate current over a short period. In particular they are ideal for UPS systems thanks to their optimized performance and a patented post seal design. The rugged ABS container and flexible handles ensure that installation is also easily performed and trouble-free. A design life of 10 years completes the package.

Dimensions-mm[inch]



Specifications

Battery Model	HR12V310
Nominal Voltage	12V
Rated Capacity	310 Watts per cell at the 15 minute rate to 1.67 volts per cell @25°C(77°F)
Typical Weight	28.5kg
Internal Resistance	Approx 5.2mΩ
Temperature Ranges	Operation (maximum): -40°C to 55°C(-40°F to 131°F)
	Operation (recommended): 15°C to 25°C(59°F to 77°F)
	Storage: -20°C to 40°C(-4°F to 104°F)
Float Voltage	2.27V/cell@25°C(77°F)
Recommended Maximum Charging Current Limit	22.5A
Equalize and Cycle Service	2.35V~2.40V@25°C(77°F)
Self Discharge	The residual capacity is above 87% after 90 days storage(25°C/77°F)
Terminal	M6 Female
Terminal Hardware Torque	10 ± 1.0Nm
Container Material	ABS (V0 optional)

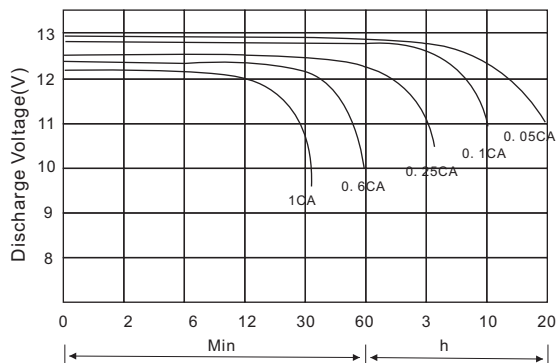
Constant Current Discharge Characteristics Units: Amperes (25°C, 77°F)

End voltage per cell	5min	10min	15min	20min	30min	40min	50min	1h	2h	3h	4h	5h	6h	8h	10h
1.60V	373	265	188	173	120	91.1	74.3	62.5	36.3	24.4	19.9	16.7	14.3	10.9	9.05
1.67V	352	251	178	168	117	89.2	72.1	61.9	35.9	24.2	19.6	16.6	14.2	10.7	8.95
1.70V	343	243	172	164	115	87.4	70.7	61.3	35.6	23.9	19.5	16.3	14.1	10.6	8.90
1.75V	284	207	160	159	109	85.6	69.2	60.7	35.3	23.7	19.4	16.2	13.8	10.5	8.77
1.80V	244	188	149	148	103	83.8	68.5	58.3	34.6	23.3	18.7	15.6	13.6	10.3	8.50
1.85V	205	165	135	137	95.7	82.4	67.0	56.9	32.8	22.8	18.3	14.9	12.9	9.89	8.13
1.90V	165	126	114	109	84.4	68.3	58.3	51.6	31.1	21.1	16.4	13.8	11.6	9.23	7.58

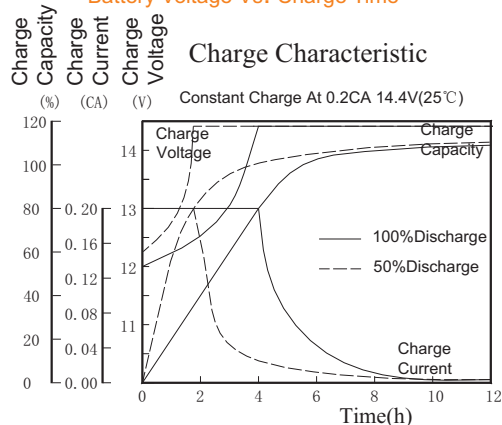
Discharge Data with Constant Power Units: Watts per cell (25°C, 77°F)

End voltage per cell	5min	10min	15min	20min	30min	40min	50min	1h	2h	3h	4h	5h	6h	8h	10h
1.60V	659	474	345	318	223	166	136	116	68.5	46.4	38.1	32.2	27.8	21.2	17.7
1.67V	629	456	330	314	221	164	134	116	68.0	46.2	37.8	32.2	27.7	21.0	17.6
1.70V	617	444	323	309	218	162	132	115	67.6	45.9	37.7	31.8	27.6	20.9	17.6
1.75V	519	384	300	300	208	160	131	116	68.4	46.3	37.7	31.7	27.2	20.7	17.5
1.80V	454	356	284	280	197	160	132	113	67.4	45.3	36.4	30.7	26.9	20.4	16.9
1.85V	390	316	259	264	184	159	130	111	64.0	44.7	36.0	29.4	25.5	19.7	16.3
1.90V	314	242	220	211	163	133	114	101	61.0	41.5	32.3	27.2	23.1	18.5	15.3

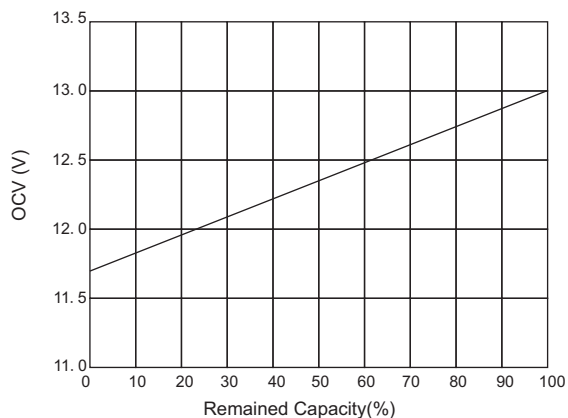
Terminal Voltage(V) Vs. Discharge Time (25°C, 77°F)



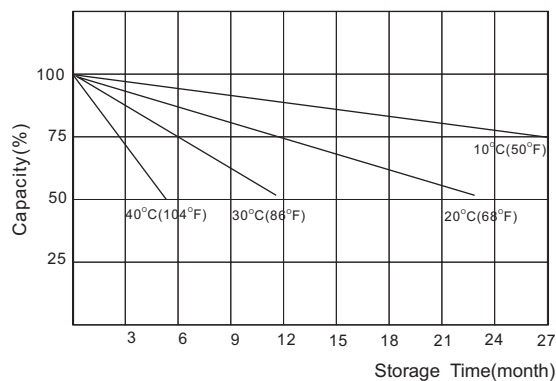
Battery Voltage Vs. Charge Time



Relationship of OCV Vs. State of Charge



Capacity Retention Characteristic



Charging Procedures

Application	Charge Voltage (V/Cell)			Max. Charge Current
	Temperature	Set Point	Allowable Range	
Cycle	25°C	2.40	2.35~2.45	22.5A
Standby	25°C	2.27	2.25~2.29	

Discharge Current VS. Discharge Voltage

Final Discharge Voltage V/Cell	1.80	1.70	1.55	1.30
Discharge Current (A)	18A ≥ I	18A < I < 45A	45A < I < 90A	I > 90A

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