

# stored energy solutions for a demanding world

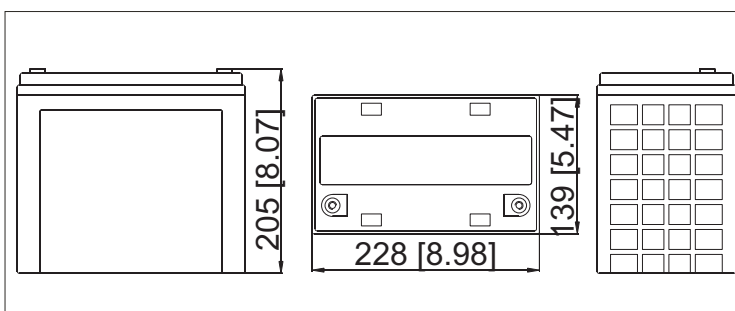


## Model: HR12V200

## 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	HR12V200
Nominal Voltage	12V
Rated Capacity	200 Watts per cell at the 15 minute rate to 1.67 volts per cell @25°C(77°F)
Typical Weight	17.5kg
Internal Resistance	Approx 8.5mΩ
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	16.5A
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)

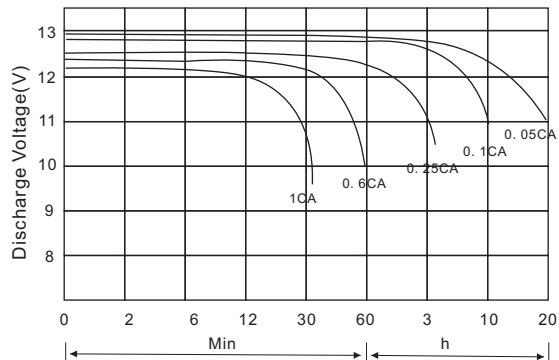
### Constant Current Discharge Characteristics Units: Amperes (25°C, 77°F)

End voltage per cell	5min	10min	15min	20min	30min	40min	50min	1h	2h	3h	4h	5h	6h	8h	10h
1.60V	226	161	114	99.4	69.2	52.3	42.7	35.9	20.8	14.0	11.4	9.58	8.23	6.25	5.20
1.67V	214	152	108	96.4	67.5	51.3	41.4	35.6	20.6	13.9	11.3	9.52	8.15	6.15	5.14
1.70V	208	147	105	94.4	66.3	50.2	40.6	35.2	20.4	13.7	11.2	9.37	8.09	6.10	5.11
1.75V	172	125	97.4	91.3	62.8	49.2	39.8	34.9	20.3	13.6	11.1	9.28	7.94	6.01	5.04
1.80V	148	114	90.3	84.8	59.2	48.1	39.3	33.5	19.9	13.4	10.7	8.95	7.81	5.93	4.88
1.85V	125	100	81.7	78.5	55.0	47.3	38.5	32.7	18.9	13.1	10.5	8.54	7.40	5.68	4.67
1.90V	99.9	76.6	69.3	62.8	48.5	39.2	33.5	29.6	17.9	12.1	9.42	7.90	6.68	5.30	4.35

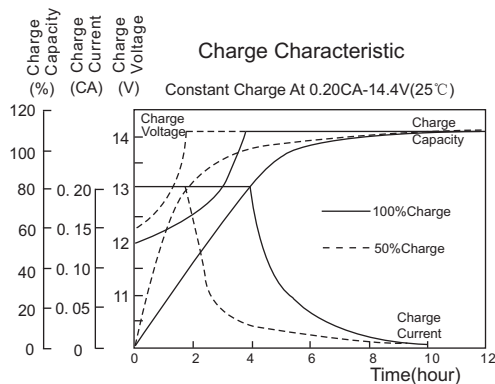
### Discharge Data with Constant Power Units: Watts per cell (25°C, 77°F)

End voltage per cell	5min	10min	15min	20min	30min	40min	50min	1h	2h	3h	4h	5h	6h	8h	10h
1.60V	400	288	209	183	128	95.4	78.4	66.5	39.3	26.7	21.9	18.5	16.0	12.2	10.2
1.67V	382	277	200	180	127	94.4	77.1	66.5	39.1	26.5	21.7	18.5	15.9	12.1	10.1
1.70V	374	269	196	177	125	93.2	76.0	66.2	38.9	26.4	21.6	18.3	15.9	12.0	10.1
1.75V	315	233	182	173	119	92.1	75.1	66.5	39.3	26.6	21.7	18.2	15.6	11.9	10.0
1.80V	276	216	172	161	113	92.1	75.9	64.7	38.7	26.0	20.9	17.6	15.5	11.7	9.71
1.85V	237	192	157	151	106	91.2	74.7	63.8	36.8	25.7	20.7	16.9	14.6	11.3	9.35
1.90V	191	147	134	121	93.8	76.1	65.3	58.1	35.0	23.9	18.5	15.6	13.3	10.6	8.79

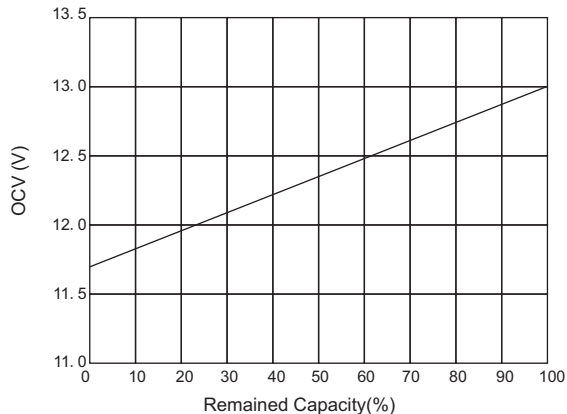
Terminal Voltage(V) Vs. Discharge Time (25°C, 77°F)



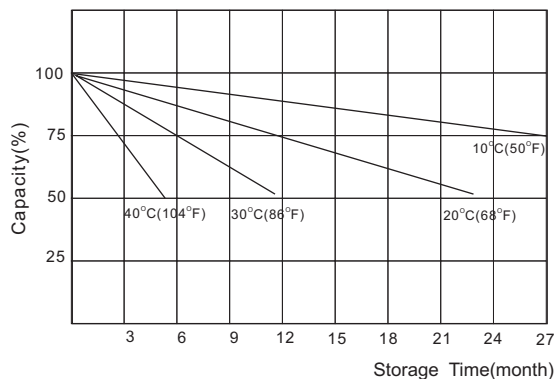
Battery Voltage Vs. Charge Time



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	50A
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)	40A ≥ I	40A < I < 100A	100A < I < 200A	I > 200A

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