

# STARMAX

The world's leading battery brand



## HRL SERIES-LONG LIFE **BATTERIES**

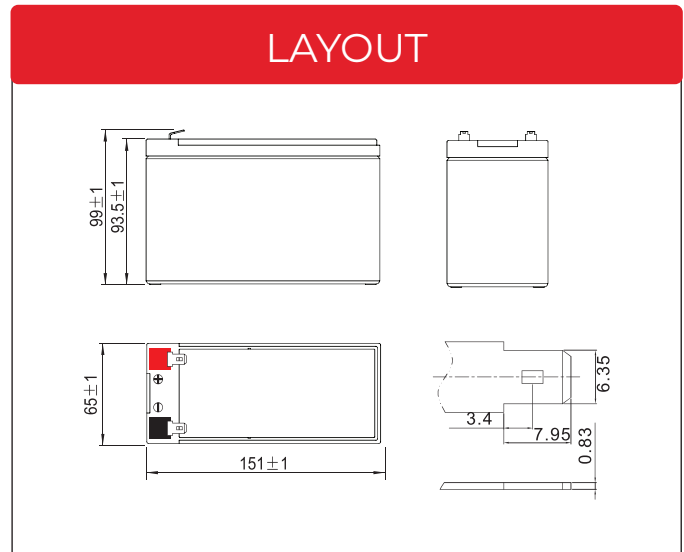
HRL 1235W



[www.starmaxbatteries.com](http://www.starmaxbatteries.com)

# HRL Series

## HRL 1235W



## General Features

- ✓ **High quality AGM separator:** Extend cycle life and prevent micro short circuit
- ✓ **PbCaSn alloy for plate grids:** Less gassing, less self-discharging
- ✓ **Unique vent valve design:** Reduce water losing and prevent air/spark going inside

## Applications

- ✓ UPS
- ✓ Hospitals & Testing Laboratories
- ✓ Emergency Power Supply
- ✓ Industrial Process Control Facilities
- ✓ Banks & Financial Markets
- ✓ Data & Network Operation Centers

## Standards

- ✓ Compliance with IEC 60896 standards
- ✓ Classified as "General Purpose" according to Eurobat
- ✓ CE, UL, IEC Cer tified
- ✓ Manufactured in Starmax, ISO 45001, ISO 9001 and ISO 14001 certified production facilities



# SPECIFICATIONS

Rated Voltage	12V		
Nominal Rate	(W <sub>15</sub> ,1.67V/cell)	35W	
Nominal Capacity	(C <sub>10</sub> ,1.80V/cell)	7.8Ah	
Dimensions	Length	151±1mm (5.94 inches)	
	Width	65±1mm (2.56 inches)	
	Container height	93.5±1mm (3.68 inches)	
	Total height	99±1mm (3.90 inches)	
Approx. weight	2.50 Kg (5.51 lbs)		
Terminal	T2		
Container material	ABS: UL 94 HB or V-0		
Rated capacity (25°C)	7.81 Ah	(10hr, 0.781A,1.80V/cell)	
	7.66 Ah	(8hr, 0.958A,1.80V/cell)	
	7.20 Ah	(5hr, 1.44A,1.75V/cell)	
	6.63 Ah	(3hr, 2.21A,1.75V/cell)	
	5.46 Ah	(1hr, 5.46A,1.67V/cell)	
Max. discharge current	108A		
Internal resistance (25°C)	Approx. 20mΩ		
Operating temp. range	Discharge	-20~55°C (4~131°F)	
	Charge	-20~40°C (-4~104°F)	
	Storage	-15~50°C (5~122°F)	
Nominal operating temp. range	25±3°C (77±5°F)		
Max.Charging Current(25°C)	2.00A		
Charge voltage(25°C)	<b>Charge voltage</b>		<b>Temp. Coefficient</b>
	Float	2.25~2.30V/cell	-3mV/cell/°C
	Equalization	2.30~2.40V/cell	-4mV/cell/°C
Effect of temp. to Capacity	40°C (104°F)		106%
	25°C (77°F)		100%
	0°C (32°F)		86%
Self discharge	≤3%/month @ 25°C		

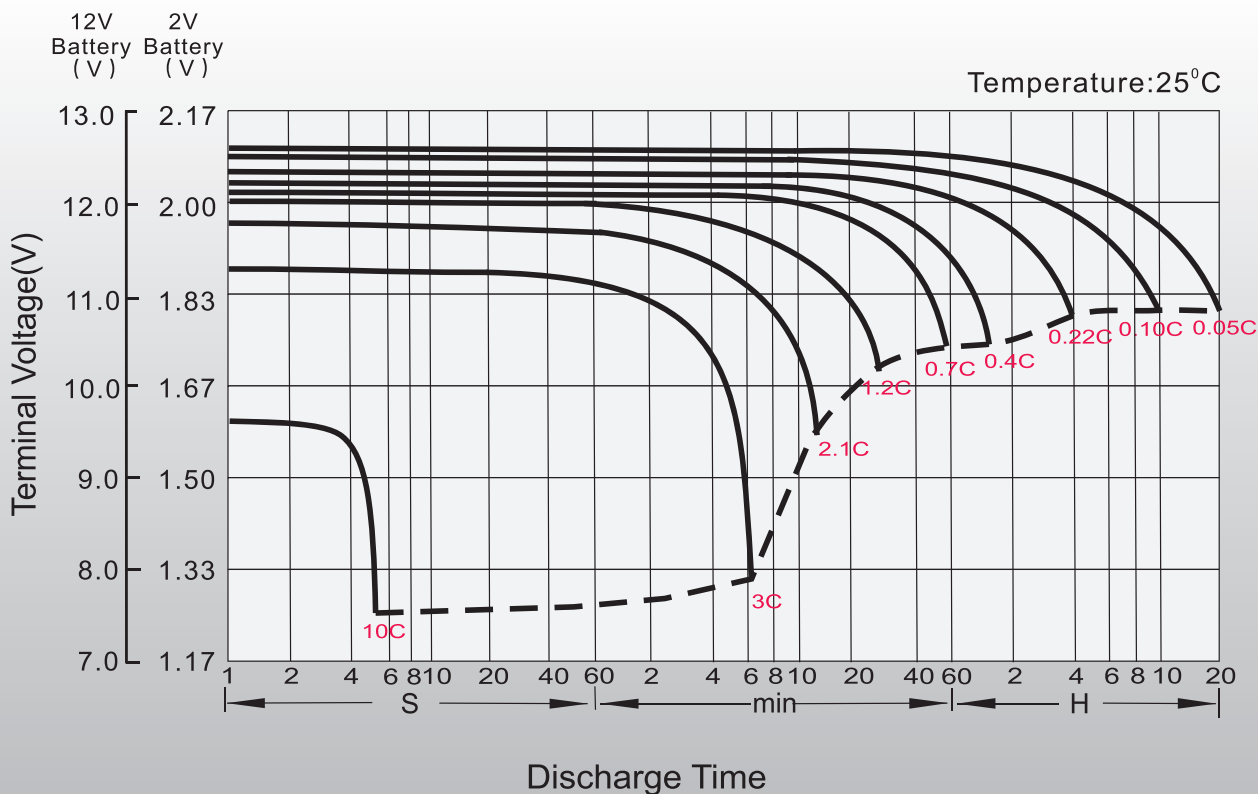
### Constant Current Discharge (Amperes) at 25°C (77°F)

F.V/Time	5min	10min	15min	20min	30min	45min	1h	1.5h	2h	3h	4h	5h	8h	10h
1.85V/cell	24.8	16.5	13.4	10.4	7.75	5.62	4.49	3.32	2.66	1.99	1.57	1.31	0.894	0.732
1.80V/cell	28.9	19.5	15.5	12.0	8.76	6.28	4.97	3.63	2.89	2.15	1.70	1.41	0.958	0.781
1.75V/cell	31.6	20.9	16.4	12.6	9.16	6.54	5.16	3.75	2.98	2.21	1.74	1.44	0.975	0.793
1.70V/cell	34.2	22.3	17.4	13.3	9.56	6.79	5.35	3.88	3.07	2.27	1.78	1.48	0.992	0.806
1.67V/cell	35.7	23.2	17.9	13.6	9.80	6.94	5.46	3.95	3.13	2.31	1.81	1.50	1.00	0.813
1.60V/cell	39.4	25.1	19.2	14.5	10.3	7.29	5.72	4.13	3.26	2.39	1.87	1.54	1.03	0.830

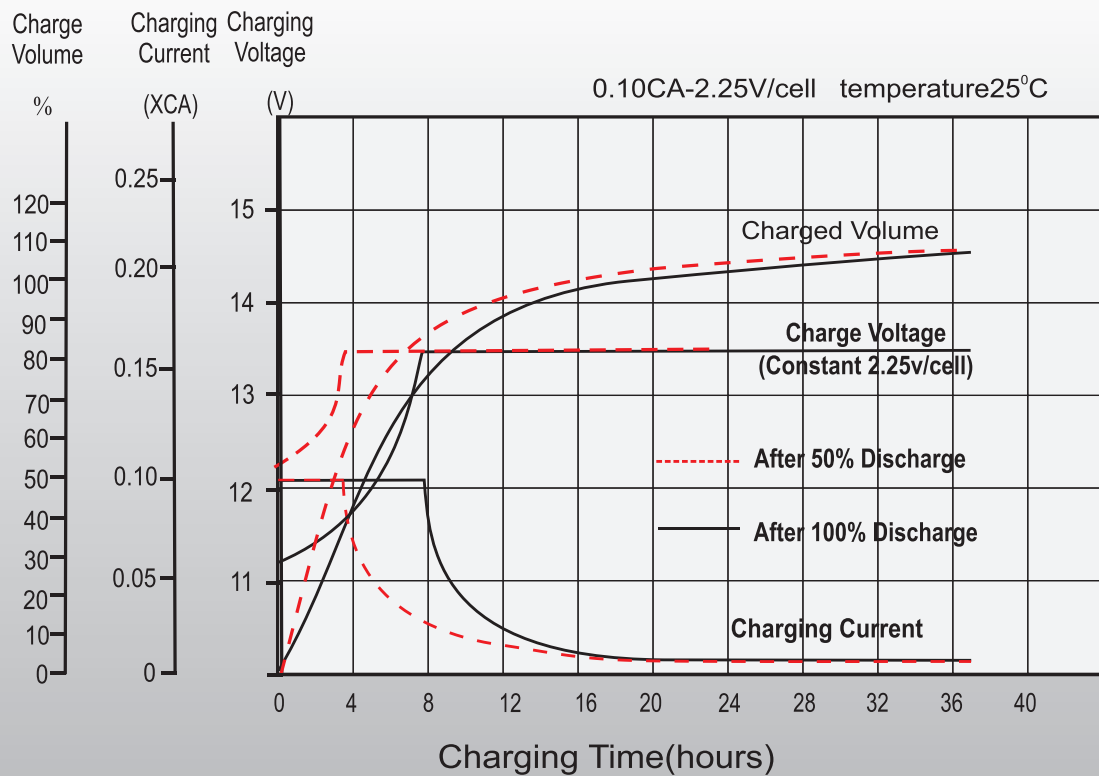
### Constant Power Discharge (Watts/cell) at 25°C (77°F)

F.V/Time	5min	10min	15min	20min	30min	45min	1h	1.5h	2h	3h	4h	5h	8h	10h
1.85V/cell	47.3	31.7	26.6	20.1	15.0	10.9	8.73	6.47	5.19	3.90	3.09	2.58	1.77	1.45
1.80V/cell	54.5	37.0	30.5	22.9	16.8	12.1	9.60	7.04	5.62	4.20	3.32	2.77	1.89	1.54
1.75V/cell	58.7	39.2	32.9	23.8	17.4	12.5	9.88	7.23	5.76	4.30	3.39	2.83	1.92	1.57
1.70V/cell	62.7	41.3	34.3	24.8	18.0	12.9	10.2	7.43	5.91	4.40	3.47	2.88	1.95	1.59
1.67V/cell	64.9	42.5	35.0	25.3	18.4	13.1	10.3	7.54	5.99	4.45	3.51	2.91	1.97	1.60
1.60V/cell	70.7	45.5	36.9	26.6	19.2	13.6	10.7	7.81	6.20	4.59	3.60	2.99	2.01	1.63

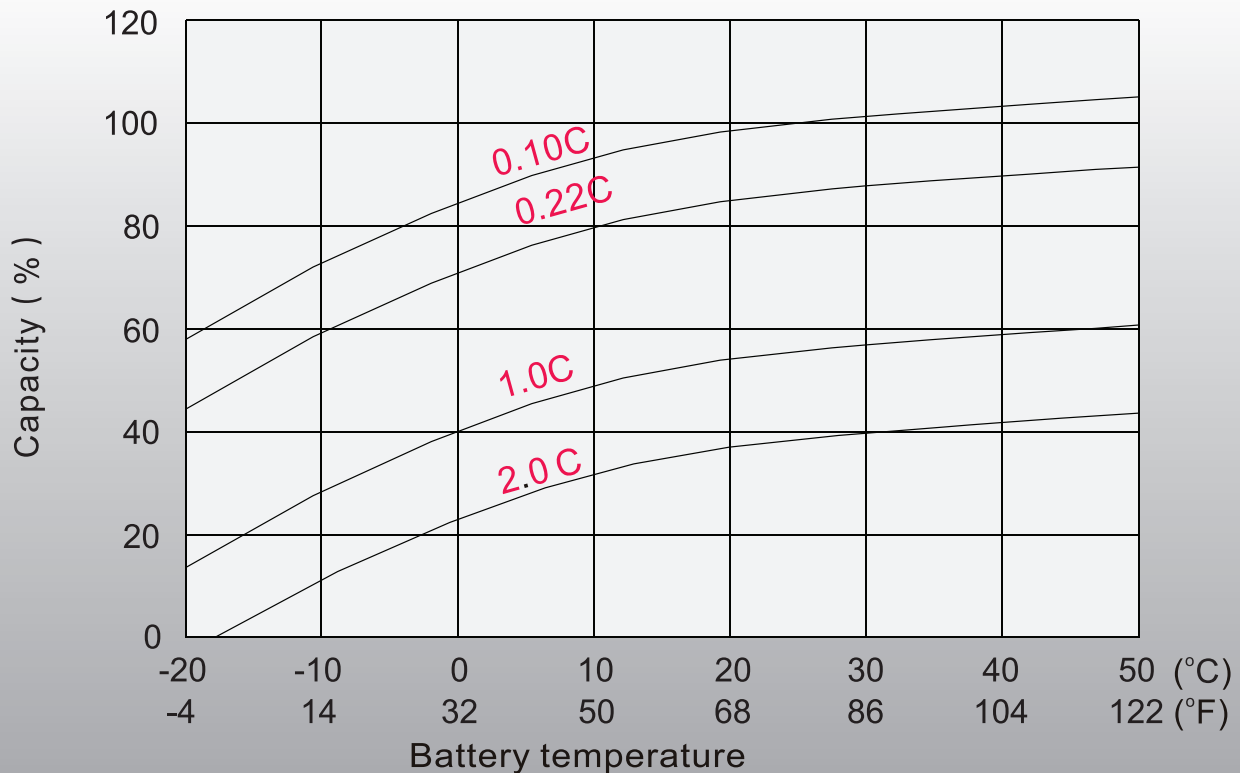
## Discharge Characteristics



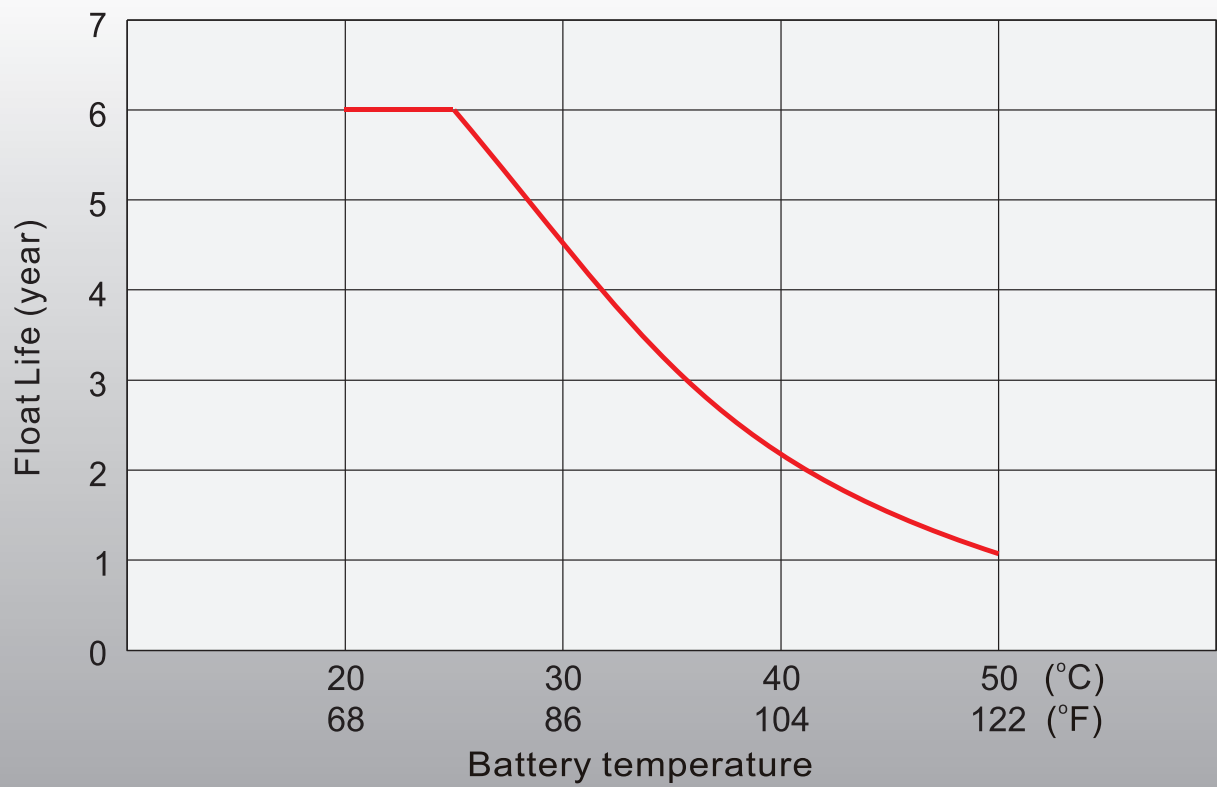
# Float Charging Characteristics



# Temperature Effects in Relation to Battery Capacity



# Effect of Temperature on Long Time Float Life





**Starmax Corporation**

1585 Cliveden Avenue, Delta, British Columbia  
V3M 6M1, Canada

**Phone:** +1 888 669 1310

**Email:** [info@starmaxbatteries.com](mailto:info@starmaxbatteries.com)

**Website:** [www.starmaxbatteries.com](http://www.starmaxbatteries.com)

