



HRL 1210W F2FR

12V 10W

HRL 1210W F2FR is specially designed for high efficient discharge and long life application. It's characteristics are small volume, light weight and high discharge efficiency. It can be used for more than 260 cycles at 100% discharge in cycle service, or five to eight years in standby service.



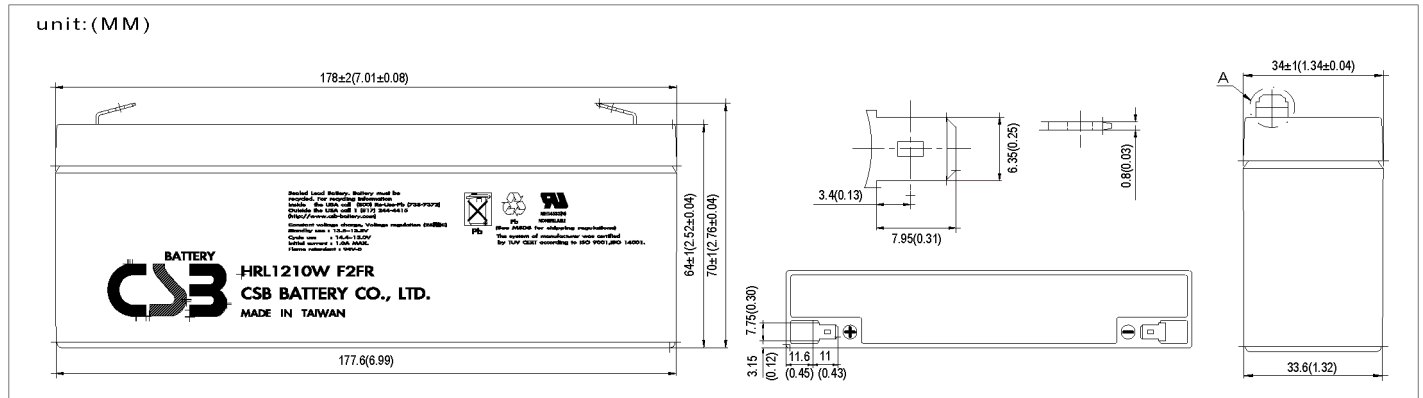
Specification

Cells per unit	6
Voltage per unit	12
Capacity	10W @ 15minute-rate to 1.67V per cell @25°C(77°F)
Weight	Approx. 1.21kg(2.67 lbs)
Maximum Discharge Current	40A(5sec)
Internal Resistance Approx.	Approx. 35mΩ
Operating Temperature Range	Discharge: -20°C ~50°C (-4°F~122°F) Charge: 0°C ~40°C (32°F~104°F) Storage: -20°C ~40°C (-4°F~104°F)
Nominal Operating Temperature Range	25°C±3°C (77°F±5°F)
Float Charging Voltage	13.5 to 13.8 VDC/unit Average at 25°C(77°F)
Recommended Maximum Charging Current Limit	1.0A
Equalization and Cycle Service	14.4 to 15.0 VDC/unit Average at 25°C(77°F)
Self Discharge	CSB Batteries can be stored for more than 6 months at 25°C (77°F). Please charge batteries before using. For higher temperatures the time interval will be shorter.
Terminal	Faston Tab 250
Container Material	-ABS (UL94-VO Flame Retardant Case).



CSB-manufactured batteries are UL-recognized components under UL924 as well as ISO 9001 and ISO 14001 certified.

Dimensions



Constant Current Discharge Characteristics Unit:A(25°C,77°F)

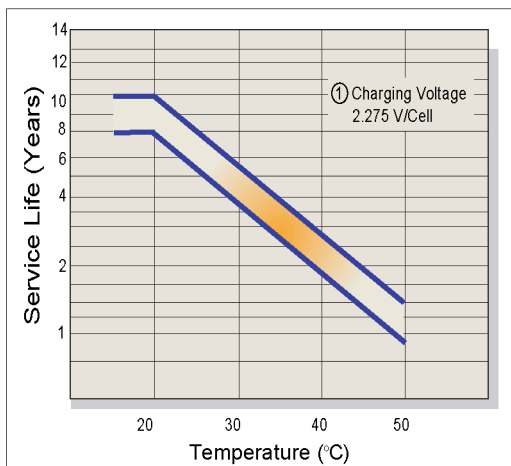
F.V/Time	2MIN	4MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	60MIN	90MIN
1.60V	19.2	14.7	10.5	8.84	7.47	5.51	4.24	3.06	1.66	1.29
1.67V	18.6	14.1	10.3	8.70	7.37	5.43	4.20	3.03	1.64	1.28
1.70V	18.4	13.8	10.2	8.64	7.32	5.39	4.18	3.02	1.63	1.27
1.75V	17.5	12.7	9.85	8.37	7.15	5.27	4.10	2.98	1.62	1.26
1.80V	16.5	11.5	9.50	8.10	6.98	5.14	4.02	2.93	1.60	1.25
1.85V	15.6	10.4	9.15	7.83	6.81	5.02	3.94	2.89	1.59	1.24

Constant Power Discharge Characteristics Unit:Watt(25°C,77°F)

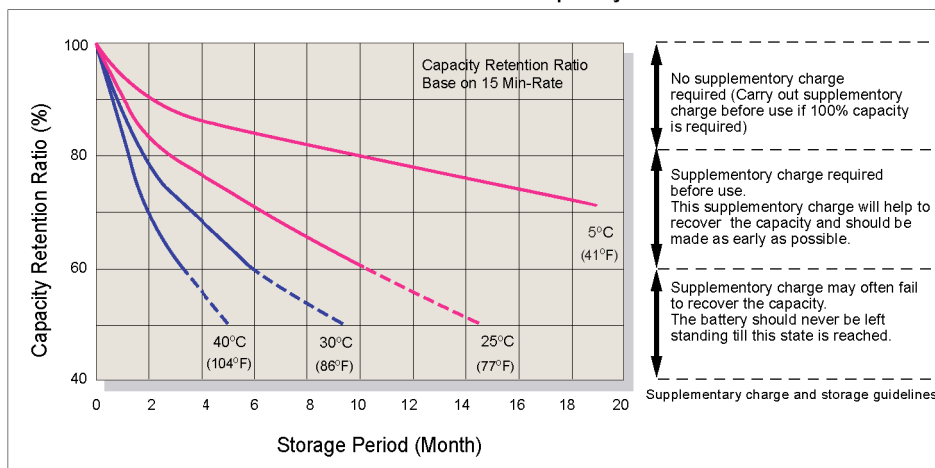
F.V/Time	2MIN	4MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	60MIN	90MIN
1.60V	200	154	113	95.6	81.5	60.9	47.0	34.1	18.7	14.7
1.67V	196	149	111	94.6	80.7	60.3	46.8	34.0	18.6	14.6
1.70V	194	147	110	94.1	80.4	60.1	46.7	33.9	18.5	14.5
1.75V	186	136	107	91.6	78.9	58.7	46.0	33.5	18.4	14.4
1.80V	177	125	103	89.1	77.3	57.2	45.2	33.0	18.2	14.3
1.85V	169	114	100	86.6	75.8	55.8	44.5	32.6	18.1	14.2

- All mentioned values are average values.
- Low rate discharge mode (over 90 mins.) is not recommended.

Trickle (or Float) Service Life



Capacity Retention Characteristic



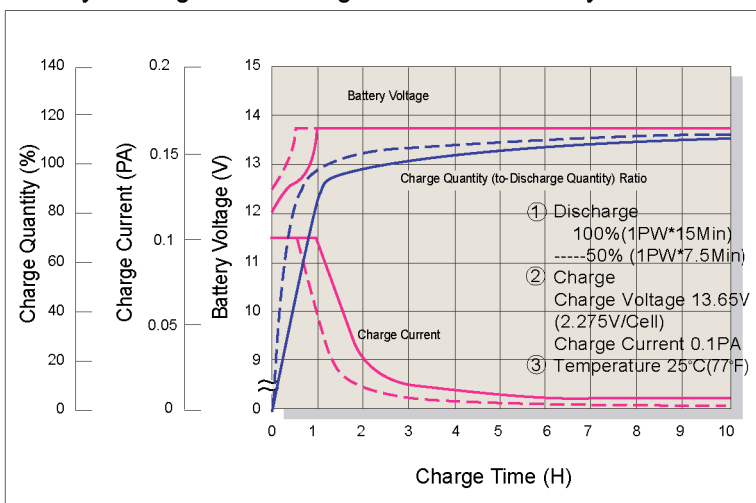
No supplementary charge required (Carry out supplementary charge before use if 100% capacity is required)

Supplementary charge required before use. This supplementary charge will help to recover the capacity and should be made as early as possible.

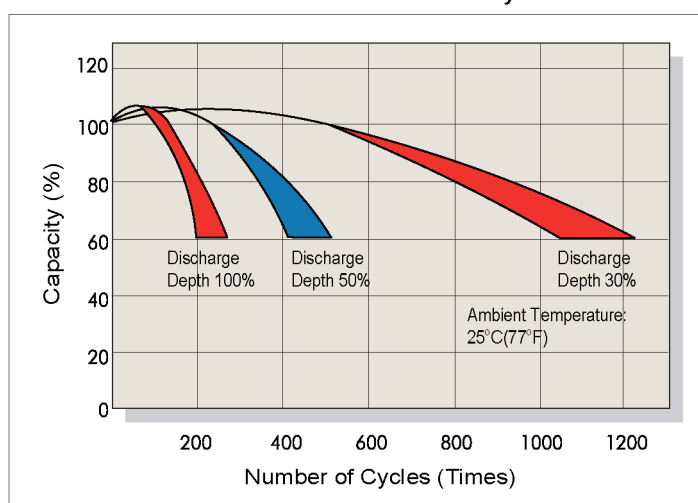
Supplementary charge may often fail to recover the capacity. The battery should never be left standing till this state is reached.

Supplementary charge and storage guidelines

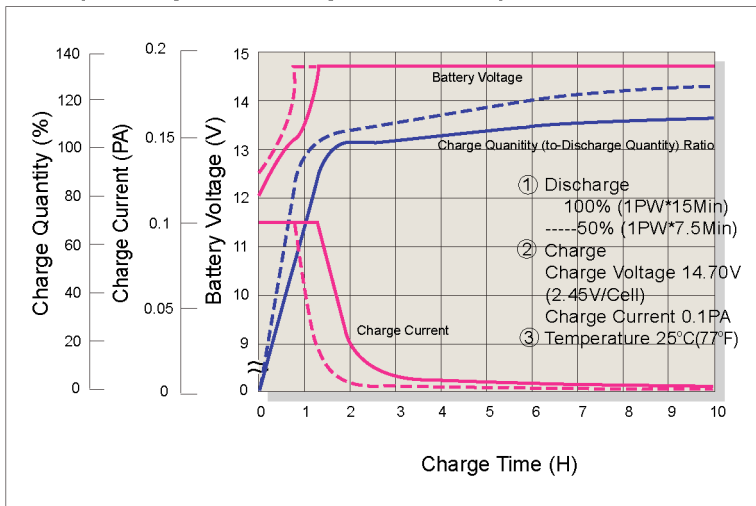
Battery Voltage and Charge Time for Standby Use



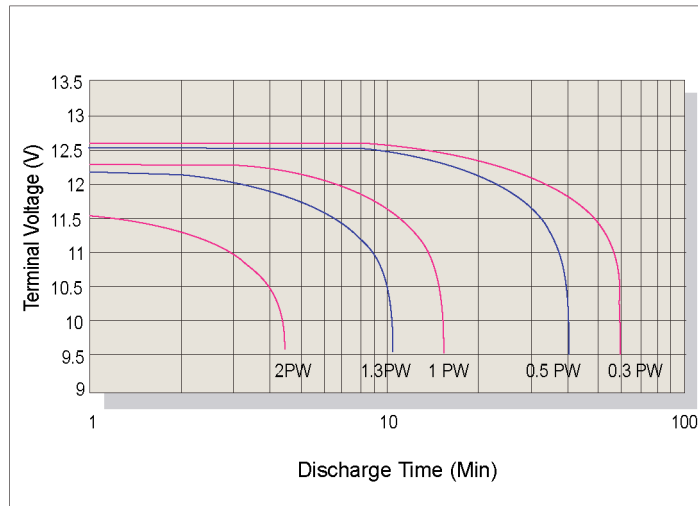
Cycle Service Life



Battery Voltage and Charge Time for Cycle Use



Terminal Voltage (V) and Discharge Time (25°C77°F)



Charging Procedures

Application	Charge Voltage (V/Cell)			Max. Charge Current
	Temperature	Set Point	Allowable Range	
Cycle Use	25°C(77°F)	2.45	2.40~2.50	0.1PA
Standby	25°C(77°F)	2.275	2.25~2.30	