



## VRLA Rechargeable Battery

# MSU-400 (MSU-400FR)

## (2V, 400Ah)

### FEATURES

- Sealed structure, no electrolyte leakage or spill.
- High performance alloy to secure corrosion-proof feature.
- Unique electrolyte system achieves maximum service life.
- Special paste formula promotes the good charging acceptance.
- Electrolyte with gel technology.
- 15 years design life floating charging.

### APPLICATION

- UPS
- Central Office
- Telecom
- Energy Storage Systems



### SPECIFICATIONS

Nominal Voltage	2V	
Nominal Capacity(25°C)	10 Hour Rate F.V.(1.80V/cell)	400 Ah
	3 Hour Rate F.V.(1.80V/cell)	300 Ah
	1 Hour Rate F.V.(1.75V/cell)	220 Ah
Approx. Weight	24.5Kg(54.0lbs.)	
Terminals	B6 (Fitting M8 bolt & nut) I3 is optional	
Max. Discharge Current	1760 A (5 sec.)	
Max. Charge Current	100 A	
Operating Temperature Range	Charge	0°C~40°C(32°F~104°F)
	Discharge	-20°C~50°C(-4°F~122°F)
	Storage	-20°C~40°C(-4°F~104°F)
Self Discharge	< 3% per month (25°C)	
Internal Resistance	≤ 0.8mΩ (Fully Charged )	
Container Material	ABS(UL94-HB, UL94-V0 is optional)	




**ISO 9001**



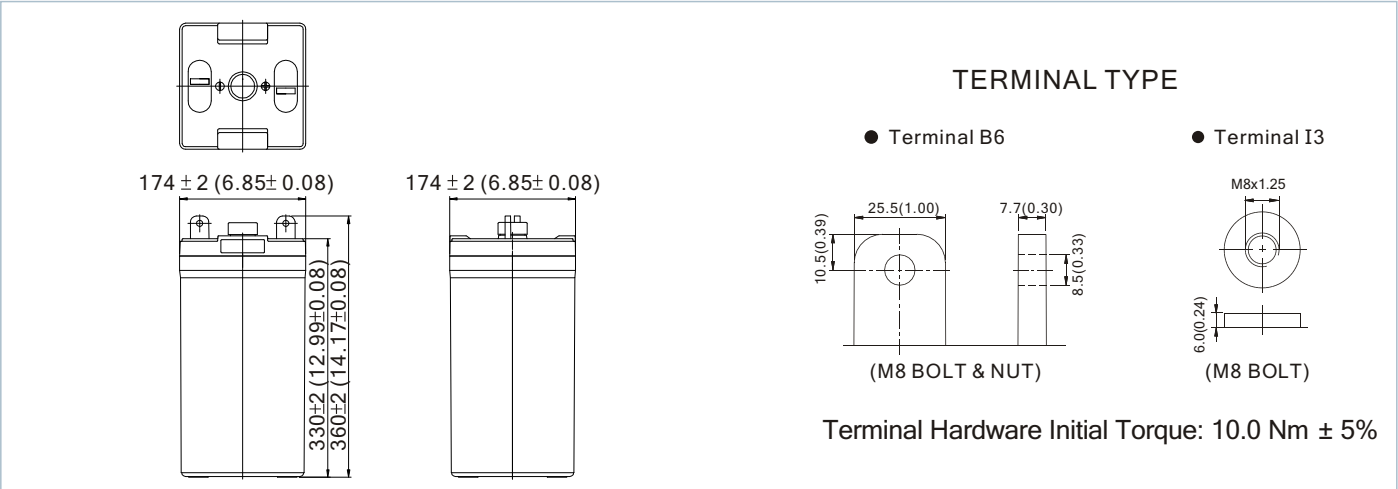
**ISO 14001**



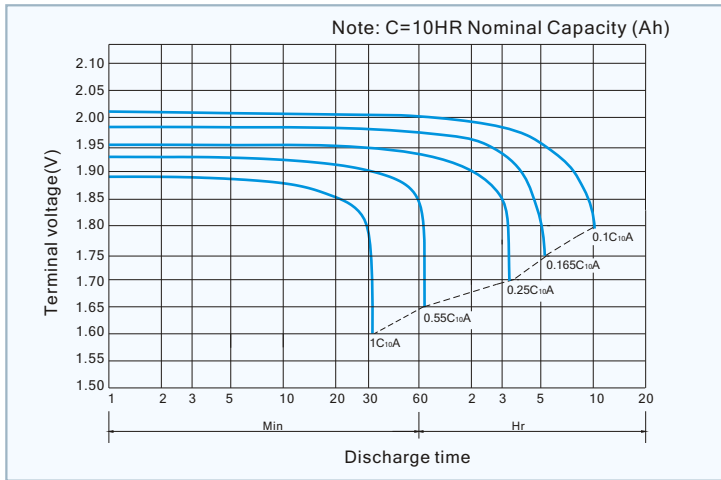
MH19884

- IEC60896-21/22
- JIS C 8704-2
- GB/T19638.2
- YD/T799

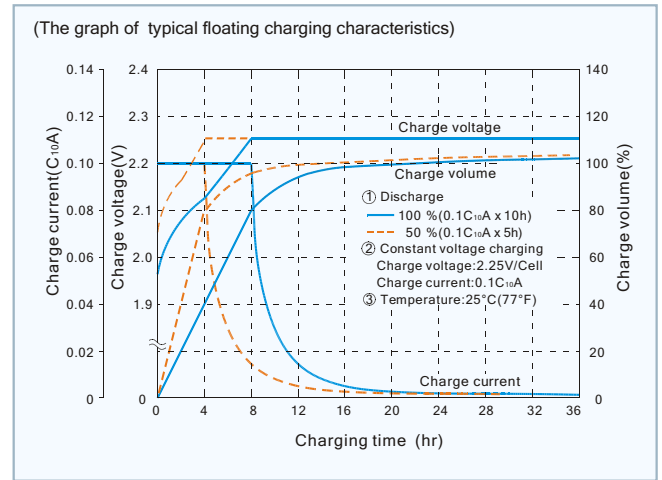
OUTER DIMENSIONS mm(inch)	Length (L)	Width (W)	Container Height (H)	Total Height (TH)
		174±2.0(6.85±0.08)	174±2.0(6.85±0.08)	330.0±2.0(12.99±0.08)



### MSU-400 (MSU-400FR) discharge characteristics (25°C /77°F)



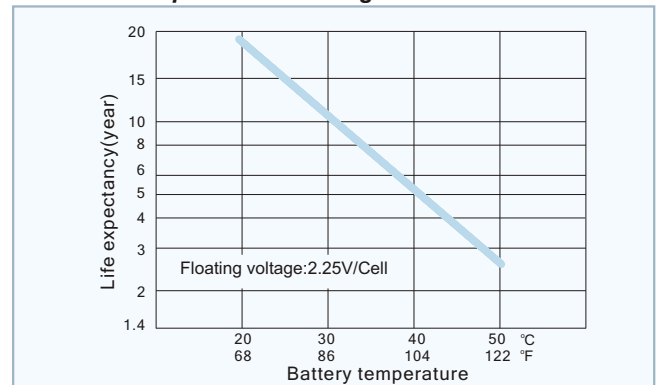
### Battery Charging Characteristics



### Charging Procedure

Application	Charging method	Charging Voltage at 25°C (V/cell)	Temperature compensation coefficient of charging voltage (mV/°C/cell)	Charging time 0.1C <sub>10A</sub> , 25°C (h)	
				100% discharge	50% discharge
For standby power Source	Constant voltage (with current restriction)	2.23~2.25	-3	24	20

### Effect Of Temperature On Long Term Float Life



### Constant power discharge characteristics at 25 °C/77 °F Unit: W

F.V. (V/cell) \ Discharge Time	30 Min	1 Hr	2 Hr	3 Hr	4 Hr	5 Hr	6 Hr	8 Hr	10 Hr	12 Hr	20 Hr
1.85V	524.6	360.0	231.6	180.4	140.2	120.8	107.6	89.0	74.4	64.48	40.18
1.80V	582.0	396.0	250.0	191.1	154.4	131.6	114.6	95.2	78.7	67.59	42.13
1.75V	637.6	420.0	265.0	201.2	161.8	137.6	119.6	98.2	82.2	69.91	43.38
1.70V	700.0	448.0	274.0	208.1	165.0	141.0	122.6	100.2	85.0	71.54	44.10
1.65V	752.0	462.0	278.0	212.3	168.4	143.0	125.0	102.0	86.2	72.55	44.47
1.60V	767.0	466.0	282.0	214.3	170.4	145.0	125.6	103.0	87.0	72.89	44.60

### Constant current discharge characteristics at 25 °C/77 °F Unit: A

F.V. (V/cell) \ Discharge Time	30 Min	1 Hr	2 Hr	3 Hr	4 Hr	5 Hr	6 Hr	8 Hr	10 Hr	12 Hr	20 Hr
1.85V	280.0	192.0	122.0	94.3	74.0	62.6	54.0	44.0	37.4	32.41	20.20
1.80V	312.0	212.0	132.0	100.0	81.6	68.0	58.0	48.4	40.0	34.33	21.40
1.75V	344.6	226.0	140.6	105.9	85.6	72.0	62.0	50.6	42.2	35.87	22.26
1.70V	382.0	242.4	146.6	110.4	87.8	74.4	64.0	52.4	43.8	36.87	22.90
1.65V	409.0	252.2	150.6	114.0	90.0	76.4	66.4	54.0	44.6	37.34	23.20
1.60V	430.0	258.6	155.0	116.5	91.6	77.6	67.0	55.0	45.0	37.69	23.26

All data shall be changed without prior notice, BB reserves the right to explain and update the information contained hereinto.

Trial A/3 REV. Jan. 2011

**USA:**  
B&B BATTERY(USA) INC.  
6415 RANDOLPH ST.COMMERCE, CA,90040 U.S.A.  
TEL:1-323-278-1900.1-800-278-8599  
FAX:1-323-278-1268  
E-Mail:sales@bb-battery.com

**CHINA FACTORY:**  
B. B. BATTERY CO., LTD.  
CHENG DONG TRIAL AREA,HUANG GANG,  
RAOPING, GUANG DONG,CHINA,515700  
TEL:86-768-7601001-2  
FAX:86-768-7601469  
E-Mail:maggy@bb-battery.com

**EUROPE:**  
B&B BATTERY(EUROPE) B.V.  
SUITE 8, HAAKSBERGWEG 33, 1101  
BP AMSTERDAM, THE NETHERLANDS  
TEL: 31-30-3200190  
MOBILE: 886-933896989  
E-Mail: gary@bb-battery.com

**HONG KONG:**  
B&B BATTERY(Hong Kong) Co.  
TEL:852-2311-4918  
FAX:852-2739-1182  
E-Mail:bbhk@hkstar.com

**JAPAN:**  
B&B BATTERY(JAPAN) CO., LTD.  
1375-11 NARAHARA-MACHI,HACHIOJI,  
TOKYO 193-0803,JAPAN.  
TEL:81-426-25-6375  
FAX:81-426-25-6375  
E-Mail:miyata@bb-battery.com

**TAIWAN:**  
B. B. BATTERY(TAIWAN) CO., LTD.  
TEL:886-6-502-5150  
FAX:886-6-589-8087  
E-Mail:kevin@bb-battery.com