



LIVEN LEV Series

AGM (Absorbent Glass Material) technology with gas recombination. VRLA (Valve Regulated Lead Acid Battery). LEV (Liven Electric Vehicle) series is specially designed for frequent discharge deep cycle application. Maintenance-Free Sealed Lead Acid Battery.

Cycle use 1: Up to 600 cycles at 80% DOD.

Cycle use 2: Up to 1200 cycles at 50% DOD.

Applications:

- Electric Vehicle
- Industrial equipment
- Floor machines
- Forklifts
- Golf cart
- Mobility
- Aerial lifts and Robotics
- No-idle solutions

Dimensions:

Length	198±1.5mm (7.80in)
Width	166±1.5mm (6.54in)
Height	169±1.5mm (6.65in)
Total Height	169±1.5mm (6.65in)

Specifications:

Cells Per Unit	6
Voltage Per Unit	12V
Nominal Capacity	50.0Ah @20hour-rate to 1.75V per cell @25°C
Weight	Approx. 14.6Kg ±2% (32.19lbs)
Internal Resistance	Approx. 7.0mΩ
Terminal	R6.0
Max. Discharge Current	450A (5sec)
Design Life	315A
Recommended Max. Charging Current	13.5A
Standby Use Voltage	13.6V~13.8V @ 25°C Temperature Compensation: -3mV/°C/Cell
Cycle Use Voltage	14.6V~14.8V @ 25°C Temperature Compensation: -4mV/°C/Cell
Operating Temperature Range	Discharge: -15°C~50°C Charge: -10°C~45°C Storage: -15°C~50°C
Normal Operating Temperature Range	25°C±5°C

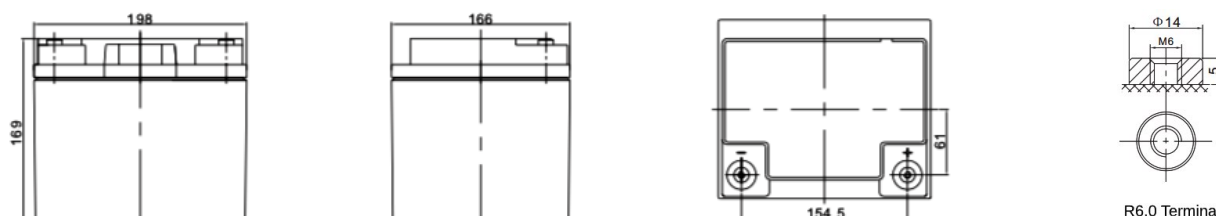
Self Discharge

LIVEN Valve Regulated Lead Acid (VRLA) batteries can be stored for up to 6 months at 25°C and then recharging is recommended. Monthly Self-discharge ratio is less than 3% at 25°C. Please charge batteries before using.

Container Material

A.B.S. UL94-HB, UL94-V0 Optional.

Technical Drawings:



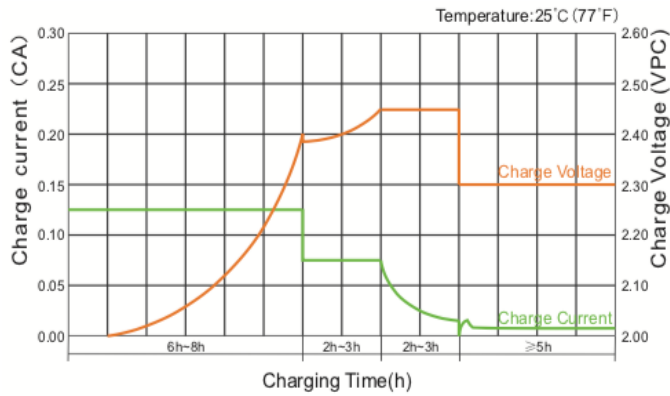
Constant Current Discharge (CC, Unit: A) at 25°C (77°F)

F.V. / Time	5min	10min	15min	30min	1h	2h	3h	4h	5h	8h	10h	20h
1.60V	151.4	114.2	85.94	50.26	27.77	16.40	12.70	9.99	8.50	6.03	5.00	2.59
1.65V	145.9	107.9	82.16	48.26	26.82	15.87	12.31	9.72	8.28	5.98	4.95	2.58
1.70V	138.8	99.4	76.95	46.12	25.95	15.35	11.98	9.45	8.06	5.89	4.86	2.55
1.75V	129.6	91.0	71.61	44.08	25.00	14.81	11.62	9.21	7.86	5.79	4.81	2.50
1.80V	118.1	82.34	66.12	42.14	24.04	14.28	11.26	8.94	7.66	5.70	4.76	2.48
1.85V	103.9	67.29	54.87	36.29	21.56	13.09	10.41	8.31	7.14	5.36	4.48	2.45

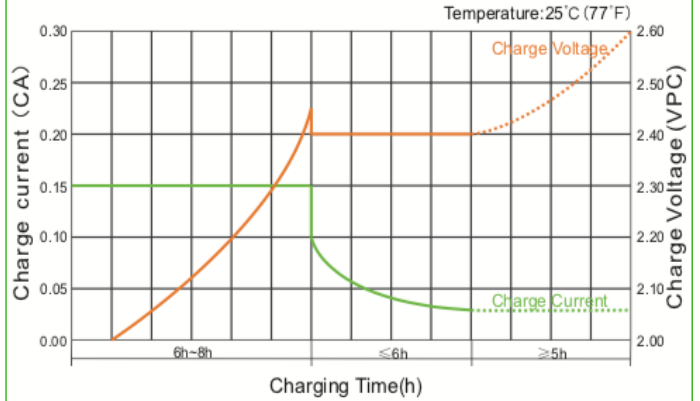
Constant Power Discharge (CP, Unit: W/Battery) at 25°C (77°F)

F.V. / Time	5min	10min	15min	30min	1h	2h	3h	4h	5h	8h	10h	20h
1.60V	1563.0	1165.2	901.2	547.8	313.2	186.6	145.8	115.2	98.4	70.5	58.8	31.0
1.65V	1546.8	1122.0	874.8	531.6	304.2	181.2	141.6	112.2	96.0	70.0	58.3	30.8
1.70V	1488.0	1051.8	831.6	513.0	295.8	176.4	138.6	109.8	94.2	69.1	57.1	30.5
1.75V	1414.8	980.4	784.8	495.6	286.8	171.0	135.0	107.4	91.8	68.0	56.6	29.9
1.80V	1311.6	903.0	735.0	478.2	277.8	165.6	131.4	104.4	90.0	66.8	56.0	29.7
1.85V	1174.8	751.2	618.6	415.8	250.2	152.4	121.8	97.8	84.0	63.2	52.9	29.4

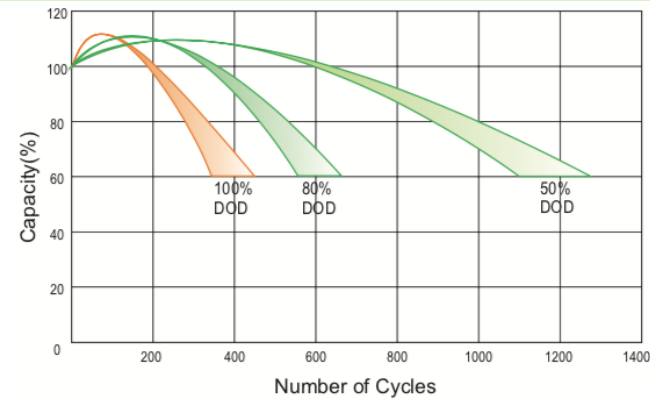
Charge Characteristic Curve For Cycle Use (IIUU)



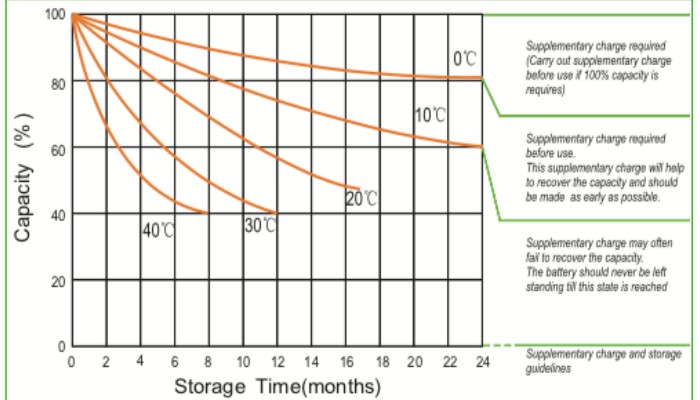
Charge Characteristic Curve For Cycle Use (IUI)



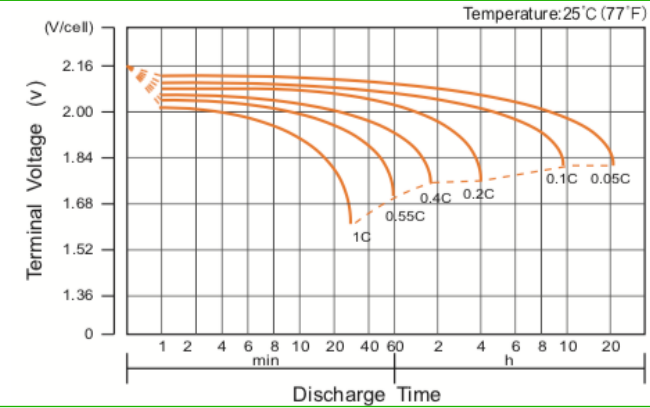
Cycle Life In Relation To Depth Of Discharge



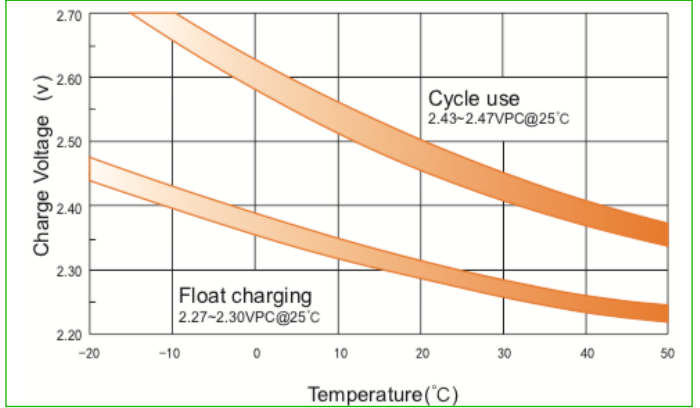
Storage Characteristics



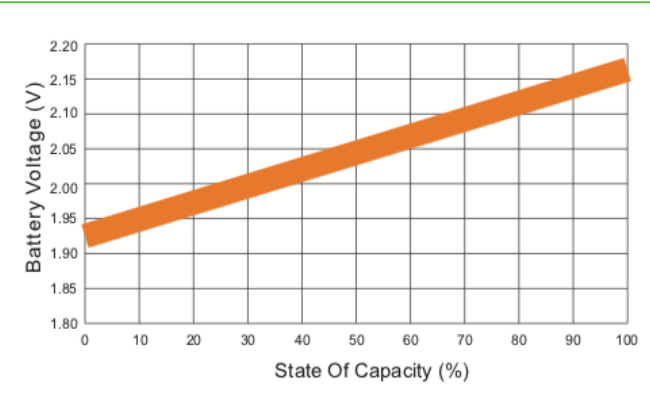
Discharge Characteristics Curve



Relationship Between Charging Voltage And Temperature



Relationship of OCV And State of Charge (20°C)



Temperature Effects On Capacity

