# SIN12-160 [12V 160AH]

## Specification

| | |
|---|---|
| **Cells Per Unit** | 6 |
| **Voltage Per Unit** | 12 |
| **Nominal Capacity** | 160Ah@10hour-rate to 1.80V per cell @25˚C |
| **Weight** | Approx. 50.0 Kg (Tolerance±3.0%) |
| **Internal Resistance** | Approx. 4.5 mΩ |
| **Terminal** | F16(M8) |
| **Max. Discharge Current** | 1600A (5 sec) |
| **Short Circuit Current** | 2550A |
| **Design Life** | 12 years (Float charging) |
| **Max. Charging Current** | 48.0 A |
| **Reference Capacity** | C3 123.9AH<br>C5 139.5AH<br>C10 160.0AH<br>C20 169.6AH |
| **Standby Use Voltage** | 13.6 V~13.8 V @ 25˚C<br>Temperature Compensation: -3mV/˚C/Cell |
| **Cycle Use Voltage** | 14.6 V~14.8 V @ 25˚C<br>Temperature Compensation: -4mV/˚C/Cell |
| **Operating Temperature Range** | Discharge: -20˚C~60˚C<br>Charge: 0˚C~50˚C<br>Storage: -20˚C~60˚C |
| **Normal Operating Temperature Range** | 25˚C±5˚C |
| **Self Discharge** | SINERGY 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. |

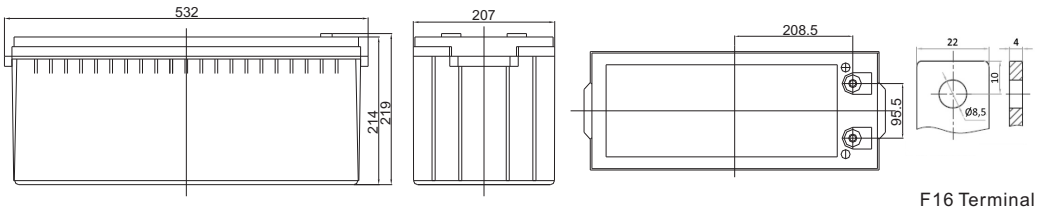
SINERGY BATTERIES

SIN12-160 is a general purpose battery with 12 years design life in float service. It meets with IEC, JIS, BS, GB/T and YD/T standards. With advanced AGM valve regulated technology and high purity raw material, this battery maintains high consistency for better performance and reliable standby service life. It is suitable for UPS/EPS, Telecom, power grid, medical equipment, emergency light and security system applications.

ISO 9001 ISO 14001 OHSAS 18001

MH 28539 G4M20206-0910-E-16

## Dimensions




F16 Terminal

| | |
|---|---|
| Length | 532±2mm (20.9 inches) |
| Width | 207±2mm (8.15 inches) |
| Height | 214±2mm (8.43 inches) |
| Total Height | 219±2mm (8.62 inches) |
| Terminal | Value |
| M5 | 6~7 N*m |
| M6 | 8~10 N*m |
| M8 | 10~12 N*m |

Unit: mm

### Constant Current Discharge Characteristics : A (25˚C)

| F.V/Time | 10MIN | 15MIN | 30MIN | 1HR | 2HR | 3HR | 4HR | 5HR | 8HR | 10HR | 20HR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.60V | 351.5 | 281.8 | 173.5 | 97.8 | 58.2 | 45.1 | 35.5 | 30.2 | 20.3 | 16.9 | 8.83 |
| 1.65V | 332.1 | 269.4 | 166.5 | 94.4 | 56.4 | 43.7 | 34.5 | 29.4 | 20.1 | 16.7 | 8.69 |
| 1.70V | 305.7 | 252.4 | 159.2 | 91.3 | 54.5 | 42.5 | 33.6 | 28.6 | 19.7 | 16.4 | 8.58 |
| 1.75V | 279.9 | 234.8 | 152.1 | 88.0 | 52.6 | 41.3 | 32.7 | 27.9 | 19.5 | 16.2 | 8.48 |
| 1.80V | 253.3 | 216.8 | 145.4 | 84.6 | 50.7 | 40.0 | 31.8 | 27.2 | 19.1 | 16.0 | 8.40 |
| 1.85V | 207.0 | 179.9 | 125.2 | 75.9 | 46.5 | 37.0 | 29.5 | 25.4 | 18.0 | 15.1 | 7.97 |

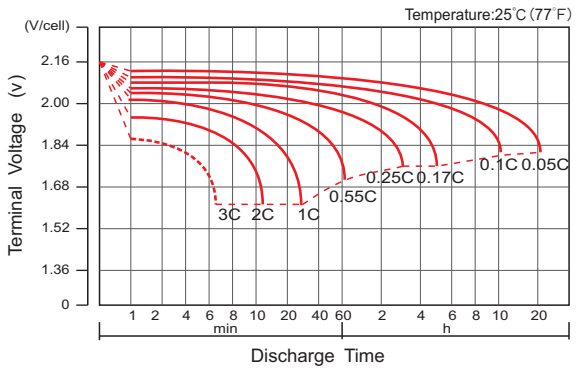
### Constant Power Discharge Characteristics : WPC (25˚C)

| F.V/Time | 10MIN | 15MIN | 30MIN | 1HR | 2HR | 3HR | 4HR | 5HR | 8HR | 10HR | 20HR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.60V | 597.4 | 492.7 | 315.1 | 183.7 | 110.4 | 86.2 | 68.1 | 58.2 | 39.6 | 33.2 | 17.4 |
| 1.65V | 575.4 | 478.0 | 305.6 | 178.4 | 107.4 | 83.9 | 66.5 | 56.9 | 39.3 | 32.8 | 17.1 |
| 1.70V | 539.5 | 454.4 | 295.1 | 173.7 | 104.4 | 82.0 | 64.9 | 55.6 | 38.7 | 32.4 | 16.9 |
| 1.75V | 502.7 | 429.0 | 284.9 | 168.4 | 101.2 | 79.9 | 63.5 | 54.4 | 38.3 | 32.0 | 16.8 |
| 1.80V | 463.0 | 401.7 | 275.1 | 162.9 | 98.1 | 77.7 | 61.9 | 53.2 | 37.7 | 31.6 | 16.6 |
| 1.85V | 385.1 | 338.1 | 239.3 | 147.0 | 90.4 | 72.1 | 57.8 | 49.8 | 35.5 | 29.8 | 15.8 |

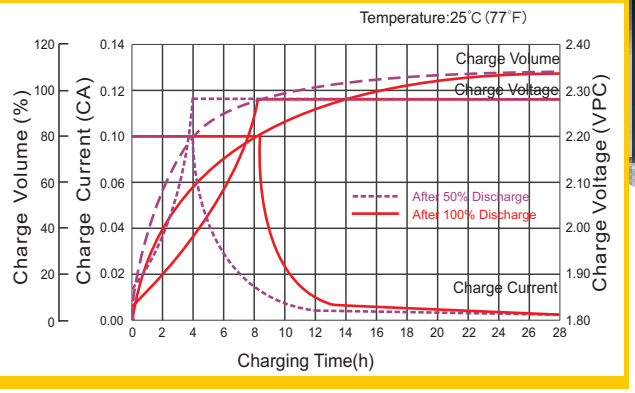
(Note) The above characteristics data are average values obtained within three charge/discharge cycle not the minimum values.
The battery must be fully charged before the capacity test. The $C_{10}$ should reach 95% after the first cycle and 100% after the third cycle.

# SIN12-160 [12V 160AH]

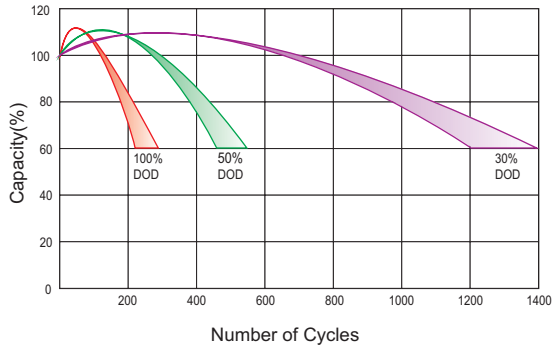
## Discharge Characteristics Curve



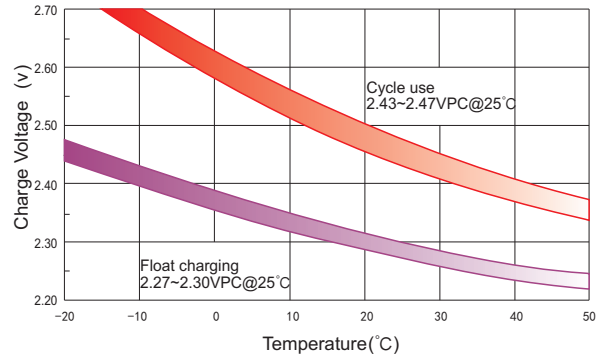

## Charge Characteristic Curve For Standby Use



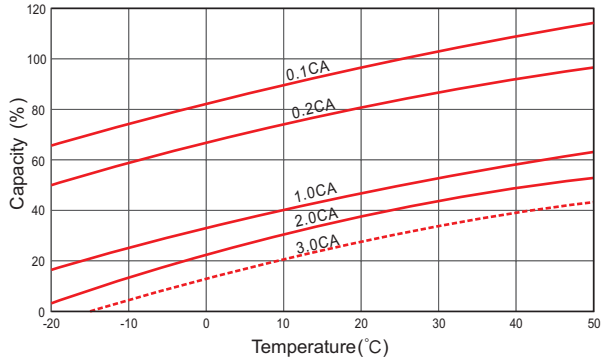

## Cycle Life In Relation To Depth Of Discharge



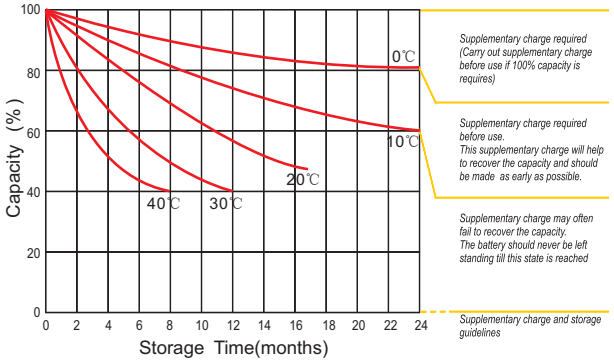

## Relationship Between Charging Voltage And Temperature



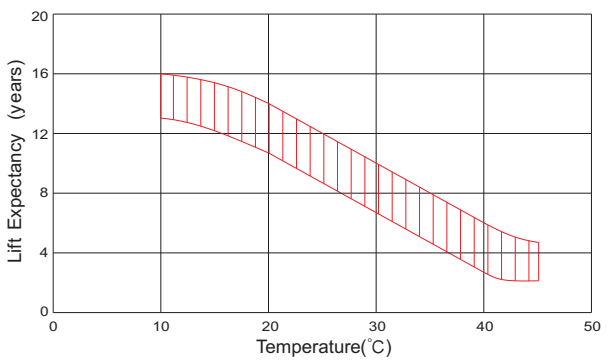

## Temperature Effects On Capacity



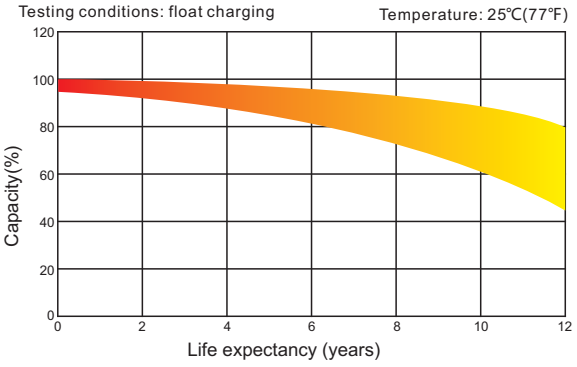

## Storage Characteristics




## Effect Of Temperature On Long Term Life




## Life Characteristics Of Standby Use




(Note) All above information shall be changed without prior notice,

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Version 19/01