



HR12-104W (104w/cell)

HR (High Rate) series is especially designed for heavy load discharge applications with 5 years design life in float service. By using strong grids and specially designed active material the HR series offers stable performance during high current discharge requirements. The HR series offers 30% more power output than the standard range. Suitable for UPS/EPS where high current loads are required.



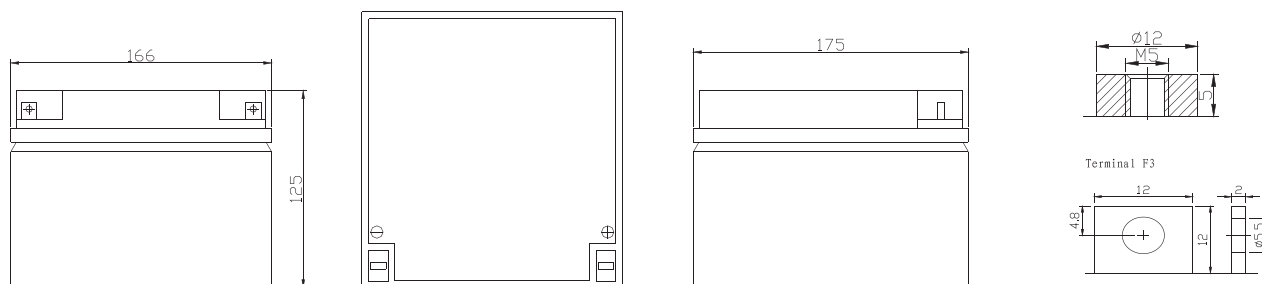
Specification

| | |
|--|---|
| Cells Per Unit | 6 |
| Voltage Per Unit | 12 |
| Capacity | 104W@15min-rate to 1.67V per cell @25°C |
| Weight | Approx. 8.6 Kg(Tolerance±3%) |
| Max. Discharge Current | 260A (5 sec) |
| Internal Resistance | Approx. 8 mΩ |
| Operating Temperature Range | Discharge: -20°C~60°C Charge: 0°C~50°C Storage: -20°C~60°C |
| Normal Operating Temperature Range | 25°C±5°C |
| Float charging Voltage | 13.7 to 13.9 VDC/unit Average at 25°C |
| Recommended Maximum Charging Current Limit | 7.8 A |
| Equalization and Cycle Service | 14.6 to 14.8 VDC/unit Average at 25°C |
| Self Discharge | RITAR Valve Regulated Lead Acid (VRLA) batteries can be stored for more than 6 months at 25°C. Self-discharge ratio less than 3% per month at 25°C. Please charge batteries before using. |
| Terminal | Faston tabF3/F13 |
| Container Material | A.B.S. UL94-HB, UL94-V0 Optional. |



Dimensions

Unit: mm Dimension: 166(L) × 175(W) × 125(H)



Constant Current Discharge Characteristics : A(25°C)

| F.V/Tim e | 5 MIN | 8 MIN | 10 MIN | 15 MIN | 20 MIN | 30 MIN | 60 MIN | 90 MIN |
|-----------|--------|-------|--------|--------|--------|--------|--------|--------|
| 9.60 V | 104.5 | 77.30 | 69.48 | 52.98 | 41.37 | 30.48 | 17.17 | 13.55 |
| 10.0 V | 103.13 | 76.71 | 68.40 | 52.00 | 40.10 | 29.82 | 16.99 | 13.40 |
| 10.2 V | 99.97 | 72.08 | 64.78 | 50.23 | 39.25 | 29.11 | 16.46 | 13.04 |
| 10.5 V | 96.54 | 66.69 | 59.18 | 47.19 | 37.63 | 28.13 | 15.86 | 12.90 |
| 10.8 V | 89.13 | 61.91 | 52.99 | 45.07 | 36.58 | 24.54 | 15.26 | 12.48 |
| 11.1 V | 81.71 | 57.13 | 48.76 | 42.95 | 35.54 | 22.39 | 14.65 | 12.07 |

Constant Power Discharge Characteristics : W(25°C)

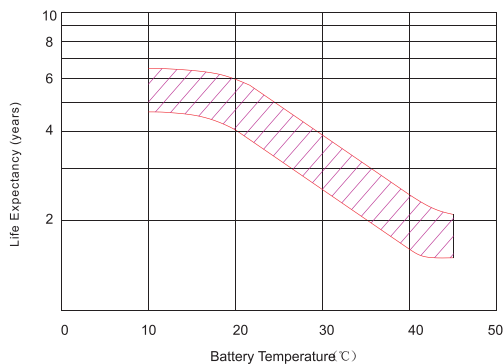
| F.V/Tim e | 5 MIN | 8 MIN | 10 MIN | 15 MIN | 20 MIN | 30 MIN | 60 MIN | 90 MIN |
|-----------|--------|-------|--------|--------|--------|--------|--------|--------|
| 9.60 V | 1164 | 866.6 | 781.2 | 617.7 | 485.8 | 368.3 | 210.0 | 167.7 |
| 10.0 V | 1160 | 874.6 | 783.5 | 609.0 | 472.5 | 361.2 | 208.7 | 167.1 |
| 10.2 V | 1145 | 830.9 | 748.8 | 590.9 | 465.1 | 355.0 | 203.0 | 163.2 |
| 10.5 V | 1121.1 | 776.6 | 690.4 | 556.1 | 448.0 | 345.6 | 196.7 | 161.5 |
| 10.8 V | 1044.4 | 728.8 | 624.8 | 537.5 | 440.2 | 304.4 | 189.4 | 156.4 |
| 11.1 V | 971.4 | 680.4 | 581.6 | 518.5 | 432.8 | 279.5 | 183.6 | 151.7 |

All mentioned values are average values (Tolerance ±2%).

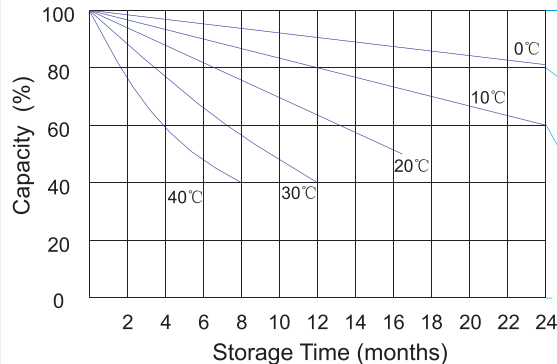
HR12-104W



Effect of temperature on long term float life



Storage characteristic



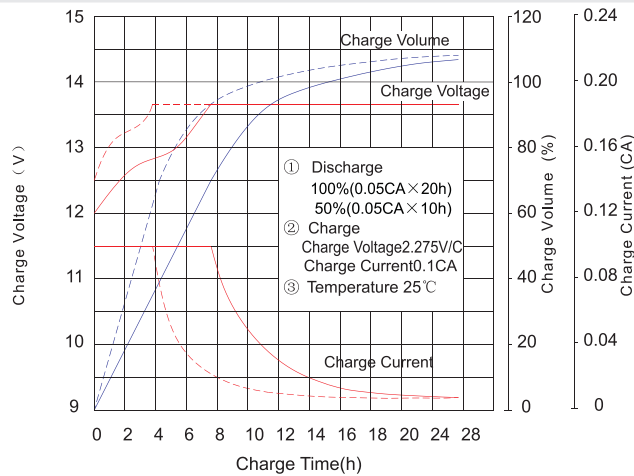
Supplementary charge required
(Carry out supplementary charge
before use if 100% capacity is
required)

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

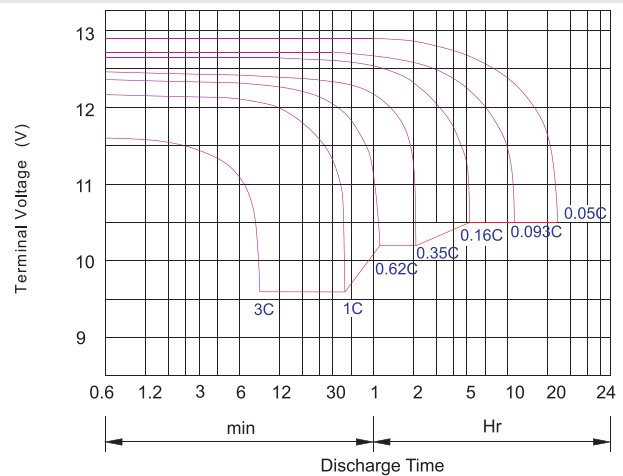
Supplementary charge may often
fail to recover the capacity.
The battery should never be left
standing till this state is reached

Supplementary charge and storage
guidelines

Charge characteristic Curve for standby use



Discharge characteristic Curve



Capacity Factors With Different Temperature

| Battery Type | | -20°C | -10°C | 0°C | 5°C | 10°C | 20°C | 25°C | 30°C | 40°C | 45°C |
|--------------|--------|-------|-------|-----|-----|------|------|------|------|------|------|
| GEL Battery | 6V&12V | 50% | 70% | 83% | 85% | 90% | 98% | 100% | 102% | 104% | 105% |
| | 2V | 60% | 75% | 85% | 88% | 92% | 99% | 100% | 103% | 105% | 106% |
| AGM Battery | 6V&12V | 46% | 66% | 76% | 83% | 90% | 98% | 100% | 103% | 107% | 109% |
| | 2V | 55% | 70% | 80% | 85% | 92% | 99% | 100% | 104% | 108% | 110% |

Discharge Current VS. Discharge Voltage

| Final Discharge Voltage V/cell | 1.75V | 1.70V | 1.60V |
|--------------------------------|------------|-------------------|------------|
| Discharge Current (A) | (A) ≤ 0.2C | 0.2C < (A) < 1.0C | (A) ≥ 1.0C |

Charge the batteries at least once every six months, if they are stored at 25°C.

Charging Method:

| | |
|------------------|---|
| Constant Voltage | -0.2Cx2h + 14.4~14.7Vx24h, Max. Current 0.3CA |
| Constant Current | -0.2Cx2h + 0.1CAx12h |
| Fast | -0.2Cx2h + 0.3CAx4.0h |

Maintenance & Cautions

Float Service:

※ Every month, recommend inspection every battery voltage.

※ Every three months, recommend equalization charge for one time.

Equalization charge method:

Discharge: 100% rate capacity discharge.

Charge: Max. current 0.3CA, constant voltage 14.4-14.7V charge 24h.

※ Effect of temperature on float charge voltage: -3mV/°C/Cell.

※ Length of service life will be directly affected by the number of discharge cycles, depth of discharge, ambient temperature and charging voltage.