

UP Series FTCG250-12

**FRONT TERMINAL CARBON
- DEEP CYCLE GEL -**



Main Features

- Valve-regulated gel battery.
- Stationary and reserve power applications.
- EUROBAT design life definition: Very Long Life 12+ years.
- Extremely long float life performance.
- Superior cycling endurance.
- Compact design with high energy density.
- ETSI Rack integration.
- Low installation cost, maintenance free product.
- Sealed for leak-proof operation.
- Delivered ready for use.
- Non-hazardous cargo for ground, sea and air transport.
- Fully recyclable product.

Certification



- ISO 9001
- ISO 14001
- OHSAS 18001
- AQAP 2110

Electrical Specifications

| | |
|---------------------------|-------------------------------------|
| Nominal Voltage (V) | 12 |
| Number of Cells | 6 |
| Rated Capacity (Ah) | 200 (C10 rate to 1.80 Vpc at 20°C) |
| | 250 (C100 rate to 1.80 Vpc at 20°C) |
| Internal Resistance | 3.9 mOhm (IEC 60 896-21/22) |
| Short Circuit Current (A) | 3 250 (IEC 60 896-21/22) |
| Float Charge Voltage (V) | 2.27 per cell (Vpc) at 20°C |

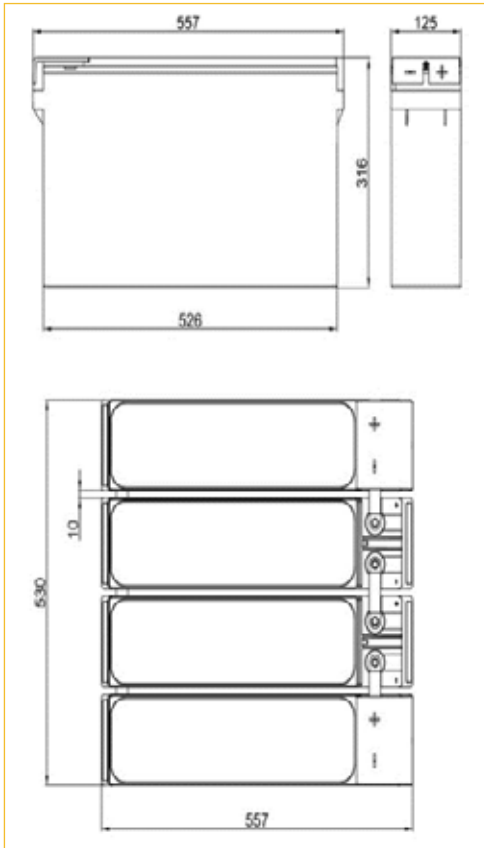
Design Features

| | |
|------------------------------|--|
| Floating Design Life at 20°C | 15 years |
| Plates | Tick Flat Pasted |
| Active Material | Very high purity virgin lead |
| Grid Alloy | Lead-Calcium-Tin alloy |
| Electrolyte | Sulphuric Acid Analytical Grade in gel form |
| Separator | Absorbing Glass Mat (AGM) |
| Operating Temperature | -20°C to 60°C |
| | 15°C to 25°C (recommended) |
| Venting Valve | Rubber, one way, self resealing |
| | - Opening pressure: 1.7 PSI - Resealing pressure: 1.5 PSI |

Applicable Standards and Recommendations

IEC 60896 - 21/22; EN 50272 - 2; IEC 61427 - 1/2; IEC 61056 - 1; EEE 1184; IEEE 1187; IEEE 1188

Drawings



Design Features

| | |
|---------------------------------------|--|
| Internal Gas Recombination Efficiency | More than 99% |
| Flame Arrestor | Available |
| Central Degassing System | Available |
| Storage Temperatures | -20°C to 40°C |
| Self Discharge | Less than 2.0% per month at 20°C |
| Storability without Recharging | Up to 6 months at 20°C |
| Shelf Life | Up to 1 year |
| Container / Lid Material | Shock resistant ABS FR; flammability class UL94 V0 |
| Terminal Position | Front |
| Terminal Sealing | Mechanical + Epoxy Double Sealing |
| Terminal Type | Brass; Female; M8 thread |
| Terminal Torque | 7 Nm |
| Transport Terminal Cover | Available |
| Carrying Handles | Available (2) |
| Connectors and Bolts | Supplied as standard |

Physical Characteristics

| | SI Units | US Units |
|--------|----------|-------------|
| Length | 557 mm | 21.9 inches |
| Width | 125 mm | 4.9 inches |
| Height | 316 mm | 12.4 inches |
| Weight | 60 kg | 132.3 lbs |

Performance Characteristics

| Temperature Correction Factor of Capacity at Constant Current Discharge | | | | | | | | | | |
|---|-------|------|------|------|------|------|------|------|------|------|
| Discharge Time | -10°C | 0°C | 10°C | 15°C | 20°C | 25°C | 30°C | 35°C | 40°C | 45°C |
| From 5 to 59 minutes | 0.70 | 0.80 | 0.90 | 0.95 | 1.00 | 1.05 | 1.10 | 1.13 | 1.15 | 1.16 |
| From 1 to 20 hours | 0.82 | 0.88 | 0.94 | 0.97 | 1.00 | 1.03 | 1.05 | 1.07 | 1.08 | 1.10 |

| Discharge Performance at Constant Current Discharge (Ah) for Battery 12HVR190C at | | | | | | | | | | | | |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Uf, Vpc | 15min | 30min | 1h | 2h | 3h | 4h | 5h | 6h | 8h | 10h | 20h | 120h |
| 1.60 V | 68.0 | 98.0 | 119.3 | 138.9 | 152.6 | 162.5 | 170.2 | 176.1 | 187.9 | 195.7 | 209.4 | 236.8 |
| 1.65 V | 68.0 | 97.0 | 118.8 | 138.3 | 152.0 | 161.7 | 169.5 | 175.4 | 187.0 | 194.8 | 208.2 | 235.6 |
| 1.70 V | 68.0 | 97.0 | 118.2 | 137.6 | 151.2 | 160.9 | 168.5 | 174.4 | 186.0 | 193.8 | 207.3 | 234.5 |
| 1.75 V | 67.0 | 96.0 | 117.0 | 136.2 | 149.7 | 159.2 | 167.0 | 172.7 | 184.3 | 191.9 | 205.2 | 232.2 |
| 1.80 V | 67.0 | 95.0 | 115.9 | 134.9 | 148.2 | 157.7 | 165.3 | 171.0 | 182.4 | 190.0 | 203.3 | 229.9 |
| 1.85 V | 65.0 | 93.0 | 113.1 | 131.5 | 144.4 | 153.9 | 161.1 | 166.8 | 177.8 | 185.3 | 198.2 | 224.2 |

Discharge Performance at Constant Current Discharge (A) for Battery 12HVR190C aT 20°C

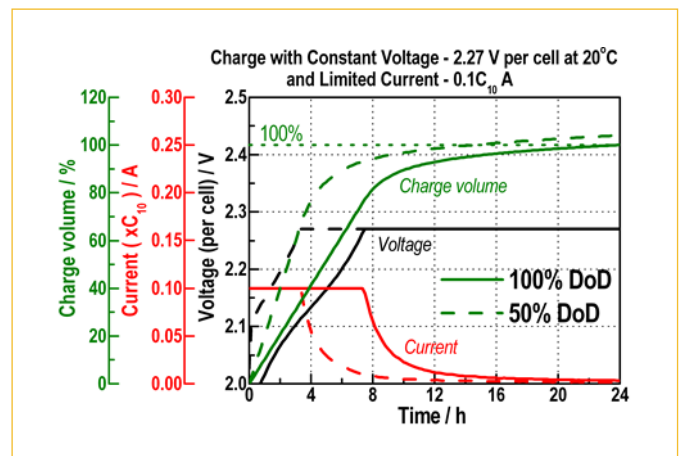
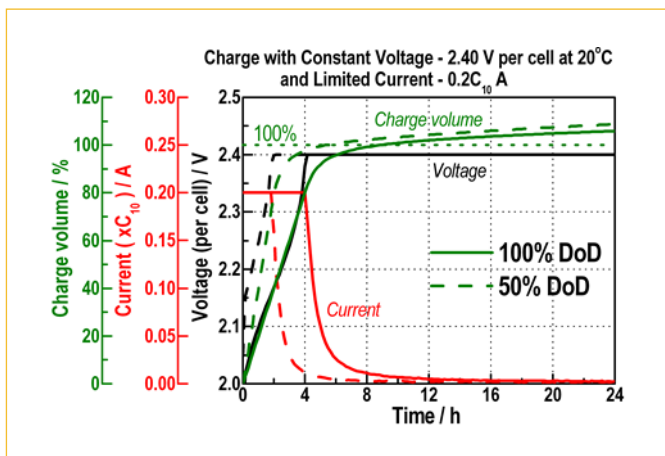
| Uf, Vpc | 15min | 30min | 1h | 2h | 3h | 4h | 5h | 6h | 8h | 10h | 20h | 120h |
|---------|-------|-------|-------|------|------|------|------|------|------|------|-------|------|
| 1.60 V | 274.0 | 196.0 | 119.3 | 69.4 | 50.9 | 40.6 | 34.0 | 29.4 | 23.5 | 19.6 | 10.47 | 1.97 |
| 1.65 V | 273.0 | 195.0 | 118.8 | 69.2 | 50.7 | 40.4 | 33.9 | 29.2 | 23.4 | 19.5 | 10.41 | 1.96 |
| 1.70 V | 271.0 | 194.0 | 118.2 | 68.8 | 50.4 | 40.2 | 33.7 | 29.1 | 23.3 | 19.4 | 10.36 | 1.95 |
| 1.75 V | 269.0 | 192.0 | 117.0 | 68.1 | 49.9 | 39.8 | 33.4 | 28.8 | 23.0 | 19.2 | 10.26 | 1.93 |
| 1.80 V | 266.0 | 190.0 | 115.9 | 67.5 | 49.4 | 39.4 | 33.1 | 28.5 | 22.8 | 19.0 | 10.17 | 1.92 |
| 1.85 V | 259.0 | 185.0 | 113.1 | 65.7 | 48.1 | 38.5 | 32.2 | 27.8 | 22.2 | 18.5 | 9.91 | 1.87 |

Discharge Performance at Constant Power Discharge W (per Cell) for Battery 12HVR190C aT 20°C

| Uf, Vpc | 15min | 30min | 1h | 2h | 3h | 4h | 5h | 6h | 8h | 10h | 20h | 120h |
|---------|-------|-------|-------|-------|-------|------|------|------|------|------|-------|------|
| 1.60 V | 547.0 | 391.0 | 238.6 | 138.9 | 101.7 | 81.2 | 68.1 | 58.7 | 47.0 | 39.1 | 20.94 | 4.10 |
| 1.65 V | 546.0 | 390.0 | 237.5 | 138.3 | 101.3 | 80.9 | 67.8 | 58.4 | 46.7 | 39.0 | 20.82 | 4.07 |
| 1.70 V | 543.0 | 388.0 | 236.4 | 137.6 | 100.3 | 80.5 | 67.4 | 58.1 | 46.5 | 38.8 | 20.73 | 4.07 |
| 1.75 V | 538.0 | 384.0 | 234.1 | 136.2 | 99.3 | 79.6 | 66.8 | 57.6 | 45.9 | 38.4 | 20.52 | 4.03 |
| 1.80 V | 532.0 | 380.0 | 231.8 | 134.9 | 98.8 | 78.9 | 66.1 | 57.0 | 45.6 | 38.0 | 20.33 | 3.99 |
| 1.85 V | 518.0 | 371.0 | 226.1 | 131.5 | 96.3 | 77.0 | 64.4 | 55.6 | 44.5 | 37.1 | 19.82 | 3.88 |

Battery Charge Conditions at 20°C Constant Voltage and Limited Current (IU)

| Charge Current Limit | Float Charge Voltage | Equalization Charge Voltage | Boost Charge Voltage |
|--|--|---|--|
| 0.1 - 0.25C10A Recommended: 0.20C10A | 2.27V per cell at 20°C; Temperature correction:-3mV/cell/°C | 2.32V per cell at 20°C Recommended: every 3 months for 24h during long time float operation | 2.40V per cell at 20°C; Temperature correction:-4mV/cell/°C |
| Float application: 0.20C10A/2.27V per cell at 20°C | | Cycling applications: 0.20C10A/2.40V per cell at 20°C Recharge Ah input at least 105% from previous discharge Ah | |



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