

# UP Series

## FTCG250-12

FRONT TERMINAL CARBON



### Main Features

- Valve-regulated lead-acid 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

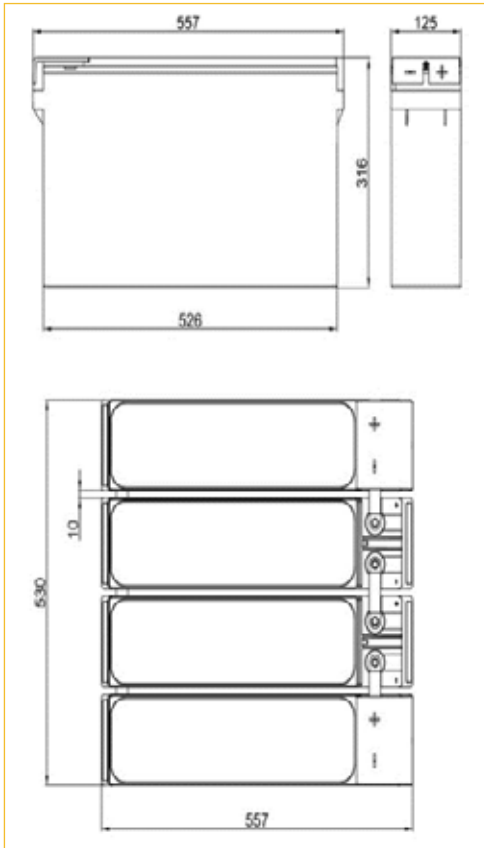
### Design Features

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
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

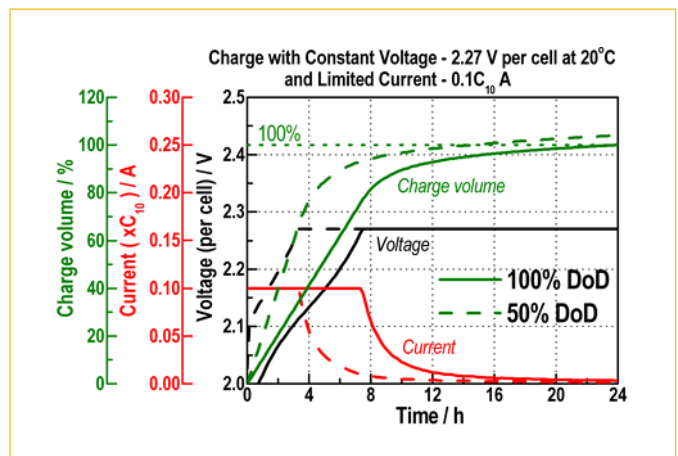
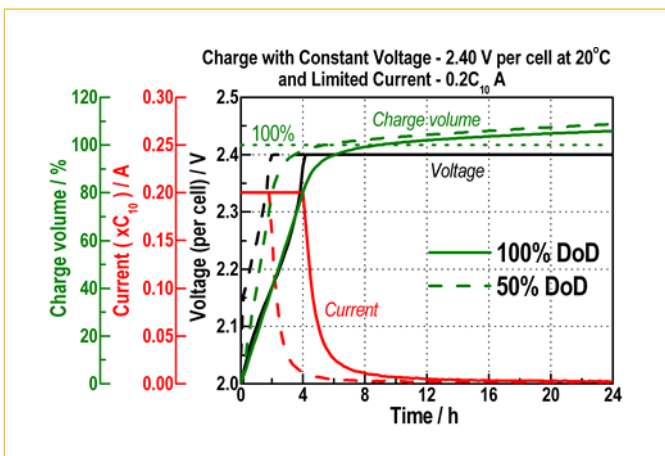
Uf, Vpc	15min	30min	1h	2h	3h	4h	5h	6h	8h	10h	20h	120h
1.60 V	274.0	196.0	119.3	69.4	50.9	40.6	34.0	29.4	23.5	19.6	10.47	1.97
1.65 V	273.0	195.0	118.8	69.2	50.7	40.4	33.9	29.2	23.4	19.5	10.41	1.96
1.70 V	271.0	194.0	118.2	68.8	50.4	40.2	33.7	29.1	23.3	19.4	10.36	1.95
1.75 V	269.0	192.0	117.0	68.1	49.9	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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