

## UP-TF155-12



ISO 9001, ISO 14001, OHSAS 18001, AQAP 2110

### Product characteristics

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

### Physical characteristics

	SI Units	US Units
<b>Length</b>	555 mm	21.8 inches
<b>Width</b>	125 mm	4.9 inches
<b>Height</b>	276 mm	10.8 inches
<b>Weight</b>	51.3 kg	113.0 lbs

### Technical Specifications

#### Electrical specifications:

Nominal voltage	12V
Number of cells	6
Rated capacity	155 Ah (10 h rate to 1.80 Vpc at 20 °C) 154 Ah (8 h rate to 1.75 Vpc at 25 °C)
Internal resistance	4.20 mOhm (IEC 60 896 -21/22)
Short circuit current	3050 A (IEC 60 896 -21/22)
Float charge voltage	2.27 V per cell (Vpc) at 20°C

#### Design features:

Design life at 20 °C	Very Long Life 12+ 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 (maximum) +15 °C to +25 °C (recommended)
Venting valve	Rubber, one way, self resealing - Opening pressure: 3 PSI - Resealing pressure: 2 PSI
Internal gas recombination efficiency	more than 99%
Central degassing system	Available
Flame arrestor	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; M6 thread
Terminal torque	7 Nm
Terminal cover	Available
Carrying Handles	Available (2)
Connectors and bolts	Supplied as standard

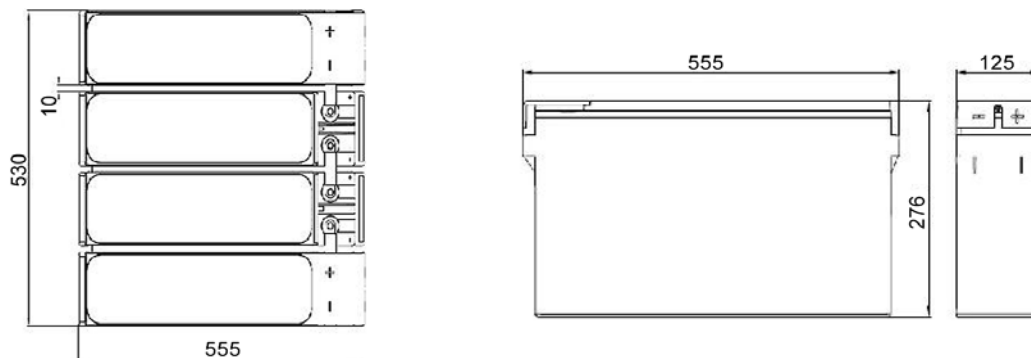
#### Applicable standards:

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



**UP-TF155-12**

Drawings



**Battery discharge performance at 20°C**

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	1.05	1.10	1.13	1.15	1.16
From 1 to 20 hours	0.82	0.88	0.94	0.97	1	1.03	1.05	1.08	1.09	1.10

**Battery capacity at constant current discharge (Ah) for battery at 20°C**

Uf, Vpc	5 min	15 min	30 min	1 h	2 h	3 h	4 h	5 h	6 h	8 h	10 h	20 h
1.60	33	56	80	97.3	113.3	124.5	132.5	138.9	143.7	153.3	159.7	170.8
1.65	32	56	80	96.9	112.8	124.0	131.9	138.3	143.1	152.5	158.9	169.9
1.70	32	55	79	96.4	112.2	123.4	131.3	137.5	142.3	151.7	158.1	169.1
1.75	31	55	78	95.5	111.1	122.1	129.9	136.2	140.9	150.4	156.6	167.4
1.80	31	54	78	94.6	110.1	120.9	128.7	134.9	139.5	148.8	155.0	165.9
1.85	30	53	76	92.2	107.3	117.8	125.6	131.4	136.1	145.1	151.1	161.7

**Discharge performance at constant current discharge (A) for battery at 20°C**

Uf, Vpc	5 min	15 min	30 min	1 h	2 h	3 h	4 h	5 h	6 h	8 h	10 h	20 h
1.60	393	223	160	97.3	56.7	41.5	33.1	27.8	23.9	19.2	16.0	8.54
1.65	386	223	159	96.9	56.4	41.3	33.0	27.7	23.8	19.1	15.9	8.49
1.70	380	221	158	96.4	56.1	41.1	32.8	27.5	23.7	19.0	15.8	8.46
1.75	376	219	157	95.5	55.6	40.7	32.5	27.2	23.5	18.8	15.7	8.37
1.80	372	217	155	94.6	55.0	40.3	32.2	27.0	23.3	18.6	15.5	8.29
1.85	363	211	151	92.2	53.6	39.3	31.4	26.3	22.7	18.1	15.1	8.08

**Discharge performance at constant power discharge (W per cell) for battery at 20°C**

Uf, Vpc	5 min	15 min	30 min	1 h	2 h	3 h	4 h	5 h	6 h	8 h	10 h	20 h
1.60	785	446	319	194.7	113.3	83.0	66.3	55.6	47.9	38.3	31.9	17.08
1.65	763	445	318	193.8	112.8	82.7	66.0	55.3	47.7	38.1	31.8	16.99
1.70	757	443	316	192.8	112.2	81.8	65.7	55.0	47.4	37.9	31.6	16.91
1.75	751	439	313	191.0	111.1	81.0	64.9	54.5	47.0	37.4	31.3	16.74
1.80	744	434	310	189.1	110.1	80.6	64.3	53.9	46.5	37.2	31.0	16.59
1.85	725	423	303	184.5	107.3	78.5	62.8	52.6	45.4	36.3	30.23	16.17



**UP-TF155-12**

**Battery charge conditions at 20°C**

**Charge regime: constant voltage and limited current (IU)**

Charge current limit	Float charge voltage	Equalization charge voltage	Boost charge voltage
0.1 - 0.25C <sub>10</sub> A Recommended: 0.20C <sub>10</sub> A	2.27 V per cell at 20°C; Temperature correction: -3 mV / cell / °C	2.32 V per cell at 20°C Recommended: every 3 months for 24h during long time float operation	2.40 V per cell at 20°C Temperature correction: -4 mV / cell / °C
<b>Float application:</b> 0.20C <sub>10</sub> A / 2.27 V per cell at 20°C		<b>Cycling applications:</b> 0.20C <sub>10</sub> A / 2.40 V per cell at 20°C; Recharge Ah input at least 105% from previous discharge Ah	

