

# UPG Nano-Silica Battery - U1

STAY POWERED®

# UB12350NS

Maintenance-Free

**universal battery®** batteries featuring **Nano-Silica Construction** and **Nano Silica Colloidal Electrolyte**. Capable of up to 350 cycles at 100% depth of discharge, Nano-Silica has superior cycle life to Sealed Lead-Acid batteries. Compared to Gel batteries, Nano-Silica has better charge currents at 25% of capacity and higher discharge current up to C/2. A low Self-Discharge rate of 2% a month makes for a long shelf life.

## Specifications:

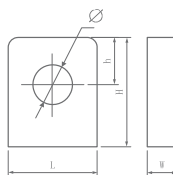
<b>Nominal Voltage</b>	12 Volts
<b>Nominal Capacity</b>	77° F (25° C)
20-hr. (1.75 A) (C/O 1.75V/Cell)	35.0 Ah
10-hr. (3.26 A) (C/O 1.75V/Cell)	32.6 Ah
5-hr. (5.96 A) (C/O 1.70V/Cell)	29.8 Ah
1-hr. (21.0 A) (C/O 1.70V/Cell)	21.0 Ah
<b>Approximate Weight</b>	21.8 lbs (9.9 kgs)
<b>Operational Temperature</b>	
Charge	32°F to 104°F (0°C to 40°C)
Discharge	-4°F to 122°F (-20°C to 50°C)
<b>Storage Temperature</b>	-4°F to 104°F (-20°C to 40°C)
<b>Charge Method</b> (Constant Voltage)	
<b>Cycle Use</b> (Repeating Use)	
Initial Current	8.75 A or smaller
Control Voltage	14.40 - 15.00 V
<b>Float Use</b>	
Control Voltage	13.80 - 14.10 V
<b>Self Discharge Rate</b>	2% per month @ 25 C
<b>Container Material</b>	ABS (UL94-HB)



Due to continuous improvements to our products, product may vary slightly from depiction.

## Terminals

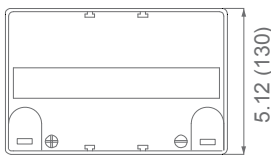
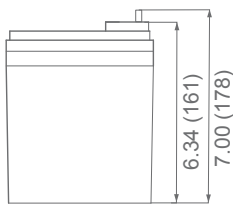
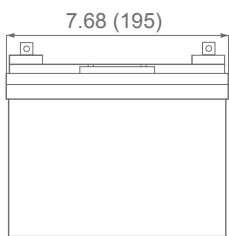
### L Series (L Type Terminal)



Dimension		L	W	H	h	Ø
Type	L1	17.5 mm 0.69 in	7.00 mm 0.28 in	17.0 mm 0.69 in	7.00 mm 0.28 in	8.50 mm 0.34 in

## Physical Dimensions: in (mm)

Tolerances are: +/- 0.04 in. (+/- 1mm) and +/- 0.08 in. (+/- 2mm) for height dimensions.



**L:** 7.68 in (195 mm)  
**W:** 6.34 in (161 mm)  
**H:** 7.00 in (178 mm)  
**TH:** 5.12 in (130 mm)

Tolerances are:  
 +/- 0.04 in. (+/- 1mm) and  
 +/- 0.08 in. (+/- 2mm) for height  
 dimensions. All data subject to  
 change without notice.

### Constant Current Discharge Characteristics: Unit A (25°C, 77°F)

F.V. / Time	5 Min	10 Min	15 Min	30 Min	1 Hr	2 Hr	3 Hr	4 Hr	5 Hr	8 Hr	10 Hr	20 Hr
9.60V	119.3	87.0	61.3	37.3	19.3	11.5	8.3	6.4	5.3	3.7	3.4	1.8
10.2V	105.0	79.2	54.8	35.1	18.2	10.8	8.1	6.3	5.2	3.7	3.3	1.8
10.5V	101.3	75.5	52.0	34.1	17.5	10.5	7.9	6.2	5.2	3.6	3.2	1.75
10.8V	97.2	71.4	48.4	33.2	17.0	10.3	7.7	6.1	5.0	3.5	3.2	1.75
11.1V	93.5	67.7	45.1	32.2	16.6	10.0	7.4	5.9	4.9	3.5	3.1	1.7

### Constant Power Discharge Characteristics: Unit W (25°C, 77°F)

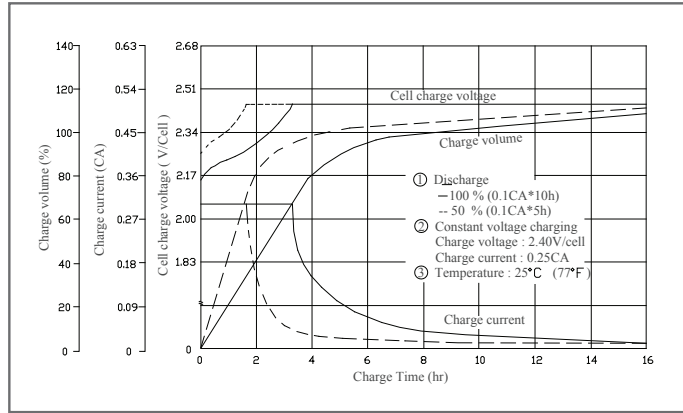
F.V. / Time	5 Min	10 Min	15 Min	30 Min	1 Hr	2 Hr	3 Hr	4 Hr	5 Hr	8 Hr	10 Hr	20 Hr
9.60V	1304	951	669	405	230	135	99	77	64	45	40	22
10.2V	1216	906	626	402	217	128	96	75	62	44	39	21
10.5V	1182	880	602	420	210	125	94	74	62	44	39	21
10.8V	1167	858	579	398	204	123	92	72	60	43	38	21
11.1V	1145	829	553	395	201	122	91	72	60	42	37	20

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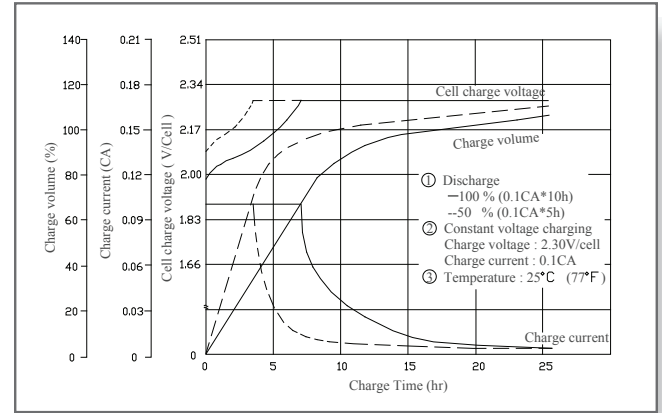
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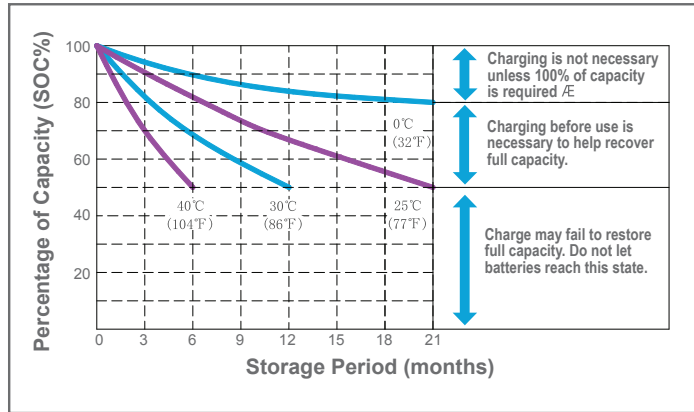
## Battery Charging Characteristics for Cyclic Use



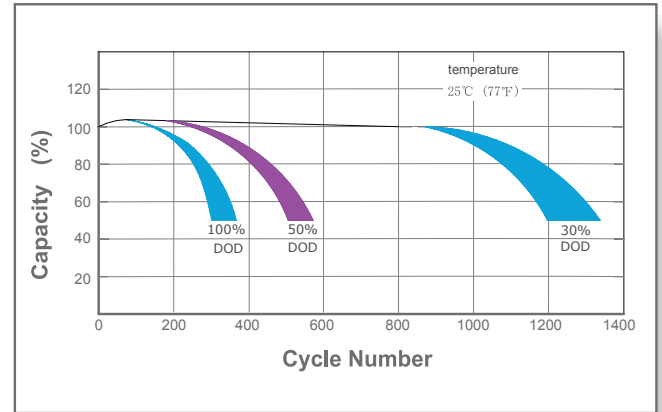
## Battery Charging Characteristics for Standby Use



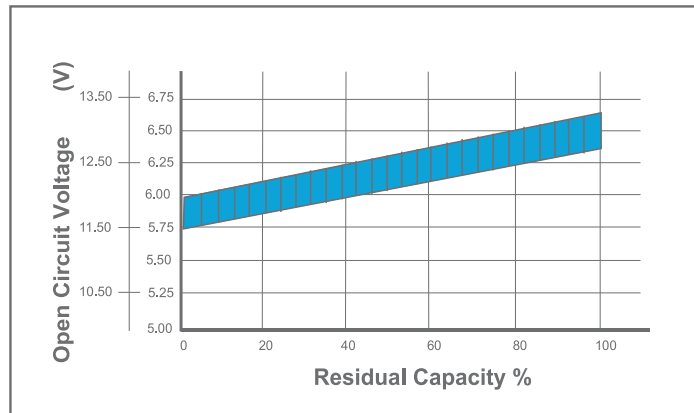
## Shelf Life & Storage



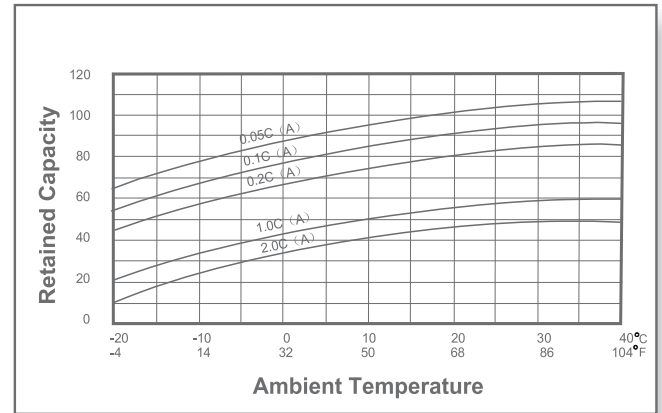
## Cycle Life vs Depth of Discharge



## Open Circuit Voltage vs Residual Capacity



## Effect of Temperature on Capacity



## Charge Current & Final Discharge Voltage

Application	Charge Voltage(V/Cell)			Max.Charge Current	Final Discharge Voltage V/Cell	Discharge Current(A)	Final Discharge Voltage V/Cell	Discharge Current(A)	Final Discharge Voltage V/Cell	Discharge Current(A)
	Temperature	Set Point	Allowable Range							
Cycle Use	25°C(77°F)	2.45	2.40~2.50	0.25C	1.75	0.2C<(A)	1.70	0.2C<(A)<0.5C	1.60	0.5C<(A)<1.0C
Standby	25°C(77°F)	2.33	2.30~2.35		1.30	(A)>1.0C				