



# AL Series - Long Life Standby

## AL12-90s (12V90AHR)

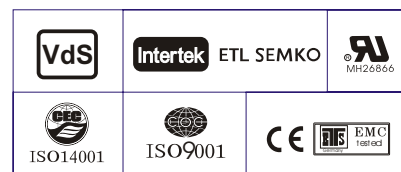
### Specification

Nominal Voltage	12V	
Nominal Capacity(10HR)	90.0AH	
Dimension	Length	306±2mm (12.05 inches)
	Width	168±2mm (6.61 inches)
	Container Height	210±2mm (8.27 inches)
	Total Height (with Terminal)	230±2mm (9.06 inches)
Approx Weight	Approx 27.5 Kg (60.6 lbs)	
Terminal	T6 / T9	
Container Material	ABS	
Rated Capacity	96.3AH/4.815A	(20hr, 1.80V/cell, 25°C/77°F)
	90.0AH/9.00A	(10hr, 1.80V/cell, 25°C/77°F)
	78.3AH/15.66A	(5hr, 1.75V/cell, 25°C/77°F)
	70.2AH/23.4A	(3hr, 1.75V/cell, 25°C/77°F)
	55.8AH/55.8A	(1hr, 1.60V/cell, 25°C/77°F)
Max. Discharge Current	1080A (5s)	
Internal Resistance	Approx 5.0mΩ	
Operating Temp. Range	Discharge : -15~50°C (5~122°F)	
	Charge : 0~40°C (32~104°F)	
	Storage : -15~40°C (5~104°F)	
Nominal Operating Temp. Range	25±3°C (77±5°F)	
Cycle Use	Initial Charging Current less than 27.0A. Voltage 14.4V~15.0V at 25°C(77°F)Temp. Coefficient -30mV/°C	
	Standby Use No limit on Initial Charging Current Voltage 13.5V~13.8V at 25°C(77°F)Temp. Coefficient -20mV/°C	
Capacity affected by Temperature	40°C (104°F)	103%
	25°C (77°F)	100%
	0°C (32°F)	86%
Self Discharge	Synergy AL series batteries may be stored for up to 6 months at 25°C(77°F) and then a freshening charge is required. For higher temperatures the time interval will be shorter.	



### Applications

- ◆ UPS and EPS
- ◆ Emergency light
- ◆ Railway signal and aircraft signal system
- ◆ Marine and power stations Alarm and security system
- ◆ Electronic apparatus and equipment
- ◆ Communication power supply, DC power supply



### Constant Current Discharge (Amperes) at 25 °C (77°F)

F.V/Time	10min	15min	20min	30min	45min	1h	2h	3h	4h	5h	6h	8h	10h	20h
1.85V/cell	105.3	88.6	78.6	65.2	50.3	43.0	27.9	20.9	17.2	14.4	12.6	10.1	8.72	4.65
1.80V/cell	120.5	99.4	86.9	70.8	54.2	45.4	29.9	22.5	18.2	15.3	13.4	10.7	9.00	4.82
1.75V/cell	136.8	112.1	96.0	76.9	59.2	49.5	31.1	23.4	18.9	15.7	13.8	11.0	9.24	4.94
1.70V/cell	154.6	124.4	106.0	84.0	63.7	52.4	32.8	24.6	19.7	16.6	14.5	11.5	9.60	5.06
1.65V/cell	166.0	133.1	112.7	88.6	67.4	54.2	34.0	25.6	20.5	17.1	15.0	11.9	9.87	5.22
1.60V/cell	182.6	145.8	122.5	94.5	70.1	55.8	34.9	26.3	20.9	17.5	15.3	12.1	10.1	5.30

### Constant Power Discharge (Watts) at 25 °C (77°F)

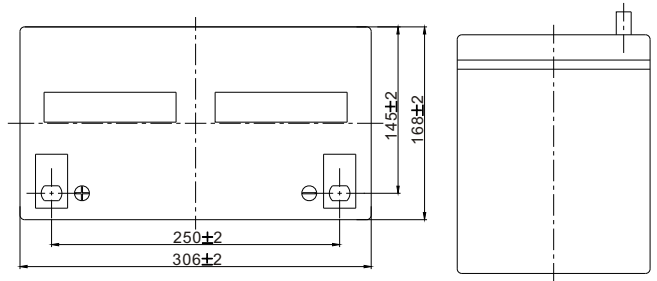
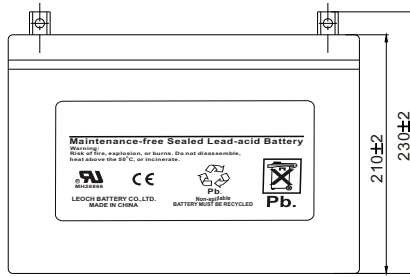
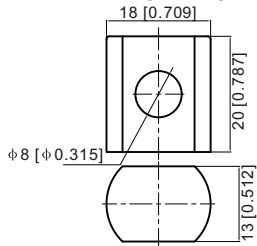
F.V/Time	10min	15min	20min	30min	45min	1h	2h	3h	4h	5h	6h	8h	10h	20h
1.85V/cell	196.6	167.0	149.7	125.5	97.7	83.8	54.7	41.2	33.9	28.6	25.1	20.2	17.4	9.31
1.80V/cell	222.4	185.1	163.1	134.2	104.5	88.0	58.4	44.1	35.8	30.2	26.5	21.2	18.0	9.62
1.75V/cell	248.5	206.0	178.5	144.7	112.9	95.5	60.5	45.6	36.9	30.8	27.2	21.9	18.4	9.85
1.70V/cell	274.4	225.4	195.6	157.1	121.2	100.8	63.6	48.0	38.5	32.5	28.5	22.8	19.1	10.1
1.65V/cell	292.0	239.5	206.5	164.4	127.1	103.5	65.5	49.7	39.9	33.4	29.4	23.5	19.6	10.4
1.60V/cell	314.0	258.1	221.9	174.3	131.4	106.0	66.9	50.7	40.7	34.1	29.9	23.9	20.0	10.6



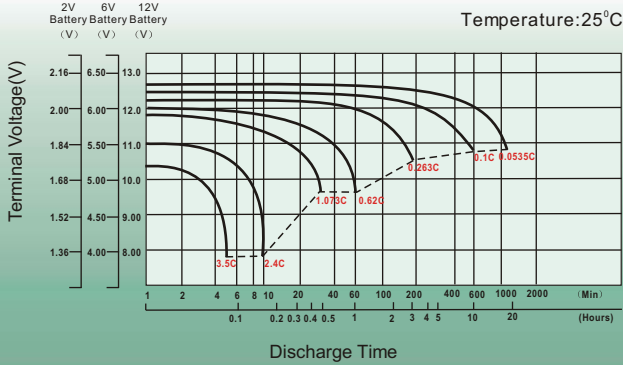
## Dimensions

### T9 Terminal

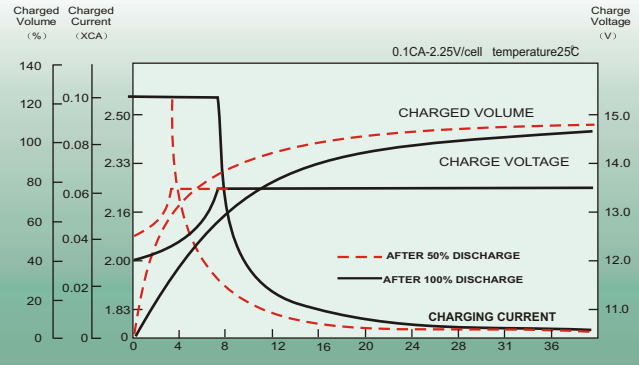
Unit: mm [inches]



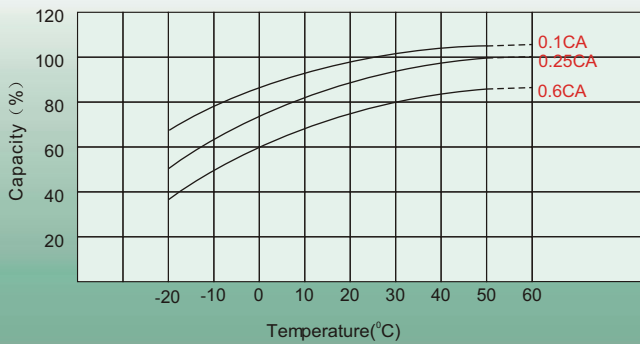
## Discharge Characteristics



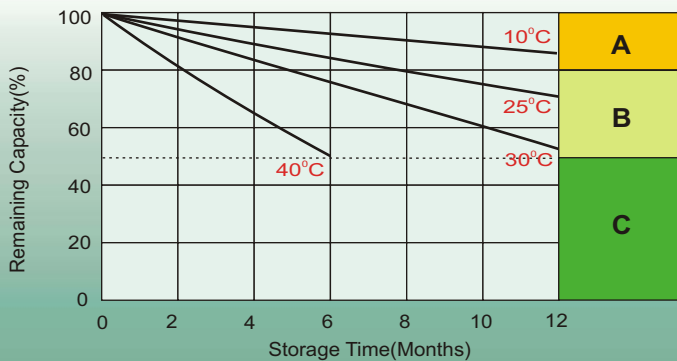
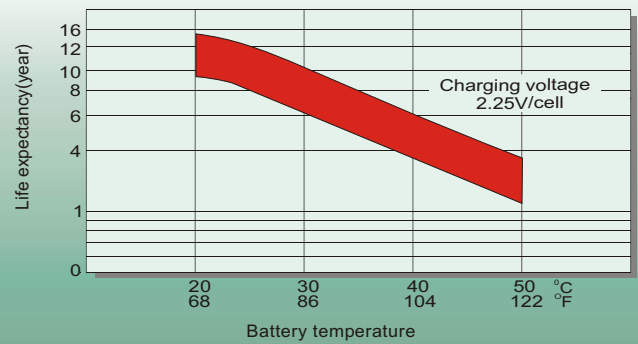
## Float Charging Characteristics



## Temperature Effects in Relation to Battery Capacity



## Effect of Temperature on Long Term Float Life



## Self Discharge Characteristics

- A** No supplementary charge required  
(Carry out supplementary charge before use if 100% capacity is required.)
- B** Supplementary charge required before use. Optional charging way as below:
  1. Charged for above 3 days at limited current 0.25CA and constant volatge 2.25V/cell.
  2. Charged for above 20 hours at limited current 0.25CA and constant volatge 2.45V/cell.
  3. Charged for 8-10 hours at limited current 0.05CA .
- C** Supplementary charge may often fail to recover the capacity.  
The battery should never be left standing till this is reached.

## Sales Office

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