



AL Series - Long Life Standby

AL12-45s (12V45AH)

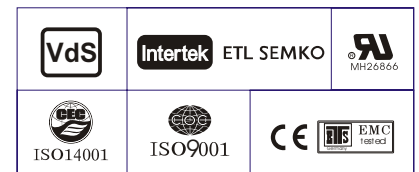
Specification

Nominal Voltage	12V		
Nominal Capacity(10HR)	45.0AH		
Dimension	Length	197±2mm (7.76 inches)	
	Width	165±2mm (6.50 inches)	
	Container Height	170±2mm (6.69 inches)	
	Total Height (with Terminal)	170±2mm (6.69 inches)	
Approx Weight	Approx 14.5 Kg (32.0 lbs)		
Terminal	T6 / T10		
Container Material	ABS		
Rated Capacity	48.1AH/2.41A	(20hr, 1.80V/cell, 25°C/77°F)	
	45.0AH/45.0A	(10hr, 1.80V/cell, 25°C/77°F)	
	39.1AH/7.83A	(5hr, 1.75V/cell, 25°C/77°F)	
	35.1AH/11.7A	(3hr, 1.75V/cell, 25°C/77°F)	
	27.9AH/27.9A	(1hr, 1.60V/cell, 25°C/77°F)	
Max. Discharge Current	540A (5s)		
Internal Resistance	Approx 9.0mΩ		
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 13.5A. 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	52.7	44.3	39.3	32.6	25.1	21.5	13.9	10.5	8.58	7.22	6.32	5.07	4.36	2.33
1.80V/cell	60.2	49.7	43.4	35.4	27.1	22.7	15.0	11.3	9.12	7.65	6.70	5.34	4.50	2.41
1.75V/cell	68.4	56.0	48.0	38.5	29.6	24.8	15.6	11.7	9.43	7.83	6.91	5.52	4.62	2.47
1.70V/cell	77.3	62.2	53.0	42.0	31.9	26.2	16.4	12.3	9.86	8.28	7.24	5.75	4.80	2.53
1.65V/cell	83.0	66.6	56.4	44.3	33.7	27.1	17.0	12.8	10.2	8.54	7.49	5.94	4.93	2.61
1.60V/cell	91.3	72.9	61.2	47.3	35.0	27.9	17.4	13.1	10.5	8.75	7.65	6.05	5.04	2.65

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

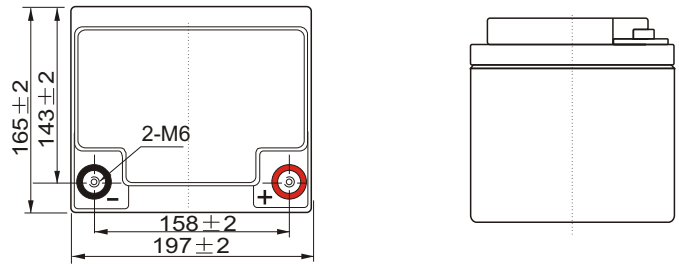
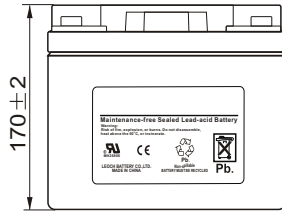
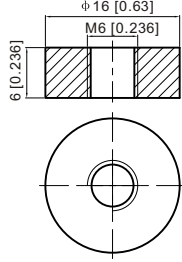
F.V/Time	10min	15min	20min	30min	45min	1h	2h	3h	4h	5h	6h	8h	10h	20h
1.85V/cell	98.3	83.5	74.8	62.7	48.8	41.9	27.3	20.6	16.9	14.3	12.6	10.1	8.72	4.66
1.80V/cell	111.2	92.5	81.5	67.1	52.3	44.0	29.2	22.0	17.9	15.1	13.3	10.6	8.98	4.81
1.75V/cell	124.3	103.0	89.3	72.3	56.5	47.8	30.2	22.8	18.5	15.4	13.6	10.9	9.21	4.93
1.70V/cell	137.2	112.7	97.8	78.5	60.6	50.4	31.8	24.0	19.3	16.2	14.3	11.4	9.56	5.05
1.65V/cell	146.0	119.8	103.3	82.2	63.6	51.7	32.8	24.8	19.9	16.7	14.7	11.8	9.81	5.20
1.60V/cell	157.0	129.0	111.0	87.1	65.7	53.0	33.4	25.4	20.3	17.0	15.0	11.9	10.0	5.28



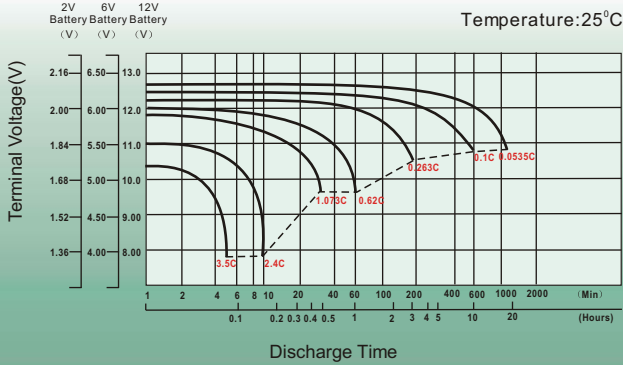
Dimensions

T6 Terminal

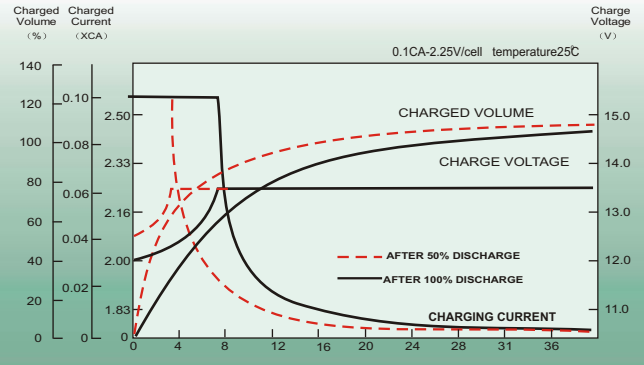
Unit: mm [inches]



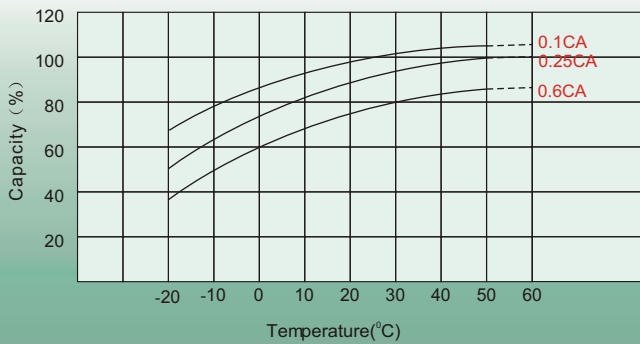
Discharge Characteristics



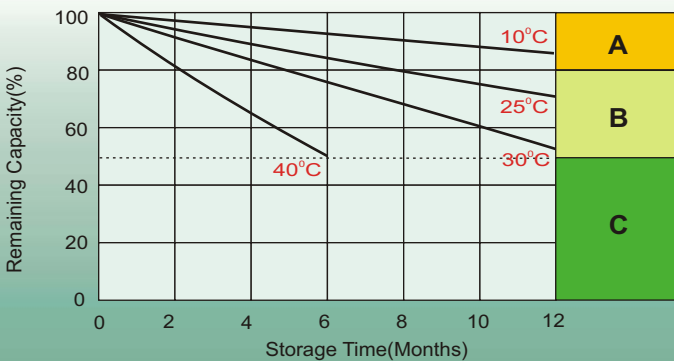
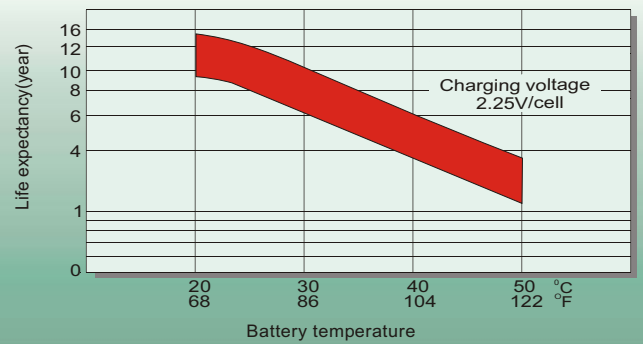
Float Charging Characteristics



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 20hours at limited current 0.25CA and constant volatge 2.45V/cell.
 3. Charged for 8~10hours 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.

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