Lead Acid
12V VRLA
UPS Battery

ALA-MT 150Ah Series

- AGM VRLA sealing technology
- 12 years lifetime at +25 °C
- High energy density and operational reliability
- Compatible with standard telecom equipment
- High strength, flame resistant ABS container
- High discharge performance
- Easy to install
- Flexible design

Ascent's ALA series Lead Acid 12V 150Ah VRLA UPS batteries are widely used in standby power applications for telecommunications, UPS, military, broadcast, and television system purposes.

ALA UPS batteries feature precise ABS heat sealing technology between container and lid and a patented post-seal structure. The ABS container uses flame resistant material and horizontal installation design makes ALA ET series popular product for standard 23" cabinet with extra safety, easier installation and convenient maintenance. ALA series is specially designed for Telecom, UPS as a premium low self-discharge battery.

These batteries are highly reliable making them ideal for backup power generation. The design life for these batteries is 12 years at +25 °C. They feature a flexible lightweight design, and have a strong degree of environmental adaptability.

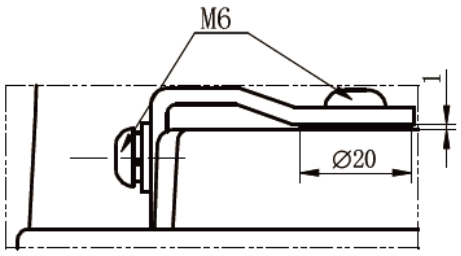
Key Features

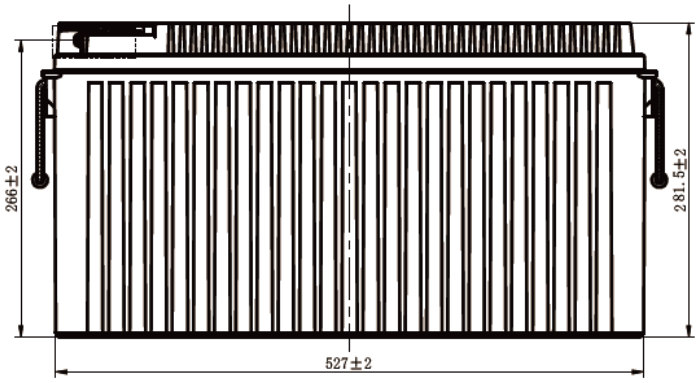
- AGM VRLA sealing technology
- High discharge performance
- High gas recombination efficiency
- Maximum charge efficiency
- Low self-discharge rate
- Easy installation and handling

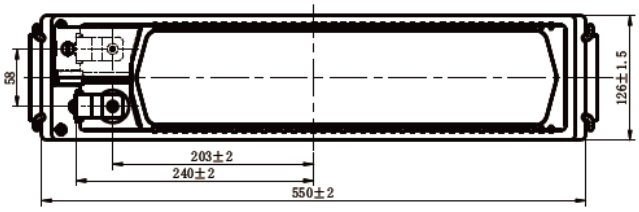
Outline Diagram

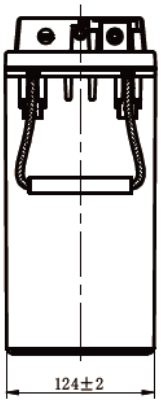
■ Terminal

Unit: mm









Specifications

ALA-MT-150-12

Item	Description
Nominal Voltage	12 V
Nominal Capacity (10 h)	150.0 Ah
Rated Capacity (+25 °C)	20 h rate (7.94 A, 1.80 V): 159.0 Ah 10 h rate (15.0 A, 1.80 V): 150.0 Ah 8 h rate (18.1 A, 1.80 V): 144.8 Ah 5 h rate (27.3 A, 1.75 V): 136.5 Ah 1 h rate (101.0 A, 1.67 V): 101.0 Ah
Internal Resistance	Approx. 3.7 mΩ
Maximum Discharge Current	1200 A/5s
Cycle Use (+25 °C)	Initial Charging Current: ≤45.0 A Voltage: 14.4 V to 15.0 V Temp. coefficient: -30 mV/°C
Standby Use (+25 °C)	No limit on Initial Charging Current Voltage: 13.5 V to 13.8V Temp. coefficient: -18 mV/°C
Capacity Affected by Temperature	+40 °C: 103% +25 °C: 100% 0 °C: 86%
Self-Discharge	MT series batteries may be stored for up to 6 months at +25 °C before a freshening charge is required. For higher temperatures the time interval will be shorter.
Terminal	T8
Container Material	ABS
Operating Temperature	Discharge: -15 °C to +50 °C Charge: 0 °C to +40 °C Storage: -15 °C to +40 °C
Nominal Operating Temperature	25 °C ± 3 °C
Dimensions (L × W × H)	550 mm × 125 mm × 280 mm (280 mm total height)
Approx. Weight	50.6 kg

Discharge Data

Constant Current Discharge Data (+25 °C, A)

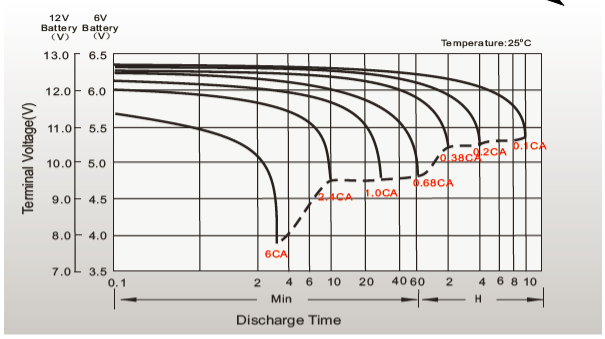
End Volt	10 min	15 min	20 min	30 min	45 min	1 h	2 h	3 h	4 h	5 h	6 h	8 h	10 h	20 h
1.60	363.8	292.2	240.8	178.8	130.2	102.6	59.0	42.8	34.2	28.5	24.6	19.2	15.75	8.21
1.67	351.0	283.2	234.0	173.7	127.6	101.0	58.4	42.1	33.5	27.7	24.1	18.8	15.46	8.16
1.70	334.5	273.0	227.3	169.5	125.4	99.6	57.8	41.7	33.3	27.5	23.8	18.5	15.32	8.12
1.75	312.7	260.4	220.1	165.0	122.8	98.2	57.0	41.3	33.1	27.3	23.6	18.3	15.17	8.06
1.80	284.9	242.4	207.0	158.1	118.8	94.9	55.9	40.6	32.2	26.7	23.2	18.1	15.00	7.94
1.85	251.3	216.6	189.9	147.6	112.0	90.3	53.0	38.2	30.7	25.4	22.1	17.3	14.34	7.60

Constant Power Discharge Data (+25 °C, W/cell)

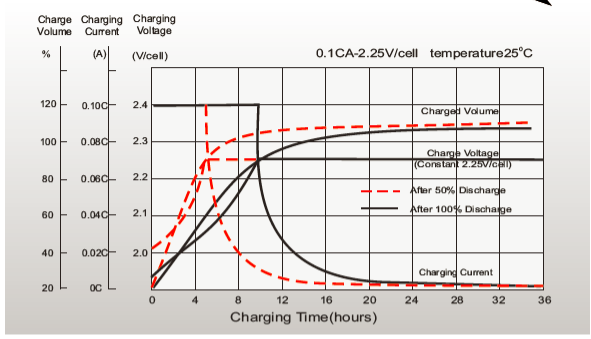
End Volt	10 min	15 min	20 min	30 min	45 min	1 h	2 h	3 h	4 h	5 h	6 h	8 h	10 h	20 h
1.60	625.7	517.1	436.3	329.5	244.1	194.9	113.0	82.6	66.5	55.5	48.1	37.9	31.28	16.33
1.67	620.8	511.3	430.1	324.3	241.9	193.7	112.9	81.8	65.5	54.3	47.4	37.2	30.75	16.26
1.70	593.9	494.9	419.4	317.1	238.5	191.5	112.0	81.2	65.0	53.8	46.9	36.7	30.52	16.20
1.75	567.9	478.7	409.2	310.4	234.4	189.6	110.7	80.5	64.8	53.6	46.5	36.3	30.25	16.09
1.80	525.8	451.1	388.6	299.9	229.0	183.9	109.0	79.5	63.4	52.6	45.9	35.9	29.94	15.87
1.85	469.3	408.5	361.8	284.3	217.5	176.0	104.0	75.1	60.6	50.3	43.8	34.6	28.67	15.21

Performance Curves

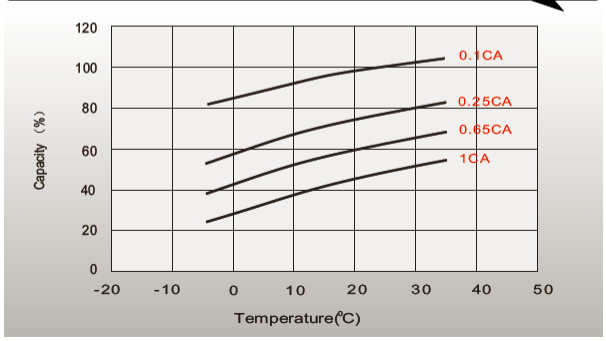
Discharge Characteristics



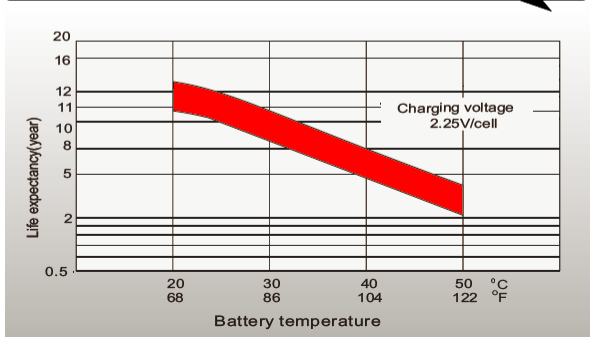
Float Charging Characteristics

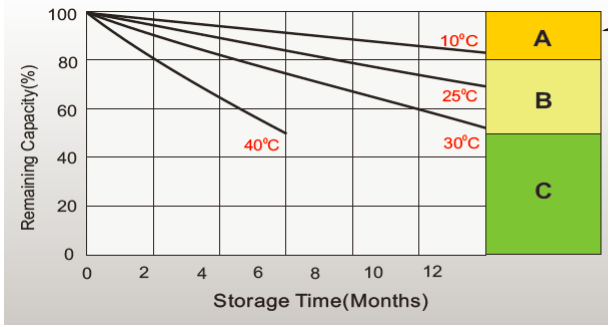


Temperature Effects in Relation to Battery Capacity



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 limted current 0.25CA and constant volatge 2.25V/cell.
2.Charged for above 20hours at limted current 0.25CA and constant volatge 2.45V/cell.
3.Charged for 8~10hours at limted current 0.05CA .

C Supplementary charge may often fail to recover the capacity.
The battery should never be left standing till this is reached.

Additional Specifications

Item	Description
Voltage and operation conditions	
Nominal voltage	12 V DC
Number of cells/battery	6 Cell
Operation environment	
Operation temperature	-15 °C to 50 °C or higher
Operation humidity (+40 °C ± 2 °C)	≥90%
Atmospheric pressure	70 kPa to 106 kPa
Capacity	
Capacity at 10 h discharge mode (+25 °C)	
Rated capacity at 10 h discharge mode, discharge current: 0.10 C, end of voltage: 10.80 V/block	150 Ah
Actual capacity at first discharge	≥95 $\%C_{rt}$
Actual capacity at second discharge	≥100 $\%C_{rt}$
Maximum actual capacity for the first-fifth discharge times	≤120 $\%C_{rt}$
Actual capacity at other modes (+25 °C)	
Actual capacity for first 2 discharge times at 5 h mode, discharge current: 0.20 C, end of voltage: 10.80 V/block	≥85 $\%C_{rt}$
Actual capacity for first 2 discharge times at 3 h mode, discharge current: 0.25 C, end of voltage: 10.20 V/block	≥75 $\%C_{rt}$
Actual capacity for first 3 discharge times at 1 h mode, discharge current: 0.55 C, end of voltage: 9.60 V/block	≥55 $\%C_{rt}$
Rated capacity change by temperature table	
Capacity at +40 °C	≥106 $\%C_{rt}$
Capacity at +25 °C	≥100 $\%C_{rt}$
Capacity at +20 °C	≥97 $\%C_{rt}$
Self-discharge when stored at +25 °C for one month	≤2 %
Battery lifetime	
Lifetime at standby mode (+20 °C to +25 °C)	12 years
Life cycle according to number of charge-discharge cycles	
Life cycle curve and number of cycles according to DOD (100%, 80%, 50%) at +25 °C before remaining capacity is <60% rated capacity.	300 cycles at 100 %DOD 400 cycles at 80 %DOD 700 cycles at 50 %DOD
Life cycles at 100 %DOD capacity at +25 °C	≥300 cycles
Life cycles at 50 %DOD capacity at +25 °C	≥700 cycles
Durability characteristics	
Short-circuit performance	
Discharge at 10 h mode until voltage approaches 3 V/block, then short connect 2 terminals for 24 h, charge battery for 24 h (float voltage is 14.52 V/block and maximum current is 0.15 C). Repeat five times. Capacity at 10 h mode at the fifth discharging time	≥90 $\%C_{rt}$

Charge with high float voltage	
Discharge at 10 h mode then charge battery (float voltage: 14.7 V/block, maximum current: 0.25 C) for 72 h.	No acid leakage, battery dimensions change <2 mm after testing
Evaluate lifetime by using life cycles at 100 %DOD at +40 °C at 10 h. Test with 27 charge-discharge cycles (the first 5 cycles determine first capacity at 10 h mode, 20 cycles at 5 h mode estimate durability characteristics, and the last 2 cycles determine remaining capacity at 10 h mode)	
After 20 cycles charge-discharge at 5 h mode, difference between the remaining capacity and the starting capacity	≤7.5 %
Change in battery dimensions in 20 charge-discharge cycles at +40 °C	≤2.0 mm
Change in battery dimensions after 20 cycles at 5h mode. The temperature of the battery will be decreased from 40 °C to 25 °C within no less than 48 h	≤0.5 mm
Parameters in charge-discharge process	
Maximum charging current	0.25 C_{10}
Boost and float voltage at 25 °C	Refer to diagram under Performance Curves
Internal resistance (+20 °C to +25 °C, battery fully charged)	Approx. 3.7 mΩ
Deviation of internal resistance after each full charging	≤10 %
Maximum difference between internal resistance of each block and average internal resistance of string when the string is fully charged	≤15 %
Maximum deviation of battery voltage in string when string stands at float mode for at least 24 h	≤0.48 V
Maximum deviation of battery voltage in string when string discharges at 10 h mode	≤0.6 V
Ampere-hour efficiency of battery at 10 h mode (charge-discharge)	≥95 %
Other information	
Battery quality certifications	
Certificate of quality management and environment	ISO-9001 and ISO 14001 standard complaint
Certificate of battery testing in accordance with international standards	IEC 60896-21&22-2004
Safety battery standard	IEC 60896
Marking	
The following information shall be indelibly and durably marked in template or container	- Nominal voltage - Manufacture's name, type, and trade name - Capacity at 10 h mode -Boost voltage, float voltage operation at +25°C -Temperature compensation coefficient - Month and year of manufacture - Country of origin - Serial number of block

	- Name of customer - Other information
Structure of battery	
Type	VRLA
Technology used	AGM
Purity of lead	≥99.994 %
Electrolyte	Dilute sulfuric acid 35.2 %
Structure of positive plate	
Structure and chemical component of plate	Flat plate; main component PbO_2
Thickness of plate	3.4 mm
Number of plate	Positive plate: 36 pcs
Structure of negative plate	
Structure and chemical component of plate	Flat plate; main component Pb
Thickness of plate	1.8 mm
Number of plate	Negative plate: 42 pcs
Structure of separator	
Water absorption of separator	≥4.0 g/g
Material of separator	AGM
The acid retention capacity of separator	≥5.5 g/g
The thickness of separator	1.55 mm
Material of container	ABS(UL 94V-0)
Safety valve	
Opening range pressure of valve	10 kPa to 35 kPa. The valve won't operate when battery charges with 0.2 C current or discharges with >0.333 C current.
Closing range pressure of valve	3 kPa to 25 kPa
Recombination efficiency	Recombination efficiency ≥95% for charge with 0.1 C current under standard conditions
Terminal	
Material of terminal	Copper
Terminal markings	Positive and negative terminals are colored red and blue or black
Battery handle	Strong handle, holder is made of hard plastic, can be arranged neatly and do not exceed battery dimensions
Dimensions of 1 battery (L × W × H)	550 mm × 125 mm × 280 mm
Weight of 1 battery	Approx. 50.6 kg
Shape	Battery designed for front connection
Stacking or mounting arrangement	Vertical
Accessories	
Connector	Thickness >1 mm Lead coating of connector is <0.025 mm
Sample	10 blocks 12 V

Ordering Information

Item	Description
ALA-MT-150-12R	ALA MT Series Lead Acid VRLA UPS battery 12 V, 150 Ah, for telecom UPS system backup application

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