



# Installation manual

Rechargeable lead-acid battery 1,2Ah/12V

ZS-1.2



The rechargeable batteries are lead-lead dioxide systems. The dilute sulfuric acid electrolyte is absorbed by separators and plates and thus immobilized. Should the battery be accidentally overcharged producing hydrogen and oxygen, special one-way valves allow the gases to escape thus avoiding excessive pressure build-up. Otherwise, the battery is completely sealed and is, therefore, maintenance-free, leak proof and usable in any position.

### Battery Construction

Component	Positive plate	Negative plate	Container	Cover	Safety valve	Terminal	Separator	Electrolyte
Raw material	Lead dioxide	Lead	ABS	ABS	Rubber	Copper/Pug	Fiberglass	Sulfuric acid

### General Features

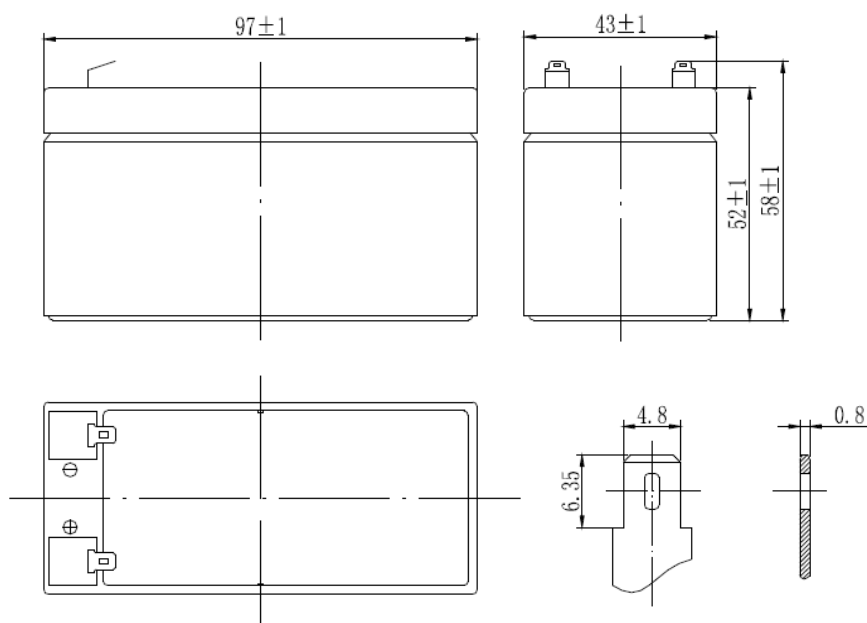
- Absorbent Glass Mat (AGM) technology for efficient gas recombination of up to 99% and freedom from electrolyte maintenance or water adding.
- Not restricted for air transport-complies with IATA/ICAO Special Provision A67.
- UL-recognized component.
- Can be mounted in any orientation.
- Computer designed lead, calcium tin alloy grid for high power density.
- Long service life, float or cyclic applications.
- Maintenance-free operation.
- Low self discharge.

### Battery Specification

<b>Nominal Voltage</b>	<b>12V</b>
<b>Number of cell</b>	<b>6</b>
<b>Design life</b>	<b>5 lat</b>
<b>Nominal Capacity 77°F (25°C)</b>	
20 hour rate (0,06 A; 10,5 V)	<b>1,2 Ah</b>
10 hour rate (0,117 A; 10,5 V)	<b>1,17 Ah</b>
5 hour rate (0,23; 10,5 V)	<b>1,15 Ah</b>
1 hour rate (0,89 A; 9,6 V)	<b>0,89 Ah</b>
<b>Internal Resistance</b>	
Fully Charged battery 77°F (25°C)	<b>≤90 mOhm</b>
<b>Self-Discharge</b>	
3% of capacity declined per month at 20°C (average)	
<b>Operating Temperature Range</b>	
Discharge	<b>-20°C—60°C</b>
Charge	<b>-10°C—60°C</b>
Storage	<b>-20°C—60°C</b>
<b>Max. Discharge Current 77°F (25°C)</b>	<b>18 A (5 s)</b>
<b>Short Circuit Current</b>	<b>60 A</b>
<b>Charge Methods: Constant Voltage Charge 77°F (25°C)</b>	
<b>Cycle use</b>	<b>14.4—14.7 V (2,40—2,45 VPC)</b>
<b>Maximum charging current</b>	<b>0,48 A</b>
<b>Temperature compensation</b>	<b>-30 mV/°C</b>
<b>Standby use</b>	<b>13,38—13,8 V (2,23—2,3 VPC)</b>
<b>Temperature compensation</b>	<b>-20 mV/°C</b>

### Dimensions and Weight

Length (mm / inch)	<b>97 / 3,82</b>
Width (mm / inch)	<b>43 / 1,69</b>
Height (mm / inch)	<b>52 / 2,05</b>
Total Height (mm / inch)	<b>58 / 2,28</b>
Approx. Weight (Kg / lbs)	<b>0,56 / 1,23</b>
<b>* Weight deviation: ± 5%</b>	



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

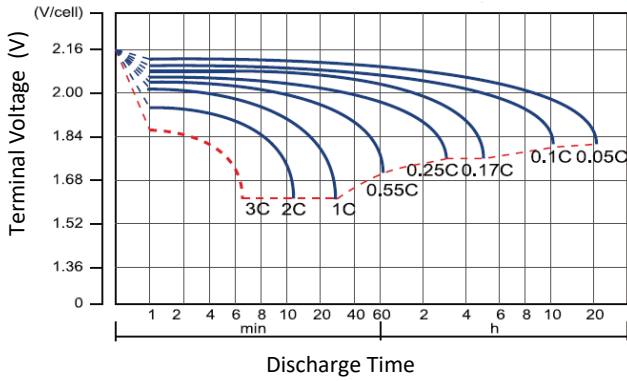
End Point Volts/Cell	5 min	10 min	15 min	30 min	1 h	3 h	5 h	10 h	20h
1,60 V	5,72	3,85	2,67	1,49	0,89	0,39	0,25	0,129	0,065
1,65 V	5,42	3,66	2,55	1,43	0,86	0,37	0,24	0,125	0,064
1,70 V	5,12	3,48	2,43	1,36	0,83	0,36	0,24	0,120	0,064
1,75 V	4,80	3,28	2,31	1,30	0,79	0,34	0,23	0,117	0,060
1,80 V	4,48	3,08	2,18	1,23	0,76	0,33	0,22	0,115	0,060

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

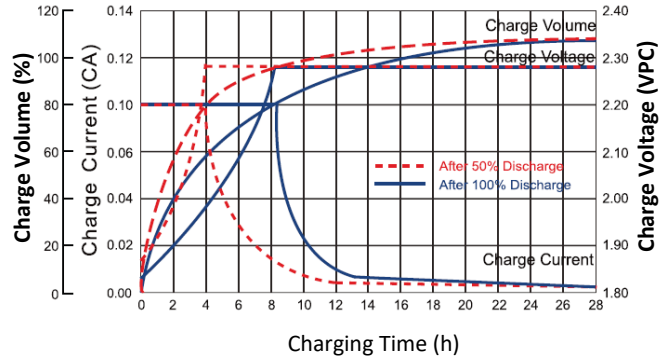
End Point Volts/Cell	5min	10 min	15 min	30 min	45 min	1 h	2 h	3 h	5h
1,60 V	9,90	6,24	5,14	2,94	1,79	0,73	0,50	0,257	0,130
1,65 V	9,28	5,87	4,85	2,78	1,72	0,72	0,49	0,253	0,127
1,70 V	8,67	5,51	4,58	2,64	1,64	0,69	0,48	0,249	0,124
1,75 V	8,06	5,15	4,29	2,49	1,56	0,67	0,47	0,245	0,121
1,80 V	7,47	4,79	4,00	2,33	1,47	0,66	0,46	0,240	0,113

**Note!** The above characteristics data are average values obtained within threecharge / discharge cycles. All data shall be changed without notice, AAT SYSTEMY BEZPIECZEŃSTWA sp. z o.o. reserves the right to explain and updated the information.

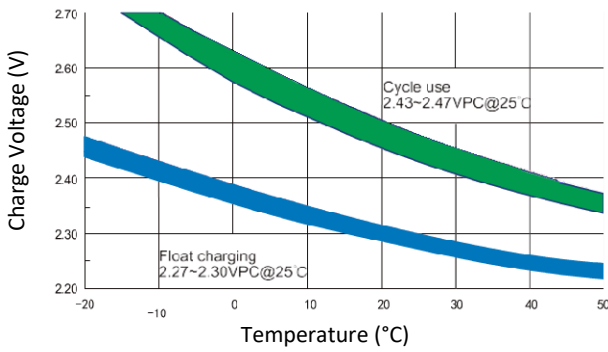
**Discharge Characteristics Curve (25°C)**



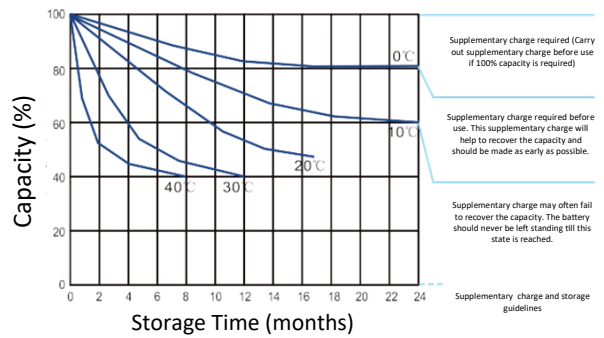
**Charge Characteristic Curve For Standby Use (25°C)**



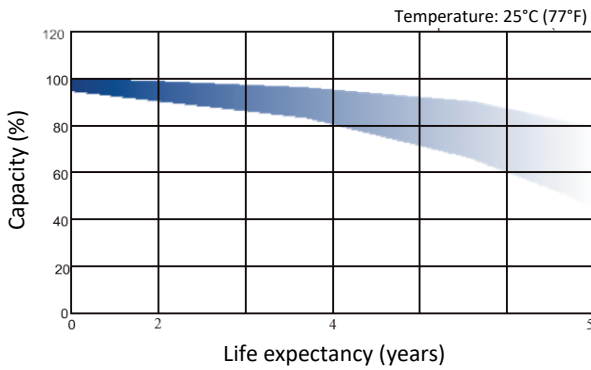
**Relationship Between Charging Voltage And Temperature**



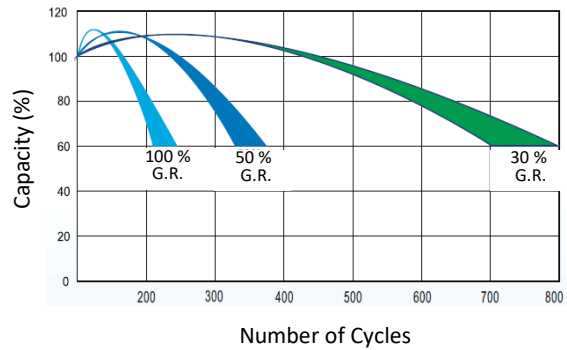
**Storage Characteristics**



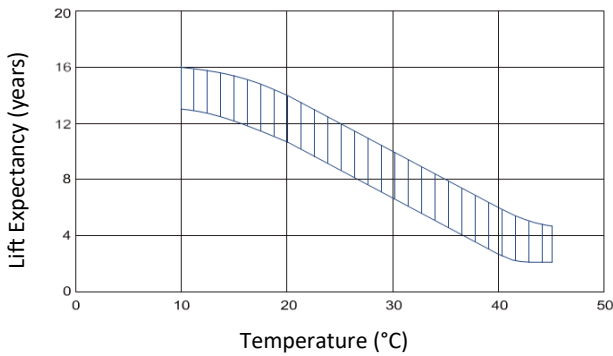
**Life Characteristics Of Standby Use**



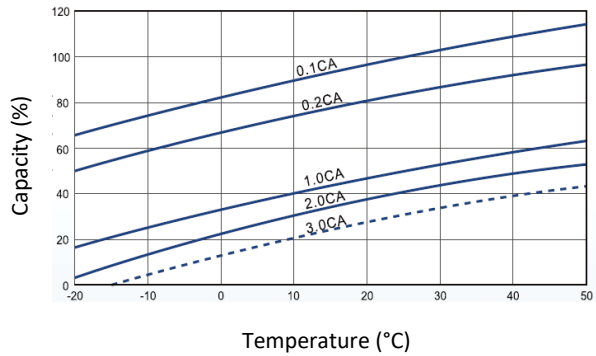
**Cycle Life in Relation To Depth Of Discharge**



**Effect Of Temperature On Long Term Life**



**Temperature Effects On Capacity**



## Notes

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Wpisana do rejestru przedsiębiorców prowadzonego przez Sąd Rejonowy dla m.st. Warszawy w Warszawie,  
XIII Wydział Gospodarczy Krajowego Rejestru Sądowego pod numerem KRS 0000838329,  
kapitał zakładowy wpłacony w całości w wysokości: 17 005 000,00 zł