

**EverExceed<sup>®</sup>**  
*power your applications*



## AINO MICRO RANGE VRLA BATTERY SOLUTIONS

[www.everexceed.com](http://www.everexceed.com)



**Maintenance-Free Rechargeable Sealed V.R.L.A. Lead Acid Batteries**  
**Capacities: 1.3AH to 65AH**

AINO MICRO superior valve regulated lead acid (VRLA) rechargeable batteries are designed to provide outstanding performance in withstanding overcharge, over-discharge, and resisting vibration and shock. With compact design, these batteries save installation space, while providing full and reliable power. The use of special sealing epoxies, groove case and cover construction, and long-sealing paths for posts and connectors, assures that the VRLA battery will offer exceptional leak resistance, and allows them to be used in any position.



**Applicable Operating temperature range:** -40°C (-40°F) to +60°C (+140°F)

**Ideal Operating temperature range:** +20°C (+68°F) to +25°C (+77°F)

**Storage time from a fully charged condition:** 9 months at 20°C / 68°F. For each 9°C / 15°F rise, reduce the storage time by half.

**Designed in Quality Manufacturing**

Quality manufacturing processes for the AINO MICRO Range VRLA / AGM design batteries incorporate the industry's latest advances in this class of batteries, making them ideal for a variety of applications.

**Features and Benefits**

- 📦 5~8 years design life @ 20°C(68°F) ambient temperature. - 80% remaining capacity
- 📦 UL Recognized component .
- 📦 Rechargeable VRLA batteries with an electrolyte retained in a glass mat with a very fine glass fibre structure.
- 📦 High-Compression Absorbed Glass Mat technology (AGM) for over 99% recombination efficiency.
- 📦 Perfect combination between energy storage performance and reliability.
- 📦 Operates at a low internal pressure.
- 📦 Low self-discharge rate (less than 3% / month @ 20°C(68°F).
- 📦 Grid plate construction consisting of a Lead Calcium Tin alloy.
- 📦 High impact resistant ABS resin cases and covers.
- 📦 Available in V-0 Flame Retardant Material.
- 📦 In compliance with IEC 896-2.
- 📦 Wide operating temperature range.
- 📦 Sealed construction for operation in any position.

**Applications**

AINO MICRO Range VRLA batteries are designed for long life and high performance in:

- |                                 |                        |
|---------------------------------|------------------------|
| 📦 Uninterrupted power supplies  | 📦 Power tools          |
| 📦 Security & fire alarm systems | 📦 Medical equipment    |
| 📦 Laboratory & test equipment   | 📦 Consumer electronics |
| 📦 Monitoring equipment          | 📦 Portable equipment   |
| 📦 Telecom equipment             | 📦 Toys and hobbies     |
| 📦 Emergency lighting            | 📦 Marine instruments   |

**Specifications**

- Nominal voltage ....4, 6 & 12 volts
- Grid alloy .....Lead Calcium Tin alloy
- Plates.....Flat pasted
- Separator.....Absorbed Glass Mat
- Container/cover ... ABS resin (flame retardant V-0 on request)
- Terminal.....Faston Tab No.187 & 250, Copper insert
- Electrolyte ..... Diluted sulfuric acid
- Specific.....1.300
- Charge voltage .... Float 2.25-2.30 VPC, Cycling 2.40VPC @20°C
- Vent ..... Self sealing (2 PSI operation)

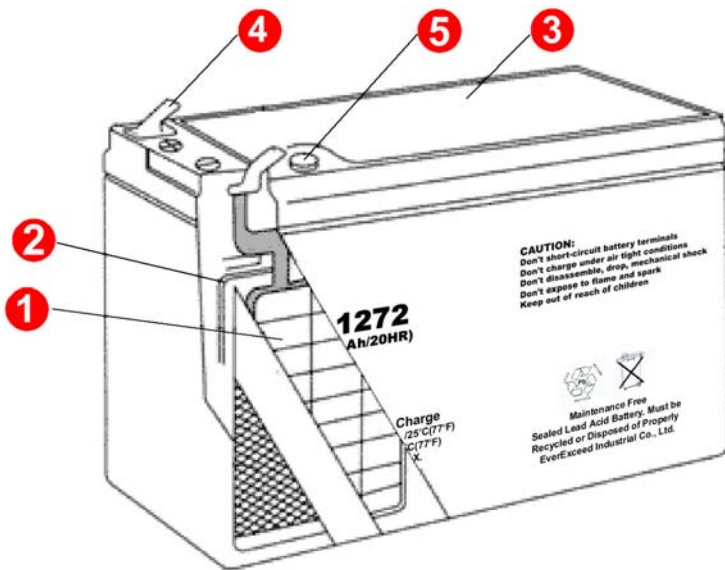
**No transport restrictions**

- 📦 Surface transport. Classified as non-hazardous material as related to DOT-CFR Title 49 parts 171-189.
- 📦 Marine transport. Classified as non-hazardous material as per IMDG amendment 27.
- 📦 Air transport. Complies with IATA/ICAO, Special provision A67.

**CONSTRUCTION** - EverExceed AINO MICRO Range AGM battery construction is as shown in the diagram below. The positive and negative grids are cast from a calcium / tin lead alloy to reduce grid growth and corrosion. The active material is manufactured from high purity lead (99.9999%) to minimize the negative effects of impurities.

Separator is mat of random woven acid resistant glass fibres, which acts as sponge - soaking up and immobilizing the electrolyte whilst maintaining good acid to plate contact and availability during discharge. "U wrapping" is employed to eliminate the risk of short circuits due to mossing and debris at the bottom of the cell.

The purpose of the separator is to maintain a constant distance between the positive and negative plates, thus removing the possibility of short circuits whilst allowing the active material to fully react with the electrolyte. The random weaving also results in an open structure, which offers minimal resistance to the flow of electrolyte during filling.



- 1 Plates:** calcium / tin lead alloy, optimized for high corrosion resistance
- 2 Separator:** Highly porous glass micro-fibre separator, optimized for low internal resistance, for maximum Absorption of the electrolyte and for electrical separation of the positive and negative plates
- 3 Standard Housing:** Reinforced ABS (UL 94HB) container and cover  
**Optional Housing:** Flame-retardant reinforced ABS container and cover compliant with U.L.94 V-0 with an Oxygen limiting Index of greater than 28%.
- 4 Terminals:** Faston Tab No.187, Faston Tab No.250, silver plated Copper female insert , Lead or silver plated Copper Flag terminal
- 5 Valves:** Release gas in case of excess pressure and protects the cell against atmosphere

**ELECTROLYTE FILLING** - Special production and stringent QC systems are utilized to ensure the electrolyte saturation is optimized for each cell. Measured high vacuum acid fill, reduces electrical variability between cells. The battery design and construction negates the need for electrolyte addition and the battery remains maintenance free throughout its design life.

**SAFETY RELEAST VALVE** - The battery will operate above atmospheric pressure under normal operating conditions, however the maximum pressure is governed by the safety one-way release valve. Open is activated by pressures in excess of approx. 2 PSI (14 Kpa), resealing at approx 1.2 PSI (8.4Kpa).

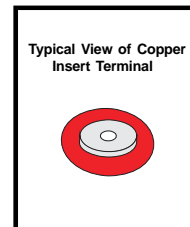
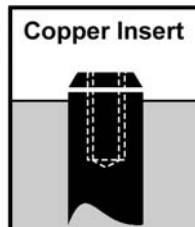
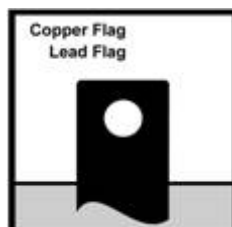
**GAS RECOMBINATION** - The gasses generated during normal operation of the battery are internally recombined. In fact more than 99% of the gas achieves recombination.

**TERMINAL CONSTRUCTION** - The contact quality between the terminal and the lead post is of vital importance during short duration / high Amp discharges. Elevated terminal temperatures are the result of poor contact, eventually causing seal degradation and electrolyte leaks. EverExceed's design and assembly technique for terminal casting ensures trouble free operation for the design life of the battery.

## General Specifications

General Specifications								
Model No.	Nominal Voltage (V)	Rated Capacity 20hr Rate (Ah)	Outline Dimensions (mm/inch)				Weight (Approx.) (kg/lb)	Terminal Type
			Length	Width	Height	Total Height		
AM 4-4.5	4	4.5	48/1.89	48/1.89	102/4.02	108/4.26	0.60/1.32	Faston Tab No. 187
AM 4-9.5	4	9.5	101/3.98	44/1.73	95/3.74	102/4.02	1.28/2.82	Faston Tab No. 187
AM 6-1.3	6	1.3	97/3.82	24/0.95	51/2.01	56/2.21	0.30/0.66	Faston Tab No. 187
AM 6-2.8	6	2.8	66/2.60	33/1.30	98/3.86	103/4.06	0.57/1.26	Faston Tab No. 187
AM 6-3.2	6	3.2	134/5.28	34/1.34	60/2.36	65/2.56	0.68/1.50	Faston Tab No. 187
AM 6-4.5	6	4.5	70/2.76	47/1.85	102/4.02	108/4.26	0.80/1.76	Faston Tab No. 187
AM 6-5sp	6	5	67/2.64	67/2.64	98/3.86	113/4.45	0.93/2.05	Spring & Plug
AM 6-5	6	5	70/2.76	47/1.85	102/4.02	108/4.26	0.82/1.81	Faston Tab No. 187
AM 6-5hr	6	5.0hr	70/2.76	47/1.85	102/4.02	108/4.26	0.85/1.87	Faston Tab No. 187
AM 6-7.2	6	7.2	151/5.95	34/1.34	94/3.70	98/3.86	1.32/2.91	Faston Tab No. 187
AM 6-8.5	6	8.5	98/3.86	56/2.21	118/4.65	118/4.65	1.60/3.53	Faston Tab No. 187
AM 6-10	6	10	151/5.95	51/2.01	94/3.70	98/3.86	2.00/4.41	Faston Tab No. 187
AM 6-12	6	12	151/5.95	50/2.01	94/3.70	98/3.86	2.25/4.96	Faston Tab No. 250
AM 12-0.8	12	0.8	96/3.78	25/0.98	62/2.44	62/2.44	0.35/0.77	Wire Leads & Plug
AM 12-1.3	12	1.3	97/3.82	42/1.65	52/2.05	57/2.26	0.62/1.37	Faston Tab No. 187
AM 12-2.0	12	2	150/5.91	20/0.79	90/3.55	90/3.55	0.70/1.54	187 Flat Contacts
AM 12-2.0p	12	2	143/5.63	23/0.91	65/2.56	65/2.56	0.58/1.28	Pressure Contacts
AM 12-2.2	12	2.2	178/7.01	34/1.34	60/2.36	66/2.60	0.98/2.16	Faston Tab No. 187
AM 12-2.2p	12	12	182/7.17	24/0.95	61/2.40	61/2.40	0.82/1.81	Pressure Contacts
AM 12-3.3	12	3.3	134/5.28	67/2.64	60/2.36	66/2.60	1.40/3.09	Faston Tab No. 187
AM 12-5	12	5	90/3.55	70/2.76	102/4.02	107/4.22	1.83/4.04	Faston Tab No. 187
AM 12-5hr	12	5.0hr	90/3.55	70/2.76	102/4.02	107/4.22	1.90/4.19	Faston Tab No. 187
AM 12-7.2	12	7.2	151/5.95	65/2.56	94/3.70	98/3.86	2.60/5.73	Faston Tab No. 187
AM12-7.2hr	12	7.2hr	151/5.95	65/2.56	94/3.70	98/3.86	2.65/5.84	Faston Tab No. 250
AM 12-10	12	10	151/5.95	98/3.86	94/3.70	100/3.94	4.10/9.04	Faston Tab No. 250
AM 12-12	12	12	151/5.95	98/3.86	94/3.70	100/3.94	4.20/9.26	Faston Tab No. 250
AM12-12hr	12	12hr	151/5.95	98/3.86	94/3.70	100/3.94	4.25/9.37	Faston Tab No. 250
AM 12-15	12	15	181/7.13	76/2.99	167/6.58	167/6.58	5.62/12.39	Flag or Insert
AM 12-18	12	18	181/7.13	76/2.99	167/6.58	167/6.58	5.90/13.01	Flag or Insert
AM12-18hr	12	18hr	181/7.13	76/2.99	167/6.58	167/6.58	6.00/13.23	Flag or Insert
AM 12-20	12	20	181/7.13	76/2.99	167/6.58	167/6.58	6.20/13.67	Flag or Insert
AM 12-26A	12	26	166/6.54	175/6.90	126/4.96	126/4.96	9.20/20.29	Flag or Insert
AM 12-26B	12	26	166/6.54	126/4.96	175/6.90	180/7.09	9.20/20.29	Flag or Insert
AM 12-28	12	28	166/6.54	175/6.90	126/4.96	126/4.96	9.40/20.73	Flag or Insert
AM 12-40	12	40	197/7.76	165/6.50	172/6.78	172/6.78	13.50/29.78	Flag or Insert
AM 12-44	12	44	197/7.76	165/6.50	172/6.78	172/6.78	13.80/30.43	Flag or Insert
AM 12-65	12	65	350/13.79	168/6.62	178/7.01	178/7.01	22.30/49.17	Flag or Insert

## Terminal



## Electrical Specifications

Electrical Specifications									
Model No.	Nominal Voltage (V)	Ampere Hour Capacity @20°C (68°F)					Internal Resistance (milliohms)	Maximum Charge Amps	Maximum Discharge Amps (5 seconds)
		20Hr Rate 1.75VPC	10Hr Rate 1.75VPC	5Hr Rate 1.70VPC	3Hr Rate 1.70VPC	1Hr Rate 1.55VPC			
AM 4-4.5	4	4.50	4.00	3.50	3.20	2.70	13.0	1.13	75
AM 4-9.5	4	9.50	8.80	8.13	6.71	5.70	10.0	2.38	110
AM 6-1.3	6	1.30	1.20	1.05	0.90	0.72	70.0	0.33	36
AM 6-2.8	6	2.80	2.60	2.30	2.02	1.70	35.0	0.70	55
AM 6-3.2A	6	3.20	3.10	2.80	2.50	2.10	30.0	0.80	70
AM 6-4.5	6	4.50	4.00	3.50	3.20	2.70	20.0	1.13	75
AM 6-5sp	6	5.00	4.50	3.90	3.40	3.00	20.0	1.25	80
AM 6-5	6	5.00	4.50	3.90	3.60	3.00	18.0	1.25	85
AM 6-5hr	6	5.0hr	5.25	4.65	4.20	3.96	16.0	1.25	85
AM 6-7.2	6	7.20	6.60	5.95	5.25	4.30	15.0	1.80	105
AM 6-8.5	6	8.50	8.00	6.90	6.20	4.90	15.0	2.13	115
AM 6-10	6	10.0	9.60	8.80	8.24	7.50	10.0	2.50	120
AM 6-12	6	12.0	11.5	10.5	9.60	9.00	10.0	3.00	180
AM 12-0.8	12	0.80	0.72	0.65	0.56	0.48	150	0.20	22
AM 12-1.3	12	1.30	1.20	1.10	1.05	0.90	100	0.33	36
AM 12-2.0	12	2.00	1.90	1.70	1.52	1.30	80.0	0.50	55
AM 12-2.0p	12	2.00	1.90	1.70	1.52	1.30	80.0	0.50	55
AM 12-2.2	12	2.20	2.00	1.80	1.65	1.40	70.0	0.55	60
AM 12-2.2p	12	2.20	2.10	1.85	1.73	1.40	70.0	0.55	55
AM 12-3.3	12	3.30	3.20	2.75	2.55	2.20	60.0	0.83	60
AM 12-5	12	5.00	4.70	4.50	4.05	3.80	40.0	1.25	75
AM 12-5hr	12	5.0hr	5.25	4.65	4.20	3.96	35.0	1.25	75
AM 12-7.2	12	7.20	6.60	5.95	5.25	4.30	25.0	1.80	105
AM12-7.2hr	12	7.20hr	7.48	6.61	6.04	5.26	22.0	1.80	105
AM 12-10	12	10.0	9.60	8.80	8.24	7.50	20.0	2.50	120
AM 12-12	12	12.0	11.5	10.5	9.60	9.00	20.0	3.00	180
AM12-12hr	12	12.0hr	12.5	11.2	10.6	8.78	18.0	3.00	180
AM 12-15	12	15.0	14.2	12.5	11.3	10.0	16.0	3.75	220
AM 12-18	12	18.0	17.0	15.0	14.3	12.0	14.0	4.50	250
AM12-18hr	12	18.0hr	18.7	16.5	16.1	13.2	12.0	4.50	250
AM 12-20	12	20.0	18.9	16.8	16.3	13.5	10.0	5.00	260
AM 12-26A	12	26.0	24.5	22.5	20.7	16.0	10.0	6.50	290
AM 12-26B	12	26.0	24.5	22.5	20.7	16.0	10.0	6.50	290
AM 12-28	12	28.0	26.4	24.2	21.9	17.2	9.00	7.00	300
AM 12-40	12	40.0	37.1	33.1	29.1	24.0	7.50	10.0	490
AM 12-44	12	44.0	40.7	36.3	32.9	26.4	6.00	11.0	500
AM 12-65	12	65.0	60.5	53.6	46.0	39.0	5.50	16.3	800

## AINO MICRO Range Discharge Amps & Watts

### Discharge Data Amps @20°C (68°F)

Model No.	Final VPC	Discharge Data Time in minutes											
		5	10	15	20	25	30	45	60	90	120	180	240
AM 4-4.5	1.80	15.7	11.0	7.98	6.46	5.77	4.95	3.61	2.90	2.10	1.69	1.17	0.94
	1.75	17.4	12.0	8.55	6.84	5.97	5.08	3.72	2.95	2.15	1.72	1.19	0.96
	1.67	19.7	13.2	9.06	7.11	6.15	5.23	4.08	3.01	2.19	1.74	1.19	0.96
AM 4-9.5	1.80	29.8	21.1	15.9	12.6	10.7	10.2	8.1	6.39	4.36	3.48	2.35	2.05
	1.75	33.2	22.7	17.1	13.1	12.3	11.4	8.28	6.48	4.46	3.55	2.38	2.10
	1.67	37.5	24.7	18.1	13.6	12.6	11.6	8.46	6.61	4.50	3.59	2.39	2.10
AM 6-1.3	1.80	4.69	3.05	2.40	1.94	1.69	1.43	1.02	0.82	0.59	0.49	0.33	0.27
	1.75	4.94	3.21	2.58	2.04	1.78	1.51	1.11	0.86	0.62	0.52	0.35	0.28
	1.67	5.58	3.50	2.6	2.12	1.83	1.54	1.13	0.88	0.63	0.53	0.35	0.28
AM 6-2.8	1.80	9.45	6.41	4.98	4.01	3.47	2.98	2.21	1.75	1.28	1.03	0.72	0.57
	1.75	10.6	6.97	5.34	4.24	3.58	3.06	2.27	1.79	1.31	1.05	0.74	0.58
	1.67	11.9	7.60	5.65	4.41	3.69	3.15	2.32	1.82	1.34	1.07	0.74	0.58
AM6-3.2A	1.80	10.8	7.32	5.69	4.58	3.96	3.41	2.52	2.00	1.46	1.18	0.82	0.65
	1.75	12.1	7.97	6.10	4.85	4.09	3.50	2.59	2.04	1.50	1.20	0.84	0.66
	1.67	13.6	8.69	6.46	5.04	4.22	3.60	2.65	2.08	1.53	1.22	0.85	0.66
AM 6-4.5	1.80	15.7	11.0	7.98	6.46	5.77	4.95	3.61	2.90	2.10	1.69	1.17	0.94
	1.75	17.4	12.0	8.55	6.84	5.97	5.08	3.72	2.95	2.15	1.72	1.19	0.96
	1.67	19.7	13.2	9.06	7.11	6.15	5.23	4.08	3.01	2.19	1.74	1.19	0.96
AM 6-5sp	1.80	17.4	12.2	8.87	7.18	6.41	5.50	4.01	3.22	2.33	1.88	1.30	1.04
	1.75	19.3	13.3	9.50	7.60	6.63	5.64	4.13	3.28	2.39	1.91	1.32	1.07
	1.67	21.9	14.7	10.1	7.9	6.83	5.81	4.53	3.34	2.43	1.93	1.32	1.07
AM 6-5	1.80	17.4	12.2	8.87	7.18	6.41	5.5	4.01	3.22	2.33	1.88	1.30	1.04
	1.75	19.3	13.3	9.50	7.60	6.63	5.64	4.13	3.28	2.39	1.91	1.32	1.07
	1.67	21.9	14.7	10.1	7.90	6.83	5.81	4.53	3.34	2.43	1.93	1.32	1.07
AM 6-5hr	1.80	21.5	14.4	10.6	8.54	7.01	6.48	4.95	3.58	2.50	1.95	1.35	1.08
	1.75	23.5	15.3	11.0	8.75	7.36	6.94	5.25	3.69	2.61	1.97	1.40	1.09
	1.67	26.5	16.7	11.7	9.10	7.56	7.08	5.46	3.78	2.82	2.01	1.43	1.10
AM 6-7.2	1.80	22.6	16.0	12.0	9.58	8.14	7.70	6.14	4.85	3.30	2.64	1.78	1.56
	1.75	25.1	17.2	13.0	9.94	8.57	8.12	6.28	4.91	3.38	2.69	1.81	1.59
	1.67	28.4	18.7	13.7	10.3	8.78	8.5	6.41	5.01	3.41	2.72	1.81	1.59
AM 6-8.5	1.80	26.7	18.9	14.2	11.3	9.61	9.10	7.25	5.72	3.90	3.11	2.10	1.84
	1.75	29.7	20.3	15.3	11.7	10.2	9.80	7.41	5.80	3.99	3.18	2.13	1.88
	1.67	33.6	22.1	16.2	12.2	10.5	10.1	7.57	5.92	4.03	3.21	2.14	1.88
AM 6-10	1.80	31.4	22.2	16.7	13.3	11.3	10.7	8.53	6.73	4.59	3.66	2.47	2.16
	1.75	34.9	23.9	18.0	13.8	12.5	12.0	8.72	6.82	4.69	3.74	2.51	2.21
	1.67	39.5	26.0	19.0	14.3	12.9	12.3	8.90	6.96	4.74	3.78	2.52	2.21
AM 6-12	1.8	37.8	26.7	20.2	16.1	15	14.1	10.3	8.11	5.53	4.41	2.98	2.60
	1.75	42.1	28.7	21.6	16.6	15.5	14.4	10.5	8.22	5.63	4.50	3.03	2.66
	1.67	47.6	31.3	22.9	17.3	16.6	14.7	10.7	8.39	5.71	4.55	3.05	2.66
AM 12-0.8	1.80	2.89	1.88	1.48	1.19	1.04	0.88	0.65	0.50	0.36	0.30	0.20	0.17
	1.75	3.04	1.98	1.56	1.26	1.10	0.93	0.68	0.53	0.38	0.32	0.22	0.17
	1.67	3.43	2.15	1.65	1.30	1.13	0.95	0.70	0.54	0.39	0.33	0.22	0.17

## AINO MICRO Range Discharge Amps & Watts

### Discharge Data Amps @20°C (68°F)

Model No.	Final VPC	Discharge Data Time in minutes											
		5	10	15	20	25	30	45	60	90	120	180	240
AM 12-1.3	1.80	4.69	3.05	2.40	1.94	1.69	1.43	1.05	0.82	0.59	0.49	0.33	0.27
	1.75	4.94	3.21	2.53	2.04	1.78	1.51	1.11	0.86	0.62	0.52	0.35	0.28
	1.67	5.58	3.50	2.68	2.12	1.83	1.54	1.13	0.88	0.63	0.53	0.35	0.28
AM 12-2.0	1.80	6.75	4.57	3.56	2.86	2.48	2.13	1.57	1.25	0.91	0.74	0.51	0.41
	1.75	7.57	4.98	3.81	3.03	2.56	2.19	1.62	1.28	0.94	0.75	0.52	0.41
	1.67	8.5	5.43	4.03	3.15	2.63	2.25	1.65	1.3	0.96	0.77	0.53	0.41
AM 12-2.0p	1.80	6.75	4.57	3.56	2.86	2.48	2.13	1.57	1.25	0.91	0.74	0.51	0.41
	1.75	7.57	4.98	3.81	3.03	2.56	2.19	1.62	1.28	0.94	0.75	0.52	0.41
	1.67	8.50	5.43	4.03	3.15	2.63	2.25	1.65	1.30	0.96	0.77	0.53	0.41
AM 12-2.2p	1.80	7.42	5.03	3.91	3.15	2.73	2.34	1.73	1.38	1.00	0.81	0.56	0.45
	1.75	8.32	5.48	4.19	3.34	2.81	2.41	1.78	1.41	1.03	0.82	0.57	0.45
	1.67	9.35	5.98	4.44	3.46	2.9	2.48	1.82	1.43	1.05	0.84	0.58	0.45
AM12-2.2	1.80	7.42	5.03	3.91	3.15	2.73	2.34	1.73	1.38	1.00	0.81	0.56	0.45
	1.75	8.32	5.48	4.19	3.34	2.81	2.41	1.78	1.41	1.03	0.82	0.57	0.45
	1.67	9.35	5.98	4.44	3.46	2.90	2.48	1.82	1.43	1.05	0.84	0.58	0.45
AM12-3.3	1.80	11.4	7.71	5.99	4.82	4.17	3.59	2.65	2.11	1.54	1.24	0.86	0.68
	1.75	12.7	8.45	6.42	5.10	4.31	3.68	2.73	2.15	1.58	1.26	0.88	0.69
	1.67	14.3	9.26	6.8	5.31	4.44	3.79	2.8	2.19	1.61	1.28	0.88	0.69
AM12-5	1.80	17.4	12.2	8.87	7.18	6.41	5.50	4.01	3.22	2.33	1.88	1.30	1.04
	1.75	19.3	13.3	9.50	7.60	6.63	5.64	4.13	3.28	2.39	1.91	1.32	1.07
	1.67	21.9	14.7	10.1	7.90	6.83	5.81	4.53	3.34	2.43	1.93	1.32	1.07
AM 12-5hr	1.80	21.5	14.4	10.6	8.54	7.01	6.48	4.95	3.58	2.50	1.95	1.35	1.08
	1.75	23.5	15.3	11.0	8.75	7.36	6.94	5.25	3.69	2.61	1.97	1.40	1.09
	1.67	26.5	16.7	11.7	9.10	7.56	7.08	5.46	3.78	2.82	2.01	1.43	1.1
AM 12-7.2	1.80	22.6	16.0	12.0	9.58	8.14	7.70	6.14	4.85	3.3	2.64	1.78	1.56
	1.75	25.1	17.2	13	9.94	8.57	8.12	6.28	4.91	3.38	2.69	1.81	1.59
	1.67	28.4	18.7	13.7	10.3	8.78	8.50	6.41	5.01	3.41	2.72	1.81	1.59
AM 12-7.2hr	1.80	31.0	20.7	15.2	12.3	10.1	9.33	5.98	5.16	3.38	2.68	2.03	1.53
	1.75	33.8	22.1	15.8	12.6	10.6	10.0	6.26	5.32	3.47	2.77	2.06	1.57
	1.67	38.2	24.1	16.8	13.1	10.9	10.2	6.38	5.44	3.51	2.80	2.09	1.57
AM 12-10	1.80	31.5	22.3	16.8	13.4	11.3	10.8	8.58	6.76	4.61	3.68	2.48	2.17
	1.75	35.1	24.8	18.0	13.8	12.5	12.0	8.75	6.85	4.71	3.75	2.53	2.22
	1.67	39.7	26.1	19.1	14.4	12.3	12.3	8.92	6.99	4.76	3.79	2.52	2.21
AM 12-12	1.80	37.8	26.7	20.2	16.1	15.0	14.1	10.3	8.11	5.53	4.41	2.98	2.60
	1.75	42.1	28.7	21.6	16.6	15.5	14.4	10.5	8.22	5.63	4.50	3.03	2.66
	1.67	47.6	31.3	22.9	17.3	16.6	14.7	10.7	8.39	5.71	4.55	3.05	2.66
AM12-12hr	1.80	41.0	28.9	21.8	17.4	14.6	12.1	11.0	8.52	5.70	4.53	3.05	2.65
	1.75	45.7	32.2	23.3	17.9	15.4	12.6	11.2	8.63	5.83	4.62	3.11	2.71
	1.67	51.6	33.9	24.7	18.6	15.8	12.9	11.4	8.81	5.89	4.67	3.12	2.71
AM 12-15	1.80	45.7	33.2	26.1	21.7	17.6	14.5	12.9	9.67	7.30	5.96	3.64	2.99
	1.75	51.2	34.9	28.8	23.2	18.4	15.2	13.8	10.4	7.43	6.33	3.73	3.08
	1.67	58.3	38.1	30.6	24.1	18.9	15.5	14.1	10.7	7.58	6.40	3.74	3.08
AM12-18	1.80	54.8	39.8	31.3	26.0	21.1	17.4	15.5	11.6	8.76	7.15	4.37	3.59
	1.75	61.4	41.9	34.6	27.8	22.1	18.2	16.6	12.5	8.91	7.60	4.47	3.69
	1.67	70.0	45.7	36.7	28.9	22.7	18.6	16.9	12.8	9.09	7.68	4.49	3.69

## AINO MICRO Range Discharge Amps & Watts

### Discharge Data Amps @20°C (68°F)

Model No.	Final VPC	Discharge Data Time in minutes											
		5	10	15	20	25	30	45	60	90	120	180	240
AM12-18hr	1.80	59.5	43.1	33.8	28.0	22.7	18.7	16.5	12.2	9.03	7.34	4.48	3.66
	1.75	66.6	45.3	37.4	30.0	23.8	19.5	17.7	13.1	9.19	7.80	4.58	3.76
	1.67	76.0	49.4	39.6	31.2	24.4	19.9	18.0	13.4	9.37	7.88	4.60	3.76
AM 12-20	1.80	60.9	44.2	34.8	28.9	23.4	19.3	17.2	12.9	9.73	7.94	4.86	3.99
	1.75	68.2	46.6	38.4	30.9	24.6	20.2	18.4	13.9	9.90	8.44	4.97	4.10
	1.67	77.8	50.8	40.8	32.1	25.2	20.7	18.8	14.2	10.1	8.53	4.99	4.10
AM 12-26A	1.80	75.4	54.7	43.8	38.8	33.1	27.2	18.4	15.2	10.4	9.72	6.53	4.81
	1.75	83.9	59.6	46.9	41.0	34.2	27.9	19.0	15.5	10.7	9.89	6.66	4.90
	1.67	94.6	65	49.7	42.7	35.3	28.7	19.4	15.8	10.8	10.1	6.67	4.90
AM 12-26B	1.80	75.4	54.7	43.8	38.8	33.1	27.2	18.4	15.2	10.4	9.72	6.53	4.81
	1.75	83.9	59.6	46.9	41.0	34.2	27.9	19.0	15.5	10.7	9.89	6.66	4.90
	1.67	94.6	65	49.7	42.7	35.3	28.7	19.4	15.8	10.8	10.1	6.67	4.90
AM 12-28	1.80	88.0	63.8	51.1	45.3	38.6	31.7	21.5	17.8	12.1	11.3	7.62	5.61
	1.75	97.9	69.5	54.7	47.9	39.9	32.5	22.2	18.1	12.4	11.5	7.77	5.72
	1.67	110	75.9	58.0	49.8	41.1	33.5	22.6	18.5	12.6	11.7	7.78	5.72
AM 12-40	1.80	108	79.5	63.9	53.6	46.1	40.6	29.2	21.4	16.0	13.8	9.09	7.51
	1.75	114	83.7	67.3	56.3	48.5	42.7	30.7	22.4	16.8	14.5	9.55	7.91
	1.67	128	90.9	71.3	58.6	50.0	43.6	31.4	23.1	17.1	14.7	9.63	7.91
AM 12-44	1.80	119	87.4	70.3	58.9	50.7	44.7	32.1	23.5	17.6	15.2	10.0	8.26
	1.75	125	92.0	74.0	62.0	53.4	47.0	33.8	24.7	18.5	16.0	10.5	8.70
	1.67	141	100	78.4	64.5	55	47.9	34.5	25.3	18.7	16.2	10.6	8.70
AM 12-65	1.80	138	109	96.4	77.8	67.7	57.5	41.4	34.9	25.5	22.0	14.5	12.0
	1.75	154	123	105	81.8	71.3	60.8	43.7	37.1	26.6	23.0	15.2	12.5
	1.67	170	134	111	84.9	72.0	61.2	44.0	37.9	27.3	23.6	15.4	12.7

Actual battery performance data may be +/-5% of figures shown above

## AINO MICRO Range Discharge Amps & Watts

### Discharge Data Watts per cell @20°C (68°F)

Model No.	Final VPC	Discharge Data Time in minutes											
		5	10	15	20	25	30	45	60	90	120	180	240
AM 4-4.5	1.80	26.5	18.5	13.1	10.6	9.45	8.13	5.93	4.87	3.56	2.89	2.02	1.64
	1.75	29.4	19.6	14.0	11.2	9.72	8.27	6.06	4.94	3.64	2.93	2.04	1.66
	1.67	33.3	21.2	15.3	12.1	10.4	8.84	6.42	5.13	3.76	3.01	2.08	1.68
AM 4-9.5	1.80	56.1	39.7	30.0	23.8	20.2	17.8	15.3	12.2	8.39	6.71	4.57	4.02
	1.75	60.9	41.6	31.3	24	20.7	18.4	15.4	12.4	8.47	6.76	4.60	4.07
	1.67	68.7	44.9	32.9	24.8	21.1	18.7	15.6	12.7	8.63	6.81	4.63	4.09
AM 6-1.3	1.80	8.80	5.72	4.50	3.62	3.17	2.68	1.97	1.55	1.13	0.94	0.64	0.53
	1.75	9.02	5.86	4.62	3.72	3.25	2.76	2.03	1.60	1.17	0.99	0.66	0.54
	1.67	10.1	6.34	4.85	3.84	3.31	2.79	2.05	1.64	1.18	1.00	0.67	0.54
AM 6-2.8	1.80	17.8	12.0	9.36	7.52	6.51	5.60	4.14	3.33	2.44	1.98	1.38	1.10
	1.75	19.3	12.8	9.71	7.74	6.54	5.69	4.16	3.35	2.48	1.99	1.40	1.11
	1.67	21.5	13.7	10.2	7.99	6.68	5.71	4.20	3.39	2.52	2.01	1.41	1.11
AM 6-3.2A	1.80	20.3	13.7	10.7	8.59	7.44	6.40	4.73	3.80	2.79	2.26	1.58	1.26
	1.75	22.0	14.6	11.1	8.84	7.47	6.50	4.75	3.82	2.83	2.27	1.60	1.27
	1.67	24.6	15.7	11.7	9.13	7.63	6.52	4.80	3.87	2.88	2.30	1.60	1.27



## AINO MICRO Range Discharge Amps & Watts

Discharge Data Watts per cell @20°C (68°F)

Model No.	Final VPC	Discharge Data Time in minutes											
		5	10	15	20	25	30	45	60	90	120	180	240
AM 6-4.5	1.80	26.5	18.5	13.1	10.6	9.45	8.13	5.93	4.87	3.56	2.89	2.02	1.64
	1.75	29.4	19.6	14.0	11.2	9.72	8.27	6.06	4.94	3.64	2.93	2.04	1.66
	1.67	33.3	21.2	15.3	12.1	10.4	8.84	6.42	5.13	3.76	3.01	2.08	1.68
AM 6-5sp	1.80	29.4	20.6	14.6	11.8	10.5	9.03	6.59	5.41	3.96	3.21	2.24	1.82
	1.75	32.7	21.8	15.5	12.4	10.8	9.19	6.73	5.49	4.04	3.25	2.27	1.84
	1.67	37.0	23.6	17.0	13.4	11.5	9.82	7.13	5.70	4.18	3.34	2.31	1.87
AM 6-5	1.80	29.4	20.6	14.6	11.8	10.5	9.03	6.59	5.41	3.96	3.21	2.24	1.82
	1.75	32.7	21.8	15.5	12.4	10.8	9.19	6.73	5.49	4.04	3.25	2.27	1.84
	1.67	37.0	23.6	17.0	13.4	11.5	9.82	7.13	5.70	4.18	3.34	2.31	1.87
AM 6-5hr	1.80	40.3	27.0	19.3	15.2	12.6	11.7	7.57	6.65	4.42	3.53	2.71	2.06
	1.75	44.1	28.1	19.9	15.6	12.9	12.4	7.85	6.84	4.58	3.64	2.72	2.09
	1.67	49.8	30.3	21.9	16.8	13.8	13.1	8.33	7.15	4.65	3.74	2.82	2.12
AM 6-7.2	1.80	44.2	29.7	20.6	16.6	13.7	12.7	8.16	7.33	4.93	3.96	3.04	2.32
	1.75	48.2	30.9	21.2	17.1	14.2	13.5	8.48	7.54	5.06	4.08	3.06	2.35
	1.67	49.8	33.4	23.3	18.5	15.1	14.3	8.96	7.84	5.19	4.19	3.17	2.38
AM 6-8.5	1.80	52.2	35.0	24.4	19.6	16.2	15.0	9.63	8.65	5.82	4.68	3.59	2.74
	1.75	56.9	36.5	25.0	20.2	16.7	16.0	10.0	8.90	5.98	4.82	3.61	2.78
	1.67	58.8	39.4	27.5	21.8	17.9	16.9	10.6	9.26	6.13	4.95	3.74	2.81
AM 6-10	1.80	59.1	41.8	31.6	25.1	21.3	18.7	16.1	12.8	8.83	7.06	4.81	4.23
	1.75	64.1	43.8	32.9	25.3	21.8	19.4	16.2	12.9	8.92	7.12	4.84	4.28
	1.67	72.3	47.3	34.6	26.1	22.2	19.7	16.3	13.1	9.08	7.17	4.87	4.31
AM 6-12	1.80	70.9	50.2	37.9	30.1	25.6	22.4	19.3	15.4	10.6	8.47	5.77	5.07
	1.75	76.9	52.5	39.5	30.3	26.1	23.3	19.4	15.5	10.7	8.54	5.81	5.14
	1.67	86.8	56.7	41.5	31.3	26.6	23.6	19.6	15.7	10.9	8.60	5.84	5.17
AM 12-0.8	1.80	5.42	3.52	2.70	2.18	1.90	1.61	1.18	0.94	0.68	0.57	0.39	0.32
	1.75	5.7	3.61	2.82	2.27	1.91	1.62	1.21	0.98	0.71	0.60	0.40	0.33
	1.67	6.46	3.90	3.10	2.45	2.11	1.78	1.30	1.03	0.74	0.63	0.42	0.34
AM 12-1.3	1.80	8.8	5.72	4.38	3.54	3.08	2.61	1.92	1.53	1.11	0.93	0.63	0.52
	1.75	9.27	5.86	4.58	3.69	3.10	2.64	1.97	1.60	1.16	0.97	0.64	0.54
	1.67	10.5	6.34	5.03	3.98	3.43	2.89	2.12	1.67	1.20	1.02	0.68	0.55
AM 12-2.0	1.80	14.6	10.0	6.92	5.35	4.63	3.92	2.84	2.35	1.70	1.33	0.95	0.77
	1.75	15.4	10.2	7.23	5.59	4.84	4.08	2.96	2.47	1.79	1.39	0.99	0.80
	1.67	17.5	11.0	7.94	6.04	5.17	4.32	3.14	2.56	1.84	1.43	1.00	0.82
AM 12-2.0p	1.80	14.6	10.0	6.92	5.35	4.63	3.92	2.84	2.35	1.70	1.33	0.95	0.77
	1.75	15.4	10.2	7.23	5.59	4.84	4.08	2.96	2.47	1.79	1.39	0.99	0.8
	1.67	17.5	11.0	7.94	6.04	5.17	4.32	3.14	2.56	1.84	1.43	1.00	0.82
AM 12-2.2	1.80	16.1	11.0	7.61	5.89	5.09	4.31	3.12	2.59	1.87	1.46	1.04	0.85
	1.75	16.9	11.2	7.95	6.15	5.32	4.49	3.26	2.72	1.97	1.53	1.09	0.88
	1.67	19.2	12.1	8.73	6.64	5.69	4.75	3.45	2.82	2.02	1.57	1.10	0.9
AM 12-2.2p	1.80	16.1	11.0	7.61	5.89	5.09	4.31	3.12	2.59	1.87	1.46	1.04	0.85
	1.75	16.9	11.2	7.95	6.15	5.32	4.49	3.26	2.72	1.97	1.53	1.09	0.88
	1.67	19.2	12.1	8.73	6.64	5.69	4.75	3.45	2.82	2.02	1.57	1.10	0.90
AM 12-3.3	1.80	21.4	14.5	10.9	8.8	7.61	6.55	4.84	3.94	2.90	2.35	1.56	1.31
	1.75	23.8	15.3	11.6	9.23	7.8	6.66	4.94	4.00	2.97	2.38	1.68	1.32
	1.67	26.9	16.6	12.8	9.97	8.33	7.11	5.24	4.15	3.07	2.46	1.70	1.35
AM 12-5	1.80	29.4	20.6	14.6	11.8	10.5	9.03	6.59	5.41	3.96	3.21	2.24	1.82
	1.75	32.7	21.8	15.5	12.4	10.8	9.19	6.73	5.49	4.04	3.25	2.27	1.84
	1.67	37.0	23.6	17.0	13.4	11.5	9.82	7.13	5.70	4.18	3.34	2.31	1.87

## AINO MICRO Range Discharge Amps & Watts

Discharge Data Watts per cell @20°C (68°F)

Model No.	Final VPC	Discharge Data Time in minutes											
		5	10	15	20	25	30	45	60	90	120	180	240
AM 12-5hr	1.80	40.3	27.0	19.3	15.2	12.6	11.7	7.57	6.65	4.42	3.53	2.71	2.06
	1.75	44.1	28.1	19.9	15.6	12.9	12.4	7.85	6.84	4.58	3.64	2.72	2.09
	1.67	49.8	30.3	21.9	16.8	13.8	13.1	8.33	7.15	4.65	3.74	2.82	2.12
AM 12-7.2	1.80	44.2	29.7	20.6	16.6	13.7	12.7	8.16	7.33	4.93	3.96	3.04	2.32
	1.75	48.2	30.9	21.2	17.1	14.2	13.5	8.48	7.54	5.06	4.08	3.06	2.35
	1.67	49.8	33.4	23.3	18.5	15.1	14.3	8.96	7.84	5.19	4.19	3.17	2.38
AM 12-7.2hr	1.80	58.1	38.9	27.8	21.9	18.1	16.8	10.9	9.58	6.36	5.09	3.90	2.96
	1.75	63.5	40.4	28.7	22.5	18.6	17.8	11.3	9.85	6.59	5.24	3.92	3.01
	1.67	71.7	43.7	31.5	24.2	19.8	18.9	12.0	10.3	6.70	5.38	4.06	3.05
AM 12-10	1.80	59.1	41.8	31.6	25.1	21.3	18.7	16.1	12.8	8.83	7.06	4.81	4.23
	1.75	64.1	43.8	32.9	25.3	21.8	19.4	16.2	12.9	8.92	7.12	4.84	4.28
	1.67	72.3	47.3	34.6	26.1	22.2	19.7	16.3	13.1	9.08	7.17	4.87	4.31
AM 12-12	1.80	70.9	50.2	36.8	29.3	24.9	22.7	18.8	15.1	10.4	8.37	5.72	5.02
	1.75	79.0	52.5	39.2	30.1	25.9	23.1	19.0	15.3	10.6	8.51	5.77	5.11
	1.67	89.4	56.7	43.1	32.4	27.6	24.0	20.1	15.9	10.9	8.74	5.87	5.19
AM 12-12hr	1.80	74.7	52.7	39.7	30.9	26.3	23.9	20.1	15.8	10.7	8.60	5.86	5.13
	1.75	83.2	55.0	42.5	31.6	27.2	24.4	20.3	16.0	11.0	8.75	5.91	5.23
	1.67	94.1	59.4	46.6	34.0	28.9	25.3	21.5	16.6	11.2	8.98	6.02	5.31
AM 12-15	1.80	85.0	60.7	47.6	38.6	32.0	28.9	23.6	18.1	13.0	11.3	6.92	5.78
	1.75	95.8	63.7	52.2	41.9	33.3	30.3	25.0	19.4	14.0	12.0	7.10	5.90
	1.67	108	68.8	57.3	45.2	35.5	32.4	26.4	20.2	14.5	12.3	7.22	6.00
AM 12-18	1.80	102	72.8	57.1	46.3	38.4	34.7	28.3	21.7	15.6	13.6	8.30	6.94
	1.75	115	76.4	62.6	50.3	39.9	36.4	30.0	23.3	16.8	14.4	8.52	7.08
	1.67	130	82.6	68.8	54.2	42.6	38.9	31.7	24.2	17.4	14.8	8.66	7.20
AM 12-18hr	1.80	107	76.4	61.6	48.8	40.6	36.5	29.7	22.7	16.1	14.0	8.50	7.09
	1.75	121	80	67.9	52.8	41.9	38.4	31.5	24.4	17.4	14.8	8.72	7.24
	1.67	137	86.5	74.4	56.9	44.6	41.0	33.3	25.3	17.9	15.2	8.88	7.37
AM 12-20	1.80	113	80.9	63.4	51.4	42.7	38.6	31.4	24.1	17.3	15.1	9.22	7.71
	1.75	128	84.9	69.6	55.9	44.3	40.4	33.3	25.9	18.7	16.0	9.47	7.87
	1.67	144	91.8	76.4	60.2	47.3	43.2	35.2	26.9	19.3	16.4	9.62	8.00
AM 12-26A	1.80	145	105	81.7	72.4	61.8	50.7	34.4	29.1	20.0	18.9	12.8	9.50
	1.75	161	112	86.8	76.0	63.4	51.6	35.2	30.4	20.4	19.2	12.9	9.59
	1.67	182	121	95.0	82.0	67.7	55.1	37.2	31.6	21.2	19.7	13.2	9.77
AM 12-26B	1.80	145	105	81.7	72.4	61.8	50.7	34.4	29.1	20	18.9	12.8	9.50
	1.75	161	112	86.8	76.0	63.4	51.6	35.2	30.4	20.4	19.2	12.9	9.59
	1.67	182	121	95.0	82.0	67.7	55.1	37.2	31.6	21.2	19.7	13.2	9.77
AM 12-28	1.80	169	122	95.3	84.5	72.1	59.1	40.1	34	23.3	22.1	15.0	11.1
	1.75	188	130	101	88.7	73.9	60.2	41.1	35.4	23.8	22.4	15.1	11.2
	1.67	212	141	111	95.7	79.0	64.3	43.4	36.9	24.7	23.0	15.4	11.4
AM 12-40	1.80	213	153	119	99.2	85.9	75.6	54.3	40.6	30.7	26.7	17.8	14.8
	1.75	218	156	124	104	89.7	78.9	56.8	42.6	32.2	28.0	18.6	15.5
	1.67	251	166	135	113	94.6	82.6	59.4	44.5	32.9	28.7	19.5	15.8
AM 12-44	1.80	229	164	128	107	92.6	81.5	58.6	43.8	33.1	28.8	19.2	16.0
	1.75	235	168	134	112	96.7	85.1	61.2	46.0	34.7	30.2	20.1	16.7
	1.67	270	179	145	122	102	89.2	64.0	48.0	35.5	31.0	20.9	17.0
AM 12-65	1.80	266	205	176	142	124	105	75.5	65.0	48.0	34.6	27.8	23.2
	1.75	290	224	190	148	129	110	79.1	69.0	50.0	43.5	28.9	24.0
	1.67	325	240	205	153	134	114	81.8	72.0	52.0	45.3	30.6	24.8

Actual battery performance data may be +/-5% of figures shown above

## Battery Life

**Battery Life depends on a number of key factors. These include:**

Operating temperature of the battery;  
Method of charging;

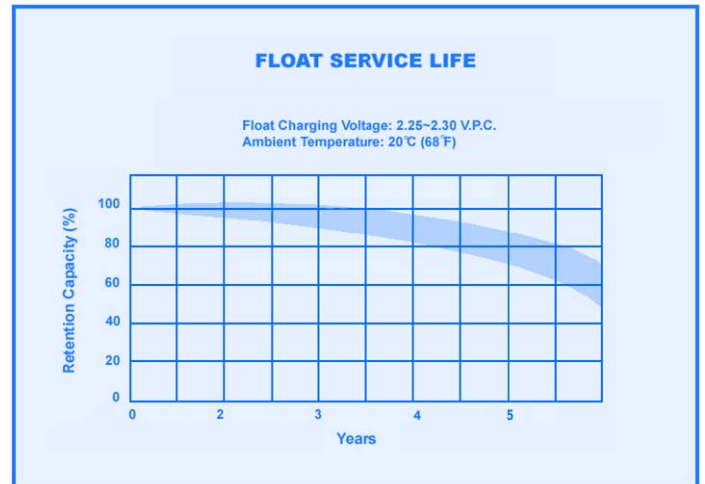
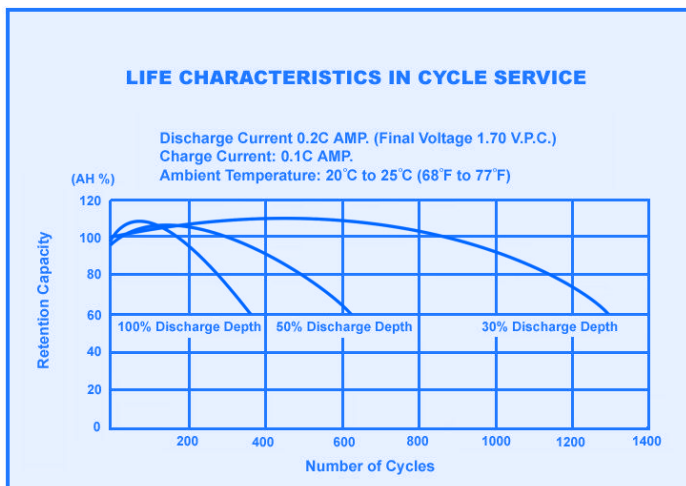
Actual use of the products i.e. Float or cycle service;  
Correct sizing etc.

## Float Service

The float service is effected by the factors listed above and the number / depth of discharge the battery suffers during its life time. Basically the more discharges suffered and the deeper the discharges, the shorter battery life.

## Cycle Service

Giving due consideration to the above key factors, the actual life of a battery in cycle service is dependent on the depth of discharge of each cycle. The greater the depth of discharge of each cycle the lesser the number of cycles available from the battery.



## Battery Storage

AINO MICRO Batteries have excellent charge retention characteristics, meaning that the self-discharge rate is low, less than 3% per month at 20°C (68°F). The state of discharge of a battery can be determined by the open circuit voltage of the battery to ensure the battery do not over discharge while in storage. To ensure the battery does not over discharge during storage, or when not in use, it is necessary to understand what is meant by fully discharged. Typically a battery is fully discharged when the open circuit voltage reaches 1.92 VPC. The higher the discharge current the quicker the battery reaches a fully discharge state, and the lower current the longer it takes. When the battery has been discharged the battery must be recharged immediately to 100% capacity.

Final Acceptable Discharge	
Discharge Current	Final Discharge Voltage Per Cell (VPC)
Up to 0.1CA	1.75
0.11 to 0.17 CA	1.70
0.18 to 0.25 CA	1.67
0.26 to 0.6 CA	1.60

## Supplementary Charge

It may be necessary to give the batteries a re-refresh charge during the storage of the batteries, maximum recommended storage times are detailed below, if storage exceeds these times or the open circuit voltage of a battery being stored falls below 12.40 volts per battery (6.2 volts per battery) then it is recommended that the batteries be given a re-refresh charge immediately at 2.25-2.35 VPC for no less than 12 hours.

Storage Temperature	
20°C (68°F) or less	Every 9 months
20°C (68°F) – 30°C (86°F)	Every 6 months
30°C (86°F) – 40°C (104°F)	Every 3 months

In discharging a battery, lead sulphate (sulphation) is formed. If the battery is recharged as soon as discharging is completed then the lead sulphate is converted to active material and acid. However, on self-discharge the lead sulphate that is formed may not become reversible again. That is it cannot be recovered. The lower the voltage that a battery is allowed to fall to under self-discharge the more likely it is that the sulphate formation will not be able to be reversed and the battery will be damaged beyond recovery.

### Precautions Against over Self-discharge

- The batteries should be stored in a cool, dry place 25°C (77°F) or below.
- The batteries should not be stored in direct sunlight.
- The batteries should not be subjected to an external heat source.
- An adequate stock control system should be introduced.

