Mighty Max Battery ML10-12

Instruction Manual for Mighty Max ML10-12 12 Volt 10 AH SLA AGM Battery

Model: ML10-12 | Brand: Mighty Max Battery

1. Introduction

The Mighty Max ML10-12 12 Volt 10 AH Sealed Lead Acid (SLA) Absorbent Glass Mat (AGM) battery is designed to deliver reliable power for a wide range of applications. Its heavy-duty, calcium-alloy grid ensures exceptional performance and long service life in both float and cyclic applications. The valve-regulated design allows for use in enclosed and indoor environments without leaking or requiring maintenance.

Figure 1: Mighty Max ML10-12 12 Volt 10 AH SLA AGM Battery.

2. Product Features

- **12V 10AH Sealed Lead Acid (SLA) Battery:** Rechargeable and maintenance-free.
- **Compact Dimensions:** Measures 5.94 inches x 2.56 inches x 4.75 inches, with F2 terminals.
- **AGM Spill-Proof Technology:** Features high discharge rate, wide operating temperatures, long service life, and deep discharge recovery.
- **Versatile Mounting:** Can be mounted in any position, resistant to shocks and vibration.
- **Wide Compatibility:** Suitable for various applications including consumer electronics, electric vehicles, engine starters, golf carts, and more.
- **Long-Lasting Performance:** Designed for high performance in both high and low temperatures.

Figure 2: Detailed dimensions of the ML10-12 battery, showing measurements with and without terminals.

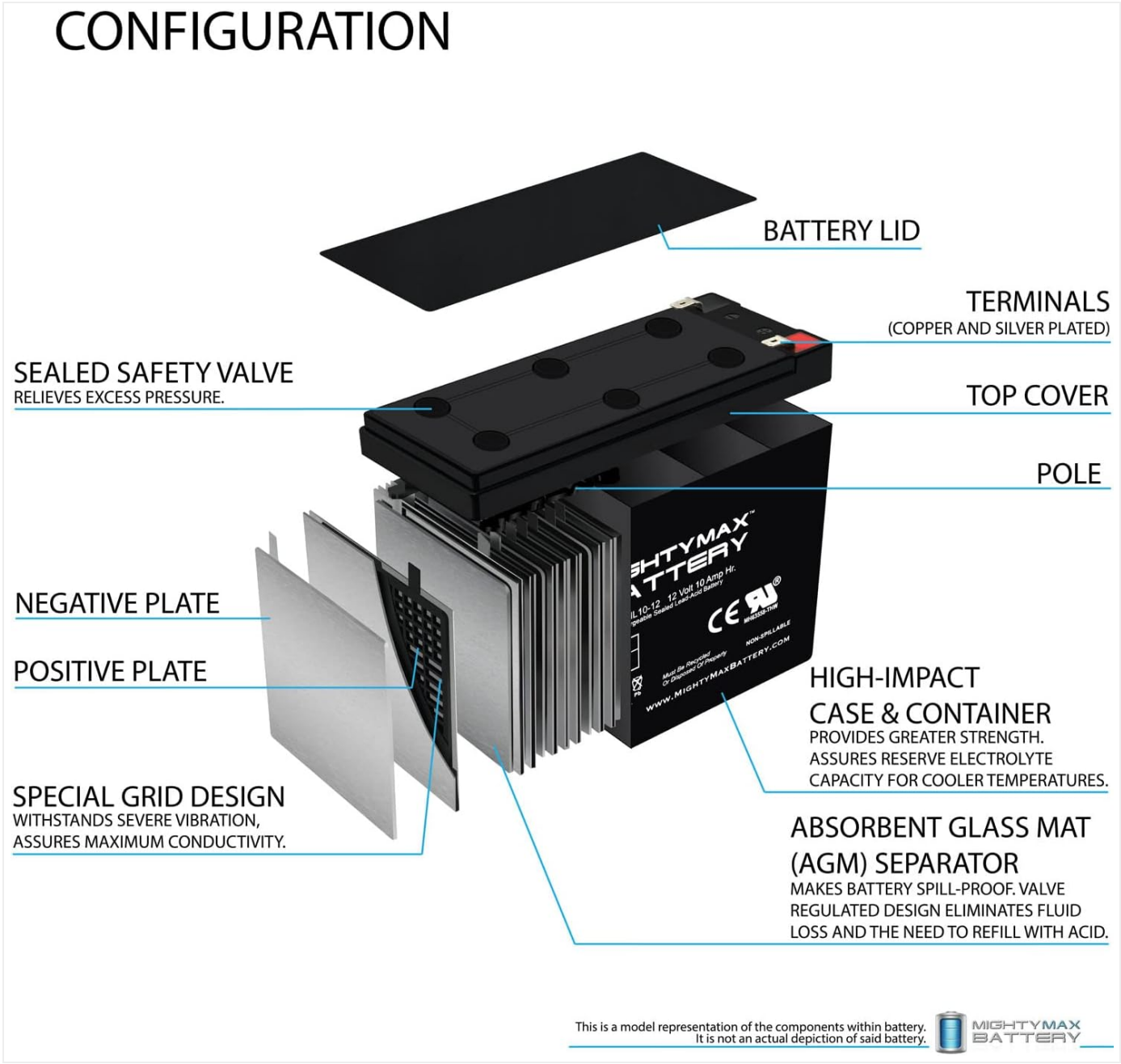


Figure 3: Internal configuration of a Mighty Max battery, highlighting components like the sealed safety valve, high-impact case, and Absorbent Glass Mat (AGM) separator.

Figure 4: Close-up view of the F2 terminal on the Mighty Max ML10-12 battery, indicating the connection type.

[redacted]

Video 1: An overview of Mighty Max Battery features, including shock resistance, easy recharging, terminal types, spill-proof design, mounting versatility, and long-lasting performance. This video demonstrates the battery's robust construction and ease of use in various applications.

3. Setup and Installation

The ML10-12 battery is designed for straightforward installation. Before connecting, ensure your device is compatible with a 12V 10AH SLA battery and uses F2 terminals. The battery can be mounted in any position due to its spill-proof AGM technology.

Initial Inspection:

- Inspect the battery for any physical damage upon arrival.
- Verify that the terminals are clean and free of corrosion.

Connection Steps:

1. Ensure the device or system is powered off before connecting the battery.
2. Connect the positive (+) terminal of the battery to the positive terminal of your device.
3. Connect the negative (-) terminal of the battery to the negative terminal of your device.
4. Secure all connections firmly to prevent loose contacts, which can lead to power loss or damage.

Note: This listing is for the battery only. No wire harness or mounting accessories are included. Ensure you have the necessary connectors and tools for your specific application.

4. Operating Instructions

The Mighty Max ML10-12 battery is designed for both float and cyclic applications, offering versatile power delivery.

Float Application:

In float applications (e.g., UPS systems, emergency lighting), the battery is continuously connected to a charger and maintained at a constant voltage. This ensures the battery is always at full charge and ready to provide power when needed. The recommended floating charge voltage is 13.6-13.8V.

Cyclic Application:

For cyclic applications (e.g., electric vehicles, portable tools), the battery is regularly discharged and recharged. The recommended cycle use voltage is 14.6-14.8V. For optimal performance and longevity, avoid deep discharges and recharge the battery promptly after use.

Charging:

Always use a charger specifically designed for 12V SLA/AGM batteries. Ensure the initial current is less than 2.5A. Overcharging or undercharging can significantly impact battery life.

MIGHTYMAX BATTERY

ML10-12
(12V 10Ah)

General Features

- Designed floating charging service life: 8 years (25°C)
- Sealed and maintenance free operation
- Safety valve installation for explosion proof
- Low self-discharge characteristic
- Wide operating temperature range from 0°C~40°C
- Lead Aluminum calcium Tin alloy high energy, prevent corrosion

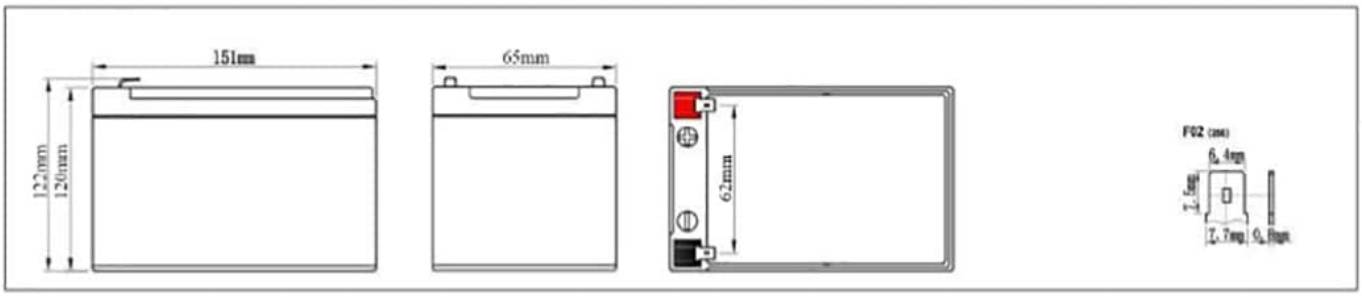
Application

- DC power supply
- UPS/EPS power supply
- Electrical devices & instruments
- Security and fire alarm systems
- Telecom stations and power stations
- Medical equipment's
- Emergency lighting systems

Physical Specifications

Nominal Voltage	Nominal Capacity (20HR)	Dimension				Weight ±3%	Internal Resistance (In full charge status)	Standard Terminals
		L	W	H	TH			
12V	10AH	151±2mm	65±2mm	120±2mm	122±2mm	Approx3.3kg (7.28lbs)	≈16.9 mΩ	F01/F02 (standard)

Dimensions



Constant-Voltage Charge

Rated Capacity	
20 hour rate (0.50A)	10.01AH
10 hour rate (1.00A)	9.75AH
5 hour rate (1.70A)	8.30AH
27 minute rate(10.0A)	5.00AH
7 minute rate (30.0A)	3.50AH
Capacity affected by Temperature	
40°C(104°F)	103%
25°C(77°F)	100%
0°C(32°F)	86%

Cycle Application
1. Limit initial current less than2.50A.
2. Charge until battery voltage (under charge) reaches 14.1V to 14.4V at 25°C(77°F).
3. Hold at 14.1V to 14.4V until current drop to under 0.060A for at least 3 hours.
4. Temperature compensation coefficient of charging voltage is -30mV/°C.
Standby Service
1. Hold battery across constant voltage source of 13.6to 13.8 volts with current limit 2.50A continuously. When held at this voltage, the battery will seek its own current level and maintain itself in a fully charge status.
2. Temperature compensation coefficient of charging voltage is -18mV/°C.

Figure 5: General features, application examples, and physical specifications of the ML10-12 battery, including recommended charging voltages.

5. Maintenance

The Mighty Max ML10-12 is a Sealed Lead Acid (SLA) battery, which means it is largely maintenance-free. However, following these guidelines will help ensure its longevity and optimal performance:

- **Cleaning:** Keep the battery casing and terminals clean and dry. Use a damp cloth to wipe away any dust or dirt. Avoid using solvents or harsh chemicals.
- **Terminal Inspection:** Periodically check the terminals for corrosion or loose connections. Clean any corrosion with a wire brush and ensure connections are secure.
- **Temperature Management:** While designed for wide operating temperatures, extreme heat or cold can affect battery life. Store and operate the battery within recommended temperature ranges (typically 0°C to 40°C for charging, -15°C to 50°C for discharge). Avoid prolonged exposure to temperatures above 60°C.
- **Charging Practices:** Always recharge the battery after each use in cyclic applications. For float applications, ensure the charger maintains the correct float voltage. Avoid overcharging or deep discharging.
- **Storage:** If storing the battery for an extended period, ensure it is fully charged. Recharge every 3-6 months to prevent self-discharge from reducing its capacity. Store in a cool, dry place.

MIGHTYMAX BATTERY

ML10-12

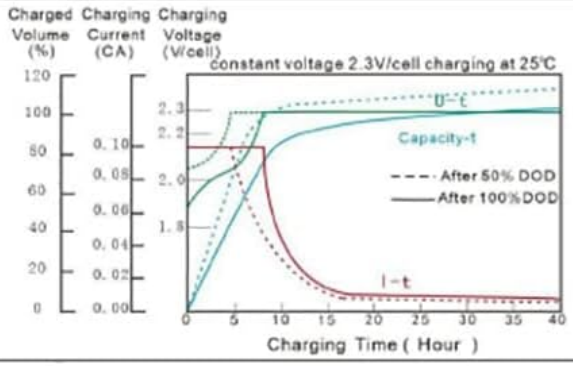
(12V 10Ah)

Battery Discharge Table

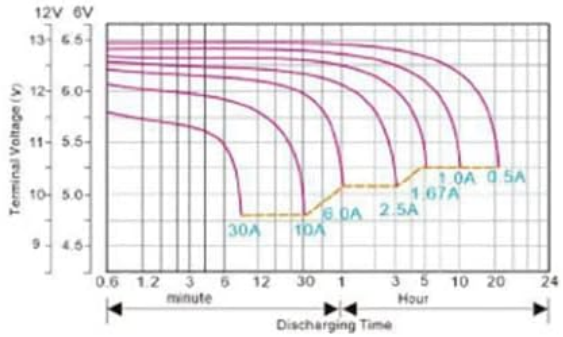
End Voltage (V)	Minute (M)					Hour (H)							
	5	10	15	30	45	1	1.5	2	3	5	8	10	20
Constant Current Discharge Data Sheet (Amperes at 25°C)													
10.20	37.0	24.1	18.9	9.66	6.98	6.00	4.78	3.55	2.68	1.88	1.45	0.960	0.510
10.50	36.7	23.9	18.7	9.58	6.91	5.96	4.69	3.42	2.60	1.77	1.29	0.950	0.505
10.80	36.3	23.6	18.5	9.45	6.84	5.92	4.60	3.28	2.50	1.65	1.13	0.940	0.500
Constant Power Discharge Data Sheet (Watt at 25°C)													
10.20	403	291	235	132.9	96.86	73.69	56.51	42.51	30.34	20.00	14.09	11.40	6.14
10.50	386	281	228	130.1	94.63	72.51	55.69	41.91	29.66	19.77	13.97	11.23	6.05
10.80	366	271	221	126.3	92.23	71.31	54.86	41.31	29.14	19.54	13.83	11.04	5.97

Performance Characteristics

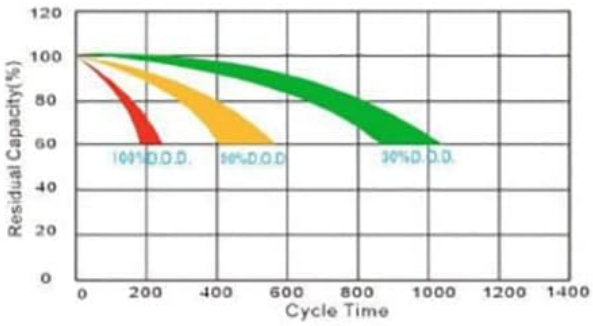
Charge Characteristics (25°C/77°F)



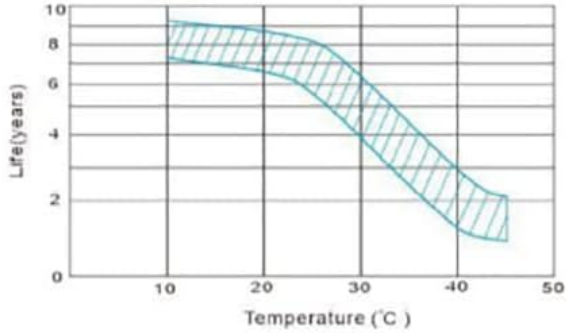
Discharge Characteristic (25°C/77°F)



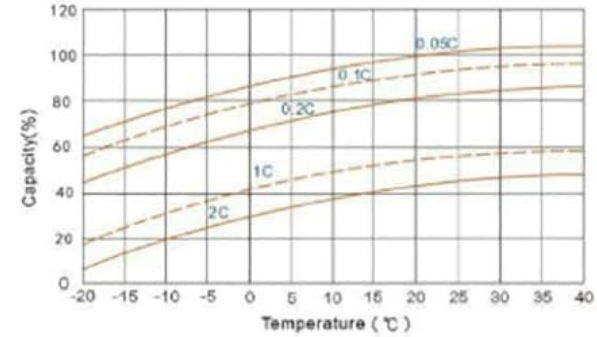
Cycle Life in Relation to Depth of Discharge



Temperature vs Float Life



Capacity Curve At Different Temperature



Self Discharge Characteristics

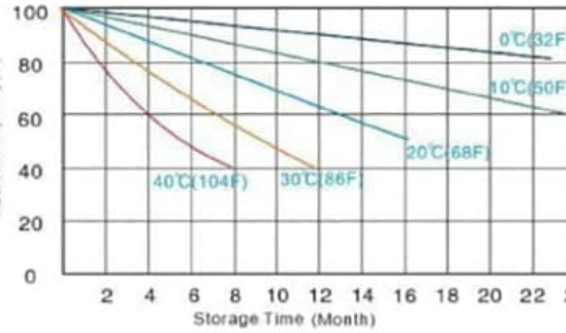


Figure 6: Performance characteristics of the ML10-12 battery, including charge/discharge curves, cycle life, temperature effects, and self-

discharge rates.

6. Troubleshooting

Problem	Possible Cause	Solution
Battery not holding charge	Improper charging voltage/current Battery reached end of life Deep discharge Parasitic drain from device	Verify charger output matches recommended voltage (13.6-13.8V float, 14.6-14.8V cycle). Consider battery replacement if old. Recharge immediately after use. Check device for unexpected power draw.
Device not powering on	Low battery charge Loose or corroded terminals Incompatible battery Device malfunction	Charge the battery fully. Clean and tighten terminals. Ensure battery specifications match device requirements. Test device with another known good power source.
Battery overheating during charge/discharge	Overcharging High ambient temperature Internal short circuit	Disconnect charger immediately. Verify charger settings. Ensure adequate ventilation around the battery. If overheating persists, discontinue use and replace the battery.

7. Specifications

Attribute	Value
Model Number	ML10-12
Nominal Voltage	12V
Rated Capacity	10 AH (20HR)
Dimensions (L x W x H)	5.94 x 2.56 x 4.75 inches (151 x 65 x 120 mm)
Weight	Approx. 3.3 kg (7.26 lbs)
Terminal Type	F2
Battery Cell Composition	Lead Acid (AGM)
Float Use Voltage	13.6 - 13.8 V
Cycle Use Voltage	14.6 - 14.8 V
Initial Current	Less than 3A
Manufacturer	Mighty Max Battery

8. Safety Warnings

Please read and adhere to the following safety warnings to prevent injury or damage:

- **Risk of Fire, Explosion, or Burns:** Do not short the battery terminals.
- **Do Not Disassemble:** The battery contains sealed components. Do not attempt to open or disassemble the battery.
- **Temperature Limits:** Do not heat the battery above 60°C (140°F) or incinerate. The recommended storage temperature should not exceed 50°C (122°F).
- **Ventilation:** Although valve-regulated, ensure adequate ventilation when charging in enclosed spaces.
- **Handling:** Handle with care. Avoid dropping the battery or subjecting it to severe impacts.
- **Disposal:** Batteries must be recycled or disposed of properly. Do not dispose of with household waste. Consult local regulations for proper disposal.

Figure 7: The ML10-12 battery showing its warning label with important safety information.

9. Warranty and Support

For specific warranty information regarding your Mighty Max ML10-12 battery, please refer to the documentation included with your purchase or visit the official Mighty Max Battery website. Warranty terms typically cover manufacturing defects and material flaws under normal use conditions.

If you encounter any issues or have questions about the product, please contact Mighty Max Battery customer support. Provide your model number (ML10-12) and purchase details for efficient assistance.

Mighty Max Battery Contact Information:

Website: www.mightymaxbattery.com (Please check the product for the most current contact details.)

Refer to your product packaging or the manufacturer's website for customer service phone numbers or email addresses.

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