

SigmasTek SP12-12

SigmasTek SP12-12 (T2) 12V 12Ah F2 Battery Instruction Manual

Compatible with Razor MX650 Dirt Rocket and other applications

1. INTRODUCTION

This manual provides essential instructions for the safe and effective use, installation, and maintenance of your SigmasTek SP12-12 (T2) 12V 12Ah F2 Sealed Lead-Acid (SLA) batteries. These batteries are designed for dependable performance in various applications, including the Razor MX650 Dirt Rocket, UPS systems, emergency lighting, and more.

Please read this manual thoroughly before installation and operation to ensure proper handling and to maximize the lifespan of your batteries.

2. PRODUCT OVERVIEW AND FEATURES

The SigmasTek SP12-12 (T2) battery is a high-quality, factory-fresh 12 Volt 12 Amp Hour F2 SLA battery. It is UL Recognized and CE Certified, ensuring safety and reliability. Key features include:

- **Compatible Replacement:** Specifically designed for compatibility with models like the Razor MX650 Dirt Rocket.
- **AGM Technology:** Absorbed Glass Mat (AGM) technology ensures safe, spill-proof, and maintenance-free operation.
- **Excellent Cycle Life:** Engineered for long-term use and dependable performance.
- **Consistent Power:** Factory-fresh units deliver consistent power output.
- **Easy Installation:** Designed for quick and easy installation using existing hardware.



Image 2.1: Three SigmasTek SP12-12 (T2) 12V 12Ah F2 batteries, showcasing their compact design and F2 terminals.

3. SAFETY INFORMATION

Please observe the following safety precautions to prevent injury or damage:

- **Do Not Short Circuit:** Avoid connecting the positive and negative terminals directly, as this can cause severe damage to the battery and pose a fire hazard.
- **Do Not Charge in a Sealed Container:** Ensure adequate ventilation during charging to prevent gas buildup.
- **Recharge After Use:** Always recharge the battery promptly after use to maintain its health and extend its lifespan.
- **Non-Spillable:** While these batteries are non-spillable, handle them with care to prevent physical damage.
- **Temperature:** Do not disassemble, heat above 60°C (140°F), or incinerate the battery.
- **Disposal:** Dispose of batteries according to local regulations. Do not discard with household waste.

4. INSTALLATION

The SigmasTek SP12-12 (T2) batteries are designed for straightforward installation. For compatible devices like the Razor MX650 Dirt Rocket, you must use the existing cables and hardware to connect your new batteries. The batteries feature F2 type terminals.

4.1. General Installation Steps:

1. **Preparation:** Ensure the device is turned off and disconnected from any power source. Wear appropriate safety gear, including gloves and eye protection.
2. **Remove Old Batteries:** Carefully disconnect the existing battery terminals (usually negative first, then positive). Note the wiring configuration.
3. **Insert New Batteries:** Place the new SigmasTek SP12-12 (T2) batteries into the battery compartment. Ensure they fit securely.

4. **Connect Terminals:** Connect the positive (+) terminal first, then the negative (-) terminal. Ensure all connections are tight and secure.
5. **Secure Compartment:** Close and secure the battery compartment.
6. **Initial Charge:** It is recommended to fully charge the new batteries before their first use.

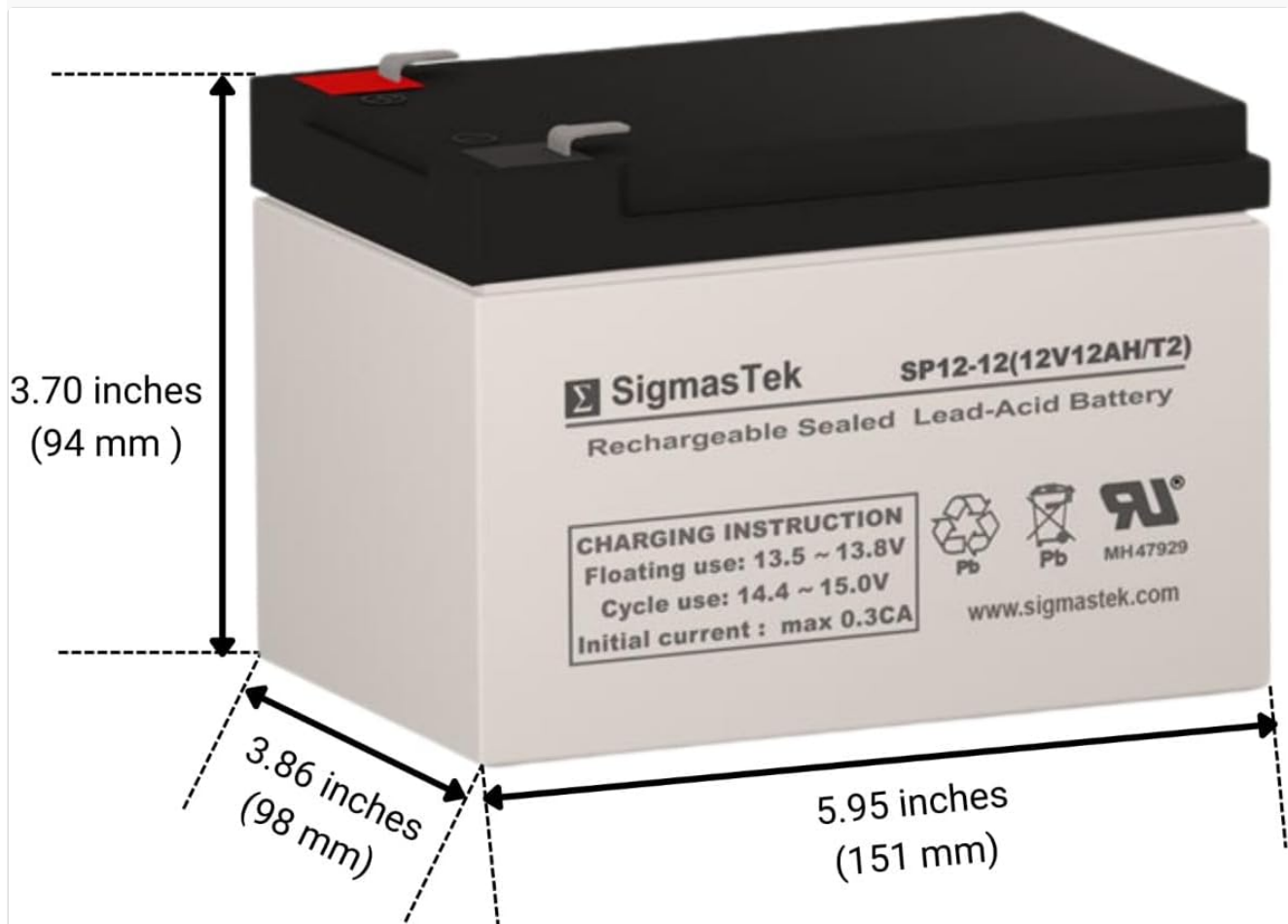


Image 4.1: Detailed dimensions of the SigmasTek SP12-12 (T2) battery, measuring 5.95 inches long, 3.86 inches wide, and 3.70 inches high (3.94 inches including terminals).

4.2. Installation Video Example:

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Video 4.2: This video demonstrates the installation process for a Razor Dirt Bike, which may be helpful for replacing batteries in similar electric vehicles. (Source: CASIL USA)

5. OPERATION

SigmasTek SP12-12 (T2) batteries are designed for reliable power delivery in various applications. Ensure your device is compatible with 12V 12Ah F2 SLA batteries.

5.1. Recommended Uses:

- Uninterruptible Power Supply (UPS)
- Electric wheelchairs, scooters, bikes (e.g., Razor MX650 Dirt Rocket)
- Electronic apparatus and equipment
- Alarm and security systems
- Emergency first responder equipment
- Emergency lighting

- Medical devices
- Electric carts
- Telecom equipment
- Switchgear
- Solar power systems

5.2. Battery Application Examples:

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Video 5.1: This video highlights the versatility of 12V 12Ah scooter batteries in various applications. (Source: CASIL USA)

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Video 5.2: This video showcases the Vici Battery VB12-12, a similar 12V 12Ah battery, and its applications in mobility scooters, UPS, and other systems. (Source: Battery Supersite)

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Video 5.3: This video provides an overview of the Casil 12 Volt 12 Ah SLA AGM Deep Cycle Battery, demonstrating its features and uses. (Source: CASIL USA)

6. MAINTENANCE

SigmatTek SP12-12 (T2) batteries are designed to be maintenance-free due to their AGM technology. This means no refilling of water is required.

6.1. Charging Guidelines:

Refer to the charging instructions printed on the battery label for specific voltage and current recommendations:

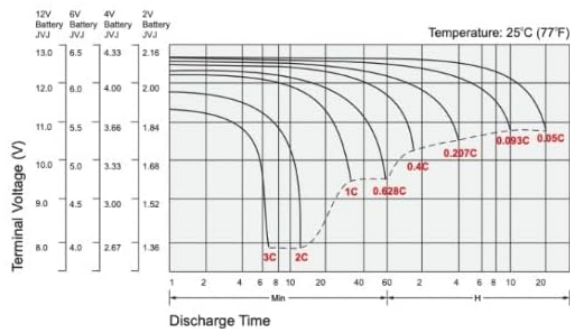
- **Floating Use:** 13.5 - 13.8V
- **Cycle Use:** 14.4 - 15.0V
- **Initial Current:** Max 0.3CA

Always use a charger compatible with SLA/AGM batteries. Overcharging or undercharging can reduce battery life.

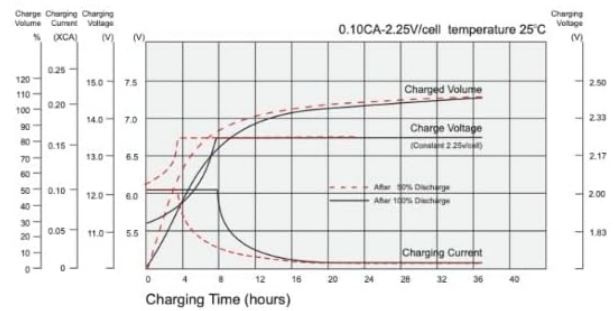
6.2. Storage:

For optimal battery life, store the batteries in a cool, dry place. The storage temperature should not exceed 40°C (104°F). Recharge batteries periodically during long-term storage to prevent deep discharge.

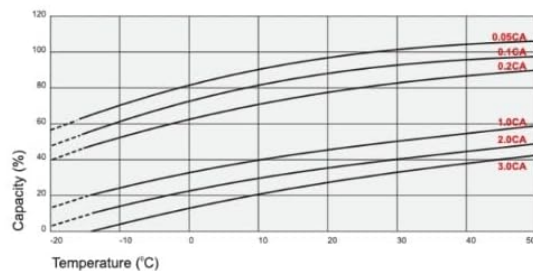
Discharge Characteristics



Float Charging Characteristics



Temperature Effects in Relation to Battery Capacity



Temperature Effects on Long Term Float Life

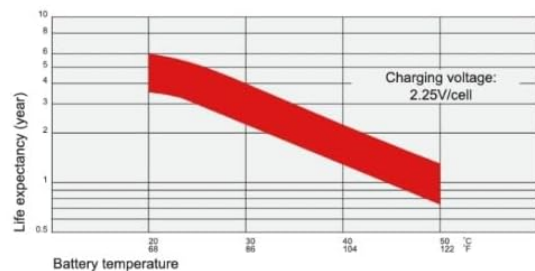


Image 6.1: Technical charts illustrating discharge characteristics, float charging characteristics, and the effects of temperature on battery capacity and long-term float life.

7. TROUBLESHOOTING

If you encounter issues with your SigmasTek SP12-12 (T2) batteries, consider the following common troubleshooting steps:

- **Device Not Powering On:** Check all cable connections to ensure they are secure and correctly attached to the battery terminals. Verify the device's power switch is in the 'on' position.
- **Short Run Time:** Ensure the batteries are fully charged before use. Over time, battery capacity can decrease; if batteries are several years old, replacement may be necessary.
- **Battery Not Charging:** Verify that the charger is functioning correctly and is compatible with 12V SLA/AGM batteries. Check the charger's connections to the battery and power outlet.
- **Physical Damage:** Inspect batteries for any signs of swelling, cracks, or leaks. Damaged batteries should be replaced immediately and disposed of properly.

If problems persist, consult a qualified technician or contact SigmasTek customer support.

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Video 7.1: This video provides general information about Beiter DC Power batteries, emphasizing their reliability and ease of installation, which can be helpful for understanding battery functionality. (Source: Beiter DC Power)

8. SPECIFICATIONS

Detailed technical specifications for the SigmasTek SP12-12 (T2) 12V 12Ah F2 battery:

Specification	Value
Nominal Voltage	12V
Nominal Capacity (20HR)	12Ah

Specification	Value
Battery Type	Valve Regulated Lead-Acid Battery, AGM Design
Terminal Type	T2 / F2
Product Dimensions (L x W x H)	5.95 x 3.86 x 3.7 inches (151 x 98 x 94 mm)
Item Weight	23.8 pounds (for a pack of 3)
Battery Cell Composition	Lead Acid
Certifications	UL Recognized, CE Certified



SP12-12 (12V12AH/T2)

Specifications		
Nominal Voltage	12V	
Nominal Capacity (20HR)	12AH	
Dimension	Length	151mm (5.95 inches)
	Width	98mm (3.86 inches)
	Height	94mm (3.70 inches)
	Total Height (with Terminal)	100mm (3.94 inches)
Approximate Weight	3.6 kg (7.94 lbs)	
Battery Type	Valve Regulated Lead-Acid Battery, AGM Design	
Terminal Type	T2	
Rated Capacity	12.1AH	(20hr, 1.75V/cell, 25°C/77°F)
	11.5AH	(10hr, 1.75V/cell, 25°C/77°F)
	10.2AH	(5hr, 1.75V/cell, 25°C/77°F)
	10.1AH	(3hr, 1.60V/cell, 25°C/77°F)
	7.54AH	(1hr, 1.60V/cell, 25°C/77°F)
Max. Discharge Current	180A	
Internal Resistance	30mΩ	
Operating Temp. Range	Discharge:	-20°C (-4°F)~50°C (122°F)
	Charge:	-20°C (-4°F)~50°C (122°F)
	Storage:	-20°C (-4°F)~40°C (104°F)
Nominal Operating Temp. Range	25±3°C (77±5°F)	
Container Material	ABS (Option: 94-HB & 94-V0 flame retardant case)	
Capacity affected by Temperature	40°C (104°F)	103%
	25°C (77°F)	100%
	0°C (32°F)	86%
Self Discharge	SigmasTek SP series batteries may be stored for up to 6 months at 25°C (77°F) and then a freshening charge is recommended. For higher temperatures the time interval will be shorter.	



Applications

- Uninterruptible Power Supply (UPS)
- Electric wheelchairs, scooters, bikes
- Electronic apparatus and equipment
- Alarm and security systems
- Emergency first responder equipment
- Emergency lighting
- Medical devices
- Electric carts
- Telecom equipment
- Switchgear
- Solar power systems



Image 8.1: Comprehensive specifications table for the SigmasTek SP12-12 (T2) battery, including voltage, capacity, dimensions, and various applications.

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

F.V. (V/cell)	Discharge Time	5min	10min	15min	30min	1h	2h	3h	5h	8h	10h	20h
1.60V		46.3	31.5	23.3	13.8	7.54	4.38	3.38	2.22	1.45	1.21	0.629
1.65V		42.0	29.0	21.8	13.1	7.46	4.20	3.28	2.15	1.44	1.19	0.625
1.70V		38.1	26.9	20.5	12.4	7.29	4.14	3.15	2.09	1.42	1.17	0.617
1.75V		34.6	24.6	19.2	11.9	7.07	4.04	3.06	2.04	1.40	1.15	0.606
1.80V		30.7	22.4	17.6	11.5	6.76	3.90	3.00	1.99	1.37	1.12	0.600
1.85V		22.9	17.5	14.5	9.72	6.03	3.57	2.79	1.85	1.30	1.08	0.594

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

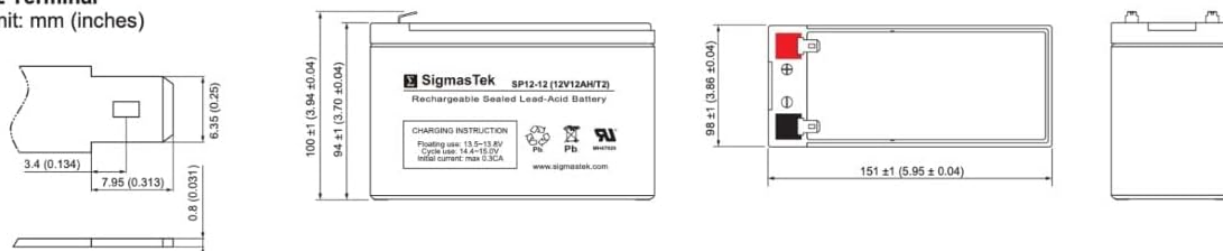
F.V. (V/cell)	Discharge Time	5min	10min	15min	30min	1h	2h	3h	5h	8h	10h	20h
1.60V		76.8	53.5	40.8	25.2	14.2	8.31	6.45	4.28	2.84	2.37	1.24
1.65V		71.3	50.4	38.7	24.0	14.1	8.01	6.29	4.16	2.82	2.35	1.23
1.70V		65.6	47.1	36.7	22.9	13.9	7.94	6.06	4.06	2.78	2.31	1.22
1.75V		61.2	44.3	34.9	22.2	13.5	7.76	5.91	3.97	2.75	2.26	1.20
1.80V		55.5	40.9	32.3	21.5	13.0	7.51	5.82	3.88	2.71	2.21	1.19
1.85V		41.8	32.4	27.1	18.5	11.6	6.93	5.44	3.63	2.56	2.14	1.18

Image 8.2: Table detailing the constant current discharge performance of the battery at 25°C (77°F) across various voltages and discharge times.

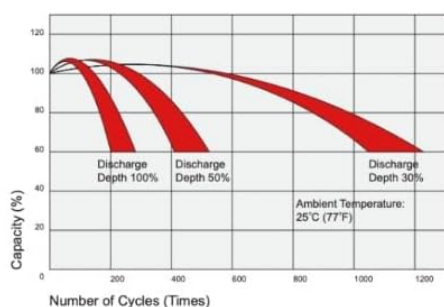
Dimensions

T2 Terminal

Unit: mm (inches)



Cycle Service Life



Self Discharge Characteristics

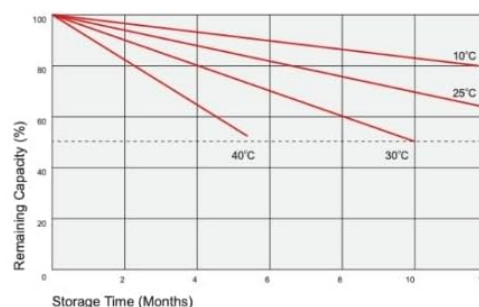


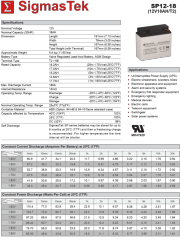
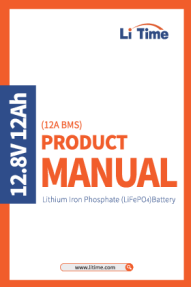
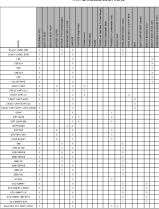


Image 8.3: Diagrams illustrating T2 terminal dimensions, a chart depicting the battery's cycle service life at different discharge depths, and a chart showing self-discharge characteristics over time at various temperatures.

9. WARRANTY AND SUPPORT

Your SigmaTek SP12-12 (T2) batteries are backed by a full 1-year warranty, ensuring peace of mind and dependable performance. This warranty covers manufacturing defects and ensures the battery meets or exceeds OEM standards.

For warranty claims, technical support, or any questions regarding your battery, please refer to the contact information provided by your retailer or visit the official SigmaTek website.

Related Documents - SP12-12

	<p>SigmasTek SP12-18 (12V18AH/T2) Rechargeable Sealed Lead-Acid Battery Datasheet</p> <p>Detailed specifications, performance charts, and application information for the SigmasTek SP12-18 (12V18AH/T2) rechargeable sealed lead-acid battery. Includes dimensions, capacity, discharge rates, temperature effects, and self-discharge characteristics.</p>
	<p>RoyPow S1206 LiFePO4 Battery Welcome Guide</p> <p>A comprehensive welcome guide for the RoyPow S1206 LiFePO4 Deep Cycle Battery, detailing its specifications, applications, wiring configurations, and essential safety and usage instructions.</p>
	<p>Li Time 12.8V 12Ah LiFePO4 Battery Product Manual</p> <p>Comprehensive product manual for the Li Time 12.8V 12Ah Lithium Iron Phosphate (LiFePO4) battery, covering specifications, safety instructions, storage, capacity estimation, and series/parallel connection guidelines.</p>
	<p>Razor Product Barcode Locations Guide</p> <p>A comprehensive guide detailing the barcode locations for various Razor electric ride-on products, including scooters, go-karts, and more. This document lists specific models and the corresponding locations on the product where barcodes can be found.</p>
	<p>LeicesterCN EPA1020-12 Automatic Battery Charger User Manual</p> <p>Comprehensive user manual for the LeicesterCN EPA1020-12 automatic battery charger, detailing safety instructions, preparation, connection procedures, features, specifications, troubleshooting guide, and warranty information for 12V lead-acid batteries.</p>
	<p>PowerWalker BPH A72T-12 Battery Pack Assembly Guide</p> <p>Step-by-step instructions for assembling the PowerWalker BPH A72T-12 72V Battery Pack, including important safety warnings, storage guidelines, and standard operating procedures.</p>

