

## **[Product Information] Laptop Battery**

This document includes battery basic information, maintenance tips, and power-saving guidance. Based on the different usage habits, optimizing the system configuration to maximize battery lifespan and battery run time.

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## Battery Type

There are two types of batteries used in MSI Notebook:

1. Lithium-ion battery(Li-ion): Li-ion battery is a low maintenance battery and takes advantages of high power density and no memory effect. It's self-discharge rate is much less than nickel-cadmium (Ni-Cd) battery.
2. Lithium-polymer battery(Li-polymer): For thin and light MSI laptops, the Li-polymer battery is the best solution owing to its weight and size efficient features.

## Battery Maintenance

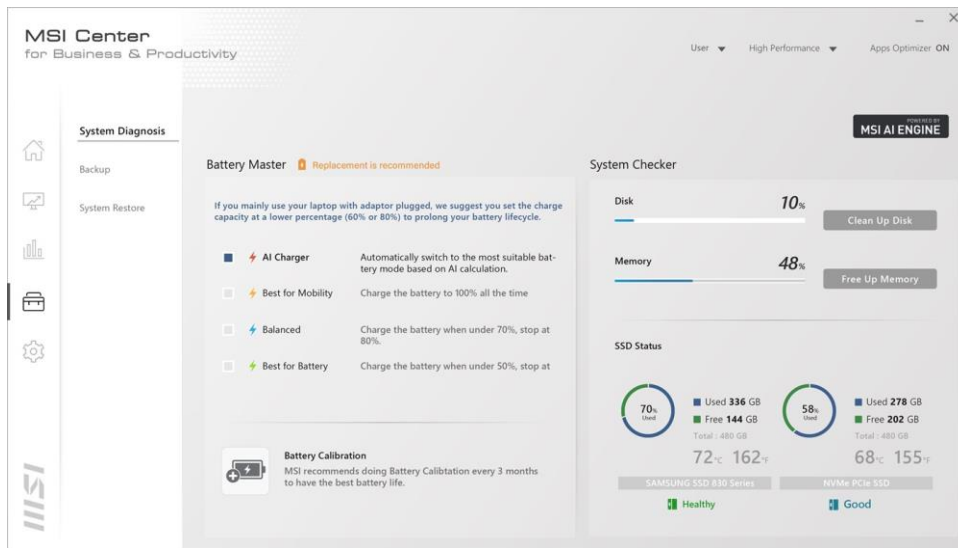
To optimize battery lifespan and safely use battery, read the tips below:

1. If the laptop will be stored for a long period, it is recommended to charge/discharge battery to about 80% to 90%, and perform [EC reset](#). When the laptop needs to be used again, plug in the power adaptor before pressing the power button.

\*Please be aware that after performing EC reset, please do not connect AC adapter, and do not press power button.

2. Please check the battery level every three months, once the battery charge falls under 50%, repeat the steps in tips 1 to reduce battery consumption.
3. If the laptop is usually used with the power adaptor plugged in, it is recommended to perform battery calibration every 3 months. Refer to [FAQ 1746](#) for details.
4. Overcharge protection mechanism:
  - i. Basic overcharge protection: By default, when battery has been fully charged, battery is designed to stop using the charger until the battery level drops to 89% or below.
  - ii. Advanced charging behavior configuration: For some certain models supported Battery Master, it's available to define battery full charge level in Dragon Center/ Creator Center/ MSI Center for Business & Productivity according to personal usage habit. Refer to [FAQ 3610](#) for details.
    - a. AI charger: Automatically switch to the most suitable battery mode based on AI calculation. (Only available for MSI Center for Business & Productivity)
    - b. Best for Mobility: For the users who usually use the laptop with battery power. Battery charging starts when the battery capacity is below 90%, and charged till the battery is fully charged at 100%.
    - c. Balanced: Battery charging starts when the battery capacity is below 70% and stops when the battery capacity is charged at 80%.

- d. Best for Battery: For the users who usually use the laptop with the power adaptor plugged in. Battery charging starts when the capacity is below 50% and stops when the battery capacity is charged at 60%.



#### Battery Master supported models:

1. For models that support UWP Dragon Center/ Creator Center/ MSI Center for Business & Productivity.
2. For models with GTX 16 series/ RTX 20 series cards, and support Dragon Center 2.5 or later versions.

If Battery Master option still cannot be found in Dragon Center/ Creator Center/ MSI Center for Business & Productivity, please update the latest version on MSI website.

5. Safety guidelines
  - i. Use the adapter that shipped with your notebook only.
  - ii. Do not cover an in-use adapter since it can generate heat.
  - iii. Do not store the laptop in the extremely damp, cold or hot environment.
6. Pay attention to the following tips before recharging the battery:
  - i. The Li-ion or Li-polymer battery has no memory effect. It is unnecessary to discharge the battery before recharging.
  - ii. The actual charging time will be determined by the battery capacity and applications in use.

#### Battery Lifespan and Cycle Count

1. Battery lifespan is counted by its cycle times. A fully discharged and recharged process is the so-called one cycle. For short period usage, if the battery is not fully discharged and recharged, the battery gauge will automatically calculate the cycle count. For example, during a 2 hours meeting, the laptop has been

discharged from 100% to 80%, then plugging the charger back again to charge it back to full. The cycle count will be approximate 1/5 cycle.

2. As the cycle count increase over time, the battery capacity will gradually reduce. If the battery capacity drops abnormally resulted by inaccurate cycle count, perform battery calibration will help to reset battery gauge and recover the battery capacity. Refer to [FAQ 1746](#) to perform battery calibration.
3. The battery lifespan will vary depending on battery capacity, personal usage habit, and operating environment. If there is any concern about the battery lifespan, refer to [FAQ 3651](#) to check the current battery health or contact MSI support team for a further check.

### Abnormal Battery Behavior

When the laptop battery aged and shows below symptoms, the system performance might be affected. To avoid any damage to the chassis, internal components or impact the performance of the laptop, please stop using the laptop and contact the MSI customer support team.

Batteries abnormal state indication:

1. Battery status light blinks constantly.
2. Battery aged and swollen.

Note: It's a normal phenomenon that the Lithium polymer battery generates a small amount of gas during charge and discharge cycles.

When the battery is seriously aged and swollen, please consult an authorized retailer or service center for purchasing or replacing an equivalent type of battery recommended by the manufacturer.

### Extend Battery Run Time

The battery performance is mainly determined by the system power consumption, so it will vary depending on the current laptop's configuration which including such as battery capacity, Windows power plan, processor speed, storage devices, display resolution, display brightness, and keyboard backlit.

To optimize battery run time according to the personal usage habit, refer to [FAQ 0684](#) to apply the recommended settings to diminish system power consumption and keep the unused components into power saver mode.

**Common Q&A**

Q. When I plug in the AC charger and start charging battery, why does the system show "(plug in, not charging)" even if the battery capacity is not full?

Ans. By default, when the battery is fully charged to 100%, the system will stop charging the battery until the battery level drops to below 90%. For units which support the Battery Master in Dragon Center or Creator Center, users get to set the different battery charging point. Refer to [FAQ 3610](#) for details.

Q. How long does a MSI laptop battery last?

Ans. The battery lifespan is based on battery capacity, personal usage habit, and operating environment. Follow the [Battery Maintenance](#) instructions to prolong battery lifespan.

Q. Is it safe to keep the power adapter plugged?

Ans. MSI laptop has built-in overcharge protection mechanism. To keep a laptop plugged in with its batteries for a long period won't cause overcharge.

Q. How to check the battery health condition?

Ans. Refer to [FAQ 3651](#) to check the current battery health status.

Q. Why the battery level drops even if I shut down the laptop.

Ans. Because of self-discharge and laptop needs to keep a few power for standby, when sleep, hibernate, or shut down (S5), battery power would continuously and slowly drop.