# 9 Common Power Problems
that can harm your computers and corrupt your data.

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- **Power Failure**: A total loss of utility power.
- **Power Sag**: Short-term low voltage.
- **Power Surge (Spike)**: Short-term high voltage above 110% of nominal.
- **Under-voltage (Brownout)**: Reduced line voltage for extended period of a few minutes to a few days.
- **Over-voltage**: Increased line voltage for extended period of a few minutes to a few days.
- **Line Noise**: High frequency waveform caused by RFI or EMI interference.
- **Frequency Variation**: A change in frequency stability.
- **Switching Transient**: Instantaneous undervoltage (notch) in the range of nano-seconds.
- **Harmonic Distortion**: Distortion of the normal waveform generally transmitted by nonlinear loads.

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www.powerware.com
Powerware Series 3
Single-phase UPS

Series 3 UPSs primarily protect against three of the nine most common power problems. This basic, cost-effective protection is necessary in order to prevent damage such as data loss, file corruption, flickering lights, hardware damage, and equipment shut off. For example, if your utility fails you could lose all of your work-in-progress. Series 3 UPSs offer a degree of protection against the remaining power problems and are most commonly used to protect single workstations and point-of-sale (POS) equipment.

Powerware Series 5
Single-phase UPS

Series 5 UPSs are most effective against five of the nine most common power problems and offer a degree of protection against other power problems. Some of the damages you risk by not using a Series 5 UPS include premature hardware failure, data loss and corruption, data error, keyboard lockup, storage loss, and system lockup. Series 5 UPSs are recommended for small network systems – all the way up to enterprise networking environments.

Powerware Series 9
Single-phase UPS

Series 9 UPSs protect against all nine of the most common power problems. Our comprehensive protection minimizes the opportunity for component stress, burned circuit boards, data crashes and program failures. Series 9 UPSs offer the highest level of power protection available and are always recommended for mission-critical applications like high-end servers, hospitals and voice over IP applications.

Powerware Ferrups
Single-phase UPS

Ferrups protect against eight of the nine most common power problems. Extensive configurability and customization options make Ferrups the ideal power protection with a wide range of voltages, frequencies, runtimes, power cords and receptacles. These units provide power protection with ferroresonant technology and are recommended for applications like midrange computers, internetworking equipment, PBX and communications systems and sensitive electronics in poor power conditions.

Which UPS is right for you?

To determine the level of protection you require from a UPS consider the following criteria:

1) How critical is the application you need to protect?
2) Do you need complete or partial protection?
3) What size UPS do you require? VA, watts, sizing calculations?
4) Battery run time required in minutes? In hours?
5) What software and network considerations do you have? Platforms, SNMP, remote monitoring etc.?