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# FAQ

## BATTERY QUESTIONS SUMMARY

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# ANSWERS

### Do EMG pickups need a battery?

All of the active guitar and bass pickups we make require a battery; the Select models are passive and don't need one. The active pre-amp, located in the pickup housing, is powered by this battery.

### What kind of battery do EMGs need?

EMG active pickups and EQs are powered by a standard, rectangular 9 volt (IEC 6LR61/ NEDA 1604A) battery. We recommend normal alkaline batteries (Eveready or Duracell, for example) for best results. These are the same batteries that you would use in an effects box or wireless unit and are widely available.

We do not recommend the use of rechargeable batteries in EMG systems. Although they are compatible electrically, typically you must fully discharge these batteries to preserve long life, which can be problematic in normal usage.

You can externally power your EMG system, although we do not provide parts for this option. We don't recommend doing this, however, as the you will require extremely high quality power filtering to equal the performance of a regular battery. Since the pickup is the very first stage of your system, it's particularly sensitive to noise.

### Where is the battery located?

If your guitar came with EMG pickups as standard equipment, you may have a battery cavity with it's own cover. In most other cases, the battery is located in the main control cavity which is usually accessible by removing a cover plate. Stratocaster-type guitars don't have a cover plate - in this case, you would remove the pickguard to get access to the battery.

If you're thinking about installing an EMG system, look for a suitable location for the battery. Although it's tight on Strats, you often can fit the battery under the pots with little or no body modification.

Don't forget - most 9 volt batteries have a metal casing and should be insulated with foam or tape before installation.

### Can multiple pickups/EQs run off a single battery?

Yes. All pickups and EQ units can run off a single battery with no problems. Since the current drain on all our products is very low, you should still get reasonable battery life with any reasonable combination of circuits (unreasonable combinations too!).

### Can I use multiple batteries?

Yes. If you've got room for multiple batteries in your guitar, you can use two batteries wired in series to power your onboard circuitry at 18 volts. The output level will not appreciably increase, but you'll have increased headroom and crisper transients. This is especially useful for percussive/slap bass styles where you can generate enormous instantaneous power levels across the entire frequency spectrum.

You can also wire two batteries in parallel to provide a regular 9 volt supply but with much longer lifespan between battery changes.

Although most of our products are rated for 27 volts, we recommend a maximum of 18 volts. The additional benefits of 27 vs. 18 volts are negligible.

### How long does the battery last?

All EMG pickups and EQ systems are designed for extremely low current drain. In addition, the pickup jack included with all models has a switch that disconnects the battery when the guitar is not plugged in. To maximize battery life, you should always unplug your guitar when it's not in use.

The Specs Page includes current requirements and estimated battery life for each model. Generally, each pickup requires about 80 microamps (uA), except for the Vintage Series pickups which require 220 uA each. EQ circuit requirements vary widely but are higher than pickups.

For your reference, a standard 9 volt alkaline battery provides 580 milliAmpHours (mAh) of power. That means that it will provide 580 milliAmps for 1 hour or 1 milliamp for 580 hours. There are 1000 uA per mA. You can figure the approximate battery life of any setup by adding up the individual power requirements, then dividing 580,000 by this total. Here's an example:

1 - EMG-81 = 80 uA
2 - EMG-SV = 220 uA*2 = 440 uA
1 - EXG = 410 uA
TOTAL REQUIRED = 930 uA

Total life = 580,000 uAh/
930 uA = 623 hours

If you left your guitar plugged in day and night, the battery should still last a month. Under normal playing conditions, you would probably be looking at changing the battery twice a year. Of course, you should treat these numbers conservatively and not try to drain every last uA out!

### What happens if the battery runs out?

We were afraid you were going to ask... Because EMG pickups are designed from the ground up to operate as active pickups, they're not very functional when deprived of power. As the battery weakens over time, the output level will reduce and become more distorted. When you hear that happening, it's time to change the battery.

Below a certain voltage, the onboard active circuitry will stop working. At that point, you will hear little or no output from the guitar. Don't let this happen to you!

Other "active" systems run the output of normal high-impedance pickups into a buffer amp or active EQ circuit. If the battery goes dead in one of these systems, you can bypass the active circuit and still get some sound. That's nice, but this sort of design compromises the pickup design yielding only a few of the benefits of optimized active pickup design. That bypass switch will cost you tone and noise - a BAD tradeoff.