

FAQ

Why does my battery circuit breaker keep tripping when I'm charging my lithium battery?

The battery fuse or circuit breaker is a Battery Protection Device. Its purpose is to protect the battery if there is a short circuit on the battery positive cable in house. Often this is a device called a Short Stop Circuit Breaker and is rated for 30 or 40 amperes. Usually it is located within 18 inches of the battery. It also has an automatic reset function allowing circuit reactivation after a short cooling down period.

A short circuit on the battery will damage the battery, possibly bursting or cause it to explode. This is a very important safety feature in your RV.

Normally this breaker is more than adequate for use with a Lead Acid type of battery even if the converter/charger has a higher rating than the breaker. With a standard one or two battery configuration, the charging rate is usually around 2-10 amperes. It may be higher for a dead or defective battery. When the battery State of Charge (SoC) increases, the current being absorbed will decrease.

Life is different when you are charging a lithium battery. Due to a lower internal resistance, LI batteries will charge at a much higher amperage rate than the lead acid battery. In fact, they will absorb as much current as the converter/charger can supply. This could be 45 to 90 amperes depending on the charger. You see, even a 45-amp charger will trip the short stop breaker. This high charge rate is about the same whether your battery is at 20% SOC or 70% Soc. It won't take very long, and the short stop breaker will cease to function.

DO NOT bypass the battery protection device. Instead, replace it with a manual resettable automotive style circuit breaker which is rated for at least 120% of the charging capability of the converter/charger. Being this is a critical device for your safety and continuous charging, purchase a quality breaker from a recognized manufacturer. Here some recommendations, Bussmann CB 185 series, CB 187 series or the CB 285 series.