

A10 Battery Backup Converter Module (User Guide)

The A10 battery backup converter module allows the A10 gate operator to function with a 12V battery in the absence of AC mains. The converter module steps up the 12V battery supply to 310V DC. The inverter drive on the A10 operator then switches the high voltage DC supply to run the three phase induction motor.

WARNING: The 310V DC supply is a hazardous and potentially lethal supply. The A10 converter module should be installed and maintained by a qualified installer.

The following features are of interest to the end-user:

The converter module includes battery protection circuitry. This circuitry prevents the converter module from being damaged in the event of reverse polarity connection. In addition the circuitry automatically disconnects the battery when the battery drops into a low-voltage state. This prevents the converter module from running the battery flat and potentially damaging the battery.

There is a push button on the converter module that manually reconnects the battery in the event of a power failure and low-battery voltage state. Upon activation, and if the battery voltage exceeds the low-voltage parameter, the protection circuitry will automatically keep the battery connected to the converter. If, on the other hand, the battery voltage is below the low-voltage parameter, the protection circuitry will not connect the battery to the converter.

The A10 Converter module has three status LED's. These LED's indicate battery status, AC mains status, and lastly the temperature of the converter. The LED's operate in the following manner:

When the LED is ***ON***, the respective monitored input indicates the following status:

- Battery Status – The battery is fully charged.
- AC Mains Status – Mains is present, and operating nominally
- Converter Temperature Status – The Converter has exceeded its thermal limit, and shuts down until the unit cools to a nominal thermal level.

When the LED is ***OFF***, the respective monitored input indicates the following status:

- Battery Status – The Battery Voltage is below its low voltage condition. The converter is shut down until the battery reaches its nominal battery voltage.
- AC Mains Status – Mains has failed. If the rest of the converter inputs are within operating parameters, the converter will power the A10.
- Converter Temperature Status – The converter is operating within its nominal thermal parameters.

When the length of *ON* to *OFF* time varies on the LED, the respective monitored input indicates the following status:

- Battery Status – The longer the LED is *ON*, the closer the battery is to being fully charged.
- AC Mains Status – The longer the LED is *ON*, the closer the mains is to operating nominally. In this situation, the LED indicates a low mains voltage or brown-out type condition. The converter will supplement the mains supply under these conditions.
- Converter Temperature Status – The longer the LED is *ON*, the closer the converter temperature is to exceeding its thermal limit.

When the LED flashes quickly, the respective monitored input indicates the following status:

- Battery Status – The battery is overcharged. Care should be taken, when charging a 12V battery to this level. The battery could be permanently damaged.
- AC Mains Status – The mains supply is above its nominal supply voltage.

The converter module has a current limiting fuse on the high-voltage supply. Caution must be exercised when checking this fuse. The procedure to replace the fuse is outlined below:

1. Disconnect the mains from the entire system. This includes the A10, and the converter module.
2. Disconnect the battery.
3. Disconnect the 6-way header that connects the converter module to the A10. The converter module is now off, and the board is safe to handle.
4. Remove the fuse protection housing (If the housing is still in place).
5. Remove the fuse and replace it with a 5A, 250V, fast-blow fuse. (Dimensions – 5x20mm).
6. Reconnect the 6-way header.
7. Reconnect the battery.
8. Reconnect the mains.

Upon reconnection, if the converter module fails to function correctly in the event of a power failure, refer to an installer or service technician.