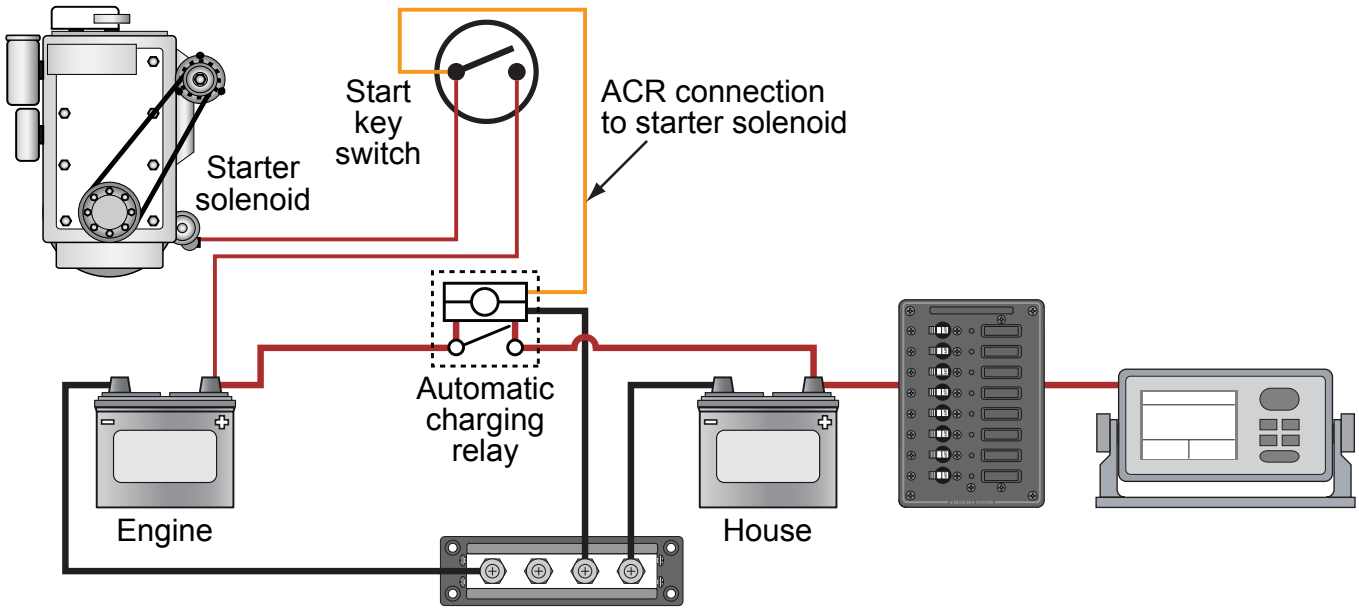
Application Briefs - Overcoming Dropout of House Electronics During Engine Starting

Automatic Charging Relays (ACRs) combine and isolate batteries (or battery banks) in response to changes in voltage. When a charge from a charging source is sensed by the ACR at the Start or House battery, the batteries are combined through the ACR so that the charge is offered to both batteries. When no charge is sensed at either battery, the batteries are isolated so that both batteries are not discharged when a load is applied to one.

Engine starting causes voltage sags and spikes in the starting circuit. If engines are started when batteries are combined, the resulting sag or spike may be felt in the house circuit. These transient voltage levels may reset GPS and other navigation equipment, and could damage sensitive electronics. Because of this, it is important that batteries be isolated when starting engines.

Blue Sea Systems' SI ACR and ML-series ACRs offer start isolation as well as normal ACR functions. When the starting circuit is engaged, start isolation automatically isolates the House battery from the Start battery, protecting house circuits.

The start isolation feature is initiated when the start key switch is turned to start the engine. The signal from the start key switch to the starter solenoid also is sent to the Start Isolation input of the ACR. This signal opens the ACR relay before the starter is engaged. When utilizing the Start Isolation feature, connect the SI input to the starting circuit between the start key switch and starter solenoid.