Bi-Directional Isolator Relay Delay-Diesel 2

Intellitec's *Bi-Directional Isolator Relay Delay-Diesel 2™* offers a new approach to charging batteries in an vehicle which uses a diesel engine with up to a 200 Amp alternator. Adding a small dash-mounted switch will allow emergency starts of diesel engines, requiring up to 1200 Amps of starter current. Unlike prior systems that only allowed charging the auxiliary battery from the engine's alternator, the ***Bi-Directional Isolator Relay Delay-Diesel 2™*** charges *both* batteries when *either* one is being charged. When the vehicle is being driven, *both* batteries will be charged from the engine's alternator. When the vehicle is plugged into shore power, *both* batteries will be charged from the converter or battery charger. If neither battery is being charged, the batteries are fully isolated. The controller also senses heavy loads on either battery to prevent the wrong battery from being inadvertently discharged.

P/N 00-00839-000

The unit is housed in a plastic enclosure for mounting in an engine compartment, out of direct water spray. To connect the two batteries together under proper conditions, it operates in combination with an intermittent duty solenoid, similar to ones used as diesel starter solenoids. In order to use this type solenoid for continuous duty, the controller will engage it with full voltage and then reduce the coil voltage to approximately 4 volts to hold it in.

It operates by sensing the voltages on both batteries. When either of these voltages exceeds 13.1 volts for approximately 2-½ minutes, which happens when either battery is being charged, the control will close the isolator solenoid, connecting the two batteries together, charging them both. (Normal charging voltages are from approximately 13.8 to 14.4 volts.)

After the solenoid has been closed, the system continues to sense the voltage. If the ignition switch is off and the battery voltage drops below 12.5 volts for approximately 1 minute, the solenoid is opened to prevent the chassis battery from being discharged by the auxiliary loads. This might occur when the converter is heavily loaded.

If the ignition switch is on, the control allows the voltage to drop below 12.0 volts for approximately 1 minute, before the solenoid is opened to insure the alternator's full output is available for important chassis functions.

Intellitec
131 Eisenhower Lane North
Lombard, IL 60148
630.268.0010 / 1.800.251.2408
FAX 630.916.7890

P/N 53-00839-100 Rev. B 072005

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How Does It Work?

The ***Bi-Directional Isolator Relay Delay-Diesel 2***™ constantly senses the voltage on the auxiliary and chassis batteries. If either voltage is above 13.1 volts, which indicates the batteries are being charged, the control closes the isolator relay. This parallels the batteries, charging them both. If the ignition is ***off*** and the voltage falls below 12.5 volts for approximately 1 minute, the relay will open to prevent the auxiliary loads from discharging the chassis battery. When the voltage goes back above 13.1 volts, the relay will close again.

If the ignition is ***on*** and the voltage falls below 12.0 volts for approximately 1 minute, the relay will open to prevent the auxiliary loads from over-loading the alternator and discharging the chassis battery. When the voltage on the chassis goes back above 13.1 volts, the relay will close again. Allowing the batteries to stay connected together to a lower voltage helps charge a heavily discharged auxiliary battery more quickly with the varying output of the alternator.

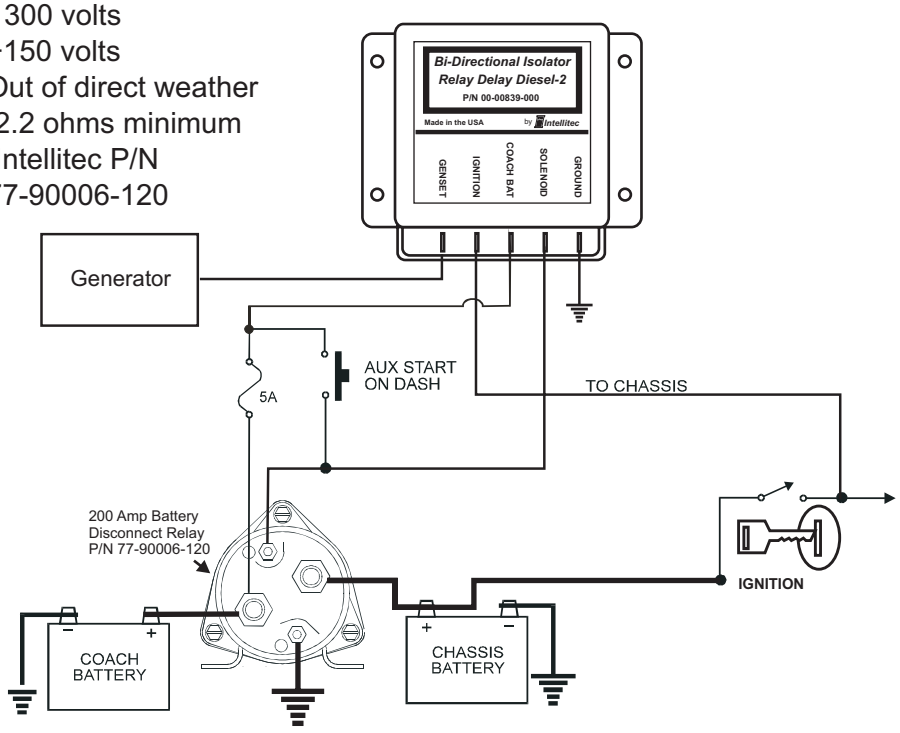
A Gen Set lock-out input is provided to isolate the batteries to prevent conflicts if both the converter/gen-set and alternator are trying to charge the batteries at the same time. When this conflict occurs, it can cause the dash alternator indicator light to illuminate in error and may cause 120 volt circuit breakers to trip.

If the Gen Set is running, the chassis battery and coach battery will be isolated. In this case the chassis battery will be charged by the alternator and the coach battery will be charged by the Gen Set. In the event that the chassis engine is not running, the chassis battery is isolated and will not be discharged by auxiliary loads.

SPECIFICATIONS

Part Number	00-00839-100
Standby Current	Less than 2 milliamps
Ambient Temperature Range	-40C to +85C
Normal Input Voltage Range	10 to 18 volts
Short Term Over Voltage Protection	+26 volts
Reverse Voltage Protection	- 300 volts
Positive Voltage Spike Protection	+150 volts
Operating Environment	Out of direct weather
Coil Resistance	2.2 ohms minimum
Solenoid Type	Intellitec P/N 77-90006-120

SYSTEM CONNECTIONS



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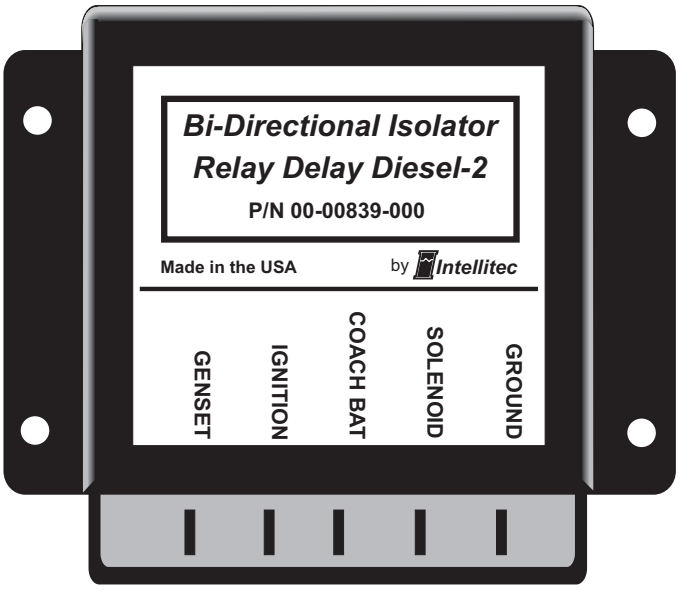

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