

# Battery Isolators & Integrators



## Battery Isolators

These heavy duty isolators allow charging multiple batteries automatically from one or two alternators, and prevent discharge or "dumping" of one battery into another. Each battery is charged according to its need without overcharging. Rated for 12-48 volt negative ground DC systems. Feature conservatively rated diodes and a rustproof anodized aluminum heat sink case. Models are available for 70, 120 and 165 amp alternators.

Model	Alternator Sources	Battery Bank	Max Amperage Input Capacity	Weight		Dimensions		
				Lbs	Kg	L	W	H
1-2-70	1	2	70	2	.9	3.25 8.3	4.5 11.4	3.1 in 7.9 cm
1-3-70	1	3	70	2	.9	3.25 8.3	4.5 11.4	3.1 in 7.9 cm
2-3-70	2	3	70	4	1.8	6.5 16.5	4.5 11.4	3.1 in 7.9 cm
1-2-120	1	2	120	3	1.4	6.5 16.5	4.5 11.4	3.1 in 8.0 cm
1-3-120	1	3	120	3	1.4	6.5 16.5	4.5 11.4	3.1 in 8.0 cm
2-3-120	2	3	120	5	2.3	12.5 30.5	4.5 11.4	3.1 in 7.9 cm
1-3-165	1	3	165	5	2.3	9 22.9	4.5 11.4	3.1 in 8.0 cm

Application Note: Battery Isolators may also be used to facilitate N+1 parallel/redundant operation of power supplies. Contact factory.

## Features:

- Heavy duty construction
- Rated for systems up to 48 volts DC, negative ground
- Rust-proof anodized aluminum case
- Stainless steel mounting hardware provided
- Protective covers provided for terminals

## Performance Specifications

**Operating temperature:** -40 to +80° C

**Duty cycle:** Continuous rating to 50° C

Derate linearly to 70% @ 80° C

**Temp. rise:** 95° C at full rated current (mount vertically for optimum cooling)

**Voltage drop:** 0.7V @ 50% load  
0.9V @ full load

Note: These battery isolators are not compatible with self exciting alternators. Please consult the manufacturer of your alternator if you are unsure of your configuration.



## Battery Integrator

Charging multiple battery banks without use of diode isolators dictates that the batteries be connected or "integrated" only

whenever a charge voltage is present so that they may be charged simultaneously, then disconnected or "isolated" when in use to allow for selective discharge and avoid having the secondary or standby battery drain into the primary battery.

Battery Integrators perform this function automatically, acting as a "smart" switch to connect independent battery banks only when a charging voltage is present. Otherwise, they are isolated, and discharge between banks is prevented.

The traditional rugged and reliable diode isolator can also be used for this function (see Battery Isolators above), as it also maintains isolation between banks and allows charging from multiple sources. However, one drawback is inefficiency when voltage is lost as current passes through the diodes, resulting in undercharge if the charging source does not compensate for the voltage drop.

The Battery Integrator causes no voltage drop in the charging system, while the multiple batteries are charged as a single bank whenever a charging source of

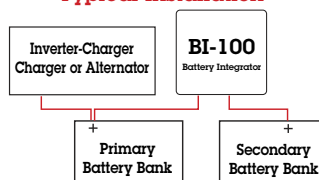
approximately 13.2 VDC or 26.4 VDC or greater is present (depending on model).

When the alternator or charger is off or a large load causes the voltage to drop below the disconnect point the unit breaks the common tie between the banks. This allows selective battery discharge and prevents "dumping" of a higher-charged bank into a lower-charged bank. The unit may also be activated to connect other batteries through the key starter or a manual switch to provide an added "boost" from the secondary battery whenever the starter is engaged and the unit senses there is sufficient voltage in that battery to provide an assist.

For systems with more than two banks, an isolator must be installed for each additional bank to provide the same isolation and integration as described above.

*The Battery Integrator is ideal for expanding the single charging output of an inverter-charger to maintain both the house bank and an engine start bank, then to isolate them during inverter function, so current is drawn from the house bank only. (see page 6)*

## Typical Installation



## Features

- Enables charging of two separate banks without voltage drop, yet maintains 100% isolation at all other times. For systems of three banks or more, an additional unit must be installed for each additional bank
- Heavy duty silver-plated contactor, continuous duty rated to 100 amps
- Voltage sense circuit, epoxy encapsulated and heavy duty continuous rated solenoid are all designed for use in marine environments
- 12 volt model has ignition protection rating
- Easy three-wire hook up for two bank systems (BATT +, BATT +, GROUND)
- Terminal for optional wiring of remote light indicating when battery banks are integrated
- Optional internal connection can be wired though key starter or manual over ride switch, tying battery banks together for extra boost during engine start

## Specifications

**Models:** BI-100/BI-24-100

**Battery Integration Connect Point:** 13.2 VDC (approx.)/26.4 VDC (approx.)

**Battery Disconnect Point:** 12.8 VDC (approx.)/25.6 VDC (approx.)

**Maximum Continuous Current:** 100 amps

**Peak Maximum Current:** 400 amps

**Operating Temperature:**

Control: -40 to +85° C

Solenoid: -28 to +48° C

**Terminals:** Battery Connections:

5/16" copper alloy stud

**Dimensions (H x W x D):** 3" x 3.25" x 2.5"

**Weight:** 1 lb.