

- [Overview 1](#)
- [Hardware Setup 2](#)
 - [Configuration 2](#)
 - [Connection 3](#)
- [DBK34 Operation 3](#)
- [Environmental Concerns 4](#)
- [Fuse Replacement 4](#)
- [DBK34 – Specifications 5](#)



DBK34 is similar to DBK34A in appearance and operation; but there are differences. Before proceeding with this section, verify that your device is a DBK34. If your device has an “A” suffix, use the document module regarding the DBK34A UPS /Battery Module instead of this document module.



Reference Notes:

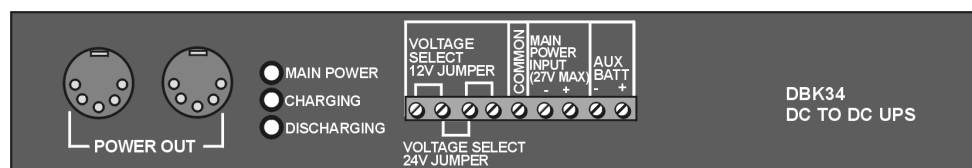
- Refer to [Chapter 2, Power Management](#), in regard to calculating system power requirements.
- [Chapter 3, System Connections and Pinouts](#), includes pinouts for P1, P2, P3, and P4. Refer to the pinouts that are applicable to your system, as needed.

Overview

The DBK34 can power a data acquisition system in portable and in-vehicle applications (both 12 and 24 V systems). Power storage capacity is 5 A-hr @ 12 VDC or 2.5 A-hr @ 24 VDC.

For reliable data acquisition in a vehicle, the DBK34 provides clean and consistent operating power:

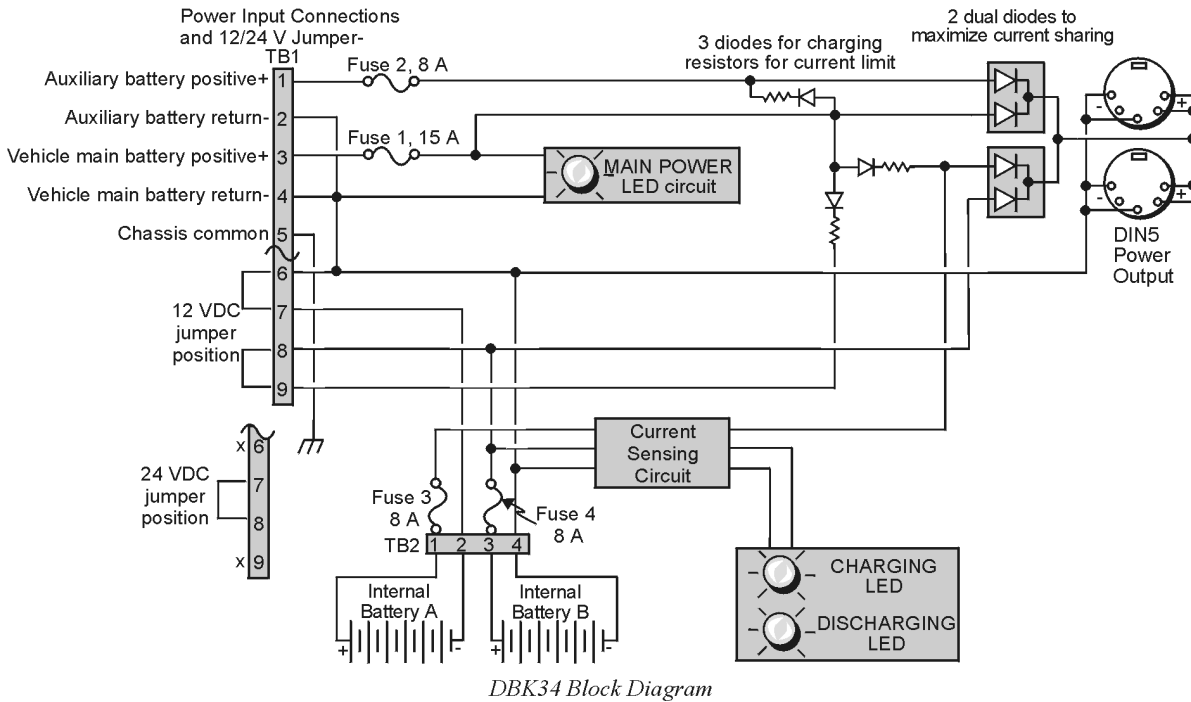
- Prior to engine/generator start
- During engine start-up (battery sag due to the high-current demand of starter motor and solenoid)
- After engine turn off.



DBK34 Front Panel

The DBK34 contains two sealed-lead rechargeable batteries and associated charging circuits and current indicators. Typically, these batteries can last more than 500 full cycles and up to 10 years standby lifetime at room temperature. Recharging is fast, and extreme temperature performance is good. The DBK34 can be used with the LogBook, DaqBook, WaveBook, and related DBKs and WBKs. The unit’s rugged metal package has a compatible 8×11” footprint for convenient stacking with dual-lock tabs and optional splice plates and handles for carrying.

Main and auxiliary power input comes from 12 or 24 VDC via a terminal block on the unit's front panel (12 or 24 V modes are set by front-panel jumpers). Automatic charging circuits recharge the internal batteries quickly and safely. For trouble-free operation, you must fully charge the batteries before use. The charged battery runtime will depend on the load and mode of operation.



Note: TB1 pin numbers read from right to left as viewed from the front panel.

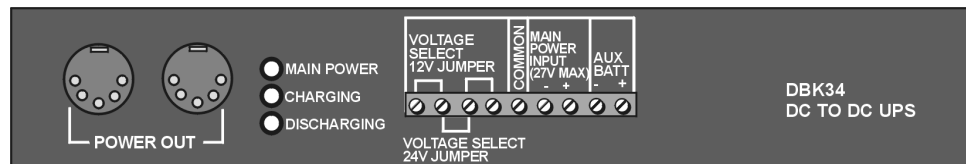
Hardware Setup

Configuration

The DBK34 is configured for 12 volt or 24 volt operation via placement of jumpers on the front panel's screw-terminal block (TB1).



From left to right, when viewed from the front panel, DBK34's screw-terminal numbers read: 9, 8, 7, 6, 5, 4, 3, 2, 1. Thus, Aux Batt (+) is screw -terminal 1. See following figure.



For 12 Volt Operation:

- (1) Remove jumper from terminals 8 and 7, if present.
- (2) Use a jumper to short terminals 9 and 8
- (3) Use a jumper to short terminals 7 and 6

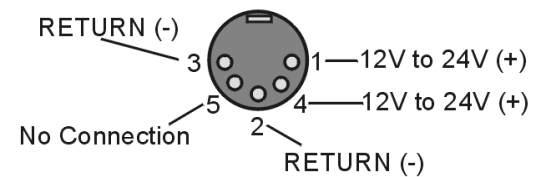
For 24 Volt Operation:

- (1) Remove jumpers from terminals 9 and 8, if present
- (2) Remove jumpers from terminals 7 and 6, if present.
- (3) Use a jumper to short terminals 8 and 7

Connection

Power In - (vehicle main/auxiliary batteries, 12 or 24 VDC only) Connect main battery positive to terminal 3 of TB1 and main negative to terminal 4. If an auxiliary battery is used, connect its positive to terminal 1 and negative to terminal 2.

Power Out - The pinout at the right applies to DBK34's two POWER OUT DIN5 connectors.



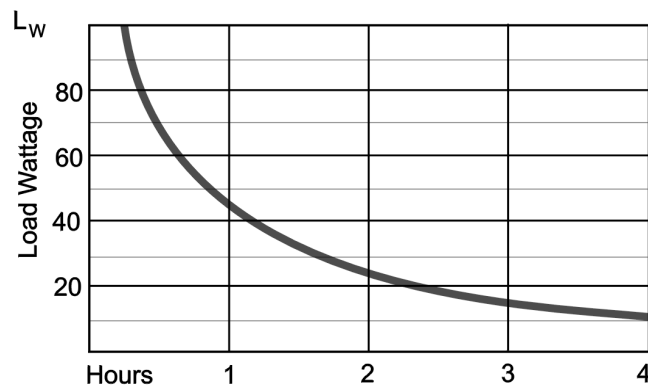
DBK34 Operation

Indicators: 3 LEDs on the DBK34 provide status information on the power and charging process.

LED	Meaning
MAIN POWER	Lights when the DBK34 is connected to a live vehicle (main) battery.
CHARGING	Lights when internal batteries are being charged at a rate of 0.025 to 0.050 A or greater.
DISCHARGING	Lights when internal batteries are discharging at a rate of 0.025 to 0.050 A or greater.

Runtime: Approximate runtime under various loads can be computed from the storage capacity (5 A-hr in 12 V mode; 2.5 A-hr in 24 V mode) and the load (main unit and other DBKs).

The following graph of Load vs. Battery Life is for a typical new battery that is initially at full charge.



Graph indicates approximate battery life under the indicated Load Wattage @ 25°C (77°F).

The following equation can be used to estimate the life of a fully charged battery for a given Load Wattage (L_w).

$$\text{Hours} \cong \frac{56 - L_w/3.33}{L_w}$$

DBK34 and DBK34A Load/Life Graph

Charging: In general, lead-acid batteries require charging at 120% of drain energy (e.g., the 5 A-hr DBK34 requires a charge equal to or greater than 6 A-hr). Charging times vary; but 4 to 5 hours at 14 V are typical for a totally empty battery.

CAUTION



Voltage applied to charge a DBK34 must not exceed 15 VDC in 12 V mode, or 30 VDC in 24 V mode. If not charging from the vehicle, use of a generic automobile battery charger (3 A) in 12 V mode is recommended.

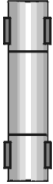
Environmental Concerns

CAUTION



The DBK34's batteries contain toxic materials (Pb and H₂SO₄). After the battery's life cycle is over (up to 500 full cycles or 5-10 years of use), sealed-lead batteries must be recycled or properly disposed of.

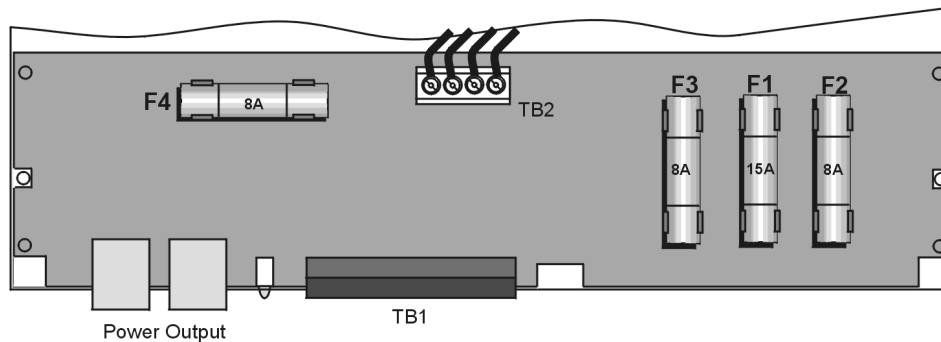
Fuse Replacement



DBK34 contains four glass fuses that can be replaced by the user. Note that you should always check your unit for blown fuses prior to sending it back to the factory for repair. This could save you time and money.

The following table indicates the probable reason that a particular fuse may have blown, and includes part numbers and amperage.

Fuse	Rating	Probable Cause of Blowing Fuse	Replacement Fuse
F1	15 A	Overload on input power.	15A, 32V, LITTLEFUSE# 311015
F2	8 A	Output overload.	8A, 32V, LITTLEFUSE# 312008
F3	8 A	Output overload.	8A, 32V, LITTLEFUSE# 312008
F4	8 A	Auxiliary Battery overload.	8A, 32V, LITTLEFUSE# 312008



DBK34 Fuse Locations

To replace a fuse:

1. Disconnect the DBK34 from loads and from supply power.
2. Remove the DBK34's cover plate. This requires the removal of 4 screws.
3. Examine the fuses (F1 through F4) to see which, if any, have blown. Note that you can usually see the blown element through the fuse's glass body.
4. Replace the blown fuse with the appropriate replacement fuse (see preceding table).
5. Replace the DBK34 cover and secure with screws (removed in step 2).

DBK34 - Specifications

Name/Function: Vehicle UPS Module

Battery Type: Sealed-lead rechargeable

Number of Battery Packs: 2

Battery Pack Configuration: 6 series-connected D cells

Output Voltage: 12 V or 24 V (depending on jumpers)

Output Fuses: 8 A on each internal battery (2)

Input Fuses: 8 A for auxiliary battery, 15 A for vehicle battery

Battery Capacity (Amp-Hours):

5 A-hr in 12 V mode (parallel)

2.5 A-hr in 24 V mode (series)

Operating Temperature: -20°F to 122°F (-29°C to 50°C)

Size: 8½ × 11 × 1¼ in. (216 × 279 × 44 mm)

Weight: 7.2 lb (3.27 kg)

