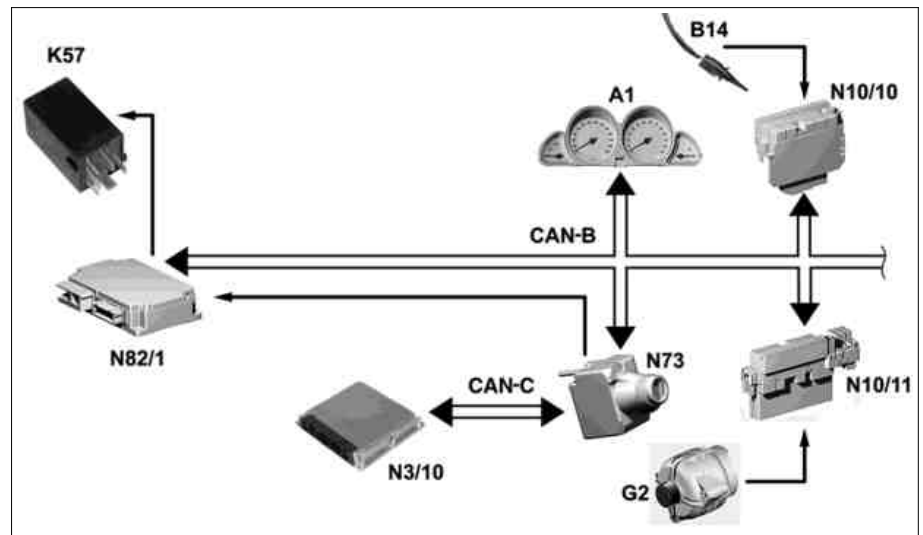


MODEL 230 up to Model Year 8

## Networking of components

TO1	Instrument cluster
B14	Outside temperature display temperature sensor
CAN-B	Passenger compartment CAN
CAN-C	Engine compartment CAN
G2	Generator
K57	Battery cut-off relay
N3/10	ME-SFI [ME] control module
N10/10	Driver-side SAM control module
N10/11	Passenger-side SAM control module
N73	DI control module
N82/1	Vehicle power supply control module



P54.00-2234-05

The two-battery vehicle power supply increases the starting reliability and availability of the vehicle by ensuring optimum charging of the starter battery.

The two-battery vehicle power supply consists of the following areas:

**Starter**

- Starter battery (G1/4) in engine compartment
- Starter (M1)

**Vehicle power supply**

- On-board electrical system battery (G1) in trunk
- Battery cutoff relay (K57)
- Vehicle power supply control module (N82/1)

Via the **fuse connection (F52)**, the starter is protected against overloading by **fuse 1 (F52f1)** and the generator is protected by **fuse 2 (F52f2)**. Both areas are separated from one another by the **battery cutoff relay (K57)** which is switched by the **vehicle power supply control module (N82/1)** according to requirements.

In the normal operating mode, the **starter battery (G1/4)** is charged according to a predetermined charging characteristic, which is stored in the **vehicle power supply control module (N82/1)**. The charging characteristic takes the starter battery voltage and temperature into account to ensure optimum recharging of the **starter battery (G1/4)**. The **starter battery (G1/4)** is disconnected from the **on-board electrical system battery (G1)** once the battery has been recharged.

**Function prerequisites:**

- Transmitter key (A8/1) in DI control module (N73)

**Function of two-battery vehicle power supply**

The **vehicle power supply control module (N82/1)** is actuated by a cut-in signal from the **DI control module (N73)**. It checks the operating condition of the vehicle power supply. This cut-in signal is created by inserting the **transmitter key (A8/1)** into the **DI control module (N73)**. If a "start signal" is not received after **t = 30 seconds** the connection is interrupted and the **vehicle power supply control module (N82/1)** returns to the stand-by mode. To reactivate the system, the driver must remove the **transmitter key (A8/1)** and **insert it again**. The cut-in signal initializes the **vehicle power supply control module (N82/1)** again.

The **starter battery (G1/4)** and the **on-board electrical system battery (G1)** are separated or connected in parallel by the **battery cutoff relay (K57)** depending on the operating condition (see chart below). The signal **TERM 61 ON** (engine running) is transferred by the **passenger SAM control module (N10/11)** on the passenger compartment CAN to the **vehicle power supply control module (N82/1)**.

The mode is then switched to the floating operation mode.

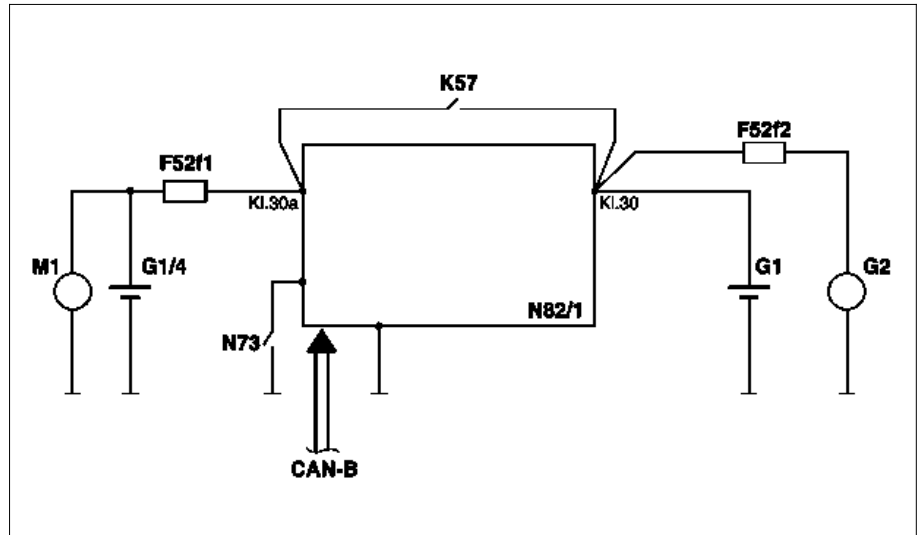
The **on-board electrical system battery (G1)** is charged directly by the **generator (G2)**.

**i** To protect the components of the vehicle power supply, the vehicle must **only be jump started** via the starter battery (G1/4).

**i** If the **battery cutoff relay (K57)** is faulty, the vehicle power supply is not supplied with an emergency power supply. The message **"GO TO GARAGE"** therefore appears in the **instrument cluster (A1)**.

**Block diagram of vehicle power supply control module (N82/1)**

- CAN-B Passenger compartment CAN
- G1 On-board electrical system battery
- G1/4 Starter battery
- G2 Generator
- F52f1 Fuse 1
- F52f2 Fuse 2
- K57 Battery cut-off relay
- M1 Starter
- N73 DI control module
- N82/1 Vehicle power supply control module



P54.00-2235-05

Operating state of vehicle power supply	Explanation
Normal starting	<ul style="list-style-type: none"> <li>● Transmitter key (A8/1) in DI control module (N73)</li> <li>● No undervoltage at terminal 30</li> <li>● Starter battery (G1/4) separated from on-board electrical system battery (G1)</li> <li>● Vehicle power supplied by on-board electrical system battery (G1)</li> </ul>
Normal mode	<ul style="list-style-type: none"> <li>● Term. 61 ON</li> <li>● No undervoltage at terminal 30</li> <li>● Starter battery (G1/4) separated from on-board electrical system battery (G1)</li> <li>● Starter battery (G1/4) charged by vehicle power supply control module (N82/1)</li> </ul>
Emergency start	<ul style="list-style-type: none"> <li>● Transmitter key (A8/1) in DI control module (N73)</li> <li>● Undervoltage at terminal 30 detected (on-board electrical system battery discharged)</li> <li>● Vehicle power supply control module (N82/1) sends "limp-home mode" CAN message</li> <li>● Consumers not required for starting engine are switched off (e.g. heated rear window)</li> <li>● Starter battery (G1/4) and on-board electrical system battery (G1) switched in parallel by battery cutoff relay (K57)</li> <li>● Starter battery (G1/4) adopts vehicle power supply</li> <li>● Warning indicator in instrument cluster (A1)</li> </ul>
Limp-home mode	<ul style="list-style-type: none"> <li>● Term. 61 ON</li> <li>● Starter battery (G1/4) and on-board electrical system battery (G1) remain connected in parallel until no undervoltage at TERM. 30.</li> <li>● Entry in fault memory of vehicle power supply control module (N82/1)</li> <li>● After TERM. 61 OFF, the starter battery (G1/4) remains connected to the on-board electrical system battery (G1) for t = 5 minutes.</li> </ul>
Switch off phase	<ul style="list-style-type: none"> <li>● Transmitter key (A8/1) not in DI control module (N73)</li> <li>● Term. 61 OFF</li> <li>● Starter battery (G1/4) separated from on-board electrical system battery (G1)</li> </ul>

	Battery cut-off relay, location/task/design/function		GF54.10-P-4200R
	Vehicle power supply control module, location/task/design		GF54.21-P-4118R