Vehicle power supply control unit (N82/1)

Location

The vehicle power supply control unit (N82/1) is located behind the partition wall between the passenger compartment and the trunk, above the on-board electrical system battery (G1).

Task

It performs the evaluation of the on-board electrical system battery (G1) and the starter battery (G1/4), and controls the 2-battery on-board electrical system.

The base functions of the vehicle power supply control unit (N82/1) are:

• Charging the starter battery (G1/4) via the charge converter (1 h after engine start).
• Opening and closing the quiescent current cutout relay (N82/1k1) (after a bus idle period of 6 h or on-board electrical system voltage < 11.8 V).
• Managing the on-board electrical system by generating the consumer reduction stages.
• Controlling the battery coupling relay (F32k1) when the state of charge of the on-board electrical system battery (G1) is critical (< 9 V) and for cold starts (diesel engine < -10 °C).
## Circuit 30 fuse assignments

### Connection of 12 V power supply battery
- **Designation:** Connection of 12 V power supply battery
- **Version:** None

### Feed line to prefuse box VSB
- **Designation:** Feed line to prefuse box VSB
- **Version:** Pyro

### Windshield heater, unswitched
- **Designation:** Windshield heater, unswitched
- **Version:** 125 A

### Feed line to fuse box 2 (interior), unswitched
- **Designation:** Feed line to fuse box 2 (interior), unswitched
- **Version:** 80 A

### Feed line to rear SAM, unswitched
- **Designation:** Feed line to rear SAM, unswitched
- **Version:** 200 A

### Feed line to SVMCU (special protection vehicles), unswitched
- **Designation:** Feed line to SVMCU (special protection vehicles), unswitched
- **Version:** 100 A

### Feed line to rear SAM, switched
- **Designation:** Feed line to rear SAM, switched
- **Version:** 150 A

### Feed line to front SAM, switched
- **Designation:** Feed line to front SAM, switched
- **Version:** 100 A

### Feed line to fuse box 1 (interior), switched
- **Designation:** Feed line to fuse box 1 (interior), switched
- **Version:** 80 A
Vehicle power supply control unit

On-board electrical network line pyrofuse (N82/1f1)

Location
The on-board electrical network line pyrofuse (N82/1f1) is installed in the vehicle power supply control unit (N82/1).

Task
It is used to fuse the on-board electrical network line to the front prefuse box (F32). The on-board electrical network line pyrofuse (N82/1f1) blows when the following parameters are met:
- The temperature of the on-board electrical network line is > 140 °C.
- Crash signal 2 from the restraint systems control unit (N2/7).

Note
As of software no. 2214420355 the temperature triggering function was discontinued. As of 1.8.05 triggering is by crash signal 2 only.

Quiescent current cutout relay (N82/1k1)

Location
The quiescent current cutout relay (N82/1k1) is installed in the vehicle power supply control unit (N82/1).

Task
It shuts down circuit 30g control units when the bus is idle and thereby minimizes the total quiescent current.

The quiescent current cutout relay (N82/1k1) is opened when the on-board power supply voltage drops below 11.8 V for a period > 10 s or when the bus idle period exceeds > 6 h.

Before the quiescent current cutout relay (N82/1k1) is opened, the vehicle power supply control unit (N82/1) puts an advance warning ("pre open") on all CAN buses, which is read by all circuit 30 and circuit 30g control units.

Between the output of the "pre open" signal and the opening of the quiescent current cutout relay (N82/1k1) a period of approx. 5 min elapses, inside which all circuit 30g control units must have adopted their idle state.