

Description and Operation

Smart Regenerative Charging

Smart Regenerative Charging is an intelligent charge control system that calculates and regulates the set generator voltage.

The basic idea of the system is to increase the generator charge voltage when the vehicle is decelerating and reduce it when it is accelerating.

This means that during the acceleration phase, there is no additional energy demand as a result of having a high generator load; however generator load is increased when the vehicle is decelerating.

This strategy enables further fuel savings to be achieved.

Battery Monitoring Sensor

The Battery Monitoring Sensor continuously monitors the condition of the battery.

The sensor is equipped to vehicles which have Smart Regenerative Charging or Start-Stop. These systems require knowledge of the battery state of charge. The Battery Monitoring Sensor is the sensor used to provide this information.

Battery Monitoring Sensor connection

The Battery Monitoring Sensor is clamped directly to the negative terminal of the battery and grounds to the vehicle at the chassis ground connection point by means of a thick (25 to 35mm²) cable and eyelet. External customer loads must **only** be connected to the vehicle at the customer battery connection point. If the external customer load is connected at the negative battery post, the Battery Monitoring Sensor accuracy cannot be guaranteed.

It is recommended that the Battery Monitoring Sensor pole clamp is not removed unless a battery replacement is required. Should the battery need to be isolated, this should be done by disconnecting the ground eyelet at the chassis ground.

Battery Monitoring Sensor reset

The Battery Monitoring Sensor also estimates losses in the battery capacity over time. The Battery Monitoring Sensor should be reset to factory default settings, when the battery is replaced.

It is urgently recommended that the replacement battery has the exact same specification as the original battery. If it does not, the accuracy of the Battery Monitoring Sensor outputs will be compromised.

The Battery Monitoring Sensor reset is part of the battery replacement procedure in [IDS \(Integrated Diagnostic System\)](#).

The Battery Monitor Sensor can also be reset manually by using the following steps:

- Switch on the ignition.
- Press the high beam switch five times by pulling and releasing.
- Press and release the brake pedal three times.
- If the steps were successful, the warning indicator of the battery charging system in the IPC (instrument panel cluster) flashes three times within the next 15 s.

If the sequence is interrupted by pressing other keys or pedals for any reason, repeat the above steps, starting from the beginning.

If the BMS reset procedure described above does not work, follow the procedure below (within 10 s):

- Switch on the ignition.
- Press the rear fog light switch five times.
- Press the hazard flasher switch three times.
- If the steps were successful, the warning indicator of the battery charging system in the IPC (instrument panel cluster) flashes three times within the next 15 s.