C2005(A,B,C,D) Smart Battery Sensor (SBS)

The CEN C2005A (B,C, and D suffixes signify different source addresses) Smart Battery Sensor (SBS) monitors charging and discharging current, voltage, and temperature of batteries of all types and chemistries in 14V and/or 28V systems. This data is broadcast via J1939 across the vehicle network for use with telematics systems and advanced battery charging profiles. Compatible CEN Smart regulators will use this information to optimize battery charging profiles for all battery types under all environmental conditions.

Installation

1. Turn off vehicle battery switch.
2. Disconnect main vehicle ground cable from battery.
3. Connect C2005A battery-side terminal to battery negative post. If required, use optional mounting hardware kit (CEN P/N A9-2023, available separately) for flexible mounting options. Torque attaching hardware to C2005A to 22.5 Nm/200 lb. in. and torque hardware to battery post to battery manufacturer’s specification. See Figures 1 and 2.
4. Connect vehicle B- cable to other side of C2005A. Torque attaching hardware to 22.5 Nm/200 lb. in.
6. Plug 3-socket Deutsch connector of harness into vehicle J1939 backbone. J1939 extension harness and tee connectors may be necessary to extend harness length. Use terminating resistor if required by vehicle network (connector tees, extension harnesses, and terminating resistors are available separately through commercial component distributors).
7. Attach wires from A9-4079 harness to batteries as follows:
   - For 12V systems (See Figure 1):
     a. Attach white wire to +12V positive battery post. Stack on top of existing battery cable terminals and torque to battery manufacturer’s specification.
     b. Cut and tape off red wire from A9-4079 harness.
   - For 24V systems (See Figure 2):
     a. Attach white wire to +12V positive battery post. Stack on top of existing battery cable terminals and torque to battery manufacturer’s specification.
     b. Attach red wire to +24V positive battery post. Stack on top of existing battery cable terminals and torque to battery manufacturer’s specification.

CAUTION: All cables and wires must be supported within 300 mm in (12 in.) of connections to prevent rotation, loosening, and damage to terminals.

See page 2 for alternate installation options and multiple-string battery banks.
Alternate Installation Options

- For side-post batteries, use one or two links from A9-2023 hardware kit (available separately) if necessary to ensure proper seating of C2005A terminals against battery terminal and vehicle B‒ cable. See Figure 3 for example.

- If using links A9-2023 hardware kit:
  - Fasten small stud of link to appropriate side of C2005A sensor with disc spring washer (beveled side toward sensor terminal) and nut. Torque to 22.5 Nm/200 lb. in. See Figure 4.
  - Fasten vehicle B‒ cable to long stud of link with disc spring washer (beveled side toward cable terminal) and nut. Torque to 22.5 Nm/200 lb. in. See Figure 4.

  **CAUTION**
  All cables and wires must be supported within 300 mm in (12 in.) of connections to prevent rotation, loosening, and damage to terminals.

- Up to four C2005 Smart Battery Sensors (SBS) can be used in a multiple-string battery system. See Figure 5 for typical installation.

  **NOTICE**
  When installing on systems with more than one battery string, each string needs a sensor with a different suffix, C2005A, C2005B, C2005C, or C2005D (A, B, C, and D suffixes signify different source addresses). See Figure 5.

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**Figure 3: Example Side-Post Battery Bank Installation**

**Figure 4: Example of Typical A9-2023 Installation**

**Figure 5: Multiple String Battery Bank**