



Load-Dump Protection for Transportation Vehicles

This appendix describes load-dump protection that is required for autonomous access point/bridge (model: AIR-BR1310G) operation in some transportation vehicles.

Load-Dump Protection

The autonomous access point/bridge can be installed in vehicles such as automobiles, trucks, and buses. Electronic equipment in vehicle environments can be subjected to high-energy voltage transients where the vehicle battery is accidentally disconnected from the alternator charging circuit. In the Society of Automotive Engineers (SAE) standards SAE J1455 and SAE J1211, this voltage transient is referred to as a *load-dump transient*, where the loading of the battery is dumped or removed from the alternator charging circuits. The access point/bridge does not contain built-in load-dump protection.



Note

The power injector LR2T must be used in vehicles providing DC power to the power injector.

Some vehicles contain centralized electronics that are designed to suppress the load-dump transient and prevent equipment damage. To protect the bridge in vehicles without built-in load-dump suppression, you must install an external load-dump protection device, such as the IFM-efector EC2015 for nominal 12-VDC operation or the EC2016 for nominal 24-VDC operation. For additional information refer to the following URLs:

<http://www.ifm.com/ifmus/web/dsfs!EC2015.html>

<http://www.ifm.com/ifmus/web/dsfs!EC2016.html>



Warning

Only trained and qualified personnel should be allowed to install, replace, or service this equipment.
Statement 1030



Warning

A readily accessible two-poled disconnect device must be incorporated in the fixed wiring.
Statement 1022

**Warning**

Connect the unit only to a DC power source that complies with the safety extra-low voltage (SELV) requirements in IEC 60950 based safety standards. Statement 1033

**Caution**

To prevent damage to the access point/bridge or power injector, connect all coax cables from the power injector to the access point/bridge and connect the power jack to the power injector before applying power.

The external load-dump protection device must be installed across the access point/bridge power cable between the vehicle battery and the access point/bridge. Ensure that the wire size (gauge) is large enough to provide a minimum of 10 VDC to the power injector at all vehicle operating temperatures.

For vehicle cable selection criteria, refer to ISO 6722 (Road Vehicles, 60 V and 600 V Single-core Cables; Dimensions, Test Methods and Requirements).