



U.S. Department of  
Transportation



## Intelligent Transportation Systems Standards Fact Sheet

### SAE J1708

August 1999

## Serial Data Communications Between Microcomputer Systems in Heavy-Duty Vehicle Applications

### Overview

This SAE recommended practice defines systems for implementing a bi-directional, serial communication link among modules containing microcomputers. The primary focus of the standard is on heavy-duty vehicles, namely, transit buses and commercial vehicles such as trucks. This document defines those parameters of the serial link that relate primarily to hardware and basic software compatibility such as interface requirements, system protocol, and message format.

The goals of the organization that developed this document included:

- Minimization of hardware cost and overhead;
- Flexibility for expansion and technological advancements with minimum hardware/software impacts or in-place assemblies;
- Utilization of widely accepted electronics industry standard hardware and protocols for flexibility in parts selection;
- Provision of a high degree of electromagnetic compatibility; and
- Provision of flexibility to allow for customization, product individuality, and proprietary considerations.

To obtain a copy of this standard,  
please contact:

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Publication Date: October 1993

### What is this standard for?

The purpose of this document is to define a general-purpose serial data communication link that may be utilized in heavy-duty vehicle applications. It is intended to serve as a guide to promote serial communication compatibility among microcomputer-based modules.

### Who uses it?

This recommended practice is intended for use by system and communications engineers, designers, developers, and users of ITS systems, as well as those interested in communications technologies and practices for public transit and commercial vehicle operations.

### How is it used?

The primary use of this standard is to guide the design of systems that allow electronic modules that contain microcomputers to share data, thereby cost effectively enhancing their operation. Systems that require a dedicated communication link between modules to implement a specific function may require the use of other standards.

### Scope

This standard concerns the interface requirements and connecting devices necessary for the transmission of signals and information among electronic components in trucks and buses.

### Related Documents

The following documents can be used in conjunction with this recommended practice:

SAE J1455— Joint SAE/TMC Recommended Environmental Practices for Electronic Equipment Design (Heavy-Duty Trucks)

SAE J1587— Joint SAE/TMC Recommended Practices for Electronic Data Interchange Between Microcomputer Systems in Heavy-Duty Vehicle Applications

SAE J1922— Powertrain Control Interface for Electronic Controls Used in Medium and Heavy-Duty Diesel and Highway Vehicle Applications

EIA RS-485— Standard for Electrical Characteristics of Generators and Receivers for Use in Balanced Digital Multipoint Systems, April 1983