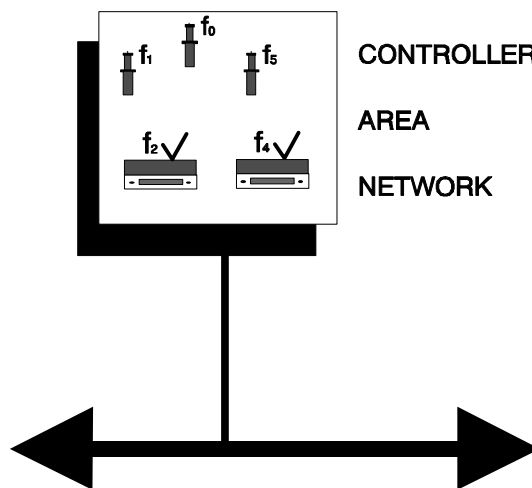


**CAN in Automation (CiA)**  
**International Users and Manufacturers Group e.V.**



**CAN Application Layer for Industrial Applications**  
**CiA/DS201**  
**February 1996**

**CAN in the OSI Reference Model**

## **1. SCOPE**

This document contains a description of the CAN Reference Model. This document is part of a set of documents that standardize the CAN Application Layer for Industrial Applications.

## **2. REFERENCES**

/1/: ISO 7498: 1984, Information Processing Systems - Open Systems Interconnection - Basic Reference Model

/2/: ISO 11898: Road Vehicles, Interchange of digital information - Controller Area Network (CAN) for high-speed communication, November 1993

/3/: CiA/DS 102-1, CAN Physical Layer for Industrial Applications - Part 1: Two - Wire Differential Transmission

/4/: Robert Bosch GmbH, CAN Specification 2.0 Part B, September 1991

## **3. DEFINITIONS, ACRONYMS AND ABBREVIATIONS**

### **CAL:**

CAN Application Layer. The application layer for CAN as specified by CiA.

### **CAN:**

Controller Area Network. A network originally defined for use as a communication network for control applications in automobiles.

### **CMS:**

CAN based Message Specification. One of the service elements of the application layer in the CAN Reference Model. CMS is a language that can describe how the functionality of a module can be accessed at its CAN interface.

### **COB:**

Communication Object. A unit of transportation in a CAN Network. Data must be sent across a CAN Network inside a COB. There are 2032 different COB's in a CAN Network. A COB can contain at most 8 bytes of data. In /4/, the possibility of having more than 2032 COB's is described. The CAN Application Layer as specified by CiA can be extended in the future in a compatible way to include this possibility.

### **COB-ID:**

Each COB is uniquely identified in a CAN Network by a number called the COB Identifier (COB-ID). The COB-ID determines the priority of that COB for the MAC sub-layer.

**Remote COB:**

A COB whose transmission can be requested by another module.

**DBT:**

COB-ID Distributor. One of the service elements of the application layer in the CAN Reference Model. It's the responsibility of the DBT to distribute COB-ID's to COB's that are used by the CMS service element.

**LME:**

Layer Management Entity. This entity serves to configure parameters for each of the layers of the CAN Reference Model.

**LMT:**

Layer Management. One of the service elements of the application layer in the CAN Reference Model. It serves to configure parameters of each of the layers in the CAN Reference Model via the CAN network.

**LLC:**

Logical Link Control. One of the sub-layers of the Datalink Layer in the CAN Reference Model that gives the user an interface that is independent from the underlying MAC layer.

**MAC:**

Medium Access Control. One of the sub-layers of the Datalink Layer in the CAN Reference Model that controls who gets access to the medium to send a message.

**MDI:**

Medium Dependent Interface. One of the sub-layers of the Physical Layer in the CAN Reference Model that specifies the mechanical and electrical interface between the medium and a module.

**NMT:**

Network Management. One of the service elements of the application layer in the CAN Reference Model. The NMT serves to configure, initialize, and handle errors in a CAN network.

**PLS:**

Physical Layer Signalling. One of the sub-layers of the Physical Layer in the CAN Reference Model that specifies the bit representation, timing and synchronization.

**PMA:**

Physical Medium Attachment. One of the sub-layers of the Physical Layer in the CAN Reference Model that specifies the functional circuitry for bus line transmission/reception and may provide means for failure detection.