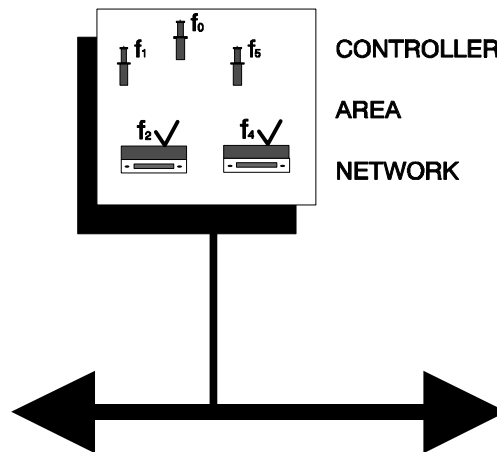


**CAN in Automation (CiA)  
International Users and Manufacturers Group e.V.**



**CAN Application Layer for Industrial Applications  
CiA/DS206  
February 1996**

**Recommended Standard CAL Module Data Sheet**

## **1. SCOPE**

This document contains a description of a recommended standard for a CAL module data sheet. This document is part of a set of documents that standardize the CAN Application Layer for Industrial Applications.

## **2. REFERENCES**

/1/: CiA/DS201, CAN Reference Model

/2/: CiA/DS202-1, CMS Service Specification

/3/: CiA/DS203-1, NMT Service Specification

/4/: CiA/DS204-1, DBT Service Specification

/5/: CiA/DS205-1, LMT Service Specification

/6 /: CiA/DS207, Application Layer Naming Conventions

### 3. GENERAL DESCRIPTION

#### 3.1 Perspective

The purpose of the recommended standard module data sheet is the provision of a standard description format for the complete specification of CAL-based modules in non-standardized-profile (proprietary) applications.

The recommended Module Data Sheet consists of three parts and shall specify the functionality of a module as accessible from the bus. This means that not only the communication interface has to be specified but also the application specific functionality.

#### 3.2 General Description of a Module (Part A)

This part specifies the module type, function, identification and capability by means of the following information:

- **Module Type**  
Free format specification of the module type
- **Module Function**  
Textual description of the module function
- **Specification of Module Capabilities**  
in terms of LMT-, NMT- and DBT node class according to CAL service specification (see /3/, /4/, /5/). Specifies the supported LMT-, NMT- and DBT services.
- **LMT- Identification**  
manufacturer name, product name, serial number according to LMT naming conventions (see /6/). Only valid if LMT class > 1
- **NMT-Identification**  
module name, module-ID according to NMT naming conventions (see /6/).

### 3.3 Specification CMS Objects (Part B)

This part of the data sheet describes the supported CMS objects in terms of CMS object attributes.

- **Module relative CMS Object Number**  
beginning with 0
- **CMS Object Name**  
according to CMS naming conventions;  
for multiplexed Variables: Variable-Set-Name;  
if the object names are given in fixed format notation then the last three digits of the name representing the module ID must be written as 'xxx' except when they are set to '000'.
- **CMS Object Type**  
Variable or Domain or Event
- **Class**  
Variable, Domain: basic, multiplexed;  
Event: controlled, uncontrolled, stored
- **Access Type**  
only valid for Variables (Write-only, Read-only, Read-Write)
- **User Type**  
Client or Server
- **Default Priority Group**  
according to CMS specification;  
if the module does not provide a DBT slave but works with preset identifiers then this column can be split into two columns to specify the assigned COBs: one column for the transmit COB of the Client (C-Tx) and the other column for the transmit COB of the Server (S-Tx) of the object;
- **Default Inhibit Time**  
according to CMS specification (in units of 0.1 ms)
- **MUX Value**  
according to CMS specification; only valid for Variables and Domains of class multiplexed
- **Message Component Number**  
specifies the component for constructed messages beginning with '0' for the first component of the message

## Recommended Standard CAL Module Data Sheet

- **Message Component Name**  
specifies the component name in free format
- **Message Component Data Type**  
data type according to CMS specification of corresponding message component
- **Error Data Type**  
data type of corresponding error message; only relevant for Variables with confirmed data transfer (optional)

### 3.4 Specification of Module Functionality (Part C)

This part of the module data sheet specifies the module functionality.

- **Object Number, MUX-Value, Message Component Number**  
for reference to sheet 2
- **Meaning/Function**  
free format description of message components meaning or function
- **Engineering Units**  
if relevant according to function of component
- **Value Range**  
if relevant; e.g. valuable codes
- **Default Value**  
initialization value
- **Message Triggering Condition**  
specification of the component triggering condition if relevant, e.g. on-change, on-threshold-exceeding, on error, cyclically (cycle time), etc.
- **Error Coding**  
Specification of error codes, only valid for confirmed Variables
- **Remarks**  
free format

<b>Module Data Sheet - Part A</b>							
<b>Module Type:</b>							
<b>Module Function</b>							
<b>Module Capabilities</b>							
<table style="width: 100%; border: none;"> <tr> <td style="width: 33%; text-align: center;">LMT class [ ]</td> <td style="width: 33%; text-align: center;">NMT network class [ ]</td> <td style="width: 33%; text-align: center;">DBT class [ ]</td> </tr> <tr> <td></td> <td style="text-align: center;">NMT node class [ ]</td> <td></td> </tr> </table>		LMT class [ ]	NMT network class [ ]	DBT class [ ]		NMT node class [ ]	
LMT class [ ]	NMT network class [ ]	DBT class [ ]					
	NMT node class [ ]						
<b>Module Identification</b>							
<b>Manufacturer Name</b>							
<b>Product Name</b>							
<b>Serial Number</b>							
<b>Module Name</b>							
<b>Module ID</b>							

Recommended Standard CAL Module Data Sheet

<b>Module Data Sheet - Part B</b>												
<b>Module Type</b>												
<b>Obj. Nr.</b>	<b>Object Name</b>	<b>Object Type</b>	<b>Class</b>	<b>Access Type</b>	<b>User Type</b>	<b>Default Priority Group</b>	<b>Default Inhibit Time</b>	<b>Mux Value</b>	<b>Mess. Comp. Nr.</b>	<b>Message Comp. Name</b>	<b>Message Comp. data Type</b>	<b>Error Data Type</b>

Recommended Standard CAL Module Data Sheet

Module Data Sheet - Part C									
Module Type									
Obj. Nr.	Mux Value	Mess. Comp. Nr.	Meaning, Function	Eng. Unit	Value, Range	Default Value	Message Triggering Condition	Error Coding	Remarks