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INDUSTRIAL COMMUNICATIONS SUBSYSTEM BASED ON ISO 11898 (CAN) FOR CONTROLLER-DEVICE INTERFACES PART 3: SMART DISTRIBUTED SYSTEM (SDS)

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English version

Industrial communications subsystem based on ISO 11898 (CAN) for controller-device interfaces Part 3: Smart Distributed System (SDS)

This European Standard was approved by CENELEC on 2000-04-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists only in English. A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official version.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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Foreword

This European Standard was prepared by the Technical Committee CENELEC TC 65CX, Fieldbus.

The text of the draft was submitted to the Unique Acceptance Procedure and was approved by CENELEC as EN 50325-3 on 2000-04-01.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2001-10-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2003-04-01

EN 50325 is divided into three parts:

Part 1 General requirements
Part 2 DeviceNet
Part 3 Smart Distributed System (SDS)

The specifications for DeviceNet and SDS are based on ISO 11898 *Controller area network (CAN) for high-speed communication*, a broadcast-oriented communications protocol. However, ISO 11898 specifies only part of a complete communication system, and additional specifications are needed for other layers to ensure precise data exchange functionality and support of inter-operating devices. The DeviceNet and SDS specifications build on ISO 11898 to describe a complete industrial communication system.

Contents

Introduction

The Smart Distributed System (SDS) is intended for use in, but is not limited to, industrial automation applications. These applications may include devices such as limit switches, proximity sensors, electro-pneumatic valves, relays, motor starters, operator interface panels, analogue inputs, analogue outputs, and controllers.

SDS provides for the connection of intelligent devices such as sensors, actuators and other components to one or more controllers. SDS functionality may be integrated directly into the devices or be in modules allowing the connection of conventional components to the network.

The SDS network consists of one or more controllers connected to up to 126 Logical Devices. In addition to the process data, SDS allows for the transmission of parameters and diagnostic data. The data exchange may be either event driven, cyclical, multicast or polled. A maximum of 6 bytes of data may be transmitted without fragmentation.

Topology is typically a single trunk with short branches using a cable comprising two shielded, twisted pairs with a common earth wire all within a single jacket.

Data is transmitted at rates of 125 kbit/s, 250 kbit/s, 500 kbit/s and 1Mbit/s with maximum system trunk lengths of 457 m, 182 m, 91 m and 22 m respectively.

Detailed information on the performance is contained in clause 5.

Figure 1 shows an example of an SDS Network.

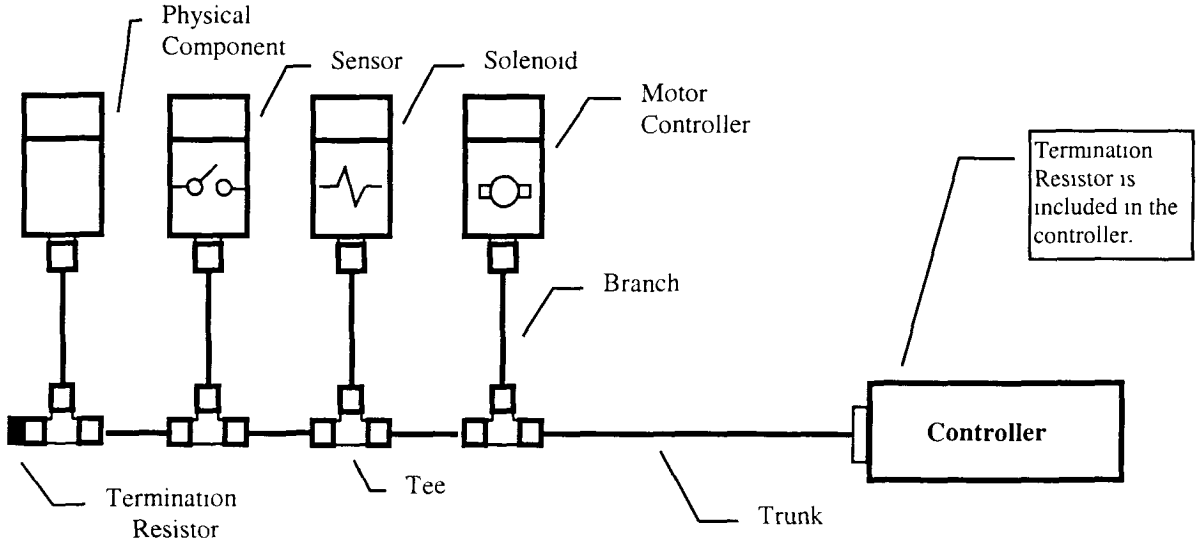

Figure 1 - Example of an SDS Network