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

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EESTI STANDARDI EESSÕNA **NATIONAL FOREWORD**

Käesolev Eesti standard EVS-EN 50325-3:2002 sisaldab Euroopa standardi EN 50325-3:2001 ingliskeelset teksti. Käesolev dokument on jõustatud 15.10.2002 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes. Standard on kättesaadav Eesti standardiorganisatsioonist.	This Estonian standard EVS-EN 50325-3:2002 consists of the English text of the European standard EN 50325-3:2001. This document is endorsed on 15.10.2002 with the notification being published in the official publication of the Estonian national standardisation organisation. The standard is available from Estonian standardisation organisation.

Käsitlusala: This Part of prEN 50325 contains the following particular requirements for Smart Distributed System (SDS): - Requirements for interfaces between controllers and switching elements; - Normal service conditions for devices; - Constructional and performance requirements; - Tests to verify conformance to requirements.	**Scope:** This Part of prEN 50325 contains the following particular requirements for Smart Distributed System (SDS): - Requirements for interfaces between controllers and switching elements; - Normal service conditions for devices; - Constructional and performance requirements; - Tests to verify conformance to requirements.

ICS 43.180

Võtmesõnad: electricity, inter, interfaces (data processing), limit switches, local area networks, motor starters, network interfaces, numerical control, physical layers, product informations, proximity switches, relays, sample surveys, surveillance (approval), switches

EUROPEAN STANDARD **EN 50325-3**

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ICS 43.180

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.

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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.

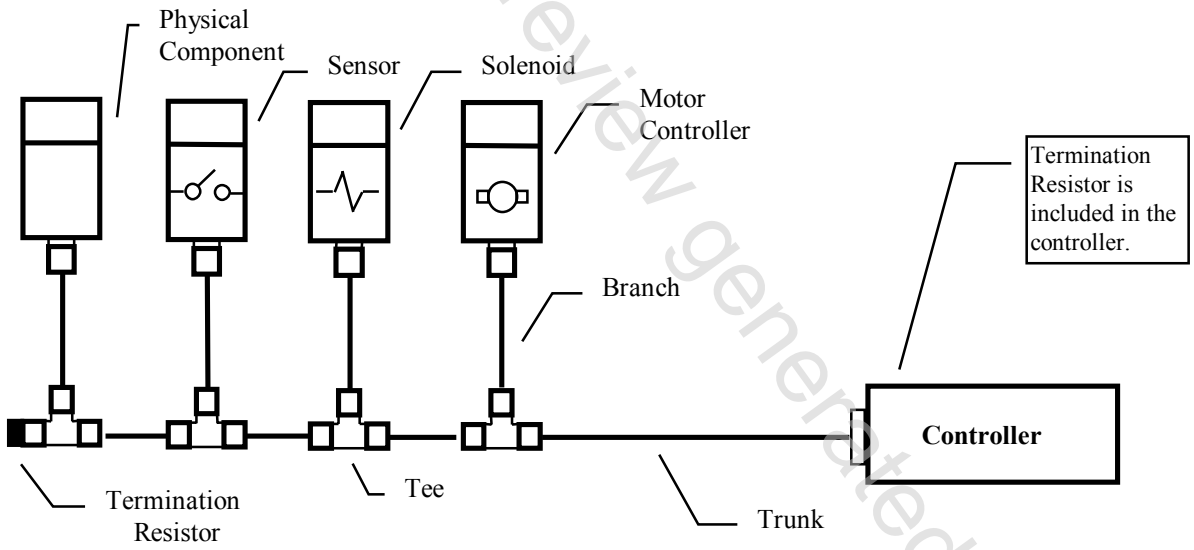

Figure 1 - Example of an SDS Network

General information on licensing

CENELEC calls attention to the fact that patent rights are linked to EN 50325-3 (Part 3: Smart Distributed System). The patent holder, Honeywell Inc., has assured to CENELEC that it is willing to grant a licence under these patents on reasonable and non discriminatory terms and conditions to anyone wishing to obtain such a license, applying the rules of CEN/CENELEC Memorandum 8.

Honeywell's undertakings (policy letter on licensing, the license offer and the form of license) in this respect are on file with CENELEC and available for inspection by all interested parties at the CENELEC Central Secretariat.

The license details may be obtained from:

The Director
(Industrial Marketing and Applied Technology Sensing and Controls Europe)
Honeywell Control Systems Ltd.
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1 Scope

This Part of EN 50325 specifies the following particular requirements for Smart Distributed System (SDS).

- Requirements for interfaces between control devices and switching elements,
- Normal service conditions for devices,
- Constructional and performance requirements,
- Tests to verify conformance to requirements.

2 Normative references

This Part of EN 50325 incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this Part only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 55011	1998	Industrial, scientific and medical (ISM) radio-frequency equipment – Radio disturbance characteristics, limits and methods of measurement (CISPR 11:1997, mod.)
EN 60947-1	1999	Low-voltage switchgear and controlgear Part 1: General rules (IEC 60947-1:1999, mod.)
EN 61000-4-2	1995	Electromagnetic compatibility (EMC) Part 4-2: Testing and measurement techniques - Electrostatic discharge immunity test (IEC 61000-4-2:1995)
EN 61000-4-3	1996	Electromagnetic compatibility (EMC) Part 4-3: Testing and measurement techniques - Radiated, radio-frequency, electromagnetic field immunity test (IEC 61000-4-3:1995, mod.)
EN 61000-4-4	1995	Electromagnetic compatibility (EMC) Part 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test (IEC 61000-4-4:1995)
EN 61000-4-5	1995	Electromagnetic compatibility (EMC) Part 4-5: Testing and measurement techniques - Surge immunity test (IEC 61000-4-5:1995)
EN 61000-4-6	1996	Electromagnetic compatibility (EMC) Part 4-6: Testing and measurement techniques - Immunity to conducted disturbances, induced by radio-frequency fields (IEC 61000-4-6:1996)
EN 61131-3	1993	Programmable controllers - Part 3: Programming languages (IEC 61131-3:1993)
ISO/IEC 7498-1	1994	Information technology - Open Systems Interconnection Part 1: Basic Reference Model: The Basic Model
ISO TR 8509	1987	Information Processing Systems, Open Systems Interconnection, Service Conventions
ISO 11898	1993	Road vehicles - Interchange of digital information - Controller area network (CAN) for high-speed communication