



National Standards Authority of Ireland

IRISH STANDARD

**I.S. EN 50325-4:2002**

ICS 43.180

**INDUSTRIAL COMMUNICATIONS**  
**SUBSYSTEM BASED ON ISO 11898 (CAN)**  
**FOR CONTROLLER-DEVICE INTERFACES**  
**-- PART 4: CANOPEN**

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EUROPEAN STANDARD

**EN 50325-4**

NORME EUROPÉENNE

EUROPÄISCHE NORM

December 2002

ICS 43.180

English version

**Industrial communications subsystem  
based on ISO 11898 (CAN)  
for controller-device interfaces  
Part 4: CANopen**

Sous-système de communications  
industriel basé sur l'ISO 11898 (CAN)  
pour les interfaces des dispositifs de  
commande  
Partie 4: CANopen

Industrielles Kommunikationssystem  
basierend auf ISO 11898 (CAN)  
Teil 4: CANopen

This European Standard was approved by CENELEC on 2002-07-01. 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 in one official version (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 versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, 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 50325-4 on 2002-07-01.

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) 2003-07-01
- latest date by which the national standards conflicting  
with the EN have to be withdrawn (dow) 2005-07-01

Annexes designated "normative" are part of the body of the standard.

Annexes designated "informative" are given for information only.

In this standard, annexes A and B are normative and annexes C, D and E are informative.

This European standard is part of EN 50325 which consists of four parts:

- |        |                                |
|--------|--------------------------------|
| Part 1 | General requirements           |
| Part 2 | DeviceNet                      |
| Part 3 | Smart Distributed System (SDS) |
| Part 4 | CANopen                        |

The specifications for DeviceNet, SDS and CANopen 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.

### General information on licensing and patents

Attention is drawn to the possibility that some of the elements of the European Standard EN 50325-4 may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights

If during the application of those Standards Intellectual Property Rights may appear and will not be made available on reasonable and non discriminatory terms and conditions to anyone wishing to obtain such a license, applying the rules of CEN/CENELEC Memorandum 8, this fact shall be brought to the attention of CENELEC Central Secretariat for further action.

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## Introduction

CANopen is intended for use in, but is not limited to, industrial automation applications. These applications may include devices such as generic digital and analogue input/output modules, motion controllers, human machine interfaces, sensors, closed-loop controllers, encoders, hydraulic valves, and programmable controllers.

## 1 Scope

EN 50325-4 specifies the following particular requirements for CANopen:

- requirements for interfaces between programmable controllers and devices with input/output capabilities;
- normal service conditions for devices;
- constructional and performance requirements.

## 2 Normative references

EN 50081-2	1993	Electromagnetic compatibility (EMC) – Generic emission standard - Part 2: Industrial environment
EN 61000-6-2	1999	Electromagnetic compatibility (EMC) - Generic standards - Part 2: Immunity for industrial environments
EN 55011	1998	Industrial, scientific and medical (ISM) radio-frequency equipment – Radio disturbance characteristics - Limits and methods of measurement (CISPR 11: 1997, mod.)
EN 61000-4		Electromagnetic compatibility (EMC) – Part 4: Testing and measurement techniques
EN 61131-3	1993	Programmable controllers – Part 3: Programming languages (IEC 61131-3:1993)
ISO 11898	1993	Road vehicles - Interchange of digital information - Controller area network (CAN) for high-speed communication
ISO 646	1991	Information technology - ISO 7-bit coded character set for information interchange
ISO 7498-1	1994	Information technology - Open Systems Interconnection - Basic Reference Model: The Basic Model
ISO 8859	1998	Information technology - 8-bit single-byte coded graphic character sets

## 3 Definitions

For the purpose of EN 50325-4 the definitions of EN 50325-1 and the following apply.

### 3.1

#### Automatic Repeat Request (ARQ)

scheme used to confirm the transmission of an SDO block

### 3.2

#### Node-ID

number, uniquely assigned to an NMT (NetworkManagement) slave; if 0, the NMT protocols address all NMT slaves

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