RAUDTEE ELEKTROONIKASEADMED. RONGISISENE KOMMUNIKATSIOONIVÕRK. OSA 3-4: KOOSSEISU ETHERNET VÕRK

Electronic railway equipment - Train communication network (TCN) - Part 3-4: Ethernet Consist Network (ECN)

EESTI STANDARDIKESKUS
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EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 61375-3-4:2014 sisaldab Euroopa standardi EN 61375-3-4:2014 ingliskeelset teksti.	This Estonian standard EVS-EN 61375-3-4:2014 consists of the English text of the European standard EN 61375-3-4:2014.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 09.05.2014.	Date of Availability of the European standard is 09.05.2014.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

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Electronic railway equipment - Train communication network (TCN) - Part 3-4: Ethernet Consist Network (ECN) (IEC 61375-3-4:2014)

Matériel électronique ferroviaire - Réseau embarqué de train (TCN) - Partie 3-4: Réseau Ethernet de Rame (ECN) (CEI 61375-3-4:2014)

Elektronische Betriebsmittel für Bahnen - Zugbus - Teil 3-4: ECN - Ethernet-Zugverband-Netzwerk (IEC 61375-3-4:2014)

This European Standard was approved by CENELEC on 2014-04-23. 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.

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European Committee for Electrotechnical Standardization
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Europäisches Komitee für Elektrotechnische Normung

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Foreword

The text of document 9/1873/FDIS, future edition 1 of IEC 61375-3-4, prepared by IEC/TC 9 "Electrical equipment and systems for railways" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61375-3-4:2014.

The following dates are fixed:

• latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2015-01-23
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2017-04-23

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Endorsement notice

The text of the International Standard IEC 61375-3-4:2014 was approved by CENELEC as a European Standard without any modification.

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Year
IEC 61076-2-101	-	Connectors for electronic equipment - Product requirements - Part 2-101: Circular connectors - Detail specification for M12 connectors with screw-locking	EN 61076-2-101	-
IEC 61076-3-104	-	Connectors for electronic equipment - Product requirements - Part 3-104: Detail specification for 8-way, shielded free and fixed connectors for data transmissions with frequencies up to 1000 MHz	EN 61076-3-104	
IEC 61156-6	-	Multicore and symmetrical pair/quad cables for digital communications - Part 6: Symmetrical pair/quad cables with transmission characteristics up to 1 000 MHz - Work area wiring - Sectional specification	-	-
IEC 61375-1	-	Electronic railway equipment - Train communication network (TCN) - Part 1: General architecture	EN 61375-1	-
IEC 61375-2-1	-	Electronic railway equipment - Train communication network (TCN) - Part 2-1: Wire Train Bus (WTB)	EN 61375-2-1	-
IEC 61375-2-5	-	Electronic railway equipment - Train backbone - Part 2-5: Ethernet Train Backbone	EN 61375-2-5	-
IEC 62439 series	-	High availability automation networks	EN 62439[1)]	-
ISO/IEC 7498 series	-	Information technology - Open Systems Interconnection - Basic Reference Model: The Basic Model	-	-
ISO/IEC 8824 series	-	Information technology - Open Systems Interconnection - Specification of Abstract Syntax Notation One (ASN.1)	-	-
ISO/IEC 11801	-	Information technology - Generic cabling for customer premises	-	-

[1)] EN 62439 is superseded by EN 62439-6:2010, which is based on IEC 62439-6:2010.

Publication	Year	Title	EN/HD	Year
IEEE 802.3	-	IEEE Standard for Information technology - Telecommunications and information exchange between systems - Local and metropolitan area networks - Specific requirements - Part 3: Carrier Sense Multiple Access with Collision Detection (CSMA/CD) - Acess Method and Physical Layer Specifications	-	-
IEEE 802.1Q	-	IEEE Standard for Local and Metropolitan Area Networks: Virtual Bridged Local Area Networks	-	-
IEEE 802.1D	-	IEEE Standard for Local and Metropoitan Area Networks - Media Access Control (MAC) Bridges	-	-
ANSI/TIA/EIA 568-B.1	2001	Commercial Building Telecommunications Cabling Standard - Part 1: General requirements	-	-
ANSI X3.263	1995	EN-Information Technology - Fibre Distributed Data Interface (FDDI) - Token Ring Twisted Pair Physical Layer Medium Dependent (TP-PMD)	-	-

CONTENTS

INTRODUCTION

This part of IEC 61375 series of international standards specifies the Consist Network based on Ethernet technology, i.e. the Ethernet Consist Network (ECN) within the TCN architecture as defined in IEC 61375-1, and End Devices which can attach to the ECN. In addition gateway services between Train Backbone and ECN are specified.

The general architecture of the TCN (see IEC 61375-1) defines a hierarchical structure with two levels of networks, Train Backbone(s) and Consist Network(s). This hierarchical structure specifies Consist Networks based on different technologies such as MVB, CANopen and ECN interfacing one Train Backbone. ECNs based on different design and implementation may be interfaced to the same Train Backbone reaching the result that the Train Backbone ensures interoperability between Consist Networks with different implementations.

The common part, consisting of Clauses 1 to 4, defines requirements and specifications which are common to all ECN implementations and End Devices and gateways.

The common part defines

- the data communication interface of End Devices connected to the ECN,
- functions and services provided by the ECN to End Devices,
- the gateway functions for data transfer between Train Backbone and the ECN, and
- performances of the ECN.