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Standard Recommendation
S.R. CLC/TR 61491:2010

Electrical equipment of industrial machines - Serial data link for real-time communication between controls and drives (IEC/TR 61491:2010 (EQV))

S.R. CLC/TR 61491:2010

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TECHNICAL REPORT

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TECHNISCHER BERICHT

CLC/TR 61491

October 2010

ICS 33.200; 35.240.50

English version

Electrical equipment of industrial machines - Serial data link for real-time communication between controls and drives

(IEC/TR 61491:2010)

Equipement électrique des machines industrielles - Liaison des données sérielles pour communications en temps réel entre unités de commande et dispositifs d'entraînement (CEI/TR 61491:2010)

Elektrische Ausrüstung von Industriemaschinen - Serielle Datenverbindung für Echtzeit-Kommunikation zwischen Steuerungen und Antrieben (IEC/TR 61491:2010)

This Technical Report was approved by CENELEC on 2010-09-17.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

CENELEC

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

Management Centre: Avenue Marnix 17, B - 1000 Brussels

Ref. No. CLC/TR 61491:2010 E

Foreword

This Technical Report consists of the text of the International Technical Report IEC/TR 61491:2010 prepared by SC 22G, Adjustable speed electric drive systems incorporating semiconductor power converters, of IEC TC 22, Power electronic systems and equipment.

It was circulated for voting in accordance with the Internal Regulations, Part 2, Subclause 11.4.3.3 (simple majority) and was accepted by CENELEC as CLC/TR 61491 on 2010-09-17.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN and CENELEC shall not be held responsible for identifying any or all such patent rights.

Annex ZA has been added by CENELEC.

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Endorsement notice

The text of the Technical Report IEC/TR 61491:2010 was approved by CENELEC as a Technical Report without any modification.

In the official version, for Bibliography, the following note has to be added for the standard indicated:

ISO/IEC 7498-1	NOTE	Harmonized as EN ISO/IEC 7498-1.

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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

NOTE Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Year
IEC 61158	series	Industrial communication networks - Fieldbus specifications	EN 61158	series
IEC/TR 61158-1	-	Industrial communication networks - Fieldbus specifications - Part 1: Overview and guidance for the IEC 61158 and IEC 61784 series	CLC/TR 61158-1	-
IEC 61158-2	-	Industrial communication networks - Fieldbus specifications - Part 2: Physical layer specification and service definition	EN 61158-2	-
IEC 61158-3-16	-	Industrial communication networks - Fieldbus specifications - Part 3-16: Data-link layer service definition - Type 16 elements	EN 61158-3-16	-
IEC 61158-3-19	-	Industrial communication networks - Fieldbus specifications - Part 3-19: Data-link layer service definition - Type 19 elements	EN 61158-3-19	-
IEC 61158-4-16	-	Industrial communication networks - Fieldbus specifications - Part 4-16: Data-link layer protocol specification - Type 16 elements	EN 61158-4-16	-
IEC 61158-4-19	-	Industrial communication networks - Fieldbus specifications - Part 4-19: Data-link layer protocol specification - Type 19 elements	EN 61158-4-19	-
IEC 61158-5-16	-	Industrial communication networks - Fieldbus specifications - Part 5-16: Application layer service definition - Type 16 elements	EN 61158-5-16	-
IEC 61158-5-19	-	Industrial communication networks - Fieldbus specifications - Part 5-19: Application layer service definition - Type 19 elements	EN 61158-5-19	-
IEC 61158-6-16	-	Industrial communication networks - Fieldbus specifications - Part 6-16: Application layer protocol specification - Type 16 elements	EN 61158-6-16	-

IEC 61158-6-19	-	Industrial communication networks - Fieldbus specifications - Part 6-19: Application layer protocol specification - Type 19 elements	EN 61158-6-19	-
IEC 61784-1	-	Industrial communication networks - Profiles - Part 1: Fieldbus profiles	EN 61784-1	-
IEC 61784-2	-	Industrial communication networks - Profiles - Part 2: Additional fieldbus profiles for real-time networks based on ISO/IEC 8802-3	EN 61784-2	-
IEC 61800-7	series	Adjustable speed electrical power drive systems - Part 7-xxx: Generic interface and use of profiles for power drive systems	EN 61800-7	series
IEC 61800-7-1	-	Adjustable speed electrical power drive systems - Part 7-1: Generic interface and use of profiles for power drive systems - Interface definition	EN 61800-7-1	-
IEC 61800-7-204	-	Adjustable speed electrical power drive systems - Part 7-204: Generic interface and use of profiles for power drive systems - Profile type 4 specification	EN 61800-7-204	-
IEC 61800-7-304	-	Adjustable speed electrical power drive systems - Part 7-304: Generic interface and use of profiles for power drive systems - Mapping of profile type 4 to network technologies	EN 61800-7-304	-
ISO/IEC 8802-3	-	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) access method and physical layer specifications	-	-

CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

ELECTRICAL EQUIPMENT OF INDUSTRIAL MACHINES – SERIAL DATA LINK FOR REAL-TIME COMMUNICATION BETWEEN CONTROLS AND DRIVES

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as “IEC Publication(s)”). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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The main task of IEC technical committees is to prepare International Standards. However, a technical committee may propose the publication of a technical report when it has collected data of a different kind from that which is normally published as an International Standard, for example "state of the art".

IEC 61491, which is a technical report, has been prepared by subcommittee 22G: Adjustable speed electric drive systems incorporating semiconductor power converters, of IEC technical committee 22: Power electronic systems and equipment.

This first edition of the technical report cancels and replaces the second edition of IEC 61491, published in 2002. The changes are primarily to make reference to material that was moved to IEC 61158, IEC 61784 and IEC 61800-7 series of standards.

The text of this technical report is based on the following documents:

Enquiry draft	Report on voting
22G/199/DTR	22G/209/RVC

Full information on the voting for the approval of this technical report can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

INTRODUCTION

This technical report replaces the second edition of IEC 61491:2002 which has been separated into:

a) communication parts, included in the IEC 61158 and IEC 61784 series (prepared by subcommittee 65C: *Industrial networks*, of IEC technical committee 65: I*ndustrial process measurement, control and automation*);

b) the application part, included in the IEC 61800-7 series (prepared by subcommittee 22G: *Adjustable speed electric drive systems incorporating semiconductor power converters*, of IEC technical committee 22: *Power electronic systems and equipment*.)

The communication related content of the second edition of IEC 61491:2002 and technical updates are specified by communication profile family 16 (CPF 16) in IEC 61784-1 and IEC 61784-2. The application related content of the second edition of IEC 61491:2002 (drive profile) and technical updates are specified in IEC 61800-7.