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Irish Standard
I.S. EN 62026-2:2013

Low-voltage switchgear and controlgear - Controller-device interfaces (CDIs) -- Part 2: Actuator sensor interface (AS-i) (IEC 62026 -2:2008 (MOD))

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I.S. EN 62026-2:2013

Incorporating amendments/corrigenda issued since publication:

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I.S. xxx: Irish Standard – national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation - recommendation based on the consensus of an expert panel and subject to public consultation.

SWiFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

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I.S. EN 62026-2:2013

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 62026-2

April 2013

ICS 29.130.20

Supersedes EN 50295:1999

English version

Low-voltage switchgear and controlgear - Controller-device interfaces (CDIs) - Part 2: Actuator sensor interface (AS-i)

(IEC 62026-2:2008, modified)

Appareillage à basse tension - Interfaces appareil de commande-appareil (CDI) - Partie 2: Interface capteur-actionneur (AS-i) (CEI 62026-2:2008, modifiée)

Niederspannungsschaltgeräte - Steuerung-Geräte-Netzwerke (CDIs) - Teil 2: Aktuator Sensor Interface (AS-i) (IEC 62026-2:2008, modifiziert)

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CENELEC

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

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Ref. No. EN 62026-2:2013 E

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Foreword

This document (EN 62026-2:2013) consists of the text of IEC 62026-2:2008 prepared by IEC/SC 17B "Low-voltage switchgear and controlgear" of IEC/TC 17 "Switchgear and controlgear", together with the common modifications prepared by CLC/TC 17B "Low-voltage switchgear and controlgear".

The following dates are fixed:

– latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2013-12-03
– latest date by which the national standards conflicting with this document have to be withdrawn	(dow)	2015-12-03

EN 62026-2:2013 replaces EN 50295:1999 with the same technical content, in the intention to cover world-wide requirements for AS-i standard under the same scope.

Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 62026-2:2008 are prefixed “Z”.

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

This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For the relationship with EU Directive 2004/108/EC, see informative Annex ZZ, which is an integral part of this document.

This standard covers the Principle Elements of the Safety Objectives for Electrical Equipment Designed for Use within Certain Voltage Limits (LVD - 2006/95/EC).

Endorsement notice

The text of the International Standard IEC 62026-2:2008 was approved by CENELEC as a European Standard with agreed common modifications.

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COMMON MODIFICATIONS

2 Normative references

Add the following new reference:

EN 61000-4-6:2009, *Electromagnetic compatibility (EMC) – Part 4-6: Testing and measurement techniques - Immunity to conducted disturbances, induced by radio-frequency fields (IEC 61000-4-6:2008)*

8.6.2.3 Conducted radio frequency disturbances

Replace the headline and the text of this subclause by the following:

8.6.2.3 Conducted disturbances induced by radio frequency fields

This test shall be conducted with 3 V according to EN 61000-4-6 and performance criterion A.

NOTE The operating environment of these devices using an AS-i power supply with a decoupling network is considered to be well protected against conducted radio frequency disturbances, therefore testing with 3 V is sufficient.

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

Publication	Year	Title	EN/HD	Year
CISPR 11 (mod) + A1 + A2	2003 2004 2006	Industrial scientific and medical (ISM) radio-frequency equipment - Electromagnetic disturbance characteristics - Limits and methods of measurement	EN 55011 [1)] - + A2	2007 - 2007
IEC 60068-2-6	1995	Environmental testing - Part 2: Tests - Test Fc: Vibration (sinusoidal)	EN 60068-2-6 [2)]	1995
IEC 60068-2-27	1987	Basic environmental testing procedures - Part 2: Tests - Test Ea and guidance: Shock	EN 60068-2-27 [3)]	1993
IEC 60204-1 (mod)	2005	Safety of machinery - Electrical equipment of machines - Part 1: General requirements	EN 60204-1 + corr. February	2006 2010
IEC 60227-2 + corr. April + A1	1997 1998 2003	Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V - Part 2: Test methods	-	-
IEC 60228	2004	Conductors of insulated cables	EN 60228 + corr. May	2005 2005
IEC 60304	1982	Standard colours for insulation for low-frequency cables and wires	HD 402 S2	1984
IEC 60352-6	1997	Solderless connections - Part 6: Insulation piercing connections - General requirements, test methods and practical guidance	EN 60352-6	1997
IEC 60364-4-41 (mod)	2005	Low-voltage electrical installations - Part 4-41: Protection for safety - Protection against electric shock	HD 60364-4-41 + corr. July	2007 2007
IEC 60529 - + A1	1989 - 1999	Degrees of protection provided by enclosures (IP Code)	EN 60529 + corr. May + A1	1991 1993 2000

1) EN 55011:2007 includes A1:2004 (mod.) to CISPR 11:2003 (mod).

2) EN 60068-2-6 is superseded by EN 60068-2-6:2008, which is based on IEC 60068-2-6:2007.

3) EN 60068-2-27 is superseded by EN 60068-2-27:2009, which is based on IEC 60068-2-27:2008.

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Publication	Year	Title	EN/HD	Year
IEC 60947-1	2007	Low-voltage switchgear and controlgear - Part 1: General rules	EN 60947-1	2007
IEC 60947-4-1 + corr. July + A1 + A2	2000 2001 2002 2005	Low-voltage switchgear and controlgear - Part 4-1: Contactors and motor-starters - Electromechanical contactors and motor-starters	EN 60947-4-1[4)] - + A1 + A2	2001 - 2002 2005
IEC 60947-4-2 + A1 + A2	1999 2001 2006	Low-voltage switchgear and controlgear - Part 4-2: Contactors and motor-starters - AC semiconductor motor controllers and starters	EN 60947-4-2 + A1 + A2	2000 2002 2006
IEC 60947-5-2 (mod) + A1 + A2	1997 1999 2003	Low-voltage switchgear and controlgear - Part 5-2: Control circuit devices and switching elements - Proximity switches	EN 60947-5-2[5)] + A1 + A2	1998 1999 2004
IEC 61000-4-2 + A1 + A2	1995 1998 2000	Electromagnetic compatibility (EMC) - Part 4-2: Testing and measurement techniques - Electrostatic discharge immunity test	EN 61000-4-2[6)] + A1 + A2	1995 1998 2001
IEC 61000-4-3	2006	Electromagnetic compatibility (EMC) - Part 4-3: Testing and measurement techniques - Radiated, radio-frequency, electromagnetic field immunity test	EN 61000-4-3	2006
IEC 61000-4-4 + corr. June	2004 2007	Electromagnetic compatibility (EMC) - Part 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test	EN 61000-4-4	2004
IEC 61000-4-6	2008	Electromagnetic compatibility (EMC) - Part 4-6: Testing and measurement techniques - Immunity to conducted disturbances, induced by radio-frequency fields	EN 61000-4-6	2009
IEC 61131-2	2007	Programmable controllers - Part 2: Equipment requirements and tests	EN 61131-2	2007
IEC 61140 + A1 (mod)	2001 2004	Protection against electric shock - Common aspects for installation and equipment	EN 61140 + A1	2002 2006
IEC 61508	series	Functional safety of electrical/electronic/programmable electronic safety-related systems	EN 61508	series
IEC 61800-2	1998	Adjustable speed electrical power drive systems - Part 2: General requirements - Rating specifications for low voltage adjustable frequency a.c. power drive systems	EN 61800-2	1998

4) EN 60947-4-1 is superseded by EN 60947-4-1:2010, which is based on IEC 60947-4-1:2009.

5) EN 60947-5-2 is superseded by EN 60947-5-2:2007, which is based on IEC 60947-5-2:2007.

6) EN 61000-4-2 is superseded by EN 61000-4-2:2009, which is based on IEC 61000-4-2:2008.

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Publication	Year	Title	EN/HD	Year
IEC/TS 61915	2003	Low-voltage switchgear and controlgear - Principles for the develpment of device profiles for networked industrial devices	-	-
IEC 62026-1	2007	Low-voltage switchgear and controlgear - Controller-device interfaces (CDIs) - Part 1: General rules	EN 62026-1	2007

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Annex ZZ
(informative)

Coverage of Essential Requirements of EU Directives

This European Standard has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association and within its scope the standard covers all relevant essential requirements as given in Article 1 of Annex I of the EC Directive 2004/108/EC.

Compliance with this standard provides one means of conformity with the specified essential requirements of the Directive concerned.

WARNING: Other requirements and other EU Directives may be applicable to the products falling within the scope of this standard.

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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LOW-VOLTAGE SWITCHGEAR AND CONTROLGEAR – CONTROLLER-DEVICE INTERFACES (CDIs) –

Part 2: Actuator sensor interface (AS-i)

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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International Standard IEC 62026-2 has been prepared by subcommittee 17B: Low-voltage switchgear and controlgear, of IEC technical committee 17: Switchgear and controlgear.

This second edition of IEC 62026-2 cancels and replaces the first edition published in 2000. This second edition constitutes a technical revision.

The main changes with respect to the previous edition are listed below:

- doubling the number of slaves from 31 to 62 by introduction of sub-addresses;
- introduction of AS-I safety system.

The text of this standard is based on the third edition and the following documents:

FDIS	Report on voting
17B/1579/FDIS	17B/1584/RVD

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

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

A list of all parts in the IEC 62026 series, under the general title *Low-voltage switchgear and controlgear – Controller-device interfaces (CDIs)*, can be found on the IEC website.

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.

A bilingual version of this publication may be issued at a later date.

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LOW-VOLTAGE SWITCHGEAR AND CONTROLGEAR – CONTROLLER-DEVICE INTERFACES (CDIs) –

Part 2: Actuator sensor interface (AS-i)

1 Scope and object

This part of IEC 62026 specifies a method for communication between a single control device and switching elements, and establishes a system for the interoperability of components with the specified communication interfaces. The complete system is called “Actuator Sensor interface (AS-i)”.

This standard describes a method for connecting switching elements, such as low-voltage switchgear and controlgear, standardized within IEC 60947, and controlling devices. The method may also be applied for connecting other devices and elements.

Where inputs and outputs I/O are described in this standard, their meaning is regarding the master, the meaning regarding the application is the opposite.

The object of this standard is to specify the following requirements for control circuit devices and switching elements:

– requirements for a transmission system and for interfaces between a slave, a master and electromechanical structures;
– requirements for a complete interoperability of different devices within any network, when meeting this standard;
– requirements for an interchangeability of devices within a network, when fulfilling the profiles of this standard;
– normal service conditions for the slaves, electromechanical devices and master;
– constructional and performance requirements;
– tests to verify conformance to requirements.

2 Normative references

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.

IEC 60068-2-6:1995, *Environmental testing – Part 2-6: Tests – Test Fc: Vibration (sinusoidal)*

IEC 60068-2-27:1987, *Environmental testing – Part 2-27: Tests – Test Ea and guidance: Shock*

IEC 60204-1:2005, *Safety of machinery – Electrical equipment of machines – Part 1: General requirements*

IEC 60227-2:1997, *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V – Part 2: Test methods*
Amendment 1 (2003)

IEC 60228:2004, *Conductors of insulated cables*

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