

# INTERNATIONAL STANDARD

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

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IEC 62026-2:2008

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**LOW-VOLTAGE SWITCHGEAR AND CONTROLGEAR –  
CONTROLLER-DEVICE INTERFACES (CDIs) –****Part 2: Actuator sensor interface (AS-i)**

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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.

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

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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*

IEC 60304:1982, *Standard colours for insulation for low-frequency cables and wires*

IEC 60352-6:1997, *Solderless connections – Part 6: Insulation piercing connections – General requirements, test methods and practical guidance*

IEC 60364-4-41:2005, *Low-voltage electrical installations – Part 4-41: Protection for safety – Protection against electric shock*

IEC 60529:1989, *Degrees of protection provided by enclosures (IP code)*  
Amendment 1 (1999)

IEC 60947-1:2007, *Low-voltage switchgear and controlgear – Part 1: General rules*

IEC 60947-4-1:2000, *Low-voltage switchgear and controlgear – Part 4-1: Contactors and motor-starters – Electromechanical contactors and motor-starters*  
Amendment 1 (2002)  
Amendment 2 (2005)

IEC 60947-4-2:1999, *Low-voltage switchgear and controlgear – Part 4-2: Contactors and motor-starters – AC semiconductor motor controllers and starters*  
Amendment 1 (2001)  
Amendment 2 (2006)

IEC 60947-5-2:1997, *Low-voltage switchgear and controlgear – Part 5-2: Control circuit devices and switching elements – Proximity switches*  
Amendment 1 (1999)  
Amendment 2 (2003)

IEC 61000-4-2:1995 *Electromagnetic compatibility (EMC) – Part 4-2: Testing and measurement techniques – Electrostatic discharge immunity test*  
Amendment 1 (1998)  
Amendment 2 (2000)

IEC 61000-4-3:2006, *Electromagnetic compatibility (EMC) – Part 4-3: Testing and measurement techniques – Radiated, radio-frequency, electromagnetic field immunity test*

IEC 61000-4-4:2004, *Electromagnetic compatibility (EMC) – Part 4-4: Testing and measurement techniques – Electrical fast transient/burst immunity test*

IEC 61131-2:2007, *Programmable controllers – Part 2: Equipment requirements and tests*

IEC 61140:2001, *Protection against electric shock – Common aspects for installation and equipment*  
Amendment 1 (2004)

IEC 61508 (all parts), *Functional safety of electrical/electronic/programmable electronic safety-related systems*

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*

IEC/TS 61915:2003, *Low-voltage switchgear and controlgear – Principles for the development of device profiles for networked industrial devices*

IEC 62026-1:2007, *Low-voltage switchgear and controlgear – Controller-device interfaces (CDIs) – Part 1: General rules*

CISPR 11:2003, *Industrial, scientific and medical (ISM) radio-frequency equipment – Electromagnetic disturbance characteristics – Limits and methods of measurement*

Amendment 1 (2004)

Amendment 2 (2006)

### 3 Terms, definitions, symbols and abbreviations

For the purposes of this document, the terms, definitions, symbols and abbreviations given in IEC 62026-1 as well as the following apply.

#### 3.1 Terms and definitions

*Alphabetical index of definitions*

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**3.1.1**

**active slave**

slave connected to the AS-i line and capable to communicate properly

**3.1.2**

**Actuator Sensor interface (AS-i)**

set of interfaces and serial communication method for the connection of low-voltage switchgear and controlgear, and other simple field devices with a controller