IEC 62026-2

Edition 2.0 2019-07

INTERNATIONAL STANDARD

NORME INTERNATIONALE

AMENDMENT 1
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Low-voltage switchgear and controlgear – Controller-device interfaces (CDIs) – Part 2: Actuator sensor interface (AS-i)

Appareillage à basse tension – Interfaces appareil de commande-appareil (CDI) – Partie 2: Interface capteur-actionneur (AS-i)

IEC 62026-2:2008-01/AMD1:2019-07(en-fr)

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FOREWORD

This amendment has been prepared by subcommittee 121A: Low-voltage switchgear and controlgear, of IEC technical committee 121: Switchgear and controlgear and their assemblies for low voltage.

The text of this amendment is based on the following documents:

FDIS	Report on voting
121A/297/FDIS	121A/304/RVD

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

The committee has decided that the contents of this amendment and the base publication will remain unchanged until the stability date indicated on the IEC website 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- withdrawn,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.

2 Normative references

Replace the existing normative references concerned by the following updated normative references:

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

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

IEC 60204-1:2016, *Safety of machinery – Electrical equipment of machines – Part 1: General requirements*

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

IEC 60529, *Degrees of protection provided by enclosures (IP code)*

IEC 60947-1:2007, *Low-voltage switchgear and controlgear – Part 1: General rules*
IEC 60947-1:2007/AMD1:2010

IEC 60947-4-1:2018, *Low-voltage switchgear and controlgear – Part 4-1: Contactors and motor-starters – Electromechanical contactors and motor-starters*

IEC 60947-4-2:2011, *Low-voltage switchgear and controlgear – Part 4-2: Contactors and motor-starters – AC semiconductor motor controllers and starters*

IEC 60947-5-2:2007, *Low-voltage switchgear and controlgear – Part 5-2: Control circuit devices and switching elements – Proximity switches*
IEC 60947-5-2:2007/AMD1:2012

IEC 61000-4-2:2008, *Electromagnetic compatibility (EMC) – Part 4-2: Testing and measurement techniques – Electrostatic discharge immunity test*

IEC 61000-4-3:2006, *Electromagnetic compatibility (EMC) – Part 4-3: Testing and measurement techniques – Radiated, radio-frequency, electromagnetic field immunity test*
IEC 61000-4-3:2006/AMD1:2007
IEC 61000-4-3:2006/AMD2:2010

IEC 61000-4-4:2012, *Electromagnetic compatibility (EMC) – Part 4-4: Testing and measurement techniques – Electrical fast transient/burst immunity test*

IEC 61131-2, *Industrial-process measurement and control – Programmable controllers – Part 2: Equipment requirements and tests*

IEC 61140, *Protection against electric shock – Common aspects for installation and equipment*

IEC 61800-2, *Adjustable speed electrical power drive systems – Part 2: General requirements – Rating specifications for low voltage adjustable speed a.c. power drive systems*

CISPR 11:2015, *Industrial, scientific and medical (ISM) equipment – Radio-frequency disturbance characteristics – Limits and methods of measurement*
CISPR 11:2015/AMD1:2016

Delete the following existing normative reference:

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

Add the following new normative references:

IEC 61000-4-6:2013, *Electromagnetic compatibility (EMC) – Part 4-6: Testing and measurement techniques – Immunity to conducted disturbances, induced by radio-frequency fields*

IEC 61915 (all parts), *Low-voltage switchgear and controlgear – Device profiles for networked industrial devices*

5.4.4 AS-i earth-fault detector

Replace the existing first and second paragraphs by the following two new paragraphs:

In accordance with IEC 60204-1, insulation faults on any control circuit shall not cause unintentional starting, potentially hazardous motions or prevent stopping of the machine. To fulfil this requirement, IEC 60204-1 indicates that control circuits that are not connected to the protective bonding circuit shall be provided with an insulation monitoring device that either interrupts the circuit automatically after detecting an earth fault or indicates an earth fault to initiate a signalling at the machine.

If an AS-i network is used to control potentially dangerous movements of a machine and IEC 60204-1 applies, an insulation monitoring device shall be installed. If the AS-i network is composed of separate parts that are isolated from each other, an insulation monitoring device shall be used for each isolated part of the network.

Table 15 – Connection and wiring identification

In existing footnote a, replace "IEC 60947-5-2" *with* "IEC 60947-5-2:2007/AMD1:2012".

8.3.2 AS-i earth fault detector

Replace the existing third paragraph by the following new paragraph:

The manufacturer shall declare the impedance range that can be detected by the earth fault detector between ASI+ and ground and ASI- and ground. It shall be compatible with the requirements for the detection of an insulation fault, in accordance with IEC 60204-1.

8.6.2 Immunity

Replace existing first dashed item of second paragraph by the following new dashed item:

– A. Normal performance within the specification limits and statistical maximum of one disturbed master request or slave response per 30 transactions.

8.6.2.3 Conducted radio frequency disturbances

Replace existing text of this subclause (including the note) by the following new text:

This test shall be conducted with 3 V, in accordance with IEC 61000-4-6, and performance criterion A shall apply.

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.

9.1.2 Type tests

Insert the following new paragraph after the existing dashed items list:

EMC tests of the AS-i network shall be conducted in accordance with 9.5.9.

9.5.4.3.2 Test procedure with current probe and oscilloscope (Figure 86b)

Replace the existing first sentence of the second paragraph with the following new text:

Switch S1 allows to provide the AS-i slave either with the signal from the master (to switch the slave in the desired state) or with the a.c. sinus signal to determine the impedance.

9.5.9.1 Test conditions

Replace the existing first paragraph by the following new paragraph:

Unless otherwise stated, the tests shall be carried out on all AS-i-devices addressed in this document at an ambient air temperature of 23 °C ±5 °C.

Change the existing reference in the 4th paragraph under b) to read:

For master:

in accordance with 9.6 without repetition of any message in case of a fault.

9.5.9.5 Emission requirements

Replace existing text of this subclause by the following new text:

The tests shall be performed in accordance with the classification of equipment given in Clause 5 of CISPR 11:2015, CISPR 11:2015/AMD1:2016 for group 1, class A devices and in accordance with 8.6.3. The test levels specified in Clause 6 of CISPR 11:2015, CISPR 11:2015/AMD1:2016 shall apply together with the test methods specified in Clause 7 of CISPR 11:2015, CISPR 11:2015/AMD1:2016.

A.4.5.3 S-7.E – Semiconductor motor control devices

Replace the existing note by the following new note:

NOTE When the motor starter is hybrid (semiconductor and electromechanical), it is considered as a semiconductor starter (3.4.1 or 3.4.2 of IEC 60947-4-2:2011).

A.4.5.4 S-7.D/E glossary

Index:

3 Protected starter

At the end of existing text, replace the existing reference to IEC 60947-4-1 by the following new reference:

(3.4.6 of IEC 60947-4-1:2018)

4 Combination starter

At the end of existing text, replace the existing reference to IEC 60947-4-1 by the following new reference:

(3.4.7 of IEC 60947-4-1:2018)

5 Direct on line starter

At the end of existing text, replace the existing reference to IEC 60947-4-1 by the following new reference:

(3.4.2 of IEC 60947-4-1:2018)

6 Reversing starter

At the end of existing text, replace the existing reference to IEC 60947-4-1 by the following new reference:

(3.4.3 of IEC 60947-4-1:2018)

7 Reduced voltage starter

At the end of existing text, replace the existing reference to IEC 60947-4-1 by the following new reference:

(3.4.4 of IEC 60947-4-1:2018)

9 AC semiconductor motor controller

Replace the existing note by the following new note:

NOTE Because dangerous levels of leakage currents can exist in the semiconductor motor controller in the OFF-state, the load terminals are considered to be live at all times (3.3.2 of IEC 60947-4-2:2011).

10 Semiconductor motor controller (form 1)

At the end of existing text, replace the existing reference to IEC 60947-4-2 by the following new reference:

(3.3.3 of IEC 60947-4-2:2011)

11 Semiconductor soft start motor controller (form 2)

At the end of existing text, replace the existing reference to IEC 60947-4-2 by the following new reference:

(3.3.4 of IEC 60947-4-2:2011)

12 Semiconductor direct on line (DOL) motor controller (form 3)

At the end of existing text, replace the existing reference to IEC 60947-4-2 by the following new reference:

(3.3.5 of IEC 60947-4-2:2011)

13 Semiconductor motor starter

At the end of existing text, replace the existing reference to IEC 60947-4-2 by the following new reference:

(3.3.6 of IEC 60947-4-2:2011)