

INTERNATIONAL STANDARD

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**Low-voltage switchgear and controlgear – Controller-device interfaces (CDIs) –
Part 7: CompoNet**

**Appareillage à basse tension – Interfaces appareil de commande-appareil (CDI) –
Partie 7: CompoNet**



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International Standard IEC 62026-7 has been prepared by subcommittee 17B: Low-voltage switchgear and controlgear, of IEC technical committee 17: Switchgear and controlgear.

This standard cancels and replaces IEC/PAS 62026-7 published in 2009. This first edition constitutes a general technical revision with clarifications only and with no significant change in the technology.

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

FDIS	Report on voting
17B/1712/FDIS	17B/1722/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 of the IEC 62026 series can be found, under the general title *Low-voltage switchgear and controlgear – Controller-device interfaces (CDIs)*, on the IEC website.

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INTRODUCTION

CompoNet™ is intended for use in, but is not limited to, industrial automation applications. These applications may include devices such as limit switches, proximity sensors, electro-pneumatic valves, relays, motor starters, operator interface panels, analogue inputs, analogue outputs and controllers.

Patent declaration

The International Electrotechnical Commission (IEC) draws attention to the fact that it is claimed that compliance with this document may involve the use of the following patents owned by OMRON Corporation:

JP Patent Number 4023342	DUPLICATE MAC. ADDRESS DETECTING METHOD, SLAVE AND MASTER IN FIELD BUS SYSTEM, AND FIELD BUS
JP Patent Number 4107110	FIELD BUS SYSTEM, CONNECTION CONFIRMING METHOD AND MASTER
JP Patent Number 3293089	REMOTE I/O SYSTEM FOR PLC AND EXECUTION METHOD THEREOF
JP Patent Number 3925660 and its counterpart patents in other countries	STARTING CONTROL METHOD OF COMMUNICATION MASTER
JP Patent Number 4006605 and its counterpart patents in other countries	COMMUNICATION SYSTEM REDUCED IN INFLUENCE OF REPEATER DELAY
JP Application Number 2004-059864	COMMUNICATION DEVICE AND NETWORK SYSTEM
JP Application Number 2004-022243	CONNECTOR FOR CONNECTION CABLE
JP Application Number 2007-167281	COMMUNICATION SYSTEM REDUCED IN INFLUENCE OF REPEATER DELAY
JP Application Number 2005-252414	NETWORK REPEATING WITH FILTERING FUNCTION
JP Application Number 2005-252758	A EVENT COMMUNICATION METHOD FOR PROGRAMABLE CONTROLLER SYSTEMS
JP Application Number 2005-203496	GETTING NETWORK CONFIGURATION INFORMATION IN PLC SYSTEMS
JP Application Number 2002-334265	A I/O MAPPING METHOD FOR NETWORK SYSTEMS AND CONTROLLERS
JP Application Number 2005-252682	A SCHEDULING METHOD FOR EVENT COMMUNICATIONS
JP Application Number 2005-105543 and its counterpart patents in other countries	RECEIVED DATA COMPENSATION DEVICE

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

Part 7: CompoNet

1 Scope

This part of IEC 62026 specifies an interface system providing bit-level and word-level communication between a controller and control circuit devices such as sensors, actuators, and switching elements. The interface system uses cabling with round or flat profiles containing a two conductor signalling pair and optionally a two conductor power supply pair. This part establishes requirements for the interchangeability of components with such interfaces.

This part of IEC 62026 specifies the following particular requirements for CompoNet™ 1):

- requirements for interfaces between a controller and control circuit devices;
- normal service conditions for devices;
- constructional and performance requirements;
- tests to verify conformance to requirements.

These particular requirements apply in addition to the general requirements of IEC 62026-1.

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 60512-1, *Connectors for electronic equipment – Tests and measurements – Part 1: General*

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

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

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

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

IEC 61000-4-5, *Electromagnetic compatibility (EMC) – Part 4-5: Testing and measurement techniques – Surge immunity test*

1) CompoNet™ is a trade name of Open DeviceNet Vendor Association, Inc. This information is given for the convenience of users of this International Standard and does not constitute an endorsement by IEC of the trademark holder or any of its products. Compliance to this standard does not require use of the trade name CompoNet™. Use of the trade name CompoNet™ requires permission of Open DeviceNet Vendor Association, Inc.

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

IEC 61076-2-101, *Connectors for electronic equipment – Product requirements – Part 2-101: Circular connectors – Detail specification for M12 connectors with screw-locking*

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

IEC 61158-5-2:2007, *Industrial communication networks – Fieldbus specifications – Part 5-2: Application layer service definition – Type 2 elements*

IEC 61158-6-2:2007, *Industrial communication networks – Fieldbus specifications – Part 6-2: Application layer protocol specification – Type 2 elements*

IEC 61918:2010, *Industrial communication networks – Installation of communication networks in industrial premises*

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

CISPR 11:2009, *Industrial, scientific and medical equipment – Radio-frequency disturbance characteristics – Limits and methods of measurement*

ISO/IEC 7498-1, *Information technology – Open Systems Interconnection – Basic Reference Model: The Basic Model*

3 Terms, definitions, symbols and abbreviated terms

3.1 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1.1

BEACON

frame generated by the master to notify slaves and repeaters of the present transmission speed and network connection information

3.1.2

bit slave

I/O device working with data lengths not more than 4 bits

3.1.3

branch

a piece of cable making a T connection to a trunk or sub-trunk

3.1.4

CDI status indicator

visual indication reporting the status of the communication link at a CompoNet device

3.1.5

circuit speed

baud rate

communication rate in signalling symbols or marks/s on the transmission medium

NOTE Each CompoNet bit is Manchester encoded using two marks so a circuit speed of 6 Mmarks/s gives a transmission speed or data rate of 3 Mbits/s.