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Integracija procesne naprave FDI)® - 109-1. del: Profili - HART® in brezžični HART® (IEC 62769-109-1:2023)

Field device integration (FDI)® - Part 109-1: Profiles - HART® and WirelessHART® (IEC 62769-109-1:2023)

Feldgeräteintegration (FDI)® - Teil 109-1: Profile - HART® und WirelessHART® (IEC 62769-109-1:2023)

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Intégration des appareils de terrain (FDI)® - Partie 109-1: Profils - HART® et WirelessHART® (IEC 62769-109-1:2023)

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European foreword

The text of document 65E/864/CDE, future edition 3 of IEC 62769-109-1, prepared by SC 65E "Devices and integration in enterprise systems" of IEC/TC 65 "Industrial-process measurement, control and automation" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 62769-109-1:2023.

The following dates are fixed:

•	latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop) 2024-02-23
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This document supersedes EN IEC 62769-109-1:2020 and all of its amendments and corrigenda (if any).

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IEC 61784-1	NOTE Approved as EN IEC 61784-1
IEC 61784-2	NOTE Approved as EN IEC 61784-2
IEC 61804 (series)	NOTE Approved as EN IEC 61804 (series)
IEC 62769 (series)	NOTE Approved as EN IEC 62769 (series)
IEC 62769-1	NOTE Approved as EN IEC 62769-1
IEC 62769-2	NOTE Approved as EN IEC 62769-2
IEC 62769-6	NOTE Approved as EN IEC 62769-6
IEC 62769-8	NOTE Approved as EN IEC 62769-8

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Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cencenelec.eu.

Publication	Year	Title	EN/HD	Year
IEC 62541-100	-	OPC Unified Architecture - Part 100: Device Interface	EN 62541-100	-
IEC 62769-4	-	Field Device Integration (FDI®) - Part 4: FDI Packages	EN IEC 62769-4	-
IEC 62769-5	-	Field Device Integration (FDI®) - Part 5: FDI Information Model	EN IEC 62769-5	-
IEC 62769-7	-	Field Device Integration (FDI®) - Part 7: Communication Devices	EN IEC 62769-7	-

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NORME INTERNATIONALE

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Intégration des appareils de terrain (FDI)® – Partie 109-1: Profils – HART® et WirelessHART®

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FIELD DEVICE INTEGRATION (FDI®) –

Part 109-1: Profiles – HART® and WirelessHART®

FOREWORD

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IEC 62769-109-1 has been prepared by subcommittee 65E: Devices and integration in enterprise systems, of IEC technical committee 65: Industrial-process measurement, control and automation. It is an International Standard.

This third edition cancels and replaces the second edition published in 2020. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) added content type for DeviceInfo files;
b) added mapping from HART standard parameters to PA DIM;

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The text of this International Standard is based on the following documents:

Draft	Report on voting
65E/864/CDV	65E/921/RVC

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

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

A list of all parts in the IEC 62769 series, published under the general title *Field device integration (FDI®)*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
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FIELD DEVICE INTEGRATION (FDI®) –

Part 109-1: Profiles – HART® and WirelessHART®

1 Scope

This part of IEC 62769 specifies an FDI®[1] profile of IEC 62769 for IEC 61784-1_CP 9/1 (HART®)[2] and IEC 61784-1_CP 9/2 (WirelessHART®)[3].

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 62541-100, *OPC Unified Architecture Specification – Part 100: OPC Device Interface*

IEC 62769-4, *Field device integration (FDI®) – Part 4: FDI® Packages*

IEC 62769-5, *Field device integration (FDI®) – Part 5: Information Model*

IEC 62769-7, *Field device integration (FDI®) – Part 7: Communication devices*

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3 Terms, definitions, abbreviated terms and acronyms

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 62541-100, IEC 62769-4, IEC 62769-5 and IEC 62769-7 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

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[1] FDI is a registered trademark of the non-profit organization Fieldbus Foundation, Inc. This information is given for the convenience of users of this document and does not constitute an endorsement by IEC of the trademark holder or any of its products. Compliance does not require use of the trade name. Use of the trade name requires permission of the trade name holder.

[2] HART is the trade name of the non-profit consortium FieldComm Group. This information is given for the convenience of users of this technical report and does not constitute an endorsement by IEC of the trademark holder or any of its products. Compliance does not require use of the trade name. Use of the trade name requires permission of the trade name holder.

[3] WirelessHART is the trade name of the non-profit consortium FieldComm Group. This information is given for the convenience of users of this technical report and does not constitute an endorsement by IEC of the trademark holder or any of its products. Compliance does not require use of the trade name. Use of the trade name requires permission of the trade name holder.

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3.2 Abbreviated terms and acronyms

For the purposes of this document, the following abbreviated terms and acronyms apply:

CP Communication profile (see IEC 61784-1 or IEC 61784-2)
CPF Communication profile family (see IEC 61784-1 or IEC 61784-2)
EDD Electronic device description (see the IEC 61804 series)
EDDL Electronic device description language (see the IEC 61804 series)
FDI® Field device integration
FSK Frequency-Shift-Keying
HCF HART Communication Foundation
ID Identification
IM Information Model
IP Internet protocol
PDU Protocol data unit
PSK Phase-Shift-Keying
TCP Transmission Control Protocol (see IETF RFC 793)
UDP User Datagram Protocol (see IETF RFC 768)
XML Extended markup language

4 Conventions

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4.1 EDDL syntax

This document specifies content for the EDD component that is part of FDI® Communication Packages. EDDL syntax uses the font Courier New. EDDL syntax is used for method signature, variable, data structure and component declarations.

4.2 XML syntax

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XML syntax examples use font Courier New. The XML syntax is used to describe XML document schema.

Example: <xs:simpleType name="ExampleT">

4.3 Capitalizations

The IEC 62769 series uses capitalized terms to emphasize that these terms have an FDI® specific meaning.

Some of these terms using an acronym as a prefix, for example

- FDI® Client or
- FDI® Server.

Some of these terms are compound terms such as:

- FDI® Communication Servers or
- Profile Package.

Parameter names or attributes are concatenated to a single term, where the original terms start in this term with a capital letter such as:

- ProtocolSupportFile or

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- ProtocolType.

Parameter names or attributes can also be constructed by using an underscore character to concatenate two or more terms like:

- PROFILE_ID or
- HART_Network

5 Profile for CP 9/1 (HART®) or CP 9/2 (WirelessHART®)

5.1 General

This profile document to the FDI® specification in IEC 62769 selects the protocol specifics needed for FDI® Packages describing FDI® Communication Servers, gateways and devices.

Annex B defines the XML schema for Direct Access Services. Annex C provides an overview of mapping PROFIBUS standard parameters to PA DIM.

5.2 Catalog profile

5.2.1 Protocol support file

Device information files provide metadata for the dynamic runtime data that is supplied by the device. This metadata is a subset of information that is contained in the EDD. The device information files may be extracted from the package by light-weight gateway or server implementations to exchange runtime device information with minimal implementation overhead. Device information files do not replace the need for the EDD part because device information files only contain a subset of the information from the EDD, and do not provide any user-interface elements.

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The formats of the Device Information Files are described in Table 1.

Table 1 – Device Information Files

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Part	Content
Content Type	application/vnd.hart.json
Root Namespace	Not specified here
Source Relationship	http:// fdi-cooperation.com/2010/relationships/attachment-protocol
Filename	Not specified here

The Device Information Files are specified in FCG AG21073.

5.2.2 CommunicationProfile definition

IEC 62769-4 defines a CommunicationProfileT string type for the Catalog XML schema. Table 2 defines the CP 9/1 specific values for this enumeration.