SLOVENSKI STANDARD
SIST EN 62453-309:2018

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Nadomešča:
SIST EN 62453-309:2010

Specifikacija vmesnika orodja procesne naprave - 309. del: Integracija komunikacijskih profilov - IEC 61784 CPF 9 (IEC 62453-309:2016)

Field device tool (FDT) interface specification - Part 309: Communication profile integration - IEC 61784 CPF 9 (IEC 62453-309:2016)

Field Device Tool (FDT)-Schnittstellenspezifikation - Teil 309: Integration von Kommunikationsprofilen - Kommunikationsprofilfamilie (CPF) 9 nach IEC 61784 (IEC 62453-309:2016)

Spécification des interfaces des outils des dispositifs de terrain (FDT) - Partie 309: Intégration des profils de communication - CPF 9 de l'IEC 61784 (IEC 62453-309:2016)

Ta slovenski standard je istoveten z: **EN 62453-309:2017**

ICS:

25.040.40	Merjenje in krmiljenje industrijskih postopkov	Industrial process measurement and control
35.240.50	Uporabniške rešitve IT v industriji	IT applications in industry

SIST EN 62453-309:2018 **en,fr,de**

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Field device tool (FDT) interface specification - Part 309: Communication profile integration - IEC 61784 CPF 9 (IEC 62453-309:2016)

Spécification des interfaces des outils des dispositifs de terrain (FDT) - Partie 309: Intégration des profils de communication - CPF 9 de l'IEC 61784
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Field Device Tool (FDT)-Schnittstellenspezifikation - Teil 309: Integration von Kommunikationsprofilen - Kommunikationsprofilfamilie (CPF) 9 nach IEC 61784
(IEC 62453-309:2016)

This European Standard was approved by CENELEC on 2016-07-19. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

The text of document 65E/336/CDV, future edition 1 of IEC 62453-309:2016, 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 62453-309:2017.

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)	2018-06-08
• latest date by which the national standards conflicting with this document have to be withdrawn	(dow)	2020-12-08

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

Endorsement notice

The text of the International Standard IEC 62453-309:2016 was approved by CENELEC as a European Standard without any modification.

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 When 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.cenelec.eu.

Publication	Year	Title	EN/HD	Year
IEC 61158-5-20	-	Industrial communication networks - Fieldbus specifications - Part 5-20: Application layer service definition - Type 20 elements	EN 61158-5-20	-
IEC 61158-6-20	-	Industrial communication networks - Fieldbus specifications - Part 6-20: Application layer protocol specification - Type 20 elements	EN 61158-6-20	-
IEC 61784-1	-	Industrial communication networks - Profiles -- Part 1: Fieldbus profiles	EN 61784-1	-
IEC 62453-1	-	Field Device Tool (FDT) interface specification -- Part 1: Overwiew and guidance	EN 62453-1	-
IEC 62453-2	-	Field Device Tool (FDT) Interface Specification - Part 2: Concepts and detailed Description	EN 62453-2	-

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colour inside

Field device tool (FDT) interface specification – Part 309: Communication profile integration – IEC 61784 CPF 9

Spécification des interfaces des outils des dispositifs de terrain (FDT) – Partie 309: Intégration des profils de communication – CPF 9 de l'IEC 61784

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FIELD DEVICE TOOL (FDT) INTERFACE SPECIFICATION –

Part 309: Communication profile integration – IEC 61784 CPF 9

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 62453-309 has been prepared by subcommittee 65E: Devices and integration in enterprise systems, of IEC technical committee 65: Industrial-process measurement, control and automation.

This second edition cancels and replaces the first edition published in 2009, and constitutes a technical revision. The main changes are provided in order to provide improved support for updates of the HART protocol (see 6.7 and the updated datatypes in Clauses 9, 10, and 12) and to support introduction of the technology according to IEC 62453-42 [1] (see Clause 4).

Each part of the IEC 62453-3xy series is intended to be read in conjunction with IEC 62453-2.

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

CDV	Report on voting
65E/336/CDV	65E/395A/RVC

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 62453 series, under the general title *Field Device Tool (FDT) interface specification,* can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability 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.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

This part of IEC 62453 is an interface specification for developers of FDT (Field Device Tool) components for function control and data access within a client/server architecture. The specification is a result of an analysis and design process to develop standard interfaces to facilitate the development of servers and clients by multiple vendors that need to interoperate seamlessly.

With the integration of fieldbusses into control systems, there are a few other tasks which need to be performed. In addition to fieldbus- and device-specific tools, there is a need to integrate these tools into higher-level system-wide planning or engineering tools. In particular, for use in extensive and heterogeneous control systems, typically in the area of the process industry, the unambiguous definition of engineering interfaces that are easy to use for all those involved is of great importance.

A device-specific software component, called DTM (Device Type Manager), is supplied by the field device manufacturer with its device. The DTM is integrated into engineering tools via the FDT interfaces defined in this specification. The approach to integration is in general open for all kind of fieldbusses and thus meets the requirements for integrating different kinds of devices into heterogeneous control systems.

Figure 1 shows how IEC 62453-309 is aligned in the structure of the IEC 62453 series.

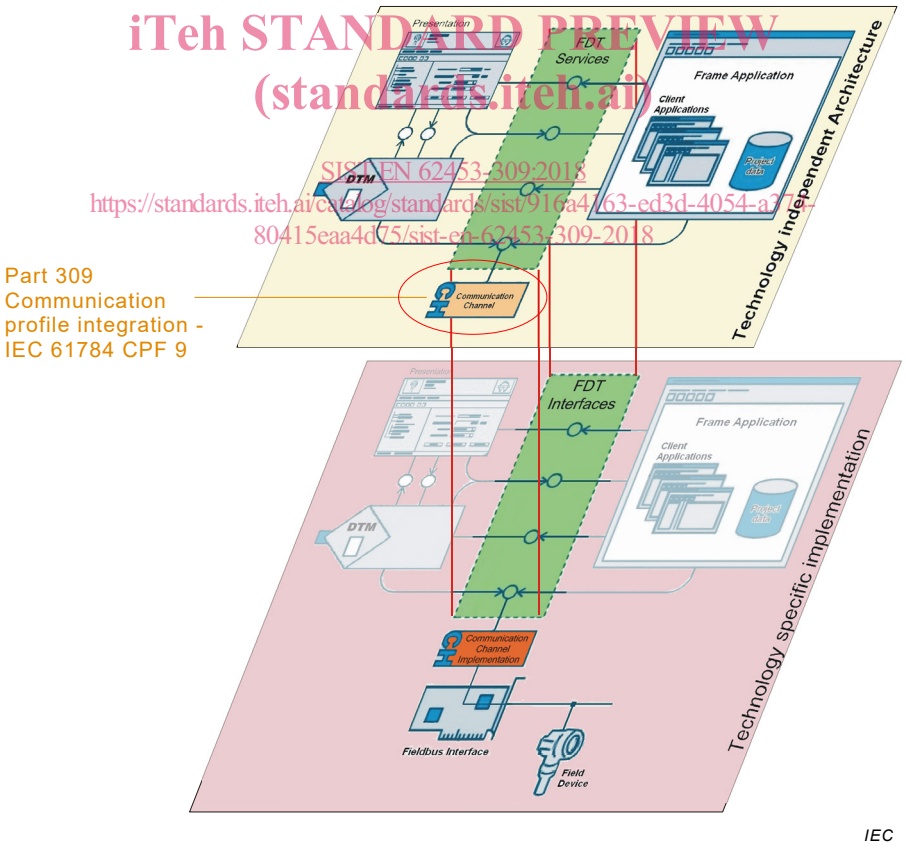

Figure 1 – Part 309 of the IEC 62453 series

FIELD DEVICE TOOL (FDT) INTERFACE SPECIFICATION –

Part 309: Communication profile integration – IEC 61784 CPF 9

1 Scope

Communication Profile Family 9 (commonly known as HART®[1]) defines communication profiles based on IEC 61158-5-20 and IEC 61158-6-20. The basic profile CP 9/1 is defined in IEC 61784-1.

This part of IEC 62453 provides information for integrating the HART® technology into the FDT standard (IEC 62453-2).

This part of the IEC 62453 specifies communication and other services.

This standard neither contains the FDT specification nor modifies it.

2 Normative references

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.

IEC 61158-5-20, *Industrial communication networks – Fieldbus specifications – Part 5-20: Application layer service definition – Type 20 elements*

IEC 61158-6-20, *Industrial communication networks – Fieldbus specifications – Part 6-20: Application layer protocol specification – Type 20 elements*

IEC 61784-1, *Industrial communication networks – Profiles – Part 1: Fieldbus profiles*

IEC 62453-1:–[2], *Field device tool (FDT) interface specification – Part 1: Overview and guidance*

IEC 62453-2:–[2], *Field device tool (FDT) interface specification – Part 2: Concepts and detailed description*

3 Terms, definitions, symbols, abbreviated terms and conventions

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 62453-1 and IEC 62453-2, as well as the following apply.

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1 HART ® is the trade name of the product supplied by HART Communication Foundation. This information is given for convenience of users of this document and does not constitute an endorsement by IEC of the product named. Equivalent products may be used if they can be shown to lead to the same results.

2 To be published concurrently with this standard.

3.1.1
burst mode
mode in which the field device generates response telegrams without request telegram from the master

3.2 Abbreviated terms

For the purposes of this document, the abbreviations given in IEC 62453-1, IEC 62453-2, as well as the following apply.

BACK	Burst ACKnowledge
C8PSK	Coherent 8-way Phase Shift Keying, HART communication layer as defined in HCF_SPEC-60, Revision 1.0
DR	Delayed Response
EDD	Electronic Device Description
FSK	Frequency Shift Keying, HART communication layer as defined in HCF_SPEC-54, Revision 8.1
HART	Highway Addressable Remote Transducer

3.3 Conventions

3.3.1 Data type names and references to data types

The conventions for naming and referencing of data types are explained in IEC 62453-2:–, Clause A.1.

3.3.2 Vocabulary for requirements

The following expressions are used when specifying requirements.

Usage of “shall” or “mandatory”	No exceptions allowed.
Usage of “should” or “recommended”	Strong recommendation. It may make sense in special exceptional cases to differ from the described behaviour.
Usage of “can’ or “optional’	Function or behaviour may be provided, depending on defined conditions.

3.3.3 Use of UML

Figures in this document are using UML notation as defined in IEC 62453-1:–, Annex A.

4 Bus category

IEC 61784 CPF 9 protocol is identified in the protocolId element of structured data type 'fdt:BusCategory' by the following unique identifiers (see Table 1):

Table 1 – Protocol identifiers

Identifier value	ProtocolId	Display String	Description
036D1498-387B-11D4-86E1-00E0987270B9	HART	‘HART’	Support of IEC 61784 CPF 9 protocol
98503B8F-0FFB-4EB7-BB67-F4D6BD16DB8D	HART_FSK	‘HART FSK’	Support of HART protocol over FSK communication
74D29D22-F752-40EF-A747-ACA72C791155	HART_Wireless	‘HART Wireless’	Support of WirelessHART protocol