SLOVENSKI STANDARD
SIST EN 62453-1:2010

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Specifikacija vmesnika orodja procesne naprave - 1. del: Pregled in vodilo (IEC 62453-1:2009)

Field device tool interface specification -- Part 1: Overview and guidance

Field Device Tool (FDT)-Schnittstellenspezifikation -- Teil 1: Überblick und Leitfaden

Spécification des interfaces des outils des dispositifs de terrain (FDT) - Partie 1: Vue générale et recommandations

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EN 62453-1

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English version

Field device tool (FDT) interface specification - Part 1: Overview and guidance
(IEC 62453-1:2009)

Spécification des interfaces des outils des dispositifs de terrain (FDT) - Partie 1: Vue générale et recommandations (CEI 62453-1:2009)

Field Device Tool (FDT)- Schnittstellenspezifikation - Teil 1: Überblick und Leitfaden (IEC 62453-1:2009)

This European Standard was approved by CENELEC on 2009-08-01. 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 Central Secretariat or to any CENELEC member.

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CENELEC

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

Central Secretariat: Avenue Marnix 17, B - 1000 Brussels

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Foreword

The text of document 65E/123/FDIS, future edition 1 of IEC 62453-1, 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 was approved by CENELEC as EN 62453-1 on 2009-08-01.

The following dates were fixed:

– latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2010-05-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2012-08-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 62453-1:2009 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

[5] IEC 61131	NOTE	Harmonized in EN 61131 series (not modified).
[6] IEC 61499	NOTE	Harmonized in EN 61499 series (not modified).
[7] IEC 61800-7	NOTE	Harmonized in EN 61800-7 series (not modified).
[9] IEC 61915-1	NOTE	Harmonized as EN 61915-1:2008 (not modified).
[10] IEC 62026	NOTE	Harmonized in EN 62026 series (not modified).
[13] IEC 61804-2	NOTE	Harmonized as EN 61804-2:2007 (not modified).
[14] IEC 61804-3	NOTE	Harmonized as EN 61804-3:2007 (not modified).
[16] IEC 62453	NOTE	Harmonized in EN 62453 series (not modified).

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Year
IEC 61158	Series	Industrial communication networks – Fieldbus specifications	EN 61158	Series
IEC 61784	Series	Industrial communication networks – Profiles	EN 61784	Series
ISO/IEC 19501	2005	Information technology – Open Distributed Processing – Unified Modeling Language (UML)	–	–

IEC 62453-1

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INTERNATIONAL STANDARD

Field device tool (FDT) interface specification – Part 1: Overview and guidance

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

FIELD DEVICE TOOL (FDT) INTERFACE SPECIFICATION –

Part 1: Overview and guidance

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 62453-1 has been prepared by subcommittee 65E: Devices and integration in enterprise systems, of IEC technical committee 65: Industrial-process measurement, control and automation.

This part, in conjunction with the other parts of the first edition of the IEC 62453 series cancels and replaces IEC/PAS 62453-1, IEC/PAS 62453-2, IEC/PAS 62453-3, IEC/PAS 62453-4 and IEC/PAS 62453-5 published in 2006, and constitutes a technical revision.

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

FDIS	Report on voting
65E/123/FDIS	65E/136/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 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 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

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

A bilingual version of this publication may be issued at a later date.

INTRODUCTION

Enterprise automation requires two main data flows: a “vertical” data flow from enterprise level down to the field devices including signals and configuration data, and a “horizontal” communication between field devices operating on the same or different communication technologies.

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.

Several different manufacturer specific tools have to be used. The data in these tools are often invisible data islands from the viewpoint of system life-cycle management and plant-wide automation.

To ensure the consistent management of a plant-wide control and automation technology, it is necessary to fully integrate fieldbusses, devices and sub-systems as a seamless part of a wide range of automation tasks covering the whole automation life-cycle.

IEC 62453 provides an interface specification for developers of FDT (Field Device Tool) components to support function control and data access within a client/server architecture. The availability of this standard interface facilitates development of servers and clients by multiple manufacturers and supports open interoperation.

A device or module-specific software component, called a DTM (Device Type Manager) is supplied by a manufacturer with the related device type or software entity type. Each DTM can be integrated into engineering tools via defined FDT interfaces. This approach to integration is in general open for all fieldbusses and thus supports integration of different devices and software modules into heterogeneous control systems.

The IEC 62453 common application interface supports the interests of application developers, system integrators, and manufacturers of field devices and network components. It also simplifies procurement, reduces system costs and helps manage the lifecycle. Significant savings are available in operating, engineering and maintaining the control systems.

The objectives of IEC 62453 series are to support:

- universal plant-wide tools for life-cycle management of heterogeneous fieldbus environments, multi-manufacturer devices, function blocks and modular sub-systems for all automation domains (e.g. process automation, factory automation and similar monitoring and control applications);
- integrated and consistent life-cycle data exchange within a control system including its fieldbuses, devices, function blocks and modular sub-systems;
- simple and powerful manufacturer-independent integration of different automation devices, function blocks and modular sub-systems into the life-cycle management tools of a control system.

The FDT concept supports planning and integration of monitoring and control applications, it does not provide a solution for other engineering tasks such as "electrical wiring planning”, “mechanical planning”. Plant management subjects such as "maintenance planning”, “control optimization”, “data archiving”, are not part of this FDT standard. Some of these aspects may be included in future editions of FDT publications.

FIELD DEVICE TOOL (FDT) INTERFACE SPECIFICATION –

Part 1: Overview and guidance

1 Scope

This part of IEC 62453 presents an overview and guidance for the IEC 62453 series. It

- explains the structure and content of the IEC 62453 series (see Clause 5);
- provides explanations of some aspects of the IEC 62453 series that are common to many of the parts of the series;
- describes the relationship to some other standards.

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 61158 (all parts), *Industrial communication networks – Fieldbus specifications*

IEC 61784 (all parts), *Industrial communication networks – Profiles*

ISO/IEC 19501:2005, *Information technology – Open Distributed Processing – Unified Modeling Language (UML)* Version 1.4.2

3 Terms, definitions, symbols, abbreviations and conventions

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

3.1 Terms and definitions

3.1.1
actor
coherent set of roles that users of use cases play when interacting with these use cases

[ISO/IEC 19501]

NOTE An actor has one role for each use case with which it communicates.

3.1.2
address
communication protocol specific access identifier

3.1.3
application
software functional unit that is specific to the solution of a problem in industrial-process measurement and control

NOTE An application may be distributed among resources, and may communicate with other applications.