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Field Device Tool (FDT) interface specification - Part 1: Overview and guidance

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Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 24.03.2017.	Date of Availability of the European standard is 24.03.2017.
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ICS 25.040.40, 35.100.05, 35.110

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 62453-1

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English Version

Field Device Tool (FDT) interface specification - Part 1: Overview and guidance (IEC 62453-1:2016)

Spécification des interfaces des outils des dispositifs de terrain (FDT) - Partie 1: Vue d'ensemble et guide (IEC 62453-1:2016)

Field Device Tool (FDT)-Schnittstellenspezifikation - Teil 1: Überblick und Leitfaden - Teil 1: Überblick und Leitfaden (IEC 62453-1:2016)

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European foreword

The text of document 65E/333/CDV, future edition 2 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 approved by CENELEC as EN 62453-1:2017.

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)	2017-10-20
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2020-01-20

This document supersedes EN 62453-1:2009.

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

IEC 61131 (Series)	NOTE	Harmonized as EN 61131 (Series)
IEC 61131-3	NOTE	Harmonized as EN 61131-3
IEC 61158-1	NOTE	Harmonized as EN 61158-1
IEC 61375-3-3	NOTE	Harmonized as EN 61375-3-3
IEC 61499 (Series)	NOTE	Harmonized as EN 61499 (Series)
IEC 61499-1	NOTE	Harmonized as EN 61499-1
IEC 61784-1	NOTE	Harmonized as EN 61784-1
IEC 61784-2	NOTE	Harmonized as EN 61784-2
IEC 61784 (Series)	NOTE	Harmonized as EN 61784 (Series)
IEC 61800-7-1	NOTE	Harmonized as EN 61800-7-1
IEC 61800-7-2 (Series)	NOTE	Harmonized as EN 61800-7-2 (Series)
IEC 61800-7-3 (Series)	NOTE	Harmonized as EN 61800-7-3 (Series)
IEC 61804-2	NOTE	Harmonized as EN 61804-2

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IEC 61804-3	NOTE	Harmonized as EN 61804-3
IEC 61804-4	NOTE	Harmonized as EN 61804-4
IEC 61850 (Series)	NOTE	Harmonized as EN 61850 (Series)
IEC 61915-1	NOTE	Harmonized as EN 61915-1
IEC/TS 61970-2	NOTE	Harmonized as CLC/TS 61970-2
IEC 62026 (Series)	NOTE	Harmonized as EN 62026 (Series)
IEC 62026-1	NOTE	Harmonized as EN 62026-1
IEC 62264 (Series)	NOTE	Harmonized as EN 62264 (Series)
IEC 62402	NOTE	Harmonized as EN 62402
IEC 62453 (Series)	NOTE	Harmonized as EN 62453 (Series)
IEC 62541 (Series)	NOTE	Harmonized as EN 62541 (Series)
IEC/TR 62541-1	NOTE	Harmonized as CLC/TR 62541-1
IEC 62769 (Series)	NOTE	Harmonized as EN 62769 (Series)

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Annex ZA
(normative)
Normative references to international publications with their corresponding European publications

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.

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	series	Industrial communication networks - Fieldbus specifications	EN 61158	series
IEC 61784	series	Industrial communication networks - Profiles	EN 61784	series

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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 fieldbuses into control systems, there are a few additional tasks to be performed. The may result in a large number of fieldbus- and device-specific tools in addition to system and engineering tools. Integration of these tools into higher-level system-wide planning or engineering tools is an advantage. 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 are 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 important to fully integrate fieldbuses, 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 the 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.

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