

Field device integration (FDI) - Part 1: Overview

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 62769-1:2015 sisaldab Euroopa standardi EN 62769-1:2015 ingliskeelset teksti.	This Estonian standard EVS-EN 62769-1:2015 consists of the English text of the European standard EN 62769-1:2015.
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English Version

**Field device integration (FDI) - Part 1: Overview
(IEC 62769-1:2015)**

Intégration des appareils de terrain (FDI) - Partie 1: Vue
d'ensemble
(IEC 62769-1:2015)

Feldgeräteintegration (FDI) - Teil 1: Überblick
(IEC 62769-1:2015)

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European foreword

The text of document 65E/337/CDV, future edition 1 of IEC 62769-1, 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 62769-1:2015.

The following dates are fixed:

- latest date by which the document has to be (dop) 2016-03-16
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publication of an identical national
standard or by endorsement
- latest date by which the national (dow) 2018-06-16
standards conflicting with the
document have to be withdrawn

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Endorsement notice

The text of the International Standard IEC 62769-1:2015 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:

IEC 61804-3	NOTE	Harmonized as EN 61804-3.
IEC/TR 61804-4	NOTE	Harmonized as CLC/TR 61804-4.
IEC 62769-4	NOTE	Harmonized as EN 62769-4.
IEC 62769-5	NOTE	Harmonized as EN 62769-5.
IEC 62769-6	NOTE	Harmonized as EN 62769-6.

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.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 61804	series	Function Blocks (FB) for process control	EN 61804	series
IEC 62453	series	Field device tool (FDT) interface specification	EN 62453	series
IEC 62541-3	-	OPC unified architecture - Part 3: Address Space Model	EN 62541-3	-
IEC 62541-4	-	OPC Unified Architecture - Part 4: Services	EN 62541-4	-
IEC 62541-5	-	OPC unified architecture - Part 5: Information Model	EN 62541-5	-
IEC 62541	series	OPC Unified Architecture	EN 62541	series
IEC 62541-100	-	OPC unified architecture - Part 100: Device Interface	EN 62541-100	-
IEC 62769-2	-	Devices and integration in enterprise systems; Field Device Integration - Part 2: FDI Client	-	-
IEC 62769-3	-	Devices and integration in enterprise systems; Field Device Integration - Part 3: FDI Server	-	-
IEC 62769-4	2015	Devices and integration in enterprise systems; Field Device Integration - Part 4: FDI Packages	-	-
IEC 62769-5	-	Devices and integration in enterprise systems; Field Device Integration - Part 5: FDI Information Model	-	-
IEC 62769-6	2015	Devices and integration in enterprise systems; Field Device Integration - Part 6: Technology Mapping	-	-
IEC 62769-7	2015	Devices and integration in enterprise systems; Field Device Integration - Part 7: Communication Devices	-	-
IEC/TR 62541-1	-	OPC unified architecture - Part 1: Overview and concepts	CLC/TR 62541-1	-
ISO/IEC 11578	-	Information technology - Open Systems Interconnection - Remote Procedure Call (RPC)	-	-

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INTRODUCTION

The IEC 62657 series has the general title "Field Device Integration (FDI)" and the following parts:

- Part 1: Overview
- Part 2: FDI Client
- Part 3: FDI Server
- Part 4: FDI Packages
- Part 5: FDI Information Model
- Part 6: FDI Technology Mapping
- Part 7: FDI Communication Devices
- Part 101-1: Profiles – Foundation Fieldbus H1
- Part 101-2: Profiles – Foundation Fieldbus HSE
- Part 103-1: Profiles – PROFIBUS
- Part 103-4: Profiles – PROFINET
- Part 109-1: Profiles – HART and WirelessHART

The International Electrotechnical Commission (IEC) draws attention to the fact that it is claimed that compliance with this document may involve the use of patents concerning

- a) method for the supplying and installation of device-specific functionalities, see Patent Family DE10357276;
- b) method and device for accessing a functional module of automation system, see Patent Family EP2182418;
- c) methods and apparatus to reduce memory requirements for process control system software applications, see Patent Family US2013232186;
- d) extensible device object model, see Patent Family US12/893,680.

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FIELD DEVICE INTEGRATION (FDI) –

Part 1: Overview

1 Scope

This part of IEC 62769 describes the concepts and overview of the Field Device Integration (FDI) specifications. The detailed motivation for the creation of this technology is also described (see 4.1). Reading this document is helpful to understand the other parts of this multi-part standard.

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 61804 (all parts), *Function blocks (FB) for process control and Electronic Device Description Language (EDDL)*

IEC 62453 (all parts), *Field device tool (FDT[®]) interface specification*

IEC 62541 (all parts), *OPC Unified Architecture*

IEC TR 62541-1, *OPC Unified Architecture – Part 1: Overview and concepts*

IEC 62541-3, *OPC Unified Architecture – Part 3: Address Space Model*

IEC 62541-4, *OPC Unified Architecture – Part 4: Services*

IEC 62541-5, *OPC Unified Architecture – Part 5: Information Model*

IEC 62541-100, *OPC Unified Architecture – Part 100: Device Interface*

IEC 62769-2, *Field Device Integration (FDI) – Part 2: FDI Client*

NOTE IEC 62769-2 is technically identical to FDI-2022[4] ¹

IEC 62769-3, *Field Device Integration (FDI) – Part 3: FDI Server*

NOTE IEC 62769-3 is technically identical to FDI-2023. [5]

IEC 62769-4:2015, *Field Device Integration (FDI) – Part 4: FDI Packages*

NOTE IEC 62769-4 is technically identical to FDI-2024. [6]

IEC 62769-5:2015, *Field Device Integration (FDI) – Part 5: FDI Information Model*

¹ Numbers in square brackets refer to the Bibliography.

NOTE IEC 62769-5 is technically identical to FDI-2025. [7]

IEC 62769-6:2015, *Field Device Integration (FDI) – Part 6: FDI Technology Mapping*

NOTE IEC 62769-6 is technically identical to FDI-2026. [8]

IEC 62769-7, *Field Device Integration (FDI) – Part 7: FDI Communication Devices*

NOTE IEC 62769-7 is technically identical to FDI-2027. [9]

ISO/IEC 11578, *Information technology – Open Systems Interconnection – Remote Procedure Call (RPC)*

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 TR 62541-1, IEC 62541-3, IEC 62541-4, IEC 62541-5, IEC 62541-100, as well as the following apply.

3.1.1

Field Device Integration

FDI

Device Integration and Device Management Technology, combining base concepts and technology aspects of the Electronic Device Description Language (EDDL) according to IEC 61804 and Field Device Tool (FDT®) according to IEC 62453, as well as in IEC 62541-1 (OPC UA)

Note 1 to entry: The combination of those different proven technologies ensures a secure life-cycle and the ability to address all challenges of Device Integration and Device Management in a scalable manner.

Note 2 to entry: This note applies to the French language only.

Note 3 to entry: This note applies to the French language only.

Note 4 to entry: This note applies to the French language only.

3.1.2

Action

procedure that requires collaboration between an FDI Client and an FDI Server

3.1.3

Business Logic

descriptive element of an FDI Package that specifies the device specific behavior and/or mapping logic for a Nested Communication

3.1.4

Business Logic Interface

interface through which Business Logic is integrated with the Information Model

3.1.5

Communication Device

physical device that provides access to networks and devices

Note 1 to entry: Gateways and routers are examples of Communication Devices.

3.1.6

Connection Point

logical representation of a connection of a communication end point to a communication network