



# INTERNATIONAL STANDARD



Field device integration (FDI) –  
Part 1: Overview

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

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# INTERNATIONAL ELECTROTECHNICAL COMMISSION

## FIELD DEVICE INTEGRATION (FDI) –

### Part 1: Overview

#### 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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**This redline version of the official IEC Standard allows the user to identify the changes made to the previous edition IEC 62769-1:2015. A vertical bar appears in the margin wherever a change has been made. Additions are in green text, deletions are in strikethrough red text.**

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

This second edition cancels and replaces the first edition published in 2015. This edition constitutes a technical revision.

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

- a) support for generic protocol extension for faster adoption of other technologies;
- b) digital signature now include trusted timestamping for long term validation of FDI Package;
- c) support of new protocols.

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

FDIS	Report on voting
65E/758/FDIS	65E/768/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

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 "<http://webstore.iec.ch>" in the data related to the specific document. At this date, the document will be

- reconfirmed,
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- amended.

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## INTRODUCTION

The IEC ~~62657~~ 62769 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 100: Profiles – Generic Protocol Extensions
- 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
- Part 115-2: Profiles – Protocol-specific Definitions for Modbus RTU
- Part 150-1: Profiles – ISA 100.11a

~~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 EP2162418;~~
- ~~c) methods and apparatus to reduce memory requirements for process control system software applications, see Patent Family US2013232186;~~
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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 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 61804 (all parts), Function blocks (FB) for process control and Electronic Device Description Language (EDDL)~~

~~IEC 62453 (all parts), Field device tool (FDT<sup>®</sup>) 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]<sup>1</sup>~~

~~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~~

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

<sup>1</sup> Numbers in square brackets refer to the Bibliography.



~~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)~~

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# INTERNATIONAL STANDARD

## NORME INTERNATIONALE



**Field device integration (FDI) –  
Part 1: Overview**

**Intégration des appareils de terrain (FDI) –  
Partie 1: Vue d'ensemble**

Withdrawing

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- Part 150-1: Profiles – ISA 100.11a

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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*



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## COMMISSION ÉLECTROTECHNIQUE INTERNATIONALE

### INTÉGRATION DES APPAREILS DE TERRAIN (FDI) –

#### Partie 1: Vue d'ensemble

#### AVANT-PROPOS

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La Norme internationale IEC 62769-1 a été établie par le sous-comité 65E: Les dispositifs et leur intégration dans les systèmes de l'entreprise, du comité d'études 65 de l'IEC: Mesure, commande et automation dans les processus industriels.

Cette deuxième édition annule et remplace la première édition parue en 2015. Cette édition constitue une révision technique.

Cette édition inclut les modifications techniques majeures suivantes par rapport à l'édition précédente:

- a) prise en charge de l'extension de protocoles génériques qui vise à accélérer l'adoption d'autres technologies;
- b) la signature numérique comprend désormais un horodatage de confiance pour la validation sur le long terme du paquetage FDI;
- c) prise en charge de nouveaux protocoles.

Le texte de cette Norme internationale est issu des documents suivants:

FDIS	Rapport de vote
65E/758/FDIS	65E/768/RVD

Le rapport de vote indiqué dans le tableau ci-dessus donne toute information sur le vote ayant abouti à l'approbation de cette Norme internationale.

Ce document a été rédigé selon les Directives ISO/IEC, Partie 2.

Une liste de toutes les parties de la série IEC 62769, publiées sous le titre général *Intégration des appareils de terrain (FDI)*, peut être consultée sur le site web de l'IEC.

Le comité a décidé que le contenu de ce document ne sera pas modifié avant la date de stabilité indiquée sur le site web de l'IEC sous "<http://webstore.iec.ch>" dans les données relatives au document recherché. À cette date, le document sera

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## INTRODUCTION

La série IEC 62769 est publiée sous le titre général "*Intégration des appareils de terrain (FDI)*" et comporte les parties suivantes:

- Partie 1: Vue d'ensemble
- Partie 2: Client FDI
- Partie 3: Serveur FDI
- Partie 4: Paquetages FDI
- Partie 5: Modèle d'Information FDI
- Partie 6: Mapping de technologies FDI
- Partie 7: Appareils de Communication FDI
- Partie 100: Profils – Extensions de protocoles génériques
- Partie 101-1: Profils – Foundation Fieldbus H1
- Partie 101-2: Profils – Foundation Fieldbus HSE
- Partie 103-1: Profils – PROFIBUS
- Partie 103-4: Profils – PROFINET
- Partie 109-1: Profils – HART et WirelessHART
- Partie 115-2: Profils – Définitions spécifiques au protocole pour Modbus-RTU
- Partie 150-1: Profils – ISA 100.11a

## INTÉGRATION DES APPAREILS DE TERRAIN (FDI) –

### Partie 1: Vue d'ensemble

#### 1 Domaine d'application

La présente partie de l'IEC 62769 décrit les concepts et donne une vue d'ensemble des spécifications d'intégration des appareils de terrain (FDI). La motivation détaillée pour la création de cette technologie est également décrite (voir 4.1). La lecture du présent document est utile pour comprendre les autres parties de cette norme en plusieurs parties.

#### 2 Références normatives

Les documents suivants sont cités dans le texte de sorte qu'ils constituent, pour tout ou partie de leur contenu, des exigences du présent document. Pour les références datées, seule l'édition citée s'applique. Pour les références non datées, la dernière édition du document de référence s'applique (y compris les éventuels amendements).

IEC TR 62541-1, *OPC Unified Architecture – Part 1: Overview and Concepts* (disponible en anglais seulement)

IEC 62541-3, *Architecture unifiée OPC – Partie 3: Modèle d'espace d'adressage*

IEC 62541-4, *Architecture unifiée OPC – Partie 4: Services*

IEC 62541-5, *Architecture unifiée OPC – Partie 5: Modèle d'Informations*

IEC 62541-100, *Architecture unifiée OPC – Partie 100: Interface d'appareils*