



SLOVENSKI STANDARD
oSIST prEN IEC 62769-101-2:2022
01-maj-2022

Integracija procesne naprave (FDI) - 101-2. del: Profili - Osnovno procesno vodilo HSE

Field Device Integration (FDI) - Part 101-2: Profiles - Foundation Fieldbus HSE

Feldgeräteintegration (FDI) - Teil 101-2: Profile - Foundation Fieldbus HSE

Intégration des appareils de terrain (FDI) - Partie 101-2: Profils - Foundation Fieldbus HSE

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65E/861/CDV

COMMITTEE DRAFT FOR VOTE (CDV)

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IEC SC 65E : DEVICES AND INTEGRATION IN ENTERPRISE SYSTEMS	
SECRETARIAT: United States of America	SECRETARY: Mr Donald (Bob) Lattimer
OF INTEREST TO THE FOLLOWING COMMITTEES:	PROPOSED HORIZONTAL STANDARD: <input type="checkbox"/> Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary.
FUNCTIONS CONCERNED: <input type="checkbox"/> EMC <input type="checkbox"/> ENVIRONMENT <input type="checkbox"/> QUALITY ASSURANCE <input type="checkbox"/> SAFETY	
<input checked="" type="checkbox"/> SUBMITTED FOR CENELEC PARALLEL VOTING	<input type="checkbox"/> NOT SUBMITTED FOR CENELEC PARALLEL VOTING
<p>Attention IEC-CENELEC parallel voting</p> <p>The attention of IEC National Committees, members of CENELEC, is drawn to the fact that this Committee Draft for Vote (CDV) is submitted for parallel voting.</p> <p>The CENELEC members are invited to vote through the CENELEC online voting system.</p>	

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Recipients of this document are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

TITLE:

Field Device Integration (FDI) - Part 101-2: Profiles - Foundation Fieldbus HSE

PROPOSED STABILITY DATE: 2025

NOTE FROM TC/SC OFFICERS:

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

FIELD DEVICE INTEGRATION (FDI) –

Part 101-2: Profiles – Foundation Fieldbus HSE

FOREWORD

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IEC 62769-101-2 has been prepared by subcommittee 65E: Devices and integration in enterprise systems, of IEC technical committee 65: Industrial-process measurement, control and automation. It is an International Standard.

This third edition cancels and replaces the second edition published in 2021. This edition constitutes a technical revision.

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

- a) added namespace to Annex A;
- b) changed content type of cff file to application/vnd.ff.cff.

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

Draft	Report on voting
XX/XX/FDIS	XX/XX/RVD

118

119 Full information on the voting for its approval can be found in the report on voting indicated in the above
120 table.

121 The language used for the development of this International Standard is English.

122 This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance
123 with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at
124 www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in
125 greater detail at www.iec.ch/standardsdev/publications.

126 The committee has decided that the contents of this document will remain unchanged until the stability
127 date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to the specific
128 document. At this date, the document will be

- 129 • reconfirmed,
- 130 • withdrawn,
- 131 • replaced by a revised edition, or
- 132 • amended.

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FIELD DEVICE INTEGRATION (FDI) –

Part 101-2: Profiles – Foundation Fieldbus HSE

1 Scope

This part of IEC 62769 specifies the IEC 62769 profile for IEC 61784-1, CP 1/2 (FOUNDATION™ Fieldbus HSE)¹.

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

IEC 61784-2, *Industrial communication networks – Profiles – Part 2: Additional fieldbus profiles for real-time networks based on ISO/IEC 8802-3*

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

IEC 62541-100, *OPC Unified Architecture – Part 100: OPC UA for Devices*

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

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

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

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

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

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

IEC 62769-101-1, *Field Device Integration (FDI) – Part 101-1: Profiles – Foundation Fieldbus H1*

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 61784-1, IEC 61784-2, IEC 61804, IEC 62541-100, IEC 62769-2, IEC 62769-3, IEC 62769-4, IEC 62769-5, IEC 62769-6, IEC 62769-7 and IEC 62769-101-1 apply.

¹ Foundation™ Fieldbus is the trade name of the non-profit consortium Fieldbus Foundation. This information is given for the convenience of users of this technical report and does not constitute an endorsement by IEC of the trademark holder or any of its products. Compliance does not require use of the trade name. Use of the trade name requires permission of the trade name holder.

165 3.2 Abbreviated terms and acronyms

166 For the purposes of this document, the following abbreviations apply:

CFF	Common File format
CP	communication profile (see IEC 61784-1 or IEC 61784-2)
CPF	communication profile family (see IEC 61784-1 or IEC 61784-2)
EDD	Electronic Device Description (see IEC 61804 series)
EDDL	Electronic Device Description Language (see IEC 61804 series)
FB	function block
IM	Information Model
SMIB	system management information base
VFD	virtual field device

167 4 Conventions

168 4.1 EDDL syntax

169 This part of IEC 62769 specifies content for the EDD component that is part of FDI Communication
 170 Packages. EDDL syntax uses the font Courier New. EDDL syntax is used for method signature, variable,
 171 data structure and component declarations.

172 4.2 XML syntax

173 XML syntax examples use the font Courier New. The XML syntax is used to describe XML document
 174 schema.

175 Example: `<xsd:simpleType name="Example">`
<https://standards.iteh.ai/catalog/standards/sist/6913a75b-902b-42e7-bbd2-47dad4c909a2/osist-pren-iec-62769-101-2-2022>

176 5 Profile for CP 1/2 (FOUNDATION™ HSE) 01-2-2022

177 5.1 General

178 This profile annex specifies the protocol specifics needed for FDI Packages describing communication
 179 servers, gateways and devices.

180 5.2 Catalog profile

181 5.2.1 Protocol support file

182 5.2.1.1 Capability file

183 Each CP 1/2 FDI Device Package shall contain a capability file. The capability file part is described in
 184 Table 1.

185 **Table 1 – Capability File part**

Parameter	Description
Content Type	application/vnd.ff.cff
Root Namespace	Not applicable
Source Relationship	http://fdi-cooperation.com/2010/relationships/attachment-protocol

Parameter	Description
Filename	Use file extension .CFH

186 5.2.2 CommunicationProfile definition

187 IEC 62769-4 defines a CommunicationProfileT string type for the Catalog XML schema. Table 2 defines
188 the CP 1/2 specific values for this string.

189 **Table 2 – CommunicationProfile definition**

CommunicationProfile	Description
foundation_hse	CP 1/2 device type

190 5.2.3 Profile device

191 Not supported in this standard.

192 5.2.4 Protocol version information

193 IEC 62769-4 defines an element type named InterfaceT for the Catalog XML Schema. Element type
194 InterfaceT contains an element named Version which is supposed to provide version information about
195 the applied communication protocol profile. The value follows the IEC 62769-4 defined version information
196 schema defined in element type VersionT.

197 The major version part of VersionT shall be set to the ITK_VER parameter. The minor and builds parts
198 shall be set to 0.

199 EXAMPLE For ITK_VER 5, the value for InterfaceT is 5.0.0.

200 5.3 Associating a Package with a CP 1/2 device

201 1.1.1 Device type identification mapping

202 CP 1/2 device types are uniquely identified by the parameters MANUFAC_ID, DEVICE_TYPE and
203 DEV_REV found in the Resource Block of the function block VFD. These parameters are used to associate
204 a given device instance to an FDI Device Package. These parameters are mapped to the FDI Device
205 Package Catalog according to Table 3.

206 **Table 3 – Device type catalog mapping**

Catalog Element	CP Mapping
Manufacturer element of InterfaceT (IEC 62769-4)	MANUFAC_ID String format "0xddd" where dddd is the MANUFAC_ID number in hexadecimal format.
DeviceModel element of InterfaceT String format "0xddd" where dddd is the DEVICE_TYPE number in hexadecimal format. (IEC 62769-4)	DEVICE_TYPE String format "0xddd" where dddd is the DEVICE_TYPE number in hexadecimal format.
DeviceRevision element ListOfSupportedDeviceRevisionsT (IEC 62769-4)	DEV_REV ^a String format "x.0.0" where x is the DEV_REV in decimal format (no leading zeros).
^a Conditional: Shall be available if the device exposes a Function block VFD.	

207 5.3.1 Device type revision mapping

208 Each device type is identified per 1.1.1. A device may also include a parameter COMPATIBILITY_REV
209 from the Resource Block. This parameter specifies the lowest device version (DEV_REV) that a new
210 device can replace while maintaining compatibility with a prior FDI Device Package.

211 **5.4 Information Model mapping**

212 1.1.1 **ProtocolType definition**

213 Table 4 defines the ProtocolType used to identify CP 1/2 network communications.

214 **Table 4 – ProtocolType Foundation_HSE definition**

Attribute	Value				
BrowseName	Foundation_HSE				
IsAbstract	False				
References	NodeClass	BrowseName	DataType	TypeDefinition	ModellingRule
Inherits the properties of ProtocolType defined in IEC 62541-100.					

215 **5.4.1 DeviceType mapping**

216 Each device type inherits the properties of DeviceType. The mapping of the inherited properties from
 217 DeviceType is defined in Table 5.

218 **Table 5 – Inherited DeviceType property mapping**

Property	CP Mapping
SerialNumber	DEV_ID (System Management Information Base)
RevisionCounter	-1 (not defined)
Manufacturer	String obtained from FDI package catalog (ManufacturerName from PackageT)
Model	String obtained from FDI package catalog (Name of DeviceTypeT, which is a localized name)
DeviceManual	entry text string (not supported) ^a
DeviceRevision	DEV_REV (Resource Block) ^b
SoftwareRevision	SOFTWARE_REV (if available, otherwise empty string)
HardwareRevision	HARDWARE_REV (if available, otherwise empty string)
^a Device manuals are exposed as attachments of the FDI Device Package. ^b Conditional: Shall be available if the device exposes a Function block VFD.	

219 **5.4.2 FunctionalGroup Identification definition**

220 As defined in IEC 62541-100, each device representation in the FDI Server hosted Information Model shall
 221 contain a protocol specific FunctionalGroup called Identification. This FunctionalGroup organizes
 222 variables found in the Resource Block of the device type instance. The FunctionalGroup Identification for
 223 CP 1/2 is defined in Table 6.