

SLOVENSKI STANDARD oSIST prEN IEC 62769-101-1:2022

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Integracija procesne naprave (FDI) - 101-1. del: Profili - Osnovno procesno vodilo H1

Field device Integration (FDI) - Part 101-1: Profiles - Foundation Fieldbus H1

Feldgeräteintegration (FDI) - Teil 101-1; Profile - Foundation Fieldbus H1

Intégration des appareils de terrain (FDI) - Partie 101-1/ Profils - Foundation Fieldbus H1

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25.040.40 Merjenje in krmiljenje 101-1 Industrial process

industrijskih postopkov measurement and control

35.240.50 Uporabniške rešitve IT v IT applications in industry

industriji

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IEC 62769-101-1 ED3

DATE OF CIRCULATION:



65E/860/CDV

COMMITTEE DRAFT FOR VOTE (CDV)

CLOSING DATE FOR VOTING:

	2022-03-04		2022-05-27	
	SUPERSEDES DOCUME 65E/827/RR	NTS:		
IEC SC 65E: DEVICES AND INTEGRATION IN	ENTERPRISE SYSTEMS	_		
SECRETARIAT:		SECRETARY:		
United States of America		Mr Donald (Bob) Lattimer		
OF INTEREST TO THE FOLLOWING COMMITTEES: Ch STA PROPOSED HORIZONTAL STANDARD: Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary.				
FUNCTIONS CONCERNED:	standard	is.iten.ai		
☐ EMC ☐ ENVIRO	DNMENT	Quality assuran	ICE SAFETY	
SUBMITTED FOR CENELEC PARALLEL VOTING NOT SUBMITTED FOR CENELEC PARALLEL VOTING https://standards.iteh.ai/catalog/standards/sist/680/866a-				
Attention IEC-CENELEC parallel voting 1-8b8b-712e034886c1/osist-pren-iec-62769- The attention of IEC National Committees, members 1 of 1-2022 CENELEC, is drawn to the fact that this Committee Draft for Vote (CDV) is submitted for parallel voting. The CENELEC members are invited to vote through the CENELEC online voting system.				
This document is still under study and sub				
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 101-1: Profiles - Foundation Fieldbus H1				
PROPOSED STABILITY DATE: 2025				

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NOTE FROM TC/SC OFFICERS:

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c) added DeviceTag and Block_Index to FoundationIdentificationT and Target;

d) removed arguments "BlockTag" and "ServiceId";

130 131 **-6-**

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- e) changed content type of CFF file to application/vnd.ff.cff.
- 133 The text of this International Standard is based on the following documents:

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

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Full information on the voting for its approval can be found in the report on voting indicated in the above

- table.
- 137 The language used for the development of this International Standard is English.
- 138 This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance
- 139 with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at
- www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in
- greater detail at www.iec.ch/standardsdev/publications.
- 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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withdrawn,

- **PREVIEW**
- replaced by a revised edition, or
 - . .

148 • amended.

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FIELD DEVICE INTEGRATION (FDI) -150 151 Part 101-1: Profiles – Foundation Fieldbus H1 152 153 154 155 Scope 156 This part of IEC 62769 specifies an FDI profile of IEC 62769 for IEC 61784-1 CP 1/1 (FOUNDATION™ 157 Fieldbus H1)¹. 158 **Normative references** 159 The following documents, in whole or in part, are normatively referenced in this document and are 160 indispensable for its application. For dated references, only the edition cited applies. For undated 161 references, the latest edition of the referenced document (including any amendments) applies. 162 IEC 61158-5-9:2007, Industrial communication networks - Fieldbus specifications - Part 5-9: Application 163 layer service definition – Type 9 elements 164 IEC 61784-1, Industrial communication networks—Profiles—Part 1: Fieldbus Profiles 165 IEC 61784-2, Industrial communication networks - Profiles - Part 2: Additional fieldbus profiles for real-166 time networks based on ISO/IEC 8802-3 I 167 IEC 61784-3:2010, Industrial communication networks - Profiles - Part 3: Functional safety fieldbuses -168 General rules and profile definitions 169 IEC 61804 (all parts), Function blocks (FB) for process control and Electronic Device Description 170 Language (EDDL) 171 https://standards.iteh.ai/catalog/standards/sist/6807866a-IEC 62769-100, OPC Unified Architecture - Part 100. OPC UN for Devices 769-172 IEC 62769-1, Field Device Integration (FDI) - Part 1: Overview 173 IEC 62769-2, Field Device Integration (FDI) - Part 2: FDI Client 174 IEC 62769-3, Field Device Integration (FDI) – Part 3: FDI Server 175 IEC 62769-4, Field Device Integration (FDI) - Part 4: FDI Packages 176 IEC 62769-5, Field Device Integration (FDI) - Part 5: FDI Information Model 177 IEC 62769-6, Field Device Integration (FDI) – Part 6: FDI Technology Mapping 178 IEC 62769-7, Field Device Integration (FDI) - Part 7: FDI Communication Devices 179

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FOUNDATION™ Fieldbus is the trade name of the non-profit consortium Fieldbus Foundation. This information is given for the convenience of users of this standard 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.

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181 3 Terms, definitions, abbreviated terms and acronyms

182 3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 62769-100, IEC 62769-1,

-8 -

184 IEC 62769-2, IEC 62769-3, IEC 62769-4, IEC 62769-5, IEC 62769-6, IEC 62769-7 and the following

185 apply.

186 3.2 Abbreviated terms and acronyms

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)

EDDL Electronic Device Description Language (see IEC 61804)

FB function block

IM Information Model TA ID A D

SMIB system management information base

VFD virtual field device VFW

188 4 Conventions

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189 4.1 EDDL syntax

- oSIST prEN IEC 62769-101-1:2022
- 190 This part of IEC 62769 specifies content for the EDD component that is part of an FDI Communication
- 191 Package. EDDL syntax uses the font Courier New, EDDL syntax is used for method signature, variable,
- data structure and component declarations. 12-03-48-00-170 101-1-2022

193 **4.2** XML syntax

- 194 XML syntax examples use the font Courier New. The XML syntax is used to describe XML document
- 195 schema.
- 196 Example: <xsd:simpleType name="Example">.

197 4.3 Capitalizations

- The IEC 62769 series uses capitalized terms to emphasize that these terms have an FDI specific meaning.
- Some of these terms use an acronym as a prefix for example
- 200 FDI Client, or
- 201 FDI Server.
- 202 Some of these terms are compound terms such as:
- Communication Servers, or
- Profile Package.
- 205 Parameter names or attributes are concatenated to a single term, where the original terms start in this
- 206 term with a capital letter such as:

- ProtocolSupportFile, or
- 208 ProtocolType.
- 209 Parameter names or attributes can also be constructed by using an underscore character to concatenate
- 210 two or more terms such as:
- 211 PROFILE_ID, or
- Profibus PA Network.

213 5 Profile for CP 1/1 (FOUNDATION™ H1)

214 **5.1 General**

- 215 This profile specifies the protocol specifics needed for FDI Packages describing communication servers,
- 216 gateways and devices.
- 217 5.2 Catalog profile
- 218 5.2.1 Protocol support file
- 219 **5.2.1.1 Capability file**
- 220 Each CP 1/1 FDI Device Package shall contain a capability file. The capability file part is described in
- 221 Table 1.

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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
Filename:	Use file extension CFF

5.2.2 Communication Profile definition 12e034886c1/osist-pren-iec-62769-

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

Table 2 - CommunicationProfile definition

CommunicationProfile	Description	
foundation_h1	CP 1/1 device type with a function block application	

228 5.2.3 Profile device

Not supported in this standard.

5.2.4 Protocol version information

- 231 IEC 62769-4 defines an element type named InterfaceT for the Catalog XML Schema. Element type
- 232 InterfaceT contains an element named Version which is supposed to provide version information about
- the applied communication protocol profile. The value follows the IEC 62769-4 defined version information
- 234 schema defined in element type VersionT.
- The major version part of VersionT shall be set to the ITK_VER parameter. The minor and builds parts
- shall be set to 0.

- 237 EXAMPLE For ITK_VER 5, the value for InterfaceT is 5.0.0.
- 238 5.3 Associating a Package with a CP 1/1 device

239 1.1.1 Device type identification mapping

240 CP 1/1 device types are uniquely identified by the parameters MANUFAC_ID, DEVICE_TYPE and

DEV_REV found in the Resource Block. These parameters are used to associate a given device instance

to an FDI Device Package. These parameters are mapped to the FDI Device Package Catalog according

243 to Table 3.

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Table 3 - Device type catalog mapping

Catalog Element	CP Mapping
Manufacturer element of InterfaceT (IEC 62769-4)	MANUFAC_ID
	String format "0xdddd" where dddd is the MANUFAC_ID number in hexadecimal format.
DeviceModel element of InterfaceT (IEC 62769-4)	DEVICE_TYPE
	String format "0xdddd" where dddd is the DEVICE_TYPE number in hexadecimal format.
DeviceRevision element	DEV_REV
ListOfSupportedDeviceRevisionsT (IEC 62769-4)	String format "x.0.0" where x is the DEV_REV in decimal format (no leading zeros).

5.3.1 Device type revision mapping

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

5.4 Information Model mapping

250 1.1.1 ProtocolType definition <u>oSIST prEN IEC 62769-101-1:2022</u>

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

dc29-4991-8686-712e034886c1/osist-pren-iec-62769 Table 4 – ProtocolType Foundation_H1 definition

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Attribute	Value	Value			
BrowseName	Foundation_H1				
IsAbstract	False				
References NodeClass BrowseName DataType TypeDefinition ModellingRu		ModellingRule			
Inherits the properties of ProtocolType defined in IEC 62541-100.					

5.4.1 DeviceType mapping

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

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)		