

SLOVENSKI STANDARD oSIST prEN IEC 62769-103-1:2022

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Integracija procesne naprave (FDI) - 103-1. del: Profili - PROFIBUS

Field Device Integration (FDI) - Part 103-1: Profiles - PROFIBUS

Intégration des appareils de terrain (FDI) - Partie 103-1: Profils - PROFIBUS

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IEC 62769-103-1 ED3

DATE OF CIRCULATION:



65E/862/CDV

COMMITTEE DRAFT FOR VOTE (CDV)

CLOSING DATE FOR VOTING:

	2022-03-04		2022-05-27	
	SUPERSEDES DOCUME	NTS:		
	65E/829/RR			
IEC SC 65E : DEVICES AND INTEGRATION IN	ENTERPRISE SYSTEMS			
SECRETARIAT:		SECRETARY:		
United States of America		Mr Donald (Bob) L	attimer	
OF INTEREST TO THE FOLLOWING COMMITTEE	Teh STA	PROPOSED HORIZONT	AL STANDARD:	
	PREV	Other TC/SCs are r in this CDV to the se	equested to indicate their interest, if any, ecretary.	
FUNCTIONS CONCERNED:	standard	ls.iteh.ai		
☐ EMC ☐ ENVIRO	NMENT	Quality assuran	NCE SAFETY	
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Attention IEC-CENELEC parallel voting				
The attention of IEC National Committees, member $3_{\bar{o}f}$ 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	ject to change. It shou	uld not be used for re	ference purposes.	
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	103-1: Profiles - P	ROFIBUS		
PROPOSED STABILITY DATE: 2025				

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NOTE FROM TC/SC OFFICERS:

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INTERNATIONAL ELECTROTECHNICAL COMMISSION 83 84 85 FIELD DEVICE INTEGRATION (FDI) -86 87 Part 103-1: Profiles - PROFIBUS 88 89 90

FOREWORD

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- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC 119 120 shall not be held responsible for identifying any or all such patent rights.
- 121 IEC 62769-103-1 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 122 International Standard. 123
- This third edition cancels and replaces the second edition published in 2021. This edition constitutes a 124 technical revision. 125
- This edition includes the following significant technical changes with respect to the previous edition: 126
- a) added DEVICE_ID to the ProfibusIdentificationType and namespace to Annex A and Annex B; 127
- b) added mapping from PB standard parameters to PA DIM. 128

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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.
- 133 The language used for the development of this International Standard is English.
- 134 This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance
- 135 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,
- withdrawn,

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- replaced by a revised edition, or
- 144 amended.

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PREVIEW

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146	FIELD DEVICE INTEGRATION (FDI) –
147	Part 103-1: Profiles – PROFIBUS
148 149	Part 103-1: Profiles - PROFIBOS
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152	1 Scope
153 154	This part of IEC 62769specifies an FDI profile of IEC 62769 for IEC 61784-1_CP 3/1 (PROFIBUS DP) ¹ and IEC 61784-1_CP3/2 (PROFIBUS PA).
155	2 Normative references
156 157 158	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.
159	IEC 61784-1, Industrial communication networks – Profiles – Part 1: Fieldbus profiles
160 161	IEC 61804 (all parts), Function blocks (FB) for process control and Electronic Device Description Language (EDDL)
162	IEC 62541-100:2015, OPC Unified Architecture - Part 100: OPC UA for Devices
163	IEC 62769-2, Field Device Integration (FDI) – Part 2: FDI Client
164	IEC 62769-4, Field Device Integration (FDI) - Part 4: FDI Packages
165	IEC 62769-5, Field Device Integration (FDI) Part 5: FDI Information Model
166	IEC 62769-7, Field Device Integration (FDI) Part 7. FDI Communication Devices 2e04-4508-9424-b1e2054e2941/osist-pren-iec-62769-
167 168	PI Order No.: 2.122:2008, Specification for PROFIBUS: Device Description and Device Integration – Volume 1: GSD, V5.1, July 2008: GSD; available at <www.profibus.com></www.profibus.com>
169	3 Terms, definitions, abbreviated terms and acronyms
170	3.1 Terms and definitions
171 172	For the purposes of this document, the terms and definitions given in IEC 61784-1, IEC 61804 (all parts), IEC 62541-100, IEC 62769-4, IEC 62769-5, IEC 62769-7 and PI Order No.: 2.122:2008 apply.
173	3.2 Abbreviated terms and acronyms
174	For the purposes of this document, the following abbreviations apply:
	EDD Electronic Device Description
	EDDL Electronic Device Description Language (see IEC 61804 (all parts))

PROFIBUS is the trade name of the non-profit consortium PROFIBUS & PROFINET International. 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.

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GSD General station description (see PI Order No.: 2.122:2008)

I&M Identification and maintenance function

UUID Universally unique identifier (see ISO/IEC 11578)

XML Extensible markup language (see REC-xml-20081126)

Conventions 175

4.1 **EDDL** syntax 176

- This part of IEC 62769 specifies content for the EDD component that is part of FDI Communication 177
- Packages. The specification content using EDDL syntax uses the font Courier New. The EDDL syntax 178
- is used for method signature, variable, data structure and component declarations. 179
- 4.2 XML syntax 180
- XML syntax examples use font Courier New. The XML syntax is used to describe XML document 181
- schema. 182
- Example: <xs:simpleType name="ExampleType"> 183
- 4.3 Capitalizations 184
- The IEC 62769 series use capitalized terms to emphasize that these terms have a FDI specific meaning. 185
- Some of these terms using an acronym as a prefix for example 186
- FDI Client, or 187

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- FDI Server. 188
- Some of these terms are compound terms such as: 62769-103-1:2022 189
- Communication Servers of 4500 012 title.ai/catalog/standards/sist/ef5d089c-190
- 4-4508-9424-b1e2054e2941/osist-pren-iec-62769-
- Profile Package. 191

- 103-1-2022
- Parameter names or attributes are concatenated to a single term, where the original terms start in this 192 term with a capital letter such as: 193
- ProtocolSupportFile or 194
- ProtocolType. 195
- 196 Parameter names or attributes can also be constructed by using an underscore character to concatenate
- two or more terms such as: 197
- PROFILE ID or 198
- Profibus PA Network 199

Profile for PROFIBUS 200

- 5.1 General 201
- This profile document to the FDI specification in IEC 62769 specifies the protocol specifics needed for FDI 202
- Packages describing Communication Servers, Gateways and Devices. 203
- For Communication Servers this document defines also protocol specifics as these need to be considered 204
- in the Communication Servers hosted Information Model. 205

206 5.2 Catalog profile

207 5.2.1 Protocol support file

208 5.2.1.1 FDI Device Package

209 Protocol specific attachments are mentioned in the Package Catalog as defined in

210 Error! Reference source not found. A communication feature list (GSD) file according to PI Order No.:

2.122:2008 is a mandatory attachment for FDI Device Packages representing PROFIBUS DP and

PROFIBUS PA devices. Table 1 specifies the parameters of the ProtocolSupportFile in the FDI Device

213 Package.

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Table 1 - ProtocolSupportFile for FDI Device Packages

Parameter	Description	
Content Type	text/plain	
Root Namespace	empty	
Source Relationship	http://fdi-cooperation.com/2010/relationship/attachment-protocol	
Filename	According to PI Order No.: 2.122:2008	

216 5.2.1.2 FDI Communication Packages

A GSD file as specified in PI Order No.: 2.122:2008 is an optional attachment for FDI Communication Packages representing PROFIBUS DP and PROFIBUS PA devices. Table 2 specifies the parameters of

ProtocolSupportFile for FDI Communication Packages.

Table 2 - Protocol Support File for FDI Communication Packages

Parameter	Description
Content Type:	text/plain OSIST preN IEC 62769-103-1:2022
Root Namespace:	empty
Source Relationship:	http://fdi-cooperation.com/2010/relationship/attachment-protocol
Filename:	According to PI Order No.: 2.122:2008

5.2.2 Communication Profile definition

Error! Reference source not found. defines a CommunicationProfileT string for the Catalog XML schema. Table 3 defines the PROFIBUS specific values for this string.

Table 3 - PROFIBUS Communication Profile definition schema

Profile Identifier	Protocol
"profibus_dp"	PROFIBUS DP/V0; PROFIBUS DP/V1; PROFIBUS DP/V2
"profibus_pa"	PROFIBUS PA

5.2.3 Profile device

A Profile Package shall provide the catalog values for profile devices, enabling the FDI Server to leverage a generic device description, if a specific one is not available. The definitions in Table 4 focus on catalog content that is vendor independent.

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Table 4 - Catalog values for profile devices

Element	Attribute	Content
PackageType	_	Profile
Manufacturer	_	Empty
DeviceModel	_	The allowed profile identifier values (PROFILE_ID) are provided by PROFIBUS & PROFINET International (PI). PI provides and maintains an XML file (Profile_ID_Table) containing the assignment of PROFILE_ID to profiles.
		It is available at <http: im="" profile_id_table.xml="" www.profibus.com=""></http:>
		The file can be downloaded by any engineering or service tool whenever it is connected to the Internet.
		NOTE More information is provided in PI Order No.: 3.502 (I&M Profile) and related profile definitions are referred therein.
		The string format shall be hexadecimal starting with 0x, e.g. '0x3D00'.

5.2.4 Protocol version information

Error! Reference source not found. defines an element type named InterfaceT for the Catalog XML schema. The element type InterfaceT contains an element named Version which is supposed to provide version information about the applied communication protocol profile. The value has to follow the Error! Reference source not found. defined version information schema defined in the element type VersionT. Table 5 describes how to apply the currently known protocol versions defined by the non-profit consortium PROFIBUS & PROFINET International. The general rule is to apply the value "0" for parts of the version information according to Error! Reference source not found. that are not used in currently known protocol versions.

Table 5 - Version mapping examples²

Protocol / Version	InterfaceT Version value
PROFIBUS DP/V0 OSIST prEN II	C.62769-103-1:2022
PROFIBUS DP/V1 204-4508-9424-b1e205	4.2.9.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0
PROFIBUS DP/V2 10:	3 210.00 22
PROFIBUS PA 3.02	3.2.0 ^b ,
PROFIBUS PA 4.0	4.0.0 ^b ,

- ^a The protocols PROFIBUS DP/V0, PROFIBUS DP/V1 and PROFIBUS DP/V2 contain a single number. This number is considered to be the major version. The minor and built numbers are set to "0".
- The currently known PROFIBUS PA profile numbers are considered to provide major and minor version information. Leading zeros are not considered in version value evaluation since only the actual decimal values are relevant.

5.3 Associating a Package with a device

5.3.1 Device type identification mapping

The purpose of device type identification mapping is to enable FDI host systems to compare the scan result against the topology representation in the Information Model. FDI host systems shall also be enabled

The given table can be considered to be an example only since this document cannot foresee how future protocol versions will be defined.