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

01-maj-2022

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

Ta slovenski standard je istoveten z: **prEN IEC 62769-103-1:2022**

ICS:		
25.040.40	Merjenje in krmiljenje industrijskih postopkov	Industrial process measurement and control
35.240.50	Uporabniške rešitve IT v industriji	IT applications in industry

oSIST prEN IEC 62769-103-1:2022 **en,fr,de**

65E/862/CDV

COMMITTEE DRAFT FOR VOTE (CDV)

PROJECT NUMBER:	
IEC 62769-103-1 ED3	
DATE OF CIRCULATION:	CLOSING DATE FOR VOTING:
2022-03-04	**2022-05-27**
SUPERSEDES DOCUMENTS:	
65E/829/RR	

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:	PROPOSED HORIZONTAL STANDARD: ☐ Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary.

FUNCTIONS CONCERNED:

☐ EMC ☐ ENVIRONMENT ☐ QUALITY ASSURANCE ☐ SAFETY

☒ SUBMITTED FOR CENELEC PARALLEL VOTING ☐ NOT SUBMITTED FOR CENELEC PARALLEL VOTING

Attention IEC-CENELEC parallel voting

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.

The CENELEC members are invited to vote through the CENELEC online voting system.

This document is still under study and subject to change. It should not be used for reference 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 - PROFIBUS

PROPOSED STABILITY DATE: 2025

NOTE FROM TC/SC OFFICERS:

CONTENTS

No table of figures entries found.

INTERNATIONAL ELECTROTECHNICAL COMMISSION

_____

FIELD DEVICE INTEGRATION (FDI) –

Part 103-1: Profiles – PROFIBUS

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.

2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.

3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.

4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.

5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.

6) All users should ensure that they have the latest edition of this publication.

7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.

8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.

9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

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 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 DEVICE_ID to the ProfibusIdentificationType and namespace to Annex A and Annex B;

b) added mapping from PB standard parameters to PA DIM.

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

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

130
131 Full information on the voting for its approval can be found in the report on voting indicated in the above
132 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
136 www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in
137 greater detail at www.iec.ch/standardsdev/publications.

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

141 • reconfirmed,
142 • withdrawn,
143 • replaced by a revised edition, or
144 • amended.
145

FIELD DEVICE INTEGRATION (FDI) –

Part 103-1: Profiles – PROFIBUS

1 Scope

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).

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

IEC 62541-100:2015, *OPC Unified Architecture – Part 100: OPC UA for Devices*

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

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

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

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

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>

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 61804 (all parts), IEC 62541-100, IEC 62769-4, IEC 62769-5, IEC 62769-7 and PI Order No.: 2.122:2008 apply.

3.2 Abbreviated terms and acronyms

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

EDD	Electronic Device Description
EDDL	Electronic Device Description Language (see IEC 61804 (all parts))

[1] 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.

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)

4 Conventions

4.1 EDDL syntax

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

4.2 XML syntax

XML syntax examples use font `Courier New`. The XML syntax is used to describe XML document schema.

Example: `<xs:simpleType name="ExampleType">`

4.3 Capitalizations

The IEC 62769 series use capitalized terms to emphasize that these terms have a FDI specific meaning.

Some of these terms using an acronym as a prefix for example

- FDI Client, or
- FDI Server.

Some of these terms are compound terms such as:

- Communication Servers, or
- Profile Package.

Parameter names or attributes are concatenated to a single term, where the original terms start in this term with a capital letter such as:

- ProtocolSupportFile or
- ProtocolType.

Parameter names or attributes can also be constructed by using an underscore character to concatenate two or more terms such as:

- PROFILE_ID or
- Profibus_PA_Network

5 Profile for PROFIBUS

5.1 General

This profile document to the FDI specification in IEC 62769 specifies the protocol specifics needed for FDI Packages describing Communication Servers, Gateways and Devices.

For Communication Servers this document defines also protocol specifics as these need to be considered in the Communication Servers hosted Information Model.

5.2 Catalog profile

5.2.1 Protocol support file

5.2.1.1 FDI Device Package

Protocol specific attachments are mentioned in the Package Catalog as defined in **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 Package.

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

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 – ProtocolSupportFile for FDI Communication 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

5.2.2 CommunicationProfile 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 CommunicationProfile 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.

231 **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://www.profibus.com/IM/Profile_ID_Table.xml> 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'.

232 ### 5.2.4 Protocol version information

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

241 **Table 5 – Version mapping examples[2]**

Protocol / Version	InterfaceT Version value
PROFIBUS DP/V0	0.0.0[a]
PROFIBUS DP/V1	1.0.0[a]
PROFIBUS DP/V2	2.0.0[a]
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". [b] 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.	

242

243 ## 5.3 Associating a Package with a device

244 ### 5.3.1 Device type identification mapping

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

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