



SLOVENSKI STANDARD

SIST EN 62769-2:2015

01-november-2015

Naprave in združevanje v proizvodne sisteme - Vključitev procesne naprave (FDI) - 2. del: Odjemalec FDI (IEC 62769-2:2015)

Devices and integration in enterprise systems; Field Device Integration - Part 2: FDI
Client (IEC 62769-2:2015)

Feldgeräteintegration (FDI) - Teil 2: FDI-Client (IEC 62769-2:2015)

Intégration des appareils de terrain (FDI) - Partie 2: Client FDI (IEC 62769-2:2015)

Ta slovenski standard je istoveten z: EN 62769-2:2015

SIST EN 62769-2:2015
<https://standards.iteh.ai/catalog/standards/sist/2112d56a-8f28-4e3d-bb4e-86fa5addb4e/sist-en-62769-2-2015>

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

SIST EN 62769-2:2015

en,fr,de

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 62769-2:2015](https://standards.iteh.ai/catalog/standards/sist/2f12d36a-8f28-4e3d-bb4e-86fa5addf34e/sist-en-62769-2-2015)

<https://standards.iteh.ai/catalog/standards/sist/2f12d36a-8f28-4e3d-bb4e-86fa5addf34e/sist-en-62769-2-2015>

EUROPEAN STANDARD

EN 62769-2

NORME EUROPÉENNE

EUROPÄISCHE NORM

June 2015

ICS 25.040.40; 35.100

English Version

**Field Device Integration (FDI) - Part 2: FDI Client
(IEC 62769-2:2015)**

Intégration des appareils de terrain (FDI) - Partie 2: Client
FDI
(IEC 62769-2:2015)

Feldgeräteintegration (FDI) - Teil 2: FDI-Client
(IEC 62769-2:2015)

This European Standard was approved by CENELEC on 2015-06-16. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

(standards.iteh.ai)

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

<https://standards.iteh.ai/catalog/standards/sist/2f12d36a-8128-4e3d-bb4e-86fa5addb4e/sist-en-62769-2-2015>



European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

EN 62769-2:2015**European foreword**

The text of document 65E/345/CDV, future edition 1 of IEC 62769-2, prepared by SC 65E "Devices and integration in enterprise systems" of IEC/TC 65 "Industrial-process measurement, control and automation" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62769-2:2015.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2016-03-16
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2018-06-16

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

Endorsement notice

The text of the International Standard IEC 62769-2:2015 was approved by CENELEC as a European Standard without any modification.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 62769-2:2015

<https://standards.iteh.ai/catalog/standards/sist/2f12d36a-8f28-4e3d-bb4e-86fa5addf34e/sist-en-62769-2-2015>

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 62541-3	-	OPC unified architecture - Part 3: Address Space Model	EN 62541-3	-
IEC 62541-4	-	OPC Unified Architecture - Part 4: Services	EN 62541-4	-
IEC 62769-1	-	Devices and integration in enterprise systems; Field Device Integration - Part 1: Overview	-	-
IEC 62769-3	-	Devices and integration in enterprise systems; Field Device Integration - Part 3: FDI Server	-	-
IEC 62769-4	2015	Devices and integration in enterprise systems; Field Device Integration - Part 4: FDI Packages	-	-
IEC 62769-5	-	Devices and integration in enterprise systems; Field Device Integration - Part 5: FDI Information Model	-	-
IEC 62769-6	2015	Devices and integration in enterprise systems; Field Device Integration - Part 6: Technology Mapping	-	-
ISO 639	-	Code for the representation of names of languages	-	-
ISO 3166	-	Codes for the representation of names of countries	-	-
ISO/IEC 10918-1	-	Information technology; digital compression and coding of continuous-tone still images; requirements and guidelines	-	-
ISO/IEC 15948	-	Information technology - Computer graphics and image processing - Portable Network Graphics (PNG) - Functional specification	-	-
IEEE 754	-	IEEE Standard for Binary Floating-Point Arithmetic	-	-
IETF RFC 2083	-	PNG (Portable Network Graphics) - Specification Version 1.0	-	-
IETF RFC 3066	-	Tags for the Identification of Languages	-	-
XML-1	-	XML Schema Part 1: Structures, W3C	-	-
XML-2	-	XML Schema Part 2: Datatypes, W3C	-	-

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 62769-2:2015](https://standards.iteh.ai/catalog/standards/sist/2f12d36a-8f28-4e3d-bb4e-86fa5addf34e/sist-en-62769-2-2015)

<https://standards.iteh.ai/catalog/standards/sist/2f12d36a-8f28-4e3d-bb4e-86fa5addf34e/sist-en-62769-2-2015>



IEC 62769-2

Edition 1.0 2015-05

INTERNATIONAL STANDARD

NORME INTERNATIONALE



Field Device Integration (FDI) –
Part 2: FDI Client

STANDARD PREVIEW
(standards.iteh.ai)

Intégration des appareils de terrain (FDI) –
Partie 2: Client FDI

<https://standards.iteh.ai/catalog/standards/sist/2f12d36a-8f28-4e3d-bb4e-86fa5addf34e/sist-en-62769-2-2015>

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 25.040.40; 35.100

ISBN 978-2-8322-2632-2

**Warning! Make sure that you obtained this publication from an authorized distributor.
Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.**

CONTENTS

FOREWORD.....	10
INTRODUCTION.....	12
1 Scope.....	13
2 Normative references	13
3 Terms, definitions, abbreviated terms, acronyms and conventions.....	14
3.1 Terms and definitions.....	14
3.1.1 Terms used for Services	14
3.1.2 Terms used for Device Access Services	15
3.2 Abbreviated terms and acronyms	15
3.3 Conventions.....	15
4 Overview	16
5 FDI Client.....	17
5.1 Device Access Services	17
5.1.1 General	17
5.1.2 Device Model.....	17
5.1.3 Node model	19
5.1.4 Services	23
5.1.5 Base Property Services	27
5.1.6 Device Model Services	28
5.1.7 Locking Services	38
5.1.8 Direct Access Services.....	40
5.1.9 Data types.....	42
5.2 Hosting Services.....	47
5.2.1 General	47
5.2.2 Services	47
5.2.3 Parameter Type Definitions	53
6 UIP.....	54
6.1 UIP Services	54
6.1.1 Services	54
6.1.2 Parameter type definitions	58
6.2 UIP instantiation rules.....	59
6.3 UIP state machine.....	59
6.3.1 States.....	59
6.3.2 State transitions	60
6.4 UIP permissions.....	60
6.5 UIP downloads from FDI Server.....	61
7 Actions	62
7.1 General.....	62
7.2 Sequence diagram	63
7.3 FDI Action schema definition.....	66
8 User Interface Description (UID).....	67
8.1 Overview.....	67
8.2 UID execution	69
Annex A (normative) XML schema	72
A.1 General.....	72

A.2	AbortRequestT	72
A.3	AccessT	72
A.4	AcknowledgementRequestT	73
A.5	ActionListT	73
A.6	AbortingNotificationT	74
A.7	ActionRequestT	74
A.8	ActionResponseT	75
A.9	ActionT	76
A.10	AxisListT	76
A.11	AxisT	76
A.12	BitEnumerationItemListT	77
A.13	BitEnumerationItemT	78
A.14	ButtonListT	78
A.15	ChartT	79
A.16	ChartTypeT	79
A.17	ColorNameT	80
A.18	ColorT	81
A.19	ColorValueT	81
A.20	ColumnBreakT	82
A.21	DateTimeDataT	82
A.22	DelayMessageRequestT	82
A.23	DiagramLineT	83
A.24	EnumerationItemListT	84
A.25	EnumerationItemT	84
A.26	FormatSpecifierT	85
A.27	GraphT	85
A.28	GridT	86
A.29	HandlingT	86
A.30	ImageT	87
A.31	InfoRequestT	88
A.32	InputRequestT	88
A.33	InputResponseT	89
A.34	InputValueT	89
A.35	InputValueTypeT	90
A.36	LabelHelpT	90
A.37	LabelT	91
A.38	LineTypeT	91
A.39	MenuT	92
A.40	MenuReferenceT	93
A.41	MenuStyleT	94
A.42	NumericDataT	95
A.43	NumericTemplateT	95
A.44	OptionListT	96
A.45	OrientationT	96
A.46	ParameterInputRequestT	97
A.47	ParameterListT	97
A.48	ParameterT	98
A.49	PluginT	99
A.50	RangeListT	100

STANDARD PREVIEW

(standards.iteh.ai)

SIST EN 62769-2:2015

[https://standards.iteh.ai/catalog/standards/sis/2f12d36a-8f28-4e3d-bb4e-](https://standards.iteh.ai/catalog/standards/sis/2f12d36a-8f28-4e3d-bb4e-86fa5addb4e/sist-en-62769-2-2015)[86fa5addb4e/sist-en-62769-2-2015](https://standards.iteh.ai/catalog/standards/sis/2f12d36a-8f28-4e3d-bb4e-86fa5addb4e/sist-en-62769-2-2015)

A.51	RangeT	100
A.52	ResponseT	101
A.53	RowBreakT	101
A.54	ScalingT	101
A.55	SelectionRequestT	101
A.56	SelectionResponseT	102
A.57	SeparatorT	102
A.58	SizeT	103
A.59	ParameterClassT	103
A.60	ActionClassT	105
A.61	SourceListT	106
A.62	SourceT	107
A.63	StringDataT	107
A.64	StringTemplateT	108
A.65	StringOptionListT	109
A.66	StringOptionT	109
A.67	StringT	109
A.68	TimeScaleT	110
A.69	UidLayoutInformation	110
A.70	UidRequestT	111
A.71	UidResponseT	111
A.72	UiElementSizeableT	112
A.73	UiElementT	112
A.74	UiTemplateT	113
A.75	VariantT	114
A.76	VariantOptionListT	115
A.77	VariantOptionT	115
A.78	VectorListT	116
A.79	VectorT	116
A.80	WaveformListT	117
A.81	WaveformT	117
A.82	WaveformTypeT	118
A.83	WaveformTypeHorizontalT	118
A.84	WaveformTypeVerticalT	118
A.85	WaveformTypeYTT	119
A.86	WaveformTypeXYT	120
A.87	WaveformKeyPointListT	121
A.88	WaveformVectorT	121
A.89	WaveformVectorElementListT	122
A.90	WaveformVectorElementT	122
Annex B (informative)	Action example	124
Annex C (informative)	Typical FDI Client use cases	133
C.1	General	133
C.2	Bulk operations	133
C.3	Progress bar support	133
Bibliography	135
Figure 1 – FDI architecture diagram	13

Figure 2 – Overall structure of a Device	18
Figure 3 – Structure of Blocks	18
Figure 4 – Device Model NodeClasses	19
Figure 5 – Example: Variable hierarchy representing a RECORD	22
Figure 6 – Variable hierarchy representing a VALUE_ARRAY of RECORDs	23
Figure 7 – UIP state machine	60
Figure 8 – FDI Action sequence diagram	64
Figure 9 – User Interface Descriptions	68
Figure 10 – User Interface Description sequence diagram	70
Figure B.1 – Action example (step 1)	127
Figure B.2 – Action example (step 2)	128
Figure B.3 – Action example (step 3)	129
Figure B.4 – Action example (step 4)	130
Figure B.5 – Action example (step 5)	131
Figure B.6 – Action example (step 6)	132
Figure C.1 – Progress bar support	134
Table 1 – BaseNodeClass Attributes	19
Table 2 – Object NodeClass Attributes	20
Table 3 – Variable NodeClass Attributes	20
Table 4 – Service Definition Table	24
Table 5 – StatusCode Bit Assignments	25
Table 6 – DataValue InfoBits	26
Table 7 – Service result codes	26
Table 8 – Operation level result codes	27
Table 9 – GetDeviceAccessInterfaceVersion Service parameters	28
Table 10 – GetOnlineAccessAvailability Service parameters	28
Table 11 – Browse Service parameters	29
Table 12 – CancelBrowse Service parameters	29
Table 13 – Read Service parameters	30
Table 14 – Read Service result codes	30
Table 15 – Read operation result codes	31
Table 16 – CancelRead Service parameters	31
Table 17 – Write Service parameters	32
Table 18 – Write operation result codes	33
Table 19 – CancelWrite Service parameters	33
Table 20 – CreateSubscription Service parameters	34
Table 21 – CreateSubscription Service result codes	34
Table 22 – Subscribe Service parameters	35
Table 23 – Subscribe operation result codes	36
Table 24 – Unsubscribe Service Parameters	37
Table 25 – Unsubscribe operation result codes	37
Table 26 – DeleteSubscription Service parameters	37

Table 27 – DataChangeCallback Service parameters.....	38
Table 28 – DataChangeCallback result codes.....	38
Table 29 – InitLock Service parameters.....	39
Table 30 – InitLock Service result codes.....	39
Table 31 – ExitLock Service parameters.....	40
Table 32 – ExitLock Service result codes.....	40
Table 33 – InitDirectAccess Service parameters.....	41
Table 34 – InitDirectAccess Service result codes.....	41
Table 35 – ExitDirectAccess Service parameters.....	41
Table 36 – ExitDirectAccess Service result codes.....	41
Table 37 – Transfer Service parameters.....	42
Table 38 – Transfer Service result codes.....	42
Table 39 – Base data types.....	43
Table 40 – Identifiers assigned to Attributes.....	43
Table 41 – NodeSpecifier.....	44
Table 42 – DataValue.....	44
Table 43 – InnerErrorInfo.....	45
Table 44 – LocalizedText Definition.....	45
Table 45 – LocaleId Examples.....	46
Table 46 – Range Data Type Structure.....	46
Table 47 – EUInformation Data Type Structure.....	47
Table 48 – EnumValueType Definition.....	47
Table 49 – GetClientTechnologyVersion Service parameters.....	48
Table 50 – OpenUserInterface Service parameters.....	48
Table 51 – LogAuditTrailMessage Service parameters.....	49
Table 52 – SaveUserSettings Service parameters.....	49
Table 53 – LoadUserSettings Service parameters.....	50
Table 54 – Trace Service parameters.....	50
Table 55 – ShowMessageBox Service parameters.....	51
Table 56 – ShowProgressBar Service parameters.....	51
Table 57 – UpdateShowProgressBar Service parameters.....	52
Table 58 – EndShowProgressBar Service parameters.....	52
Table 59 – StandardUIActionItemsChange Service parameters.....	53
Table 60 – SpecificUIActionItemsChange Service parameters.....	53
Table 61 – DefaultResult definition.....	53
Table 62 – ButtonSet definition.....	54
Table 63 – AcknStyle definition.....	54
Table 64 – Activate Service parameters.....	55
Table 65 – Deactivate Service parameters.....	55
Table 66 – SetSystemLabel Service parameters.....	56
Table 67 – SetTraceLevel Service parameters.....	56
Table 68 – GetStandardUIActionItems Service parameters.....	57
Table 69 – GetSpecificUIActionItems Service parameters.....	57

Table 70 – InvokeStandardUIAction Service parameters	57
Table 71 – InvokeSpecificUIAction Service parameters	58
Table 72 – TraceLevel definition	58
Table 73 – StandardUIAction definition	59
Table 74 – StandardUIActionItem definition	59
Table 75 – SpecificUIActionItem definition	59
Table 76 – UIP states	60
Table 77 – UIP state transitions	60
Table A.1 – Elements of AbortRequestT	72
Table A.2 – Enumerations of AccessT	73
Table A.3 – Elements of AcknowledgementRequestT	73
Table A.4 – Elements of ActionListT	73
Table A.5 – Elements of ActionRequestT	74
Table A.6 – Elements of ActionResponseT	75
Table A.7 – Elements of ActionT	76
Table A.8 – Elements of AxisListT	76
Table A.9 – Attributes of AxisT	77
Table A.10 – Elements of AxisT	77
Table A.11 – Elements of BitEnumerationItemListT	78
Table A.12 – Elements of BitEnumerationItemT	78
Table A.13 – Elements of ButtonListT	79
Table A.14 – Elements of ChartT	79
Table A.15 – Enumerations of ChartTypeT	80
Table A.16 – Enumerations of ColorNameT	81
Table A.17 – Enumerations of DateTimeDataT	82
Table A.18 – Elements of DelayMessageRequestT	83
Table A.19 – Attributes of DiagramLineT	83
Table A.20 – Elements of DiagramLineT	84
Table A.21 – Elements of EnumerationItemListT	84
Table A.22 – Elements of EnumerationItemT	85
Table A.23 – Elements of GraphT	86
Table A.24 – Elements of GridT	86
Table A.25 – Enumerations of HandlingT	87
Table A.26 – Attributes of ImageT	87
Table A.27 – Elements of ImageT	88
Table A.28 – Elements of InfoRequestT	88
Table A.29 – Elements of InputRequestT	89
Table A.30 – Elements of InputResponseT	89
Table A.31 – Elements of InputValueT	90
Table A.32 – Elements of InputValueTypeT	90
Table A.33 – Elements of LabelHelpT	91
Table A.34 – Elements of LabelT	91
Table A.35 – Enumerations of LineTypeT	92

Table A.36 – Attributes of MenuT	93
Table A.37 – Elements of MenuT	93
Table A.38 – Attributes of MenuReferenceT	94
Table A.39 – Elements of MenuReferenceT	94
Table A.40 – Enumerations of MenuStyleT	95
Table A.41 – Enumerations of NumericDataT	95
Table A.42 – Elements of NumericTemplateT	96
Table A.43 – Elements of OptionListT	96
Table A.44 – Enumerations of OrientationT	97
Table A.45 – Elements of ParameterInputRequestT	97
Table A.46 – Elements of ParameterListT	97
Table A.47 – Elements of ParameterT	99
Table A.48 – Elements of PluginT	100
Table A.49 – Elements of RangeListT	100
Table A.50 – Elements of RangeT	101
Table A.51 – Enumerations of ScalingT	101
Table A.52 – Elements of SelectionRequestT	102
Table A.53 – Elements of SelectionResponseT	102
Table A.54 – Enumerations of SizeT	103
Table A.55 – Enumerations of ParameterClassT	104
Table A.56 – Enumerations of ActionClassT	106
Table A.57 – Elements of SourceListT	106
Table A.58 – Elements of SourceT	107
Table A.59 – Enumerations of StringDataT	108
Table A.60 – Elements of StringTemplateT	108
Table A.61 – Elements of StringOptionListT	109
Table A.62 – Elements of StringOptionT	109
Table A.63 – Elements of StringT	110
Table A.64 – Enumerations of TimeScaleT	110
Table A.65 – Elements of UidLayoutInformation	111
Table A.66 – Elements of UidRequestT	111
Table A.67 – Elements of UidResponseT	112
Table A.68 – Attributes of UiElementSizeableT	112
Table A.69 – Elements of UiElementSizeableT	112
Table A.70 – Elements of UiElementT	113
Table A.71 – Elements of UiTemplateT	114
Table A.72 – Elements of VariantT	115
Table A.73 – Elements of VariantOptionListT	115
Table A.74 – Elements of VariantOptionT	116
Table A.75 – Elements of VectorListT	116
Table A.76 – Elements of VectorT	117
Table A.77 – Elements of WaveformListT	117
Table A.78 – Elements of WaveformT	118

Table A.79 – Elements of WaveformTypeHorizontalT	118
Table A.80 – Elements of WaveformTypeVerticalT	119
Table A.81 – Elements of WaveformTypeYTT	120
Table A.82 – Elements of WaveformTypeXYT	120
Table A.83 – Elements of WaveformKeyPointListT	121
Table A.84 – Attributes of WaveformVectorT	122
Table A.85 – Elements of WaveformVectorT	122
Table A.86 – Elements of WaveformVectorElementListT	122
Table A.87 – Elements of WaveformVectorElementT	123

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 62769-2:2015

<https://standards.iteh.ai/catalog/standards/sist/2f12d36a-8f28-4e3d-bb4e-86fa5addf34e/sist-en-62769-2-2015>