



SLOVENSKI STANDARD
SIST EN 62734:2015/oprA1:2018
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**Industrijska omrežja - Brezžično komunikacijsko omrežje in komunikacijski profili -
ISA 100.11a - Dopolnilo A1**

Industrial networks - Wireless communication network and communication profiles - ISA
100.11a

Industrielle Kommunikationsnetze - Drahtlose Kommunikationsnetze und
Kommunikationsprofile - ISA 100.11a

Réseaux industriels - Réseau de communication sans fil et profils de communication -
ISA 100.11a

Ta slovenski standard je istoveten z: EN 62734:2015/prA1:2018

ICS:

25.040.01	Sistemi za avtomatizacijo v industriji na splošno	Industrial automation systems in general
33.040.40	Podatkovna komunikacijska omrežja	Data communication networks
35.100.01	Medsebojno povezovanje odprtih sistemov na splošno	Open systems interconnection in general

SIST EN 62734:2015/oprA1:2018

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65C/918/CDV

COMMITTEE DRAFT FOR VOTE (CDV)

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IEC SC 65C : INDUSTRIAL NETWORKS	
SECRETARIAT: France	SECRETARY: Ms Valérie DEMASSIEUX
OF INTEREST TO THE FOLLOWING COMMITTEES: SC 22G,TC 57,SC 121A	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 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.	<input type="checkbox"/> NOT SUBMITTED FOR CENELEC PARALLEL VOTING

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

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TITLE:

Industrial networks - Wireless communication network and communication profiles - ISA 100.11a

PROPOSED STABILITY DATE: 2022

NOTE FROM TC/SC OFFICERS:

NC comments on this CDV will be resolved either during the next SC65C/WG16 meeting currently scheduled on October 8th-9th, 2018 in Geneva (Switzerland), or a web meeting

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1 FOREWORD

2 This amendment has been prepared by subcommittee 65C: Industrial networks, of IEC
3 technical committee 65: Industrial-process measurement, control and automation.

4 The text of this amendment is based on the following documents:

FDIS	Report on voting
65C/XX/FDIS	65C/XX/RVD

5
6 Full information on the voting for the approval of this amendment can be found in the report
7 on voting indicated in the above table.

8 The committee has decided that the contents of this amendment and the base publication will
9 remain unchanged until the stability date indicated on the IEC web site under
10 "http://webstore.iec.ch" in the data related to the specific publication. At this date, the
11 publication will be

- 12 • reconfirmed,
- 13 • withdrawn,
- 14 • replaced by a revised edition, or
- 15 • amended.

16 The National Committees are requested to note that for this publication the stability date
17 is 2022.

18 THIS TEXT IS INCLUDED FOR THE INFORMATION OF THE NATIONAL COMMITTEES AND WILL BE
19 DELETED AT THE PUBLICATION STAGE.

20
21
22 *Replace all references to "IEEE 802.15.4:2011" and "IEEE 802.15.4e" with*
23 *"IEEE 802.15.4:2015".*

24
25 **0.3 Potentially relevant patents**

26 *In cell d) of the table providing coordinates for the Yokogawa Electric Corporation patent*
27 *holder, replace "Musashina-shi" with "Musashino-shi".*

28 **6.2.7.2.7 Alert reporting management object attributes, alerts and methods**

29 *In Table 7, for Attribute 2 (Confirmation_Timeout_Device_Diagnostics), add valid value set of*
30 *-4 to 32767.*

31 **6.2.8.1.1 General**

32 *In Table 10, for DMO Attribute 8 (Tag_Name), add default value of null string (length zero).*

33 *Also in Table 10, for the default value of DMO Attribute 27 (Contract_Request_Timeout),*
34 *replace the value 30 s with 248 s.*

35 *Also in Table 10, for the default value of DMO Attribute 29 (Max_Retry_Timeout_Interval),*
36 *replace the value 30 s with 62 s.*

37 **6.3.9.2.2 Device management object methods for advertising router**38 **6.3.9.5 Device management service object**39 *In Table 19 and Table 23, add Input Argument 11 as follows:*

11	Consortium_Info	Type: Unsigned8	Provides Consortium-specific information from the joining device that is not specified by this standard
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40

41 *Also in Table 19 and Table 23, replace Output Arguments 7 and 8 with the following:*

7	Assigned_Max_TSDU_Size	Type: Unsigned16	Indicates the maximum TSDU supported in octets which can be converted by the source into max APDU size by taking into account the TL, security, AL headers and TMIC sizes
8	MIC	Type: OctetString4	This value is used for protecting argument 1 through 7 with Join key. This MIC value is generated by the Security Manager. The Advertisement router shall not overwrite this value. See 7.4.4.3.3.2

42

43 **6.3.11.2.5.4 Contract request and response arguments**44 *In Table 27, Input Arguments 16-17, Output Arguments 13-14, 24-25; Table 30, Elements 15-16; and Table 31, Elements 3-4: add valid value set of -32768 to 16 for the specified elements.*47 **7.3.2.6 Processing of received DPDUs**48 *In step e), delete “Additionally, the procedure shall verify that the 8-bit MHR sequence number is not 0xFF. If the 8-bit MHR sequence number is 0xFF, the procedure shall return with a status of INVALID_SEQUENCE_NUMBER.”*51 **7.3.3.9 Processing for received TPDUs**52 *In step h), replace “may decrement” with “shall decrement”.*53 **7.4.4.3.3.2 MIC generation for System_Manager_Join response**54 *Replace the formula with the following:*55
$$\text{MACTag} = \text{HMAC- MMO}_{K_{\text{join}}}[\text{Output Argument number 1 .. number 7 in Table 23} \parallel \text{EUI-64}_{\text{join_device}} \parallel \text{Challenge}_{\text{join_device}}]$$
57 **7.4.5.2.2 Symmetric-key join request**58 *Replace the elements in Table 62 with the following:*

New_Device_EUI64	1	Type: EUI64Address Classification: Constant Accessibility: Read only
DL_Subnet_ID	2	Type: Unsigned16 Classification: Static Accessibility: Read/write
Comm_SW_Major_Version	3	Type: Unsigned8 Classification: Static Accessibility: Read only
Comm_SW_Minor_Version	4	Type: Unsigned8 Classification: Static Accessibility: Read only
128_Bit_Challenge_From_New_Device	5	Type: Unsigned128 Classification: Static Accessibility: Read/write
Algorithm_Identifier	6	Type: Unsigned8 Classification: Static Accessibility: Read only Default value : 1
MIC	7	Type: Unsigned32 Classification: Static Accessibility: Read only

59

60 *Also, in the text following Table 62, as the second, third, and fourth items, add the following:*

- 61 • DL_Subnet_ID is the DL subnet that the new device is trying to join; it is also the DL
62 subnet of the advertising router.
- 63 • Comm_SW_Major_Version is a copy of the DMO Comm_SW_Major_Version
64 attribute; see Table 10, Attribute 20.
- 65 • Comm_SW_Minor_Version is a copy of the DMO Comm_SW_Minor_Version
66 attribute; see Table 10, Attribute 21.

67 *Also, in the text following Table 62, replace the last item in the list with the following:*

- 68 • The MIC is of 32 bits in length and is computed over the elements 1 through 6, using
69 the join key and the 13 most significant octets of the challenge as nonce.

70

71 **7.5.4 Proxy security management object methods related to the session establishment**72 **7.6.3 Device security management object methods 7.6.3 related to T-key update**

73 *In the text following Table 81, Table 82, Table 84, and Table 85, in text similar to "... security
74 level [for Security_Control] is chosen from MIC-32, MIC-64, and MIC-128 with the Master key
75 security level assigned in the join process", delete "assigned in the join process".*

76

77 **7.11.3.2 Additional device security management object methods to support key
78 management**

79 *In Table 95, in the description for Argument Number 8 (MIC), delete "assigned in joining
80 process".*

81 *In the text before Table 96, add the following:*

82 Use of the Key_Policy_Update method shall be limited to changes to
83 SoftLifespan_Ratio. More general changes of key policy are accomplished by key
84 replacement, as described in subclause 7.6.

85 *In Table 96, in the description for Argument Number 10 (MIC), delete "assigned in joining
86 process".*

87 **9.1.9.4.3 Unicast transaction**88 *Delete the paragraph that begins with "IEEE 802.15.4:2011 permits CCA Mode 3".*

89 **9.1.15.6 Country code**

90 *Delete NOTE 1, change "NOTE 2" to "NOTE" (i.e., delete the number), and replace the*
 91 *paragraph after the deleted NOTE 1 with:*

92 When Bit11, Bit13 and Bit14 (ETSI, LBT and FHSS) are all true, operation may need to
 93 switch momentarily to the non-adaptive rules of ETSI EN 300 328 v2.1.1 while
 94 sending a near-maximal-size ACK/NAK DPDU (as short control signaling) within a
 95 transaction and for the immediately following Tx-gap-time of EN-mandated non-
 96 transmission, thus supporting mode V.4 category 6), where the exact requirements
 97 for such momentary mode-switching are specified.

98 **9.3.4 MAC acknowledgment DPDUs**

99 *In Table 117, last row, first column, replace "0..3" with "0, 3".*

100 **9.3.5.2.4.2 Advertisement join links**

101 *In the text after Table 128, replace the text for DauxJoinBackoff as follows:*

102 During the join process, DauxJoinBackoff shall be used instead of MaxBackoffExp,
 103 following the exponential backoff procedure described in 9.1.8.2.

104 *In Table 129, in the intersection of DauxJoinRx and Type_SelectiveAllowed, replace 1 with 0*
 105 *as shown:*

Field name	DauxJoinTx	DauxJoinRx	DauxAdvRx (when DauxJoinFldXmit.Bit3 =1)
Type-SelectiveAllowed	1	0	1

106

107 **9.3.5.3.1 General**

108 *After "a solicitation's DMIC shall be built using a security key of K_{global} and a nominal TAI*
 109 *time of zero", add "and a source address of zero".*

110 **9.4.2.1 General**

111 *In Table 141, for Attribute 5 (SolicTemplate), replace "Default value: Null" with "Default*
 112 *value: 0x80".*

113 *Also in Table 141, for the default value of DLMO Attribute 12 (MaxLifetime), replace the value*
 114 *120 (30 s) with 248 (62 s).*

115 **9.4.2.23 DLMO device capabilities**

116 *In Table 148, replace the row for Energy Design with the following:*

5-8 octet	EnergyDesign (see Table 146)
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117

118 *In the text following Table 148, in the description of •dlmo.DeviceCapability.ClockStability,*
 119 *replace "absence" with "presence".*

120 **9.4.2.27.1 General**

121 *Replace "Such skipped links should be treated as equivalent to NAK for the applicable*
 122 *channel" with the following:*

123 Such skipped links should be counted as a NoACK for the applicable channel, that is,
 124 they should be counted as unacknowledged DL transmissions in the ChannelDiag
 125 diagnostic.

126 **9.4.3.5.3 Superframe current timeslot state**

127 *Replace the formula for ChOffset with the following:*

128 $ChOffset = ((SlotNumAbs - ChBirth) \bmod ChCycle) / ChRate$

129 **9.4.3.7.2 Semantics**130 *In Table 184, for bitmap encoding, replace BooleanArray32 with 32-bit BitString.*131 **9.4.3.9.2 Semantics**132 *In Table 188, for ClockSigma, replace “Type: Integer16” with “Type: Unsigned16”.*133 **11.6.2.5.2 Attributes**134 *In Table 229, Attribute 2 (MaxNbOfPorts), replace in the description “Number of active ports”*
135 *with “Maximum number of ports available”.*136 *Also in Table 229, add Attribute 11 as follows:*

TPDUoutOfSecurityPolicies AlertDescriptor	11	Used to change the priority of the TPDUoutOfSecurityPolicies alert; this alert can also be turned on or turned off	Type: Alert report descriptor	
			Classification: Static	
			Accessibility: Read/write	
			Initial default value: Alert report disabled = True Alert report priority = 2 (journal)	
Valid value set: See type definition				

137

138 **13.9.1 Device provisioning object**139 *In the latter part of Table 368, replace attribute identifiers as follows:*

Attribute name	Attribute identifier
PKI_Root_Certificate	18
Number of PKI_Certificates	19
PKI_Certificate	20
Current_UTC_Adjustment	21
PKI_Certificate_Type	22

140

141 *Also in Table 368, for Attribute 11 (Target_Nwk_ID), replace default value of 0 with default*
142 *value of 1.*143 *Also in Table 368, for Attribute 13 (Target_Join_Method), replace default value of 1 with*
144 *default value of 1 in devices that support asymmetric key join, and default value of 0 in*
145 *devices that do not support asymmetric key join.*146 **13.9.1 Device provisioning object**147 **13.10.1 Device provisioning service object attributes**148 *In Table 368 and Table 371, for Attribute Target_Channel_List, replace data type with “Type:*
149 *Unsigned16”.*

150

151 **B.7 Network layer**152 *In Table B.18 and Table B.19, for Minimum number entries supported for Backbone router,*
153 *replace 15 with 5.*

154

155