

SLOVENSKI STANDARD
SIST EN 62439-4:2010/A1:2012
01-junij-2012

**Industrijska komunikacijska omrežja za avtomatizacijo z visoko razpoložljivostjo -
4. del: Protokol redundance prepletenega omrežja (CRP) (IEC 62439-
4:2010/A1:2012)**

Industrial communication networks - High availability automation networks - Part 4: Cross
-network Redundancy Protocol (CRP) (IEC 62439-4:2010/A1:2012)

Industrielle Kommunikationsnetze - Hochverfügbare Automatisierungsnetze - Teil 4:
Redundanz-Protokoll für vermaschte Netze (CRP) (IEC 62439-4:2010/A1:2012)
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Réseaux de communication industrielle - Réseaux d'automatisme à haute disponibilité -
Partie 4 : Protocole de redondance transréseau (CRP) (CEI 62439-4:2010/A1:2012)

Ta slovenski standard je istoveten z: EN 62439-4:2010/A1:2012

ICS:

25.040.01	Sistemi za avtomatizacijo v industriji na splošno	Industrial automation systems in general
35.110	Omreževanje	Networking

SIST EN 62439-4:2010/A1:2012 en

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 62439-4/A1

April 2012

ICS 25.040; 35.040

English version

**Industrial communication networks -
High availability automation networks -
Part 4: Cross-network Redundancy Protocol (CRP)
(IEC 62439-4:2010/A1:2012)**

Réseaux de communication industrielle -
Réseaux d'automatisme à haute
disponibilité -
Partie 4 : Protocole de redondance
transréseau (CRP)
(CEI 62439-4:2010/A1:2012)

Industrielle Kommunikationsnetze -
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Teil 4: Redundanz-Protokoll für
vermaschte Netze (CRP)
(IEC 62439-4:2010/A1:2012)

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This amendment A1 modifies the European Standard EN 62439-4:2010; it was approved by CENELEC on 2012-03-30. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment 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 amendment 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.

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CENELEC

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

Management Centre: Avenue Marnix 17, B - 1000 Brussels

Foreword

The text of document 65C/672/FDIS, future edition 1 of IEC 62439-4:2010/A1, prepared by SC 65C, "Industrial networks", of IEC TC 65, "Industrial-process measurement, control and automation" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62439-4:2010/A1:2012.

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) 2012-12-30
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2015-03-30

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Endorsement notice

The text of the International Standard IEC 62439-4:2010/A1:2012 was approved by CENELEC as a European Standard without any modification.

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IEC 62439-4

Edition 1.0 2012-02

INTERNATIONAL STANDARD

NORME INTERNATIONALE

AMENDMENT 1
AMENDEMENT 1

**Industrial communication networks – High availability automation networks –
Part 4: Cross-network Redundancy Protocol (CRP)**

**Réseaux de Communication Industriels – Réseaux de haute disponibilité pour
l'automation - Partie 4: Protocole de Redondance a réseau Croisé (CRP)**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
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ICS 25.040; 35.040

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FOREWORD

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

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

FDIS	Report on voting
65C/672/FDIS	65C/683/RVD

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

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

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

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8.4.1.1

Protocol_Version

<https://standards.iteh.ai/catalog/standards/sist/046a354c-db52-4d47-a9af-97d3dc63060/sist-en-62439-4-2010-a1-2012>

Replace the first paragraph by the following paragraph:

This configured attribute specifies the CRP protocol used. It is an Unsigned8 with a value of 0x01 for the version without the optional extension field and 0x02 for the version with the optional extension field.

8.5 CRP encoding of the DiagnosticFrame

Table 7

Replace the existing Table 7 by the following new table (modifications are underlined):

Table 7 – CRP DiagnosticFrame format

Parameter name	Offset	Data type	Size	Description
Ethernet DLL header				
Preamble	0		8	Alternating ones and zeros
Destination address	8		6	Broadcast, multicast MAC address
Source address	14		6	Unicast source MAC address of adapter used to send this message.
Type	20		2	0x800 for IP datagrams
IP header				
IP version	22		4	IP version (4 bit field) = 4
IP header length				Internet header length (4 bit field) is the length of the internet header in 32 bit words = 6
IP type of service				Type of service (8 bit field) – set all fields = 0 Bits 0-2: precedence. Bit 3: 0 = normal delay, 1 = low delay. Bits 4: 0 = normal throughput, 1 = high throughput. Bits 5: 0 = normal reliability, 1 = high reliability. Bit 6-7: reserved for future use.
IP total length				Length of IP field (16 bit field) in bytes, including IP header and data = 346
IP identifier	26		4	Identifier for fragmented packets. Set = 0
IP flags				Flags (3 bit field) Bit 0: reserved, shall be zero Bit 1: don't fragment = 1 Bit 2: 0 = last fragment
IP fragment offset				Position in original datagram. First fragment = 0
IP time to live	30	Unsigned8	4	Set to 1
IP protocol		Unsigned8		User datagram = 17 (decimal)
IP header checksum				16 bits. The checksum field is the 16 bit one's complement of the one's complement sum of all 16 bit words in the header. For purposes of computing the checksum, the value of the checksum field is zero.
IP source address	34		4	Source_IP_Address.
IP destination address	38		4	Configured DiagnosticFrame_Address, see 8.4.1.7
IP options	42		1	
IP pad	43		3	Pad header to a 32 bit boundary. Pad set = 0
UDP header				
UDP source port	46		2	See 8.4.1.8
UDP destination port	48		2	See 8.4.1.9
UDP length	50		2	Length of UDP field
UDP checksum	52		2	Checksum is the 16-bit one's complement of the one's complement sum of a pseudo header of information from the IP header, the UDP header, and the data.

Parameter name	Offset	Data type	Size	Description
CRP header				
CRP Protocol_Version	54	Unsigned8	1	see 8.4.1.1
<u>Option</u>	<u>55</u>	<u>Unsigned8</u>	<u>1</u>	<u>Bit 8: set to 1</u> <u>Bit 7: set to 0</u> <u>Bit 6: 1=optional extension present</u> <u>Bits 5 – 0: set to 0</u>
reserved	<u>56</u>	Unsigned16	<u>2</u>	Set to 0x <u>1001</u>
CRP auxiliary address	58	Unsigned32	4	Not used – set to 0
CRP message length	62	Unsigned32	4	Specifies the number of octets contained in the entire message, starting immediately after the UDP header until the end of the message.
CRP Body				
CRP Node_Index	66	Unsigned16	2	See 8.4.1.10
CRP Number_of_ports	68	Unsigned8	1	See 8.4.1.2
Transmission adapter	69	Unsigned8	1	Port used to transmit this DiagnosticFrame. 0 = adapter A 1 = adapter B
CRP DiagnosticFrame_Interval	70	Unsigned 32	4	See 8.4.1.5
CRP Node_Name	74	VisibleString	32	See 8.4.1.13
Reserved	106	Unsigned8	1	Reserved, set to zero
CRP Duplicate_Detection_State	107	Unsigned8	1	See 8.4.1.16
Number_Of_Adapter_StatUSES	108	Unsigned16	2	Number of Unsigned32 entries in the Path_Status.
Path_Status_A_to_A	110	array of Unsigned32	See a)	See Table 4
Path_Status_B_to_A	See a)	array of Unsigned32	See a)	See Table 4
Path_Status_A_to_B	See a)	array of Unsigned32	See a)	See Table 4
Path_Status_B_to_B	See a)	array of Unsigned32	See a)	See Table 4
Sequence_Number	See a)	Unsigned32	4	See 8.4.1.18
<u>Optional extension</u>	<u>See a)</u>	<u>OctetString</u>	<u>8</u>	<u>Reserved</u>
Ethernet DLL trailer				
FCS	See a)		4	CRC based frame check sequence
a) The field size and offset depends on the number of adapter statuses, the size of each Path_Status field is 4 x number of adapter statuses, the offset is incremented by the size of the previous field.				