SLOVENSKI STANDARD
SIST EN 61499-2:2006

01-januar-2006

Funkcijski bloki - 2. del: Zahteve za programska orodja (IEC 61499-2:2005)

Function blocks -- Part 2: Software tools requirements

Funktionsbausteine für industrielle Leitsysteme -- Teil 2: Anforderungen an Software-Werkzeuge

Blocs fonctionnels -- Partie 2: Spécifications des outils logiciels

Ta slovenski standard je istoveten z: **EN 61499-2:2005**

ICS:

25.040.40	Merjenje in krmiljenje industrijskih postopkov	Industrial process measurement and control
35.080	Dokumentiranje razvoja programske opreme in sistemov (sistemska dokumentacija)	Software development and system documentation
35.240.50	Uporabniške rešitve IT v industriji	IT applications in industry

SIST EN 61499-2:2006 **en**

EUROPEAN STANDARD **EN 61499-2**

NORME EUROPÉENNE

EUROPÄISCHE NORM August 2005

ICS 25.040.40; 35.240.50

English version

Function blocks
Part 2: Software tools requirements
(IEC 61499-2:2005)

Blocs fonctionnels
Partie 2: Spécifications des outils logiciels
(CEI 61499-2:2005)

Funktionsbausteine für industrielle Leitsysteme
Teil 2: Anforderungen an Software-Werkzeuge
(IEC 61499-2:2005)

This European Standard was approved by CENELEC on 2005-06-01. 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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

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

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

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Ref. No. EN 61499-2:2005 E

Foreword

The text of the International Standard IEC 61499-2:2005, prepared by IEC TC 65, Industrial-process measurement and control, was submitted to the formal vote and was approved by CENELEC as EN 61499-2 on 2005-06-01 without any modification.

The following dates were fixed:

– latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2006-06-01

– latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2008-06-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 61499-2:2005 was approved by CENELEC as a European Standard without any modification.

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE Where an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Year
IEC 61499-1	- [1)]	Function blocks Part 1: Architecture	EN 61499-1	2005 [2)]
IEC 61499-4	- [3)]	Part 4: Rules for compliance profiles	EN 61499-4	- [3)]

The normative references given in EN 61499-1 apply to this part of EN 61499.

1) Undated reference.

2) Valid edition at date of issue.

3) To be published.

INTERNATIONAL STANDARD

IEC 61499-2

First edition
2005-01

Function blocks –

Part 2:
Software tools requirements

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Международная Электротехническая Комиссия

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

FUNCTION BLOCKS –

Part 2: Software tool requirements

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.

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International Standard IEC 61499-2 has been prepared by IEC technical committee 65: Industrial-process measurement and control.

This standard cancels and replaces IEC/PAS 61499-2 published in 2001. This first edition constitutes a technical revision.

The following major technical changes have occurred between the PAS edition and this edition:

a) Syntax for network segments, links and parameters has been added in Annex A for consistency with IEC 61499-1.

b) Syntax for parameters instead of constant data connections has been included for consistency with IEC 61499-1.

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

CDV	Report on voting
65/339/CDV	65/347/RVC

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

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

IEC 61499 consists of the following parts, under the general title *Function blocks:*

Part 1: Architecture

Part 2: Software tool requirements

Part 3: Tutorial information

Part 4: Rules for compliance profiles [1]

The committee has decided that the contents of this publication will remain unchanged until the maintenance result 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.

A bilingual version of this standard may be issued at a later date.

[1] Under consideration.

INTRODUCTION

The IEC 61499 series consists of four Parts:

- Part 1 contains:
  - general requirements, including an introduction, scope, normative references, definitions, and reference models;
  - rules for the declaration of *function block types*, and rules for the behaviour of *instances* of the types so declared;
  - rules for the use of function blocks in the *configuration* of distributed Industrial-Process Measurement and Control *Systems* (IPMCSs);
  - rules for the use of function blocks in meeting the communication requirements of distributed IPMCSs;
  - rules for the use of function blocks in the management of *applications, resources* and *devices* in distributed IPMCSs.
- Part 2 (this part of IEC 61499) defines requirements for *software tools* to support the following systems engineering tasks enumerated in Clause 1 of IEC 61499-1:
  - the specification of *function block types*;
  - the functional specification of *resource types* and *device types*;
  - the specification, analysis, and validation of distributed IPMCSs;
  - the *configuration*, *implementation*, operation, and maintenance of distributed IPMCSs;
  - the exchange of *information* among *software tools*.

  It is assumed that such software tools may be used in the context of an Engineering Support System (ESS) as described in Clause C.1 of IEC 61499-1.
- Part 3 has the purpose of increasing the understanding, acceptance, and both generic and domain-specific applicability of IPMCS architectures and software tools meeting the requirements of the other Parts, by providing:
  - answers to Frequently Asked Questions (FAQs) regarding the IEC 61499 series;
  - examples of the use of IEC 61499 constructs to solve frequently encountered problems in control and automation engineering.
- Part 4 defines rules for the development of *compliance profiles* which specify the features of IEC 61499-1 and 61499-2 to be implemented in order to promote the following attributes of IEC 61499-based systems, devices and software tools:
  - interoperability of devices from multiple suppliers;
  - portability of software between software tools of multiple suppliers; and
  - configurability of devices from multiple vendors by software tools of multiple suppliers.

FUNCTION BLOCKS –

Part 2: Software tool requirements

1 Scope

This part of IEC 61499 defines requirements for *software tools* to support the following systems engineering tasks enumerated in Clause 1 of IEC 61499-1:

– the specification of *function block types*;

– the functional specification of *resource types* and *device types*;

– the specification, analysis, and validation of distributed IPMCSs;

– the *configuration*, *implementation*, operation, and maintenance of distributed IPMCSs;

– the exchange of *information* among *software tools*.

It is assumed that such software tools may be used in the context of an Engineering Support System (ESS) as described in Clause C.1 of IEC 61499-1.

It is beyond the scope of this part of IEC 61499 to specify the entire life cycle of industrial-process measurement and control systems (IPMCSs), or the entire set of tasks and activities required to support an IPCMS over its life cycle. However, other standards which do specify such tasks and activities may extend or modify the requirements specified in this Part.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 61499-1, *Function blocks - Part 1: Architecture*

IEC 61499-4, *Function Blocks - Part 4: Rules for compliance profiles*[2]

The normative references given in IEC 61499-1 apply to this part of IEC 61499.

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 61499-1 as well as the following apply.

3.1
library element
collection of declarations applying to a data type, function block type, adapter type, subapplication type, resource type, device type, or system configuration.

2 To be published.

4 Software tool requirements

4.1 Information to be provided by the software tool supplier

This Clause defines the functional requirements of *software tools* that support the performance of the systems engineering tasks enumerated in Clause 1.

The supplier of a *software tool* shall specify the following information in addition to other information required in this Clause:

a) The type or types of *library element* to which the software tool applies.

b) The engineering task or tasks supported by the software tool. Task descriptions may be taken from the enumeration of engineering tasks given in Clause 1, or may be defined by the supplier.

4.2 Exchange of library elements

A *software tool* shall be capable of exchanging its *library elements* with other software tools. This exchange shall take the form of *data* in the format defined in Annex A, written on physical media or exchanged over communication links or networks.

4.3 Information to be provided by the supplier of library elements

NOTE The provisions of this subclause are intended to provide the means by which the provider of a library element may achieve protection of intellectual property while still providing sufficient information to permit the effective use of the library element.

The provider of a *library element* may elect to provide an *implementation* of the library element.

EXAMPLE 1 The provider of a *function block type* library element may provide an implementation of the function block type as:

- one or more *instances* of the function block type in a *resource* contained in a *device* of Class 0 or higher as described in IEC 61499-4;
- an instantiable implementation of the function block type in a *resource* contained in a *device* of Class 1 or higher as described in IEC 61499-4;
- a file in an implementation-dependent format suitable for installation in a *resource* contained in a *device* of Class 2 as described in IEC 61499-4, for instance using an XML syntax which may be defined in a compliance profile developed according to the rules given in IEC 61499-4.

When an implementation of a library element is provided, the provider is not required to provide full details of the implementation. However, the provider shall provide sufficient information to enable the user to fully determine the functionality of the provided library element.

EXAMPLE 2 The requirement of the above paragraph would be met by the provider of an *instance* of a function block *type* in a *resource* through the provision, at a minimum, of the following information:

- a *function block type* library element specifying its *event* and *data interfaces* as defined in IEC 61499-1, 5.2.1, and its *services* as defined in IEC 61499-1, 6.1.3;
- *resource type* and *device type* library elements showing the occurrence and connections of the function block *instances*.