

# **SLOVENSKI STANDARD**

## **SIST EN 61069-1:2017**

**01-marec-2017**

**Nadomešča:**

**SIST EN 61069-1:1998**

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**Meritve, krmiljenje in avtomatizacija v industrijskih procesih - Ocenjevanje lastnosti sistema zaradi njegovega vrednotenja - 1. del: Terminologija in osnovni pojmi (IEC 61069-1:2016)**

Industrial-process measurement, control and automation - Evaluation of system properties for the purpose of system assessment - Part 1: Terminology and basic concepts (IEC 61069-1:2016)

Leittechnik für industrielle Prozesse - Ermittlung der Systemeigenschaften zum Zweck der Eignungsbeurteilung eines Systems - Teil 1: Terminologie und Konzepte (IEC 61069-1:2016)

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Mesure, commande et automation dans les processus industriels - Appréciation des propriétés d'un système en vue de son évaluation - Partie 1: Terminologie et principes de base (IEC 61069-1:2016)

**Ta slovenski standard je istoveten z: EN 61069-1:2016**

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**ICS:**

25.040.40	Merjenje in krmiljenje industrijskih postopkov	Industrial process measurement and control
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**en,fr,de**

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 61069-1**

October 2016

ICS 25.040.40

Supersedes EN 61069-1:1993

English Version

**Industrial-process measurement, control and automation -  
Evaluation of system properties for the purpose of system  
assessment - Part 1: Terminology and basic concepts  
(IEC 61069-1:2016)**

Mesure, commande et automation dans les processus  
industriels - Appréciation des propriétés d'un système en  
vue de son évaluation - Partie 1: Terminologie et principes  
de base  
(IEC 61069-1:2016)

Leittechnik für industrielle Prozesse - Ermittlung der  
Systemeigenschaften zum Zweck der Eignungsbeurteilung  
eines Systems - Teil 1: Terminologie und Konzepte  
(IEC 61069-1:2016)

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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 61069-1:2016****European foreword**

The text of document 65A/788/FDIS, future edition 2 of IEC 61069-1, prepared by SC 65A "System aspects" of IEC/TC 65 "Industrial-process measurement, control and automation" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61069-1:2016.

The following dates are fixed:

- latest date by which the document has to be (dop) 2017-04-28  
implemented at national level by  
publication of an identical national  
standard or by endorsement
- latest date by which the national (dow) 2019-10-28  
standards conflicting with the  
document have to be withdrawn

This document supersedes EN 61069-1:1993.

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The text of the International Standard IEC 61069-1:2016 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 61069 Series	NOTE	Harmonized as EN 61069 Series.
IEC/TS 62603-1	NOTE	Harmonized as CLC/TS 62603-1.
IEC 61800-7-1:2015	NOTE	Harmonized as EN 61800-7-1:2016 (not modified).
IEC 61987-1:2006	NOTE	Harmonized as EN 61987-1:2007 (not modified).
IEC 61508-1:2010	NOTE	Harmonized as EN 61508-1:2010 (not modified).
IEC 82045-1:2001	NOTE	Harmonized as EN 82045-1:2001 (not modified).
IEC 60300-3-1	NOTE	Harmonized as EN 60300-3-1.
IEC 60654 Series	NOTE	Harmonized as EN 60654 Series.
IEC 60654-1	NOTE	Harmonized as EN 60654-1.
IEC 60654-2	NOTE	Harmonized as EN 60654-2.
IEC 60654-3	NOTE	Harmonized as EN 60654-3.
IEC 60654-4	NOTE	Harmonized as EN 60654-4.
IEC 60038	NOTE	Harmonized as EN 60038.
IEC 60721-3-1	NOTE	Harmonized as EN 60721-3-1.
IEC 60721-3-2	NOTE	Harmonized as EN 60721-3-2.
IEC 60721-3-3	NOTE	Harmonized as EN 60721-3-3.
IEC 60721-3-4	NOTE	Harmonized as EN 60721-3-4.
IEC 61326-1:2012	NOTE	Harmonized as EN 61326-1:2013 (not modified).
IEC 61000-4-3	NOTE	Harmonized as EN 61000-4-3.
IEC 61000-4-4	NOTE	Harmonized as EN 61000-4-4.
IEC 61000-4-5	NOTE	Harmonized as EN 61000-4-5.

IEC 61000-4-6	NOTE	Harmonized as EN 61000-4-6.
IEC 61000-4-8	NOTE	Harmonized as EN 61000-4-8.
IEC 61000-4-9	NOTE	Harmonized as EN 61000-4-9.
IEC 61000-4-10	NOTE	Harmonized as EN 61000-4-10.
IEC 61000-4-11	NOTE	Harmonized as EN 61000-4-11.
IEC 61000-2-4	NOTE	Harmonized as EN 61000-2-4.
ISO 9001:2015	NOTE	Harmonized as EN ISO 9001:2015.
IEC 60664-1	NOTE	Harmonized as EN 60664-1.
IEC 61010-1	NOTE	Harmonized as EN 61010-1.
IEC 62381	NOTE	Harmonized as EN 62381.
IEC 62443 Series	NOTE	Harmonized as EN 62443 Series <sup>1)</sup> .

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<sup>1)</sup> At draft stage.

## 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](http://www.cenelec.eu)

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 61000-4-2	-	Electromagnetic compatibility (EMC) - Part 4-2: Testing and measurement techniques - Electrostatic discharge immunity test	EN 61000-4-2	-
IEC 61000-6-4	2006	Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments	EN 61000-6-4	2007
+A1	2010		+A1	2011
IEC 61508-4	2010	Functional safety of electrical/electronic/programmable electronic safety-related systems - Part 4: Definitions and abbreviations	EN 61508-4	2010
IEC 61511-1	2003	Functional safety - Safety instrumented systems for the process industry sector - Part 1: Framework, definitions, system, hardware and software requirements	EN 61511-1	2004



IEC 61069-1

Edition 2.0 2016-06

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE



**Industrial-process measurement, control and automation – Evaluation of system properties for the purpose of system assessment – Part 1: Terminology and basic concepts**

**Mesure, commande et automation dans les processus industriels – Appréciation des propriétés d'un système en vue de son évaluation – Partie 1: Terminologie et principes de base**

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

# INDUSTRIAL-PROCESS MEASUREMENT, CONTROL AND AUTOMATION – EVALUATION OF SYSTEM PROPERTIES FOR THE PURPOSE OF SYSTEM ASSESSMENT –

## Part 1: Terminology and basic concepts

### FOREWORD

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International Standard IEC 61069-1 has been prepared by subcommittee 65A: System aspects, of IEC technical committee 65: Industrial-process measurement, control and automation.

This second edition cancels and replaces the first edition published in 1991. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) Reorganization of the material of IEC 61069-1:1991 to make the overall set of standards more organized and consistent;
- b) IEC TS 62603-1:2014 has been incorporated into this edition.

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

FDIS	Report on voting
65A/788/FDIS	65A/798/RVD

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.

A list of all parts in the IEC 61069 series, published under the general title *Industrial-process measurement, control and automation – Evaluation of system properties for the purpose of system assessment*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website 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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## INTRODUCTION

IEC 61069 deals with the method which should be used to assess system properties of a basic control system (BCS). IEC 61069 consists of the following parts:

- Part 1: Terminology and basic concepts
- Part 2: Assessment methodology
- Part 3: Assessment of system functionality
- Part 4: Assessment of system performance
- Part 5: Assessment of system dependability
- Part 6: Assessment of system operability
- Part 7: Assessment of system safety
- Part 8: Assessment of other system properties

Assessment of a system is the judgement, based on evidence, of the suitability of the system for a specific mission or class of missions.

To obtain total evidence would require complete evaluation (for example under all influencing factors) of all system properties relevant to the specific mission or class of missions.

Since this is rarely practical, the rationale on which an assessment of a system should be based is:

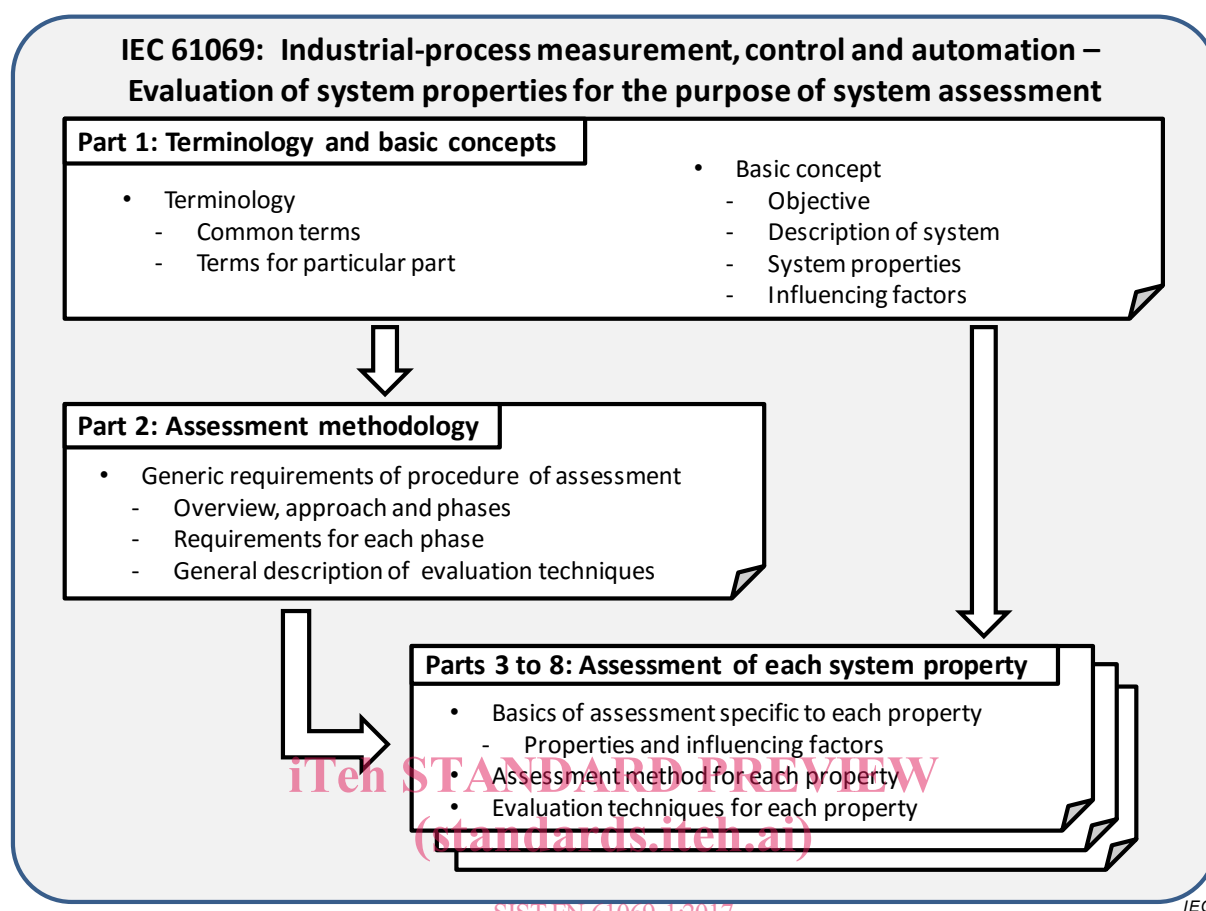
- the identification of the importance of each of the relevant system properties;
- the planning for evaluation of the relevant system properties with a cost-effective dedication of effort to the various system properties.

In conducting an assessment of a system, it is crucial to bear in mind the need to gain a maximum increase in confidence in the suitability of a system within practical cost and time constraints.

An assessment can only be carried out if a mission has been stated (or given), or if any mission can be hypothesized. In the absence of a mission, no assessment can be made; however, examination of the system to gather and organize data for a later assessment done by others is possible. In such cases, the standard can be used as a guide for planning an evaluation and it provides methods for performing evaluations, since evaluations are an integral part of assessment.

In preparing the assessment, it can be discovered that the definition of the system is too narrow. For example, a facility with two or more revisions of the control systems sharing resources, e.g., a network, should consider issues of co-existence and inter-operability. In this case, the system to be investigated should not be limited to the “new” BCS; it should include both. That is, it should change the boundaries of the system to include enough of the other system to address these concerns.

The part structure and the relationship among the parts of IEC 61069 are shown in Figure 1.



IEC

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**Figure 1 – General layout of IEC 61069**

Some example assessment items are integrated in Annex A.

# INDUSTRIAL-PROCESS MEASUREMENT, CONTROL AND AUTOMATION – EVALUATION OF SYSTEM PROPERTIES FOR THE PURPOSE OF SYSTEM ASSESSMENT –

## Part 1: Terminology and basic concepts

### 1 Scope

This part of IEC 61069 defines the terminology and outlines basic concepts in the assessment of a basic process control system (BPCS) and a basic discrete control system (BDCS). These two general system types cover the areas of discrete, batch and continuous applications. In IEC 61069 these two, BPCS and BDCS, together are referred to as "basic control system(s)", (BCS).

The treatment of safety in IEC 61069 is confined to hazards that can be present within the BCS itself.

Considerations of hazards that can be introduced by the process or equipment under control, of the BCS to be assessed, are excluded.

Where the BCS risk reduction is intended to be less than 10 (i.e.  $SIL < 1$ , per IEC 61508-4), then assessment comes under IEC 61069.

A BCS with a safety integrity level (SIL) or performing any safety instrumented function (SIF) is not covered by IEC 61069, where SIL is defined by IEC 61508-4 and SIF is defined by IEC 61511-1.

This part of IEC 61069 is intended for the users and manufacturers of systems, and also for those who are responsible for carrying out assessments as an independent party.

### 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 61000-4-2, *Electromagnetic compatibility (EMC) – Part 4-2: Testing and measurement techniques – Electrostatic discharge immunity test*

IEC 61000-6-4:2006, *Electromagnetic compatibility (EMC) – Part 6-4: Generic standards – Emission standard for industrial environments*  
IEC 61000-6-4:2006/AMD1:2010

IEC 61508-4:2010, *Functional safety of electrical/electronic/programmable electronic safety-related systems – Part 4: Definitions and abbreviations* (see <http://www.iec.ch/functionalsafety>)

IEC 61511-1:2003, *Functional safety – Safety instrumented systems for the process industry sector – Part 1: Framework, definitions, system, hardware and software requirements*

### 3 Terms, definitions, abbreviated terms, acronyms, conventions and symbols

#### 3.1 Terms and definitions

For the purpose of this document, the following terms and definitions apply.

##### 3.1.1

##### **accuracy**

closeness of agreement between the result of a measurement / output and the (conventional) true value of the quantity being measured / calculated

##### 3.1.2

##### **assessment**, <of a system>

process of judgement, based on evidence, suitability of a system, for a specific mission or class of missions

[SOURCE: ISO 15513:2000, 3.3, modified – “competency against prescribed standards of performance” replaced with “, based on evidence, suitability of a system, for a specific mission or class of missions”]

##### 3.1.3

##### **assessment activity**

set of actions to evaluate one or more assessment items

##### 3.1.4

##### **assessment authority**

body that has legal powers and rights of assessment

[SOURCE: ISO/IEC Guide 2:2004, 4.5, modified – The term itself has been modified (addition of "assessment") and addition of the words “of assessment” at the end of the definition]

##### 3.1.5

##### **assessment item**

set of a system property which is evaluated and an influencing factor which is considered for the evaluation

##### 3.1.6

##### **assessment program**

documented plan of coordinated set of assessment activities, not necessarily interdependent, that continue over a period of time and are designed to conduct the assessment

##### 3.1.7

##### **assessment protocol**

set of formal rules describing the assessment

##### 3.1.8

##### **assessment specification**

document which specifies scope, requirements and constraints of the assessment

##### 3.1.9

##### **availability**

ability of an item to be in a state to perform a required function under given conditions at a given instant or over a given time interval, assuming that the required external resources are provided

[SOURCE: IEC 60050-192:2015, 192-01-23, modified – The definition has been extended]