
Industrial process measurement and control - Evaluation of system properties for the purpose of system assessment - Part 4: Assessment of system performance (IEC 61069-4:1997)

Industrial process measurement and control - Evaluation of system properties for the purpose of system assessment -- Part 4: Assessment of system performance

Leittechnik für industrielle Prozesse - Ermittlung der Systemeigenschaften zum Zweck der Eignungsbeurteilung eines Systems -- Teil 4: Eignungsbeurteilung des Systembetriebsverhaltens

Mesure et commande dans les processus industriels - Appréciation des propriétés d'un système en vue de son évaluation -- Partie 4: Evaluation des caractéristiques de fonctionnement d'un système

Ta slovenski standard je istoveten z: EN 61069-4:1997

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 61069-4:1998**en**

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 61069-4:1998](https://standards.iteh.ai/catalog/standards/sist/62fd99b8-c62a-4b64-9574-ba2dcc0752e6/sist-en-61069-4-1998)

<https://standards.iteh.ai/catalog/standards/sist/62fd99b8-c62a-4b64-9574-ba2dcc0752e6/sist-en-61069-4-1998>

EUROPEAN STANDARD

EN 61069-4

NORME EUROPÉENNE

EUROPÄISCHE NORM

October 1997

ICS 25.040.40; 35.240.50

Descriptors: Industrial-process, measurement and control, system assessment, evaluation of system properties, assessment of system performance

English version

**Industrial process measurement and control - Evaluation of
system properties for the purpose of system assessment
Part 4: Assessment of system performance
(IEC 61069-4:1997)**

Mesure et commande dans les
processus industriels - Appréciation des
propriétés d'un système en vue de son
évaluation

Partie 4: Evaluation des caractéristiques
de fonctionnement d'un système
(CEI 61069-4:1997)

Leittechnik industrieller Prozesse
Ermittlung der Systemeigenschaften
zum Zweck der Eignungsbeurteilung
eines Systems

Teil 4: Eignungsbeurteilung des
Systembetriebsverhaltens
(IEC 61069-4:1997)

[SIST EN 61069-4:1998](https://standards.iteh.ai/catalog/standards/sist/62fd99b8-c62a-4b64-9574-ba2dcc0752e6/sist-en-61069-4-1998)

<https://standards.iteh.ai/catalog/standards/sist/62fd99b8-c62a-4b64-9574-ba2dcc0752e6/sist-en-61069-4-1998>

This European Standard was approved by CENELEC on 1997-10-01. 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, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, 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

Foreword

The text of document 65A/231 + 231A/FDIS, future edition 1 of IEC 61069-4, prepared by SC 65A, System aspects, of IEC TC 65, Industrial-process measurement and control, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61069-4 on 1997-10-01.

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) 1998-07-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 1998-07-01

Annexes designated "normative" are part of the body of the standard.

Annexes designated "informative" are given for information only.

In this standard, annex ZA is normative and annexes A to D are informative.

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 61069-4:1997 was approved by CENELEC as a European Standard without any modification.

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

IEC 60546-1 NOTE: Harmonized as EN 60546-1:1993 (not modified).

IEC 60873 NOTE: Harmonized as EN 60873:1993 (modified).

IEC 61069-3 NOTE: Harmonized as EN 61069-3:1996 (not modified).

IEC 61069-5 NOTE: Harmonized as EN 61069-5:1995 (not modified).

IEC 61298-1 NOTE: Harmonized as EN 61298-1:1995 (not modified).

Annex ZA (normative)**Normative references to international publications
with their corresponding European publications**

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

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

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60068	series	Environmental testing	HD 323 EN 60068	series series
IEC 60721	series	Classification of environmental conditions	HD 478 EN 60721	series series
IEC 60902	1987	Industrial-process measurement and control Terms and definitions	-	-
IEC 61000	series	Electromagnetic compatibility (EMC)	EN 61000	series
IEC 61069-1	1991	Industrial-process measurement and control Evaluation of system properties for the purpose of system assessment Part 1: General considerations and methodology	EN 61069-1 + corr. November 1993	1993 1993
IEC 61069-2	1993	Part 2: Assessment methodology	EN 61069-2	1994
IEC 61298-2	1995	Process measurement and control devices General methods and procedures for evaluating performance Part 2: Tests under reference conditions	EN 61298-2	1995
IEC 61298-3	¹⁾	Part 3: Tests for the effects of influence quantities	-	-
IEC 61298-4	1995	Part 4: Evaluation report content	EN 61298-4	1995
IEC 61326-1	1997	Electrical equipment for measurement, control and laboratory use EMC requirements Part 1: General requirements	EN 61326-1	1997

1) At present under IEC-CENELEC parallel vote (65B/320/FDIS).

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 61069-4:1998](https://standards.iteh.ai/catalog/standards/sist/62fd99b8-c62a-4b64-9574-ba2dcc0752e6/sist-en-61069-4-1998)

<https://standards.iteh.ai/catalog/standards/sist/62fd99b8-c62a-4b64-9574-ba2dcc0752e6/sist-en-61069-4-1998>

**NORME
INTERNATIONALE
INTERNATIONAL
STANDARD**

**CEI
IEC**

61069-4

Première édition
First edition
1997-08

**Mesure et commande dans les
processus industriels –
Appréciation des propriétés d'un système
en vue de son évaluation –**

**Partie 4:
Evaluation des caractéristiques
de fonctionnement d'un système**

SIST EN 61069-4:1998

<https://standards.iteh.ai/catalog/standards/sist/62fd99b8-c62a-4b64-9574-62260716c95f/sist-61069-4-1998>

**Industrial process measurement and control –
Evaluation of system properties for the purpose
of system assessment –**

**Part 4:
Assessment of system performance**

© IEC 1997 Droits de reproduction réservés — Copyright - all rights reserved

Aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de l'éditeur.

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the publisher.

International Electrotechnical Commission
Telefax: +41 22 919 0300

3, rue de Varembe Geneva, Switzerland
IEC web site <http://www.iec.ch>



Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

CODE PRIX
PRICE CODE

V

Pour prix, voir catalogue en vigueur
For price, see current catalogue

CONTENTS

	Page
FOREWORD	5
INTRODUCTION	9
Clause	
1 Scope.....	13
2 Normative references	13
3 Definitions	15
4 Performance properties	15
4.1 General	15
4.2 Performance.....	17
4.3 Accuracy	19
4.4 Response time.....	19
4.5 Capacity	19
5 Review of system requirements document (SRD).....	21
6 Analysis of system specification document (SSD).....	23
7 Assessment procedure	23
7.1 General	23
7.2 Analysis of the SRD and the SSD EN 61069-4:1998.....	23
7.3 Designing the assessment programme.....	27
7.4 Assessment programme	29
8 Evaluation techniques.....	29
8.1 General	29
8.2 Analytical evaluation techniques.....	31
8.3 Empirical evaluation techniques	31
8.4 Testing under influencing conditions	37
9 Execution and reporting of the assessment.....	37
Annexes	
A Checklist on information to be given in the SRD.....	39
B Example documentation of collated information from the SRD and the SSD.....	43
C Model of an evaluation.....	49
D Bibliography.....	69

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**INDUSTRIAL-PROCESS MEASUREMENT AND CONTROL –
EVALUATION OF SYSTEM PROPERTIES FOR
THE PURPOSE OF SYSTEM ASSESSMENT –**

Part 4: Assessment of system performance

FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the 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, the IEC publishes International Standards. 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. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of the IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested National Committees.
- 3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical reports or guides and they are accepted by the National Committees in that sense.
- 4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.
- 5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.
- 6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 61069-4 has been prepared by subcommittee 65A: System aspects, of IEC technical committee 65: Industrial-process measurement and control.

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

FDIS	Report on voting
65A/231/FDIS	65A/240/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.

The relation of this part to the other parts of IEC 61069 and the relative place of this part within this standard is shown in figure 1.

Part 1 provides the overall guidance and as such is intended as a stand-alone publication.

Part 2 details the assessment methodology.

Parts 3 to 8 provide guidance on the assessment of specific groups of properties.

The division of properties in parts 3 to 8 have been chosen so as to group together related properties.

IEC 61069 consists of the following parts, under the general title: *Industrial-process measurement and control – Evaluation of system properties for the purpose of system assessment*.

Part 1: General considerations and methodology

Part 2: Assessment methodology

Part 3: Assessment of system functionality (under consideration)

Part 4: Assessment of system performance

Part 5: Assessment of system dependability

Part 6: Assessment of system operability (under consideration)

Part 7: Assessment of system safety (under consideration)

Part 8: Assessment of non-task-related system properties (under consideration)

Annexes A, B, C and D are for information only.

The contents of the corrigendum of December 1997 have been included in this copy.

INTRODUCTION

This part of IEC 61069 deals with the method which should be used to assess the performance of industrial process measurement and control systems.

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

To obtain total evidence would require complete (i.e. under all influencing conditions) evaluation 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:

- to identify the criticality of each of the relevant system properties;
- to plan for evaluation of the relevant system properties with a cost effective dedication of effort to the various 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, evaluations (as defined in IEC 61069-1) can still be specified and be carried out for use in assessments performed by others.

(standards.iteh.ai)

In such cases, the standard can be used as a guide for planning an evaluation and it provides procedures for performing evaluations, since evaluations are an integral part of assessment.

<https://standards.iteh.ai/catalog/standards/sist/62fd99b8-c62a-4b64-9574-ba2dcc0752e6/sist-en-61069-4-1998>

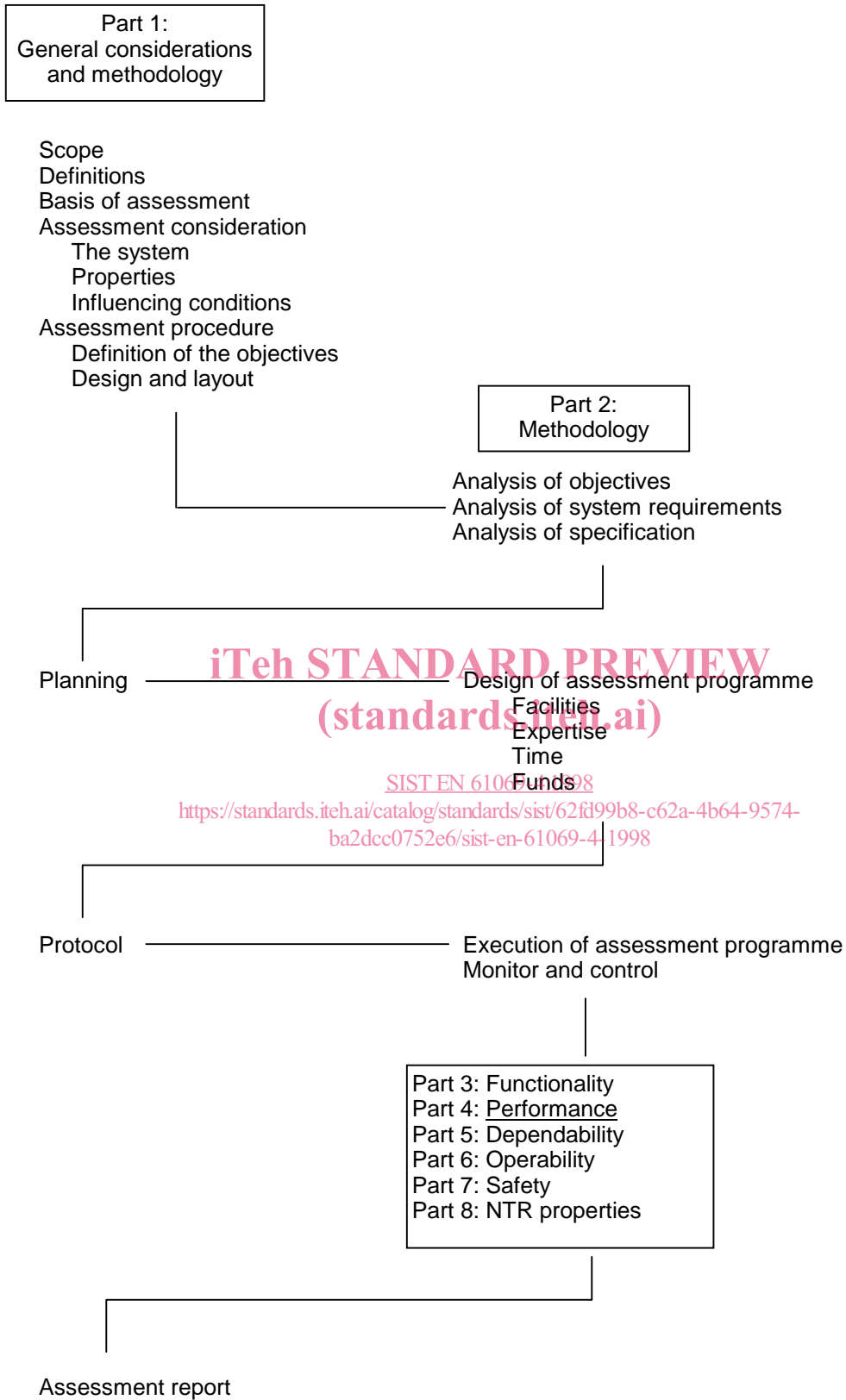


Figure 1 – General layout of IEC 61069

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

Part 4: Assessment of system performance

1 Scope

This part of IEC 61069 covers the method to be used to systematically assess the performance of industrial-process measurement and control systems.

The assessment methodology detailed in IEC 61069-2 is applied to obtain the performance assessment programme.

The subsidiary performance properties are analyzed, and criteria to be taken into account when assessing performance are described.

References are made to different supplementary performance evaluation techniques.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 61069. At the time of publication, the editions indicated were valid. All normative documents are subject to revision, and parties to agreements based on IEC 61069 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 60068, *Environmental testing*

IEC 60721, *Classification of environmental conditions*

IEC 60902: 1987, *Industrial-process measurement and control – Terms and definitions*

IEC 61000, *Electromagnetic compatibility (EMC)*

IEC 61069-1: 1991, *Industrial-process measurement and control – Evaluation of system properties for the purpose of system assessment – Part 1: General considerations and methodology*

IEC 61069-2: 1993, *Industrial-process measurement and control – Evaluation of system properties for the purpose of system assessment – Part 2: Assessment methodology*

IEC 61298-2: 1995, *Process measurement and control devices – General methods and procedures for evaluating performance – Part 2: Tests under reference conditions*