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Funktionssäkerhet – Säkerhetskritiska system för processindustrin – Del 2: Vägledning vid tillämpning av IEC 61511-1

*Functional safety –
Safety instrumented systems for the process industry sector –
Part 2: Guidelines for the application of IEC 61511-1*

Som svensk standard gäller europastandarden EN 61511-2:2004. Den svenska standarden innehåller den officiella engelska språkversionen av EN 61511-2:2004.

Nationellt förord

Europastandarden EN 61511-2:2004^{*)}

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EUROPEAN STANDARD

EN 61511-2

NORME EUROPÉENNE

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**Functional safety –
Safety instrumented systems for the process industry sector
Part 2: Guidelines for the application of IEC 61511-1
(IEC 61511-2:2003)**

Sécurité fonctionnelle –
Systèmes instrumentés de sécurité
pour le secteur des industries
de transformation
Partie 2: Lignes directrices pour
l'application de la CEI 61511-1
(CEI 61511-2:2003)

Funktionale Sicherheit -
Sicherheitstechnische Systeme
für die Prozessindustrie
Teil 2: Anleitungen zur Anwendung
des Teils 1
(IEC 61511-2:2003)

This European Standard was approved by CENELEC on 2004-10-01. 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, 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

Foreword

The text of the International Standard IEC 61511-2:2003, prepared by SC 65A, System aspects, of IEC TC 65, Industrial-process measurement and control, was submitted to the Unique Acceptance Procedure and was approved by CENELEC as EN 61511-2 on 2004-10-01 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) 2005-10-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2007-10-01

Endorsement notice

The text of the International Standard IEC 61511-2:2003 was approved by CENELEC as a European Standard without any modification.

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INTRODUCTION

Safety instrumented systems have been used for many years to perform safety instrumented functions in the process industries. If instrumentation is to be effectively used for safety instrumented functions, it is essential that this instrumentation achieves certain minimum standards.

This International Standard addresses the application of safety instrumented systems for the Process Industries. It also deals with the interface between safety instrumented systems and other safety systems in requiring that a process hazard and risk assessment be carried out. The safety instrumented system includes sensors, logic solvers and final elements.

This International Standard has two concepts, which are fundamental to its application; safety lifecycle and safety integrity levels. The safety lifecycle forms the central framework which links together most of the concepts in this International Standard.

The safety instrumented system logic solvers addressed include Electrical (E)/Electronic (E)/ and Programmable Electronic (PE) technology. Where other technologies are used for logic solvers, the basic principles of this standard may also be applied. This standard also addresses the safety instrumented system sensors and final elements regardless of the technology used. This International Standard is process industry specific within the framework of the IEC 61508 series.

This International Standard sets out an approach for safety lifecycle activities to achieve these minimum standards. This approach has been adopted in order that a rational and consistent technical policy is used. The objective of this standard is to provide guidance on how to comply with IEC 61511-1.

To facilitate use of this standard, the clause and subclause numbers provided are identical to the corresponding normative text in 61511-1 (excluding the annexes).

In most situations, safety is best achieved by an inherently safe process design whenever practicable, combined, if necessary, with a number of protective systems which rely on different technologies (for example, chemical, mechanical, hydraulic, pneumatic, electrical, electronic, thermodynamic (for example, flame arrestors), programmable electronic) which manage any residual identified risk. Any safety strategy considers each individual safety instrumented system in the context of the other protective systems. To facilitate this approach, this standard

- requires that a hazard and risk assessment is carried out to identify the overall safety requirements;
- requires that an allocation of the safety requirements to the safety functions and related safety systems, such as the safety instrumented system(s), is carried out;
- works within a framework which is applicable to all instrumented methods of achieving functional safety;
- details the use of certain activities, such as safety management, which may be applicable to all methods of achieving functional safety.

This International Standard on safety instrumented systems for the process industry:

- addresses relevant safety lifecycle stages from initial concept, through design, implementation, operation and maintenance and decommissioning;
- enables existing or new country specific process industry standards to be harmonized with this standard.

This standard is intended to lead to a high level of consistency (for example, of underlying principles, terminology, information) within the process industries. This should have both safety and economic benefits.

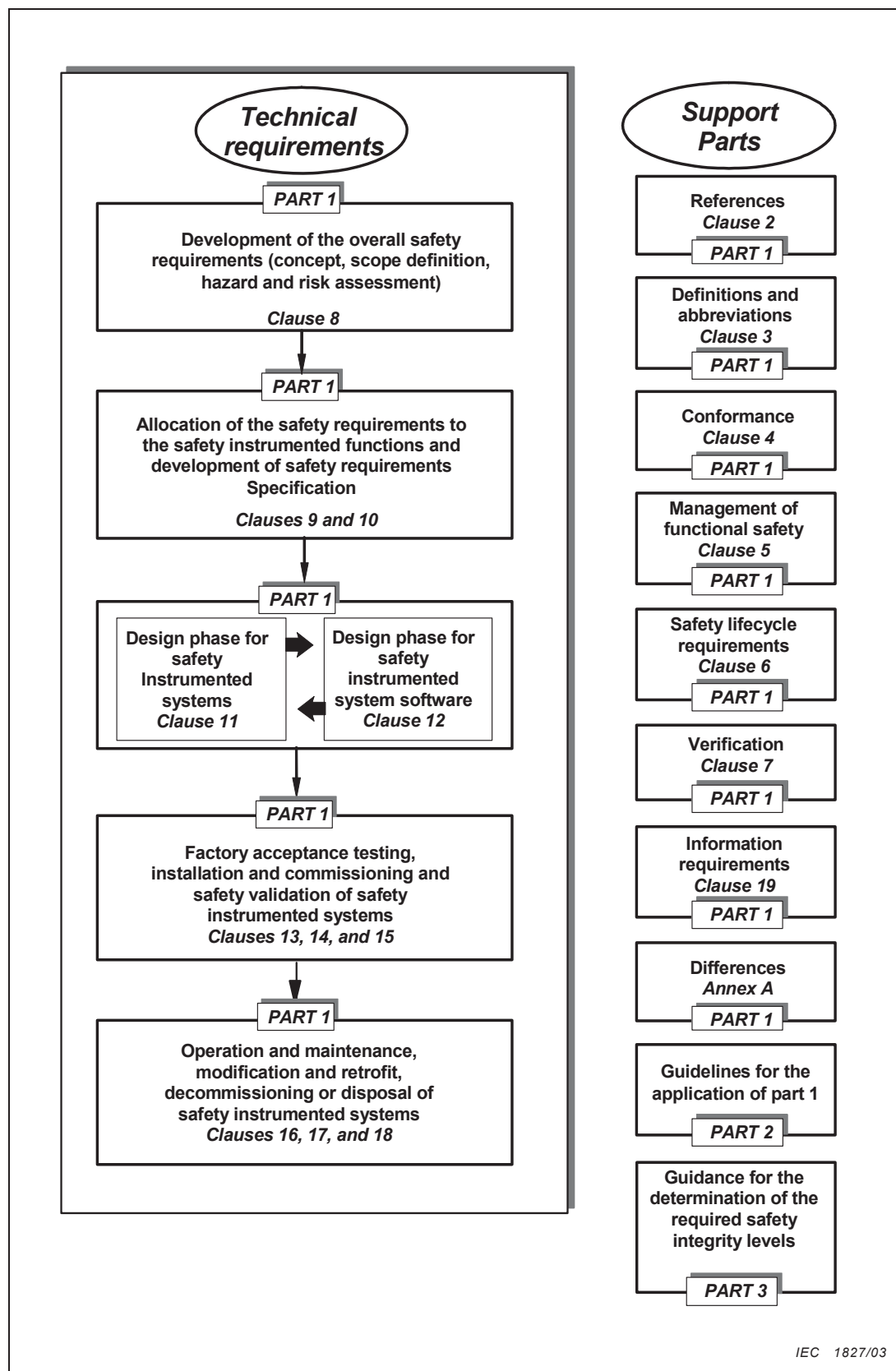


Figure 1 – Overall framework of this standard

**FUNCTIONAL SAFETY –
SAFETY INSTRUMENTED SYSTEMS
FOR THE PROCESS INDUSTRY SECTOR –**

Part 2: Guidelines for the application of IEC 61511-1

1 Scope

IEC 61511-2 provides guidance on the specification, design, installation, operation and maintenance of Safety Instrumented Functions and related safety instrumented system as defined in IEC 61511-1. This standard has been organized so that each clause and subclause number herein addresses the same clause number in IEC 61511-1 (with the exception of the annexes).

2 Normative references

No further guidance provided.