Irish Standard Recommendation
S.R. CLC IEC/TR 63069:2020

Industrial-process measurement, control and automation - Framework for functional safety and security

S.R. CLC IEC/TR 63069:2020

Incorporating amendments/corrigenda/National Annexes issued since publication:

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National Foreword

S.R. CLC IEC/TR 63069:2020 is the adopted Irish version of the European Document CLC IEC/TR 63069:2020, Industrial-process measurement, control and automation - Framework for functional safety and security

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TECHNICAL REPORT

RAPPORT TECHNIQUE

TECHNISCHER BERICHT

CLC IEC/TR 63069

February 2020

ICS 13.110; 25.040.40; 29.020

English Version

Industrial-process measurement, control and automation - Framework for functional safety and security (IEC/TR 63069:2019)

Mesure, commande et automation dans les processus industriels – Cadre pour la sécurité et la sûreté fonctionnelle (IEC/TR 63069:2019)

Industrielle Prozess-Leittechnik, Steuerungs- und Automatisierungstechnik - Rahmenbedingungen für Funktionale Sicherheit und IT-Sicherheit (IEC/TR 63069:2019)

This Technical Report was approved by CENELEC on 2020-01-27.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

European foreword

This document (CLC IEC/TR 63069:2020) consists of the text of IEC/TR 63069:2019 prepared by IEC/TC 65 "Industrial-process measurement, control and automation".

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

Endorsement notice

The text of the International Technical Report IEC/TR 63069:2019 was approved by CENELEC as a

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

IEC 61508-1	NOTE	Harmonized as EN 61508-1
IEC 61508-2	NOTE	Harmonized as EN 61508-2
IEC 61508-3	NOTE	Harmonized as EN 61508-3
IEC 61508-4:2010	NOTE	Harmonized as EN 61508-4:2010 (not modified)
IEC 61508-5:2010	NOTE	Harmonized as EN 61508-5:2010 (not modified)
IEC 61511 (series)	NOTE	Harmonized as EN 61511 (series)
IEC 62443-2-4:2015	NOTE	Harmonized as EN IEC 62443-2-4:2019 (not modified)
IEC 62443-3-3:2013	NOTE	Harmonized as EN IEC 62443-3-3:2019 (not modified)
IEC 62443-4-1	NOTE	Harmonized as EN IEC 62443-4-1

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 1 Where 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.

Publication	Year	Title	EN/HD	Year
IEC 61508	series	Functional safety of electrical/electronic/programmable electronic safety-related systems	EN 61508	series
IEC 62443	series	Industrial communication networks - Network and system security	-	series

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IEC TR 63069

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TECHNICAL REPORT

colour inside

Industrial-process measurement, control and automation – Framework for functional safety and security

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TECHNICAL REPORT

Industrial-process measurement, control and automation – Framework for functional safety and security

INTERNATIONAL
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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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INDUSTRIAL-PROCESS MEASUREMENT, CONTROL AND AUTOMATION – FRAMEWORK FOR FUNCTIONAL SAFETY AND SECURITY

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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IEC TR 63069 has been prepared by IEC technical committee TC 65: Industrial-process measurement, control and automation.

The text of this Technical Report is based on the following documents:

Draft DTR	Report on voting
65/698/DTR	65/713A/RVDTR

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

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

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

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

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

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INTRODUCTION

0.1 Purpose of this document

Many sector specific guides, standards and technical specifications have been developed in the fields of safety and security. However, a generic document for framework for safety and security is largely expected by industry actors. Even the terms "safety" and "security" are sometimes used for different meanings in these documents. As a result, it can be difficult to apply them holistically at the same time to a manufacturing system.

0.2 Background

Security has become a new factor to be considered in system engineering. The parts of the IEC 61508 series published in 2010 took into account that security can impact functional safety.

In IEC TC 65 (Industrial-process measurement, control and automation), considerable concerns arose with respect to the impacts of security incidents to safety functions in IACS (industrial automation and control systems); many complex systems of that kind are becoming connected systems (particularly by interaction based on wireless connectivity from sensors/actuators to complete plants, grids, etc.) for maintenance and operations. The overall question was: "How to design and manage safety and security – in cooperation, integrated, or separate system?"

0.3 Issues on the terminology

Definitions of some terms, such as "safety", "security" and "risk", are sometimes different in different documents. Although they are consistent in a set of documents in each area of safety and security, they can be inconsistent when both standards are applied at the same time. From these reasons, the terminology is carefully used in this document.

0.4 Target audience

The target audience of this document includes, but is not limited to,

– asset owners (including those responsible for concept and governance),
– system integrators (including those responsible for design and realisation),
– product suppliers (including those responsible for design and realisation),
– service providers (including operators and maintainers), and
– authorities (including those responsible for assessment and audit).

INDUSTRIAL-PROCESS MEASUREMENT, CONTROL AND AUTOMATION – FRAMEWORK FOR FUNCTIONAL SAFETY AND SECURITY

1 Scope

This document explains and provides guidance on the common application of IEC 61508 (all parts) and IEC 62443 (all parts) in the area of industrial-process measurement, control and automation.

This document can apply to other industrial sectors where IEC 61508 (all parts) and IEC 62443 (all parts) are applied.

NOTE Usage or reference of this document for industry specific sector standards is encouraged.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 61508 (all parts), *Functional safety of electrical/electronic/programmable electronic safety-related systems*

IEC 62443 (all parts), *Security for industrial automation and control systems*

3 Terms, definitions, symbols, abbreviated terms and conventions

3.1 Terms and definitions defined for this document

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

NOTE Within this document, new terms and definitions are created only if not provided by the IEC 61508 series or the IEC 62443 series.

3.1.1
incident handling
actions of detecting, reporting, assessing, responding to, dealing with, and learning from security incidents

[SOURCE: ISO/IEC 27035-1:2016, 3.6, modified – The words "information security incidents" has been replaced by "security incidents".]

3.1.2
incident response
actions taken to mitigate or resolve a security incident, including those taken to protect and restore the normal operational conditions of an IACS and the information stored in it

[SOURCE: ISO/IEC 27035-1:2016, 3.7, modified – The words "information security incident" were replaced by "security incident", and "information system" was replaced by "IACS".]