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Report about the update assessment for the renewal of a certificate

Report-No.:	968/EL 161.18/25
Date:	2025-02-10
Number of pages (excl. appendices):	5
Certified Product with Type Designation:	K-Safe System
Customer /Manufacturer:	Kongsberg Maritime AS Kirkegårdsveien 45 3616 Kongsberg Norway
Customer-Order-No./Date:	269075542 / 2024-02-16
Certification Body:	TÜV Rheinland Industrie Service GmbH Safety & Security for Automation & Grid (D-ZE-11052-02-01) Am Grauen Stein 51105 Cologne / Germany
TÜV-Quotation-No./Date:	87686258 / 2024-01-15
TÜV-Order-No./Date:	269075542 / 2024-02-16
Assessor:	M.Sc. Merlin Hilger
Period of Assessment:	September 2024 - February 2025

The assessment results are exclusively related to the object of assessment.

1. Scope

This document serves as basis for the renewal of a certificate on the expiration of its current validity.

As prerequisite for the renewal of a certificate the following conditions must be met:

1. The product must conform to the actual relevant and valid standards and directives. In case standards/directives have been changed since the last assessment, the modifications need to be assessed and applied to the product. It must be shown, that the product fulfills also the requirements of the actual standards/directives.
2. In case of modifications or extensions have been applied to the product since the last assessment, it must be shown in a re-examination that the current design of the product fulfills the requirements of the standards/directives.
3. The labeling of the product as well as the accompanying documentation (installation and user manual) must fulfill the actual requirements of the relevant standards and directives.

2. Standards forming the basis for the requirements

[N1] IEC 61508:2010, Part 1 to 7
Functional safety of electrical/electronic/programmable electronic safety-related systems

The requirements of the listed standards were forming the basis for the assessment documented in this report so far relevant and to the extent applicable. Statements are further given about a possible use of the product in applications in accordance with the standards listed as follows:

[N2] IEC 61511-1:2016 + Corr.1:2016 + AMD1:2017
Functional safety - Safety instrumented systems for the process industry sector

[N3] EN 54-2:1997 + AC:1999 + A1:2006
Fire detection and fire alarm systems - Part 2: Control and indicating equipment

[N4] NFPA 72:2025 (10.3.5)
National Fire Alarm and Signaling Code – Handbook

[N5] IEC 61326-3-1:2017
Electrical equipment for measurement, control and laboratory use – EMC requirements
Part 3-1: Immunity requirements for safety-related systems and for equipment intended to perform safety-related functions (functional safety) – General industrial applications

The assessment is performed by the Certified Body using the following Certification Program:

[N6] CERT FSP1 V3.0 2020
Certification Program for Functional Safety related compliant items, components, devices, systems in the machinery and plant safety including safety components according to the European Machinery Directive

3. Identification of the test object

3.1. Description of the device under test

The product, which is the object of this assessment, is produced further in its original form and brought to market for use in the defined range of applications.

3.2. Documents

The following documents have been provided to the Certification Body:

No.	Description / File	Rev.	Date
[D1]	EMC Test Report & Gap Analysis File: DANAK-124-26659-1 Rev. B-Test Report - IEC61326-3-1 K-SAFE modules.pdf	-	2025-01-10
[D2]	KM Generic SAR – Safety Analysis Report K-Safe, AIM 8.x File: 402010_C.pdf	C	2018-10-16

3.3. Test samples

The assessment has been conducted based upon the provided documentation. No test samples were necessary.

3.4. Previous test reports and certificates

	Report-No.	Date	Certificate	Date
[R1]	968/EL 161.00/02	2002-01-31	968/EL 161.00/02	2002-01-31
[R2]	968/EL 161.01/04	2004-12-01	968/EL 161.00/02	2004-12-01
[R3]	968/EL 161.02/08	2008-07-08	968/EL 161.02/08	2008-07-08
[R4]	968/EL 161.03/10	2010-02-09	968/EL 161.03/10	2010-02-09
[R5]	968/EL 161.04/10	2010-04-09	968/EL 161.04/10	2010-04-09
[R6]	968/EL 161.05/14	2014-01-27	968/EL 161.05/14	2014-01-27
[R7]	968/EL 161.06/18	2018-02-13	-/-	-/-
[R8]	968/EL 161.07/18	2018-02-22	-/-	-/-
[R9]	968/EL 161.08/18	2018-03-27	-/-	-/-
[R10]	968/EL 161.09/18	2018-04-11	-/-	-/-
[R11]	968/EL 161.10/18	2018-04-12	-/-	-/-
[R12]	968/EL 161.11/18	2018-04-30	-/-	-/-
[R13]	968/EL 161.12/18	2018-09-25	-/-	-/-
[R14]	968/EL 161.13/18	2018-11-16	-/-	-/-
[R15]	968/EL 161.14/18	2018-11-23	-/-	-/-
[R16]	968/EL 161.15/19	2019-01-14	-/-	-/-
[R17]	968/EL 161.16/19	2019-01-18	-/-	-/-
[R18]	968/EL 161.17/19	2019-01-18	968/EL 161.17/19	2019-01-18

4. Objectives and results of the assessment

4.1. Assessment of the changes in the relevant standards forming the basis for the requirements

	Actual Standard	Standards applied at the last assessment	Essential relevant changes	Assessment
[N1]	IEC 61508 Parts 1-7:2010	IEC 61508 Parts 1-7:2010	--	Fulfilled
[N2]	IEC 61511-1:2016 + Corr.1:2016 + AMD1:2017	IEC 61511-1:2016 + Corr.1:2016 + AMD1:2017	--	Fulfilled
[N3]	EN 54-2:1997 + AC:1999 + A1:2006	EN 54-2:1997 + AC:1999 + A1:2006	--	Fulfilled
[N4]	NFPA 72:2025 (10.3.5)	NFPA 72:2016	See 4.2	Fulfilled
[N5]	--	EN 60945:2002 + Corr. 1:2008	--	Replaced by requirements according to [N5]

4.2. NFPA 72:2025 (10.3.5)

The scope of the assessment was limited to chapter 10.3.5. The requirements of this chapter have not changed compared to the 2016 version. The requirements are therefore still fulfilled.

4.2.1. Changed EMC requirements

The EMC tests required by the standards were determined based on EN 61326-3-1:2017. A gap analysis (see [D1]) between these requirements and the performed tests in the past was carried out. The tests, which were still required after the gap analysis, were performed in the accredited test laboratory FORCE Technology. The results of the tests are documented in the test reports (see [D1]) and were passed.

Result:

The EMC tests were completed with positive results and are accepted by the Certification Body.

4.3. User Documentation

According to the manufacturer remains the user documentation unchanged [D2].

4.4. Assessment of the applied modifications

The scope of this assessment to renewal the certificate are the hardware and software revisions which were already certified before (see [R18]).

The manufacturer applied that there are modifications to the product. These modifications will be part of other assessments.

5. Summary

The re-assessment of the K-Safe System of customer Kongsberg Maritime AS came to the result, that the requirements of the applicable standards as listed in chapter 2 are met.

The product complies with the requirements of SC 3 and SIL 3 according to IEC 61508 and can be used in safety-related applications for Process Shutdown (PSD), Fire & Gas (F&G), Emergency Shutdown Systems (ESD), where the safe state is the de-energized state and applications, where the demand state is the de-energized or energized state, up to SIL 3. The product was also reviewed in reference to the requirements of IEC 61511-1:2016 + Corr.1:2016 + AMD1:2017, EN 54-2:1997 + AC:1999 + A1:2006, NFPA 72:2025 (10.3.5) applicable during a type examination and can be used in application as such.

The restrictions and conditions of the previous approvals apply. In particular, for all applications a safe state must exist and the demand to trip must be defined. The frequency of demands must be low (low demand mode of operation according to the IEC 61508). The user has to ensure that the complete safety function for his application conforms to the required Safety Integrity Level (see [D2]).

The renewal of the certificate is recommended.

Cologne, 2025-02-10
TIS/A-FS & CS hi-bu-bst

Report released after review:
Date: 2025-02-11

The assessor

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