



Marine &amp; Offshore

Certificate number: 53826/A0 BV

File number: AP4795

Product code: 4440I

*This certificate is not valid when presented without the full attached schedule composed of 7 sections*

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## TYPE APPROVAL CERTIFICATE

*This certificate is issued to*

**Kongsberg Maritime AS**

Horten - NORWAY

*for the type of product*

**ALARM, MONITORING AND CONTROL SYSTEMS**

K-Chief 700 marine automation system, K-Safe safety control and monitoring system

**Requirements:**

Bureau Veritas Rules for the Classification of Steel Ships  
 Bureau Veritas Rules for the Classification of Offshore Units  
 Bureau Veritas Rules for the Classification of Yachts  
 IEC 61508

EC Code : 31

*This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements mentioned above.*

**This certificate will expire on: 20 Sep 2023**

**For Bureau Veritas Marine & Offshore,**

At BV OSLO, on 20 Sep 2018,

Rune MARSTEIN

*Rune Marstein*



This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with Bureau Veritas Marine & Offshore. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of Bureau Veritas Marine & Offshore available on the internet site www.veristar.com. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against Bureau Veritas Marine & Offshore for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

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BV Mod. Ad.E 530 June 2017

This certificate consists of 5 page(s)

## THE SCHEDULE OF APPROVAL

### **1. PRODUCT DESCRIPTION :**

**K-Chief 700** and **K-Safe** is an integrated system which can carry out the following functions:

<b>K-Chief 700</b>	<b>K-Safe</b>
-Alarm and Monitoring -Power Management -Control of Machinery, Cargo, Ballast, Vessel Mode, Heating, Venting and Air Conditioning	-Alarm Management -Emergency Shutdown -Process Shutdown -Fire and Gas Detection and Protection

### **1.1 Hardware List :**

<b>Module</b>	<b>Type/Model</b>	<b>Part No.</b>	<b>HW Module Descr.No</b>
<b>Cabinets</b>	FS400 cabinet	700933	
	FS240 cabinet	701449	
	Network Distribution Unit (NDU)	310123	
	FS120 cabinet	318775	
<b>Console</b>	Cabinet / OS-650-KM05	603495	1012662
	Wire Isolators / KM Damper kit	603185	
	Deep line / Navigation OS	303399	
	Rubber isolation / MS2040+	305083	
<b>COP</b>	Panel Input Mk2 COP 05	330951	300984
	COP 05 Input Panel	603524	300984
	Control Room Panel	603525	300989
	ALC Panel	603526	300977
	BU AUT Panel	603529	301028
<b>EFI</b>	Earth Failure Indicator(EFI)	318367	320518
	EFI-16	321492	324876
<b>EAP</b>	EAP 200	370304	383722
<b>Media Converter</b>	Fiber Converter RMC-ST	321520	325472
<b>Printer</b>	Matrix Printer /OKI ML280 ELITE	703654	179057
	Printer / HP Laserjet Pro M401dn	380589	384405
	Lexmark CS510 230/115 VAC	394774/394775	397559
<b>Watch Call</b>	WCC 600	373860	381827
<b>Controller</b>	Remote Controller Unit RCU501	603439	300991
	RCU 502	330924	358190
	RCU 502i	421768	429804
	RCU 602	383962	408644
	RMP420	306712	311165
<b>IO Units</b>	RDIOR420	306713	311163
	RTB420	326843	326849
	RDIO401S	603432	301087
	RDIO420S	316564	323936
	RMP422S	363350	381885
	RMP422i	408442	424828
	RMP422Si	408406	424829
	<b>Other</b>	RHUB200-5	603442
RHUB200-4		603444	300993

### **1.2 Software Version :**

AIM Basis Software V8.3 V8.5 V8.6 V8.7 V8.8

**2. DOCUMENTS AND DRAWINGS :****2.1 Technical documentation:**

Approved HW - List of Environmental Test Reports CDQM0021, No. 356372, Rev.E, dated 24.05.2018  
 Product Description K-Chief 700 Integrated Control System, No. 304844, Rev.C, dated April 2017  
 Product Description K-Safe Safety System, No.163875, Rev.H, dated May 2015  
 Operator Manual K-Chief 700 Integrated Control System, No.338309, Rev.A, dated December 2015  
 Operator Manual K-Safe Safety System, No.411129, Rev.A, dated March 2016  
 Maintenance Manual KM05 OS-650 Operator Station, No.38919, Rev.B, dated April 2015  
 COP-05 Input Panel Hardware Module Description, No.300987, Rev.D, dated October 2009  
 COP-05 Controm Room Panel Hardware Module Description, No.300989, Rev.C, dated October 2009  
 COP-05 Controm ALC Panel Hardware Module Description, No.300977, Rev.B, dated October 2006  
 COP-05 Controm BU-AUT Panel Hardware Module Description, No.301028, Rev.B, dated May 2007  
 Extended Alarm Panel (EAP) Hardware Module Description, No.383722, Rev.A, dated June 2013  
 Extension Alarm System Datasheet, No.375622, Rev.A, dated August 2013  
 RCU602 Hardware Module Description, No.408644, Rev.B, dated October 2017  
 RMC-ST Hardware Module Description, No.325472, Rev.D, dated June 2014  
 RMC-ST Remote Media Converter Datasheet, No.353301, Rev.A, dated November 2010  
 OKI ML280 ELITE Hardware Module Description, No.179057, Rev.A, dated 10.03.2005  
 OKI ML280 ELITE Printer Installation Manual, No.179056, Rev.B, dated 22.04.2005  
 Printer A4 HP Laserjet Pro M401dn Hardware Module Description, No.384405, Rev.A, dated June 2013  
 Printer A4 HP Laserjet Pro M401dn Installation Manual, No.380591, Rev.B, dated June 2013  
 Printer A4 Lexmark CS510 230/115 VAC Hardware Module Description, No.397559, Rev.B, dated January 2015  
 EFI Earth Fault Indicator Datasheet, No.353294, Rev.A, dated November 2010  
 EFI-16 Earth Fault Indicator Datasheet, No.353295, Rev.A, dated November 2010  
 WCC 600 outline Drawing, No.374548, Rev.D, dated 02.07.2013  
 WCC 600 Watch Call Panels, No.381827, Rev.B, dated 02.07.2013  
 RCU501 Hardware Module Description, No.300991, Rev.D, dated April 2013  
 RCU501 Remote Controller Unit Datasheet, No.312729, Rev.B, dated September 2010  
 RCU502 Hardware Module Description, No.358190, Rev.G, dated May 2016  
 RCU502 Remote Controller Unit Datasheet, No.312739, Rev.C, dated February 2013  
 RCU502i Hardware Module Description, No.429804, Rev.A, dated January 2018  
 RCU502i Remote Controller Unit Datasheet, No.429810, Rev.A, dated January 2018  
 RMP420 Hardware Module Description, No.311165, Rev.D, dated June 2014  
 RMP420 Remote MultiPurpose Input/Output Datasheet, No.312743, Rev.A, dated January 2010  
 RDIOR420 Hardware Module Description, No.311163, Rev.D, dated July 2016  
 RDIOR420 Remote Digital I/O and Relay Channels Datasheet, No.312745, Rev.A, dated October 2010  
 RTB420 Hardware Module Description, No.326849, Rev.C, dated November 2013  
 RTB420 Remote Termination Board Datasheet, No.346615, Rev.A, dated November 2010  
 RDIO401S Hardware Module Description, No.301087, Rev.D, dated June 2013  
 RDIO401S Remote Digital Input/Output Datasheet, No. 312748, Rev.A, dated December 2010  
 RDIO420S Hardware Module Description, No. 323936, Rev.F, dated September 2016  
 RDIO420S Remote Digital Input/Output Datasheet, No.342966, Rev.A, dated January 2010  
 RMP422S Hardware Module Description, No.381885, Rev.C, dated April 2015  
 RMP422S Remote MultiPurpose Input w/Hart Datasheet, No.342655, Rev.C, dated May 2015  
 RMP422i Hardware Module Description, No.424828, Rev.A, dated April 2017  
 RMP422i Remote MultiPurpose Input w/Hart Datasheet, No.424830, Rev.A  
 RMP422Si Hardware Module Description, No.424829, Rev.A, dated April 2017  
 RMP422i Remote MultiPurpose Input Safety w/Hart Datasheet, No.424831, Rev.A  
 RHUB200-5 Hardware Module Description, No.300994, Rev.D, dated June 2014  
 RHUB200-5 Communication HUB and Repeater Datasheet, No. 312740, Rev.B, dated December 2010  
 RHUB200-4 Hardware Module Description, No.300993, Rev.G, dated June 2016  
 RHUB200-4 Serial line communication interface Datasheet, No.312741, Rev.B, dated December 2010

**2.2 Software documentation:**

Release Note AIM-8.3, No.342886, Rev.D, dated 21.08.2013  
 Release Note AIM-8.5, No.368836, Rev.B, dated 21.08.2013  
 Release Note AIM-8.6, No.387189, Rev.D, dated 13.03.2016  
 Release Note AIM-8.7, No.418821, Rev.A, dated 04.10.2016  
 Release Note AIM-8.8, No.418888, Rev.A, dated 11.09.2018  
 Software Quality plan and Life Cycle activities for K-Chief and K-Safe, No.434902, Rev.A, dated 18.12.2017  
 Engineering Guideline K-Chief 700 Software, No. GUI-2300, Rev.A, dated 22.12.2015

**3. TEST REPORTS :****DELTA:**

Vibration testing of KM05 with PC on wire isolators, Ref. DANAK-198575, dated 4.12.2006  
 Vibration testing of KM05 with PC on rubber isolators, Ref. DANAK-198577, dated 4.12.2006  
 IP22 tests of KM-05 Deepline and Slimline operator stations, Ref. DANAK-198637, dated 30.01.2007  
 Test for Marine Type Approval of Panel Input Mk2 COP 05, Ref. DANAK-1910979, dated 13.07.2010  
 Type approval testing of KM Common Operator Panels 2005, Ref. DANAK-198195 Rev.1, dated 15.06.2007  
 Type approval testing Earth Failure Indicator, Ref. DANAL-1910264, dated 01.09.2008  
 Supplementary environment test of EFI-16, Ref. DANAK-1910281, dated 14.10.2008  
 Test for Marine Type Approval of EAP 200, Ref. DANAK-1912618, dated 21.11.2012  
 Test for Marine Type Approval of WCC600, Ref. DANAK-19/12904 Rev. 1, dated 05.09.2013  
 Comparison of vibration isolators for console PC, Ref. DANAK-198573, dated 01.12.2006  
 Type approval testing of RIO New HW Line modules, Ref. DANAK-198508, Rev.1, dated 17.10.2006  
 Type approval testing of RCU501, RHUB200-5 and RSER200-4, Ref. DANAK-1910541, dated 11.06.2009  
 Test for Marine Type Approval of RCU502, Ref. DANAK-1911523, Rev.1, dated 26.10.2012  
 Test for Marine Type Approval of RMP420, Ref. DANAK-1911658, Rev.1, dated 08.12.2011  
 Type approval testing of RMP420 and RDIOR420, Ref. DANAK-198696, dated 15.03.2007  
 Type approval testing of RTB420, Ref. DANAK-1910830, dated 19.03.2010  
 Type approval testing of RDIO401S and RDIO420S, Ref. DANAK-1910121, dated 27.03.2008  
 Type approval testing of RIO New HW Line modules, Ref. DANAL-198508, dated 17.10.2006

**Nemko:**

IP22 test, Ref. Nemko 69187, dated 31.08.2006  
 Environmental test report of RCU602 and RMC-ST, Ref. E15165.01, dated 28.04.2017  
 EMC Test Report of OKI ML 280 Elite, Ref. 39760, dated 25.02.2005  
 EMC Test Report of HP Laserjet Pro M401dn, Ref. E13012.00, dated 23.02.2013  
 EMC Test Report of Lexmark CS510, Ref. E14200.00, dated 13.08.2014  
 EMC Test Report of WCC 600, Ref. E14127.00, dated 21.05.2014  
 Environmental Test Report RCU502i, Ref. E18081.00, dated 23.04.2018  
 Environmental Test Report of RMP422S, Ref. E13144.02, dated 11.03.2015  
 Environmental Test Report of RMP422Si and RMP422i, Ref. E13144.03, dated 17.08.2017

**Tecknologisk institutt:**

Verification Test of FS240, Ref. 310-02-0208, RevA, dated 24.05.2004  
 Verification Test of FS120, NDU and NDU MINI, Ref. 310-08-0107, RevA, dated 28.10.2004  
 Environmental Test Report Vibration Resonance search WCC 600, Ref. 3010-13-014234, dated 17.10.2013

**Kongsberg Fimas:**

Verification Test on AIM Safe system, Ref. KLM1.00.061, Rev.B, dated 09.01.2002

**4. APPLICATION / LIMITATION :**

- 4.1 - BUREAU VERITAS Rules for the Classification of Steel Ships.
- 4.2 - Approval also valid for ships to be granted with the notations: AUT-UMS, AUT-CCS, AUT-PORT and AUT-IMS.
- 4.3 - BUREAU VERITAS Environmental Category, EC Code: 31
- 4.4 - Only Hardware and Firmware / Software successfully tested together in compliance with the regulations as referred to in page one, according to the declaration of the manufacturer are covered by this certificate
- 4.5 - The equipment, once installed on board ship, is to be tested in accordance with the above referred Regulations under the supervision of a Society's Surveyor
- 4.6 - The equipment fulfils the EMC requirements for installation on the Bridge and Deck Zones.
- 4.7 - Each application and configuration is to be submitted to the Society's examination prior to fitting on board.
- 4.8 - Depending on the Application, Factory Acceptance and On-board Tests are to be performed in accordance with requirements for Category II or III Equipment.

**5. PRODUCTION SURVEY REQUIREMENTS :**

- 5.1 - The above products are to be supplied by **KONGSBERG MARITIMEA.S** in compliance with the type and the requirements described in this certificate.
- 5.2 - This type of product is within the category IBV of Bureau Veritas Rule Note NR320.
- 5.3 - BV product certificate is required.
- 5.4 - For information, **KONGSBERG MARITIMEA.S** has declared to Bureau Veritas the following production site:

**Kongsberg Maritime A.S**  
**Kirkegårdsveien 45,**  
**3616 Kongsberg, Norway**

**6. MARKING OF PRODUCT :**

- 6.1 - Trade name.
- 6.2 - Date of manufacture and serial number.
- 6.3 - Equipment type or model identification under which it was type-tested
- 6.4 - @ or \ conformity marking, as relevant

**7. OTHERS :**

It is **KONGSBERG MARITIMEA.S**'s responsibility to inform shipbuilders or their sub-contractors of the proper methods of fitting, use and general maintenance of the approved equipment and the conditions of this approval.

**\*\*\* END OF CERTIFICATE \*\*\***