



Lloyd's
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Type Approval Certificate

This is to certify that the undernoted product(s) has/have been tested with satisfactory results in accordance with the relevant requirements of the Lloyd's Register Type Approval System.

This certificate supersedes certificate number 18/20018 issued on 08.03.2018 which is hereby cancelled.

This certificate is issued to:

PRODUCER

Kongsberg Maritime AS
P.O. Box 483
NO-3601 - Norway

DESCRIPTION

Alarm / Monitoring and Control System

TYPE

K-Chief 700 and K-Safe

Comprising of modules:

- KM05 – Operator Station
- ALC (NAV) Panel – Alarm and Command Panel
- CRP (Mk2) – Control Room Panel
- BU AUT – Configurable input panel for automation systems
- Input Panel (Mk2) – Button keypad with trackball
- BUS-Term – Termination board for Kongsberg RBUS and SPBUS
- EAP (200) – Extended Alarm Panel
- EFI (16) – Earth Fault Indicator
- RMC-ST – Remote Media Converter
- PTB – Push Button Telegraph
- WBU – Watch Bridge Unit (with display or alarm groups)
- WCU – Watch Cabin Unit (with/without display)
- WCC600 – Watch Calling C600 Panel
- RCU – Remote Controller Unit
 - 501 / 502 / 502i / 602
- RDIO – Remote Digital I/O module
 - 401S / 420S

Certificate No.

18/20018(E1)

Issue Date

08 March 2019

Expiry Date

07 March 2023

Sheet

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Martin Lange
Hamburg Technical Support Office
Lloyd's Register EMEA

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71 Fenchurch Street, London EC3M 4BS

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TYPE (continued)

Comprising of modules:

- RDIOR 420 – Remote Digital I/O module and Relay channels
- RMP – Remote MultiPurpose I/O module
 - o 420 / 422(i) / 422S(i)
- RTB420 – Remote Termination Board
- RHUB200-5 – Communication HUB and Repeater
- RSER200-4 – Serial Line Communication Interface
- HP 3600-24 (-SFP) – Network Switch *

AIM Basis Software for Operator Station, IO drivers and common software functions in the RCU: V8.3 V8.5 V8.6 V8.7 V8.8

The AIM Safe System Software versions 8.3.4 up to 8.6.0 has been certified by TÜV Rheinland for compliance with IEC61508 up to SIL3 applications. - refer to Safety Configuration Manual “378006(TC)”

APPLICATION

Marine and Offshore applications in environmental categories ENV1, ENV2 and ENV3 (EAP200 excluded) as defined in the LR Test Specification No. 1 (2015).

ADDITIONAL TESTS

Low Temperature Test (-15°C/16hrs)

Ingress Protection rating (IP)

ALC (NAV); EAP (200); KM05 (deep line and slim line) console	IP22
EFI (EFI-16); Input Panel (MK2); RCU501; RCU502; RCU502i; RCU602; RDIO401S; RDIO420S; RDIOR420; RMP420; RMP422 (S); RTB420; RHUB200-5; RSER200-4; RMC-ST	IP2X
WCC	IP44

Acoustic Level

ALC (NAV); CRP; EAP (200);	75...80dB
WCC	81...85dB

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ADDITIONAL TESTS

Compass Safe Distance

	Standard	Steering
ALC (NAV)	30cm	15cm
BU AUT	25cm	10cm
Input Panel (MK2)	10cm	5cm
EAP (200)	120cm	80cm
EFI (EFI-16)	50cm	40cm
RMC-ST	20cm	10cm
PTB	10cm	10cm
WBU	35cm	35cm
WCU	60cm	60cm
WCC600	120cm	65cm
RCU501	15cm	5cm
RCU502	15cm	8cm
RCU502i	29cm	14cm
RCU602	30cm	15cm
RDIO401S	180cm	110cm
RDIO420S	185cm	105cm
RDIOR420; RMP420, RHUB200-5; RSER200-4	5cm	5cm
RMP422 (S)	30cm	15cm
RTB420	15cm	10cm

Safe Type:

For details and installation requirements in hazardous zones/spaces, see
 - Certificate "Nemko 14 ATEX 1504 X"
 - Certificate "Presafe 18 ATEX 12094 X"
 with special conditions for safe use.

STANDARD

Manufacturers Specification.

LIMITATIONS

In case the K-Chief or K-Safe system is intended to implement emergency stop or safety critical functions, the software is to satisfy the requirements of LR's Software Conformity Assessment. Alternative proposals providing an equivalent level of system integrity will be subject to special consideration (e.g. independent hard-wired backup, redundancy with design diversity, etc.)

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OTHER CONDITIONS

Final functional arrangements are to comply with appropriate Lloyd's Register Rules and will be subject to the project related Plan Approval Process.

Equipment marked with * can be installed in general power distribution zones, only.

A netfilter similar to "Schaffner Type FN2080-16-06" has to be used for the RIO new hardware line (RCU501, RSER200-4, RHUB200-5, RMP200-8).

PLACE OF PRODUCTION

Kongsberg Maritime A.S.
Kirkegardsveien 45
3616 Kongsberg
Norway

NORAUTRON
Nedrevei 8
Bygg 25. P.O. Box 205
N-3192 Horten
Norway

The Type Approval does not eliminate the need for normal inspection and survey procedures required by the Rules and Regulations.

If the specified standards are amended during the validity of this certificate, the product is to be re-approved prior to it being supplied to vessels to which the amended standards apply.

The Design Appraisal Document No. HTS/ETS 37947-19 and its supplementary Type Approval Terms and Conditions form part of this Certificate.

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Martin Lange
Hamburg Technical Support Office
Lloyd's Register EMEA
LR031.1.2016.06



Martin Lange
Hamburg Technical Support Office
Lloyd's Register EMEA

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71 Fenchurch Street, London EC3M 4BS

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