



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.

Manufacturer	Kongsberg Maritime AS
Address	Bekkajordet 8a, Horten, 3194, Norway
Place of Production	Kongsberg Maritime Korea Ltd 9-7, Sandan 3-ro, Jeonggwan-eup, Gijang-gun, Busan, 46027, South Korea
Place of Production	Kongsberg Maritime China Ltd. No. 136 North Fute Road, Pilot Free Trade Zone, Shanghai, 200131, China
Place of Production	Kongsberg Maritime AS Kirkegårdveien 45, Kongsberg, 3616, Norway
Type	Control Systems
Description	Electronic Ship Automation Equipment and Propulsion-, Thruster- and Steering Control System
Trade Name	AutoChief 600 and K-Steering
Application	Marine applications in environmental categories ENV1, ENV2, ENV3, ENV4 and ENV5 as defined in LR Test Specification No. 1 - December 2021.

Units 1702-1704, 17th Floor (Level-13), Building
Q2, Aurum Q Parc; Gen 4/1 TTC, Thane-Belapur
Road, Ghansoli, Navi Mumbai, 400710, India

Pawan Borate

Specialist Electrical & Control to Lloyd's
Register Marine and Offshore India LLP
A member of the Lloyd's Register group

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Specified Standard	Manufacturers Specification. IACS UR E10 Rev. 8 / 2021 IACS UR E27 Rev. 1 / 2023 and Part 6, Chapter 1, Section 2.16 Rules and Regulations (July 2024)
Additional Tests	For detailed test description, please refer to appendix.
Other Conditions	The software development and quality assurance processes of Kongsberg are covered by the Software Conformity Assessment (SCA) Certificate No LR2607820SC-02. For programmable electronic systems implementing emergency stop or safety critical functions the requirements of Control Engineering Systems needs to be satisfied. <u>Compliance with IACS UR E27 Rev. 1/ 2023 and/or Part 6, Chapter 1, Section 2.16 Rules and Regulations (July 2024):</u> - The compliance with the requirements above is issued with the limitation that the directly connected networks are “trust networks” (according to the definition IEC 62443-3-3 Item 3.1.45). - It is further issued on the understanding that all connections are wired. Any radiocommunication (e.g. Bluetooth, WiFi etc.) are excluded. Type Approval does not eliminate the need (as required by LR Rules) the requirements for further review or for the product to be further inspected and/or surveyed to be installed in ships classed or intended to be classed with LR. 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.

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This certificate is not valid for equipment, the design, ratings or operating parameters of which have been varied from the specimen tested. The manufacturer should notify Lloyd's Register Marine and Offshore India LLP of any modification or changes to the equipment in order to obtain a valid Certificate.

Previous Version: This certificate supersedes the certificate number LR2490262TA issued on 20.07.2024 which is hereby cancelled.

The Design Appraisal Document TSO/26-062866-E-01 and its supplementary Type Approval Terms and Conditions form part of this Certificate.

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Appendix

Module	Description	Environmental Category	Additional Test	Compass Safe Distance Standard	Steering
ABE11/KBE15	Button extension strip	ENV4	IP44 /-15°C ¹⁾	10cm	-
BWU21	Bridge Wing Unit	ENV5	IP66 /-25°C ²⁾	60cm	40cm
CP12	Control Panel PC 12" with touch Display	ENV3	IP56 (front)/ IP44 15°C ¹⁾	75cm	50cm
DGU	Digital Governor Unit	ENV4	-25°C ²⁾	10cm	-
DSU 38	Digital Servo Unit	ENV2	-	-	-
ELACT 3812	Actuator	ENV3 & 4	-	-	-
ESS	Electric Shaft System	ENV3	-15°C ²⁾	-	-
ESU	Engine Safety Unit	ENV4	-15°C ¹⁾	45cm	-
ESU-12	Engine Safety Unit	ENV4	IP2x /-15°C ¹⁾	20cm	-
L2C	LAN to CAN module	ENV3	IP2x /-25°C ¹⁾	10cm	-
	Single with Display	ENV3	IP22 /-15°C ¹⁾	20cm	10cm
	Single without Display	ENV3	IP22 /-15°C ¹⁾	130cm	90cm
	Dual with Display	ENV3	IP22 /-15°C ¹⁾	20cm	10cm
	Dual without Display	ENV3	IP22 /-15°C ¹⁾	130cm	90cm
	Mini Wheel with/without Display	ENV3	IP22 /-15°C ²⁾	100cm	60cm
LTU11	Lever Telegraph Unit	ENV3	-15°C ²⁾	80cm	-
LTU11ME	Lever Telegraph Unit	ENV3	IP22 /-15°C ²⁾	60cm	-
MEI	Main Engine Interface Unit	ENV4	-25°C ¹⁾	-	-
MPD	Multi-Purpose Display	ENV4	-25°C ²⁾	30cm	-
MPP	Multi-Purpose Panel	ENV4	-	10cm	-
PB4	CPP Backup Panel				
PB6	Push button panel	ENV3	IP2X	40cm	30cm
PBT	Push Button Telegraph	ENV4	-	10cm	-
RAi-16xe	Remote Analog Input 16Ch	ENV4	-15°C ¹⁾	10cm	-
RAo-8xe	Remote Analog Output 16Ch	ENV4	-15°C ¹⁾	30cm	-
RDi-32Axe	Remote Digital Input 32Ch	ENV4	-15°C ¹⁾	25cm	-
RDi-32xe	Remote Digital Input 32Ch	ENV4	-15°C ¹⁾	10cm	-
RDo-16xe	Remote Digital Output 16Ch	ENV4	-15°C ¹⁾	10cm	-
RIO-C2xe	Remote Digital I/O Module				
RPME	RPM Unit	ENV4	-25°C ²⁾	10cm	-
SCU	Segment Controller Unit	ENV4	-15°C ¹⁾	25cm	-
MW	Mini Wheel	ENV3	IP56/-25°C ¹⁾	20cm	-
HW	Helmsman Wheel	ENV3	IP22/-25°C ¹⁾	20cm	-
PSS	Process Segment Star Controller	ENV4	-	-	-
MC360 i3 LAN	Workstation (Windows 10)	ENV3	IP20/-15°C ¹⁾	10cm	5cm
MC380 u5 LAN	Workstation (Windows 11)	ENV3	IP20/-15°C ¹⁾	10cm	5cm
Moxa EDS-408A	Ethernet Switch	ENV3	-	60cm	70cm



1) Low Temperature Test

Software Version : For AutoChief 600 & K-Steering the basic software version is 12.16 which is included in the common C600 software platform release 359018.12 as described in revision history document 386083/G