

25197_2018 Electrical Electronic Control Systems en240408

CERTIFICATION APPLICATION
ELECTRICAL/ELECTRONIC CONTROL SYSTEMS FOR STEERING, SHIFT
AND THROTTLE
Ref.: ISO 25197:2012+A1:2014

FOR IMCI / IMCI (UK) USE ONLY
Certificate No.:

Manufacturer:	
Address:	
City:	
Country:	
VAT #:	
Signatory, Name:	
Signatory, Title:	
Phone:	
Email:	
WWW:	
Model Name:	
Model Year:	
Head of Engineering:	

This application is valid for:		Indicate
Directive 2013/53/EU (RCD II) related to CE marking for EU.	[Yes, No]	
Recreational Craft Regulation (RCR) related to UKCA marking for United Kingdom	[Yes, No]	

Subject to check	Clause	Requirements	Unit	As tested
1 System has a control head as single oriented device, other than a steering wheel, for the simultaneous control of steering and propulsion.		[Yes / No ?]		
2 System consists of a separate control lever for the control of thrust and/or propulsion and steering helm for the control of steering.		[Yes / No ?]		
3 System includes a wireless device		[Yes / No ?]		
4 System includes a <u>Dynamic-Position System, DPS</u>		[Yes / No ?]		
5 All electronic/electrical components are designed to withstand a reversed-polarity connection of the power leads.	4.1	[Yes ?]		
6 All electronic/electrical components are designed with reverse polarity protection from internal surges.	4.2	[Yes ?]		
7 All DC and/or AC systems comply with ISO 10133/13297 or as alternative with IEC 60092-507.	4.3	[Yes ?]		
8 The system is fully operational within five seconds after being powered (except for dynamic positioning and displays).	4.5	[Yes ?]		
9 If for multi-installed engine steering systems are redundant by virtue of the fact that they are both mechanically and electrically independent of each other.	4.6	[Yes ?]		
10 If system intended for several helm stations: provision to give a visual indication when active.	4.7	[Yes ?]		
11 When the system enters a fail-safe mode, the operator is alerted by a visible and/or audible means at each helm station.	4.8	[Yes ?]		
12 The sound pressure of an audible alarm 1 metre from the command station is at least 75 dB(A), but not greater than 85 dB(A). Systems incorporating a mute feature shall maintain the visual alert as long as the failure persists.	4.9	[Yes ?]		
13 Muting of the alarm is not allowed if the alert system is only audible.	4.9	[Yes / NA ?]		
14 Instructions for proper installation and use of the steering system shall be made available by the manufacturer.	4.10	[Yes ?]		
15 It is only be possible to start propulsion equipment in neutral (exception: temporary override for emergency situations).	4.12	[Yes ?]		
16 Within 0,5 seconds on a physical input command, the steering, shift and throttle actuators do react/adjust to the input.	4.13	[Yes ?]		
17 Steering wheels, if supplied with the system, comply with ISO 8848.	4.14	[Yes / NA ?]		
18 Hydraulic systems, if supplied with the system, comply with ISO 10592.	4.15	[Yes / NA ?]		
19 ISO 8846 is met for electrical components intended to be installed in petrol engine or petrol tank compartments for IGP.	4.16	[Yes / NA ?]		
20 For each system design, a risk identification/analysis, using an established method, has been carried out (e.g. an FMEA or according to IEC 61508).	4.17	[Yes ?]		
21 If the system provides both, cruising- and manoeuvring mode, an indication to the operator at the command station is provided of which mode the system is in. The system does not change the mode without input from the operator.	4.18	[Yes ?]		

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22 The control head operation is permitted for both cruising-mode and manoeuvring-mode operation.	5.1	[Yes ?]		
23 When the operator releases the grip, the control head position shall return to the neutral.	5.2	[Yes ?]		
24 When released in cruising mode, the control head engine throttle control must not be returned to a low RPM or a manufacturer-determined idle state for operation.	5.3	[Yes ?]		
25 Releasing the control head in manoeuvring mode to neutral results in a disengaged transmission and determined idle or stop state of electric motors.	5.4	[Yes ?]		
26 Portable helm station controls can only be used in the manoeuvring mode.	7.1	[Yes ?]		
27 In case that a portable helm station control has of a loss of communication or malfunction it results in disengaged transmission and idling thermal engine(s) and stopping electric engine(s). In addition the operator is notified and able to transfer the function to another helm.	7.2	[Yes ?]		
28 The signal strength of a wireless device is displayed at the portable control or an audible warning signal alerts the operator that the signal is weak and he/she is about to lose control.	7.4	[Yes / NA ?]		
29 A wireless device shall only be able to control the boat of origin.	7.5	[Yes / NA ?]		
30 An indication of its electrical-charge status is given on a wireless portable helm control and the device shall prevent activation when the charge is insufficient to maintain a connection for 15 minutes without loss of the wireless communication link.	7.6	[Yes / NA ?]		
31 A wireless portable helm control notifies the operator when the device is 15 minutes from deactivation due to insufficient charge.	7.7	[Yes / NA ?]		
32 Any applicable radio and telecommunications legislation is met by a wireless portable helm control.	7.8	[Yes / NA ?]		
33 Check point 8.1 to 8.8 only if a Dynamic Positioning System (DPS) is part of the system. Otherwise scratch out 8.1 to 8.7.	8.0	[Yes / NA ?]		
34 A Dynamic Positioning System (= DPS) can only be activated manually.	8.1	[Yes ?]		
35 The craft main helm station has a visual display for the DPS precision value.	8.2	[Yes ?]		
36 Warning labels or text for the DPS are supplied.	8.3	[Yes ?]		
37 Activation of the DPS is only be possible if the DPS precision value is within the manufacturer-set limits.	8.4	[Yes ?]		
38 The DPS control system alerts the operator visually and audibly about disengagement in case that the DPS precision value of an activated dynamic-positioning (autonomous) mode is out of the manufacturer-set limits.	8.5	[Yes ?]		
39 The manufacturer has set the maximum allowable envelope/radius and heading deviation. This one is not adjustable by the operator.	8.6	[Yes ?]		
40 The manufacturer has set the maximum engine speed for dynamic positioning. This one is not adjustable by the operator.	8.7	[Yes ?]		
41 In case that a command station in a multiple helm system has a malfunction, the system does not prevent transfer or operation from other helm stations. In addition the operator is notified audible and/or visual about the malfunction.	9.1.1	[Yes ?]		
42 In the event of loss of steering control affecting only one engine in a multi-engine installation, the system is still be capable of steering the boat.	9.1.2	[Yes ?]		
43 In the event of a command station failure, the operator shall be notified and the affected command station is switched to a fail-safe mode.	9.1.3	[Yes ?]		
44 In the event of loss of steering control in a single-engine rudder or strut installation, emergency control of the rudder is be possible.	9.1.4	[Yes ?]		
45 Test requirements:				
46 At least three consecutively manufactured samples of each electronic and electromechanical component, as sold, have been environmentally and mechanically tested to verify compliance with this International Standard. For EMC tests, only one sample need be tested.	10.1	[Yes ?]		
47 Electronic and electromechanical components that have been tested and have passed with fewer than three consecutive samples and that have been in production for a minimum of five years prior to the release of this International Standard shall be considered compliant.	10.1	[Yes / NA ?]		

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48 The complete system (mechanical and electrical/electronic components) has been designed to withstand the load tests defined in this subclause 10.2	10.2	[Yes ?]		
49 - Durability test passed?	10.2.2.	[Yes ?]		
50 - High-load test passed?	10.2.3	[Yes ?]		
51 - Both tests (10.2.2 & 10.2.3) have been conducted in the high- and low-ambient operating temperatures of Table 1 and at (120 ± 2) % of nominal voltage.	10.2.4 10.2.5	[Yes ?]		
52 Joystick test applicable? If not applicable (NA) scratch out section 10.3.1 to 10.3.5.	10.3	[Yes / NA ?]		
53 - The joystick passed the cycle test?	10.3.1	[Yes ?]		
54 - The joystick passed the force test in all directions?	10.3.2 10.3.4 10.3.4	[Yes ?]		
55 - Following the tests of 10.3.1 to 10.3.4, the system shall continue to operate without failure within the original parameters as specified.	10.3.5	[Yes ?]		
56 Control lever, single or combined, shift and throttle	10.4	[Yes ?]		
57 - Load tests have been conducted taking full cycles into account?	10.4.1	[Yes ?]		
58 - The 75000 cycles load test have been conducted?	10.4.2	[Yes ?]		
59 - The cycle test have been conducted in the high- and low- ambient operating temperatures of Table 1 and at (120 ± 2) % of nominal voltage.	10.4.3 10.4.4	[Yes ?]		
60 - The minimum cycles rate has been adhered?	10.4.5	[Yes ?]		
61 - The system continue to operate without a failure?	10.4.6	[Yes ?]		
62 Environmental-tests requirements have been followed?	10.5	[Yes ?]		
63 Vibration tests and requirements	10.6			
64 - Equipment mounted on engines, reverse gears or drives have been tested accordingly?	10.6.1	[Yes ?]		
65 - Equipment not mounted on engines, reverse gears or drives have been tested accordingly?	10.6.2	[Yes ?]		
66 Shock testing has been conducted?	10.7	[Yes ?]		
67 Fee fall test for components of the system (control unit, electrical actuators, transmitters, etc.) have been conducted?	10.8	[Yes ?]		
68 UV resistance has been conducted?	10.9	[Yes / NA ?]		
69 Electromagnetic compatability (EMC) conducted?	10.10	[Yes ?]		
70 The compass safe distance in accordance to IEC IEC 60945:2002, cl. 9 has been conducted?	10.11	[Yes ?]		
71 The insulation resistance in accordance with ISO 16750-2:2010 has been conducted?	10.12	[Yes ?]		
72 An owner's manual for the system is submitted to the boat manufacturer?		[Yes ?]		
73 Comments:				

As the manufacturer or his authorised representative, I declare under our sole responsibility that the above product(s) to which this declaration relates is in conformity with ISO 25197. This application has not been lodged with any other notified body and/or conformity assessment body.

Date (yymmdd) and Signature: _____

Note:
 With regards to the certification of electrical/electronic control systems for steering, shift and throttel, following Recommendation For Use (RFU) has been published

Scenario/Question:
 Are shift and throttel and dynamic position control systems, or combinations thereof, which are included in scope of standard ISO 25197, Annex II components?

Recommended Solution:
 No. Only those components that control the steering that are listed in Annex II.3: steering wheels, steering mechanismus and cable assemblies.

A "control head" (e.g. a joystick) which controls both the throttel and steering systems are considered to be Annex II components but a throttel of a shift, which is independent of the system that controls the attitude of the drive unit/rudder, is not.



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IMCI / IMCI (UK) Inspector (if applicable)

I declare under our sole responsibility that I have not been active for the manufacturer in design, construction, marketing or other activities. The content of these forms have been checked.

Evaluation by Inspector: Stamp, Clear Name, Signature and Date: _____

Comments on Evaluation by Inspector: _____

IMCI / IMCI (UK) office

Application review

Application accepted for IMCI: clear name, date (yymmdd) [Yes, No] _____

Application accepted for IMCI (UK): clear name, date (yymmdd) [Yes, No] _____

Comments to application or reason(s) if refused: _____

Evaluation

Evaluation by office (if applicable): Clear Name, Signature and Date (yymmdd): _____

Comments on Evaluation by office: _____

Review

Review by office: Clear Name, Signature and Date (yymmdd): _____

Comments on Review by office: _____

The certification decision is made by signing and dating the corresponding IMCI certificate