



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	DEIF A/S
Address	Frisenborgvej 33, Skive, 7800, Denmark
Type	Control Units
Description	Shut Down Unit - safety device for protection of marine engines
Trade Name	SDU 104
Application	Marine, Offshore and Industrial applications for use in environmental categories ENV1, ENV2 and ENV3 as defined in Lloyd's Register's Type Approval System, Test Specification Number 1 – December 2021.
Specified Standard	Manufacturer's Specification
Ratings	12/24VDC (8...36VDC)
Additional Tests	Low Temperature Test: -40°C/16hrs. Flammability Test: Needle Flame Test (IEC 60695-11-5)
Other Conditions	Use of the safety system on main propulsion engines should be specially considered during the Design review, as all digital input signals of the SDU 104 are overridden by activating the override function (except for overspeed and emergency stop).

Martin Lange

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to Lloyd's Register EMEA
A member of the Lloyd's Register group

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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 EMEA of any modification or changes to the equipment in order to obtain a valid Certificate.

The Design Appraisal Document HPC2362001-23/ML and its supplementary Type Approval Terms and Conditions form part of this Certificate.

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LLOYD'S REGISTER TYPE APPROVAL – DESIGN APPRAISAL DOCUMENT

Issued by: HAMBURG TECHNICAL SUPPORT OFFICE (HPC2362001)

Issued to: DEIF AS

For: Engine Shutdown Unit

Types: SDU 104

The undernoted documents have been reviewed for compliance with the requirements of the Lloyd's Register Type Approval System Procedure TA14 Version 04 (September 2020) and this Design Appraisal Document forms part of the Certificate.

APPROVAL DOCUMENTATION

GMS03-11-14	Request for Marine Services – Type Approval	08.02.2023
Unnumbered	LR Type Approval Application Checklist – SDU104	15.12.2022
4921240625C	Data Sheet – SDU 104 Shut Down Unit	22.03.2023
4189341332C	Installation instructions – Shut Down Unit SDU 104	14.04.2023
Unnumbered	Shut Down Unit SDU 104 – Final Typetest performance test	29.09.2022
4040000003I	SDU 104 Hardware system description	03.03.2023
PRJ11100404365	LR PQA – Production Quality Assessment Form (SDU 104)	20.03.2023
10488781	ISO9001:2015 Certificate, issued by LRQA	13.12.2022

TEST REPORTS

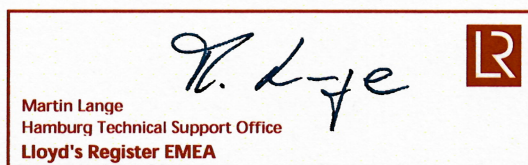
4910213100H	Test Report – Cold Test	17.03.2023
4910213105H	Test Report – Dry Heat	02.06.2022
4910213115G	Test Report – Damp Heat Test	29.06.2022
4910214100M	Test Report – Vibration Test	17.06.2022
4910216510E	Test Report – Repetitive Shock Test	09.06.2022
4910214110J	Test Report – Shock Test	09.06.2022
4910214115E	Test Report – Inclination	17.06.2022
4910214120F	Test Report – Flammability	30.06.2022
4910215100I	Test Report – Insulation Resistance Tests	17.03.2023
4910215106A	Test Report – High Voltage Tests	07.07.2022
4910216501N	Test Report – Radiated Emission	07.06.2022
4910216502I	Test Report – Conducted Emission	03.06.2022
4910211527E	Test Report – Ingress Protection	28.06.2022
4910217501R	Test Report – Burst Test	17.03.2023
4910217502N	Test Report – Radiated Radio Frequency Fields	08.06.2022
4910217505K	Test Report – ESD	17.03.2023
4910217506O	Test Report – Surge	29.09.2022
4910217507M	Test Report – Conducted Radio Interference	29.09.2022

TEST REPORTS (continued)

4910217513J	Test Report – Power Supply Variation	13.06.2022
4910217515H	Test Report – Power Supply Failure	14.06.2022
4910217516F	Test Report – Conducted Low Frequency Interference	21.06.2022

DRAWINGS

4157200599_Rev.D	Main Sheet – SDU 104	27.09.2022
1044570010C	Layout Drawing	05.07.2022



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Supplementary Type Approval Terms and Conditions

Type Approval certifies that a representative sample of the product(s) referred to herein has/have been found to meet the applicable design criteria for the use specified herein. It does not mean or imply approval for any other use, nor approval of any product(s) designed or manufactured otherwise than in strict conformity with the said representative sample.

Type Approval is based on the understanding that the manufacturer's recommendations and instructions and any relevant requirements of the Rules and Regulations are complied with.

Type Approval does not eliminate the need for normal inspection and survey procedures required by the Rules and Regulations. Lloyd's Register EMEA reserves the right to cancel or withdraw this Type Approval Certificate in accordance with the Lloyd's Register Type Approval System Procedure.