

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	Protective Devices
Description	Engine control unit and diesel-generator control unit
Trade Name	ECU 110, GCU 111, GCU 112, GCU 113
Application	Marine applications for use in environmental categories ENV1, ENV2 and ENV3 as defined in Lloyd's Register's Type Approval System, Test Specification Number 1 – 2013.
Specified Standard	Manufacturer's specification
Ratings	ECU 110 Power supply: 24 VDC Inputs: Tacho: 10...1000 Hz RMI: 0...2500 Ohm Transducer: 4...20 mA Relay outputs: 3 x 30VAC/DC 2A 2 x 250VAC/30VDC 2A 2 x 30VAC/DC 8A

Thorsten Wolff

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

71 Fenchurch Street, London, EC3M 4BS, United Kingdom

Lloyd's Register Group Limited, its affiliates and subsidiaries and their respective officers, employees or agents are, individually and collectively, referred to in this clause as 'Lloyd's Register'. Lloyd's Register assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Lloyd's Register entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract.

Type Approval Certificate

GCU 111, GCU 112, GCU 113	
Power supply:	24 VDC
Input voltage:	50...480 VAC
Input current:	1 or 5 A
Input frequency:	30 - 70 Hz
Relay outputs:	3 x 30 VAC/VDC 2A 2 x 250VAC/30VDC 2A 2 x 30VAC/VDC 8A

Other Conditions ECU 110 and GCU 11x are providing start/stop function for diesel engine and may be used as redundant diesel safety system to provide design diversity unless a software conformity assessment has been carried out.

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 No. HTS/ETS 40346-20/TW and its supplementary Type Approval Terms and Conditions form part of this Certificate.

LLOYD'S REGISTER TYPE APPROVAL – DESIGN APPRAISAL DOCUMENT
ISSUED BY: HAMBURG TECHNICAL SUPPORT OFFICE
ISSUED TO: DEIF A/S, SKIVE, DENMARK
FOR: ENGINE CONTROL UNIT AND DIESEL-GENERATOR CONTROL UNIT
TYPES ECU 110, GCU 111, GCU 112, GCU 113

The undernoted documents have been reviewed for compliance with the requirements of the Lloyd's Register Type Approval System Procedure TA14 Version 03 (July 2017) and this Design Appraisal Document forms part of the Certificate.

APPROVAL DOCUMENTATION

Unnumbered	Type Approval Application Checklist	14.08.2020
CPN2000560/TST/spw	Request for Marine Services – Type Approval	18.08.2020
HTS/ETS 32204-15	Marine Design Appraisal Document for Certificate No. 15/20074	31.07.2015
15/20074	LR Type Approval Certificate	31.07.2015
4921240427D	Data sheet Engine Control Unit, ECU 100	17.08.2020
4921240428D	Data sheet Genset Control Unit, GCU 100	17.08.2020
HPC1662083 /	Production Quality Assessment Form	13.01.2020
HPC1962114		

TEST REPORTS

4910216501M	Type Test Certificate Radiated Emission incl. test report (31 pages)	07.08.2020
4910217502N	Type Test Certificate RF E-Field Immunity Test incl. test report (21 pages)	07.08.2020



LR031.1.2016.06

Thorsten Wolff
Senior Specialist
Electrotechnical Systems
Hamburg Technical Support Office
Lloyd's Register EMEA
T +49 (0)40 34970010-267
E thorsten.wolff@lr.org

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.