



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 is issued to:

PRODUCER	DEIF A/S Frisenborgvej 33 DK-7800 Skive Denmark
DESCRIPTION	Generator and mains control, monitoring and protection units
TYPE	Uni-Line Comprising: Voltage relays RMV-112D, -122D, -132D, -142D Overcurrent and short circuit relays RMC-111D, -122D, -132D Differential current relay RMC-131D Overload/reverse power relays RMP-111D, -112D, -121D Excitation relays RMQ-111D, -121D Frequency relay RMF-112D Synchronisers FAS-113DG, -115D, -125DG
Certificate No.	98/20022 (E6)
Issue Date	06 November 2017
Expiry Date	04 November 2022
Sheet	1 of 2

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Lloyd's Register

LR031.1.2013.12

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TYPE CONTINUED	Paralleling relay	HAS-111DG
	Load sharing units	LSU-112DG, -113DG, -114DG, -122DG
	Electronic Potentiometer	EPN-110DN
	Phase sequence relay	RMT-111Q96

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 – 2002.

STANDARD Manufacturer's specification

RATINGS

Power supply:	24V d.c. to 220V d.c., -25/+30%
	57,5 V a.c. to 690V a.c., ±20%
Measuring voltage:	57,7V a.c. to 690V a.c., ±20%
Power supply:	380-400V ±20% for RMT-111Q96 only

OTHER CONDITIONS HAS-111DG is approved with dead bus option B1 and B2


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 36057-17 and its supplementary Type Approval Terms and Conditions form part of this Certificate.

Certificate No. 98/20022 (E6)
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Sheet 2 of 2

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Design Appraisal Document

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Date
06 November 2017

Please quote this reference number on all future communications
HPC1762123/36057-17/TW/LK

**THE LLOYD'S REGISTER'S TYPE APPROVAL SYSTEM, 2017
ISSUED TO: DEIF A/S, DK-7800 SKIVE, DENMARK
FOR GENERATOR AND MAINS CONTROL, MONITORING
AND PROTECTION UNITS
TYPE APPROVAL CERTIFICATE NO. 98/20022 (E6)**

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

APPROVAL DOCUMENTATION

Unnumbered	Application Checklist	21.07.2017
HDS/ETS 27221-12	Marine Design Appraisal Document for Cert.No. 98/20022(E5)	05.11.2017
HPC1462075	Production Quality Assessment Form	13.01.2017
2016-04-20 SOJ	Declaration of Conformity 4910290027 Rev. F	20.04.2016
4921240114J	Data sheet FAS-113DG	undated
4921240116J	Data sheet FAS-115DG	undated
4921240141D	Data sheet FAS-125DG	undated
4921240102H	Data sheet RMC-111 -122 -132D	undated
4921240104J	Data sheet RMC-131D	undated
4921240223E	Data sheet RMF-112D	undated
4921240108H	Data sheet RMP-111D	undated
4921240110H	Data sheet RMP-112D	undated
4921240106J	Data sheet RMP-121D	undated
4921240112H	Data sheet RMQ-111 -121D	undated
4921240096I	Data sheet RMV-112 -122 -132D	undated
4921240128H	Data sheet RMV-142D	undated

FINAL ACCEPTANCE OF ACTUAL ITEM(S) DEPEND(S) ON SATISFACTORY SURVEY AND TESTING

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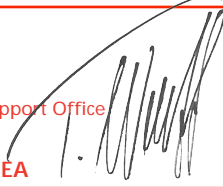
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Supplementary Type Approval Terms and Conditions

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 LR Type Approval System Procedure.

FINAL ACCEPTANCE OF ACTUAL ITEM(S) DEPEND(S) ON SATISFACTORY SURVEY AND TESTING

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Part 2

Power Distribution Systems / Protective Devices

Producer/Licence No.	Type	Standard	Rating	Category/ Additional Tests	Remarks	Cert. No.
<p>DEIF A/S Frisenborgvej 33 DK-7800 Skive Denmark</p>	<p>Generator and mains control, monitoring and protection Units</p> <p>Type : Uni-Line Comprising: Voltage relays RMV-112D, -122D, -132D, -142D</p> <p>Overcurrent and short circuit relays RMC-111D, -122D, -132D</p> <p>Differential current relay RMC-131D</p> <p>Overload/reverse power relays RMP-111D, -112D, -121D</p> <p>Excitation relays RMQ-111D, -121D</p> <p>Frequency relay RMF-112D</p> <p>Synchronisers FAS-113DG, -115D, -125DG</p> <p>Paralleling relay HAS-111DG</p> <p>Load sharing units LSU-112DG, -113DG, -114DG, -122DG</p> <p>Electronic Potentiometer EPN-110DN</p> <p>Phase sequence relay RMT-111Q96</p>		<p>Power supply: 24V d.c. to 220V d.c., -25/ +30% 57,5 V a.c. to 690V a.c., ±20%</p> <p>Measuring voltage: 57,7V a.c. to 690V a.c., ±20%</p> <p>Power supply: 380-400V ±20% for RMT-111Q96 only</p>	<p>ENV1 ENV2 ENV3 (2002)</p>	<p>Expires: 04 November 2022</p> <p>HAS-111DG is approved with dead bus option B1 and B2</p>	<p>98/20022 (E6)</p>