



Confirmation of Product Type Approval

Please refer to the "Service Restrictions" shown below to determine if Unit Certification is required for this product.

This certificate reflects the information on the product in the ABS Records as of the date and time the certificate is printed.

Pursuant to the Rules of the American Bureau of Shipping (ABS), the manufacturer of the below listed product held a valid Manufacturing Assessment (MA) with expiration date of 28-JUN-2023. The continued validity of the Manufacturing Assessment is dependent on completion of satisfactory audits as required by the ABS Rules.

And; a Product Design Assessment (PDA) valid until subject to continued compliance with the Rules or standards used in the evaluation of the product.

The above entitle the product to be called Product Type Approved.

The Product Design Assessment is valid for products intended for use on ABS classed vessels, MODUs or facilities which are in existence or under contract for construction on the date of the ABS Rules used to evaluate the Product.

ABS makes no representations regarding Type Approval of the Product for use on vessels, MODUs or facilities built after the date of the ABS Rules used for this evaluation.

Due to wide variety of specifications used in the products ABS has evaluated for Type Approval, it is part of our contract that; whether the standard is an ABS Rule or a non-ABS Rule, the Client has full responsibility for continued compliance with the standard.

Product Name: Uni-Line Relays for Generator Protection

Model Name(s): RMV, RMC, RMP, RMQ, RMF, FAS, HAS, EPN, LSU, LMR & RMT

Presented to:

DEIF A/S
FRISENBORGVEJ 33
DK-7800
Denmark

Intended Service:

For use on ABS classed vessels and offshore facilities with ACC or ACCU Class Notation in accordance with the listed ABS Rules and International Standards.

Description:


Uni-line is a complete range of single-function components for generator control and protection. The Uni-line synchronisers and load sharers have relay control outputs. Voltage Relays 3-phase: RMV-112D/ RMV-122D/ RMV-132D Voltage Relays 1-phase: RMV-142D Short Circuit / Overcurrent Relays: RMC-111D/ RMC-121D/ RMC-122D Differential Current Relays: RMC-131D Over Current Relay with maximum relay outputs: RMC-132D Stator Earth Fault Relay: RMC-142D Overload Relays: RMP-111D Overload / Reverse Power Relays: RMP-112D Reverse Power Relays: RMP-121D Loss of Excitation Relays: RMQ-111D Over Excitation Relay with maximum relay outputs: RMQ-121D Frequency Relays: RMF-112D Synchronisers: FAS-113DG Synchronisers with Voltage Matching: FAS-115DG Synchronising Relay with static synchronization, for manual Frequency Control: HAS-111DG Electronic Potentiometer: EPN-110DN Load Sharing Unit: LSU-112DG Load Sharing Unit (and Power Protection): LSU-113DG Load Sharing Unit (Start / Stop Outputs): LSU-114DG VAR Load Sharing Unit: LSU-122DG Loss of Mains Relay: LMR-111D Phase Sequence Indicator/ Relay: RMT-111Q96

Tier:

3

Ratings:	Measuring Voltage: 57.7V to 690V $\pm 20\%$ Frequency range: 40-70Hz Enclosure protection: IP40 (Case) and IP20 (Terminals) Operating temperatures: -25 degrees to 70 degrees C; Humidity: Less than or equal to 100% RH
Service Restrictions:	Unit Certification is not required for this product. If the manufacturer or purchaser request an ABS Certificate for compliance with a specification or standard, the specification or standard, including inspection standards and tolerances, must be clearly defined.
Comments:	The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.
Notes / Documentation:	Drawing No. Declaration Of Conformity, Declaration Of Conformity, Revision: -, Pages: 1 Drawing No. DoC 4910290027 UK, EMC LV and RoHS Declaration of conformity, Revision: -, Pages: 2 Drawing No. Manufacturer Declaration Uni-Line series, Manufacturer Declaration Of conformity Uni-Line series, Revision: -, Pages: 1 Drawing No. 4910213100G - 0336 Cyclic test data TAS, DEIF Type test (10-10-2017), Revision: -, Pages: 238 Drawing No. DEIF Asbestos statement 2012-01-31, DEIF Asbestos statement 2012-01-31, Revision: -, Pages: 1 Drawing No. 04-LD43886O/1-PDA, Certificate Of Design Assessment (16.03.2009), Revision: 1, Pages: 3 Drawing No. DNV A-12688 UK, Uni-line Certificate, Revision: -, Pages: 3 Drawing No. GL 11 349 - 98 HH UK, RMC-1XX Certificate, Revision: -, Pages: 1 Drawing No. IPA0274-04W Technical documents, RMC- technical documents, Revision: -, Pages: 12 Drawing No. IPA0274-04W Test Data Sheet 1-2, DEIF Witness test data 1st half of report (15.02.2012), Revision: -, Pages: 100 Drawing No. IPA0274-04W Test Data Sheet 1-2, DEIF Witness test data 2nd half of report (15.02.2012), Revision: -, Pages: 104 Drawing No. IPA0274-04W Typetest_calibrated instruments, Used instruments, Revision: -, Pages: 1 Drawing No. Letter #2, Updated Application request, Revision: -, Pages: 1 Drawing No. LR 98-20022-E5 UK, LR Uni-line Certificate, Revision: -, Pages: 2 Drawing No. RMC - 122D Schematic, Schematics, Revision: E, Pages: 22 Drawing No. RMC-122D PCB layout, PCB lay out for SMD components, Revision: -, Pages: 8 Drawing No. IPA0274-04W Summary report, RMC summary report (26-06-2012), Revision: -, Pages: 8
Term of Validity:	This Product Design Assessment (PDA) Certificate 18-LD1751634-PDA, dated 29/Jun/2018 remains valid until 28/Jun/2023 or until the Rules or specifications used in the assessment are revised (whichever occurs first). This PDA is intended for a product to be installed on an ABS classed vessel, MODU or facility which is in existence or under contract for construction on the date of the ABS Rules or specifications used to evaluate the Product. Use of the Product on an ABS classed vessel, MODU or facility which is contracted after the validity date of the ABS Rules and specifications used to evaluate the Product, will require re-evaluation of the PDA. Use of the Product for non ABS classed vessels, MODUs or facilities is to be to an agreement between the manufacturer and intended client.
ABS Rules:	- Steel Vessels (2018): 1-1-4/7.7, 1-1-A3 & A4, 4-1-1/7.15, 4-8-3/1.5, 4-8-3/1.7, 4-8-3/5.3.3, 4-9-7/Table 1; - Steel Vessels Under 90 Meters (295 Feet) in Length (2018): 1-1-4/7.7, 1-1-A3 & A4, 4-1-1/37, 4-6-1/11, 4-6-1/15, 4-6-4/11.1, 4-7-2/Table 1; - Offshore Support Vessels (2018): 1-1-4/7.7, 1-1-A3 & A4, 4-1-1/7.15, 4-8-3/1.7, 4-8-3/1.7, 4-8-3/5.3.3; - Facilities on Offshore Installations (2018): 1-1-4/9.7, 1-1-A2 & A3, 3.6/11.3.3; - Mobile Offshore Drilling Units (2018): 1-1-4/9.7, 1-1-A2 & A3, 4.1.1/7.9, 4-3-1/15, 6-1-7/13.1; - Steel Vessels for Service on Rivers and Intracoastal Waterways (2018): 1-1-4/7.7, 1-1-A3 & A4, 4-1-1/21, 4-5-4/11.1; - High Speed Crafts (2018): 1-1-4/11.9, 1-1-A2 & A3, 4-1-1/37, 4-6-4/11, 4-7-9/Table 9; - Steel Barges (2018): 1-1-4/7.7, 1-1-A3 & A4;
National Standards:	
International Standards:	IACS UR E10: Rev6: 2014 BS EN 60529:2000+A2:2013
Government Authority:	
EUMED:	
Others:	

Model Certificate	Model Certificate No	Issue Date	Expiry Date
PDA	18-LD1751634-PDA	29-JUN-2018	28-JUN-2023



ABS Programs

ABS has used due diligence in the preparation of this certificate and it represents the information on the product in the ABS Records as of the date and time the certificate was printed. Type Approval requires Drawing Assessment, Prototype Testing and assessment of the manufacturer's quality assurance and quality control arrangements. Limited circumstances may allow only Prototype Testing to satisfy Type Approval. The approvals of Drawings and Products remain valid as long as the ABS Rule, to which they were assessed, remains valid. ABS cautions manufacturers to review and maintain compliance with all other specifications to which the product may have been assessed. Further, unless it is specifically indicated in the description of the product; Type Approval does not necessarily waive witnessed inspection or survey procedures (where otherwise required) for products to be used in a vessel, MODU or facility intended to be ABS classed or that is presently in class with ABS. Questions regarding the validity of ABS Rules or the need for supplemental testing or inspection of such products should, in all cases, be addressed to ABS.



CERTIFICATE NUMBER 18-LD1751634-PDA

EFFECTIVE DATE 29-JUN-2018

EXPIRATION DATE 28-JUN-2023

ABS TECHNICAL OFFICE London Engineering Department

CERTIFICATE OF

Product Design Assessment

This is to certify that a representative of this Bureau did, at the request of

DEIF A/S

located at

FRISENBORGVEJ 33, SKIVE, Denmark, DK-7800

assess design plans and data for the below listed product. This assessment is a representation by the Bureau as to the degree of compliance the design exhibits with applicable sections of the Rules. This assessment does not waive unit certification or classification procedures required by ABS Rules for products to be installed in ABS classed vessels or facilities. This certificate, by itself, does not reflect that the product is Type Approved. The scope and limitations of this assessment are detailed on the pages attached to this certificate.

Product Uni-Line Relays for Generator Protection

Model RMV, RMC, RMP, RMQ, RMF, FAS, HAS, EPN, LSU, LMR & RMT

This Product Design Assessment (PDA) Certificate remains valid until 28/Jun/2023 or until the Rules and/or Standards used in the assessment are revised or until there is a design modification warranting design reassessment (whichever occurs first).

Acceptance of product is limited to the "Intended Service" details prescribed in the certificate and as per applicable Rules and Standards.

This Certificate is valid for installation of the listed product on ABS units which exist or are under contract for construction on or previous to the effective date of the ABS Rules and standards applied at the time of PDA issuance. Use of the Product for non-ABS units is subject to agreement between the manufacturer and intended client.

American Bureau of Shipping

Theodoros Chatzidakidas, Senior Engineer

NOTE: This certificate evidences compliance with one or more of the Rules, Guides, standards or other criteria of ABS or a statutory, industrial or manufacturer's standards. It is issued solely for the use of ABS, its committees, its clients or other authorized entities. Any significant changes to the aforementioned product without approval from ABS will result in this certificate becoming null and void. This certificate is governed by ABS Rules 1-1-A3/5.9 Terms and Conditions of the Request for Product Type Approval and Agreement (2010)

DEIF A/S

FRISENBORGVEJ 33

SKIVE

Denmark DK-7800

Telephone: 45-9614-9614

Fax: 45-9614-9615

Email: info@deif.com

Web: www.deif.com

Tier: 3 - Type Approved, unit certification not required TC

Product: Uni-Line Relays for Generator Protection**Model: RMV, RMC, RMP, RMQ, RMF, FAS, HAS, EPN, LSU, LMR & RMT****Intended Service:**

For use on ABS classed vessels and offshore facilities with ACC or ACCU Class Notation in accordance with the listed ABS Rules and International Standards.

Description:

Uni-line is a complete range of single-function components for generator control and protection. The Uni-line synchronisers and load sharers have relay control outputs.

Voltage Relays 3-phase: RMV-112D/ RMV-122D/ RMV-132D

Voltage Relays 1-phase: RMV-142D

Short Circuit / Overcurrent Relays: RMC-111D/ RMC-121D/ RMC-122D

Differential Current Relays: RMC-131D

Over Current Relay with maximum relay outputs: RMC-132D

Stator Earth Fault Relay: RMC-142D

Overload Relays: RMP-111D

Overload / Reverse Power Relays: RMP-112D

Reverse Power Relays: RMP-121D

Loss of Excitation Relays: RMQ-111D

Over Excitation Relay with maximum relay outputs: RMQ-121D

Frequency Relays: RMF-112D

Synchronisers: FAS-113DG

Synchronisers with Voltage Matching: FAS-115DG

Synchronising Relay with static synchronization, for manual Frequency Control: HAS-111DG

Electronic Potentiometer: EPN-110DN

Load Sharing Unit: LSU-112DG

Load Sharing Unit (and Power Protection): LSU-113DG

Load Sharing Unit (Start / Stop Outputs): LSU-114DG

VAR Load Sharing Unit: LSU-122DG

Loss of Mains Relay: LMR-111D

Phase Sequence Indicator/ Relay: RMT-111Q96

Rating:Measuring Voltage: 57.7V to 690V $\pm 20\%$

Frequency range: 40-70Hz

Enclosure protection: IP40 (Case) and IP20 (Terminals)

Operating temperatures: -25 degrees to 70 degrees C;

Humidity: Less than or equal to 100% RH

Service Restriction:

Unit Certification is not required for this product. If the manufacturer or purchaser request an ABS Certificate for compliance with a specification or standard, the specification or standard, including inspection standards and tolerances, must be clearly defined.

Comments:

The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.

Notes/Drawing/Documentation:

Drawing No. Declaration Of Conformity, Declaration Of Conformity, Revision: -, Pages: 1

Drawing No. DoC 4910290027 UK, EMC LV and RoHS Declaration of conformity, Revision: -, Pages: 2

Drawing No. Manufacturer Declaration Uni-Line series, Manufacturer Declaration Of conformity Uni-Line series,

Revision: -, Pages: 1

DEIF A/S

FRISENBORGVEJ 33

SKIVE

Denmark DK-7800

Telephone: 45-9614-9614

Fax: 45-9614-9615

Email: info@deif.com

Web: www.deif.com

Tier: 3 - Type Approved, unit certification not required TC

Drawing No. 4910213100G - 0336 Cyclic test data TAS, DEIF Type test (10-10-2017), Revision: -, Pages: 238
Drawing No. DEIF Asbestos statement 2012-01-31, DEIF Asbestos statement 2012-01-31, Revision: -, Pages: 1
Drawing No. 04-LD43886O/1-PDA, Certificate Of Design Assessment (16.03.2009), Revision: 1, Pages: 3
Drawing No. DNV A-12688 UK, Uni-line Certificate, Revision: -, Pages: 3
Drawing No. GL 11 349 - 98 HH UK, RMC-1XX Certificate, Revision: -, Pages: 1
Drawing No. IPA0274-04W Technical documents, RMC- technical documents, Revision: -, Pages: 12
Drawing No. IPA0274-04W Test Data Sheet 1-2, DEIF Witness test data 1st half of report (15.02.2012), Revision: -, Pages: 100
Drawing No. IPA0274-04W Test Data Sheet 1-2, DEIF Witness test data 2nd half of report (15.02.2012), Revision: -, Pages: 104
Drawing No. IPA0274-04W Typetest calibrated instruments, Used instruments, Revision: -, Pages: 1
Drawing No. Letter #2, Updated Application request, Revision: -, Pages: 1
Drawing No. LR 98-20022-E5 UK, LR Uni-line Certificate, Revision: -, Pages: 2
Drawing No. RMC - 122D Schematic, Schematics, Revision: E, Pages: 22
Drawing No. RMC-122D PCB layout, PCB lay out for SMD components, Revision: -, Pages: 8
Drawing No. IPA0274-04W Summary report, RMC summary report (26-06-2012), Revision: -, Pages: 8

Terms of Validity:

This Product Design Assessment (PDA) Certificate 18-LD1751634-PDA, dated 29/Jun/2018 remains valid until 28/Jun/2023 or until the Rules or specifications used in the assessment are revised (whichever occurs first).

This PDA is intended for a product to be installed on an ABS classed vessel, MODU or facility which is in existence or under contract for construction on the date of the ABS Rules or specifications used to evaluate the Product.

Use of the Product on an ABS classed vessel, MODU or facility which is contracted after the validity date of the ABS Rules and specifications used to evaluate the Product, will require re-evaluation of the PDA.

Use of the Product for non ABS classed vessels, MODUs or facilities is to be to an agreement between the manufacturer and intended client.

STANDARDS**ABS Rules:**

- Steel Vessels (2018): 1-1-4/7.7, 1-1-A3 & A4, 4-1-1/7.15, 4-8-3/1.5, 4-8-3/1.7, 4-8-3/5.3.3, 4-9-7/Table 1;
- Steel Vessels Under 90 Meters (295 Feet) in Length (2018): 1-1-4/7.7, 1-1-A3 & A4, 4-1-1/37, 4-6-1/11, 4-6-1/15, 4-6-4/11.1, 4-7-2/Table 1;
- Offshore Support Vessels (2018): 1-1-4/7.7, 1-1-A3 & A4, 4-1-1/7.15, 4-8-3/1.7, 4-8-3/1.7, 4-8-3/5.3.3;
- Facilities on Offshore Installations (2018): 1-1-4/9.7, 1-1-A2 & A3, 3.6/11.3.3;
- Mobile Offshore Drilling Units (2018): 1-1-4/9.7, 1-1-A2 & A3, 4.1.1/7.9, 4-3-1/15, 6-1-7/13.1;
- Steel Vessels for Service on Rivers and Intracoastal Waterways (2018): 1-1-4/7.7, 1-1-A3 & A4, 4-1-1/21, 4-5-4/11.1;
- High Speed Crafts (2018): 1-1-4/11.9, 1-1-A2 & A3, 4-1-1/37, 4-6-4/11, 4-7-9/Table 9;
- Steel Barges (2018): 1-1-4/7.7, 1-1-A3 & A4;

National:

NA

International:

IACS UR E10: Rev6: 2014

BS EN 60529:2000+A2:2013

DEIF A/S
FRISENBORGVEJ 33
SKIVE
Denmark DK-7800
Telephone: 45-9614-9614
Fax: 45-9614-9615
Email: info@deif.com
Web: www.deif.com

Tier: 3 - Type Approved, unit certification not required

Government:
NA

EUMED:
NA

OTHERS: TC
NA