



TYPE APPROVAL CERTIFICATE

Certificate no.:
TAA00000Z2
Revision No:
4

This is to certify:

that the **Electrical Measuring and Protection Relay**

with type designation(s)
Uni-line Generator controls

issued to

DEIF A/S
Skive, Denmark

is found to comply with

DNV rules for classification – Ships, offshore units, and high speed and light craft

Application:

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV.

Location classes:

Temperature	D
Humidity	B
Vibration	A
EMC	A
Enclosure	Required protection according to relevant rules shall be provided upon installation on board.

Issued at **Høvik** on

This Certificate is valid until .

DNV local unit: **Denmark CMC**

Approval Engineer: **Thomas Hartmann**

for **DNV**



Digitally signed by
Arne Schaarmann
Location: DNV SE
Hamburg, Germany

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to USD 300 000.

Place of system modules manufacture

DEIF A/S
 Skive
 Denmark

Product description

The Uni-line comprising:

RMC-142D	Stator earth fault relay
RMV-112D/ RMV-122D/ RMV-132D	Voltage relays 3-phase
RMV-142D	Voltage relays 1-phase
RMC-111D/ RMC-122D	Short circuit/ overcurrent relays
RMC-121D	Short circuit current relay
RMC-132D	Double over current relay
RMC-131D	Differential current relays
RMP-111D	Overload relays
RMP-112D	Overload/ reverse power relays
RMP-121D	Reverse power relays
RMQ-111D	Loss of excitation relays
RMQ-121D	Over excitation relay
RMF-112D	Frequency relays
HAS-111DG	Paralleling relay
LMR-111D	Loss of mains relays
FAS-113DG	Synchronizers
FAS-115DG	Synchronizers w/voltage match. (dyn)
FAS-125DG	Synchronizers w/voltage match. (stat)
LSU-112DG	Load sharing unit
LSU-113DG	Load sharing unit (and-P> protection)
LSU-114DG	Load sharing unit (start/stop outputs)
LSU-122DG	Var Load sharing unit
EPN-110DN	Electronic Potentiometer
RMT-111Q96	Phase sequence indicator/ relay

Application/Limitation

1. The Type Approval is valid for systems made by production facilities listed under Place of system modules manufacture.
2. The Type Approval covers hardware and basic software listed under Product description.

Documentation requirement:

For each delivery where the product is included (typically a switchboard) the following information related to Uni-line Generator controls is to be submitted for approval:

- Reference to this Type Approval Certificate
- System block diagram
- Power supply arrangement (may be part of the System block diagram)
- List of hardware and software modules as identified in this Type Approval Certificate
- List of implemented alarm and protection functions with proposed limits and time delays

Product certificate

If the delivered system is covered by this Type Approval, a product certificate according to Pt.4 Ch.9 Sec.1 [1.4] is not required. Correct configuration and set up for the delivery to be tested during commissioning after installation onboard.

Software update notification

When the type approved software is revised (affecting all future deliveries) DNV is to be informed by forwarding updated software version documentation. If the changes are judged to affect functionality for which rule requirements apply a new functional type test may be required and the certificate may have to be renewed to identify the new software version.



Job ID: 262.1-001953-12
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Type Approval documentation

Tests carried out

Applicable tests according to class guideline DNV-CG-0339, August 2021.
(Report Nos. IPA0175, IPA0274, 0822_2, 0822_3, 0822_4, 0822_5)

Marking of product

Each module shall be externally marked to enable identification in accordance with the documentation and be marked with the manufacturer's name.

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the type are complied with, and that no alterations are made to the product design or choice of systems, software versions, components and/or materials.

The main elements of the assessment are:

- Ensure that type approved documentation is available
- Inspection of factory samples, selected at random from the production line (where practicable)
- Review of production and inspection routines, including test records from product sample tests and control routines
- Ensuring that systems, software versions, components and/or materials used comply with type approved documents and/or referenced system, software, component and material specifications
- Review of possible changes in design of systems, software versions, components, materials and/or performance, and make sure that such changes do not affect the type approval given
- Ensuring traceability between manufacturer's product type marking and the type approval certificate

A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE