

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Instrument for Switchboard

with type designation(s)
AAL-111Q96-2, AAL-2

Issued to

DEIF A/S
Skive, Midtjylland, Denmark

is found to comply with
DNV GL 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 GL.

Issued at **Hamburg** on **2020-11-05**

for **DNV GL**

This Certificate is valid until **2025-11-04**.

DNV GL local station: **Denmark CMC**

Approval Engineer: **Thomas Hartmann**

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Arne Schaarmann
Head of Section

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 GL AS, its parent companies and subsidiaries as well as their officers, directors and employees ("DNV GL") 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 300,000 USD.



Product description

For supervision of insulation resistance in isolated AC networks as switchboard instruments

Measuring circuit	
DC Resistance [R_i]:	22/ 220 K Ω
AC Impedance [Z_i]:	>100 k Ω @ 50 Hz
Mains input voltage [U]:	440 V AC max.
Instrument	
Measuring scale range:	1...0 M Ω
	10...0 M Ω
Relay function	
Setpoint:	0...1000 K Ω (1 M Ω scale)
	0...10000 k Ω (10 M Ω scale)
Contact rating:	AC15: 3A @ 250V AC
	DC13: 3A @ 24V DC
General Data	
Pollution degree:	2
Overvoltage Category:	III
Degree of protection:	IP 52, Terminals IP 20 (IP 54 opt.)
Auxiliary voltage [V]:	115V AC \pm 20%
	230V AC \pm 20%
	400V AC \pm 20%
	50/ 60 Hz

Application/Limitation

For the installation in switchboards and cabinets.

Location Classes:

Temperature	B
Humidity	B
Vibration	A
EMC	A

Type Approval documentation

Test report: DEIF IPA0347(reference 4910225100E); Summary test reports
IPA0347 (2014-07-04); Technical Description -01A (reference 4910211100D)
Updated EMC reports (6GHz): RF E-FIELD IMMUNITY – TEST 02B Ref.: 4910217502N
RADIATED EMISSION – 16A Ref.: 4910216501M

Tests carried out


Test performed according to CG-0339, Environmental and EMC tests

Marking of product

Deif A/S - Type designation - Main data.

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the Type approval



Job Id: **262.1-033850-1**
Certificate No: **TAE000045V**

are complied with and that no alterations are made to the product design or choice of materials.

The main elements of the assessment are:

- Inspection on factory samples, selected at random from the production line (where practicable)
- Results from Routine Tests (RT) checked (if not available tests according to RT to be carried out)
- Review of type approval documentation
- Review of possible change in design, materials and performance
- Ensuring traceability between manufacturer's product type marking and Type Approval Certificate.

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE