



TYPE APPROVAL CERTIFICATE

Certificate No:
TAA00000UA
Revision No:
1

This is to certify:

That the Measurement Converter

with type designation(s)
DC/DC insulation amplifier model TDG-210DG

Issued to

DEIF A/S
Skive, Midtjylland, 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	B
Humidity	B
Vibration	A
EMC	B
Enclosure	Required protection according to relevant rules shall be provided upon installation on board.

Issued at **Høvik** on **2022-02-04**

This Certificate is valid until **2026-11-07**.

DNV local station: **Denmark CMC**

Approval Engineer: **Ståle Sneen**



for **DNV**
Digitally Signed By: **Sjåvåg, Trond**
Location: **DNV Høvik, Norway**

Trond Sjåvåg
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 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 300,000 USD.



Form code: TA 251

Revision: 2021-03

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Product description

TDG-210DG is a DC/DC insulation amplifier that provides galvanic insulation between an analog input signal and an analog output signal. Conversion of type/range of analog signal with following characteristics:

Accuracy class: 0.5 (according to IEC 60688)

Current standard input: within the limit of $\pm 1..50\text{mA}$
Voltage input: within the limit of $\pm 60\text{mV}..400\text{V}$

Output (0..100%): 0..1mA, 0..5mA, 0..10mA, 0..20mA, 0..1V, 0..10V
Output (20..100%): 0.2..1mA, 1..5mA, 2..10mA, 4..20mA, 0.2..1V, 2..10V
Output (-100..0..100%): $\pm 1\text{mA}$, $\pm 5\text{mA}$, $\pm 10\text{mA}$, $\pm 20\text{mA}$, $\pm 1\text{V}$, $\pm 10\text{V}$

Variant 2962880730.02:

Accuracy class: 0.5 (according to IEC 60688)

Current standard input: 4..20mA

Output (0..100%): 0..20mA
Output (20..100%): 4..20mA
Output (-100..0..100%): $\pm 10\text{V}$

Approval conditions

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV, documentation for the actual application is to be submitted for approval by the manufacturer of the application system in each case. Reference is made to DNV rules for classification of ships Pt.4 Ch.9 Control and monitoring systems.

Type Approval documentation

Tests carried out

Applicable tests according to class guideline DNV-CG-0339, August 2021.

Marking of product

The products to be marked with:

- manufacturer name
- model name
- serial number
- power supply ratings

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

Periodical assessment is to be performed at least every second year and at renewal of this certificate.

END OF CERTIFICATE