DNV·GL

Certificate No:
TAA00002GH

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Peripheral Equipment

with type designation(s)
Stepper Motor Drive Unit M602901F

Issued to
Regulateurs Europa B.V.
Roden, Netherlands

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.

Location classes:

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

Issued at **Høvik** on **2019-10-03**
This Certificate is valid until **2024-10-02**.
DNV GL local station: **Netherlands CMC**

for **DNV GL**

Approval Engineer: **Ståle Sneen**

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.

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Job Id: **262.1-030783-1**
Certificate No: **TAA00002GH**

Product description

DIN-Rail mounted Stepper Motor Drive Unit M602901F.

Technical specifications

Command input:	4-20 mA into 240 Ω, with galvanic isolation
Feedback input:	8-16 mA into 200 Ω or 0.7-3.5 V into 150 kΩ. Supply feedback transducer 24 V DC.
Digital inputs:	24 V DC into 10 kΩ, where "H" status > 7.5 V and "L" status < 5 V
Output:	Bipolar chopper regulated four wire to drive a stepper motor (5 V, 1 A)
Power supply:	24 V DC
Functions:	Analogue speed setting mode; Adjustable ramp rate for increase or decrease speed; Raise/Lower speed in digital speed setting mode; Fast/Slow ramp rate selectable if in digital speed setting mode; Minimum/Maximum speed stop; Selectable reduced maximum analogue speed setting level; Select idle speed setting level; Select Run-up to rated speed (constant speed).

Approval conditions

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV GL, 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 GL rules for classification of ships Pt.4 Ch.9 Control and monitoring systems.

Application/Limitation

- To be used in self-contained closed steel cabinets
- Mounting instructions to be observed
- Suitability to be verified for the respective application

Type Approval documentation

Tests carried out

Applicable tests according to class guideline DNVGL-CG-0339, November 2016.

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

END OF CERTIFICATE