

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Electrical Control System

with type designation(s)
DECS-150

Issued to

Basler Electric Company
Highland, IL, USA

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.

Temperature B

Humidity B

Vibration A

EMC A

Enclosure Required protection according to DNV GL Rules shall be provided upon installation on board

Issued at **Hamburg** on **2020-12-16**

This Certificate is valid until **2025-07-26**.

for **DNV GL**

DNV GL local station: **Houston, Approval CMC**

Approval Engineer: **Jens Dietrich**

Joannis Papanuskas
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

DECS-150 Automatic Voltage Regulator

Operating Power Input Configuration: 1-phase and 3-phase, 50 to 500Hz

Continuous Excitation Current: 10A@55°C, 7A@70°C.

63 V DC: Nominal Input Voltage: 120 V AC, 125 V DC Full Load Continuous Voltage: 63 V DC 10-Second Forcing: 100 V DC, 11 A DC;

125 V DC: Nominal Input Voltage: 240 V AC, 250 V DC Full Load Continuous Voltage: 125 V DC 10-Second Forcing: 200 V DC, 11 A DC.

Generator and Bus Bar Voltage Sensing: 1 or 3-phase: 50Hz: 100V AC, 200VAC or 400V AC;
60Hz: 120V AC, 480V AC, 600V AC;

Generator Current Sensing: 1A or 5A.

- 8 programmable dry contact inputs, 12V DC;
- 1 Aux. Input: 1 current input (4...20mA) or 1 voltage input (-10V...+10V DC);
- 2 programmable output contacts, rated 7A@24V DC / 240V AC;
- RJ45 Ethernet jack 10BASE-T/100BASE-TX;
- USB port (use for service only);
- Degree of protection: IP54 (front).

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 Ships Pt.4 Ch.8 Sec.1 (Electrical installations).

Installation Instructions are to be observed; to be used in self-contained metal enclosures.

For the respective application compliance with the requirements for generator voltage regulation and generator short circuit capabilities given in Pt.4 Ch.8 Sec.5, 2.2 and 2.3 must be ensured.

Clause for application software control

All changes in software are to be recorded as long as the system is in use on board. The records of all changes are to be forwarded to DNV GL for evaluation and approval.

Major changes in the software are to be approved before being installed to the device.

Tests carried out

Applicable tests according to DNV GL CG-0339, December 2019.

Marking of product

Maker, type designation, electric ratings, serial number (label on rear side).

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



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Certificate No: **TAA00002XJ**

- 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 this certificate.

END OF CERTIFICATE