Certificate no.:
TAA00003UG

TYPE APPROVAL CERTIFICATE

This is to certify:

that the Electrical Control System

with type designation(s)
DECS-150 Digital Excitation Control System

issued to
Basler Electric Company
Highland, IL, USA

is found to comply with
DNV rules for classification – Ships Pt.6 Ch.5 Sec.21 Cyber security

Application:

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV.
This type approval covers security capabilities for DNV Cyber security profile level 1 (SP1) and IACS UR E27, subject to conditions stated in this certificate.

Issued at **Høvik** on **2026-03-13**
This Certificate is valid until **2028-03-12**.
DNV local unit: **Certification & Inspection Services**

for **DNV**

Approval Engineer: **Vinay Bhardwaj**

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.

Product description

DECS-150 Digital Excitation Control Systems offer precise excitation control and machine protection in a compact package. DECS-150 adaptability to many applications is assured through configurable contact inputs and outputs, flexible communication capabilities, and programmable logic implemented with the provided BESTCOMSPlus® software.

The DECS-150 is intended for brushless ac synchronous generator or synchronous motor applications. The DECS-150 controls the machine output through the application of regulated dc excitation power to the exciter field. The level of excitation power is based on the monitored voltage and current, and a regulation setpoint established by the user. The operating mode, generator or motor, is changed on the Operating Mode settings screen. Power factor and var metering values will be opposite in motor mode. Excitation power is supplied from the DECS-150 by means of a filtered, switching power module that uses pulse-width modulation

This DECS-150 system complies with the requirements laid out for components in IACS UR SP1 and in DNV-RU-SHIP Pt.6 Ch.5 Sec.21 (2025).

The following hardware comprising the above-mentioned system is covered by this certificate:

Component	***Type/Designation/Model***	***OS/ Software Version.***	***Interfaces/Connectivity***
Digital Excitation Control System	DECS-150	Amazon FreeRTOS POSIX V1.1.0 Basler Electric's Ver. App: 3.XX.XX Security: 1.XX Basler Electric's BestComsPlus Ver. 5.XX.XX	USB x1, Ethernet x1, UART x1, JTAG Interface x1

Approval Conditions:

The following documentation of the actual application is to be submitted for approval in each case where the class notation Cyber secure (Essential) applies:

- Reference to this Type Approval Certificate
- F030 - System topology
- F071 - Inventory list
- F262 - Test report or declaration of hardening and security configuration.

Any modifications in the system to be delivered compared with the type approved system covered by this certificate shall be documented and submitted for approval in each case.

Major changes of the type approved system affecting future deliveries shall be informed to DNV. If the changes are considered 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 version. Minor changes are covered by this type approval.

Product certificate

Each delivery of the application system is to be certified according to Pt.6 Ch.5 Sec.21. After certification the clause for software control will be put into force.

Software control

All changes in software are to be recorded as long as the system is in use on board. Documentation of major changes is to be forwarded to DNV for evaluation and approval before implemented on board. Certification of modified functionality may be required for the particular vessel.

Application/Limitation

The following conditions shall be satisfied when the system is installed and used on a vessel where the class notation Cyber secure (Essential) applies:

- The type approved DECS 150 system shall be installed in restricted areas. Access to the components shall be restricted and controlled.
- User login password strength enforcement is not available. One character password also accepted. Integrators must maintain best practice for using complex passwords.
- Passwords are visible in packet capture. Integrators are responsible responsibility for Physical security for the system & its access.
- The type approved DECS 150 system shall only be connected to trusted networks or systems.

Type Approval documentation

Document description	Customer Ref.	Version
Cyber security capabilities	9492600999-rev-D	-1/29/26
Zone diagram	9492600993	-11/13/25
Cybersecurity Test procedure	9492600989-rev-B	-1/22/26
Network Topology diagram	9492600995	-11/13/25
Software Development Lifecycle	9492600997	-10/21/2025
PKI handling diagram	9492600998	-11/13/25

Tests carried out

Tested in accordance with requirements for DNV rules Pt.6 Ch.5 Sec.21 security profile 1, edition July 2025.

Marking of product

- Hardware devices are marked with product name and type as listed in ‘Product description’ above
- Software version(s) can be seen via each product’s management interface

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
- Review documented evidence of adherence to Secure Development Lifecycle processes. A renewal assessment will be performed at renewal of the certificate

END OF CERTIFICATE