



TYPE APPROVAL CERTIFICATE

Certificate No:
TAA000019S
Revision No:
2

This is to certify:

That the **Electrical Control System**

with type designation(s)
DECS-100/DECS-100MLS, DM110/DECS-100MLS, DECS-250, DECS-250N

Issued to
Basler Electric Company
Highland, IL, USA

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.

Type	Temperature	Humidity	Vibration	EMC	Enclosure
DECS-100/DECS-100MLS	B	B	A	A	*
DM110/DECS-100MLS	B	B	A	A	*
DECS-250	B	B	A	A	*
DECS-250N	B	B	A	A	*

Issued at **Hamburg** on **2022-09-08**

This Certificate is valid until **2027-07-06**.

for **DNV**

DNV local station: **Certification & Inspection Services**

Approval Engineer: **Jens Dietrich**

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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 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.



Product description

Digital Excitation Control Systems:

DECS-100

Digital Excitation Control Systems DECS-100(LR)(MLS)-XYZ, DM110

X=A: No var/PF control, X=B: var/PF control;

Y=0: No Voltage matching, Y=1: Voltage matching;

Z=1: Current transformer 1A, Z=5: Current transformer 5A (DECS-100 only).

Operating Power: 88...250VAC, single or three phase

50...400Hz, Burden: 650VA

Gen. Voltage Sensing: 1-Phase/3-Phase:

50Hz: 100VAC, 200VAC or 400VAC,

60Hz: 120VAC, 240VAC, 480VAC, 600VAC,

Gen. Current Sensing: 1-phase 50/60Hz, 1A or 5A (DM110: 1A).

Exciter Field Output: 63VDC, 7A continuous, Gen. Voltage Accuracy: +/-0.5%,

Accessory Input (aux. adjust): +/-3VDC, (DECS-100), 4...20mA DC (DM110),

Common Alarm Output, Communication Ports: RS232.

Firmware revisions:

DECS-100(MLS): 2.14.xx, DM110: 1.05.xx., DECS-100LR: 1.00.01.

Use in self-contained metal enclosure (conduit box) only.

DECS-100LR is identical to the DECS-100 only with Load Rejection capability.

DECS-100MLS is an OEM variant of the DECS-100 made for Leroy Somer.

DM110 is an OEM variant of DECS-100 made for AvK Stamford.

DECS-250

Digital Excitation Control System DECS-250[N]-A-B-C-D-E-F-G

Power Supply: A=L: 24/48VDC, A=C: 120VAC/125VDC,

PSS: B=N: None, B=P with Power System Stabilizer,

DECS-250: C: Autotracking: C=1: Internal, C=2: Internal/External Autotracking,

[DECS-250N: C: Input Power Frequency:

C=1: Low 50/60Hz; C=2: High 61 to 420Hz, C=3: 480VAC@50/60Hz].

Terminals: D=S: Spring type, D=C: Compression type,

Synchronizer: E=N: None, E=A: Auto Synchronizer,

Remark: Generator protection functions to be used as back-up only.

1st Comm. Protocol: F=1: 100Base-T Ethernet., F=2: 100 Base F Ethernet,

2nd Comm. Protocol: G=N: None, G=P: Profibus.

Operating Power Input for Excitation Voltage [In brackets: DECS-250N]:

32 [63]V DC: Input: 56...70 [100...139]V AC,

63 [125]VDC: Input: 100...139V AC or 125V DC [190...277V AC],

125 [250]VDC: Input: 190 to 277V AC or 250V DC [380...528VAC, 50/60Hz] C=3.

Excitation current: Cont. 15A DC (10s@30ADC) [Cont. 20A DC].

Software Versions: DECS-100

Firmware 2.XX.XX

Software Versions: DM110

Firmware 1.XX.XX

Software Versions: DECS-250/250N

Firmware 1.XX.XX

Place of manufacture

Basler Electric Company, Highland, Illinois, USA

Basler Electric Company, Taylor, Texas, USA

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 Ships Pt.4 Ch.8 Electrical Installations.

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 for evaluation and approval.

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

A Certification of Application Functions may be required for the particular vessel.

Application/Limitation

Compliance with the requirements for generator voltage regulation and generator short circuit capabilities given in Pt.4 Ch.8 Sec.5, 2 must be ensured. It must be possible to verify that compliance by review of power system documentation. Testing onboard should be limited to confirming compliance already verified by design review.

Tests carried out

Applicable tests according to DNV Class Guideline CG-0339, edition August 2021.

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 this certificate.

END OF CERTIFICATE