



Certificate number: 27781/C1 BV

File number: AP4282

Product code: 2658H

This certificate is not valid when presented without the full attached schedule composed of 7 sections. Full certificate is to be requested to the manufacturer

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TYPE APPROVAL CERTIFICATE

This certificate is issued to

Basler Electric Company

Highland, IL - UNITED STATES OF AMERICA

for the type of product

GENERATOR CONTROL AND PROTECTION UNITS

DIGITAL EXCITATION CONTROL SYSTEM DECS-100, DECS-100MLS, DECS-100LR and DM110

Requirements:

Bureau Veritas Rules for the Classification of Steel Ships.

EC Code: 31

This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements mentioned above.

This certificate will expire on: 26 Feb 2028

For Bureau Veritas Marine & Offshore,

At BV PORT EVERGLADES CENTRE, on 21 Jul 2026,

Flavio Rosas

This certificate was created electronically and is valid without signature



This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with Bureau Veritas Marine & Offshore. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of Bureau Veritas Marine & Offshore available on the internet site www.veristar.com. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against Bureau Veritas Marine & Offshore for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

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BV Mod. Ad.E 530 June 2017

This certificate consists of 3 page(s)

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION:

The **DIGITAL EXCITATION CONTROL SYSTEMS BASLER DECS-100, DECS100LR, DECS-100MLS & DM110** are electronic, solid-state, microprocessor based controlled devices.

DECS-100 & DM110 are similar, except for the following characteristics:

- Accessory input

DM110:

Input Range: 4 to 20 mAdc

Burden: 138 W, $\pm 10\%$

Terminals: A (+), B (-)

DECS-100

Voltage Range: -3 Vdc to +3 Vdc

Setpoint Range: -30% to +30% shift

Burden: 1 kW

Terminals: A, B

1.1 - Standard functions:

Four control modes:

- automatic voltage regulation (AVR),
- manual or field current regulation (FCR),
- power factor (PF) regulation,
- reactive power (var) control.

Programmable stability settings.

Soft start and voltage buildup control with an adjustable ramp in AVR control mode.

Overexcitation limiting (OEL) and underexcitation limiting (UEL) in AVR, Var, and PF control modes.

Underfrequency (volts/hertz) regulation.

Generator paralleling with reactive droop compensation and reactive differential compensation.

1.2 - Protection functions:

Loss of sensing

Field overvoltage

Generator overvoltage

2. DOCUMENTS AND DRAWINGS:

- Instruction Manual for DECS-100 N°9287500991, for DM110 N°9287500992 and for DECS-100LR, N°9287500993
- Drawings N° 9287501405 Rev -, 9287501911 Rev C
- Drawing 9287500684 for specific front face of DECS-100MLS Rev A 02/20/02
- Drawing DECS-100, No. 9287500404, rev.A dated 08/19/13

3. TEST REPORTS:

- EMC test reports: 17629 issued by DLS from 30/01/2012 to 02/02/2012, 17630 issued by DLS from 06/2012 to 07/02/2012, Surge Immunity test report issued at Basler on 26/04/2012.
- Functional and Environmental test report EM0266-1 issued by Curtis-Strauss on 25/04/2012
- DECS-100 Bestcoms Type Test issued at Basler on 15/12/2010
- DECS-100, Test Report No. 9287500783, dated 12/06/2022

4. APPLICATION / LIMITATION:

- 4.1 - BUREAU VERITAS Rules for the Classification of Steel Ships.
- 4.2 - Approval valid for ships intended to be granted with the following additional class notations: **AUT-UMS, AUT-CCS, AUT-PORT and AUT-IMS.**
- 4.3 - BUREAU VERITAS Environmental Category, **EC Code: 31.**
- 4.4 - The equipment fulfils the EMC requirements for installation in General power Distribution Zones.
- 4.5 - In case of AUT notations issuance, machinery protection required by the Rules and based on data processing techniques are to be duplicated by another and different system.
- 4.6 - In accordance with IACS UR E22 and as applicable to programmable devices for computer based systems of Category II or III, for each ship application:
- Ship specific documentation is to be submitted including software documentation and categorization of the computer based system.
 - Inspection and testing before installation onboard is to be performed under the surveillance of the Society.
- 4.7 - BESTCOMS software is not covered by this certificate. References of versions are given in 1.3 for information.
- 4.8 - Equipment covered by this Type Approval certificate has been tested according to requirements of IACS UR E10 rev 9.

5. PRODUCTION SURVEY REQUIREMENTS:

- 5.1 - The above products are to be supplied by **Basler Electric Company** in compliance with the type described in this certificate.
- 5.2 - This type of product is within the category HBV of Bureau Veritas Rule Note NR320 and as such does not require a BV product certificate.
- 5.3 - **Basler Electric Company** has to make the necessary arrangements to have its works recognised by Bureau Veritas in compliance with the requirements of NR320 for HBV products.
- 5.4 - **Basler Electric Company** has declared to Bureau Veritas the following production site(s):

Basler Electric Company
12570 Route 143
62249 Highland IL
UNITED STATES OF AMERICA

Basler Electric Company
204 Highland Drive
76574 Taylor, TX
UNITED STATES OF AMERICA

6. MARKING OF PRODUCT:

- 6.1 - Maker's name or trade mark.
- Serial Number
 - Equipment type number or model identification under which it was type-tested.
- 6.2 - Alternatively, the marking may be presented on a display at equipment start-up.
- 6.3 - The date of manufacture shall be traceable through verification of the Serial Number and shall be made available, upon request, to Bureau Veritas or the shipbuilders or their sub-contractors.
- 6.4 - The title and version of each software element included in the installed software system shall be either marked or displayed on command on the equipment.
- 6.5 - When the marking and the title and version of the software are displayed only on the display, such information shall also be included in the equipment manual.

7. OTHERS:

- 7.1 - It is **Basler Electric Company's** responsibility to inform shipbuilders or their sub-contractors of the proper methods of fitting, use and general maintenance of the approved equipment and the conditions of this approval.
- 7.2 - This certificate supersedes the Type Approval Certificate No. 27781/C0 BV issued by the Society.

*** END OF CERTIFICATE ***