



Certificate number: 27780/C1 BV

File number: AP4281

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-150, DECS-250 and DECS-250N.

Requirements:

Bureau Veritas Rules for the Classification of Steel Ships.

Bureau Veritas Rules on Cyber Security for the Classification of marine units NR659 (only for DECS-150)

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.

The electronic version is available at: <https://www.veristarm.com/veristarnb/jsp/viewPublicPdfTypepec.jsp?id=clrvfkedqx>

BV Mod. Ad.E 530 June 2017

This certificate consists of 4 page(s)

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION:

DECS-150 supplies excitation power by means of filtered, switching power module that uses pulse-width-modulation.

DECS-250 supplies excitation power by means of a filtered, switching power module that uses pulse-width modulation.

DECS-250N employs a six-SCR, full-wave bridge that supplies dc excitation power.

1.1 - Approval range:

DECS-250	DECS-250N
- Excitation control modes: - Automatic Voltage Regulation (AVR) - Field Current Regulation (FCR) - Field Voltage Regulation (FVR) - Power Factor Regulation (PF) - Var Regulation (var) - Limiting and generator protection features - Digital inputs/outputs, communications on USB, Ethernet, CAN, RS232, RS485, Profibus as an option.	
- Input Voltage (Control power) • Style LXXXXXX DC Input: 24 to 48 Vdc, Range : 16 to 60Vdc, 30 W • Style CXXXXXX AC Input: 120 Vac, 50/60Hz, Range 82 to 132 Vac, 50/60 Hz 50 VA DC Input: 125 Vdc, Range 90 to 150 Vdc - 30 W - Operating Power • Voltage Range • For 32 Vdc Excitation Power: 56 to 70 Vac • For 63 Vdc Excitation Power: 100 to 139 Vac or 125 Vdc • For 125 Vdc Excitation Power: 190 to 277 Vac or 250 Vdc • Frequency Range: dc, 50 to 500 Hz	- Input Voltage (Control power) • Style LXXXXXX DC Input: 24 or 48 Vdc, Range : 16 to 60Vdc, 30 W • Style CXXXXXX AC Input: 120 Vac, 50/60 Hz, Range 82 to 132 Vac, 50/60 Hz 50 VA DC Input: 125 Vdc, Range 90 to 150 Vdc - 30 W - Operating Power • Voltage Range • For 63 Vdc Excitation Power: 100 to 139 Vac • For 125 Vdc Excitation Power: 190 to 277 Vac • For 250 Vdc Excitation Power: 380 to 528 Vac, 50/60 Hz • Frequency Ranges (Style dependent): xx1xxxx : 50/60Hz xx2xxxx : 61 to 420 Hz xx3xxxx : 50/60 Hz (480 Vac input, 250 Vdc output)

DECS -150	DECS-150 (R-Style)
- Excitation control modes - Automatic voltage regulation (AVR) - Manual or field current regulation (FCR) - Power factor (PF) - Reactive power (var) - Limiting and generator protection features - Input Voltage 120Vac/125Vdc, 240Vac/250Vdc - Digital inputs/outputs, USB, CAN, Ethernet	- Operating Power 63 Vdc Output Operating Range: 100 to 139Vac, ±10% Frequency Range: 50 to 500 Hz Configuration: 1-phase or 3-phase Burden: 698 or 980 VA Nominal: 120 Vac 125 Vdc Output /80Vdc Operating Range: 190 to 277 or 190 to 260 Vac, ±10% Frequency Range: 50 to 500 Hz Configuration: 1 or 3 phase Burden:1610 or 2248VA/500VA Nominal: 240Vac

2. DOCUMENTS AND DRAWINGS:

Drawing No.	Description	Model			Current Revision
		DECS-250	DECS-250N	DECS-150	
9439701404	Power PC Board Assembly Drawing	X	X		D
9439701912	Power PC Board Schematic	X	X		E
9440300400	DECS-250 Assy Drawing	X			C
9440300920	DECS-250 Outline Drawing	X	X		A
9440301403	Digital Board Assembly Drawing	X	X		C
9440301910	Digital Board Schematic	X	X		E
9440302403	Analog Board Assembly Drawing	X	X		D
9440302910	Analog Board Schematic	X	X		E
9440303404	Power Supply Board Assembly Drawing, DECS-250	X			F
9440303910	Power Supply Board Schematic, DECS-250	X			D
9440304404	Bridge Board Assembly Drawing, DECS-250	X			A
9440304910	Bridge Board Schematic, DECS-250	X			B
9440500400	DECS-250N Assembly Drawing		X		J
9440503405	Power Supply Board Assembly Drawing, DECS-250N		X		E
9440503910	Power Supply Board Schematic, DECS-250N		X		D
9440504405	Bridge Board Assembly Drawing, DECS-250N		X		B
9440504910	Bridge Board Schematic, DECS-250N		X		C
9492600400	Assembly Drawing DECS-150			X	A
9492601910	DECS 150 Schematic			X	F
9492604910	DECS 150 Schematic			X	C
9440300990	DECS-250 Instruction Manual	X			/
9440500990	DECS 250N Instruction Manual		X		/
9492600990	DECS-150 Instruction Manual			X	/

3. TEST REPORTS:

- DECS-250 : EMC test reports N° 17817 and 17818 issued by DLS on March 2012
- DECS-250N : EMC test reports N° 17820 and 17821 issued by DLS on March 2012
- IACS E10 tests performed at Basler factory on March and April 2012 for DECS-250 and DECS-250N.
- Software tests performed at Basler factory on 11/01/2012, for DECS-250.
- DECS-150: Emission report No. 9492600782, dated 30 Jan 2015; Immunity report No. 9492600783, dated 27 May 2015; Radiated immunity report No. 9492600780, dated 30 Jan 2015.
- DECS-150 and 150R firmware update test report dated 04/19/2021
- DECS-250, Test Report No. 9440300788, dated 12/09/2020
- DECS-250, Test Report No. 9440300789, dated 12/09/2020
- DECS-150, Test Report No. 9492600784, dated 12/10/2020
- DECS-150, Test Report No. 9492600785, dated 12/11/2020
- Functional Test No. E03192291, dated 09/05/2023

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 - Equipment covered by this Type Approval certificate has been tested according to requirements of IACS UR E10 rev.9.
- 4.8 - This certificate demonstrates the compliance of **DECS-150** with the requirements of UR E27 Rev.1 Sep 2023 as described in Annex

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 - For information, **Basler Electric Company** has declared to Bureau Veritas the following production site:

Basler Electric Company
12570 State 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. 27780/C0 BV issued by the Society.

***** END OF CERTIFICATE *****

**BUREAU
VERITAS**

Attestation number: 82705/A0 BV

File number: TCF07_183

Product code: RA-CYBER

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

REVIEW ATTESTATION

This attestation is issued to

Basler Electric Company

Highland, IL - UNITED STATES OF AMERICA

for

CYBERSECURITY REVIEW

DIGITAL EXCITATION CONTROL SYSTEM DECS-150

Requirements:

NR659 Bureau Veritas Rules on cyber security for the classification of marine units.

IACS UR E27 Rev.1 Sep 2023 Cyber resilience of on-board systems and equipment.

This document is issued to attest that BUREAU VERITAS Marine & Offshore reviewed the technical documentation submitted for the equipment identified above. Details of this review are to be found in the "Schedule of Review" in the subsequent pages of this attestation.

For Bureau Veritas Marine & Offshore,

At BV PORT EVERGLADES CENTRE, on 10 Jul 2026,

Flavio Rosas

This attestation was created electronically and is valid without signature



This attestation will not be valid if the applicant makes any changes or modifications to the product which have not been notified to, and agreed in writing with Bureau Veritas Marine & Offshore. This attestation is issued within the scope of the General Conditions of BUREAU VERITAS Marine & Offshore Division 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 for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgment, 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.

SCHEDULE OF REVIEW

1. PRODUCT DESCRIPTION :

1.1 - DIGITAL EXCITATION CONTROL SYSTEM DECS-150 is described in the certificate 27780/XX BV.

2. DOCUMENTS AND DRAWINGS :

Filename	Reference
F071 - Inventory list DECS-150	V1.0
9492600993 - DECS Network Topology	Rev. - Dated 10/11/2025
9492600995 - DECS Family Simplified Topology	Rev. - Dated 10/11/2025
9492600998 - PKI Diagram	Rev. - Dated 03/11/2025
9492600999 - UR-E27 Requirements	Rev. D
9492600988 - DECS-150 UR-E27 Test Outline (BV)	Rev. - Dated 24/03/2026
DECS-150 Digital Excitation Control System Instruction Manual	Rev. K
9492600996 - Cybersecurity Deployment Guidelines	Rev. - Dated 04/25
9492600997 - Software Development Lifecycle	Rev. - Dated 21/10/2025

No departure from the above documents shall be made without the prior consent of the Society. The manufacturer must inform the Society of any modification or changes to these documents and drawings.

3. TEST REPORTS :

3.1 - Test report 'DECS-150 UR-E27 Report (BV)' was witnessed by a qualified BV Surveyor on the 12/05/2026.

The following subjects were investigated :

1. Protect against casual or coincidental access by unauthenticated entities
 - IEC 62443-3-3/SR 1.1 : Human user identification and authentication
 - IEC 62443-3-3/SR 1.2 : Software process and device identification and authentication
 - IEC 62443-3-3/SR 1.3 : Account management
 - IEC 62443-3-3/SR 1.4 : Identifier management
 - IEC 62443-3-3/SR 1.5 : Authenticator management
 - IEC 62443-3-3/SR 1.7 : Strength of password-based authentication
 - IEC 62443-3-3/SR 1.10 : Authenticator feedback
 - IEC 62443-3-3/SR 1.11 : Unsuccessful login attempts
 - IEC 62443-3-3/SR 1.12 : System use notification
2. Protect against casual or coincidental misuse
 - IEC 62443-3-3/SR 2.1 : Authorization enforcement
 - IEC 62443-3-3/SR 2.5 : Session lock
 - IEC 62443-3-3/SR 2.6 : Remote session termination
 - IEC 62443-3-3/SR 2.8 : Auditable events
 - IEC 62443-3-3/SR 2.9 : Audit storage capacity
 - IEC 62443-3-3/SR 2.10 : Response to audit processing failures
 - IEC 62443-3-3/SR 2.11 : Timestamps
3. Protect the integrity of the CBS against casual or coincidental manipulation
 - IEC 62443-3-3/SR 3.1 : Communication integrity
 - IEC 62443-3-3/SR 3.2 : Malicious code protection
 - IEC 62443-3-3/SR 3.3 : Security functionality verification
 - IEC 62443-3-3/SR 3.5 : Input validation
 - IEC 62443-3-3/SR 3.6 : Deterministic output
 - IEC 62443-3-3/SR 3.8, RE1 : Invalidation of session IDs after session termination

4. Prevent the unauthorized disclosure of information via eavesdropping or casual exposure
 - IEC 62443-3-3/SR 4.1 : Information confidentiality
 - IEC 62443-3-3/SR 4.3 : Use of cryptography
5. Monitor the operation of the CBS and respond to incidents
 - IEC 62443-3-3/SR 6.1 : Audit log accessibility
6. Ensure that the control system operates reliably under normal production conditions
 - IEC 62443-3-3/SR 7.1 : Denial of service protection
 - IEC 62443-3-3/SR 7.2 : Resource management
 - IEC 62443-3-3/SR 7.3 : System backup
 - IEC 62443-3-3/SR 7.4 : System recovery and reconstitution
 - IEC 62443-3-3/SR 7.6 : Network and security configuration settings
 - IEC 62443-3-3/SR 7.7 : Least Functionality

All tests were successful and elements demonstrating compliance are provided in the appendix of each reports.

4. APPLICATION / LIMITATION :

- 4.1 - This attestation is an intermediate document and does not constitute by itself a BV Type Approval Certificate. This attestation is limited to cyber resilience of product described in section 1 as per UR E27 Rev. 1 dated Sept.2023.
- 4.2 - Only Hardware and Firmware successfully tested together in compliance with the rules as referred to in page one, according to the declaration of the manufacturer are covered by this attestation.
- 4.3 - The installation shall comply with the Manufacturer's recommendation described in the above-referenced documentation.
- 4.4 - It is manufacturer's responsibility to inform the Society of any modification or changes which could impact the validity of this attestation.
- 4.5 - This attestation is only valid when attached to the valid Type Approval Certificate 27780/XX BV.
- 4.6 - This attestation has been issued based on the review of documentation provided for the Type Approval Certificate 27780/C0 BV.

5. PRODUCTION SURVEY REQUIREMENTS :

- 5.1 - This system product is to be supplied by **Basler Electric Company** in compliance with the type described in this certificate.
- 5.2 - For information, **Basler Electric Company** has declared to Bureau Veritas the following production site(s):

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

6. MARKING OF PRODUCT :

N/A.

7. OTHERS :

- 7.1 - It is **Basler Electric Company** 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.

*** END OF ATTESTATION ***