CERTIFICATE NUMBER	26-0515768-PDA
EFFECTIVE DATE	17-Jun-2026
EXPIRY DATE	16-Jun-2031
ABS TECHNICAL OFFICE	Yokohama Engineering Services

CERTIFICATE OF

Product Design Assessment

This is to certify that a representative of this Bureau did, at the request of

DEIF A/S

located at

FRISENBORGVEJ 33, , SKIVE, Denmark, DK-7800

assess design plans and data for the below listed product. This assessment is a representation by the Bureau as to the degree of compliance the design exhibits with applicable sections of the Rules. This assessment does not waive unit certification or classification procedures required by ABS Rules for products to be installed in ABS classed vessels or facilities. This certificate, by itself, does not reflect that the product is Type Approved. The scope and limitations of this assessment are detailed on the pages attached to this certificate.

Product:	**Multi-function System For Control and Protection of Generato...**
Model:	**PPU-3 Paralleling and Protection Unit,GPU-3 Generator Protection Unit**
Endorsements:	
Tier:	**5 - Unit Certification Required**

This Product Design Assessment (PDA) Certificate remains valid until 16/Jun/2031 or until the Rules and/or Standards used in the assessment are revised or until there is a design modification warranting design reassessment (whichever occurs first).

Acceptance of product is limited to the "Intended Service" details prescribed in the certificate and as per applicable Rules and Standards.

This Certificate is valid for installation of the listed product on ABS units which exist or are under contract for construction on or previous to the effective date of the ABS Rules and standards applied at the time of PDA issuance. Use of the Product for non-ABS units is subject to agreement between the manufacturer and intended client.

American Bureau Of Shipping

Motohiro Tamura,Engineer/Consultant

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Tier: 5 - Unit Certification Required

Product: **Multi-function System For Control and Protection of Generator Plants**
Model: **PPU-3 Paralleling and Protection Unit,GPU-3 Generator Protection Unit**
Endorsements:

Intended Service:
ABS Classed Vessels and Offshore Facilities in accordance with the listed ABS Rules and International Standards.

Description:
PPU 3 and GPU 3 are member of the DEIF Multi-line 2 product series.
GPU-3: The Generator Protection Unit (GPU-3) is a compact microprocessor-based protection unit containing all necessary functions for protection of a synchronous/asynchronous generator.
Generator protection functions: reverse power, overload, overcurrent, fast overcurrent, overvoltage, undervoltage, overfrequency, underfrequency, overspeed, wire failure, voltage/current unbalance.
Busbar protection: over/under frequency; over/under voltage; voltage unbalance.

PPU-3: The Paralleling and Protection Unit (PPU-3) is a compact all in one microprocessor-based control unit containing all necessary functions for protection and control of a synchronous/asynchronous generator.
Generator protection functions: reverse power, overload, overcurrent, fast overcurrent, overvoltage, undervoltage, overfrequency, underfrequency, overspeed, wire failure, voltage/current unbalance.
Busbar protection: over/under frequency; over/under voltage; voltage unbalance.
Regulation modes: Load sharing, fixed frequency, fixed power and frequency droop.

Rating:
Operating temperature: -25 to +70 C degrees.
Unit Protection: IP 20
Display protection: IP52 (IP 54 with gasket option L).
Power supply: +12/24VDC
Appl. SW 3.1X.X
M4 board SW 2.0X.X

Service Restriction:
Unit certification is required for generator controllers of 100 kW (135 hp) and over intended for essential services or for services indicated as specified in ABS Marine Vessels Rules 4-8-3/1.5 & 4-1-1/ Table 3 item 1.
When this product is used as a part of the switchboard or console for electrical power generating plant, unit certification of aforementioned equipment may cover this product provided that tests required by 4-9-9/Table 2 of the Marine Vessels Rules are witnessed by ABS Surveyor.
Tests and approval are for hardware only.
Each configuration is to be specifically approved.
Controller is fitted with reverse power protection, however the actual setting of the device needs to be verified for each vessel specific project separately as per the Marine Vessels Rules 4-8-2/9.11.4.

GPU3 does not offer load sharing only PPU3 offers the load sharing option, however the actual setting of the active and reactive load sharing needs to be verified for each vessel specific project separately as per the Marine Vessels Rules 4-8-3/3.13.3(b), 3.13.3(c).
Controller is fitted with under voltage protection, however the under voltage release needs to be verified for each vessel specific project separately as per the Marine Vessels Rules 4-8-2/9.11.6.

If the manufacturer or purchaser request an ABS Certificate for compliance with a specification or standard, the

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Tier: 5 - Unit Certification Required

specification or standard, including inspection standards and tolerances, must be clearly defined.

Comments:
The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.

Notes/Drawing/Documentation:
Drawing No. 0778-01, ML_HFMEA_Hardware_HBI20120925, Revision: A, Pages: 1
Drawing No. 0778-03, PPU3 3.10.0 FAT test signed, Revision: A, Pages: 29
Drawing No. 0778-04, DEIF PPU Test June 2016, Revision: A, Pages: 3
Drawing No. 0778-05, LR SWC LR2002345SS UK, Revision: A, Pages: 6
Drawing No. 0778-12, Manufacturer Statement PPM-3 MCS-3, Revision: A, Pages: 1
Drawing No. 0778_10, 07B RF Common Mode-, Test Lab: -, Location: - , Date: 2013/06/07, Revision: B, Pages: 8
Drawing No. 0778_11, 17A Conducted disturbance-, Revision: A, Pages: 21
Drawing No. 0778_11, 17A Conducted disturbance-, Revision: B, Pages: 21
Drawing No. 0778_13, ppu-3-drh-4189340583k-uk, Revision: K, Pages: 103
Drawing No. 14A Insulation resistance, 14A Insulation resistance Test report, Revision: -, Pages: 4
Drawing No. 15A - High Voltage Test, 15A - High Voltage Test report, Revision: -, Pages: 4
Drawing No. ISO Certifcate Deif, ISO Certificate Deif by LR, Revision: -, Pages: 1
Drawing No. PPM3_PPU3_GPU3_MCS3 HW list, PPM3_PPU3_GPU3_MCS3 HW list, Revision: -, Pages: 1
Drawing No. 0778-02, SQP_PPU-3_V.3.12.2, Revision: A, Pages: 17
Drawing No. 0778-06, 1B Electrical Fast Transients (EFT) - Burst, Revision: A, Pages: 8
Drawing No. 0778-07, 02B RF electromagnetic field immunity, Revision: A, Pages: 17
Drawing No. 0778-08, 16A Radiated disturbance, Revision: A, Pages: 9
Drawing No. 13B DC variations,13B - DC variations Gl witness test, Test Lab: - , Location: - , Date: 2009/09/24, Revision: 1, Pages: 3
Drawing No.4A Dry heat ,4A Dry heat GL witness test, Test Lab: -, Location: - , Date: 2009/09/24, Revision: 1, Pages: 6
Drawing No. LR 2009-12-02 6A0,6A0 PPU-3, GPU-3 Damp Heat LR Witness test, Test Lab: -, Location: - , Date: 2009/12/02, Revision: 1, Pages: 10
Drawing No. LR 2009-12-01 9A0,9A0 PPU-3, GPU-3 Vibration LR Witness test, Test Lab: - , Location: - , Date: 2009/12/02, Revision: 1, Pages: 19
Drawing No.12A inclination test, 12A inclination test report BV witness test, Test Lab: - , Location: - , Date: 2009/10/13, Revision: 1, Pages:3
Drawing No.3A cold test, 3A cold test report BV witness test, Test Lab: - , Location: - , Date: 2009/10/13, Revision: 1, Pages: 7
Drawing No.LR 2009-12-01 5B0, 5B0 PPU-3, GPU-3 ESD LR Witness test, Test Lab: - , Location: - , Date: 2009/12/1, Revision: 1, Pages: 5
Drawing No.16B DC LF interference,16B DC LF interference GL witness test, Test Lab: - , Location: - , Date: 2009/09/24, Revision: 1, Pages: 4
Drawing No. LR 2009-12-02 6B0, 6B0 PPU-3, GPU-3 surge - LR Witness test, Test Lab: - , Location: - , Date: 2009/09/24, Revision: 1, Pages: 4
Drawing No. Manufacturer declaration, Manufacturer declaration, Revision: 1, Pages: 1
Drawing No. 0640-04_03, PPU-3 data sheet 4921240354 UK, Rev. H_KWK, Pages: 11
Drawing No. GPU-3-1, GPU-3-1 Data Sheet 4921240352A, Rev. 1, Pages: 11

Terms of Validity:
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Tier: 5 - Unit Certification Required

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STANDARDS

ABS Rules:
2026 Rules for Conditions of Classification – 1A-1-4/7.7, 1A-1-A3, 1A-1-A4, which covers the following:
2026 Rules for Building and Classing Marine Vessels: 4-8-2/9.11.4, 4-8-2/9.11.5, 4-8-2/9.11.6, 4-8-3/1.9, 4-8-3/1.17, 4-8-3/1.11, 4-9-3/7, 4-9-3/11,4-9-9/3 ,4-9-9/7 ,4-9-9/13 ,4-9-9/15.7 Table 1 & Table 2;

2025 Rules for Conditions of Classification – Offshore Units 1B-1-4/9.7, 1B-1-A2, 1B-1-A3, which covers the following:
2026 Rules for Building and Classing Offshore Units: 6-1-1/9, 6-1-1/13; 4-3-1/11, 4-3-1/15, 4-3-1/17, 4-3-2/9.5.2(b), 4-3-2/9.5.2(c);

2026 Rules for Conditions of Classification – Light and High-Speed Craft 1C-1-4/11.9, 1C-1-A2, 1C-1-A3, which covers the following:
2026 High-Speed Craft: 4-6-1/11, 4-6-1/17,4-6-2/9.5.2(b), 4-6-2/9.5.2(c), 4-6-4/3.21.3(a),4-6-4/3.21.3(b), 4-7-8/3.1, 4.7.8/7.1,4.7.8/9,4-7-9/15,4-7-9/15.5 Table 9 and Table 10;

National:
NA

International:
IACS UR E10 (Rev.10 Aug. 2024)

Government:
NA

EUMED:
NA

OTHERS:
NA