



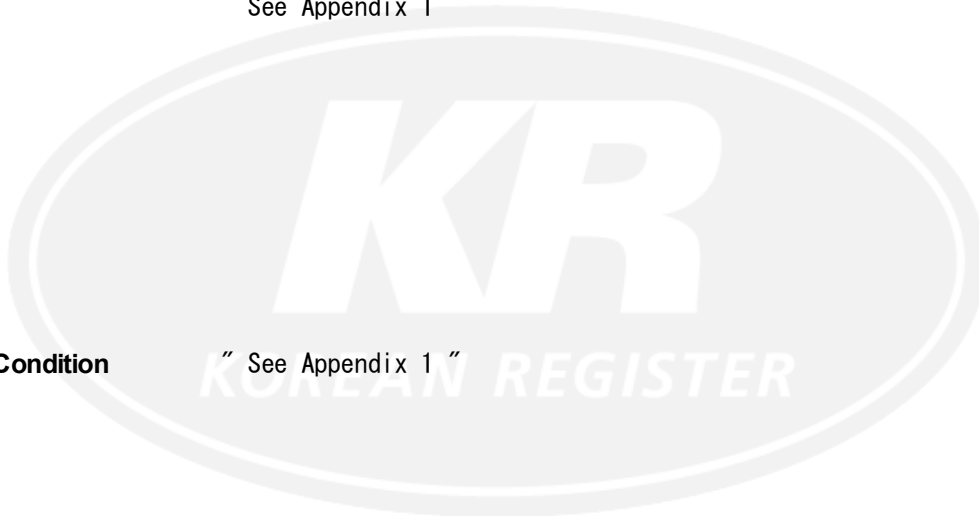
Type Approval Certificate

[Power Management System]

Initial Approval 8 November 2018
Manufacturer DEIF A/S
Frisenborgvej 33, DK-7800 Skive, Denmark

Product Description Type : Multi-line 300 (GPU 300, PPU 300, PPM 300), iE 350, iE7

“ See Appendix 1 ”



Approval Condition “ See Appendix 1 ”

THIS IS TO CERTIFY that the above-mentioned product has been approved in accordance with the relevant requirement of this Society's Rules and / or of the recognized standards as follows.

Pt. 6, Ch. 2, Art. 301 of the Rules for Classification of Steel Ships.

This Certificate is valid until 7 November 2028

Reissued at Busan, Korea on 20 March 2026



This certificate is signed electronically in accordance with IMO FAL.5/Circ.39/Rev.2. Validation and authentication of the certificate can be confirmed from "<http://e-cert.krs.co.kr>" by using the tracking No(ME26011821963) and certificate No.(CPH06107-AC005).



KOREAN REGISTER

*General Manager of
Marine & Ocean Equipment Team*

- Note :**
1. This certificate will be valid subject to complying with the approval conditions described on the certificate and/or on the Rules of this Society.
 2. This certificate will be invalid from the expiry date aforementioned unless the extension or renewal has been granted to the applicant or the manufacturer.
 3. Any significant modifications or changes in design or construction to the above product without approval from this Society will render this certificate invalid.
 4. Should the specified rules, regulations or standards be amended during the validity of this certificate, the product is to be re-approved by this Society in accordance with the requirements as amended.

Product Description and/or Approval Condition

Date of Issue : 20 March 2026

A. Product Description

1. Product Specification

Multi-line 300 and iE 350 are modular base power management system controllers used for generator control, power management and generator protection applications comprising of the following units.

- 1) GPU 300 (Generator Protection Unit)
 - PSM 3.1/3.2 Power supply module
 - ACM 3.1/3.2 Alternating current module
 - IOM 3.1/3.4 Input/output module
 - PCM 3.1 Processor and communication module
 - GAM 3.1/3.2 Governor/AVR module
- 2) PPU 300 (Paralleling and Protection Unit)
 - PSM 3.1/3.2 Power supply module
 - ACM 3.1/3.2 Alternating current module
 - IOM 3.1/3.2 Input/output module
 - 3.3/3.4
 - EIM 3.1 Engine interface module
 - GAM 3.1/3.2 Governor/AVR module
 - PCM 3.1 Processor and communication module
- 3) PPM 300 (Protection and Power Management)
 - PSM 3.1/3.2 Power supply module
 - ACM 3.1/3.2 Alternating current module
 - IOM 3.1/3.2 Input/output module
 - 3.3/3.4
 - EIM 3.1 Engine interface module
 - GAM 3.1/3.2 Governor/AVR module
 - PCM 3.1 Processor and communication module
- 4) iE 350 (Intelligent Energy Controller)
 - PSM 3.1/3.2 Power supply module
 - ACM 3.1/3.2 Alternating current module
 - EIM 3.1 Engine interface module
 - IOM 3.1/3.2 Input/output module
 - 3.3/3.4
 - PCM 3.3 Processor and communication module
 - GAM 3.1/3.2 Governor/AVR module
- 5) DU 300, iE7 (Display Unit)
- 6) Application Software Version
 - GPU 300 : 1.0. x. x
 - PPU 300 : 1.0. x. x
 - PPM 300 : 1.0. x. x
 - DU 300 : 1.0. x. x
 - iE 350 : 2.0. x. x
 - iE7 : 1.0. x. x

2. Approved Drawings and Documents

- 1) Data Sheets
 - PPM data sheet 4921240464W
 - GPU data sheet 491240530B
 - PPU data sheet 4921240563E
 - iE 350 Marine data sheet 4921240657H
 - iE 350 PLC data sheet 4921240659E

3. Test Reports, etc.

- 1) Performance Test Reports
 - IPA311-11 test data_1(597 pages), IPA0331 test data for Display Unit(304 pages)
- 2) Environmental / EMC Test Reports
 - IPA311-11 test data_1(597 pages), IPA0331 test data for Display Unit(304 pages),

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4910213100G, 4910213105G, 4910213115G, 4910213120H, 4910214100M, 4910217513J,
4910215100I, DANAK-19/17105 Rev. A dated 2016-11-16, 4910217501Q, 4910217502M,
4910217505J, 4910217506M, 4910217507L, 4910216501K, 4910216502I,
EPC 929 iE7 A-tests witnessed DNV dated 2025-01-15,
EPC 929 iE7 B-tests witnessed DNV dated 2025-01-15,
929 iE350 A tests Witnessed DNV dated 2024-05-31,
929 iE350 B tests Witnessed DNV dated 2024-05-24

3) Manuals

- PPU Operator's manual 4189341099N, PPU Installation instructions 4189341098M,
PPU Designer's handbook 4189341097M
- PPM Operator's manual 4189340910G, PPM Installation instructions 4189340909P,
PPM Designer's handbook 4189340911U
- GPU Operator's manual 4189341034A
- iE 350 Marine designer's handbook 4189341397E
- iE Display operator's manual 41893411416C
- iE 350 Designer's handbook 418934139E

4) Software Documents

- GPU 300 V1.0.1.0, PPU 300 V.1.0.26.3, PPM V1.0.26.0
- iE 350 : ELEMENT DEP BSP V5.0.9.0, PRODUCT iE350 MS V2.0.16.0,
PRODUCT iE350 MarinePM V2.0.4.1, PRODUCT iE350 MP V2.0.15.0,
ELEMENT DEP APP MS V2.0.16.0, CODESYS add-on V1.0.5.0,
CODESYS SP18 TSP PCM 3.3 424356
- iE7 V1.0.0.1 424355
- Software development document 4910000011AL
- Software lifecycle 291122

5) FMEA

- SFMEA, HFMEA IPA0331, DFMEA_iEx50_DEP_V3

6) FAT Reports

- iE 350 Marine DNV signed dated 2024-05-27

7) Schematic Drawing & BOM

- 4157200505 E, 4157200501 L, 4157200507 H, 4157200508 E, 4157200509 E,
4157200504 I, 4157200503 I, 4157200539 F, 4157200544 D, 4157200611 D,
4157200625 C, 1044650060 C, 2044650060 B, 2044650011 B

B. Approval Condition

1. Application & Limitation

- 1) This approval is granted on the basis of the test reports and the approved documentation.
- 2) Degree of protection is to be complied with Rule Pt.6 Ch.1 Sec.2 201.2. (5).
- 3) The manufacturer is to inform this Society of all kinds of revisions of the equipment including major changes of software. If the changes are recognized to affect functionality of the approved equipment, type test to confirm the reliability of the revised equipment may be performed in the presence of our surveyor.
- 4) This certificate covers the hardware and basic software under the Product Description. The function of the actual application software is to be verified by the individual product certification of switchboard or on-board test of the integrated power system of the ships.

2. Individual Product Cert. and Drawing Approval Requirement

- 1) Individual Product Certification is required by system integrator such as switchboard maker.
- 2) In case where this system is installed on board, the system drawings for individual vessel are to be approved by this Society.

Product Description and/or Approval Condition

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3. Marking

- 1) The product or packing is to be marked with the manufacturer's name and type designation on a suitable position.

4. Others

- 1) Test condition

Test	Condition	Remark
EMC	All locations excluding the bridge and deck zone	-
Temperature	-30 ~ +70°C -40 ~ +70°C	(1) (2)
Vibration	Acceleration $\pm 0.7g$	-

- (1) iE7
(2) The others

< End of Certificate >

