



Marine & Offshore

Certificate number: 42536/A3 BV

File number: AP4648

Product code: 44211

This certificate is not valid when presented without the full attached schedule composed of 7 sections

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TYPE APPROVAL CERTIFICATE

This certificate is issued to

DEIF A/S

Skive - DENMARK

for the type of product

ELECTRICAL POWER MANAGEMENT SYSTEMS

PPM 300, PPU 300, DU 300 & GPU 300.

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: 03 Dec 2020

For Bureau Veritas Marine & Offshore,

At BV FREDERICIA, on 12 Mar 2019,

Jesper Jensen



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 4 page(s)

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION :

- Product model or type designation:

PPM 300, PPU 300, DU 300 & GPU 300

- Product description:

Protection and power management controller system for various marine applications.

1.1 - General hardware configuration:

Type	Function
PSM3.1	Power supply module
ACM3.1	Alternating current module
IOM3.1	I/O module
EIM3.1	Engine interface module
GAM3.1	Governor and AVR module
IOM3.1	I/O module
PCM3.1	Processor and communication module
IOM3.4	I/O module
GAM3.2	Governor and AVR module

Note: each configuration is to be adapted following the final application.

1.2 - Software:

Principal software:	Ver. 1.0.X.X
Utility software:	PICUS

2. DOCUMENTS AND DRAWINGS :

FAT report Ref. TKP/150427, dated 06.May.2015.

FMEA report Ref. POS/150428, dated 06.May.2015.

DU HELP.

PPM 300 commissioning guidelines No. 4189340912B.

PPM 300 data sheet No. 4921240464B.

PPM 300 handbook No. 4189340911B.

PPM 300 installation instructions No. 4189340909B.

PPM 300 operator's manual No. 4189340910B.

ACM3.1 module design ref. IPA0331, dated 04.Mar.2015.

ACM3.1 software quality plan ref. 421704, dated 17.Jan.2015.

EIM3.1 module design ref. IPA0331, dated 04.Mar.2015.

EIM3.1 software quality plan ref. 421704, dated 26.Jan.2015.

ML 300 software documentation, dated 10.Feb.2015.

Software life-cycle overview, ref. SM, 141104.

GAM3.1 module design, dated 19.Nov.2015.

GAM3.1 ref. 421704, dated 26.Jan.2015.

GPU 300 FAT dated 28.Jun.2016.

GPU 300 commissioning guidelines ref. 4189341033A, dated 17.Jun.2016.

GPU 300 data sheet ref. 4921240530A, dated 17.Jun.2016.

GPU 300 installation instructions ref. 4189341031A, dated 17.Jun.2016.

GPU 300 designer's handbook ref. 4189341032A, dated 17.Jun.2016.

Software version numbering ref. 4910000011AA, dated 17.Oct.2016.

PPU 300 data sheet No. 4921240563, dated 21 dec 2016

PPU 300 designers handbook No. 4189341097, dated 22 Dec 2016

PPU 300 operator's manual No. 4189341099, dated 21 Dec 2016

PPU 300 installation instructions No. 4189341098, dated 21 Dec 2016

Software Quality Plan PPU 300 version 1.0.0.0 No. 421763, dated 20 Dec 2016

Software Quality Plan DU 300 version 1.0.5.0 No. 421763, dated 20 Dec 2016

Software Quality Plan PPU 300 version 1.0.0.1 No. 421763, dated 24 Feb 2017

Drawings:

Type	Reference
DU 300	4157200501 Rev. I, dated 02.Apr.2014.
PSM3.1	4157200503 Rev. I, dated 16.Sep.2014. 1044600030H, dated 30.Jun.2014.
ACM3.1	4157200505 Rev. D, dated 18.Nov.2013. 1044600050 Rev. D
EIM3.1	4157200507 Rev. G, dated 13.Jan.2015. 1044600070 Rev. E
Backplane	4157200502 Rev. C, dated 10.Apr.2013. 1044600020B, dated 24.Apr.2013.
GAM3.1	4157200508 Rev. D, dated 13.Aug.2013.
IOM3.1	4157200509 Rev. E, dated 09.Nov.2012. 1044600090 Rev. E
PCM3.1	4157200504 Rev. E, dated 25.Nov.2014. 1044600040E, dated 02.Jul.2014.

For A3 version:

IOM3.4 Input output module Data Sheet, No.4921240557 A, dated 30 May 2018
 GAM3.2 Governor and AVR modul Data Sheet, No. 4921240058 A, dated 30 May 2018
 Technical description No. 4910211100D, dated 13 Dec 2016

3. TEST REPORTS :**DEIF:**

- Tests report No. 4910213105F, dated 05 Dec 2015.
- Tests report No. 4910217511E, dated 17 Feb 2014.
- Tests report No. 4910217515E, dated 10 Mar 2014.
- Tests report No. IPA0331-05-W1, dated 05.Sep.2016.
- Dry Heat Ref.: 4910213105G/E
- Cold Test Ref.: 4910213100G/D
- Insulation Resistance Ref.: 4910215100F
- Radiated Emission Ref.: 4910216501J, dated 07 Dec 2016
- Conducted Emission AC, DC and teleports, dated 07 Dec 2016

For A3 version:**DELTA:**

- EMC immunity test report Ref.: DANAK-19/17105 Rev. A, dated 16 Nov. 2016

DEIF:

Test Type	Reference	Date
Cold	4910213100G	2018-09-27
Dry Heat	4910213105G	2018-11-22
Vibration	4910214100J	2018-11-22
Insulation	4910215100I	2018-11-22
High voltage	4910215105I	2018-11-22
Electrical Fast Transients Burst	4910217501Q	2018-10-08
Electrostatic Discharge	4910217505J	2018-09-28
Variations DC power ports	4910217513I	2018-10-04
Power interruptions	4910227515H	2018-10-02
Low frequency interference	4910217516F	2018-10-02
Performance test		
Damp heat		
RF conducted		
Surge		
Radiated emission		
Conducted emission		

4. APPLICATION / LIMITATION :

- 4.1 - BUREAU VERITAS Rules and Regulations 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 - The equipment, once installed on board ship, is to be tested in accordance with the above referred Regulations under the supervision of a Society's Surveyor.

4.6 - Only Hardware and Firmware / Software successfully tested together in compliance with the regulations as referred to in page one, according to the declaration of the manufacturer are covered by this certificate.

4.7 - Depending on the Application, Factory Acceptance and On-board Tests are to be performed in accordance with requirements for Category II Equipment.

5. PRODUCTION SURVEY REQUIREMENTS :

5.1 - The above products are to be supplied by **DEIF A/S** in compliance with the type and the requirements described in this certificate.

5.2 - This type of product is within the category IBV of Bureau Veritas Rule Note NR320.

5.3 - BV product certificate is required.

5.4 - **DEIF A/S** has declared to Bureau Veritas the following production site(s):

DEIF A/S
Frisenborgvej 33
DK-7800 Skive
DENMARK

6. MARKING OF PRODUCT :

6.1 - Trade name.

6.2 - Date of manufacture and serial number.

6.3 - Equipment type or model identification under which it was type-tested.

6.5 - \ or @conformity marking, as relevant .

7. OTHERS :

7.1 - It is **DEIF A/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. 42536/A2 BV issued on 28 Dec 2017 by the Society.

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