



TYPE APPROVAL CERTIFICATE
No. ELE170618XG

This is to certify that the product below is found to be in compliance with the applicable requirement of the RINA type approval system.

<i>Description</i>	Power Management System
<i>Type</i>	PPM 300, GPU 300, PPU 300 series
<i>Applicant</i>	DEIF A/S Frisenborgvej 33 7800 Skive DENMARK
<i>Manufacturer</i>	DEIF A/S
<i>Place of manufacture</i>	Frisenborgvej 33 7800 Skive DENMARK
<i>Reference standards</i>	Rules for the classification of ships.- Part C - Machinery, systems and fire protection. - Ch.3, Sect. 6, Table 1.

Issued in **HAMBURG** on **August 20, 2018**. *This Certificate is valid until* **August 19, 2023**

RINA Services S.p.A.
Giuseppe Russo

This certificate consists of this page and 1 enclosure



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PPM 300, GPU 300, PPU 300 series

Product description:

The PPM 300, GPU 300 and PPU 300 are modular alarm, control and protection systems for marine power plants.

PPM 300 Protection and Power Management

Comprising following components:

PSM 3.1 - Power supply module
ACM 3.1 - AC measurement module
IOM 3.1 - Input/output module
IOM 3.4 - Input/output module

Software version: 1.0.x.x

EIM 3.1 - Engine input module
GAM 3.1 - Governor/AVR module
GAM 3.2 - Governor/AVR module
PCM 3.1 - Processor and communication module

GPU 300 Generator protection unit

Comprising following components:

PSM 3.1 - Power supply module
ACM 3.1 - AC measurement module
IOM 3.1 - Input/output module
IOM 3.4 - Input/output module

Software version: 1.0.x.x

GAM 3.1 - Governor/AVR module
GAM 3.2 - Governor/AVR module
PCM 3.1 - Processor and communication module

PPU 300 Paralleling and Protection Unit

Comprising following components:

PSM 3.1 - Power supply module
ACM 3.1 - AC measurement module
IOM 3.1 - Input/output module
IOM 3.4 - Input/output module

Software version: 1.0.x.x

GAM 3.1 - Governor/AVR module
GAM 3.2 - Governor/AVR module
PCM 3.1 - Processor and communication module

DU 300 Display unit

Software version: 1.0.x.x

List of Protection functions:

Protection function	ANSI no.	Levels
Over-voltage U>, U>>	59	2
Under-voltage U<, U<<	27	2
Voltage unbalance UUB>	47	1
Over-current 3I>, 3I>>	50TD	2
Fast over-current 3I>>>	50/50TD	2
Current unbalance IUB>	46	1
Inverse time overcurrent It>	51	1
Over-frequency f>, f>>	81O	2
Under-frequency f<, f<<	81U	2
Directional power P>, P>>	32	2
Reverse power P<, P<<	32R	2
Reactive power export Q>, Q>>	40O	2
Reactive power import Q<, Q<<	40U	2
Earth inverse time over-current It>	51G	1
Synchronisation	25	n.a.
Over-voltage U>, U>>	59	2
Under-voltage U<, U<<	27	2
Voltage unbalance UUB>	47	1
Over-frequency f>, f>>	81O	2
Under-frequency f<, f<<	81U	2



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PPM 300, GPU 300, PPU 300 series

Documents:

Data sheet: - 4921240464G; 4921240530A; 4921240557A; 4921240558A; 4921240563E;
Manuals: - 4189340910G; 4189341034A; 4189341099E;
Software Quality Plan: - 410040 v 1.0.3.0; 421763 v 1.0.1.0; ML300-6851 v 1.0.7.2;
Drawings: - 4157200503I; 1044600030I - PSM31; 4157200504I; 4106200411F; 1044600040G - PCM31;
- 4157200505E; 4106200415B; 1044600050E - ACM31; 4157200507H; 4106200417D; 1044600070F - EIM31;
- 4157200508E; 4106200422D; 1044600070F - GAM31; 4157200509E; 4106200413C; 1044600090F - IOM31;
- 4157200538B; 1044600100B; 4157200546B; 1044600140B; 4910211100D;
- DoC 4910290104 Rev. D dated 22 december 2016 UK; DoC 4910290105 Rev. B dated 12 September 2016;

Test reports:

DEIF: - 4910210501C; 4910210514A; 4910212100F; 4910213100G; 4910213105F; 4910213116A; 4910213120F;
- 4910213126B; 4910213127B; 4910214100H; 4910214101A; 4910214110J; 4910215100H; 4910215105I;
- 4910216501J; 4910216502I; 4910216506B; 4910216510E; 4910216518B; 4910217501N; 4910217503G;
- 4910217505F; 4910217506K; 4910217507J; 4910217508G; 4910217513I; 4910217514H; 4910217515G;
- 4910217518E; 4910217520B; 4910217521B; 4910217523A; FAT GPU 300 dated 30/09/2016;
- FAT PPM 300 dated 2017-11-01; FAT PPU 300 dated 13.01.2017;
DELTA: - DANAK-19/17105 Rev. A dated 16 November 2016 ;

Remarks:

- The products fulfill EC-Code: 3a1/41.
- The equipment fulfill the EMC requirements for installation in power distribution zone.
- Drawings of each system configuration is to be sent for approval before installation on board.
- Electrical protection featured by this system may be used in addition to circuit breaker intrinsic protections.
- In case of major software modification detailed information and suitable documents are to be submitted to the Society.

HAMBURG August 20, 2018



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