

Type Approval Certificate



[Power Management System]

Initial Approval 18 February 2008

Manufacturer DEIF A/S
Frisenborgvej 33, DK-7800 Skive, Denmark

Product Description Type : Delomatic-4

" See Appendix 1 "

- Approval Condition**
1. This approval is granted on the basis of the approved documentation and the test reports (IACS UR E10 Rev.7).
 2. In case where this system is installed on board, the system drawings for individual vessel are to be approved by this Society.
 3. Individual Product Certification is not required.

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, Steel Ships.

This Certificate is valid until 17 February 2028

Issued at Busan, Korea on 24 May 2023



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(ME23021680102) and certificate No.(CPH06107-AC003).



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 : 24 May 2023

Product Description :

1. Basic function:
 - Generator control, monitoring and protection
 - Power management including load dependent start/stop with priority, programmable start priority, heavy consumer control, symmetric/asymmetrical load sharing
2. Delomatic-4 consisting of:
 - PCM 4.1 : Carrying the rack system power supply (Aux.supply 24Vdc), system main CPU, I/O router (3xCAN, 1xRS485, ARC net, USB device port)
 - PCM 4.5 : Carrying the rack system power supply (Aux.supply 24Vdc), system main CPU, I/O router (2xCAN, 2xRS485, 1xService port, 1xEthernet port(optional))
 - IOM 4-1 : I/O module for:
 - 16 inputs channels (selectable as binary or analogue)
 - 12 relay outputs
 - 2 analogue outputs ((0)4...20mA)
 - SCM 4-1 : Measuring/Synchronizing Module, Synchronizer/Breaker control
 - SCM 4-2 : Measuring/Synchronizing Module, Synchronizer/Breaker control and Governor/AVR control
 - DU : Operation and display panel
 - AOP : Additional operation and display panel
3. Protection function by ANSI code:
 - 24, 25/A, 27, 27B, 32, 51, 59, 59B, 66, 79, 81, 81B, 94
4. Documents and Drawings:
 - Delomatic 4 (DM-4) PMS system, Data sheet 4921240294A.
 - Delomatic 4 Installation Instruction, 4189232125C.
 - Technical documentation, IPA0324-04(18. 03. 2014)
5. Software:
 - PCM Ver. : 1.0X.X , SCM Ver. : 1.0X.X
6. Test Reports:
 - IPA 0324-04/W1 dated 2014-11-14
 - IACS_80MHz-6GHz_Front-to-ant_20200528_JHS dated 2020-05-28
 - IACS_80MHz-6GHz_side-to-ant_20200528_JHS dated 2020-05-28
 - IACS_power zone_150KHz-30MHz_loop 0_20200529_JHS dated 2020-05-29
 - IACS_power zone_150KHz-30MHz_loop 90_20200529_JHS dated 2020-05-29
 - IACS_power zone_30MHz-1GHz_20200529_JHS dated 2020-05-29
 - IACS_power zone_1GHz-6GHz_20200529_JHS dated 2020-05-29
 - IACS_Immunity_80MHz-6GHz_Display against antenna_2023-05-01_JHS dated 2023-05-01
 - IACS_Immunity_80MHz-6GHz_Bottom against antenna_2023-05-02_JHS dated 2023-05-02
 - IACS_Immunity_80MHz-6GHz_Side against antenna_2023-05-02_JHS dated 2023-05-02
 - Marine equipment in power zone 150KHz-30MHz_Loop-0_2023-05-01_JHS dated 2023-05-01
 - Marine equipment in power zone 150KHz-30MHz_Loop-90_2023-05-01_JHS dated 2023-05-01
 - Marine equipment in power zone 30MHz-1GHz_2023-05-01_JHS dated 2023-05-01
 - Marine equipment in power zone 1GHz-6GHz_2023-05-01_JHS dated 2023-05-01

< End of Certificate >