



TYPE APPROVAL CERTIFICATE

Certificate No. : CPH06107-AC006 **Initial Approval** : 6th July, 2020
Product : Medium Voltage Relay
Manufacturer : DEIF A/S
Frisenborgvej 33, DK-7800 Skive, Denmark

Product Description : Medium Voltage Relay (Type : MVR-200 series)
" 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 and entered in the "List of Approved Manufacturers and Type Approved Equipment".

Pt. 6, Ch. 2, Art. 301 of the Rules for Classification, Steel Ships, IEC 60255-27.

This Certificate is valid until 5th July, 2025

Issued at Busan, Korea on 6th July, 2020



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 (ME20024039252) and certificate No.(CPH06107-AC006).



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.

Appendix 1

Product Description and/or Approval Condition

Certificate No : CPH06107-AC006

Date of Issue : 6th July, 2020

A. Product Description

1. Product Specification

1) Product Description (Type : MVR-200 series)

MVR-200 series is a multi-function relays used for monitoring, control and protection feeder, machine and transformer.

Application	Model Variant
Feeder	F201; F205; F210; F215; F255
Machine	G215; G257; M210; M215; M257; M255
Transformer	T215; T216; T257; T256

2) Specification

a) Auxiliary supply

- Rated voltage Un 24/48V DC +30/-25%
Un 100 to 110V DC +/-10%
- Power consumption 20W (210 series)
30W (250 series)

b) Current measurement module

- * Phase current inputs
 - Rated current In 5A (configurable 0.A to 10A)
 - Frequency measurement range 6 to 75Hz fundamental, up to 31st harmonics
 - Current measurement range 25 mA to 250 A (RMS)
 - Thermal withstand 30 A continuous, 100 A for 10 s
500 A for 1 s, 1250 A for 0.01 s
 - Burden (50 Hz/60 Hz) <0.1 VA
- * Coarse residual current input
 - Rated current In 1 A (configurable 0.2 A to 10 A)
 - Frequency measurement range 6 to 75Hz fundamental, up to 31st harmonics
 - Current measurement range 5 mA to 150 A(RMS)
 - Thermal withstand 25 A continuous, 100 A for 10 s
500 A for 1 s, 1250 A for 0.01 s
 - Burden (50 Hz/60 Hz) <0.1VA
- * Fine residual current input
 - Rated current In 0.2 A (configurable 0.2 A to 10 A)
 - Frequency measurement range 6 to 75Hz fundamental, up to 31st harmonics
 - Current measurement range 1 mA to 75 A (RMS)
 - Thermal withstand 25 A continuous, 100 A for 10 s
500 A for 1 s, 1250 A for 0.01 s
 - Burden (50 Hz/60 Hz) <0.1 VA

c) Voltage measurement module

- Voltage measuring range 0.50 to 480.00 V (RMS)
- Frequency measurement range 6 to 75Hz fundamental, up to 31st harmonics
- Thermal withstand 630 V RMS continuous
- Burden (50 Hz/60 Hz) <0.02 VA

d) Additional features and options

- Digital inputs and outputs, Analogue inputs and outputs,
Communication ports

3) Protection functions

Protection function of medium voltage relay with ANSI/IEEE C37.2(2008) standard

Protection	ANSI-Code
Three phase overcurrent protection	50/51

Appendix 1

Product Description and/or Approval Condition

Certificate No : CPH06107-AC006

Date of Issue : 6th July, 2020

Protection	ANSI-Code
(Sensitive) Earth-fault protection	50N/51N(S)
Harmonic overcurrent protection / inrush blocking	50H/51H
Current unbalance / broken conductor protection	46R/46L/46
Thermal overload protection (line)	49L
Cable-end differential protection	87N
Directional three-phase overcurrent protection	67
Directional (sensitive) residual overcurrent protection	67N
Overvoltage protection	59
Under voltage protection	27
Positive sequence under/overvoltage protection	59P/27P/47
Residual voltage protection	59N
Frequency protection	810/U
Rate of change of frequency	81R
Reverse/under/over power protection	32, 32R, 37

* Please see DEIF MVR-200 data sheet for further information.

2. Approved Drawings and Documents

- 1) Data sheet
 - 4921240605C UK, Rev.D
- 2) Manuals
 - Designer's Handbook (4189341221A UK, Rev.A)
 - Installation Instructions (4189341219A UK, Rev.A)
 - Operation Manual (4189341220A UK, Rev.A)

3. Test Reports, etc.

- 1) Type Test Report
 - EPC 0730-01 MVR 21x series A tests, EPC 0730-01 MVR 25x series A tests
 - EPC 0730-01 MVR 21x series B tests, EPC 0730-01 MVR 25x series B tests
 - EPC 0730-01 MVR 21x series C tests, EPC 0730-01 MVR 25x series C tests
- 2) Performance Test Report
 - ANSI No. 49F, 50, 51, 810, 81U, 87N, 27, 32, 32R, 37, 46, 47, 27P, 49, 59P, 48, 49M, 50H, 51H, 50N, 51N, 59, 59N, 67, 67N, 81R, 49T, 87T, 87N

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 shall be complied with Rule Pt.6 Ch.1 Sec.2 201.2.(5).
- 3) The manufacturer should inform this Society of all kinds of revisions of the equipment including 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.

Appendix 1

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Certificate No : CPH06107-AC006

Date of Issue : 6th July, 2020

- 4) The product(s) shall not be installed on ships contracted for construction on or after 1 January 2022 as IACS UR E10 Rev.7 is not applied to the product(s).

2. Individual Product Cert. and Drawing Approval Requirement

- 1) Individual product certification is not required.

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	-25 ~ +70°C	-
Vibration	Acceleration $\pm 0.7g$	-

< End of Certificate >

