



Marine & Offshore

Certificate number: 60188/A0 BV

File number: ACE10/120/3

Product code: 2650H

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

MULTIFUNCTION PROTECTION RELAYS

MVR 200 series

Requirements:

Bureau Veritas Rules for the Classification of Steel Ships/Offshore Units/Naval Ships.
IEC 60255-1: 2009

EC Code : 31/41

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: 17 Sep 2025

For Bureau Veritas Marine & Offshore,

At BV FREDERICIA, on 17 Sep 2020,

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 :

Medium Voltage Relay **MVR-200** series provides protection, control, measurement and monitoring for feeder, machine and transformer.

1.1 - Approval Range:

Application	Model
Feeder	F201; F205; F210; F215; F255
Machine	G215; G257; M210; M215; M255; M257
Transformer	T215; T216; T256; T257
Busbar	V211

1.2 - Protection Range:

Protection Function	ANSI
Three-phase over-current protection stages INST, DT or IDMT	50/51
(Sensitive) Earth-fault protection stages INST, DT or IDMT	50N/51N
Harmonic over-current protection/inrush blocking stages INST, DT or IDMT	50H/51H/68H
Current unbalance/broken conductor protection stages INST, DT or IDMT	46
Under-current monitor	37
Restricted earth-fault protection (low-imp)	87N
Transformer, motor or generator differential protection, 2-winding	87T
Machine, transformer or line thermal overload protection	49F/49M/49T
Directional three-phase over-current protection stages DT or IDMT	67
Directional (sensitive) residual over-current protection stages DT or IDMT	67N
Over-voltage protection stages INST, DT or IDMT	59
Under-voltage protection stages INST, DT or IDMT	27
Residual voltage protection stages INST, DT or IDMT	59N
Positive sequence under-/over-voltage protection stages INST, DT or IDMT	59P/27P/47
Synchro check/ Synchroniser	25
Reverse-/under-/over-power protection stages INST, DT or IDMT	32/32R
Motor start-up supervision element	14/48
Frequency protection stages	81 O/U

1.3 - Main Specifications:

Rated voltage	Low DC : 24/48 V dc +30/-25 % High DC : 100 to 125 Vdc +20%/- 10%
Display	MVR-21x : LCD, 320 x 160 MVR-25x : TFT , 800 x 480
IP protection Level	Front : IP 54 Rear : IP 20
Operation temperature range	-25 °C to 60 °C

1.4 - Software Version:

MVR-21x : v.2.1.x.x

MVR-25x : v.2.5.x.x

2. DOCUMENTS AND DRAWINGS :**DEIF:**

- Medium Voltage Relay MVR-200 series Data Sheet, No. 4921240605C
- Medium Voltage Relay MVR-200 series Designer's Handbook, No. 4189341221A
- Medium Voltage Relay MVR-200 series Installation Instructions, No. 4189341219A
- Medium Voltage Relay MVR-200 series Operator's Manual, No. 4189341220A
- Software Quality Plan for MVR relay, No.2018-04-12 SM, dated, 15-01-2020.
- Bill of materials Nos.: AQB006C1, AQB007F1, AQB009C, AQB010B2, AQB015B, AQB017D, AQB018C, AQB021F1, AQB023F, AQB035C1, AQB028D, AQB031E1, AQB032E1, AQB033F, AQB034B1, AQB045D1, AQB046C.
- PCB Drawings Nos.: AQZ006F, AQZ007I, AQZ009E, AQZ010C, AQZ012C, AQZ018D, AQZ020C, AQZ007I, AQZ027D, AQZ040C, AQZ028D, AQZ038E, AQZ037E, AQZ036G, AQZ039B, AQZ037E, AQZ027D.

3. TEST REPORTS :**DEIF:**

- EPC 0730-01 MVR 21x seriesA type tests summary report.
- EPC 0730-01 MVR 25x seriesA type tests summary report.
- EPC 0730-01 MVR 21x seriesB type tests summary report.
- EPC 0730-01 MVR 25x seriesB type tests summary report.
- EPC 0730-01 MVR 21x seriesC type tests summary report.
- EPC 0730-01 MVR 25x seriesC type tests summary report.
- Witnessed Environment and EMC tests including:
 - 3A Cold test , No. 4910213100G, dated 31-01-2019.
 - 4A Dry heat test , No. 4910213105G, dated 31-01-2019.
 - 6A Damp heat test, No. 4910213115G, dated 06-09-2019.
 - 9A Vibration test, No. 4910214100J, dated 26-06-2019.
 - 12A Inclination test, No. 4910214115E, dated 25-06-2019.
 - 13A Flammability test, No. 4910214120F, dated 04-09-2019.
 - 14A Insulation Resistance test, No. 4910215100I, dated 31-01-2019, 27-06-2019.
 - 15A High voltage test, No. 4910215105I, dated 27-06-2019.
 - 16A Radiated Emission test, No.4910216501J, dated 31-01-2019.
 - 17A Conducted emission AC, DC and tele ports test, No. 4910216502I, dated 31-01-2019.
 - 1B Burst test, No.4910217501Q, dated 06-09-2019.
 - 2B RF E-Field Immunity test, No.4910217502M, dated 25-06-2019.
 - 5B Electrostatic Discharge test, No. 4910217505J, dated 26-06-2019.
 - 6B Surge test, No. 4910217506M, dated 31-01-2019.
 - 7B RF Common mode test, No. 4910217507L, dated 03-09-2019.
 - 9B Low frequency harmonics-AC supply voltage test, No. 4910217509F, dated 26-06-2019.
 - 13B Variations DC Power Ports test, No. 4910217513J, dated 31-01-2019.
 - 15 B interruptions test, No. 4910217515H, dated 31-01-2019.
- Automated performance test for MVR 200 according to IEEE C37.2-2008 of ANSI standard device numbers : 25, 27, 32, 32R, 37, 46, 47, 27P, 59P, 48, 14, 49F, 49M, 49T, 50,51,50H, 51H, 68H, 50N, 51N, 59, 59N, 67, 67N, 81O, 81U, 87T, 87N.

MAVIR:

- AQ200 EN 60255 Test Report No. 20/2019, dated 20-05-2019.

4. APPLICATION / LIMITATION :

- 4.1 - BUREAU VERITAS Rules for the Classification of Steel Ships/Offshore Units/Naval 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: 31/41**
- 4.4 - The equipment fulfils the EMC requirements for installation in General Power Distribution Zones.
- 4.5 - 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.
- 4.6 - The installation shall comply with the Manufacturer's recommendation described in the above-referenced documentation.
- 4.7 - The products comply with the test requirements of IACS RU E10 Rev7.

5. PRODUCTION SURVEY REQUIREMENTS :

5.1 - The MVR 200 series are to be supplied by **DEIF A/S** in compliance with the type described in this certificate.

5.2 - This type of product is within the category HBV of Bureau Veritas Rule Note NR320 and as such does not require a BV product certificate.

5.3 - **DEIF A/S** has to make the necessary arrangements to have its works recognised by Bureau Veritas in compliance with the requirements of NR320 for HBV products.

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

**Arcteq Relays Ltd
Kvartsikatu 2A1,
65300 Vaasa,
Finland**

6. MARKING OF PRODUCT :

- Trade name.
- Date of manufacture and serial number.
- Equipment type number or model identification under which it was type-tested.

7. OTHERS :

It is **DEIF A/S**'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.

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