

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Multifunction Relay**

with type designation(s)

F210, F215, F255, G215, M215, M255, G257, M257, T215, T216, T256, T257

Issued to

DEIF A/S**Skive, Midtjylland, Denmark**

is found to comply with

DNV GL rules for classification – Ships, offshore units, and high speed and light craft**Application :****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.**Issued at **Hamburg** on **2019-10-21**This Certificate is valid until **2024-10-20**.DNV GL local station: **Aalborg FiS**for **DNV GL**Approval Engineer: **Thomas Hartmann**

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Arne Schaarmann
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.



Product description

The multi-function relays of MVR 200 Series are designed to monitoring, control and protect feeder, machine and transformer supplies.

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

Technical Data:

Rated supply voltage(s) U_N	24/48 100 to 240 100 to 240	V d.c. +30/-25% V d.c. \pm 10% V a.c. 50/60 Hz \pm 10%
Phase current inputs, rated current I_N	5	A a.c. (configurable 0.2 to 10 A)
Frequency measurement range	6 to 75	Hz, fundamental, up 31 st harmonics
Current measurement range	0.025 to 250	A (RMS)
Coarse residual current input, rated current I_N	1	A a.c. (configurable 0.2 to 10 A)
Frequency measurement range	6 to 75	Hz, fundamental, up 31 st harmonics
Current measurement range	0.005 to 150	A (RMS)
Fine residual current input, rated current I_N	0.2	A a.c. (configurable 0.2 to 10 A)
Frequency measurement range	6 to 75	Hz, fundamental, up 31 st harmonics
Current measurement range	0.001 to 75	A (RMS)
Thermal withstand current of phase/ residual current inputs I_{th}	30/ 25 100/ 100 500/ 500 1250/ 1250	A continuous A for 10 sec A for 1 sec A for 0.01 sec
Burden of phase/ residual current inputs	< 0.1	VA (50/60 Hz)
Voltage inputs, measurement range	0.5 to 480	V (RMS)
Thermal withstand	630	V (RMS) continuous
Frequency measurement range	6 to 75	Hz, fundamental, up 31 st harmonics
Burden	< 0.02 VA	VA (50/60 Hz)
IP protection front/rear	54/20	
Pollution degree	2	See footnote ¹⁾
Over-voltage category	III	
Insulation class	I	
Additional features and options	Isolated digital inputs, digital outputs (N.O), Change-over outputs, Thermocouple types, analogue outputs (mA)	

¹⁾ Pollution degree 2 requires installation in switchboard cubicle/ panel equipped with anti-condensation measures

Protection functions

Available main protection functions for Feeder, machine and transformer applications ²⁾ with ANSI/IEEE C37.2(2008) Standard Device numbers:

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

²⁾ The availability of ANSI protection functions depends on the model variant and intended application for further information and more ANSI-code (protection functions) please see DEIF MVR-200 data sheet

Application/Limitation

Location classes:

Temperature	D
Vibration	A
Humidity	A
EMC	A

- Protection relays are regarded as a component.
- Manufacturer's installation requirements and specifications to be observed.
- Product certificate:
When the unit is used for protection purposes no product certificate is required. When the unit is used for other control purposes a product certificate acc. to DNV GL rules Pt.4 Ch.8 Sec.1 and Pt.4 Ch.9 Sec.1 will be required
- The Type Approval does not cover application software.

Clause for software control:

All changes in system software are to be recorded. Major changes are to be forwarded to DNV GL for evaluation and approval. Major changes in the software are to be approved before installed. Approval Test of Software may be required.

Required protection (IP) according to the Rules to be provided upon installation on board.

Type Approval documentation

Tests carried out

Tests in accordance with CG-0339 [2016-11]; Visual inspection, Performance, electrical power supply failure, power supply variations, vibration, dry heat, cold, inclination, insulation resistance, high voltage, flammability, electromagnetic compatibility (Immunity & Emission)

Marking of product

Deif A/S – technical data as per IEC 60255-27 marking requirements – Model variant

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the Type approval are complied with and that no alterations are made to the product design or choice of materials.

The main elements of the assessment are:

- Inspection on factory samples, selected at random from the production line (where practicable)
- Results from Routine tests (RT) checked (if not available tests according to RT to be carried out)
- Review of type approval documentation
- Review of possible change in design, materials and performance
- Ensuring traceability between manufacturer's product type marking and Type Approval Certificate.

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE