DNV·GL

Certificate No:
TAA00001MZ

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Electrical Measuring and Protection Relay

with type designation(s)
EMR6-F, EMR6-A, EMR6-AW, EMR6-AWN, EMR6-AWM, EMR6-W

Issued to
Eaton Industries GmbH
Bonn, Germany

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.

Temperature	**B**
Humidity	**B**
Vibration	**B**
EMC	**B, A***
Enclosure	**A**

***EMC location class 'A' for EMR6-AWN500-D-1 and EMR6-AWN280-K-1**

Issued at **Hamburg** on **2018-02-28**
This Certificate is valid until **2023-02-27**.
DNV GL local station: **Essen**

for **DNV GL**

Approval Engineer: **Jens Dietrich**

Joannis Papanuskas
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.

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Product description

3-Phase Measuring and Monitoring Relays with following type key:

EMR6-xxxyyy-z-1

Function xxx=

F	=	Phase sequence relay
A	=	Phase imbalance monitoring relay
AW	=	Phase monitoring relay, multi-function
AWM	=	Phase monitoring relay, multi-function (45mm housing)
AWN	=	Phase monitoring relay, multi-function (+ neutral wire)
W	=	Phase monitoring relay, over- undervoltage

Monitored Voltage yyy=

170	=	90-170V AC 50/60Hz
280	=	180-280V AC 50/60Hz
300	=	160-300V AC 50/60Hz
380	=	380V AC 50/60Hz
400	=	400V AC 50/60Hz
500	=	300-500V AC 50/60Hz
580	=	350-580V AC 50/60Hz
720	=	450-720V AC 50/60Hz
820	=	530-820V AC 50/60Hz

Supply Voltage z=

C	=	160 - 300 V AC, 50/60 Hz
D	=	300 - 500 V AC, 50/60 Hz
E	=	90 - 170 V AC, 50/60 Hz
G	=	200 - 500 V AC, 50/60 Hz
H	=	350 - 580 V AC, 50/60 Hz
I	=	350 - 720 V AC, 50/60 Hz
J	=	530 - 820 V AC, 50/60 Hz
K	=	180 - 280 V AC, 50/60 Hz
L	=	380 V AC, 50/60 Hz
M	=	400 V AC, 50/60 Hz

Output Relay contact rating: 250V AC
AC-15@230V: 3A, DC-12@24V: 4A, DC-13@24V: 2A

Indication LEDs:
yellow (supply),
red (failure).

Application/Limitation

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV GL, documentation for the actual application is to be submitted for approval by the manufacturer of the application system in each case. Reference is made to DNV GL Rules for Ships Pt.4 Ch.8 Electrical Installations.

Tests carried out

Applicable tests according to Class Guideline DNVGL-CG-0339, November 2016.

Marking of product

The products to be marked with:
- model name
- manufacturer name
- serial number

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the type are complied with, and that no alterations are made to the product design or choice of systems, software versions, components and/or materials.

The main elements of the assessment are:
- Ensure that type approved documentation is available
- Inspection of factory samples, selected at random from the production line (where practicable)
- Review of production and inspection routines, including test records from product sample tests and control routines
- Ensuring that systems, software versions, components and/or materials used comply with type approved documents and/or referenced system, software, component and material specifications
- Review of possible changes in design of systems, software versions, components, materials and/or performance, and make sure that such changes do not affect the type approval given
- Ensuring traceability between manufacturer's product type marking and the 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 this certificate.

END OF CERTIFICATE