DNV·GL

Certificate No:
TAA000022T

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Electrical Measuring and Protection Relay

with type designation(s)
EB-Series

Issued to
Block Transformatoren-Elektronik GmbH
Verden, 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	**D**
Humidity	**B**
Vibration	**A**
EMC	**B**
Enclosure	**A (IP20)**

Issued at **Hamburg** on **2018-11-15**
This Certificate is valid until **2023-11-14**.
DNV GL local station: **Bremerhaven**

Approval Engineer: **Holger Jansen**

for **DNV GL**

Joannis Papanuskas
Head of Section

Product description

Electronic Circuit Breaker EasyB- Series (EB)

The electronic circuit breakers provide selective protection for 24 Vdc loads and can arranged in rows on a modular basis in combination with a communication module and distributrion modules. Various tripping currents are available, with or without active current limiting. The output will be shut down, if the output current exceeds the tripping current.

Common characteristic:

Rated input voltage:	24Vdc
Turn-on threshold:	17,5 Vdc ± 0,7 Vdc
Turn-off threshold:	16,7 Vdc ± 0,7 Vdc
Max.current for power contact:	40 A
Overcurrent characteristic:	typ. 1,25 x I_{nenn}
Integrated safety fuse:	max. 15 A

1 or 2-channel electronic circuit breaker

Nomenclature EB-abcc-dxxx-yzv

a: Type separation:	0:	current adjustment via wheel and communication interface
	1:	fixed current, with communication interface
	2:	fixed current, without communicaton interface
	3:	current adjustable via communication interface only
b: Characteristics:	7:	thermomagnetic
	8:	current limited
cc: Voltage:	24:	24Vdc
d:Number of channels:	blank:	1 channel
	2:	2 channels
xxx:	Sum of total current written in 0,1A (e.g. 10A = 100)	
yzv: Optional	0-9, a-z or blank:Minor changes not related to electrical ratings	

Communication module

Types: EB- IO-LINKxy
EB-MODBUS-RTUxy

xy: Optional 0-9, a-z or blank:Minor changes not related to electrical ratings

Communication modules enable communication between the electronic EasyB circuit breaker system and a higher level control system.

Distribution module

Types: EB-PMM Output distribution module
EB-GND4 Ground distribution module
EB-GND8 Ground distribution module

EB-PMM modules act as a output distribution module, up to 3 EB-PMM's can connect to a circuit breaker channel for up to 24 additional output contacts.

EB-GND4 or EB-GND8 modules act as a 0V collective terminal with four or eight contacts.

Application/Limitation

Operating instruction of the manufacturer to be observed.
The use of remote RESET and other control functions/ features is subject to individual plan approval process.

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 RU SHIP Pt.4 Ch.9 Sec. 1.

Type Approval documentation

Tests carried out

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

Marking of product

The products to be marked with:

- manufacturer name
- device name
- order 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 the certificate.

END OF CERTIFICATE