

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Electronic Circuit Breaker**

with type designation(s)

PTCB E1 24DC/... A NO**PTCB E1 24DC/... A SI-R****PTCB E1 24DC/... A (F5) NO**

Issued to

Phoenix Contact GmbH & Co. KG**Blomberg, Nordrhein-Westfalen, 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.**Issued at **Hamburg** on **2020-02-14**This Certificate is valid until **2025-02-13**.DNV GL local station: **Magdeburg**for **DNV GL**Approval Engineer: **Harald Amberger**

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

Single-channel electronic circuit breaker for protecting 24 V DC loads against overload and short circuit. With fixed or adjustable nominal current. With floating remote contact (NO variants) or reset input and status output (SI-R variants).

Technical Data:

Rated voltage: 24 V DC
Rated current input: 24 A DC
Rated current output: 1A / 2A / 3A / 4A / 6A / 8A for fixed variants
1 – 3A / 1 – 4A / 1 – 8A for adjustable variants

Application/Limitation

Location Classes:

Temperature: D, Humidity: B, Vibration: B, EMC: B, Enclosure: A

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.9 Control and Monitoring Systems.

Operating instruction of the manufacturer to be observed

Type Approval documentation

Tests carried out

Cold, dry heat, damp heat, vibration, flame retardancy and EMC.

Marking of product

Manufacturer Name – Model Name – Charge Number – Electrical supply ratings.

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