

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Pleiger Control System

with type designation(s)
PCM System

Issued to

Pleiger Maschinenbau GmbH & Co. KG
Witten, 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	A, B*
Enclosure	A

Issued at **Hamburg** on **2020-08-26**

This Certificate is valid until **2025-08-25**.

DNV GL local station: **Essen**

for **DNV GL**

Approval Engineer: **Dariusz Lesniewski**

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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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV GL AS, its parent companies and subsidiaries as well as their officers, directors and employees ("DNV GL") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Product description

Remote and Local Control System for actuators, pumps, bilge signals, tank levels and temperatures
The PCM System consists of modules for mounting on a hut rail which are connected via an internal bus (power supply and communication)
PCM System components:

CM3 CM4, CM4-D	Controller for remote control of Pleiger electro-hydraulic actuators
IO 8/8/4	IO-Module with 8 analogue, 8 digital inputs and 4 digital outputs
CCM	Conti Control Module
TII	PT 100 module
BI	Bus Interface for communication between the local data bus and Modbus RTU or Profibus DP
RK 16/8	Relay module for remote control of solenoid valves and valve actuators
DI16	Digital input module
RO8	Relay output module

Power supply: 24V DC (modules), 230V AC (EHS actuators)
Degree of protection: IP 20

Approval conditions

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 classification of ships Pt.4 Ch.9 Control and monitoring systems.

Application/Limitation

*Location class EMC-B: only with use of the line filter FN2020-16-06 in the 24V DC power supply.

EMC in the range 2 GHz to 6 GHz according to DNVGL-CG-0339, December 2019 has not been verified. EMC up to 6 GHz must additionally be documented for installation on ships contracted for construction on or after 2022-01-01.

Type Approval documentation

Tests carried out

Applicable tests according to class guideline DNVGL-CG-0339, December 2019.

Marking of product

The products to be marked with:

- manufacturer name
- model name
- serial number
- power supply ratings

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

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Certificate No: **TAA00002SX**

- 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