



TYPE APPROVAL CERTIFICATE

Certificate no.:
TAE00000U2
Revision No:
2

This is to certify:

that the **Synchronizing Equipment**

with type designation(s)
CSQ-3

issued to

DEIF A/S
Skive, Denmark

is found to comply with

DNV rules for classification – Ships, offshore units, and high speed and light craft

Application:

Products approved by this certificate are accepted for installation on all vessels classed by DNV .

Issued at **Høvik** on **2025-11-24**

This Certificate is valid until **2030-08-29**.

DNV local unit: **Denmark CMC**

Approval Engineer: **Qiang William Guo**



for **DNV**

This document has been digitally signed and will
therefore not have handwritten signature

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 AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") 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 USD 300 000.



Job ID: 262.1-021062-3
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Product description

Multifunction LED Synchronoscope, microprocessor based.

Input range (Un): 100 to 127 VAC; 220 to 240 VAC; 380 to 415 VAC and 440 to 480 VAC
Load: 2 kOhm/V
Frequency range: 40 to 70 Hz
Adjustments: Phase difference: +/- 5 to 20° in 1° step or +/- 10 to 40° in 2° step
Voltage difference: +/- 1 to 10 %
SYNC relay delay: 0 to 0.1 sec
Length of sync pulse: 0 to 1 sec
Dead-bus offset voltage: Off or 4 levels of noise suppression
LED indication for status and failures; Closed contact for relay in operation
Outputs: Closed contact for "Sync. ok"
Closed contact for internal failure
Protection: Front- IP 52, Terminals: IP 20

Application/Limitation

The user's manual should be observed and followed before installation on board.

System application and location shall be in accordance with relevant parts of DNV Rules.

Environmental Location classes :

Temperature:	B
Humidity:	B
Vibration:	A
EMC:	A

Type Approval documentation

Tests carried out

Type tests in accordance with DNV class guidelines DNV-CG-0339 Aug.2021

Marking of product

DEIF, type designation

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 Routines (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.

Assessment to be performed at 2 and 3.5 year and at renewal.

END OF CERTIFICATE