Certificate number: 04073/H0 BV
File number: AP 1744
Product code: 4121H

This certificate is not valid when presented without the full attached schedule composed of 7 sections. Full certificate is to be requested to the manufacturer

www.veristar.com

TYPE APPROVAL CERTIFICATE

This certificate is issued to

SELCO

Roskilde - DENMARK

for the type of product

SYNCHRONISING / LOAD SHARING / LOAD SHEDDING SYSTEMS

SYNCHRONIZER T4500 - LOAD SHARER T4800 - PARALLELING RELAY T5000.

Requirements:
BV Rules for the Classification of Steel Ships.

This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements mentioned above.

This certificate will expire on: 27 Jul 2031

For Bureau Veritas Marine & Offshore,
At BV FREDERICIA, on 27 Jul 2026,
Jesper JENSEN

This certificate was created electronically and is valid without signature

This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with Bureau Veritas Marine & Offshore. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of Bureau Veritas Marine & Offshore available on the internet site www.veristar.com. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against Bureau Veritas Marine & Offshore for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION:

Product model or type designation:
- SYNCHRONIZER (digital) T4500
- LOAD SHARER T4800
- PARALLELING RELAY T5000

Product description:
- The **T4500 Auto Synchronizer** provides automatic synchronization of a generator to a busbar in a minimum of time, by controlling the speed via the electric servomotor on a conventional speed governor.
- The **T4800 Load Sharer** provides automatic load sharing and frequency control for parallel running generators.
- The **T5000 Paralleling Relay** is a check synchronizer, inhibiting closure of circuit breaker if synchronizing parameters such as voltage, frequency and phase angle are outside limits.

2. DOCUMENTS AND DRAWINGS:

- According to Notices T 4095-04, T 4595-04 and T 4895-01.
- Datasheet T4500 series Rev: 4-A-050313, dated 2103
- Datasheet T4800 series Rev: 4-A-050313, dated 2103
- Datasheet T5000 series Rev: 4-A-050313, dated 2103

3. TEST REPORTS:

- SELCO Test Reports N°s 271078 - 274 584 - 275 395 - 274 570 - 274 025 - 274 197 - 214 584.
- LK Test Reports N°s R 900 703-01E / R 860 729-02E issued on 06/08/1986.
- DELTA Test Report ref.: DANAK-195724/DELTA-K251196-5 dated 11/09/2001.
- DELTA Test Report ref.: DANAK-198611/DELTA-A504377-1 dated 20/12/2006.
- DELTA Test Report ref.: DANAK-198449/DELTA-A503163-1 dated 28/07/2006.

For modification G0 version:
EKTOS:
- Supplementary test report No. P20-0110-1, dated 27-10-2020.
- Supplementary test report No. P23-0077-1, dated 23-05-2023.
- Supplementary test report No. P23-0077-2, dated 23-05-2023.

4. APPLICATION / LIMITATION:

4.1 - BUREAU VERITAS Rules for the Classification of Steel Ships.
4.2 - The equipment, once installed on board ship, is to be tested in accordance with the above referred Rules under the supervision of a Society's Surveyor.
4.3 - Equipment covered by this Type Approval certificate has been tested according to requirements of IACS UR E10 rev 10.

5. PRODUCTION SURVEY REQUIREMENTS:

5.1 - The above products are to be supplied by **SELCO** in accordance with the type described in this certificate and Bureau Veritas Rules for the Classification of Steel Ships.
5.2 - This type of product is within the category HBV of Bureau Veritas Rule Note NR320 and as such does not require a BV product certificate.
5.3 - **SELCO** has to make the necessary arrangements to have its works recognised by Bureau Veritas in compliance with the requirements of NR320 for HBV products:
5.4 - For information, **SELCO** has declared to Bureau Veritas the following production site(s):

SELCO
Betonvej 11
DK-4000 Roskilde
DENMARK

6. MARKING OF PRODUCT:

- Maker's name or trade mark,
- Serial number of the units,
- Equipment type number or model identification under which it was type-tested.

7. OTHERS:

7.1 - It is **SELCO**'s responsibility to inform shipbuilders or their sub-contractors of the proper methods of fitting, use and general maintenance of the approved equipment and the conditions of this approval.

7.2 - This certificate supersedes the Type Approval Certificate No. 04073/G0 BV issued by the Society.

***** END OF CERTIFICATE *****