



Marine & Offshore

Certificate number: 11436/E0 BV

File number: ACE 02/049/09

Product code: 2657H

This certificate is not valid when presented without the full attached schedule composed of 7 sections

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TYPE APPROVAL CERTIFICATE

This certificate is issued to

FUJI ELECTRIC FA COMPONENTS & SYSTEMS CO., LTD.

Konosu - JAPAN

for the type of product

THERMAL RELAYS

Thermal overload relays - TR-xxxx ; TK-xxx.

Requirements:

Bureau Veritas Rules for the Classification of Steel Ships.
IEC 60947-1 (2010), IEC 60947-4-1 (2018)

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: 07 Dec 2027

For Bureau Veritas Marine & Offshore,

At BV KOBE, on 07 Dec 2022,
Shinichi Takemoto

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.

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BV Mod. Ad.E 530 June 2017

This certificate consists of 4 page(s)

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION:

Thermal Overload Relays types: **TR-xxxx; TK-xxx_ series**

Type	Trip Class	Setting range (Amperes)	For combination with contactor types	Brand
TR-N2/3, TK-N2	10A	Various from 4-6A to 32-42A	SC-N1, SC-N1/SE, SC-N1/G SC-N2, SC-N2/SE, SC-N2/G	
TR-N2H/3, TK-N2H	10A	Various from 4-6A to 32-42A	Independent	
TR-N3/3, TK-N3	10A	Various from 7-11A to 85-105A	SC-N2S, SC-N2S/SE, SC-N2S/G SC-N3, SC-N3/SE, SC-N3/G	
TR-N3H/3, TK-N3H	10A	Various from 7-11A to 85-105A	Independent	
TR-N5/3, TK-N5	10A	Various from 7-11A to 85-105A	SC-N4, SC-N4/SE, SC-N4/G, SC-N5, SC-N5A, SC-N5/G	
TR-N6/3, TK-N6	10A	Various from 45-65A to 110-160A	SC-N6	
TR-N6H/3, TK-N6H	10A	Various from 45-65A to 110-160A	Independent	*1
TR-N7/3, TK-N7	10A	Various from 45-65A to 110-160A	SC-N7	
TR-N8/3, TK-N8	10A	Various from 45-65A to 125-185A	SC-N8	
TR-N10/3, TK-N10	20A	Various from 85-125A to 160-240A	SC-N10	
TR-N10H/3, TK-N10H	20A	Various from 85-125A to 160-240A	Independent	
TR-N12/3, TK-N12	20A	Various from 110-160A to 300-450A	SC-N11, SC-N12	
TR-N12H/3, TK-N12H	20A	Various from 110-160A to 300-450A	Independent	
TR-N14/3, TK-N14	20A	Various from 240-360A to 400-600A	SC-N14	
TR-N14H/3, TK-N14H	20A	Various from 240-360A to 400-600A	Independent	
TR-0N/3, TK-0N	10A	Various from 0.1 - 0.15 to 9-13	SC-03(/G), SC-0(/G),SC-05(/G)	
TR-0NH/3, TK-0NH	10A	Various from 0.1 - 0.15 to 9-13	Independent	
TR-5-1N/3, TK-5-1N	10A	Various from 0.1 - 0.15 to 12-18	SC-4-0(/G), SC-4-1(/G),SC-5-1(/G)	*1
TR-5-1NH/3, TK-5-1NH	10A	Various from 0.1 - 0.15 to 12-18	Independent	
TK-N2P	10A	Various from 4-6A to 44-54A	SC-E1P, SC-E2P, SC-E2SP, SC-E1P/G, SC-E2P/G, SC-E2SP/G	
TK-N3P	10A	Various from 7-11A to 85-105A	SC-E3P, SC-E4P, SC-E3P/G, SC-E4P/G	
TK-N5P	10A	Various from 7-11A to 85-105A	SC-N5P	
TK-N6P	10A	Various from 45-65A to 110-160A	SC-N6P	
TK-N6PH	10A	Various from 45-65A to 110-160A	Independent	
TK-N7P	10A	Various from 45-65A to 110-160A	SC-N7P	*2
TK-N8P	10A	Various from 45-65A to 125-185A	SC-N8	
TK-N10	20A	Various from 85-125A to 160-240A	SC-N10	
TK-N10H	20A	Various from 85-125A to 160-240A	Independent	
TK-N12	20A	Various from 110-160A to 300-450A	SC-N11, SC-N12	
TK-N12H	20A	Various from 110-160A to 300-450A	Independent	
TK-N14	20A	Various from 240-360A to 400-600A	SC-N14	
TK-N14H	20A	Various from 240-360A to 400-600A	Independent	
TK-0N	10A	Various from 0.1 - 0.15 to 9-13	SC-E02A(/G), SC-E03A(/G)	*2
TK-E02	10A	Various from 0.1 - 0.15 to 20-25	SC-E04A(/G), SC-E05A(/G) SC-E02P(/G) to E05P(/G)	
TK13, TK13-TN	10A	Various from 0.1 - 0.15 to 9-13	SC-03, SC-0, SC-05 SC-E02A, SC-E03A	
TK13H, TK13H-TN	10A	Various from 0.1 - 0.15 to 9-13	Independent	
TK26, TK26-TN	10A	Various from 0.1 - 0.15 to 20-26	SC-4-0, SC-4-1, SC-5-1 SC-E04A, SC-E05A	
TK26H, TK26H-TN	10A	Various from 0.1 - 0.15 to 20-26	Independent	
TK26E	10A	Various from 0.1 - 0.15 to 20-26	SC-E02P, SC-E03P, SC-E04P, SC-E05P	
TK26EH	10A	Various from 0.1 - 0.15 to 20-26	Independent	

Note 1: Independent. This type can be mounted separately from the contactor.

Note 2: Contactor types may be followed by H except SC-N14

*1: Fuji Electric FA Components & Systems Co., Ltd. Brand

*2: Fuji Electric (Changshu) Co., Ltd. Brand

2. DOCUMENTS AND DRAWINGS:

- According to documents filed in ACE 02/049/09
- Drawings: F213 18 39(3), F214 18 39(3), F214 18 40(3), F215 18 38(3), F215 18 37(3), F215 18 39(3), F215 18 40(3)
- Drawings: F216 18 39(3), F216 18 37(3), F216 18 40(3), F216 18 38(3)
- Drawings: F213 18 01(3), F214 18 01(3), F213 18 07(3), F214 18 07(3), F213 18 06(3), F214 18 21(3), F214 18 06(3), F215 18 01(3), F216 18 01(3), F215 18 07(3), F216 18 07(3), F215 18 21(3), F216 18 21(3), F215 18 41(3), F216 18 27(3), F217 18 01(3), F211 18 04(3), F217 18 02(3).
- Drawings: F211 18 39(3), F212 18 39(3), F218 18 22(4), F219 18 07(4), F218 03 04(5), F219 03 01(5)

3. TEST REPORTS:**FUJI ELECTRIC FA COMPONENTS & SYSTEMS CO., LTD.:**

Test reports N° 5913766, 5913767, 5913768, 5913769, 5913770, 5913771, 5913772, 5913773 and 5913774, dated 25 Dec 2000.

Test reports N° 5913854 and 5913855, dated 15 Jun 2001.

Test report N° 5913870, dated 10 Aug 2001.

Test reports N° 5914683, 5914684, 5914685, 5914686, 5914687, 5914688, 5914689 and 5914690, dated 12 Mar 2007.

Test report N° 5915148, dated 12 Jul 2010.

Test report N° 5916728, dated 24 Jul 2010.

Test reports N° 5917490 and 5917491, dated 21 Sep 2022.

TÜV Rheinland:

- 09960989 012, dated 18 Jan 2012 with certificate R 9950397, dated 18 Aug 2021.

- 09961464 007, dated 24 Jan 2006 with certificate R 9950561, dated 18 Aug 2021.

- 02062405 011, dated 26 Dec 2017 with certificate R 2051091, dated 18 Aug 2021.

4. APPLICATION / LIMITATION:

4.1 - BUREAU VERITAS Rules for the Classification of Steel Ships and IEC 60947-4-1.

4.2 - Equipment covered by this Type Approval certificate has been tested according to requirements of IACS UR E10 rev 8.

5. PRODUCTION SURVEY REQUIREMENTS:

5.1 - The above products are to be supplied by **FUJI ELECTRIC FA COMPONENTS & SYSTEMS CO., LTD.** in compliance with the type described in this certificate.

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 - **FUJI ELECTRIC FA COMPONENTS & SYSTEMS CO., LTD.** 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, **FUJI ELECTRIC FA COMPONENTS & SYSTEMS CO., LTD.** has declared to Bureau Veritas the following production sites:

FUJI ELECTRIC FA COMPONENTS & SYSTEMS CO., LTD.

5-45, Minami 1-chome

369-0192 Konosu

JAPAN

Fuji Electric (Changshu) Co. Ltd.

No.18, Road Dongshan,

Changshu Town,

Jiangsu Province

Changshu

CHINA

CHICHIBU FUJI CO., LTD. Ryokami Factory

236-2, Ryokamisusuki,

Ogano-machi,

368-0297 Chichibu

JAPAN

6. MARKING OF PRODUCT:

According to IEC 60947 specifications.

7. OTHERS:

7.1 - It is **FUJI ELECTRIC FA COMPONENTS & SYSTEMS CO., LTD.**'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. 11436/D1 BV issued on 29 Aug 2017 by the Society.

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