



Marine & Offshore

Certificate number: 39407/B1 BV

File number: ACE2/169/5

Product code: 2650H

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

ABB Electrification Sweden AB

Västerås - SWEDEN

for the type of product

MULTIFUNCTION PROTECTION RELAYS

Arc Guard System TVOC-2

Requirements:

Bureau Veritas Rules for the Classification of Steel Ships
IEC 60947-5-1 (2003), IEC 61010-1 (2001), IEC 61508 (2010).

EC Code: 31

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: 09 Jul 2024

For Bureau Veritas Marine & Offshore,

At BV GOTHENBURG, on 15 Mar 2022,

Torbjorn Ygesjo



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 electronic version is available at: <http://www.veristarm.com/veristarnb/jsp/viewPublicPdfTypepec.jsp?id=mjlqkoedsm>

BV Mod. Ad.E 530 June 2017

This certificate consists of 3 page(s)

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION :

The **Arc Guard System TVOC-2 series** is an equipment's protection against arc fault, in low and medium voltage switchgears, for Marine and Offshore applications.

1.1 - Product's specification:

	TVOC-2-240	TVOC-2-48
Rated voltage:	100/240VDC or AC	24/48VDC
Rated impulse withstand voltage:	4kV	4kV
Rated frequency:	50/60Hz	-
Degree of protection:	IP54 (HMI) IP20 (Arc monitor) IP20 (COM module)	

1.2 - Approval's range:

Type	Reference	Description
Arc monitor	TVOC-2-240	Includes one HMI and door mounting accessories
Arc monitor	TVOC-2-240-C	Includes one COM-module
Arc monitor	TVOC-2-48	Includes one HMI and door mounting accessories
Arc monitor	TVOC-2-48-C	Includes one COM-module
Extension	TVOC-2-E1	10 optical inputs
Extension	TVOC-2-E3	10 optical inputs for 60 meter detector cable
Extension	TVOC-2-E6-S	10 optical supervised detectors with up to 30 meter cable
HMI	TVOC-2-HI	Human machine interface
COM Module	TVOC-2-COM	Human machine interface with communication port
Current Sensing unit	CSU-2LV	Low voltage current sensing unit
Current Sensing unit	CSU-2MV	Medium voltage current sensing unit
Current Sensor	RC120	Rogowski coil current sensor
Current Sensor	RC200	Rogowski coil current sensor

2. DOCUMENTS AND DRAWINGS :

Installation and maintenance guide N°1SFC1700011M0201.

Catalog N°1SFC170001C0201.

ABB:

- TVOC-2 modification report N°2CMT001035D0084, dated 2015-02-12.

Intertek:

- Statement of conformity N° SE-1109820, dated 09 Mar. 2011.

3. TEST REPORTS :

ABB:

- Tests report N° 2CMT001035D0212, dated 30.May.2012.

- Tests report N° 2CMT001035D0213, dated 30.May.2012.

Delta:

- Tests report N° E703202, dated 21.May.2012.

- Test report N° E704076, dated 18 Dec. 2014.

- Test report N° 619-20085-11-R0, dated 14 Feb 2020.

- Test report N° 619-20085-30, dated 02 Mar 2020.

- Test report N° 621-20007-10-R0, dated 27 Oct 2021.

Intertek:

- Tests report N° 1211574, dated 25.Apr.2012.

- Tests report N° 1023139-1, dated 22.Oct.2010.

- Tests report N° 815182-1, dated 8.Oct.2009.

- Tests report N° 814986-1/2, dated 5.Nov.2009.

- Test report N° 1109820-1, dated 09 Mar. 2011.

INNVENTIA:

- Test report N° 279647, dated 09.Oct.2009.

- Test report N° 279667, dated 20.Oct.2009.

TUV:

- Certificate N° 968/EL 682.00/10, dated 24.Mar.2010.

- Tests report N° 968/EL 682.00/10, dated 24.Mar.2010.

4. APPLICATION / LIMITATION :

4.1 - BUREAU VERITAS Rules and Regulations for the Classification of Steel Ships.

4.2 - Approval valid for ships intended to be granted with the following additional class notations: **AUT-UMS, AUT-CCS, AUT-PORT and AUT-IMS.**

4.3 - BUREAU VERITAS Environmental Category, **EC Code: 31**

4.4 - The equipment fulfils the EMC requirements for installation in General Power Distribution Zones.

4.5 - Equipment covered by this Type Approval certificate has been tested according to requirements of IACS UR E10 rev7

5. PRODUCTION SURVEY REQUIREMENTS :

5.1 - The above products are to be supplied by **ABB Electrification Sweden AB** 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 - **ABB Electrification Sweden AB** 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, **ABB Electrification Sweden AB** has declared to Bureau Veritas the following production sites:

**Fideltronik Poland Sp. z o.o.
Ul. Beniowskiego 1
34-200 Sucha Beskidzka
POLAND**

6. MARKING OF PRODUCT :

6.1 - Trade name.

6.2 - Date of manufacture and serial number.

6.3 - Equipment type or model identification under which it was type-tested

7. OTHERS :

7.1 - It is **ABB Electrification Sweden AB** 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 N° 39407/B0 BV issued on 09 Jul 2019 by the Society.

*** END OF CERTIFICATE ***