



Marine & Offshore

Certificate number: 34975/B0 BV

File number: ACE2/10/24

Product code: 2633H

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

www.veristar.com

TYPE APPROVAL CERTIFICATE

This certificate is issued to

ABB SpA - ABB Sace Division

Frosinone - ITALY

for the type of product

CIRCUIT BREAKERS (LOW VOLTAGE)

EMAX 2

Low voltage circuit breakers

Requirements:

Bureau Veritas Rules for the Classification of Steel Ships

IEC 60947-1: 2007/A1:2011+A2:2014

IEC 60947-2: 2016

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: 03 May 2024

For Bureau Veritas Marine & Offshore,

At BV VENEZIA, on 03 May 2019,

Sandro BRUSEGAN



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.veristarnb.com/veristarnb/jsp/viewPublicPdfTypepec.jsp?id=xthwjcvpwp>

BV Mod. Ad.E 530 June 2017

This certificate consists of 3 page(s)

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION:

The Emax 2 protection trip units ensure the protection, measurement and control of electrical systems.

1.1 - Product's ranges:

Type	E1.2			E2.2				E4.2				E6.2		
	B	C	N	B	N	S	H	N	S	H	V	H	V	
In [A]	400	400	400	400	400	400	400	400	400	400	400	400	400	
	630	630	630	630	630	630	630	630	630	630	630	630	630	
	800	800	800	800	800	800	800	800	800	800	800	800	800	
	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	
	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	
	1250	1250	1250	1250	1250	1250	1250	1250	1250	1250	1250	1250	1250	
	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
					2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
						2500	2500	2500	2500	2500	2500	2500	2500	2500
									3200	3200	3200	3200	3200	3200
									4000	4000	4000	4000	4000	4000
													5000	5000
													6300	6300
	Neutral [%I _n] (for 4p breakers)	100			100				100				50 - 100	
I_{cu}														
400-415 V [kA]	42	50	66	42	66	85	100	66	85	100	150	100	150	
440 V [kA]	42	50	66	42	66	85	100	66	85	100	150	100	150	
500-525 V [kA]	42	42	50	42	66	66	85	66	66	85	100	100	130	
690 V [kA]	42	42	50	42	66	66	85	66	66	85	100	100	100	
I_{cs}														
400-415 V [kA]	42	50	50	42	66	85	100	66	85	100	125	100	150	
440 V [kA]	42	50	50	42	66	85	100	66	85	100	125	100	150	
500-525 V [kA]	42	42	50	42	66	66	85	66	66	85	100	100	130	
690 V [kA]	42	42	50	42	66	66	85	66	66	85	100	100	100	
I_{cw} (1s) [kA]	42	42	50	42	66	66	85	66	66	85	100	100	100	
I_{cm} (peak)														
400-415 V [kA]	88.2	105	145.2	88.2	145.2	187	220	145.2	187	220	330	220	330	
440 V [kA]	88.2	105	145.2	88.2	145.2	187	220	145.2	187	220	330	220	330	
500-525 V [kA]	88.2	88.2	105	88.2	145.2	145.2	187	145.2	145.2	187	220	220	286	
690 V [kA]	88.2	88.2	105	88.2	145.2	145.2	187	145.2	145.2	187	220	220	220	
Utilization category	B													

2. DOCUMENTS AND DRAWINGS:

Technical catalogue, Ed. 11.2012, ref. 1SDC200023D0201.

3. TEST REPORTS:

IECEE:

- Tests report N°1400101, dated 19.12.2013.
- Certificate N°SE-73737M1, dated 09.01.2014.
- Tests report N°1400102, dated 12.12.2013.
- Certificate N°SE-74930A1, dated 09.01.2014.
- Certificate N°SE-75086, dated 09.01.2014.
- Tests report N°1400103, dated 13.12.2013.
- Certificate N°SE-75087, dated 09.01.2014.
- Tests report N°14001104, dated 17.12.2013.

Intertek:

- Tests report N°200009501UDI-EMCI Rev01, dated 16.12.2013.
- Tests report N°200009501UDI-EMCb, dated 10.01.2014.
- Tests report N°200009501UDI-EMCp, dated 10.01.2014.

ABB S.p.A - ABB SACE Division:

- Tests report N°12764/00 Rev.0, dated 08.11.2013.
- Tests report N°12760/00 Rev.0, dated 08.01.2014.
- Tests report N°12542/00 Rev.0, dated 16.04.2013.
- Tests report N°12765/00 Rev.0, dated 08.11.2013.
- Tests report N°12761/00 Rev.0, dated 08.01.2014.
- Tests report N°12543/00 Rev.0, dated 16.09.2013.
- Tests report N°12544/00 Rev.0, dated 21.01.2014.
- Tests report N°12762/00 Rev.0, dated 08.01.2014.
- Tests report N°12766/00 Rev.0, dated 31.01.2014.
- Tests report N°12545/00 Rev.0, dated 08.01.2014.
- Tests report N°12763/00 Rev.0, dated 08.01.2014.
- Tests report N°12767/00 Rev.0, dated 19.02.2014.

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.

5. PRODUCTION SURVEY REQUIREMENTS:

5.1 - The **Emax 2** are to be supplied by **ABB SpA - ABB Sace Division** 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 SpA - ABB Sace Division** 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 SpA - ABB Sace Division** has declared to Bureau Veritas the following production site(s):

ABB SpA - ABB Sace Division
Via Enrico Fermi,14
03100 Frosinone
Italy

ABB Xiamen Low Voltage Equipment Co.,Ltd.
No. 881, FangShanXiEr Road,
Xiang'An Industrial Area
Torch Hi-Tech Industrial Dev. Zone
Xiamen
CHINA

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 SpA - ABB Sace Division'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. 34975/A1 BV issued on 23 Nov 2018 by the Society.

*** END OF CERTIFICATE ***