



CERTIFICATE NUMBER 22-2301794-PDA
EFFECTIVE DATE 13-September-2022
EXPIRATION DATE 12-September-2027
ABS TECHNICAL OFFICE Singapore Engineering Services

CERTIFICATE OF Product Design Assessment

This is to certify that a representative of this Bureau did, at the request of

AUCOM ELECTRONICS LIMITED

located at

PO BOX 80208, CHRISTCHURCH, New Zealand-8440

assess design plans and data for the below listed product. This assessment is a representation by the Bureau as to the degree of compliance the design exhibits with applicable sections of the Rules. This assessment does not waive unit certification or classification procedures required by ABS Rules for products to be installed in ABS classed vessels or facilities. This certificate, by itself, does not reflect that the product is Type Approved. The scope and limitations of this assessment are detailed on the pages attached to this certificate.

Product Motor Controller

Model EMX4i Series

This Product Design Assessment (PDA) Certificate remains valid until 12-September-2027 or until the Rules and/or Standards used in the assessment are revised or until there is a design modification warranting design reassessment (whichever occurs first).

Acceptance of product is limited to the "Intended Service" details prescribed in the certificate and as per applicable Rules and Standards.

This Certificate is valid for installation of the listed product on ABS units which exist or are under contract for construction on or previous to the effective date of the ABS Rules and standards applied at the time of PDA issuance. Use of the Product for non-ABS units is subject to agreement between the manufacturer and intended client.

American Bureau of Shipping

Vibin Chandrabose, Senior Engineer

NOTE: This certificate evidences compliance with one or more of the Rules, Guides, standards or other criteria of ABS or a statutory, industrial or manufacturer's standards. It is issued solely for the use of ABS, its committees, its clients or other authorized entities. Any significant changes to the aforementioned product without approval from ABS will result in this certificate becoming null and void. This certificate is governed by ABS Rules 1-1-A3/5.9 Terms and Conditions of the Request for Product Type Approval and Agreement

AUCOM ELECTRONICS LIMITED

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Email: p.linscott@aucom.com

Web: www.aucom.com

Tier: 5 - Unit Certification Required

Product: Motor Controller

Model: EMX4i Series

Endorsements:

Intended Service:

Marine & Offshore Application - Non-Propulsion Electrical Power Distribution

Description:

EMX4i soft starters are dedicated to starting or stopping smoothly 3 phase Induction Motors. It also provides motor thermal protection. Refer to attachment for EMX4i range.

Rating:

Voltage: 200VAC to 690VAC

Frame: S1 or S2 or S3

Current: 24A to 1620A

Frequency: 45Hz to 66Hz

IP: IP20 (Frame S1), IP00 (Frame S2), IP00 (Frame S3)

See attached document for more info

Service Restriction:

1) Unit Certification is required for this product when used as:

(i) Motor controller of 100 kW (135 hp) and over for motors intended for essential services (ABS Marine Vessel Rules 4-8-1/ 7.3.3) or for services indicated in 4-8-3/15 Table 7 as per 4-8-3/1.5 and 4-8-3/5.11 of ABS Marine Vessels Rules.

(ii) Motor controller of 100 kW (135 hp) and over for motors intended for essential services (ABS Mobile Offshore Unit Rules 4-1-1/ 3.5) or for services related to additional optional notations requested for the drilling unit as per 6-1-7/9.1.1(b) and 6-1-7/19.7 of ABS Mobile Offshore Unit Rules.

2) If the manufacturer or purchaser request an ABS Certificate for compliance with a specification or standard, the specification or standard, including inspection standards and tolerances, must be clearly defined.

Comments:

1) Safe area application only, not to be used in hazardous location.

2) The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.

3) Motor Controller Enclosure IP rating to be based on 4-8-3/15 Table 2 of ABS Marine Vessel Rules.

4) Type of enclosure is to be selected in accordance with 4-8-3/1.11 and 4-8-3/15 Table 2 of ABS Marine Vessel Rules.

5) If the disconnecting device is not within sight of both motor and controller, or if it is more than 15m (50 ft) from either, it is to be arranged for locking in the open position as per 4-8-4/9.3.2 of ABS Marine Vessel Rules.

Notes/Drawing/Documentation:

Drawing No. 710-14888-00D, EMX4i User Manual EN_web, Revision: R3, Pages 135

Document No. EMX4i New model description and differences V1, EMX4i New model description and differences, Revision: V1, Pages: 5

Drawing No. PL1745, Temperature rise test of IEC 60947-4-2 by Powerlab Limited, Dated: 04 Nov 2020, Revision: -, Pages: 14

Report No. EMC 201005-1, IEC 60947-4-2 report by Powerlab Limited Dated: 29 January 2020, Revision: 1, Pages: 40

Report No. EMC 201005-2, IEC 60945 report by Powerlab Limited Dated 29 January 2020, Revision: 1, Pages: 48

Report No. ENV 201006-1, IEC 60068-2-1 report by Powerlab Limited Dated 06 May 2020, Revision: 1, Pages: 12

Report No. ENV 201006-2, IEC 60068-2-2 report by Powerlab Limited Dated 05 May 2020, Revision: 1, Pages: 12

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Tier: 5 - Unit Certification Required

Report No. ENV 201006-3, IEC 60068-2-30 report by Powerlab Limited Dated 20 May 2020, Revision: 1, Pages: 11

Report No. HSVCR91040-1, Vibration Test by Halt & Hass Dated 25 June 2020, Revision: A, Pages: 35

Report No. HSVCR91040-3, Vibration Test by Halt & Hass Dated 30 June 2020, Revision: A, Pages: 36

Report No. p11718-1, IEC 60947-4-2 by Powerlab Limited Dated 12 March 2020, Revision: 1, Pages: 31

Report No. 50035968_001, S2 (250A) Overload Test Report, Revision: 1, Pages: 1, dated March 2016, TUV Rheinland Laboratory

Report No. 50039238_001, S1 Overload Test Report, Revision: 1, Pages: 1, dated March 2016, TUV Rheinland Laboratory

Report No. 50039238_002, S1 Type 1 Short Circuit Test Report, Revision: 1, Pages: 1, dated March 2016, TUV Rheinland Laboratory

Report No. 50039238_003, S2 IEC Overload Test Report, Revision: 1, Pages: 1, dated March 2016, TUV Rheinland Laboratory

Report No. 50039238_004, S2 Type 2 Short Circuit Test Report, Revision: 1, Pages: 1, dated March 2016, TUV Rheinland Laboratory

Document. UL Test Record 1, Revision: 1, Pages: 1, dated October 2015, Underwriters Laboratories

Document. UL Test Record 2, Revision: 1, Pages: 1, dated October 2015, Underwriters Laboratories

Document. UL Test Record 3, Revision: 1, Pages: 1, dated October 2015, Underwriters Laboratories

Report No. HSVCR90467, S1 Vibration Test report, Revision: 1, Pages: 1, March 2015, Halt & Hass Consulting NZ Ltd

Report No. HSVCR90467-2, S2 Vibration Test Report, Revision: 1, Pages: 1, March 2015, Halt & Hass Consulting NZ Ltd

Report No. L4787085111-EA00, S1 and S2 EMC Radiated emission, Revision: 1, Pages: 1, dated December 2015, Underwriter Laboratories

Report No. L4787240007-EA00, S1 24V EMC Radiated emission, Revision: 1, Pages: 1, dated February 2016, Underwriter Laboratories

Report No. M151118, S1 and S2 EMC Low Frequency, Revision: 1, Pages: 1, dated January 2016, EMC Technologies

Report No. R4787085110-VA00, S1 and S2 Cold Test Report, Revision: 1, Pages: 1, dated February 2016, Underwriters Laboratories

Report No. R4787085110-VB00, S1 and S2 Dry Heat Test Report, Revision: 1, Pages: 1, dated February 2016, Underwriters Laboratories

Report No. R4787085110-VC00, S1 and S2 Humidity Test Report, Revision: 1, Pages: 1, dated February 2016, Underwriters Laboratories

Report No. R4787085111-EA00, S2 EMC Test Report, Revision: 1, Pages: 1, dated February 2016, Underwriters Laboratories

Report No. R4787085111-EB00, S1 EMC Test Report, Revision: 1, Pages: 1, dated February 2016, Underwriters Laboratories

Report No. R4787240007-EA00, S1 24V EMC Test Report, Revision: 1, Pages: 1, dated February 2016, Underwriters Laboratories

Report No. 1, EMX4i_LV2012_S1_S2_S3_EMC_UPDATE_60947-4-2_2020, Revision: 1, Pages: 54, dated July 2022, Powerlab Limited

Terms of Validity:

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Tier: 5 - Unit Certification Required

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STANDARDS

ABS Rules:

2022 Rules for Conditions of Classification – 1-1-4/7.7, 1-1-A3, 1-1-A4, which covers the following:

2022 Rules for Building and Classing Marine Vessel Rules: 4-8-2/9.17.1, 4-8-2/9.17.2, 4-8-2/9.17.3, 4-9-9/13.1

2022 Rules for Conditions of Classification – Offshore Units and Structures 1-1-4/9.7, 1-1-A2, 1-1-A3, which covers the following:

2022 Rules for Building and Classing Mobile Offshore Unit Rules: 4-3-2/9.13.3, 4-3-2/9.13.4, 4-3-2/9.13.5

2022 Rules for Conditions of Classification – High Speed Craft 1-1-4/11.9, 1-1-A2, 1-1-A3, which cover the following:

2022 Rules for Building and Classing High Speed-Craft Rules: 4-6-2/9.13.3, 4-6-2/9.13.4, 4-6-2/9.13.5, 4-7-9/15.1

National:

NA

International:

IEC 60947-4-2:2020

Government:

NA

EUMED:

NA

OTHERS:

IACS UR E10 Rev.8

Company	:	AUCOM ELECTRONICS LIMITED
Model	:	EMX4i Series
Certificate No	:	22-2301794-PDA
Issue Date	:	13 September 2022
Expiry Date	:	12 September 2027
Revision	:	0

Models (In-line bypassed)	Voltage	Current Ratings (A)				
		3.0-10:350	3.5-15:345	4.0-10:350	4.0-20:340	
EMX4i-0024B	200VAC to 690VAC	24	20	19	16	
EMX4i-0042B		42	34	34	27	
EMX4i-0052B		52	41	39	34	
			3.0-10:590	3.5-15:585	4.0-10:590	4.0-20:580
EMX4i-0064B		64	62	60	50	
EMX4i-0069B		69	69	69	62	
EMX4i-0105B		105	86	84	68	
EMX4i-0115B		115	107	104	86	
EMX4i-0135B		135	129	126	103	
EMX4i-0184B		184	143	139	115	
EMX4i-0200B		200	170	165	138	
EMX4i-0229B		229	194	187	157	
EMX4i-0250B		250	244	230	200	
EMX4i-0352B		352	285	277	234	
EMX4i-0397B		397	322	311	262	
EMX4i-0410B		410	410	410	379	
EMX4i-0550B		550	526	505	427	
EMX4i-0580B		580	578	554	469	
EMX4i-0835B		835	654	630	535	
EMX4i-0940B		940	736	708	603	
EMX4i-1070B		1070	950	905	785	
EMX4i-1230B		1230	1154	1090	959	
EMX4i-1250B		1250	1250	1250	1155	

Models (External bypassed)	Voltage	Current Ratings (A)			
		3.0-10:590	3.5-15:585	4.0-10:590	4.0-20:580
EMX4i-0184E	200VAC to 690VAC	184	143	139	115
EMX4i-0200E		200	170	165	138
EMX4i-0229E		229	194	187	157
EMX4i-0250E		250	244	230	200
EMX4i-0352E		352	285	277	234
EMX4i-0397E		397	322	311	262
EMX4i-0410E		410	410	410	379
EMX4i-0550E		550	526	505	427
EMX4i-0580E		580	578	554	469

Models (In-line, non-bypassed)	Voltage	Current Ratings (A)						
		AC-53a 3.0-10:50-6	AC-53b 3.0-10:590	AC-53a 3.5-15:50-6	AC-53b 3.5-15:585	AC-53a 4-10:50-6	AC-53b 4-20:580	AC-53a 4-20:50-6
EMX4i-0735C	200VAC to 690VAC	735	835	590	732	572	593	492
EMX4i-0830C		830	940	667	822	645	667	557
EMX4i-1025C		1025	1210	839	1067	805	874	710
EMX4i-1170C		1170	1430	979	1307	934	1076	838
EMX4i-1220C		1220	1620	1134	1620	1109	1309	964
EMX4i-0190C		190	NA	160	NA	151	NA	144
EMX4i-0260C		260		215		205		180
EMX4i-0341C		341		275		266		230
EMX4i-0404C		404		343		322		296
EMX4i-0474C		474		448		457		418