



CERTIFICATE NUMBER 19-SG1901202-PDA

EFFECTIVE DATE 05-September-2019

EXPIRATION DATE 04-September-2024

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 EMX3 frame sizes G1B, G2B, G3B and G4B

This Product Design Assessment (PDA) Certificate remains valid until 04-September-2024 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

Manoraaju, Engineer/ Consultant

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 (2010)

AUCOM ELECTRONICS LIMITED

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CHRISTCHURCH

New Zealand 8440

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Email: t.patel@aucom.com

Web: www.aucom.com

Tier: 5 - Unit Certification Required

Product: Motor Controller

Model: EMX3 frame sizes G1B, G2B, G3B and G4B

Intended Service:

Soft starter for electric motors in Marine and Offshore Applications.

Description:

EMX3 are solid state AC motor controllers that can be set to either constant current or adaptive control.

Model code:

EMX3 - aaaa b - cc - dd - e

where:-

aaaa - Nominal starting current

b - Bypass (B = internally bypassed)

cc - Mains voltage (V4 = 200 ~ 440VAC, V7 = 380 ~ 690VAC)

dd - Control voltage (C1 = 110 ~ 210VAC & 220 ~ 440VAC, C2 = 24VAC/VDC)

e - Keypad (H = with keypad, X = without keypad)

Rating:

Mains voltage:

EMX3-xxxx-V4: 200VAC ~ 440VAC

EMX3-xxxx-V7: 380VAC ~ 600VAC

EMX3-xxxx-V7: 380VAC ~ 690VAC (Earthed stat supply system)

Frequency: 45Hz ~ 66Hz

Short circuit capability:

EMX3-0023B ~ EMX3-0220B: prospective current 65kA

EMX3-0255B ~ EMX3-1000B: prospective current 85kA

IP Rating:

EM3-0023B ~ EMX3-0105B: IP20

EM3-0145B ~ EMX3-1000B: IP00

Operating Temperature: -10 deg.C to 60 deg.C (Derating for temperature above 40 deg.C)

In-line connection full load current setting:

1. Frame Size G1B:

- EMX3-0023B (Rating: 23A)

- EMX3-0043B (Rating: 43A)

- EMX3-0050B (Rating: 50A)

- EMX3-0053B (Rating: 53A)

- EMX3-0076B (Rating: 76A)

- EMX3-0097B (Rating: 97A)

- EMX3-0100B (Rating: 100A)

- EMX3-0105B (Rating: 105A)

2. Frame Size G2B:

- EMX3-0145B (Rating: 145A)

- EMX3-0170B (Rating: 170A)

- EMX3-0200B (Rating: 200A)

- EMX3-0220B (Rating: 220A)

3. EMX3 Frame Size G3B

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- EMX3-0255B (Rating: 255A)
- EMX3-0350B (Rating: 350A)
- EMX3-0425B (Rating: 425A)

4. EMX3 Frame Size G4B:

- EMX3-0500B (Rating: 500A)
- EMX3-0580B (Rating: 580A)
- EMX3-0700B (Rating: 700A)
- EMX3-0820B (Rating: 820A)
- EMX3-0920B (Rating: 920A)
- EMX3-1000B (Rating: 1000A)

Service Restriction:

Unit Certification is required for this product when used for essential services (Marine Vessels Rules 4-8-1/ Table 1 & 2) or for services indicated in Marine Vessel Rules 4-8-3/Table 7 rated 100 kW (135 HP) and over.

Comments:

1. Motor Controller enclosure IP/UL/NEMA rating to be based on Marine Vessels Rules 4-8-3/Table 2, based on their installation location.
2. Wiring schematics & assembly drawings to be submitted for each installation.
3. The manufacturer has provided a declaration about the control of, or the lack of asbestos in this product.

Notes/Drawing/Documentation:

Drawing No. 11CA39171-VA00, G3B Vibration Test by UL, Dated: 02 September 2011, Revision: -, Pages: 21
Drawing No. 11CA52980-VB00, G3B Dry Heat Test by UL, Dated: 10 November 2011, Revision: -, Pages: 16
Drawing No. 11CA52980-VC00, G3B Damp Heat Test by UL, Dated: 10 November 2011, Revision: -, Pages: 15
Drawing No. 12067-00, G1B Vibration Test by Parkside Laboratories, Dated: 06 December 2006, Revision: -, Pages: 18
Drawing No. 13570-00, G2B Vibration Test by UL, Dated: 01 February 2008, Revision: -, Pages: 21
Drawing No. 2107338.50, G1B IEC 60947-4-2 Test by Kema, Dated: 19 December 2009, Revision: -, Pages: 65
Drawing No. 2107338.51, G2B IEC 60947-4-2 Test by Kema, Dated: 19 December 2007, Revision: -, Pages: 46
Drawing No. 2123824.50, G4B IEC 60947-4-2 Test by Kema, Dated: 01 December 2009, Revision: -, Pages: 57
Drawing No. 4786478238-VB00, G4B Vibration Test by UL, Dated: 07 November 2014, Revision: -, Pages: 28
Drawing No. 710-04840-00K, EMX3 User Manual EN, Revision: -, Pages: 94
Drawing No. 730-09203-003, Block Diagram, Revision: -, Pages: 1
Drawing No. EMX3 G3B, General Assembly, Revision: A, Pages: 1
Drawing No. G3B IEC60068-2-1, G3B Cold Test by UL, Dated: 10 November 2011, Revision: -, Pages: 16

Terms of Validity:

This Product Design Assessment (PDA) Certificate 19-SG1901202-PDA, dated 05/Sep/2019 remains valid until 04/Sep/2024 or until the Rules or specifications used in the assessment are revised (whichever occurs first).

This PDA is intended for a product to be installed on an ABS classed vessel, MODU or facility which is in existence or under contract for construction on the date of the ABS Rules or specifications used to evaluate the Product.

Use of the Product on an ABS classed vessel, MODU or facility which is contracted after the validity date of the ABS Rules and specifications used to evaluate the Product, will require re-evaluation of the PDA.

Use of the Product for non ABS classed vessels, MODUs or facilities is to be to an agreement between the manufacturer and intended client.

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STANDARDS

ABS Rules:

Rules for Conditions of Classification (2019) – 1-1-4/7.7, 1-1-A3, 1-1-A4, which covers the following:

Rules for Building and Classing Marine Vessels: 4-8-2/9.17.2, 4-8-2/9.17.3

Rules for Building and Classing Steel Vessels: 4-8-3/9.17.2, 4-8-2/9.17.3

Rules for Building and Classing Offshore Support Vessels (OSV Rules): 4-8-2/9.17.2, 4-8-2/9.17.3

Rules for Building and Classing Steel Vessels Under 90m in Length: 4-6-2/9.13.4, 4-6-2/9.13.5

ABS Rules for Conditions of Classification (2019) – High Speed Craft 1-1-4/11.9, 1-1-A2, 1-1-A3, which covers the following:

Rules for Building and Classing High Speed Craft: 4-6-2/9.13.4, 4-6-2/9.13.5

Rules for Conditions of Classification (2019) – Offshore Units and Structures 1-1-4/9.7, 1-1-A2, 1-1-A3, which covers the following:

Rules for Building and Classing Mobile Offshore Drilling Units: 4-3-2/9.13.4, 4-3-2/9.13.5

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

Rules for Building and Classing Facilities on Offshore Installation: 3-6/11.7.1

National:

NA

International:

IEC 60947-4-2:2011 (Edition 3.0)

Government:

NA

EUMED:

NA

OTHERS:

NA