



CERTIFICATE NUMBER
16-SG1544363-PDA

DATE
12 Oct 2016

ABS TECHNICAL OFFICE
Singapore Engineering Services

CERTIFICATE OF DESIGN ASSESSMENT

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

DELTA ELECTRONICS (THAILAND) PUBLIC CO LTD

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: **Power Supply Unit**

Model: **DRM-24V80W1PX(y), DRM-24V240W1PX(y), DRM-24V480W1PX(y)**

This Product Design Assessment (PDA) Certificate 16-SG1544363-PDA, dated 12/Oct/2016 remains valid until 11/Oct/2021 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.

AMERICAN BUREAU OF SHIPPING



Paragiotis Kotsidas
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 the terms and conditions as contained in ABS Rules 1-1-A3/5.9 Terms and Conditions of the Request for Product Type Approval and Agreement (2010).

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Tier: 2 - PDA Issued

Product: Power Supply Unit

Model: DRM-24V80W1PX(y), DRM-24V240W1PX(y), DRM-24V480W1PX(y)

Intended Service:

CliQ M DIN-rail mounting power supply units for automation systems on Ships and Offshore Units.

Description:

DIN-rail mounted power supply modules for installation in consoles and cabinets, located in general power distribution zones.

Rating:

Nominal Input Voltage: single-phase: 100-240VAC/110-300VDC

Nominal Input Frequency: 50-60Hz

Nominal Output Voltage: 24VDC

Output Continuous Current:

1. 3.4A @ 24VDC for Model: DRM-24V80W1PX(y)

2. 10A @ 24VDC for Model: DRM-24V240W1PX(y)

3. 20A @ 24VDC for Model: DRM-24V480W1PX(y)

Degree of Protection: IP 20

Service Restriction:

Unit Certification is not required for this product.

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.

Notes/Drawing/Documentation:

Drawing No. DRM-24V240W1PX(Y), ABS Witness For Prototype Environmental Testing, Revision: 00, Pages: 23, dated 31 August 2016

Drawing No. DRM-24V240W1PX(Y)_1, Technical Datasheet, Revision: 00, Pages: 1

Drawing No. DRM-24V240W1PX(Y)_10, Delta Environment Test (In-House), Revision: S3, Pages: 14, dated 22 December 2015

Drawing No. DRM-24V240W1PX(Y)_2, Schematic Circuit, Revision: S2, Pages: 1

Drawing No. DRM-24V240W1PX(Y)_3, Mechanical Drawing, Revision: S0, Pages: 1

Drawing No. DRM-24V240W1PX(Y)_4, Label Drawing, Revision: S0, Pages: 1

Drawing No. DRM-24V240W1PX(Y)_5, PCB Layout, Revision: 00, Pages: 1

Drawing No. DRM-24V240W1PX(Y)_6, Insulator Drawing, Revision: 00, Pages: 1

Drawing No. DRM-24V240W1PX(Y)_7, Heat Sink Drawing, Revision: 00, Pages: 1

Drawing No. DRM-24V240W1PX(Y)_8.1, Instruction Manual - DECA, Revision: 01, Pages: 1

Drawing No. DRM-24V240W1PX(Y)_8.2, Instruction Manual - DINKLE, Revision: 01, Pages: 1

Drawing No. DRM-24V240W1PX(Y)_9, Electrical Functional Test (In-House), Revision: S3, Pages: 295, dated 20 November 2015

Drawing No. DRM-24V480W1PX(Y), ABS Witness For Prototype Environment Testing, Revision: 00, Pages: 23, dated 31 August 2016

Drawing No. DRM-24V480W1PX(Y)_1, Technical Datasheet, Revision: 00, Pages: 1

Drawing No. DRM-24V480W1PX(Y)_10, Delta Environment Test (In-House), Revision: S3, Pages: 13, dated 04 May 2016

Drawing No. DRM-24V480W1PX(Y)_2, Schematic Circuit, Revision: S2, Pages: 1

Drawing No. DRM-24V480W1PX(Y)_3, Mechanical Drawing, Revision: 00, Pages: 1

Drawing No. DRM-24V480W1PX(Y)_4, Label Drawing, Revision: 00, Pages: 1

Drawing No. DRM-24V480W1PX(Y)_5, PCB Layout, Revision: 00, Pages: 1

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Drawing No. DRM-24V480W1PX(Y)_6, Insulator Drawing, Revision: 00, Pages: 1
Drawing No. DRM-24V480W1PX(Y)_7, Heat Sink Drawing, Revision: 00, Pages: 1
Drawing No. DRM-24V480W1PX(Y)_8.1, Instruction Manual - DINKLE, Revision: 00, Pages: 1
Drawing No. DRM-24V480W1PX(Y)_8.2, Instuction Manual - DECA, Revision: 00, Pages: 1
Drawing No. DRM-24V480W1PX(Y)_9, Electrical Functional Test (In-House), Revision: S3, Pages: 217, dated 17 February 2016
Drawing No. DRM-24V480W1PX(Y)_T211-0323/16, GL - Functional And Environment Test Report, Revision: 00, Pages: 23, dated 12 May 2016
Drawing No. DRM-24V480W1PX(Y)_T251-0526/16, GL - EMC Test Report, Revision: 00, Pages: 42, dated 12 May 2016
Drawing No. DRM-24V80W1PX(Y), ABS Witness For Prototype Environmental Testing, Revision: 00, Pages: 23, dated 21 August 2016
Drawing No. DRM-24V80W1PX(Y)_1, Technical Datasheet, Revision: 00, Pages: 1
Drawing No. DRM-24V80W1PX(Y)_10, Delta Environment Test (In-House), Revision: S3, Pages: 11, dated 15 December 2015
Drawing No. DRM-24V80W1PX(Y)_2, Schematic Circuit, Revision: S2, Pages: 1
Drawing No. DRM-24V80W1PX(Y)_3, Mechanical Drawing, Revision: 00, Pages: 1
Drawing No. DRM-24V80W1PX(Y)_4, Label Drawing, Revision: 00, Pages: 1
Drawing No. DRM-24V80W1PX(Y)_5, PCB Layout, Revision: 00, Pages: 1
Drawing No. DRM-24V80W1PX(Y)_6, Heat Sink Drawing, Revision: 00, Pages: 1
Drawing No. DRM-24V80W1PX(Y)_8, Instruction Manual, Revision: 00, Pages: 1
Drawing No. DRM-24V80W1PX(Y)_9, Electrical Functional Test (In-House)1, Revision: S4, Pages: 237, dated 29 February 2016
Drawing No. DRM-24v80w1pxy And DRM-24v240w1pxy_T211-0504, GL - Function And Environment Test Report, Revision: 00, Pages: 30, dated 17 August 2015
Drawing No. DRM-24v80w1pxy And DRM-24v240w1pxy_T251-0568, GL - EMC Test Report, Revision: 00, Pages: 113, dated 12 August 2015

Terms of Validity:

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STANDARDS

ABS Rules:

ABS Steel Vessel Rules (2016): 1-1-4/7.7, 1-1-Appendix 3 and 4, 4-9-2/5.3, 4-9-3/11.9, 4-9-8/7, 4-9-8/13, 4-9-8/13, 4-9-8/Table 1;

ABS Offshore Support Vessel Rules (2016): 1-1-4/7.7, 1-1-Appendix 3 and 4, 4-9-2/5.3, 4-9-3/11.9, 4-9-8/7, 4-9-8/13, 4-9-8/Table 1;

ABS Steel Vessel Rules Under 90 Meters in Length (2016): 1-1-4/11.9, 1-1-Appendix 2 and 3, 4-7-1/11.3, 4-7-

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8/9.3.2, 4-7-9/7, 4-7-9/15, 4-7-9/Table 9;
ABS High Speed Craft Rules (2016): 1-1-4/11.9, 1-1-Appendix 2 and 3, 4-7-2/17.3, 4-7-2/Table 1, 4-7-4/3.9;
ABS Mobile Offshore Drilling Unit Rules (2016): 1-1-4/9.7, 1-1-Appendix 2 and 3, 4-3-4/5;
ABS Facilities on Offshore Installation Rules (2016): 1-1-4/9.7, 1-1-Appendix 2 and 3, 3-7/3.3;
ABS Steel Barge Rules (2016): 1-1-4/7.7, 1-1-A3 and A4;
ABS Rivers and Intracoastal Waterways Rules (2016): 1-1-4/7.7, 1-1-A3 and A4, 4-2-3/3.25.5;

National:
NA

International:
IACS UR E10 Rev.6

Government:
NA

EUMED:
NA

OTHERS:
NA